Student Homelessness : Sheltering Our Future
An Adaptable Approach to Underutilised City Spaces

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“It’s always in the back of your mind.
I was an emotional wreck in the first year.
I was crying, the situation is no fun.
I didn’t have my own bed,
I didn’t have my own room,
I didn’t know where I am going to sleep
tomorrow,”
(Atkins, Cox & Mulreanan, 2017, 149).

ABSTRACT

The increasing housing demands from population growth creates a persistent housing shortage and unaffordability in our cities. Students are one demographic that is dramatically affected as they move closer to their education provider for study. The student influx at the start of the semester creates a large demand in the already inadequate housing market. Students with a limited budget have reduced accommodation options and this consequently drives many into a state of homelessness. A study from University of Otago measures that over a quarter of New Zealand's homeless population are students (Amore, 2016). This considerable number of students are living in cars, tents, couch-surfing and sleeping rough for weeks during their studies. The desperate situation impinges on the student's health and well-being and thus their academic performance.

In this context, the scope of this research focuses on the requirements of homeless tertiary students in the urban setting. Their vulnerability, insecurity and distress are explored to provide direction to solutions that will alleviate the existing problems of their insufficient living environments. As proximity to the education providers and amenities are key factors, this thesis examines underutilised and leftover

spaces within the city as opportunities for inhabitation, and to create efficient use of urban space. Currently, there are successful examples of activating overlooked laneways into vibrant spaces. However, these transformations rely on the activities in the lane and the interventions are largely landscaping and installations. By investigating the successful regeneration of previously undesirable and neglected spaces through architectural re-imagination, this thesis identifies laneways to be a potential site to the urgent need for shelters.

The architectural experiments and design development are informed by the combination of site challenges and programme to form an overall design-led research. The thesis tests how temporary modular design has a significant role in the design of economic and adaptable solutions for the increasing issue of homelessness. This establishes that through a critical design, we may shelter those in desperate need within the urban context. The architecture provides a safe environment that is empathetic to its users and the larger urban scale while also creating a statement and awareness of homelessness. The thesis concludes with the design framework for a single test site and assesses its suitability for future application to other leftover spaces in the city.

Figure 1.1 (opposite). Urban student shelter model.

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Figure 1.2 (opposite). Depiction of sleeping rough at night in a sheltered pedestrian tunnel.

CHAPTER ONE : INTRODUCTION

This chapter introduces the issue of student homelessness and the essential foundations of this research. The problems are identified and critically analysed with its relevance to the architecture discipline. This creates the rationale for the scope of research and aims of this thesis. To investigate the research question, a design-led approach is developed for the methodology.

1.1 BACKGROUND

In recent years, the housing shortage and unaffordability are dramatically affecting students living independently. The large percentage of young adults moving into the city for further study generates high volumes of students arriving at the same time. This causes competition on the available accommodation in the city. The purposely built student accommodation provided by the universities are at capacity well before the study year and often has a waiting list. Additionally, the rental market becomes restricted as students have a lower budget or they are categorised as undesirable tenants. This limited accommodation options at a time of high demand has significant implications for those that are unable to secure accommodation and drives many into a state of homelessness.

Homelessness is not usually associated with the image of a student. The expectations of an independent and academic student life are suddenly changed in this desperate situation where basic human needs are not available. Currently, there is limited help and a lack of immediate solutions for the increasing amount of homeless students due to the lack of awareness and its negative connotation.

Figure 1.3 Student room as advertised in the student accommodation websites.

Figure 1.4 Expected image of student life.

Figure 1.5 Headline from 'Salient' Student Magazine for VUW.

Figure 1.6 Large crowd for a flat viewing in Wellington.

Figure 1.7 Overcrowded dwelling with students staying in living rooms on couches.

Figure 1.8 Depiction of living in a tent while studying.

1.1.1

STUDENT HOMELESSNESS

Student homelessness is an invisible form of homelessness where students are forced to couchsurf, live in tents, car or overcrowded dwellings, even sleeping in the university library and using the recreation centre for washing (Stewart, 2016). Not having their own space and not knowing where they will be sleeping at night impacts negatively on the student's health – mentally and physically.

In this topic, there is a surprising abundance of reports yet there is a lack of response from universities and the city as a whole. It's a competitive market if housing is not secured before the semester. Locally, this issue has come to the attention of the media. A headline "students are flat out done with house-hunting" metaphorically illustrated with arms and legs were dismembered for accommodation in Wellington (Yale, 2015). Numbers show that there is a lack of built accommodation for the rise of the student population.

This situation is further elaborated as "students sleep on their friends' couches or on the floor and move from place to place until the mid-trimester, when the rental boom dies down a bit" (Stewart, 2016). This demonstrates the short term solutions students find for accommodation until the housing market opens up again.

Squeezing into a dwelling is common scenario

for 'sharing by necessity'. Household crowding is a well-recognised form of housing inadequacy (Baker et al, 2013) and overcrowdedness has been extensively researched to have negative impacts on health and well-being (Barnes et al., 2013). This environment is not suitable for studying or rest, but also causes safety issues.

The desperation amongst students for shelter and accommodation is further highlighted by the use of tents. This form of temporary shelter is not only insufficient for urban living requirements but also an unacceptable solution in Wellington, where the weather is very changeable, even for short periods of time. This scenario does not give the student any rest physically and psychologically.

A student-initiated emergency accommodation register is one way to alleviate homelessness (Cann, Nicoll & Stewart, 2017). However, students do not come for help due to embarrassment and the lack of awareness limits the availability of this service.

One has to question how the issue of student housing has got to this point of desperation in a developed country like New Zealand and why no solution for urgent action has not been found by the government, tertiary education providers or city councils. This situation is not unique to New Zealand, other well developed countries have the same problem of student homelessness.

Figure 1.9 The Salvation Army's 2013 Couch Project Campaign in Australia raises awareness for youth homelessness and couch surfing.

1.1.2

INTERNATIONAL ISSUE

*“all student cities face difficulties in providing student accommodation that is appropriately costed and close to university campuses — **the problem is not unique to Wellington**”*
(Croskery, 2017)

Cities that attract students for education are vulnerable to rental property fluctuation. As a result, a larger number of rental accommodation is needed and also a variety of options for limited budgets. Further research on student homelessness internationally shows the problem at a larger scale and students in the state of homelessness for a longer duration. Despite this issue, because homeless of university students are not seen as the stereotype of street homelessness, it is often invisible to the wider community and most people (Grace, 2012).

Melbourne, a city of a larger population and with many universities, struggle to provide emergency accommodation for their students. “Overall, the amount of emergency housing available is limited and cannot aid everyone” (Argueta et al, 2009). The hot-bedding phenomenon is a common consequence amongst international students with 48 students taking turns to sleep in a six bedroom house (Povey, 2009). It had become a high risk for health and fire safety. However, for students this is their only option for a shelter.

Many “labelled these students “freeloaders”, “bums” and “spoilt brats” who should “get a job” and pay rent like everyone else” (Povey, 2009).

Yet, in reality, Melbourne is experiencing a rental housing crisis.

The on-going issue had lead to political acts and campaigns. Taking refuge on a friend or relative's couch is by far the most common form of homelessness for those aged under 25, and one that The Salvation Army is targeting in a nation-wide campaign (Wachsmuth, 2016). The Couch Project raised awareness for this issue through evocative photographs and community engagement (Fig 1.9)

The Student Housing Action Co-operative campaign raised awareness in 2008. As a response, the Australian National University has imported shipping containers and renting them to students at \$180 p/w (Povey, 2009). This shows that there is support to provide housing solutions but this will take time and community initiative.

City Mission's Step Ahead service in Melbourne provided young people with safe, stable accommodation at a time when they had no other good options. For most students living in a state of homelessness, this support has made the difference between progressing their studies or becoming disengaged (Grace, 2012).

Figure 1.10 Double life of a homeless student.

In America, a study by Wisconsin HOPE Lab shows that 13% of college students are homeless (Dyne, 2017). Results from a national study of basic needs insecurity in higher education shows that this is a significant, measurable issue that is not just increasing in the media but also in academic research (Goldrick-Rab, Hernandez & Richardson, 2017).

Unlike the homeless population at large, homeless college students are indistinguishable from their peers. Many live out of their cars, some spend nights in the school library pretending they fell asleep studying, others couch-surf at friends' houses, shack up on the streets or in shelters or motels (Ashtari, 2014). The students view it as an embarrassing situation and don't want others to know or family to worry. To avoid misconceptions and stigmas, the homeless students lead "double lives" and hide their living situations from their peers.

