Firstly, thank you to my family for all the support over the past five years. Mum and Dad, without your emotional and financial support I probably would’ve thrown it in and gone skiing. Maybe not, but it would have been a lot harder. Matt and Terry thanks for the occasional phone call and your general enthusiasm.

Soph, you led me down this path and have been there for all of the highs and lows. Thanks for your support, encouragement and understanding throughout this process.

Secondly, thank you Sam Kebbell for your design expertise. At times it has been a process of banging heads, however I have learnt a lot along the way.

Thirdly, to all those who have taken the time to read this document and offer your invaluable advice. Colin, Robin, Becky and Ambrose, thank you.

Lastly, thanks to the fellow students of 2013 in particular the ‘Kebbs crew’.

Acknowledgements

A “thank you” to all those who helped along the way.
A Measured Approach

Logan Swney

2014

Submitted in partial fulfilment of the requirements for the degree - Master of Architecture [Professional]
Victoria University of Wellington,
School of Architecture
The supply of goods to large numbers of consumers results in large, standardised buildings. The typically introverted designs of these buildings reject context and difference in favour of efficiency and standardisation. Secondly, the prioritisation of vehicles over pedestrians often results in second rate public space. Big box retail (BBR) is the epitome of an architecture driven by efficiency, often resulting in a disconnect between architecture and place. This disconnect is amplified in ‘environments of natural beauty’ where the deployed typology results in an inert architecture that withdraws from, rather than engages with, its surrounding environment.

What strategies can be utilised in the development of a site-specific BBR, which engages architecture and place avoiding isolation on the town’s periphery? And, how can this car-centric architecture be modified to contribute to the public realm, enhancing rather than detracting from the surrounding context?

This inquiry is tested through design-led research: firstly the thesis explores the development of a design proposal for Wanaka (idyllically sited on the southern shore of Lake Wanaka with the Southern Alps forming the horizon). A critical reflection on this site-specific design enables a broader discursive discussion about architectural figure. The first chapter presents a design for central Wanaka. The iterative design process, producing and then critiquing form models (physical and computer), enables the project to comment on the BBR typology. The second chapter discusses the project through the lens of architectural figure, situating the project within the discipline and enabling a broader discussion of the qualities of the project. The third chapter discusses the idea of ‘tightness’. The idea of ‘tightness’ emerges from the design/critical-reflection, enabling a discussion of ‘tight’ vs. ‘loose’ architecture and positioning the design within the discipline.

The notion of a tight relationship between form and programme, discussed through a critical reflection on the final design, enables a further discussion and conclusion. This discussion develops from Leon Battista Alberti’s idea of Beauty. Emerging from the design discussion, Ron Witte’s notion of ‘good figure’ and Patrik Schumacher’s concept of ‘Elegance’ enable a development of these ideas. The outcome is an architectural ‘tightness’. ‘Tightness’ offers one potential way that architecture can contribute in the creation of urban spaces through an engagement with the surrounding environment.

Abstract

Figure 1.1 View of the building from Bullock Creek walkway
Contents

Acknowledgements 5
Abstract 9
Introduction 13

THE DESIGN 17
A DISCUSSION 59

The car park sandwich - formal move one 93
Surface - formal move two 101
Voids - formal move three 115

TO WHAT END 127

A tight design outcome 129
Tightness – to what end? 141

Bibliography 147
List of figures 151
Introduction

"Developers are gearing up for a future population boom in Wanaka, with moves afoot to rezone swathes of rural land for industrial, residential and visitor accommodation use."

Wanaka, once a small farming town situated on the southern shores of Lake Wanaka, has in recent years significantly grown. Wanaka’s idyllic siting at the base of the Southern Alps is a predominant factor in this growth. As more people migrate to this beautiful location, there is an exponential increase in demand for consumer goods and consequently big box retail (BBR) with its standardised typological responses is deployed.

The project - a mixed-use market building for Wanaka - explores a site-specific alternative to BBR. This design-led approach enables a questioning of the typology’s relationship and connection to the Wanaka context, addressing the need to respond to the landscape.

Wanaka’s previously concentric growth, focused around the town centre, has in recent times developed into a series of nodes around the town’s periphery. This new poly-centric development increases reliance on the car and impinges on the surrounding rural land.

With development of rural land increasing a local reporter observes a “[...] risk of fragmenting the so-far cohesive and unified growth of Wanaka.” This statement appears to come far too late and fragmentation is already apparent. Beyond the fragmentation, the so-called ‘cohesive and unified growth’ may be consistent with a polycentric model, but in the Wanaka environment is neither unified nor cohesive.

Fragments of Wanaka appear to grow around hubs of commercial development: commonly BBR outlets. The BBR’s prioritisation of vehicle over pedestrian, and its introverted interior space, increases disconnect between architecture and place opening a gap for research to take place. In his 1976 essay, Auckland: Water City of the South Pacific (New Dreamland3), the late architect Richard H. Toy observed: “Today mobility has taken over. Through its arch instrument, the car, it is rapidly obliterating place. The buildings which formerly combined to make hollows of peopled space have dissolved into separate sealed off boxes […] at once disconnected yet over connected.” Although not talking specifically about the BBR typology, Toy identifies vehicular connectedness as an instrument disconnecting people and place5. He continues to state: “Instead of car scale complementing pedestrian scale, the latter is obliterated. Traditional scale gone, walking becomes futile, playing for children dangerous, relationships attenuated.” These practicalities, all exemplified in the BBR model, effectively separate the consumer and their environment. Therefore whilst the BBR typology is an efficient machine of consumerism, it can be seen as instrumental in furthering sprawl - through its vehicle-centric models – having a

---

1 (Bryant 01)
2 Ibid.
3 ‘New Dreamland’ is a compilation of seminal New Zealand architectural essays. (Lloyd-Jenkins)
4 (Toy 220)
5 Matthew Lee an Architecture student of Victoria University Wellington, expresses similar concerns regarding the cars role in the isolating the supermarket typology through vehicle connectedness. (Lee 50, 51)
6 (Toy 220)
negative effect on public space and the urban environment.

Given that the vehicle-centric, sealed-envelope typology is seen as fundamental in the both expanding sprawl and fragmenting centres of small New Zealand towns, the tension between the outdoors culture of Wanaka and the BBR typology offers an avenue for architectural exploration.

Beyond the lack of relationship between people and their context is a broader concern in regard to pseudo public space. Wolf Prix of Coop Himmelblau elaborates upon this worrying pattern of Western development: “The gradual privatization of urban public space in Western cities is having profound effects on contemporary architecture as a whole. Faced with a lack of public funds, cities and local authorities are increasingly unable to play an active role in urban planning and instead acquiesce to private investors […]. It is a game whose end is easily predicted: architecture will end up as infrastructure built to maximize profits within the global economy.” Here Prix identifies the need for architecture to engage the public realm or risk further reducing architecture to an instrument of consumerism, the outcome of which is counter-productive for both architecture and culture.

The need for a critical and engaged architecture affords a discussion on architectural figure. The question of figure focuses on a critical engagement beyond the bounds of the site. This thesis explores figure as a device for architecture to better respond to context and contribute to public space. Winy Maas of MVRDV explains the need for architecture to develop ‘devices’ in order to address not only the immediate project problem, but attempt to reach beyond what is seen as architectures domain:

“Today, architecture is moving toward the development of “devices” that can combine large scale issues with individualized inputs, and analysis with proposals. Architecture in the future will be consumer oriented, connecting bottom-up with top-down. […] Maybe then we can become more active, assertive, communicative, and in the end, productive in shaping the future city.”

In order to achieve architecture that can attempt to influence (however large or small) the development of the city (or in this case town), Maas identifies a need for architecture projects to simultaneously connect ‘bottom-up’ with ‘top-down’. This aligns with the way in which this project for Wanaka has been developed: beginning with an immediate site-related problem (a connection to the landscape, bottom-up) and adding a formal (autonomous and purely architectural, top-down) exploration of this. Between these two polarities, there is opportunity to explore figure as a device for architecture to operate upon.

