caring for aging buildings:
a contextual study of adaptive reuse in aotearoa

jakob de buyzer (mcdermott)

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I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

signed jakob de buyzer (mcdermott)

Abstract

Protecting buildings of historic significance is a means of ensuring the stories of the past are preserved through the built environment. In a healthcare facility, the significance not only lies in the date of construction and architectural form, but in the care given to patients within the confines of the building. Additionally, the practice of renovating buildings in lieu of demolition has potentially large environmental savings, something all architects today should be conscious of.

Adaptive reuse is the process of renovating or reimagining an existing building for a purpose other than what it was originally designed or built. For buildings of historic significance, the process is a balance between conservation and appropriate interventions. This research proposes the application of adaptive reuse alongside other explored architectural ideologies to a protected healthcare building in Auckland, New Zealand. The resulting proposition provides a multi-purpose community area appropriate for the building which was designed in an era when hospital wards maximised natural ventilation and light.

This work hopes to celebrate and build on the social legacy of a redundant healthcare building. The design research supports the idea that we should value our built environment more deeply in terms of energy spent and history made. From this ethic of celebratory adaptive reuse the act of demolition is counter intuitive.

Acknowledgements and Collaborations

I would firstly like to thank my wonderful supervisors Dr Priscila Besen and Dr Amatda Yates for their guidance and support. Thanks also to Ara Manawa, Dr Kathy Waghorn and Dr Andrew Burgess.

In 2019 the Auckland District Health Board's (ADHB) Ara Manawa design team approached the University of Auckland's School of Architecture and Planning with the aim to develop collaborative research opportunities. From this the Urban Pedagogy Lab was born, with the intention of using the capacity of the Master of Architecture (Prof) final year thesis project to provide an extensive collection of research focussed on solving the future challenges of healthcare in New Zealand.

This collaboration continues at the Auckland University of Technology (AUT) through Dr Kathy Waghorn, who promoted the collaboration with Ara Manawa in developing research investigating the future of the ADHB's Greenlance Clinical Services Center.

This thesis was developed with the objective of highlighting adapative reuse as a means of modifying existing hospital buildings for future purposes. The thesis references the work of past contributors of the Urban Pedagogy Lab and adds to the collective knowledge built through the collaboration of Ara Manawa and AUT.

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Glossary

Preservation

Preservation of a place involves as little intervention as possible, to ensure its long-term survival and the continuation of its cultural heritage value.

Preservation processes should not obscure or remove the patina of age, particularly where it contributes to the authenticity and integrity of the place, or where it contributes to the structural stability of materials.

Restoration

The process of restoration typically involves reassembly and reinstatement, and may involve the removal of accretions that detract from the cultural heritage value of a place.

Restoration is based on respect for existing fabric, and on the identification and analysis of all available evidence, so that the cultural heritage value of a place is recovered or revealed. Restoration should be carried out only if the cultural heritage value of the place is recovered or revealed by the process.

Reconstruction

Reconstruction is distinguished from restoration by the introduction of new material to replace material that has been lost.

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.

Reconstructed elements should not usually constitute the majority of a place or structure.

Adaptive Reuse

Adaptive reuse is the process of renovating or reimagining an existing building for a purpose other than what it was originally designed or built.

Contents

Research questions:

Can interventions be made to historic buildings in a way that regenerates them for contemporary use, while still maintaining the quality of oldness and honouring the building's particular history?

What adaptive reuse strategies might best meet the specific needs and contexts of healthcare architecture while maintaining social legacy?

What opportunities arise when we design to maximise use of existing built material?

1 Introduction

New Zealand's cultural heritage is diverse and founded on a unique mixture of Māori and European that warrants protection in all forms (ICOMOS New Zealand (Inc.), 2010, Sepuloni, 2022). Protecting buildings of historic significance is a means of ensuring the stories of the past are preserved through the built environment. In a healthcare facility, the significance not only lies in the date of construction and architectural form, but in the care given to patients within the confines of the building. The protection of the building is the first step as Heritage Listed buildings often require practical modernisation to ensure they remain fit for purpose. In New Zealand, the vulnerability of historic buildings to demolition (by force or neglect) has been highlighted due to the recent implication of more stringent seismic regulations.

This research explores the application of adaptive reuse alongside other architectural ideologies to bring a protected hospital building in Auckland, New Zealand back into use. This research will delve into architectural manifestos that advocate for the preservation of all buildings due to their recording of a place's past and the environmental savings that can be made by reuse in lieu of demolition. The research also highlights the potential opportunities intervention provides to improve the building's connection to past and present environment. The contextual study also investigates how a design led approach can add value to the adaptive reuse process. The current state of the built environment in New Zealand and the historic buildings that are at risk of demolition illustrates the wide reaching implications of this contextual study.

The context for this research is Heritage Listed Building 5 at Greenlane Clinical Centre, one of the 6 major hospitals within Central Auckland, New Zealand. The context includes the significance of the nearby natural landmark, Maungakiekie in te Reo Māori and One Tree Hill, in English, as well as the history of the building and hospital itself. The selection of the context for this research was due, in part, to the collaboration with Ara Manawa, a design and research studio committed to developing innovative solutions to challenges in the New Zealand Health Sector (Ara Manawa, 2022). The context also introduces another aspect of the research which is looking at how adaptive reuse strategies may best serve historic healthcare facilities that have a complex and meaningful history.

The design proposition has been explored through a combination of digital and physical models. The proposition of a multipurpose community space reflects the theories and histories explored while leveraging the existing collective work and the formal precedent set by the 1970s eastern addition. The design proposition aims to offer practical interventions that ensure the building is flexible and usable into the future.

Figure 1 Building 5 (left) and The Costley Home, Green Lane West, Epsom, 1918 (Winkelmann, 1918)

Figure 2 Building 5 today

2 Historic Buildings in New Zealand

2.1 Heritage Listing

This chapter firstly presents a discussion on Heritage Listing in New Zealand and what it means to be Listed. According to Heritage New Zealand Pouhere Taonga, the New Zealand Heritage List recognises the heritage significance of a place, assessed against a national standard (Heritage New Zealand Pouhere Taonga, 2023b). The List does not solely protect a building from demolition as this also depends on the District Plan. A building on the Heritage List can also be removed from the list after 3 years, or 3 years after the latest review. Furthermore, despite Heritage NZ's best efforts, there are buildings that are demolished before they are recognised as significant architecture.

For instance, in 2022, Ian Athfield-designed First Church of Christ Scientist, a unique example of post-modernist architecture and early work of a significant New Zealand architect, was demolished (Harkness, 2022). Architecture aside, the building also housed and incorporated crafted artworks including ceramic tiles by prolific artist and ceramicist Doreen Blumhardt which were largely destroyed in the demolition (some items were saved and photos recorded the building part way through the demolition, as displayed in the appropriately named Objectspace Exhibition "Less than 5 per cent").

This outcome highlights a flaw in the heritage listing process, where the metrics used to judge the value of a building tend to favour old, traditional buildings and more contemporary, novel buildings can be overlooked. Furthermore, it highlights the issue with protecting buildings relying on public initiative and intervention. Often, it is only with time that the significance of a building is fully understood and appreciated by the wider public, and putting the onus of protecting buildings until such time on a small group is ineffective.

There is a further challenge in ensuring buildings from a colonial past engage with the diverse cultural environment that is modern day New Zealand. An element of this is working with the indigenous people of New Zealand, Māori, or tangata whenua.

In 2004, Bill McKay wrote that it is no longer sufficient to apply western notions to indigenous architecture (McKay, 2004). In 2018, McKay and Hill covered the demolition of the Aniwaniwa Visitor centre (Hill & McKay, 2018). The building was designed by renowned Māori architect John Scott (Scott, 2019) and was considered a highly significant work by a largely Pākehā architectural community. Limiting the discussion to architectural significance discounts the viewpoint of Ngāi Tūhoe who saw the building as a symbol of cultural imperialism in Te Urewera (Hill & McKay, 2018). Two articles by McKay and others, 14 years apart and calling for the same outcome, a genuine bicultural partnership, shows that New Zealand still has a way to go when dealing with "Heritage" and Māori interests.

At the panel discussion "In Honour of Jeremy Salmond: Let's Talk About Old Buildings, New Work and Design" as part of Architecture Week 2023, Julia Gatley and Rau Hoskins considered the term "heritage" and how it is only applied to the New Zealand European view and usually refers to some colonial era building or object, discounting the much earlier history of Māori in New Zealand (Julia Gatley and Rau Hoskins, personal communication, September 21, 2023). Furthermore, the idea of heritage in te ao Māori (the Māori worldview) has many other meanings such as how it is described in The New Zealand charter for the conservation of cultural heritage, "It shapes identity and enhances well-being, and it has particular cultural meanings and values for the present, and associations with those who have gone before." (ICOMOS New Zealand (Inc.), 2010)(pg 2). It is important to recognise there is a disconnect in the very language used. While it is impossible to completely avoid using the term in this thesis, especially given the name of New Zealand's historic building organisation, the use of the term is minimised.

2.2 Seismic Regulations and Structural Retrofit

Even if a building does get Listed, it can still be allowed to fall into disrepair. Particularly in New Zealand, Listed buildings can be vulnerable to earthquake damage if no strengthening work is completed, as evidenced by the 2010/2011 Canterbury earthquakes (Potter et al., 2015). Ultimately, some 140 Listed buildings were demolished in Christchurch following the 2011 earthquake (Walton, 2021).

As a result of the Christchurch earthquakes and heightened awareness, the seismic regulations in New Zealand have been strengthened. The Building (Earthquake-prone Buildings) Amendment Act 2016 (BEPBAA) sets timeframes for buildings to either be strengthened or demolished, in Auckland, this timeframe is 35 years (Ministry of Business, Innovation & Employment Hīkina Whakatutuki, 2016).

Research has been conducted through two case study cities in New Zealand to investigate the implications of the newly enforced policy (Aigwi, E. et al., 2019, Aigwi, I. E. et al., 2020). The findings were an increased risk of underutilisation of historic buildings due to cost-benefit implications for owners to invest in seismic strengthening. Furthermore, the condition of the historical building stock in the two city centres investigated, Invercargill and Whanganui, greatly influenced the attitudes of the public in their support or opposition of building consent applications for demolition (Aigwi, I. E. et al., 2020).

Speaking more broadly of renovation, in New Zealand, energy retrofit with seismic upgrades has been explored through a study on unreinforced masonry buildings for future proofing (Besen & Boarin, 2023). The study showed that energy retrofit options show a dramatically reduced heating demand and need to be carefully considered with seismic strengthening solutions as the interactions may be positive or negative.

The Christchurch earthquakes highlighted the need for more stringent seismic regulations. Research has also highlighted the risk posed to historic buildings, that they will be left to fall into disrepair and demolition instead of being properly invested in. This is a major motivation for this research to promote the protection, necessary intervention and ongoing use of historic buildings in New Zealand.

2.3 Built Heritage New Zealand – Research Topic

Protection via Heritage New Zealand Pouhere Taonga, alone, is not adequate to ensure the future use of a building. In most cases, more intervention is required. This research explores how architectural theories promoting adaptive reuse and renovation can be applied to New Zealand in the context of a Listed Hospital building and is relevant to the current state of historic building stock at risk of underutilisation throughout New Zealand. The selection of a Listed hospital building for the context of this research was due to the complexities this adds to the design but also reflects a fundamental belief behind this research, that existing buildings should be used where possible in lieu of new build. In the case of a Listed building, steps have already been taken to protect it, therefore, it provides the perfect opportunity to reimagine a use for the building and envisage the necessary interventions to make that happen. To allow a protected building to eventually be demolished is a counter-intuitive position that, in this researcher's opinion, should be avoided. This stance will be supported further in the thesis.

Figure 4 A physical massing model used to study the built infrastructure at Greenlane Clinical Centre. This model includes the 'E' shaped building to the West of the campus (former Nurses accomodation), which at the time of writing was the most recent building demolished. This follows a pattern of demolishing buildings considered not fit for use and replacing them with purpose built facitlities, only to repeat the process just a few decades later. In subsequent figures the 'E' shaped building is shown as an outline before before being removed entirely. Scale 1:1000

Figure 3 Ian Athfield First Church of the Christian Scientist (Objectspace, 2023)

3 Adaptive Reuse – Renovation over Demolition

Adaptive reuse is the process of renovating or reimagining an existing building for a purpose other than what it was originally designed or built (Caves, 2005). The practice has positive environmental outcomes and keeps character and history in the built environment (Wong, 2017). Adaptation is one of the degrees of intervention employed in conservation as identified in the ICOMOS New Zealand Charter (ICOMOS New Zealand (Inc.), 2010) alongside preservation, restoration, and reconstruction. The key benefit of adaptation is ensuring that existing buildings do not fall into disrepair due to lack of use. This has commercial and operational outcomes but also has potential for conservation of underutilised historical buildings (Aigwi, I. E. et al., 2019). A fundamental challenge for the practice is how to transmit the legacy of the past to the future in a manner than engages with that future (Plevoets & Cleempoel, 2019). Key drivers for adaptive reuse will be explored in the following sub sections including, environmental motivations, adaptive reuse and architectural practice, and adaptive reuse and healthcare facilities.

3.1 The Environmental Cost of Demolition

Modern day building materials such as concrete and steel have a large upfront carbon footprint and this is usually justified by their theoretically long lifespan (Till & Wigglesworth, 2006). This justification is undermined when the building is demolished prior to the end of its life.

In the Keynote of the July 2023 issue of the Architectural Review, Joe Giddings calls for an end to demolition and the need to 'recognise our existing built environment as energy already spent' (Mollard, Beaumont, & Rapacki, 2023)(p. 6). In the same issue this message is reiterated with the current, stringent, carbon restrictions cited as the reason for an overhaul of the construction industry. Within the next three decades, fully new construction will have to be rare, with the existing built fabric providing the base for projects (Giddings, 2023). A steadfast adherence to practices such as adaptive reuse combined with super-efficient construction is provided as the way forward for the architecture and building industry.

In New Zealand, the Policy for the Management of Cultural Heritage Places also recognises the environmental benefit as well as the cultural benefit of protecting historic buildings. The policy stipulates that conservation and appropriate adaptive reuse allows for sustainable use of resources, minimises waste and promotes 'retention of embodied energy' (Sepuloni, 2022)(p. 6). The idea of a building representing a significant energy expenditure, as in Giddings' piece, is poignant. A building is an expression of a huge amount of work done; extracting and processing the raw

Figure 5 Public Housing Extension Grand Parc (Lacaton et al., 2023)

materials, transporting materials to the site, and finally construction. Thinking in this way also highlights the energy that is wasted in demolition and new build. Carl Elefante, when talking about environmental buildings, famously said "the greenest building is one that is already built" (Young & Elefante, 2012)(pg xvi).

3.2 Architectural Theory and Motivation

For some architects, the principle of never demolishing a building has become central to their practice. In 2021, Lausanne-based architect and urban theorist Charlotte Malterre-Barthes called for 'a global moratorium on new construction' until building materials and methods are adapted (Giddings, 2023)(p. 8).

In 2004, a group of three French architects published their manifesto in response to France's 1960s and 1970s urban regeneration program. The program proposed the demolition and redevelopment of large-scale social housing developments. In response, the PLUS theory (PLUS—Les grands ensembles de logements–Territoires d'exception) was created by Frédérik Druot, Anne Lacaton, and Jean-Philippe Vassal (Andrew Ayers, 2019). PLUS had the main aim to modernise existing buildings in place of demolition, and to add extra living space, functional freedom, and comfort. The 6 key principles of the French architects were;

1. Never demolish, always add
2. Provide luxury
3. Keep the existing community
4. Give what the inhabitants need
5. Plan
6. Save. (Trzcińska, 2021)(p. 4)

The first principle is obvious, the architects created their theory in response to France's plan to demolish a large number of older buildings and to provide modernisation of these existing buildings as an alternative. The second relates to luxury which the architects define as "giving freedom, pleasure, generosity, well-being, and sky" (Zacharias-Vultur, 2019)(p. 33). As the architects believed in regenerating the buildings whilst allowing residents to stay in their homes, principle 3 relates to preserving the community and principle 4 ensures the residents get what they need. The needs of tenants can be answered by collecting information and guidelines from current residents as well as by precisely and clearly

communicating modernisation intentions. The added complexity of working on inhabited buildings means detailed planning and cooperation of involved entities is of utmost importance to ensure success of the project. Lastly, recycling existing buildings, alongside careful and selective adaptation, allows for large environmental and financial savings.