Similar cases of student homelessness are reported in the UK. A survey from London Metropolitan University found that homelessness among students is also a hidden problem that many are too ashamed to admit. The university believe that they cannot solve the housing shortage and therefore need to give a clear

message that there is nothing to be embarrassed about (Lightfoot, 2017).

Psychological conditions are further explored in a qualitative and exploratory research on the impact of homelessness on their studies. Atkins (2017) identified the key themes to be:

- The quality of temporary accommodation
- The ability of students to focus on academic work
- The cost in time and finances
- The ability to engage with the wider aspects of studying at university

This study highlights that "[m]any felt a sense of embarrassment that prevented them from discussing it with their colleagues or with the support services at the university" (Atkins, 2017). Relevant measures that are taken from the studies include "providing more tailored advice and information to homeless students, and having an element of emergency accommodation for students in crisis" (Atkins, 2017).

This international research shows how the large cities of New Zealand could potentially look like in the future if there is no significant actions and changes in this issue.

"These are the young people who will become adults who give back the most to our community."
(Arsdale as cited by Ross, 2012)

“Living out of a bag and not having your own space really takes a toll on you” (Georgia as cited by Stewart and Cann, 2017).

“You can’t sleep on a mate’s couch for the whole year. That impacts on your study, and then impacts your whole well-being. If you want to get your degree done and you can’t find a place, it’s kind of hard” (Ashton, 2015).

“I felt reduced ... the whole of the first year, I never saw any lecturers ... even my friends. I kept to myself” (Atkins, Cox & Mulrenan, 2017).

“Who wants to walk around telling people they’re homeless?” she asked. “I will probably take it to the grave with me” (Stephanie as cited by Ashtari, 2014).”

*In New Zealand, homelessness is officially defined as **having no options to acquire safe and secure housing** (StatisticsNZ, 2013).*

Figure 1.11 A chart depicting the statistics of the severe housing deprivation in New Zealand as measured from Amore's study (2016).

A study from University of Otago measured the number of the population who are homeless in New Zealand and their statistics show that homelessness is an increasing issue (Fig 1.10). Furthermore, it is surprising to find that over a quarter of New Zealand's homeless population are students (Amore, 2016). Students are a distinct group as they have a home to go to if they were not enrolled at a tertiary institute outside their home town for study.

A consistent definition of homelessness allows for an understanding of the situation (Statistics New Zealand, 2009). Homelessness include the living scenario:

- Without shelter
- Temporary accommodation
- Sharing accommodation
- Uninhabitable housing

It is significant note that it excludes:

- Students living in halls of residence and hostels
- Anyone who is in between places, such as students staying with friends while looking for a flat, or someone staying in a boarding house, having recently moved into the area

The latter situation would be a common occurrence for students moving into a new area and therefore would be excluded from being categorised as homeless. The study made sure to carefully analyse student homelessness so that they would not be misclassified and falsely inflate the statistics (Amore, 2013, 16). Despite this, it was found that there is still a significant number of students that are homeless.

Figure 1.12 Highlighting that a quarter of the severely housing deprived in New Zealand are students.

Figure 1.13 A chart created from the study of the severe housing deprivation in New Zealand.

1.1.4 WELLINGTON STUDENT POPULATION

This section will focus on Wellington for the purpose of setting the research in a realistic context. Locally in Wellington, student homelessness is coming into light through media and proactive students.

Wellington has a student population of 115,000 (WCC, 2017). Statistically, this young population is a dominant demographic (Fig 1.12) and is forecasted to stay this way for the next ten years (Fig 1.13).

Figure 1.14 (opposite). Wellington City in context.
 Figure 1.15 Statistics of the age group migration in Wellington City in 2013.
 Figure 1.16 Forecasted age group migration in Wellington from 2013-2028.

Figure 1.17 Tertiary educational providers in Wellington City highlighted in yellow.

<p>WelTec Wellington Institute of Technology (e Where Wānanga o Te Awakairangi)</p> <p>Tertiary State Co-Educational</p> <p>Physical address Petone Campus: 21 Kensington Avenue, Petone Wellington CBD Campus: 11-17 Church Street, Wellington WelTec School of Hospitality: 52 Cuba Street, Wellington</p> <p>Student numbers 12,000 Total students 500 International students 25 Average class size</p> <p>Accommodation options Homestay</p>	<p>Open Polytechnic KURATINI TUWHERA</p> <p>Tertiary State Co-Educational</p> <p>Physical address Open Polytechnic 3 Cleary Street Lower Hutt New Zealand</p> <p>Student numbers 40,000 Total students 120 International students</p> <p>Accommodation options N/A</p>	<p>VICTORIA UNIVERSITY OF WELLINGTON</p> <p>Tertiary State Co-Educational</p> <p>Student numbers 22,000 Total students 3,000 International students</p> <p>Accommodation options Halls of residence</p>	<p>Massey University</p> <p>Tertiary State Co-Educational</p> <p>Physical address International Office Massey University Private Bag 11 222 Palmerston North 4442 New Zealand</p> <p>Student numbers 34,000 Total students 3,248 International students 25 Average class size</p> <p>Accommodation options Homestay / Halls of residence</p>	<p>NEW ZEALAND INSTITUTE OF SPORT</p> <p>Tertiary Private Co-Educational</p> <p>Physical address NZIS Stadium Centre Westpac Stadium 105 Waterloo Quay Wellington</p> <p>Student numbers 500 Total students 2 International students 20 Average class size</p> <p>Accommodation options Homestay</p>
<p>Le Cordon Bleu NEW ZEALAND</p> <p>Tertiary Private Co-Educational</p> <p>Physical address Level 2 52 Cuba Street Wellington New Zealand</p> <p>Student numbers 200 Total students 175 International students 12 Average class size</p> <p>Accommodation options Homestay / Halls of residence / Apartments</p>	<p>TOI whakaari new zealand drama school</p> <p>Tertiary Private Co-Educational</p> <p>Physical address 11 Hutchison Road Newtown Wellington</p> <p>Student numbers 116 Total students 4 International students 20 Average class size</p>	<p>MFH INTERNATIONAL INSTITUTE</p> <p>Tertiary Private Co-Educational</p> <p>Physical address Level 6, Grand Central Tower 76-86 Manners Street Wellington</p> <p>Student numbers 200 Total students 114 International students 10 Average class size</p> <p>Accommodation options Homestay</p>	<p>NEW ZEALAND COLLEGE OF MASSAGE</p> <p>Tertiary Private Co-Educational</p> <p>Physical address Level 9, 76-86 Manners Street Wellington</p> <p>Student numbers 200 Total students 20 Average class size</p> <p>Accommodation options Homestay</p>	<p>UO3EE SCHOOL OF DESIGN</p> <p>Tertiary Private Co-Educational</p> <p>Physical address Level 2 20 Kent Terrace Mt Victoria Wellington</p> <p>Student numbers 260 Total students 20 International students 18 Average class size</p>
<p>/i'kæmbəl/ The Campbell Institute</p> <p>English Language Private Co-Educational</p> <p>Physical address 104 Dixon Street Te Aro Wellington</p> <p>Student numbers 150 Total students 150 International students 12 Average class size</p> <p>Accommodation options Homestay / Apartment</p>	<p>Whitireia NEW ZEALAND</p> <p>Tertiary State Co-Educational</p> <p>Physical address Wineera Drive Porirua</p> <p>Student numbers 11,000 Total students 1,000 International students 20 Average class size</p> <p>Accommodation options Homestay / Apartments</p>	<p>Film School THE NEW ZEALAND FILM AND TELEVISION SCHOOL</p> <p>Tertiary Private Co-Educational</p> <p>Physical address 86 Vivian Street Wellington City</p> <p>Student numbers 48 Total students 1 International students 24 Average class size</p>	<p>etc English Teaching College</p> <p>English Language Private Co-Educational</p> <p>Physical address ETC English Teaching College Level 2, 204 Willis Street Wellington 6001 New Zealand</p> <p>Student numbers 85 Total students 20 International students 12 Average class size</p> <p>Accommodation options Homestay / Apartments</p>	<p>UNIVERSITY OF OTAGO Otago University</p> <p>Tertiary State Co-Educational</p> <p>Accommodation options Homestay / Halls of residence</p>

NEW ZEALAND SCHOOL OF DANCE

Tertiary | Private | Co-Educational

Number of students: 80

Total Number of Students: 117839

Figure 1.18 Number of student enrolled for each tertiary educational provider in Wellington Region in 2017.