Research Question

What strategies can be utilised in the development of a site-specific big box retail, which engages architecture and place avoiding isolation on the town’s periphery? And, how can this car-centric architecture be modified to contribute to the public realm, enhancing rather than detracting from the surrounding context?

Methodology

Design-led research

This thesis has been undertaken as design-led research. The iterative design process combines physical modelling, computer modelling and drawing, questioning each iteration for ‘what it is doing’ before producing the next. The design process, and more importantly the final design, is the research. The following pages of this thesis elaborate on this, offering a catalogued and more detailed understanding of the deployed methodology.

The thesis combines a contextual situation for producing a piece of architecture in addition to providing a broader discursive discussion (raised through the design process) about architectural figure.

Facing page: Figure 1.3 Diagram of the thesis structure. First is the design. Second is a discussion of big box retail and the Wanaka Market, this opens a broader discussion of figure. Third is a discussion of tight vs. loose and it opportunities.

7 Wolf Prix is the co-founder of Coop Himmelblau.
8 (Prix 18)
9 Winy Maas is a partner at MVRDV.
10 (Maas 15)
An annotated design

This thesis is presented as an annotated design: the text explains the images. Images and text are intertwined throughout the document. Laid out according to its design-led stance, the site-specific design outcome is presented first. Everything discussed is raised through the design; as such, if the topic is not directly relatable to the design outcome it will not be discussed.

Chapter summary

Chapter One - The Design: Presenting the final design iteration only. This section sets up an understanding of the site-specific outcome.

Chapter Two - A Discussion: both process and outcome of the design are engaged in a greater discussion around architectural figure.

Chapter Three - To what end? The issues raised through the design discussion are discussed in relation to one another. This allows for a conclusion; a possible way for ‘tightness’ to play a critical and active role in architecture.
Chapter One

Location and Site 19
Sections 28
Plans 32
Renders 40
Site

The location of the following investigation takes place in Wanaka, a sprawling tourist town on the South Island of New Zealand (Figure 1.5). Wanaka is situated on the southern plains of Lake Wanaka, Central Otago, surrounded by a number of New Zealand’s major lakes and peaks (Figure 1.6 on page 20).

Beginning as a humble farming town, Wanaka has experienced rapid growth due to its natural beauty and proximity to the lake and Southern Alps, evolving into a tourist and outdoor sports destination. This rapid growth has resulted in urban sprawl (Figure 1.7 on page 20) and an increase in need for supply of consumer goods.
Figure 1.6. Lake Wanaka, Lake Hawea and the Southern Alps.

Figure 1.7. The Wanaka township, Roys Bay and the extended town boundary. Black shows the development as of 2010.
Dunmore Street.
Vendor entrance. Utilising the existing easement.
The Wanaka Library.
Brownston Street
The Wanaka Market.
Residential zone
Bullock Creek
The building is situated at the end of Wanaka’s only civic walkway. The site rises 3.4m from Dunmore Street to Brownston Street. Bordered by Bullock Creek on the east, the site tapers to a point at the Dunmore Street end.

Brownston Street is the southern boundary of the central Wanaka commercial zone, with residential housing to the south. Occupying this site, the building serves simultaneously as a bookend and gatehouse for the walkway.
Walking the dog before the storm

An afternoon jog to the top for a juice with a view

Packing up after a day at the market

A siesta in the sun

Enjoying a freshly squeezed juice in the afternoon sun

A shortcut on the way home from town

Taking in the view of the surrounding mountains
Pointing out Black Peak

Stopping for some last-minute dinner supplies

Lounging in the shade with a view of Bullock Creek
The building is composed as two cantilevered wedges. These wedges, a larger and a smaller, rise from opposite ends of the site and connect in the middle. The top surface of the wedges create a public space: a physical connection across the site that ascends to a height of 7m and allows undisrupted views of the lake and surrounding mountains.
Figure 1.12 Views of the surrounding mountains and Lake Wanaka from the walkway.

Figure 1.13 Public green space along the walkway.

Figure 1.14 Roads, car parks and vehicle access.

Figure 1.15 Bullock walkway and secondary walking paths.
The Wanaka Market

Figure 1.16 Longitudinal section (A-a) through Eastern wedge. 1:200
Sections
Longitudinal A-a and transverse B-b.

The building is comprised of (from the bottom to the top): a market, a car park, seasonal accommodation, backpacker accommodation, and a public surface with a juice bar at the top.

The lower two floors, the market and car park, occupy both wedges. The upper floors, the accommodation and juice bar, occupy the larger wedge only. The floors are contained between three voids extending the length of the building. These voids allow additional light and provide vertical circulation. A stair ascends the central void connecting all five floors to each other and the outside surface. The eastern void (on the right) is a public thoroughfare through the market.
The ground floor
[Showing movable vendor stalls and vehicle circulation]

1. The market space
2. Public bathroom (male)
3. Public bathroom (female)
4. Stall storage (outside market hours)
5. Storage cupboard
6. Pedestrian entry
7. Vendor vehicle entry
The ground floor

The market space occupies the ground floor, backing onto some smaller subservient spaces. The open plan market space is supported by a vaulted ceiling and columns. The mobile vendor stalls and vehicle access facilitate this multipurpose and dynamic space.

The market space is glazed on both sides. On the east the market opens up to the creek and at the northwest glazing extends around the corner, opening up as both a vendor entrance and outdoor courtyard.

The market is accessed through the voids from both ends: from Brownston Street a stair descends; from Dunmore Street there are two entrances. A stair ascends through the central void connecting the market to the upper building.
The first floor
[Brownston Street entrance and car parking]

8. The car park
9. Market space (below)
10. Pedestrian entry (Brownston Street)
11. Vehicle Entry (to car parking)
The first floor
(Figure 1.19)

The first floor is a car park. The L-shaped plan is a one-way vehicle loop accessed from Brownston Street. Vertical circulation is located in the central void, descending into the market and ascending to the upper floors. The market entrance stair descends through the eastern void.

The second and third floors
(Figure 1.20 and Figure 1.21 on pages 36 and 37)

The upper accommodation floors are contained within the larger wedge alone. The second and third floors are entered perpendicular to the vertical circulation void. These entry halls protrude through the light voids and connect to the exterior wall. At their juncture windows open the space to the exterior, allowing direct light and framing moments of visual connection to the mountains and creek.

Parallel to the main circulation, hallways divide the floors and (with the elevator shaft) set up the internal spatial organization.

The internal stair and the exterior ramp landing, align at the second floor. This allows the accommodation’s open plan living and dining to spill out onto the exterior surface. Interlocked bedrooms line both sides of the perpendicular hallway. The bedrooms face onto the voids; this provides a naturally lit retreat from the outside.
The second floor
[Accommodation level one]

12. Voids (light wells)
13. Car park (below)
14. Pedestrian entry (And access to surface)
15. Shared bathrooms
16. Kitchen/living/dining (open plan)
17. Single rooms (interlocking in section)
18. Double rooms (interlocking in section)
The third floor
[Accommodation level two]

19. Voids
(light wells)

20. Shared bathrooms

21. Bunkroom

22. Crossover
(for the public surface)

23. Entry
The fourth floor
[The juice bar]

24. Voids
   (light wells)
25. The bar
26. Back of house
   (The chiller room)
27. Service elevator
   (2 person dumbwaiter)
28. Fire place
29. Wood stack
The fourth floor
(Figure 1.22)

The juice bar occupies the top of the surface providing a destination at the end of the walkway. Bordered on three sides, the juice bar frames uninterrupted views of the lake and the surrounding mountains.
Figure 1.23 Approaching the building from Brownston Street.

