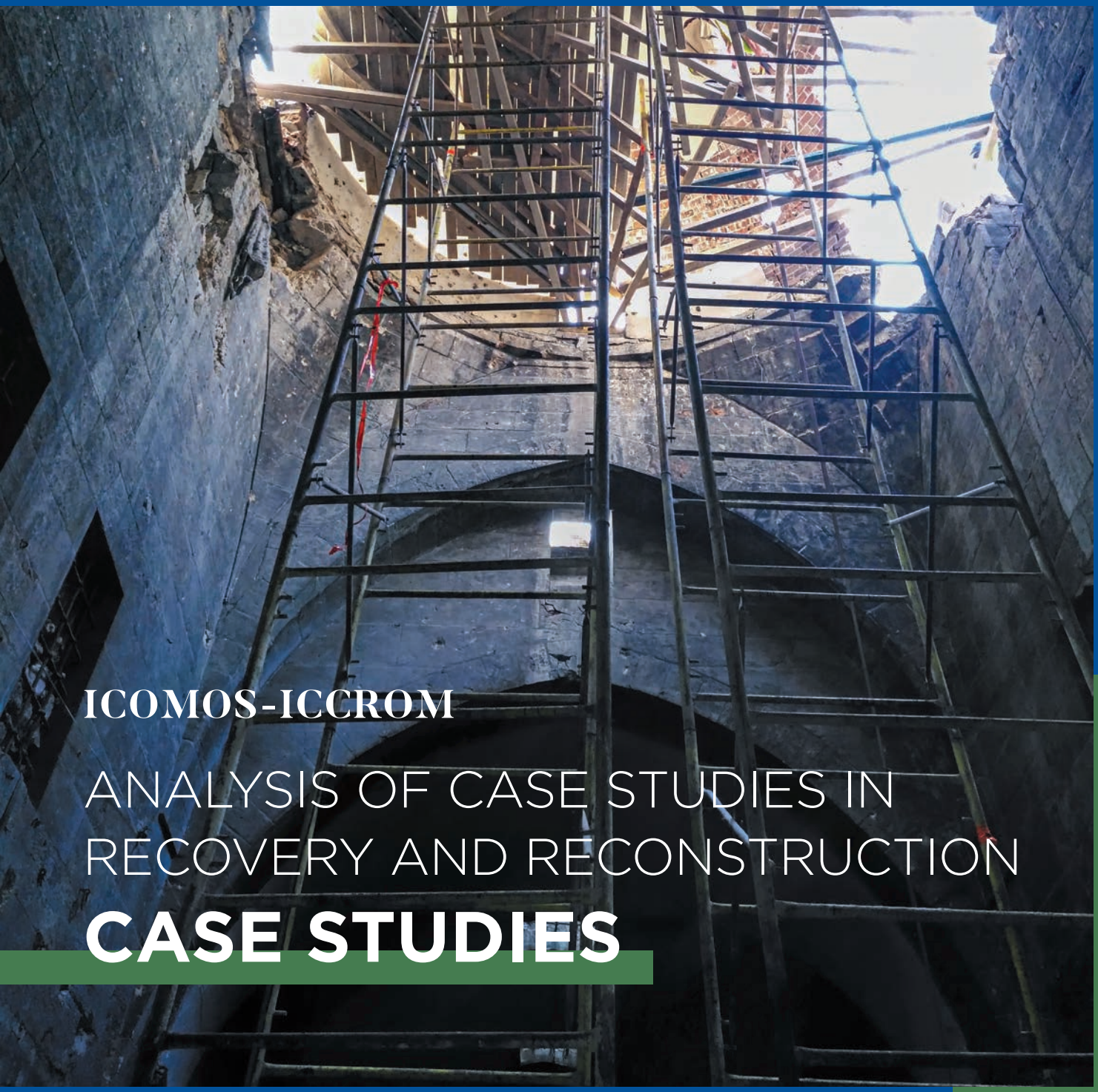
ICOMOS
international council on monuments and sites

ICCROM



ICOMOS-ICCROM

ANALYSIS OF CASE STUDIES IN RECOVERY AND RECONSTRUCTION

CASE STUDIES

2020

Mostar, Bosnia and Herzegovina • Nablus, Palestine
L'Aquila, Italy • Christchurch, New Zealand

VOL. 1

ICOMOS
international council on monuments and sites

ICCROM

ICOMOS-ICCROM

ANALYSIS OF CASE STUDIES IN RECOVERY AND RECONSTRUCTION

CASE STUDIES

VOL. 1

Mostar, Bosnia and Herzegovina • Nablus, Palestine
L'Aquila, Italy • Christchurch, New Zealand

ICOMOS (International Secretariat, Paris) and ICCROM (Regional Office, Sharjah)

Published by ICCROM (Regional Office, Sharjah) and ICOMOS (International Council of Monuments and Sites).

ISBN 978-92-9077-304-7

ICCROM-Sharjah
P.O. BOX 48777, Sharjah
United Arab Emirates
Tel: +971 (0)6 555 2250
Email: athar-centre@iccrom.org
www.iccrom.org/athar

ICCROM
Via di San Michele
13 I-00153 Rome
Italy
Tel: +39 06 585-531
Email: iccrom@iccrom.org
www.iccrom.org

ICOMOS International Secretariat
11 rue du Séminaire de Conflans
94 220 Charenton-le-Pont
France
Tel : 33 (0) 1 41 94 17 59
Email : secretariat@icomos.org
https://icomos.org

Graphic design: Mohammed Irqsosy

Foreword

ICCROM and ICOMOS have closely worked together for the protection of cultural heritage, especially in the field of the World Heritage. We are pleased that the case studies project for reconstruction and recovery of cultural heritage added a new dimension to the relationship of the two organisations. The secretariats as well as the experts selected by the two institutions met physically and virtually on regular basis over a period of two years to have this work produced and contribute to knowledge in this field.

We discussed every aspect of the project, from the text of every case study included in the two volumes to our joint letters, until we agreed on all required steps together. This collection of case studies is an outcome of such fruitful collaboration between the two organisations. We are convinced that each case study report, which was carefully and rigorously peer reviewed by a team experts, will stimulate and promote further research and analysis. We look forward to the resonances of this joint work.

Last but not least, we express our sincere gratitude to all colleagues who worked in this project, including the ICCROM-ICOMOS experts and researchers who worked on this volume, for their wonderful contributions. We do hope that other similar joint projects will further be developed by the two organisations in the near future.

For ICOMOS,
Toshiyuki Kono, *Honorary President*
Marie-Laure Lavenir, *Director General*

For ICCROM,
Webber Ndoro, *Director General*
Zaki Aslan, *ICCROM-Sharjah Director*

Introduction

Analysis of Case Studies in Recovery and Reconstruction

The scale, intensity and frequency of catastrophic events affecting cultural property have been a subject of international concern. Efforts at recovery and reconstruction of damaged communities and environments have increasingly attracted attention, from the perspective of supporting peoples impacted by such events while attempting to maintain the cultural significance of places. This project arose from the decision of the World Heritage Committee of 24 June 2018, directing the attention of advisory bodies towards the examination of case studies. The need to learn from the experiences captured through case studies had been apparent for some time.

Separately, ICCROM and ICOMOS have addressed the issues involved in post trauma recovery and reconstruction in the context of cultural heritage. The Project, **Analysis of Case Studies in Recovery and Reconstruction**, was a joint endeavour that sought to bring the knowledge and capacities of both bodies to bear, in order to enhance understanding of experience with the aim of clarifying issues and improving guidance. The Project was launched in 2019 for completion in 2020. It was managed through a joint Working Group comprising members of both organisations and administered through the ICOMOS Secretariat in Paris and the office of ICCROM Sharjah.

The Project commissioned a range of case studies that represented a comprehensive set of factors, namely geographical, cultural and causational, utilising the *ICOMOS Matrix for the Compilation of Case Studies* to provide a common structuring framework for compilation and analysis. Eleven case studies were analysed, covering sixteen significant sites and buildings. The project was able to draw from the case studies lessons that have wider application, and its findings are published online in **ICOMOS-ICCROM Project. Analysis of Case Studies of Recovery and Reconstruction. Report**

The case studies that were the subject of analysis are published in two volumes.

Case Studies Volume 1.
Mostar, Bosnia and Herzegovina
Nablus, Palestine
L'Aquila, Italy
Christchurch, New Zealand

Case Studies Volume 2.
Patan, Nepal
Taishun, China
Nyanza, Rwanda
Aleppo, Syria
San Pedro de Alcántara, O'Higgins Region, Chile
WH Cultural Landscape Wachau, Austria
San Luis Potosí, México

ICOMOS-ICCROM: Analysis of Case Studies of Recovery and Reconstruction

ICOMOS-ICCROM Analysis of Case Studies in Recovery and Reconstruction: Working Group
Loughlin Kealy (Coordinator), Zaki Aslan, Luisa de Marco, Amra Hadzimuhamedovic, Toshiyuki Kono, Marie-Laure Lavenir, Trevor Marchand.

With the support of Maureen Thibault, Alyssa Rose Gregory, Ahmed Suleiman.

Editorial group
Loughlin Kealy, Luisa de Marco, Amra Hadzimuhamedovic, Trevor Marchand, Alyssa Rose Gregory, supported by Angelique Ploteau.

Volume 1

TABLE OF CONTENTS

POST-TRAUMA INTERVENTIONS TO MOSQUES IN MOSTAR
CASE STUDY: SEVRI HADZI HASAN MOSQUE

Prof. Dr Zeynep Ahunbay

TABLE OF CONTENTS

List of Illustrations

1. The Heritage Resource and its Context Before the Impacting Event

Mostar is located in Bosnia and Herzegovina, on the banks of the River Neretva which flows south into the Mediterranean Sea. The site was inhabited from very early times but the bridge for crossing the river was only built in the fifteenth-century. It was built around 1440 by Gost Radivoje from the court of Stjepan Vukcic-Kosaca, the ruler of the region (Pasic 2006b 2: 17).

Ottomans started to press into the Balkans towards the end of the fourteenth-century and annexed Bosnia in 1463 (Danişmend 1971: 300–302). The population of Bosnia consisted of a mix of different religious communities. Under Ottoman rule, many Bosnians converted to Islam (Handzic 1994: 19-23). According to tax registers related to Mostar, the population of the settlement was very small until the beginning of the sixteenth-century (Kiel 2004: 1). The first mosque was established by Dervish Sinan Pasha in 1505/6 on the left side of the Neretva, near the marketplace (Kiel 2004: 7). A bath was built next to the mosque. By the middle of the sixteenth-century, the earlier bridge which was made of timber and hung from an iron chain had become unstable and was taken down (Kurtagic 2003: 30). The new bridge which spanned the river with a single arch was constructed by the Ottoman Architect Hayruddin in nine years (Kurtagic 2003: 30). The construction of the masonry bridge over the Neretva was important for linking the two sides of the river and the growth of commercial activity in the town. The streets connected to the bridge crossing were lined with shops and artisans' workshops. Being at a crossroads, Mostar attracted people and its population increased in the sixteenth and seventeenth centuries. Neighbourhoods were established on both sides of the river. The settlement developed linearly, parallel to the river due to the topography of the site. The steep terrain on the eastern side of the river restricted expansion. On the right bank of the river, the settlement grew along the river, but the flat lands to the west of the bridge permitted the growth of small quarters and agricultural activity over a wider area.

Ottoman travelogue Evliya Chelebi visited Mostar in 1662 and made a note of the flourishing town with stone houses, mosques, madrasas, primary schools, a clock tower, caravanserais, shops, a tannery, fountains and nine mills (Evliya 1970: 214–216). The Orthodox and Catholic people, as well as the Jewish lived together, engaged in crafts, commercial activity or working in the fields. The mosaic of the people living in the area is reflected by the religious buildings and schools belonging to the communities.

The Ottoman presence in Bosnia and Herzegovina came to an end in 1878. During the Austro-Hungarian rule, which lasted for forty years, new materials and styles from Europe were introduced to Mostar. The nineteenth-century was an age of technical innovation and this was reflected in the architecture of the period in its scale and outlook. The city expanded with new schools, religious and commercial buildings. The eclectic style and the large scale of the buildings from the new era have left their mark in the historic core of Mostar.

The first and second World Wars were full of clashes and destruction but in the period after World War II there were efforts to reconcile the neglect and damage. In Mostar an Institute for Protection of Cultural Heritage was established in 1949 (Pasic 2003: 23). The trained staff of the institute aimed to improve the condition of the historic city by repairing and restoring the urban tissue to the best of their capacity. The municipality supported the conservation activities and their efforts were rewarded with the Aga Khan Award for Architecture in 1986 (Pasic 2004: 9). Tourism was a driving force for the local economy. Visitors from different countries enjoyed the beautiful landscape and the rich cultural heritage in important historic centres of the region such as Pocitelj and Dubrovnik.

1.1 Description, Designation and Recognition

Sevri Hadzi Hasan Mosque is located in the southern part of Mostar, in a district called the *Donja Mahala*, the lower quarter of the city (fig. 1). In the early seventeenth-century, the site was probably at the southern boundary of Mostar. Founded by Sevri Hadzi Hasan around 1620, the mosque consisted of a porch and a prayer space measuring 8.60 m x 8.60 m in plan.

Fig. 1. Map of Mostar with mosques damaged during 1992–1995

1. Karagoz Begova Mosque
2. Koski Mehmed Pasha Mosque
3. Nasuh-Aga Vucjakovica Mosque
4. Kose Yahya Hodzina Mosque
5. Ruznamedzi Ibrahim Efendi Mosque
6. Cejvan Cehajina Mosque
7. Ibrahim Aga Sarica Mosque
8. Sevri Hadzi Hasanova Mosque
9. Hadzi Kurtova –Tabacica Mosque
10. Hadzi Memije Cernice Mosque
11. Ahmet Aga Lakisica Mosque
12. Baba Besirova Mosque
13. Ali Bega Lafe Mosque
14. Dervish Pasha Bayezıdagica Mosque
15. Kotlina Minaret
16. Yavuz Sultan Selim Mesdzid

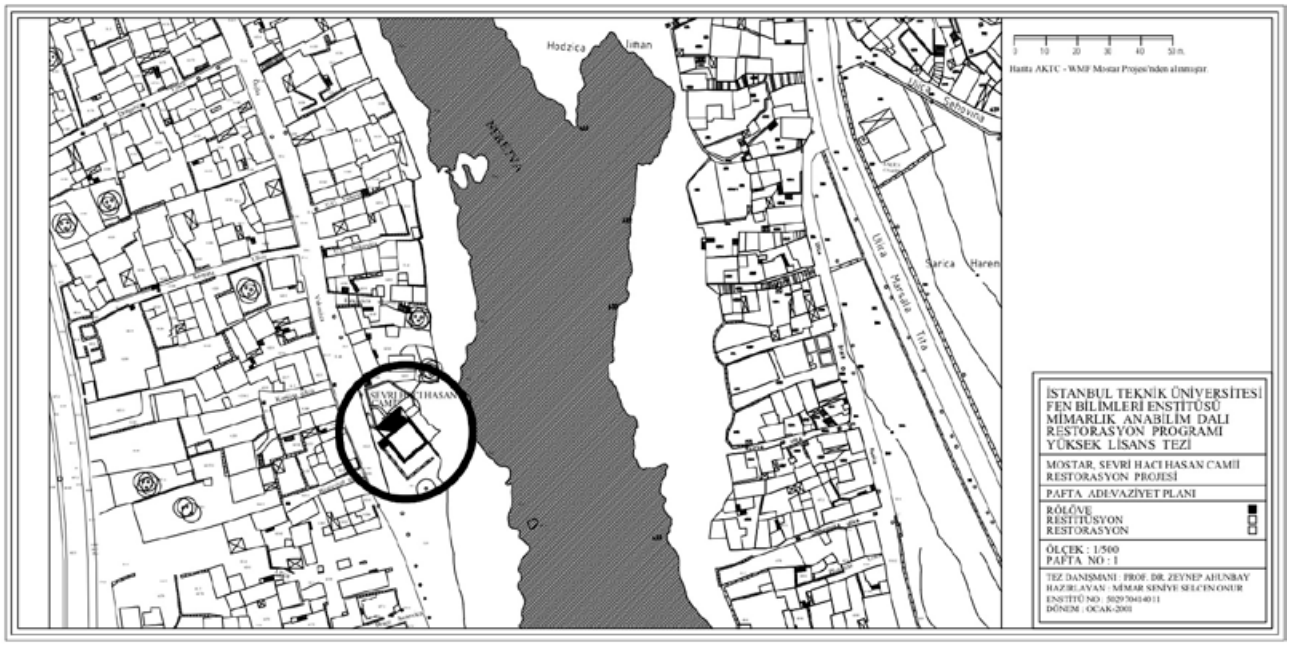


Fig. 2. Site plan of Sevri Hadzi Hasan Mosque (Architect Selcen Onur)

The mosque overlooked the Neretva river and was opposite the Sarica Mosque on the eastern bank of the river in 1623/24 (fig. 2).

Sevri Hadzi Hasan Mosque was designated as a cultural asset in 1962 by the Institute for the Protection of Monuments. There is no detailed description of the property attached to the inscription; the mosque was listed along with several other historic buildings in Mostar. It is a pious foundation (*waqf*), belonging to the Islamic society. The significance of the mosque was recognised by historian Hivzija Hasandedic who wrote about the Islamic monuments in and around Mostar (Hasandedic 1968: 219). He made reference to the establishment of the mosque and E. H. Ayverdi, a Turkish researcher who visited Bosnia in the 1970s, made a note of the mosque among the Ottoman heritage in the town, referring to documents cited by Hasandedic (Ayverdi 1981: 240). During the socialist period, Muslim identity and monuments were censured. Several religious buildings were demolished or left as ruins because they were not considered worthy of being protected. Eleven of the thirty-six mosques in Mostar were demolished or were in a ruinous state at the end of the 1940s (Hasandedic 1968: 220–222). Only the mosques registered as historic monuments enjoyed State protection and were maintained.

Mostar is quite far from Istanbul, but the influence of the mainstream architectural styles and typologies used at the Ottoman capital were followed in the design of religious and educational buildings in Bosnia. Domed mosques are typical of Ottoman architecture and they stand out as landmarks in many towns of Bosnia. In Mostar only three mosques had domes. The Vucjacovich Mosque was the first (Kiel 2004: 7–8). The second was founded by Karagoz Mehmed Bey in 1557, during the construction of the Old Bridge. The founder was the brother of Rustem Pasha, the grand vizier who had his origins in Bosnia. The last domed mosque was founded by Koski Mehmet Pasha in 1617 (Hasandedic 1968: 216). Stone was preferred for building everlasting structures. The design of porches, the entrance portals, the façades and minarets of the mosques followed the established norms of the classical Ottoman style in and around Istanbul. The domes were covered with lead sheets.

Due to local traditions and the availability of materials, some of the construction details used in Mostar deviate from the regular practice in Ottoman architecture.

In general, Ottomans used bricks to construct vaults and domes. But in Mostar travertine was used for the construction of vaults and domes. It was light and easily available in the region. Another detail developed by the local craftsmen was the use of stone slabs for the minaret caps. In Istanbul, Ottoman minarets from the sixteent-century have conical caps covered with lead sheets. But the minarets in Mostar have pyramidal caps composed of stone slabs. Iron rings are used to hold the slabs together. The change in detail might stem from the difficulty of finding lead sheets in the locality.

The economic sources of the founders were an important factor in determining the size and type of the mosque. The founders provided not only for the cost of building but had to allocate money or property which would generate income to run and maintain the mosques. The foundation deeds of donors refer to several mills, shops or agricultural land dedicated for the care of the religious buildings (Hasandedic 2000: 270–272). Thus, people who wanted to build mosques had to limit the size of their projects according to their resources. The high officers of state and rich merchants could afford to build impressive mosques with domes but people with limited resources such as clerks and craftsmen founded modest mosques with masonry walls and timber roofs. Most of the small mosques were square in plan, with sides measuring 8–10 metres. The porches had timber columns; the roofs were covered by slates. Some small mosques were embellished with spacious porches and had elegant timber domes under their hipped roofs. Use of timber reduced the cost and facilitated the construction.

In his book about Islamic architecture in Bosnia, Dr Amir Pasic elaborated on some of the domed Ottoman mosques and provided information about the typology of smaller mosques with timber domes and ceilings (Pasic 1994: 62-64). Architectural surveys and photographic documentation about the interiors of the small mosques were rather limited in Yugoslavia. Thus, in Mostar, it was difficult to find survey drawings related to the destroyed mosques during the 1940s and 1990s.

1.2 History and Context

Documents related to the description and costs of repairs conducted on mosques and other public buildings during the Ottoman period were usually kept by the supervisors of the foundations or in the office of the public administration. During the Austrian rule in Bosnia, Muslim people retained their religious buildings and maintained them with regular repairs. However, the archives suffered from wars and were disturbed during political upheavals. Thus, only the foundation charter related to Sevri Hadzi Hasan Mosque was preserved; the documents relating to its maintenance and repairs during its long history could not be found. It is certain that there were several repairs conducted between the seventeenth and twentieth centuries. It was apparent in the photos taken before the 1990s that the minaret and the upper windows had been altered. The seventeenth-century minaret balcony would have muqarnas decoration under it. The Baroque style of the balcony testified to a repair in the late eighteenth or nineteenth-century, but this fact could not be backed up by a historic document. The original upper windows had been lost as well. In the seventeenth-century the upper windows would have had handmade glass panes mounted on stone or gypsum frames. The timber frames glazed with plain clear glass probably date from a restoration in the nineteenth-century.

The socialist regime of Yugoslavia restricted the practice of religion, but mosques designated as cultural assets continued to live on. A metal sign which bore the name of the Sevri Hadzi Hasan Mosque was found among the ruins (fig. 3).

Fig. 3. Metal sign for Sevri Hadzi Hasan Mosque, recovered from the ruin with two dowels found in the rubble

In the archives of the Mostar Institute there was a record of a lightning strike on Sevri Hadzi Hasan Mosque in 1960 (Onur 2001: 12–13). The upper part of the minaret was damaged and repaired by the local administration in 1962. The changes and additions made in the twentieth-century were not recorded by the authorities. One of the additions was the creation of a room at the western part of the porch by adding walls and blocking the window at the western end of the north wall (fig. 4).

The walls of the mosque were built of *tenelija* limestone provided from the nearby quarries. There were good quality stone masons and carpenters in and around Mostar who built houses, religious and commercial buildings using the stones available in the region. In Mostar the tradition was to use *breccia* for the foundations and *tenelija* for the façades. The roof structure was made of timber, a material which is plentiful in Bosnia. Generally, the roofs in Mostar were covered with slates, creating a beautiful roofscape with its texture and colour.

2. The Nature of the Impacting Event

The conflict in Bosnia and Herzegovina during the 1990s was a big catastrophe for cities and rural settlements. With a lot of shooting and bombing, the historic centres and the rich architectural heritage of the countryside were wantonly destroyed. Many people died, lost their homes and jobs. In Mostar, sixteen mosques were attacked and damaged between 1992 and 1995 (Pasic 1994: 218). The shooting continued for a long time and destroyed minarets, roofs collapsed, domes and porches of mosques were penetrated (fig. 5). The Mosque of Karagoz Bey lost its minaret and outer porch (Hasandedic 2000: 14, 182). The minaret and outer porch of Koski Mehmet Pasha Mosque were destroyed. Holes were opened in its dome. The continuous firing made it difficult for the people to continue living in their houses. In 1993, Mostar was cut off from the surroundings. The heavy artillery set the entire city on fire (Bublin 1999: 173). The Muslim people living in the central areas of the western bank were transferred to the city stadium, the airport or to camps outside of the town (Bublin 1999: 173). After 1995, the city was divided into east and west Mostar.

Fig. 4. Plan of Sevri Hadzi Hasan Mosque with the positions of the scattered minaret blocks

Fig. 5. Sevri Hadzi Hasan Mosque, after war damage

Muslims tried to settle on the left bank, which was under Bosnian control (Bublin 1999: 205).

In 1992, Sevri Hadzi Hasan Mosque was the target of artillery attacks from different directions. The minaret fell on the roof and caused its collapse. Shooting from the south penetrated the *qibla* wall and destroyed the *minbar*. The flag on the *minbar* door was found in the northwest corner of the floor, under the collapsed roof. This is an indication that the mosque was attacked from the south first and the minaret was targeted later.

With bombing and shelling, Sevri Hadzi Hasan Mosque became a total ruin and remained deserted until 1998. Due to its position outside the town centre, its rehabilitation was not considered as urgent and it remained untouched. In a photo after the destruction (Hasandedic 2000: 185), some of the stone blocks from the minaret are seen lying on the street, piled up around the base. In another picture, the blocks are removed from the street and stored next to the southwest wall of the mosque (fig. 5). This must have been done to ease the traffic but more could not be done. The Islamic community and the Institute for the Protection of Monuments in Mostar did not have the staff or the funding to carry out the necessary documentation and emergency treatments at the site.

3. Post-Event Appraisals

The year 1994 was an important one for Mostar and its historic centre. The central part of the historic city had lost many of its significant components. International cooperation, with contributions from different countries and donors started to play an active role in making the war-stricken city liveable again. The Old Bridge attracted the attention of international institutions such as UNESCO and the World Bank. Rehabilitation of the riverside, schools, houses, important social and religious buildings were on the agenda of other groups. Among these, the efforts of IRCICA (Research Center for Islamic History, Art and Culture) in Istanbul to organise activities to develop projects and attract contributions from planners, architects and other scholars for Mostar are noteworthy (IRCICA 1994: 4–6). Dr Amir Pasic, a Mostarian who began work at IRCICA in 1993 was active in the organisation. Before leaving Bosnia, he had worked at the Institute for Protection of Monuments in Mostar. He knew the town and its heritage very well. With his contacts and expertise, he contributed to the launching of the recovery programme and was active in establishing contacts with donor institutions and academia. The campaign started by IRCICA attracted the attention of several universities and organisations from all over the world.

Several institutes and universities from Turkey and abroad were invited to discuss the chances for rehabilitation and to assist in developing reconstruction schemes. The Aga Khan Trust for Culture from Geneva and the World Monuments Fund from New York expressed their willingness to support rehabilitation.

The recovery programme aimed to rehabilitate the living environment for citizens by restoring the residential quarters, schools and religious buildings. The commercial centre and the monuments were in need of urgent help. The programme was developed as a result of discussions conducted during Mostar workshops. Experts from all over the world took part in the discussions and contributed with their ideas and projects. Priorities and preliminary projects were outlined with the contribution of several experts and discussions with the local authority of Mostar (Pasic 2003: 23–26). Architecture students from Italy, USA and Turkey worked on residential, religious and other buildings to develop ideas and projects. They contributed to recording the damaged buildings and neighbourhoods. Due to the restricted equipment available for surveys, the teams had to work with traditional methods. Plans and cross sections were developed with the help of measuring tapes and rods, plumbs and levels. As the hosts, the City of Mostar and the Institute for the Protection of Monuments contributed to the preparation of projects with their expertise, providing maps, published and non-published material from their archives.

In Mostar some damaged mosques had been restored immediately after the peace treaty in 1995. Saudi Arabia was one of the donor countries which offered help for recovery. The damaged Sarica Mosque was reconstructed after the war with help from Saudi Arabia. A local contractor was employed. The works were probably conducted without documentation of the damaged state and the development of a detailed restoration project. The comparison of a photo of the dome before destruction (Pasic 1994: 64) with a photo of the current shape of the dome shows that the details of the original dome were changed during the reconstruction.

Due to damage to their domes, urgent repairs had to be conducted at Karagoz and Koski Mehmet Pasha mosques. In Koski Mehmet Pasha Mosque, the holes in the dome were repaired and the surviving base of the minaret was covered by a cap to stop penetration of water (fig. 6). Detailed studies and restoration work at Karagoz Bey and Koski Mehmet Pasha mosques were carried out later.

An invitation sent by IRCICA to universities in Istanbul initiated a partnership in 1994 which lasted for many years. During 1994 and 1995, Mostar workshops took place in Istanbul. With the improvement of peace and security conditions, it was possible to start organising international workshops in Mostar. In the spring of 1997, a visit was organised by IRCICA to see the city and the condition of its war-stricken historic fabric. Dr Pasic led the group which consisted of me and two master students from Istanbul Technical University's restoration programme.

Fig. 6. Koski Mehmet Pasha Mosque. Minaret following emergency repair after the war

Images, Clockwise from top left:
Fig. 7. Tabacica Mosque, interior after reconstruction of the dome
Fig. 8. Nezir Aga Mosque before destruction in 1950 (photo from IRCICA Archive)
Fig. 9. Site of Nezir Aga Mosque in 1997

We devoted our attention to the central part of the town, mainly to the damaged mosque of Tabacica and the Ceyvan Cehajin Bath located close to the western tower of the Old Bridge. One of the master students started to work on Ceyvan Cehajin Bath. The other tried to document and develop proposals for the Tabacica mosque, which had lost its minaret and roof. The rubble of the collapsed roof had been removed, leaving no evidence about the ceiling construction and finish. The fact that the mosque had stopped functioning a long time ago and that there were no photos of the interior at the archive of the Institute for Protection of Monuments in Mostar restricted the chances for developing a sound reconstruction proposal. The ruined mosque was studied in more detail during the 1997 workshop in Mostar (IRCICA 1997: 50–54) but due to the lack of documentation prior to destruction, it was difficult to go further and develop a reliable reconstruction project for the destroyed roof. The project was later taken under the aegis of UNESCO. We heard that a photo taken by a Croat photographer while the roof of the mosque was in a damaged state was accessed and helped with the elaboration of the reconstruction proposal.

The mosque had been exposed to the elements for several years, but the conservators carefully salvaged the nineteenth-century paintings on the walls. The stone *minbar* was reconstructed using the original details from the surviving parts. The porch, the gallery and the minaret were restored successfully. The mosque was inaugurated in June 2000 (fig. 7).

At the Mostar Institute for the Protection of Monuments, there was a large photo of a mosque which had been destroyed in 1949/50 (Hasandedic 2000: 124). The picture was very impressive showing the mosque placed at a high point overlooking the Radobolja creek, which flows into the Neretva (fig. 8).The mosque had been founded by Nezir Agina in 1550. It was very close to the Old Bridge and formed an important part of the Radobolja landscape. A big scar had been created in the centre of town by its destruction (fig. 9).

In the spring of 1997, we visited the site of the destroyed Nezir Agina Mosque with Dr Pasic. Due to its location in the central part of town and proximity to the Old Bridge, he considered the reconstruction of the mosque and its dependencies important. With strong arguments for its reconstruction, the mosque was selected as one of the priority projects. Thus, when IRCICA received a donation from the Sheikh of Sharjah, preparations started for the development of a reconstruction project.

Since the site had been deserted for over forty years, the remains of the Nezir Agina Mosque had been covered by earth and vegetation. Excavation revealed the lower part of the walls, the floor and the base of the minaret. The walls were intact up to the middle of the lower windows. Most of the original stone paving of the interior, the base of the minaret and some blocks belonging to the shaft of the minaret were recovered. A team consisting of conservation architects was set up to document the site and the remains.

The finds provided a lot of information but more was needed to develop a reconstruction project. Several photos from the exterior of the mosque, taken from different directions provided information about the minaret, the porch and the façades before destruction (fig. 4) but no photos from the interior could be found. This made it necessary to carry out analogical research to collect data about the interior features of mosques of similar size and type from the same period.

The minarets in Mostar are quite high in relation to their bulk size. The reconstitution of the destroyed minaret was developed from photos. On the old photos, the sixteenth-century muqarnas decoration under the minaret balcony was visible but no fragments had been recovered. Expert advice was needed for the preparation of working drawings and the reconstruction of the details. Dr Pasic invited conservation architect Fatih Uluengin from Turkey, to help the project team (Pasic 2006a: 21–23). Having worked for many years at the General Directorate of Pious Foundations in Turkey, Mr Uluengin had extensive experience in restoring Ottoman mosques and minarets. With his contribution, the working documents for the minaret balcony were developed. He gave instructions to the stone masons on how to carve the decorated blocks of the balcony.

The reconstruction of the minaret was completed successfully. Due to lack of information about the interior and its decoration, the wall surfaces were painted white. A timber *mahfil* was constructed to the southwest of the entrance with the help of data derived from analogical research conducted at the sixteenth-century mosques in Mostar. New calligraphic panels designed especially for this mosque were hung on the mihrab wall.

The reconstruction of Nezir Aga Mosque was an important project for the urban revival of Mostar. Its location, articulated mass with an elegant timber porch and hipped roof contribute greatly to the appreciation of the cityscape (fig. 10). The emergence of a long-lost monument enlivened the area and made the citizens happy. They rejoiced at the inaugural ceremony on 10 September 1999, at which a representative of the donor H. H. Sheikh Dr Sultan Al Qassimi, the mayor of Mostar and members of the Islamic Community of BiH participated.

Fig. 10. Nezir Aga Mosque from the north, after reconstruction

Images, Clockwise from top left:
Fig. 11. Sevri Hadzi Hasan Mosque from the north, after the war
Fig. 12. Sevri Hadzi Hasan Mosque, broken column from the porch
Fig. 13. Interior, view towards the southeast

After the war, several of the damaged mosques in Mostar were restored or reconstructed with different means and capacities. For proper restoration/ reconstruction it was essential to be able to reach and investigate all the evidence the destroyed building offers. The removal of destroyed roofs and minarets was a critical act. The evidence from the ruin could not be accessed and researched. It was important to work on a site which would enable us to conduct detailed research on the remains and develop a well-founded proposal. Thus, from the many destroyed mosques in Mostar, the Sevri Hadzi Hasan Mosque seemed a good case from which to develop a reconstruction project. The mosque was an important representative of the seventeenth-century religious architecture in the town. As part of the growth of the settlement along the Neretva, several small mosques had been constructed in Mostar during the first half of the seventeenth-century. The mosque of Sevri Hadzi Hasan, a devout Muslim with modest resources, was located at the south end of the town.

The porch and the walls of the mosque had survived the attacks (fig. 11). Usually the columns in the porches of small mosques were made of timber but in Sevri Hadzi Hasan Mosque they were cut out of monolithic blocks of limestone. The lower part of the columns had a square plan and served as the base. The shaft was octagonal in plan. The transition from the base to the octagonal shaft was by elegantly carved leaves. There were no capitals. Of the ten columns supporting the porch roof, nine were still standing. The lower part of the broken column was overturned and lying in the courtyard. At the bottom of the column a dowel which was used to fix it to the floor of the porch was visible (fig. 12).

The timber beams supporting the porch roof rested directly on top of the columns. The porch did not have a ceiling. The roof of the porch was deformed but its structure consisting of beams and rafters was still standing. The mosque had a square plan with sides measuring 8.60 m each. The southern and western walls were badly damaged (fig. 13). The surviving parts

provided information about the size and location of the window openings arranged at two levels. The crown of the mihrab was destroyed. Nothing remained from the *minbar*.

The masonry walls were reinforced with timber lacing at two levels. The timber runner beams on top of the walls were partially in place. The roof had collapsed but at the northeast corner, the lower part of the timber structure was preserved (fig. 14). The surviving portion provided information about the size of the ridge beams and the inclination of the timber roof. The evidence preserved at the northeast corner could help with the reconstitution of the hipped roof.

The seventeenth-century is regarded as the Late Classical Period of Ottoman Architecture. Due to fires and earthquakes in Istanbul, most of the similar sized mosques from the seventeenth-century were renovated in baroque or neoclassical styles. It was important to conduct research on an authentic Ottoman structure from the seventeenth-century and restore its lost elements properly, paying attention to details. Since the site had not been touched after the war, the ruined site had great potential to provide valuable information about the materials and construction details. Thus, Sevri Hadzi Hasan Mosque was significant as a case study and documentation started in the summer of 1998 with collaboration of master and undergraduate students from Istanbul Technical University, Faculty of Architecture.

Fig. 14. Sevri Hadzi Hasan Mosque, the northeast corner of the roof

4. Documenting Response Actions, Timeframes, Resources and Costs

The damage to the Sevri Hadzi Hasan Mosque had been noted by the Institute for the Protection of Monuments in Mostar but they did not have the means to take emergency measures. There was no documentation or rescue operation right after the destruction.

The recovery of Sevri Hadzi Hasan Mosque depended on the development of a proper conservation project backed up by careful implementation at the site. Detailed research and analysis of the site and remnants along with archival research about the earlier documentation of the monument were essential for the success of the project proposal. The project was developed as a result of careful documentation and research at the site. The ruin was recorded and documentation continued with the survey of scattered stones of the minaret and other details. The first phase of documentation started in 1998 and continued after the cleaning and reorganisation of the site in 2001. The restoration project was completed in 2001 and was followed by implementation work. The stabilisation of the damaged walls, the reconstruction of the roof and the minaret took about a year.

In the summer of 1998 architect Selcen Onur led the group responsible for the survey of the site and remains. She was assisted by two undergraduate students during the measurements. Due to the lack of geodetic equipment, measuring tapes, rods, levels and strings were used to create grids and measure the surviving walls and the dispersed stone blocks at the site. Inside and around the mosque, there were displaced fragments belonging to different parts of the mosque. The detached members had to be identified and documented.

A grid system was established; each block of stone belonging to the minaret was marked with a number and its find position on the plan was noted carefully. The minaret had collapsed on the roof which led to the roof collapsing on to the floor of the mosque (fig. 4). Most of the stones from the minaret shaft were lying on top of the destroyed roof; the conical roof of the minaret had fallen over the eastern wall towards the river. The stones from the minaret and the walls were still in the position they had fallen. Thus, the find spots of the minaret blocks would help in the reconstitution of the shaft and the balcony. By recording the exact positions of stone blocks and making an inventory of the surviving stone blocks, it was possible to develop a reliable reconstruction proposal for the minaret.

Originally, the stone blocks of the minaret were connected by iron clamps but with the impact of all the shooting, the minaret had split into pieces. Due to the shocks and stresses, the clamps bonding the blocks had broken or moved out of their joints. The minaret shaft had lost its integrity, yet a careful observer could mark the stones belonging to the minaret as they lay within the mosque, in order of their ascending rows.

The minaret consisted of the base, the transition zone, the shaft, the balcony, the upper shaft, the cap and the finial. Two ring courses, one at the bottom and the other at the top marked the beginning and the end of the minaret shaft. The surviving part of the base provided information about the stairs and the core. The recovered blocks from the shaft helped to understand the change in its thickness. By assembling the original blocks on the ground, it was possible to see the form and size of the rings and the balcony. The data acquired from the surviving blocks provided a better understanding of the original construction system and facilitated the development of the restoration project (fig. 15).

After the first phase of documentation in the summer of 1998, architect S. Onur continued to develop the full documentation of the ruined site. She chose the restoration of Sevri Hadzi Hasan Mosque as the subject of her master thesis. She continued her researches under my supervision, developing 1/50 scaled survey drawings, plans, cross sections and elevations of the mosque.

Fig. 15. Recovered minaret blocks arranged in rows

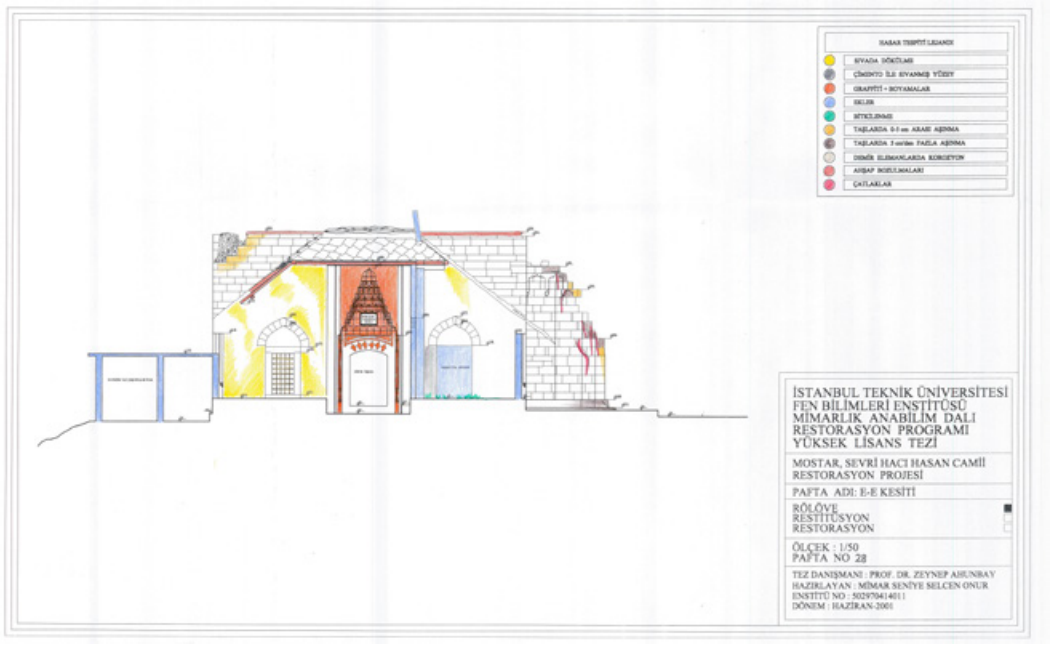


Fig. 16. Sevri Hadzi Hasan Mosque, analysis of damage on the entrance façade (Architect Selcen Onur)

After recording the current state of the mosque, the work continued with the analysis of damage. There were several additions to the original fabric. Cracks, surface erosions and deformations, corroded iron elements, painted stone surfaces were noted. The damage was marked on the 1/50 scaled cross sections and elevations (figg. 16-17).

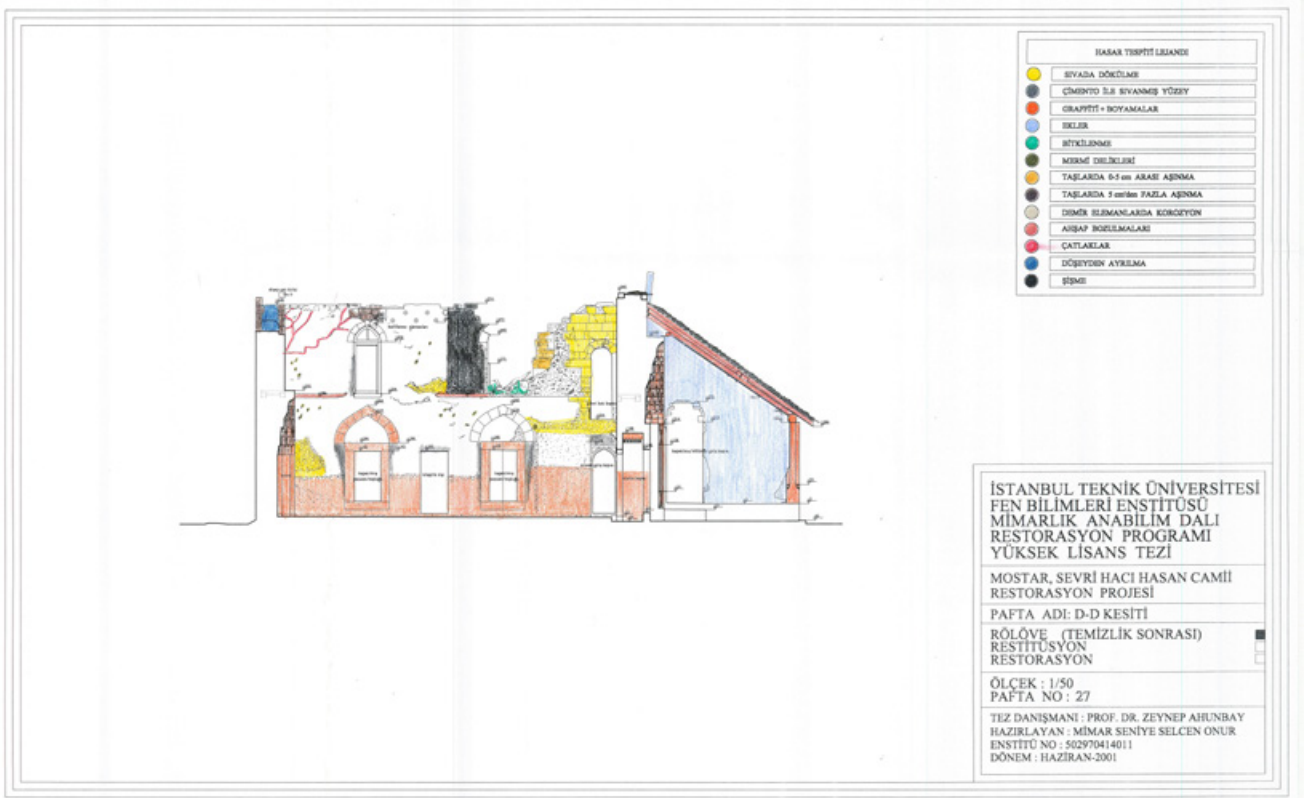
The next step in the project was to proceed with the development of proposals for the restoration of the walls and the reconstruction of the roof. In order to develop proposals for the reconstruction of lost parts, it was necessary to find photos and survey drawings showing their form and size prior to destruction. There were several photos of Sevri Hadzi Hasan Mosque in publications about Mostar but all of them were from the exterior. For interior photos, the Institute for the Preservation of Cultural Heritage in Mostar was consulted but there were no interior photos of the Sevri Hadzi Hasan Mosque in their archive. People in the neighbourhood were consulted but they could not provide photos. At a later stage, two interior photos of the mosque were provided by the Museum authorities in Mostar (fig. 18). The photos showed the mihrab, the timber *minbar* and the timber gallery attached to the northwest wall (fig. 18). They also offered a glimpse of the octagonal base of the dome covering the interior space.

Financial support was needed for finalising the clearing of the site and thus reaching the information buried in the ruin of the mosque. The excavation could help to elaborate the proposal for the restoration of the damaged roof. The clearing and organisation of the site required a lot of manpower. The stones from the minaret and the walls were heavy. They had to be removed from the interior of the mosque.

Funds offered by the Aga Khan Trust for Culture and World Monuments Fund helped with commencing work at the site and continued until the end of the implementation. An office was established in Mostar for the management and implementation of projects. Dr Amir Pasic from IRCICA in Istanbul was in charge and worked in liaison with the institute in Mostar. In the spring of 2001, a contractor started work at the site. This made it possible to move out the heavy blocks and sort out the rubble inside the mosque.

The quality of the contractor contributes greatly to the success of implementation works. From the firms which applied for the job, Kara Drvo from Kiseljak, which had experience in restoration projects was selected. The firm had a team consisting of experienced masons and carpenters.

The craftsmen understood the problems at the site and could follow the instructions given by the supervising architect.



From top to bottom:
Fig. 17. Sevri Hadzi Hasan Mosque, analysis of damage on the north-south cross section (Architect Selcen Onur)

Fig. 18. Sevri Hadzi Hasan Mosque, interior with timber mahfil (photo from IRCICA Archive)

Images, Clockwise from top left:
Fig. 19. Minaret balcony assembled on the ground with recovered blocks
Fig. 20. The timber elements of the roof revealed after the removal of rubble on the floor
Fig. 21. Acoustic jars recovered from the ruin of destroyed walls

The engagement of a contractor in 2001 speeded up progress. The heaps of stones piled up inside the mosque were moved out. Blocks belonging to thirty-six rows had been recovered. After identification of their position in the shaft, the minaret blocks were assembled on the ground (fig. 19). The positions of the clamps joining adjacent blocks assisted the identification and recomposition efforts. By this exercise, it was possible to conceive the full size and form of the balcony.

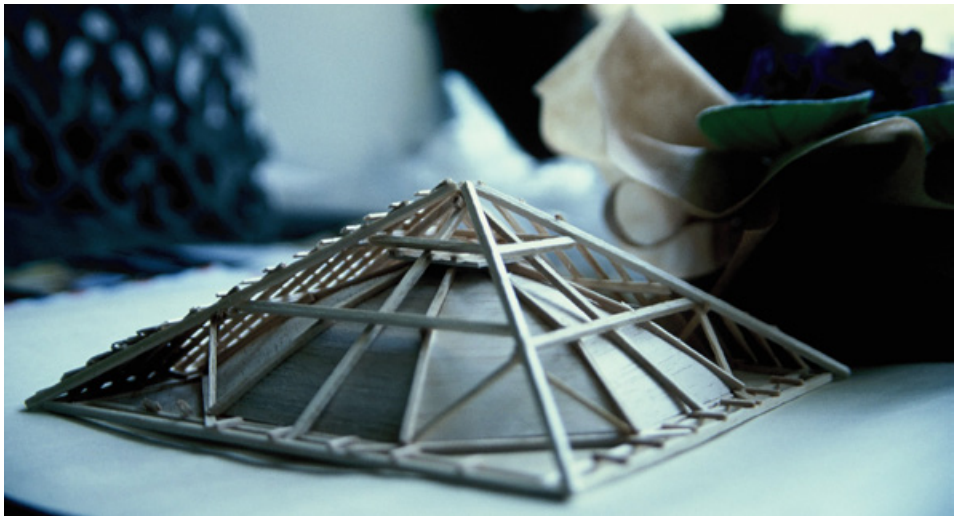
The surviving elements from the roof had the potential to provide evidence about the form and finish of the dome. Since the ruin had been exposed to severe winters, there were doubts about the condition of the timber elements. The excavation inside the mosque was carried out with utmost care, in order not to damage or lose fragile fragments. I supervised the works. After carefully removing the debris of disintegrated material, the form and position of the surviving timber beams and planks were examined (fig. 20). The recovered timber elements helped to figure out the type of the cladding and the shape of the domed structure. The grouping and the jointing of the surviving timber cladding suggested an octagonal based timber domical vault like the one in the Sarica Mosque before the destruction in the war (Pasic 1994: 64). A photo found in the archive of Mostar Museum confirmed this result.

The cleaning of the rubble also provided information about other damaged parts of the mosque. Some fragments belonging to the mihrab crown helped with the reconstitution of the missing parts. Ceramic jars recovered from the rubble in front of the mihrab wall were an interesting discovery related to the construction of the walls (fig. 21). The intact ones provided information about the size and form of these curious elements. The position of the *in-situ* preserved ones placed in the upper part of the walls suggested that they had been used to improve the acoustics of the interior. The jars had a diameter of 9.3–12 cm. They were 18.5 cm long and had a hole, 1.5–2 cm in diameter, at their bottom. In order to sustain the original properties of the inner space, the broken acoustic jars had to be replaced by new ones. The contractor located a traditional ceramic workshop in Bosnia and the necessary number of jars was produced to be used during the restoration of the damaged walls.

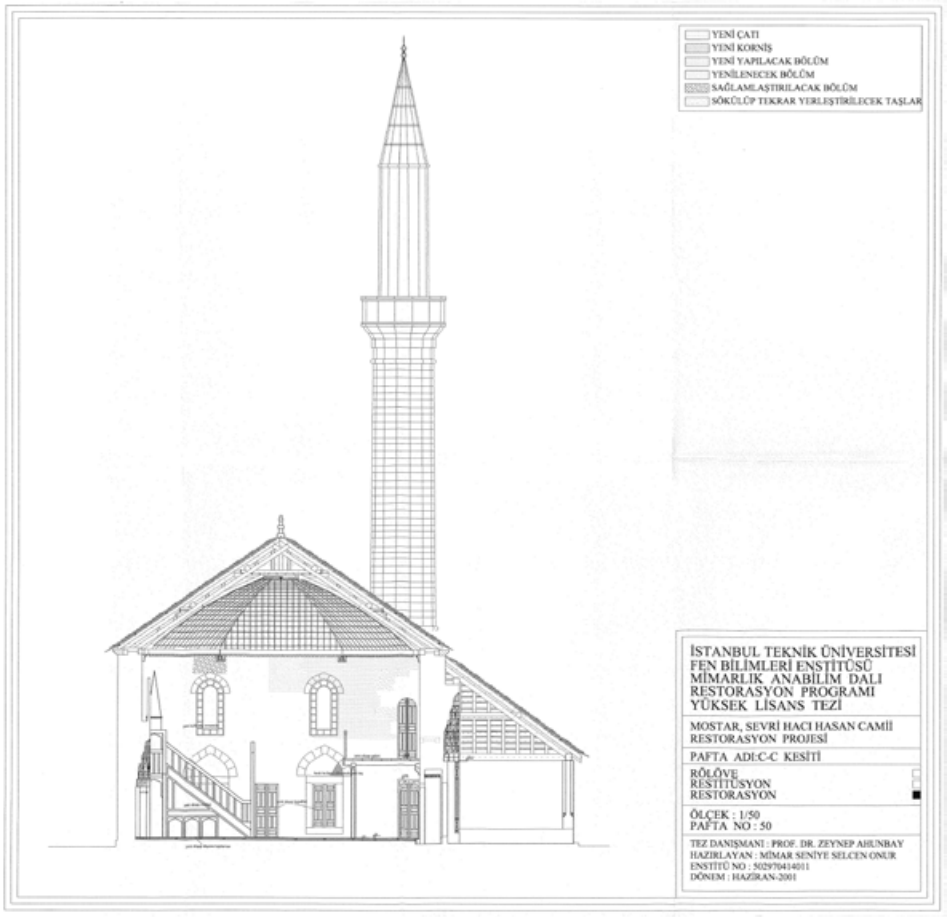
Scaffolding along the walls made it possible to inspect the damaged upper parts of the walls and the construction details of the surviving members of the roof more closely. The walls consisted of an ashlar outer facing, a rubble core and a roughly cut stone surface on the interior. The interior surfaces of the walls were plastered. Timber lacing had been inserted at two levels, to stabilise the walls. The lower timber beams were placed at the base of the upper windows. The second chain of runner beams was placed at the top of the walls. The destruction of the roof had revealed the beams and their connection details. The timber lacing above the *qıbla* wall provided important data related to the construction system of the runner beams. They consisted of two beams with cross sections of 12x12 cm, connected to each other every 50 cm by laths. One of the runner beams was placed directly above the inner surface of the wall. Due to the presence of the cornice block, the second runner beam was moved inwards. The timber laths were connected to the beams with lap joints and nails (fig. 22). Another interesting detail observed at the top of the walls was the special form of the clamps connecting the cornice blocks to the adjacent runner beams. The two ends of the clamps were different from each other (fig. 23). This seemed to be an appropriate solution, since the clamps were connected to two different materials. The clamp's connection to stone had a regular flat end and was fixed in position with molten lead while the end connected to the timber beam was pointed like a nail and probably fixed by a hammer.

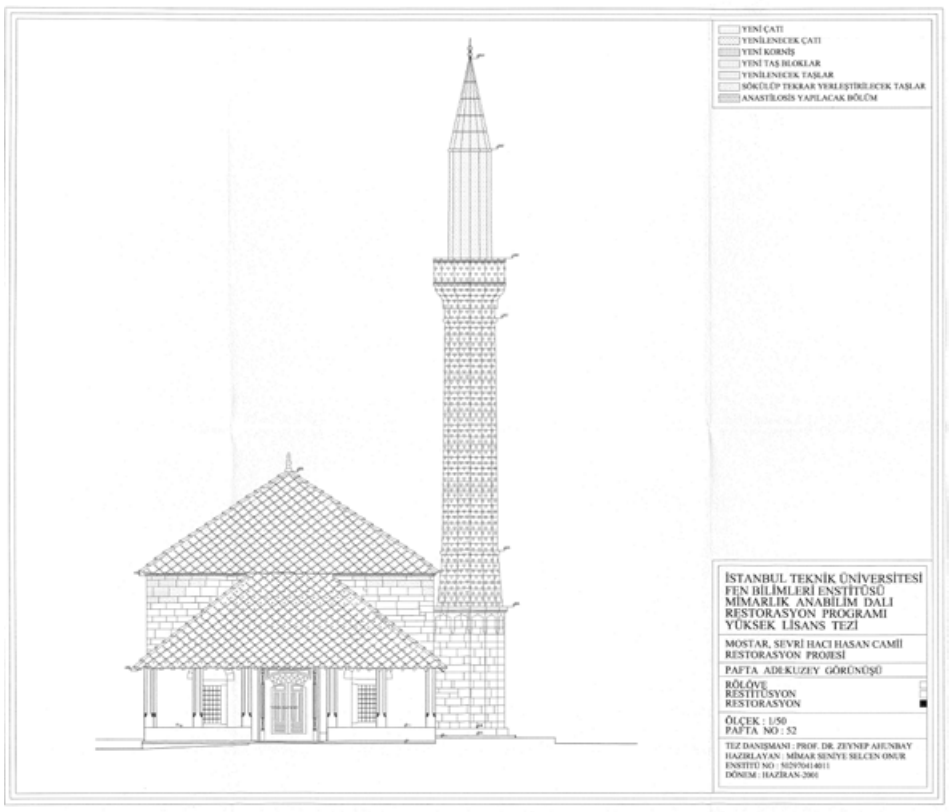
After the cleaning of the ruin inside the mosque, the acquired data was processed for the reconstruction of the dome. Architect Selcen Onur prepared a small working model to show the relationship of the inner dome and the roof over it (fig. 24). This proposal was presented to the authorities. After its approval, the work continued on the preparation of 1/50 scaled drawings for reconstruction (figg. 25-26).

In the meantime, preparatory work for stabilising the damaged porch and the walls started in the spring of 2001. The additions such as the walls built into the western part of the porch were removed.



Images, Clockwise from top left:
Fig. 22. Sevri Hadzi Hasan Mosque, timber lacing removed from the top of the *qıbla* wall
Fig. 23. A clamp from the top of the southwest wall. The special detailing with different ends is noteworthy. The end fixed to the stone was broken; so it is shorter than the other
Fig. 24. The model prepared by Architect Selcen Onur for the reconstruction of the roof and the dome





From top to bottom:
Fig. 25. Reconstruction proposal for the N-S cross section of Sevri Hadzi Hasan Mosque (Architect Selcen Onur)
Fig. 26. Reconstruction proposal for the entrance façade of Sevri Hadzi Hasan Mosque (Architect Selcen Onur)

From top to bottom:
Fig. 27. Starting to work on the *qibla* wall
Fig. 28. Pouring molten lead to fix a clamp

The broken column of the porch had to be restored. The walls, which had been penetrated and cracked by shooting had to be consolidated and reintegrated (fig. 27). Mostar is a town with a long tradition in stone building. The local craftsmen had developed skills in using and carving stone.

The exterior of the mosque had fine ashlar and arched windows, showing the refined workmanship of the local stone masons. Luckily, some original features and fine details such as the muqarnas portal at the porch and the mihrab had not been totally destroyed. These decorative features were important as evidence of the seventeenth-century stone carving and design in Mostar. The missing parts of the decorated elements had to be restored with special attention.

The missing parts of the walls were reconstructed using the same kind of stone and the same quality of surface finishing. Ashlar blocks were used on the exterior and roughly cut stones on the inner surfaces of walls. Cracks were stitched by stainless steel clamps and fixed into position with molten lead (fig. 28). In order to achieve good bonding between the old masonry and the reconstructed sections like the southwest corner of the walls, new blocks were connected to the existing masonry by stainless steel clamps. The stability of the walls was checked by structural engineers Salko Kulukcija and Mustafa Humo from the INTERPROJECT company in Mostar. They were interested in and had experience in the conservation of historic structures. They were consulted for their opinion on the reconstruction proposal for the roof. After checking the project for the dome of Sevri Hadzi Hasan Mosque, they proposed to increase the cross-section of the timber runner beams at the top of the masonry walls. Thus, the base of the timber dome was strengthened owing to the safety concerns of the structural engineers.

Aida Idrizbegovic, a young Bosnian architect specialising in the conservation of cultural heritage at Sarajevo University agreed to become part of the implementation team. She had participated in the 1998 workshop in Mostar and was interested in continuing her career in heritage conservation. She started to supervise the works at the site and reported to me. We communicated by email to discuss and solve problems which emerged during the implementation. I visited Mostar every month and tried to find solutions to emerging problems and give tips for the next phases of work. With close cooperation, the work at the site could flow without interruption.

After the reconstruction of the roof, work continued on the inner and outer surfaces of the mosque (fig. 29). Paint layers had been applied to different parts of the mosque. The dark green paint over columns of the porch and the others on the muqarnas portal, and the mihrab were removed carefully by a conservator from Sarajevo (figg. 29, 30).

The restoration project included the improvement of the enceinte walls, the courtyard and the toilets as well. The walls surrounding the precinct were stabilised. The gate providing access to the courtyard from the street was remodelled. A fountain was added for ablutions and the courtyard was paved. The works at the site were completed in May 2002. The total budget of the project was US$ 300 000.

The mosque is the property of the Islamic society and they are responsible for its maintenance. During its meeting in March 2004, The Commission to Preserve National Monuments of Bosnia and Herzegovina (BiH) designated the mosque as a national monument. The government of the Federation of BiH is responsible for ensuring and providing the legal, scientific, technical, administrative and financial measures necessary to protect, conserve, display and rehabilitate the national monument. The mosque is used by the local community and is still in good condition (figg. 16-17).

Capacity building was an important part of the Mostar Project. Two donor institutions, the Aga Khan Trust for Culture and the World Monuments Fund were aware of the need to build up the local technical capacities (Bianca 2004: 57). Several architecture students from Sarajevo University took part in Mostar workshops and improved their knowledge about cultural heritage. They became familiar with destroyed buildings, participated in surveys, and were involved in efforts for project development. Some enjoyed the experience and those who became interested in working with cultural heritage continued their career in conservation studies.

Fig. 29. View from the north after restoration

The workshops and practical works helped to build up the expertise of the young architects and increased the number of trained architects who could take responsible positions in other damaged sites and restoration projects. After graduation from the School of Architecture, some of the trainees continued their education at the postgraduate level and contributed to the survey and restoration of other destroyed historic monuments of Bosnia, such as the Handanija, Ferhat Pasha and Alaca mosques.

5. Documenting the Outcomes and Effects

The destruction of their heritage and living environment was a big shock to the people of Mostar. The loss of their relatives, homes and sacred monuments was a great source of sorrow. They needed support to be able to live on and to cherish the hope of returning to normal life. They were very happy when researches and documentation started at the ruined site of Sevri Hadzi Hasan Mosque. Technical and financial aid to the recovery process was welcomed by all. It encouraged people to continue their efforts to survive. Expert advice and financial backing were essential for choosing and using the appropriate materials and techniques for rehabilitation and reconstruction. The support of the Aga Khan Foundation for Culture and the World Monuments Fund energised the Mostar rehabilitation project. Seventeen projects were implemented. With good coordination between the project management and implementation, it was possible to work without interruption and the results were pleasing to all concerned. A large sum of money, consisting of donations and loans was spent on the historic buildings of Mostar, reviving, rehabilitating and restoring the urban environment.

Fig. 30. Interior with the reconstructed minbar and the dome

6. Additional Comments

Rehabilitation of war-damaged cities and monuments requires a lot of expert work and financial support. The documentation and analysis of the finds requires time. There may be many unknowns and it is only after detailed research and analysis that the researcher gets to know the place and the structure. The teams may not be familiar with the site and the local building traditions. Therefore, they may need time to acquire the necessary information and data before starting reconstruction projects. So, both the project team and the people who have lost their cultural assets should be patient in their endeavours. The approach to reconstructions must be multidisciplinary. People who have worked on the history, architecture and materials of the region should be invited to contribute to the recovery programmes. Local experts who have worked on the conservation of heritage assets in the region can help with their deep knowledge. Research on materials and structural assessment of the remains are integral parts of the preparatory phases. If the foundations, walls and the other structural members are damaged by dynamite, bombing and fires, the condition of the remains should be examined and assessed by material scientists and structural engineers.

After the war in Bosnia and Herzegovina, some important historic buildings were reconstructed hastily by the local people without proper documentation and consultation with art historians, architects and engineers. The results are unpleasant; the historic meaning, authenticity and identity of the places are distorted. Such bad examples must be used as lessons from which people should learn about the importance of research, the contribution of experts and qualified craftsmen to the success of reconstructions.

7. Details of the Expert Completing this Case Study

Prof. Dr Zeynep Ahunbay is an architect who specialises in Ottoman architecture and conservation studies. She was a faculty member at Istanbul Technical University from 1971 until 2013, lecturing on theory and techniques of conservation, traditional building types and reuse. She took part in the Mostar 2004 initiative, working on documentation, project development and implementation activities from 1997 until 2002. She was responsible for the development of the restoration project for Sevri Hadzi Hasan Mosque and the supervision of its implementation.

Bibliography

Aga Khan Trust for Culture/World Monuments Fund, 2004. Historic Cities Support Program, *Conservation and Revitalisation of Historic Mostar*. Geneva.

Ayverdi, E. H d., 1981. *Avrupa'da Osmanlı Mimari Eserleri, Yugoslavya*, Vol. II, Book 3. Istanbul.

Bianca, S., 2004. "Investing in the Future: The Stari Grad Agency" in *Conservation and Revitalisation of Historic Mostar*. Aga Khan Trust for Culture, Geneva, pp. 57–63.

Bublin, M., 1999. *Gradovi Bosne i Hercegovine - milenijum razvoja i godine urbicida* (Towns of BiH – a millennium of development years of urbicide) Sarajevo Publishing, Sarajevo.

Danişmend, I.H., 1971. *Izahlı Osmanlı Tarihi Kronolojisi*. Vol. 1. Istanbul.

Evliya, Ç., 1970. *Evliya Çelebi Seyahatnamesi*, Book 10. Zuhuri Danışman Press, Istanbul.

Handzic, A., 1994. *Population of Bosnia in the Ottoman Period*. IRCICA Istanbul.

Hasandedic, H., 1968. "Mostar'ın Türk Devri Kültürel ve Tarihi Anıtları" in *Vakıflar Dergisi*, Vol. VII, pp. 215–234.

Hasandedic, H., 2000. *Mostarski Vakifi i Njihovi Vakufi*. Mostar.

IRCICA, 1994. Newsletter, No: 34. Istanbul.

IRCICA, 1997. *Mostar 2004 Workshop Report 1997*. Istanbul.

Kiel, M., 2004. "The Mosque of Sinan Pasha in Mostar" in *International Symposium in Memory of Ekrem Hakkı Ayverdi*. Mostar (unpublished paper).

Kurtagic, R., 2003. "The Bridge: Aesthetic, Architectural, Structural, Static and Geological Aspects" in *The Old Bridge in Mostar*, Center for Peace and Multiethnic Cooperation in Mostar, 27–33.

Onur, S. S., 2001. *Mostar Sevri Hacı Hasan Camii Restorasyon Projesi*. Unpublished Master thesis submitted to Istanbul Technical University, Institute of Science.

Pasic, A., 2006a. *Historic Reconstruction of the Neziraga Mosque Complex in Mostar*, Bosnia and Herzegovina. Istanbul.

Pasic, A., 2006b, *The Old Bridge in Mostar*. Grin.

Pasic, A., 2004. "A Short History of Mostar" in *Conservation and Revitalisation of Historic Mostar*. Aga Khan Trust for Culture. Geneva 5–11.

Pasic, A., 2003. "Rebuilding of the Old Town in Mostar" in *The Old Bridge in Mostar*. Center for Peace and Multiethnic Cooperation in Mostar, 22–26.

Pasic, A., 1994. *Islamic Architecture in Bosnia and Hercegovina*. Istanbul.

RECOVERY AND RECONSTRUCTION: AN ANALYSIS OF THE CASE STUDY OF THE HISTORIC CITY OF NABLUS

Nusir R. Arafat

TABLE OF CONTENTS

List of Illustrations

Figg. 85–87b Replacing old wooden balconies with new ones
Figg. 88–88c As-Saraya building before and after destruction
Figg. 89–90a Abu-Zant house before and after reconstruction work
Figg. 90d–91e Sarhan house before and after restoration work
Figg. 92–92c As-Salahi Mosque before and after
Figg. 93–96a Examples of poor houses project before and after
Figg. 97-98 Kana'an soap factory.
Figg. 99–117 Examples of destroyed structure by Israeli forces during the various invasions 2002-2004
Fig. 118 View of the Urban Fabric of the Old City of Nablus
(Map 1) Map showing historic sites and buildings inside the Old City

Attributions

ISG: 3
Ministry of Antiquities: 7, 8
Nablus Municipality: 1, 6, 22, 23, 24, 25, 26, 27, 28, 29, 34, 74, 75, 77, 79, 81, 82, 83, 84,97, 98, 99, 100, 101, 102, 112, 113, 114, 115, 116, 117, map 1
The author: 2,4,5,9,12, 13, 16, 17, 18, 33, 35, 36, 37, 39, 41, 42, 43, 47, 47a, 50, 51, 52, 53, 54, 55,56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 76, 76a, 80, 80a, 85, 85a, 86, 86a, 87, 87a, 87b, 88, 88a, 88b, 88c, 89a, 90, 90a, 91, 91a, 91b,91c,91d, 91e, 92, 92a, 92b, 92c, 93, 93a, 94, 94a, 95, 95a, 96, 96a, 111.
Abed Qusini: 15, 19, 20, 21, 30 45, 46, 49, 89, 103, 104, 105, 109, 110
Alā' Badarneh: 31, 32, 40, 44, 78, 106, 107, 108
Ameer Istitiyeh: 118
Dar Al-Handasah: 38
Ikhlas Ratrout: 39
Eyhab Dawod: 48
The Ottoman Archive: 118
G. Eric and Edith Matson Photograph Collection, Library of Congress via Wikimedia Commons: 11
King's Own Royal Regiment Museum, Lancaster: 14

Photographic Documentation from Nablus Municipality Reports

E. Tareq Ahmad, 2003
E. Ammar Salhab, 2003
E. Suzan Abd Al-Qader, 2004
E. Bandar Al _Akleek, 2004
E. magdi Jabr, 2004
E. Nida' Fretekh, 2005
E. Allam Malhees, 2005

Acknowledgments

Data for this report has been collected from Nablus Municipality's Old City department, Ministry of Public Works, The United Nations Office for the Coordination of Humanitarian Affairs (OCHA), The Prince Claus Award, Cultural Emergency Response (CER), The Civil Society of Nablus Governorate (CSNG), The Cultural Heritage Enrichment Centre (CHEC), along with analysis of the work done by the various stakeholders, the institutions mentioned above and, primarily, the personal experience of the author as he has been working on the restoration and reconstruction of the Old City for 24 years.

1. The Heritage Resource and its Context Before the Impacting Event(s)

1.1 Description, Designation and Recognition

1.1.1 The Historic City of Nablus

Nablus is located in the northern part of Palestine, 65 km from Jerusalem. The historic city is situated in a valley (520 m–650 m above sea level) between two mountains. The population of the city is around 161,630 inhabitants, of whom around 20,000 people live inside the Old City (PCBS 2019) (fig. 1).

1.1.2 The Nabulsian Cultural Heritage

The major component of the Nabulsian cultural heritage is the built fabric of the Old City. The historic centre of Nablus is one of the largest in Palestine; Nablus' geographic location at the crossroads of historic commercial routes in the valley between two mountains has influenced the shaping of the city, offering protection and security to the inhabitants. The presence of abundant natural resources such as water and fertile soil for agriculture also played a role in the region's prosperity.

The Old City's traditional organisational pattern is unique, with winding alleys and clustered habitation zones, individual houses and shops, public buildings, soap factories, etc., all are in total harmony with the natural topography of the site. The site where this distinct urban region is located is an area of 370 dunams. The land slopes gradually from the northern side where ash-Shuhadā' main square is located, (the lowest point at about 520 metres above sea level) up to Rās al-'Ain at its highest, about 670 metres above sea level – a rise of 150 metres. The street line connecting the east end with the west is at a single horizontal level, about the same altitude – approx. 530 metres above sea level. The natural topography of the city centre rises up to the limits of upper Rās al-'Ain St. This gradual rise in the land forced builders to shape their buildings accordingly. It influenced the construction of buildings to become adjacent and overlapping with different levels in the form of an organic and unified framework. This framework dictates the shape and width of roads and alleys in the Old City.

Fig. 1. Old City from above as can be seen in the valley

Town planning in old Nablus became distinguished by the creation of sinuous ways and passages. These paths and alleys, some narrow, some wider, adapt closely to the site's geography. The density and diversity of the historical and cultural resources in the historic city are exceptional. The heritage incorporates religious, residential, and public buildings, associative to cultural landscapes, and social life. The issue of privacy gained in importance and heavily influenced construction. It consists of markets, residential areas, *hārāt* and *ahwāsh*, which still preserve the city's general form. The transition from public space to the most private space is gradual. This is clearest in the residential quarter *hayy* and in access routes to it: moving from the market area to a residential *hawsh* is by way of a special passage, which leads to an open square surrounded by residential buildings.