Whilst the PLUS theory was originally developed for residential buildings, the architects truly believed in the benefits of regenerating existing buildings in place of demolition and have applied their mantra to the design of hotels, architecture schools and museums (Andrew Ayers, 2019). Milena Trzcinska analyses the architectural theory and investigates how it could be applied to Polish large-scale prefabricated housing estates (Trzcińska, 2021). This shows how the PLUS theory can be considered for real life projects and not just those envisioned by the PLUS creators themselves. The principles can be extended to the context of this design research thesis where we explore how a Listed hospital building can be honoured, revitalised and brought from dereliction back to use through adaptive reuse and renovation.

In the book, Never Modern, Irenee Scalbert explores the role of narrative, history, and appropriation in the works of the London-based firm 6a architects (Scalbert, Emerson, & Macdonald, 2013). 6a architects are not solely interested in conservation and believe that attempts at returning buildings to their original condition ultimately robs them of their prized quality that is their oldness (Scalbert, Emerson, & Macdonald, 2013). They do, however, value the complete life-cycle of the building and delight in finding forgotten details that can be celebrated. A difficulty faced by this group of architects is a key challenge in adaptive reuse, how can a building be celebrated for its past while being made usable for the future. Worded differently by the historian Raphael Samuel: ‘how far can adaptive re-use be carried before it becomes something else?’ (Scalbert, Emerson, & Macdonald, 2013)(p. 30). The methods of these architects which lies between conservation and modernisation provides a useful method to be applied in the context of this research. This is further explored in Case Studies (Section 5).

3.3 Adaptive Reuse and Healthcare facilities

Researchers Gola et al. recognise that the regeneration and reuse of abandoned healthcare facilities represent one of the most complex issues in the adaptive reuse space. Contemporary research has been explored through the analysis of different case studies (Gola et al., 2022). The paper compares 10 case studies of healthcare facilities being converted to other buildings such as hotels and universities. There is added complexity when the building must continue to function as a healthcare space. Research has been done into the challenges in achieving high environmental and building service performance of an urban heritage hospital (Samodra & Sudarma, 2019). Whilst technical in nature, this paper highlights key factors when designing and planning for a heritage hospital such as being aware of the different zones and levels of care (high-care (in patient) to daycare(outpatient)).

In the context of this research, Building 5 is unsuitable for a modern, high care surgical facility but is perfectly adequate for use as an auxiliary, mixed use space which will be explored in further detail in the following sections.

4 Methodology

Architectural research has existed throughout the history of architecture, and most likely existed firstly as practical research, or trial and error as the process for building evolved and changed with the discovery of new materials and methods (Groat & Wang, 2013). Currently, architectural research exists in many forms from trial and error to a more academic systematic inquiry directed to furthering knowledge on the subject. Some researchers argue that embracing a research model will lift the status of architecture to the level of other professions such as engineering and medicine (Groat & Wang, 2013). Much architectural research focusses on the physical outcomes of the design, however, research on process and practices is equally as vital. An everincreasing proportion of architectural practice involves unfamiliar circumstances beyond the expertise of individual practitioners, and outside convention. For this reason, architectural research is essential to increase the collective wisdom of the profession.

Design-led research implements design practices, processes and tools to investigate what can be learned by action rather than observation and provides a strategy to achieve creative solutions to problems (Groat & Wang, 2013) A design approach provides analysis and information on physical outcomes and also examples of how to achieve those outcomes. Design led research is well placed to further the capabilities of architects in practice, as it not only provides outcomes for a given project, but a process that can be modified and adjusted for wider reaching applications.

Following the primary research phase where the state of historic buildings in New Zealand was presented alongside the motivation for adaptive reuse, a systematic research methodology was applied to the thesis that allowed for the development of practical design solutions for the repurposing of Building 5 at Greenlane. The methodology applied includes a combination of archival research, contextual and case study analysis, and visualisation of design interventions through physical and digital modelling.

4.1 Archival Research and Contextual Analysis

Analysis of relevant case studies provided real life examples that helped inform the design framework for this research. A detailed contextual analysis was carried out that explores the history of Building 5 and nearby landmarks and provides a deeper understanding of the history of the place as well as highlights opportunities to link the building to its surroundings.

Following the research and analysis phase, the programme and interventions for Building 5 were explored and designed. Aligned with the manifestos and practices explored through research, the design

essentially relies on making considered decisions on what to keep and what to change, with regard to Building 5.

4.2 Design-led Research and Model Making

Firstly, I created a digital model of the building based on the drawings in Base Assessment provided by Burgess & Treep & Knight Architects (Burgess & Matthews, 2008). The main design propositions are remediation and programme, the integration of an internal strengthening structure and redevelopment of the 1970s Eastern addition.

The propositions were further developed through the creation of physical models which allowed for testing elements of the design such as scale and form. Architectural scale models are an important part of the design process for many architects. To this day, 6a architects make extremely detailed, dolls house like models that express minute details in the rooms of their buildings (Scalbert, Emerson, & Macdonald, 2013). In the book On Longing, (Stewart, 1992) Susan Stewart writes how things in miniature invite the viewer into a different place and time, a medium favoured by architect, artist, or even children at play with a dollhouse. Buildings are human experiences and, likewise, physical models have an experiential quality to them as the viewer examines them from many angles and perspective. Where a picture is worth a thousand words, a model can be worth “at least a thousand pictures” (Smith, 2004) (pg 19). For these reasons, I have used models as a design tool and communication device to increase engagement with my ideas, and therefore, increase engagement with Building 5 itself.

Applying the knowledge gathered and a design process has allowed for a practical design solution for repurposing Building 5 at Greenlane. It is the objective of this research that this kind of practical design solution that honours the history of the building can encourage greater application of adaptive reuse strategies to ageing buildings in Aotearoa, New Zealand.

5 Contextual Analysis

Greenlane Clinical Centre is one of the 6 major hospitals within Central Auckland and provides healthcare across all age groups within the area. It currently delivers outpatient services and day-stay surgeries with no emergency facilities. It is located beside Maungakiekie, the largest of the Auckland volcanoes (One Tree Hill Borough Council, 1989). The Centre includes two Listed buildings, Costley Block and Building 5. Building 5 is protected but is not currently in use and is the topic of this research.

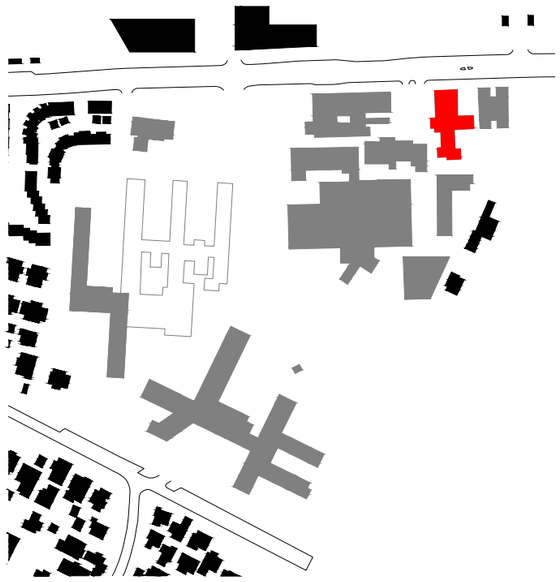


Figure 6 Key showing Greenlane Clinical Centre Campus, Building 5 is in red and North is at the top of the page. Scale 1:5000

Next page: Figure 7 An Auckland Council GIS image of the project site (circled in red) showing the wider context including Maungakiekie (centre-bottom) which is partially boarded by an historic wall. Medium-density housing is being developed in stages around the periphery of the race course to the North. Scale 1:5000

5.1 Maungakiekie and Surroundings

Maungakiekie or One Tree Hill was once the largest of Māori settlements in the area (One Tree Hill Borough Council, 1989). In te Reo, the area was named for the mountain (maunga) and a strong climbing plant that grew over trees in the North Island Bush (kiekie), implying that the hill was at least partially covered in bush when it was first settled by Māori. Maungakiekie provided access to the Waitemata and Manukau for seafood and nutrient rich soil for cultivation due to the volcanic deposits. The size and height also made it an ideal location for defence and habitation for a large number of people. Archaeological findings show that the area was cultivated by Māori as early as 1200 (One Tree Hill Borough Council, 1989).

The Waihua iwi occupied Maungakiekie from 1600 to 1750 until Chief Kiwi Tāmaki gave Ngati Whatua a long-awaited reason to attack and take the land. To avenge some of his relatives that had been killed by Ngati Whatua, Tāmaki killed the sisters of the Ngati Whatua chief, Tarahawaiki (One Tree Hill Borough Council, 1989) (Maungakiekie-One Tree Hill - roadside stories.2016). Chief Kiwi Tāmaki fell in the resulting battle at Paruroa, now known as Big Muddy Creek, and Ngati Whatua then dominated the hill. They lived in peace until 1825, when the introduction of muskets by European traders rendered the fortifications at Maungakiekie obsolete and the pās were eventually abandoned (One Tree Hill Borough Council, 1989).

The English name given to the landmark, One Tree Hill, comes from two trees planted on the maunga. An ancient Tōtara once stood on the hill, planted in about 1600 to mark the birth of the Ngati Awa chief's son, Koroki. The tōtara seedling was used to cut Koroki's umbilical cord and imbued with his mana the tree flourished for 200 years, giving the hill the second name Te Tōtara I ahua (The Tōtara that stands alone) (One Tree Hill Borough Council, 1989). In 1852, the tree was destroyed by a party of Pākehā workmen who were allegedly angry that their lunch spot had not been prepared in advance. A Tōtara was unable to be re-established on the hill (One Tree Hill Borough Council, 1989).

The history of Maungakiekie has only been explored in brief here, and still, reading about the destruction of the Tōtara, imbued with the mana of Koroki, evokes a real sense of loss. Eventually, from a planting of pines, only one survived and remained until 1999 when it was damaged by Māori activists who deemed the non-native tree as inappropriate for the landmark (Maungakiekie-One Tree Hill - roadside stories.2016). As per previously discussed with the use of the term 'heritage' for colonial buildings, this is another example of a misunderstanding and misrepresentation of Māori interests. In 2016, a grove of Pōhutukawa and Tōtara was planted in the hopes that a single tree would be selected to stand once again on the windswept summit (Maungakiekie-One Tree Hill - roadside stories.2016).

Maungakiekie now sits within the large public greenspace of Cornwall Park and is a major landmark in the vicinity of the hospital which is largely surrounded by residential buildings. Neither the rich history of the site nor the significance of the landmark is referenced in the architecture of the Greenlane Clinical Centre.

5.2 Greenlane Clinical Centre and Building 5 History

5.2.1 Greenlane Clinical Centre History and Current State

Greenlane clinical centre began as 'Costley Home for the Aged poor.' A charitable institution set up by Edward Costley, Costley House was built on the Greenlane site in 1889. Building 5 was built in 1906 due to an increasing demand, originally as the male infirmary wards. Female patients were included in the building later when the complex was expanded and became known as the Auckland Infirmary (Hutchison, 1990).

The age care facility grew into a hospital over the next decades. The six storey Main Block was opened in the 1940s followed by several other large and small additions including the National Women's Hospital and a 7 storey building that now forms the Centre's main block. In 1989, largescale institutional restructuring stripped the hospital of many of its services and left it as a specialist facility, eventually rendering it into the Greenlane Clinical Centre (Hutchison, 1990). A detailed history of the Centre is provided in Kavita Sharma's thesis (Sharma, 2020) and is covered in brief here, with a more detailed look at Building 5 itself.

The site now contains a conglomerate of buildings of different eras since the building of Costley Block in the late 1800s. The site has issues of accessibility and parking, as well as a recent history of demolition of many of the historic buildings including the removal of the female infirmary and the nurses block (Sharma, 2020).

5.2.2 Building 5 Early Years

Building 5 was only the second building to be built on the site. According to Robin Byron's report on behalf of the New Zealand Historic Places Trust / Pouhere Taonga (NZHPT) (Byron, 2007), it was based on a model of hospitals of the period to maximise sun, light and air, apparent in the long, narrow form of the building. When the wards were built, they were used as long-stay wards, and most of the patients would spend the rest of their days there (Hutchison, 1990). Though they

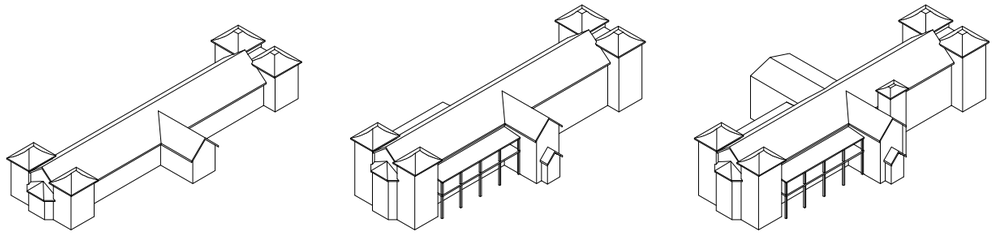


Figure 8 A diagram of the physical evolution of building 5 from 1906 to today. Scale 1:1000

required medical care, the hospital staff endeavoured to maintain some level of patient independence for as long as possible. The patients received basic therapy, close supervision and specialist care and due to this high level of care, many survived for years. Edward H. Roche wrote about Greenlane Medical Centre and beautifully evokes what may be lost as a hospital grows in size:

It is in danger of losing some of the warmth and sincerity in its contact with sick people. Some of the little extra acts of kindness may be forgotten. Some of those communications, spoken and unspoken, between nurse and patient, which can impart courage and confidence and make the pain and discomfort so much easier to bear, may be stifled by the impersonal atmosphere. (Roche & Roche, 1983)(p 201).

Roche's words highlight an important aspect to remember regarding hospital buildings. They are, first and foremost, facilities that have sheltered and cared for sick patients. Roche is warning how impersonal hospital design can impact the healing experience itself. With regards to Building 5 and the Greenlane Clinical Centre, the Listed building is an original, personal touch to the hospital. It is a connection to the past that is now rare for the site, as Greenlane Clinical Centre has recently resorted to demolishing its older buildings.

5.2.3 The Road to Heritage Listing

Despite the importance of the building and the history of the ward, the path to Heritage listing was not always smooth. In the early 2000s, assessments of the building fell below the threshold for protection and it was scheduled for demolition following decades of failing to meet safety standards, particularly related to seismic risk (Sharma, 2020). The Auckland District Health Board (ADHB) made an application to the Auckland City Council to demolish Building 5 (Auckland District Health Board, 2007). It was the ADHB's view that Building 5 had outlived its useful life and the building held only modest historical significance. The Board claimed it was not funded to preserve historic buildings and that as per the District Plan, Building 5 was already scheduled for demolition. The application was made in order to demolish the building as a matter of urgency before the opening of a creche elsewhere on the site (Auckland District Health Board, 2007). It was only with active action from residents (following the removal of female infirmary and nurses block) in contacting the NZHPT that a report and assessment were completed by Robin Byron that called for the building (and Costley Block) to be Heritage Listed (Byron, 2007). Two key reasons given for the building being fit for demolition are described below, along with Byron's countering arguments for protection.

The building had received a second storey addition which was used as a means of diminishing its historic significance. Byron counters that the addition was planned less than 10 years after the completion of the building and was completed in 1917. Furthermore, the addition of the second storey was executed by the same architect and, based on Lisa Truttman's research, is essentially a replica of the ground floor ward (Byron, 2007). The addition was also completed at the start of the First World War and was delayed due to material shortages which Byron argues heightens the social heritage value of the building. Burgess & Treep Architects was appointed in 2008 to report on the current state of Building 5 and Graeme Burgess seconds Byron's views, that the overall importance of a place lies in its cumulative history (Graeme Burgess, personal communication, June 29, 2023).