WHERE ARE THEY COMING FROM?

- Out of town - coming to study or back from summer break
- Lease termination of current dwelling
- Inhabitable dwellings from earthquakes, mould infestation and overcrowding

WHEN ARE THEY MOVING?

- Before the start of semester
- Annual influx
- Specific dates due to situation

WHAT ARE THEIR HOUSING OPTIONS?

- Student Residential Halls
- Flatshare
- Homestay

WHAT ARE THE TEMPORARY SOLUTIONS?

- Hostels/Hotels/Backpackers
- Home of friends/family
- Couchsurfing
- Homeless shelters
- Tent/Cars/Sleeping Rough

Figure 1.19 Diagram depicting the context of the student living situation.

1.1.5 STUDENT HOUSING SITUATION

The current student housing situation is investigated in this section to better understand the housing options available to a student and the circumstances that have contributed to student homelessness.

Students have the option of living in student residential halls, flatshare or homestays. However, there are students who cannot secure accommodation whether it is a case of unaffordability due to one's circumstances or the high demand in the limited market as there is a lack of built accommodation available to cater for the rises in student populations.

The main driver is the lack of housing availability and affordability. In 2017, TradeMe recorded a 71% drop of rental availability on the Wellington market compared to 2016. Students find that they were taking a week to even two months to secure a flat. It was common for landlords to "lean toward people who have a history of being good tenants, and families before they'll even consider young people" (Leslie, 2016). As a result, students are staying in hostels, hotels, backpackers, friends or families, couchsurfing, homeless shelters, tents, cars or sleeping rough.

1.2 PROBLEM STATEMENT

The following sections will discuss how homelessness is a social and political problem and explores how the design for their temporary shelters is an architectural problem that instigate the importance and significance of this research.

1.2.1 SOCIAL AND POLITICAL ISSUE

Figure 1.20 'Keep your coins, I want change,' street art by Meek.

Student homelessness is a social and political problem that can be solved satisfactorily if it is recognised by governments and an implementation of appropriate policies. As Atkins (2017) argues, “[h]owever resilient the student or effective the student support offered, the situation of homeless students can only be effectively addressed through broader policy measures in the fields of housing and education.”

This change in the larger scheme of politics requires an active approach from the masses. Creating awareness through social acts such as political art allows the issue to be brought into public attention. Street artist, Meek, evoked a political message for societal change in his public stencil art, “Keep your coins, I want change” (2004). Its location on a busy railway station engages the public in their daily commute through its wit and strong message. This image has been reproduced throughout Australia, United States of America and the UK and became a symbol for human rights charities to homeless shelters (Ruppel, 2011). The Raising the Roof campaign is another example that brings this issue to public eye. Their posters with confronting texts are cleverly placed in the urban environment. These works aim to bring the issue forward to the public in a creative manner that engages them to demand change from the government.

However, it still remains that the immediate and practical steps to address this issue requires providing tailored advice and information to homeless students and having emergency accommodation available (Atkins, 2017). This shows the need for specialist shelters and suggests a scope for an architectural research problem.

This brings the question of how the architecture discipline can contribute to solving this problem. As a school of architecture and as a profession we can recognise the problem and carry out research and design explorations for architectural solutions. The line of inquiry throughout this thesis focuses on the development of a strategy to shelter homeless students. A system that will result in an architecture that positively contribute and support the needs of homeless students and provide for a healthy shelter. An investigation of existing architectural concepts in relation to this issue is employed to determine the scope of design. It is from these considerations that a relevant architecture can be developed to address this desperate living scenario.

Overall, architecture cannot solve homelessness but it can serve as a means to alleviate the current problems experienced by the homeless which is explored through the investigation of the research question for this thesis.

Figure 1.21 Raising the Roof campaign where posters are placed where homeless youth are often seen but ignored.

How can an adaptable modular system be used to design transitional student shelters in underutilised and leftover spaces within the city?

This research question directs the social issue into a relevant architectural problem that allows for an investigation through this thesis.

This thesis focuses in exploring the problem of how homeless students can be sheltered in the city as a response and a political statement of the current condition. This brings into question issues of programme, site and affordability, which are all a common part of the architectural design.

The programme is addressed by identifying the problems of the situation experienced by homeless students:

- Stress of not having a secure home
- Lack of shelter and basic needs
- Disruptive environment and conditions
- Insecurity and vulnerability
- State of temporariness and anxiety
- Lack of privacy

The proposition of a **transitional shelter for students** is a powerful way of meeting these urgent needs. It provides an immediate solution and can quickly improve physical and mental living conditions.

Simply designing a shelter would not be viable if

there is no site for it. The location and proximity to the education provider and amenities are essential key factor to homeless students. Most of these institutes are typically located in the city. However, land in city is limited and expensive and requires an alternative approach. By looking at **underutilised and leftover spaces**, there are opportunities for development and efficient use of space.

As discussed, affordability is another major factor that significantly affects the design of the transitional shelters. The design also requires to be adaptable to the range of spaces in the city. **Modular design** is a system that provides a flexible and economical solution to the temporary demand of this project.

The three themes above are key architectural problem for research. While these solutions only addresses the symptoms rather than the cause of homelessness, the resulting architecture becomes a strong political statement of how we are driven to the state of designing to this scenario.

“Architecture is not the first thing that most people think of when they consider how best to help the homeless. But architecture can play an important role in creating facilities that sustain the dignity of people who have fallen on hard times”
(Davis, 2004, 13).

1.3 AIMS AND INTENT

This thesis aims:

- To challenge the current emergency housing solutions for students and raise attention to the issue of student homelessness architecturally
- To test the minimal requirements for an economical but reliable shelter to support healthy living and transition into permanent housing
- To test how utilising and engaging urban amenities available for students influence student accommodation needs and the design of shared and private spaces
- To test whether modular design can be adaptable for inhabiting underutilised and leftover spaces in the city

1.4 SCOPE

The nature of this thesis as a one year design-led research means that there are inherent limitations. This research focuses on exploring design solutions for students experiencing homelessness in the urban environment. Design solutions for permanent student housing are well established, and innovation in this area is not within the scope of this thesis. Instead, this research advocates for a transitional shelter that meets the specific student requirements and relates to its urban environment. Architectural concepts of modular and efficient design are primarily investigated to propose a practical design solution that contributes to the realistic scenario. It is envisioned that this process be applied for other underutilised city spaces however to tackle all these spaces extend beyond the scope of this thesis. This thesis explores a solution for one laneway in particular and views it as a testing ground. It challenges how architecture can utilise leftover spaces and contribute to provide for the spaces we need. The programme of shelters is questioned by specifically addressing student homelessness.

Figure 1.22 The range of underutilised spaces in the city.

1.5 METHODOLOGY

The research topic selected is an important issue to resolve through design. After establishing the problem and scope of research, this thesis adopts a design-led research approach. The design will explore the viability of the project and proposes a design solution contributes to the realistic scenario. The framework of the design experiments are developed in conjunction with the research of literature and precedents and through contextual studies of site and programme in a cyclic manner as shown in Figure 1.24.

For the purpose of this document, the research has been presented in a linear manner that simplifies the fluid and iterative process.

Chapter 1 provides background information on the current situation, the motivation of the research and the desired outcomes, a student shelter that is adaptable to the leftover spaces in the city.

Chapter 2 is a review of the existing literature and precedents in relevance to the problem. These ideas and concepts directly influence the design and provides a framework for the design research process.

Chapter 3 is an investigation of the context and studies on a selected site.

Chapter 4 explores design experiments as a result of the research from Chapters 1-3.

Chapter 5 provides an analysis of the developed design and shows an understanding of the project as a whole.

Chapter 6 is a critical reflection of the design and the problem leading to a discussion of potential future research beyond this thesis.

Figure 1.23 Diagram of methodology.

“You are ‘**human**’ before you are ‘**architect**’, and sometimes that is all that is needed to change somebody’s life” (Van der Linde, 2017, 22).

CHAPTER TWO : INVESTIGATION OF THE EXISTING

This chapter investigates current literature and key precedents. The literature locates the issue within the architecture discipline. The key precedents assist the direction of the design.

2.1 LITERATURE REVIEW

Key texts and literature were studied to investigate broad architectural ideas and concepts to inform the design process. These range were selected in relevance to the research question and in conjunction with design development.