Inter-penetrated blocks of houses overlook the roads and alleys of marketplaces and public spaces, hiding the privileged space of the inhabitants and hinting at the beauty within, through glimpses of green gardens, trees and climbing plants which escape their confines to ascend the outer walls of its buildings. The adjacent and overlapping buildings form an architectural, organic and unified framework. This framework dictates the shape and width of roads and alleys (fig. 2). "This living cultural heritage is characterised by folk and folklore life, traditional crafts, arts, and other related elements" (ISG 2003: 7).

The Old City of Nablus has a number of monumental and historic buildings, including: 10 Public baths from the Ottoman period, 9 historic mosques, 34 olive-oil soap factories, 12 shrines, 17 water fountains *sabeels*, four castle-like houses (residential palaces), 9 rich merchants' houses, as well as approximately 2,850 historic houses and small shops (Arafat 2012) (fig. map 1).

Social habits have determined how traditional houses were built and expanded. Architectural drawings prior to construction were rarely used, but a series of unwritten rules and accepted sets of circumstances governed how the builder proceeded. These were controlled by the natural geography of the land, the building materials available (mainly white limestone) and the general climate of the area, as well as the social and financial situation of the family commissioning the individual home.

Social, economic and political transformations in the Old City greatly affected its architectural form. When local governors came into power in the Ottoman period, they founded a distinct type of residential building, known today as Palaces of Nablus. In this period a number of characteristic buildings grew up across the Old City, including markets, commercial agencies and caravanserais, as well as ordinary residential buildings.

Relationships with neighbours and the wider cultural and religious context were also considered in determining shapes, window orientation, heights of walls, courtyards, etc. Residential structures combined social influences with architectural traditions and, in so doing, display the individuality and style which gave Nablus its spirit.

Traditional handicrafts and products make up the main economic resources of the city and of the old centre in particular. These include the production of sweets and foods particular to Nablus, olive-oil soap, coloured floor tiles, and the trades of stone carving and woodcarving.

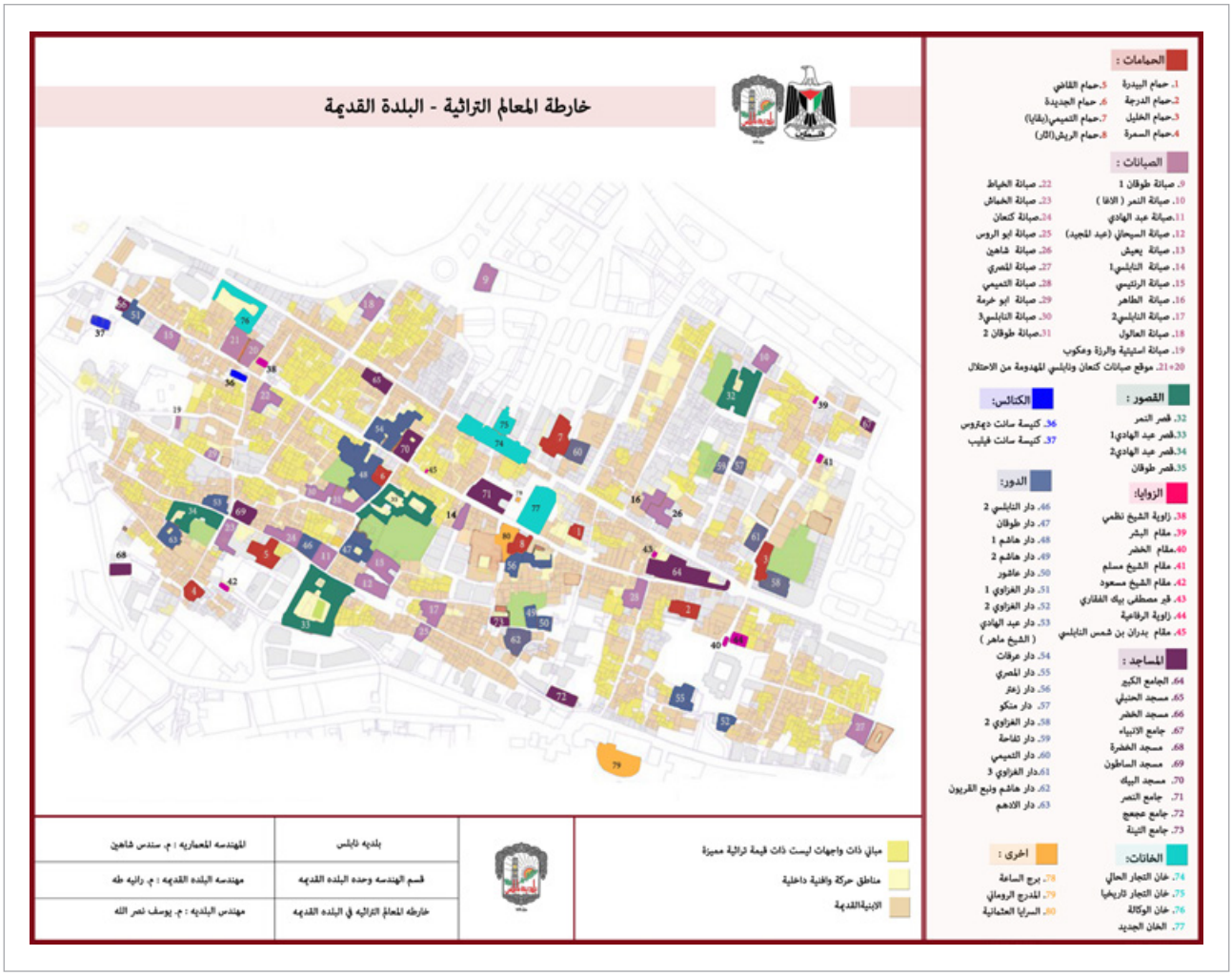
Religious celebration in Nablus always contributed to enriching the cultural life of the Old City, including the Prophet's Birthday, first day of the Hijrah, the night of the middle day of Sha'bān called the Night of the Flame, as well as all nights of Ramadān. Ramadān is distinguished in Nablus by performances of religious rituals and evening gatherings.

Calcareous stone – limestone and marble – is the main building material used throughout most of the Old City. It was extracted from quarries in the northern mountain in the city. The system of load-bearing walls was followed in building most houses. This structural system consisted of two walls: an external wall where the stone surface is randomly formed according to the shapes of the cut stones, rather than following any specified plan, and an internal wall which was then built parallel to the first wall, with pieces of stone, mud and lime piled between them.

From top to bottom:

Fig. 2. The unique pattern of the urban fabric of the Old City, overlapping structures, hiding alleys and unique street patterns

(Fig. Map 1) Map showing historic sites and buildings inside the Old City



This kind of construction was widely used in old buildings. The thickness of these walls is 60–160 cm. The stone surfaces inside the building were often uneven and covered with a thick plaster. Built in traditional architectural style, this construction technique is no longer in use (fig. 3).

Buildings are often ornamented by stone reliefs and carvings which surround windows, or which run up the division between the halves of a double window; such ornamentation shows the position of the family living in the building and gives pleasure to those passing in the street outside (fig. 4). These geometrical shapes appear on the outer facades of most buildings; the level of complexity in the decoration depends on the house owner's taste and wealth. Flying buttresses rest between buildings, while occasionally part of one house rests on its neighbour, forming bridges and tunnels which protect the road and passers-by from the sun and rain (fig. 5).

The Old City retained the basic urban form bequeathed by Roman town planning. But during the Islamic period, especially in Ottoman times, the issue of privacy gained in importance and heavily influenced construction.

Images, Clockwise from top left:
Fig. 3. Example of the traditional construction technique for one of the multiple entrances for a group of houses
Fig. 4. Stone decoration for one of the old houses (Haddad house) located at the outer edge of the Old City from the northern side
Fig. 5. Flying buttresses, and rooms above and overlooking streets of the Old City

Nablus Old City is on the tentative list for the UNESCO World Heritage List. It was listed because of the special importance of the Old City of Nablus. According to UNESCO: <<this results from its being a historic town consisting of special buildings built in traditional architectural style and construction methods that are no longer in use, together with a unique urban pattern, which is well preserved>> (UNESCO 2012).

1.1.3. Official Designation

Criterion (ii): the Old City of Nablus exhibits an important interchange of human values over time as different civilisations passed through the city. The sequence Canaanite-Roman-Ottoman has created a special development of an urban architectural complex.

Criterion (iv): The old town is a type of a group of buildings and urban fabric which represent the Roman city and is still in part visible.

Statements of authenticity and/or integrity

<<The Old City of Nablus presents an image of an old town which is still living, and most of its elements still function very well. This gives the city the ability to survive and preserve its character in spite of many alterations in its fabric >>(UNESCO 2012). In addition, many traditional economic activities still take place inside the Old City.

Comparing Nablus with other similar locations, Nablus shares common characteristics with other traditional Islamic cities: Jerusalem and Hebron in Palestine, Damascus and Aleppo in Syria, Tripoli in Lebanon, and many other cities in the countries of Bīlād ash-Shām have this characteristic framework. Nablus is a prime example. It is worth mentioning that these similarities resulted from a number of factors, mainly, unity of religion, the political system, and social interaction.

1.1.4. Scholarly and Popular Recognition

Nablus was a point of interest and study for numerous visitors and researchers. Descriptions written by visiting travellers greatly contribute to reconstructing an accurate picture of the city in different periods. Many historians and travellers who visited Nablus described the city, its buildings and quarters, the traditions, customs and daily life of its people:

Al-Maqdisi (d. 997 AD) wrote in Ahsan al-Taqāsīm, <<Nablus is in the mountains, has many olive trees, it is known as a smaller version of Damascus… the mosque is in its centre, paved and clean, and it has a flowing river>> (Ad-Dominikany 1948: 227).

Shaikh ar-Rabwa ad-Dimashqi (d. 1327AD), wrote in Nukhbat ad-dahrfī ‘ajāyeb al-barrwa al-bahr, <<Nablus is a fertile city, between two mountains; it is wide, has running water, healing baths, and a fine mosque with much activity, people praying and reading the Qur’an day and night, the city is like a palace set in a garden… oil is exported by the Bedouins to Egypt, ash-Shām, and al-Hijāz. The best soap is manufactured in it and is exported to these countries and to the islands of the Roman Sea>> (Ad-Dominikany 1948: 227).

The famous traveler Ibn Battūtah visited Nablus in 1355 AD and said: <<Nablus city is a great city which has many trees, flowing rivers, many olives and a wonderfully luscious watermelon which is ascribed to it. Al-Jāmi‘ Mosque is extreme perfection and in the middle of it there is a fresh water pool>>. Mujīr ad-Dīn al-Hanbali (d.1118 AD) also wrote in his book *Al-uns Al- jaleel fi tareekh Nablus wa Al-khaleel*, <<Numerous scholars come from it, and it has many springs, rocks and fruits>> (Ad-Dominikany 1948: 227).

A Turkish traveller, Evliya Tshelebi, visited Nablus during his 1671 tour of Palestine. Many researchers depend on information taken from his travelogue: <<All the government buildings and the large houses are characterised by having running water, a pool and fresh springs>> (Tshelebi 1980: 50).

Sheikh Mustafā al-Luqaymi wrote about Nablus in 1730 AD, saying: <<It has plentiful water and springs, many fruits and shady boughs, and its people are kind and generous>> (Ad-Dabbagh 1988, vol. VI, 157).

Henry Baker Tristram’s impression of the city after his visit in 1863 AD: <<When we reached Nablus, I discovered that Nablus is the most beautiful city we have seen since we left Beirut; moreover, its houses are generally cleaner>> (Kalbūnah 1992: 128) (fig. 6).

Images, Clockwise from top left:
Fig. 6. The City of Nablus from the east by David Roberts 1839 AD
Fig. 7. Aerial view of Shakeem, the Kanaanite City
Fig. 8. The Roman Theatre

1.2. History and Context

Pottery dating back to the Bronze Age indicates that the Nablus area was first settled in the third millennium B.C., during the Canaanite period. The first people to inhabit the region, most likely came from the Arabian Peninsula, were the Canaanite tribes. They called the land Shechem, which means either *shoulder* or *highland*. The Canaanite city of Shechem, was first discovered by Hermann Thiersch in 1903, situated in the eastern part of Nablus, known today as Tal Balātah (Wright 1965: 61–65) (fig. 7).

In 71 AD, the Roman leader Vespasian ordered a new city to be built from the ruins of the city left by Hyrcanus Maccabaeus after a Hebrew uprising. Meant to house a Roman garrison, the new city was to be named Flavia Neapolis, from which the present name of the city was derived; *Flavia* in honour of the emperor's family and *Neapolis* meaning New City. Neapolis was built west of the original Canaanite city, in the present location of the Old City of Nablus (ad-Dabbagh 1988: vol. 6, 100) (fig. 8).

In 314 AD, under the first Christian emperor, Constantine, a new See was created, when Nablus was declared as the seat of a bishop, (Kalbūnah 1992: 30). During Justinian's rule (527–565 AD), five churches were built simultaneously. Some of these became mosques in the first Islamic era; others were destroyed by earthquakes, which have periodically rocked the city. Jacob's Well

church is the most significant; it is located in the eastern part of the city (fig. 9).

The city of Nablus witnessed the beginning of a period of security and stability after conquest by Umayyads when it became part of the Muslim world, 636 AD (ad-Dabbagh 1988: vol. 6: 105). In the Umayyad period Nablus was linked administratively with Damascus, the Umayyad capital.

The Abbasid dynasty began to rule the city in 749, followed by the Fatimids in 968, then the Seljuks in 1076, until the Crusaders occupied it in 1099. On the 25th of July, the Crusaders entered Nablus peacefully after its people had surrendered (ad-Dabbagh 1988: vol. 6: 112). Then the Ayyubids began to rule when Crusaders were defeated by Salāh ad-Dīn al-Ayyūbi forces in the battle of Hittīn in 1187 AD.

After the Mamluks came to power in Egypt and established their rule there, 'Izz ad-DīnAybak sent armies to Palestine. These armies conquered Gaza, the Palestinian coast and Nablus up to the ash-Sharī'a River (Al-Maqrīzi: ch.1, part 3: 381).

Mamluk rule continued for nearly 256 years. Under their firm rule the city enjoyed a long period of security and stability. Scientific, intellectual and other aspects of life prospered and great architectural developments took place.

The Ottomans took over Nablus in 1521, depending initially on the local Mamluk governors, specifically from the Farrūkh family. Prince Farrūkh ibn 'Abdallah ash-Sharkasi, ruling from Nablus, was in 1612 given responsibility for the emirates of Nablus, Jerusalem, 'Ajlūn and al-Karak, and also responsibility for pilgrims. Other rulers from the Farrūkh family succeeded him but the Nabulsi people rebelled soon after and a military expedition was sent to stabilise Ottoman rule. Later, the Ottomans depended on local governors to manage affairs in the city. The local governors came from three families – the an-Nimrs, the Tūqans and the 'Abd al-Hādis. The most prominent member of the an-Nimr family was Prince Yusuf Ibn 'Abdallah Pāsha (d. 1685) and of the al-Bayk Tūqān family was Sālih Pāsha Tūqān, governor of Nablus and Gaza in 1722 (Kalbūnah 1992: 69–76) (fig. 10).

At the start of the First World War in 1914, Nablus was the centre of the seventh brigade of the Turkish army. Military events accelerated and political instability increased, and that is probably why there was no noteworthy construction in the city during the wartime period.

From left to right:
Fig. 9. Jacob's Well
Fig. 10. The Old City of Nablus in 1878 AD looking north-west

Lord Balfour's declaration announcing British support for the establishment of a Jewish homeland in Palestine came in 1917, the year of the occupation of Jerusalem. The British army occupied the city of Nablus on 21 September 1918.

During Jordanian Rule, (Unity with Jordan) (1950–1967) Nablus was an important centre. A large number of refugees were expelled by force from their cities and villages in other parts of Palestine after 1948 and some came to Nablus. The city municipal boundaries of Nablus were expanded. Detailed reports were drawn up about conditions in the city, the economic situation and the state of its buildings: <<In 1950, Nablus had nearly 3,700 residential units, by 1963, when the municipal boundaries were expanded; its population had risen to almost 8,000 families living in 6,500 houses>> (Al-Khatīb 1986).

On 7 June 1967, the Israelis occupied the rest of Palestine along with the Syrian Golan Heights and the Egyptian Sinai Peninsula. Jordanian rule in the West Bank (including Jerusalem) thus ended in June 1967. With the beginning of the Israeli occupation, the city entered a new historical era of constant fear and deprivation.

1.2.1 Frameworks, Agents and Communication

The Municipality of Nablus is the main stakeholder, considered the manager of the city. It has the main administrative responsibility for the conservation of the Old City. The follow-up and work in conservation is implemented through the municipality office located inside the Old City. In addition to staff at the office, the city engineer acts as the overall manager, while the planning department and other engineers and architects at studies departments worked as consultants more than taking part in decision-making.

The Ministry of Tourism and Antiquities (MOTA) did not implement any recovery or reconstruction project inside the Old City. It always had a significant role in decision-making concerning cultural heritage protection and conservation according to the Palestinian constitution. The work of the Ministry of Tourism and Antiquities has always been limited to giving permissions for new buildings and investigating new archaeological sites. During the whole period of invasions on the Old City of Nablus, 2002–2008, MOTA was totally absent from any involvement in conservation or reconstruction work inside the Old City. The Palestinian Ministry of Public Works was the only active governmental institution of the Palestinian Authority. Since it was established the Ministry of Culture has been involved with a very limited number of activities, mainly organising cultural and music festivals inside the Old City.

The Department of Islamic Affairs (Al-Awqaf) owns a vast segment of the Old City's properties. This includes religious and commercial buildings. They always lobby and collect funds from believers to do restoration works on mosques. This is mostly supervised by local committee members. Members of the community who supervise such projects are not qualified to supervise this kind of work; however, there have been a number of cases where professionals have been consulted.

Local NGOs inside the Old City, such as The Civil Society of Nablus Government, and the Welfare Association, have been very active. The architecture department at An-Najah National University and other organisations such as the Centre for Cultural Conservation (Riwaq) have carried out several studies and conducted research concerning documentation of the Old City's property. They did not implement any work as such inside the Old City.

International donors have funded several reconstruction projects in the Old City. Donors are often oriented toward reconstruction of infrastructure and reducing unemployment, however Nablus Municipality has carried out reconstruction projects responding to specific urgent needs of the people, these were mainly repairs of damaged doors, windows, and parts of houses – needs that are considered emergency requirements to allow people to return to their houses and live properly.

2. The Nature of the Impacting Event(s) Component

2.1 Nabulsian Cultural Heritage at Risk

Nablus has witnessed a number of natural hazards and conflicts, including earthquakes, wars, the first intifada and, most recently, the Israeli invasion and re-occupation of the city in 2002. The direct impact of these events

on the traditional urban fabric of the Old City was enormous, and cumulative.

For the purpose of this report, the latest destruction caused by the invasion of Israeli forces in 2002–2004 will be detailed. However, as the destruction by the latest earthquake in 1927 is still visible in many parts of the Old City, this report will briefly look at all of the events which have occurred in order to better understand the changes in the general urban fabric and responses to all of them. The report will then investigate the latest events, in 2002, in more detail.

2.1.1 The Earthquake

<<Around 33 earth movements have been recorded in the Nablus area during the last 2000 years, some of them severe>> (ARIJ 2001).

<<The latest and most devastating earthquake rocked the city on 11 July 1927, killing around 500 people and damaging most parts of the Old City>> (An-Nimer 1965: 275). Emergency response actions were taken by Nablus Municipality by forming the fifth engineering committee on 14 July in order to assess the earthquake damage. <<The fifth engineering committee indicated that 880 buildings comprising 1,481 rooms had sustained damage while 172 had been completely destroyed>> (al-Faris 1998: 31) It is clear from the technical reports of the municipal committee that few recommendations were made for the reconstruction of damaged buildings. Recommendations for demolition were much more frequent, since many buildings were in a dangerous state and winter was approaching. The demolitions and unplanned reconstruction hurriedly undertaken by citizens severely dislocated the organisational urban fabric of the city (fig. 11).

As a result of partial destruction, and being abandoned by original users, a number of residential buildings changed from their original purpose and became used as storage for shops. Parts of al-Baydarah bath were severely damaged and the remaining part was replaced by a carpenter's workshop. Ad-Darajah bath was completely abandoned and remains so (fig. 12).

Mosques and many other buildings of archaeological interest were destroyed. Al-Kabīr Mosque was seriously damaged by the earthquake. Restoration of the mosque was limited to only a fraction of the site and a new road covered much of the land where the old building had stood. Only the western façade of an-Nasr Mosque remains; it was originally a crusader church. A new mosque was built on the same site; the construction was completed in 1936 (fig. 13).

From left to right:
Fig. 11. The earthquake 1927 (Source: G. Eric and Edith Matson Photograph Collection, Library of Congress via Wikimedia Commons)
Fig. 12. Al-Baidara Turkish bath main hall

From left to right:
Fig. 13. An-Naser Mosque
Fig. 14. British soldiers watching the bombing of one of the houses of the Old City (Source: King's Own Royal Regiment Museum, Lancaster)

Parts of the damaged residential buildings were transformed into small shops built with poor construction materials, such as metal boards and concrete blocks. New shops and light industrial units constructed from modern materials of brick, cement, zinc, sheet metal and asbestos appeared in what had been residential areas of the main street. Modern materials used in rebuilding and renovation detracted from the Old City's traditional style. Zones that had previously been distinguished by a particular trade or commercial operation lost their distinctive character. The earthquake resulted in the total collapse of the organisational pattern of the historic fabric, which lost much of its character as a coherent cultural, residential and commercial centre.

The social structure of the Old City also changed because a number of richer citizens built themselves new south-facing dwellings on the mountain slopes to the north of the city. At the same time, many buildings inside the Old City were abandoned and left to decay. Traces of the earthquake are still apparent on many of the city's buildings.

The earthquake also caused a massive demographic change, as the majority of the Old City inhabitants evacuated their homes and moved to new buildings in the suburbs.

Less prosperous or poor families moved in looking for jobs and low rent accommodation. This – combined with lack of conservation and unsuitable upgrading of basic infrastructure – has steered many other people, especially educated and young people, to leave the Old City and build their homes in other new areas, particularly on the outskirts. Many houses remained empty and others settled by impoverished families. Empty houses collapsed over time, as did those that were damaged.

Other results of the earthquake were famine and the outbreak of epidemics. These disasters were compounded by the flood of 1935 when a deluge of heavy rain submerged the city under two metres of water. One catastrophe followed another, afflicting both the city of Nablus and Palestine as a whole. This was followed by major destruction of many houses inside the Old City by the British army during the 1936 revolution (fig. 14).

2.1.2 The Occupation of Nablus 1967

The Israeli occupation that started in 1967 has caused much destruction in the Old City. Economic destruction has mainly impacted local industries, followed by demographic change, from rich or middle class to mostly poor people, with many refugees and villagers

Fig. 15. Cement barrels blocking roads inside the Old City during the first intifada 1987–1993

moving to live in demolished houses inside the Old City. The local situation inside the city in the initial years of the occupation did not prioritise documenting the destruction of buildings which is why there is a lack of data from this period.

2.1.3 The First Intifada, 1987–1994

During the first intifada, the Old City was the centre of demonstrations against Israeli soldiers and fear of the Israeli army pushed many people to leave the Old City. This increased the number of abandoned houses and led to more demographic and economic changes.

The strategy of the Israeli forces was to create fear and economic destruction, aimed at pushing people out of the Old City. There was significant destruction in December 1988 when the Tūqān Palace was bombarded. This caused a lot of cracks in many adjacent and nearby houses. The occupation forces did not allow reconstruction work to be implemented. During that period many cement barrels blocked the streets and divided the Old City in two parts (fig. 15). This was intended to empty the city of its people and was followed by many attempts by settlers to confiscate houses inside the Old City.

Beginning of restoration works

The Old City 1994- 2000

The Israeli-PLO Declaration of Principles on interim self-government arrangements, signed in Washington in September 1993, provided for a transitional period not exceeding five years of Palestinian interim self-government in the Gaza Strip and the West Bank (Oslo Accords: 1993).[1]

This resulted in the establishment of the Palestinian National Authority in 1994.

Since then Nablus Municipality has carried out several restoration projects, with international and local funds, in efforts to bring life back to the Old City. The municipal council, which was appointed by the Palestinian National Authority and was headed by Mr Ghassan Shak'a, focused on restoring the Old City, a pioneering effort at this level. The implementation of these works began in 1995 and a specialised department to follow-up the city's restoration was established under the supervision of the department of engineering and municipal administration.

These efforts began by renewing infrastructure, sanitation work and street paving. This was followed by stone cleaning on a number of street façades, repainting and repairing windows and doors, and consolidation of dangerous or potentially unstable structures such as walls or street façades. Although these projects were not implemented as part of a comprehensive programme, they greatly influenced the internal living environment of the people and many settled back in the Old City as living conditions improved. The following is a review of the most important projects implemented and the mechanisms used for this purpose.

First: The restoration of archways above streets

There are 46 archways above the streets of the Old City and they are considered special features of the city's traditional style. Due to the importance of making the streets safe for people, the municipality allocated around US$150,000 from the municipal budget for the implementation of these works (Nablus Municipality, finance dept. 2019). The work was carried out through local contractors supervised by the engineering department. The work mainly involved stabilising these structures, pointing and plastering. It was the minimum work needed to stop deterioration and make passages under safer. It was noticed that the material used for the plastering was mainly cement mortar that does not conform to basic requirements for restoration, but the aim to make the passages safe was accomplished.

Second: Paving the streets

The Japanese Government donated a total of US$2 million to the Municipality of Nablus for a project to minimise the unemployment rate, which was very high after the intifada ended. Part of this job creation donation, a total of US$850,000, was allocated for paving the streets of the Old City. Under this project 1,800 square metres of pavements and streets as well as 4,800 metres of the side stone[2] were paved. This project covered 35–40 per cent of the streets and sidewalks in the Old City (Nablus Municipality 2000). It is worth mentioning that before this project, all streets and walkways of the Old City were paved with asphalt, which had been laid in 1986. This kind of paving covered the original stone pavements that were covering some parts of the streets. The original pavements were only saved and repaved in the new clothes marketplace.

Third: street covers

By using light-proof fibreglass, the municipality of Nablus decided to cover the commercial streets of the Old City. The mechanism of implementation was a type of public–private partnership based on sharing costs between the public sector, represented by the municipality, and the private sector, represented by the owners of the shops. This project connected and protected the Old City streets as a single commercial centre.

The project was considered pioneering in terms of its dependence on local money without external support, in addition to making the beneficiary a participant in the cost, thus creating a sense of ownership of the project.

Despite the positive impact of this project, the architectural design of these covers did not take into consideration the traditional style of the buildings. The unified structure used flat shapes which were not in tune with the authentic view of the traditional organic shapes of the building façades facing the winding streets of the Old City (fig. 16).

Fig. 16. Metal Structure above the main street in the eastern part of the Old City

From left to right:
Fig. 17. The clock tower during conservation work
Fig. 18. At-Touteh Yard

These three major projects were considered an added value to the revitalisation of the historic fabric, and despite the previous hazards, people have become more aware of the value of the Old City and the importance of continuing to have pride in it. This is believed to have motivated the municipal council to continue working on similar projects and to upgrade its work. Nablus Municipality started to implement a number of restoration projects. This started by establishing the first conservation department of the Old City in 1999. A number of architects and surveyors were appointed and worked on projects within the historic centre: they started the restoration of the Clock Tower, and continued the work of paving the streets, restoring archways and public open spaces, and following building permits inside the historic part of the city more intensively (figg. 17, 18).

There have been a number of direct and indirect positive impacts of this project; these are summarised in the following:

- The project created a sense of safety and cleanliness of the place.
- It generated a number of other projects linked to it, mainly the rehabilitation of the water and sewage networks, as well as rainwater drainage; they were implemented alongside the tiling project.
- Supporting the local economy is another addition to the benefits of this project, as the process of cutting, transporting and tiling stones was done by locals and uses a national product.
- The value of properties, mainly shops, increased in the areas where the project was implemented.
- However, as the traffic inside the Old City was not regulated, and due to the fact that large heavy trucks carrying goods and buildings materials etc. were not banned from entering the Old City, there was continuous damage of stone pavements on a very large area of streets and pavements. This in return required ongoing maintenance and is still an expensive budget item for the municipality.

Thus, until April 2002 people in the Old City lived more securely and were enriching the city's cultural and economic activities.

2.1.4 The Invasion and Re-occupation of Nablus

Seventeen months after the beginning of the intifada, in September 2000, Israeli violence against the Palestinian people escalated and the Israeli army completely reoccupied the whole area of the Palestinian Territories. Israeli forces have been responsible for heavy loss of civilian lives, and large-scale damage, including of the historic Old City of Nablus. This has also caused massive deterioration in social structures and the quality of life (fig. 19).

The destruction of Palestinian cultural heritage properties inside the Old City of Nablus, including homes, commercial properties, educational and health facilities, water, sewage and electricity networks have all resulted in the deterioration of living conditions inside the Old City as a whole.

The attack on the city of Nablus started on 28 February 2002 with a military campaign named *Know Your Neighbour*, in which the city and surroundings were reoccupied. The move towards the Old City came two months later with a military campaign named *Defensive Shield*. On 3 April 2002 Israeli armed forces hit the Old City with widespread shelling of buildings. This continued for 18 days. During this attack the whole city was under strict house detention. This was followed by massive invasion campaigns on 1 June and 21 June.

This was followed by operation *Eye of the Needle*, on 7 August 2002, during which Israeli forces entered every narrow street and alley of the Old City, and again on 1 December 2002. During 2003 other campaigns were also conducted, including *War of Colours*, 12 February 2003; *Grave Exhumation*, 3 June 2003; *Planting Missiles*, 18 September 2003; *Still Water*, 24 December 2003; and *Collecting Garbage*, 30 August 2004. (OCHA 2004).

There were ongoing intensive attacks on the Old City for three years, causing severe damage to the historic built fabric of the Old City. The whole population of the city and the surrounding refugee camps were put under house detention for several long periods of time. This was lifted occasionally once a week in order to allow people to obtain basic necessities such as medicine and food[3] (fig. 20).

For the purpose of this report, the massive invasion of April 2002 will be introduced with more details, as being the major event. The emergency responses to that and the reconstruction work by the various stakeholders that followed will be detailed. It will cover the period 2002–2005. The detailed account of attacks previously mentioned indicates the kind of damage that was happening to the built fabric. For example, *know your neighbour* caused massive damage to adjacent walls, silent water did not impact the structures etc.

From left to right:
Fig. 19. Israeli tank during the 2002 invasion of the Old City in the eastern market
Fig. 20. Israeli tank during the 2002 invasion of the Old City in the west side of the Old City

From left to right:
Fig. 21. Rockets on the Old City during the invasion

The invasion, April 2002

On 3 April 2002, the Israeli army started a major military operation that lasted for 18 consecutive days. The Old City was particularly targeted with both air and ground bombardment and frequent military operations. The bombardment included targeted destruction by Israeli F-16s, Apache helicopter gunships, tanks and military bulldozers. The military ordnance used ranged from heavy bombs and tank shells to remotely controlled explosives (fig. 21).

2.1.4.1 General impact of the invasion

2.1.4.1.1 The destruction of urban fabric of the Old City

The most pervasive damage was caused by military bulldozers that were used to batter the narrow alleyways of the Old City to widen streets in order to facilitate tank movement. This destroyed the façades of shops and buildings alongside the passageways. Israeli soldiers also used timed explosives to blow holes in walls and doors to create internal passageways through linked historic buildings. This technique involved using explosives to destroy façades and walls between houses so that the army could safely walk throughout the Old City. Since adjacent buildings overlap and share walls, this method wreaks havoc, beyond the buildings initially attacked (figg. 22–28). The vast majority of buildings in the Old City were affected by the Israeli bombardment, ranging from light damage to total destruction.

2.1.4.1.2 The destruction of infrastructure

Most of the infrastructure lying beneath the paved alleys of the Old City was demolished as a result of the passage of heavy Israeli tanks. The same can be said of electricity, with much of the supply network cut off as a result of shelling. The Municipality of Nablus was highly involved in fixing the damage to infrastructure, mainly electricity and water, on an ongoing basis both during and after the invasions (fig. 29).

2.1.4.1.3 The destruction of commerce

Since the Old City of Nablus is traditionally the heart of commerce for the region, more than 40 per cent of the buildings are trade-based. As a result of the Israeli invasions, a vast number of these have been demolished, burnt or pillaged. Between 2000 and 2002, the annual value of dairy product imports to Nablus city fell from US$462,200 to US$38,620 (Chamber of Commerce 2019)[4] (fig. 30).

Images, Clockwise from top left:
Figg. 22–26. Several photos showing how the Israeli forces moved from one house to the other using explosive to make holes in adjacent walls

Images, Clockwise from top left:
Figg. 27-28. Views of the destruction of a number of houses
Fig. 29. Electric power station inside the Old City after it was burnt during the invasion
Fig. 30. Destruction of a number of shops inside the Old City

2.1.4.1.4 The destruction of cultural heritage sites

Tragically, a number of the most important heritage sites have been wholly or partly destroyed. These include the Al-Khadrah Mosque which was originally a crusader church built during the eleventh-century, and the Sheikh Mosallam shrine that is part of a crusader hospital in the northern part of the Old City.

The Greek Orthodox Church was badly affected by the demolition of two soap factories (Kannan and an-Nabulsi) in the western part of the Old City. The destroyed factories were two of the city's soap factories. The destruction affected 3,500 square metres of built-up areas in adjacent buildings. The soap factories were destroyed by heavy bombing on the night before the Israelis evacuated the Old City on 21 April 2002. The incident not only completely destroyed the soap factories but also nine adjacent houses along with the inhabitants' furnishings and belongings (fig. 31).

The ash-Shifa bath, an Ottoman-era *hammam* (built in 1795) and restored in 1992 was hit by two helicopter *smart* missiles, creating large holes in the vaulted roof. The damage has seriously affected the stability of the structure and its unique architectural design (fig. 32).

Hosh al-Shubi, a traditional Ottoman-era extended family building, located in the Qaryoun quarter and enclosing a rare public open space, was also destroyed. The 300-square metre building was inhabited by nine low-income families. Eight residents (three children, three women and two men) were buried under the rubble and killed when Israeli bulldozers tore down the buildings at night to gain access to the Old City. Two elderly family members were rescued from the rubble one week later. The destruction of the house endangered the adjacent buildings and affected the structural stability of the entire block (figg. 33–36). And just before midnight on 31 December 2003, while Nablus was under strict house detention, four missiles from a heavy tank damaged part of the historic Abdulhadi family house, partially occupied by a kindergarten. Built in 1820, it is a unique example of a castle-like dwelling (fig. 37).

From left to right:
Fig. 31. The site of the two soap factories and adjacent houses destroyed in 2002 invasion
Fig. 32. Ash-Shifa Turkish bath hit by a clever missile that demolished the roof of hot room





Images, Clockwise from top left:
Figg. 33–36. Ash-Shuabi housing compound
Fig. 37. Abdulhadi house, the destruction of the façade by the rocket

3. Post-Event Appraisals

After the Israeli invasion of Nablus in April 2002, a working group of states' parties to UNESCO drafted a resolution for submission to the World Heritage Committee, expressing:

<<Grave concern for the continuing loss of all innocent lives and at the destruction and damage caused to the cultural heritage in the Palestinian Territories.>> In its draft resolution, the working group mentioned several areas of cultural importance that were under threat, including <<the historic centre of Nablus [and] its mosques.>>

The draft resolution urged Israel <<to ensure the protection of all heritage in the Palestinian Territories in its multiculturalists.>> At its June 2002 meeting, the World Heritage Committee unanimously adopted a decision deploring the destruction and damage caused to the cultural heritage of Palestine. (OCHA opt 2002)

3.1 Damage Assessment

An assessment of the destruction of the Old City property has been made by a group represented by the Municipality of Nablus in cooperation with An-Najah National University, the Palestinian Engineers Association, the Palestinian Contractors Union, UNDP and the UNESCO office in Ramallah. This group formed a Steering Committee incorporating one focal point of each of the organisations involved with the responsibility of managing the entire damage assessment exercise (Assi 2003). The work was carried out by ten teams of four to five engineers, architects and municipal experts for five working days immediately after the first wave of destruction.

The assessment classified the damage into three grades (3, 4 and 5). Grade 3 refers to light damage, grades 4 and 5 refer to moderate and severe damage respectively. Ten sub-groups covered the historic city based on a defined zone for each group. The following map shows the sites of destruction which indicates the widespread nature of the destruction all around the Old City (fig. 38).

3.1.1 Post-Event Documentation

It was extremely difficult to draw boundary lines between buildings; damage of any part of one house can affect other units of those adjacent, above or underneath. However, the result of the assessment works concluded, as follows:

- 64 buildings or groups of buildings suffered heavy structural damage or were totally destroyed (grades 4 and 5).
- 221 buildings or group of buildings suffered some structural damage and were unsafe, needing urgent repair and renovation. More could have become unsafe during the winter when water penetrates cracked walls.

Fig. 38. Map of the Old City showing locations of destroyed buildings

- 60 families were forced out of the Old City after their homes were demolished and many other families evacuated unsafe homes for refuge in other areas of the city.
- As a result of the movement of heavy Israeli tanks, most of the newly tiled stone streets of the Old City, financed by donor countries, and original stone walkways have been severely damaged or destroyed, as well as the newly renovated water and sewage lines underneath.
- The electrical network in the Old City was severely damaged. Pylons and wiring were felled.
- The streets were extensively damaged by tanks, including pavements, curb stones, sign posts, utility poles, fences, landscaping, phone boxes and signs.
- More than 40 per cent of the total number of built units inside the Old City is trade-based. Many of these businesses were structurally damaged, burnt or looted during the invasion.

The municipal estimate of the cost of consolidation and repair and loss of structures in the Old City was US$41.5 million as of early May 2002 (ICOMOS Palestine 2002). The loss of life, injury, homes, livelihoods, social fabric and cultural memory that resulted from the bombardment is incalculable in monetary terms. It is worth mentioning that the destruction continued throughout the following three years of regular invasions, and so the number of demolished houses increased.

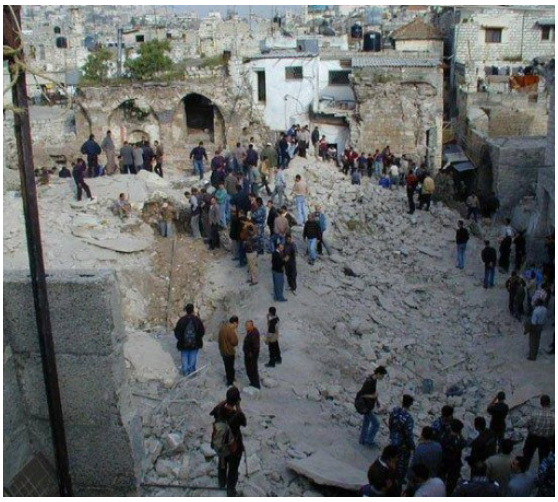
4. Responses and Recovery Programme

A special kind of *strategy* for reconstruction was developed by the various stakeholders, officials and people of the city. It could be classified as *Continuous Emergency Response*. It was based on <<doing whatever possible any time available by whomever can do it>>. There was no prioritisation of actions scheduled for implementation, and no sense of specific responsibility for measures; everyone was responsible. All staff members of the various institutions were involved in reporting the damage and had to do immediate work whenever necessary and with whatever was available. There was high-level coordination between the main stakeholders and staff members on duty. Immediate orders for engineers and workers to stabilise buildings and fix the most urgent problems were given on the spot. Funding costs for work were allocated through budgets from each institution, as well as an *emergency fund* that was established for this purpose. On many occasions, funding work for poor families was through donations from rich relatives. This was allocated through personal contacts by the mayor, the director of the Ministry of Public Works, and also by a number of respected community leaders through the Civil Society of Nablus Governorate. There were a number of cases in which contractors were asked to do emergency small works for reconstruction of houses without having any budget allocated, and formal agreements were not signed with the contractors. Much of the work done was based on direct written orders from engineers on the spot. Many of the contractors were paid later upon completion of the work. It could be said that the reconstruction of damaged buildings was carried out by the people of Nablus together with the staff of the various stakeholders and a number of contractors. There were many personal initiatives, with people carrying out small reconstruction works on their own houses, clearing the streets of rubble, etc., witnessed immediately after Israeli forces left the city. The city witnessed a whole population movement towards clearing demolished sites, and even starting small stabilising activities on façades, on doors and windows, or fixing whatever possible using whatever available (figg. 39-44).

The following will explain in detail a number of examples of buildings and describe general actions performed, who did what, and how the reconstruction work was funded. Due to the complexity of the subject, and in order to better understand how the reconstruction works were implemented, descriptions of work and analyses have been categorised in two parts. First, examples are given of projects that were implemented as emergency-based intervention, where a certain building was the main focus of action. This is where a number of buildings were reconstructed or stabilised or restored and were seen as significant individual cases. Second, detailed actions by the various associations who carried out reconstruction, stabilisation, or restoration works in which a large number of projects were implemented. It will introduce the strategy of the association. The examples of the various stakeholders involved will detail the work strategy, how the association was involved in the work, and impacts on the general urban fabric.





Images, Clockwise from top left:
Figg. 39–44. Community immediate responses to remove rubble and cleaning after every attack

First: Projects

4.1 Emergency Work for Specific Buildings

4.1.1 The Qamhawi Residence

The Qamhawi residence is located at the north-west corner of the Old City. It is composed of four floors, built around 1900. The design represents a transitional phase of traditional buildings. This is characterised by a traditional design for outer façades constructed with bearing walls, and an internal courtyard. It also has mixed construction methods for the roof; cross-vaulted ground floor shops and flat with metal I - section beams for the upper ones. It is considered one of the first buildings outside the Old City.

During the April invasion, tanks used the street in front of the house to park before moving inside the Old City. One of the tanks hit the main entrance causing serious damage to it (figg. 45,46). The emergency action by the owners was to stabilise the main façade. This was done immediately after the Israeli army moved away from the street by reusing stones saved from the same building; a minimal amount of cement and building materials were needed, the labour cost was also very small (fig. 47). The impact of such work was enormous; the whole building was saved from collapse. If this work had not been done immediately, the building could have suffered from more cracks that would have increased rapidly because of the adjacent high traffic on the street. This could have caused the total collapse of the main façade and many other parts of the building. Although the building is completely abandoned, it was saved, but no further work has been done to restore it (fig. 47a).

4.1.2 The Al-Khadrah Mosque

Al-Khadrah Mosque is located in the south-west of the Old City. It is known as as-Sultān Mosque after the Mamluke Sultān, Sayf ad-Dīn Qalāwūn. The rectangular prayer room is formed by three perpendicular cross vaults rising from the walls. External length is 22 metres and the width is 11 metres.

Images, Clockwise from top left:
Figg. 45–46. Tanks in the main street in front of Qamhawi house
Fig. 47. The main entrance of Qamhawi house after it was repaired
Fig. 47a. The Qamhawi house today

The presence of huge crusader style stones in the base of the northern wall of the mosque, the pointed arches, the hanging stone arches that bear the vaults of the roof, and the rectangular small openings in the southern and eastern fronts of the mosque suggest that the building was most likely a crusader church. (Conder et al. 1880: Vol. 1, 203).

Analysing the structure suggests that there was first a small *maqam* (shrine) on the site and that the rulers of the Mamlukes dynasty turned it back into a mosque. The inscription on the stone above the main entrance of the mosque records that reconstruction works were carried out by the Mamlukes in the era of King Sayf ad-Dīn Qalāwūn, it reads the following:

<<This mosque was erected in the days of the Sultān king al-Mansūr Sayfu ad- Dīn Qalāwūn the pious, may Allah give him support (in safeguarding) his son the sultān the pious 'Alā' ad-Dīn, may he be always triumphant.>>

Among these works was the construction of the minaret on the northern side of the mosque square. The minaret is square, surmounted by a balcony with a dome resting on a circular collar. This minaret strongly resembles that of al-Abyad Mosque in the city of ar-Ramlah, to the north of Palestine.

During the April invasion, large parts of the mosque's two-metre-thick wall in the west side of the main prayer hall were destroyed by an Israeli tank. This was followed by a bulldozer that demolished the main façade as well, and caused partial roof collapse, affecting the stability of the building (figg. 48–50).

Images, Clockwise from top left:
Figg. 48–50. Al Khadra Mosque

Fig. 51. The inner wooden ceiling of the Greek Orthodox Church

Despite the terrible situation and the scarcity of personal resources and finance, the people of the neighbourhood formed a committee and collected the money needed for emergency repairs to the building. Immediately after the destruction, people cleared the rubble, stored the good stones that could be used for the reconstruction work, and local building professionals repaired the roof and the higher part of the original wall of the historic building. This stabilised the building and prevented further failure that could have happened. This immediate act saved the main hall from further damage. This work was implemented by using cement mortar for the roof and whatever original stones were saved for the upper wall of the main hall. It was surprising to learn that the money collected was even more than what was needed for the stabilising work. As a result, work continued on building a new façade and a more beautiful entrance than the brick one built in 1975. The previous façade was adjacent to the historic building made of brick; part of it was for a newly built room above the level of the historic building to the northern side of it. The new construction was made of new lime white stone. This new look of the upper façade of the building has given a better image than the previous one.

The story of this project (being the first of its kind implemented in the Old City) has shown that it was possible for a cultural emergency response to save a threatened historical building with very little money, (Prince Claus Fund Journal #14 2005).The money needed for this work was US$1,200.

4.1.3 The Greek Orthodox Church of Saint Demetrius

The Church of Saint Demetrius is located in the western part of the Old City. The building dates back to the year 1863 AD; this is evident from an inscription on the base of the bell tower.

The church is relatively small (fig. 51). It consists of one prayer hall surrounded by a number of rooms that comprise the priests' residence. The prayer hall boasts a painted wooden ceiling of a type typical of Nablus. It is one of seven such decorated ceilings documented in the Old City. The church is built with local limestone, with a bearing wall system for the construction. The scale of the structure is harmonious with the surroundings.

In September 2004, the roof of the church suffered limited damage. But if it had not been repaired in time before the winter rains, the wooden ceiling beneath it would have been lost (figg. 52–54).

The cultural emergency response as international aid was received in early November 2005 from the Netherlands-based Cultural Emergency Response initiative. It came into action within the first month after the destruction of the roof of the church. The purpose of the fund was to avoid further deterioration and losses before longer-term restoration was implemented.

The roof was retiled with matching existing tiles and new ones where necessary. The wooden structure which supports the ceiling underneath was repaired as well. The repair work was carried out just in time: soon after the work was completed, an estimated third of the region's annual rainfall fell in Nablus. The emergency relief provided prevented damage to the ceiling (fig. 55).

4.1.4 The Sadder House

The *Sadder* family are descendants of Nablus. The *Sadder* house was originally built and owned by Mahmoud Nablusi in 1905. It is located at the outer boundaries of the Old City, to the west. It is considered one of the most beautiful houses of that period. It has one of the most beautiful stone decorated entrances in the city, having been built as a replica of an ancient Byzantine church entrance that was totally demolished by the 1927 earthquake. The building is one of the models representing a transitional period of architectural style outside the Old City. This is characterised by massive independent structures, built with limestone and thick bearing walls with cross-vaulted roofs.

The massive explosion by Israeli forces in January 2005, which completely destroyed the home of the Shak'a family opposite, caused partial damage and serious cracks to the building. It threatened more comprehensive damage to the house that would have been a major loss for the city's architectural heritage (figg. 56–58).

Images, Clockwise from top:
Figg. 52–54. Immediate repair and construction of the roof of the Greek Orthodox Church

Images, Clockwise from top left:
Fig. 55. The Greek Orthodox Church roof after it was fixed by the author
Figg. 56–58. The Sadder house destruction and during the renovation work

The immediate work of stabilising the building was carried out through an emergency grant of €11,000 from the Prince Claus Fund through the Cultural Emergency Fund. The work implemented was mainly to stabilise the building and prevent further destruction. It was carried out through hiring talented labourers experienced in old buildings and consultation with structural engineers. The work needed highly skilled workers mainly for the task of inserting tie-rods in the building. The author worked alongside the skilled workers. This was the first time that this kind of drilling and rod tying was carried out in the city.

The work on this building was greatly appreciated by the municipality and it supported an immediate continuation of the project to completely restore the building. Both electricity and telecommunication companies assisted the project by removing the ugly wiring at the main entrance. The scale and impact of the work attracted media interest. The house was well preserved and the Sadder family is using it with pride (figg. 59, 60).

4.1.5 The Arafat Soap Factory Rehabilitation Project

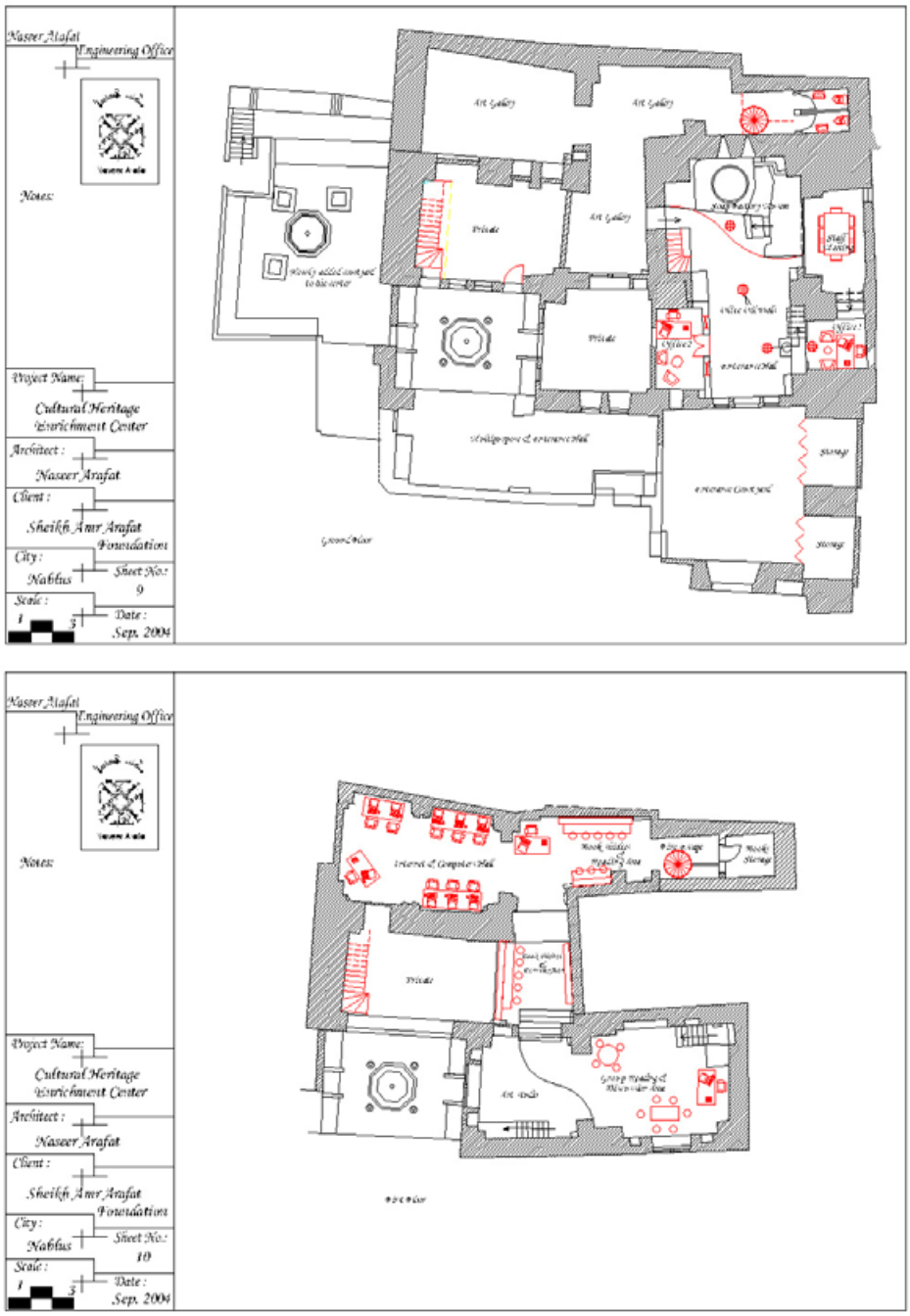
The Arafat Housing Compound

The Arafat Compound where the soap factory is located is an example of a private housing compound, it consists of the house of Sheikh Amr Arafat, the owner, a reception area (Diwan) that has an external entrance separated from the private area for the family, It also has a small soap factory where the owner used to supervise the work. All are surrounding and incorporate three courtyards. The building itself – it is located in the centre of the Old City – is also culturally important. It is considered a unique example of the Palestinian traditional housing-industrial compounds. This was built during several periods between 1820 and 1860

The design concept was to make the most of the 914 square metres by incorporating facilities and creating usable spaces for cultural activities while at the same time creating a museum to demonstrate the soap manufacturing process. The project thus provides a cultural and spiritual benefit to the local community in that it helped regenerate the old societal fabric and encouraged similar community organisations to move into the Old City. This helped keep the city centre alive. The Old City of Nablus also lacked a suitable space that can host cultural activities and open spaces for children to play. Due to the high density and overlapping of its buildings it is not possible to build new buildings to provide such services. This is why old, abandoned buildings need to be reused. The Arafat soap factory is part of a historic compound comprising a major hall suitable for such re-use and surrounded by three courtyards.

From left to right:
Figg. 59–60. The Sadder house after it was renovated

After renovation the site has been organised to house spaces for a number of cultural activities: The main area, where the soap was originally manufactured, will remain as a small museum where traditional manufacturing instruments are exhibited. A number of cultural activities are planned for inside the building, i.e. ceramic workshop, open spaces for public lectures, a permanent art gallery, a specialised children's library, and a study area for cultural heritage researchers, as well as reading areas (figg. 61-73).



From top to bottom:
Fig. 61. Ground floor plan for the soap factory
Fig. 62. First floor plan for the soap factory

Images on pages 64 and 65:
Figg. 63–73. The Arafat soap factory restoration project before and after







Components of the project

The Ground Floor:

1. Outdoor open courtyard, entrance hall, an open space for public lectures in the evenings.
2. The main space that was originally for making the soap will remain as a small museum where traditional instruments are exhibited.
3. The internal spaces as a permanent art gallery and a big hall for organising art workshops.

The First Floor

1. The first floor has a specialised library for children; it will also be used by cultural heritage researchers and for individual reading.
2. A multi-purpose hall for exhibitions, workshops, and public meetings.

As for the need to provide a safe playground for children of the Old City or those whose parents want to benefit from the centre, the internal courtyard forms a safe playing area for children.

The soap factory rehabilitation project shows the authentic use of the place as a museum piece, where restoration methodology was implemented. This building was not demolished by the Israeli army but had been abandoned for many years. The use of materials saved from demolished houses, such as 13 painted doors,6 windows, 20 square metres of coloured tiles, 6 square metres of stone tiles, 26 pieces of pottery for lighting, three old rails were powerful symbolic elements that also saved a lot of money and minimised the costs.

Modern technologies needed for the new use of the building, i.e. electrical wiring, CCTV cameras and fire alarms etc. as needed for contemporary use, were seen as added value to the 400-year-old building.

The furniture items were designed in a flexible way; they can be moved and reassembled for different uses within the interior of the building. This helped to create the feeling of flexibility versus rigidity. There is value added also in the sense of ownership of the place for the users, and the fact it was possible to keep costs down and purchase new materials

The design was made and supervised by the author, seed money was provided by the profit from selling calendars of old painted doors that were collected for this purpose. The main fund was provided by the owners, Saba and Afaf Arafat, and The Barakat Trust. The work was implemented by local workers and professionals.

Second: The Associations Work for reconstruction

4.2 Drivers Agents and Governance

Among the main organisations that are involved in restoration or reconstruction projects in Palestine, four were deeply involved inside the Old City; the following describes the mechanism of their work and observations about it.

4.2.1 The Ministry of Public Works

The work of the Ministry of Public Works was preceded by the start of construction by the Municipality of Nablus. The ministry started the work to repair damaged buildings in the Old City through the employers themselves and with limited engineering supervision and capacity.

The ministry allowed the *presumed* beneficiaries to submit requests for reconstruction directly through its offices and a very large numbers of citizens came forward, some of whom were directly affected by the Israeli attack. The applications were evaluated by a special committee of the ministry's employees. The ministry carried out repairs to the gates and entrances that were blown up by the Israeli forces and oversaw the repair of broken windows. This was seen as an essential need as the weather was cold. The immediate aim of the rapid repair was to secure houses and shops.

This was followed by limited renovation work on a number of houses and shops, which as of 1 January 2003 numbered approximately 2,800 buildings. Renovation work was in the form of both stabilising structures using concrete and reconstruction of demolished parts using new materials (Ministry of Public Works, Nablus).

Notes on the ministry's method of working

It is clear from the assessment of the work done by the ministry and its results that many problems were faced in repairing the houses affected, the most important of which were:

1. The number of applicants for reconstruction was large and exceeded the capacity of the ministry staff.

2. There was no clear plan of action for the implementation of priority projects, work was implemented by adopting a quick response strategy for whoever needs it.

3. The ministry did not have staff who were specialists in restoration work, which led to the removal of old stones and doors according to engineering visions that often contradicted the principles of restoration. Old wooden doors and windows were replaced by new aluminium and metal sheets, cement was widely used to stabilise buildings instead of stone (figg. 74-77).

Images, Clockwise from top left:
Figg. 74–77. The use of cement mortar and new materials for stabilisation and repair work

Positive aspects

1. New basic safety needs were met.
2. Warmth for homes by installing new glass windows was an essential need provided.
3. These actions restored some sense of stability to the population.
4. This work managed to keep the people of the Old City inside the historic centre.
5. It enabled the people to remain an important component of resistance against displacement.
6. It would be possible to replace the newly installed windows and doors with others that can be more acceptable and coherent with the authenticity of the place in the future.

4.2.2 Reconstruction Projects Carried Out by Nablus Municipality

The Municipality of Nablus provided everything in its capacity, including light and heavy machinery and rescue workers to remove the rubble of demolished structures (fig. 78).

Together with large groups of volunteers from the local community, municipality staff worked in very difficult situations immediately after the attacks.

This was followed by a number of repairs and restoration works for which the municipality received a number of grants. Each grant was allocated for a specific purpose as detailed in the following:

1. PECDAR grant dedicated to the repair of a large collection of retaining walls throughout the city, estimated at about US$200,000.
2. The first Norwegian grant, US$1.5 million, which was allocated to removing the invasion debris in a number of buildings. Repair work was implemented through direct hiring of workers and providing materials needed, with the supervision of 60 engineers who were hired directly to implement this project. This grant covered the need to repair approximately 210 houses.
3. The second Norwegian grant, US$1.5 million, was a job creation grant. Nearly 225 houses have been repaired. The purpose of the project was mainly to cover wages for workers and professionals in addition to materials needed.
4. The Japanese grant, US$2 million, was in the form of tenders for contractors to repair and rebuild what was completely demolished. The work covered more than 270 houses.

Fig. 78. Using concrete to stabilise demolished structure

5. The third Norwegian grant, US$2 million, was implemented by hiring workers and engineers and purchasing materials. This grant hired 40 engineers and more than 1,000 professional workers.
6. The Special Municipal Fund, which was allocated to repair some of the most urgent damage due to the lack of direct financial funding. This met the urgent need of the population just after incursions; this was highly appreciated as it was implemented to respond to emergency needs.
7. COOPI Grant: A grant from an Italian institution dedicated to repairing and rehabilitating façades, arches, roads and public squares within the Old City. This grant was implemented in partnership with the Municipality of Nablus, providing building materials, tools and services.
8. Islamic Bank grant: US$1 million. This fund was implemented through contractors on specific projects, including:
    - Rehabilitation of roads in different parts of the Old City.
    - Rehabilitation of the external façades overlooking the public roads and in different places in the Old City.
    - Re-paving a number of public squares within the Old City.

Notes on the working method

The Norwegian grant required that 70 per cent of its value be spent on the labour force. In response to that, Nablus Municipality hired labourers directly and these were paid on a daily basis. No specific tenders were prepared for the work, nor was a work plan and operational methodology prepared for each site. All works were carried out on an emergency basis as needed due to sudden incursions by Israeli forces.

One major difficulty facing the engineers supervising this work was that it was impossible for them to determine the amount of work needed. Misjudgement of the size of the work occasioned additional costs. This resulted in a shortfall in budgets in some cases but was compensated later. Beneficiaries demanded more work to be done, causing a number of disputes with owners of the houses.

In response to this, a social counselling programme was set up in the later stages to inform the beneficiaries of the project constraints and the mechanisms to deal with them. People were informed that they were strictly not allowed to interfere with work prior to the official start of work. This aimed at saving whatever possible of building materials doors and windows to be fixed rather than just getting rid of them in order to be replaced by totally new ones.

In the later stages the municipality started working according to a bidding system. This helped ease many social disputes with beneficiaries. However, this was only possible when the situation on the ground was more stable.

One major problem was that the work mainly focused on repairing houses and stabilising them by using new materials. Due to the large-scale emergency need, and the fact that many of the engineers involved were not skilled in historical restoration, the outcomes of this kind of work did not respond to restoration standards in many cases (figg. 79–84).

The work was implemented as a quick response to the needs of people, replacing damaged doors and windows with new ones. Municipality workers and rescue teams managed to remove falling structures that could have threatened the lives of people. They removed falling structures, parts of the house that could have fallen on public streets. Considering immediate repairs or restoration work was not a priority at that stage.

However, when the general situation on the ground became more stable, the Municipality made a number of small interventions that were seen as the start of professional restoration to preserve the authentic image of the Old City. This was seen in a number of wooden balconies which threatened to fall due to cracks caused by explosives that damaged nearby structures. A number of these balconies were replaced by new ones that were made by local carpenters, using materials that comply with traditional old ones (figg. 85–87b). Another example of where a scientific approach was implemented was the as-Saraya building, an old Ottoman compound in the middle of the Old City (figg. 88–88c).







Images, Clockwise from top left:
Figg. 79–84. The extensive use of new building material for the repair of demolished houses

Images, Clockwise from top left:
Figg. 85–87b. Replacing old wooden balconies with new ones

Images, Clockwise from top left:
Figg. 88–88c. As-Saraya building before and after destruction

The work to restore these wooden balconies came as a response to a number of notes criticising the work of the municipality. These were discussed by a number of local architects and interested people with the mayor and staff of engineering department.

As shown in the photos, the work totally replaced the old balconies with new ones. The cost for this work was paid for from the Norwegian fund for the municipality.

4.2.3 Projects of the Civil Society of Nablus Governorate

The Civil Society of Nablus Governorate is a non-profit charitable organisation founded in 2000 at the start of the second intifada to support the steadfastness of the people of the province against Israeli army attacks. The association was founded by an elite group of official government institutions and Civil Society, and the people of Nablus. Its main work can be summarised as:

1. The reconstruction of houses destroyed by the Israeli army.
2. Providing safe shelters and housing families whose houses were demolished or severely damaged by Israeli incursions.
3. Repairs to homes for the poor and upgrading houses of people with special needs.
4. Support and compensation for traders whose shops were destroyed or damaged as a result of the invasions.
5. Providing food and health assistance through mechanisms to ensure that aid reaches its beneficiaries.

The society is a product of community partnership and teamwork, between private and public sectors and charities. Perhaps the most important advantage of the work of the association is the integration of community work in order to compensate for shortages and complete all projects that have been implemented through the official institutions listed above.

The fast emergency response to unexpected situations resulting from the invasions and thus contributing to collective responses is one important factor of its success. In order to do this, the society established an emergency fund and allocated and generated a significant sum from a number of local and international agencies. This fund enabled the society to respond immediately to emergency situations. The mayor and governor of Nablus administer this fund on a shared basis.

Notes on the working method

The work of the Civil Society of Nablus Governorate is based on partnership. The adoption of joint work between Nablus Municipality and the Ministry of Works and other stakeholders with the administration of the Civil Society of Nablus Governorate had a significant positive impact. The work of the Civil Society for reconstruction was combined with a number of relief efforts. The necessary aid money was provided directly to the beneficiaries.

The Civil Society through generous funding, mainly from the Arab Fund in Kuwait, managed to spend about US$15 million for relief and reconstruction work during the invasions and their after effects. The expenditure on relief projects was based upon need as assessed by the steering committee of the society. This group of major stakeholders and decision-makers in the city played a very important role in strategic interventions on the scale of the whole governorate of Nablus. The Old City was the main concern as it was a site in which destruction was concentrated.

During the period of relatively acceptable security and political stability in the city a number of reconstruction and conservation projects were accomplished. They included a number of residential buildings:

Abu-zant building (figg. 89-90a)

A three-storey building that was built in stages; the ground floor is composed of two shops, that have cross-vaulted roofs, and two upper residences that were built later with load-bearing stone walls and flat roofs. The building was hit by a missile in the centre of the upper roof which damaged it and caused severe cracks in the lower floors. Reconstruction work was accomplished jointly by the Welfare Association who donated the money and the Civil Society who supervised the work. It was completed by 2006. The cost was US$84,000. The old stones from the original building were saved and reused in the reconstruction of the ground floor, while new similar stones were used for the upper ones.

Sarhan house (figg. 91-91e)

Images, Clockwise from top left:
Figg. 89–90a. Abu-Zant house before and after reconstruction work

Images, Clockwise from top left:
Figg. 91a-e. Sarhan house before and after restoration work

This house was demolished by internal explosives planted by the Israeli army. It caused extensive damage to an upper room that had a pitched roof of red tiles, and made a huge hole in the ground causing damage to the cross-vaulted roof of the lower room. It also damaged a stone balcony. The reconstruction project was funded by the municipality and was jointly supervised by the Civil Society. The structural technique used to stabilise the ceiling of the lower room was to hang it on to the sides of the remaining parts of the cross vaults using concrete slab. The external façade of that room was fixed stone by stone (fig. 91c), the stone balcony was reconstructed afterwards. The work was completed in 2005.

As-Salahi Mosque (figg. 92-92c)

Images, Clockwise from top left:
Figg. 92–92c. As-Salahi Mosque before and after

The Great Salāhi Mosque lies in the eastern end of the Old City of Nablus; it is considered one of the most important historical mosques of the city. Its original layout is rectangular, with the inner praying hall consisting of three porticos extending in an east-west direction. In the eastern part of this hall, there are 14 square pillars, two pillars with two pairs of circular columns. The western part rests on eight cylindrical columns crowned with decorated capitals, and on two pillars each consisting of two pairs of circular columns.

There are also two open courtyards, one near the eastern entrance, and the other in the north-western end of the praying hall. Near this courtyard there is a room, with a water fountain in front, which has metal taps drawing water from the nearby Al-kaas water fountain. The octagon-shaped minaret of the mosque is situated above the entrance in the middle of the northern front, with a balcony supported by beautiful chevron mouldings (*muqarnasaat*).

Many attempts at restoration have taken place through the history of the mosque. Comprehensive restoration of the Great Mosque began in 2010.

The original proposal put forward by the Municipality of Nablus was to carpet the mosque. The idea was later extended to include cleaning of the ceiling and walls. This required fixing the recess of the *mihrab* niche, which necessitated the removal of some paint layers from the recess and finally the total restoration of the mosque.

The restoration works uncovered two marble columns beneath one of the external courtyards, which indicates that the original area of the mosque was greater than the present one. A marble column was uncovered inside one of the square supports in the eastern part of the mosque. The original entrance of the pre-existing church was also uncovered in the western front of the mosque. The stones forming the square support in the middle of the mosque all bore various symbols each representing the signature of the worker who engraved the stones during the crusader period.

The most important discovery is related to the niche area. The foundation layer of the Great Mosque is more than 3 metres below the level of the road to the south of the mosque. This means that the niche of the present mosque lies beneath the southern road. When the workers removed the stones from above the niche, the niche was shown to be part of a large gate. The stones with which the niche was built are relatively recent compared with those of the large gate.

It was thus shown that the southern road was the same level as the original foundation of the mosque. However, the accumulation of rubble due to continuous earthquakes that have struck the city over the past centuries, raised the original level of the road to the point where passers-by are able to see the worshippers through the mosque's high windows.

A new theory was formed regarding the Roman design of the city based on this piece of information and the Roman mosaic map in the church of Madaba. A straight line could be drawn connecting the large gate of the mosque in the left front (the site of the current niche) to the gate of the Roman amphitheatre in the area of Kshaika St. outside the walls of the Old City. The hypothesis is that there might have been an old road connecting the Roman amphitheatre and the mosque which was originally a Roman temple. This matches the Roman city planning principle with two intersecting streets *cardo* and *decumanus* around which the Roman city spreads. Through restoration the marble columns were installed in their original place in the outside courtyard, and thus the southern entrance was restored as it was designed for the Roman temple.

This restoration project was particularly important because the Great Mosque had not been restored for many centuries. It also helped preserve its archaeological value, while at the same time solving problems of humidity and decay of stones that were affecting worshippers.

The restoration process also included removing several layers of paint from the marble columns. The most important accomplishment was, perhaps, the removal of the inner and outer pointing between the stones of the building. For that purpose, the Municipality of Nablus donated about US$16,000.

The enthusiastic participation of the local community, through their generous donations, was the main driver for the restoration of the mosque. The restoration costs (US$140,000) were entirely covered by the citizens, establishments and visitors to Nablus.

These projects were carried out to a standard close to the required professional level. This was achieved by using suitable building materials and trained builders supervised by expert architects. It helped raise the spirit of local people about the determination to stay and revitalise the urban fabric of the Old City and not only enabling people to survive in their living buildings.

As a result of incursions and deterioration of many people's living conditions, together with the lack of appropriate funding for the comprehensive restoration of old buildings, the Civil Society proposed a project to carry out basic repairs on the houses of the most deprived families. Repair of the houses of the poor and most deprived families was designed to assist the beneficiaries not only in improving their living conditions but also in protecting them from disease. Sewage, drainage and humidity are the main problems facing the houses of the poor. The project's three main goals were: to make the houses safer; remove damp and store rainwater; carry out basic repairs to improve the health conditions in kitchens and bathrooms.

This project aimed to respond to the needs of people living in hardship inside historic buildings inside and outside the Old City. It was implemented at a time when appropriate funding was not available to implement comprehensive restoration work for these houses. It responded to the needs of a wide area within the historic centre. It used the available funding to the maximum benefit to help people, restore the houses that most needed restoration while leaving the space open for

This spread, Clockwise from top left:
Figg. 93–96a. Examples of poor houses project before and after




future restoration of these houses with complementary works. The scope of work covered the whole area of the urban fabric, which is considered an asset to comprehensive work in the future.

The project focused particularly on families with children or the elderly. It also focused on families whose members were ill or disabled. Special preference was given to buildings that ran the risk of demolition during the Israeli invasions and whose owner was deemed in need. Although the work was to be performed by the beneficiaries themselves, its scope and complexity required it to be carried out in different stages. Initial payments were made by cheque. The owner of the house started work upon receipt of this first instalment. The next instalment was disbursed only after a site inspection to determine the progress of the project; the third instalment was paid on successful completion of the work. The total number of houses repaired inside the Old City was 331 and the total costs were around US$800,000 (figg. 93-96a).

4.2.4 Projects of the Welfare Association

For the purpose of this report, it was impossible to get any details, drawings or maps or photos from the association to elaborate more about it. However, the description of work, level of intervention, work, and approach of the Welfare Association in old Nablus is given in a more precise way on the website of the association.[5]

5. Outcomes and Effects

It is clear from this that the project of reconstructing old Nablus was seen from the beginning as very difficult to achieve. Later people became more appreciative of the work done, more believing in the values of their cultural heritage.