Whilst Byron is clearly advocating for protecting the building, the points here are valid comments on historic buildings in the New Zealand context and echo the sensibilities of the 6a architects explored in earlier sections of valuing the building life and story (Scalbert, Emerson, & Macdonald, 2013). Where weight is given to the date of construction and overall age of the building, the historic value of the building comes not just in the period architectural form, but in the overall life and story of the building. On face value, a second storey addition may seem to detract from the significance of the building but looking at just a few details, this reason for demolition is revealed to be fickle and opportunistic.

Another reason given for demolition of the building is that Building 5 is blocked from view by vegetation and lack of access, therefore, it cannot be enjoyed by the public. Byron counters these arguments, underscoring the most telling example of the value of the building, with the advocacy of residents in the area who had heard of the potential demolition and had expressed their concern over its loss. Perhaps it is inadequate to say that the public "enjoy" this building, rather they recognise the role it has played for their community and the story of the building as a care facility, which they deem worthy of protection.

In 2008, following the protection of the buildings, Burgess & Treep (now & Knight) Architects were appointed to carry out the Base Assessment report with recommendations for remedial work for Building 5 (Burgess & Matthews, 2008). That was 15 years ago now, and despite the efforts to protect the buildings, Building 5 and Costley House are suffering demolition by neglect. They are used for storage and Building 5 has also been used by squatters and the homeless. A common analogy is drawn between architecture and living bodies. Anna Puigjaner makes the link between repairing and healing when discussing some adaptive reuse examples. "Both notions imply a nuance, a difference intrinsic to their object. Bodies need healing, whereas repair can be applied to systems or mechanisms." (Puigjaner, 2022) (p. 62). In this case, there is a stark contrast between the care shown to patients during the working years of the Auckland Infirmary and the attitude to the building as it is left to crumble.

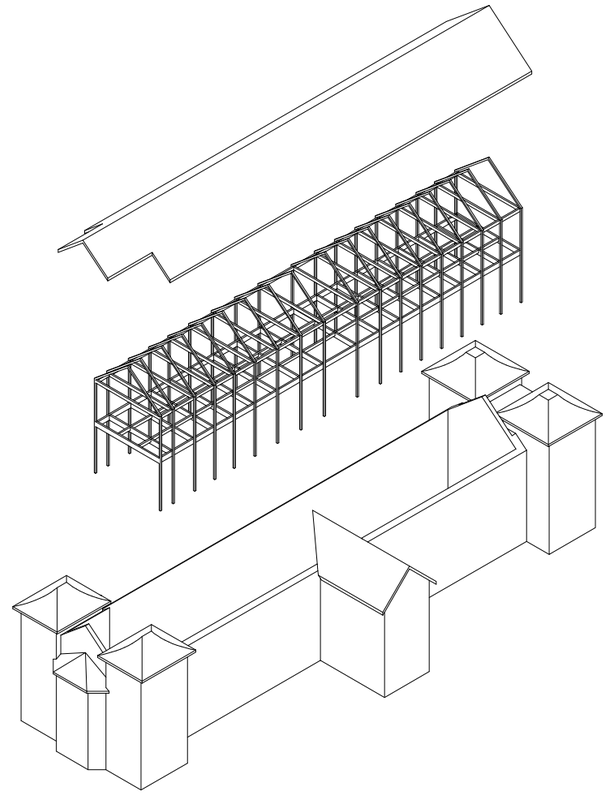


Figure 9 Early concept drawing showing an internal structure iteration, this was initially imagined in steel following the report findings. Scale 1:500

Next page: Figure 10 A figure-ground diagram showing the built and non-built fabric of the site and wider context, North is at the top of the page. Building 5 is principally West facing and does not directly engage with Maungakiekie (south-south-east). The surrounding context, beside the development mentioned earlier, is predominantly stand alone residential housing with some light commercial concentrated along the main thoroughfares. As North of the site becomes more built-up, the opportunity to engage with Maungakiekie is more critical. The diagram highlights the area in front of Building 5 (West), which Ara Manawa suggested could become an 'Atea' (meeting space). Non-built space at the campus is typically dominated by cars. Scale 1:5000

5.3 Photo Analysis of Project Site

This section explores recent photographs of Building 5 in relation to its surrounding context including neighbouring buildings and view shafts to Maungakiekie.

This section also shows some of the general condition and existing elements on site. Building 5 is currently fenced off and is considered unsafe so photos are limited to the exterior, however, with the aid of archival drawings reproduced in the next section there is sufficient information for the purposes of this thesis.

Figure 11 View of Building 5 and Costley Block (right) from Greenlane West footpath, Maungakiekie can be seen in the background.

Figure 12 View of Building 5 1970s addition (Eastern Wing) looking Northwest. The cladding contains asbestos, the window openings are very small and do not relate to the original building. The junction between the addition and principal form roof is complicated.

Figure 13 View of the 1970s addition edge and neighbouring Home Dialysis Unit by peddlethorp architects, this building does not feature on the their website.

Figure 14 View of Maungakiekie from the southeast corner of the Eastern Wing.

Photograph key:

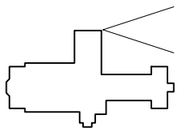


Figure 15 View of the northeast fire egress addition and partially walled-in verandas. A similar stair was removed from the Eastern Wing.

Figure 16 View of the Eastern Wing north facade and west verandas, obstructed by a surviving tree.

5.4 Drawing Analysis of Building 5

This section was created by reproducing drawings from the Auckland Council property file archive. As Building 5 is inaccessible this was an important phase of research prior to the formal development. The drawings were also used to create a digital model to further explore the internal spaces before working on the proposition in Section 8.

Building 5 is essentially one main gable form with two towers at either end, as mentioned the East wing was added in 1970. Building 5 is serviced by a primary circulation core at the main entrance (west) including the original stair and elevator added around 1950. Two egress stairs were added to the exterior around the same time.

The section drawing through the main form and verandas shows the narrow hall opening, adjacent rooms, suspended ceiling on the ground floor and general roof structure.

The ground and first floor plans on the next page clearly show the segmented interior layout. This is especially problematic in the East Wing which, as pointed out, has small window openings and is partially shaded by the main form during the latter half of the day.

At some point during the buildings history the verandas were partically walled-in to create more rooms. A small lean-to strucutre has been added to the southeast corner.

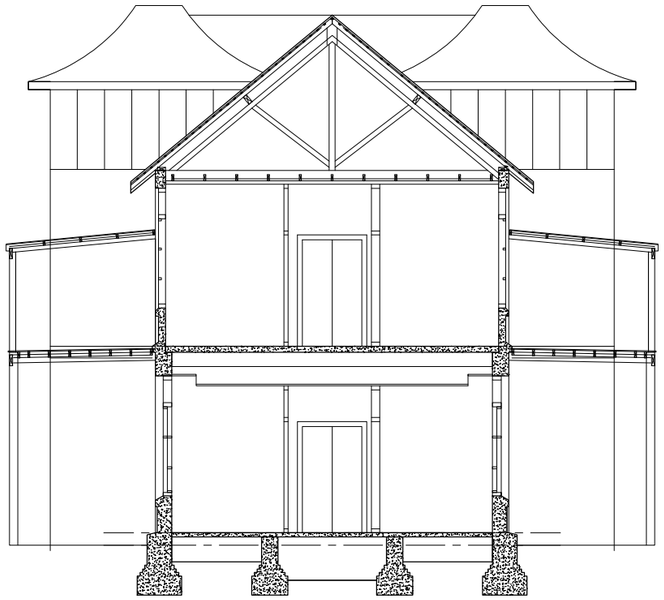


Figure 19 Section of Principal Form Existing
Scale 1:150

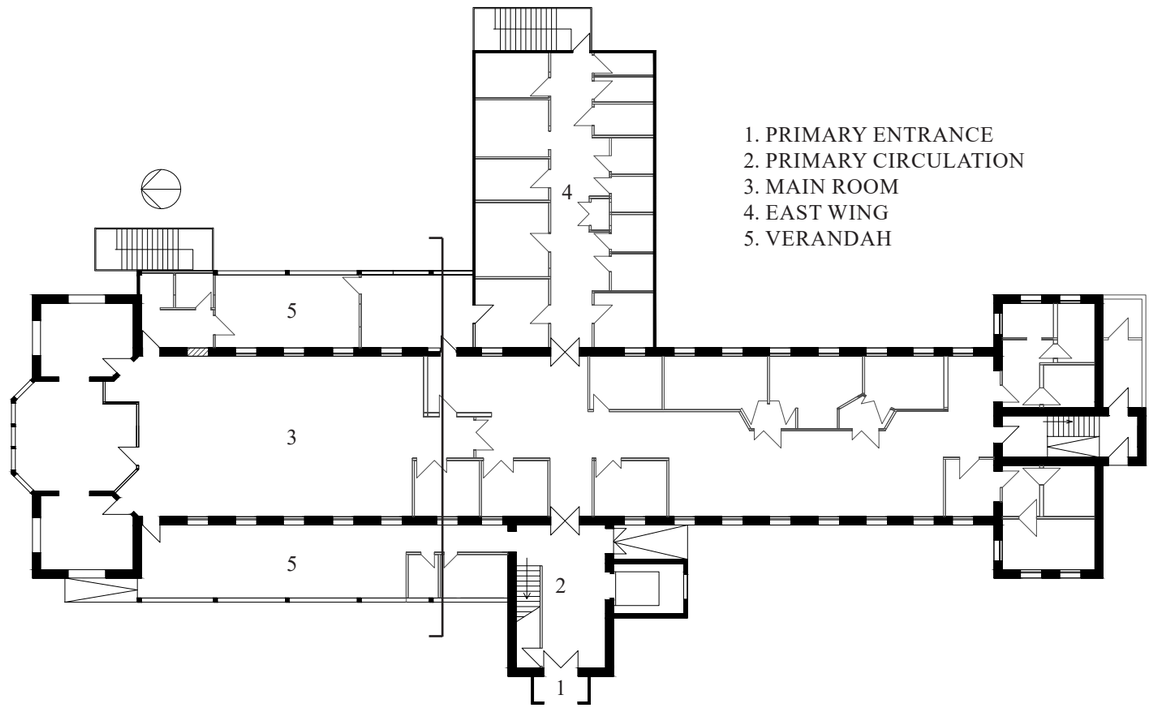


Figure 17 Existing Ground Floor Condition
Scale 1:300

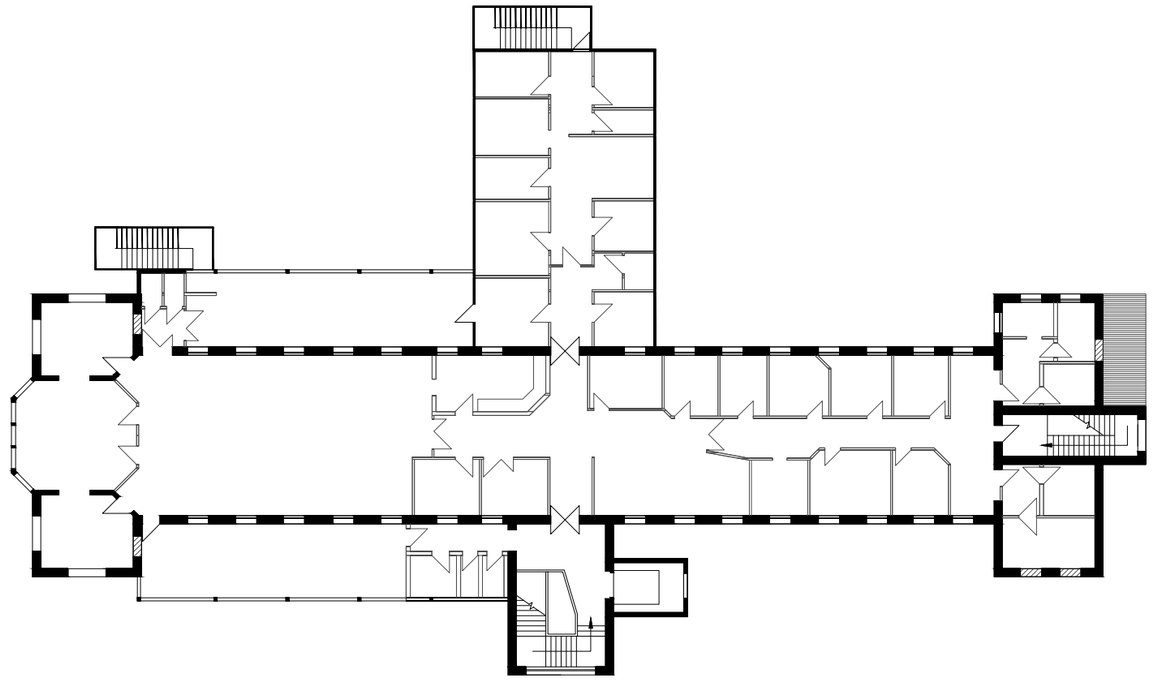


Figure 18 Existing Upper Floor Condition

6 Case Studies

6.1 Renovation and Restoration

World War II left a large number of European buildings of significance in need of rebuild and remodelling including the Neues Museum in Berlin, Germany (Plevoets & Cleempoel, 2019).

The Neues museum presented a huge challenge as it had been heavily damaged during WWII and was left in ruins during the Soviet Era. In the late 90s, David Chipperfield was appointed to restore the building. Reconstruction was impossible and Chipperfield chose instead to exhibit and celebrate the signs of history, including bullet holes and heavy patina. This was novel for the time and described as a kind of 'third way' between demolition and new build, and a full renovation (Plevoets & Cleempoel, 2019).

Raven Row is an example of adaptive reuse executed by 6a architects (6a architects, 2023). Raven Row, a new non-profit contemporary art exhibition centre, including contemporary galleries, Rococco rooms, residency flats and studio space, opened in 2009. The project weaves through two eighteenth century silk mercers' houses in Spitalfields (Grade 1 listed) and a 1972 concrete framed office building. Raven Row was originally built in the 1690's but substantially remodeled by Hugenot silk mercers in 1754 and subsequently added to, converted, neglected, damaged and repaired over two and a half centuries (6a architects, 2023).

Figure 20 External Colonnade and Contemporary infill at Neues Museum (Chipperfield, 2010)

Figure 21 Revised Central Stair at Neues Museum (Plevoets & Cleempoel, 2019)

Figure 22 Fireplace at Raven Row (6a architects, 2010)

The listed building added a level of complexity and the architects had to balance conservation of history with also creating a new contemporary art space. An element of the design came about due to client attitude to this challenge and was named by the architect as ‘non-decisions’ (Scalbert, Emerson, & Macdonald, 2013). This resulted in concentrating interventions in certain areas and leaving other areas as found. This approach preserves key historic elements of the building, ensuring that the character of the old building is not lost in the renovation.

An alternative exercise in preservation is exemplified at Hill House by Charles Rennie Mackintosh where a skeletal structure is utilised to protect and exhibit the building while renovation works are carried out (Djabarouti, 2022). The “big box” temporary structure by the firm Carmody Groarke encapsulates and protects Hill House as a significant artefact whilst providing a unique viewing experience of conservation in progress. The cross-braced steel frame is designed to be grounded with minimum impact on the existing garden and while affording views to and from the building.
Whilst being a temporary structure, the renovation of the building will take place over years so this will be the image of the building for a large number of visitors. The structure, although fully encasing the historic building, does not detract from the significance of Hill House itself, rather it is a monument to the importance of the building and the effort going in to its protection.

Closer to home is Toi o Tāmaki, the Auckland Art Gallery (Gollings et al., 2011). This project included reorganisation of a heritage building including the removal of a 1970s addition. The renovation marries a heritage building (Heritage New Zealand Pouhere Taonga, 2023a) with a contemporary addition and better connects the gallery with the wider context of Albert Park through a series of roof canopies that mimic and extend the tree canopy of the park (Gollings et al., 2011) as illustrated in Figures 9. The canopies were the work of artists Arnold Manaaki Wilson and Anthony Wilson, Moments in Time Three Canopy Columns, that were one of a number of integrated cultural artworks. Through ceremony, acknowledgment and respectful consultation, as well as the authentic voices and hands of Māori and Pasifika collaborators, the Auckland Art Gallery project attempted cultural acknowledgement, adjustment and inclusion (ArchitectureNow Editorial Desk, 2023).