*Figure 2.1 Disused lane before the transformation.
Figure 2.2 Passage 55 by Atelier d'Architecture Autogérée.*

Spatial Agency is a seminal literature on Architectural works that address society's most vexing global problems by presenting "a new paradigm as to how to operate - a paradigm that has thus far been largely written out of the standard histories of architecture" (Awan, Schneider, & Till, 2011, p.27). It scrutinises the normalising tendencies of architecture and calls attention to practices that challenge these predispositions. Ethical concern is a recurring theme and the main motivation of the projects and raises vital issues for the future. The authors argue that the consequences of architecture are as important of the objects of architecture (Awan et al., p.33).

The diverse and alternative collection of works compiled in their database gives support for this research to look towards every means to make a positive change. It informs of ways that architecture goes beyond producing material objects. This section will briefly touch on the approach two practices from the database that are relevant to the research problem.

Atelier d'Architecture Autogérée (AAA) is a studio based in France that provides a platform and network for collaborative research and enabling action on the city (Awan et al., p.41). Their works include experiments on temporary reuse of leftover urban spaces, infrastructure and self managed spaces that aims to influence local

policy. Passage 56 demonstrates that through initiative and community involvement, a leftover urban space can be developed to benefit the community and support from local government. This shows that there is scope for challenging the current restrictions and regulations.

Atelier Bow Wow from Japan produce works including buildings, research and art practice that focuses on constructing situations rather than objects. One of their books introduced the concept of 'Pet Architecture' that challenges where buildings are sited in the city (Atelier Bow-Wow, et al., 2001). The term also gives the connotation of the playful approach that many of these buildings displays. In Tokyo, there is limited space and houses typically have short lifespans allowing for specialised architecture in spaces that would not have been inhabited. As a result, this documentation of a common theme displays how a city forces the users to make the most of smaller spaces and celebrates their unique characteristics.

The underlying principles of these two firms are also transferable to other similar firms in Spatial Agency with emphasis on site, their users and social response. In conclusion, Spatial Agency provides theory in my research and highlights the importance of ethical concerns in architecture. Practices are influential in initiating projects and testing the norms of architectural projects.

Figure 2.3 Typical sites for Pet Architecture.

Figure 2.4 Tower Machiya by Atelier Bow-Wow occupies a narrow site between larger buildings.

Figure 2.5 A dormitory at the Wellington Night Shelter.
 Figure 2.6 Inside one of the sleeping cubicles for the Wellington Night Shelter.
 Figure 2.7 A home-like environment at the Wellington Homeless Women's Trust.
 Figure 2.8 A bedroom at the Wellington Homeless Women's Trust.

2.1.2 HOUSING THE HOMELESS

Establishing that social issues are also an architectural concern, this section investigates existing concepts for housing the homeless.

There are two main types of homeless shelters. First, where the length of stay is limited to only a certain amount of hours, usually from the evening to early morning. Basic needs are provided such as bed, bath and food. These places is also a high turnover of users affecting maintenance and repairs. A local example of this is the Wellington Night Shelter. The other type of shelter offers basic needs but also provides on-going support for individuals to get settled back into society. This includes help with doctor appointments, counselling, treatments and progress meetings. This involves a higher programme and cost due to the staff required to supervise and provide security. An example of this is the Wellington Homeless Women's Trust. Homeless shelters typically rely on donations and funding from the government.

However, the range of diversity among homelessness have different set of requirements. As one user recollected, "the place was "for people with high needs, as they call it. People who needed a lot of attention. I didn't really have high needs – I just needed somewhere to stay" (Forrest, 2016). Sheltering students who simply cannot find accommodation would display a similar scenario. Future Social discusses the state of homelessness

and compiles design ideas, essays and discussions from an architectural perspective (Soules, 2012). It sets realistic scenario where urban poverty and homelessness is prominent and argues for designs that respond to and deal with the issues with housing the homeless and creates a positive image and impact.

A built homeless shelter for teens in Toronto, Eva's Phoenix, displays this intention. The design challenges the norms of a homeless shelter through innovative insights and architectural aesthetics that are often only seen in commercial enterprises. It offers an amalgamation of community living and individual growth. The idea was developed closely with the youths. (Cogley, 2017).

On a smaller scale, there are designs that responds to the user's autonomy. This is explored by Furzer on his "Houses for the Homeless" parasitic sleeping pods that features a platform affixed to external walls of buildings (Rinaldi, 2015). However, these type of concepts that have yet to become reality.

Key transferable themes to provide for in shelters for this research were:

- A legible sense of safety
- Place for nourishment and daily activity
- An efficient use of space and units
- Privacy

Figure 2.9 Eva Phoenix, homeless shelter for youth.

*Figure 2.10 Parasitic sleeping pods by James Furzer .
Figure 2.11 An interior perspective f the pod.*

Figure 2.12 Typical student dorm allowing for private space and study

Figure 2.13 Typical shared dining area providing an opportunity for interaction and strengthening community.

The state of student housing is researched to understand the users and their requirements. As discussed in the first chapter, there are three common living situations for students - living at home or home stays, residence halls and private rental properties or flat sharing.

Students generally need temporary housing instead of permanent residences. The special requirements of individuals attending institutions of learning set the student housing market apart from others (Rhodes. 1999, 65). Therefore, this research focuses on residence halls because they are purposely built for student requirements.

The student's living arrangement directly impacts the way they think of feel. Residence halls allows the student to live among other students, providing a strong sense of community and camaraderie. They also generally perform better in this environment than those that live outside campus (Araujo & Murray, 2010, p7).

The model of these accommodations typically consist of a corridor lined with standard rooms to allow for an adequate environment for the student.

However, it has been long studied that these conventional long-corridor arrangement had the least satisfaction for students compared with halls that were perceived as experimental (Davis, 1970, p28).

Other strong hall predictor of satisfaction with students were the sense of community among the residents and being able to study in quiet (Foubert, et al., 1998). To build a sense of community, an integration of flexible social space is important for students to have the opportunities to interact with each other in their everyday life (Devlin, 2009, 488).

by Design Collective reflects this integration in their Pod concept. This modular design allows for a shared common space amongst the corridor of dormitory rooms.

As a conclusion, modular design is a common approach for student housing. However, it is also important that there are communal areas that also prioritises and encourages student community and interaction to provide student satisfaction and academic performance.

Figure 2.14 Typical double corridor student accommodation arrangement.

Figure 2.15 Design Collective's 'Pod' design insert of social space to provide opportunities for interaction in the community.

2.1.3

TACTICAL URBANISM AND TRANSIENT PROJECTS

Tactical urbanism and transient projects are investigated as the nature of this research is also of temporary demand in the urban environment. It is notable that these projects are supported with funding or allowed by municipality. This invokes forward thinking attitude and implementation of design from start to finish.

Tactical urbanism projects began as unsanctioned interventions but due to their success, they became permitted or permanent. One example of this concept is the parklet movement where parking lanes are taken over to provide additional space and amenity for people. This was first publically initiated in downtown Portland where regulatory permitting hurdles had taken the project almost three years to realise (Zeiger, 2015).

The range of tactical urbanism can be placed in a spectrum unsanctioned and sanctioned activities. This displays how a “short-term action creates a long term change” (Lydon, et al., 2012).

Transient projects on the other hand do not create a longer term physical change but to “make

something, even temporary, that will change how a place works and is perceived” (Berg, 2012).

Temporary architecture is often misinterpreted and requires definition. Usually they are experimental and innovative, questioning the form of permanent architecture gone before (Hill, 2006, p.2) It aims to transform “architectural forms into compelling, memorable visual images - a form of advertisement.” (Hill, p.2-3). It is a way of rethinking society that explores the process of building and the political nature of architecture with a concern for engaging people and enriching local communities. The process is collaborative with participatory ways of designing, making and building.

French architect, Stéphane Malka, extends the potentials of public space through his work ‘Bow-house’. The small dwelling offering basic components of what defines a house is supported by typical scaffolding framework. The structure offers itself as a shelter for temporary occupation by anyone who might be passing by. This adds value to neglected urban areas.

*Figure 2.16 Pop Up Town Hall as a sanctioned Tactical Urbanism effort.
GMW Guggenheim Lab by Atelier Bow-Wow.*

Figure 2.17 The range of unsanctioned to sanctioned Urban Tactics.

Figure 2.18 Portland's first parklet built by Architecture students.

Figure 2.19 Nomadic bow-house by Staphane Malka.

Figure 2.20 Ridley's restaurant

Figure 2.21 Liina Transitional Shelter.