The immediate and continuous stabilisation, or reconstruction work carried out by the Municipality of Nablus and other institutions had a great impact on raising the spirit of locals to stand up and resist against evacuation. It later gave citizens a feeling of ownership and raised awareness on the importance of cultural heritage in maintaining local identity. The feeling of ownership was emphasised by the work of the Civil Society, as its strategy was through partnership with local people, not doing the work for them as with other stakeholders. The impact of the work of the Welfare Association was witnessed by the better appreciation of the cultural value of the place mainly by visitors.

If the impact of these actions as a sustainable approach for a higher appreciation of cultural heritage is to be considered, the issue needs more efforts. There has been no interest in achieving this important aspect of citizens' lives through a holistic view. More work on public awareness is needed so that people are increasingly willing to preserve the treasures of the Old City and maintain the sense that they are all the owners of the city. The work described here was limited to structural stability of buildings, repairs of parts and elements, reconstruction or restoration. The various stakeholders dealt with physical structures, architectural heritage not the intangible one, which is of similar importance.

- Social justice, I believe, was not well achieved, as a number of houses demolished by the Israeli army were not reconstructed at the time when a number of houses which suffered light damage were totally restored. The high expenditure on the restoration of individual houses even if they were abandoned was the justification for this belief. It would have been better if houses which were affected directly by the events had been prioritised for comprehensive restoration in a straightforward clear strategy. This could have been a better tool for urban regeneration of the Old City, rather than the selection of housing districts (*ahwāsh*). Furthermore, when comparing expenditure on public owned projects, open yards, external façades of buildings, (qanater) etc., or the wide range of houses selected for minimal intervention with the higher cost spent on restoring private houses, it is hard to justify this high expenditure on houses with fewer number of beneficiaries and the general impact on the urban context.

- Poverty reduction, social empowerment, was an attempt by the Civil Society through the upgrading of lower-grade houses of the poorest. Expenditure on each of these houses was about US$2,400-3,000. As described above, this was the minimum intervention possible by the donation from the Arab Fund. Its impact on a wider range of the general public is believed to have had a more positive impact on the urban fabric. This kind of work left the door open for future scientific restoration work.

- Partnership and sharing of responsibilities amongst stakeholders and with beneficiaries could have been better organised. It could have been a good tool to guarantee a more powerful social protection for these sites and enable beneficiaries to better appreciate what they were offered.

- Economic development for the Old City was an important aspect considered by the compensation money paid to individual shop keepers inside the Old City. This was paid through a fund from the Palestinian Government through the Civil Society. Fixing doors of the shops immediately after invasions helped people to better save their belongings and return to their businesses. This was a very important positive impact of the projects implemented by the Municipality and Ministry of Public Works.

- Creating a minimum feeling of safety for people and businesses as a direct result of immediate interventions helped maintain the life of the Old City. This helped generate new tourist attraction projects such as motels, restaurants, and coffee shops. A major project implemented was the caravanserai.

- Enhancing the general environment of the Old City is still a public demand; traffic management is a major need.

6. Additional Comments

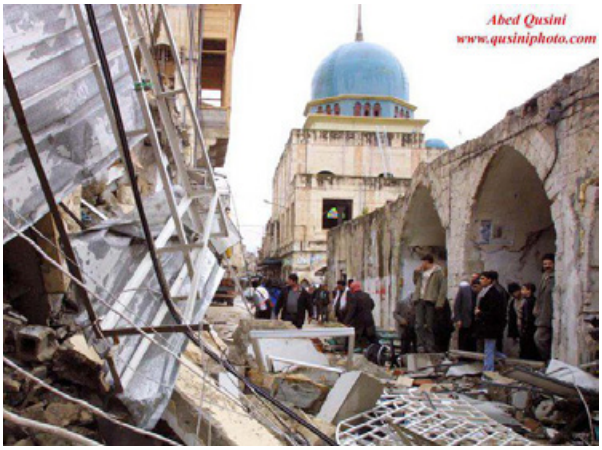
The Old City of Nablus is now an attractive city for local investors, as the number of rehabilitation projects is increasing. Local investment has initiated projects to transform two soap factories into public baths, a number of houses have been restored as hotels or guesthouses and traditional restaurants, and community organisations are working to restore premises and the Kanan soap factory. (figg. 97, 98)

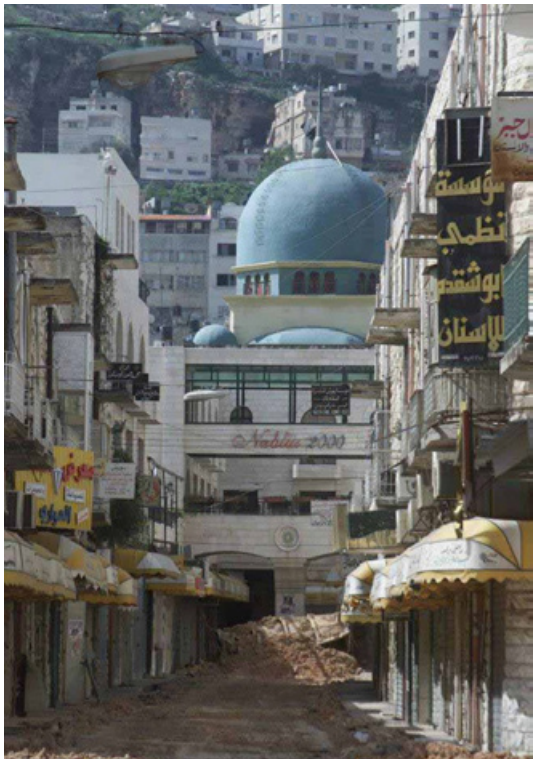
The determination of people to preserve the architectural treasure of the Old City has succeeded despite funding difficulties and continuous destruction (figg. 99–117).

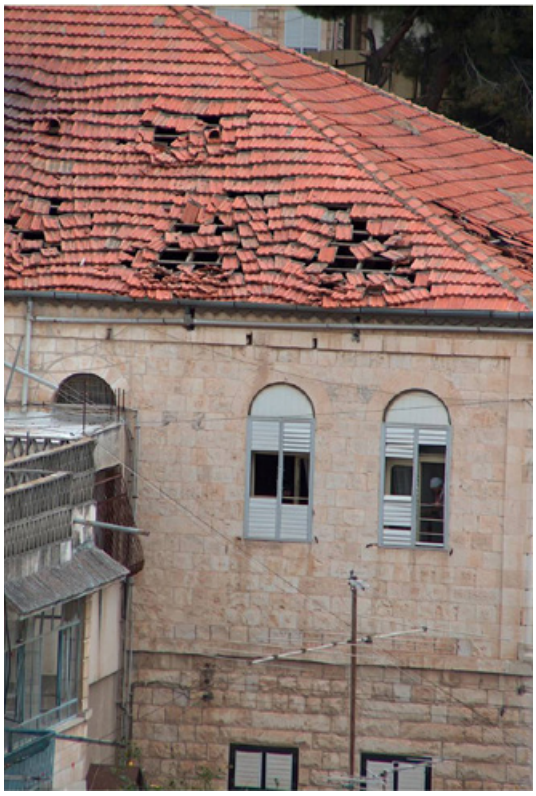
Considering the history of resistance over the past years, there is no doubt that the people of Nablus increasingly appreciate the value of their city; the Old City will remain living as long as the hearts of its people remain beating (fig. 118).

Images, Clockwise from top left:
Figg. 97-98. Kana'an soap factory

Images on pages 82, 83 and 84:
Figg. 99–117. Examples of destroyed structure by Israeli forces during the various invasions 2002-2004







7. Details of the Expert(s) Completing the Case Study

Naseer R. Arafat

Architect, development and planning specialist with in-depth knowledge of cultural heritage and conservation theory and practice. Participated in a number of local and international courses and workshops related to sustainable development, cultural heritage, covering the fields of Urban Regeneration, Tourism, Conservation of Cultural Heritage, and Sustainability. Assisted with a number of research projects and books on Palestinian architectural heritage, social and historical issues. Author of *Nablus, city of civilisations.* http://www.facebook.com/Nabluscityofcivilizations?fref=ts

Experienced in conservation and concepts of integration with planning schemes for historic centres, acquired through years of professional work, as well as higher academic training. Supervised several conservation and urban regeneration projects in Jerusalem, Nablus,

Hebron, Ramallah, Al-Bireh, and a number of villages in the West Bank. International experience also gained through study projects in London, Fez, Dar Al-Salam, and Stone Town in Zanzibar.

Coordinated the architectural survey of the Cultural Heritage Resources Management Project at PECDAR, under the supervision of the Technical Assistance Department and the World Bank. Responsibilities included procurement and set up of office furniture and equipment, hiring 65 technical and four administrative employees, in addition to supervising the administrative and technical aspects of the project, responsibilities included reporting in accordance with The World Bank guidelines. This project covered the whole West Bank and Gaza. Led the architectural survey teams for the National Registrar of Historic Buildings in Palestine. Responsibilities included hiring and coordinating the work of 136 architects and undergraduate students of architecture. Work covered six major cities and more than 250 villages, implemented in cooperation with various local authorities and technical support from the Ministry of Local Governance and Ministry of Planning.

Consulting the National Register of Cultural Heritage project in Saudi Arabia, on behalf of the Ministry of Tourism and Antiquities, working with Khateeb and Alami company on a 3-year project.

2. Membership in Professional Societies

Elected Head of administrative committee, Nablus Old City Conservation Society 1997–2000

Participant, Museums Without Frontiers Scientific Committee.

Founder of Cultural Heritage Enrichment Centre, Nablus. Elected chairman in 2017.

Member of the advisory committee for the Prince Claus Fund conference on Cultural Emergency Response (CER), Sept. 2006.

Co-founder Palestinian Academic Research Centre, 2011.

Elected member of steering committee Little Hands Society, 2012.

Member of advisory committee *This Week in Palestine* magazine.

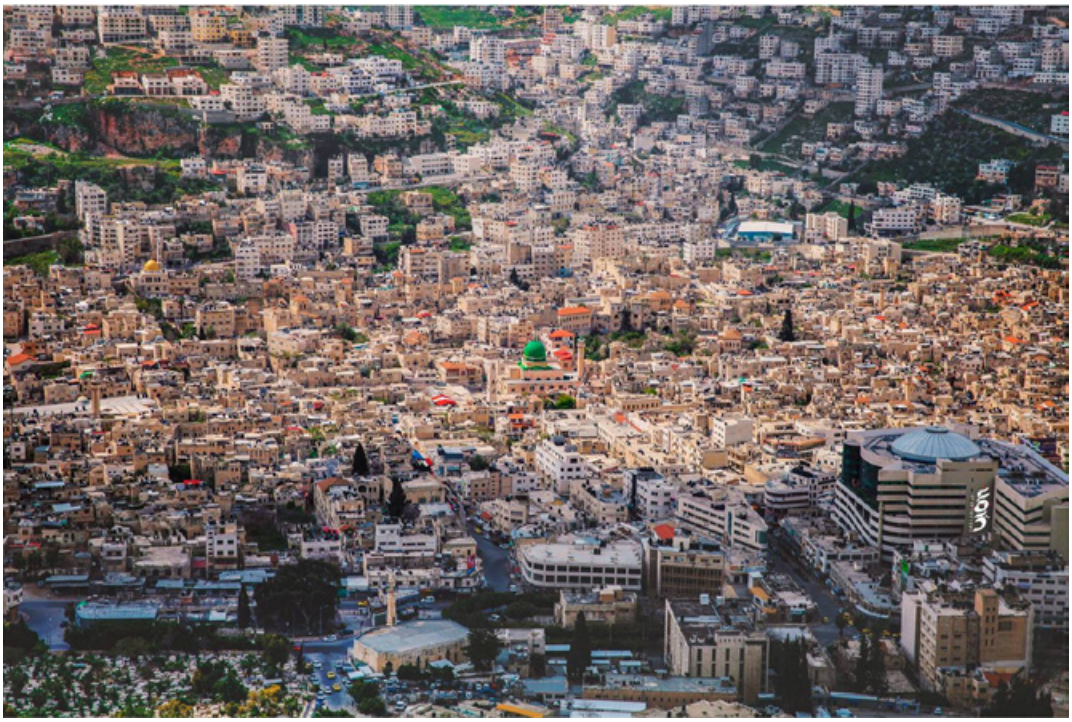


Fig. 118. View of the Urban Fabric of the Old City of Nablus

Endnotes

1 ProCon.org. (2008, April 24). 1995 Oslo Interim Agreement. Retrieved from https://israelipalestinian.procon.org/background-resources/1995-oslo-interim-agreement.

2 Side stone is rectangular stone 25cm * 17cm, with various lengths, that is placed raising above the level of the street, on the sides of the road to protect adjacent buildings from rainwater and create above surface drainage for rainwater.

3 Because of the urgent need for health care, a number of clinics were established in the Old City to help people get first aid when needed. This was a significant necessity due to the barriers to movement and thus to quick response of ambulances into the Old City. A number of emergency service workers were also killed. On most occasions, emergency staff members were prohibited from doing their jobs when a military operation was undertaken by the Israeli army.

4 The municipality owns the vegetable market, and this had been deprived of the revenues of its vendors, who have moved elsewhere. Revenues collected from renting the market's booths have declined from NIS 5.19 million (US$1.3 million) in 2000 to NIS 509,290 (US$127,323) in 2004 (Nablus Municipality 2006). This raised the unemployment rate and resulted in massive destruction and insecurity for its businesses. This indicates also the setback of the local economy of the city during that period.

5 http://ocjrp.welfare-association.org/content/nablus-revitalised.

Bibliography

Arafat, N., 2012. *Nablus City of Civilizations*. Cultural Heritage Enrichment Center, Nablus.

ad-Dabbagh, M. M., 1988. *Bilāduna Falastīn* (Palestine our Homeland). At-tali'ah Publishing House, Beirut.

ad-Dominikāni, M., 1948. *Buldāniyyat Filistīn al-'Arabiyyah*. Jeanne Diarc Press, Beiru.

al-Faris, D., 1998. "The City of Nablus and the 1927 Earthquake in Documents", AnNajah National University, Master Thesis.

al-Khatīb, R., 1986. Jerusalem and Palestinian Cities under the Israeli Military Rule, Jerusalem.

al-Maqrīzi, A., 1957. *As-Suluk Limarifat duwal al- Muluk*, Authorships. Translation and Publication Press, Cairo.

an-Nimr, I., 1975. *History of Jabal Nablus and al-Balqā' Ummāl al-Matābi'.* at-Ta'āwuniyyah Press, Nablus.

As-Samiri, I., 1986. *Thaher al-Umar and rules of Jabal Nablus, 1771-1773*. An-Najah National University, Center For Documentation and Research, Nablus.

Assi, E., 2003. "Heritage without paper" "More than twenty thousand years in the History of Architecture; safeguarding the structures of our architectural heritage". UNESCO, Paris.

Conder, Claude Reignier and Kitchener, H.H., 1881. *The Survey of Western Palestine: memoirs of the topography, orography, hydrography, and archaeology.* Committee of the Palestine Exploration Fund, London.

ISG, International Forum of Historic Centers Graz, 2003. *Master Plan for the Preservation and Further Development of the Historic Centre of Nablus*. Palestine Internationalse Stadteforum Graz (ISG).

Kalbūnah, A., 1992. *The History of the City of Nablus 2500 B.C.-1918 A.D*. An-Naser Publishing.

MA'AN Development Center, 2008. *Nablus from Economic Metropolis to Shrinking City.*

Pringle, D., 1997. *Secular buildings in the Crusader Kingdom of Jerusalem*. Cambridge University Press, Cambridge.

Tshelebi, E., Stephan, St. H., 1980. "Travels in Palestine (1648-1650)", in *The Quarterly of the Department of Antiquities in Palestine*, Ariel publishing, Jerusalem.

Wright, E., 1965. *Shechem: The Biography of a Biblical City.* McGraw-Hill Book Co. New York.

Reports

Disaster Mitigation Towards Sustainable Development in the Occupied Palestinian Territories, El-Atrash, A, Salem, H, Isaac, in *J ARIJ*, 2001

Culture is a basic need, 2005. Prince Claus Fund Journal #14.

OCHA, 2007. Situation Report Nablus,

OCHA, 2005. Costs of Conflict, "Nablus after Fiv e Years of Conflict".

Palestinian Central Bureau of Statistics Reports, 2019.

Quarterly Economic and Social Monitor, 2019.

Nablus Municipality/ engineering department, 2007. *List of Building's Owners Funded by Norwegian Fund Agreed by the Civil Society.*

Nablus Municipality, *The Third Norwegian Fund.*

Nablus Municipality/Technical Committee for renovation of Nablus City, 2004. *A revealing report on Mohammad Al-Hafi house.*

Nablus Municipality, *The one thousand name fund proposal.*

Nablus Municipality, *2004. Proposal to the World Bank.*

Nablus Municipality, *2004. OEDCAR Fund Proposal.*

Nablus Municipality, Welfare Association Proposal.

Nablus Municipality/ engineering department, 2003. *Damaged Houses Renovation Works/Japanese Fund.*

Nablus Municipality, 2002. *'Post-Disaster Damage Assessment for the City of Nablus.*

Websites

UNESCO, 2001 'The Impact on the Palestinian Economy of Confrontation, Border Closures and Mobility restrictions', Retrieved on 5 October 2019 from http://www.arts.mcgill.ca/mepp/unsco/September2001.pdf

United Nations, 2002 Retrieved on 31 September 2019 from http://www.un.org.ph/agencies/UNIC/cultural%20heritage.PDF

ICOMOS "Palestine", Retrieved on 18 September 2019 from
https://www.icomos.org/risk/2002/palestine2002.htm
https://www.ochaopt.org/sites/default/files/NABLUS-OLD-CITY_sts-rprt_080104isu160104.pdf

Interviews

1. Engineering Association, Dr Sami Hijjawi
2. Ministry of Culture, Nablus office Mr Hamdallah Hawamdeh
3. Ministry of Tourism and Antiquities, Nablus office, Mr Mufeed Salah
4. Nablus Municipality, Old City Rehabilitation Office, Mr Sameh Abdo
5. Nablus Municipality, Bidding and Contractors department, Mr Majdi Attereh
6. Palestinian Central Bureau of Statistics, Nablus Office, Mr Waddah Shahrouri

THE CONSERVATION OF PALAZZO CARLI-BENEDETTI AFTER THE 2009 EARTHQUAKE IN L'AQUILA (ITALY)

Carla Bartolomucci, Donatella Fiorani

TABLE OF CONTENTS

List of Illustrations

1. The Heritage Resource and its Context Before the Impacting Event(s)

Palazzo Carli-Benedetti is a historic palace located in the centre of L'Aquila, near Santa Maria Paganica square (one of the four quarters that structured the foundation of the city). The church, dating from 1308, and its surrounding residential tissue are located on the highest site of the ancient town and show a regular urban structure, as planned after the earthquake in 1349 (fig. 1).

In the fifteenth-century the area was inhabited by the aristocracy: Giacomo Carli (who built the palace) was a wealthy merchant and had commercial relations with Florence, then the capital of the Renaissance.

The palace is known for its Renaissance courtyard, considered to be among the main monuments of the city and is attributed to Silvestro, one of the greatest fifteenth-century artists in L'Aquila (Leosini 1848: 98; Chini 1954).

The palace does not show monumental features from the outside, but some important traces of previous phases are visible on its wide fronts; these include the strong square stones of the corner and the succession of portals with pointed arches in the façade on via Mazzini.

Fig. 1. Palazzo Carli-Benedetti and the surrounding urban fabric; the church of Santa Maria Paganica is still in ruins today (Google maps)

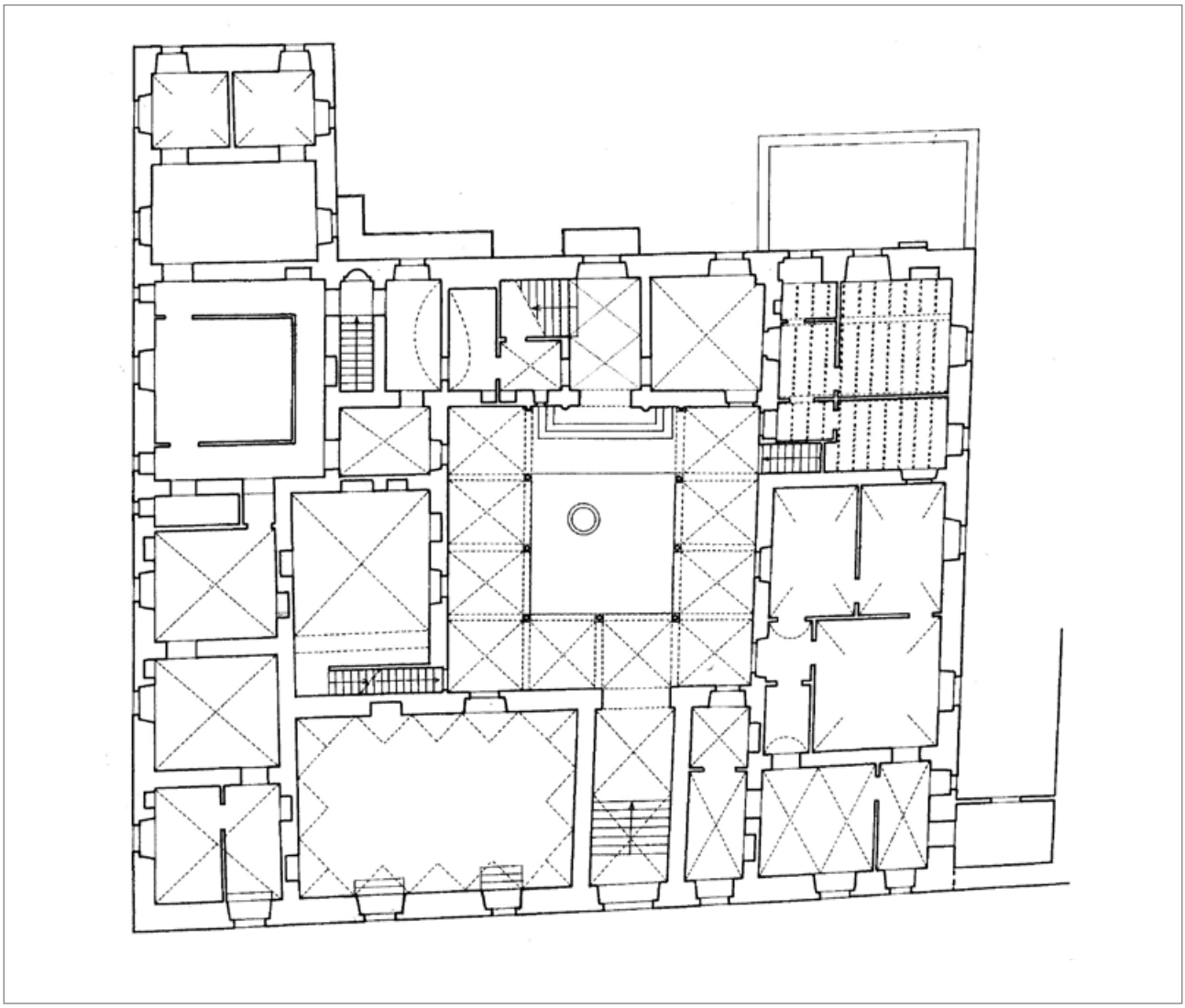
The initial use of the edifice as a dwelling remains to this date, although the Renaissance palace was later divided into several apartments.

Form, Function, Creation and Subsequent Transformations

The building is quadrangular in form with an inner courtyard. The façades on the streets are organised with three stories, with a partially visible basement. The courtyard is organised at the ground floor with an arched colonnade on three sides and a scenographic gate on the fourth, leading to the staircase (fig. 2). The pre-existing medieval constructions of the basement are now used as cellars; the upper floors were reconfigured and partly rebuilt in the eighteenth-century, when the division into apartments – now at the first and second level – occurred.

The walls are composed of irregular masonry in stones with squared cornerstones. The vaults of the first level are in stone, those of the second one in bricks; painted wooden ceilings are also present. Some false ceilings with wooden structures were introduced under the roof in the renovation after the earthquake of 1703; at the same time, some partitions in wooden framework and doors with stucco frames were introduced.

Fig. 2. The plan of Palazzo Carli Benedetti at courtyard level – intermediate floor (drawing by C. Bartolomucci, 1999)



From left to right:
Fig. 3. The courtyard of Palazzo Carli Benedetti in a photo from the early 1900s (ph. Alinari). Note the eighteenth-century frames at the windows of the loggia
Fig. 4. The courtyard after the 1947 restoration: note the removal of the eighteenth-century frames from the loggia (ph. Chini collection)

The original upper loggia of the courtyard changed in the eighteenth-century renovation with the enclosure of the space between the columns and the pillars at the corner and the insertion of stucco cornices around the windows (Bartolomucci 2018: 18, 43-48). These cornices were in the restoration of the last century (fig. 3).

The palace, originally built as a residence for the Carli family, was later transformed with the changes of ownership (see para. 1.2), and was divided into apartments. In 2009, when the earthquake occurred, there were nine residential units and two shops; all units were permanently occupied by residents or tenants.

1.1 Description, Designation and Recognition

The recognition of the historical and artistic interest in the building goes back to 1934, when the palace was listed by the Ministry of Cultural Heritage.[1]

The recognition of value seems to be only motivated by the presence of the Renaissance courtyard: no importance was attributed to the stratification of the different historical phases or to other relevant components, such as the medieval remains incorporated within the palace, the eighteenth-century remodelling, and the recently discovered chapel of the nineteenth-century. For this reason, the restoration carried out in 1947 eliminated the nineteenth-century cornices over the windows in the courtyard loggia, aiming to reproduce, at least partially, the Renaissance aspect (Bartolomucci 2018: 52–60) (fig. 4).

1.1.1 Scholarly for Recognition

The historian Ludovico Antinori quoted Giacomo Carli in his manuscript about L'Aquila as the customer of the palace, which was completed in 1494 (Antinori 18th century).

The first descriptions date back to the nineteenth-century, when Angelo Leosini described the courtyard in his book on the monuments of L'Aquila (Leosini 1848). Since then, historians have described the courtyard but neglected the palace.

From left to right:
Fig. 5. The photo showing Palazzo Carli Benedetti in the History of Architecture in Abruzzo by Gavini (1927–28)
Fig. 6. An exhibition of embroidery tools in the courtyard before the 1947 restoration (ph. Chini collection)

Carlo Ignazio Gavini, in his *History of Architecture in Abruzzo* (Gavini 1927-28: 319–321), describes the building but neglects the eighteenth-century components. (fig. 5), Mario Chini did likewise in a later essay (Chini 1954).

In several books dealing with palaces in L'Aquila, the same exclusive importance is given only to the courtyard (Moretti, Dander 1974; Mancini 1994; Centofanti 1997).

1.1.2 Popular for Recognition

A photograph from the early 1900s represents some women showing tools used for preparing the precious '*tombolo'* (a special kind of embroidery); this document could testify to the use of the palace also as a location for exhibitions or a market of artisanal goods (fig. 6).

The courtyard was often portrayed in drawings and paintings by local artists. Before the last earthquake in 2009 the site was often used in advertising or for wedding photographs.

At the present time, the notoriety of the Renaissance courtyard has favoured the organisation of concerts, exhibitions and other cultural events within the palace both before and after the earthquake and the last restoration (see the "Italian Jazz for the earthquake lands" since 2015 until 2019).[2]

1.2 History and Context

1.2.1 History, ownership and environment

The <<masterpiece of the Florentine Renaissance>>, as defined by some authors (Moretti, Dander 1974: 38), actually shows three main building phases – the medieval age, the fifteenth and the eighteenth-century (after the earthquake of 1703).

As previously mentioned, the palace was built in the second half of the fifteenth-century by the Count Carli family. The property remained the same until the beginning of the eighteenth-century, when it was sold to the nuns of the adjacent monastery of Santa Maria dei Raccomandati.

In 1703, an earthquake seriously damaged the whole town; later, the abbot of Collemaggio and of Santa Maria dei Raccomandati, Ludovico Quatrari, renovated the building extensively.

The eighteenth-century transformation is particularly evident on the upper floor, due to the closure of the loggia and the division into apartments.

At the beginning of the nineteenth-century the palace became the property of Antonio Benedetti (who changed its name) and it was later divided among his heirs.

In the twenty-first-century the palace is still often referred to as the Benedetti Palace, in spite of the many current owners. The official current double designation Palazzo Carli Benedetti sums up the complex history of the building.

Another earthquake in 1915 caused minor damage to the building, which then continued to be inhabited; in 1947 the courtyard was restored by Umberto Chierici (superintendent of Cultural Heritage), who eliminated the eighteenth-century windows (figg. 4, 7). However, the transformation of that period, with the filling of the empty space between the columns, was considered to be an inappropriate alteration of the Renaissance courtyard. As the elimination of the walls from that period was not allowed for structural reasons, the architect decided to eliminate the figurative elements – the cornices of the windows – on them.

In the 1970s the urban context was altered by the construction of an adjoining building in concrete, arising from the demolition of minor surrounding houses, originally used as stables.

Chronology

Fourteenth-century: site occupied by dwelling houses.
1349: a strong earthquake struck the existing houses, later incorporated within the palace with the Renaissance reconstruction.
1461: another important earthquake damages the medieval houses. Probably the construction of the building began before the earthquake and after 1461 the works resumed with some modifications to the initial project.
1494: completion of the reconstruction commissioned by Giacomo Carli.
1642: the nuns of Santa Maria dei Raccomandati bought part of the building from the heirs of the Carli family. In
1702: they completed the property (a few months before the earthquake of 2 February 1703).
1703: earthquake and subsequent restorations by Ludovico Quatrari, the abbot of Celestine nuns. The building was divided into apartments and rented around 1720.
1807: the monastery is abolished (Law on the Abolition of Religious Orders, 13 February 1807).
After 1807-before 1824: Antonio Benedetti, new owner of the palace, has partly transformed it, creating a new entrance, many inner decorations and adding a chapel. The property was later divided among his heirs.
1915: earthquake (low damage).
1947: the courtyard was restored by Umberto Chierici, Superintendent of Cultural Heritage in Abruzzo.
1998: intervention involving conservation and strengthening of the roof.
6 April 2009: earthquake (partial collapse of the upper loggia, damage to walls and vaults)
2013-2016: post-seismic intervention.

Fig. 7. The palazzo after the restoration of 1947 (ph. Chini collection)

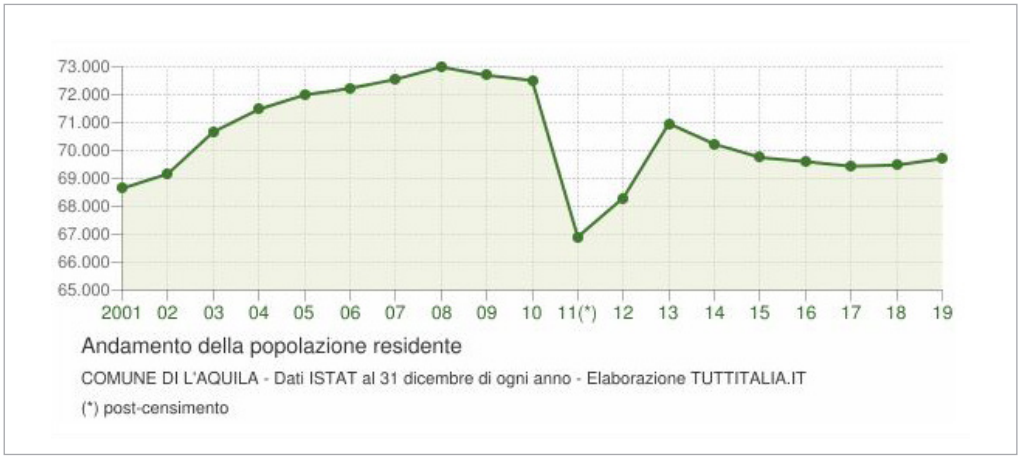


Fig. 8. The population in L'Aquila before and after the earthquake (ISTAT data)

1.2.2 Social and Economic Setting

L'Aquila, the regional centre for administration in Abruzzo, was seriously affected by the seismic events of 6 April 2009. In 2009 the Municipality had more than 70,000 inhabitants; following the earthquake, the population declined by 3,000 between 2010 and 2011. There was a gradual increase in the number of inhabitants until 2013, as people returned from other locations following the destruction of their homes in the 2009 earthquake. The current number of inhabitants is slightly lower than before the earthquake, but it remains fundamentally stable (fig. 8).

The economy of L'Aquila is based on trade, administrative offices, tourism, industry; the city hosts the oldest university in Abruzzo. There is a special focus on mountain tourism, thanks to the position of the town, just a few kilometres from the highest peaks of the Appennini and from three National Parks (Parco del Gran Sasso e Monti della Laga; Parco del Sirente Velino; Parco Nazionale d'Abruzzo, Lazio e Molise), with small towns that are very interesting from the point of view of history, art and landscape. These natural and urban landscapes risk being reconstructed more to recover the use of the building estates and to improve the tourist business rather than to conserve the authentic values of the sites.

The reconstruction of L'Aquila started from its suburbs, through the repair of recent buildings and the construction of new buildings. After the earthquake the city grew considerably with the construction of new neighbourhoods and reconstruction in the town centre only began in 2013, so the historic core has been abandoned for many years. The works are still ongoing, and in the meantime many buildings have no function. Furthermore, many small historical towns around L'Aquila are still largely abandoned.

1.2.3 Frameworks, Agents and Communication

There is an enormous amount of literature on the 2009 earthquake, concerning both the damage to the cultural heritage (Calderini 2009; Fiorani 2009; Pace 2010; Milano *et al.* 2011) and social issues (Nicita 2010; Italia Nostra 2010; OECD 2013).

Several initiatives opposed the forced abandonment of the city; in 2013 the historic centre of L'Aquila was included in the "2014 Watch List" of the World Monument Funds.[3] The abandonment was imposed by a decision of the authorities, who initially declared all the buildings <<unsuitable for use>> (the historic centre was guarded by the army who prevented any access), but later on it was not possible to live even in those that could be used for fear of further damage, lack of electricity, gas, any shop and the total absence of other inhabitants.

From a regulatory point of view, the reconstruction after the 2009 earthquake is governed by a complex system of rules which were gradually modified and updated over time.[4] This system regulates the transfer of public funds to the reconstruction works.

Private reconstruction entails the repair of damage to private property buildings. The city has been divided into *aggregates* (urban blocks with structural connections between the buildings) and these are represented by

owners' *consortia*. Each consortium has an administrator who is responsible for the reconstruction and choses the designers and the construction companies.

The projects on the listed buildings must be approved by the *Soprintendenza* of L'Aquila, the local authority of the Ministry of Cultural Heritage. The interventions on the historical unlisted buildings follow the standard procedures used for other existing edifices and they must be approved by the Special Office for Reconstruction of L'Aquila (http://www.usra.it/). The absence of a historical interest decree determines different attitudes to reconstruction, since the engineer and client can demonstrate, based on the criterion of economic convenience, that it is better to demolish and rebuild a building instead of repairing it.

The economic compensation of the reconstruction costs is based on a special *parametric form* concerning the size of the building – defined as *useful* area – and the historical and aesthetic values. These values are related to the presence of single special elements in the façades - such as stone frames of doors and windows or remnants of ancient buildings inserted – or courtyards that are visible from the street.[5]

These rules have been modified since the earthquake and are sometime different from place to place; there is a Special Office for the Reconstruction of L'Aquila and a Special Office for the Reconstruction of the Municipalities of the seismic crater of 2009. Moreover, other Offices for the Reconstruction have been added after the new seismic events of 2016 and 2017 in Central Italy, partly including the same area.

2. The Nature of the Impacting Event(s)

2.1 General Description

The earthquake of 6 April 2009 hit a large area around the city with a seismic sequence (max. magnitude Mw 6.3); it resulted in 310 deaths and over 1,600 injured with over €10 billion in estimated damage.

The seismic event was preceded by a long seismic sequence that began in December 2008. The main shake was followed by thousands of tremors that further damaged the buildings.

Abruzzo is one of the higher seismic risk regions in Italy. L'Aquila has been hit by destructive earthquakes several times; among the more serious events recorded are those in 1315, 1349, 1461, 1703, 1915 and the recent ones of 2009 and 2017 (fig. 9).

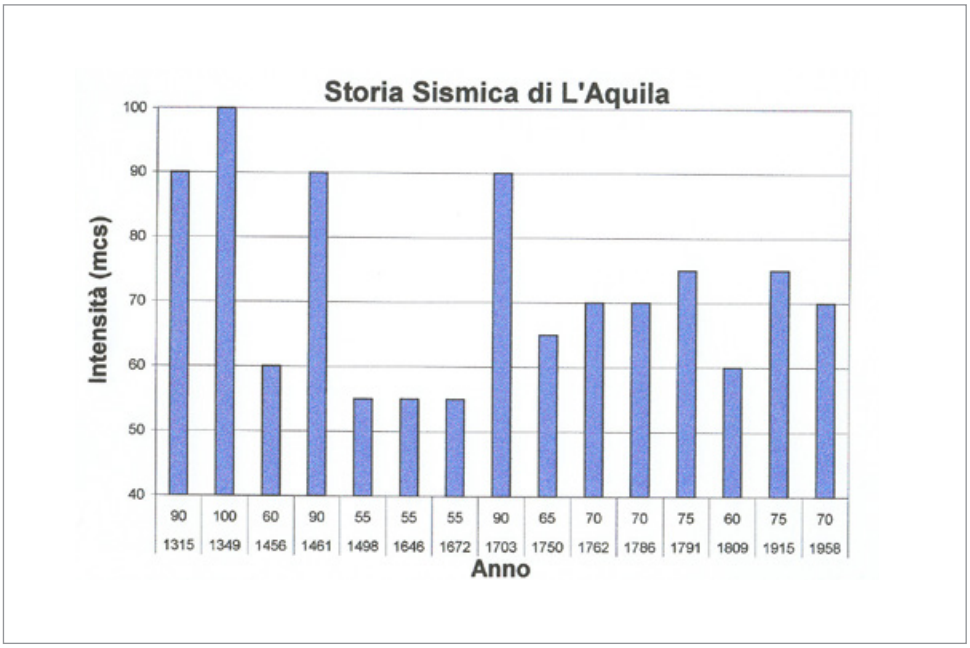


Fig. 9. The seismic history of L'Aquila before 2009 (INGV data)

From left to right:
Fig. 10. Palazzo Carli Benedetti after the earthquake: the courtyard (ph. Bartolomucci 2009)
Fig. 11. Palazzo Carli Benedetti after the earthquake: the collapse in the staircase (ph. Bartolomucci 2009)

2.2 General Impact of the Event(s)

The earthquake in 2009 seriously damaged the city of L'Aquila and the surrounding small towns; the area hit by the earthquake includes 56 municipalities, affecting a population of 80,000 persons who were displaced to other safer locations.

In April 2009, all the buildings of the historic centre of L'Aquila and the surrounding towns, even those without damage, were, due to security reasons, declared unfit for use. Following this decision many historic areas were abandoned and people relocated to new constructions in the suburbs.

The damage inflicted by the earthquake affected both the historic buildings – built during the past centuries or, at least, more than 60 years ago – and the more recent ones. Among the historic edifices built with traditional techniques, wall cracks and partial collapses of vaults, ceilings and roofs represented the main seismic destructions. Much of the damage to the historic buildings can be attributed to previous interventions, mainly those carried out in the second half of the twentieth-century. Internal modifications of walls and rooms, partial demolitions of masonry, reinforced concrete roofs and, in general, the use of incompatible technologies weakened the ancient structures.

Interestingly, the historic buildings in L'Aquila did not suffer full collapse. However, some of them were demolished after the earthquake (for example, a palace built in the 1930s on Corso Federico II, listed by the *Soprintendenza*, was demolished and rebuilt in identical form). Among the historic unlisted buildings, some were demolished for <<economic convenience>> because the Regional Law n. 49 of 15 October 2012 grants a <<volume bonus>> in case of demolition and reconstruction, allowing to increase the original dimensions of the building.

Other more recently constructed buildings that collapsed included a building for student housing and other reinforced concrete buildings built in the 1960s and 1970s in the town centre.

2.3 Impact on the Significance and Values of the Resource

The Basilica of Santa Maria di Collemaggio, whose presbytery area collapsed, the Church of Santa Maria del Suffragio, with its partially ruined dome, the Cathedral of San Massimo, whose presbytery area was destroyed, and the Church of Santa Maria Paganica, which lost its roof, vault and part of the walls have been the most affected monumental buildings in L'Aquila. Serious damage also occurred in other monumental sites: the former convent of Sant'Agostino – location of the Prefecture office –, the Convitto Nazionale – hosting the Tommasiana library –, the Spanish fortress, from the sixteenth-century – the headquarters of the *Soprintendenza* of L'Aquila and of the National Museum of Abruzzo.

As has happened in other similar situations, the historical architectural heritage was initially perceived as unsafe, as not important and too expensive to maintain.

From left to right:
Fig. 12. Palazzo Carli Benedetti after the earthquake: the collapse in the loggia (ph. Bartolomucci 2009)
Fig. 13. The painted "sovraporta" pierced by tie rods during the shoring work (ph. Bartolomucci 2010)

Currently, the historical value of buildings is perceived in a reductive way and, accordingly, functional restitution or aesthetic restoration – as journalists are used to saying: <<the coming back to the ancient splendour>> – are seen as the main aims, while the possibility of preserving the material authenticity of the architecture is not considered as much.

The 2009 earthquake caused serious damage to the Palazzo Carli-Benedetti: the collapse of the northern upper loggia in the courtyard, the loss of the corresponding eighteenth-century inner ceiling vault (figg. 10, 12), the partial ruin of the staircase wall (fig. 11) and the extensive damage to walls, most pronounced on the upper floor. Luckily, no loss of life occurred.

Since the earthquake, the building has not featured on the itineraries of citizens or tourists, this and the fact that access to the street which is currently closed – due to the dangerous situation of the nearby Church of Santa Maria Paganica – have strengthened the isolation of the palazzo from the life of the town.

The relocation of the inhabitants far from the town centre due to the earthquake provoked serious economic consequences; among the more serious are the cessation of many commercial activities and the decrease in university life. Many university students came from the south and the centre of Italy, finding in L'Aquila the right climate for studying thanks to the calm and friendly atmosphere the town could guarantee. These conditions have inevitably changed in a city wounded by the seismic event.

2.4 Emergency Repair(s) to Date

Immediately after the earthquake, teams were organised to assess the damage to monuments and buildings. The teams were set up to verify the viability of the buildings and to establish the degree of damage and to decide what safeguarding devices (supporting beams, scaffolding, tie rods, provisional coverings) were most appropriate.

The inspection of the Palazzo Carli-Benedetti was carried out by groups of specialists for the Protection of Cultural Heritage (NOPSA by Ministero per i Beni e le Attività Culturali ed il Turismo – MiBACT) during the months following the earthquake. Palazzo Carli-Benedetti was classified as category: E = unusable.[6]

Meanwhile, the Municipality of L'Aquila (for private buildings) and MiBACT (for public buildings) carried out works to stabilise damaged town structures. The safety works for the Palazzo Carli-Benedetti began in June 2009 and ended in September 2010 (at a cost of €974,173; The Municipality of L'Aquila appointed the architect Maurizio Sbaffo to implement the project).

During these works, wall paintings were damaged by the insertion of metal wire ropes, which was done without the necessary attention to the decorative elements (fig. 13).[7] Moreover, some fragments of stucco frames and wall paintings were lost during the removal of rubble.

When the restoration work began, the shoring was progressively dismantled as the consolidation work proceeded.

The supporting scaffolding prevented further collapses in the long period before the start of restoration works in June 2013, but they hindered the observation of damage during the elaboration of the project.

2.5 Documentation and Narratives

The surveys of the seismic damage were drawn up according to official standard models dedicated to monumental buildings ("A-DC Churches" and "B-DP Palaces" by the Presidency of Council of Ministers – Department for Civil Protection and MiBACT).

Currently the survey forms are in the archives of the Regional Secretariat for Abruzzo.[8]

Publications about the recovery and safety activities, in chronological order:

MiBACT, 2009. *Sisma in Abruzzo: il recupero dei monumenti*, XIII Salone dei Beni e delle Attività Culturali (Venezia, 3-5 dicembre 2009).

Di Persia, M.G. ed., 2010. *Le macerie rivelano: L'Aquila 6 aprile 2009, inediti archeologici per la storia della città*, Catalogue of the Exhibition (L'Aquila, 31 July-31 October 2010). Teramo.

VVFF, 2010. *I giorni dell'Aquila: il cuore, l'ingegno e la scienza negli interventi dei Vigili del Fuoco e del CNR*. Pisa.

Legambiente, 2011. *Il volontariato nella salvaguardia del patrimonio culturale dai rischi naturali: manuale tecnico d'intervento sui beni culturali mobili in caso di calamità*. Roma.

Basti, S.; Marchetti, L., 2013. eds., *MISAQ: Messe in sicurezza a L'Aquila dopo il terremoto del 6 aprile 2009*, Avezzano.

Several articles on Palazzo Carli-Benedetti, its construction history and seismic damage have been written after the earthquake of 2009 (Bartolomucci, De Cesaris 2009; Bartolomucci *et al*. 2011; Borri *et al.* 2011). A recent monograph (Bartolomucci 2018) refers to the previous studies and the in-depth analysis of the building following the earthquake and during the restoration.

3. Post-Event Appraisals

3.1 Impact Assessment

The evaluation of the impact of the seismic events on the historical buildings was based on some scientific studies (Direttiva Rischio Sismico 2011),[9] but the reconstruction practices began on the basis of rules and techniques mainly aimed at recovering the functionality of buildings, without any real consideration to the tangible and intangible values of the historical architecture.

The impact assessment has been guided by the matrix of the "B-DP Palaces" by the Presidency of the Council of Ministers – Department for Civil Protection and MiBACT. This matrix mainly refers to the building features – typology, masonry, building components – and to the evidence of damage – cracks, deformations, collapses. Due to its expeditious character, it does not consider the vulnerability derived from constructive transformation.

Damage levels and recoverability options were appraised in the surveys for damage assessment, but these official forms appear to have only provided information on the safety measures carried out immediately after the earthquake. Unfortunately, the difficulty in accessing these forms made the use of their data impossible in the later phase of the project development. The Archive of the Regional Secretariat of MiBACT has only recently made these data available to scholars and technicians.

3.2 Post-Event Documentation

The Palazzo Carli-Benedetti was initially the topic of a postgraduate thesis on architectural conservation at Sapienza University of Rome (Bartolomucci 1999). This circumstance was important, because it meant that a reliable survey was already available, prior to the earthquake, from the Municipality of L'Aquila for defining the safety project.

The documentation from the thesis included a survey of the building before the seismic damage, important information about materials and construction techniques and identification of the different construction phases of the palace. Therefore, it has been possible to recover

these data, some of them being not easy to investigate in the post-seismic condition of the site, and new specific considerations about seismic damage have been added. It was thus possible to analyse the effects of the earthquake on the edifice in relation to its building history, framing the structural phenomenon inside the wider understanding of the architecture (Bartolomucci, De Cesaris 2009; Bartolomucci *et al.* 2011).

The documentation of the project and the works, containing the damage survey, are kept in the archives of the *Soprintendenza* of L'Aquila and of the Municipality of Aquila – Office for the private reconstruction (paperwork no. AQ MBAC 12382 of 30 July 2012).

3.3 Challenges for Recovery

The restoration of the Palazzo Carli-Benedetti proceeded in parallel on two fronts: on the one hand the consolidation and the functional rehabilitation of the building, which had to be re-inhabited to get public financing (fig. 14); on the other hand the historical-constructive study of the building and its transformations over time, which formed the basis for the choices made in the conservation project.

This double focus sometimes created problems between the specific interests of the private owners of the apartments and the general cultural significance, connected with the public importance of the monument. The unsophisticated rules imposed for the reconstruction were aimed at restoring the buildings as they were before the earthquake, but this task has not always matched the conservation requirements of the architecture. For instance, some past transformations had led to a deterioration in the condition of the building, for example the internal partitions of some halls or the chapel for storage.

In this case, the challenge has been to harmonise the practical needs of the reconstruction – regaining a sustainable function – with the cultural exigence, mainly aimed to study, preserve and transmit the historical heritage.

Fig. 14. The consolidation project: the section along the courtyard shows the reinforces on the more damaged walls (drawing by F. De Cesaris, 2012)

4. Response Actions, Timeframes, Resources and Costs and Recovery Programme

The intervention after the earthquake of 2009 aimed to restore the palace with consideration to its historical and formal features and the functional organisation of the apartments, while also respecting the structural needs of seismic safety.

One of the main focuses was on the reconstruction of the courtyard aimed at not falsifying the historic building.

An initial proposal intended not to rebuild the wall in the upper loggia of the courtyard, leaving an open space between the columns on the left side while the other façades would still visibly preserve the eighteenth-century transformation (fig. 15). This solution was refused by the owners of the building, who preferred a reconstruction <<how it was and where it was>>, mainly for practical reasons. The solution from the eighteenth-century with a closed wall on the courtyard allowed in fact a more comfortable – warmer and with no rain access – entrance to the upper apartments.

The final choice was to reconstruct the fallen wall using thin panels so as to leave the columns visible inside and outside (fig. 16). This means that the new structure is distinguishable from the still preserved eighteenth-century façades (Bartolomucci 2018: 115, 125).

Similarly, the damaged walls were repaired and reconstructed in a recognisable way, using materials other than the original ones (fig. 17). The inner plans of the apartments have been carefully revised, looking

Images, Clockwise from top right:
Fig. 15. The reconstruction of the loggia in progress: the collapsed columns have already been recomposed with anastylosis (ph. Bartolomucci 2015)
Fig. 16. The loggia after the reconstruction: the thin wall and the recess show the columns previously closed in the masonry (ph. Bartolomucci 2018)
Fig. 17. Reconstruction of the walls surrounding the staircase: the damaged masonry was integrated and connected by FRP reinforcements (ph. Bartolomucci 2015)

for a new distribution of rooms if needed by new discoveries or structural necessities.

The recovery programme has been mainly oriented by the will to conserve as much as possible of what remained of the building. This means that the reconstruction pursued has been considered as more of an integration of the existing architecture than a remake.

4.1 Values and Sustainability

The restoration project has been based on the knowledge of the history and values of the building, so the need to repair the damage and to consolidate the structure was oriented in a cultural perspective wider than what was required by the regulations for reconstruction.

The analysis of seismic damage revealed some pre-existing structural vulnerabilities caused by earlier renovations of the apartments: cracks in the masonry due to the insertion of services, changes in room layout and new openings cut through the walls. In addition, some modifications had altered previous configurations. In some cases, the false ceilings had hidden vaults, wooden roofs and wall paintings (figg. 18-20), in others, the superimposed layers of plaster and painting had covered frescoes from the fourteenth and sixteenth centuries (fig. 21).

Important decorative elements, totally unknown previously, were discovered: among them, paintings with musical scores and instruments, attributed to the early sixteenth-century (figg. 22-24). These discoveries meant that the project had to be modified and new authorisations had to be obtained, leading to a delay of a year in completing the project.

Images, Clockwise from top left:
Fig. 18. One of the decorated wooden ceilings that were hidden by false ceilings and repainting (ph. Bartolomucci 2015)
Fig. 19. Detail of the cleaned ceiling (ph. Bartolomucci 2015)
Fig. 20. The rediscovered painted ceiling after the conservation work (ph. Bartolomucci 2015)

However, the restoration of these elements did not lead to additional costs compared to the original estimate. A final report previously published (Bartolomucci 2018: 148), clearly showed the economic sustainability of the intervention, demonstrating that greater attention to cultural needs of conservation does not necessarily mean bigger building costs.

4.2 Drivers, Agents and Governance

The restoration project – seismic damage repair, structural reinforcement, functional reinstatement – was financed by the State, which allocated the funds for reconstruction. Contributions were received from foreign governments or other associations during the first years after the earthquake (the French government financed the restoration of the dome in the Church of Santa Maria del Suffragio, the Russian Government contributed to the reconstruction of Palazzo Ardinghelli). Palazzo Carli-Benedetti was fully paid for by public funds, but some local implementations – such as higher quality floor finishes or services – were paid directly by the owners of the apartments.

The project was approved by the *Soprintendenza* of L'Aquila and the towns of the seismic crater (the local authority of the Ministry of Cultural Heritage) and then transmitted to the Municipality of L'Aquila, which disbursed the money as the work progressed. The Municipality and the *Soprintendenza* monitored the progress of the works through site visits and the verification of accounts.

Images, Clockwise from top left:
Fig. 21. Detail of the frescoes discovered under a fifteenth-century painted ceiling (ph. Bartolomucci 2015)
Fig. 22. The wall paintings of musical scores discovered during the consolidation works of the brick vaults by FRP reinforcements. The decoration was discovered over the plaster covered by the wooden floor (ph. Bartolomucci 2014)
Fig. 23. Paintings with peacocks (symbol of the Carli family) and musical instruments discovered under a floor. The decoration belonged to the musical study on the lower level, which was then transformed and closed by vaults (ph. Bartolomucci 2015)
Fig. 24. Detail of a musical score discovered under the same floor, attributed to the early sixteenth-century. Note the wall damage, already repaired in the past (ph. Bartolomucci 2014)

In general, the local community initially showed a strong desire to live again in the historic town; the groups of activists being referred to as:<<the people of the wheelbarrows>> because of their determination to remove the rubble. Nevertheless, a feeling of frustration grew in the later years, due to the slowness and the complexity of the bureaucracy related to the reconstruction.

4.3 Actual Implementation and Timescales for the Recovery Programme

The Palazzo Carli-Benedetti was among the first buildings to be reconstructed. It is located on the *central axis* of L'Aquila, which represents the priority area of the town reconstruction plan.

The owners of the apartments of the palace in October 2009 entrusted the restoration project to the team of specialists formed by:

- Architect Carla Bartolomucci, as team leader and director of works;
- Prof. Donatella Fiorani, as scientific consultant on architectural conservation project;
- Prof. Fabrizio De Cesaris, as scientific consultant on the consolidation project;
- Engineer Alessia Placidi, specialist for the architectural project;
- Engineer Franco Iacobelli, specialist for the consolidation project;
- Architect Carolina De Camillis and Riccardo Fibbi, as specialists for plant design.

The project was presented to the *Soprintendenza* of L'Aquila on 26 July 2012 (prot. AQ MBAC 12382 of 30 July 2012); this granted the *Nulla Osta* on 4 April 2013 (prot. 5278) approving the works for an amount of almost €7 million (€6,986,799).

The financing of the works was granted on 15 May 2013 (prot. 399418). The works began on 26 June 2013 and ended on 19 August 2016 (prot. 83290).

The deadline was initially established within two years from the commencement, but the discoveries during construction required a variation of the project and the works therefore took three years to complete.

Between autumn 2016 and winter 2017 the building was once again inhabited by the families who previously lived there and by some new owners.

4.4 Resources and Costs of Implementation

The post-seismic reconstruction of Palazzo Carli-Bendetti financed by the Italian Government was actually completed for less than the budget originally forecast (€6,701,824.50).

This lower cost is related to the variation of some works in that certain local conditions of the building were different from the original budget. As a matter of fact, the presence of damage and shoring made some parts of the building inaccessible after the earthquake. Consequently, some planned works became unnecessary, and the unused amount was returned to the municipality.

The works were contracted to the ICIET Engineering company of construction (Castelli, Teramo). The company was chosen by the assembly of the owners, based on the CVs received.

The condominium manager represented the apartment owners.
The programme was implemented with the supervision of the *Soprintendenza* of L'Aquila (Ministry of Cultural Heritage) and the local Municipality (see above).

5. Documenting the Outcomes and Effects

5.1 Assessment of the Outcomes with Regard to the Recovery of the Heritage Resource

The aims of the reconstruction – repair of seismic damage, restoration of functionality, structural improvement – have been achieved within the established times and with considerable cost savings.

From the cultural viewpoint, the latest knowledge of the building derived from historical construction research and the new discoveries do not appear to be fully understood by the inhabitants.

Even now, local people show a certain indifference to the cultural issues of reconstruction and are more concerned with practical and financial matters. However, in this case the inhabitants have been informed about the importance of conservation choices and were involved in discussions.

A particular issue that has been controversial and difficult is that of the preservation of the ancient finishes: the decision of the group of architects who prepared the reconstruction and conservation project has allowed the discovery of wall paintings previously unknown, but it has been totally counter to the general approach – and difficult to impose – considering the prevailing practice of complete remaking plasterwork carried out in the historical town.

The conservation of material surfaces is a critical point in the ongoing reconstruction: citizens often prefer completely renovated buildings instead of ancient plasterwork showing the signs of time.

Furthermore, construction companies prefer to use new plaster and new paints to ensure *efficient* results and, above all, because the conservation of architectural surfaces requires specialised skills.

An important educational effort has to be made to let people better appreciate the importance of the traces of time over our ancient buildings.

Due to the presence of professors Donatella Fiorani and Fabrizio De Cesaris as consultants, the conservation project and the working site have been a topic of many university seminars and have been visited by national and foreign specialists in architecture.

5.2. Ownership of the Results

As already mentioned, Palazzo Carli-Benedetti is divided into eight apartments and some commercial rooms.

The owners are almost the same as in 2009: only two apartments have recently been bought by new residents.

The Order of Architects of the Province of L'Aquila was originally located in Palazzo Carli-Benedetti, however, after the 2009 earthquake they moved to a new building in an industrial and commercial area of the city where they still remain. Evidently, practical aspects such as accessibility or parking availability have prevailed over the prestige of the former location within the historic centre.

Generally, the return of the residents back to the town centre is slow and hampered for several reasons: there are many construction sites, many areas are still damaged and commercial activities for daily life are missing, but there is a thriving nightlife with many bars and restaurants.

6. Additional Comments

The materials and techniques used for the intervention in Palazzo Carli-Benedetti were specifically chosen to respect the priority of the conservation issue, with the conviction that aprioristic and ideological choices in this field are useless and substantially wrong.

Modern technologies and materials allow the original material of the building to be better conserved, avoiding extra demolitions, but often have problems with compatibility and expected duration, so their use has to stem from a reasonable compromise among the global exigence of the project. Traditional technologies and materials almost always derive from industrial production, see for instance the lime for mortars and plasters, so they have always to be adapted in the contemporary context, always checking their compatibility.

Following this criteria, integration of the missing parts of the walls and vaults have been done using traditional materials, mostly bricks, while the structural consolidation took advantage of the introduction of fibre-reinforced ribbons, located on the internal surface of the walls and above the vaults (figg. 17, 22).

The conservation works, the damage, studies and new discoveries have been described in a book about Palazzo Carli-Benedetti, published almost two years after the restoration works were completed (Bartolomucci 2018).

The publication was supported by the National Research Council – Institute for Construction Technologies –,

Fig. 25. The courtyard at the end of the works: the air colour on the loggia returns the sense of the open loggia, without denying the eighteenth-century transformation (ph. Bartolomucci 2018).

where the author worked as a researcher from 2009 to 2018.

This work serves to demonstrate how the restoration of a building can contribute to the cultural revival of the town, going beyond the banal restoration of functionality. The book is initially dedicated to the historical study and the analysis of the architecture and the transformations of urban context, then it focuses on descriptions of the damages and the restoration project and illustrates the various important findings from the restoration phases and the knowledge resulting from them. A specific contribution is dedicated to the interesting wall paintings – which depict various historical musical instruments and the musical score – found during the restoration works (early sixteenth-century).

On 26 May 2018 a conference with a concert was held at the courtyard of Palazzo Carli-Benedetti to present the book to the citizens of L'Aquila. A group of musicians marked the occasion by playing ancient instruments with the melody as transcribed in the painted scores.

From the last discoveries in the palace a new awareness has emerged on the seismic history and the cultural role that the city has had in past centuries, especially between the fifteenth and the sixteenth centuries thanks to the cultural relationships which derived from Florence and Urbino (fig. 25).

7. Details of the Expert(s) Completing the Case Study

Carla Bartolomucci, architect PhD and specialist in the Conservation of Architectural Heritage, is professor of Architectural Restoration at the University of L'Aquila.

Following the 2009 earthquake in Abruzzo (Italy), she carried out several inspections to detect the damage on monumental buildings participating in the NOPSA team (Operative Units for Protection of Artistic Historical Heritage) as a specialist in historic structures.

She is the author of many essays on architectural conservation and of two monographs concerning the historical architecture of L'Aquila.

Donatella Fiorani, architect, is a full professor at Sapienza University of Rome. She has been responsible for the restoration of churches, monasteries and other buildings. She works in monitoring, planning and scientific direction for the restoration of historical buildings in Italy and abroad. She has taught at the universities of Valencia (Spain), Budapest (Hungary), and Podgorica (Montenegro) Lausanne (EPFL – Switzerland). In 2019, she was awarded the title of *Doctorem honoris causa* from the University of Technology and Economy of Budapest. She is Director of the scientific magazine in architectural conservation *Materiali e Strutture. Problemi di conservazione.*

Endnotes

[1] (Law no. 364 of 20 June 1909; later confirmed by Law no.1089 of 1st June 1939 and now D.Lgs. 490/1999).
[2] https://www.europejazz.net/news/italian-jazz-unites-again-support-areas-hit-earthquake
[3] See «https://www.wmf.org/project/historic-center-l%E2%80%99aquila» [Accessed 29 September 2019].
[4] See «http://www.usra.it/wp-content/uploads/2013/10/TestoCoordinato.pdf and http://www.usra.it/wp-content/uploads/2014/04/DPCM04022013.pdf» [Accessed 29 October 2019].
[5] See http://www.usra.it/schedaparametrica/ [30/09/2019].
[6] no. 246; id 4907800; publication of the Municipality Register: 22/04/2011.
[7] See Corriere della Sera, 12 June 2010, Available at «https://www.corriere.it/cronache/10_giugno_12/restauro-aquila-affreschi-paolo-conti_901032e8-7610-11df-9eaf-00144f02aabe.shtml?refresh_ce-cp» [Accessed 30 September 2019].
[8] Available at «http://abruzzo.beniculturali.it/», [Accessed 30 September 2019].
[9] The «Directive of the President of the Council of Ministers of 9 February 2011: Evaluation and reduction of the seismic risk of cultural heritage» (*Direttiva del Presidente del Consiglio dei Ministri del 9 febbraio 2011: Valutazione e riduzione del rischio sismico del patrimonio culturale*), in *Gazzetta Ufficiale* n.47 del 26 febbraio 2011 – Supplemento ordinario n. 54.

Bibliography

About Palazzo Carli Benedetti:

Antinori, A. L., 18th cent. *Annali degli Abruzzi*. manuscript in Biblioteca Tommasiana L'Aquila, 17th vol., 201-203, anastatic copy, Bologna. 1972.

Bartolomucci, C., 1999. *Palazzo Carli Benedetti*. Post graduate thesis in Architectural Conservation, Sapienza University of Rome.

Bartolomucci, C., De Cesaris, F., 2009. "L'Aquila: palazzo Carli Benedetti. Fasi costruttive e storia sismica", in *Arkos*, 20, 71–77.

Bartolomucci, C., De Cesaris, F., Fiorani, D., Donatelli, A., Placidi, A., 2011. "Palazzo Carli Benedetti", in Milano L. et al. eds., *L'Università e la Ricerca per l'Abruzzo. Il patrimonio culturale dopo il terremoto del 6 aprile 2009.* L'Aquila. 272–278.

Bartolomucci, C., 2018. *Terremoti e resilienza nell'architettura aquilana. Persistenze, trasformazioni e restauri del palazzo Carli Benedetti*. Roma.

Borri, A., Verrecchia, R., Vetturini, R., 2011. "Palazzo Carli Benedetti", in Milano, L., et al. eds., 2011. *L'Università e la Ricerca per l'Abruzzo. Il patrimonio culturale dopo il terremoto del 6 aprile 2009.* L'Aquila., 279–284.

Centofanti, M., 1997. "Il tema del palazzo: aspetti della cultura architettonica tra XV e XVIII secolo", in Colapietra R. et al. eds., *L'Aquila: i palazzi*. L'Aquila. 53–61.

Chini, M., 1948. "Il palazzo dei Carli Cadicchi in Aquila restaurato", in *Rivista Abruzzese: rassegna trimestrale di cultura*, I, n. 3–4, 7–11.

Chini, M., 1954. *Silvestro Aquilano e l'arte in Aquila nella seconda metà del sec. XV*. L'Aquila.

Gavini, I.C., 1927-28. *Storia dell'architettura in Abruzzo*, Milano-Roma.
Ghisetti Giavarina, A., 2006. "Architettura in Abruzzo dal 1480 alla prima metà del Cinquecento", in Ghisetti Giavarina, A., 2006. *Architettura del Classicismo tra Quattrocento e Cinquecento*, Roma, 87–107, 109–137.
Leosini, A., 1848. *Monumenti storici artistici della città di Aquila e i suoi contorni*, L'Aquila.
Mancini, R., 1994. *Cortili dell'Aquila*. Roma, 5–55.
Moretti, M., Dander, M., 1974. *Architettura civile aquilana*, L'Aquila, 38–42.
Soprintendenza per i BAAAS per l'Abruzzo 1989. *Cortili d'Abruzzo*, Teramo. 54–57.

Bibliography Specific to the 2009 Earthquake

Andreassi, F., 2012. *La città evento. L'Aquila e il terremoto: riflessioni urbanistiche*. Roma.
Calderini, C. ed., 2009. "Monumenti dannati", in *Vernissage*, X, 108, 11-22, annex to «Il Giornale dell'Arte», XXVII, 291.
Ciranna, S., Vaquero Piñeiro, M. eds., 2011. *L'Aquila oltre i terremoti. Costruzioni e ricostruzioni della città*, «Città e Storia» VI, 1.
Fiorani, D., 2009. "Edifici storici, stratificazioni e danni nell'aquilano. Una panoramica", *Arkos*, 20, 8–17.
Fiorani, D., Donatelli, A., 2012. "Restaurare e ricostruire: problematiche del dopo-sisma aquilano", in *Tafter Journal. Esperienza e strumenti per la cultura del territorio*, 50 [online]. Available at «http://www.tafterjournal.it/2012/08/01/restaurare-e-ricostruire-problematiche-del-dopo-sisma-aquilano/» [Accessed 8 October 2019].
Italia Nostra, 2010. "Così L'Aquila muore. Dossier a un anno dal sisma: bilancio negativo sul terremoto", *Bollettino Italia Nostra*, 451, 2010.
Milano, L., Morisi, C., Calderini, C., Donatelli, A. eds., 2011. *L'Università e la Ricerca per l'Abruzzo: il patrimonio culturale dopo il terremoto del 6 aprile 2009*, L'Aquila.
Nicita, P., ed., 2010. *L'Aquila: questioni aperte. Il ruolo della cultura nell'Italia dei terremoti*, Annali dell'Associazione Ranuccio Bianchi Bandinelli, Roma.
Nicosia, A., 2009. *Beautiful L'Aquila must never die*, Roma.
OECD 2013. *Policy Making after Disasters: Helping Regions Become Resilient – The Case of Post-Earthquake Abruzzo*, Paris, [online]. Available at «https://doi.org/10.1787/9789264189577-en» [Accessed 28 September 2019].
Osservatorio UnivAq 2011. *Il terremoto dell'Aquila: analisi e riflessioni sull'emergenza*, Osservatorio sul terremoto dell'Università degli Studi dell'Aquila, L'Aquila.
Pace, V., 2010. "Il terremoto del 6 aprile 2009 in Abruzzo: danni, interventi, iniziative e schede", *Kunst Chronik*, 63, 2, 45–96.
Salvatori, M., 2012. *Geografia e catastrofi: danno socio-territoriale e paesaggio nel dopo sisma aquilano*, Master's Thesis in Cultural and Environmental Heritage, University of L'Aquila, 2011/12.

Websites

https://it.wikipedia.org/wiki/Terremoto_dell%27Aquila_del_2009 [Accessed 24 September 2019]

https://www.wmf.org/project/historic-center-l%E2%80%99aquila [Accessed 28 September 2019]

https://sismaq.org/bibliografia/catalogo-delle-pubblicazioni-ordinate-per-anno-di-pubblicazione/ [Accessed 30 September 2019]

http://www.lostatodellecose.com/laquila/ [Accessed 30 September 2019]

CHRISTCHURCH: HERITAGE RECOVERY FROM THE CANTERBURY EARTHQUAKES

Amanda Ohs and Catherine Forbes

TABLE OF CONTENTS

List of Illustrations

Acknowledgements

We wish to acknowledge and thank all those who have contributed to our understanding of the complex array of issues affecting the heritage of Christchurch during and in the wake of the Canterbury earthquakes of 2010 and 2011. The loss of heritage was extensive. In particular we wish to thank the Christchurch City Council staff (including Brendan Smyth, Gareth Wright, Fiona Wykes, Suzanne Richmond, Maria Adamski, Jo Grigg and Kaharoa Manihera, all of whom provided valuable information and review), the team at Heritage New Zealand Pouhere Taonga (Dave Margetts, Robyn Burgess and Christine Whybrew) and members of the Australia ICOMOS and ICOMOS New Zealand Joint Cultural Heritage Risk Preparedness Working Group (ANZRPWG). We would also like to thank the many architects, engineers, property owners, managers and community members who have lived and worked through the disaster, fought to save the city's heritage from demolition and championed its recovery.

This case study provides an overview of the impacts of the earthquakes on the city's architectural heritage, and the response to the issues arising from the disaster. It is supported by a series of individual case studies, prepared by members of the ANZRPWG and others who have been involved in the recovery of the individual sites. Each site has a different story to tell, but together they build a picture of the complexity of the issues faced in the recovery of built heritage of severely disaster-affected cities like Christchurch. The study sites include:

- The Canterbury Provincial Offices (to come)
- McLean's Mansion
- The Isaac Theatre Royal
- Knox Presbyterian Church
- The McKenzie and Willis commercial façade
- New Regent Street

All case study sites are all located in the city's centre.

Introduction

Ka mihi ki te hapu, e Ngāi Tūāhuriri. Ko koutou te mana o te takiwa nei. Mauri ora.

Ngāi Tahu is the iwi (tribe) which holds mana whenua (traditional tribal authority) of large parts of the South Island including Ōtautahi – Christchurch and Te Pātaka O Rākaihautū - Banks Peninsula. Six papatipu rūnanga (sub-tribes) are primary kaitiaki (guardians) for their taonga tuku iho (heritage places) in the district. Te Ngāi Tūāhuriri Rūnanga hold mana whenua for the central city of Christchurch. Ōtautahi was an important area for mahinga kai (food gathering) and also was the location of urupā (burials) and seasonal settlements.

Scope

Ngāi Tahu heritage, natural heritage and cultural landscapes, built heritage, archaeology and moveable heritage (including objects and archives) are all important aspects of the Christchurch heritage resource, and were all impacted by the Canterbury earthquakes. This case study is focused on the built heritage which is located in the central city.

1. The Heritage Resource and its Context Before the Earthquakes

1.1 Description, Designation and Recognition

1.1.2 General Description

Ōtautahi Christchurch is the largest city in New Zealand's South Island. It is located on the coastal edge of the Canterbury Plains, to the east of the Southern Alps and to the north of the Port Hills and Banks Peninsula (fig. 1). The city is built on drained swamplands and sandhills. A number of rivers flow through the city.

Christchurch has a well-defined central city business district with extensive suburban residential areas extending onto the plains beyond the city. Banks Peninsula, a land mass to the east of the city, is primarily rural with small townships, including Lyttelton and Akaroa. Christchurch and Banks Peninsula include cultural landscapes, buildings, structures, objects and infrastructure which embody historical, social, cultural, spiritual, technological, scientific, archaeological and traditional values of its diverse communities.