In this way, the Auckland Art Gallery is an example of the opportunity that interventions on historical buildings provide. The elevation in Figure 10 shows how the new addition is subservient whereby it does not compete with the existing heritage component through reduced scale

Figure 23 The Hill House Box by Carmody Groarke (The Hill House Box, Helensburgh, RIAS.2021)

Figure 24 Auckland Art Gallery Removal of 1970s Addition (Gollings et al., 2011)

Figure 25 Auckland Art Gallery Post Renovation (Gollings et al., 2011)

Figure 26 North Elevation Showing Recessive Addition (Gollings et al., 2011)

and offset at critical moments at street level and along the rear of the building where it meets the park.

One local example of adaptive reuse of a historic healthcare building is the Carrington Psychiatric Hospital in Auckland. After almost 30 years, Unitec School of Architecture vacated the historic Auckland building previously known as Carrington Psychiatric Hospital to make way for a local social enterprise trust who want to turn the building into a hub for education, art and community (Andrew, 2020). The imposing neoclassical building is described as "scowling" at the neighbourhood and is referred to as an enduring symbol of colonial grandeur (Andrew, 2020). This has ties, twofold, to Building 5 at Greenlane Hospital. Firstly, as a hospital building that has been adapted to a different purpose and as a building that represents cultural imperialism. On the flip side, the fact that this historical building has endured and must remain as a protected building has promoted flexible and industrious attitudes to how the building can be used for different purposes. The building has a complex history and the adaption of it from psychiatric hospital to architecture school highlights how, when a building is protected, we see more willingness or creativity to use it for contemporary purposes, despite its complex past. Perception is important, and adding to the story of the building through continued use, particularly through use as an arts and community hub, could perhaps soften some of the imposition of the physical building and it's imperial "scowl."

6.2 Structural Interventions and Strengthening

Following the Christchurch Earthquakes, many buildings, historic and modern, required structural interventions and seismic strengthening as per the increased regulations and to protect the buildings from damage in the future. Structural strengthening methods involve adding additional mechanical anchors and fixings between the building elements such as the façade and floor plate or roof, adding to the foundation, and adding stiffening material to the floor plates (Auckland Council, 2017). These interventions may be highlighted in the form of exposed exoskeletal or internal structure, but need not be overtly expressed.
The Arts Centre of Christchurch provides an example for how these interventions can be subtle as the earthquake strengthening and brick ties are discreet in the masonry. Where the seismic upgrades are visible, they are elegantly considered and present as a contemporary element protecting the building.

Figure 27 Unitec School of Architecture, previously Carrington Psychiatric Hospital (Schrader, 2012)

Figure 28 Christchurch Arts Centre Brick Tie Bracket detail (photo credit: Priscila Besen)

Figure 29 The Arts Centre of Christchurch (New Zealand Institute of Architects, 2023)

6.3 Conclusions – Case Studies

The case studies provide examples of renovation and adaptive reuse and show how best practice can balance both conservation and practical interventions. Consideration is not only given to the heritage elements but the story of the buildings and demonstrate how interventions can provide an opportunity to add to the story.

Whether it be; minimising interventions to preserve the character of a building, making decisions to highlight the buildings history, using protective structures that emulate the importance of the protected building, or using interventions as an opportunity to apply modern architecture techniques to tie the historic building to its surroundings, the studies provide important learnings of how to successfully implement adaptive reuse and intervention in practice. Ultimately, the interventions have added value to the buildings whilst preserving them for the future.

The learnings from these studies have helped inform the proposition for the context of this research and will be further explored in Section 7.

7 Design Framework

7.1 Position

The design component of this thesis began by creating a set of positions in response to the findings of Sections 5 and 6. The proposition will be in line with Lacaton & Vassal and 6a architects' theories in regard to retaining as much of the building fabric as possible while making sensible interventions that maintain existing merit and add value to the building. The thesis takes the position that there is equal value in all architecture when measured in terms of materiality or carbon footprint and not that of its current perceived architectural style or significance which, as explored, can become confused or contentious overtime.

The design concentrates works in some areas and leaves some areas as found or untouched. Design in this manner has been explored earlier in this thesis, at Raven Row (6a architects, 2023), through the PLUS theory by Lacaton & Vassal (Andrew Ayers, 2019) or the "third way" approach at Neues museum that celebrated all signs of history (Plevoets & Cleempoel, 2019). This is a necessary approach for the interventions on a Listed Building in New Zealand but also a philosophical approach that respects the history of the building. In the renovation, it is important to maintain the character of the building and that all important oldness. On the other hand, there is no benefit in protecting a building as it falls into ruin.

It is the position of this research that there is integrity and value in the existing material and the techniques used in construction of the original building. Again, quoting the historian Raphael Samuel: 'how far can adaptive re-use be carried before it becomes something else?' (Scalbert, Emerson, & Macdonald, 2013)(p. 30). If we consider this in the context of material, how much original material can be replaced before the building loses its original quality? Building 5 stands as a physical connection to the past, but moreover the material has been imbued with meaning and memory through its continued existence and use for over 100 years. This is the key motivation for adaptive reuse and the motivation for keeping as much existing material as possible.

As well as the decisions related to the balancing act of conservation and renovation, the conceptual basis for the proposition is the idea of Building 5 as a body in need of healing. Architecture has been analysed as prosthesis for humans where a building becomes a protective extension of the body (Wigley, 1991). Our homes shelter and protect us from the elements and even more poignantly, hospitals provide spaces for our bodies to be healed. However, we can also imagine buildings as bodies in the sense that Anna Puigjaner describes when she links healing bodies and systems of repair for buildings (Puigjaner, 2022). This is a particularly powerful image for the renovation of Building 5, where structural interventions and repair can be seen as mirroring the care and healing of people at the hospital.

7.2 Design Brief

The design brief for this thesis aims to test ideas that reflect the theories and histories explored throughout the thesis while leveraging the existing collective work from the reports by Burgess and Treep, Robyn Byron and Lisa Truttman, among others. It is not within the scope of this thesis to attempt to fully 'resolve' or 'redesign' Building 5 entirely. The non-clinical needs discussed with Ara Manawa will be indicated within the existing footprint of the building, these include teaching, community, whānau (family) and covered outdoor spaces. Broadly speaking, the proposition seeks to achieve long lasting, flexible spaces via a programme that references the original use of the building where possible and separates itself where appropriate for different cultural needs. Some removal of material is required but is kept to a minimum and is considered due to health and safety (asbestos) and in order to add flexibility to the building. Restoring the original spaces and natural ventilation is achieved through removal of internal walls. Where useable material is removed, it has been utilised to create furniture and joinery.

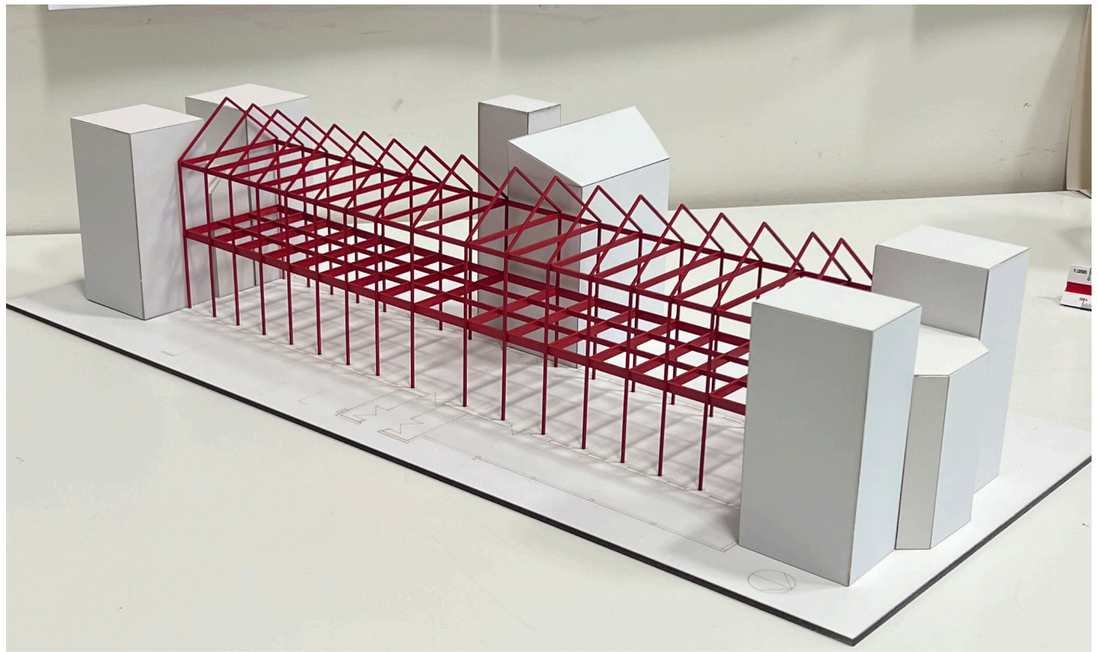
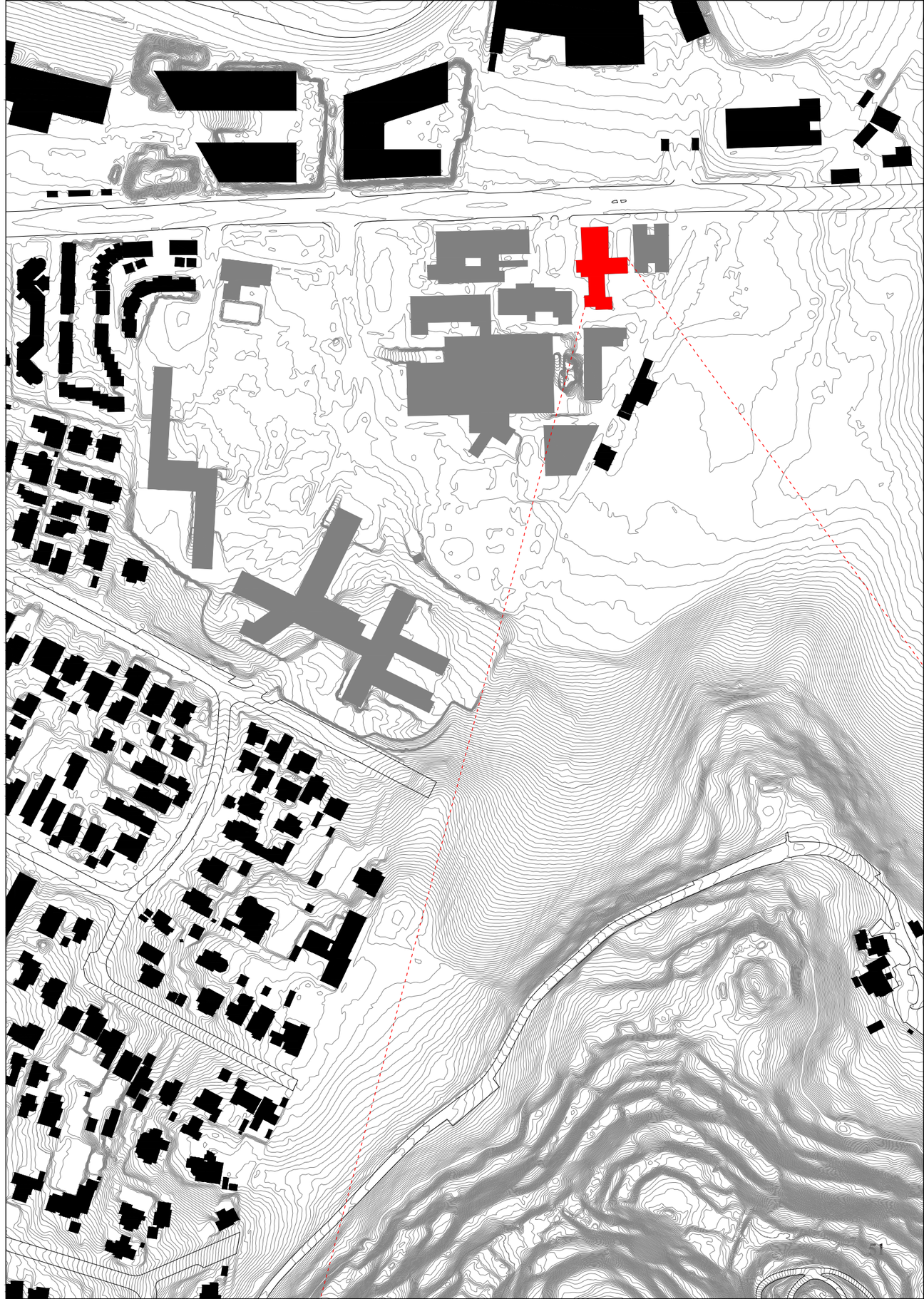


Figure 30 Early physical model of an internal structure concept within the principal form. Scale 1:100

8 Proposition

The proposition was developed in response to the design brief. The works can be organised into 3 interventions. Intervention 1 focuses on programme and remediation; Intervention 2 focuses on the structural intervention or ‘prothesis’ and Intervention 3 focusses on the Eastern Wing. The relevance and particulars of each part will be explained in their respective subsections below.



Next page: Figure 31 Site Plan showing the ground condition, Building 5 is in red and North is at the top of the page. The dashed red line indicates an opportunity to better connect with the landscape (see page 36). The site is level before rising South to Maungakiekie. A contemporary single level building closley neighbours the East wing, this was built around 2010 despite the heritage curtilage.The ‘front’ of the building (West) is open and with surface improvements (namely removing cars) allows for an ‘Atea’ or welcoming area for both Building 5 and the campus at large. Scale 1:3000

8.1 Programme and Remediation

Following discussions with Ara Manawa several possible uses for the building adaption were identified. Whilst the building is no longer fit for a modern day hospital ward, there is a demand for non-clinical spaces. The programme will be a versatile space that can be used for community events, teaching and family-patient use. Ara Manawa have identified whānau (family) rooms as an important element that is largely missing from New Zealand's Public Health offerings.

Not only are these uses practical for a renovated historic building, they address a need in New Zealand's Healthcare system, the lack of community space and areas for family and staff. This highlights the specific benefit in applying adaptive reuse to ageing healthcare buildings in New Zealand and the opportunity that arises to create welcoming, multi-use spaces. The proposed programme is largely confined to the existing floorplate and will be flexible to enable inevitable change and different use over time, ensuring ongoing use of the building.

The interior of both the ground and first floor is opened up to reference the open style wards of the original infirmary, this ensures maximum flexibility and restores the natural ventilation inherent in the original design.

8.1.1 Teaching space

The gound floor of Building 5 is designated as teaching and staff space. This area is best linked to the main hospital and through movable partitions can be scaled as necessary or opened up entirely. Ablutions such as bathrooms and kitchen facilities are included as modern additions, differentiated from the original historic fabric, position at either ends of each floor.

8.1.2 Community Space

This first floor will function as community space for events and workshops, this space can also be scaled using partitions. Furniture and joinery is created from removed material such as internal wall framing. Utilising existing designs from Enzo Mari, it is imagined funiture and joinery could be made by local community members providing the opportunityto contribute or take ownership of the building (Mari, 2002).