Facing page:

Right (this page):

Figure 1.24 Entering the market from the Brownston Street entrance.
Figure 1.25: Inside the back of the market space.
Figure 1.26  Inside the front of the market space.
Figure 1.27: Inside the shared living, dining, kitchen of the accommodation levels. Looking beyond the entrance and over the external surface to the mountains beyond.
Figure 1.28 Approaching the building along the Bullock Creek walkway from Dunmore Street - a summer day.
Figure 1.29 Approaching the building along the Bullock Creek walkway from Dunmore Street - an evening concert.
Figure 1.30 Approaching the building along the Bullock Creek walkway from Dunmore Street - a snowy winter afternoon.
Figure 1.31 Inside the juice bar, looking toward the fire on a winter afternoon.
Facing page:

Figure 1.32 Inside the juice bar, looking over Rays Bay toward the Buchanan Mountains.
## Chapter Two

A DISCUSSION

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning of process</td>
<td>60</td>
</tr>
<tr>
<td>Supermarket typology</td>
<td>64</td>
</tr>
<tr>
<td>Breaking the figure</td>
<td>71</td>
</tr>
<tr>
<td>A return to figure</td>
<td>84</td>
</tr>
<tr>
<td>The car park sandwich</td>
<td>93</td>
</tr>
<tr>
<td>Surface</td>
<td>101</td>
</tr>
<tr>
<td>Voids</td>
<td>115</td>
</tr>
</tbody>
</table>
This ‘design led thesis’ began with a series of white card form models. The initial models were less concerned with programme, exploring the formal potentials of the Wanaka site. The focus was on the sites topography and boundary. The initial models informed two key questions: firstly, how to respond to the site and its topography, and secondly, how to occupy a relatively large scale site for Wanaka while moderating the building’s size in relation to its context?

A focus on breaking up the building’s size was not the intent at the outset; instead this surfaced through the modelling process. The focus on building size allowed a means to engage a programme for the building to further explore.

Parallel to the focus on building size, was an awareness of a tension between Wanaka’s pattern of growth and the predominant culture of the place. The growing population – moving to Wanaka to be surrounded by the outdoors – brings with it a need for consumer goods; a need commonly met through the big box retail (BBR) typology. The BBR model’s standardised approach conflicts with the culture of the place, aiding urban sprawl by prioritising the car.

**Beginning of process**

![Examples of initial formal model experiments.](image)
Figure 2.2 Examples of initial formal model experiments.
For Wanaka

Wanaka’s BBR is located on the town’s periphery, isolated from the surrounding context and avoiding a conflict of scale (Figure 2.3). An anomaly in this pattern is the New World supermarket (an individual BBR store) which occupies the majority of a block in central Wanaka. The size of the building in relation to its context and the lack of response to the site topography are evident (Figure 2.4). Additionally, the Wanaka New World does not make any attempt to accommodate the car. This research project has been the pursuit of an alternative: a reconsideration of the BBR typology in order to achieve a building that is culturally and formally specific to the Wanaka context.
Supermarket typology Issues

Scale and Context

The London based architect Jeremy Young\(^1\) discusses the shortcomings of the supermarket typology in his essay “Just Shopping”\(^2\). The essay argues that the physical scale of the supermarket is a primary concern for the architectural discipline. He states, “The supermarket’s main architectural approach is governed by the need to deal with their difficult scale, their size often rivalling that of the market town centres they surround”\(^3\) demonstrating the typology’s scale relative to context as the core issue.

It is however not only the scale of the supermarket relative to its surrounding context that is of concern; it is also a lack of humanness in the approach to the typology’s scale. In support of this position are the writings of William Fain\(^4\). In an evaluation of a failed development in Irvine, California, he considered the issue of human scale as follows: “… they could never figure out how to create the kind of city context that people could relate to. They had all these very large sites and projects, each of which was self-contained, inaccessible by foot, and structured for the scale of the car.”\(^5\) Fain identifies the importance of scaled space, relatable and accessible to the pedestrian - two issues that the supermarket typology currently fails to engage.

Abstraction from Context [due to scale]

The typology has developed a default mechanism through which to deal with its scale: an isolation of the building from the surrounding context nullifies the issue of scale as there is nothing through which to measure the form against.

“From the outside looking in, the task of scale reduction is quite straightforward. Firstly the stores are physically separated from their surroundings by their careful location within a ‘buffer zone of cars’.”\(^6\)

This contextual separation is facilitated by a tabula rasa approach to site and has allowed for three primary strategies to develop within the typology: the ‘retail wall’, the ‘retail island’ and the ‘retail complex’.

---

1) Jeremy Young is an architect and co-Director of Featherstone Young, London.
2) As published in the Cambridge journal Scroope 10.
3) (Young 57)
4) William (Bill) Fain is a Harvard-educated, California-based architect and urban designer.
5) (Johnson, Fain and Newman 173)
6) (Young 58)
The retail wall

First: The ‘retail wall’ of which Wanaka New World is an example. The retail wall occupies a portion of the site (positioned along one boundary) with car parking occupying the remainder.

Left to right:
Figure 2.5 Diagram of the ‘retail wall’.
Figure 2.6 Wanaka New World, an example of the ‘retail wall’.
The retail island

Second: The ‘retail island’. Here the building occupies the centre of the site surrounded by service areas and car parking, isolating the building from its context completely.

Left to right:
Figure 2.7 Bunnings Lyall Bay, Wellington, an example of the ‘retail island’.
Figure 2.8 Diagram of the ‘retail island’.
Third: The ‘retail complex’. This is similar to the ‘retail wall’, however in this case other buildings occupy the remaining site edges with car parking in the centre. Mostly these are located in industrial areas on the town periphery.

Figure 2.9 Diagram of the ‘retail complex’.
Figure 2.10 RemarkablesPark, Queenstown, an example of the ‘retail island’.
The issue of scale is particularly evident within small town New Zealand, where the finer grain development serves to amplify the impact of the typology. The figure/ground diagram compares supermarkets in 16 small New Zealand towns (Figure 2.11). In order to gain an understanding of the response to similar situations, the study was restricted to towns of a similar size to Wanaka and within close proximity to the sea, lake or mountains.

The figure/ground diagrams show a need for an alternative to the prevailing typological response which serves to alienate itself from its immediate context.

This led to further form modelling which explored the idea of ‘breaking the figure.’

Impact on small town NZ
Figure 2.13 Examples of formal models exploring ‘breaking the figure’.
Breaking the figure
A response to typology and context

The second series of form models explored the possibilities of the cut (the cut is the formal move utilised to break up the building form) as pedestrian courtyards and routes through the site. The connections created exploit the link from Brownston Street to the existing walkway, creating a public space and increasing the building’s active edges. Offsets were explored to break the figure further in elevation, reducing it to a scale relative to the pedestrian. Parallels in these approaches can be drawn to the Geyser building in Parnell, Auckland designed by Pattersons Associates.
Geyser
Pattersons Associates

Auckland, New Zealand
Completed 2012

Left to right:
Figure 2.15 Looking at front corner of Geyser building.
Figure 2.16 Looking up from the central walkway.
Geyser is an example of a building which successfully breaks the figure, achieved through the use of two formal mechanisms, cutting and offsetting. [FIG]. The broken figure exploits its end-of-block location: the cut creates pedestrian courtyards and links through the site, whilst the offsets create a canopy at the street front.

"Geyser's floor plates are divided into five sub-buildings set around a system of atriums, courtyards and pedestrian linkages." 17

Although aesthetic parallels between the Wanaka Market models and Geyser are evident, the intent of these formal operations differ greatly. The Wanaka market experiments with apertures created through cutting the form. These apertures frame views of the surrounding mountains, providing an opportunity to reconnect people and place (Figure 2.19 on page 75).

In contrast, at Geyser the need to break the figure is driven by technological considerations: Breaking the figure reduces the floor area allowing the use of a passive environmental system. The offset is an essential element of the passive system as it enables the double skin façade to draw cool air from below. Therefore the first observed difference is a focus on environmental performance at Geyser and a focus on visual connection at the Wanaka Market.

Another point where the design studies and Geyser differ is in their relation to programme. Breaking the figure of Geyser supports the needs of the programme in two ways. First, it divides the building into separate tenancies. Second, the reduced floor area aids the passive ventilation system providing a better office environment. However the application of this approach to the supermarket typology works against the requirements of the programme. By breaking the figure of the supermarket the market spaces are divided into isolated spaces, resulting in physical barriers. These barriers create problems of efficiency, security and orientation. These conflicts drive further model iterations and development toward the initial scheme.
Design Iteration 1.0

The final iteration of ‘breaking the figure’ occupied the eastern portion of the site, exploiting the connection between Bullock Creek and the civic walkway.
Figure 2.19 Design iteration 1.0 site plan, showing apertures and framed views of the surrounding context.
The site was overlaid with additional layers of information: a grid extended from the surrounding context and lines represent views to the surrounding peaks. The points of overlap between the grid, views and pedestrian paths worn into the site, informed the location of the cuts which break the figure. These cuts serve to connect the Wanaka market to its context (Figure 2.20 on page 76).