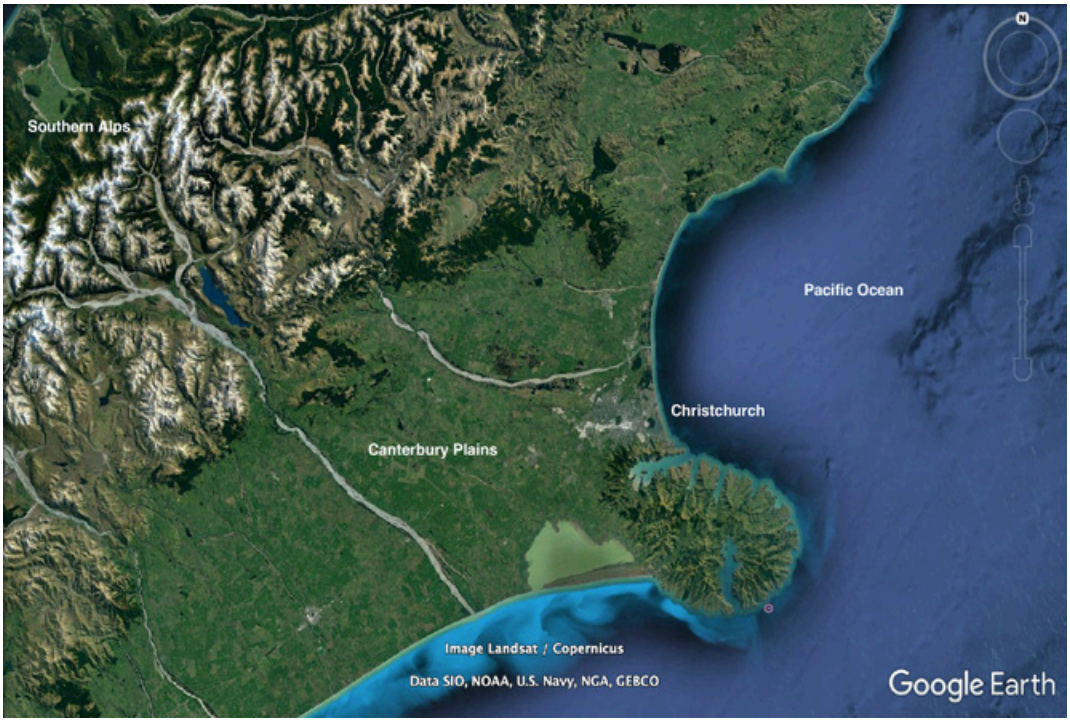


Fig. 1. Satellite image of the Canterbury Plains, showing Christchurch and the Banks Peninsular located on the east coast and the Southern Alps to the west. (Source: Google Earth [accessed 25 January 2020])

Central Christchurch prior to the earthquakes was regarded and promoted by some (and equally challenged by others) as a very *English city*, which retained its colonial street grid layout, with many surviving Victorian and Edwardian buildings of various types and styles co-existing in intact streetscapes interspersed with post war modernist buildings.

1.1.3 Form, Function, Creation and Subsequent Transformations

Layout

The 1850 grid street pattern of central Christchurch is bounded by four avenues with the Ōtākaro Avon River running through the middle from west to east. The diagonals of High and Victoria Streets radiate out to the North and South, creating a series of triangular reserves and building sites. The principal public open space is Cathedral Square. The Christchurch Botanic Gardens and Hagley Park occupy the western portion of the central city (fig. 2).

The city had evolved over time (1850–2011), adapting to changes in technology, the economy and community needs. However, the street grid had seen only minor changes prior to the earthquakes and thus retained a high degree of integrity.

Building typologies

The built heritage of the city centre has served a variety of purposes – public, educational, religious, cultural, commercial, retail, professional, visitor accommodation, residential, light industrial, warehouses, recreational, sport and civic. Statues, public reserves, fountains, memorials, bridges and band rotundas are located throughout the city.

The city's architectural heritage, which consisted of building stock of different typologies, styles, materials and construction types, dating from the colonial period (1850s) through to the present day, are illustrative of the city's evolution. Incremental change had resulted in reduced numbers of some building types and styles as they have made way for those of more recent eras. Individual buildings have been adapted to different uses. A substantial portion have been modernised, altered or received significant modern additions. Many have been strengthened or changed to meet building compliance requirements.

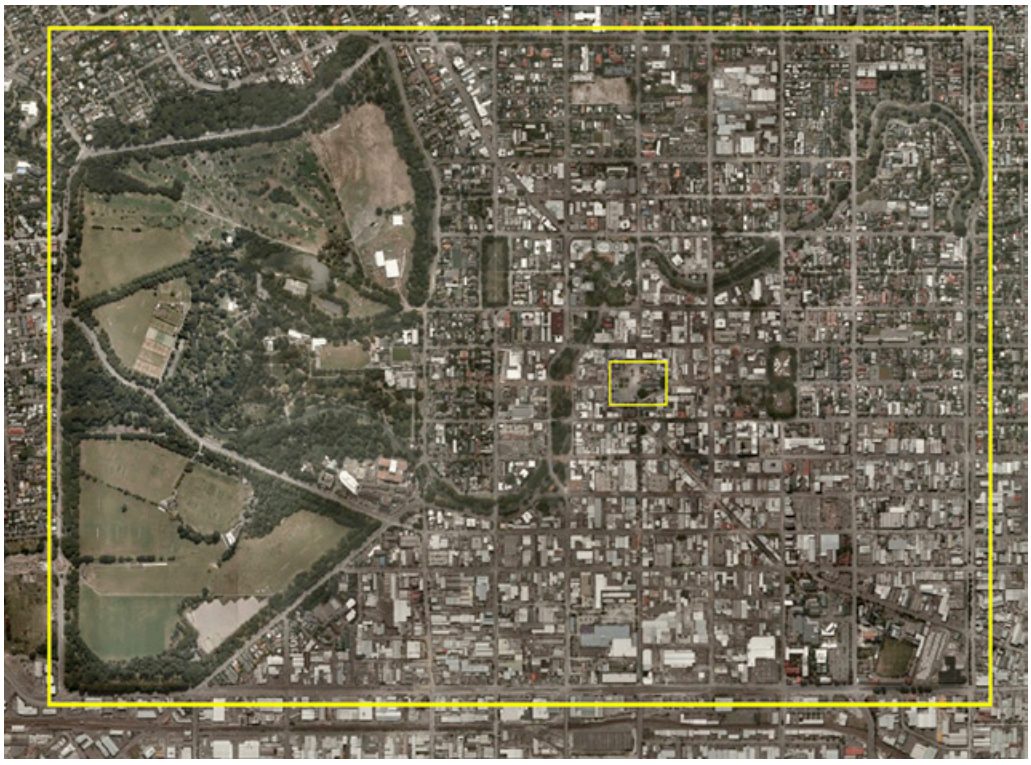


Fig. 2. Aerial Photograph, Christchurch central city, showing the street grid, the four avenues that define the city centre (indicated by large yellow rectangle) and the location of Cathedral Square (small yellow rectangle), (Source: Google Earth, 24 February 2011, with overlay by C. Forbes, 2020)

Construction

Early development in the city was in timber, but this was gradually replaced by unreinforced masonry buildings (URM) of brick and stone. Although houses continued to be built in timber, many public, civic, religious and educational buildings were constructed or finished with basalt stone as this was considered to represent the prosperity and permanence of the new community. A number of early stone buildings featured rubble filled wythes. Many early commercial buildings were of rendered brick construction with decorative street front façades. Concrete construction and cladding were employed from the 1950s onwards, particularly for commercial buildings, with more buildings incorporating steel frames and glass.

Materials

Many historical construction techniques are no longer available today as they do not meet current building code and/or engineering and safety requirements. Basalt stone and volcanic rock are still available, but in limited supply, whilst good quality limestone is difficult to source. Lime for mortar is readily available. Standard bricks and roof slates are readily available, however decorative bricks are hard to source and imperial sized concrete blocks are no longer manufactured. Native hardwood timbers are scarce.

Skills

The following skill sets were required for the creation of Christchurch's buildings: carpenters and joiners, stonemasons, bricklayers, roofers (slate, metal and tile), concreters, steel window manufacturers, foundries/ metal workers, plasterers, tile manufacturers and layers, stained glass and leadlight specialists, artists, architects and engineers with traditional construction knowledge. There are only a few locals who can undertake specialist heritage work.

1.1.4 Official Designation or Inscription

Overview

Heritage places are designated at both national and local levels. National designation is through the Heritage New Zealand Pouhere Taonga (HNZPT) (formerly the Historic Places Trust) New Zealand Heritage List/Rārangi Kōrero ("the List") (formerly "The Register"), under the Heritage New Zealand Pouhere Taonga Act 2014 (formerly the Historic Places Act 1993). The List is divided into five parts: 1. Historic Places (categories 1 and 2); 2. Historic Areas; 3. Wāhi Tūpuna (places important to Māori for their ancestral significance and associated cultural values); 4. Wāhi Tapu (places sacred to Māori for their traditional, spiritual, religious, ritual or mythological sense) and 5. Wāhi Tapu Areas. No specific conservation or management policies are implied in the designation and there is no associated legal protection – "the List" is an advocacy tool. Places on "the List" that are in private ownership are eligible to apply for funding from the HNZPT's National Heritage Preservation Incentive Fund. Refer to Section 1.2.3.

Local designation is through scheduling in the Christchurch District Plan 2016 (previously Christchurch City Plan 1995 and Banks Peninsula District Plan 1997), administered by the Christchurch City Council (CCC) under the Resource Management Act 1991 (RMA). Scheduled historic heritage in the District Plan affords regulatory protection. Refer to Section 1.2.3.

National Level

There are two categories of significance for HNZPT Listed Historic Places. Category 1 places are of special or outstanding historical or cultural significance or value (generally considered to have national significance) and Category 2 places are of historical or cultural significance or value. Associated land is included in the listing as applicable. Reports summarise the history of the place and provide the rationale for listing under the following criteria: aesthetic, archaeological, architectural, cultural, historical, scientific, social, spiritual, technological and traditional significance or value. In some cases the reports broadly identify, but do not comprehensively inventory, significant features.

Local Level

At the time of the earthquakes, 922 individual historic buildings, places and objects (heritage items) were designated with associated regulatory protection. These were divided into four groups for the Christchurch area based on geographical levels of significance: 1. International/national; 2. National/regional; 3. Regional/ Metropolitan; 4. Metropolitan/local. More regulatory protection and grant assistance was afforded to the items in higher groups (1 and 2) prior to the

earthquakes. There were two classifications for heritage places in the Banks Peninsula District Plan (Listed and Notable). When regulatory protection was removed in the response phase, more weight was given to retention of items in the higher groups in decision-making processes.

Heritage items were assessed and recorded for listing based on seven paired criteria with the first three weighted at double the weight of the remainder: Historical and Social Significance; Cultural and Spiritual Significance; Architectural and Artistic Significance; Group and Setting Significance; Landmark Significance; Archaeological Significance, and Technology and Craftsmanship Significance. This weighting favoured some types of buildings in the assessment process (e.g. churches). Documentation included a summary of factual information and assessment including identification of "key façade elements". This was supported by extensive heritage files. The heritage listings included interiors.

1.1.5 Scholarly Recognition

There is a wealth of published and unpublished sources documenting heritage buildings and places in the city, including historical references. John Wilson's *Contextual Historical Overview for Christchurch* (2005, updated 2013) is a key reference for the city's heritage places.

Relevant scholarly literature was referenced in assessments for each designated heritage place, and where the literature was by a notable expert, or provided particular understanding of the place in its national or international context, this guided the assessment. Some eras of building, some building types and styles and contemporary community values have not been widely researched or addressed in scholarly literature.

1.1.6 Popular Recognition

Christchurch had a reputation nationally and internationally for its wealth of heritage buildings, as well as its natural and garden heritage. Landmark or iconic buildings broadly recognised by the community as important to Christchurch have been promoted as visitor attractions and have large visitor numbers. Many of these are stone Gothic Revival buildings which are in complexes or co-located (e.g. the Arts Centre). Other popularly recognised buildings are associated with cultural activities (e.g. the Christchurch Town Hall and the Isaac Theatre Royal – refer to separate case study).

Some buildings have special associations for particular community groups, cultural groups, clubs or societies, and others are valued for their popular use (e.g. New Regent Street shops – refer to separate case study). Buildings under threat have been saved through community demonstration (e.g. McLean's Mansion – refer to separate case study) and others have had their own legal protection as a consequence of the regard in which they were held by the local community (e.g. Canterbury Provincial Council Buildings). Memorials in the city are important for commemorations.

Heritage buildings have caused division in the community with some people supporting their retention and conservation for the present and future public good, whilst others have seen their protection as an infringement on individual rights.

1.2. History and Context

1.2.1 History, Ownership and Environment

Colonial Settlement, 1850-1900

The area of land on which Christchurch now exists was selected as the appropriate location for the establishment of a Church of England settlement by the Canterbury Association in 1849, the land having been purchased by the Crown from Ngāi Tahu in 1848. Planning of the new settlement was inspired by an English colonial theorist Edward Gibbon Wakefield, who had a vision of recreating a lost England in the Antipodes and the church was to play a leading role (Wilson, City and Peninsula: 85). Ngāi Tahu lost access to their food gathering places and reserves which they had expected to retain through the purchase agreement.

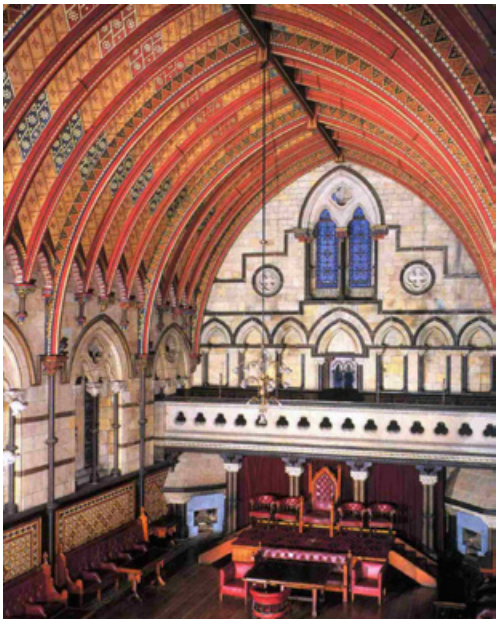
In the early colonial period buildings were of simple timber construction, single or double storey, weatherboard with shingle or iron gabled roofs (e.g. timber portions of the Canterbury Provincial Council Buildings – (fig. 3,) and the Red House (fig. 4). As stone and brick became available, bridges, commercial and public buildings were constructed in these more permanent materials.

From top to bottom:
Fig. 3. Canterbury Provincial Council Buildings, timber portions pre quake. (Source: CCC heritage files, 2005)
Fig. 4. The Red House. (Source: CCC heritage files, 2013)

Skilled architects from England settled in the colony and commonly employed Gothic Revival and Italianate styles. The Gothic Revival style was adopted for religious and educational buildings as well as buildings associated with law and governance. Some of these buildings became iconic Christchurch heritage buildings. The Stone Chamber (fig. 5) and Bellamy's wing of the Canterbury Provincial Council Buildings, (fig. 6) Canterbury Museum, (fig. 7) the former Canterbury University buildings (the Arts Centre, fig. 8) and Christ Church Cathedral (fig. 9) were constructed in this period.

Early Twentieth Century, 1900--1918

Economic growth resulted in significant architectural development, particularly in masonry construction. Churches, government and commercial organisations invested in buildings, which adopted a variety of styles (e.g. Queen Anne, Italianate) in addition to variations on the predominant Gothic Revival style (figg. 10 and 11). Dwellings also became more elaborate (e.g. McLean's Mansion, (fig. 12) (refer to separate case study). Commercial buildings, which made up long stretches of the city's retail area, employed classical embellishment in stone or plastered brick on the front façades of their



Images, Clockwise from top left:
Fig. 5. Canterbury Provincial Council Buildings, Stone Chamber. (Source: CCC heritage files, 2005)
Fig. 6. Canterbury Provincial Council Buildings, Stone Chamber interior. (Source: CCC heritage files, 2001)
Fig. 7. Canterbury Museum, Rolleston Avenue. (Source: CCC heritage files, 2003)
Fig. 8. Christchurch Arts Centre, North Quad. (Source: CCC heritage files, 2003)
Fig. 9. Christ Church Cathedral. (Source: CCC heritage files, 2005). (Source: CCC heritage files, 2001)

utilitarian brick structures (figg. 13 and 14). Multi storied buildings began to be introduced with the American skyscraper style (fig. 15).

Inter-War, 1918–1950

Memorials, including statues, gates and buildings, were erected to commemorate the lives lost in the World Wars. Cathedral Square was a centre of activity, and housed the city's many cinemas. Art Deco and stripped Moderne were introduced for commercial, cinema and early apartment buildings, (fig. 16) and Spanish Mission style for the New Regent Street shops (fig. 17) (refer to separate case study). Traditional styles, such as brick Neo-Georgian buildings (fig. 18) continued in use alongside the emergence of Modernism but employed modern construction techniques and materials. After the Napier Earthquake of 1931 there was a move towards less embellishment, introduction of reinforcement, and removal of chimneys and parapets from some older buildings to reduce earthquake risks.

Post War, 1950–1980

This was a boom time, where many older buildings were demolished to make way for modern office development.

Images, Clockwise from top left:
Fig. 10. Municipal Chambers, 2001
Fig. 11. Former Midland Club. (Source: A. Ohs 2019)
Fig. 12. McLean's Mansion. (Source: CCC, E. Metcalf, 22.9.2011)
Fig. 13. Lower High Street. (Source: CCC heritage files, 2008)
Fig. 14. Plastered brick buildings on the corner of Lichfield and High Streets. (Source: Urban Commercial Conservation Areas Study for the local and central city commercial areas prepared for Christchurch City Council Heritage Team, Opus Consultants, 2005, p. 55)
Fig. 15. New Zealand Express Company Building, Manchester Street. (Source: CCC heritage files, undated [pre-September 2010])

From the late 1950s concrete block and poured reinforced concrete were employed to satisfy new building codes. Modernist buildings were inspired by local architectural heritage and were recognised nationally as Christchurch Style (fig. 19). The 1980s saw a post-modern style evolve with an extensive use of concrete construction.

Contemporary, 1980–2011

Prior to the earthquakes the central city continued to adapt and change but was still characterised by a strong core of historic buildings. More major interventions began to be introduced to high-profile heritage buildings (e.g. Arts Centre, Christ Church Cathedral) to improve their seismic performance, but few were strengthened to meet 100 per cent of the national building standards due to the high cost and high level of impact on heritage fabric.

Images, Clockwise from top right:
Fig. 16. West Avon Flats, corner of Montreal and Hereford Streets. (Source: CCC heritage files, S. Richmond, 2016)
Fig. 17. New Regent Street. (Source: C. Forbes, 12 September 2016)
Fig. 18. Former Digbys Commercial College. (Source: CCC, 2013)
Fig. 19. Former Office and Flat of Sir Miles Warren, 65 Cambridge Terrace. (Source: A. Ohs, 11 December 2019)

Ownership

The majority of Christchurch's heritage buildings are in private ownership. The Christchurch City Council (CCC) is the largest single owner of heritage buildings, monuments and public open spaces in the city, but the churches also own significant numbers of heritage buildings.

Environment

New Zealand is located on the Pacific Ring of Fire and has major fault lines extending down through the centre of the country. Christchurch is located in a seismic zone to the east of the main Alpine Fault that underlies the Southern Alps on land that is highly vulnerable to liquefaction. Several fault lines closer to the city were unknown until the 2010–2011 earthquake events.

Christchurch's heritage resource is highly vulnerable to earthquakes. A large percentage of the buildings are of unreinforced masonry (URM) construction and some have not been well maintained.

1.2.2 Social and Economic Setting

Christchurch was a major strategic transport node for the nation, and a tourism gateway to the South Island. The city and its heritage buildings supplied the Christchurch community with important services and goods.

The value of heritage buildings in the city centre was not well appreciated, particularly in the private and commercial sectors. In addition, the growth of the suburbs and decentralisation of economic activity had impacted the city centre. There was a low use demand and lack of economic viability for many of the city's commercial buildings and it was difficult to find suitable new uses for some buildings.

Owners are responsible for the maintenance, repair, seismic upgrade and insurance of their buildings. Buildings are often not insured for full "like for like" replacement cost as necessary for full recovery of a heritage building, but rather new for old, which is substantially cheaper. Although many heritage buildings, particularly unreinforced masonry buildings, had been identified as potentially earthquake prone prior to 2010, few owners had strengthened their buildings due to the high cost and low level of perceived risk.

1.2.3 Frameworks, Agents and Communication

Heritage Protection

- The Resource Management Act 1991 (RMA) provides for Historic Heritage as a matter of National Importance. CCC and the Canterbury Regional Council have responsibilities under the Act, including identification and protection of historic heritage through District and Regional Plans. CCC has a team of dedicated heritage staff to provide heritage advice.
- The Heritage New Zealand Act 2014 sets out the requirement for Heritage New Zealand, an autonomous Crown Entity (national), to maintain a List of Historic Places, advocate for heritage protection and administer archaeological protection (pre-1900).
- ICOMOS New Zealand/Te Mana o Nga Pouwhenua o Te Ao was established in 1987, and the current version of the Charter dates from 2010. CCC adopted the ICOMOS New Zealand Charter as part of its conservation policy in the 1990s.
- The Ministry of Culture and Heritage provides advice on heritage issues in consultation with government ministers and reviews related legislation, policy and developments.
- Owners, heritage interest groups, heritage professionals, the community, insurers, tourists, tenants and users of the heritage resource are all key stakeholders.

Emergency Management and Building Safety

- The Civil Defence Emergency Management Act (2002) outlines responsibilities and processes for emergencies. The Ministry of Civil Defence and Emergency Management (national level), Civil Defence Canterbury (regional level), and Christchurch Civil Defence at local level (includes CCC) all have roles in relation to the Act.
- Local authorities are responsible for civil defence emergency management in their area using the 4Rs (reduction, readiness, response and recovery) framework. Fire and Emergency New Zealand (FENZ) is the key agent responsible for search and rescue in disaster response, while the New Zealand Police oversees any security and law and order related duties during emergency.

- The Building Act 2004, sets performance standards including the Building Code. CCC's roles include issuing building consents, inspections and enforcement. Under S131 of the Act local authorities are required to adopt a policy on dangerous, earthquake prone and insanitary buildings. Prior to the September 2010 earthquake CCC had identified many heritage buildings as being potentially earthquake prone. However, few buildings had undertaken detailed investigations or implemented any strengthening measures.
- Ministry of Business, Innovation and Employment (MBIE) provides overall leadership of the building sector especially in training and capability development of building assessors across New Zealand. MBIE is the overarching regulator.

Communication and Shared Understanding

Prior to the earthquakes the CCC Heritage Team and HNZPT had an informal and cooperative way of working together and with heritage building owners, but neither party had a relationship with local or national Civil Defence, Urban Search and Rescue (USAR) or FENZ. As an autonomous Crown Entity HNZPT has a mandate to work with government agencies. The lack of working relationship between heritage authorities and emergency management was reflected in the emergency response to the disaster and recovery planning. The changing dynamics in these relationships are documented in Sections 3.1, 3.6.2 and 4.1 of this case study.

The RMA sets out a definition for Historic Heritage, however no shared cultural understanding of the particulars of Christchurch's heritage resource existed between national and local decision-makers and local heritage experts involved in the institutional framework prior to the earthquakes. This was due to a lack of shared documentation, communication and relationships prior to the event.

While the colonial and built European heritage of the city was celebrated by parts of the community, others identified a cultural bias and lack of visibility and acknowledgement of Ngāi Tahu values.

1.2.4 Bibliography of Documentation

In formulating the heritage assessment for designation of individual buildings, the following resources were commonly used:

- Publications
- Newspaper articles
- Photographic records
- Architectural plans
- Conservation Plans
- Archives
- CCC heritage files
- Property records and consent files
- HNZPT Listing Reports

2. The Nature of the Impacting Event(s)

2.1 General Description

On 4 September 2010, a large earthquake (the Darfield earthquake) measuring 7.1 on the Richter scale and centred 40 kilometres south-west of Christchurch occurred at 4.35 a.m. This event caused two deaths and considerable damage to the city, including falling chimneys and ultimately the demolition of a small number of heritage buildings. On 22 February 2011 at 12.51 p.m. a more devastating earthquake of shallow depth centred close to the city (the Port Hills fault) and measuring 6.3 on the Richter scale occurred. Earthquakes of varying intensity continued intermittently through the rest of 2011 and for several years thereafter, those having the greatest impact being on 26 December 2010, 13 June 2011 and 23 December 2011.

Compared to many other New Zealand cities, Christchurch was considered by many to have a relatively low risk from earthquakes. On average, Christchurch can expect earthquakes to cause minor damage about every 7 years and significant property damage, with possible loss of life about every 55 years. Extensive property damage including some loss of life is likely about every 300 years. The 2010-11 Canterbury earthquakes were unusual in the context of localised effects including amplified shaking (pers. comm. Peter Kingsbury, CCC Principal Advisor, Natural Hazards).

2.2 General Impact of the Earthquakes

2.2.1 Physical Impacts

The September 2010 earthquake caused some damage to buildings, resulting in a small number of demolitions in the city, and weakening of structures making them more vulnerable to the 2011 earthquakes (e.g. Christ Church Cathedral).

In addition to significant loss of human life (185 deaths) and injury, the February 2011 earthquake caused major damage to buildings, contents and the landscape (figg. 20, 21, 22 and 23). The CTV and Pyne Gould Guinness buildings (modern reinforced concrete buildings) collapsed with great loss of life. Falling masonry, partial collapse of older buildings and rock fall on the Port Hills also caused death and injury. Liquefaction caused extensive damage to the city's infrastructure – roads, sewer pipes, water mains, major transport links and bridges (Wilson 2013: 19). Several residential suburbs were identified as "red zones" because of underlying ground conditions that made repair and rebuild unviable.

Images, Clockwise from top left:
Fig. 20. Earthquake Damage, Manchester Street Commercial Buildings. (Source: CCC heritage files, 2011)
Fig. 21. Earthquake Damage, Former Provincial Council Buildings, Stone Chamber Exterior, 280 Durham Street 280 (Source: CCC heritage files, 13 March 2011)
Fig. 22. Earthquake damage to Godley Statue. (Source: CCC heritage files, 1 March 2011)
Fig. 23. Landslide at Deans head and remnants of Shag Rock to the left, Sumner, Christchurch. (Source: K. McMillan, 2017)

Approximately one quarter of all listed heritage items in the city (including Banks Peninsula) were demolished. The whole of Christchurch City lost 204 of its 588 listed buildings (35 per cent) and the central city lost 135 of 309 listed buildings (44 per cent) through demolition (fig. 24). Art and museum collections were also impacted with objects shaken from supports or through secondary damage as a result of falling debris.

2.2.2 State of Emergency

Following the February 2011 earthquake, a State of Emergency was declared by central government, which brought into play emergency powers that could be exercised by the Civil Defence controller in the initial response and then Canterbury Earthquake Recovery Authority (CERA) in the follow-up response and recovery phase.

- Under section 85 of the Civil Defence and Emergency Management Act 2002 (CDEM 2002), Civil Defence directors have the power to facilitate the <<removal or disposing of, or securing or otherwise making safe, dangerous structures and materials wherever they may be>> (McClean *et al.* 2012). Consent from Council is not required.
- Following the February 2011 earthquake this power transferred to the CERA under section 38 of the Canterbury Earthquake Recovery Act 2011 (Anderson Lloyd Lawyers 2014).

It is important to note that it was not just the event itself which resulted in the extensive loss of buildings in the central business district, but the cumulative effect of the successive earthquakes and aftershocks together with the decisions made subsequently by CERA, insurance companies and owners (Wilson 2013: 18).

Fig. 24. Demolition in progress of 136 Lichfield Street, central Christchurch (Source: B. Smyth, 29 February 2012)

2.2.3 Current Condition of the Heritage Resource

A large proportion of designated buildings and items have now been repaired and built back stronger and safer than they were prior to the earthquakes. Although, some key buildings are still only temporarily secured with their future recovery yet to be resolved (e.g. Canterbury Provincial Council Buildings and the Former Municipal Chambers (fig. 25). Whilst the Anglican Church made a decision in 2018 to repair, strengthen and reconstruct Christ Church Cathedral, in August 2019 the Catholic Church announced it intended to demolish the Cathedral of the Blessed Sacrament. (figg. 26 and 27) A small number of buildings have had no works undertaken since the earthquakes.

A recent review by Council's heritage team identified approximately 30 District Plan scheduled heritage places in central Christchurch which are vacant, unrepaired, damaged and unresolved, and therefore at risk of vandalism, fire, demolition, deterioration and weather damage (fig. 28).

2.2.4 Socioeconomic Effects

The event caused major disruption as thousands of people were displaced from their homes, schools, businesses, social and community activities due to loss of buildings and lack of access to damaged buildings. Many businesses relocated to the suburbs or ceased trading (Wilson 2013: 18). By mid 2011 economic output had decreased by 8-11 per cent (A City Recovers, p.254). Two years after the February event, growth returned with increased population, jobs, agricultural and economic activity resulting from the rebuild activity (Gorman 2013: 254).

Images, Clockwise from top left:
Fig. 25. Former Municipal Chambers, long term stabilisation. (Source: CCC heritage files, 2018)
Fig. 26. Cathedral of the Blessed Sacrament. (Source: CCC heritage files, 2005)
Fig. 27. Earthquake damage, Cathedral of the Blessed Sacrament, 136 Barbadoes Street. (Source: CCC heritage files, Andrew Marriott, 3 March 2011)
Fig. 28. Harley Chambers, corner Cambridge Terrace and Worcester Street. (Source: A. Ohs, 11 December 2019)

Images, Clockwise from top left:
Fig. 29. Christ Church Cathedral with collapsed tower and spire. (Source: CCC heritage files, 4 March 2011)
Fig. 30. McKenzie and Willis façade. (Source: CCC heritage files, Amanda Ohs, November 2019)
Fig. 31. Knox Church exterior, 28 Bealey Avenue. (Source: C Forbes, 14 September 2016)

For many heritage property owners, the impacts were severe. The insurance they had for their properties was insufficient to cover repair and strengthening work, leaving them without the resources to undertake recovery. This contributed to a substantial portion of the heritage losses, as well as personal losses for these owners (homes and businesses).

2.3 Impact on the Significance and Values of the Resource

The immense loss of heritage buildings has impacted the integrity and authenticity of Christchurch's heritage as a whole. Only a small number of scheduled heritage or unlisted *character* buildings remain in the central city. These losses include all or most works of some periods, types, styles and designers, leaving large gaps in the architectural evolution of the city, as well as physical gaps, including whole streetscapes that have been lost. The concentration of architectural heritage, particularly late nineteenth and early twentieth-century commercial, cultural, religious and institutional buildings, which had given Christchurch its national, and even international, reputation as a city of historical and architectural interest has been lost. The most affected typologies include commercial buildings, churches, theatres and halls.

The demolitions following the earthquakes resulted in the loss of both tangible and intangible heritage. Key landmarks and familiar reference points were lost in the central city (e.g. tower and spire of Christ Church Cathedral (fig. 29). Community values associated with activities and use of particular buildings have also been lost. The cumulative impacts arising from so many individual buildings in the central city being destroyed has been the loss of the city's identity and sense of place.

Partial collapse, deconstruction to make safe, retention of façades only, and large amounts of reconstruction have diminished the architectural, technological and

Images, Clockwise from top left:
Fig. 32. Knox Church interior, 28 Bealey Avenue. (Source: CCC heritage files, G. Wright 15 February 2015)
Fig. 33. Section of lathe and plaster retained in hallway with viewing window, Risingholme Community Centre, Christchurch. (Source: A. Ohs, September 2019)
Fig. 34. Former Cook and Ross building with Te Pae (Convention Centre) building either side. (Source: A. Ohs, December 2019)

craftsmanship values associated with individual buildings. However, in some cases, despite the extent of change and loss, historical, social, cultural, spiritual and landmark values have been retained (e.g. McKenzie and Willis building façade – fig. 30, and Knox Church – fig. 31 and 32 – refer to separate case studies). For many buildings, repair and strengthening have involved the removal of heritage fabric (e.g. lathe and plaster linings, or wythe construction with rubble fill) and the introduction of new materials (e.g. ply or steel). The loss of original structural systems and materials has impacted technological value. In a few cases, however, representative sections of the original construction have been kept, revealed and interpreted *in situ* (e.g. Arts Centre – fig. 33).

Remaining buildings in the central city survive without their historical context. One has been relocated. Others stand isolated from the heritage buildings that previously surrounded them (fig. 34). Only a small number of co-located heritage building groups remain, such as the group in High Street and Manchester Street to the east of Christ Church Cathedral. The most significant and cohesive precinct to remain and give a sense of Christchurch's Neo-Gothic past is at the western end of Worcester Boulevard, where the Arts Centre, Canterbury Museum and most of the buildings of Christ's College remain (figg. 7 and 8).

The level of demolition and resultant extent of unbuilt upon land has opened up scope for further change and the re-design of the city. The Central City Recovery Plan (promoted by CERA and the central government) includes anchor projects and road changes that have resulted in the demolition of some buildings that could have been saved, but were in the way of the rebuild plans for the city (e.g. the Majestic Theatre, fig. 58). The integrity of the 1850 street grid was also affected by permanent road closures.

There were positive impacts in relation to intangible heritage which are outlined in Sections 3.5 and 5.1.

Images, Clockwise from top left:
Fig. 35. Christ Church Cathedral with temporary structural framework to west façade. (Source: F. Wykes, 7 June 2011)
Fig. 36. Christ Church Cathedral showing damaged caused by temporary structural framework during aftershock. (Source: CCC heritage files, A. Marriott, 14 June 2011)
Fig. 37. Former Sargood Son and Ewen Building, Lichfield Street, with shipping containers to protect key transport route. (Source: CCC heritage files, M. Vairpiova, 5 December 2014)

2.4 Emergency Repairs to Date

In the response phase, heritage fabric was removed (recorded and stored), some buildings were temporarily shored or secured with steel bracing, security fencing, temporary roofs and waterproofing. In limited cases the temporary stabilisation works caused damage in subsequent earthquakes (e.g. Christ Church Cathedral west front was destroyed when the protective framework collided with it (figg. 35 and 36). Shipping containers were used across façades to minimise the risk from falling masonry and to enable the reopening of main transport routes (fig. 37). Containers were also used to support and protect façades identified for retention from further damage and to enable their later conservation (e.g. Isaac Theatre Royal fig. 38). Fabric of high significance that was vulnerable to damage was removed from buildings and stored as a precautionary measure for future reinstatement, including chimneys (e.g. Librarian's House – fig. 39), stonework (e.g. Cathedral of the Blessed Sacrament – fig. 40) and stained glass windows (e.g. Christ Church Cathedral). For some buildings, because of the length of time required for recovery options to be considered, monitoring work, long-term temporary roofing (e.g. Canterbury Provincial Council Buildings fig. 41), ongoing replacement of temporary weatherproofing or stabilisation, active security, and maintenance were necessary to protect the fabric from decay, vandalism and vagrants. Temporary stabilisation enabled plans for repair and reconstruction to proceed without undue haste, and for funds to be sought for retention, strengthening and restoration work (e.g. Trinity Congregational Church, McLean's Mansion). Retrieved fabric was able to be used for reconstruction later on, although there were some isolated incidences where fabric was stored incorrectly and was damaged.

2.5 Documentation and Narratives

2.5.1 Documentation

Immediately after the event and up to the present day, heritage professionals, HNZPT staff and CCC heritage staff took photographs of the damaged buildings, during and on completion of temporary and permanent works, as well as demolition. They prepared engineering and architectural drawings and reports, heritage impact statements and temporary protection plans, and prepared conditions and options around stabilisation, salvage, recording and methodology for resource and building consent documentation. This information was shared with CDEM, CERA and other relevant government agencies as required. However, it was not publicly available. Archaeological reports were prepared by archaeologists for demolitions of pre-1900 buildings and for excavations of sites with evidence of pre-1900 human activity. Consent documentation and Archaeological Authority reports are publicly available.

2.5.2 Narratives

Just days after the event, the Earthquake Recovery Minister, Gerry Brownlee referred to heritage buildings as <<old dungers>> – dangerous and unnecessary regardless of their connection to the city and its people ("Our 'Old Dungers' Must Go: Minister", https://www.pressreader.com/, 1 March 2011). This aligned with some public perceptions of heritage buildings, and brick or stone buildings in particular, as not being safe. Media editorials, articles and the public comments on them, as well as Letters to the Editor put forward differing opinions on the merits of heritage retention.

Images, Clockwise from top left:
Fig. 38. Isaac Theatre Royal façade propped with shipping containers prior to reconstruction works. (Source: CCC heritage files, G. Wright, 8 March 2013)
Fig. 39. Retrieval of chimneys, former Librarian's House (since demolished). (Source: CCC heritage files, A. Ohs, September 2011).
Fig. 40. Cathedral of the Blessed Sacrament, 136 Barbadoes Street, showing stonework laid out in grounds. (Source: CCC heritage files, Andrew Marriott, 31 August 2011)
Fig. 41. Former Provincial Council Buildings, showing temporary roofing of Stone Chamber. (Source: CCC heritage files, M. Vairpiova, 2014)

A number of publications document the impact of the earthquakes and record lost heritage. *Reconstruction: Conversations on a City'* (Christchurch City Art Gallery/ Te Puna o Waiwhetu 2012) outlined the history of Christchurch through images and text, and the role that architectural heritage could play in rebuilding the city. Historian Dr Katie Pickles saw the earthquakes as an opportunity for a new "postcolonial reality", to reconsider past interpretations of history and challenged the desire of some groups to rebuild the city back as it was in *Christchurch Ruptures* (Pickles 2016: 171). A number of publications address the negative and positive social impacts (innovation and creativity) of the earthquakes. There are also works on specific buildings and sites, reconstruction of heritage in general and potential approaches for specific damaged buildings.

3. Post–Event Appraisals

3.1 Impact Assessment

In the emergency phase, all buildings in the central city were quickly inspected by engineers and given red, yellow or green status indicating the level of immediate danger the building posed and what access was appropriate. The CCC Heritage Team and HNZPT staff, as members of rapid assessment teams with engineers, undertook initial inspections of heritage buildings.

As requests for demolition were lodged by CDEM and later CERA or owners, the CCC Heritage Team and HNZPT, along with consultant heritage professionals and a small number of engineers with heritage experience, advised on heritage significance and assessed damage in more detail. Following the February earthquake, a systematic process of working through the central city red zone grid by grid was adopted. However, after the 13 June earthquake, very short timeframes (48 hours) were provided for these assessments. The reports focused on the physical aspects of the buildings, identifying alternative engineering, retention or temporary propping solutions, and made cases for retention as opposed to demolition, taking into account both tangible and intangible attributes and heritage values. The community had no involvement in this decision-making phase.

CCC heritage Staff and HNZPT staff worked closely with heritage building owners throughout all stages to offer advice, support and access to funding. Owners had limited or no access to their buildings, and in some cases were not contacted. In other cases, owners requested demolition or conversely actively sought retention. Insurance companies undertook their own engineering assessments, and sometimes obtained independent heritage advice.

The initial lack of physical access to documentation, and the age and the limited level of information included in designation reports (in particular the lack of detailed inventories) meant that the knowledge and familiarity of the buildings by the CCC Heritage Team and HNZPT staff was most useful to the emergency response phase.

In the later recovery and regeneration phases pre-existing reports and documentation such as conservation plans (which itemised fabric and its significance) were increasingly used to guide heritage advice, reconstruction and restoration approaches.

As more buildings were resolved through normal consent processes, rather than under the CER Act, heritage impact assessments, consideration of options and alignment with conservation plans and the ICOMOS NZ Charter were required for applications to be processed. In some cases, an engineering peer review was also required.

3.2 Post-Event Documentation

Post-Event documentation includes:

- CERA building reports, resource consent documentation (CCC) and heritage files (CCC, HNZPT).
- Expert heritage and heritage engineering reports.
- Updates to some conservation plans prior to or post repair have been prepared or are planned (Christ Church Cathedral).
- Heritage interest groups published lists of demolished buildings online as a record and for education and advocacy purposes.
- Post-Event created archives (e.g. CEISMIC digital archive)
- Papers and conference presentations.

3.3 Challenges for Recovery

Retention of heritage buildings was very difficult. Challenges for recovery included:

- Overarching legislation was quickly introduced which overrode normal regulatory protection and processes (including conservation covenants) and enabled demolition of heritage buildings.
- Retention of heritage was not prioritised as a beneficial agent for community recovery and economic, environmental, social and cultural wellbeing in recovery plans or programmes.
- Speed of decision-making lessened expert heritage input, identification and negotiation of alternate options, public input.
- Decisions relating to heritage buildings were largely based on engineering advice – but most engineers were not sensitive to historic construction and fewer had a good understanding of heritage conservation principles or the ICOMOS NZ Charter. Almost none were members of ICOMOS.
- Not all owners carried sufficient insurance cover to provide for the costs associated with temporary stabilisation, lost rental income, repair, strengthening and reconstruction. This situation frequently led to a funding gap and a serious threat to the repair and retention of the building. If an owner wished to demolish, a case based on financial and engineering factors was often successful.
- Demand for grant support for owners in order to bridge the gap between insurance cover and actual cost of works exceeded budgets.
- The local capacity of heritage professionals, specialist craftspeople and heritage engineers was extremely stretched.
- There was a lack of detailed pre-earthquake documentation for some reconstruction projects.
- Access to information on the location and values of designated buildings was restricted and not integrated into Civil Defence systems.
- Accessing buildings, salvaging and storing heritage fabric and collections was an issue. Some fabric was stolen.
- It was difficult to advocate for retention when heritage buildings at risk of collapse were located on major transport routes and so were perceived as impeding recovery.
- There was no protection or official designation in place for groups of buildings or heritage conservation areas, and there was no protection for the many buildings of heritage value that had not yet been designated.
- Some materials required for recovery were scarce.
- The extent of repair work often triggered the requirement for full compliance (strengthening, fire, access) with associated costs.
- The large numbers of URM buildings exacerbated the extent of damage – few had been strengthened.
- The geographical hierarchy of significance with associated hierarchical policy and regulation did not adequately protect or incentivise retention of places of high local significance.

3.4 Responses and Recovery Programme

For parts of the community, including some owners, heritage professionals and heritage advocacy groups, recovery meant retaining as much heritage as possible, not rushing decisions, stabilising buildings until appropriate options could be considered and funding secured, minimising change, ensuring alterations and additions were compatible, and following the principles and processes of the ICOMOS NZ Charter (2010).

Central government-led recovery plans and programmes placed urgency and affordability of safety and repair, financial recovery and innovation at the forefront of recovery. This did not align with the conservation-led approach of heritage professionals.

The Recovery Strategy for Greater Christchurch 2012 (Recovery Strategy) developed by CERA in consultation with strategic partner organisations acknowledges that Christchurch's unique identity is expressed through history, heritage and traditions, and has community benefit. However, restoration of heritage buildings is not a priority and is only sought <<where feasible>>. The objective of the Heritage Buildings and Places Recovery Programme (Heritage Recovery Programme) (November 2014, updated June 2016), prepared by the Ministry of Culture and Heritage (MCH) similarly acknowledges heritage buildings and places as important elements of greater Christchurch's identity, but aims to balance their retention with the needs of the wider recovery to proceed quickly and within available funding. Input was sought from

heritage owners, advocates and property management groups in the scoping stage (June 2012).

In general, government recovery planning regarded the heritage resource as a potential roadblock to the quick recovery sought for the city, particularly in terms of the necessary timeframes and costs involved. Recovery of the heritage buildings was largely associated with adapting them to new uses. Retention included scenarios where only the façades of buildings were retained. The ICOMOS NZ Charter, 2010 was referred to, but its principles and processes were not integrated into the work in many cases.

A recovery programme was developed specifically for the central city, initially locally by the Christchurch Council in collaboration with the community (Draft Central City Recovery Plan March, August 2011). This was later replaced with the central city Development Unit Christchurch Central Recovery Plan (CCRP, 31 July 2012), which acknowledges the rich natural and cultural heritage of Christchurch in its vision but emphasises *the best of the new*. It is an outline plan that focuses on key government-funded anchor projects intended to optimise recovery.

For individual buildings, the significance of the place, level and nature of damage, owner's wishes and financial/insurance situation, engineering advice and requirements, and the frameworks and requirements in place at the time influenced recovery responses.

3.5 Values and Sustainability

New values have emerged since the event:

- Community values associated with certain buildings under threat emerged and were articulated. There was protracted public debate over whether Christ Church Cathedral should be repaired or demolished. Many non-church goers saw the Cathedral as a Christchurch icon and felt a sense of collective ownership of the building. At the same time many people did not support or wish to see public money going into the repair of a cathedral as they did not see the public benefit for those outside of the Anglican Church.
- Recent community engagement by the Council on the heritage strategy indicated new values: commemorating the earthquakes and lost heritage; celebrating saved heritage; recognising a broader range of heritage which includes stories, memories, traditions, moveable heritage, documentary and archival heritage, museum collections, clothing, food, song, dance and language.
- Provision of temporary structures (e.g. Transitional Cathedral fig. 42), and temporary street activation have contributed to maintaining community connection and social values.
- Temporary and permanent heritage interpretation panels (e.g. Cathedral Square fig. 43), storytelling (fig. 44) and artworks (e.g. Mural of Jewish Synagogue on its previous location fig. 45), have maintained memories and intangible heritage.
- Reuse of salvaged heritage fabric in temporary activation (e.g. Gap Fillers, figg. 46 and 47) has also contributed to stimulating community engagement with their heritage.
- There has been an increased appreciation of the intangible aspects of heritage buildings (e.g. social values associated with the Isaac Theatre Royal leading to the positive public response to its reconstruction; the public debate around the future of Christchurch Town Hall).
- Ngāi Tahu values and identity were not highly visible in pre-earthquake central Christchurch, but this increased during recovery through the delivery of anchor projects such as Ōtākaro Avon River Precinct, with direct rūnanga involvement in designs and planning (figg. 48, 49 and 50).
- The archaeological investigation of the central city required by the demolition of pre-1900 buildings and sites created a new record and understanding of the colonial history of the central city.
- In light of what has been lost, buildings that have been saved are now highly valued as the rare survivors, particularly with regard to specific type, period, style or architect.
- Unorthodox conservation approaches to retention have stretched the boundaries of the ICOMOS NZ Charter (2010), such as: façade retention (Former McKenzie and Willis building fig. 31, – refer to separate case study), retention of an interior with a new exterior (Knox Church, fig. 32 – refer to separate case study), and large-scale reconstruction (Isaac Theatre Royal, fig. 51 – refer to separate case study). They are considered of value – for retention as landmarks, as evidence of the earthquakes and the technological response required to retain them, as well as their value to the community.

Images, Clockwise from top left:
Fig. 42. Transitional Cathedral interior. (Source: C. Forbes, 13 September 2016)
Fig. 43. One of the interpretation panels erected in Cathedral Square. (Source: C. Forbes, 12 September 2016)
Fig. 44. Good Spot car park, heritage interpretation sign, Manchester Street. Good Spot is a community run carpark in central Christchurch with all proceeds directed into projects in the surrounding neighbourhood. (Source: A. Ohs, November 2019
Fig. 45. Mural of Jewish Synagogue (demolished long before the earthquakes) in its previous location. (Source: A. Ohs, 2019)
Fig. 46. City Putt and Cruise Golf Course. (Source: A. Ohs, June, 2018)
Fig. 47. Use of retrieved heritage fabric in the exhibition Lost Christchurch, by artist Danielle (Dani) Mileo (Melbourne) held in October 2016 at the NZIA rooms. (Source: E. Austin, Peanut Productions Photography)

Images, Clockwise from top left:

Fig. 48. Whāriki Manaaki, Victoria Square. Ngā Whāriki Manaaki Woven Mats of Welcome is a series of 13 weaving patterns that feature within Te Papa Ōtākaro/Avon River Precinct. Positioned near the river, each Whāriki/mat is an arrangement of natural stone pavers, and in sequence the series references the process of welcome for all peoples visiting Christchurch and support the guiding principle of the earthquake rebuild for Ngai Tāhu, 'Kia atawhai ki te iwi', care for your people. (Source: A. Ohs, 2018)

Fig. 49. Mohiki/Canoe with Avon River and Antigua Boat Sheds in background. (Source: A. Ohs, 2019)

Fig. 50. One of two Mana Motuhake sculptures designed by Fayne Robinson for Victoria Square. The waka sculptures are designed to complement the existing statue of Queen Victoria and emphasize the partnership between the Crown and Iwi as treaty of Waitangi signatories. (Source: A. Ohs, November 2019)

Fig. 51. Isaac Theatre Royal, showing restored façade with new side addition to accommodate fire stair and lifts. The theatre behind is a substantially new structure with some recovered elements reinstated, including painted ceiling dome and decorative plaster elements to the proscenium and galleries. (Source: C. Forbes, 12 September 2016)

3.6 Drivers, Agents and Governance

3.6.1 Drivers

Property owners and community groups who wanted to get their buildings back and in use, have been important drivers for heritage recovery.

They have been supported by Christchurch City Council and HNZPT, who are responsible for ensuring that legislative requirements related to heritage protection are met.

Grants have been very important for encouraging heritage recovery. These included: CCC heritage Incentive Grants for scheduled buildings (pre-existing prior to earthquakes), which contributed up to 50 per cent of repair and conservation works; and CCC central city Landmark Grants for central city scheduled landmark heritage buildings (post event), which had the budget to make an even greater contribution.
The Canterbury Earthquake Heritage Building Fund (est. late 2010) collected donations (which the government matched) for heritage building repair and strengthening. HNZPT's National Heritage Preservation Fund provided grant funding to places of national significance. Since the event, funding has been aimed at bridging the gap between insurance cover and actual repair and strengthening costs. Government's Heritage EQUIP funding (post event) for strengthening has also been important.

Building contractors from local and small scale, to national and international firms have played a key role in delivering the work on the ground.

3.6.2 Post-Event Governance Framework – Agencies and Legislation

The framework, agencies and responsibilities changed over time throughout the emergency, response and recovery phases.

Emergency Response Phase (February 2011)

In the emergency response phase – USAR, New Zealand Police and FENZ attended to immediate human safety. The local Emergency Operations Centre (EOC) was initiated under the CDEM Act by Christchurch and Canterbury Civil Defence Emergency Management, including CCC. EOC processed applications for make safe and full demolition of heritage buildings, which were signed by the Civil Defence National Controller and later the Demolitions Manager.

Recovery Phase (March 2011–June 2016)

The Canterbury Earthquake Recovery Authority (CERA), a national level government body with wide ranging powers, was established with the Canterbury Earthquake Recovery (CER) Act 2011 and took over local decision-making to lead and coordinate the recovery of the city and demolitions. CERA had primary authority to authorise demolition of earthquake-damaged buildings or buildings determined to be earthquake prone, including heritage buildings. CERA amended the District Plan (2012) to remove the requirement for resource consent for demolition of heritage buildings approved for demolition by CERA and overrode conservation covenants under the Reserves Act. central city District Plan provisions were amended to take a more permissive approach to strengthening and altering earthquake-damaged buildings to enable them to meet building codes and to speed up repair of heritage buildings.

The Christchurch City Council had reduced authority and powers but continued to participate in planning for the future of the city and consenting for make safe and permanent repair works to heritage buildings where CERA was not involved. There was pragmatic allowance for retrospective consent for make safe work as part of permanent repairs. The CCC Heritage Team and HNZPT had no formal role in the EOC but worked closely together responding to CERA demolition reports, initially for all designated items, and later restricted to those in the higher groups. HNZPT retained their statutory responsibility for archaeology and was soon formally integrated into EOC processes and co-located with CERA, separate from the CCC heritage advisors in mid 2011. From late 2012 CERA chaired a Heritage Buildings and Operations Group as a forum for their partners with heritage issues (CCC, MCH, HNZPT).

ICOMOS NZ had a non-statutory role to raise awareness of heritage at risk and issued heritage alerts for Christ Church Cathedral and the Canterbury Provincial Council Buildings.

Ngāi Tahu were given statutory recognition in the CER Act, and their involvement ensured that the Central City Recovery Plan recognised Ngāi Tahu heritage and places of significance.

Regeneration Phase (from July 2016)

In 2016 the CER Act 2011 was replaced by the Greater Christchurch Regeneration Act 2016 (GCR Act) and Regenerate Christchurch (joint entity between the Crown and CCC) replaced CERA to lead the City from recovery to regeneration. This was to be done through regeneration plans, leadership and by working with communities and businesses. The new act retained the power to carry out or commission works such as the demolition of buildings.

The new Christchurch District Plan (2016) introduced enabling regulation for repair, new uses, maintenance, strengthening and demolition in certain circumstances. In order to reduce the onus of consenting requirements for owners, the new plan permitted some activities with required standards and the involvement of a certified heritage professional. This plan also removed protection of heritage interiors that had been protected under the previous City Plan.

Other factors

Discussions had not taken place between the heritage agencies, central government and Civil Defence prior to the disaster regarding the importance of cultural heritage, particularly built heritage, to the people of Christchurch. Therefore, its value to the city's character and recovery failed to be fully understood or acknowledged by those outside the heritage agencies. (Forbes)

Built cultural heritage was not part of the disaster response and recovery agenda. Cultural heritage had not been included in Government and Civil Defence charters, emergency plans or operating procedures. Nor had it been included in Civil Defence training scenarios prior to the event. (Forbes)

There was no resilience planning in place. The resilience plan developed since the event still does not integrate heritage into resilience planning for the city.

4. Documenting Response Actions, Timeframes, Resources and Costs

4.1 Actual Implementation and Timescales for the Recovery Programme

This case study was prepared eight to nine years after the Canterbury Earthquakes, whilst recovery of the city and its heritage resource is still underway. For individual heritage buildings, recovery is either complete, in progress, or in some instances has not yet begun. Many aspects of Christchurch's heritage will not be recovered.

The recovery programme for the city was executed with the rapid establishment of emergency legislation that created government agencies with wide-reaching powers. Normal consenting processes and public participation processes were greatly reduced. All of this has resulted in extensive demolition of heritage buildings. This situation lasted for many years.

During the response and recovery phases CCC and HNZPT heritage staff worked with heritage building owners, heritage professionals and engineers to offer advice, support and access to financial assistance to achieve recovery of individual heritage buildings. This was done proactively and as required as part of consent processes.

It was difficult to plan for the recovery of hundreds of individually owned buildings where each had its own set of unique circumstances in terms of heritage significance, insurance cover, level of damage and funding. Timeframes were often lengthy due to the dependence on resolution of insurance claims, and there was limited availability of heritage experts and skilled artisans. Some projects (the Arts Centre) brought in stonemasons from overseas.

The reuse of salvaged heritage fabric was not as extensive as expected and much remains in storage (fig. 52).

Public concern and protests made a difference to a small number of planned demolitions (e.g. Christ Church Cathedral and McLean's Mansion – refer to separate case study), and proposed changes to public spaces (e.g. Victoria Square). But these instances have been rare.

Fig. 52. Heritage fabric in storage. (Source: CCC heritage files, G. Wright, 2018)

4.2 Resources and Costs of Implementation

For owners undertaking repairs, strengthening to build back "better", stronger and safer, to ensure the heritage item would last another 100 years has been a priority. This has often resulted in greater intervention and replacement of heritage fabric than would normally be considered best conservation practice. Some owners, however, have accepted fixes that are not as robust in order to retain values and as much heritage fabric as possible. Some owners have chosen not to reconstruct in masonry due to safety concerns associated with the material, and this has reduced integrity (e.g. Knox Church – refer to separate case study).

4.2.1 Executors

Council's Heritage Team and HNZPT's roles are outlined above. Local and New Zealand heritage professionals have advised heritage building owners, and specialised tradespeople and conservators have often carried out the works. Engineers with heritage expertise were limited, but were employed to undertake peer reviews, and advise owners and insurance companies. Offers of assistance came from international experts in the immediate aftermath of the event, however local institutions were not sufficiently prepared to make use of their offers.

4.2.2 Approaches, Methods and Techniques

Recovery has taken many forms and a variety of methods and techniques have been employed for repair and reconstruction of heritage buildings. All have included some form of strengthening to make them more resilient for the future.

Recovery Approaches

Recovery approaches have included (refer to attached case studies):

- Stabilising and making weathertight structures, and salvaging and storing historic fabric, until funds are available to undertake works (e.g. Canterbury Provincial Council Buildings fig. 41);
- Full restoration using ICOMOS NZ Charter principles, conserving as much original fabric as possible, whilst incorporating strengthening of foundations, floors, walls and roofs (e.g. the Arts Centre);

- Removal of earthquake prone elements such as chimneys and masonry walls, whilst conserving and strengthening the remainder of the structure (e.g. McLean's Mansion fig. 12, – refer to separate case study);
- Retention, conservation and strengthening of façades only, with demolition and replacement of the buildings behind with totally new buildings (e.g. McKenzie and Willis commercial façade, fig. 30 – refer to separate case study);
- Salvage of significant elements, with their incorporation into reconstructed interiors within totally new structures behind the façade (e.g. Isaac Theatre Royal fig. 51, – refer to separate case study);
- Salvage of significant elements, with their incorporation into new structures of contemporary design (e.g. St Andrew's College Chapel), or in landscaping (e.g. Oxford Terrace Baptist Church columns, fig. 53);
- Partial reconstruction of the heritage structure only, reinstating parts of the original external form, using salvaged elements to clad totally new internal structures (e.g. Lyttelton Timeball Station);
- Conservation and adaptation of interiors within totally new external structures (e.g. Knox Church, figg. 31 and 32 – refer to separate case study); and
- Strengthening of groups of existing structures to maintain streetscapes but replacing missing elements with new contemporary ones (e.g. lower High Street, fig. 54; New Regent Street, fig. 55 – refer to separate case study).

Recovery methods

Reconstruction of heritage structures, particularly URM structures, is extremely costly. It involves substantial interventions into the significant fabric of the buildings to accommodate the building code upgrades required. In general, repairs to timber structures have been less intrusive. Conservation and strengthening methods have been many and varied. They demonstrate evolving technologies and design solutions, some of which are more intrusive to the heritage fabric and spaces than others, some expressed and some hidden within cavities, some clearly discernible as new insertions and some closely matching the original fabric, some incorporating modern materials and techniques and some using traditional. The methods used are specific to each project, including the construction type and the client's budget and needs. By necessity the required strengthening has compromised the integrity and authenticity of heritage buildings in many cases.

Examples of reconstruction methods include, but are not limited to, the following:

- Photographic and film recording of damage (most), and some use of drones (Christ Church Cathedral and the Cathedral of the Blessed Sacrament).
- 3D scanning of exterior random rubble stone walls to assist with decisions about reinstatement (Lyttelton Timeball Station, Canterbury Provincial Council Buildings).
- Salvaging, inventorying and storing of collapsed heritage materials, particularly decorative and other significant elements, for future reinstatement following structural and strengthening works (Canterbury Provincial Council Building, Cathedral of the Blessed Sacrament, Lyttelton Timeball Station).
- Underpinning of buildings using deep piers (the Arts Centre), wide concrete raft footings to support existing footings (Knox Church and McLean's Mansion – refer to separate case studies) or insertion of seismic isolation (e.g. planned for Christ Church Cathedral).
- Replacement of masonry elements that could fall with lightweight alternatives (e.g. chimneys and parapets).
- Insertion of steel pins and ties rods into masonry joints to tie URM walls together (e.g. McKenzie and Willis façade – refer to separate case study), and insertion of long bars over openings to spread loads.
- Use of steel cables within walls (the Arts Centre), bracing or steel frames at the back of walls to support them (the Arts Centre, McKenzie and Willis façade – refer to separate case study, New Regent Street – refer to separate case study).
- Grouting of wall cavities, use of fibre reinforced renders or shotcrete on masonry wall surfaces.
- Introduction of new fixings to timber structures. and
- Use of ply bracing on timber wall frames to create shear walls, and on floors and ceilings to create

Images, Clockwise from top left:
Fig. 53. Oxford Terrace Baptist Church, with columns from the demolished church within the grounds. (Source: A. Ohs, 2018)
Fig. 54. Replacement Billens Building, Lower High Street. This building reflects the previous building on the site which was earthquake damaged and ultimately destroyed by fire. (Source: A. Ohs, 2018)
Fig. 55. New Regent Street with new addition on corner. This replaced a single storey shop (demolished post-earthquakes) which was not part of the original street, but which was in a similar style and materials. (Source: A. Ohs, November 2019)
Fig. 56. Former Trinity Congregational Church. The bell tower collapsed in the earthquakes. (Source: CCC heritage files, 2003)
Fig. 57. Former Trinity Congregational Church, undergoing repair. The bell tower has not been reconstructed. (Source: A. Ohs, November 2019)





diaphragms (McLean's Mansion – refer to separate case study).
- Wrapping scaffolding around buildings in plastic to protect exposed heritage fabric until conservation could be carried out (Mona Vale Gatehouse).

4.2.3 Sustainability

In the repair of individual heritage buildings, sustainability has been considered in terms of longevity of repairs and materials used and in ensuring that the buildings are strengthened to resist future earthquakes. Finding viable uses for heritage places and the provision of heritage grants have contributed to the economic sustainability of heritage buildings. Some developers recognise the economic return potential and social and environmental benefits of retaining and adaptively reusing heritage buildings (e.g. McKenzie and Willis Façade and McLean's Mansion – refer to separate case studies).

4.2.4 Costs

Insurance largely dictated budgets for private owners. Many owners' insurance agreements did not cover the additional cost of heritage repairs, reconstruction and strengthening using heritage-sensitive conservation approaches. Additional grants were established early on to help bridge this gap, and existing grant policies were amended to better support buildings in the lower designated groups.

Some owners sold their buildings "as is, where is" and took the insurance money with them, leaving the new owner with the responsibility for the repair cost (McLean's Mansion – refer to separate case study). Many such owners sought grant assistance. Some owners staged the works over a number of years or did not reinstate all deconstructed elements (e.g. Trinity Congregational Church figg. 56 and 57).

5. Documenting the Outcomes and Effects

5.1 Assessment of the Outcomes with Regard to the Recovery of the Heritage Resource

Overall, processes and planning for the recovery of central city heritage did not sufficiently provide for retention of the heritage resource, with almost half the heritage buildings being lost. This has impacted the integrity of the city's heritage and the city's sense of place and identity. In addition, some of the methods adopted in recovering the city's retained heritage have eroded its authenticity.

Many landmarks and historic streetscapes that gave the city its grain, character and human scale, have been lost. The new character of the city features larger scale buildings with concrete and steel frames, large diagonal braces and extensive areas of glass. When historic façades have been retained, the new structural elements behind them are sometimes clearly visible.

Insurance determined outcomes for much of the heritage resource. The majority of insurance claims involving the central city's remaining heritage buildings have now been resolved, with many buildings having been repaired, strengthened and re-occupied. However, almost 30 still remain temporarily stabilised, awaiting funding, repair strategies and in some cases a new use before repairs are committed to.

Engineering requirements determined outcomes for much of the heritage resource. However, in many cases, heritage professionals, conservation architects and specialist craftspeople have been involved in the work, aligning it with ICOMOS NZ Charter (2010) principles and practice. There has been an increased openness to new approaches not traditionally seen as good outcomes (e.g. façade retention, large-scale reconstruction, and interior retention with new exterior treatment and vice versa) as practical responses to ensuring heritage is saved and retains its community and landmark values. There has also been more acceptance of interventions for structural strengthening as this provides a more resilient and safer future for the heritage. Deferred maintenance has been addressed in some recovery projects and some owners have taken the opportunity to reconstruct previously lost elements, often at some expense, to reinstate architectural values. Other buildings have been substantially altered to provide for modern use requirements.

From left to right:
Fig. 58. Majestic Theatre (now demolished), corner of Manchester and Lichfield Streets. (Source: CCC Heritage files, 5 January 2012)
Fig. 59. Shands Emporium during relocation. (Source: CCC heritage files, M. Gerrard, 2015)

The government achieved a series of central city anchor projects that, with the involvement of the rūnanga, have successfully integrated intangible Ngāi Tūāhuriri heritage and identity into the city, balancing the previous bias towards European colonial heritage. Dialogue between indigenous and colonial heritage is now visible and will be further enhanced with cultural markers and interpretation planned for the central city (figg. 48, 49 and 50).

In some cases, the government's anchor projects required the removal of repairable heritage buildings or alterations to the historic street grid (e.g. demolition of the Majestic Theatre for road widening – fig. 58). New large-scale developments, enabled by site amalgamations, resulted in the loss or relocation of individual heritage buildings (e.g. Shands Emporium was relocated – fig. 59), but also the loss of the city's fine historic grain.

In many cases the technological value of construction typologies and materials has been lost as a consequence of engineering and safety requirements (e.g. brick veneers for chimneys). In other cases, however, the changes have been assessed as contributing to Christchurch's post-earthquake heritage (e.g. Knox Church fig. 31 – refer to separate case study).

In many instances, reuse of salvaged materials from demolished buildings has not occurred, but in other cases, their inclusion on the site of or in new buildings has contributed to continuity of community identity and values (e.g. columns from the Oxford Terrace Baptist Church (fig. 53)).

The extensive demolition of buildings has not contributed to an environmentally sustainable outcome for the city. Although a lot was salvaged, there has been a huge loss of material to landfill and an equivalent consumption of new materials. It was only later in recovery that heritage professionals began to specify sustainable methods and materials for temporary protection works.

Grants were essential to heritage retention and often made the difference between retention or demolition. Grants also provided incentives for better heritage outcomes as they came with a conservation covenant to ensure retention in perpetuity. This offered greater protection than District Plan scheduling.

5.1.1 Learning Outcomes

The extent of heritage loss experienced by Christchurch following the earthquakes clearly indicates that heritage had not been sufficiently provided for in the planning and execution of response and recovery. Loss resulted not only as a direct impact of the earthquakes, but also as a consequence of: removal of heritage protection; lack of integration of heritage into relevant emergency legislation; inadequate reduction and readiness measures; absence of established relationships between the heritage and emergency sectors; lack of available and up-to-date heritage documentation; prioritisation of engineering requirements and urgency of recovery in decision-making; reduction of local government and community involvement; and insurance issues. Owners, responders, central and local government were not prepared for the scale and complexity of the situation (Forbes). Amendment of local regulation lessened the financial and time burden for owners to undertake repair and strengthening works and enabled new uses. It also reduced the level of documentation required and regulatory control over outcomes. Additional grant assistance eased the burden on owners and often enabled retention or better conservation outcomes.

There are many areas that require further work to ensure that similar losses are not experienced in future disaster events. The government earthquake symposium held in 2018 identified the importance of involving the community, local decision-makers and professionals in developing recovery plans that focused on community wellbeing, participation and empowerment. New heritage values have been identified collaboratively with the community in the Christchurch Heritage Strategy 2019.

The hierarchy of designated items in the District Plan has been reduced from four to two groups and, along with associated regulation and policy, now offers more consistent protection and incentives for heritage retention. New understanding of heritage buildings has been incorporated into updates of heritage assessments for designations. In the event of future disasters, documentation has been made more readily available electronically and will be available to decision-makers and professionals.

Documentation of actions taken, and new understanding of construction methods can be used to inform future decisions on heritage conservation and strengthening requirements.

5.1.2 Recommended Follow Up Actions

There is a general view within the heritage sector that the experience of Christchurch should not be repeated. Therefore, the following matters need to be addressed:

- Cultural heritage is one of the key indicators used for assessing resilience under the Sendai Framework and thus should be included in resilience planning for cities.
- The value of cultural heritage to community wellbeing needs to be better understood and appreciated by decision-makers and emergency managers nationally and locally.
- The Civil Defence and Emergency Amendment Act 2016 includes heritage and how it is to be considered during an emergency. HNZPT is the nominated authority to be consulted regarding heritage in an emergency. Processes need to be put in place to support this legislation.
- Heritage assessment methodology needs to be revised to better identify community values through active community involvement.
- More work is needed on reduction and readiness to ensure professionals, owners and buildings are better prepared for emergencies and recovery.
- This includes undertaking a review of what pre-earthquake interventions had been successful in mitigating heritage losses (e.g. the Arts Centre and Christchurch Cathedral) and ensuring that buildings are brought up to an acceptable standard, without severely compromising heritage values..
- There is a need to build heritage and community input into recovery and resilience planning.
- Better training is needed for engineers in the use of assessment tools for heritage buildings, including assessment of buildings as whole systems rather than an agglomeration of individual elements, understanding heritage conservation principles and various options for upgrading traditional construction systems.
- There is a need to incorporate heritage professionals in all phases from emergency response to recovery and resilience planning.

Fig. 60. Heritage and Emergency Management Workshop. (Source: D. Fakuade, 24 July 2019)

- There is a need to provide heritage information in an accessible format to CDEM and decision-makers.
- And there is a need to build relationships across the heritage sector, to identify a core team of responders from the sector who are trained in civil defence processes and procedures.
- Alternative processes to overarching all powerful central government level legislation and management need to be established to enable local management, community input and heritage protection.

5.2 Ownership of the Results

Central government are accountable for the response phase including demolition of large numbers of heritage buildings, and execution of the blueprint plan and anchor projects during recovery. CCC and HNZPT heritage staff own the result of their efforts working with property owners to retain and repair heritage buildings, influencing positive outcomes with grants and consents. Heritage building owners are responsible for their own demolition or repair projects, with insurers as co-owners of the results. Heritage professionals own the results of their expert advice relating to projects.

At this stage of recovery shifts in value perception, some of which are covered above, are evident. Of particular note is the increased appreciation of the importance of respectfully working in partnership with rūnanga, seeking community views and collaborative involvement in heritage identification, protection and celebration. Due to the extent of loss, what remains is valued even more, and there is a new focus on intangible heritage, storytelling, increased access to heritage, and recognition of the heritage of all cultures in Christchurch communities. Sharing heritage stories in innovative ways has been seen in temporary activation projects and artworks created with community involvement (e.g. Gap Filler).

5.3 Documenting the Recovery Programme

As recovery is ongoing, the types of post-event documentation outlined above are still being created.

A series of individual case studies have been prepared to partner this overview case study. Each case study represents a different recovery process and outcome. All are located within central Christchurch as shown in fig. 61.

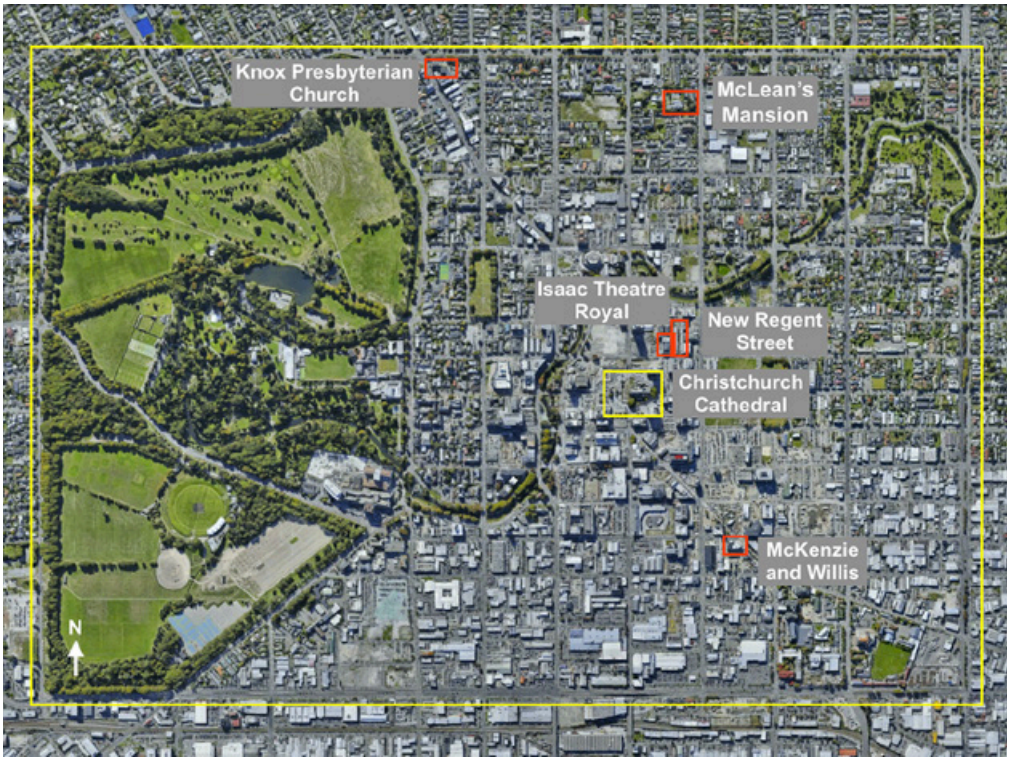


Fig. 61. Satellite image of Christchurch showing individual case study sites (shown red). All are set within the four avenues that define the central city area (shown yellow). Cathedral Square marks the centre of the city (also shown yellow). (Source: Google Earth [accessed 16 December 2019], with overlay by C. Forbes, 2020)

The case studies include:

- McLean's Mansion
- Isaac Theatre Royal
- New Regent Street
- Knox Presbyterian Church
- McKenzie and Willis commercial façade

6. Additional comments

The combination of the earthquakes, the vulnerability of the heritage structures and the implementation of the legislative framework established for the emergency response and recovery phases resulted in huge heritage losses in Christchurch.