2.1.5 PREFAB AND MODULAR DESIGN

Prefabrication and modular design are an established approach to affordability. Prefabrication allows construction to be made off-site. Modular design allows the components to be repeated for efficiency. Merits also include a faster construction in comparison to traditional construction method (Kaufmann & McGrath, 2006).

Prefabricated buildings typically involves:

- a) component
- b) panel
- c) module
- d) hybrid
- e) complete buildings

An example of a panel construction is the Liini Transitional Shelter from Aalto University designed a unit of 180 square metres that fits into a single shipping container (Alter, 2012). It is then able to be deployed quickly and efficiently for its inhabitants to live in.

In Japan, capsule hotels have embraced prefabrication and modularity. The development of the concept of a capsule first appeared in the 1960's when Kisho Kurokawa designed the Nakagin capsule tower allowing for prefabricated modules to be inserted in a central core. They are designed to provide a minimum place to sleep. The rooms are built in the dimensions of a bed, with a height allowing occupants to seat. They were usually rented only for a night by drunk men or those who have missed the last train. More recently, Japanese capsules have started to be rented for weeks or months by jobless and homeless people (Tabuchi, 2010).

Figure 2.22 Nakagin Capsule Tower by Kisho Kurokawa.

This research has established that:

- a) ethical concerns are within the scope of the architectural discipline and creative solutions can challenge traditional restrictions and regulations;
- b) there is a gap in research and development for specialist shelters for students;
- c) a sense of community through integration of social space and a private place for rest and study are important for student satisfaction and academic performance;
- d) there needs to be a shift towards utilising our city spaces more efficiently;
- e) prefabricated modular design offers appropriate cost-effective solutions, however it is necessary to relate then to human needs and scale to accommodate its users.

Much can be learned from the concepts arising from this research and provides a direction towards a holistic homeless student shelter that fits its urban environment.

2.2 PRECEDENT STUDIES

STUDENT ACCOMMODATION

TE PUNI VILLAGE

URBAN RIGGER

SMART STUDENT UNIT

TEMPORARY ACCOMMODATION

BOOK AND BED

MAISON 6X6

HEXA STRUCTURES

SMALL SCALE URBAN RESIDENTIAL HOUSING

SKYBOX

KERET HOUSE

ARTIST'S STUDIO

This section investigates architectural precedents in closer detail to directly inform techniques for design development. These range of works are selected as they are the best representation for these three categories that are relevant to the development of this project.

2.2.1

TE PUNI VILLAGE

Wellington, New Zealand
Architectus, 2009

Te Puni Village is an example of a university teaming up with a private developer to provide quality student housing. (Honey, 2009). The site is situated on a steep site and resulted in a three separate blocks joined by a bridge. This bridge effectively connects each blocks and provides the common space. The blocks have singles rooms on either side of a traditional long corridor. This provides a community of up to 30 people.

The rooms take advantage of the views out towards the city. They are also offset to give privacy. The corridors are carpeted with clear finished strandboards providing a warm utilitarian feeling.

The highlight of this complex are the common areas that encourages students to gather, socialise and study outside their rooms. This project also displays how architectural techniques of alternation and offsets allow a large building of high density to avoid monotonous repetition.

- Key common themes include:
- Defined private, shared and public space
 - Modular forms and cost-effective materials
 - Complimentary development to its context

Figure 2.23 (opposite) Facade from Cuba St
Figure 2.24 (opposite) Bridge from eye level
Figure 2.25 (below) Typical bedroom dorm
Figure 2.26 (below) Sunlit hallway

Mass is divided into three separate buildings as shaped by its context and density

The complex is joined by a shared connecting floor for communal activities and shared spaces including: kitchen, dining, social, giving the whole a sense of community

Facade reflects clearly defined spaces. The alternating and flipped design create rhythm to the large complex

Wide corridors allow for additional shared space. The windows at each end gives light and views - connection to outdoors

Dorm-style accommodation to a corridor with common/shared facilities (toilets/ bath/living) at each floor. Additional shared space allows for minimal private rooms and strengthening of community

Clear boundaries with defined private/ common space. The gradient of privacy: Room -> Floor -> Building -> Complex

Modular rooms create efficiency and allow for a cost effective development

Single rooms are small and consists of a bed, desk, wardrobe and shelves. Additionally, each room have access to a window for natural light

2.2.2

URBAN RIGGER

Copenhagen, Denmark
BIG Architects, 2016

Urban Rigger is a housing solution that makes the most of the underutilised space of Copenhagen’s harbour. It is a developer-driven project, inspired by the growing number of students and lack of new student accommodation developments. Its clever site allows students to live at the heart of the city.

The standardised containers allow a flexible building typology. The configuration involves 9 container units stacked in a circle with a centralised winter garden and common meeting place.

This self sufficient housing scheme is designed so it can be replicated in other cities where affordable housing is needed.

- Key common themes include:
- Defined private, shared and public space
 - Modular forms and cost-effective materials
 - Complimentary development to its context

Figure 2.27 (opposite) Urban Rigger occupying the harbour as its site.
Figure 2.28 (opposite) The concept allows for multiplication to create a larger community
Figure 2.29 (below) The shared courtyard with direct connection to the water
Figure 2.30 (below) Typical room with views and natural light

Shipping containers act as main modular structure

Containers are arranged together to form a community

The configuration allows an opportunity for multiplication and to form a larger community

The form creates a courtyard and community

Roof spaces provides a variety of use: grass, terrace and solar panels.

Built in the harbour, an underutilised urban space

Defined public, common and private spaces through its strong geometrical formation.

Views and natural light through large windows

2.2.3

SMART STUDENT UNIT

Lund, Sweden

Tengbom Architects, 2014

The smart student unit by Tengbom is an affordable wooden house for students. The layout is efficient, making the most of its ten square metre space. It provides a small kitchenette with shelving and cupboards, small bathroom and a loft for sleeping.

The use of cross-laminated wood as a construction material allows for prefabrication of irregular shapes and quick installation on site.

This small space is successful due to its meticulous design and attention to detail. The compact unit leaves no unnecessary space and as a result, the rent is reduced by 50%.

This approach uses an innovative construction and efficient layout to provide a self-sufficient unit.

Key common themes include:

- Small scale and minimal design
- Simple structure and construction
- Modular forms and cost-effective materials
- Ability to expand and be dismantled

Figure 2.35 (opposite) Interior view of the unit from the entrance.

Figure 2.36 (opposite) Plan and sections of the unit providing a sense of scale.

Figure 2.37 (below) The exterior view of the whole unit.

Figure 2.38 (below) View of the kitchen and dining from the loft.

Compact design allow for minimum volume

Loft space provides separate and private sleeping area

Prefabricated material allows for unique shapes with the curved edges softening the space

Timber provides a sense of warmth

Design allows for multiplication for expansion

Quick construction from prefabricated material

Small scale to providing only necessities

Space for study is considered

2.2.4

BOOK AND BED

Tokyo, Japan
Suppose Design Office, 2015

Influenced by the capsule hotels, Book and Bed provides a small space to sleep. However, what sets it apart from other capsule hotels is its integration of books. This allows for a n environment that supports quiet study and rest.

Their private beds are located within the bookshelves providing a sense of privacy. These spaces range from 1200x200m to 800x2000mm. This area provides room for a person to sit upright or lie down.

There is a shared bathroom, lockers and a communal area.

This concept allows for a high density temporary accommodation to be affordable in an expensive urban area.

- Key common themes include:
- Small scale and minimal design
 - Defined private, shared and public space
 - Modular forms and cost-effective materials
 - Complimentary development to its context

Figure 2.39 (opposite) Interior view of Book and Bed
Figure 2.40 (opposite) Large common area adjacent to
Figure 2.41 (below) Private stacked capsules
Figure 2.42 (below) Inside a capsule

Defined private and common spaces

Large space for interaction to balance small private spaces

Modular capsules for cost efficiency

Timber material for a sense of warmth

Unique theme enhancing the small space

Minimal private space allow for higher density

Basic facilities provided

Urban location allows for minimal spaces

2.2.5

MAISON 6X6

Lorraine, France

Jean Prouvé, 1944

Maison 6x6 was designed by Prouvé as a means to house displaced homeless after World War II. The shelter comprises of modular components that can easily be transported, assembled and dismantled.