Wanaka Market design iteration 1.0 proposed a mixed use alternative to the supermarket typology. The two-storey building comprises retail and accommodation: the market space and 3 individual retail tenancies on the ground floor and 12 apartments on the first floor. Stairs ascend through cuts located at the back of the building. The stairs serve multiple roles: providing private access to the apartments, whilst the back of the stair crops the surrounding buildings out of view, facilitating a visual connection with the surrounding landmarks. The space below the stair creates a linkage between the market spaces (Figure 2.21).
Figure 2.22  Design iteration 1.0 longitudinal section, showing the response to site topography.
The building steps with the topography on a stepped floor (Figure 2.22). To retain head height in the market space the first floor also steps. Stepping the first floor between apartments alters the rhythm between the ground and first floors. The result is a constantly changing volume which breaks the monotony of the market space. The building’s roof also responds to the topography. The faceted roof directly responds to the site essentially mirroring the topography and creating differing spatial volumes within the individual apartments (Figure 2.24).

A ramped boardwalk weaves through the site, providing a pedestrian connection between Brownston Street and the civic walkway, interacting with the creek and market along the way. The slope of the ramp rises 3.4m, meeting with the floor of the market intermittently to provide wheelchair access.

Negatives / Oversights
The failings of the initial scheme were:

- Over complicated formal outcome.
- No incorporated car parking – a core issue with the typology as earlier discussed.
- Breaking the figure in plan resulted in a conflict between the form and the typology’s function.
Super Market Sanya Lake Park
NL Architects

Hainan province, China
2012 – In progress

Left to right:
Figure 2.25 Super Market Sanya Lake Park proposal by NL Architects showing the terraced form and public space.
Figure 2.26 Super Market Sanya Lake Park proposal by NL Architects: the retail spaces surrounding the public courtyard with the underground supermarket below.
Breaking the figure – Leveraging off typology

NL Architects’ ‘Super Market Sanya Lake Park’ is a built example of a building that breaks the figure. Dealing with the same typology, ‘Super Market’ affords a means for comparison.

The NL Architects design begins with an observation of the typology. “The required Super Market would take up much of the public space. Supermarkets tend to create big impenetrable surfaces; their planning logic often leads to ‘blind’ facades.” Here NL Architects echo the previously discussed critiques of the typology’s size and its isolation from context, with an emphasis on the supermarkets’ impenetrable surfaces. NL Architects begin with a focus on breaking the elevation figure of the building.

The design begins as a three level extrusion of the site. The outcome is a triangular form with three ‘blind’ facades. The form is then subjected to a series of formal manipulations. First, the form is pushed into the ground, reducing the height of the building to the street. Second, the form (remaining above the ground surface) is carved away, breaking the triangular form into three differently sized pieces (Figure 2.27).

---

Figure 2.27 Diagram of ‘Super Market’ showing how the “blind facades” are broken and public spaces are created.

18 (NL Architects)
From here the form is sculpted and the straight edges are juxtaposed with curves. Through these manipulations, the form is broken into a series of half-height terraces that create several occupiable spaces on the roof. The result is a less imposing building that activates the periphery and returns some space to the public realm.

“To mark the entrance to the underground domain we propose a pavilion that contains retail and cafes. At each corner the roof bends up to form a lively entrance to the ‘estate’.”

---

*Figure 2.28* Breaking the figure of ‘Super Market’, creating a public courtyard and minimising the effect of the “blind facades”.

*Figure 2.29* Breaking the figure of design iteration 1.0, continuing the walkway across the site and creating view shafts.
A broken figure

Compare / Contrast

At both ‘Sanya Super Market’ and Wänaka Market, the possibilities of breaking the figure are explored as an opportunity to engage with the surrounding public environment. In both examples this is realised through the use of the ground as a public space. At ‘Sanya Super Market’ the ground is freed up by placing the services and car parking underground. At the Wänaka Market this is achieved by utilising existing infrastructure, a service entry perpendicular to the building and the utilisation of the Dunmore street car park (at the front of the site). This approach enables an uninterrupted public walkway through the site.

At ‘Sanya Super Market’ the figure of the building is broken, however the figure of the supermarket remains intact (Figure 2.27 on page 81). This is different to the Wänaka Market where the supermarket is broken. Although the supermarket spaces are reconnected using the stair, the realisation is that breaking the figure of the supermarket complicates both the building form and the efficient functioning of the supermarket. This problem is echoed in many aspects of the design: the resulting awkward angles created by the cut roof (Figure 2.24 on page 79), the irregular planning grid [FIG], the formal disconnect between the ramped boardwalk and the building, and the exclusion of car parking. The result is an over complication that undermines the Wänaka market iteration one.

Closing insight

The over-complicated outcome of this process fails to sufficiently improve the typology. Through exhausting the idea of ‘breaking the figure’, it is apparent that the singular form is not the problem; rather the design needed to return to a singular form, incorporating the programme that would normally surround the form (i.e. parking). Here opportunity exists for a meaningful engagement with the surrounding context.
A return to figure

The initial focus on the figure/ground relationship of the supermarket revealed a tension between the supermarket typology’s figure and its context. Underpinning this tension is the figure/ground relationship. The focus on these relationships is the result of a consideration of the earlier iterations.

The early design iterations ignored the relationship between the car and the typology. The exclusion of the car park within those early iterations allowed a physical engagement with the surrounding context (Figure 2.31). However in failing to address the spatial requirements of the car, core issues surrounding the typology were not directly addressed.

The early iterations re-employed the ground surrounding the supermarket as public space and returned priority to the pedestrian.

This allowed for a reciprocal relationship between the figure of the supermarket and the surrounding ground. It is this lack of consideration of the space surrounding the figure, which is core to the shortcomings of the typology at present.

The failing of the initial design outcome can therefore be traced back, in part, to the initial figure study of the supermarket (Figure 2.11 on page 68). As previously discussed, the focus of the study was on the difference in scale between the supermarkets and their contexts, specifically in small New Zealand towns. The diagram of these relationships represented the figure alone. This representation set up a narrow framework by which to critique the typology.

Robin Dripps20 discusses the contemporary figure/ground drawing, stating:

“… the composition of figures in relationship to one another can reveal a place of value between that was not previously recognized. The new place, in turn, grounds these same figures. Unfortunately, the common use of this graphic has strayed far from its origins and now represents little more than an unrelated aggregation of objects floating aimlessly within a void. Since this is typically rendered on standard white paper, the black buildings are not just the only thing represented but in fact the only things that are actually ever drawn.”21

20 Robin Dripps is a Professor of Architecture at the University of Virginia and a partner at Dripps and Phinney Studio.
21 (Burns and Kahn 73)
Dripps highlights the role of the figure/ground diagram; it serves to reveal the connection of figures through meaningful space, grounding the figure in its context. The evolution of the diagram’s representation has resulted in a focus on the figure alone. The implication of this shift is the inverse of its intention. The ‘non-existent’ ground isolates the figure and veils the root of the problem.