8.1.3 Whānau Room

The eastern wing first floor is identified as being best connected to Maungakiekie and is envisaged as the whānau room, a space for family and patient or staff co-use. The interior of this room will have a domestic

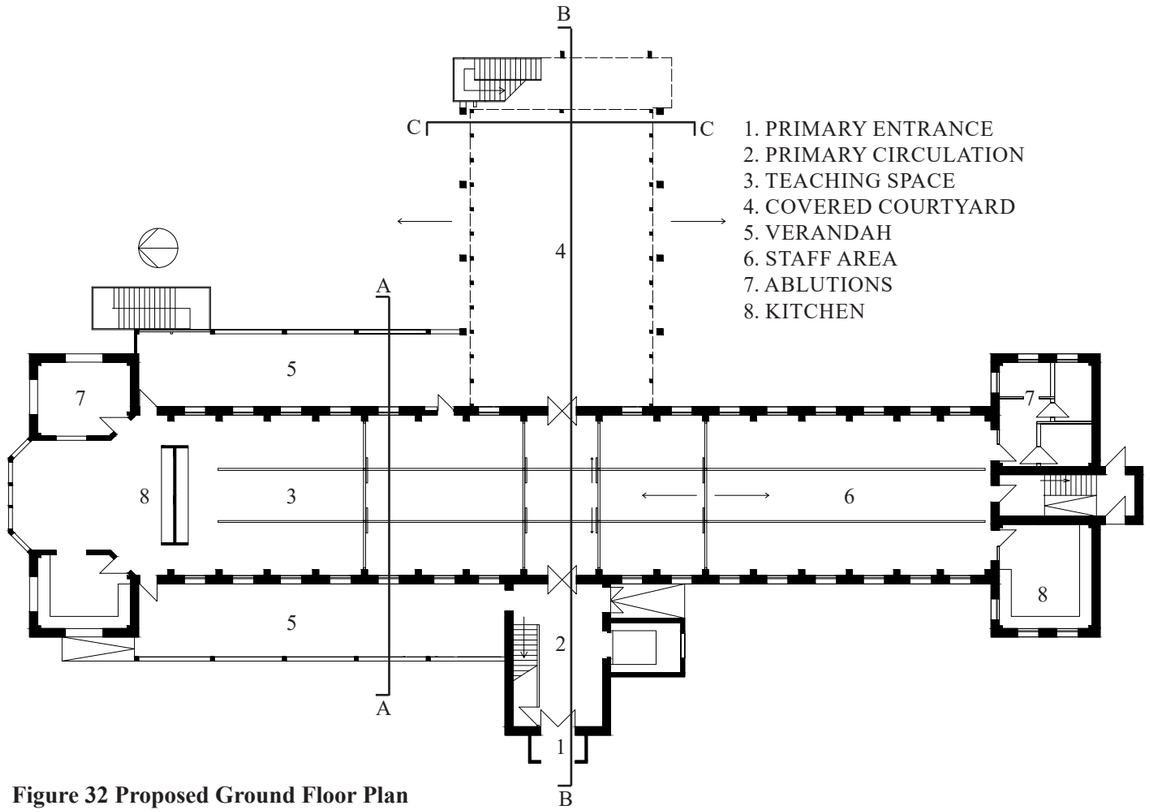


Figure 32 Proposed Ground Floor Plan
Scale 1:300

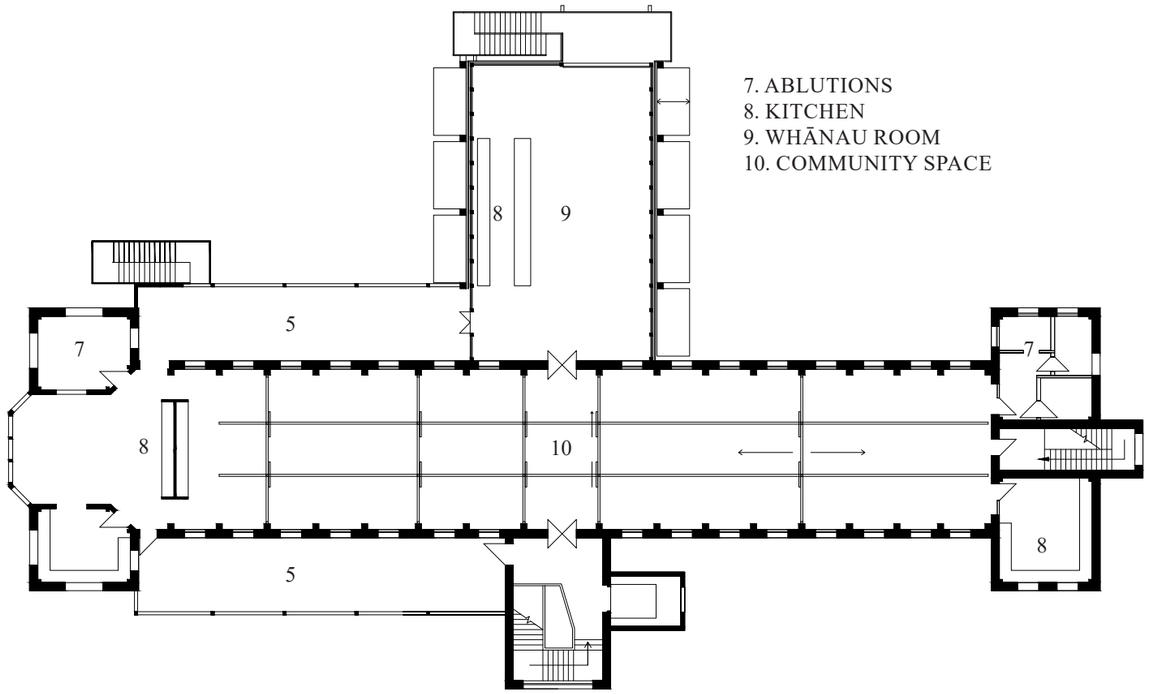


Figure 33 Proposed First Floor Plan
Scale 1:300

language appropriate for the intended use and to create a sense of familiarity and comfortability of users.

8.1.4 Link between Different Periods of Building

A link has been created between the original infirmary wards and the 1970s addition, highlighting the growth and evolution of the building. This is a similar approach to precedents presented earlier in this research, as at Raven Row (6a architects, 2023) where the design acknowledges and celebrates the different periods of the building, as opposed to stripping it back to the oldest element which ignores the way we have interacted with the building over time.

8.1.5 Social History

It is noted that, based on the unique social legacy of Building 5 and report findings, the proposition is subservient in nature and largely follows the existing formal parameters of the 1970s eastern addition, so as to not further compromise the early 1900s component. The strategy employed aims to retain as much as the existing building material as possible, acknowledging the carbon already spent and maintaining at least as much internal area except where covered exterior space is prioritised.

Imagining the reconfiguring of the eastern 1970s addition provides an opportunity to better reference the buildings surroundings and environment while honouring the social history and traditional ideologies. The building has an important social history that is recognised by the public, particularly the locals who advocated to protect the building when it was up for demolition. Adaptive reuse offers a means to honour the social legacy and reference the time when the building was an infirmary, even if it cannot function as a modern day ward. The building's rich health care social history is acknowledged through the interior layout which references the infirmary wards. Removed internal wall framing will be recycled to create sliding partition walls on fixed tracks. These will be clad in a translucent material, such as polycarbonate, allowing light to pass through while being reminiscent of screens or curtains between hospital beds. These can also act as semi-permanent partitions which can create various sized spaces.

Mimicking a hospital ward in this way may, for some, conjure images of sickness and injury and not lend itself to a community space, however, I believe the design references a different image, given the history and architecture of this building. The building maximises fresh air and light, it is built of largely natural materials, and the gestures of care and kindness have imbued the space from its time as a working ward decades ago.

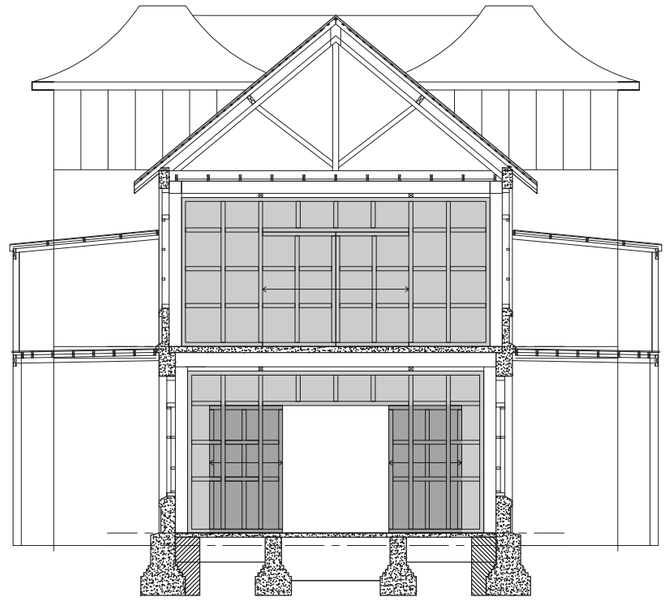


Figure 34 Section A-A through principal form showing the internal partitions, these are suspended from the new structure and 'seat' within the portal frames between each window opening, allowing spaces to change when required without permanent fixings. Also shown: increased footings to support new structure, original kauri trusses and rafters made visible by removing the suspended ceiling.
Scale 1:150

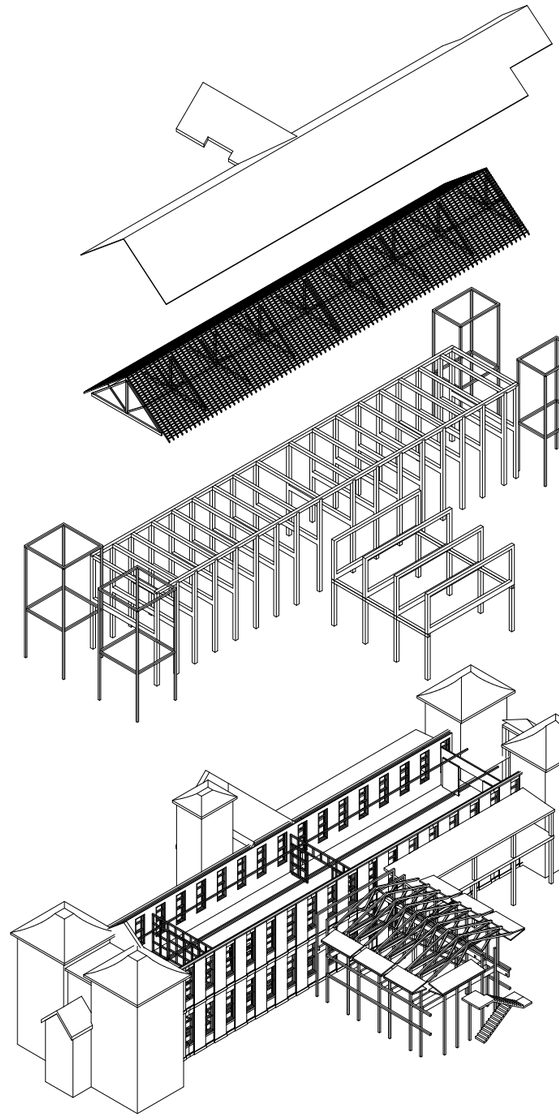
Figure 35 An early sketch model showing the proposed internal condition with structure
Scale 1:50

8.2 Structural Prosthesis

The proposed structural intervention comprises a timber skeletal frame that provides seismic support required by the current building codes; this can be thought of as a ‘prosthesis’.

As seismic strengthening is typically beyond the scope of an architect, the proposition utilises the strategy in the report by Burgess and Treep but is imagined as a demountable engineered timber version, as opposed to steel, following the same grid layout while marrying a similar strategy for the eastern addition. Timber based solutions have been explored for seismic and energy retrofit of buildings as they provide an eco-friendly alternative to steel bracing systems (Iovane et al., 2023, Badini et al., 2022). Timber respects the era of Building 5 as a material available at the time of construction. It is a renewable material with lower embodied carbon than steel and biophilic qualities as a natural material that can enhance the wellbeing of users through connection to nature. This is particularly valuable in a healthcare space. Timber also provides the option to disassemble in future if required which ensures the building design is as flexible as possible, ensuring the longevity of the design. Further to increasing flexibility, the demountable structure also adheres to the principle in the ICOMOS New Zealand Charter for conservation that any change should be the minimum necessary and should be substantially reversible (ICOMOS New Zealand (Inc.), 2010).

In this imagining, the timber structure becomes a prosthesis for the building, providing transformative potential and mirroring the healing of the human body. This highlights the potential in adaptive reuse for hospital buildings and the meaning that can be imparted onto the retrofit structures. Imagining the structure in timber as opposed to steel means the structure will be larger and more visible, due to the structural strength of timber compared to steel. This adds a larger visual element in the amount of structure required to support the ageing building and creates a more powerful message of healing for the derelict building.



1. EXISTING ROOF
2. ROOF STRUCTURE EXPOSED INTERNALLY
3. INTERNAL ENGINEERED TIMBER/STEEL HYBRID STRUCTURAL SYSTEM
4. EXTERNAL TIMBER STRUCTURAL SYSTEM TO EAST WING
4. BUILDING 5 ORIGINAL FORM
5. REVISED EAST WING

Figure 36 Exploded axonometric drawing showing the proposed timber structural intervention, the tower sections are imagined in steel for efficiency. The eastern wing is strengthened using timber portals however these will wrap the existing timber framing and be visible externally. This intervention achieves a common architectural language between the different periods of building.
Scale 1:500

Figure 37 View of the ground floor teaching space showing a movable partition, upcycled furniture and the internal timber structure.

8.3 Eastern Wing

The revised eastern addition provides an opportunity to renovate and regenerate a materially unappreciated addition. The existing eastern cladding is removed, which contains asbestos, and interior walls and linings are removed to reveal the timber structure. This retention aligns with the Carmody Groarke Hill House Box. Interestingly, the building that was removed at the Auckland Art Gallery was also a 1970s addition. I am choosing to apply a more stringent “demolish nothing” approach that recognises the value in the later addition and looks to keep as much existing material as possible. Furthermore, this choice to keep the 1970s addition leads to the opportunity to create a link between the original building and the addition, which highlights the process of change that the building has gone through.

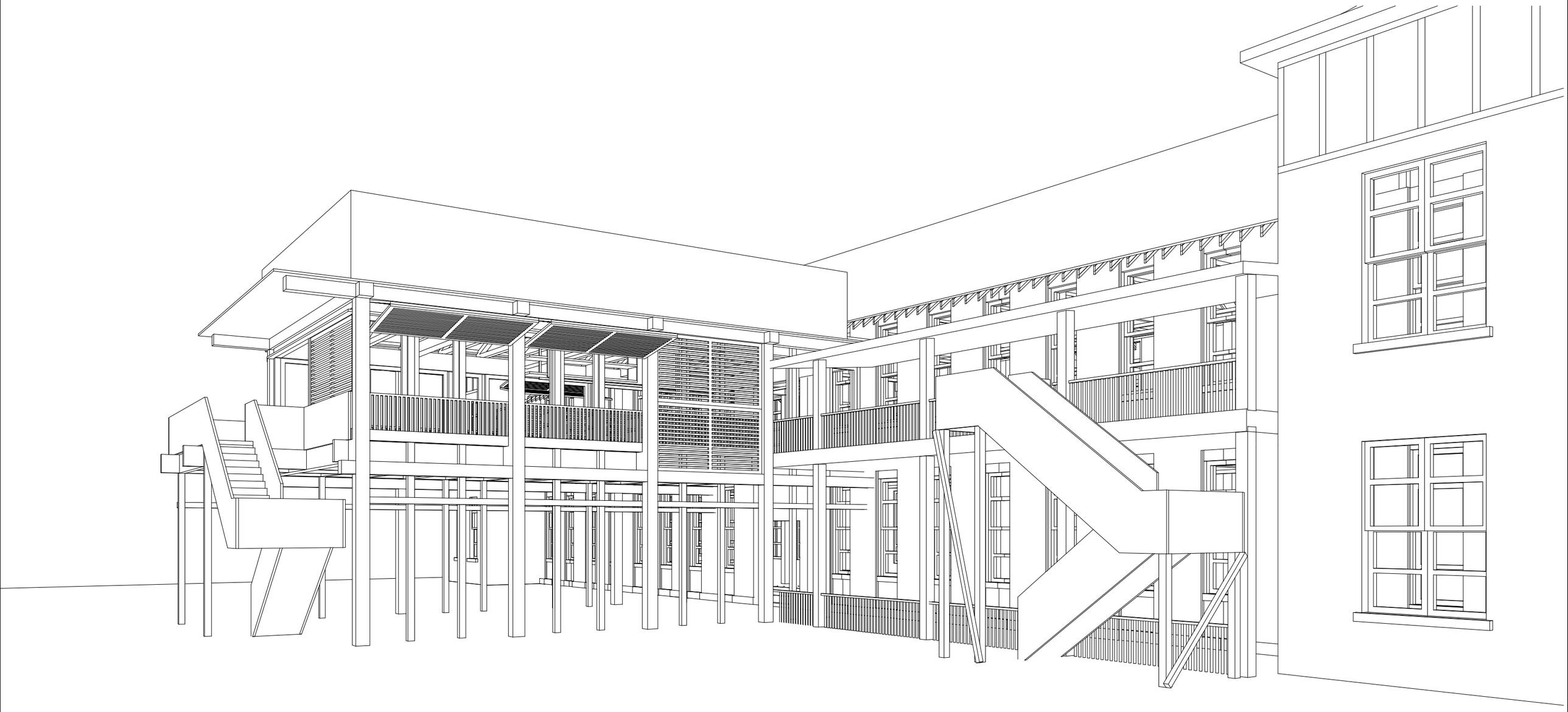
The removal of cladding containing asbestos also presents the opportunity to leave the ground floor component of the eastern wing uncovered to create a sheltered outdoor area. As well as a covered outdoor area, the space affords a new entry/exit and creates a threshold before entering, like the existing portico at the primary entrance. The upper floor façade treatment is influenced by the idea of healing the building with a new ‘skin’. The hinged windows add a high level of breathability and movability to the design, akin to a living organism. The removal of cladding also allows for the seismic prosthesis to be visible and allows the contemporary façade to follow a similar vertical rhythm to the original building.