In 2017, Australia ICOMOS and ICOMOS New Zealand established a Joint Cultural Heritage Risk Preparedness Working Group to assist Australia ICOMOS and ICOMOS New Zealand in promoting the protection of cultural heritage in times of disaster (both natural or human made); to promote cooperation between the heritage sector and government, emergency services and civil defence, and to promote the inclusion of cultural heritage in emergency plans at local, regional, state and national levels; to build the capacity of heritage professionals in disaster risk management planning and emergency response for cultural heritage; and to establish a network of professionals that can respond responsibly to emergencies as they arise. The development of this case study is a key output by members of that group.

In 2019 a series of heritage and emergency management workshops and programme of actions was begun in Christchurch. CCC with HNZPT and the Galleries, Libraries and Museums (GLAM) sector, with guidance from an emergency management specialist, are leading the initiative as part of the implementation of the new Heritage Strategy (fig. 60). They are working with the emergency management sector, to develop strategies around reduction, readiness, response and recovery. Relationship building between the sectors is a key focus. Other goals include making information accessible, developing training opportunities in relation to disaster risk management planning and CDEM processes, and establishing a heritage response team. The approach is being promoted regionally and nationally and lobbying of government departments for national leadership on heritage and emergency management is underway.

7. Details of the Expert(s) Completing this Case Study

Amanda Ohs is a Senior Heritage Advisor at the Christchurch City Council. Amanda has been involved in a broad range of heritage identification, assessment, policy and planning in Ōtautahi Christchurch for a number of years, including throughout the response and recovery phases of the Canterbury earthquakes. Amanda is an ICOMOS NZ Board member, chair of the ICOMOS NZ Heritage@Risk Committee and a member of the Australia ICOMOS and ICOMOS New Zealand Joint Cultural Heritage Risk Preparedness Working Group.

Catherine Forbes is a conservation architect with GML Heritage, Sydney, member of Australia ICOMOS, Convenor of the Australia ICOMOS and ICOMOS New Zealand Joint Working Group on Cultural Heritage Risk Preparedness, and expert member of ICOMOS-ICORP. Catherine undertook an independent review of the Post-Earthquake Recovery of Built Heritage in Christchurch in September 2016. It was based on field observations, interviews with those affected and those involved in the recovery (local community members, architects, engineers, staff of Christchurch City Council and Heritage New Zealand, and members of ICOMOS New Zealand) and follow-up documentary research. Catherine is an independent observer rather than a participant in the recovery.

This case study was drafted between June and October 2019.

Bibliography

Anderson Lloyd Lawyers, 2014 Available at https://www.stuff.co.nz/the-press/news/christchurch-earthquake-2011/10012234/Expert-explains-Section-38-regulations

Ansley, B. 2011. Christchurch Heritage. Auckland.

Aotearoa Digital Arts. 2015. A Transitional Imagery. Space, Network and Memory in Christchurch. Christchurch.

Canterbury Earthquake Recovery. 2012. Recovery Strategy for Greater Christchurch. Mahere Haumanutanga o Waitaha. Christchurch.

Canterbury Earthquake Recovery. 2012. Christchurch Central Recovery Plan. Te Mahere 'Maraka Ōtautahi'. Christchurch.

Canterbury Earthquake Recovery. 2016. Christchurch's Heritage Buildings after the Earthquakes. [online] Available at: < https://www.eqrecoverylearning.org/environments/built/resource/5864>[Accessed 19 August 2019].

Chapman, C. 1 March 2011. Our 'Old Dungers' Must Go: Minister. [online]. PressReader. Available at: <http://www.pressreader.com/> [Accessed 13 August 2019].

Christchurch City Art Gallery/Te Puna o Waiwhetu. 2012. Reconstruction: Conversations on a City. Christchurch.

Christchurch City Libraries. 2019. Insite Report: Bibliography on heritage topics relating to Christchurch and Banks Peninsula. Christchurch.

Farrell, F., 2012. *The Quake Year.* Christchurch.

Farrell, F., 2015. *The Villa at the Edge of the Empire. One Hundred Ways to Read a City.* New Zealand.

Forbes, C. ,2018. "Mitigating post disaster risks to architectural heritage: lessons from Christchurch". 8th International Conference on Building Resilience – ICBR Lisbon. Portugal.

Forbes, C., 2019. Issues Paper: "Post Earthquake Christchurch, New Zealand. Revision 5".

Gorman, P., 2013. *A City Recovers. Christchurch Two Years after the Quakes*. Auckland.

Hobbs, M., 2011. *Christchurch Dreaming. Yesterday, Today and Tomorrow*. Auckland.

Kingsbury, P., 2019. Pers comm to Amanda Ohs. [Email].

Lincoln Institute of Land Policy. 2017. "After Great Disasters. How Six Countries Managed Community Recovery". Lincoln.

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010 – January 2012 – Report for the Canterbury Earthquakes Royal Commission,* New Zealand Historic Places Trust Pouhere Taonga: Wellington 8 March 2012, ENG.NZHPT.0004A.14

Miles, S., 2012. *The Insurance Aftershock and its implications for New Zealand and Beyond.* Auckland.

Ministry for Culture and Heritage. 2016. Heritage Buildings and Places Recovery Program for Greater Christchurch. Wellington.

New Zealand Historic Places Trust Pouhere Taonga. 2012. Heritage Buildings, Earthquake Strengthening and Damage. The Canterbury Earthquakes September 2010-January 2012. Report for the Canterbury Earthquakes Royal Commission. Christchurch.

Pickles, K., 2016. *Christchurch Ruptures*. Wellington.

Shaw, P., 2003. *A History of New Zealand Architecture*. Auckland.

Stevens, F. ,2015. "Earthquake Response for Built Heritage in New Zealand". ICOMOS NZ Conference and AGM. Auckland.

The New Zealand Initiative and Deloitte New Zealand. 2016. *Deadly Heritage*. Wellington.

United Nations. 2015. *Sendai Framework for Disaster Risk Reduction 2015-2030*. Geneva.

Wilson, J., 2013. *Christchurch Contextual Historical Overview.* Christchurch.

Wilson, J., 1984. *Lost Christchurch*. Springston.

MCLEAN'S MANSION (HOLLY LEA), CHRISTCHURCH

Catherine Forbes and Winston Clark

TABLE OF CONTENTS

List of Illustrations

Acknowledgements

I wish to acknowledge the kind assistance given by Fiona Wykes, Senior Heritage Advisor, Heritage Team, Urban Regeneration, Urban Design and Heritage Unit, Christchurch City Council. This case study would not have been possible without her input.

I would also like to thank Lynn Campbell and Tim Hogan of the McLean's Mansion Charitable Trust for their input.

1. The Heritage Resource and its Context Before the Impacting Events

1.1 Description, Designation and Recognition

1.1.1 General Description

McLean's Mansion, formerly known as Holly Lea, is a large Victorian timber house, the largest in New Zealand and possibly one of the largest in the world. It was built in 1899 for a former pastoralist who had maintained large leases on the Canterbury Plains.

The house is located at 387 Manchester Street, in central Christchurch, within the original Christchurch city street grid (fig. 1). The house is surrounded by a garden. (fig. 2).

1.1.2 Form, Function, Creation and Subsequent Transformations

Form

The large Victorian country house, which is described as Jacobean in style, is very grand and set within a landscaped garden containing lawns, mature trees and formed beds (figg. 3, 4, 9 and 10).

The house consists of a main central block and two wings extending to the rear, all of which have access to a large central stair hall lit from above by an enormous rooflight (figg. 5, 6 and 7). The house is two stories high, with a cellar and additional rooms located within two domed towers arranged symmetrically on the front corners of the house (figg. 3 and 4). Wide stairs lead up to a projecting entrance porch and a colonnaded veranda that extends along the front of the house. A Flemish style gable rises above the entrance (figg. 10 and 14). Two large two-storey bays also project from each of the side elevations (figg. 3, 9 and 15).

The timber building has multiple hipped roofs and strong horizontal lines, delineated by a concrete plinth, heavily moulded cornices at each level, moulded string courses and balustraded parapet around the roof and the veranda (figg. 3, 9, 14 and 15). The timber frame, which is clad in weatherboards, is clearly expressed in the detailing of the building and its window elements. Tall rendered and moulded brick chimneys extend above the roof. The house has both French and Italianate ornamentation.

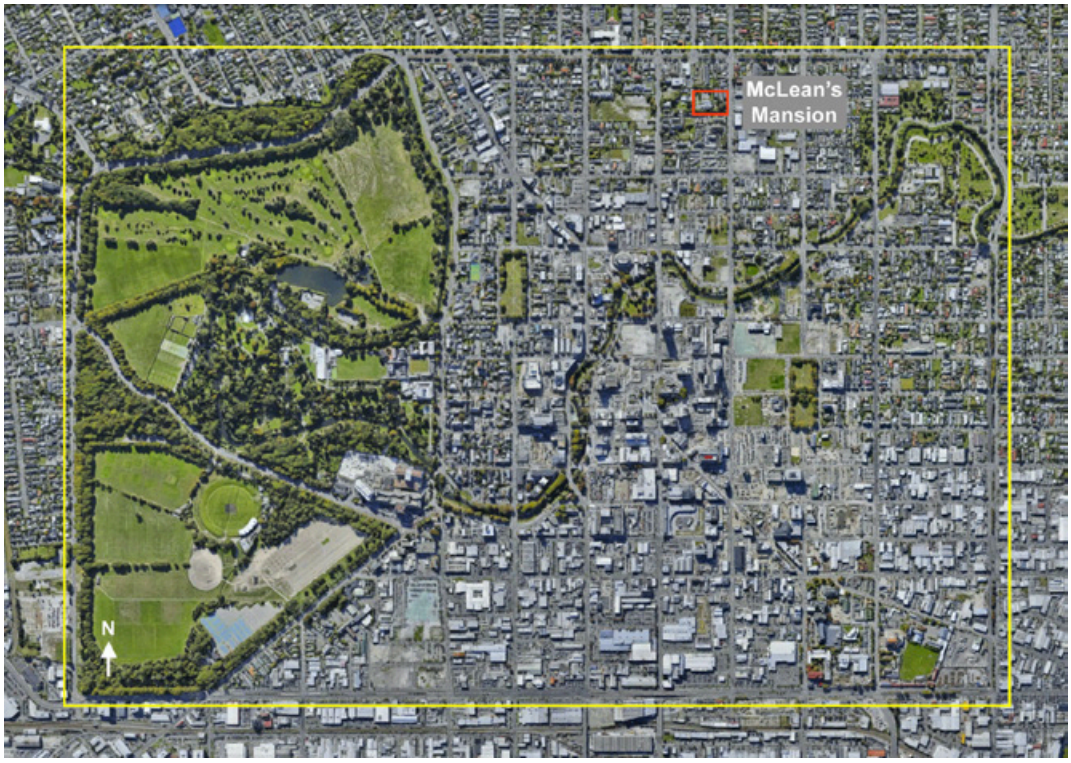


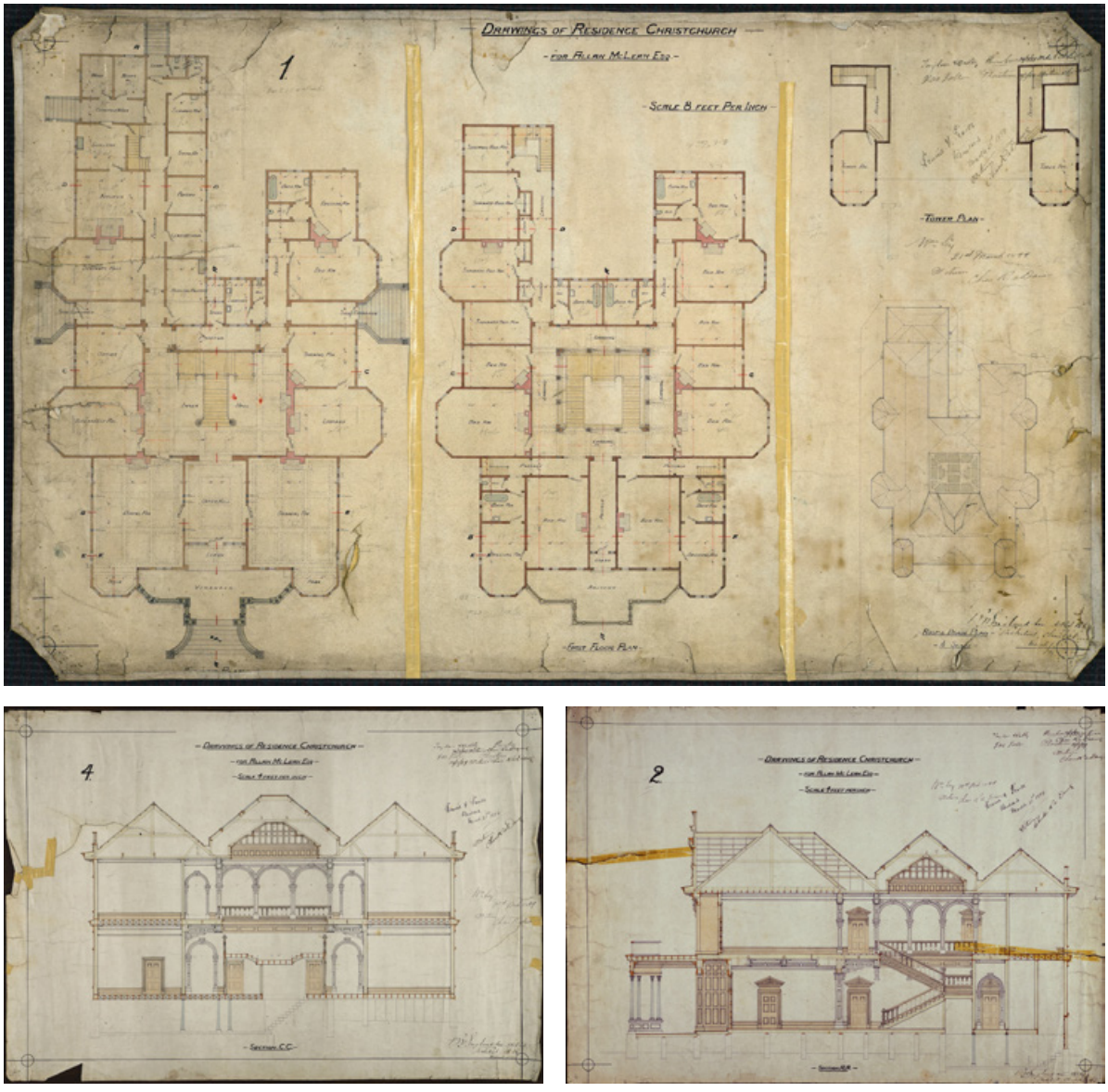
Fig. 1. Satellite image showing location of McLean's Mansion in central Christchurch (Source: Google Earth, 16/12/2019, with overlay by C. Forbes 2020)

Images, Clockwise from top:

Fig. 2. Site plan showing McLean's Mansion (heritage item) and its site boundaries (Source: Christchurch District Plan 2010)

Fig. 3. Holly Lea, residence of the Late Allan McLean (Source: The Weekly Press, 1913, in Hay et al., CCC 1983)

Fig. 4. Holly Lea rose garden, pre 1957 (Source: Christchurch Retrospective, Archives New Zealand, n.d.)



Images, Clockwise from top:

Fig. 5. Floor Plans – Drawings of Residence Christchurch for Allan McLean Esq., by R. W. England, 1899 (Source: Archives New Zealand, CH166/1/1-5, CH166/5)

Fig. 6. Longitudinal Section, A-A – Drawings of Residence Christchurch for Allan McLean Esq., by R. W. England, 1899 (Source: Archives New Zealand, CH166/1/1-5, CH166/5)

Fig. 7. Cross Section, C-C – Drawings of Residence Christchurch for Allan McLean Esq., by R. W. England, 1899 (Source: Archives New Zealand, CH166/1/1-5, CH166/5)

Internally, the building has timber floors, lathe and plaster walls and ceilings with moulded cornices, plaster ceiling roses and other decorative elements, moulded timber joinery, including skirtings, architraves, dados and picture rails. It has a grand double timber stair, classical tympana above the internal doors, Corinthian and Ionic columns at the main entrance, marble fireplaces, silk wall linings and coffered ceilings in the main rooms (figg. 6, 7, and 17–30).

The house, which covers an area of 23,000 sq. feet (2,137m^2), still retains its original symmetrical layout and room functions. It has 53 rooms, including 19 bedrooms, servants' rooms and service rooms. It was regarded as very modern for its time as it had integrated six bathrooms, nine toilets and dressing rooms.

Function

The house was built for a retired pastoralist, Allan McLean. Despite its size, McLean had no family to fill the house and many of its rooms accommodated servants. Since McLean's death the house has accommodated widows and single women, and then dental nurses. Its most recent use has been as an educational facility.

Creation

The house was designed by Robert William England, a local Christchurch architect of note. He was born in Lyttelton, the son of a timber merchant.

The house was built as a colonial interpretation of the English country house, but in local materials. Inspiration for the design is reputed to have come from Mentmore Towers in Buckinghamshire, UK, designed by Joseph Paxton in 1852.

Construction was by Rennie and Pearce Builders. William Rennie had done his apprenticeship in Aberdeen, Scotland, and had worked as a builder in the United States and as a ship's carpenter before migrating to New Zealand. Pearce was local. Rennie and Pearce had built several large buildings in Christchurch before building McLean's Mansion. The quality of work illustrates the high level of craftsmanship in Christchurch at the turn of the twentieth-century.

Construction

McLean's Mansion is primarily of timber construction with the only masonry elements being the in-ground basement, a masonry base/plinth, fireplaces and chimneys. The floor, wall and roof framing are all timber (fig. 8). The house is built on <<concrete foundations extending three feet out of the ground and on three feet by two feet concrete piles. Wall framing (six inch by two inch studs) done in platform construction rests on the usual construction of six inch by four inch wall plates, twelve inch by two inch floor joists and six inch by four inch sleepers>> (Hay *et al.* 1983: 9). The interior timber trim (skirtings, architraves, etc.) is all New Zealand Kauri. The main roof is clad in corrugated steel sheet on timber sarking, and the domes are clad in lead. There is French caste iron cresting on the tops of the domes. The gutters and downpipes are also cast iron.

Changes

The house was adapted to various uses over the years. Between 1913 and 2011 it was used as a rest house for women in straightened circumstances, dental school accommodation, and temporary housing for women through the Salvation Army and the St Vincent de Paul Society. It remained vacant for several years in the 1980s before becoming a tertiary college. Despite all these different occupations, the house has in general retained its original configuration.

- A fire in 1914, on the northwest corner of the mansion, caused minor damage.
- It appears that fire stairs may have been added to the rear of the mansion at around this time or soon after (fig. 9).
- Some chimneys were demolished as early as the 1920s.
- A second small fire, again reported to have caused little damage, occurred in 1934.
- In 1953 new fire escapes were added onto the front and sides of the house (fig. 10).
- In 1955–56, in adapting the place to accommodate the needs of the New Zealand Dental Service, some walls were removed from between rooms, mainly in the ground floor service wing, to create larger spaces. The heating system was converted to electricity and fire alarms and sprinklers were introduced (fig. 11).
- In 1969–70, the recessed entrance was enclosed with large glass doors, and new windows were introduced to the kitchen wing.

Images, Clockwise from top left:
Fig. 8. Holly Lea under construction, c1900 (Source: Christchurch Retrospective, Archives New Zealand, n.d.)
Fig. 9. Holly Lea, McLean Institute Christchurch, by Frederick George Radcliffe, c.1913-1919 (Source: Auckland City Libraries, ID.35-R357, via Wikimedia Commons)
Fig. 10. Holly Lea, 1956 (Source: National Library, New Zealand, via Wikimedia Commons)

- In 1971 six chimneys were demolished down to roof level, possibly to minimise the risk of them falling during earthquakes.
- In 1995 the external fire stairs were removed (CCC 1995).
- In 2009 the building was identified by CCC as potentially earthquake prone. No seismic strengthening has been recorded.

Materials and Skills

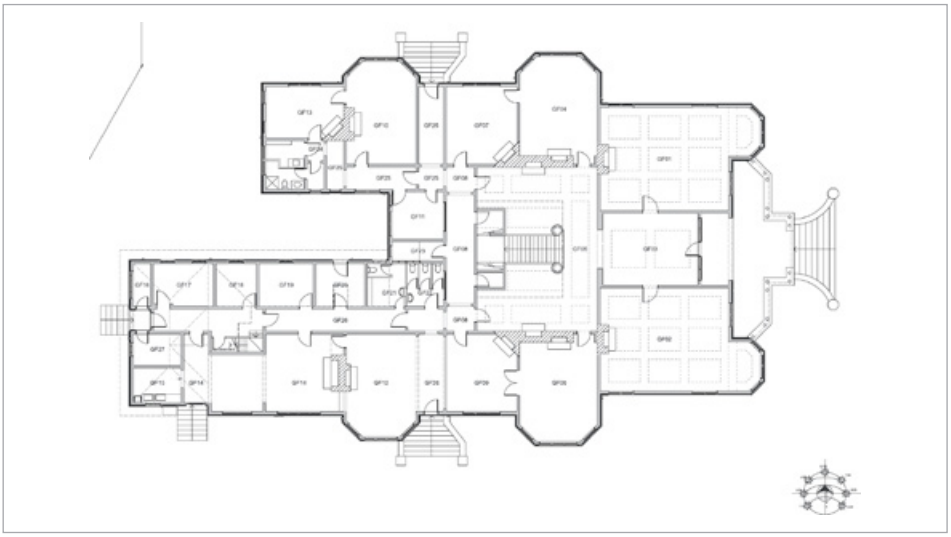
In general, suitably experienced carpenters and joiners are available to undertake repairs.

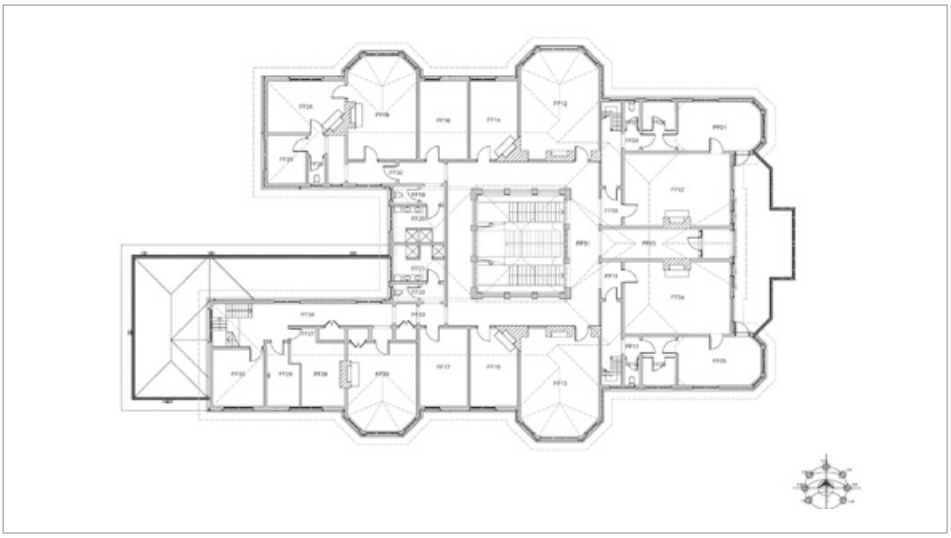
The construction type is typical and not difficult to replicate. Most of the timber is in good condition. Matching native timber species for specific repairs may be difficult if supplies are restricted (e.g. Kauri is no longer logged).

Skilled plasterers are available, but in short supply. Decorative elements can be recast to match the original if required.

A specialist in metal roofing, particularly with the skills to undertake repair work on the domes, may be more difficult to find. Metal roofing materials of matching thickness, profile and weight may be difficult to find as modern materials tend to be thinner and lighter. The cast iron work can be replicated if required.

Matching marbles for chimney pieces may also be difficult to find.





From top to bottom:
Fig. 11. Existing Ground Floor Plan, Richards Consulting Engineers, 28/11/2018 (Source: CCC)
Fig. 12. Existing First Floor Plan, Richards Consulting Engineers, 28/11/2018 (Source: CCC)

1.1.3 Official Designation or Description

McLean's Mansion is a place of national and possibly international significance as one of the largest timber Victorian houses in the world. The heritage listings for the property include both the house and its grounds.

- McLean's Mansion is a Category 1 Historic Place on the New Zealand Heritage List/Rārangi Kōrero (List No. 300, entered 1983).
- <<Holly Lea, now known as McLean's Mansion, is significant as one of the largest timber houses in New Zealand and is a well-known and publicly appreciated part of Christchurch's architectural history. Its Jacobean features, built in local materials, are particularly interesting. Historically, its link to the break-up of the great estates is interesting, as is the house's link to the McLean Institute, which demonstrates the past importance played by private philanthropists in the provision of the community's welfare needs. The house also played a role in the history of the New Zealand School Dental Service.>>
- McLean's Mansion is scheduled as a Group 1 heritage item on the Christchurch District Plan 1995 (Heritage Item 373, heritage setting 332, Highly Significant).

McLean's Mansion was identified as of historical, social and cultural significance for its association with wealthy philanthropist Allan McLean, and for his intended use for the house after his death by the McLean Institute as a charitable trust and home for women "in straightened circumstances" and its subsequent occupation by Mrs Emily Phillips and the dental nurse hostel. The building has architectural significance as the largest timber residence in New Zealand at the time of its construction, and for its design by leading Christchurch architects the England Brothers. It is of technological significance for its timber frame construction, exterior detailing and interior fixtures and fittings. It is of group and landmark significance for its relationship to other buildings in the street and due to its high public profile.

Significant Attributes

It is accepted that the house as a whole is of very high significance, including its built form, layout, historic fabric and all its original decorative features. These features all contribute to the building's architectural, aesthetic, technological and craftsmanship values. Its garden setting is also significant, including its mature trees.

The Council listing described the building as Jacobean Revival in style and consisting of 53 rooms accommodated over two storeys. Features identified included its three storey towers flanking its main central entry, its front gable and portico, and sash windows. Interior features identified included its entrance hall, double return staircase, arcaded first floor gallery, plasterwork, light fittings, fire surrounds, porcelain baths and toilets. The concrete foundations of its conservatory were noted as extant forming the borders of the rose garden. More detailed information is included in Council files.

As there was no conservation plan for the property prior to the earthquakes, no hierarchy of significance had been established or defined with regard to the building's component elements or its internal or landscape spaces. However, there was a general understanding that the principal rooms at the front of the house were more significant than the service areas at the back. Hence, most modifications were contained within those areas.

Conservation Policies

The pre-earthquake inscriptions do not describe all the heritage values associated with the place, the intangible attributes of the place or include conservation policies for the place. These would normally be included in a conservation plan, but as previously stated, there was none prior to the earthquake.

Because of the building's very high level of significance both HNZPT and CCC opposed its demolition following the earthquakes. Refer to section 2.5.2.

1.1.4 Scholarly Recognition

The building is described in detail in scholarly literature, including its finishes and furnishings. This material is cited in the place's designations. Most of the literature focuses on the place, its owner, designer and builder. It also refers to the historic context in which the place was built. There is some reference to the garden.

References include:

Hay, G., Johnson, R. D., Shapcott, P. M. and Shepard, D., 1983. *The Architectural Heritage of Christchurch – 3. McLean's Mansion*, Christchurch City Council, Town Planning Division.

Acland, L. G. D., 1975. *The Early Canterbury Runs*, 4th ed., Christchurch, 1975, pp.36, 137, 204–206.

Marshall, S. F., 1968. *History of the McLean Institute*, Christchurch.

McLean, Allan, 1906. Will and codicil of Mr Allan McLean, Christchurch.

Saunders, J. L., 1964. *The New Zealand School Dental Service: Its Initiation and Development 1920–1960*, Wellington, 1964, pp. 43–44.

Shaw, P., 1997. *A History of New Zealand Architecture*, Auckland, Reprinted 2003, p. 53.

Wilson, J., 2007. *City and Peninsula: The Historic Places of Christchurch and Banks Peninsula.*

Wilson, J., 2005. *Contextual Historical Overview for Christchurch City.*

Wilson, J.. 2013. *Contextual Historical Overview for Christchurch City Revised.*

1.1.5 Popular Recognition

It is clear from the literature that the place is well recognised both locally and in the national context. Postcards of the building date from the early twentieth-century.

The CCC Town Planning division produced a booklet on McLean's Mansion in 1983 in order to build greater public awareness of the place and its significance to Christchurch (Hay *et al.* 1983). At this time, the house was opened briefly to the public prior to its sale into private ownership and use.

Following the earthquakes, the house featured in several publications, including online, about remembering Christchurch. These include:

Blog: Our People, Remembering Lost Christchurch – Holly Lea – a Rich Man's Folly? posted by Wendy, 25 June 2011 https://lostchristchurch.wordpress.com/2011/06/25/holly-lea-mcleans-mansion-manchester-street-c-1900/

There was considerable community outcry against the proposed demolition of the building following the Canterbury earthquakes, and this featured strongly in the press. Articles include:

Greenhill, M., 2013. "Historic Mansion to be Bulldozed", *Stuff.co.nz*, 12 July 2013.

Broughton, C., 2016. "McLean's Mansion saved from demolition", *Stuff.co.nz*, 7July 2016.

McDonald, L., 2017. "Rescue group wants to buy Christchurch's McLean's Mansion for $1" *Stuff.co.nz*, 14 August 2017.

McDonald, L., 2018. "Breakthrough on McLean's Mansion – rescue work could start within weeks", *Stuff.co.nz*, 26 April 2018.

Law, T., 2019. "Mclean's Mansion opens for the first time since the earthquakes", *Stuff Limited*, 27 February 2019.

1.2 History and Context

1.2.1 History, Ownership and Environment

History and Ownership

This history is from the HNZPT National List of Historic Places, supplemented by information provided by Hay *et al.* (1983):

<<McLean's Mansion, first known as Holly Lea, was built for Allan McLean (1822–1907). McLean had arrived in New Zealand from the goldfields of Australia and took up a number of large sheep stations in partnership with his brothers John and Robertson. Robertson soon left the partnership and in 1880 John and Allan dissolved their agreement, with Allan taking Waikakahi station, and John Lagmhor and Waitaki. ...

<<From the 1870s there had been calls for closer settlement of the land and for the government to 'bust up the big estates'. ...>> In 1891 there was a campaign to put more people on the land, using compulsory purchase of land from the large estates when necessary. <<McLean was initially a reluctant vendor and was only persuaded to sell Waikakahi after some pressure from the then Minister of Lands, John McKenzie. ... Waikakahi became the first property sold to the Crown under the Public Lands Act>>.

<<Holly Lea, the house McLean built from the proceeds of the sale of Waikakahi, was built from kauri and was the largest timber house in Christchurch, containing 53 rooms. The house was designed by Robert William England, whose firm, the England Brothers, became noted locally for their domestic work. The design for the house was derived from Sir Joseph Paxton's Jacobean-style Mentmore Towers in Buckinghamshire. The Jacobean style often featured an eclectic mixture of Flemish, French and Italianate ornamentation, evident in the diversity of styles used in the design of Holly Lea. The notable features of the house include the two, three-storeyed towers on either side of the front entrance, and the central hall, which is lit by a massive glass skylight and has an arcaded gallery running around it.>>

Mary McLean, Allan McLean's sister, occupied the first house on the land in Christchurch. It had been built during the 1870s and was also known as *Holly Lea'* It was located on the portion of the property facing Colombo Street, and was retained as the head gardener's residence once McLean moved into the larger house (Hay *et al.* 1983: 5, 15).

In the garden on the northern side of the mansion was a large glass conservatory measuring 70 feet by 36 feet. In 1913, the conservatory and its plants were sold to the Domain Board and were relocated to the Botanic Gardens. The conservatory in the Botanic Gardens was replaced in 1956. Other buildings included a concrete storehouse, water storage tank and water tower. The water system remained in use until 1915, when the property was connected to the town water supply (Hay *et al.* 1983: 15).

McLean died in 1907. <<In his will McLean established a trust that was to provide a *home for women of education and refinement in reduced or straitened circumstances'* The McLean Institute provided such homes for a number of years in various houses around the city, and eventually in McLean's Mansion itself, after McLean's former housekeeper left Christchurch>> in 1913.

During the Institute's occupation, there was little change to the building, with even the original furnishings continuing to be used. External fire escapes were added in 1953 (fig. 10).

<<In 1955 the Trust decided to sell Holly Lea, due to both the financial difficulties of the Institute and to a shift in ideas about appropriate accommodation for the elderly. Smaller and warmer rooms rather than the spacious grand rooms of Holly Lea were now deemed to be more appropriate. The beneficiaries living at Holly Lea at this time were moved into accommodation at *Quamby*, the Institute's second home in Fendalton>>. *Quamby* is now known as *Holly Lea'*

<<The Trust sold the house to the Health Department for use as a hostel for dental nurse trainees. A lack of staff was a major problem for the New Zealand School Dental Service during the early 1950s. The service embarked on a recruitment drive and in 1955 opened a third training school in Christchurch.>> The first Holly Lea (the 1870s house located in the grounds of McLean's Mansion) was demolished in 1956, soon after the government purchased the property (Hay *et al.* 1983: 5, 15). The original furnishings were also sold, and alterations were made to the building, including: removal of some internal walls between the office and breakfast room, the kitchen and scullery, and the former servants' hall and the adjoining passage; upgrading of the heating system from gas to electricity; and installation of new fire services, including alarms and sprinklers. A large portion of the garden and the orchard were sold to the Catholic Bishop of Christchurch in 1958, including the site of the first Holly Lea (Hay *et al.* 1983: 15). The dental trainees continued to be housed in Holly Lea until the dental school closed in 1977.

The building was temporarily occupied by the Salvation Army and then the St Vincent de Paul Society. From 1983 to 1987 it remained empty. In 1987 the property was purchased by the Christchurch Academy, a vocational training organisation, for establishment of a tertiary college. The building was adapted to accommodate classrooms and administration. The grounds were modified to provide a large car parking area for the college.

Context

Originally the house occupied three large allotments of land in the centre of Christchurch with frontages to Manchester and Colombo Streets. McLean's Mansion faced Manchester Street and was surrounded by a large garden. Because of its scale, it was and continues to be a local landmark of the area. The site also contained the original Holly Lea house, which faced Colombo Street, several outbuildings and a large conservatory, all of which have now been removed (although the footings of the former conservatory now form the borders of the rose garden). The land was subdivided in 1957 and the boundaries realigned again in 1984, leaving the house on its existing lot (Land surveys 1957 and 1984). Even so, McLean's Mansion still retains a site of 5,500m^2. The site now stands in a much more urban context, surrounded by medium density housing, commercial development and a school.

Building Condition

The building was considered to be in good condition prior to the earthquakes.

It was in active use as a tertiary vocational college.

The building was assessed as potentially earthquake prone by CCC in 2009, mostly due to its unreinforced masonry elements (e.g. fireplaces and chimneys) and elements that could fall from heights (e.g. balustraded parapets). The timber structure was assessed as being in need of strengthening (McLean *et al.* 2012, p.118).

1.2.2 Social and Economic Setting

The part of Christchurch in which McLean's Mansion is set, has a mixture of commercial and medium density residential development. Adjoining properties also include the St Mary's Catholic Pro-Cathedral and St Mary's School. McLean's Mansion is unique within this setting.

The community in this area would generally be regarded as middle class, although a high proportion occupy rental properties.

Prior to the earthquakes, the community had not been directly involved with the property as it is in private ownership and use.

1.2.3 Frameworks, Agents and Communication

Legislative Framework

The legislative framework governing the protection of cultural heritage in Christchurch prior to the earthquakes is described in the Christchurch overview case study (Ohs and Forbes 2019), but is summarised briefly here.

Under the Resource Management Act 1991 and within the framework of the Christchurch District Plan, Christchurch City Council (CCC) assesses proposals for works to a heritage building that affect the heritage fabric or involve constructing new buildings in a heritage setting. Under the Building Act 2004, the Council must also consider whether a building is earthquake prone and then issue a notification to the owner requiring them to upgrade the building in accordance with the National Building Standard (NBS). The Council identified the façade of the McLean's Mansion as being potentially earthquake prone in 2009. The Building Act also brings into consideration matters that can have a profound effect on heritage buildings, such as fire and access.

Under the Heritage New Zealand Pouhere Taonga Act 2014, (prior to the earthquakes, the Historic Places Act 1993), Heritage New Zealand Pouhere Taonga's (previously New Zealand Historic Places Trust (NZHPT)) role is to regulate the effects on archaeological sites and must assess any potential disturbance of archaeology on the site. This includes any above or below ground structures that predate 1900.

The property owner may seek advice from both the CCC and HNZPT prior to making any formal submission/application to undertake works.

Under section 85 of the Civil Defence and Emergency Management Act 2002 (CDEM 2002), Civil Defence directors have the power to facilitate the <<removal or disposing of, or securing or otherwise making safe, dangerous structures and materials wherever they may be>>. In an emergency situation, consent is not required form other authorities (McClean *et al.* 2012).

Key Stakeholders

The key stakeholders for McLean's Mansion at the time of the Canterbury earthquakes included the property owner (Christchurch Academy), HNZPT and CCC.

There was generally a shared understanding of the very high significance of the property amongst the key stakeholders and the broader Christchurch community. However, there had been no discussions between CCC, HNZPT and Civil Defence prior to the earthquakes regarding the significance of McLean's Mansion.

1.2.4 Bibliography of Documentation

Christchurch City Council, 1995. *McLean's Mansion (Holly lea) and setting* – Listing sheet.

Christchurch City Council, 2014. *District Plan – Listed Heritage Place, Heritage Assessment – Statement of Significance, Heritage Item Number 373, Former Dwelling and Setting, Holly Lea/Mclean's Mansion – 387 Manchester Street, Christchurch* (18/12/2014)

England, R. W., 1899. Drawings of Residence for Allan McLean Esq – comprising plans, elevations and sections.

Hay, G., Johnson, R. D., Shapcott, P. M. and Shepard, D., 1983. *The Architectural Heritage of Christchurch – 3. McLean's Mansion*, Christchurch City Council, Town Planning Division.

Lovell-Smith, M., 2001. McLean's Mansion, 387 Manchester Street, Christchurch, Heritage New Zealand, available online, https://www.heritage.org.nz/the-list/details/300 [accessed 2 September 2019]

Wilson, J., 2007. *City and Peninsula: The Historic Places of Christchurch and Banks Peninsula.*

Wilson, J., 2005. *Contextual Historical Overview for Christchurch City.*

Wilson, J., 2013. *Contextual Historical Overview for Christchurch City Revised.*

There is an extensive collection of photographs of the building taken throughout its life. These are held in various archives including CCC and HNZPT files, Christchurch City Libraries, McDougall Art Gallery, Canterbury Museum and the McLean Institute.

2. The Nature of the Impacting Events

2.1 General Description

The Canterbury earthquake sequence 2010–2011 is described in the Christchurch overview case study. The earthquakes that had the greatest impact on the city are listed here.

- 4 September 2010 – M7.1 (epicentre 40km from Christchurch)
- 26 December 2010
- 22 February 2011 – M6.3 (most destructive to the city)
- 13 June 2011 – M6.4
- 23 December 2011 M6.2

Earthquakes in New Zealand, including in the Christchurch region, are cyclical, but unpredictable. This particular series was stronger than previously experienced in the region and has been assessed as being a 1 in 500 year occurrence.

2.2 General Impact of the Earthquakes

2.2.1 Impacts on Christchurch

The whole city of Christchurch was severely impacted as well as the surrounding region. The impacts on the city, its heritage and its people are described in the Christchurch Overview case study (Ohs and Forbes 2019). The city centre was closed to the public for two years in some areas. McLean's Mansion was located within the central city red zone.

2.2.2 Impacts on the Building

NZHPT, in their report to the Royal Commission indicated that McLean's Mansion experienced minimal damage during the 2010 earthquakes, but severe damage in February and June 2011 (McClean 2012: 18). It is most likely that the damage was cumulative over the earthquake sequence.

The main timber structure of the house survived the earthquakes (due to its flexibility) – including its floor, wall, ceiling and roof framing, floorboards, weatherboard cladding and joinery elements – doors, windows (including the coloured glass), stairs, balustrades, moulded timber cornices, and other timber trim. The roofs also survived (figg. 13–18).

There was extensive damage, however, to the house's significant internal finishes and decorative elements. The fireplaces collapsed, causing severe damage to the chimney pieces (figg. 25 and 26). Plaster wall and ceiling linings collapsed causing significant damage to the decorative plasterwork and wallpapers (figg. 19, 20 and 21). Timber elements, however, including skirtings, architraves, internal doors, tympana, wall panelling, etc. survived (fig. 22). The physical impacts on significant building fabric are described in more detail in section 3.

2.2.3 Impacts on the Landscape

There was very little damage recorded to the environs around the main building. Liquefaction of the sub-soils did not reflect through the surface crust and appear on the ground surface. There was minor ground settlement east of the main entrance area, but no discernible damage to the paved car parking areas to the north, or driveway access from the south.

2.2.4 Impacts on Use

At the time of the earthquakes, the building was used for teaching and administrative functions. Following the earthquakes, the building was declared unsafe and could no longer be occupied. Thus, the Christchurch Academy could no longer function on the site.

2.2.5 Existing Condition and Vulnerabilities

The building is still standing but needs levelling and strengthening. Temporary bracing has been installed, and ply panels have been fitted over damaged windows to prevent access and provide weather protection (figg.13, 15 and 16).

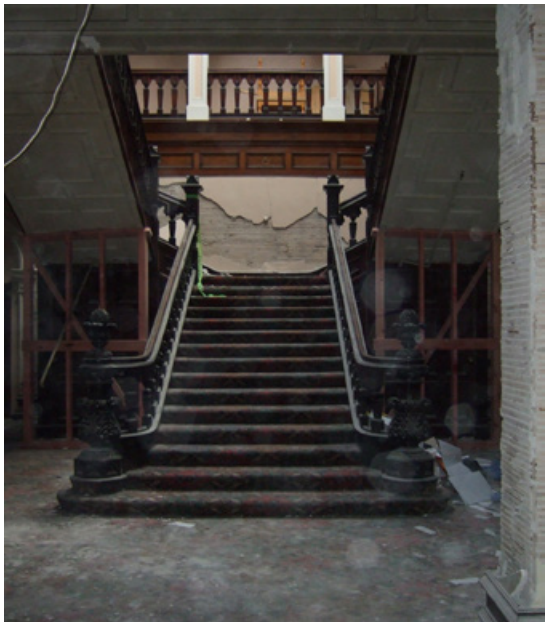
Images, Clockwise from top left:
Fig. 13. McLean's Mansion, front (east) elevation showing twin towers with domed roofs (Source: CCC, June 2018)
Fig. 14. McLean's Mansion, front (east) elevation showing Flemish gable over entry porch and front verandah (Source: W. Clark, 24/11/2015)
Fig. 15. Side (north) elevation showing pair of window bays. The building has been stabilised with diagonal straps and braces and the windows have been covered to prevent unlawful entry. (Source: CCC 5/8/2019)
Fig. 16. Side elevation showing relationship to garden and security fence erected after earthquakes (Source: CCC 28//1/2019)

The site has been fenced, but as the building has remained empty for several years, surviving elements have succumbed to vandalism (including physical damage and graffiti) and theft (figg. 13, 15 and 16). Since the change in ownership (discussed in sections 2.4 and 2.5.2) a security system has been installed to enable closer monitoring of the site.

Fire has also been a concern. Following both the September 2010 and the 22 February 2011 earthquakes, the existing fire sprinkler system was able to be brought back into operation. The fire alarm system has also been reinstated.

2.3 Impact on the Significance and Values of the Resource

The exterior of the house and its garden has retained most of its fabric and its values have been substantially unaffected. Thus, the place retains its architectural, aesthetic and landmark values. Internally, however, there has been substantial loss of significant interior elements (fireplaces), finishes and decorative elements (e.g. decorative plasterwork and fire surrounds/chimney pieces) (figg. 19–30). The key timber elements (stair, doors, windows)



Images, Clockwise from top left:
Fig. 17. Main stair post February 2011 earthquake (Source: G Wright, CCC, 23/5/2013)
Fig. 18. Main stair showing graffiti by vandals (Source: CCC 28//1/2019)
Fig. 19. Coffered ceiling in upper stair hall showing damage to plasterwork (Source: G Wright, CCC, 23/5/2013)
Fig. 20. Plaster has fallen off walls of upper stair hall (Source: CCC 28//1/2019)

and decorative timber trim (skirtings, architraves, picture rails, wall panelling, etc.) are in a reasonable condition and can be readily restored (figg.17, 18 and 22). Many decorative plaster elements (e.g. ceiling roses, brackets) or portions of elements (e.g. moulded cornices) have been salvaged to enable replication and/or reinstatement during recovery (figg. 29 and 30).

Thus, although severely impacted, the aesthetic and craftsmanship values associated with the elegant house interiors are considered to be recoverable.

Despite the extent of damage and loss of significant elements, the cultural heritage value of McLean's Mansion to Christchurch and New Zealand has not faltered. The place retains its official designation. Its value is also reflected in the efforts made by the heritage authorities to peer review damage assessments, pursue refusal of demolition requests through the Environment Court, provide funding to assist conservation and strengthening works, and to negotiate alternate options for the place with the owner to ensure its future.

Images, Clockwise from top left:
Fig. 21. Surviving portion of original plasterwork on coffered ceiling (Source: CCC 5/8/2019)
Fig. 22. Joinery elements have been salvaged for reinstatement (Source: CCC 28//1/2019)
Fig. 23. Diagonal strapping has been installed post-earthquake to stabilise walls (Source: G Wright, CCC, 23/5/2013)
Fig. 24. Plaster has fallen from lathes, but walls remain plumb (Source: W. Clark, 24/11/2015)

2.4 Emergency Repair(s) to Date

Only very basic stabilisation and make safe work was carried out by the building owner following the earthquakes. This included installation of temporary shoring and bracing, ply panels over window openings and erection of a safety fence around the house (figg. 13, 14, 15 and 16). Some significant elements were salvaged from inside the building and stored.

In late 2018, the property was transferred to a new owner, who has since cleaned out the interior of the building to enable it to be assessed in detail. This has included removing the brickwork from the collapsed fireplaces (figg. 27 and 28) and salvage of the remaining significant elements from inside the building to prevent further loss from vandalism and theft. Plaster elements have been salvaged, sorted, recorded and stored for future replication and/or reinstatement (figg. 29 and 30). Timber elements and remnants of chimney pieces have also been salvaged (fig. 22). The garden has been cleaned up to improve the appearance of the place and make it look cared for until the building is restored. Much of the work is being done by local volunteers, many with specialist skills.

2.5 Documentation and Narratives

2.5.1 Documentation

A photographic record was made of the damage. Engineering assessments were undertaken and the documentation has been shared among the key stakeholders. This includes annotated measured drawings and schedules of works outlining the preferred options for recovery.

Clark, W., 2015. McLean's Mansion Photographs taken on 24 November 2015.

Clark, W. D. C., 2016. *McLean's Mansion, 387 Manchester St, Christchurch*, engineering drawings, including plans and sections.

Clark, W. D. C., 2016. *McLean's Mansion (Holly Lea), 387 Manchester Street, Christchurch, Repair and Retrofit: Scope of Works*, version 4, 5 February 2016.

Clark, W. D. C., 2016. Statement of evidence of Winston David Currington Clark for Heritage New Zealand Pouhere Taonga, Before the Environment Court of Christchurch, 12 February 2016, ENV-2015-CHC-000094.

Wilkinson, G., 2013. *Detailed Engineering Evaluation for 387 Manchester Street*, Christchurch, prepared for Alpine View Corporation Ltd, Ruamoko Solutions, 10 June 2013.

2.5.2 Narratives

The owner of the property at the time of the earthquakes claimed that recovery of the house was not financially viable and was beyond their means. Thus, they applied twice for permission to demolish the building – after the June 2011 earthquake and then again in 2016, when they could not find a buyer for the place.

Following the June 2011 earthquake, an engineering assessment was produced by the owner that raised concerns regarding potential risk to the neighbouring school should McLean's Mansion collapse, despite the distance of the house from the school's boundary fence. This was used as evidence to support demolition of the building. Although CERA had issued a section 38 notice for demolition, HNZPTPT declined an application for the required archaeological authority (required because the building was more than 100 years old), taking into consideration the high significance of the building. Further engineering advice obtained by HNZPT contradicted the owner's report and was accepted by CERA. This was critical to the building being saved.

Due to the community's interest in the place, the media reported regularly on the building's status – its potential demolition and its potential salvation, presenting structural, financial and heritage issues from different perspectives: property owner, CERA and NZHPT. The McLean's Mansion Charitable Trust was presented as the saviour of the property as it proposed to buy, restore and adapt the place as a significant Art Gallery and venue for Christchurch.

3. Post-Event Appraisals

3.1 Impact Assessment

3.1.1 Physical Damage

Engineering assessments were undertaken, which focused on the tangible attributes of the place.

The earlier assessment prepared for the owner by Ruamoko Solutions (2013) assessed the building against the NBS. This was relatively conservative in its approach and pessimistic in its outlook.

A more detailed engineering assessment, which adopted a more holistic approach to assessing the performance of the building was prepared by Win Clark on behalf of HNZPT for the 2016 court case in which the owner sought demolition of the building (Clark 2016).

The principal impacts on the heritage building, as identified for the court case, include:

Collapse of Brick Masonry Chimneys

The massive brick chimneys, particularly the group of chimney stacks forming the north and south wall of the stair well, were constructed of good quality bricks bonded with a relatively weak lime mortar. The earthquake-induced inertia forces dislocated the brickwork causing collapse of the chimney stacks between the floors and roof (fig. 25). At some previous time, the upper section of the chimney stacks were removed to below the roof line. It is noted that the collapsed bricks were virtually clean of any significant mortar.

Differential ground settlement

The maximum vertical settlement of the ground floor was in the order of 222mm in an area towards the western end of the north wing, around a brick chimney. The settlement was less towards the eastern end of the building, except for peaks of settlement at chimney locations. The area at the main entrance settled by 150mm. The southern wing had reduced settlement and no settlement was measured under the main stairs and down the eastern end of the southern corridor. Towards the western end of the southern wing, settlement increased in the order of 100mm.

The Aecom Geotechnical Investigation Report (dated 07 October 2011) suggests this settlement was principally due to the liquefaction of the fine-grained sands and silts layer between 1m to 9m depth under the building. The liquefaction effects did not reflect up through the 1m deep upper crust layer in lightly loaded floor areas and beyond the building perimeter. However, the heavy brick chimney elements were able to punch through the crust to cause distortion of the building frame.

Fig. 25. Brick fireplaces have collapsed (Source: W. Clark, 24/11/2015)

Foundation and Basement Walls

Due to ground liquefaction of the foundation soils supporting the perimeter foundation walls and basement walls, cracking and minor distortion occurred. This cracking of the basement wall, together with the liquefaction of the surrounding soils, caused the basement area to be flooded. The distortion had only a minor effect on the overall stability of the building.

Lath & Plaster and Decorative Plaster Ceilings

Throughout the building the ceilings were formed of lath and plaster. In the main rooms, deeply coffered ceilings were built up with light timber framing and clad with heavily moulded plaster (figg. 19 and 21). Large and heavy decorative plasterwork elements collapsed and were severely damaged. The failure was due to inertia forces from the heavy plaster elements and distortion of the supporting timber framing. Sheets of plaster also fell away from the timber laths as the fins of plaster between the laths sheared off as a consequence of high in-plane shear forces in the plaster as the timber frame flexed in response to severe ground shaking.

Lath and Plaster Wall Linings

A large proportion of the plaster wall linings collapsed due to high shear load causing failure of the plaster fins between the timber laths. The stiff sheets of plaster carried the initial shear load as the building responded to sideways motion from the severe ground shaking. Once the plaster linings fell away, the building frame was more flexible, allowing the building to sway with a higher natural period that reduced the seismic loading. Damage to plaster linings was particularly severe in the upper tower rooms due to the heavy (4-ton) lead roofing and large area of windows to these rooms.

Main Stair

The main frame of the stair flight between ground floor and landing level had acted as a tie/strut to building sway motion in the east-west direction. This has caused the flight stringers, particularly on the north side, to be pulled off their supports at the landing when subjected to a tension loading. The damage is not great and is readily repaired (figg. 17 and 18).

Joinery Elements

The decorative timber elements (stair handrails, skirtings, architraves etc.) and coloured glass windows were virtually undamaged. Damage was isolated to where collapsing brickwork impacted decorative timber finishes. A significant proportion of the damage was done prior to the Canterbury earthquake sequence as various additional services (data cable) were installed to provide for the teaching and administration operation within the building.

3.1.2 Recoverability

A proposal for strengthening the building and recovery of the heritage fabric was presented to the Environment Court in 2016, together with concept design and costing (Clark 2016). In summary the following work was recommended:

- Re-levelling of the building,
- Provision of a new foundation treatment (e.g. provision of a wider raft footings to enhance the existing footings),
- Provision of timber framing to support areas vacated by brickwork,
- Creation of shear walls through the building by installing ply panels to the timber frames,
- Strengthening of frame junctions and creation of floor diaphragms,
- Double nailing of the weatherboards,
- Repairs to the main stair framework,
- Provision of new plaster walls and ceiling linings,
- Repair or replacement of damaged decorative plasterwork,
- Repair and reinstatement of damaged timber elements,
- Refurbishment and/or replacement of building services, and
- Painting and installation of replacement fixtures and fittings.

This proposal has formed the basis for development of the McLean's Mansion Charitable Trust approach to the building's recovery and their submission to CCC for funding.

Additional advice has been sought by the Trust from Tony Ussher, conservation architect, and Professor Andrew Buchanan (Canterbury University), an engineer with considerable experience with timber engineering.

The most recent proposal submitted to CCC by Richards Consulting Engineers (May 2019) incorporates supplementary steel framing within the existing timber framing and tie downs at both ground and first floor level.

3.1.3 Intangible Aspects of Recovery

The damage assessment did not consider the intangible dimensions of the property's cultural significance. However, recovery has considered these.

The proposed new use of the property as an art gallery specifically for New Zealand art, and as a cultural and educational facility (for music, lectures, cultural events) reflects some of the key intangible attributes of the place.

Allan McLean was a philanthropist. When the house was built and occupied by McLean it housed a collection of very high-quality furnishings and finishes, which were passed on with the house when it was used as a women's refuge. In addition, the building itself demonstrated a high level of craftsmanship in its detailing and use of local New Zealand materials. The restoration of the principal interior spaces, including replication of their missing decorative elements and finishes, will reintroduce the same level of craftsmanship to the building for which it was noted. The gallery focus on New Zealand artists and performers reflects the original focus on quality local skills and products. In addition, the proposed use of the place as an art gallery and venue for cultural events will make the place far more accessible to the people of Christchurch. The local Christchurch community has been invited to be part of the recovery by visiting and donating skills and funds. The community has shown considerable support for the recovery.

3.1.4 Adaptation and Significance

Although there was no conservation plan for McLean's Mansion prior to the earthquakes, a draft conservation plan has been prepared by Tony Ussher for the recovery (completed 31 March 2019). The conservation plan should guide decision-making regarding structural interventions, conservation, restoration, adaptation and new work to be undertaken. The draft conservation plan identifies the relative level of significance of the component elements and spaces within the building and their sensitivity to change.

It is clear from the Trust's prospectus that the principal rooms have been prioritised and will play an important role in presenting the building to the public.

3.2 Post-Event Documentation

3.2.1 Documentation

At this stage post-event documentation consists primarily of the engineering reports and documentation prepared for the Environment Court case, and the prospectus prepared by the Trust to raise awareness, support and funds for the project. The prospectus and the Trust website outline the intentions of the Trust and include a staged recovery plan. The prospectus also includes a business plan for recovery.

From left to right:
Fig. 26. Marble chimney pieces had been damaged. A protective sheet has been placed over hearth tiles (Source: CCC 28//1/2019)
Fig. 27. Hole left by collapsed brick chimney breast (Source: CCC, 5/8/2019)

Although advice has been sought from experts, no substantial progress has been made on the details of restoration since the court case. Preparation of detailed documentation is still awaiting funding.

Post-Event documentation is held by the property owners, CCC and HNZPT. CERA records are held by Land and Information New Zealand (LINZ). The court records are also publicly accessible. Original drawings and extensive photographic records, including of the most significant interiors dating from construction onwards, survive to assist recovery.

3.2.2 Understanding the Building

The collapse of the fireplaces, wall and ceiling linings has revealed considerable information about the construction of the building and the way it performed in the earthquakes. This has been useful to understanding how timber buildings of this type of construction do perform in earthquakes. It clearly demonstrates how resilient this type of construction is. Hopefully, this case will provide data that can be used in assessing other timber buildings located in earthquake zones in New Zealand.

The stripping back of the linings has also revealed changes to the building over time and how these were undertaken, and whether these have compromised the original structure in any way.

3.3 Challenges for Recovery

Challenges to recovery include:

Technical

Technically the repair, restoration and structural strengthening is quite straight forward and the process well understood.

Financial

The estimated cost of full recovery of the building was NZ$9.1 million. The Christchurch Academy decided that it could not afford to repair, strengthen and recover the building as this was considerably beyond the amount of insurance money available. Therefore, they put the property up for sale on an *as is, where is* basis, without the insurance pay-out to fund work. Initially, although people were very interested in the property, no buyer could be found who was willing to invest in the repairs to the property, even when allowing for the available grants on offer by various government and private institutions. These are described in the Christchurch overview case study.

Willingness of Property Owner

The McLean's Mansion Charitable Trust was formed in September 2016 with the goal of purchasing and restoring the property. After substantial fund raising, they were able to purchase the property on 7 August 2018.

In addition to promoting New Zealand fine arts and music, the objectives of the Trust include:

- Holding the historic building known as McLean's Mansion ...; maintaining it as a historic building and permitting access to it by the public .... and
- Providing education in matters relating to heritage and the social history of the Canterbury region.

In relation to the building, the Trust acknowledges the importance of the following values:

- Respect for the history and past use of the building known as McLean's Mansion;
- Valuing the heritage and architectural qualities of the building;
- Operating the building in a dignified manner; and
- Welcoming visitors to the site.

Obtaining sufficient finance to complete restoration and enable development of a viable economic function for the building is still the main issue for the Trust. They propose to complete the restoration and reopen the building in stages as funding becomes available.

3.4 Responses and Recovery Programme

A Recovery Plan was prepared by the McLean's Mansion Charitable Trust in consultation with HNZPT and CCC. The plan is included in the Trust's prospectus (2018). It sets out six stages of recovery, including a description of each stage, conservation principles and intentions, costs and timelines, and a business case for the recovery project. It also sets out the Trust's goals for the project

in relation to the community, regional economy and the perceived role of the venture in the recovery of Christchurch and Canterbury.

3.4.1 Recovery of Heritage Resources

The Trust's restoration and conservation policy as outlined in the prospectus includes:

- Salvage all damaged heritage items for assessment, cataloguing, possible repair, or patterns for replication.
- Catalogue and conserve via suitable practices (by those skilled in the art) all original heritage items offered to the Trust for integration in the project.
- Maintain the floor plan of the Mansion as close to the original as practicable.
- Retain original materials where practicable when repairing or replicating damaged or lost heritage fabric.
- In the heritage areas of the building, make every effort to replicate as close as practicable the period and appropriate style of the fixtures and furnishings that may have graced the rooms, if original pieces are not available.
- Replace all fireplaces with formed chimney breasts in lightweight materials, these being identical in size and profile in each room to those originally installed in brick. Fireplace furniture will be replicated where practicable, especially in the principal rooms and any heritage areas where this is essential. The major areas only are intended to have working replicated gas fireplaces. All other rooms will be presented as static exhibits only.
- To return some 20 per cent of the Mansion, as practicable under the funding received (or progressively later), to the sumptuous feeling it once had when first a residence. Whilst subjective, this measure is an accurate reflection on the precise judgement to be levied to this task by the Trust. This work will embrace: The inner and outer halls; the dining room; the NE bedroom/dressing room/bathroom complex and the tower above, and potentially at least one servant's bedroom and bathroom by way of contrasting the social demographic of the house as a representation of the life and times of that cultural period.
- Paint colours and wall treatments used in the interior and exterior are either to be typical of the period or intended to appear suitably respectful of the period. Dedicated gallery areas will have faithful room details but be painted in more durable light colours. In such rooms, ceilings, fireplaces and main light fittings with be suitably of the period to reflect the former quality and function of each room.
- Light fittings to be either of the period or replicated to be as faithful as practicable.
- All modern fittings and requirements for the new use of the Mansion to be chosen and placed so as to be as unobtrusive and respectful of the heritage environment as practicable.

From left to right:
Fig. 28. Bricks have been salvaged, cleaned and stacked (Source: CCC 25/3/2019)
Fig. 29. Decorative plaster elements have been salvaged (Source: G Wright, CCC, 23/5/2013)

3.4.2 Recovery Plan

The proposed recovery plan is staged around access to funding. Thus, it is proposed to restore and open one portion of the building at a time. The recovery is planned in six stages. These are summarised as follows:

Stage 1 Completed October 2018	Fundraising; security of building to prevent further deterioration from weather and vandalism; access for contractors; tidy grounds. Completed October 2018.
Stage 2 Completed August 2019	The focus in Stage 2 is on the lower front rooms and outer foyer, in order to show visitors and guests the project's potential. Complete engineering and QS work for foundation and re-levelling; remove lathe and plaster; scope gallery requirements. Restore front veranda and façade and front garden.
Stage 3 Proposed completion by May 2020	Finalisation of plans and specs. for all services: fire, alarms, communications, AC, power, light, security, kitchen, dining etc.
Stage 4 Proposed completion by December 2020	Opening of interim exhibition; restoration to pre-finish stage of all rooms off the upstairs of the inner vestibule; initial set-out of heritage rooms.
Stage 5 Proposed completion by July 2021	Restoration of selected furniture and heritage items and decorative plaster in inner vestibule and major front rooms – extend public displays and trial exhibitions into these areas
Stage 6 Proposed completion by March 2022	Full decorative fit-out of heritage spaces; final landscaping; official opening.

The recovery plan is loosely linked to completion of the government's new convention centre anchor project. Its opening is anticipated to bring increased visitor numbers to Christchurch.

3.5 Values and Sustainability

The cost of recovery is extremely high, and the trust has sought donations, grants, interest free loans and in-kind support from the local community as well as well-known benefactors. Being able to provide an economically viable use for the building that respects and embraces its heritage values has been the biggest challenge and continues to be. The business case that has been developed shows that it is possible for the proposed gallery and function centre to provide a sustainable future for the place. Opening the place to the public, and indeed the in-kind support provided by local residents, tradesmen and heritage professionals, should enhance the sense of ownership that the people of Christchurch have for the place. The trust opens the building on occasions for special guided tours to enable donors to see the work in progress. There is considerable opportunity for developing specialist heritage trade skills on the project.

3.6 Drivers, Agents and Governance

3.6.1 Drivers and Agents

The McLean's Mansion Charitable Trust was established by local businessmen (including an engineer, artist curator and architect), specifically to save the building from demolition and to provide a viable future for it. The trust has received considerable support from art lovers, philanthropists, local civil society organisations (e.g. Christchurch Civic Trust, Canterbury Arts and Heritage Trust), CCC and HNZPT, and many Christchurch residents. In addition, promises have been made by collectors to exhibit significant collections of New Zealand art when the building opens.

Grants, public donations and private interest free loans have been critical to the project. NZ$2.5 million were raised in this way to purchase the property and funds are now being raised towards stage 2 work. NZ$1.9 million has been promised from the CCC Central City Landmark Grant Scheme for repairs and restoration.

As the Trust has charitable status, donations made to it by New Zealand taxpayers are tax deductible.

3.6.2 Governance

Relevant post-earthquake legislation

Following the initial emergency, and for five years after, authority for the recovery of Christchurch rested with the Canterbury Earthquake Recovery Authority (CERA) under the Canterbury Earthquake Recovery Act 2011. CERA is a nationally appointed body with far reaching powers to facilitate recovery of the city and surrounding district. The Resource Management Act 1991 (amended 2013 and 2017), Building Act 2004 (amended 2012), Heritage New Zealand Pouhere Taonga Act 2014 continued to apply.

Key Stakeholders

Post-earthquake, the group of key stakeholders for McLean's Mansion has been expanded to include the property owners (Christchurch Academy up to 2018, and from 2018 the McLean's Mansion Charitable Trust), HNZPT, CCC and CERA. The community and the media have also claimed an interest in the property's future.

CERA, HNZPT and CCC engaged the property owner in discussions regarding the future of the property in light of the damage inflicted by the earthquakes. The Christchurch Academy twice sought approval for demolition of the property under section 38 of the CER Act, but this was refused first by CERA (2011) and later by the Environment Court (2016) based on evidence presented by both HNZPT and CCC. HNZPT declined approval under its authority over archaeology (including structures over 100 years old). Engineering evidence demonstrated that the building was recoverable and it was recommended that the property owner seek funding for the repairs and strengthening works required. Instead, the property owner sought to sell the property claiming that the insurance and available grant funding would not be sufficient to cover the costs.

From July 2016, the legislative framework governing works to heritage buildings has reverted to its pre-earthquake state. Thus, recovery and adaptation works to McLean's Mansion must be approved by CCC and HNZPT as set out in section 1.2.3.

Fig. 30. Plaster brackets have been salvaged, sorted, inventoried and stored for future reinstatement (Source: CCC 25/3/2019)

4. Response Actions, Timeframes, Resources and Costs

4.1 Actual Implementation and Timescales for the Recovery Programme

The programme is in its early stages as the property was only purchased 12 months ago and funds are still being raised to undertake the work. Stage 1 is complete and stage 2 is in progress. Although the recovery intentions have been clearly stated and a project timeline has been forecast, it is highly probable that there will be programme changes as work progresses – to suit available funding, to meet conservation and strengthening requirements as they are refined and to meet the needs of potential tenants. Donors and the public are kept informed of progress through the Trust website and newsletters and are invited to visit the site to see work in progress.

There is no set timeframe for the recovery of the city and especially not for heritage. However, it is the intention to have the property open when the new convention centre in Christchurch is opened as this will provide visitors and income for ongoing work and maintenance.

4.2 Resources and Costs of Implementation

4.2.1 Resources

In the early stages, when the focus was on cleaning up the site, volunteer labour was readily accepted. However, as work progresses, specialist trades will be employed to undertake the detailed conservation works required to return the building to its former glory (carpenters, joiners, roofers and plasterers). Materials are available.

4.2.2 Costs

The project budget is approximately NZ$12 million – NZ$2.5 million for the purchase of the property and NZ$9.1 million to restore it. The cost and restoration timeline projections have been advertised as follows:

- Stage 1 and 2 (done jointly): NZ$2.5 million. To be completed late 2019
- Stage 3: NZ$1.5 million. To be completed May 2020
- Stage 4: NZ$1.7 million. To be completed Dec 2020
- Stage 5: NZ$1.8 million. To be completed Jul 2021
- Stage 6: NZ$1.6 million. To be completed Mar 2022

5. The Outcomes and Effects

5.1 Assessment of the Outcomes with Regard to the Recovery of the Heritage Resource

The biggest achievements to date include the retention of the building, as opposed to its demolition, and the recognition that the timber structure is inherently resilient, even though it does need some strengthening to meet current building codes and standards. Beyond this, the project has actively engaged the community in an endeavour to bring about the building's restoration and provide it with a new life that will make it much more accessible to the Christchurch community and other visitors than in the past.

The project still has a long way to go and sustaining the community interest and involvement will be an important part of the recovery process. The biggest issue, however, remains finding the finances to complete the project. The staged approach to recovery and reconstruction extends directly from this need. It is designed to enable parts of the building to be repaired and reopened so that they can be used to generate income that will contribute to later phases of the reconstruction. This approach also provides opportunities for people to visit and interact with the building and the activities within it at various stages through its recovery, thereby strengthening interest and support for its ongoing recovery.

The building has retained its architectural integrity and significance, and its landmark status within Christchurch. It is hoped that the building will also regain its exceptionally significant interiors so that the grand *country house* can again stand proudly within its garden setting.

The extent of reinstatement of original fabric and the quality of the restoration and reconstruction work is

yet to be tested, although the Trust has stated that it intends to follow best conservation practice, using highly experienced heritage consultants and highly skilled artisans to undertake the work. To date the approach has followed that presented to and accepted by the Environment Court in 2016. The progress will be monitored with interest by the public, professionals, CCC and the HNZPT.

In 2014 CCC updated the statement of significance and information included in its District Plan. The summary significance assessment statement reads:

<<McLean's Mansion is of overall high significance to Christchurch, Banks Peninsula and nationally. It has high historical and social significance as the home of Allan McLean, one of the wealthiest men in Canterbury in his day. It represents the wealth he accrued through pastoralism and his commitment to improving the lives of those less fortunate than himself. The building also has national historical significance arising out of its association with the New Zealand School Dental Service. McLean's Mansion has cultural significance as a tangible expression of early 20th century philanthropy and its association with the McLean Institute, which continues to enact the terms of Allan McLean's legacy more than 100 years since his death. The building is of high architectural significance as a Jacobean Revival design by leading Christchurch architect RW England. The style and scale of the building make it one of New Zealand's most notable turn of the 20th century residential buildings. The lavishness of the interior decorative detailing gives the building its high craftsmanship significance. McLean's Mansion has considerable contextual significance within the streetscape of the northern inner-city and as an example of architect R W England's domestic output.>>

5.2 Ownership of the Results

The McLean's Mansion Charitable Trust, together with HNZPT and CCC, own the saving of the building from demolition. HNZPT defended its retention in the Environment Court with the assistance of heritage experts and an engineer who had the vision to evaluate the damage and need for strengthening in a more comprehensive and holistic way than was typically used by most engineers in the wake of the earthquakes. Funding support from CCC has also been critical to the outcome.

The ongoing work towards recovery and reconstruction is owned by the Trust and all its donors and supporters. Input from specialist consultants and artisans will also be extremely important to achieving the desired outcomes.

The building remains a highly valued historic place both in Christchurch and nationally.

5.3 Documenting the Recovery Programme

Recovery is only just beginning at McLean's Mansion.

More detailed damage assessments are currently being undertaken and detailed documentation for strengthening and repair works is being prepared. The new conservation plan for the house should guide these works and the proposed adaptation of various spaces within the house, ensuring that maintenance of heritage values is held at the forefront of all decision-making.

A procedure for documenting the recovery programme should be established that includes keeping records relating to the progress of the work, new discoveries made, methods and materials used, and all decisions made during the works, including the reasons for those decisions. A photographic archive of the works should also be kept.

6. Additional Comments

The recovery and reconstruction should be aimed at maintaining the place's significance, integrity and authenticity, as well as bringing new life to the place.

7. Details of the Expert(s) completing the Case Study

Catherine Forbes, architect with GML Heritage, member of Australia ICOMOS, Convenor of Australia ICOMOS and ICOMOS New Zealand Joint Working Group on Cultural Heritage Risk Preparedness, and expert member of ICOMOS-ICORP. Catherine undertook an independent review of the Post-Earthquake Recovery of Built Heritage in Christchurch in September 2016. It was based on field observations, interviews with those affected and those involved in the recovery – local community members, architects, engineers, staff of CCC and HNZPT – and documentary research. Catherine is an independent observer rather than a participant in the recovery.