It is relevant to return to Young and his ideas around scale at this point. He states, “To tackle this problem [the problem of scale] they [supermarkets] have developed strategies to visually separate themselves from their context and explicitly present themselves as benign civic institutions, using representation and pastiche to visually simulate this construct.” First, Young clearly identifies ‘the problem of scale’ as a primary typological issue. The car park occupies the ground surrounding the supermarket, allowing the figure to exist in isolation (Figure 2.32). Secondly, Young identifies the actual issue: through representation and imitation the supermarket’s figure is unable to engage, or even respond, to the small town situation. The result is an inert architecture - unable to respond to social, cultural, and political change. This understanding shifts the focus from the figure’s size, to its superficiality and highlights the reason for the figure’s withdrawal. To address the figure it must first be understood within its context.
Paihia  Waheke  Rotorua  Gisbourne
Ohakune  Greytown  Kaiteriteri  Picton
Westport  Kaikoura  Greymouth  Hokitika
Wanaka  Frankton  Alexandra  Te Anau
Figure/ground and the car park
The role of the car park

The re-drawn figure/ground diagram includes the car parking (Figure 2.33); this reveals the lack of reciprocity between the supermarket figure and its context, highlighting the surrounding space’s role in isolating the figure of the supermarket. The re-drawn figure/ground diagram reinforces Dripp’s statement: “the empty white space is not pregnant silence waiting to take on meaning from what surrounds it, but instead a space so devoid of character that even the surrounding figures seem to lose a degree of their own quality.” This re-affirms the design discovery: the problem is not the literal size of the supermarket figure but rather it is the quality of the figure and what it provides the surrounding environment. This brings to question, what constitutes quality within the figure?

An understanding of figure can be gained from Ron Witte, in his essay “Go Figure”. He writes that, “the cross fertilization of programme, technology, and form gives the good figure its density. The evacuation of its representational obligation gives the good figure its resonance. Resonant density gives the good figure its promise.” Here Witte identifies the problem of representation, clarifying the supermarket typology’s reason for shying away from its context - its hollow figure. Witte furthers his position stating, “Bad figures depend on only program or only technology or only form. Good figures can only exist in the interactions amongst them. Bad figures are stars. Good figures are constellations.”

The supermarket figure is inherently instrumental, driven by function and economy. Both the figure and ground are governed by efficiency: core to this is the car. Furthermore the supermarkets’ superficiality denies any depth or multiplicity of function which characterises what Witte considers to be the ‘good figure’. This notion of good figure offers a lens through which to further critique subsequent iterations.

Although the initial scheme was misguided in its focus on ‘breaking the figure’, fragments of ‘good figure’ are evident within that scheme. The multiplicity of function offered by the stairs is one example (Figure 2.34 and Figure 2.35).
From the back a stair ascends to the accommodation: this is a ‘cut’ through the building, breaking the form. Below the stair is an interior connection between the market spaces. From the public space the ‘cut’ frames views of the surrounding mountains, whilst the back of the stair serves to crop out the surrounding buildings.

Further iterations continued a focus on pedestrian priority, physical and visual connections, whilst also incorporating car parking. The multitude of requirements risks a return to an over-complicated form. Witte’s notion of the ‘good figure’ offers a productive lens to achieve simplicity of form through a coherent complexity of function.

“The good figure is condensed (reduced like a sauce, not emaciated by diet) by eliminating all excesses of resemblance and dependencies upon precedent. The good figure isn’t less, it’s dense.”

As discussed, to fully address the typology, specifically the relationship between the figure of the supermarket and the surrounding ground, the parking must first be integrated in the building envelope. The question is how to achieve this?

In examining common methods of car parking integration, there are two recurring types. The first is the underground car park and the second is the rooftop car park.
Figure 2.36  The underground car park diagram
Figure 2.37  The roof-top car park diagram
Figure 2.38  Moore Wilson’s Wellington - an example of a roof-top carpark
Figure 2.39  Countdown Warkworth, Auckland - an example of a underground car park
The need to integrate car parking, coupled with the desire to return to a singular form, was initially explored through a switchback form. Fitting into the roof-top category, the design explored the occupation of the ramp surface as car parking (Figure 2.41 and Figure 2.42). The solution minimizes the impact of the vehicle, returning priority to the pedestrian at both street and ground level. Although in part positive, this solution placed the vehicle in the most desirable real estate: At the top of the building, enjoying uninterrupted views of the surrounding mountains. This undermines the pedestrian priority, simply moving the vehicle–pedestrian conflict above the street plane.

Car park iteration one

Figure 2.40 Site diagram showing the lack of vehicle access from Dunmore Street.

Figure 2.41 Switchback rooftop car park diagram. The small diagram shows the conflict between the car and pedestrian raised above the ground.

Figure 2.42 Model iteration of the initial switchback form with rooftop car parking.
Embedding the car park underground (on the Wanaka site) highlighted issues of vehicle accessibility and the vehicle vs. pedestrian conflict resurfaced. These issues arise largely due to the topography of the site. At the Dunmore street elevation there is no suitable entry/exit wide enough for both vehicle and pedestrian traffic (Figure 2.43). Alternatively the Brownston street elevation offers multiple entry/exit locations. This option is unfeasible due to the vehicle access ramps required to get beneath the site. (Figure 2.44 and Figure 2.45). An alternative solution that does not require ramps but exploits the available access from Brownston Street is preferred.

**Car park iteration two**

Figure 2.43 Site diagram showing the available vehicle access from Brownston Street.

Figure 2.44 Underground car park diagram showing the required ramps (straight) for vehicle access from Brownston Street. The ramps occupy the majority of the form.

Figure 2.45 Underground car park diagram showing the required ramps (spiral) for vehicle access from Brownston Street. The ramps occupy the majority of the form.
The exploration of a continuous plane, from Brownston Street into the form, offers an answer to the vehicle entrance issue. The ‘car-sandwich’ cantilevers the car parking out from Brownston Street, between the market and accommodation (Figure 2.47). The result is a parking surface that exploits both: the topography of site and the available Brownston street access. Utilising the topography’s 3m change allows an occupiable space below the car park and eliminates the need for vehicle access ramps.

A one-way loop enters the smaller wedge and exits the larger wedge significantly increasing parking space. The implication of this is the disengagement of the public surface and ground at the Brownston Street edge. The required 3m lift (to allow the car park to enter this side) results in the need for an alternative pedestrian access onto the surface and undermines the buildings form. These problems undermine iteration one (Figure 2.48).

The car park sandwich - formal move one

A one-way loop enters the smaller wedge and exits the larger wedge significantly increasing parking space. The implication of this is the disengagement of the public surface and ground at the Brownston Street edge. The required 3m lift (to allow the car park to enter this side) results in the need for an alternative pedestrian access onto the surface and undermines the buildings form. These problems undermine iteration one (Figure 2.48).

Facing page:
Figure 2.46 Longitudinal section of final scheme, showing the car park sandwich 1:200
Left to right (this page):
Figure 2.47 Diagram of initial car park sandwich exploration. This shows the problem of height under the surface.
Figure 2.48 Diagram showing the lifting of the surface at Brownston Street to resolve the height issue.
Clockwise from top left:

Figure 2.49  1:200 Physical model exploring pedestrian access to the (now raised) surface and vehicle access to the car park.

Figure 2.50  1:200 Physical model exploring pedestrian access to the (now raised) surface and vehicle access to the car park.

Figure 2.51  1:500 Physical model showing the formal implication of raising the surface.

Figure 2.52  1:200 Physical model exploring pedestrian access to the (now raised) surface and vehicle access to the car park.
The Anvil building, located in Kingsland, Auckland, is a compelling example of a 'car sandwich'. Suspended between office tenancies, the parking is articulated on the building’s surface (Figure 2.53). “The building arranges its car parking in a continuous spiral ramp veiled in fritted glass.” An alternative to commonly applied parking solutions, Anvil offers a comparative solution, allowing a discussion around the site specific constraints encountered in Wanaka and Kingsland.
A comparison of the Anvil and Wanaka car park plans identifies the entry/exit as a key difference (Figure 2.57). At Anvil the vehicle entry and exit are located together, breaching the building envelope in a single location. The initial Wanaka ‘car sandwich’, on the other hand, employs separate entry and exit locations. The NZTA requires a 2.5m x 2.0m “sight triangle” on both sides of the car park entry and exit. Therefore, due to the increased topography, this system offers no advantage.

At the Wanaka and Kingsland sites, the topography offers both constraint and opportunity. In Wanaka the change in topography is 3.4m across the site with vehicle access available at the top alone. At Anvil the topography change is 1.5m with vehicle access opportunities on two sides. Anvil’s topography change, a half-height, lends itself to a split floor parking system. This system employs a ramp ratio of 1:8[^21], working with the topography to achieve maximum parking capacity with minimal wasted space. Applying this system to the Wanaka site results in either a gain in parking space, at the expense of an occupiable ground floor, or an increase in ceiling height, at the expense of parking space (Figure 2.56). Therefore, due to the increased topography, this system offered no advantage.