While the Building 5 connects to and references the past, the eastern wing provides an opportunity to look forward and connect with the wider context, this is achieved through large openings and is a deliberate contrast to the sequence of small openings on the principal form. A semi self-supporting steel encased staircase is added to access the upper level of the eastern wing from outside, envisaged in a block colour to differentiate from the building proper and communicate entry. This is repeated for the existing eastern verandah where the original fire stair is no longer safe to use. The top of the stair is an extended external platform that offers a view and connection to Maungakiekie while allowing provision for an additional elevator should it be required in the future.

The east wing also looks forward in that we can see very clearly how buildings age and change overtime. The nature of the construction of the east wing (using asbestos) and the mothballing of the building for over a decade means a lot of the material may need to be removed. This need not detract from the idea of maintaining our built environment but seen as an honest depiction of buildings growing and changing, living and dying, in an appropriate time. The attitude of this project is first to maintain as much built material as possible, but when this is no longer possible with the east wing, the image of Building 5 eventually returning to its original form is also meaningful.

Figure 38 View from the family room looking towards Maungakiekie.

Next page: Figure 39 View looking southwest towards Building 5 showing the updated 1970s addition. The facades have been removed and replaced with pivoting screens on the upper level, the groundfloor is left open to achieve a covered courtyard and alternaitve entrance threshold. The original gable roof is retained, however this has been boarded with a parapet to achieve a comtemporary form, differentiating from the main building. The roof junction between the addition and main building has been replaced with a small ‘link’ achieved with a section of flat roof below the principal roof eave.



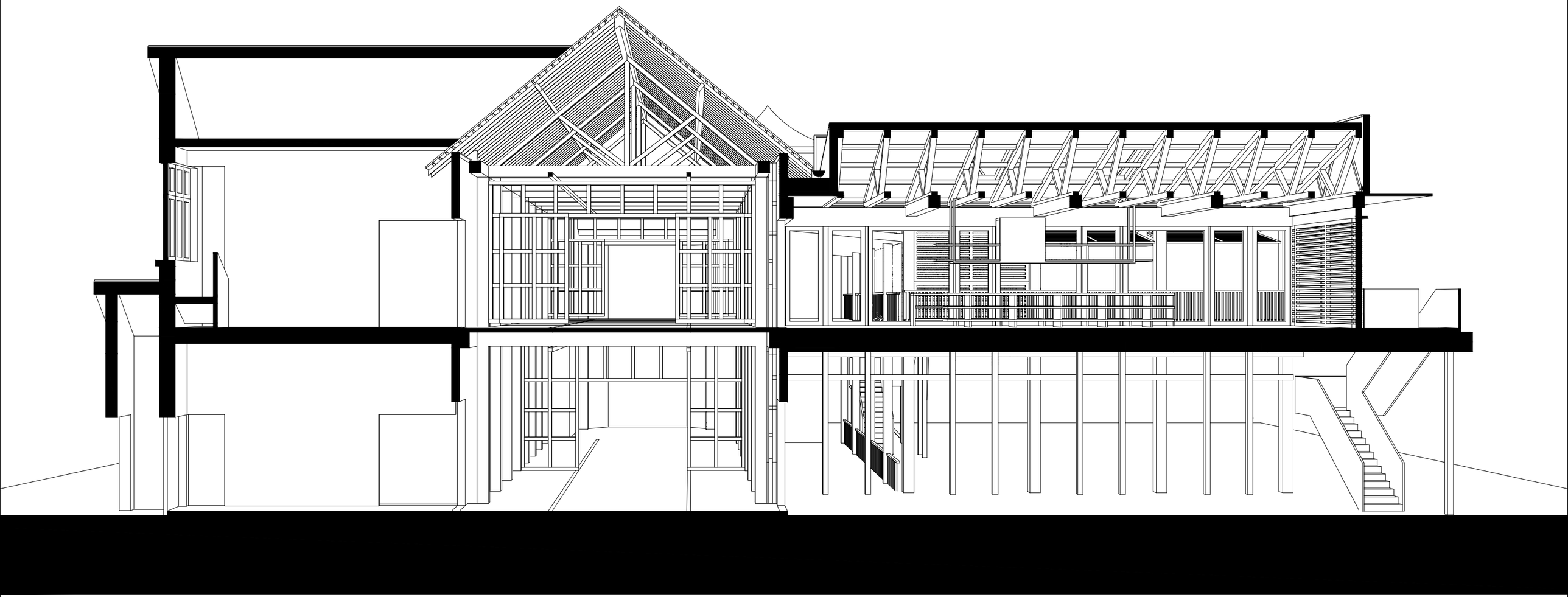


Figure 40 Perspective section B-B through the primary entrance, main building and revised East Wing family room and courtyard.

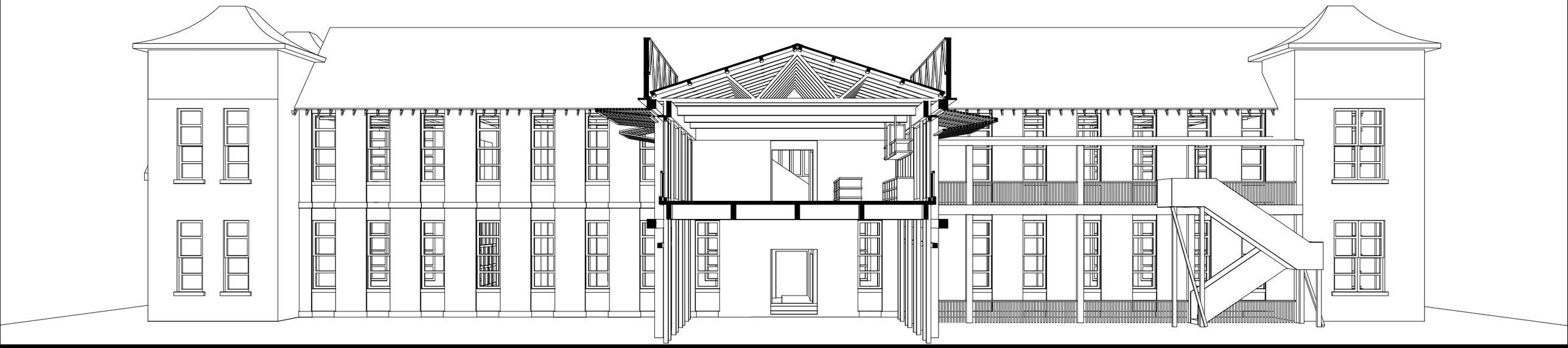
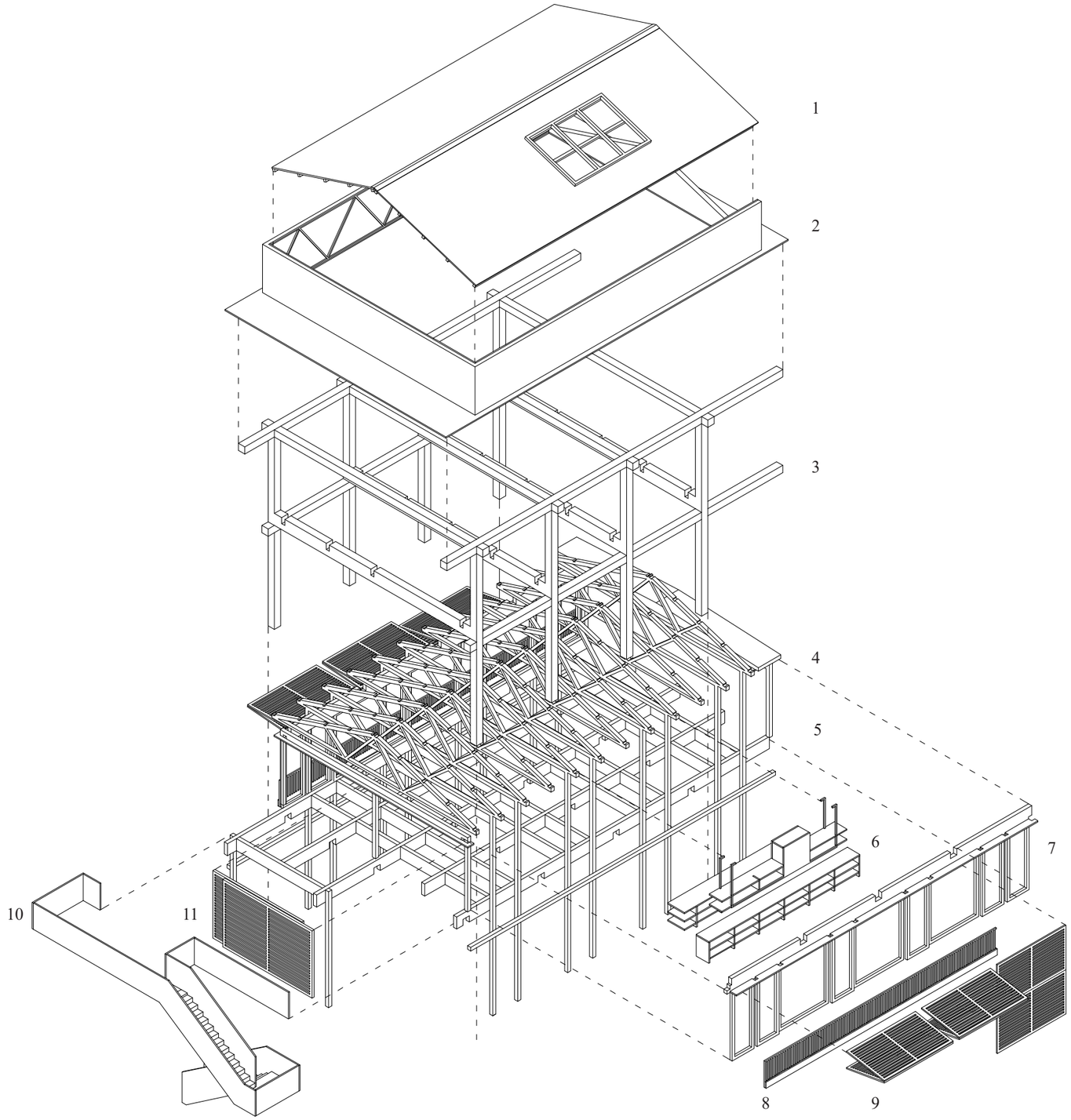


Figure 41 Perspective section C-C through revised East Wing family room and courtyard.



1. EXISTING ROOF WITH NEW OPENING TO NORTH
2. LIGHTWEIGHT STEEL FRAME PARAPET ROOF ENCLOSURE WITH EXTRUDED CAP FLASHING SHOWN BELOW
3. ENGINEERED TIMBER STRUCTURE SYSTEM TO EXTERIOR OF EXISTING BUILDING ON NEW CONCRETE FOOTINGS CONNECTED THROUGH POST AND BEARER BRACKETS
4. FLAT MEMBRANE ROOF ‘LINK’ SECTION BELOW MAIN FORM EAVE
5. EXISTING FRAMING, JOISTS, ROOF TRUSSES ETC RETAINED
6. KITCHEN/BAR/UTILITY AND OVERHEAD EXTRACTION AS REMOVABLE COMPONENTS
7. HIGH PERFORMANCE TIMBER JOINERY (SLIDING AND FIXED) WITH EYEBROW FLANGE ABOVE FIXED TO EXTERIOR
8. GALVANISED STEEL BALUSTRADE TO EXTERIOR OF JOINERY
9. EXTERIOR TIMBER SHUTTERS TO ACT AS RAIN/ PRIVACY SCREEN
10. REVISED EGRESS WRAPPED IN POWDER-COATED SHEET STEEL ATTACHED TO VIEWING BALCONY
11. TIMBER JOINERY SLIDING WITH FIXED SCREENS TO EAST NEIGHBORING BUILDING

Figure 42 Construction drawing of the East Wing
Scale 1:200

9 Findings

A focus on constantly building new “purpose-built” facilities is problematic given the embodied carbon in existing buildings and their rich potential for adaptive reuse. When the “demolish nothing” approach is adopted, new uses for the building are inevitably considered. Innovation and creative design is required for buildings that may not lend themselves easily to the required purpose. Adaptive reuse of existing buildings is a fundamentally different design approach from new build in that it asks how can we work with what we have to serve whatever new purpose is required of the building in that time. Adaptive reuse is an increasingly important strategy when architecture must be contributing to innovative and sustainable building practices to meet national targets for carbon-reduction. Importantly, as this study shows, adaptive reuse brings a complex array of decisions and opportunities to the building project as it works to celebrate and extend the social and environmental benefits already invested in the building.

As one of the few buildings remaining on the site from the early years of Greenlane Hospital, Building 5 provides an important connection to the past. In its heyday, Building 5 served as the Auckland Infirmary, and patients received the highest quality care for the latter part of their life. In contrast, as the building has aged it has been left unused and has fallen deeper into disrepair.

Despite Building 5 no longer meeting modern healthcare requirements, the practices of the era in which it was built promoted maximising natural ventilation and light and this is aligned with modern day sustainable architecture practices. Recognising this, and choosing appropriate intervention, the building can be adapted for use as a modern community space. The repurposing of the building as a space for community, family and staff provides an offering that is currently lacking from New Zealand’s healthcare system. Adaptive reuse highlights the transformative potential of Building 5 to continue to provide a healing space to Aucklanders.

The resulting spaces are regenerated and altered to maximise flexibility and usability which is key to ensure the building’s long life. The rich embodied social history and embodied energy of the building has been celebrated and extended through an interior that references the historic infirmary wards. Design interventions were equally about what to keep as what to change. This attitude, observed in other projects and applied to the design, promoted the valuing and retention of existing material and ensured the quality of oldness was maintained.

The 1970s addition, often removed in other projects of similar aged buildings, was kept and this provided the opportunity to explore what may arise when designers adopt an approach to maximise use of existing material.

The retention obviously has environmental benefits but it also affords an opportunity to add modern architectural elements that have a better link with the context of the building without designing a completely new element that comes with cost, time and disruption to the working hospital.

The structural strengthening system expressed in engineered timber adds to the story of the building through a visual representation of a prosthesis and shows how adaptive reuse of healthcare facilities can be particularly poignant as a reference to the healing process.

This research celebrates the history of an old hospital building and highlights the opportunities that come from reuse over demolition. It adds to the collective research in collaboration with the Ara Manawa Urban Pedagogy Lab and provides a precedent study that promotes the application of adaptive reuse to New Zealand’s ageing healthcare facilities. Further, the project is a precedent for the wider stock of seismic vulnerable buildings in New Zealand that require intervention in the coming years.

10 Limitations and Future Work

The details of the structural strengthening element of my proposition and beyond the scope of this research. This element strongly relies on the report and strategy by Burgess and Treep and would require further engineering work in practice. Timber structural strengthening is an important area of future development to help create environmentally friendly and potentially cost-effective solutions to strengthen buildings with local materials.