Key common themes include:

- Small scale and minimal design
- Simple structure and construction
- Modular forms and cost-effective materials
- Ability to expand and be dismantled

Architect, Richard Rogers, adapted the structure to include modern living facilities such as a bathroom, kitchen pod and also hot water and solar electrivity. These additions are placed outdoors to retain the original interior layout. This highlights that a shelter without these facilities would be unusable in this modern environment.

Figure 2.43 (opposite) Assembly drawing of Maison 6x6

Figure 2.44 (opposite) Assembly drawing of Maison 6x6 with services

Figure 2.45 (opposite) Services and facilities addition

Figure 2.46 (below) Construction of Maison 6x6

Figure 2.47 (below) Showcasing its prefabrication in a gallery

Modular components
prefabricated to assemble
on site

Simple structure

Fast and easy construction

Efficient box form

Adapted for modern living
through addition of services

2.2.6

HEXA STRUCTURES

Marseille, L'Estaque

Michael Lefeber, 2013

Hexa Structures are temporary housing structures that is conscious about environmental impacts. Its structure consists of wooden pallets and scaffolding. The triangular shape assemblage links the pallets to metal bars by hand. This also allows for a quick dismantle.

- Key common themes include:
- Small scale and minimal design
 - Defined private, shared and public space
 - Simple structure and construction
 - Modular forms and cost-effective materials
 - Ability to expand and be dismantled
 - Complimentary development to its context

This project responds to the need for nomad housing and are not designed for permanent housing.

However, this design is limited as weather conditions in less than mild locations would make this type of solution unrealistic in Wellington.

Figure 2.44 (opposite) Sleeping spaces
Figure 2.45 (opposite) Multiplication allows for a development of a community
Figure 2.46 (below) Construction of the structures
Figure 2.47 (below) Cluster of modules

Simple scaffolding base structure for easy assembly

Single modules provides room for single sleeping space

Wooden pallets as modular, cheap and sustainable material

Modules are combined to create a community

A variety of configurations can be achieved

2.2.7

SKY BOX

Wellington, New Zealand
Melling Architects, 2002

The Skybox is a local example of how architecture utilises an overlooked space. The architect, Gerald Melling, built this home above his office of a converted factory due to unaffordable land prices.

The structure consists of steel frames that supports the three storey dwelling. An umbilical cord towards the back of the existing building provides access.

Its use of a compact form with modular panels allows for a cost-effective construction. The timber lining gives the industrial structure warmth.

- Key common themes include:
- Small scale and minimal design
 - Defined private, shared and public space
 - Simple structure and construction
 - Modular forms and cost-effective materials
 - Complimentary development to its context

*Figure 2.48 (opposite) The Skybox in its urban context.
Figure 2.49 (opposite) Sections and plans
Figure 2.50 (below) The main access core
Figure 2.51 (below) Sunlit kitchen and dining
Figure 2.52 (below) View of the Skybox from ground level*

Use of overlooked urban space

Simple steel structure

Vertical space accessed by a stair core

Efficient box form

Cost effective modular panels

Timber lining to provide the steel structure with residential warmth

2.2.8

THE KERET HOUSE

Warsaw, Poland
Centrala, 2012

This house was a result of a strict budget and a lack of rentable land. This saw opportunity from the very tight site and built the world’s narrowest house.

This dwelling is successful through its use of clever materials and construction method. Its efficient planning of programme maximises spaces.

Overall, the design creates a livable space from a small void in the city.

- Key common themes include:
- Small scale and minimal design
 - Defined private, shared and public space
 - Simple structure and construction
 - Modular forms and cost-effective materials
 - Ability to expand and be dismantled
 - Complimentary development to its context

Figure 2.53 (opposite) Inside The Keret House
Figure 2.54 (opposite) Model perspective showing overall interior space
Figure 2.55 (opposite) Prefabrication of structure
Figure 2.56 (opposite) The Keret House in context of neighbouring buildings
Figure 2.57 (below) Bedroom with natural light
Figure 2.58 (below) Entry access with timber flooring and white structure
Figure 2.59 (below) Bathroom

Occupies leftover space
between buildings

Prefabricated steel frame
structure due to site
restrictions and cost
effectiveness

Varying levels of living
provides a sense of additional
space

Vertical access through space
saving stair and ladder option

Simple small form elevated above
ground

Screened facade to allow
natural light

2.2.9

ARTIST'S STUDIO

Tel Aviv, Israel
Raana Stern, 2014

Restricted to a 15 square metre room, the artist's studio provides a space to fit the specific needs of the artist. The set up accommodates living and working spaces, as well as sleeping. Storage cabinets are flexible and provides a range of sizes and units to achieve a sense of visual spaciousness. A fold-out single bed allows for a larger space when it is not needed.

This project shows that a small space can provide living and workspaces required through efficient storage, flexibility and clever planning to its targeted user.

- Key common themes include:
- Small scale and minimal design
 - Modular forms and cost-effective materials
 - Ability to expand

Figure 2.60 (opposite) Inside the Artist;s studio
Figure 2.61 (opposite) Model perspective showing configuration
Figure 2.62 (opposite) Fold out bed
Figure 2.63 (below) Storage units and drawers using plywood
Figure 2.64 (below) Workspace with natural light

Combination of living
and working space

Fold out bed allows for a
larger space when not in
use

Variety of storage allows the
small space to be organised

Access to natural light

Use of timber to give a sense
of warmth

Through the analysis of the previous case studies, it is evident that there are key common themes. These are used to inform the design:

- Small scale and minimal design
- Defined private, shared and public space
- Simple structure and construction
- Modular forms and cost-effective materials
- Ability to expand and be dismantled
- Complimentary development to its context

CHAPTER THREE : CONTEXTUAL STUDIES

This section analyses Wellington's urban environment and key characteristics in regards to the research question. This informs the selection of site to explore through design.

While the research responds directly to Wellington, this thesis takes the broader theme of an urban centre with the intention of how the findings could be adapted for similar cities also facing student homelessness.

3.1 URBAN ANALYSIS

The site for this research are underutilised city spaces. For this project, Wellington City is explored as a case study due to its compact size, urban characteristics and accessibility. It analyses whether the city is applicable for investigating the research question. The narrowed focus of laneways for this projects allow for feasible study.

Figure 3.1 Spaces in between buildings as a leftover space.

Wellington is a compact vibrant city centre that offers educational, social and recreational amenities. It is characterised by its creative culture. In exploration of the city, there is a constant a range of new activities in urban pockets but also leftover spaces that provide opportunities for development. It is these spaces that this thesis will focus on in locating a test site for a transitional student shelter.

Figure 3.2 Location of education providers in Wellington and the proposed exploration for site selection.

Strengths

- Proximity to educational providers
- Proximity to amenities: parks, library, transport, cafe, recreation

Opportunities

- Not all city spaces are occupied and there's an opportunity these leftover spaces to be habitable
- High density zone provides opportunity to introduce additional numbers

Weaknesses

- Land is expensive
- Limited land to build on

Threats

- Residents seeing the shelter negatively
- Owners not wanting to build in these spaces
- Council not approving to build in these spaces

Figure 3.3 SWOT analysis of the location.

Due to the nature of the buildings in the city, there are many laneways that are created as a consequence.

The Laneway Projects Wellington City Council aim to transform areas of CBD and improve walkability. What was previously an undesired and largely ignored spaces are now being turned into positive areas. This demonstrates the concept of Tactical Urbanism while also having the support of the Wellington City Council.

Overall, laneways are starting to be seen in a positive light. Recent developments of laneways include the upgrade of Lombard Lane coinciding with the adjacent new architecture. Press Hall is a development that inserts a building alongside a newly created laneway. These local works provide an approach to laneways that this thesis can follow. However, the large question is whether they can also provide for spaces we need such as shelters.

Restraints of sites and planning regulations affect constructability, however research on precedents shows that it is possible to initiate if there is demand and a creative solution.

Figure 3.4 Map of Wellington City with the laneways highlighted in yellow.

0m 250m 500m

Figure 3.5 Pictures of underutilised and activated laneways in Wellington City.

Figure 3.6 Lombard lane dewvelopment upgrade

Figure 3.7 Press Hall creating a new laneway in the city

Through exploration and observation of the laneways in Wellington, there are five main characteristics of laneways:

- 1) type
 - a) pass through
 - b) dead-end
 - c) internal
 - d) corner
- 2) orientation
 - a) North-South
 - b) East-West
- 3) width
 - a) one car
 - b) one car and pedestrian
 - c) two cars
 - d) two cars and pedestrian on one side
- 4) height
 - a) similar height
 - b) asymmetrical height
- 5) facade
 - a) blank
 - b) penetrated

Through these identification of characteristics, they can inform what is required for the design to become adaptable.