[^21]: “Half deck car parks where the vertical separation between decks is less than 1.5m, is 1:6. This [...] is only possible when using transition gradients. Where vertical differences are greater than 1.5m, [the ratio] is not less than 1:10.” (PCL)

[^31]: See also: (Standards 25 - 27)

[^22]: “Sight triangles are not required on [entry side] this side if the driveway is two-lane, two way.” (Standards 32-33)
The Second ‘car sandwich’ iteration employs a single entry/exit location. The result is an L-shaped plan utilising the available space below the public surface. Occupying only the higher end of the smaller ramp, the new layout reconnects the surface with the ground (Figure 2.58). This resolves the initial formal issue, however results in the need to increase the pitch of the ramp in order to accommodate the car park’s required height and width (Figure 2.59). The result is a 150% increase in parking space at the expense of wheelchair accessibility. For the ‘car sandwich’ to work, the surface must therefore be changed to accommodate both: the car park mass and wheelchair access.

Learning from Anvil
Car Sandwich it.2

The Second ‘car sandwich’ iteration employs a single entry/exit location. The result is an L-shaped plan utilising the available space below the public surface. Occupying only the higher end of the smaller ramp, the new layout reconnects the surface with the ground (Figure 2.58). This resolves the initial formal issue, however results in the need to increase the pitch of the ramp in order to accommodate the car park’s required height and width (Figure 2.59). The result is a 150% increase in parking space at the expense of wheelchair accessibility. For the ‘car sandwich’ to work, the surface must therefore be changed to accommodate both: the car park mass and wheelchair access.
In summary, the Wanaka Market and Anvil buildings’ ‘car sandwiches’ are different in their application. Both Anvil and Wanaka employ the ‘car sandwich’ to exploit the site topography and retain the formal clarity of the building. This alternative to normally applied parking solutions offers some architectural opportunities. The incorporation of the vehicle within the building form affords a meaningful connection to the context and allows a clear articulation of the building’s form. Therefore it is a consideration of the conflict between the existing site condition and the desire for singular autonomous form that has (in both buildings) produced a meaningful alternative.

The exploitation of the topography at the Wanaka Market and Anvil buildings can be understood by what Dripps labels ‘tirer parti’: “Tirer parti means to take advantage of or make the best from what you find. […] It shifts attention away from the architectural object as an autonomous, abstract formal ideal and privileges the existing physical and political context that a design would have to engage.”

In contrast, the building’s shared desire for a formal clarity is described by Dripps as ‘pendre parti’. “Pendre parti, from which the more common architectural term parti derives, means to take a stand. As such, it becomes the starting point or fundamental premise on which a design is based. The successful parti must be clear, easily grasped, unambiguous, and unencumbered by attachments that might compromise its formal authority. The figural object standing apart from its messy context perfectly fits this description.”

Therefore for Dripps ‘tirer parti’ and ‘pendre parti’ are viewed as black and white, separate from one another: to take advantage of the existing conditions and connect to the “messy context” undermines the building’s formal clarity. However it is in the grey area between that this project (the Wanaka Market) seeks to operate.
Surface - formal move two

The introduction of the inclined surface resulted from the return to the single figure with a need to incorporate car parking. The surface was initially explored as a parking ramp resulting in two key constraints. The ramp had to touch the ground at Brownston Street and the ramp could not exceed a 1:20 ratio\(^\text{35}\) (Figure 2.61). The outcome put the car in the most desirable real estate, with uninterrupted views of the surrounding landscape, increasing the impact of the car and undermining pedestrian priority (Figure 2.61).

Despite the way it was utilised, the surface itself offered opportunities for further exploration. The inclined surface reached a height of six meters above Brownston Street. A six meter height increase offers an unobstructed view of the surrounding mountains and the lake (Figure 2.62): a view unobtainable from any other point along the walkway or in central Wanaka (Figure 1.12 on page 27). The unobstructed view offers an opportunity to orientate people within the Wanaka basin and view the surrounding Wanaka landscape.
The development of the ‘car-sandwich’ resulted in a need to increase the pitch of the surface, undermining wheelchair accessibility (Figure 2.63). To remedy this problem the design explored the possibilities of a switch back ramp traversing and climbing the building simultaneously. This exploration offered a solution to wheelchair accessibility whilst accommodating the needs of the ‘car-sandwich’ (Figure 2.64). However, with the development of the switch back ramp, new questions arose: should the switch back define a consistent surface, how high should the switch back climb, and how much of it should be habitable? The solutions to these individual questions are simultaneously implicated by one another. For the surface to be absolutely habitable, its height is limited: as the space between the ramps decreases, its pitch increases reducing its habitability. This in turn affects the need for balustrades: a fall of greater than 1m requires a balustrade. The string of balustrades creates a further physical barrier and impacts negatively on the building’s formal clarity. Therefore to retain a formal clarity and facilitate multifarious activities, the decision was made to maintain a consistent surface averting the need for balustrades (Figure 2.70 on page 105).
Figure 2.65 Examples of formal models exploring surface and the switchback form
As a result of its beginning as a car park, the surface touched the ground at Brownston Street alone, requiring the user to travel around the building (from the walkway) to begin the ascent (Figure 2.66).

Distance between the ramps remains the same (Figure 2.68).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).

A series of switchback modules make up the ramped surface. Each module is a V shaped wheelchair ramp connected with a triangular surface between. These modules get incrementally longer as they move up the building, responding to the tapered edge of the form. Although the module elongates incrementally, the height difference and the distance between the ramps remains the same (Figure 2.68).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).

A series of switchback modules make up the ramped surface. Each module is a V shaped wheelchair ramp connected with a triangular surface between. These modules get incrementally longer as they move up the building, responding to the tapered edge of the form. Although the module elongates incrementally, the height difference and the distance between the ramps remains the same (Figure 2.68).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).

A series of switchback modules make up the ramped surface. Each module is a V shaped wheelchair ramp connected with a triangular surface between. These modules get incrementally longer as they move up the building, responding to the tapered edge of the form. Although the module elongates incrementally, the height difference and the distance between the ramps remains the same (Figure 2.68).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).

A series of switchback modules make up the ramped surface. Each module is a V shaped wheelchair ramp connected with a triangular surface between. These modules get incrementally longer as they move up the building, responding to the tapered edge of the form. Although the module elongates incrementally, the height difference and the distance between the ramps remains the same (Figure 2.68).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).

A series of switchback modules make up the ramped surface. Each module is a V shaped wheelchair ramp connected with a triangular surface between. These modules get incrementally longer as they move up the building, responding to the tapered edge of the form. Although the module elongates incrementally, the height difference and the distance between the ramps remains the same (Figure 2.68).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).

A series of switchback modules make up the ramped surface. Each module is a V shaped wheelchair ramp connected with a triangular surface between. These modules get incrementally longer as they move up the building, responding to the tapered edge of the form. Although the module elongates incrementally, the height difference and the distance between the ramps remains the same (Figure 2.68).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).

A series of switchback modules make up the ramped surface. Each module is a V shaped wheelchair ramp connected with a triangular surface between. These modules get incrementally longer as they move up the building, responding to the tapered edge of the form. Although the module elongates incrementally, the height difference and the distance between the ramps remains the same (Figure 2.68).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).

A series of switchback modules make up the ramped surface. Each module is a V shaped wheelchair ramp connected with a triangular surface between. These modules get incrementally longer as they move up the building, responding to the tapered edge of the form. Although the module elongates incrementally, the height difference and the distance between the ramps remains the same (Figure 2.68).

The incline of the wheelchair ramp therefore becomes incrementally less as the angle at the tip of the triangle becomes more acute (Figure 2.69).

The importance of this is the consistent rate of incline, retaining the proportion of the building’s facade (Figure 2.70). In contrast, maintaining a consistent ramp ratio of 1:12 increased the incline at the top of the building which resulted in two problems:

1. The incline of the surface between the ramps of the upper building increases making them uninhabitable (Figure 2.71).
2. The height of the building increases upsetting the building’s proportions (Figure 2.71).
Figure 2.70  Diagram of the surface’s consistent rate of incline and its impact on the buildings formal clarity.