I acknowledge the inherent limitations of adaptive reuse in this context such as cost, liability, suitability and the effects on the design process. However, this research will only seek to apply adaptive reuse practices to the improvement of the building, and takes an optimistic outlook in the hopes that this can encourage industrious and flexible thinking towards New Zealand's ageing building stock.

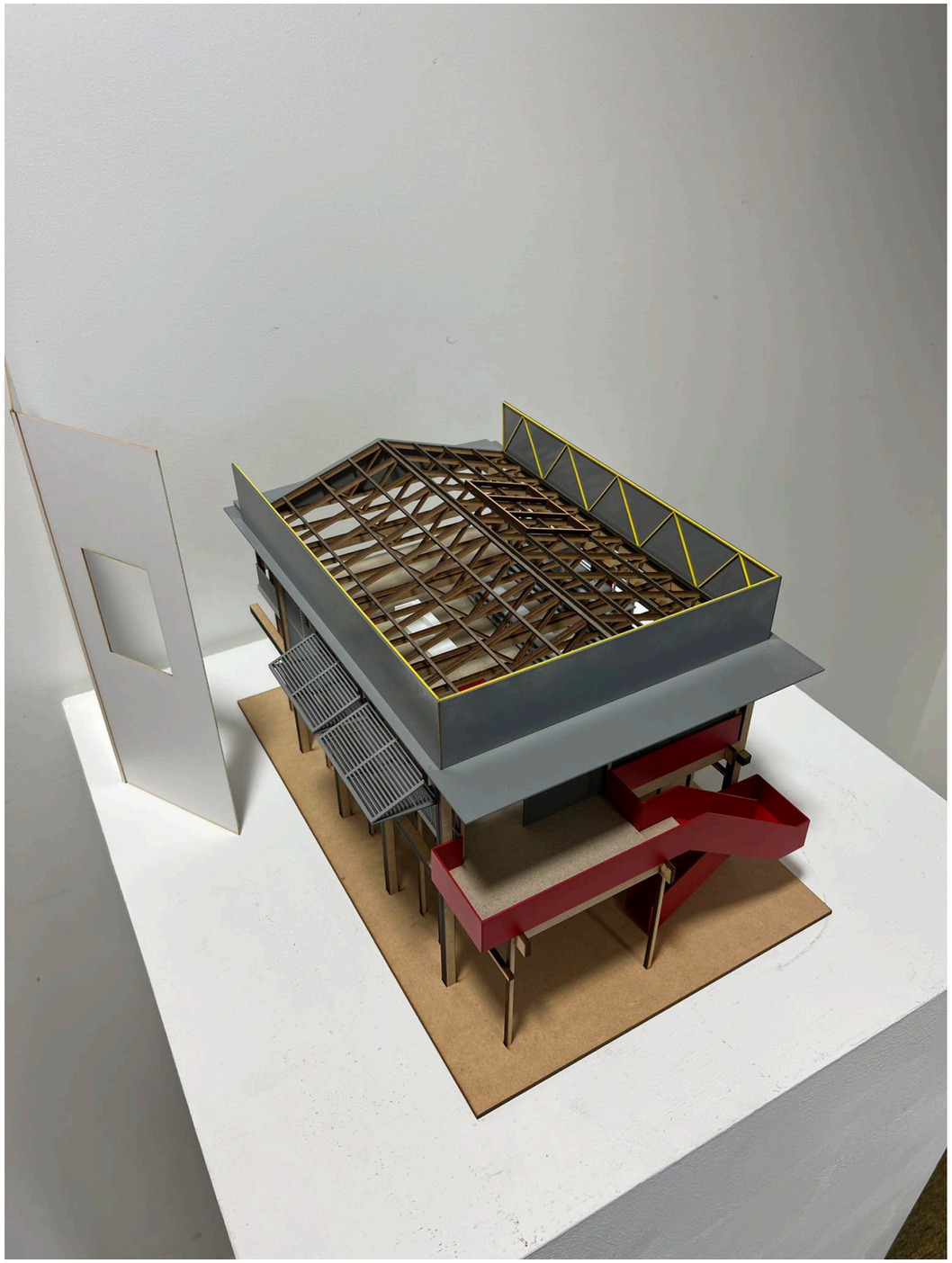
A further limitation of this project was I was unable to use adaptive reuse as an opportunity to explore indigenising Building 5. This would require in depth consultation with Iwi and would be crucial in the future development of this project. In this research I have attempted to acknowledge the important aspects and history of the area and provided an example where an attempt at indigenising was made.

Appendix

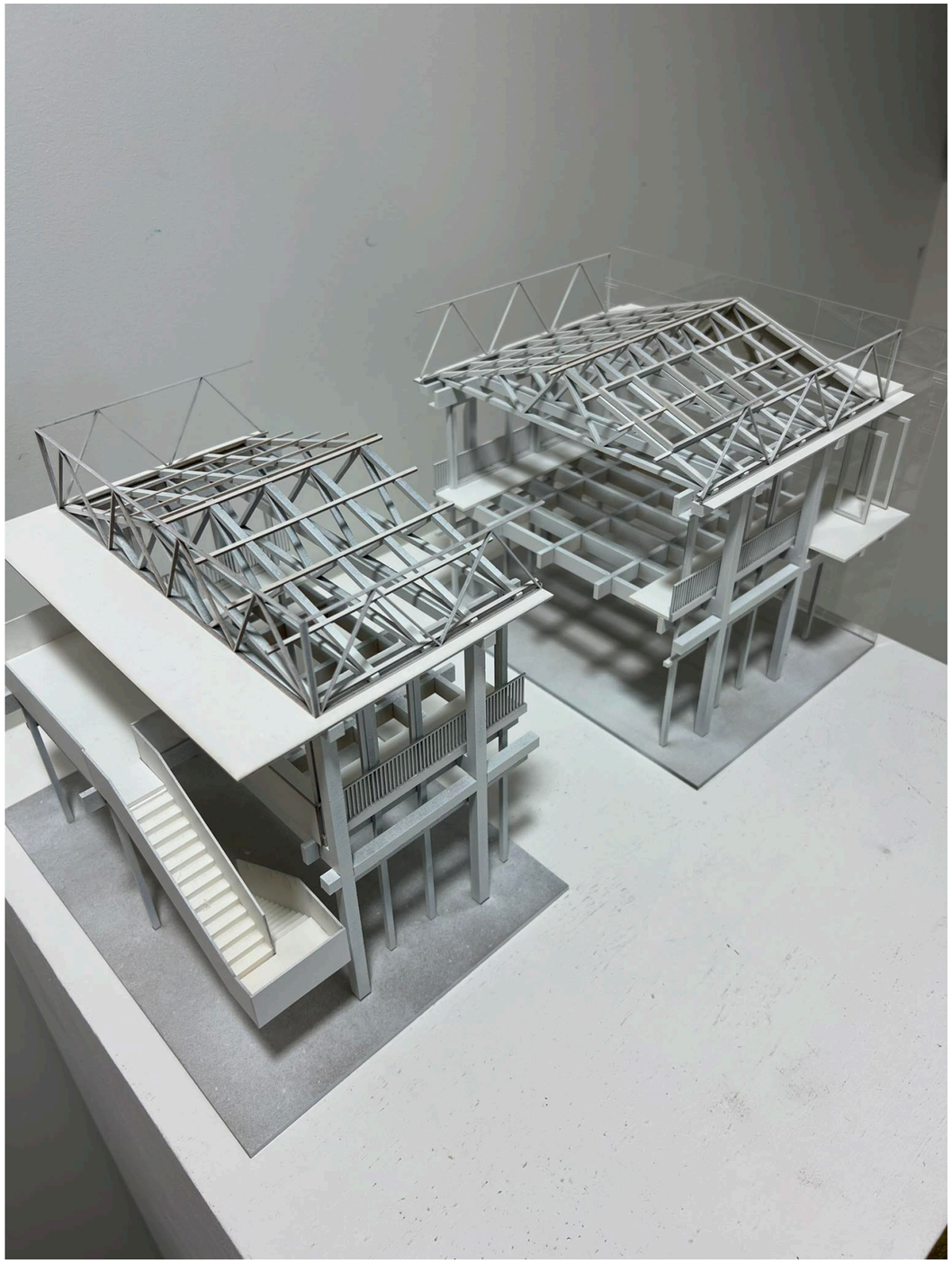
Reference images for ‘caring for aging buildings: a contextual study of adaptive reuse in aotearoa’ thesis by jakob de buyzer (mcdermott)

1:200 Site model

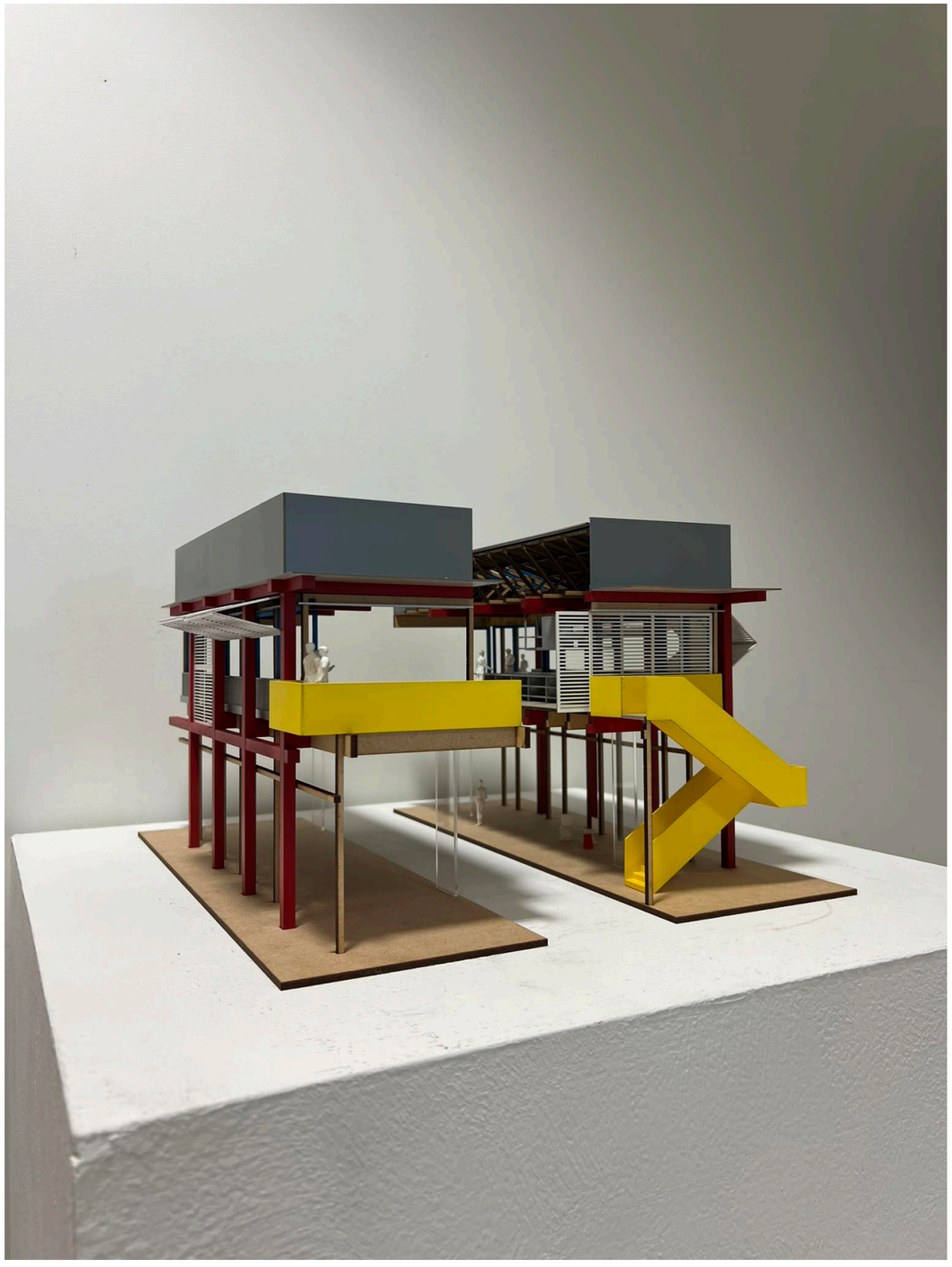
1:50 Sectional model of the principal building; section details, end ‘towers’, sub floor structure information and typical dimensions and materials etc engraved onto transparent material at point of section.



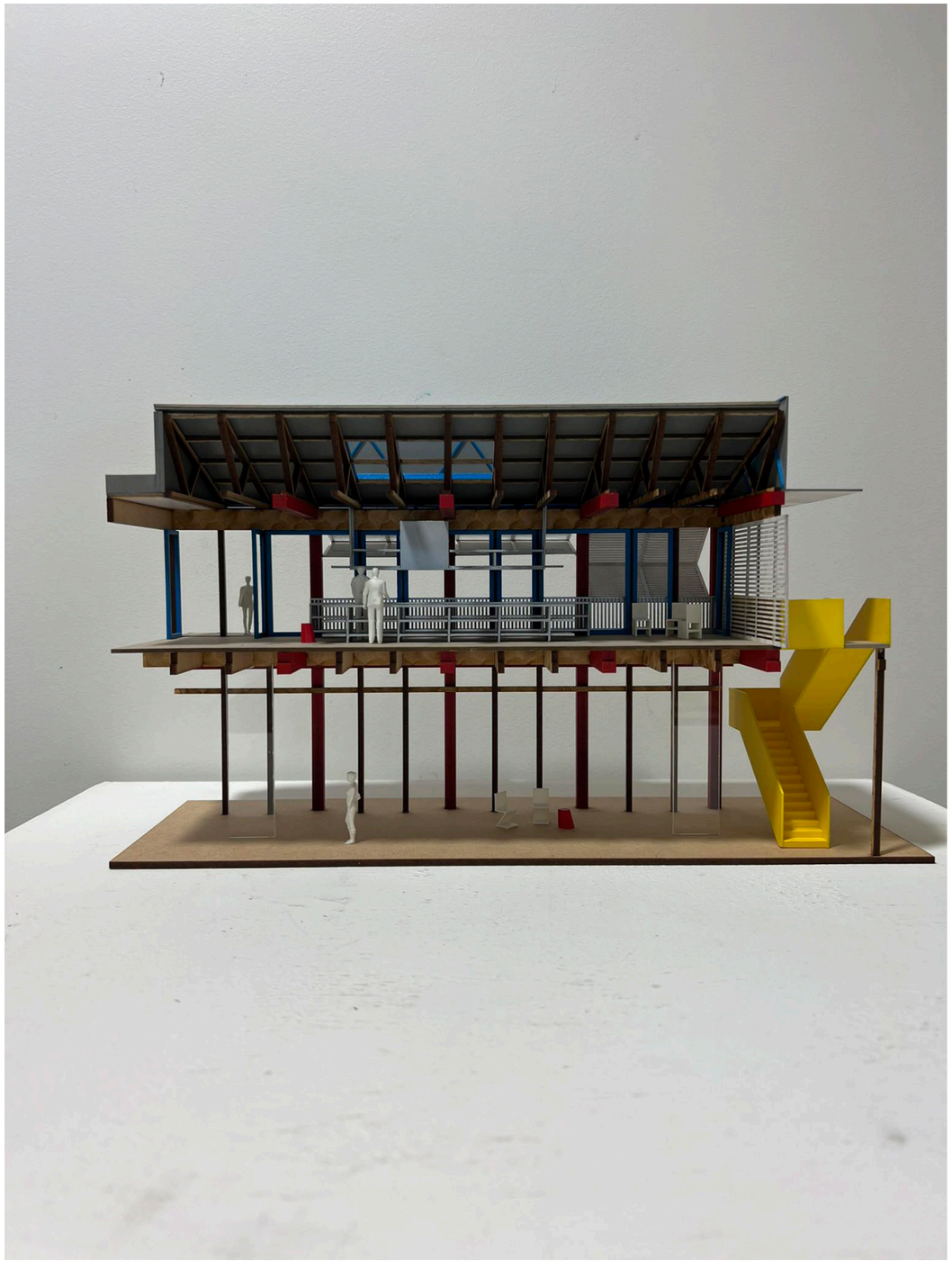
1:50 Study model 1 of the eastern addition