Win Clark, structural engineer, has 60 years of engineering experience in the New Zealand design and construction industry. He has been involved in the detailed design, design management and construction monitoring of a wide range of building and industrial structures. He has worked on public and commercial buildings involving the assessment and retrofit design for unreinforced brick masonry. He has also undertaken the design and construction monitoring of new foundations for the 4-storey wooden Government Departmental Building in Wellington. Two days after the 2010 Darfield Earthquake, Win was engaged by NZ Historic Places Trust (now Heritage New Zealand Pouhere Taonga) to provide structural engineering support for their heritage staff in Christchurch. This work continues.

Bibliography

Acland, L. G. D., 1975, *The Early Canterbury Runs*, 4th ed., Christchurch, 1975. 36, 137, 204-206.

Broughton, C., 2016. "McLean's Mansion saved from demolition", *Stuff.co.nz*, 7July 2016.

Cameron, J. C. and Kaill, D. F., 1970. Holly Lea. A report on its history and construction, February 1970, held by the District Architect.

Christchurch City Council, 1995. *McLean's Mansion (Holly lea) and setting* – Listing sheet.

Christchurch City Council, 2014. *District Plan – Listed Heritage Place, Heritage Assessment – Statement of Significance, Heritage Item Number 373, Former Dwelling and Setting, Holly Lea / Mclean's Mansion – 387 Manchester Street, Christchurch* (18 December 2014)

Christchurch Retrospective; Archival images from Christchurch, 1850-2010, by Archives New Zealand.

Clark, W., 2015. McLean's Mansion Photographs taken on 24 November 2015.

Clark, W., 2019. personal correspondence, 2 September 2019.

Clark, W. D. C., 2016. *McLean's Mansion, 387 Manchester St, Christchurch*, engineering drawings, including plans and sections.

Clark, W. D. C., 2016 *McLean's Mansion (Holly Lea), 387 Manchester Street, Christchurch, Repair and Retrofit: Scope of Works*, version 4, 5 February 2016.

Clark, W. D. C., 2016. Statement of evidence of Winston David Currington Clark for Heritage New Zealand Pouhere Taonga, Before the Environment Court of Christchurch, 12 February 2016, ENV-2015-CHC-000094.

England, R. W., 1899. Original drawings of residence for Allan McLean 2 sets – 1 original water-colour, 1 drafting paper – Ground floor, first floor, roof and drain plans (R20300064) Archives New Zealand, Christchurch Office. https://www.archway.archives.govt.nz/FullItem.do

Greenhill, M., 2013. 'Historic Mansion to be Bulldozed', *Stuff.co.nz*, 12 July 2013.

Hay, G., Johnson, R. D., Shapcott, P. M. and Shepard, D., 1983. *The Architectural Heritage of Christchurch – 3. McLean's Mansion*, Christchurch City Council, Town Planning Division.

Land Survey, Section 1209, Town of Christchurch, File 10 March 74, approved 9 May 1984 (Ref: S016202).

Law, T., 2019. 'McLean's Mansion opens for the first time since the earthquakes', *Stuff Limited*, 27 February 2019.

Lovell-Smith, M., 2001. McLean's Mansion, 387 Manchester Street, Christchurch, Heritage New Zealand, available online, https://www.heritage.org.nz/the-list/details/300 [accessed 2 September 2019].

Marshall, S. F., 1968. *History of the McLean Institute*, Christchurch.

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010–January 2012 - Report for the Canterbury Earthquakes Royal Commission*, New Zealand Historic Places Trust Pouhere Taonga: Wellington, 8 March 2012, ENG.NZHPT.0004A.1.

McDonald, L., 2017. "Rescue group wants to buy Christchurch's McLean's Mansion for $1" *Stuff.co.nz*, 14 August 2017.

McDonald, L., 2018. "Breakthrough on McLean's Mansion – rescue work could start within weeks", *Stuff.co.nz*, 26 April 2018.

McLean, Allan, 1906. Will and codicil of Mr Allan McLean, Christchurch.

McLean's Mansion Charitable Trust, 2018. Prospectus – McLean's Mansion Gallery, available online https://docs.wixstatic.com/ugd/222764_c26d4fbc7dea4c8da2f985814a80c1c1.pdf [accessed 14 September 2019].

McLean's Mansion Charitable Trust, 2019. Save McLean's Mansion website, https://www.mcleansmansion.nz [accessed 14 September 2019].

Ohs, A. and Forbes, C., 2019. Christchurch: Heritage Recovery from the Canterbury Earthquakes, Case Study prepared for the ICOMOS and ICCROM Global Recovery and Reconstruction Case Study Project.

Plan of land to be taken by Proclamation being Pt T.R.131 & Lot 2 D.P.2482-Pt. T.R.40, comprised in C.T 242/78 & Pt. C.T. 184/134, approved 5 June 1957 (Ref: 9164).

Richards Consulting Engineers, 2019. McLean's Mansion, 387 Manchester Street, Christchurch – Engineering drawings – Ground and First Floors, May 2019.

Saunders, J. L., 1964. *The New Zealand School Dental Service: Its Initiation and Development 1920-1960*, Wellington, 1964. 43-44.

Shaw, P., 1997. *A History of New Zealand Architecture*, Auckland, Reprinted 2003. 53.

Wendy, 2011. "Holly Lea – a Rich Man's Folly?", posted online on *Our People, Remembering Lost Christchurch*, 25 June 2011, https://lostchristchurch.wordpress.com/2011/06/25/holly-lea-mcleans-mansion-manchester-street-c-1900/ [accessed 14 September 2019].

Wilkinson, G., 2013. *Detailed Engineering Evaluation for 387 Manchester Street*, Christchurch, prepared for Alpine View Corporation Ltd, Ruamoko Solutions, 10 June 2013.

Wilson, J., 2007. *City and Peninsula: The Historic Places of Christchurch and Banks Peninsula.*

Wilson, J., 2005. *Contextual Historical Overview for Christchurch City.*

Wilson, J., 2013. *Contextual Historical Overview for Christchurch City Revised.*

Wykes, F., 2019. Personal correspondence regarding grants, 30 September 2019.

ISAAC THEATRE ROYAL, CHRISTCHURCH

Fiona Wykes and Catherine Forbes

TABLE OF CONTENTS

List of Illustrations

Acknowledgements

We wish to acknowledge the assistance of the Heritage Team at Christchurch City Council for their valuable input to this case study.

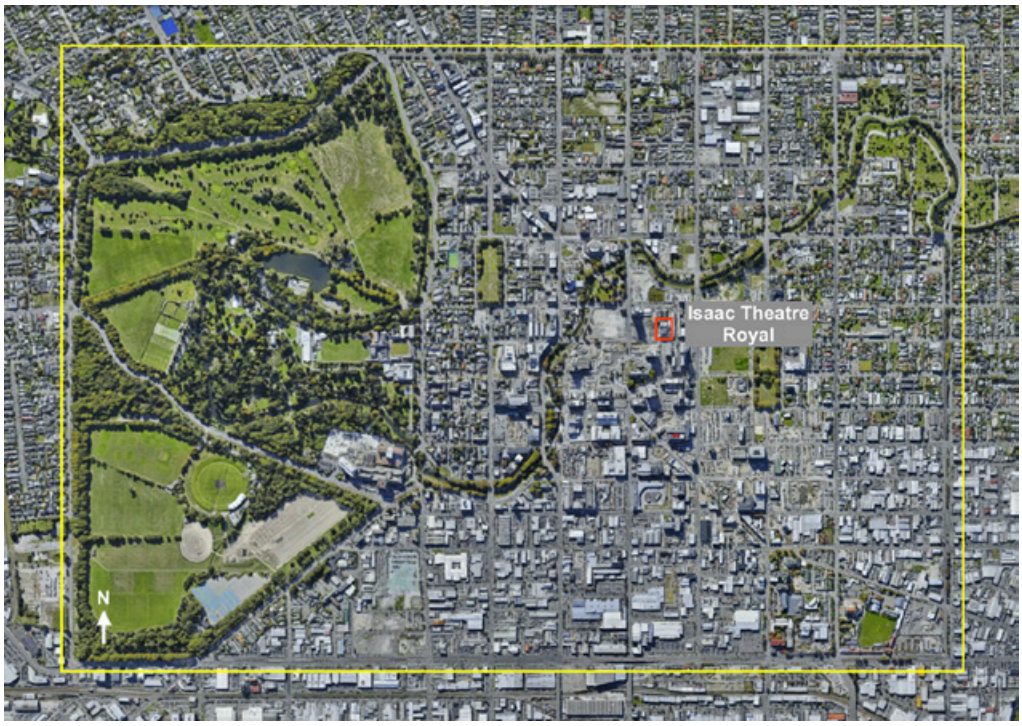


Fig. 1. Satellite image showing location of the Isaac Theatre Royal in central Christchurch, 2019 (Source: Google Earth, 16/12/ 2019, with overlay by C. Forbes)

1. The Heritage Resource and its Context Before the Impacting Events

1.1 Description, Designation and Recognition

1.1.1 General Description

The Isaac Theatre Royal is an early twentieth-century theatre building located in the centre of Christchurch. It is located at 145 Gloucester Street, just north of Cathedral Square and adjacent to the well-known heritage precinct of New Regent Street (figg. 1 and 2).

1.1.2 Form, Function, Creation and Subsequent Transformations

1.1.1.1 Form

The theatre is Edwardian with a heavily moulded classical façade arranged over three stories, with attached piers and columns dividing it into five bays (fig. 3). It has moulded brackets, heavy cornices and a stepped parapet. Timber windows with arched heads are set within each bay. It also has an awning over the public footpath to the street (fig. 3).

The theatre is a rectangular building that occupies its whole site. It consists of three sections (foyers, hall and stage) (fig. 2). The front section contains foyers over two levels, connected by a marble staircase, and offices. The auditorium includes stalls, dress circle and gallery, and features a proscenium arch around the stage, with boxes on either side, decorative plasterwork of note, and a large ceiling dome over, painted with scenes from *A Midsummer Night's Dream* The rear section includes a stage, fly tower and backstage facilities. These facilities are of more recent construction.

1.1.1.2 Function

The theatre is for live performance.

1.1.1.3 Creation

Architect – Sydney and Alfred Luttrell
Builder – unknown
Ceiling artist – G. C. Post – Carrara Ceiling Company, Wellington

1.1.1.4 Construction

The building is of unreinforced masonry construction with a corrugated metal roof. The façade is brick with decorative stone elements.

Images, Clockwise from top left:
Fig. 2. Aerial photograph, showing the layout of the Theatre Royal prior to the earthquakes, 2009 (Source: Google Earth, 3/4/2009, with overlay by C. Forbes)
Fig. 3. The Isaac Theatre Royal street elevation prior to the earthquakes (Source: CCC, 2011)
Fig. 4. The Theatre Royal in 1907 (Source: Christchurch City Libraries, File Reference CCL Photo CD 2, IMG0061)

1.1.1.5 Changes over time

The theatre was originally constructed in 1906–1908 (fig. 4). In 1928 the theatre was adapted to show films. This included alterations to the entrance foyers and the galleries. The architect for these works was C. H. Ballantyne.

In 2000 seismic strengthening was undertaken and then in 2005 there was a substantial refit to enlarge the stage, fly tower and backstage area (fig. 5). These areas were rebuilt in reinforced concrete – see Section 1.2, History, Ownership and Environment below for further detail. The architect for the refit and the strengthening work was Sir Miles Warren, well known both in Christchurch and throughout New Zealand. For more detail on the changes to the building refer Section 1.2: History, Ownership and Environment for further detail.

1.1.3 Official Designation or Inscription

- New Zealand Historic Places Trust (now known as Heritage New Zealand Pouhere Taonga) – Listed Category I Historic Place – list no. 1936 – original listing date 1989
- Christchurch City Plan – Listed Group 1

The identified significance is summarised as follows:

The Theatre Royal made an important contribution to the identity, sense of place and history of the Christchurch metropolitan area. It was an important performance venue and had been the centre of cultural life in Christchurch for more than a century. Many famous artists and performers had appeared on the theatre's stage and it had hosted everything from wrestling to Shakespeare. The building held a special place in the cultural heart of Christchurch. It was architecturally significant, designed by the Luttrell Brothers in the early twentieth-century, and had high quality decoration to the interior.

Significant attributes prior to the earthquakes included:

- The ornate brick and stone façade
- The painted ceiling dome with scenes from A Midsummer Night's Dream
- Plaster busts of Shakespeare and Sir Henry Irving above the boxes
- Art Nouveau inspired leaded glass in the oeil-de-boeuf windows
- The marble staircase in the foyer
- Decorative plasterwork throughout the auditorium.

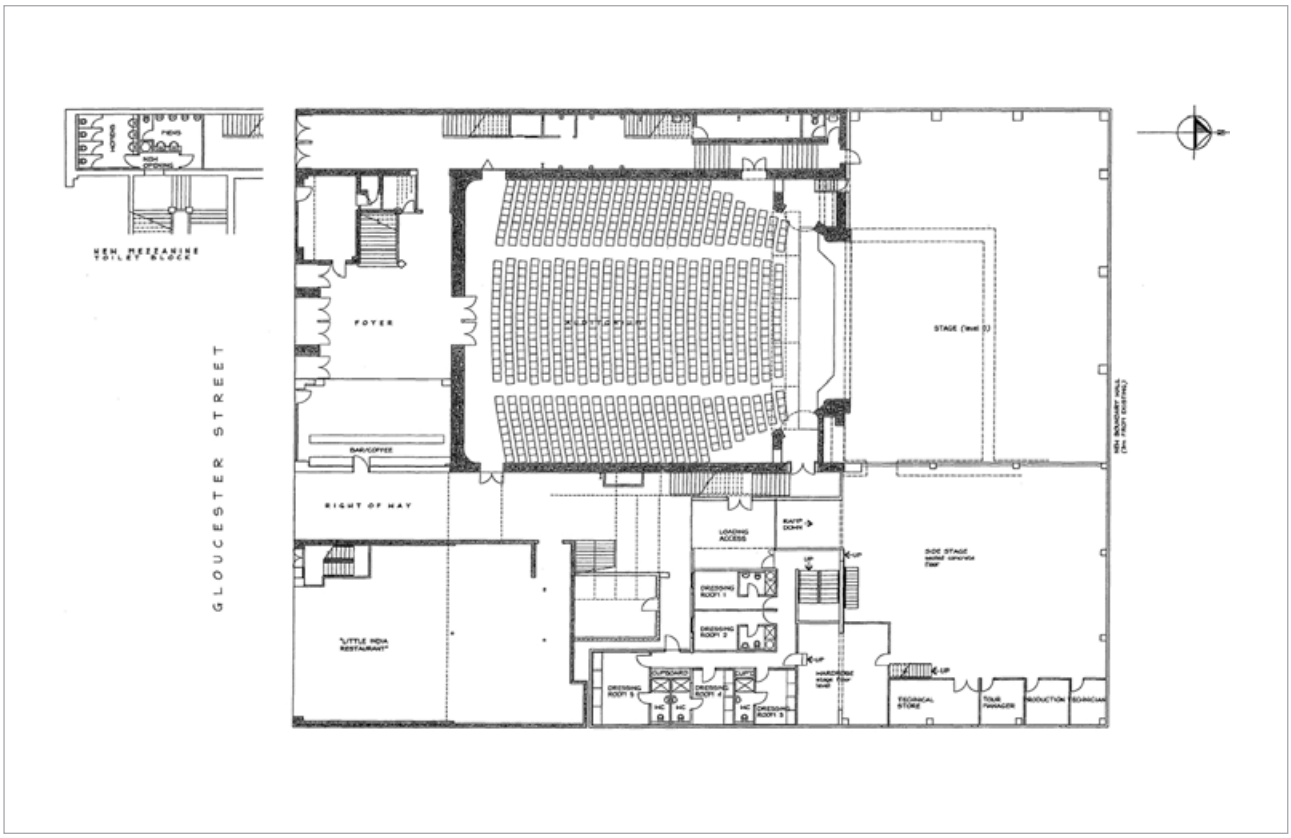


Fig. 5. Plan of the Isaac Theatre Royal prior to the earthquakes (Source: CCC, Warren, 2005)

1.1.4 Scholarly Recognition

Lochhead, I (2008) 'The Architecture of the Theatre Royal: A Drama in Three Acts,' in H. McNaughton *et al. The Theatre Royal Christchurch: An Illustrated History, Christchurch*

McEwan, A. E. (1988) *From Cottages to Skyscrapers: The Architecture of A. E. & E. S. Luttrell in Tasmania and New Zealand,* Master's Thesis, University of Canterbury

Wilson, J. (2007) *City and Peninsula: The Historic Places of Christchurch and Banks Peninsula*

Wilson, J. (2005) *Contextual Historical Overview for Christchurch City*

Wilson, J. (2013) *Contextual Historical Overview for Christchurch City Revised*

1.1.5 Popular Recognition

The Theatre Royal is popular as a focal point for the performance community and a leading entertainment venue in Christchurch. The building holds a special place in the cultural heart of Christchurch. Its place as an integral part of the community's artistic and heritage culture has been highlighted by major fundraising campaigns that saved the building from demolition in the 1970s, renovated it again in the 2000s and rebuilt it after the 2010–2011 Canterbury earthquakes.

1.2 History and Context

1.2.1 History, Ownership and Environment

Constructed 1906–1908 (fig. 4), the current theatre was the third Theatre Royal in Christchurch, the two previous theatres being located on a site across the street from the current theatre. They were smaller timber buildings built in 1863 and 1876 respectively.

The current Theatre Royal was established by J. C. Williamson, an American actor who had arrived in Australia in 1874, and then proceeded to establish a small theatre empire across Australia and New Zealand.

In 1928, the theatre was adapted to cinema use. Its original ornate cast iron veranda over the street was removed and much of the ground floor was remodelled, including the street façade and entrance foyer (fig. 4). The marble staircase was added at this time. The original galleries, which had been supported on columns were replaced with cantilevered galleries so that sight lines were unimpeded.

In 1975, JC Williamson Theatres Ltd. closed the theatre and came close to demolishing it in order to sell the land. A public campaign was launched to save the theatre under the title "The Friends of the Christchurch Theatre Royal". Support came from city and county councillors, the Historic Places Trust, local societies, national touring companies, entrepreneurs and many others. In 1979 the Theatre Royal Foundation was formed to raise capital to buy the theatre from JC Williamson Theatres Ltd.

The building was assessed as earthquake prone in 1978. Strengthening was undertaken in 2000, which included insertion of steel trusses, mullions, and braces within the roof spaces, fly tower and workshop. The façade was also strengthened to meet 33 per cent of the National Building Standard (NBS).

In 2004–2005, the stage, fly tower and backstage dressing rooms were enlarged and rebuilt to meet modern requirements. The proscenium arch was widened by 1.5 metres. The original brick fly tower was replaced in concrete. At the same time, the *front of house* facilities were upgraded to include provision of increased seating, refreshment and toilet facilities (fig. 5).

1.2.2 Social and Economic Setting

The theatre is an important performance venue located in the city's CBD and has been central to the city's cultural life for more than a century. It has hosted both high and low forms of performing arts, from wrestling matches to cinema and vaudeville, to Shakespeare and grand opera. Many well-known artists have performed in the theatre including Sir John Gielgud, Louis Armstrong, Dame Kiri Te Kanawa, Dame Malvina Major, Katherine Jenkins and Lorde, while there are regular performances by the Royal New Zealand Ballet and the Moscow Ballet, as well as international stand-up comedians
The theatre is now owned by the Theatre Royal Charitable Trust (private ownership).

1.2.3 Frameworks, Agents and Communication

The legislative framework governing the protection of cultural heritage in Christchurch is described in the Christchurch overview case study, but is summarised briefly here.

Under the Resource Management Act 1991 and within the framework of the Christchurch City Plan (at the time of the earthquakes, later becoming the Christchurch District Plan), Christchurch City Council (CCC) assesses proposals for works to a heritage building that affect the heritage fabric, or involve constructing new buildings in a heritage setting. Under the Building Act 2004, the Council must also consider whether a building is earthquake prone and then issue a notification to the owner requiring them to upgrade the building in accordance with the National Building Standard (NBS). The Council identified the façade of the Isaac Theatre Royal as being a potential earthquake risk in 2010. The Building Act also brings into consideration matters that can have a profound effect on heritage buildings, such as fire and access. Under the Heritage New Zealand Pouhere Taonga Act 2014, Heritage New Zealand Pouhere Taonga's (HNZPT – previously New Zealand Historic Places Trust) role is to regulate the effects on archaeological sites. This includes any above or below ground structures that predate 1900. The property owner may seek advice from both the CCC and HNZPT prior to making any formal submission/ application to undertake works.

1.2.3.1 Key stakeholders

Key stakeholders include the Theatre Royal Charitable Trust, Christchurch/ Canterbury theatre goers, Christchurch City Council and Heritage New Zealand Pouhere Taonga.

Prior to the earthquakes, the key stakeholders had been in communication with each other regarding the refurbishment and restoration of the theatre in 2004-–2005. There was a shared understanding of the heritage value of the theatre among stakeholders, including the public.

There is no indication that there was any communication between the property owners and emergency services or civil defence prior to the event.

1.2.4 Bibliography of Documentation – History

Allen, D., 1978. *The Friends of the Christchurch Theatre Royal Report* Christchurch City Council Heritage File, 145 Gloucester Street.

Christchurch City Council – blueprint drawings from S. and A. Luttrell – 1907 (current location unknown).

Christchurch City Council – blueprint drawings from C. H. Ballantyne and Associates – 1927 (current location unknown).

Christchurch City Council Heritage File *145 Gloucester Street* (1995) CCC Listed Historic Building Place or Object Assessment.

Christchurch City Libraries – (2016). *Isaac Theatre Royal marks 2nd anniversary. Celebrating a city icon.*

Christchurch City Libraries – *Weekly Press*, 6 February 1907 – blueprint drawings from S. and A. Luttrell.

Christchurch District Plan (Operative December 2017). Schedule of Significant Historic Heritage Appendix 9.3.7.2, Heritage Item Number 222 – Theatre Royal including all of that part of the building south of the proscenium arch but excluding the new part of the building on the eastern side of the seismic wall, and setting.

Crighton, A., Grant, L., and Lochhead, I., (2016). *Recreating the Magic: The Rebirth of a Christchurch Theatre, 2010-2015*, Clerestory Press: Christchurch

Heritage New Zealand Pouhere Taonga – list entry, List no. 1936.

Lochhead, I., (2008). 'The Architecture of the Theatre Royal: A Drama in Three Acts,' in H. McNaughton *et al. The Theatre Royal Christchurch: An Illustrated History, Christchurch.*

McNaughton, H., Downes, P., Simpson, A., Lochhead, I., Bohan, E., Hurley, C., Douglass, M., Warren, M., Clarkson, D. and Norman P., 2019. *The Theatre Royal, Christchurch: An Illustrated History,* Clerestory Press: Christchurch,

Ussher, A., 2010. *Isaac Theatre Royal Gloucester Street Principal Façade, Conservation Plan,* Second Draft.

2. The Nature of the Impacting Events

2.1 General Description

The Canterbury earthquake sequence 2010–2011 is described in the Christchurch overview case study (Ohs and Forbes 2019). The earthquakes with the greatest impact on the city occurred on the following dates:

- 4 September 2010 – M7.1 (epicentre 40k m from Christchurch)
- 26 December 2010
- 22 February 2011 – M6.3 (most destructive to the city)
- 13 June 2011 – M6.4
- 23 December 2011- M6.2

Earthquakes in New Zealand and the Christchurch region are cyclical, but unpredictable. This particular sequence was stronger than previously experienced in the region and has been assessed as being of a 1 in 500 year occurrence.

2.2 General Impact of the Event(s)

The impact of the Canterbury earthquakes on the Isaac Theatre Royal is summarised by HNZ as follows:

- September to December 2010 – minimal damage
- January to June 2011 – moderate damage
- July to December 2011 – severe damage

The most damage occurred during the June and December 2011 earthquakes, However, it should be noted that the damage would have been cumulative over the series of earthquakes.

The façade remained standing and the stage and fly tower survived with moderate damage. However, the unreinforced masonry walls of the auditorium and foyers failed and these in turn affected the roof structure. Although the building lost its structural integrity, it did not collapse (figg. 6 and 7). The seismic interventions undertaken in 2000 held the structure together. Research undertaken by the University of Auckland and University of Adelaide following the earthquakes estimated the building achieved approximately 50 per cent NBS.

The theatre, like almost all other theatres and halls in Christchurch, was unusable. However, because it had remained standing, it was possible to salvage significant elements from its interior (fig. 8). The façade was also able to be saved, even though the auditorium and foyer structures were not (fig. 9).

Images, Clockwise from top left:
Fig. 6. Temporary bracing was erected against the side wall of theatre as the neighbouring building was demolished following the 2011 earthquakes. (Source: CCC, October 2012)
Fig. 7. The front façade of the theatre is scaffolded for repair and stabilisation works (Source: CCC, June 2012)
Fig. 8. The painted plaster dome is salvaged from the auditorium ceiling for repair and conservation work (Source: CCC, January 2013)
Fig. 9. The front façade is stabilised and the foyers and auditorium demolished behind (Source: CCC, March 2013)
Fig. 10. Rear of the theatre's front façade (Source: CCC, March 2013)
Fig. 11. The marble staircase is salvaged for future reinstatement (Source: CCC, March 2013)

2.3 Impact on the Significance and Values of the Resource

The physical damage to the theatre auditorium and foyers severely impacted their significant fabric, affecting their aesthetic and architectural values. The façade, however, retained its architectural, aesthetic and streetscape values. The theatre also retained its historic and social values and was still regarded by the wider community as a highly significant place.

2.4 Emergency Repair(s) to Date

The façade was propped and stabilised using bracing off large shipping containers placed in the street (fig. 9). The foyer and the main auditorium, however, had to be demolished (fig. 10). Prior to demolition, key architectural elements were salvaged from the building for reuse, including the marble staircase from the foyer (fig. 11), the painted ceiling dome from over the auditorium (fig. 8), the *oeil-du-bouef* windows and the plaster busts over the boxes. Decorative plaster elements were also salvaged during the deconstruction for recasting during reconstruction of the theatre.

2.5 Documentation and Narratives

After each earthquake event or major aftershock the following assessments were undertaken – damage/condition assessment, geotechnical assessment and engineering assessment. In response to these an Event Recovery Plan was developed and implemented. These assessments recorded the progressive damage to the building. The damage was also recorded photographically, with ongoing photographs being taken through to completion of the building's recovery and reconstruction in November 2014.

Documentation is held by CERA, HNZPT and CCC:

CCC online property files for 145 Gloucester Street – available to the public if requested.

CCC hard copy files for 145 Gloucester Street – available to the public if requested.

HNZPT files – available to the public if requested.

CERA files – digital transferred partly to Land Information New Zealand (LINZ) and partly to the Department of the Prime Minister and Cabinet (DPMC), some paper files shredded, some sent to secure storage at Iron Mountain. LINZ data can be accessed by the public if requested.

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010 – January 2012 – Report for the Canterbury Earthquakes Royal Commission,* New Zealand Historic Places Trust Pouhere Taonga: Wellington 8 March 2012, ENG. NZHPT.0004A.14

3 Post-Event Appraisals

3.1 Impact Assessment

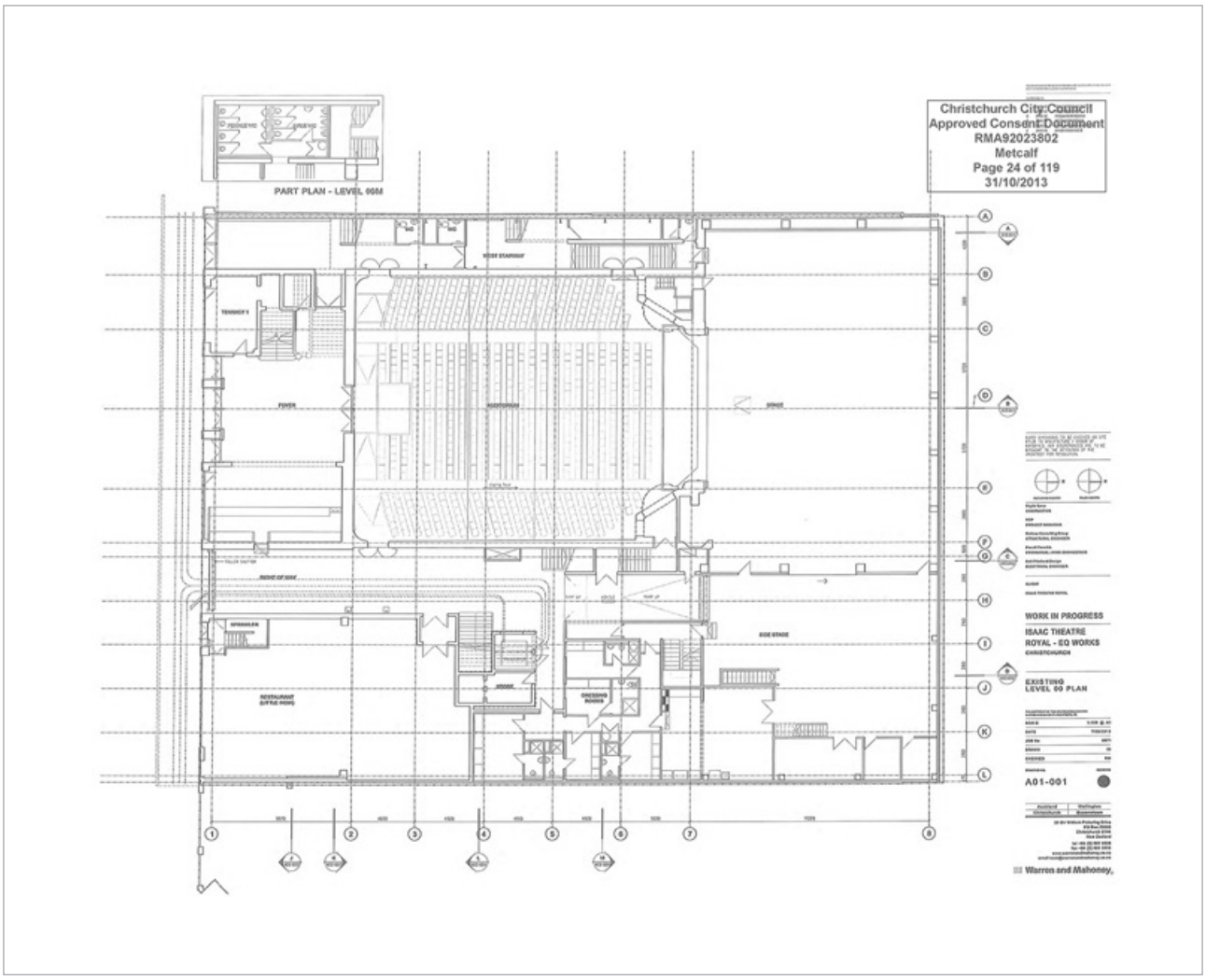
A Draft Conservation Plan for the façade prepared in 2010 was able to provide up to date pre-earthquake information. It also identified the relative level of significance of the façade fabric.

Prior to the earthquakes the brick and stone façade was considered to be highly significant. The auditorium and foyers were significant spaces, but had been altered over the years. Thus, much of their significance was associated with specific elements such as the decorative plasterwork throughout – especially the busts above the boxes, the painted ceiling dome and the foyer stair and leadlight windows. Following the earthquakes, as much of this material was salvaged as possible to enable future reinstatement in any reconstruction. The structure and spaces themselves, however, were lost in the subsequent demolition.

The impact assessments generally focused on the tangible attributes of the place, but the owners were very aware of the theatre's intangible attributes and its value to the wider community. Discussions were held with stakeholders, who indicated they were very keen to reconstruct the theatre as it was.

Initially (December 2011) it was proposed to strengthen the building to 67 per cent of NBS (CCC file: 12/17625, 2011). This involved concrete frames to the façade and over the proscenium arch, and shotcrete being applied to the east and west walls. However, following further earthquakes and aftershocks towards the end of 2011 and beginning of 2012, the east and west walls had to be partially deconstructed and the roof removed with only the foyer and façade, together with the modern fly tower and backstage area being retained (CCC file: 12/62873, 2012).

By December 2012 it had been decided that it was too risky to try and retain the auditorium walls, including the south wall of the auditorium, which was also the north wall of the foyer. With the deconstruction of these walls came the deconstruction of the east and west walls of the foyer also, leaving only the façade and floor of the foyer intact, with the marble staircase remaining *in situ* (fig. 11) (CCC file: 12/62873, 2012). The replacement of the auditorium and foyer with new structures meant that the new building was able to satisfy 100 per cent of the NBS (figg. 12 and 13), as well as code requirements for fire protection, egress and accessibility (fig. 14).



Images, Clockwise from top left:

Fig. 12. A new reinforced concrete structure is being built to accommodate the theatre (Source: CCC, March 2013)

Fig. 13. The new theatre is built behind the original street façade (Source: CCC. October 2014)

Fig. 14. Plan of the Isaac Theatre Royal after the earthquakes (Source: CCC. Warren & Mahoney, 2013)

3.2 Post-Event Documentation

The architects for the post-earthquake recovery and reconstruction works to the theatre were Warren and Mahoney, with Tony Ussher as the Conservation Architect. The design and construction team also included RCP (Project Managers), Naylor Love (Construction), Holmes Consulting Group (Structural & Fire), Powell Fenwick (Mechanical & Hydraulic), Neil Pritchard (Electrical), Rawlinson's (Quantity Surveyor), Hang Up & Robe Peters (Technical), Plaster Services (Ornate Plasterwork) and Carolina Izzo (Heritage Restoration), together with specific experts in telecommunications, geotechnical and accessibility design for the rebuild/repair works.

Documentation, which includes photographs, correspondence, full engineering and architectural drawings, is held by HNZPT and CCC.

Christchurch District Plan (Operative December 2017), Schedule of Significant Historic Heritage Appendix 9.3.7.2, as Heritage Item Number 222 – Theatre Royal including all of that part of the building south of the proscenium arch but excluding the new part of the building on the eastern side of the seismic wall and setting.

3.3 Challenges for Recovery

Challenges for the recovery included the following:

3.3.1.1 Technical

- salvaging the ceiling dome, stair and decorative elements from the damaged structure;
- retaining and stabilising the façade and stage structure whilst the remainder of the building was demolished;
- strengthening the façade and joining it to the new building;
- meeting 100 per cent NBS and other code requirements including fire protection, egress and accessibility in the reconstructed building;
- conserving the salvaged elements (ornate hand painted ceiling dome, stair and plasterwork) and reinstating them within the new structure.

3.3.1.2 Heritage

- loss of the brick building;
- decision-making around replication and retention/restoration in the reconstructed auditorium;
- the lack of distinction between the new and the historic elements in the reconstruction and its impact on authenticity – see Section 6 below for a discussion on this;

3.3.1.3 Social issues

- desire to rebuild and re-open on the site as soon as possible to give the community back the performance venue – see Section 5 below on the effectiveness of this.

3.3.1.4 Financial issues

- insurance only covered half the recovery costs.

3.3.1.5 Functional issues

- Need to meet contemporary standards for theatre performance (e.g. acoustics, sight lines)
- Need to provide modern theatre facilities for patrons.

Discussions on these issues were not a matter of public debate, and decisions were generally made by the technical team managing the works on site, in conjunction with the ITR Board. These decisions were then discussed with CERA, CCC and HNZPT, generally with a site visit included to directly assess the issues.

3.4 Responses and Recovery Programme

Recovery of the theatre was completed and the theatre reopened in November 2014. It was one of the first heritage recovery projects to be completed in Christchurch.

The programme, which was devised by the Theatre Royal Charitable Trust and the consultant team, in discussion with HNZPT and CCC, included:

- full restoration of the front façade, including masonry repairs, new foundations and earthquake strengthening (fig. 15);
- some alteration to the building entrances at street level, where previous alterations had already taken place (fig. 16);
- construction of a new foyer and visitor facilities to 100 per cent NBS, including reinstatement of the 1928 staircase linking the stalls and dress circle foyers;

From top to bottom:
Fig. 15. The street façade is restored and the awning over the footpath is being reconstructed (Source: CCC, October 2014)
Fig. 16. The Theatre façade has been fully restored, but with modifications at street level to accommodate new foyer facilities and egress requirements. The new fire stairs and lifts are located in the new structure on the left of the theatre. (Source: C Forbes, September 2016)

From left to right:
Fig. 17. Hand-painted ceiling dome reinstated in new theatre (Source: CCC, October 2014)
Fig. 18. The boxes have been reconstructed either side of the stage, with the sculpted busts returned to their position over the top of each box. The oeil-de-boeuf windows have been conserved and reinstated in the new structure. (Source: CCC, October 2014)

- construction of a new earthquake resilient auditorium to 100 per cent of NBS;
- reconstruction of the auditorium interior to match as closely as possible the interior as it was in 2011 prior to the earthquakes, including reinstatement of salvaged elements from the original building (ceiling dome, plaster busts, *oeil-de-boeuf* windows) and reconstruction of the galleries and decorative plasterwork (figg. 17, 18, 19 and 20);
- provision of an extendable stage;
- alterations to seating layouts and foyer layouts to improve functionality; and
- provision of new fire stairs and lift access within a new side addition to the building.

The theatre is fully functional and performs to modern standards.

3.5 Values and Sustainability

The Isaac Theatre Royal has value as a much loved, central performance venue in Christchurch that has reopened following the earthquakes. Internally it looks almost exactly as it did prior to the earthquake, despite having sustained huge amounts of damage. The Theatre Royal Charitable Trust was determined to rebuild and have the final outcome looking as it did before the earthquakes. Theatre goers love that it looks as they remember it.

The building is now a highly visible structure in post-earthquake Christchurch.

The theatre continues to bring a wide variety of New Zealand and international shows to Christchurch.

Although the theatre has lost integrity and authenticity through the disaster and recovery process, it has retained historic, aesthetic, architectural and social values. It has also retained craftsmanship values in the recovery of its decorative elements, which were conserved and/or replicated using traditional materials and methods.

3.6 Drivers, Agents and Governance

The stakeholders, especially the Theatre Royal Charitable Trust, were very keen to recover the theatre and they were supported by the local community.

From top to bottom:
Fig. 19. The stage and back of house area have been retained and upgraded. The decorative work around the proscenium arch had been reconstructed from salvaged and replicated plaster elements (Source: C Forbes, September 2016)
Fig. 20. The dress circle and gallery have been rebuilt with copies of the original plasterwork applied to their balustrades (Source: C Forbes, September 2016)

However, the recovery proposal was predominantly professionally driven – engineering being the key element, coupled with the desire for a functional theatre building – and it was negotiated between the owners, engineers, architects, including a conservation architect, HNZPT, CCC and CERA.

Specialist conservators were involved in the repair and restoration of the ceiling dome and decorative plaster elements. Skilled tradesmen undertook the work to the façade and the reconstruction of the interior spaces.

Funding came from the Trust's insurance, along with grants from the NZ Lottery Commission and the Canterbury Earthquake Heritage Building Fund (CEHBF).

4. Documenting Response Actions, Timeframes, Resources and Costs

4.1 Actual Implementation and Timescales for the Recovery Programme

The recovery programme was implemented as follows (see further down in this section for a summary of costs):

2011	Investigations commenced, followed by immediate emergency work, including the deconstruction of the ancillary buildings to the east and west. Emergency repairs and propping to the main building began soon after. The process was flexible and changed with the circumstances.
2012	Salvage of the internal plasterwork and the removal of the dome. Followed by the removal of the roof and the deconstruction of the east and west walls of the auditorium. Application was made for NZ Lottery Commission heritage funding. Application was made to the Mayoral Relief Fund (CCC).
November 2012	Decision was made to deconstruct the south auditorium wall and the foyer, but to retain the marble stairs *in situ*.
April 2013	Stabilisation of the front façade was undertaken.
2013	Rebuild of the main auditorium began. Application was made for Canterbury Earthquake Heritage Buildings Fund grant. Christchurch Earthquake Appeal Trust funding was also obtained.
2014	Further Lottery funding was obtained.
November 2014	Work was completed. Theatre was reopened.

Works were consistent with the information provided and held on file by CCC.

Each stage of work was accompanied by engineering assessments and was overseen by the conservation architect.

The theatre is covered by a full Conservation Covenant, Pursuant to Section 77 Reserves Act 1977 (28 May 2013 CT 165078) the property known as "Isaac Theatre Royal" located at 145-147 Gloucester Street, Christchurch, relating to the repair, seismic upgrade and Building Code compliance works undertaken on the property.

4.2 Resources and Costs of Implementation

Experienced engineers, architects and project managers undertook the investigations, designed the new structures, prepared the documentation and oversaw the proposed works. The Theatre Royal Charitable Trust kept HNZPT and CCC informed as the works progressed.

The contractors were experienced in modern construction, and had undertaken other heritage projects as well. Specialists were used for the repair of the façade stonework, the repair and replication of the plasterwork, and for the conservation of the painted ceiling dome, the windows and the marble staircase.

The work was well publicised by the theatre's then chief executive, ensuring everyone was kept informed of progress.

The cost of recovery was nearly twice that of the insurance pay-out. Information from the Ministry of Culture and Heritage back in 2015 summarised the costs as follows:

Insurance – NZ$23 million
NZ Lottery Commission (from two different funds) – just over NZ$8 million
Christchurch Earthquake Appeal Trust – NZ$3 million
Canterbury Earthquake Heritage Buildings Fund – NZ$500,000
Canterbury Community Trust – NZ$300,000
Christchurch City Council – NZ$300,000 (plus a NZ$2 million loan)
Shortfall of NZ$4 million – to be gained through further fundraising, commercial loan facilities etc.

5. Documenting the Outcomes and Effects

5.1 Assessment of the Outcomes with Regard to the Recovery of the Heritage Resource

The theatre is back in use as a theatre. It continues to be a focal point for the performance community and is a leading entertainment venue in Christchurch.

It has been one of the popular success stories in Christchurch following the earthquakes.

Significant elements that survived the earthquakes (e.g. façade, ceiling dome, stair and plaster elements) have been retained and conserved in the recovery. The façade was retained and returned to its original appearance through the removal of paint that had obscured its features for many years. The conservation and reinstatement of the ornate hand–painted ceiling dome within the new auditorium has been especially celebrated (fig. 17). The additional conservation and retention of windows, marble staircase and plaster busts over the boxes in the main auditorium are also notable (fig. 18). Beyond these individual items, a key aspect of the post-earthquake rebuilding has been the recreation and upgrading of the interior, using plasterwork and detailed elements salvaged from the damaged building, so that the community feel like they are entering the theatre as it used to be prior to the earthquakes (figg. 19 and 20). The decision to replicate elements that were lost, so that old and new cannot be differentiated has been one that has generated a great deal of discussion within the heritage community with opinions on the approach being mixed. The wider community, however, has embraced the approach and the result is a well-loved building that people feel a real connection with. The sense of place has been retained for the community.

5.1.1 Updated Designation

The theatre has retained its place in the District Plan schedule for the reasons above. Prior to the earthquakes the building was listed in its entirety. The schedule now consists of all that part of the building south of the proscenium arch but excluding the new part of the building on the eastern side of the seismic wall to the auditorium (December 2017).

- Updated summary statement of significance

The building still retains high historical and social significance as an important performance venue and high cultural significance as a centre of cultural life in the city for over a century. It holds a special place in the cultural heart of Christchurch. The building is an example of a dual response to the extreme quake damage that it received. It is a combination of retention and repair, as demonstrated by the façade, coupled with replication and recreation within the interior – with some original features restored within that. The community response to the result has been positive. The replication and restoration of internal features gives the building significance in relation to craftsmanship and construction technology.

It is considered to meet the threshold for a highly significant place in the District Plan schedule, and is still retained as a Category 1 Historic Place in the HNZPT list.

5.1.1.1 Awards

The rebuilt theatre has received the following awards:

- 2015 Canterbury Architecture Awards Winner: Heritage – for the architect's laudable approach to heritage architecture that was both respectful and skilful.
- 2016 Canterbury Heritage Awards: Public Realm Saved and Restored Award – equal winner with the Memorial Arch on the Bridge of Remembrance

In 2016 the theatre won the following awards at the Champion Canterbury Business Awards:

- Champion Small Retail/Hospitality Enterprise
- The Press Champion Canterbury Supreme Small Enterprise award for its efforts following the earthquakes.

5.2 Ownership of the Results

All stakeholders take some ownership of the recovery, but predominantly the owners, engineers, architects and conservators.

5.3 Documenting the Recovery Programme

The emergency response, recovery, and reconstruction has been well documented in official documents,

the media and through a book on the Theatre Royal published after the works were finished: *Recreating the Magic: The Rebirth of a Christchurch Theatre, 2010-2015.* Author: Anna Crighton.

6. Additional Comments

6.1.1.1 Integrity

The surviving façade, along with windows, internal elements such as the marble staircase, the plaster busts and the ceiling dome have been retained and conserved. The main part of the building, including much of the original interior has been lost.

6.1.1.2 Authenticity

It can be argued that authenticity is lacking in the fabric of this repair as it is difficult/impossible to differentiate the original interior elements from the replicated interior elements. Otherwise the structure itself, roof, strengthening, etc. are all clearly contemporary in design.

However, it has been acknowledged that destruction as a result of war or events such as the Canterbury earthquakes can result in situations where there is a strong community desire to rebuild and/or reconstruct heritage buildings that have been largely lost (Ohs 2015). The Charter of Cracow 2000 recognises this in Article 4: <<Reconstruction of an entire building, destroyed by armed conflict of natural disaster, is only acceptable if there are exceptional social or cultural motives that are related to the identity of the entire community.>> Authenticity is also defined in the ICOMOS New Zealand Charter 2010 as including <<...use and function, traditions, spiritual essence, and sense of place...'>>(ICOMOS NZ 2010). It is considered that the reconstruction of the Theatre Royal provided an appropriate context for the remaining original fabric and contributed to the understanding of the place and the retained sense of place. This is in accordance with the ICOMOS New Zealand Charter 2010, Article 20 Reconstruction: <<Reconstruction is appropriate if it is essential to the function, integrity, intangible value, or understanding of a place, if sufficient physical and documentary evidence exists to minimise conjecture, and if surviving cultural heritage value is preserved>> (ICOMOS NZ 2010). The reconstructed Isaac Theatre Royal is felt to meet this requirement, as is reflected in its scheduling in the Christchurch District Plan, which was debated through the public hearings for the District Plan in 2015-2016.

6.1.1.3 Meeting seismic requirements

The new structure meets 100 per cent of NBS, and supports the heritage façade, along with additional strengthening works carried out to the façade itself.

6.1.1.4 Impact on values

Whilst the lack of authenticity might be said to impact the values associated with the tangible heritage (the building), the comments above regarding the appropriateness of reconstruction in the context of the Canterbury earthquakes should be noted. Also, the extremely high social and cultural values of the building have meant that the overall combination of the retained heritage and the value to the community of the recreated elements means that the building provides an important sense of place for Canterbury residents and retains its heritage significance.

7. Details of the Experts Completing this Case Study

This case study was prepared by Fiona Wykes, a Senior Heritage Advisor at Christchurch City Council. Fiona has been in Ōtautahi Christchurch for a number of years, including throughout the response and recovery phases of the Canterbury earthquakes. During this time she has been involved both in urban design projects and planning, and in a range of heritage identification, assessment and policy work. Fiona is a member of ICOMOS (International Council on Monuments and Sites) New Zealand, and through them a member of the recently formed Australia ICOMOS and ICOMOS New Zealand Joint Cultural Heritage Risk Preparedness Working Group.

It was reviewed by Catherine Forbes, architect with GML Heritage, Sydney, member of Australia ICOMOS, Convenor of Australia ICOMOS and ICOMOS New Zealand Joint Working Group on Cultural Heritage Risk Preparedness, and expert member of ICOMOS-ICORP. Catherine undertook an independent review of the Post-Earthquake Recovery of Built Heritage in Christchurch in September 2016. It was based on field observations, interviews with

those affected and those involved in the recovery - local community members, architects, engineers, staff of Christchurch City Council and Heritage New Zealand - and documentary research. Catherine is an independent observer rather than a participant in the recovery. Input was received from Amanda Ohs and Brendan Smyth, Heritage Team, Christchurch City Council. This case study was written in 2019.

Bibliography

Allen, D., 1978. *The Friends of the Christchurch Theatre Royal Report* Christchurch City Council Heritage File, 145 Gloucester Street.

Christchurch City Council – blueprint drawings from S. and A. Luttrell – 1907 (current location unknown).

Christchurch City Council – blue print drawings from C. H. Ballantyne and Associates - 1927 (current location unknown).

Christchurch City Council Heritage File *145 Gloucester Street* (1995) CCC Listed Historic Building Place or Object Assessment.

Christchurch City Council digital files – document number 12/17625 – Gloucester 145 – Isaac Theatre Royal – concept strengthening – 2011-12-09.

Christchurch City Council digital files – document number 12/62873 – Gloucester St 145 – Isaac Theatre Royal – notes from phone discussion with N Ryan-Anderson, RCP – 2012-02-01.

Christchurch City Council digital files – document number 12/62873 – Gloucester 145 – Isaac Theatre Royal – heritage comments re foyer deconstruction.

Christchurch City Libraries – (2016) Isaac Theatre Royal marks 2nd anniversary. Celebrating a city icon.

Christchurch City Libraries – *Weekly Press*, 6 February1907– blueprint drawings from S. and A. Luttrell.

Christchurch District Plan (Operative December 2017), Schedule of Significant Historic Heritage Appendix 9.3.7.2, Heritage Item Number 222 – Theatre Royal including all of that part of the building south of the proscenium arch but excluding the new part of the building on the eastern side of the seismic wall and setting.

Crighton, A., Grant, L. and Lochhead, I., 2016. *Recreating the Magic: The Rebirth of a Christchurch Theatre, 2010-2015*, Clerestory Press: Christchurch.

Heritage New Zealand Pouhere Taonga – heritage list entry, List no. 1936.

ICOMOS NZ, 20110 ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value, 2010.

Lochhead, I., 2008. 'The Architecture of the Theatre Royal: A Drama in Three Acts,' in H. McNaughton *et al. The Theatre Royal Christchurch: An Illustrated History, Christchurch*

Manatū Taonga Ministry for Culture and Heritage, 2015. *Christchurch's Historic Isaac Theatre Royal to Reopen in November*, updated 23 July 2015 https://mch.govt.nz/news-events/news/christchurch%E2%80%99s-historic-isaac-theatre-royal-reopen-november

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010–January 2012 – Report for the Canterbury Earthquakes Royal Commission,* New Zealand Historic Places Trust Pouhere Taonga: Wellington 8 March 2012. ENG.NZHPT.0004A.14.

McEwan, A. E., 1988. *From Cottages to Skyscrapers: The Architecture of A. E. and E. S. Luttrell in Tasmania and New Zealand,* Master's Thesis, University of Canterbury.

McNaughton, H., Downes, P., Simpson, A., Lochhead, I., Bohan, E., Hurley, C., Douglass, M., Warren, M., Clarkson, D. and Norman P., 2019 *The Theatre Royal, Christchurch: An Illustrated History,* Clerestory Press: Christchurch

Ohs, Amanda, 2015. Statement of Evidence of Amanda Emma Ohs on Behalf of Christchurch City Council, for Independent Hearings Panel on Christchurch Replacement District Plan, 2 December 2015.

Ohs, A. and Forbes, C., 2019. Christchurch: Heritage Recovery from the Canterbury Earthquakes, Case Study prepared for ICOMOS and ICCROM Global Recovery and Reconstruction Case Study Project.

Ussher, A., 2010. *Isaac Theatre Royal Gloucester Street Principal Façade, Conservation Plan,* Second Draft.

Wilson, J., 2007. *City and Peninsula: The Historic Places of Christchurch and Banks Peninsula.*

Wilson, J., 2005. *Contextual Historical Overview for Christchurch City*

Wilson, J., 2013. *Contextual Historical Overview for Christchurch City Revised*

KNOX PRESBYTERIAN CHURCH, CHRISTCHURCH

Catherine Forbes

TABLE OF CONTENTS

List of Illustrations

Acknowledgements

I wish to acknowledge the kind assistance given by Robyn Burgess, Senior Heritage Assessment Advisor (Canterbury/West Coast), Heritage New Zealand Pouhere Taonga, Southern Regional Office and Fiona Wykes, Senior Heritage Advisor, Heritage Team, Urban Regeneration, Urban Design and Heritage Unit, Christchurch City Council. This case study would not have been possible without their input. Amanda Ohs, Senior Heritage Officer with Christchurch City Council Heritage Team, provided additional input and peer review.

1. The Heritage Resource and its Context Before the Earthquakes

1.1 Description, Designation and Recognition

1.1.1 General Description

The Knox Church is a Gothic Revival style building, built in 1902. Located at the intersection of one of the principal arteries coming into the city, the church is highly visible and constitutes a city landmark (figg. 1 and 2).

1.1.2 Form, Function, Creation and Subsequent Transformations

Form

Knox Church is an Edwardian Gothic Revival building with restrained detailing (figg. 3, 4 and 5). The building has a simple rectangular plan with three cross gables intersecting the main longitudinal gable. It has two gabled entry porches on its northern side, at its east and west ends. The building contains a single space (nave), with a vaulted timber ceiling supported on two rows of timber columns and arched trusses. The church contains Kauri pews within the nave and timber altar, pulpit, reading desk and pipe organ located at its east end.

Function

The building is a Presbyterian church built specifically for its congregation to meet and worship in. The use has not changed.

Creation

The building was designed by the renowned Christchurch architect, Robert William England, and was built by W Greig and Son, builders. The pipe organ was built for the church by Edgar Henry Jenkins in 1904.

Construction

The building is essentially a Rimu and Kauri timber structure, consisting of timber columns supporting large Gothic style exposed timber trusses. It was originally clad externally in unreinforced red face brickwork with Oamaru stone and cement trim around its lancet window and door openings, gable ends and buttresses. It also featured stone bands around the building and across its gables. Iron rods tied the tops of the church gables back to the main roof structure providing bracing to the timber structure. This appears to have been an early form of seismic strengthening.

Internally, the floor consisting of oiled tongue and groove Rimu floorboards was raked and tiered. A high timber

Fig. 1. Location Plan, satellite image of Christchurch showing location of Knox Presbyterian Church (Source: Google Earth [accessed 16 December 2019] with overlay by C. Forbes)

panelled dado (also Rimu) extended around the internal wall faces, with lathe and plaster above. Corrugated steel roofing is laid over Rimu sarking boards, which were also oiled and formed the ceiling lining.

Changes

In 1964, a two storey administrative building was built at the eastern end of the church, replacing the earlier timber buildings on the site.

In 1990–91, a glass entry porch was added to the north side of the church.

There have been no major changes to the church structure.

Materials and Techniques

The materials (stone, brick and timber) and techniques used in construction are available and replicable today. However, the unreinforced masonry form of construction would not comply with current building codes. Kauri timber, if required, is very difficult to replace as it is no longer harvested due to its rarity.

Fig. 2. Site plan showing heritage building and site boundaries of Knox Presbyterian Church (Source: Christchurch District Plan).

1.1.3 Official Designation or Inscription

Official Designations

- Knox Church was registered by the New Zealand Historic Places Trust as a Category 2 Historic Place (List No.3723, entered 1984).

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 was identified as an important example of church designs by prominent local architect R. W. England.

- Knox Church was included as a Group 2 heritage item on the Christchurch District Plan 1995 (Heritage Item No. 53).

The 1995 assessment sheet for Knox Presbyterian Church outlines the long historical association of the church with the site and with Rev. David McKee and Rev. Robert Erwin. The place was identified as being of cultural and spiritual significance to the local community since 1902. It was identified as being of architectural significance for its restrained Gothic detail and design by the locally renowned England Brothers firm.

Fig. 3. Knox Church, view of west end of church from Victoria Street (Source: CCC, February 2008)
Fig. 4. Knox Church, south elevation of church showing gables (Source: CCC, 30/8/2002)
Fig. 5. Knox Church, 2002, north elevation viewed from across Bealey Avenue, showing northwest entry porch with glass roof (Source: CCC, 30/8/2002)

It was identified as being of technological significance for its masonry skill and craftsmanship. The listing did not specifically identify the church's interior as significant.

Significant Context and Features

The listings identify the whole site owned by the church, but also consider the church in its broader context. It is located on a prominent corner of a major intersection between one of the main arterial roads entering the city, Papanui Road, and Bealey Avenue, a broad avenue that defines the northern edge of the central city area. The church was set within an area of a significant group of large homes and early commercial buildings and was noted as a well-known landmark.

The listings do not identify specific elements of the building, other than its multiple gables, brick walls and stone trim. They do not refer to the interior of the building. However, it is noted that interiors did usually form part of the District Plan listing, even though their elements were not itemised.

In this case the interior features, including timber columns, exposed timber trusses (Gothic in form), timber ceilings, panelled timber dado around the walls and timber floor, were included in the listing information. The church also had a significant collection of furnishings including Kauri pews, altar furniture and a pipe organ, none of which were itemised.

No hierarchy of attributes was included in the listing, and nor were any specific conservation policies for the building.

1.1.4 Scholarly Recognition

There is very little scholarly literature describing the place or its attributes. Most of the information is included in Christchurch City Council files and Presbyterian Church archives.

The church has an active congregation that is attached to the church. The congregation commissioned the post-earthquake rebuilding and conservation works.

1.2 History and Context

1.2.1 History, Ownership and Environment

History

The following history is from 2015 Christchurch City Plan, Heritage Item No.53.

Although Christchurch was established as an Anglican settlement, Presbyterians were prominent in the area from as early as 1843. A Presbyterian congregation was formed and opened a church on the North Belt (now Bealey Avenue) site in 1880. This was a timber building designed by C. Farr & Son Architects.

By the turn of the century, the population in the North Town Belt area had increased rapidly and construction of a larger church was found necessary. In June 1901 the foundation stone for the present church was laid by the Mayor of Christchurch, A. E. G. Rhodes, and the completed church was dedicated on 1 May 1902. The North Belt Church was renamed Knox Church in 1904. The Presbyterian Church has since moved from being a Church for Scottish settlers to an ethnically diverse Church very much at home in Aotearoa New Zealand. Today the Church promotes itself as a progressive, inclusive faith community.

The 1880s timber buildings were demolished in 1964 and replaced by the Knox Centre, a modern two storey brick and concrete building located to the east of the Edwardian church.

In 1990–1991 the interior of the church underwent some minor refurbishment, including creation of a centre aisle. An extension was made to the northwest entry porch with a glass roof added over the door. These works, designed by Wilkie and Bruce Architects, did not affect the main structure.

Two stained glass windows were added to the west wall in 1995 by local artist Graham Stewart.

Ownership

The building is owned by the Presbyterian Church of New Zealand.

Physical Context

Knox Church is located on the corner of Bealey Avenue and Victoria Street, at the northern edge of the Christchurch central business district. Bealey Avenue is one of the "four avenues" that define the central city street grid. The building occupies a large proportion of its corner site and is highly visible on approach to city along Papanui Road, which is one of the main arterial roads entering the city.

Condition

The building was in good condition prior to the earthquakes.

1.2.2 Social and Economic Setting

The church is located in close proximity to both business and residential areas. Victoria Street is primarily a commercial street. Much of the area across Bealey Avenue from the city centre is residential. The neighbourhood would be considered to be middle class.

The church has an active congregation who interact with the local community. They use the place for gathering together and for weekly worship.

The local community is very active with two residents' groups (Inner City West Neighbourhood Association (ICON) and the Victoria Neighbourhood Association), who have an interest in retaining the residential amenities of the area.

1.2.3 Frameworks, Agents and Communication

Legislative Framework

The legislative framework governing the protection of cultural heritage in Christchurch is described in detail in the Christchurch overview case study (Ohs and Forbes, 2019) but is summarised briefly here.

Under the Resource Management Act 1991 and within the framework of the Christchurch District Plan (the Christchurch City Plan at the time of the earthquakes), Christchurch City Council (CCC) assesses proposals for works to a heritage building that affect the heritage fabric or that involve constructing new buildings in a heritage setting. Under the Building Act 2004, the Council must also consider whether a building is earthquake prone and then issue a notification to the owner requiring them to upgrade the building in accordance with the National Building Standard (NBS).

The Council identified Knox Church as potentially earthquake prone in 2009. The Building Act also brings into consideration matters that can have a profound effect on heritage buildings, such as fire and access.

Under the Heritage New Zealand Pouhere Taonga Act 2014, (previously the Historic Places Act 1993), Heritage New Zealand Pouhere Taonga (previously New Zealand Historic Places Trust (NZHPT)) must assess any potential disturbance of archaeology on the site. This includes any above or below ground structures that predate 1900.

The property owner may seek advice from both the CCC and NZHPT (HNZPT) prior to making any formal submission/application to undertake works.

Under section 85 of the Civil Defence and Emergency Management Act 2002 (CDEM 2002), Civil Defence directors have the power to facilitate the <<removal or disposing of, or securing or otherwise making safe, dangerous structures and materials wherever they may be>>. In an emergency situation, consent is not required from other authorities (McClean *et al.* 2012).

Key Stakeholders

The key stakeholders for the Knox Church include the Presbyterian Church of New Zealand, the local Knox Church congregation, Christchurch City Council (CCC) and Heritage New Zealand Pouhere Taonga (HNZPT). Following the earthquakes there was considerable communication between the property owners, the CCC and HNZPT.

1.2.4 Bibliography of Documentation

Burgess, Robyn, 2018. *New Zealand Heritage List/Rārangi Kōrero – Review Report for a Historic Place - Knox Church (Presbyterian), Christchurch (List No.3723, Category 2)*, Heritage New Zealand Pouhere Taonga: Christchurch, 5 November 2018.

Christchurch City Council, 2014. Christchurch City Plan – Listed Heritage Place, Heritage Assessment – Statement of Significance, Heritage Item Number 53: Knox Church Interior, 28 Bealey Avenue, Christchurch.

Christchurch District Plan (Operative December 2017), Schedule of Significant Historic Heritage, Appendix 9.3.7.2. Heritage Item Number 53 – Knox Church Interior.

2. The Nature of the Impacting Events

2.1 General Description

The Canterbury earthquake sequence 2010–2011 is described in the Christchurch overview case study. The earthquakes that had the greatest impact on the city are listed here.

- 4 September 2010 – M7.1 (epicentre 40km from Christchurch)
- 26 December 2010
- 22 February 2011 – M6.3 (most destructive to the city)
- 13 June 2011 – M6.7
- 23 December 2011

Fig. 6. September 2010 earthquake damage to northern gables (Source: CCC, 27/1/2011)

Images, Clockwise from top left:
Fig. 7. September 2010 earthquake damage to southern gables (Source: CCC, 27/1/2011)
Fig. 8. September 2010 earthquake damage to northern gable showing iron tie rod from previous seismic upgrade works (Source: CCC, 27/1/2011)
Fig. 9. September 2010 earthquake damage to western gable (Source: CCC, 27/1/2011)
Fig. 10. September 2010 earthquake damage to ceiling of church (Source: CCC, 27/1/2011)

Earthquakes in New Zealand, including in the Christchurch region, are cyclical, but unpredictable. This particular series was stronger than previously experienced in the region and has been assessed as being a 1 in 500 year occurrence.

2.2 General Impact of the Earthquakes

2.2.1 Impacts on the City of Christchurch

The city of Christchurch was very severely affected by the earthquakes, with the centre of the city being closed for two years following the February 2011 earthquake. The impacts of the earthquakes on the city are discussed in the Christchurch overview case study (Christchurch: Heritage Recovery from the Canterbury Earthquakes). Knox Church, being on the edge of the city centre, was for a period located on the edge of the Central City Red Zone. Many buildings in its vicinity were severely impacted, including local businesses and houses.

2.2.2 Impacts on the Fabric of the Knox Church

The impacts of the Canterbury earthquakes on the Knox Church are summarised in the NZHPT report to the Canterbury Earthquake Royal Commission as follows:

- Sept–Dec 2010 – minor damage
- Jan–June 2011 – severe damage
- July 2011–Jan 2012 – moderate damage

The damage was cumulative over the earthquake sequence (McClean *et al.* 2012).

The September 2010 earthquake caused damage to the tops of all eight gables of the church (collapse of each masonry apex), and some damage to the timber ceiling of the church (figg. 6, 7, 8, 9 and 10).

The February 2011 earthquake caused major collapse of the outer masonry walls down to windowsill level (figg. 11, 12, 13 and 14). The internal timber structure, comprising columns, roof trusses and boarded ceilings, remained standing. The internal timber dado wall linings also remained standing, although the lathe and plaster above were severely damaged. Many of the pews and other furnishings survived because they were protected by the timber structure. The organ sustained some minor damage, but the stained glass windows were lost.

The building structure was left highly exposed and vulnerable to the weather (wind and rain) and subsequent earthquake events. Vandalism and theft also presented substantial risks.

2.2.3 Impacts on the Church Community

The church building was unusable. However, the congregation was able to meet in the adjoining Knox Centre, which was not severely impacted. The centre also provided worship facilities for the congregation of St Luke's Anglican Church, who lost their stone church in the earthquakes.

Images, Clockwise from top left:
Fig. 11. February 2011 earthquake damage to northern gables and northeast porch (Source: CCC, February 2011)
Fig. 12. February 2011 earthquake damage to northern gables showing exposed timber structure and back of internal lathe and plaster wall linings (Source: CCC, 15/3/2011)
Fig. 13. February 2011 earthquake damage to western gable with ply added to protect timber structure (CCC, 15/3/2011)
Fig. 14. Undertaking detailed damage assessment following February 2011 earthquake (Source: CCC, 2/6/2011)

Fig. 15. Church sign reflecting the emotions of the congregation following the disaster (CCC, 2/6/2011)

2.3 Impact on the Significance and Values of the Resource

The cultural heritage significance of the Knox Church was severely impacted.

The loss of external building fabric had a major impact on the architectural and aesthetic character of the Edwardian church building. This is particularly notable as it was the masonry that was specifically mentioned in the heritage listings for the place. The survival of the timber structure, however, retained the building's built form, distinguished by its multiple intersecting gables.

The timber structure, although a significant attribute of the building's interior, contributing to its distinctive character, was not identified in the heritage listings. However, it retained its architectural and aesthetic qualities. The survival of the timber structure also ensured that a considerable portion of the church's furnishings and the organ could be saved.

The building retained its streetscape presence on its corner site, although without its external walls, its landmark qualities were considerably reduced.

Despite the losses, the building was still highly regarded by the local community, which has chosen to stay on the site and rebuild (fig. 15).

2.4 Emergency Repairs to Date

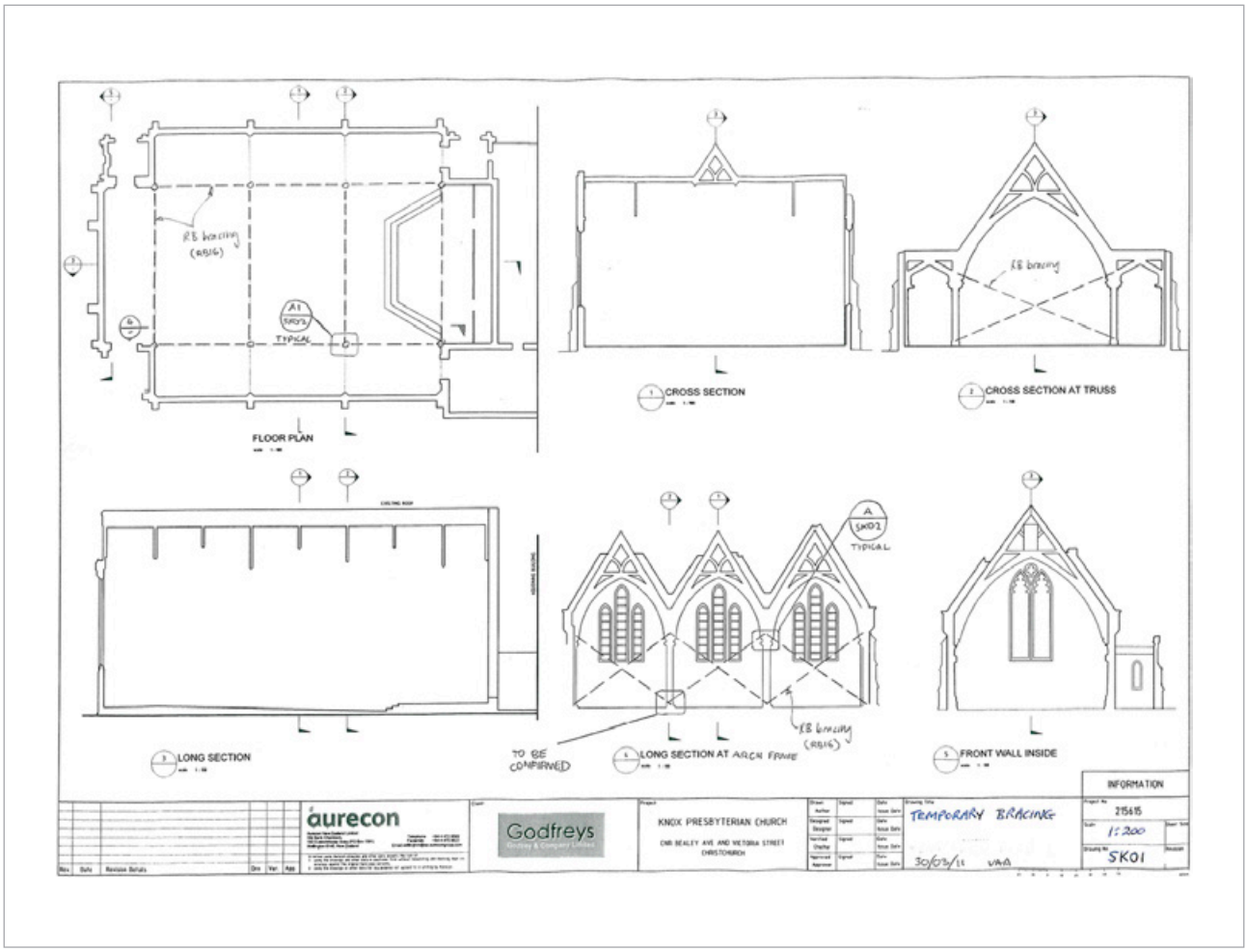
The timber structure was retained, whilst the brick and stonework were largely disassembled and removed from the site. The brick structure was designed to brace the timber structure to which it was connected by iron tie rods (fig. 6). The loss of the brick structure left the timber structure unbraced and vulnerable to wind loading and further seismic events.

Tension bracing was installed to provide temporary stabilisation to the timber columns, so that the structure could be retained *in situ* (fig. 16). Ply cladding was provided to the ends of the exposed gables and the metal roof sheeting was retained for weather protection (Aurecon 2012). Hoardings were erected around the site to provide safety and security (figg. 17, 18, 19 and 20).

The emergency measures ensured that the structure could be retained and conserved in the recovery. It also gave the Church and congregation time to consider their options for recovery.

Temporary lighting was installed within the surviving structure so that the community and passers-by could view the surviving interior at night. This highlighted the unique impact of the earthquakes on the church and helped to retain its landmark status (Wykes 2019).

Fig. 16. Drawings of Knox Church, prepared by Aurecon (30/3/2011), showing the proposal for temporary bracing (Source: CCC, 2011)



Images, Clockwise from top left:
Fig. 17. Ply added to timber structure to protect it from the weather (Source: R. Burgess, HNZPT, 3/8/2012)
Fig. 18. Surviving timber structure showing pews, timber dado and stabilisation of columns (Source: CCC, 2/6/2011)
Fig. 19. Detail of column stabilisation works (Source: CCC, 2/6/2011)
Fig. 20. Surviving roof structure showing timber trusses and sarking board linings (Source: D. Margetts, HNZPT, 7/10/2014)

2.5 Documentation and Narratives

2.5.1 Documentation

Pre-earthquake documentation consisted primarily of listing information and Council files.