Figure 2.71  Diagram showing the implications of maintaining the same ramp rate (as opposed to the overall surface) on the buildings proportions.
The Stavros Niarchos Foundation Cultural Center
Renzo Piano Building Workshop

Athens, Greece
2008 – In progress

Figure 2.72 Looking over the Stavros Niarchos Foundation Cultural Center to the Saronic Gulf.
Figure 2.73 Approaching the top of the surface at the Stavros Niarchos Foundation Cultural Center.

Facing page:
Figure 2.74 Physical model exploring the form of the Stavros Niarchos Foundation Cultural Center.
An inclined surface peels up from the ground extending the park onto the building. This man-made topography elevates the public space to a point “in which you realize where you are.”

Facilitating both visual and physical connections, the Stavros Niarchos Foundation Cultural Center (SNFCC) and the Wanaka Market share some commonalities. In spite of the size difference, the two projects both present a similar elevated public space and an interest in a connection to the (immediate and far-reaching) landscape. Putting these similarities aside (to avoid self-affirmation and generate a meaningful discussion) I will elaborate on the differences further.

SNFCC - Wanaka Market
The first difference is in the role of programme. The SNFCC and Wanaka Market began at alternate ends: a focus on programme and form respectively. In the SNFCC the programme is stacked at the front of the site. The ground is then lifted, creating an immense inclined surface that swallows the building. In contrast the Wanaka Market explores the formative qualities of a programmatic element. The tessellated surface serves multiple functional roles (wheelchair ramp, height, absolutely inhabitable), whilst also informing the buildings form. “In this case the interest in the formative value of functional arrangements is so great as to supersede the limits of the species.”

Therefore it is in the development of the surface that the difference is demonstrated.

“Knowing full well that program and form are similarly and simultaneously implicated in what we produce, architects nevertheless seem more and more inclined to obliterate one with the other - a simplifying but stultifying strategy.”

Here Witte identifies the reduction of form in favour of programme (or vice versa) as a problematic tendency. Too often the conflicts arising between form and programme are resolved through a one-sided focus, simplifying both the building outcome and its depth, further explicating the difference: the programme saturated form of the SNFCC, and the object-form of the Wanaka Market (Figure 2.77).
“Landscapes are intriguing as models because they possess infinite sets of connections and continuities. Being of the land, the connections can even go beyond the boundaries of a project.”

The second difference is the object-landscape relationship. Although both buildings could be understood (to some degree) as landscapes, neither should be reduced to a metaphorical mountain. An understanding of the development of each building allows us to both deflect the metaphor and understand their differing roles as ‘landscape’. Described previously as programme-form, the SNFCC can also be understood as ‘object as landscape’. The object employs the elevated ground surface to hide its mass and avoid conflict with its context, expressing itself as a man-made ground. This is reinforced in its composition: the solid and void relationship burrowing into the ground, the stairs ascending from ‘the agora’ expressing the courtyard as chasm (Figure 2.79). This composition means the programme-object cannot be read as separate to the landscape. The object therefore can be understood as ‘object-as-landscape’.

The Wanaka Market could also be read as ‘object as landscape’: the surface extends the ground over the building connecting at both ends. The aim here is not to shy away from context, but to instead engage with it at multiple levels (Figure 2.81 on page 113). The offsetting of the surface allows the building to confront the context: overhanging faces float daringly adjacent to the receding surface, whilst the vertical sides authoritatively declare the object (Figure 2.80 on page 113). For this reason, the Wanaka Market is as much ‘object-in-landscape’ as it is ‘object-as-landscape’. This dual reading is the result of a constant dialogue between the landscape, surface and form. So then where does the Wanaka Market situate itself? Raymund Ryan\(^42\) observes:

“Between the object in landscape and the object as landscape, a third, hybrid strategy is emerging […] This attitude aims for reciprocity between interior and exterior. We might even say the building fabricates the landscape.”\(^43\)

The observation here is that in between ‘object-in’ and ‘object-as’, there is an emerging strategy. This strategy explores the implications of the building envelope on the internal space, and vice versa. The result of such an exchange would result in a unique outcome, one that results in the creation of a place specific and appropriate space. Bill Fain calls this ‘centering’.

“The idea of centering challenges global tech culture, which promotes the notion of generalized space, which is everywhere and nowhere at the same time.”\(^44\) This identifies the fundamental difference between the SNFCC and the Wanaka market. The extrusion of programme at SNFCC results in a generalized space, only marginally affected by the elevated ground form. In contrast, the Wanaka Market places equal importance on form and programme, affording a space between where a unique contextual outcome can be explored. Two questions must then be asked: Is the surface integral to the architecture? And, would it work without?

In the case of the SNFCC the answer to both questions is no. The surface is not integral to the building and the building would work fine without. The only change in fact, would be the exposure of the true form to its context. For the Wanaka Market, on the other hand, the form, function and structure are interwoven with the surface. The answer here is yes, the surface is essential to the very being of the building and it would not function without.

---

\(^{41}\) (Manfredi and Weiss 15)

\(^{42}\) Raymund Ryan is a US-based Irish architectural critic.

\(^{43}\) (Ryan 28)

\(^{44}\) (Johnson, Fain and Newman 169)
Figure 2.78 Sketch (by Renzo Piano) of the SNFCC.

Figure 2.79 Diagram showing the form as part of the landscape. This is further reinforced by the ‘agora’ (red) which is expressed as a chasm through the man-made landscape.

Figure 2.80 The overhanging face of the Wanaka market as object in landscape.

Figure 2.81 The surface rises over the building allowing the building to be read as object in landscape.
Voids - formal move three

As a connection

The void is the evolution of an internal connection from the walkway to Brownston Street (Figure 2.83). This connection runs along the Bullock Creek edge of the building through the market space. The walkway ascends the topography, gaining 3.4m and penetrating into the parking level above. It protrudes through the flat floor plane of the ‘car sandwich’ (which forms the roof of the market space), breaking the monotony of the single height market space and offering an opportunity for further exploration.

Placing the market on the lower level of the site has two typological implications: the required descent into the market space (from the car park and Brownston Street) and the need for an entrance presence at higher Brownston Street elevation. These implications are resolved through separating the ‘car sandwich’ and accommodation from the external surface of the building (Figure 2.84). This separation allows the void to occupy the entire height of the form, resulting in a triple height space at the Brownston Street entrance: a grand entry hall descending into the market and establishing a street front presence.
This solution establishes a stronger connection to Brownston Street, whilst retaining the formal clarity of the building. The changing height of the space offered a spatial relief within the market. The success of the void at the Brownston Street front highlighted the building’s failure to equally exploit the opportunities of its Dunmore Street connection. This resulted in an extension of the form toward Dunmore Street (Figure 2.85).

The second light well iteration explored the possibilities of adding an additional band of glazing to the creek-side face. This glazing split the face of the building, detracting from the building’s formal clarity and resulting in undesirable proportions (Figure 2.88).

Savioz Fabrizzi’s House Val d’Entremont utilises a void to resolve similar issues, offering a means of comparison.
House, Val d’entremont
Savioz Fabrizzi Architectes

Switzerland
Completed 2010

Left to right:
Figure 2.89 Exterior view of ‘house Val d’Entremont’, Valais, Switzerland.
Figure 2.90 Looking at the void from on the balcony of ‘house Val d’Entremont’.
Sited on the edge of the hamlet, House Val d’entremont (House VDE) overlooks the surrounding town to the horizon beyond. The sleeping spaces (above and below) are enclosed; a point of withdrawal from the landscape. Alternatively the living spaces (in the middle) are open to 360˚ views of the mountains (Figure 2.91).55

Here the void serves multiple roles: offering a spatial relief on the living level, whilst both enclosing and providing light to the bedroom level (Figure 2.92). From the bedroom level, windows face onto the void. These borrowed lights eliminate the need for external openings affording a pronounced formal clarity to the external envelope.