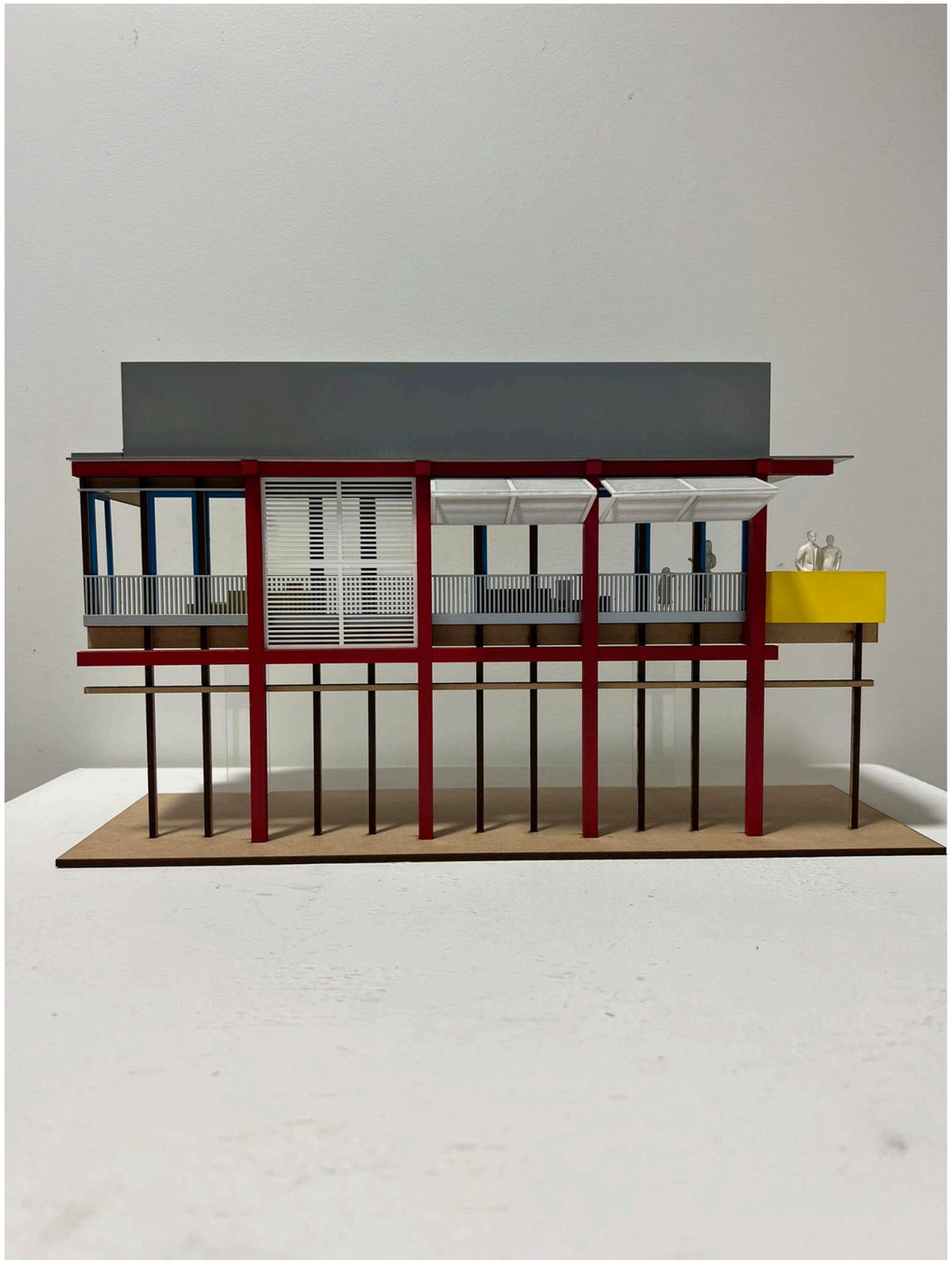


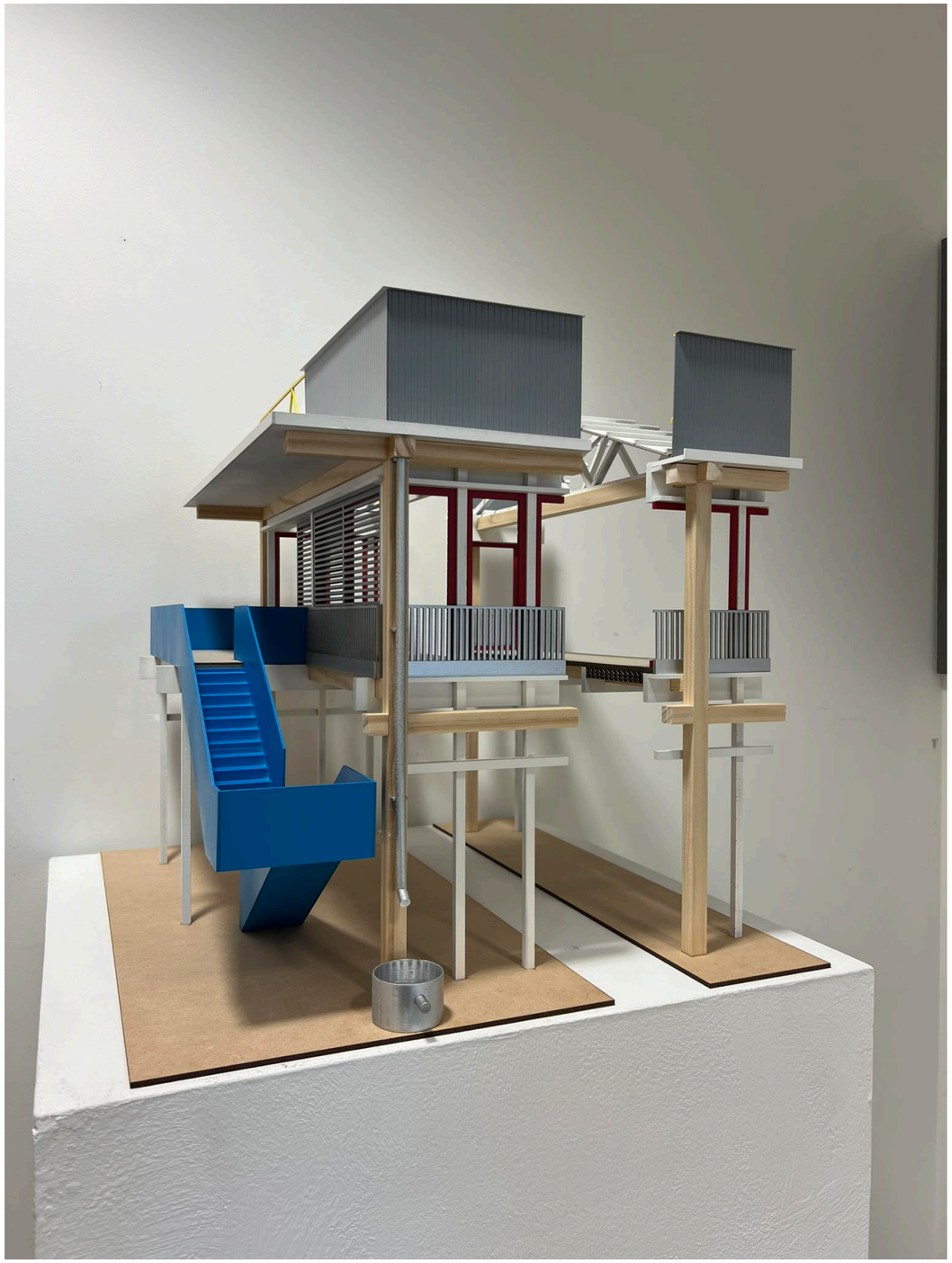
1:50 Study model 2 of the eastern addition construction split to show the short section



1:50 Study model 3 of the eastern addition split to show the long section



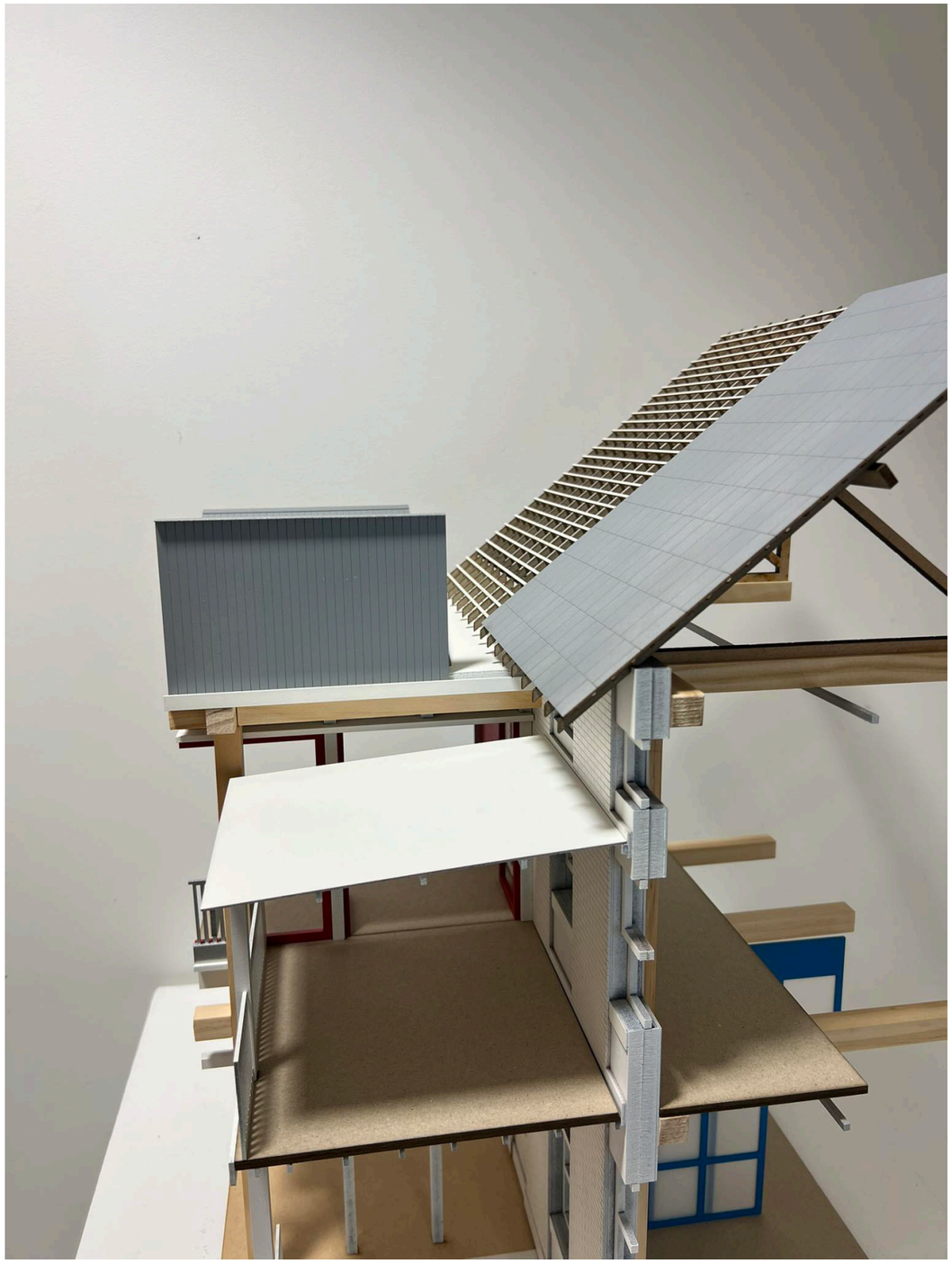


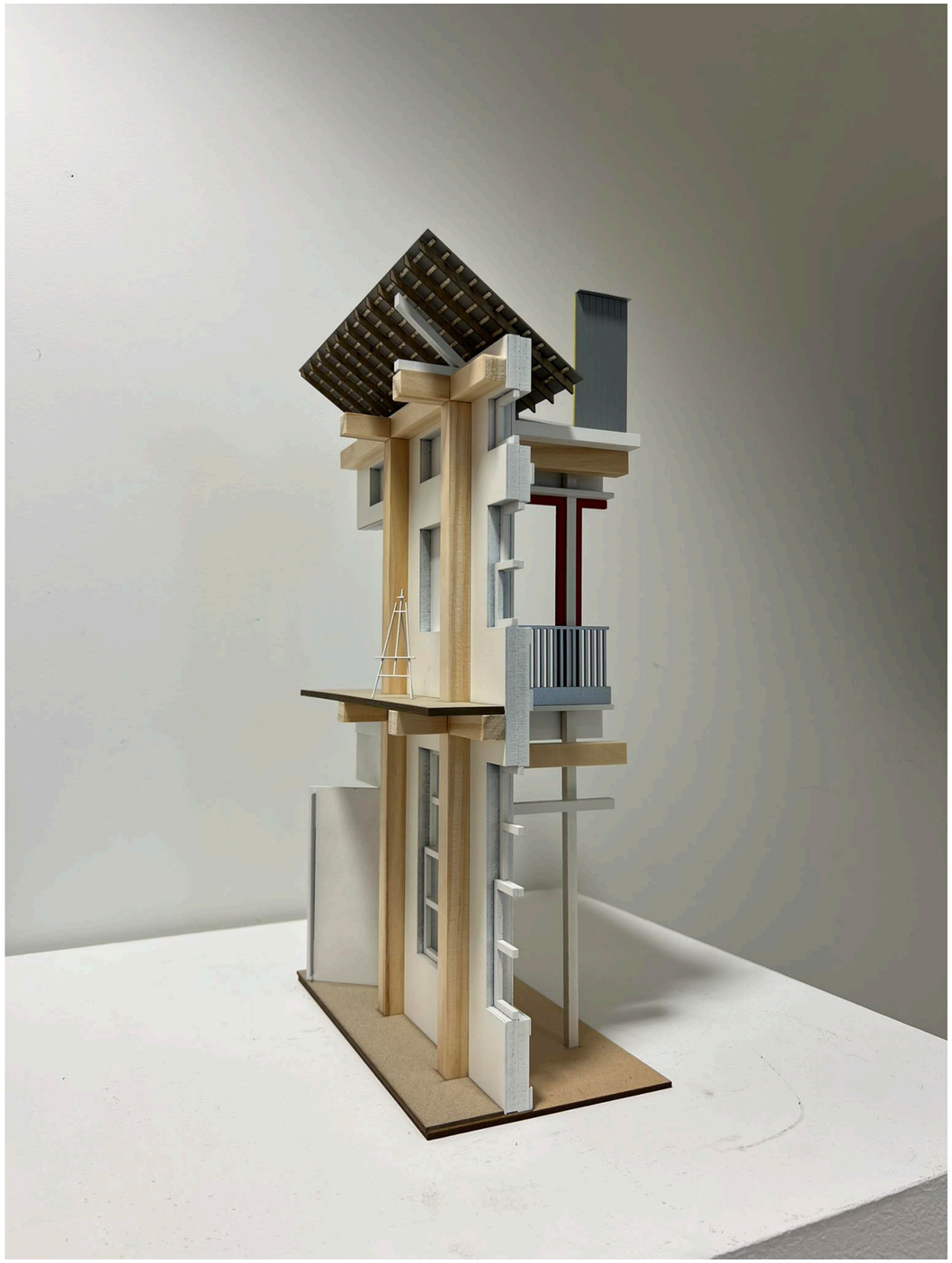


1:25 Sectional model of the eastern addition entry stair and typical ‘core’ short section

1:25 Sectional model of the principal building and verandah

1:25 Sectional model of the eastern addition and pricipal building critical junction 1





1:25 Sectional model of the opposing junction between the eastern addition and principal building

1:25 Sectional models of the cirtical junction 1 and principal building and verandah combinded

1:25 Sectional models of the critical junctions combinded

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