Figure 3.8 Characteristics of a laneway

3.1.4

KEY FINDINGS

Laneways in cities are valuable spaces and in Wellington, they are now being in in positive light through transformations and new urban design developments. However, many are still largely overlooked and only provide vehicular access for a few users. There is potential opportunity for a shelter in these spaces through initiatives and the demand as the nature of the developments adds value to the overall urban environment. These lanes range in characteristics but share common themes that can allow for an adaptable approach to be developed in design.

Figure 3.9 A dead-end lane.

Figure 3.10 Selected site

3.2 SITE SELECTION

Laneways in general acts as the site for shelters. To be able to test if it is a space for inhabitation, a design will need to be developed in a particular site. The lane in Willis St is selected as an example due to its characteristics that are common throughout Wellington and similar cities. It is a dead end lane oriented East to West and allows for only one car with low rise neighbouring buildings.

Adaptability to other lanes are kept in mind in designing the solution.

3.2.1

SITE STUDIES

The site is adjacent to an existing student accommodation allowing for possible support for the additional student population and low impact to the existing residents. The lane leads to a carpark that accommodates for maximum eight spaces. There is potential to consolidate the spaces to the large neighbouring carpark.

The site is relatively flat but has limited sun as it is overshadowed by the adjacent building. It's front to Willis St is busy and noisy.

However, there are many amenities provided in this central location including public transport, various food options and outdoor spaces.

SITE PLAN ANALYSIS

Figure 3.11 Site plan analysis
Figure 3.12 Contextual section

3.2.2 ENVIRONMENT CONSIDERATIONS

A major issue in Wellington is its geographic location. This requires special design consideration to:

- a) Wind - prevailing North Westerly wind and harsh Southerlies.
- b) Earthquakes - Wellington experiences many earthquakes due to its location on a faultline.

Figure 3.13 Wellington in context to the harbour and Cook Strait

3.2.3

KEY FINDINGS

This site embodies typical lanes with its unique characteristics allowing it to be a suitable test site for investigation.

- a) dead end lane leading to private car parking
- b) east west orientation
- c) 3.5m wide allows for the width of a single car
- d) 3 storey and 2 storey adjacent buildings
- e) mixed blank and penetrated walls

Figure 3.14 The site highlighted in yellow
 Figure 3.15 The lane from Willis St
 Figure 3.16 The lane viewed from an adjacent carpark

3.3 PROGRAMME ANALYSIS

The nature of a shelter has minimal requirements. By analysing what is the minimum requirements, what can be provided by the urban amenities and what is required for a shelter for students.

TYPES OF PRIVATE SPACES

STUDIO

ENSUITE

DORM - BED

DOUBLE/TWIN SHARE

BUNK

CAPSULE

Figure 3.17 Types of student accommodation and temporary accommodation

3.3.1

MINIMAL LIVING

Through exploration of student housing conditions, there are requirements for students to live and study well. This involves:

- a) Private space including a bed, storage and study desk
- b) Shared facilities includes kitchen
- c) Communal space for socialising and entertainment
- d) Access to allow entry and exit at any time

The site is located in the centre of the city. It allows for many urban amenities at close proximity. This includes:

- public transport
- outdoor parks and the waterfront
- shops
- restaurants, cafe and bars
- libraries and galleries

These areas can be utilised to provide an extension to the shelter.

LOCATION PLAN IDENTIFYING AMENITIES

Figure 3.18 Surrounding amenities

Figure 3.19 Flow chart of the spaces required for the shelter

3.3.3 SHELTER REQUIREMENTS

Figure 3.20 Configurations of spaces

The nature of its site and function as a shelter allows for a provision of only the minimal space. This results in a programme consisting of:

- 1) Private space - bedroom
- 2) Shared space - kitchen, dining, bathroom, circulation

The number of bedrooms are determined by the demand and the site whilst the shared space is determined by the number of bedrooms.

**CHAPTER FOUR : PRELIMINARY DESIGN
EXPERIMENTS**

4.1 INHABITING THE LANE

This section explores how the test site can be inhabited. The limitations and challenges to the site include the mass, width, light and neighbours.

Figure 4.1 Early diagram of concept

The mass explores different options of an intervention in the lane.

Figure 4.2 Diagrams of massing in relation to neighbouring structures
Figure 4.3 (opposite) Consideration of height and length restrictions

The site is flat, however different terrains are also explored to reflect how it affects the mass.

FLAT GROUND

STAGGER/STEP DOWN

SLOPE UP

SLOPED

SLOPE DOWN

Figure 4.4 Various ground considerations

Three by three cube is explored to provide the base dimensions of the modules. It is determined by the minimal space required for occupation.

Figure 4.5 Exploration of modular dimensions for occupation

Figure 4.6 Early explorations of modular shapes affecting the mass.
 Figure 4.7 Modular options for further development
 Figure 4.8 Early explorations of modular options

4.1.4

MODULAR SHAPES

A variety of modular shapes are explored for their different effects to the mass.

A simple range of pitched roof options were explored: the gable roof, mono pitch roof and flat roof.

Figure 4.9 Roof options
Figure 4.10 Early sketches of roof

Figure 4.11 Sketches of structural explorations
Figure 4.12 Structural options for development

4.1.6

STRUCTURE

Structural integration with the design is key to maintaining the scheme. The intention was to keep the minimum sizes of structure. Therefore, the simple structures of moment and braced frames were chosen.

Alternate forms of structure that would cantilever to the neighbouring building is also explored, however this method would require large sizes or significant impact to the neighbouring structure.

Modular design allows for easy expansion due to its repetitive components. Expansion vertically and horizontally were explored to illustrate what impact the length and height of the site would have to the design. Additionally, the width of the lane is taken into account.

Figure 4.13 Expansions in height and width
Figure 4.14 Expansions in width

The process was fluid and intuitive due to the nature of the design process. However the explorations resulted in four design key moves that creates the basis of this concept.

- 1) Elevate mass above ground level to retain original use of the site
- 2) Apply grid to create modular system
- 3) Integrate structure with the modules to stabilise form
- 4) Expand modules vertically and horizontally to accommodate number of students

1. ELEVATE MASS ABOVE GROUND LEVEL TO RETAIN ORIGINAL USE OF SITE

2. APPLY GRID TO CREATE MODULAR SYSTEM

3. INTEGRATE STRUCTURE WITH THE MODULES TO STABILISE FORM

4. EXPAND MODULES VERTICALLY AND HORIZONTALLY TO ACCOMMODATE NUMBER OF STUDENTS

Figure 4.15 Design Key Moves to inform the concept

4.2 CORRIDOR

From the experimental ideas, a conceptual corridor-based shelter was chosen for further development due to its efficiency.

Figure 4.16 Early design concept of the corridor

As a corridor based design, the private spaces are arranged to be connected horizontally with a main vertical core. This allows for modules to be repeated and therefore be easily expanded. These modules consist of 2x3 bedrooms and 1x3 corridor. The bedroom provides for a fold out bed, fold out desk, storage and a side table.

Figure 4.17 Early floor plan of the upper floors with private spaces

The space is arranged to have defined public, shared and private spaces. These follow a gradient of privacy from the ground level. The main core that connects all levels vertically.

LONGITUDINAL SECTION

Figure 4.18 Early section through the concept

Space efficiency through the use of flexible and movable walls were explored early in the development. However, they were discarded due to the intention of simplicity as a shelter.

Figure 4.19 Sketches of flexible walls and expansion techniques

Considerations to the quality of space were the lighting, materials and details. The lighting is provided by natural light at each end of the corridor and artificial lighting through the corridor. The materials honestly expresses the structure and construction of the shelter.

Figure 4.20 Interior hallway perspective

The corridor design meets the requirements of the problem with the intention of providing logical, efficient, cost-effective solution to the site. The design review critics at this point raises many valuable points for further development including light, noise, privacy, economical, sustainability, structure and maximisation of space.

The corridor responds to nature of the site being shadowed limits and only provides light through each ends. Possibly providing outdoor corridor may be a further development as it allows for additional light and economical value.

The current structure requires tying to the adjacent building. A parasitic structure was brought up as an option to explore however this requires this intervention to significantly affect the site. Therefore, the structure will revisit the fundamental framing options.

Additionally, a significant observation is how the corridor wastes valuable width space when the length allows for more space.