Post-earthquake documentation included structural reports and photographs. Copies of these are held by the property owner, HNZPT and CCC. A structural assessment was undertaken by David Elliot of Aurecon.

2.5.2 Narratives

An Earthquake Steering Committee was established by the Presbyterian Church of New Zealand after the September 2010 event to oversee recovery of all the affected Christchurch Presbyterian parishes, including the Knox Church. However, their plans were rendered redundant by the 22 February 2011 event. On 3 April, individuals and groups with specific interest in the future of the Knox Church were brought together to discuss their options. The majority of parishioners wanted to stay on the same site and retain what remained of their church. No one, however, wanted to rebuild in brick as they considered it unsafe. Most wished to avoid spending more than the insured sum, although they were open to exploring alternative funding options.

3. Post-Event Appraisals

3.1 Impact Assessment

3.1.1 Site Investigations

Detailed damage assessments were undertaken, as well as structural and geotechnical investigations (fig. 14). A structural report was prepared by David Elliot, structural engineer with Aurecon New Zealand (July 2011). A Heritage Impact Assessment was prepared by HNZPT with regard to the proposed deconstruction of the severely damaged masonry walls and the retention of the timber structure (July 2011).

Whilst the surviving timber structure was able to be stabilised *in situ* and interior elements salvaged for reuse, it was decided that the external brick and stone walls around the perimeter of the building could not be strengthened or rebuilt in their previous form to satisfy current building codes and within the insurance budget. Thus, alternate options had to be considered (Robson Garland 2012).

3.1.2 Recovery Options Discussed

It was proposed to rebuild the church to 100 per cent of the National Building Standard (NBS), subject to resolution of insurance issues.

Recovery options were discussed with all stakeholders, including parishioners and the local community. Meetings and site inspections were undertaken with the Presbyterian Church Property Trustees and representatives of the CCC Heritage Team and NZHPT to discuss what had been lost and what could be salvaged and reused, and to review potential options for recovery, including structural solutions and design concepts.

A totally new external structure was proposed that would meet building code requirements but that would at the same time enable retention of as much of the original fabric as possible, including the timber columns and roof structure, internal timber linings and furnishings. The rebuild concept revolved around adding a new structure to the existing timber structure.

3.1.3 Intangible Heritage

The church would remain on its historic site and would be fully functional as a place of worship. Surviving heritage attributes, including the church's organ, pews and altar furniture would be retained as part of the new church, fulfilling their traditional functions and conserving the memory of the 1902 church for the congregation.

3.1.4 Heritage Values Assessment

Since the disaster, in light of the substantial loss of significant heritage fabric, both CCC and HNZPT have reassessed the significance of the church and its component elements. These assessments are discussed in Section 5.

3.2 Post-Event Documentation

Post-earthquake documentation for recovery and reconstruction includes architectural and engineering drawings, as well as heritage impact assessments.

The architect and lead consultant for both the recovery and the new work was Alun Wilkie of Wilkie and Bruce Architects. The structural and seismic engineer was David Elliot of Aurecon NZ.

HNZPT and CCC hold copies of the formal documentation submitted for obtaining resource and archaeological consent, including the following:

Aurecon (2013) *Knox Presbyterian Church, 28 Bealey Street,* Structural Drawings, including construction details

Powell Fenwick (2013) Knox Presbyterian Church, Siteworks, Hydraulic and Mechanical Services Drawings

Robson Garland Limited (2012) *Application for Land Use Consent: Knox Presbyterian Church, 28 Bealey Avenue, Christchurch*

Resource Consent Notification (2012) *RMA92021031 Knox Presbyterian Church*, includes feedback from Urban Design Panel (30/1/2012) and heritage impact assessment by Neil Carrie (9/8/2012)

Willkie + Bruce Architects (2013) *Knox Presbyterian Church Rebuild, 28 Bealey Avenue, Christchurch*, Architectural Drawings, including construction details

3.3 Challenges for Recovery

There were a range of challenges for recovery and reconstruction. These are summarised as follows:

Technical Issues

- The rebuilt church had to meet 100 per cent NBS.
- The brick walls could not be rebuilt as they had previously existed because they could not meet building code requirements.
- The surviving timber structure was fragile in its post-earthquake state and had to be protected and strengthened.
- The new structure had to be built around the surviving heritage structure, impacting its integrity as little as possible.

Heritage Issues

- The loss of the significant exterior fabric affected the significance of the place.
- Despite this, it was still proposed to retain the original distinctive form of the church.
- The exterior fabric, comprising unreinforced brick and stone masonry, was not recoverable.
- However, as much of the surviving internal fabric as possible would be conserved and reinstated within the church – including internal timber structure, historic internal wall and ceiling linings, fixtures and fittings, and movable heritage items including pews, altar, organ and honour board.
- The new work would not replicate what had been lost. The new exterior would be contemporary in design and distinctive in character.
- Social Issues
- There was a strong desire by the congregation to remain on the site.
- There was a desire to retain historic attributes of the church, but also to adapt the building to satisfy the current and future needs of the church (e.g. style of worship service, use of modern technology for services, use of the place for other activities such as music concerts).
- The parishioners wanted the church to be more transparent so that they were better connected with their surroundings and the community they were serving.

Financial Issues

- Insurance coverage was a constraint.
- Additional funds would need to be sought.

3.4 Responses and Recovery Programme

The key guiding principles for the recovery of the Knox Church included building a church on the same site that was seismically resilient but that retained as much of the building's surviving original fabric as possible.

The recovery programme for the church was determined and implemented by the Presbyterian Church, guided by their team of consultants. The programme was presented to parishioners for their endorsement and to the heritage authorities (CCC and HNZPT) for their review and feedback. The rebuilding of the church was completed over a two-year period under a single construction contract. The church reopened on 30 November 2014.

3.5 Values and Sustainability

Although the Knox Church has lost much of its historic external fabric, the place, as it has been rebuilt, has retained many aspects of its significance and at the same time, gained new values.

Knox Church is one of the few unreinforced masonry churches damaged by the earthquakes to have been retained and repaired in central Christchurch. Many were demolished (CCC).

The church has retained its original built form and much of its historic interior. Thus, it retains architectural and aesthetic significance. Even though it is contemporary in its external appearance, it still retains its landmark qualities on the corner of Bealey Avenue and Victoria Street. The repair and conservation of the timber interior has enabled the building to retain its craftsmanship values. The timber structure, that remained standing after the earthquakes, has retained its technological value. The strengthening of the original structure and the addition of a new seismically resilient outer structure has ensured that the building will be able to resist future earthquakes.

The rebuild has enabled the Knox Church congregation to stay in the place where they have focused their activities for over 100 years, and to continue worshipping and serving the local community in that place. Thus, the church retains its social and spiritual significance and continues to contribute to the social fabric of the community.

3.6 Drivers, Agents and Governance

The Presbyterian Church and the local congregation of parishioners were keen to recover their church. They have been the key drivers for the rebuild.

The recovery proposal as implemented was professionally developed by the consultant team lead by Wilkie and Bruce Architects and Aurecon, structural and seismic engineers. Mechanical, electrical, fire and hydraulic services were provided by Powell Fenwick and acoustics by Marshall Day. Robson Garland Limited were the planners, Rawlinsons were the quantity surveyors and South Island Organ Company were responsible for the recovery of the organ. Figure 21 shows the floor plan of the refurbished church.

Works were undertaken by a builder and tradesmen skilled in both modern construction and traditional carpentry and joinery.

The majority of funding for the rebuild came from insurance. However, there was a substantial gap that had to be filled by donations and grants. A building fund was established by the church to raise NZ$2 million. A significant grant was given by the Canterbury Heritage Building Fund.

The collapsed brickwork of the Knox Church was removed under emergency legislation. Approval for the rebuild was granted by CCC under the Building Act and Resource Management Act, with heritage impacts assessed under the Christchurch Plan. Impacts on the archaeology of the site were assessed by HNZPT. Refer to Section 1.2.3.

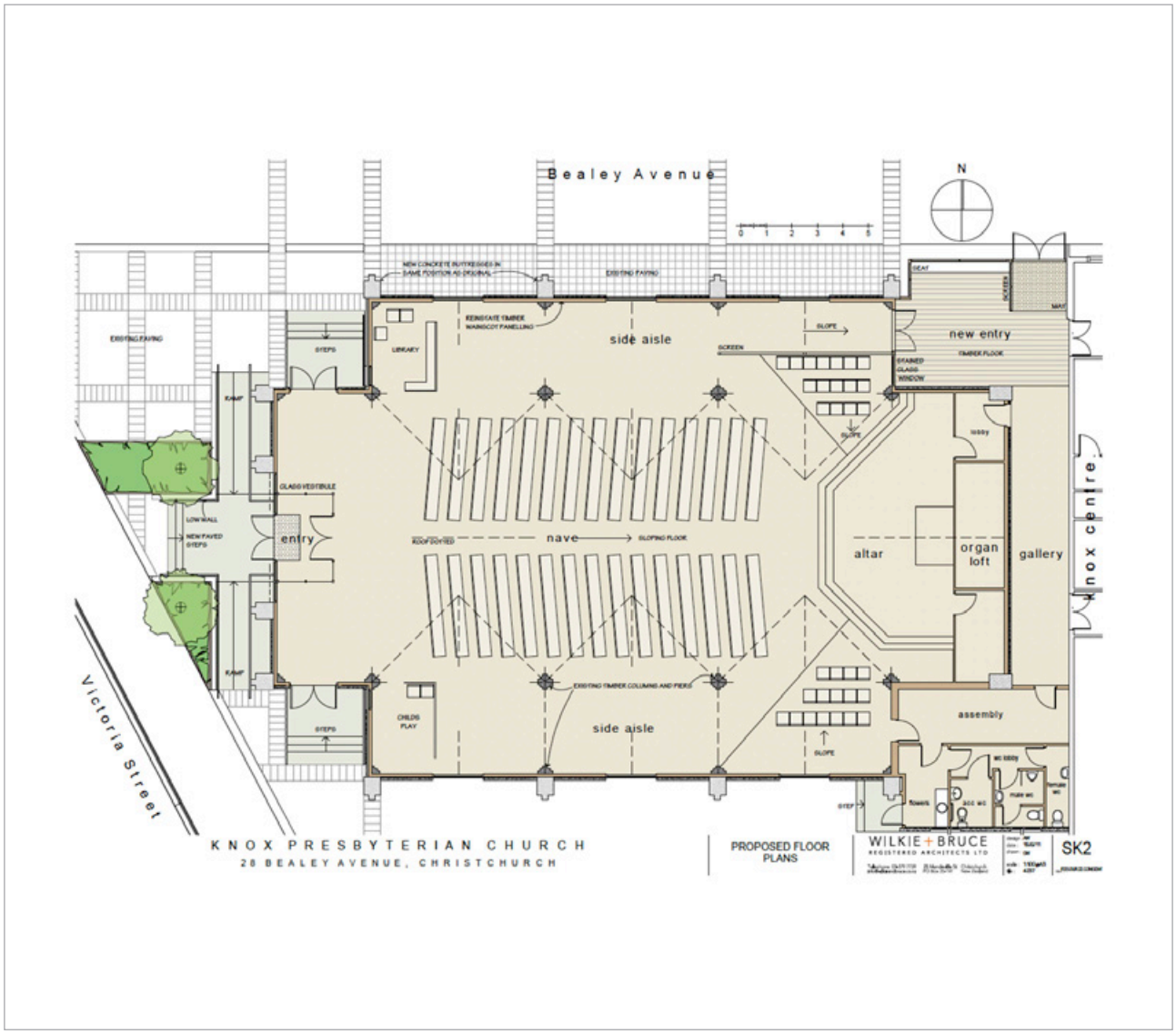


Fig. 21. Proposed floor plan for refurbishment of Knox Church, prepared by Wilkie and Bruce (15.6.2011) submitted to CCC for Resource Consent (Source: CCC)

4. Documenting Response Actions, Timeframes, Resources and Costs

4.1 Actual Implementation and Timescales for the Recovery Programme

Recovery was undertaken as planned by the church and approved by the authorities.

4.1.1 Recovery Timeline

September 2010	Damage to church gables, but church was considered recoverable.
February 2011	Severe damage to the building, with the URM walls collapsing. Damage assessments and emergency stabilisation work undertaken to the surviving timber structure.
April 2011	Stakeholders met to discuss options.
July 2011	Concept design discussed with CCC and HNZPT. Church congregation vote unanimously to proceed with the rebuild.
January 2012	Proposal presented to CCC urban design panel for review.
July 2012	Heritage impact assessment by HNZPT required some amendments to the detailed design.
September 2012	Application was made to CCC for Resource and Building consent.
October 2012	Resource Consent given by CCC.
November 2014	Church rebuild completed and church reopened.

4.1.2 The Rebuilt Church

Recovery of the church fulfilled all the requirements established by the congregation and their consultants at commencement of the project. Conservation of the heritage fabric was in accordance with ICOMOS New Zealand conservation principles.

The building has been fully recovered, but in a form that differs from its pre-earthquake state (figg. 22 and 23). As much as possible of the internal structure, finishes and furnishings have been retained, but externally a new seismically resilient structure has been built over and around it in place of the original unreinforced masonry structure that was lost to the earthquakes (figg. 24, 25 and 26). The new structure consists of post-tensioned concrete buttresses, vertical concrete panels to the lower walls, lightweight copper clad walls above and a corrugated metal roof over the existing timber structure. The building has retained its original built form, defined by its multiple intersecting gables, but not its two entry porches. The new external structure is distinctly contemporary in design, but inside the interior is very much as it was. The lancet windows have been replaced with larger modern rectangular windows that allow in more light. New fully accessible glass entrances, that also function for fire egress, have been provided.

In more detail, the rebuilt church incorporates:

- retention, conservation and strengthening of the surviving timber structure (strengthened with steel rods and plates);
- retention of original triple gable roof form;
- new structure designed to meet 100 per cent NBS, including new raft footings, concrete columns at the original buttress points, ring beam and steel additions to the original timber roof structure;
- new lightweight exterior walls incorporating precast concrete wall panels, glass and copper cladding;
- contemporary design for the exterior that emulates aspects of the original design (e.g. concrete buttresses located where the original buttresses were located, vertical emphasis to the windows and concrete wall panels);
- incorporation of plywood bracing, acoustic and thermal blankets, and fire sprinklers between the new and old roofs (Fulton 2014).

Images, Clockwise from top left:

Fig. 22. Knox church rebuilt (Source: C. Forbes, 14/9/2016)

Fig. 23. Detail of new exterior cladding showing new windows, precast concrete panels to lower walls, copper sheet to upper walls and concrete column/buttress (Source: C. Forbes, 14/9/2016)

Fig. 24. Reconstructed interior looking east, showing conserved timber structure and reinstatement of pews, organ and other furnishings within the fully recovered building (Source: G. Wright, CCC, 15/2/2015)

Fig. 25. Reconstructed interior looking north, showing conserved timber structure with reinstated timber dado between new windows. The new glass entrance porch at the western end of the building is on the left (Source: G. Wright, CCC, 15/2/2015)

Fig. 26. Conserved roof trusses and timber ceiling in recovered church (Source: C. Forbes, 14/9/2016)

- conservation and reinstatement of original timber ceiling and wall linings, fixtures and fittings, as well as furnishings;
- interior layout adapted to suit contemporary worship, but using original furniture;
- repair and reinstatement of the organ;
- installation of new acoustic deflectors for music concerts;
- installation of a new contemporary stained glass window positioned over the main entrance, created by the same artist who created the previous windows, and adopting the same theme (Canterbury's rivers running from the mountains across the plains to the ocean) (McDonald 2018);
- more open and accessible entrance and taller windows with lower sills to allow views into the church, and to enable better visual connection to the street and surrounding community;
- new north porch to connect the church and the Knox Centre.

4.2 Resources and Costs of Implementation

4.2.1 Skills and Expertise

Highly skilled and experienced architects and engineers undertook the investigations, developed the designs, prepared the documentation and oversaw the implementation of the proposed works.

The new seismically resilient structure was designed and built using modern materials and techniques. Thus, the reconstruction was undertaken by a team of highly skilled contractors (Higgs Construction) with expertise in modern engineering solutions. Repairs to the timber work, on the other hand, were undertaken by skilled tradesmen with expertise in traditional carpentry and joinery. The organ was repaired by the South Island Organ Company, who specialise in this work.

The congregation was not involved in the construction work but were kept informed of progress through the church website (Knox Presbyterian Church 2014) and could see the work progress as they regularly visited the adjoining site for church services.

4.2.2 Costs and Funding

The budget for the proposed rebuild was estimated at NZ$5.5 million. At the time of opening there was still a NZ$536,000 shortfall (The Press 2014).

Organ restoration cost NZ$536,000 and involved 15 staff and about 11,000 man hours over five weeks as the organ's action was converted from tubular pneumatic to electric with Ethernet transmission (The Press 2014). The new stained glass window was donated by John and Dame Ann Hercus, whose family has links with the church (McDonald 2018).

5. Documenting the Outcomes and Effects

5.1 Assessment of the Outcomes with Regard to the Recovery of the Heritage Resource

5.1.1 Heritage Outcomes

Knox Church reopened for worship in 2014, and was one of the early success stories for heritage recovery in Christchurch. It is one of the few central city churches that has survived the earthquakes and reopened so that it can continue to service its congregation and local community.

The significant attributes of the building that survived the earthquake (the timber structure, linings, furnishings and organ) have all been retained and conserved in the recovery. Elements lost in the earthquakes, however, such as the external brick and stone masonry skin, have not been replicated. Instead they have been replaced with new elements that address the seismic and contemporary needs of the church (structural resilience, openness, equitable access). They are uncompromisingly contemporary in design, but at the same time respectful and interpretive of the historic church design – maintaining its multi-gabled form, arrangement of key architectural elements (buttresses, windows), but adding a new layer that responds directly to this dramatic event in the church's history.

The church has been strengthened to ensure its long term resilience to future earthquake and fire events. It has been designed to better meet its community needs (laid out for contemporary worship and for performance,

for equitable access and for greater transparency). The interior space is much as it always was, although it is now filled with light. The surviving timber elements (columns, Gothic form roof trusses, polished timber linings and furnishings) all contribute to maintaining the building's historic spatial qualities and its sense of place.

5.1.2 Revision of Official Designations

The official designations for the Knox Church have been revised by both HNZPT and CCC. In both instances previously unidentified attributes and new values have been recognised.

- HNZPT (2018) found the Knox Church to possess architectural, historical and spiritual significance or value, and to be central to the social and cultural life of the community.

<<The building has significance as a creatively improvised ecclesiastical heritage survivor following the dramatic total loss of many of Canterbury's stone and brick historic churches due to the 2010-11 Canterbury earthquakes. Knox Church (Presbyterian) demonstrates an innovative solution to retaining and strengthening the original celebrated interior following severe quake damage to the exterior. It is considered to meet the threshold for entry on the New Zealand Heritage List as a Category 2 historic place.>>

- The Christchurch District Plan now includes only the interior of the church (December 2017).

<<The interior of Knox Church is of overall significance to Christchurch including Banks Peninsula. The church interior is of historical and social significance as the home of a Presbyterian congregation for over a century, and as the sole remaining place of Presbyterian worship in the central city. The Knox Church interior has been central to the religious, cultural and social life of both its Presbyterian congregation and members of the wider community for over a century. Despite the post-quake damage and subsequent rebuild and redesign, the church interior retains architectural and aesthetic significance for its distinctive gabled roof structure which has remained *in situ* supported by the original internal timber columns. Knox Church interior is considered to have technological and craftsmanship value for what it may reveal of Edwardian construction techniques and craftsmanship, materials, fixtures and fittings. Knox Church itself has contextual significance for its location on a prominent corner site at the busy intersection of one of the four wide avenues traditionally recognised as marking the boundaries of the central city, and the main arterial route of Papanui Road and Victoria Street across Belay Avenue. The building and setting are of archaeological significance as they have potential to hold evidence of human activity on the site which pre-dates 1900.>>

5.1.3 Heritage Protection

The place is now covered by a Full Conservation Covenant Pursuant to Section 77 Reserves Act 1977, (29 October 2012, Certificate of Title CB31B/714), the extent relating to Knox Church and rebuild and maintenance requirements as a result of Canterbury Earthquake Heritage Buildings Fund Grant. This provides a higher level of protection than inclusion as a heritage item on the Christchurch District Plan. Whilst the District Plan schedules only the interior, there is no associated interior protection through regulation.

5.1.4 Recognition by Peers

The post-quake changes to the Knox Church have been identified as significant for their creative excellence, innovation and technical accomplishment in design and construction.

The Church's innovative design has received multiple awards.

- Knox Church (Presbyterian) was the Seismic Award winner at the Canterbury Heritage Awards in 2014, in recognition of the retention and restoration of the timber interior within a contrasting new exterior envelope.
- New Zealand Institute of Architects Incorporated national award in 2015 Canterbury Architecture Awards Winner.

5.1.5 Learning Outcomes

The recovery of the Knox Church has been the result of a highly collaborative and consultative process. It has included the church's community in all discussions and decision-making processes and has been guided by their visions for the future, as well as maintaining and building on their ties to the past.

The decision to rebuild the church in its current form was unanimously supported by the community, who now use and enjoy it. This approach has been key to the success of the project.

The project also demonstrates the importance of clearly identifying the significance of a place in all its aspects, and the significant elements that contribute to the overall heritage values of the place. Understanding and using these heritage values to guide decision-making in recovery has ensured that the recovery is not just focused on fabric, but also addresses key aspects of the church for the people who are associated with the place. Conservation of heritage fabric will in most instances support the maintenance of heritage values. However, some values are less reliant on fabric and need a more innovative approach to ensuring they are maintained. The new heritage listings recognise the importance of social and spiritual values as well as more tangible aspects of the heritage resource.

5.2 Ownership of the Results

As this was such a collaborative process, all stakeholders take some ownership of the recovery – the church congregation who drove it; the architect and engineer who developed the award winning design and the sensitive approach to incorporating seismic strengthening into the historic structure; the authorities (CCC and HNZPT) who worked with the team, providing heritage advice as required; and the building contractors who undertook the work.

5.3 Documenting the Recovery Programme

The emergency response, recovery and reconstruction have been very well documented in official documents, on the church website and in the media.

6. Additional Comments

Integrity

The surviving structural timber elements, interior timber finishes, fixtures, fittings and furnishings have been retained, conserved and reinstated; the external masonry (brick and stone) cladding and the stained glass windows have been lost.

Authenticity

The new work is clearly identifiable as new – the structural system and the materials used. The new stained glass window over the main entrance is of contemporary design. The new work responds to and respects the surviving original fabric and church design without replicating it. The original and new fabric work together to tell the story of both the church and the earthquake.

Meeting Seismic Requirements

The internal timber structure appears to have been reasonably earthquake resistant (flexible enough to move with the tremors), whereas the loadbearing unreinforced masonry walls were not. The new structure has been used to strengthen the surviving original structure and to provide an earthquake resilient building.

Impact on Values

The values associated with the structure being an example of early twentieth-century Gothic Revival ecclesiastical architecture have been impacted due to the loss of the external fabric. The spiritual, social and historical values of the place have been retained. The external form and the spatial and aesthetic qualities of the interior have been retained.

New Values

The new structure is an innovative piece of structural engineering that has been developed directly in response to the earthquake. It respects the original form of the church and has added a new layer to its story and its significance.

Future Heritage

The contemporary approach to the recovery of Knox Church and the elements that have been added in the recovery will most likely be recognised in the future as significant heritage arising from the Canterbury earthquakes.

7. Details of the Expert(s) Completing this Case Study

Catherine Forbes, architect with GML Heritage, Sydney, member of Australia ICOMOS, Convenor of Australia

ICOMOS and ICOMOS New Zealand Joint Working Group on Cultural Heritage Risk Preparedness, and expert member of ICOMOS-ICORP. Catherine undertook an independent review of the Post-Earthquake Recovery of Built Heritage in Christchurch in September 2016. It was based on field observations, interviews with those affected and those involved in the recovery – local community members, architects, engineers, staff of Christchurch City Council and Heritage New Zealand – and documentary research. Catherine is an independent observer rather than a participant in the recovery.

Bibliography

Aurecon, 2013. *Knox Presbyterian Church, 28 Bealey Avenue,* Structural Drawings, including construction details .

Burgess, Robyn, 2018. *New Zealand Heritage List/Rārangi Kōrero – Review Report for a Historic Place - Knox Church (Presbyterian), Christchurch (List No.3723, Category 2)*, Heritage New Zealand Pouhere Taonga: Christchurch, 5 November 2018.

Christchurch City Council, Knox Church photographic files, 2002–2015.

Christchurch City Council, 1995. Christchurch City Plan Listed Historic Building Place or Object – Record Form, Knox Presbyterian Church, 28 Bealey Avenue, Christchurch.

Christchurch City Council, 2014. Christchurch District Plan – Listed Heritage Place, Heritage Assessment – Statement of Significance, Heritage Item Number 53: Knox Church Interior, 28 Bealey Avenue, Christchurch.

Christchurch District Plan (Operative December 2017), Schedule of Significant Historic Heritage, Appendix 9.3.7.2. Heritage Item Number 53 – Knox Church Interior.

Dickson, Rev. John, 1899. *History of the Presbyterian Church of New Zealand*, Dunedin: J. Wilkie.

Fulton, Tim, 2014, 'Knox Church's rise offers 'vision of hope'', *The Press*, stuff.co.nz, 3 Sept 2014.

Harvey, Justine, 2015. 'Knox Presbyterian Church rebuild', in *Architecture Now*, Architecture New Zealand, July 2015 (Issue 4).

Knox Church, (nd). *Rising from the Rubble: Donate to the rebuild of Knox Church Christchurch,* brochure for building fund.

Knox Presbyterian Church, (2014). Rebuild Information: Rebuild News, http://www.knoxchurch.co.nz/rebuild.html [accessed 3 February 2019].

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010–January 2012 – Report for the Canterbury Earthquakes Royal Commission*, New Zealand Historic Places Trust Pouhere Taonga: Wellington, 8 March 2012, ENG.NZHPT.0004A.1

McDonald, Liz, 2018. 'Family donates window after earthquakes shatter original in Christchurch's Knox Church', The Press, stuff.co.nz, 22 June 2018

McEldowney, Elder Dennis, ed., 1990. *Presbyterians in Aotearoa New Zealand, 1840-1990*, Wellington: The Presbyterian Church of New Zealand.

Ohs, A, correspondence with C. Forbes, 8 November 2019.

Ohs, A. and Forbes, C., 2019. *Christchurch: Heritage Recovery from the Canterbury Earthquakes,* Global Recovery and Reconstruction Case Study for ICOMOS and ICCROM.

Powell Fenwick, 2013. Knox Presbyterian Church, Siteworks, Hydraulic and Mechanical Services Drawings.

Rawson, John, n.d. *The History of the Presbyterian Church of New Zealand, 1840-1940*, Christchurch: Presbyterian Bookroom, c.1940

Robson Garland Limited, 2012. *Application for Land Use Consent: Knox Presbyterian Church, 28 Bealey Avenue, Christchurch.*

Resource Consent Notification, 2012. *RMA92021031 Knox Presbyterian Church*, includes feedback from Urban Design Panel (30/1/2012) and heritage impact assessment by Neil Carrie (9/8/2012).

The Press, 2014. 'Organ music heard again at Knox Church', *The Press*, stuff.co.nz, 19 Dec. 2014

Willkie + Bruce Architects, 2013, *Knox Presbyterian Church Rebuild, 28 Bealey Avenue, Christchurch*, Architectural Drawings, including construction details.

MCKENZIE AND WILLIS BUILDING (FORMER A J WHITES), CHRISTCHURCH COMMERCIAL BUILDING FAÇADE AND SETTING

Catherine Forbes

TABLE OF CONTENTS

List of Illustrations

Acknowledgements

I wish to acknowledge and thank the following people for their input: Carole-Lynne Kerrigan (formerly with Opus, who oversaw the stabilisation work for the demolition) and Amanda Ohs and Fiona Wykes, Senior Heritage Advisors at Christchurch City Council.

1. The Heritage Resource and Its Context Before the Impacting Event(s)

1.1 Description, Designation and Recognition

1.1.1 General Description

The McKenzie and Willis Building was a three-storey early twentieth-century commercial building, located on a corner site at 179-181 High Street to 238 Tuam Street, in central Christchurch (fig. 1). It was one of a group of listed late Victorian and Edwardian commercial buildings that formed an historic commercial precinct along High Street (fig. 2).

1.1.2 Form, Function, Creation and Subsequent Transformations

Form

The façade of the building is an Edwardian interpretation of a more traditional classical commercial building. The façade is restrained in its detailing, but demonstrates a high level of craftsmanship, particularly in its stone veneer work and leaded windows. Tall stylised attached piers/columns rise up the face of the upper two floors of the building dividing it into regular bays, within which are set large windows. Broad bands of rough faced stone cladding, delineated by moulded string courses separate the floors vertically. Decorative elements include carved tops to the piers, moulded cornices and string courses, decorative brackets and applied motifs to the wall panels above and below the windows.

The building is notable for its generous use of glass, which lightens the façade and contributes to its early twentieth-century modern appearance. The windows at first floor level have square heads, whereas the second floor windows have segmental arched heads. All retain their original leaded highlight glazing. A curved oriel (bay) window delineates the splayed corner of the façade. Originally a suspended awning extended out over the public footpath, shading the large shop windows that faced onto the street. The building also had a heavy moulded cornice and decorative parapet, both of which had also been removed (figg. 3 and 4).

Function

The building was built as a retail showroom and offices for one of New Zealand's leading furniture manufacturers and retailers, A J Whites, in 1910–11, and was purchased by another leading furniture manufacturer, McKenzie and Willis, in 1980. The building

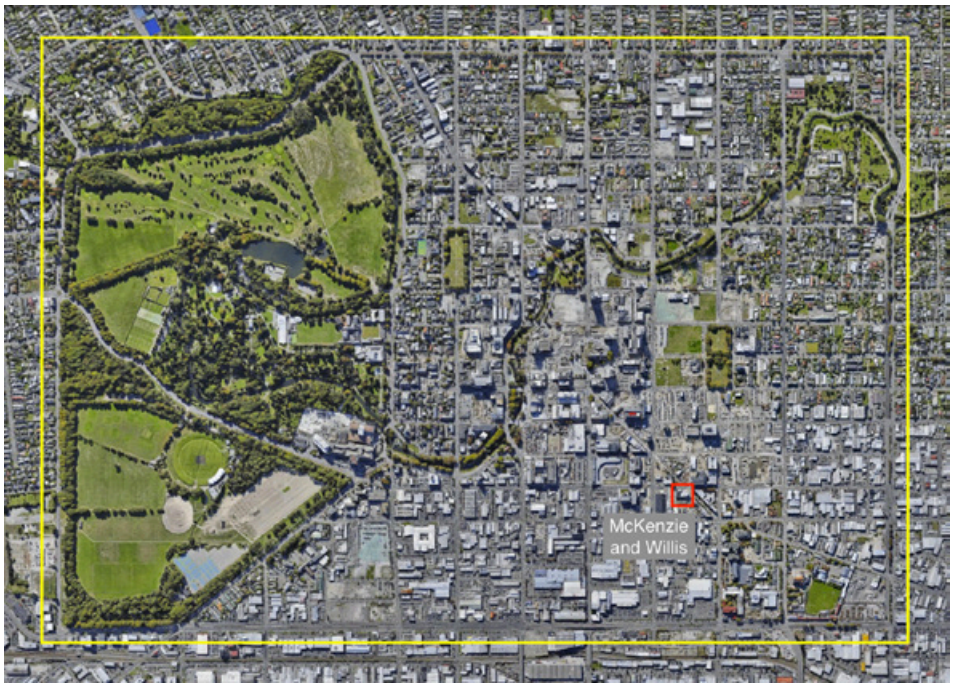


Fig. 1. Satellite image of central Christchurch showing location of McKenzie and Willis building, 2019 (Source: Google Earth, 16/12/2019, with overlay by C. Forbes)

Images, Clockwise from left:
Fig. 2. Aerial photograph showing the McKenzie and Willis building on the corner of High Street and Tuam Street, 2009. Historic buildings surround the High Street and Tuam Street triangular intersection and down along High Street to the southeast. (Source: Google Earth, 3 April 2009, with overlay by C. Forbes)
Fig. 3. A J Whites Ltd, corner of High Street and Tuam Street, showing original high balustraded parapet, c. early twentieth-century (Source: CCC image collection, n.d.)
Fig. 4. A J Whites store set among other late nineteenth and early twentieth-century commercial buildings. The earlier A J Whites store is on the right and the surviving building is on the corner. Billen's is on the left. The balustraded parapet has already been removed, 1986 (Source: Christchurch City Libraries, Christchurch Star, 4 September1986. https://discoverywall.nz/album/967/77411)

is prominently located within the principal shopping precinct of Christchurch and was still in use as a furniture showroom at the time of the earthquakes.

Creation

The building was designed by the England Brothers, well-known Christchurch architects of the early twentieth-century, and was built by T. Southworth and Co. (HNZPT Listing). The building was erected as an addition to an earlier A J Whites Store (located at 236 Tuam Street) and became one of a group of three buildings owned by the furniture manufacturer (fig. 3).

Construction

The building was of traditional unreinforced masonry construction with a corrugated iron roof, brick external walls, stone clad brick street façade, brick and timber internal walls, suspended timber floors and an on ground concrete slab at ground level.

Modifications

The interior of the building had been refurbished several times, with a cafe integrated into the building on the ground floor on the High Street frontage. The shop windows at street level were raised in height c.2004 and an application was made to alter the suspended awning. It is unknown whether any seismic strengthening had been undertaken. However, it is evident that the tall balustraded parapet and heavy cornice that originally graced the top of the façade were removed prior to 1986, most likely to reduce the risk of it falling during an earthquake (fig. 4).

Post-Earthquake Work

Opus International Consultants were the engineering and heritage consultants for the demolition works and façade stabilisation. The architects for the post-earthquake recovery were Dave Pearson Architects and the contractor for the building work was Shearer Milkin Consultants.

1.1.3 Official Designation or Inscription (pre-earthquake)

- The McKenzie & Willis building was registered as a Category 2 Historic Place on the New Zealand Historic Places Register maintained by the New Zealand Historic Places Trust (List No. 1909, Entered 1981).

The McKenzie and Willis Building, known as *Office Building 1910* to distinguish it from the older adjoining *A J Whites Department Store* (Former), was identified as being significant for its association with A J Whites, one of New Zealand's most important furniture manufacturers, and the England Brothers, who were one of the foremost architectural practices in Christchurch during the early twentieth-century. Together with the adjacent buildings, the store was identified as forming a noteworthy part of the cityscape and providing a continuous link to the history of furniture retailing in Christchurch.

- The McKenzie and Willis Building (former A J Whites) was listed as a Group 2 heritage item on the Christchurch City Plan 1995.

The Christchurch City Plan (1995) identified the McKenzie and Willis Building as being of historical significance for its association with A J Whites, one of New Zealand's longest established furniture manufacturing and retail firms.

Built in 1910–1911, the Christchurch City Plan (1995) also identified the building as being of architectural and technological significance for its design by noted Christchurch architects, the England Brothers. The listing noted key architectural features as including its masonry façade, with its brick and stone veneer detailing, large windows, segmental heads, leaded fanlights and corner bay. It noted the early use of a suspended veranda as significant. Internally, the listing noted the building's staircase and stamped steel ceilings.

The streetscape value of the McKenzie and Willis Building was also recognised. The group of three former A J Whites' buildings, which included the McKenzie and Willis building, were identified as making an important contribution to the inner-city streetscape of High and Tuam Streets, a significant precinct of Victorian and Edwardian commercial buildings. The McKenzie and Willis Building was identified as being of landmark significance due to its prominent location on the splayed corner of the High and Tuam Street intersection. Other associated historic buildings in the group surrounding the High Street Triangle (intersection) included the former Post Office, Edison Hall, the Rose and Heather and the 1878 A J White's building.

1.1.4 Scholarly Recognition

Christchurch City Council, Christchurch City Plan – Listed Heritage Item and Setting, Heritage Assessment – Statement of Significance, McKenzie & Willis/ Former A J Whites – 179 High Street – 2011

Christchurch City Council, District Plan – Listed Heritage Place – Heritage Item Number 1313 – Commercial Building Façade and Setting, Former A J Whites – 179, 181 High Street and 238 Tuam Street, Christchurch 2/12/2014

Heritage New Zealand Pouhere Taonga – New Zealand Heritage List – Review Report for a Historic Place – Commercial Building Façade, Christchurch (List No.1909, Category 2), 4 April 2019

Wilson, John, (2005, Revised 2013), *Contextual Historical Overview for Christchurch City*, Christchurch City Council, Christchurch.

Tau, Te Maire, and Anderson, Atholl, eds, 2008 *Ngai Tahu: A Migration History – The Carrington Text*, Bridget Williams Books Ltd, Wellington.

May, Jenny (n.d.) 'A J Whites Department Store Family', *High Street Stories* website, Heritage New Zealand, URL: http://www.highstreetstories.co.nz/stories/86-aj-whites-department-store-family [accessed 8 September 2019]

1.1.5 Popular Recognition

The building was a landmark building within the main commercial precinct of the city. The central city enjoyed its shopping heyday from 1900 to 1960, coinciding with peak reliance on a public transport system that radiated out from the city centre to the suburbs. Located on the main transport route into and out of the city, the former A J Whites (McKenzie and Willis) building was a principal drawcard for shoppers to the area. In more recent years the area had become a popular boutique shopping district, its historic character contributing to its revitalisation.

1.2 History and Context

1.2.1 History, Ownership and Environment

Alfred and Eliza White, hard-working English immigrants who arrived in New Zealand during the early colonial period, established a second-hand furniture business in Christchurch in 1863. A J Whites became one of New Zealand's longest established furniture manufacturing and retail firms. In 1870 the firm leased a two-storey timber building on the corner of High and Tuam Streets. By the late 1870s the business had prospered and A J Whites was able to build a three-storey brick and stone building on the adjoining site at 236 Tuam Street. In 1901, the company constructed another brick and stone building at 232 Tuam Street and then in 1910 they replaced the original two-storey timber building on the corner of High and Tuam Streets (181 High Street and 238 Tuam Street) with a three-storey stone faced building designed by the England Brothers.

A newspaper article dated 15 October 1910 described the new building and commented on its large plate-glass windows, which <<lent themselves to modern methods of display of goods, attracting attention from the public>> (Lyttelton Times 15 October 1910: 11). Newspaper advertisements of the day invited visitors to Christchurch to inspect their <<new showrooms and enormous stock of all the newest things relating to complete house furnishing…>> (Lyttelton Times 17 April 2011: 3).

Although Albert and Eliza White had both died by the time the building was completed in early 1911, A J Whites continued to trade from the site until the early 1980s, when another long-established furniture retailer, McKenzie and Willis, founded in 1906 by Joseph Willis and R. S. McKenzie, purchased the company. McKenzie and Willis refurbished the building and continued to trade from there until the Canterbury Earthquakes of 2010–11.

The building was of unreinforced masonry (URM) construction, typical of commercial buildings built in the city prior to 1930. Thus, it was highly vulnerable to earthquakes and listed as earthquake prone by Christchurch City Council (CCC) in 2009. It is unknown whether the building and/or its neighbours had been seismically upgraded (McClean 2012). As previously noted the original parapet and heavy cornice were probably removed to reduce the risk associated with it falling during an earthquake.

1.2.2 Social and Economic Setting

The importance of the High Street commercial precinct during the early twentieth-century to the 1960s had waned during the latter part of the century. However, in more recent years this part of the inner-city had been undergoing economic and social revitalisation, with High Street emerging as a centre for Christchurch's boutique and designer fashion businesses.

1.2.3 Frameworks, Agents and Communication

The legislative framework governing the protection of cultural heritage in Christchurch is described in the Christchurch Overview Case Study, but is summarised briefly here.

Under the Resource Management Act 1991 and within the framework of the Christchurch City Plan (later Christchurch District Plan), CCC must assess any proposal for works to a heritage building. Under the Building Act 2004, the council must also consider whether a building is earthquake prone and then issue a notification to the owner requiring them to upgrade the building in accordance with the National Building Standard (NBS). The council identified the McKenzie and Willis Building to be potentially earthquake prone in 2009.

Under the Historic Places Act 1993, the New Zealand Historic Places Trust (NZHPT) must assess and regulate any potential disturbance of archaeology on a site. This includes any above or below ground structures that predate 1900. Following the earthquakes, the Heritage New Zealand Pouhere Taonga Act 2014 replaced the previous Act and the authority became known as Heritage New Zealand Pouhere Taonga (HNZPT).

The property owner may seek advice from both the CCC and HNZ prior to making any formal submission/application to undertake works.

The key stakeholder responsible for conservation of the McKenzie and Willis Building prior to the earthquakes was the property owner, McKenzie and Willis Ltd. Since the earthquakes a new property owner, Richard Peebles, has taken on this responsibility. Following the earthquakes there has been considerable communication between the property owners, the CCC and HNZPT.

1.2.4 Bibliography of Documentation

Christchurch City Council, Heritage File, Former A J Whites Department Store – 179-181 High Street

Heritage New Zealand Pouhere Taonga File 12009-426, includes plans, correspondence and images relating to the building

John Wilson *et al.*, *Contextual historical overview for Christchurch City*, Christchurch City Council, Christchurch, 2005

Tau, Te Maire, and Anderson, Atholl, eds, 2008 *Ngai Tahu: A Migration History – The Carrington Text*, Bridget Williams Books Ltd, Wellington 2008

2. The Nature of the Impacting Event(s)

2.1 General Description

The Canterbury earthquake sequence 2010–2011 is described in the Christchurch overview case study. The earthquakes that had the greatest impact on the city are listed here.

- 4 September 2010 – M7.1 (epicentre 40km from Christchurch)
- 26 December 2010
- 22 February 2011 – M6.3 (most destructive to the city)
- 13 June 2011 – M6.4
- 23 December 2011 – M6.2

Earthquakes in New Zealand, including in the Christchurch region, are cyclical, but unpredictable. This particular series was stronger than previously experienced in the region and has been assessed as being a 1 in 500 year occurrence.

2.2 General Impact of the Earthquakes

The McKenzie and Willis Building was located within the central city Red Zone, which was closed to public access for more than two years.

The impact of the Canterbury Earthquakes on the McKenzie and Willis Building is summarised by HNZPT and CCC as follows, but the damage would have been cumulative:

- 4 September 2010 – minor damage (figg. 5 and 6)
- 26 December 2010 – minor damage
- 22 February 2011 – severe damage
- 13 June 2011 – severe damage
- 23 December 2011 – moderate damage

The historic commercial buildings in High Street were severely damaged by the earthquakes due to their

From left to right:
Fig. 5. McKenzie and Willis building post September 2010 earthquake (Source: Carole-Lynne Kerrigan, n.d.)
Fig. 6. McKenzie and Willis building post September 2010 earthquake (Source: Carole-Lynne Kerrigan, n.d.)

Fig. 7. The McKenzie and Willis Building following the February 2011 earthquake, showing collapse of the buildings to the rear and demolition of the surrounding commercial buildings, including the adjoining A J Whites Store to which the McKenzie and Willis building was added in 1909. The McKenzie and Willis building has been severely damaged (Source: Carole-Lynne Kerrigan, n.d.)

unreinforced masonry (URM) construction. The McKenzie and Willis Building shared party walls with neighbouring buildings, one of which collapsed during the February 2011 earthquake (former A J White building at 232 Tuam Street) (figg. 7 and 8) and another of which was destroyed by fire soon afterwards (Billen's Camping Building, 167–177 High Street).

Following the February 2011 earthquake, USAR engineers issued a Heritage Building *Make Safe* Report, advising that there had been collapse at the rear of the McKenzie and Willis Building and shoring was to be provided prior to reassessment of the structure. The western end of the street canopy also needed to be made safe (5/3/2011) (CCC Memorandum 2011). The owner's engineer, Opus, assessed the building as being unstable and unsafe to approach, although it was noted that the façade could potentially be retained (28/3/2011) (CCC Memorandum 2011).

Following the June 2011 earthquake, the owner applied for approval to demolish the building. Engineers for the Canterbury Earthquake Recovery Authority (CERA) undertook a Placarded Building Risk Assessment and reported severe damage to the west wall and rear of the building, as well as severe internal damage and cracks in the front façade. Considering the resulting loss of lateral support, demolition was recommended (28/7/2011) (CCC Memorandum 2011).

Due the building's heritage status and its significance to the streetscape, CCC did not support full demolition. In response to the demolition recommendation to CERA, the council's Heritage Response Team engineer, Andrew Marriott, inspected the building (2/8/2011) (CCC Memorandum 2011) and reported the damage as follows:

1. The building has severe damage to the South and West walls where the brick walls have fallen or are severely cracked.
2. The roof is largely unsupported on the South and West edges.
3. The façade has cracked and some stonework has been dislodged and fallen from the north elevation.

Marriott acknowledged that the building in general was too badly damaged to be retained, but recommended that the façade be retained, and that a temporary propping system be installed to support the façade whilst a permanent structure was designed and built to support it (CCC Memorandum 2011).

Fig. 8. The unreinforced masonry structures to the rear of the McKenzie and Willis facade have collapsed (Source: Carole-Lynne Kerrigan, n.d.)

2.3 Impact on the Significance and Values of the Resource

Although there was substantial damage to the McKenzie and Willis Building, the building's most important attribute, its façade fronting onto Tuam and High Streets, had survived substantially intact. The façade was one of very few historic facades to survive in the High Street heritage precinct. It continued to hold its prominence on the corner of High and Tuam Streets, standing as a reminder of the historic commercial streetscape that had just been destroyed.

Although the A J Whites group of buildings had been lost, the façade remained as tangible evidence of the company's long association with the site and their important contribution to Christchurch's commercial life and its central retail district. Since the earthquakes, McKenzie and Willis have continued to operate in Christchurch, but have had to relocate several times. They do not currently have a store in the city centre.

2.4 Emergency Works, 2011

The adjoining building at 232 Tuam Street (one of the A J White building group) was demolished in March 2011 following the February earthquake (fig. 7).

As the council did not support full demolition of the McKenzie and Willis Building, they sought to promote a solution that would retain the façade. In 2011, the High Street Precinct Group proposed two options for retention of the McKenzie and Willis façade. One option was to fully deconstruct the façade, salvaging and storing the stone blocks and windows (Kerrigan 2019) for future reinstatement on the front of a new building (estimated cost NZ$980,000). The second option was for *in situ* stabilisation, repair and strengthening of the façade to 100 per cent of NBS. A new building could be built up to it and attached to the back of the façade (estimated cost NZ$540,000). The first option allowed full site access to construct a new building. The second option reduced access for construction work, but enabled the façade to maintain its integrity and historic character. Council's engineer favoured the second option and recommended temporary support for the façade (using strong-backs along the building façade braced off shipping containers located in the street) to make it safe and to allow the remainder of the building to be demolished (CCC Memorandum 2011).

The façade was temporarily stabilised and the severely damaged northwest corner of the façade was deconstructed, with the material stored for future restoration. The western end of the street awning was

also removed. NZHPT undertook a photographic survey of the building (Heritage Building 'Make Safe' Report, 5/3/2011).

2.5 Documentation and Narratives

2.5.1 Documentation

Documentation included multiple damage assessments and reports by various engineers and agencies, and photographic recording was undertaken by NZHPT.

CERA, Heritage Building 'Make Safe' Report to National Controller from the Director of Operations, 5/3/2011.

Christchurch City Council Memorandum: Heritage Building Treatment Report – 179 and 181 High Street/238 Tuam Street, 3/8/2011.

Christchurch City Council, Heritage File, Former A J Whites Department Store – 179–181 High Street – includes plans, reports, correspondence.

Heritage New Zealand Pouhere Taonga, File 12009-426 – includes plans, correspondence and images relating to the building.

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010–January 2012 – Report for the Canterbury Earthquakes Royal Commission*, New Zealand Historic Places Trust Pouhere Taonga: Wellington, 8 March 2012, ENG. NZHPT.0004A.1.

Heritage New Zealand Pouhere Taonga – New Zealand Heritage List – Review Report for a Historic Place – Commercial Building Façade, Christchurch (List No.1909, Category 2).

2.5.2 Narratives

In 2012 the Christchurch High Street Precinct Project was launched by NZHPT (later known as HNZPT) to collect stories, photographs and other memorabilia from the public to build a record of what had been lost and maintain the memories for the future. This project included a Facebook page, https://www.facebook.com/Highstreetprecinctproject/

Over 90 stories have been gathered and made available to the public through the HNZPT *High Street Stories* website. Stories include *A J Whites Department Store* *Family* and *Billen's and Son Camping Store.* See http://www.highstreetstories.co.nz/themes/architectural-heritage

3. Post-Event Appraisals

3.1 Impact Assessment

CCC assessed the heritage impacts of the proposed building demolition and recovery options when challenging the recommendation for full demolition proposed by CERA in 2011 (CCC Memorandum 2011).

The council acknowledged that full recovery of the building was not viable. However, it also recognised that, whilst demolition of the severely damaged buildings would result in loss of heritage fabric and some cultural heritage values, the retention of the building's façade, the building's most important attribute, would maintain the historical, architectural, aesthetic, streetscape and social values of the place for the future (Refer also to discussion in section 5.1.3). Interpretation of what had been lost could be undertaken both on and off site to maintain the memories of the place as it had been.

CCC assessed the proposed demolition of the McKenzie and Willis façade as a great loss to the High Street precinct, particularly in the light of other heritage losses that had already occurred in the area and around the city. The cumulative effect of lost heritage in the CBD and specifically in the High Street precinct was of great concern to council as it eroded the character and heritage value of the area.

Of the two façade recovery options proposed in 2011 (described in section 2.4 of this case study), the option of retaining the façade *in situ* was preferred and adopted. This option, which involved *in situ* repair and strengthening of the façade, but demolition of the buildings behind, was not only the cheaper option, but also the option assessed to have the least heritage impact. Although strengthening of the façade would have some impact on the original fabric, the façade's retention *in situ* would maintain a higher degree of integrity than full disassembly and reassembly (the alternative option) and retain the structure's historic character.

If the McKenzie and Willis Building was to be demolished, the streetscape, visual amenity and character of the CBD would be poorer (CCC Memorandum 2011).

3.2 Post-Earthquake Documentation

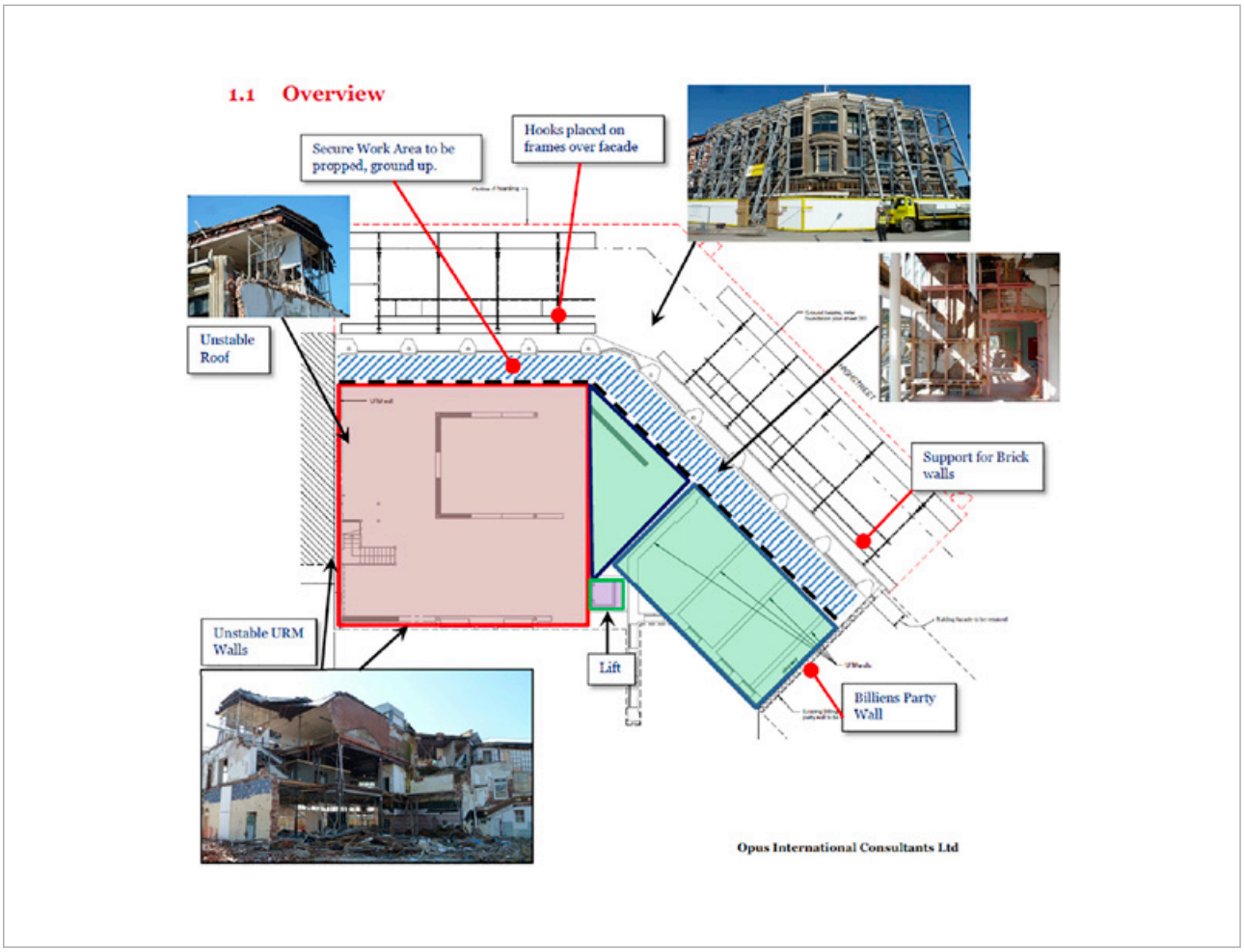
Following the emergency work undertaken in 2011, much more detailed condition assessments were undertaken and methodologies developed for the recovery of the building's façade.

In 2012, Opus International Consultants Ltd prepared a detailed demolition methodology, which involved more extensive securing of the façade, propping of the internal structure to establish a safe work area behind the façade, then staged a careful deconstruction of the buildings behind, followed by installation of walers to the back of the façade. The adjoining Billen's building was to be demolished as part of this process (Opus 2012) (figg. 9, 10, 11, 12 and 13).

In 2013, Goldfield Stone Ltd undertook a detailed condition survey, including a photographic survey of the façade stonework, and prepared a schedule of remedial works. These works included insertion of threaded steel rods into the structure to tie it together and strengthen it, repair and/or replacement of damaged stones (including carved elements), restoration of the northwest corner of the façade, grouting and repointing (Goldfield 2013).

Copies of this documentation are held by CCC and HNZPT.

Fig. 9. Diagram showing Opus methodology for façade stabilisation and staged demolition of the buildings to the rear (Source: Opus International, 2012)



Images, Clockwise from top left:
Fig. 10. Front façade has been stabilised to allow demolition of the building behind (Source: M Vair-Piova, CCC, 5 December 2015)
Fig. 11. Steel framework supporting façade in preparation for demolition work (Source: Andrea McHarg, HNZPT, 10 January 2013)
Fig. 12. Demolition of the building to the rear of the McKenzie and Willis facade (Source: Mike Vincent, HNZPT, 23 September 2015)
Fig. 13. Stabilised façade during demolition works (Source: Mike Vincent, HNZPT, 23/9/2015)

3.3 Challenges for Recovery

Challenges for recovery were associated with risk perception and resolving difficult financial and technical issues.

In New Zealand, URM buildings are considered to be earthquake prone and thus present a high risk to the public. In the wake of the Canterbury Earthquakes, large numbers of these buildings were condemned by Civil Defence (CD) and then the Canterbury Earthquake Recovery Authority (CERA). A more detailed discussion is included in the Christchurch Overview Case Study. The McKenzie and Willis Building was issued with a red sticker and there was a risk that it would be demolished as many other heritage buildings had been following the Canterbury Earthquakes.

In June 2011 the owners of the McKenzie Willis building applied to demolish the building. They were unwilling to retain the façade for financial reasons but conceded they would consider façade retention if the cost of doing so was 100 per cent funded by a third party. Council strongly recommended that the building owners apply to the Canterbury Earthquake Heritage Buildings Fund for a grant (CCC Memorandum 2011).

Although McKenzie and Willis applied and were approved for generous grant funding, they did not to follow through with the recovery. In 2014 the company sold the property to a local property investor, Richard Peebles, who committed to incorporating the façade into a new development on the site. News articles reported positively on the commitment of both property owners to the place's recovery and the difference it would make to the recovery of High Street (Durning 2014). Bill Willis stated <<This building is special to us and holds many memories for our customers and staff. Richard Peebles has an understanding of and empathy for heritage in Christchurch and we're delighted that he's developed plans for a building that saves and incorporates the façade. Any new development would require the skills and expertise of an experienced developer and the opportunity to work with Richard and save the façade presented as the very best option>>. Peebles said <<There has been very little retention and restoration of historic buildings in the rebuild and we felt it is important to attempt to retain this particular McKenzie & Willis façade>> (McKenzie and Willis 2015).

Due to the precarious state of the building and the extremely poor condition of its neighbours with which it shared structural walls, there were many technical challenges for the project. Deconstruction of the buildings had to be carried out with great care to ensure no further damage to the historic façade. In addition, strengthening of the façade to achieve 100 per cent of the NBS needed to be undertaken in a way that minimised further loss of the original building fabric.

3.4 Response and Recovery Programme

The former McKenzie and Willis façade has been fully restored and integrated into a new commercial development on the site. The response and recovery programme, as undertaken, is summarised in Table 1.

The programme responded firstly to the immediate emergency situation associated with the imminent collapse/demolition of the building. As with many sites across Christchurch, this required balancing the findings and recommendations of multiple engineers and heritage experts, and involved CERA, CCC and HNZPT in negotiating a way forward.

Once an approach was agreed upon, funding and a willing developer were needed for the recovery. This caused some delay in the demolition, strengthening and recovery phases. Considering the complexity and scale of the disaster, however, this time frame was reasonable. The design and implementation of the recovery works were undertaken by specialist heritage architects, engineers and building contractors. Prior to commencement, approvals for the works were sought from CCC and HNZPT.

Outline Response and Recovery Programme:

February–March 2011	Severe earthquake damage – rapid assessments by USAR and owner's engineers (Opus)
June–July 2011	Severe earthquake damage – rapid assessment by CERA engineer Red Card issued and recommendation for demolition
August 2011	Inspection by council engineer and High Street Precinct Group engineers, who challenged the proposed demolition with CERA Recommendation for façade retention
2011	Photographic recording by NZHPT Building made safe – demolition of adjoining property, emergency stabilisation of façade and safety barriers placed to secure site
2012	Funding sought for façade retention from Canterbury Earthquake Heritage Buildings Fund and CCC (Heritage Incentive Grant) Opus prepared detailed demolition methodology, which included securing the façade
2013	Façade secured, partial demolition Goldfield Stone prepare a detailed condition report on the façade and schedule of repairs for repairs to and strengthening of the stonework
2014	Property sold to Peebles
2015	Demolition completed
Mid 2016	Relevant applications submitted to CCC and HNZPT for approval (consent granted 6/7/2016)
2016–17	Façade strengthened and restored and new development constructed behind the façade Opened early 2017

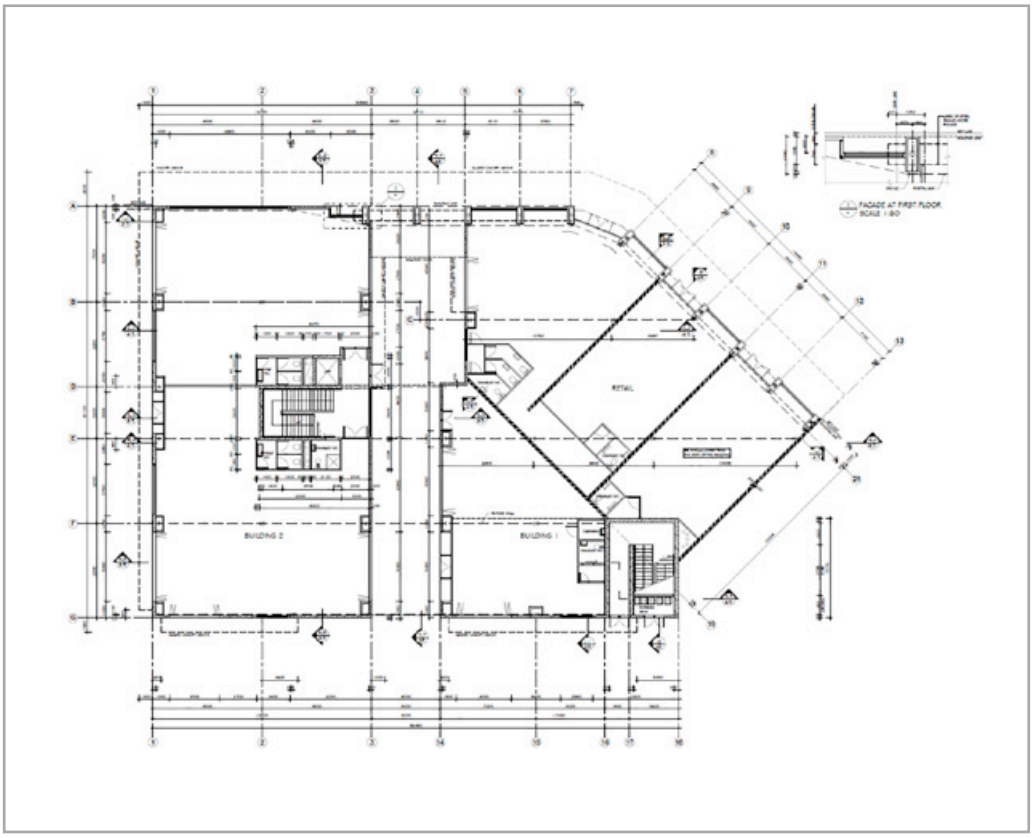


Fig. 14. Ground floor plan, showing layout of the new building behind the historic façade, drawn by Shear Milkin Consultants, Engineers and Architecture, 5 January 2015 (Source: CCC files)

3.5 Values and Sustainability

The High Street commercial precinct was severely affected by the earthquakes and subsequent building demolitions that took place in the period immediately following the earthquakes. Historic commercial buildings were amongst the most affected building typology in Christchurch's city centre. Although it was not viable to repair the McKenzie and Willis Building, the façade stood as a rare survivor and still retained its architectural and aesthetic qualities and its prominence in the High Street streetscape. The façade provided one of the few tangible reminders of what had historically been a popular and well frequented historic shopping district. The building's importance to the local community seemed to increase following the earthquakes.

The recovery of the McKenzie and Willis Building façade, due to its prominent location and strong early twentieth-century architectural character within the High Street precinct, has been seen as a key ingredient to the recovery of the commercial and social life of the precinct. Thus, its retention has been a high priority for CCC, the High Street Precinct Group and the local business community. It has also been strongly supported by the local community. It was important that an active, commercial and sustainable use be found for the site to ensure its future.

3.6 Drivers, Agents and Governance

In a disaster situation, under section 85 of the Civil Defence and Emergency Management Act 2002 (CDEM 2002), Civil Defence directors have the power to facilitate the <<removal or disposing of, or securing or otherwise making safe, dangerous structures and materials wherever they may be>> (McClean 2012). Demolition consent is not required from other authorities, even for heritage listed buildings. Under the Canterbury Earthquake Recovery Act 2011, this power passed to the Canterbury Earthquake Recovery Authority (CERA). Following the earthquakes, many heritage-listed buildings were demolished under this legislation. The McKenzie and Willis Building was identified for demolition by CERA engineers following the earthquake on 13 June 2011.

Buildings to be retained had to be made safe and then upgraded in accordance with the National Building Standard (NBS). In the case of URM heritage buildings, such as the McKenzie and Willis Building, upgrading to the NBS is an expensive process with potentially major adverse impacts on heritage values and significant fabric. For the McKenzie and Willis company, the cost of the work was one of the biggest barriers to retaining and strengthening the façade in the redevelopment of the site (CCC Memorandum 2011).

For CCC and the local High Street Precinct Group, retention of the McKenzie and Willis façade was considered extremely important to recovery of the city's principal retail and commercial district and recovery of the heritage character of the High Street precinct. Finding a viable option that would enable retention of the façade as part of any new retail or commercial development on the site was a high priority (CCC Memorandum 2011).

CCC worked with the High Street Precinct Group, and McKenzie and Willis and their consultants to find a viable cost effective solution. CCC also provided a Heritage Incentive Grant to cover 40 per cent of the cost of the façade work. Additional funding was obtained through private donations and the Canterbury Earthquake Heritage Buildings Fund. This fund was available to property owners as an incentive to encourage heritage retention by bridging the gap between repair costs and insurance cover.

Approval for both the strengthening works to the façade and the new development on the site was sought from CCC under the Building Act and Resource Management Act, with heritage impacts assessed under the Christchurch District Plan. Impacts on the archaeology of the site were assessed and work approved by HNZPT (fig. 15).

4. Documenting Response Actions, Timeframes, Resources and Costs

4.1 Actual Implementation and Timescales for the Recovery Programme

The work was generally undertaken as planned. However, it was not until 2015, after funding and a willing property investor (new owner) had been found, that the badly damaged rear of the McKenzie and Willis Building was completely demolished. Restoration and strengthening of the façade were completed in 2016 (fig. 15) (HNZPT 2019) and the new development, which fully incorporated the façade into its design, was completed and opened to the public in early 2017.

Fig. 15. Restored façade with construction of new building occurring behind. The steel braces supporting are clearly visible through the windows (Source: C. Forbes, 13 September 2016)

Images, Clockwise from top right:
Fig. 16. The McKenzie and Willis façade as part of the new commercial development, view looking southeast along High Street. (Source: A. Ohs, 21 November 2019)
Fig. 17. The McKenzie and Willis façade as part of the new commercial development, view looking west along Tuam Street. The building on the right has replaced the former 1878 A J White building. The building on the left replaces the Billen's building (Source: A. Ohs, 21 November 2019)
Fig. 18. The stabilised façade from inside the development (Source: A. Ohs, 21 November 2019)

Standard conditions applied to the work, including engagement of a conservation architect, photographic recording, archaeological investigations and monitoring, retention of as much original fabric as possible, retention of foundation stones and time capsules (if found), documentation of any fabric salvaged and removed from site, and onsite interpretation of the site's history. In addition, normal practice would include full documentation of the works in progress, including records relating to decision-making.

The new development included construction of three new buildings that accommodated shops, cafes and offices, connected by a network of laneways. These were set behind the original England Brothers' masonry façade, with access to the new facilities created through the façade at street level. A new steel frame was used to connect the fully restored façade to the new buildings (figg. 16, 17 and 18).

4.2 Resources and Costs of Implementation

Due to the scale of the disaster, Christchurch suffered severe shortages of experienced heritage architects and engineers, as well as skilled tradespeople with specialist heritage experience. In the case of the McKenzie and Willis Building, Opus were able to provide the required technical expertise to develop an appropriate demolition methodology that prioritised the stability of the heritage façade; and to design strengthening solutions that were unobtrusive and enabled the retention and conservation of as much of the original fabric as possible. The stonemasons were skilled and able to undertake the repairs to the stonework using appropriate materials and methods. All works were undertaken by professionals to a professional standard.

The façade was restored and strengthened with the assistance of a major donation from Fletcher Building through the Canterbury Earthquake Heritage Buildings Fund, with further significant contributions from that fund (total NZ$1,000,000) and a Heritage Incentive Grant of NZ$240,000 from CCC.

Two heritage covenants have consequently been placed on the site (HNZPT 2019):

- One covenant is with Heritage New Zealand Pouhere Taonga, dated 25 February 2016, covering the protection of the retained historic façade only (as at 22 November 2018, this had not yet been registered against Certificate of Title).

Fig. 19. The new glass awning over the footpath and new shop fronts (Source: A. Ohs, 21 November 2019)

- The other full heritage covenant is with the Christchurch City Council (registered on the Certificate of Title 726816 affecting the part formerly Lot 4 DP 17526 10326098.1, 4.2.2016) and relates to funding to restore, maintain, not demolish and conserve the façade.

5. Documenting the Outcomes and Effects

5.1 Assessment of the Outcomes with Regard to the Recovery of the Heritage Resource

5.1.1 Outcomes

The new development has been extremely successful in achieving the primary goals of all parties – owners, heritage authorities, local businesses and the local community.

The historic façade has been conserved and strengthened to resist future earthquakes (100 per cent of NBS) and it remains a prominent element in the High Street streetscape. Although McKenzie and Willis no longer occupy the site, retail activities have been reinstated through the new development built behind the historic façade, and the large shop display windows, which were a notable feature of the building when it was first opened, are again in use (although replaced with 2017 models) attracting the attention of passing shoppers (fig. 17).

The stone veneer and leadlight windows have been fully restored. However, the main cornice and balustraded parapet above and the suspended awning over the footpath have not been reconstructed. A new cantilevered glass awning has been constructed to allow more light into the shops (figg. 18, 19 and 20).

5.1.2 Sustainability

The façade's retention as a celebrated feature of the new development demonstrates the value placed on the heritage façade by the owners, donors (private, public and governmental) and the authorities, and their commitment to the recovery of the city's architectural heritage.

Fig. 20. Detail of steel support structure behind the façade (Source: A. Ohs, 21 November 2019)

The new development with its complex of laneways, shops, eateries and offices has contributed greatly to the commercial and social revitalisation of the area. The successful redevelopment of the site has also inspired some investment in the recovery and redevelopment of other abandoned and/or severely earthquake damaged heritage buildings and/or façades within the precinct. The remnant early twentieth-century brick façade at 201 High Street is one example.

In 2017 the owners received a Christchurch Civic Trust award for the restoration project, recognising that <<they had overcome obstacles in a courageous project to retain the façade and streetscape, giving a boost to the area>> (McDonald 2017).

5.1.3 Cultural Heritage Values

From the street, the former McKenzie and Willis façade looks much the same as it did before the earthquakes and, despite the loss of the building behind, it retains most of its heritage values – aesthetic, architectural, historical and social. It has also gained new recognition as a consequence of the earthquakes.

The façade, which retains its original fabric, architectural and aesthetic qualities, continues to form a noteworthy part of the Christchurch cityscape, particularly on High Street where it is a key contributor to the precinct's architectural character in the recovery.

The façade's survival from the Canterbury earthquakes at a time when many heritage buildings, particularly commercial buildings, were destroyed, has been much celebrated by the local community. The façade provides tangible evidence of what has been lost and a sense of continuity with the past, including memories of shopping on the High Street.

Although facadism is not usually supported by heritage professionals, in this case, where the building as a whole could not be saved, saving the façade has been critical to conserving the heritage values of the place. Since the earthquake and the widespread loss of heritage in the CBD, façade retention is now considered a more favourable alternative to the complete loss of heritage and the specific historical character of the CBD.

Only a small handful of facades have been saved in central Christchurch. New development in the city centre has not generally attempted to replicate the character of the buildings that were lost. Nor has it endeavoured to recreate the rhythms of the small lot development that was part of the city's grain. It has, however, maintained the vertical scale of the streetscapes. The new western addition to the McKenzie and Willis Building, located on the site of the former 1878 A J Whites building that was lost, does not reflect the design or character of the late nineteenth-century building it replaces. It is totally contemporary in design. But it is consistent in scale with the surviving McKenzie and Willis façade (fig. 16). The replacement of the adjoining Billen building to the east, however, has employed a brick materiality and façade rhythm that does to some extent interpret the lost building (fig. 17) (Refer also to Christchurch Case Study (Ohs and Forbes, 2020) for further discussion).

Fig. 21. Historic photographs displayed on a wall inside the new building show what the place was like prior to the earthquakes (Source: A. Ohs, 21 November 2019)

Figure 21 shows a display of historic images of the former A J Whites and McKenzie and Willis stores, as well as the historic streetscape that has been lost.

5.1.4 Changes to Heritage Designation

Since the earthquakes, the listing of the property on both the Christchurch District Plan and the New Zealand Heritage List has been revised to include the façade only. The following are the revised summary statements of significance.