The design is therefore developed with these themes and points in mind.

Figure 4.21 Themes of reflection

4.3 STAIR CORE

In response to the critical review and reflection, a development of the concept led from the corridor to the stair core. This allows the full use of the restrictive width of the site and an opportunity for a light well.

Figure 4.22 Process from mass to corridor to stair core

Figure 4.23 Explorations of development

4.3.1

REDEVELOPMENT

Figure 4.24 Explorations of development through expansion

Figure 4.25 Form finding

4.3.2 CHALLENGES AND ADVANTAGES

This shift in development allows for a refresh of ideas.

Challenges include:

- Vertical access and space saving stairs
- Access to natural light
- Space efficiency
- Finding form to the structure

Advantages include:

- Greater quality of space
- Additional expansion variations
- Sustainable reconsiderations

Figure 4.26 Development sketches

CHAPTER FIVE : DEVELOPED DESIGN

5.1 PART I

MASS DIMENSIONS TO ACCOMMODATE NUMBER OF USERS AND SITE RESTRICTIONS

VERTICAL CIRCULATION CORES AND LIGHT ACCESS

PITCH ROOF FOR SOLAR PHOTOVOLTAICS AND ROOF SPACE FOR WATER STORAGE

INTEGRATED GUTTERING AND IRRIGATION FOR GREENERY

Figure 5.1 Parti diagram of the developed design

5.2 SPATIAL ORGANISATION

A balance of economical consideration and quality of space are met in this developed design. Entry is from the ground level of the lane and up the stairs. The first floor allows for shared spaces including a kitchen, dining table, balcony, bathroom, laundry and storage.

Due to the length of the site, there are three lightwells and vertical access to the private rooms. These allow for less students to share the circulation and additional privacy.

Figure 5.2 Floor plans
Figure 5.3 (opposite) Sectional perspective

Figure 5.4 Plywood insulated panel

Figure 5.5 Polycarbonate sheets

5.3 MATERIALS

A range of materials were explored during the developmental stage and evaluated in regards to its suitability. The resulted with the selection below:

- Plywood insulated panels
- Polycarbonate sheets
- Exposed structural steel
- LED lighting
- LVL joists
- Plywood Sheets

The combination of these materials together provide a modest yet warm and textural qualities to the design.

5.4 MODULAR SYSTEM

The shelter is designed to be built with a modular mounting system of steel frames that enables erection and dismantling with the possibility for subsequent reuse and an alternative function at another location. Floor and wall panels are assembled to the frames.

The multiwall polycarbonate sheeting provides natural light penetration during daytime and additionally lights up the lane during nighttime. modular system of translucent multi-wall.

Figure 5.6 Assembly of modular system

ROOF AND FACADE

STRUCTURE

EXTERNAL WALLS

GLAZING

STAIRS

PARTITIONS

FACILITIES

Figure 5.7 Separate components in consideration to sustainability

5.5 SUSTAINABILITY

Sustainability is considered throughout the design process. From the concept of the communal shelter that allows a number of students in one roof to its construction and materials.

The series of pitched roof allow solar PV to be installed for hot water supply to the kitchen and bathroom. Additionally, the fall allows for water collection and storage in the ceiling space. Rain water is also directed down towards the balcony garden for irrigation.

The polycarbonate twin walls allow diffused natural light through the level. The structural insulated panels are prefabricated and thus reduces waste.

5.6 SPATIAL QUALITIES

Spatial quality of this shelter is defined by its configuration and materials. The main stair core is bounded by polycarbonate twin wall and plywood. This gives diffused light and warmth through the vertical circulation. The shared common area is compact and allows for its users to interact through daily activities such as cooking and eating. This area is open to the balcony facing the street. This outdoor space provides a space for an edible vegetable and herb garden.

*Figure 5.8 Entry to the shelter
Figure 5.9 Lightwell and staircase to private spaces
Figure 5.10 Communal kitchen and dining*

5.7 INHABITATION

It is imagined that this space will be inhabited by homeless students temporarily as they find permanent housing. This shelter provides them a sense of a stable home as they carry their student obligations. The public lane will be well lit and safe. The entry to the upper floor allows for communal activities of cooking and eating to bond the residents. Upstairs, the student will have a small but their own private space for study, relaxation and sleeping.

This shelter significantly improves the lives of homeless students whether for a week, a month or longer. The shelter is subsidised to be affordable for the student income as provided by student allowance or loan.

Figure 5.11 Cross-section

CHAPTER SIX : CONCLUSION

6.1 CRITICAL REFLECTION

A major issue with many emergency and improvised accommodation is their instability. The invisibility of student homelessness and associated embarrassment has a negative impact on the student's ability to find support and improve their situation. Unfortunately, the efforts of increasing housing supply and affordable accommodation on a whole will take a long time.

Current architectural outputs for emergency shelters are usually sole-occupied and site-less or housing developments for those that require a higher level of needs. Alternative solutions are needed to respond to this urgent and topical issue of homelessness that caters to its demographic. This research reassesses the concept of a shelter in context to the issue of student homelessness, providing a framework for an application to site and thought-provoking architectural outcome.

The result of this thesis is both a building design and a social tool. The first chapter outlined the various conditions specific to the needs of homeless students, in relation to the urban environment. The architecture developed addresses these issues at several levels, the individual, collective and the city. It addresses a solution that is secure, affordable, safe and healthy that also contribute to the larger urban context.

Figure 6.1 Sleeping rough on the streets in Wellington during a weekday early morning

Figure 6.2 Maslow's pyramid of Quality of Life

As an influential device, the shelter presents positive traits from small scale design, hyper efficiency, individuality and independence but also communal living. As an outcome that embodies the need for city emergency housing, Sheltering our Future is seen as a result of this researcher's line of investigation but also as an adaptable system that will contribute to tackling the larger issue of homelessness.

In the final review, the Quality of Life has been brought into attention and whether it has been explored to inform the research. The focus of the research is to provide immediate and temporary shelter, fitting in the lower two sections of the pyramid. It is believed that upper sections are provided through is already achieved as the student's personal circumstance is temporary or can be achieved as the students living together in the shelter will form a bond in the sense of belonging. Self-esteem and self-actualisation will require the design thesis to extend its scope to permanent housing.

Additional feedback from the review panel for the developed design presentation had expressed

strong points on the general issues identified and addressed, coherence from broad scale through to detail and potential scalability of the proposal for other sites and situations. However, several points were raised in regards to spatial qualities provided for the residents, visual design qualities and constructability given the restraints of sites and planning regulations. Spatial qualities were taken into account that the accommodation is not long-term. However, a generous space can be provided but at the cost of the numbers that can be accommodated. This questions whether it is acceptable to accept that students are living on streets or design an economic temporary solutions. Living in small spaces and tiny homes are becoming more desirable as cost of living rises and quality of design improves.

The constraints and limitations of this design are the regulations of construction. There will need to be a special exception for the design to work. From the literature review investigating spatial agency, it's established that architecture can have a role in initiating community spaces.

Figure 6.3 (next page) Minimal living in a tiny home

“The challenges associated with homelessness look very different today than they did 20 years ago, and **we will need the new generation of architects, planners, and designers to address these challenges** by employing opportunities, partnerships, and technologies we have at our disposal” (Van der Linde, 2017 , 23).

6.2 FUTURE RESEARCH

The research has a large potential for advancement, if extended beyond original scope. This includes:

a) Adaptation to the Identified Range of Sites

This leads to how the design can be adapted to other underutilised and leftover spaces. There is the big question of permit and consent to these sites and its constructability in the real world.

b) Application to the Wider Homeless Population

This design research has been focused for the young students that have become homeless. The wider homeless population are also increasing but requires different set of needs such as family support, mental illness, cultural diversity.

c) New Technologies

Technologies are developing very fast and there is opportunity to enhance this research. Further research towards self sufficient and low-cost materials.

Final Thoughts

This issue of student homelessness has become even more relevant now. In 2018, the Government's new first-year fees free arrangement compound the city's worst rental crisis. The number of rooms available to students are slowly increasing with new developments opening up. Wellington students were competing with young professionals and families priced out of home ownership for 71 per cent fewer rental properties than in 2016, according to Trade Me figures.

The research of this thesis seeks to provoke thought and promote change to ethical issues such as homelessness. The proposed design satisfies the need for temporary shelter in a centralised location that caters to the need of students.

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Student Homelessness : Sheltering Our Future
An Adaptable Approach to Underutilised City Spaces

2018