- *New Zealand Heritage List. Commercial Building Façade, 181 High Street and Tuam Street, Christchurch (Listing 1909), reviewed April 2019*

<<The Commercial Building Façade has significance as a central city commercial heritage survivor following the dramatic total loss of many of Canterbury's historic buildings due to the 2010–11 Canterbury Earthquakes. It has aesthetic, architectural, historical and social significance or value and provides a noteworthy streetscape presence. It demonstrates a solution that allowed the retention and strengthening of the street frontage following severe quake damage to the building and has been celebrated by the community for this. It is considered to meet the threshold for entry on the New Zealand Heritage List as a Category 2 historic place>> (HNZPT 2019).

- *Christchurch District Plan, 2016 – Commercial Building Façade and Setting, Former A J Whites – 179, 181 High Street And 238 Tuam Street, Christchurch*

<<The façade of the former A J Whites building and its setting are of overall significance to Christchurch including Banks Peninsula as a significant Edwardian retail department store in the lower end of High Street. It has historical and social significance due to its association with two of Christchurch's leading furniture retailers – A J Whites and McKenzie and Willis. The façade of the former A J Whites building at 179 High Street has cultural significance as a reminder of the site's continuous use by noted furniture retailers since it was built in 1911.

It also has cultural significance as a tangible reminder of the large retail department stores that once formed a significant part of lower High Street. The façade of 179 High Street has architectural and aesthetic significance for its Edwardian Classical design by the well-known local architectural firm the England Brothers. The façade of the former A J Whites building has technological and craftsmanship significance for its demonstration of early 20th century methods of construction, more particularly the use of a stone veneer, including carved decorative reliefs. It has high contextual significance due to its landmark position on a splayed corner site created by the insertion of the High Street diagonal into the grid

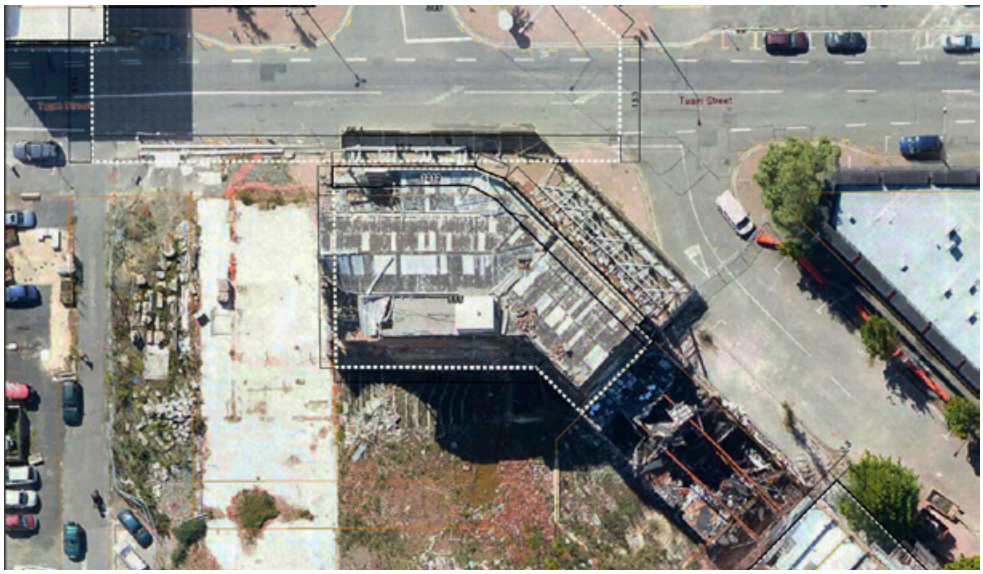


Fig. 22. Site plan showing extent of heritage listing under the Christchurch District Plan 2016 (Source: CCC 2016)

street plan of Christchurch and as part of the remains of a broader precinct of listed late Victorian and Edwardian commercial buildings that run along High Street. The façade at 179 High Street is of archaeological significance because it has the potential to provide archaeological evidence relating to past building construction methods and materials, and human activity on the site, including that which occurred prior to 1900>> (CCC 2016).

Figure 22 shows the new boundaries of the heritage item and its setting.

5.2 Ownership of the Results

The successful recovery of the McKenzie and Willis commercial façade is the result of many parties working together to achieve a viable and heritage-sensitive outcome – owners (past and present), CCC Heritage Response Team, donors, consultants and tradespeople. Therefore, all stakeholders take some ownership of the place's recovery and success.

5.2.1 Documenting the Recovery Programme

The emergency response, recovery and reconstruction are well documented in official documentation held by CERA (now transferred to Land Information New Zealand (LINZ)), CCC and HNZPT. This is available through each of the organisations and has been used in preparing this case study. More detailed documentation undertaken during the works is held by the property owner and consultants working on the project. As the work is complete, it is recommended that key documents, such as photographic recordings, schedules of work, detailed drawings and site notes be deposited in a central archive for future reference.

6. Additional Comments

Integrity

The surviving façade has a moderate degree of integrity, but as a remnant of the formerly complete McKenzie and Willis Building, it has a low degree of integrity. The two upper floors retain a high level of the original fabric, but at street level much has been replaced (structure, windows and cladding). The original parapet, heavily moulded cornice and suspended awning have not been replaced. Modifications have been made to the façade structure to strengthen it (steel pins and ties inserted to tie the masonry together and to the new structure behind). Repairs have been carried out to replace earthquake damaged stonework. The building behind the façade has been demolished and replaced with a totally new building.

Authenticity

The façade has a moderate to high level of authenticity as it is the original façade that has been repaired *in situ*.

The new building behind the façade, street front shop windows and street awning are clearly identifiable as new. The top of the parapet is also identifiable as new on closer inspection. For the stone façade and windows, new work has generally copied the original and is not obvious but would probably be identifiable on close inspection.

Meeting Seismic Requirements

The façade has been strengthened to meet 100 per cent of the NBS. This has involved insertion of steel pins and ties within the façade, grouting of cavities and addition of a new steel support structure behind to support it.

Impact on Values

Despite the loss of original fabric and the modifications to upgrade and adapt the façade to the new development behind, the structure retains most of its heritage values – historical, aesthetic, architectural, streetscape and social.

New Values

The façade is a rare survivor of an early twentieth-century commercial façade within the High Street commercial precinct and in Christchurch city centre. Its value to the community has increased since the earthquakes. It is a reminder of times past and its retention, conservation, strengthening and adaptation as the front to the new commercial development has been celebrated by the community.

Future Heritage

Despite its loss of integrity, and although facadism is not generally encouraged, the approach taken within the context of the cumulative loss of heritage in the Christchurch CBD as a consequence of the earthquakes is considered acceptable, and even desirable. It is recognised that retention of the façade only may be, as in this particular case, the only viable option for saving urban heritage of this type.

7. Details of the Expert(s) Completing this Case Study

Catherine Forbes, architect with GML Heritage, member of Australia ICOMOS, Convenor of Australia ICOMOS and ICOMOS New Zealand Joint Working Group on Cultural Heritage Risk Preparedness, and expert member of ICOMOS-ICORP. Catherine undertook an independent review of the Post-Earthquake Recovery of Built Heritage in Christchurch in September 2016. It was based on field observations, interviews with those affected and those involved in the recovery – local community members, architects, engineers, staff of CCC and HNZPT – and documentary research. Catherine is an independent observer rather than a participant in the recovery.

Bibliography

Canterbury Earthquake Heritage Buildings Fund, Heritage New Zealand Southern Regional Office, http://www.savecanterburyheritage.org.nz/ [accessed 27/1/2020].

CERA, 2011. Heritage Building 'Make Safe' Report to National Controller from the Director of Operations, 5 March 2011.

Christchurch City Council, 1995. *Christchurch City Plan – Listed Heritage Item and Setting, Heritage Assessment – Statement of Significance, McKenzie & Willis/Former A J Whites – 179 High Street*.

Christchurch City Council, 2011. *Memorandum: Heritage Building Treatment Report – 179 and 181 High Street/238 Tuam Street*, 3 August 2011.

Christchurch City Council, Heritage File, Former A J White Department Store – 179–181 High Street – includes plans, reports, correspondence.

Christchurch City Council, 2016. *Christchurch District Plan – Listed Heritage Place – Heritage Item Number 1313 – Commercial Building Façade and Setting, Former A J Whites – 179, 181 High Street and 238 Tuam Street*, Christchurch 2 December 2014.

Durning PR, 2014. Press Release: 'McKenzie and Willis façade in Christchurch to be Preserved', Scoop News, 11 December 2014. https://www.scoop.co.nz/stories/AK1412/S00313/mckenzie-and-willis-facade-in-christchurch-to-be-preserved.htm [accessed18 September 2019].

Goldfield, 2013. McKenzie and Willis Stonework Repairs, based on technical specification provided, 5 March 2013.

Heritage New Zealand Pouhere Taonga, *Christchurch High Street Precinct Project,* Facebook page launched 2012, https://www.facebook.com/Highstreetprecinctproject/ [accessed 27 September 2019].

Heritage New Zealand Pouhere Taonga, 179 High Street and 238 Tuam Street File 12009-426 – includes plans, correspondence and images relating to the building.

Heritage New Zealand Pouhere Taonga, *High Street Stories* website. Stories include *A J White's Department Store Family* and *Billen's and Son Camping Store.* See http://www.highstreetstories.co.nz/themes/architectural-heritage [accessed 9 September 2019].

Heritage New Zealand Pouhere Taonga (2019) *New Zealand Heritage List – Review Report for a Historic Place – Commercial Building Façade, Christchurch (List No.1909, Category 2)*, 4 April 2019.

Kerrigan, Carole-Lynne, formerly of Opus, in correspondence with the author, 15 September 2019.

May, Jenny, n.d.. 'A J White's Department Store Family', *High Street Stories* website, Heritage New Zealand, URL: http://www.highstreetstories.co.nz/stories/86-aj-whites-department-store-family [accessed 8 September 2019].

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010–January 2012 – Report for the Canterbury Earthquakes Royal Commission*, New Zealand Historic Places Trust Pouhere Taonga: Wellington, 8 March 2012, ENG.NZHPT.0004A.1.

McDonald, Liz, 2017. 'Civic Trust awards recognise Christchurch rebuild', *Stuff*, 29 September 2017. https://www.stuff.co.nz/the-press/news/97296564/civic-trust-awards-recognise-christchurch-rebuild.

McKenzie and Willis, 2015. 'Historic McKenzie & Willis Façade to be Preserved in Design Build', McKenzie + Willis Interiors, McW News, 18/6/2015. McKenzie and Willis https://www.mckenzieandwillis.co.nz/historic-mckenzie-willis-facade-to-be-preserved-in-design-build/ [accessed 19 September 2019].

Ohs, A. and Forbes, C., 2020. Christchurch: Heritage Recovery from the Canterbury Earthquakes, Case Study prepared for ICOMOS and ICCROM Global Recovery and Reconstruction Case Study Project.

Opus International Pty Ltd, 2012. McKenzie and Willis Demolition Methodology, Final 7 November 2012.

Tau, Te Maire, and Anderson, Atholl, eds., 2008. *Ngai Tahu: A Migration History – The Carrington Text*, Bridget Williams Books Ltd, Wellington.

Wilson, John, 2005. (Revised 2013).White *Contextual Historical Overview for Christchurch City*, Christchurch City Council, Christchurch.

NEW REGENT STREET, CHRISTCHURCH

Fiona Wykes and Catherine Forbes

TABLE OF CONTENTS

List of Illustrations

Acknowledgements

We wish to acknowledge and thank Brendan Smyth, team leader Heritage at Christchurch City Council for his input and peer review.

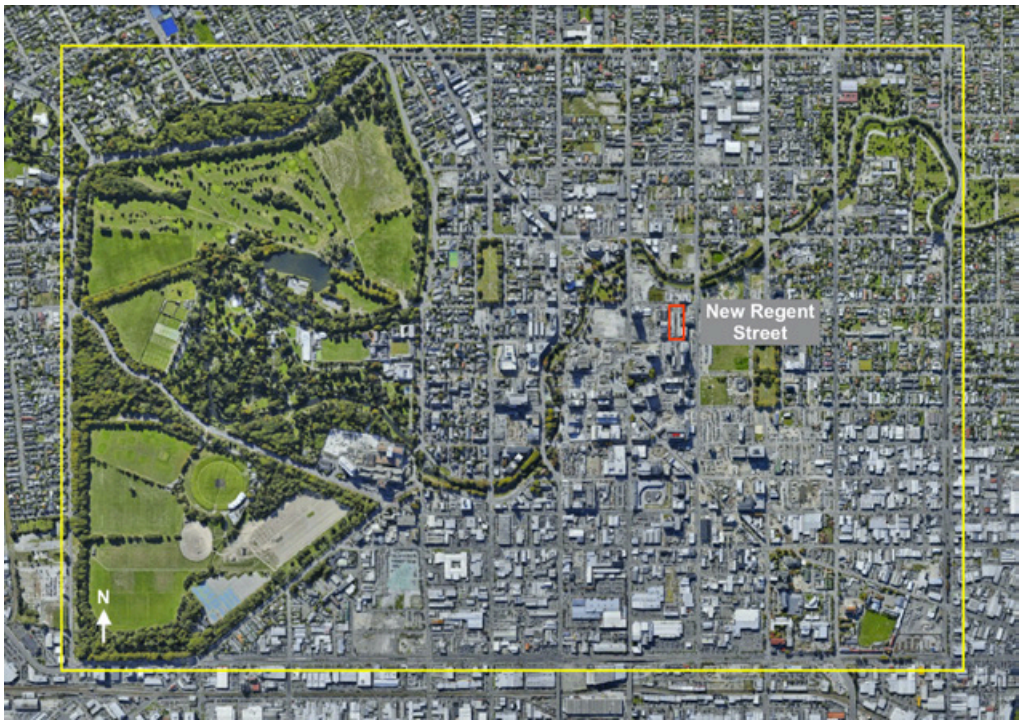


Fig. 1. Satellite image showing location of New Regent Street in central Christchurch (Source: Google Earth, 16/12/2019, with overlay by C. Forbes 2020)

1. The Heritage Resource and its Context Before the Impacting Events

1.1 Description, Designation and Recognition

1.1.1 General Description

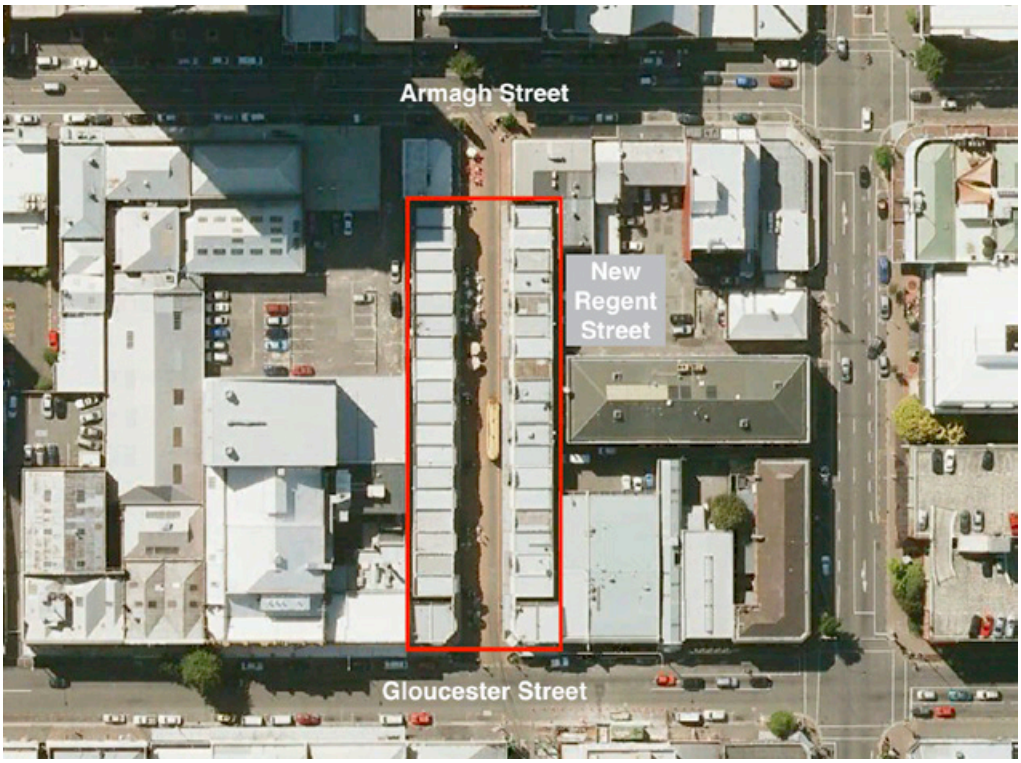
New Regent Street comprises a street of 40 shops that were built as a group during the early 1930s. The street runs north–south between Armagh Street and Gloucester Street in central Christchurch. It is located just north of Cathedral Square, adjacent to the well-known Isaac Theatre Royal heritage building (figg. 1 and 2).

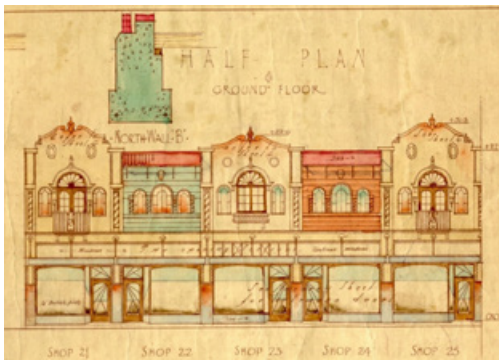
Form, Function, Creation and Subsequent Transformations

Form

The street, which is paved and pedestrianised, is lined on both sides by two-storey terraces of small shops built in 1930–32 in the Spanish Mission style. The two terraces mirror each other across the street in their built form, layout and rhythm of individual units, all of equal width.

There are three alternating upper storey façade variations that delineate the individual shops within the terraces (figg. 3 and 4). Each individual shop façade is symmetrical. The first consists of three arched windows, supported by small spiral (barley twist) columns. Above the central window is an oval shaped medallion. These façades have a cantilevered concrete awning above the windows, with decorative non-structural wrought iron brackets beneath. Alternating with this variation are two similarly styled façades, both with Spanish Mission style reinforced concrete parapets, one slightly higher than the other. The tops of the parapets curve gently upwards to a central finial element. The first of the two has a centrally located pair of casement windows, with an arched fanlight above and window box beneath. It has smaller arched windows each side of the central opening. There are two circular medallions within the gable. The second has a centrally located pair of French doors which open onto a small balcony. Again, there are smaller arched windows set to each side of the doors. The gable is decorated with a pair of heraldic shields. The central window openings of both variations have heavily moulded arched label moulds. Barley sugar columns frame the sides of each façade. Additional ornamentation includes decorative Art Deco chevrons.





Images, Clockwise from top:
Fig. 2. Aerial photograph showing the location and layout of New Regent Street prior to the earthquakes (Source: Google Earth, 3/4/2009, with overlay by C. Forbes 2020)
Fig. 3. Original architectural drawings showing the façade of a typical group of New Regent Street terrace shops (Source: CCC, Heritage files)
Fig. 4. Post card advertising *New Regent Street 1932 (Source: Christchurch City Libraries (1932) New Regent Street. The Story of its Acquisition, Development and Possibilities,* Christchurch [N.Z.] Regent Street Limited, p.1)

The large timber framed display windows facing the street at ground level are framed by decorative panels of coloured floral tiles manufactured in England by Minton. Wide plate glass windows light each shop, and entry is through a glazed door set back from the street. The recessed entrances with their multi-coloured terrazzo thresholds are paired with their neighbours along the street. A continuous suspended awning runs the length of each terrace and extends around into Gloucester Street.

The original colour scheme was stained plaster of lemon, terracotta, green and white. All of the interiors were finished in native timbers and included a timber staircase.

Function

The two terrace rows accommodate small shops/cafés/restaurants, with rooms above used for offices, storage or extensions of the businesses.

Creation

Architect – Francis Willis
Builder – P. Graham and Sons

Construction

The street front façades are a concrete framed construction with rendered, plastered and painted brick infill walls. The remaining walls are of brick construction (cavity brickwork for the external walls and solid brickwork for the party walls, which extend up through the roofs between the shops) with exposed reinforced concrete beams extending through all the walls at floor and ceiling levels.[1] The glazed shopfronts and doors are timber framed, and the first floor windows are steel framed (fig. 5). Internally, the terraces have suspended Rimu timber floors, plastered walls and timber staircases.

Materials and skills required for recovery are generally available, although the decorative Minton wall tiles of the façades were imported from the UK in the 1930s and are not readily available.

Changes over time

The shops have remained substantially the same, with only minor alterations.

The high-level awnings originally had Spanish style Cordova roof tiles on them, but these were removed pre-1973 to leave only the concrete slabs and steel brackets.

Over the years, some internal walls within and between the shops had been altered with new openings created (McClean 2012: 144). Some shops had been refitted.

In 2009 structural upgrade and retrofit work was being undertaken and had been partially completed by September 2010 (McClean 2012: 144).

1.1.2 Official Designation or Inscription

The New Regent Street group is included on the Heritage New Zealand Pouhere Taonga (HNZPT) list of historic places as both a place and as an historic area. Some of the listings provide a statement of significance.

- Listed Category I Historic Place – list no. 4385. Original listing date 1990
- Listed Historic Area – list no. 7057. Original listing date 1994

<<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>> (HNZPT) (fig. 6).

<<New Regent Street is significant as the only commercial street in New Zealand to have been designed as a coherent whole. It is one of the best examples of Spanish Mission style architecture in New Zealand, and as a street made up of small speciality shops it can be read as a forerunner to today's shopping malls. Its distinctive style and colouring make this street a notable part of central Christchurch's townscape>> (HNZPT).

From left to right:

Fig. 5. New Regent Street under construction, showing the original tiled awnings over the upper floor windows (Source: Christchurch City Libraries (1932) *New Regent Street. The Story of its Acquisition, Development and Possibilities,* Christchurch [N.Z.] Regent Street Limited, p. 56)

Fig. 6. New Regent Street facades looking south east prior to the earthquakes (Source: CCC, August 2010)

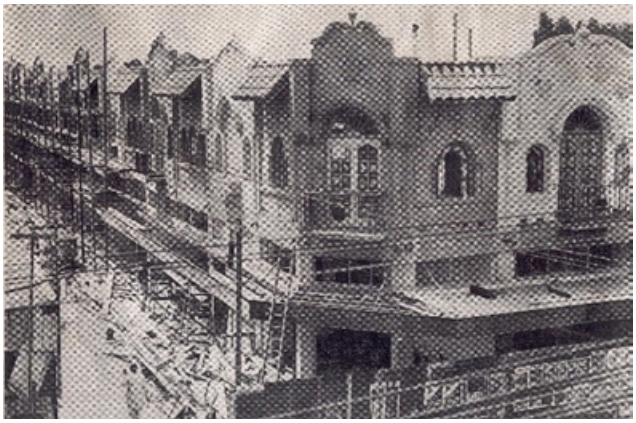


Fig. 7. New Regent Street facades looking west prior to the earthquakes. The concrete beam at first floor level is visible in the end elevation of the row (Source: CCC, August 2010)

- The buildings were included as a Listed Group 2 Heritage item in the Christchurch City Plan.

The two terraces are noted as constituting a precinct of national significance. They are identified as having historical, architectural, group, archaeological (for previous development on the site) and technological significance (for their construction). The official listing sheet pre-September 2010 earthquake focuses on the streetscape and provides very little description of significant attributes.

<<New Regent Street's architectural style, continuity of streetscape and high public recognition value give it considerable landmark significance. The street is of special significance as it is the only commercial street in the city to have been designed as a single unit>> (CCC).

Immediately following the September 2010 earthquake, CCC reviewed its listing information for New Regent Street to include considerably more detail on the buildings' significant external attributes and on the buildings' construction. However, information on the interiors was still lacking (revised listing November 2010).

Significant attributes of the group are identified as including:

- The built form (two symmetrical terraces, comprising 40 individual shop units, arranged in mirror image across the street).
- The symmetrical arrangement of the elements on the street façade of each shop unit.
- The key architectural elements of the façades that contribute to its Spanish Mission style appearance including windows, doors, decorative mouldings, balconies, awnings, window boxes and parapets.
- The timber and tiled shop fronts with their paired recessed entry doors.
- The original structural system consisting of concrete framed and rendered brick shopfront façades, with cavity brick rear walls and solid brick internal walls running between the shops. Expressed reinforced concrete beams extend through all the walls at floor and ceiling level (fig. 7).[2]
- Early construction details and services installations (in rear lane right of way). and
- Internal timber stairs and original shop fixtures and fittings (where these still exist).

The use of reinforced concrete beams and frames became much more common forms of construction after the devastating Hawkes Bay Earthquake affecting Napier in 1931.

The listings do not include any hierarchy of significant elements or conservation policies, although the designation implies that conservation of the façades is most important to maintaining the streetscape.

1.1.3 Scholarly Recognition

McEwan, A., 2001. *An "American Dream" in the "England of the Pacific": American Influences on New Zealand Architecture, 1840-1940*, A thesis submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy in Art History in the University of Canterbury, University of Canterbury.

Pearce, Douglas G., 2001. *Tourism and urban land use change: assessing the impact of Christchurch's tourist tramway,* Tourism and Hospitality Research Vol. 3 Issue 2: 132-148, SAGE Publications.

Wilson, J., 2007. *City and Peninsula: The Historic Places of Christchurch and Banks Peninsula,* Christchurch Civic Trust.

Wilson, J., 2005. *Contextual Historical Overview for Christchurch City,* Christchurch City Council.

Wilson, J., 2013. *Contextual Historical Overview for Christchurch City Revised,* Christchurch City Council.

1.1.4 Popular Recognition

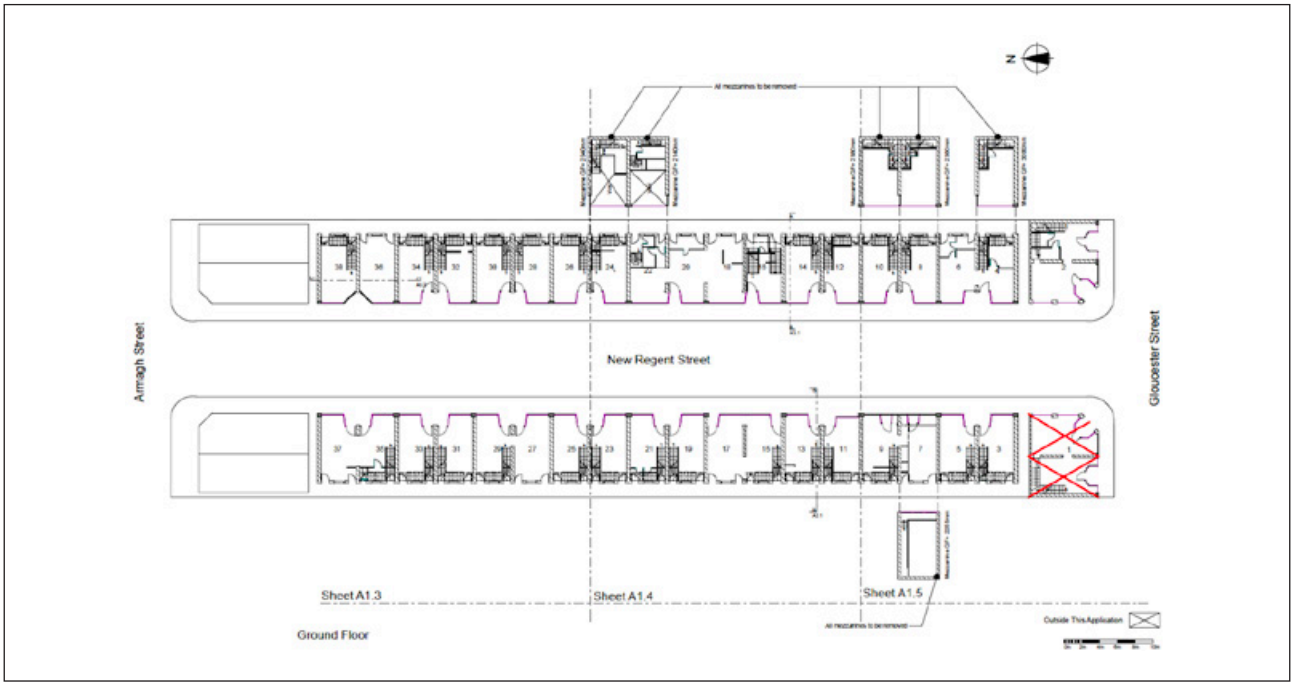
New Regent Street has popular recognition as one of Christchurch's major tourist attractions. The tram, which is also a tourist attraction, runs along the pedestrian street and is often a subject of postcards and photographs. The street has high public recognition due to its architectural style, cohesive streetscape and distinctive colour scheme.

1.2 History and Context

1.2.1 History, Ownership and Environment

Originally 40 shops were built between 1930 and 1932, during the Depression. They first opened on 1 April 1932, but only three of the shops were let on opening day (figg. 4 and 5). They were owned by a company, Regent Street Ltd, who undertook the development. The remainder of the shops were let free of charge until businesses were established, and then a nominal rent was charged. Individual shops were sold off into private ownership during the 1940s.

Over time, some of the shops were amalgamated to form larger units. This resulted in new wall openings between



shops and other internal modifications including the introduction of mezzanine floors (figg. 8 and 9).

In 1990, the New Zealand Historic Places Trust (NZHPT, now HNZPT) was informed by Paul Dunlop, Optometrist of New Regent Street, that the walls of his shop were very difficult and costly to alter because of the solid interlocked brick walls incorporating two layers of steel reinforcing mesh.[3] Further, the walls on each of the ends of the shop rows were found to have reinforced concrete beams (McClean 2012: 144) (fig. 7).

The colour scheme for the group has been altered several times. In 1968 it changed to Adam Gold, Etruscan Red and Slate Blue; in 1994 a pastel paint scheme was applied; and in 2010 the colour scheme was again amended to the current scheme composed of 12 different Resene pastel shades.

In 1986 the street was made one way and then in 1994 it was pedestrianised. Brick paving, metal railings, planter beds and period lighting were introduced as the tram tracks were laid. By 1995 a heritage tram began operating through the street.

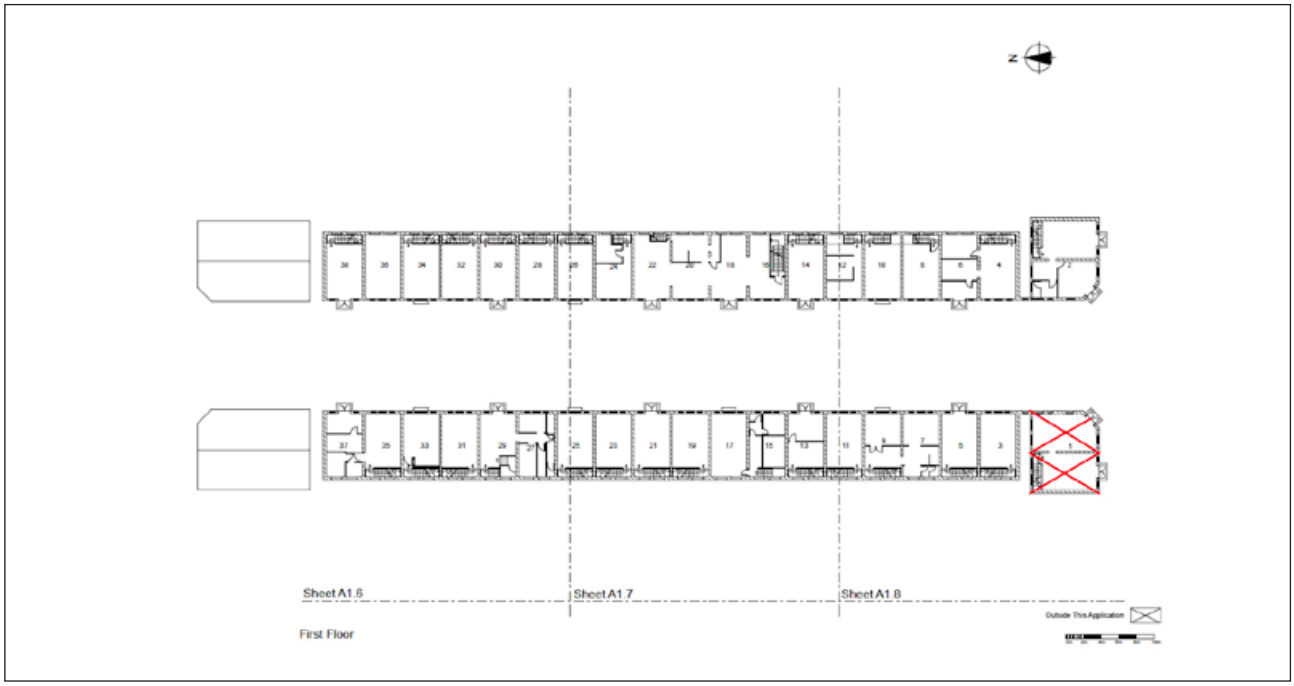
In 2009, Council facilitated a significant structural upgrade and retrofit project for New Regent Street, which involved cavity wall tie renewal using the Helifix system. Both Council and NZHPT provided financial assistance for the project. This work was partially completed at the time of the earthquakes.

1.2.2 Social and Economic Setting

New Regent Street has been a key shopping street within Christchurch for many years. At the time it was constructed, the idea of a single street of small speciality shops was unusual. But the street became the precursor to the modern shopping mall. It includes a mixture of speciality shops, restaurants and bars that attract both tourist and local customers.

The units are now in individual private ownership, with some property owners owning more than one unit. Some are rented to tenants.

From left to right:
Fig. 8. Ground floor plan of New Regent Street showing the layout of the shops prior to the earthquakes (Source: CCC, Fulton Ross, 2012)
Fig. 9. First floor plan of New Regent Street showing the layout prior to the earthquakes (Source: CCC, Fulton Ross, 2012)



1.2.3 Frameworks, Agents and Communication

The legislative framework governing the protection of cultural heritage in Christchurch is described in the Christchurch Overview case study but is summarised briefly here.

Under the Resource Management Act 1991 and within the framework of the Christchurch City Plan (at the time of the earthquakes, later becoming the Christchurch District Plan), Christchurch City Council (CCC) assesses proposals for works to a heritage building that affect the heritage fabric or involve constructing new buildings in a heritage setting. Under the Building Act 2004, the Council must also consider whether a building is earthquake prone and then issue a notification to the owner requiring them to upgrade the building in accordance with the National Building Standard (NBS). The Council identified New Regent Street as potentially earthquake prone in 2009. The Building Act also brings into consideration matters that can have a profound effect on heritage buildings, such as fire and access. Under the Heritage New Zealand Pouhere Taonga Act 2014, Heritage New Zealand Pouhere Taonga's (HNZPT – previously New Zealand Historic Places Trust) role is to regulate the effects on archaeological sites. This includes any above or below ground structures that predate 1900. The property owner may seek advice from both the CCC and HNZPT prior to making any formal submission/application to undertake works.

CCC and HNZPT assisted the property owners with seismic strengthening of the façades in 2019.

Key stakeholders

The key stakeholders for New Regent Street include, individual property owners, tenants, Christchurch City Council, Heritage New Zealand Pouhere Taonga and Christchurch Trams.

1.2.4 Bibliography of Documentation

Christchurch City Council Heritage File New Regent Street.

Christchurch City Libraries, 1932. *New Regent Street. The Story of its Acquisition, Development and Possibilities,* Christchurch [N.Z.] Regent Street Limited.

Christchurch District Plan (Operative December 2017), *Schedule of Significant Historic Heritage Appendix 9.3.7.2*, Heritage Item Number 404 – New Regent Street Shops and Setting (3–8, 10–14, 16–17, 19, 21, 23–26, 28–35, 38 New Regent Street; 153 Gloucester Street; 157A Gloucester Street; 166 Armagh Street; 180 Armagh Street).

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010–January 2012 – Report for the Canterbury Earthquakes Royal Commission*, New Zealand Historic Places Trust Pouhere Taonga: Wellington, 8 March 2012, ENG. NZHPT.0004A.1

2. The Nature of the Impacting Events

2.1 General Description

The Canterbury earthquake sequence 2010-2011 is described in the Christchurch Overview case study. The earthquakes that had the greatest impact on the city are listed here.

- 4 September 2010 – M7.1 (epicentre 40km from Christchurch)
- 26 December 2010
- 22 February 2011 – M6.3 (most destructive to the city)
- 13 June 2011 – M6.4
- 23 December 2011 – M6.2

Earthquakes in New Zealand, including in the Christchurch region, are cyclical, but unpredictable. This particular series was stronger than previously experienced in the region and has been assessed as being a 1 in 500 year occurrence.

2.2 General Impact of the Event(s)

The impact of the Canterbury earthquakes on New Regent Street is summarised by HNZ and CCC as follows, but the damage would have been cumulative:

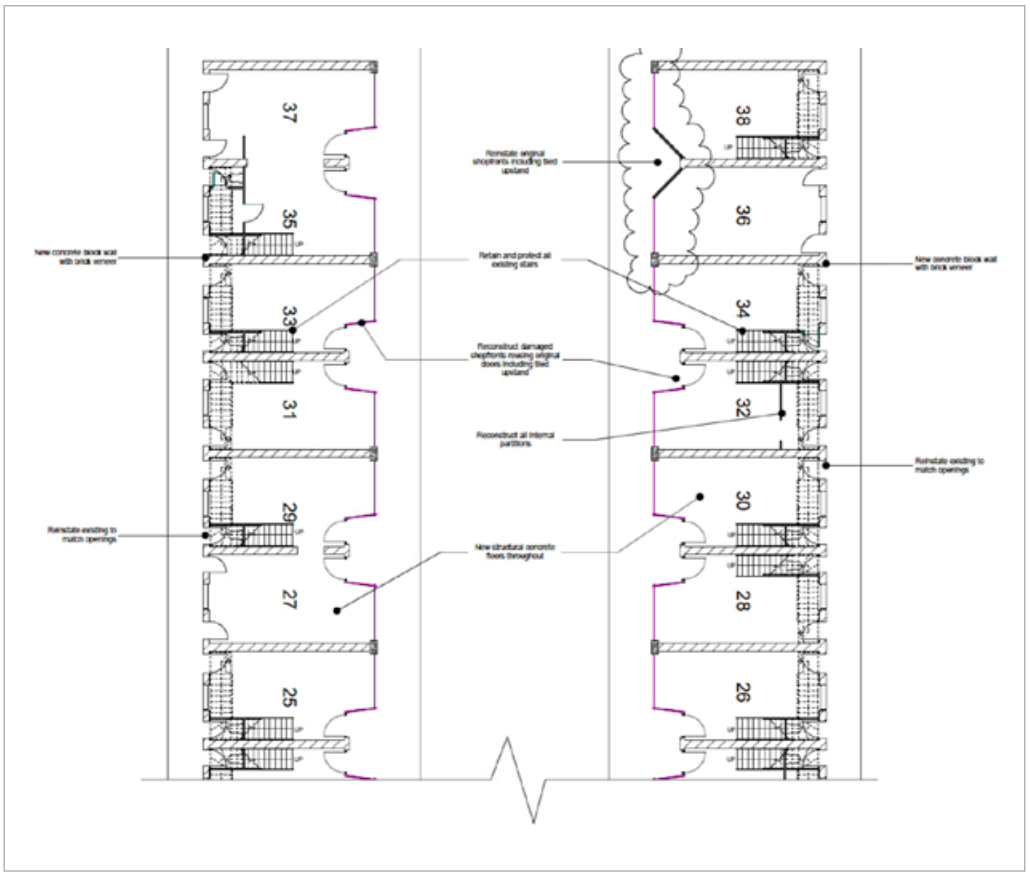
September–December 2010: Minimal damage
January–June 2011: Minimal and moderate damage – road closed
July 201–January 2012: Minimal damage
July 2011–January 2012: Minimal damage

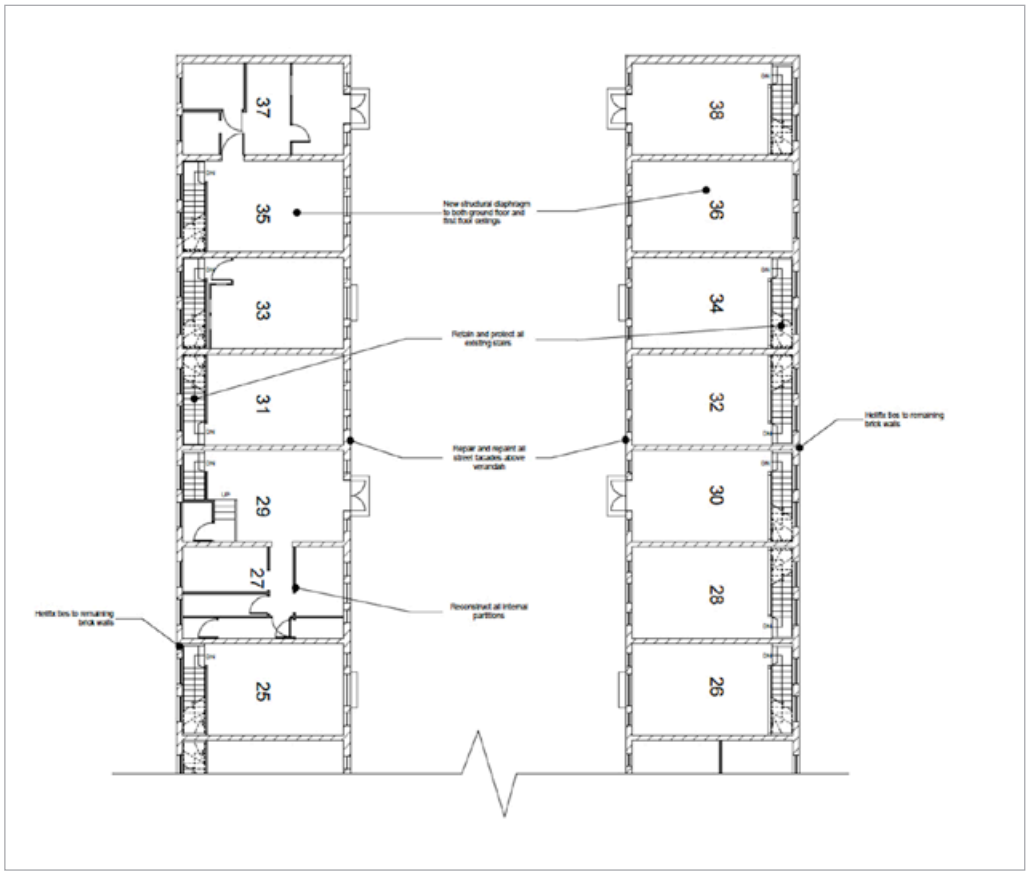
Images, Clockwise from top left:
Fig. 10. New Regent Street looking north showing scaffold and repairs underway, whilst shops continue to trade, 16 February 2011. (Source: CCC, February 2011)
Fig. 11. New Regent Street looking south showing the tram operating whilst repairs are undertaken to the building façade, 16 February 2011 (Source: CCC, February 2011)
Fig. 12. Earthquake damage to one of the shop fronts, New Regent Street (Source: CCC. June 2011)
Fig. 13. Structural damage to the rear façade brickwork at ground floor level (Source: CCC June 2011)
Fig. 14. New Regent Street looking south, showing subsidence in the street as a result of liquefaction (Source: CCC, June 2011)
Fig. 15. Street closed for repair (Source: CCC, November 2012)

The 2010 earthquakes caused superficial cracking of render and plaster finishes. While repairs were undertaken, the shops were able to stay open and the tram was able to keep running (figg.10 and 11).

During the 2011 earthquakes, the glazed shopfronts and lathe and plaster ceilings were damaged, with structural cracks appearing in the walls, and some of the rear masonry walls failing where there was a greater concentration of openings (figg. 12 and 13). There was also minor cracking in the parapets and projecting concrete awning panels, although none collapsed. Liquefaction caused damage to the street paving and severe damage to the drainage system (fig. 14).

New Regent Street was located within the central city Red Zone, which was closed to public access for more than two years. This severely affected property owners in New Regent Street as they and their tenants had to close their businesses or relocate outside the city centre (fig. 15).





From top to bottom:
Fig. 16. Ground floor plans showing post-earthquake repairs and strengthening work (Source: CCC, Fulton Ross, 2012)
Fig. 17. First floor plans showing post-earthquake repairs and strengthening work (Source: CCC, Fulton Ross, 2012)

In March 2016, additional damage was discovered to the parapets and "eyelid" features over the central windows and doors. This resulted in the decision to structurally upgrade these elements with the associated further disruption to businesses in the street.

2.3 Impact on the Significance and Values of the Resource

The damage caused some loss of original less-significant fabric, but the streetscape and buildings remained substantially intact. Thus, they retained their historic, architectural, aesthetic and streetscape significance.

The street had to close after the February 2011 earthquake to enable stabilisation and repairs and to avoid potential risk from falling building elements, such as the awnings and parapets. Even so, the place remained in the awareness of the wider community and was frequently a subject in the media. Thus, the street and its shops retained their social significance.

2.4 Emergency Repair(s) to Date

In 2012, all the shops except for five (those in one particular ownership), were repaired. Refer to Figures 16 and 17. Repairs included:

- insertion of concrete floors at ground floor level (figg. 18, 19 and 20);
- strengthening the connections between the upper timber floor/ceiling structures and the walls to create structural diaphragms (fig. 21);

Images, Clockwise from top left:
Fig. 18. Shopfronts and interiors of units 8 and 10. Floor has been removed, but the doors, tiles and stairs have been retained in situ throughout the repair and refurbishment work (Source: CCC, August 2012)
Fig. 19. New concrete slab has been laid at ground floor level (Source: CCC, August 2012)
Fig. 20. Where possible original Rimu floorboards have been relayed, together with new Rimu flooring (Source: CCC, November 2012)
Fig. 21. Lathe and plaster ceilings were stripped to be replaced by structural diaphragm sheeting (Source: CCC, August 2012)

- replacement of the rear ground floor walls in reinforced concrete blockwork clad with brick veneer (figg. 22, 23, 24 and 25);
- strengthening of the shop façades by installing new steel supporting columns and beams behind the shopfronts (figg. 26 and 27);
- reconstruction of the shop fronts incorporating the original doors; reinstating the wall tiling (including some tile replacement to match the original) and installation of new terrazzo thresholds (figg. 26 and 27);
- insertion of Helifix ties to the remaining brisk walls; and
- repairs to the parapets (fig. 29).

The original staircases and timber shopfront framing were retained *in situ* (figg. 18, 19 and 20).

In 2016 the parapets were strengthened and the "eyelids" over the central windows and doors were replaced with lightweight replicas (figg. 29 and 30).

2.5 Documentation and Narratives

Damage assessments were undertaken after each earthquake event – refer to section on post-event documentation.

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010 – January 2012 – Report for the Canterbury Earthquakes Royal Commission*, New Zealand Historic Places Trust Pouhere Taonga: Wellington, 8 March 2012, ENG. NZHPT.0004A.1

The damage and works were recorded photographically from September 2010 through to 2013 when the street reopened.

3 Post–Event Appraisals

3.1 Impact Assessment

Building damage assessments were generally undertaken by engineers and focused on the structural stability of tangible attributes of the place such as the façades, windows and internal walls and floors. The CCC and HNZPT generally focused on the impacts of the proposed recovery works on the principal façades.

Recovery endeavoured to retain as much original fabric as possible, particularly in relation to the street façades, and included salvaging and reusing the original shop doors and tiles where possible. The replacement of heavy façade elements with new lightweight alternatives (e.g. the label moulds over the windows and doors) was undertaken in such a way as to maintain their outward appearance (original profile details) and thus the overall appearance of the façades from the street. Internally the timber floor structures and stairs were retained and strengthened, but the shop fit-outs (e.g. counters, shelving, signage) and interior finishes have been lost. The new steel structures introduced behind the shop façades are not concealed and remain prominent from inside of the shops.

As no conservation plan for New Regent Street had been prepared prior to the earthquakes, the relative level of significance of component elements had not been assessed or defined. Thus, decision-making in the recovery relied on the shared understanding that the façades were of primary significance and the interiors were secondary. Maintaining the streetscape was considered essential to maintaining the intangible attributes of the place, its identity and sense of place. Even so, some interior elements were saved, including the timber floors and staircases.

A formal review of the impacts of the recovery on the significance defining elements has not been undertaken to date. However, CCC has reviewed its listing information for the property to reflect the changes to the buildings and has altered the statement of significance accordingly. Refer to Section 5. In general, the significance of the place has not changed, and its key attributes have been conserved.

3.2 Post-Event Documentation

Documentation includes damage assessments, correspondence, engineering and architectural drawings and heritage impact assessments.

Images, Clockwise from top left:
Fig. 22. Brickwork of rear elevation deconstructed for repair (Source: CCC, August 2012)
Fig. 23. Reconstruction of rear wall using reinforced concrete blockwork (Source: CCC, November 2012)
Fig. 24. Reinforced concrete blockwork of rear wall is clad in brick veneer to match the brickwork of the wall above (Source: CCC, November 2012)
Fig. 25. Rebuilt rear elevation – new brickwork below the beam, with the original brickwork conserved above the beam (Source: CCC, January 2013)
Fig. 26. Repaired shopfront, showing the original doors, tiles and terrazzo threshold. The new steel supports can be seen through the windows (Source: CCC, March 2013)
Fig. 27. Repaired shopfront ,showing original doors and reinstated tiles. The new steel supports can be seen through the windows (Source: CCC, March 2013)

Images, Clockwise from top left:
Fig. 28. Parapet damaged during 2016 earthquake disassembled for reconstruction and strengthening (Source: CCC, April 2018)
Fig. 29. Repairs to the parapets and 'eyelids' completed. (Source: CCC, July 2018)
Fig. 30. Bracing of reconstructed parapet (Source: CCC April 2018)

- Architect for the main earthquake repair works – Fulton Ross Architects
- Engineer – Endel Lust
- Architect for additional works in 2016/2017 – Tony Ussher
- Engineer – Ruamoko Solutions and Andrew Marriott

Documentation is held by HNZPT and CCC, the consultants and individual property owners.

Additional documents include:

Opus International Consultants Ltd, 2016, Archaeological Authority Monitoring Report 2013/068eq & 2012/321eq, Heritage New Zealand Pouhere Taonga.

Bulovic, Annette, 2014. *Discover The Delights Of Peeling Back History* peelingbackhistory.co.nz.

Christchurch District Plan (Operative December 2017), Schedule of Significant Historic Heritage Appendix 9.3.7.2, Heritage Item Number 404 – New Regent Street Shops and Setting (3–8, 10–14, 16–17, 19, 21, 23–26, 28–35, 38 New Regent Street; 153 Gloucester Street; 157A Gloucester Street; 166 Armagh Street; 180 Armagh Street).

Fulton Ross Team Architecture, 2013. New Regent Street Cyclical Maintenance Plan, Christchurch City Council Internal Library.

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage – The Canterbury Earthquakes September 2010 – January 2012 – Report for the Canterbury Earthquakes Royal Commission*, New Zealand Historic Places Trust Pouhere Taonga: Wellington, 8 March 2012, ENG. NZHPT.0004A.1

3.3 Challenges for Recovery

One of the greatest challenges for recovery was coordinating the response of multiple property owners. In order to facilitate the recovery and seek a coordinated, cost and time effective solution, discussions were held between property owners regarding the proposed repair works and the possibility of undertaking the repairs to all the units at the same time, through one consent and using one contractor. All except one owner agreed. Due to issues with their insurance settlement, one owner of five units (Numbers 14, 23, 26, 36, and 38) chose to undertake work in their own time, using different consultants – Structural Solutions Ltd (SCL) as engineers. The work to these units is not yet completed.

Challenges to recovery also included resolving the following issues:

Technical issues:

- undertaking the structural upgrades whilst keeping as much as possible of the heritage fabric

Heritage issues:

- decisions regarding reinstatement of details to maintain authenticity (e.g. label moulds to windows and doors, reinstatement of wall tiles and shop fronts);
- having wall tiles made to match the original 1930s' Minton tiles;
- finding ways to produce lightweight alternatives to the original fabric that was compatible with the historic fabric.

Financial issues:

- insurance cover did not include the required upgrade works to the structure, installation of new fire systems, plumbing works, etc.;
- cost of businesses being closed due to the damage to the buildings and the closure of the street.

Social issues:

- closure of the popular street whilst repairs were undertaken;
- the heritage tram was unable to operate for three months in 2016 due to the requirement for further repair work;
- coordinating a group of individual owners to try and obtain one agreed outcome, and one timeframe.

3.4 Responses and Recovery Programme

Recovery is complete for all except five units. The street reopened to the public in April 2013, more or less coinciding with the re-opening of the central city red zone.

Initial recovery was undertaken by a group of owners using one project manager and one contractor for all the works. One owner did not wish to work within the same parameters and undertook their own programme of repairs.

These ran behind the main group but did not prevent the street reopening in April 2013.

Following the Valentine's Day earthquake in 2016 seven units were cordoned off, but repairs were undertaken in a rolling programme ensuring the street remained open. The Heritage Tram temporarily stopped running at this time but started again in May 2016. The additional repairs in 2016/2017 were undertaken in a rolling programme to ensure the street remained open. These repairs were coordinated by CCC who employed a project manager and a single contractor to ensure consistency and economies of scale. The owner that previously chose to operate separately did so again.

The shop units have been repaired and upgraded to meet current seismic, fire and access codes (figg. 31 and 32). Thirty-five of the forty units now have:

- Reconstructed and strengthened shop fronts – installing new steel frames behind the shopfronts, but conserving the original timberwork, tiles and terrazzo thresholds (where these survived).
- New concrete floors, with reused timber floorboards laid over.
- New terrazzo thresholds in the entrance recesses where these were missing previously.
- Strengthened parapets – steel frames installed behind the parapets.
- Reconstructed "eyelids" (awnings) that utilise lightweight construction to ensure safety in future earthquakes.
- New ground floor walls at the rear of the shops, which are constructed of reinforced concrete blockwork clad in a brick veneer chosen carefully to match the upper floor in terms of colour and sheen, but distinguishable as new on close inspection.
- Brick cavity ties replaced by Helifix screw system.
- Structural diaphragm linings installed to ceilings.
- New wall linings.
- New veranda soffit linings.
- New plumbing, electrical and fire services (alarms and emergency lighting). and
- Conserved and repainted façades.

Works to the remaining five are still in progress and the final outcome is yet to be clarified.

3.5 Values and Sustainability

New Regent Street has retained its value as a much loved street and an extremely popular tourist destination.

Fig. 31. Entrance to New Regent Street looking north from Gloucester Street, showing the corner shops (Source: C. Forbes, September 2016)

Its reopening following the earthquakes has been seen as key to attracting people back into this part of the city. The street is now a striking landmark within the city centre and the only intact heritage streetscape in the post-earthquake city (figg. 31 and 32). Thus, it has heightened value for the community as a rare survivor that carries with it memories of the pre-earthquake city.

Much of the Christchurch community loves the retention of the street's visual appearance and feels that the street and the small speciality shops, cafés and restaurants that line it make the experience. The reopening of the shops has proceeded to bring economic and social life back to this part of the city, although most of the tenants and businesses are new.

A Cyclical Maintenance Plan has been prepared by Fulton Ross Team Architecture (2013) to assist CCC and New Regent Street owners and tenants in maintaining the buildings and streetscape in good condition.

3.6 Drivers, Agents and Governance

The stakeholders, including the majority of the individual shop owners, were very keen for recovery to occur. The recovery proposal was predominantly professionally driven (engineering being the key driver), but was negotiated between the owners, engineers, architect, HNZPT, CCC and CERA. Safety was a priority, but retention of the heritage streetscape as a tourist destination was also seen as extremely important to both the city and the property owners.

Funding came from the owners' insurance, along with additional funding from the Canterbury Earthquake Heritage Building Fund (CEHBF), a CCC Heritage Incentive Grant and a CCC Central City Landmark Heritage Grant, and funding from Heritage New Zealand Pouhere Taonga. Without this, property owners would have struggled to finance the recovery, and it is probable that they would have lost their buildings, either through forced sale or forced demolition.

All work was undertaken by a single local building contractor, aside from the five units that are still not completed.

Approval for the works which included strengthening and fire upgrades, was obtained through CERA. Impacts on the archaeology of the site were assessed and work approved by HNZPT.

Fig. 32. New Regent Street looking south following completion of repairs (Source: CCC, October 2018)

4. Documenting Response Actions, Timeframes, Resources and Costs

4.1 Actual Implementation and Timescales for the Recovery Programme

The works to 35 of the 40 shops were undertaken as follows:

2010	A Heritage Incentive Grant was awarded to multiple properties to enable revitalisation of the street. This was used for earthquake recovery works to the street following the 2011 earthquakes. A grant from HNZPT was also awarded to 13 properties for earthquake recovery work.
February and June 2011 earthquakes	Initial make safe works were carried out, including boarding up and securing of the shops, propping of the balconies, salvaging of tiles from the street and boxing and storing them for future use.
March and April 2011	Investigations commenced with engineering assessments.
September 2011	Naylor Love was appointed as the contractor to undertake the project. RCP was appointed as project manager.
July 2012	Grant made by HNZPT to 11 owners for earthquake repair and strengthening.
September 2012	An application was made to the CEHBF for funding.
February 2013	The CEHBF grant was paid once strengthening work had been completed.
April 2013	The street and buildings were reopened to the public.
14 February 2016	A subsequent earthquake resulted in some of the buildings being cordoned off again for repairs and the tram was stopped from running.
May 2016	The tram started running again.
June 2017	A Central City Landmark Heritage Grant and HNZPT funding was awarded to all but five of the buildings for replacement of the "eyelids" and strengthening of the parapets.
2017–2018	The parapet and "eyelid" works were completed over a two-year rolling programme of works, managed by Entos Consultancy.

The works were staged to deal with the immediate structural issues identified after each earthquake, but also in response to agreement among the key stakeholders. Although grant funding was important, it was not paid to property owners until the works had been undertaken. Thus, it was an incentive for completion of the work.

The works to the remaining five shops are still in progress.

4.2 Resources and Costs of Implementation

4.2.1 Resources

Experienced engineers, architects and project managers undertook the investigations, came up with the design solutions, prepared the documentation and oversaw the proposed works. They kept HNZPT and CCC informed as the works progressed.

The contractors were experienced in modern construction and had undertaken other heritage projects previously. The works undertaken used primarily modern construction techniques and materials for seismic strengthening. This included insertion of new steel framing to shop fronts and parapets, concrete slabs to ground floors, concrete blockwork to the rear walls and new structural diaphragm elements.

Replica tiles were specially commissioned for the work to the shopfronts. Brick slips that closely resembled the original in colour, texture and finish, but had less depth, were used on the rear elevations of the buildings to maintain the streetscape. Terrazzo was reproduced in the entrances.

4.2.2 Costs

Funding for the works included the following:

Insurance contribution in accordance with the insurance policies held by each individual property owner.	Value unknown
Individual property owner contributions.	Unknown
HNZPT grant funding requested by 25 units.	NZ$197,164.91 (total)
CCC Heritage Incentive Grant requested for 18 units for revitalisation works. The agreed grant was NZ$5,390 per unit for repair of façades, painting, reinstatement of tiles to match original façades etc.	NZ$97,029 (total)
CEHBF grant equated to NZ$2,000 per unit.	NZ$76,000 (total)
The final period of work, post-February 2016, was commissioned by Christchurch City Council who paid the majority of the costs through a Central City Landmark Heritage Grant.	NZ$900,000
Additional HNZPT grant was spread across the 24 applicants for the last part of the works.	NZ$100,000

Throughout the post-earthquake recovery period, one owner has consistently decided not to undertake repairs through any joint or cooperative programme with other owners. They have undertaken repairs to their five units using their own contractors and in their own timeframes. Their work has not been consistent with the work to the other units and is understood to still not be complete. Funding and information on the works have not been available from this owner.

5. Documenting the Outcomes and Effects

5.1 Assessment of the Outcomes with Regard to the Recovery of the Heritage Resource

New Regent Street and its shops, with the exception of five, have all been fully recovered, strengthened and reopened to the public. In addition to the initial repair and strengthening works undertaken following the 2011 earthquakes, additional works have been undertaken (2016–2018) to strengthen elements previously not thought to be a risk factor. The works also allowed the removal of earlier intrusive elements to the street façades (e.g. intrusive contrasting shopfront tiling, introduced full height glazing and façade mounted wiring; five missing entry doors were replicated and replaced).

The street is again flourishing as a tourist destination within Christchurch – perhaps more so than previously due to the street and its heritage buildings surviving substantially intact as a street in a city where this is now extremely rare. The route of the tourist tram through the street has assisted in raising the profile of the street and supplying visitors to the area.

The general consensus is that the actions undertaken were necessary and have ensured the long-term resilience of the place. However, throughout the project there were concerns among shop owners about the length of time involved in organising and undertaking the repairs, the length of time that the street had to remain closed, and the fact that the tram was prevented from accessing the street to allow emergency propping following the 2016 earthquakes.

The project was extremely complex as cooperation and agreement had to be achieved among 24 separate property owners in relation to the scope of works, the programme and its implementation. Added complexities during the second tranche of work included the need to keep the shops and the tram operational. Works were undertaken at night and during the very early hours of the morning in summer to ensure minimal disruption. Overall, the outcomes have been agreed to be positive and the street is once again seen as *New Zealand's most beautiful street* by its occupants. Thus, the street retains its strong sense of place within Christchurch.

An increased layer of protection has been provided to the property as a consequence of the grants received from CCC to undertake recovery work. The limited conservation covenants protect the heritage buildings from demolition or removal for 15 years. Should the owners wish to alter the buildings they will require a covenant consent, as well as any required resource or building consents.

Since the earthquakes, CCC has reviewed its listing and statement of significance for New Regent Street. The information and significance assessment are much fuller than the previous listing.

- Updated summary statement of significance – Christchurch District Plan – Listed Heritage Place – New Regent Street Shops and Setting (2015):

<<New Regent Street and its setting has high overall significance as one of the few large-scale building projects undertaken in the South Island during the Depression. New Regent Street has high social and historical significance as a development of 40 shops on individual titles undertaken in the Spanish Mission Revival style in 1930. It is socially significant as an early precursor to the modern day shopping mall. New Regent Street has cultural significance as a tangible early example of a change in the culture of inner-city retail practice with the introduction of a series of small retail business in a single architectural style parallel to each other forming an outdoor mall. The street has high architectural significance as a unique and highly intact group of buildings in the Spanish Mission style and as the major extant work of local architect H. Francis Willis. The New Regent Street shops have technological and craftsmanship significance due to their use of materials, methods and quality of their construction. New Regent Street and its setting has high contextual significant arising from the uniformity of design, form, colour and scale of its terraced shops. The street's architectural style and continuous façades give it high public recognition and landmark significance. The shops are the only remaining intact heritage streetscape to have survived the demolitions that occurred in the aftermath of the Canterbury earthquakes and are a rare and important reminder of the pre-earthquake city for the local and regional community. >> (CCC District Plan 2015).

5.2 Ownership of the Results

Generally, the owners and tenants of the buildings in the street own the results of the work. However, CCC and HNZPT also feel a sense of ownership of the results given the amount of investment of both time and money that were made over the recovery, as do the engineers, architects and contractors involved in the works.

A sense of ownership is also felt throughout the Christchurch community as New Regent Street is popular and well loved.

5.3 Documenting the Recovery Programme

The emergency response, recovery, and repair work have been well documented in official documents, through photographic recording and through the media. Files held by CCC and HNZPT cover much information and can be accessed upon request. CERA files have been passed on to Land Information New Zealand (LINZ) and the Department of Prime Minister and Cabinet (DPMC).

6. Additional Comments

Integrity

The New Regent Street terraces have retained a high degree of integrity in the built form, comprising two rows of individual shops that create a cohesive 1930s streetscape. Despite some replacement of original fabric, they have remained substantially intact, most notably their rendered masonry front façades, window joinery, decorative plaster and wrought iron elements, concrete awnings, shop entrance doors, some shopfront windows and many original

wall tiles. Internally they continue to retain most of their masonry party walls (or evidence thereof), upper-level timber floors and original timber staircases. They have lost their original rear walls at ground level and their interior fit-outs and finishes due to implementation of structural and fire regulations. At ground floor level, many of the original Rimu timber floors, salvaged during the works, have been re-laid over the concrete slabs. The internal layout of the shops remains predominantly the same. Thus, they continue to read as 40 individual shops.

Authenticity

It can be argued that some authenticity is lacking in some of the fabric repair undertaken and that it in some cases it is almost impossible to differentiate between the original and the newly reconstructed elements (e.g. timber shopfronts and label moulds over the windows). The re-laid floors were generally obtained through collation of all the floorboards collected throughout the street during the works. Floorboards were not specifically returned to their own buildings. Some floors are entirely new and at ground floor level, the floorboards are now laid over concrete slabs. It is noted that previous maintenance works would have already resulted in replacement of some floor as a result of borer damage, minor building modifications for introducing new services and fit-outs and *wear and tear*.

The front façades retain a high degree of original fabric, including original doors and fenestration at first floor level. Damaged and missing elements have been replaced to match the original in detail. The works have combined repair and reconstruction and ensure that the new work meets the ICOMOS New Zealand Charter (2010) definition of authenticity as including << ...use and function, traditions, spiritual essence, and sense of place...>>. The street retains it use, function, and sense of place and is once again a key heritage feature of Christchurch, and a popular destination for visitors and locals alike.

Meeting seismic requirements

The strengthening works carried out on the buildings ensure that they now meet the updated NZ Building Code requirements. Strengthening was integrated into the works with new structural connections, diaphragms and steel columns to shop fronts. The concrete parapets have been braced with steel supports and the "eyelid" features have been replaced with lightweight replicas.

Impact on values

New Regent Street has retained its architectural and aesthetic values, its historic and streetscape values. The street provides an important sense of place for Canterbury residents and thus retains its social and cultural values. The repair and strengthening of the buildings following the Canterbury earthquakes has provided a resilient future for New Regent Street as an important heritage place to Christchurch and Canterbury.

7. Details of the Experts Completing this Case Study

Fiona Wykes is a Senior Heritage Advisor at Christchurch City Council. Fiona has been in Ōtautahi Christchurch for a number of years, including throughout the response and recovery phases of the Canterbury earthquakes. During this time, she has been involved both in urban design projects and planning, and also in a range of heritage identification, assessment and policy work. Fiona is a member of ICOMOS (International Council on Monuments and Sites) New Zealand, and through them a member of the recently formed Australia ICOMOS and ICOMOS New Zealand Joint Cultural Heritage Risk Preparedness Working Group.

Catherine Forbes, architect with GML Heritage, member of Australia ICOMOS, Convenor of Australia ICOMOS and ICOMOS New Zealand Joint Working Group on Cultural Heritage Risk Preparedness, and expert member of ICOMOS-ICORP. Catherine undertook an independent review of the Post-Earthquake Recovery of Built Heritage in Christchurch in September 2016. It was based on field observations, interviews with those affected and those involved in the recovery – local community members, architects, engineers, staff of Christchurch City Council and Heritage New Zealand – and documentary research. Catherine is an independent observer rather than a participant in the recovery.

Brendan Smyth, Team Leader, Heritage, Christchurch City Council also provided input and peer review.

This case study was written in 2019 in Christchurch.

Notes

1 The original CCC listing sheet for the Historic Place refers to steel beams, cavity brick walls and concrete facades (CCC 1995). This description was incorrect and was updated in 2015 to describe the buildings as concrete framed with brick infill walls, rendered and painted on the street façade (CCC 2015). From the photos, however, and from discussion with the engineer working on the strengthening of some of the units, the construction has been confirmed as consisting of brick walls (cavity brickwork for the external walls and solid brickwork for the internal party walls) with reinforced concrete beams at floor and ceiling levels (Marriot 2020).

2 Ibid.

3 After the earthquakes, steel reinforcing mesh was not found to be a common treatment to the brick walls of the terraces in general and may have been added by a previous shop owner as part of a seismic upgrade to the individual shop (Marriot 2019).

Bibliography

Bulovic, Annette, 2014. *Discover the Delights of Peeling Back History* http://www.peelingbackhistory.co.nz/new-regent-street/

Christchurch City Council Heritage File New Regent Street.

Christchurch City Libraries, 1932. *New Regent Street*. *The Story of its Acquisition, Development and Possibilities,* Christchurch [N.Z.] Regent Street Limited.

Christchurch District Plan (Operative December 2017), *Schedule of Significant Historic Heritage Appendix 9.3.7.2,* Heritage Item Number 404 – New Regent Street Shops and Setting (3–8, 10-14, 16–17, 19, 21, 23–26, 28–35, 38 New Regent Street; 153 Gloucester Street; 157A Gloucester Street; 166 Armagh Street; 180 Armagh Street).

Fulton Ross Team Architects, 2013. *New Regent Street : cyclical maintenance plan, CCC internal library.*

ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value 2010.

Marriott, Andrew, Senior structural engineer and Director, Batchelar McDougall Consulting, Christchurch, discussion with Catherine Forbes, 24 September 2019.

Marriott, Andrew, Senior structural engineer and Director, Batchelar McDougall Consulting, Christchurch, discussion with Catherine Forbes, 31 January 2020.

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage - The Canterbury Earthquakes September 2010–January 2012 – Report for the Canterbury Earthquakes Royal Commission*, New Zealand Historic Places Trust Pouhere Taonga: Wellington, 8 March 2012, ENG.NZHPT.0004A.1

McEwan, A., 2001. *An "American Dream" in the "England of the Pacific": American Influences on New Zealand Architecture, 1840–1940,* A thesis submitted in fulfilment of the requirements for the Degree of Doctor of Philosophy in Art History in the University of Canterbury, University of Canterbury.

Opus International Consultants Ltd, 2016. Archaeological Authority Monitoring Report 2013/068eq & 2012/321eq, Heritage New Zealand Pouhere Taonga.

Pearce, Douglas G., 2001. *Tourism and urban land use change: assessing the impact of Christchurch's tourist tramway,* Tourism and Hospitality Research Vol. 3 Issue 2: SAGE Publications, 132–148.

Wilson, J., 2007. *City and Peninsula: The Historic Places of Christchurch and Banks Peninsula,* Christchurch Civic Trust.

Wilson, J., 2005. *Contextual Historical Overview for Christchurch City,* Christchurch City Council.

Wilson, J., 2013. *Contextual Historical Overview for Christchurch City Revised,* Christchurch City Council.

McClean, Robert, 2012. *Heritage Buildings, Earthquake Strengthening and Damage - The Canterbury Earthquakes September 2010–January 2012 – Report for the Canterbury Earthquakes Royal Commission,* New Zealand Historic Places Trust Pouhere Taonga: Wellington, 8 March 2012, ENG.NZHPT.0004A.1

ICOMOS-ICCROM

ANALYSIS OF CASE STUDIES IN RECOVERY AND RECONSTRUCTION

The Joint ICOMOS-ICCROM Project "Analysis of Case Studies in Recovery and Reconstruction" sought to harness the knowledge and capacities of both bodies to explore how best to learn from experience. Its objective was to clarify issues of recovery and reconstruction and to provide insights that could improve guidance. The project involved the commissioning of a range of case studies, chosen to represent a comprehensive set of factors, namely geographical, cultural and causational. The project was managed through a joint Working Group comprising members of both organizations and administered through both the ICOMOS Secretariat and the ICCROM-Sharjah Regional Office.

ICOMOS
international council on monuments and sites

ICOMOS International Secretariat
11 rue du Séminaire de Conflans
94 220 Charenton-le-Pont
France
Tel : 33 (0) 1 41 94 17 59
Email : secretariat@icomos.org
https://icomos.org

ICCROM SHARJAH

P.O. BOX 48777, Sharjah
United Arab Emirates
Tel: +971 (0)6 555 2250
Email: athar-centre@iccrom.org
www.iccrom.org/athar

Published by ICCROM (Regional Office, Sharjah) and
ICOMOS (International Council of Monuments and Sites).

9 789290 773047 >