Direct application of this solution to the Wanaka Market failed to resolve the light well. Two differences undermine the void’s application to the Wanaka Market. First, at House VDE, glazing extends the length of the void lining the south face; at Wanaka the glazing extends 2/3 of the east face (Figure 2.93).

Second, House VDE requires the void to illuminate one floor above the glazing; the Wanaka Market requires illumination to a height of three storeys above the glazing (Figure 2.94).

Left column (top to bottom):
Figure 2.91 Diagram of ‘house Val d’Entremont’ showing the 360 degree view out of the living, dining, kitchen level.
Figure 2.92 Diagram showing the voids functions: lighting the upstairs and offering a spatial relief to the living level. The void enables the buildings formal clarity.
Right column (top to bottom):
Figure 2.93 Diagram showing the extent of the glazing on the East face of the void at the Wanaka Market.
Figure 2.94 Diagram comparing the required height of illumination between the Wanaka Market and house Val d’Entremont.

45 (Fabrizzi)
Although not initially successful, House VDE’s use of glazing on the internal face of the void offered a productive way forward. Extending the void beyond the surface, the Wanaka Market exploited the, previously internal, face as a skylight. This application better integrated the void: replacing the balustrade, further strengthening the building’s formal clarity (Figure 2.95).
Development of this solution revealed that the changing height of the void meant that at the lower end it is easier to see through the skylight. Therefore the thickness used to block this view, and retain a focus on the creek, was taken from the lower end of the void (Figure 2.98. A required depth of 358mm).

The thickness of the void face raised questions of materiality. What material would the walls be made of? Would they be solid or hollow? These questions were answered initially with a focus on using solid stone or concrete. The reason for this focus is a reaction to the superficial nature of both the supermarket typology and the Wanaka context; a reaction to the false solidity of the surrounding buildings exemplified by the use of schist as a stylistic cladding.  

46 “Preference should be given to materials that are locally sourced and traditionally used in the area.” Of which schist is mentioned foremost. (Council 20)
The structural implications of cantilevering the form from the bottom of the site undermined the use of stone and concrete for two reasons. First, the use of these materials would require an additional structure to support the cantilever, reducing the material use to a stylistic cladding. Second, to utilise the materials structural qualities the building form would change significantly: using stone eliminated the cantilever (Figure 2.100), whereas using reinforced concrete reduced the cantilever significantly (Figure 2.101). Therefore, in order to retain a formal elegance and avoid superficiality, the structure and the wall must be integrated.
A 9m deep vierendeel truss with 400mm chords occupies the depth of the thick wall supporting the cantilever. The unorthodox vierendeel truss responds to the angles of the building form. The truss creates an ordered grid of parallelograms that is lined on its faces with steel panels (some with windows inserted). The steel panels fit into the truss, expressing the grid on the internal and external faces (Figure 2.103 and Figure 2.104).

The truss provides both gravitational and seismic strength. To generate the required back span, the truss folds back on itself (underground) and serves as a retaining wall for the market space (Figure 2.105).

The truss is therefore an integral element within the void. In order to generate the required seismic strength and better light the internal space, the void is utilised around the exposed faces of the building (Figure 2.106).
Circulation and Ventilation

The additional voids operate as vertical circulation and natural ventilation, in addition to the previously-mentioned roles of seismic frame and light well. Two voids frame the north-west corner of the car park. As the highest point in the car park, the voids are exploited as a natural stack chimney. The vehicle emissions rise through the void where they are exhausted. This draws fresh air into the car park through the Brownston Street entrance (Figure 2.107).

The central void provides vertical circulation. The stairs connect to the external surface at the bottom, middle and top, creating multiple public connections across the site (Figure 2.108). To achieve this, the stair negotiates three factors: connecting with the different floor levels, connecting with the wheelchair ramp landings, and retaining a constant tread depth and height meeting access requirements. Utilising glazed risers the stair allows light to penetrate into the spaces contained below whilst meeting the access stair requirements.
In Service of Figure

The void affords an overall formal clarity through a complex relationship of different parts. Architect Patrik Schumacher\textsuperscript{48} writes of a similar effect. In his AD published article, ‘Arguing for Elegance’, Schumacher states “the elegant solution is marked by an economy of means by which it conquers complexity and resolves (unnecessary) complications.”\textsuperscript{49} Schumacher continues stating: “In fact only if the problem is complex and difficult does the solution deserve the attribute ‘elegant’.”\textsuperscript{50} This definition affords a better understanding of the void’s role. Serving as a public thoroughfare, light well, balustrade (for the surface) and structural element, the void resolves a series of complex conflicts; both reinforcing and enabling the clarity of the building’s form. The elegant void therefore performs multiple tasks whilst servicing the good figure - “The good figure isn’t less, it’s dense.”\textsuperscript{51}

---

\textsuperscript{48} Patrik Schumacher is a Partner at Zaha Hadid Architects and a co-director of AA Design Research

\textsuperscript{49} (Schumacher 30)

\textsuperscript{50} Ibid.

\textsuperscript{51} (Witte “Go Figure” 78)
The earlier discussion of individual mechanisms elucidates conflicts within the project. However, discussed in isolation the complex inter-reliance of the car park sandwich, surface, and voids can only be partially understood. The conflicts (namely, space requirements of the car park sandwich vs. the angle of the surface; angle of the surface vs. height and access; formal clarity vs. structural stability and function) become more complex as they compound upon one another. Arising from these complexities is a ‘manual parametric’, a tightly bound relationship that draws all elements into orbit around one another. The result is a tight architecture - a singular formal outcome that oscillates between both formal and cultural conflicts – as opposed to a loose architecture, which allows for discrepancies between form and programme, rather than striving for an integral part to whole relationship.

As examples of loose architecture, these projects are articulated as the make up of many parts. At the Nord LB building more ‘parts’ can be added or taken away without significantly affecting the buildings formal coherency. At the Guggenheim Bilbao the internal spaces can be seen as different to the exterior form. This allows the gallery spaces within to appear, and function, without disrupting the normal typological response.
Nord LB Building  Hanover, Germany
Behnisch Architekten

Clockwise from top left:
Figure 3.1 Photograph of Behnisch Architekten’s ‘Nord LB building’, looking up the tower from the entrance.
Figure 3.2 Diagram of the ‘Nord LB building’, showing that the addition of extrusions has very little impact on the building’s formal clarity.
Figure 3.3 Photograph of Behnisch Architekten’s ‘Nord LB building’, looking up the tower.
Guggenheim Bilbao  Bilbao, Spain

Frank Gehry

Clockwise from top left:
Figure 3.4 Photograph of Frank Gehry’s Guggenheim Bilbao.
Figure 3.5 Diagram of the Guggenheim Bilbao showing the disconnect between the exterior form and the internal spaces.
Figure 3.6 Photograph of one of the galleries in the Guggenheim Bilbao.
The following are examples of tight architecture. These projects engage in the conflicts between form and programme, resulting in unique and site-specific outcomes.
House with one wall  Zurich, Switzerland  
Christian Kerez

Clockwise from top left:
Figure 3.7  Photograph of Christian Kerez’s ‘House with one wall’. Looking from the rear of the building.

Figure 3.8  Diagram of ‘House with one wall’. A formal manipulation of the semi-detached typology. This allows the two residences to interact in a unique way. The wall, which usually travels on a singular axis, is manipulated to create enclosed spaces allowing the exterior faces to be almost completely glazed.

Figure 3.9  Photograph of Christian Kerez’s ‘House with one wall’. Looking at the descending topography from the ground floor.
Danish pavilion  Shanghai, China
Bjark Ingels Group

Figure 3.10  Photograph of Bjarke Ingels’ ‘Danish pavilion’.

Figure 3.11  Diagram of the ‘Danish pavilion’ showing the relationship between the form and the function of the building. The form allows a continuous journey through the building (inside and out) without retracing the same path. To achieve this the form negotiates three main factors: the surface must be cyclable yet steep enough to allow head height below, whilst maintaining a crossover between inside and out.

Figure 3.12  Photograph of the central ‘harbour bath’ and little mermaid statue.

Clockwise from top left:
Paspels school  Paspels, Switzerland
Valerio Olgiati

Figure 3.13  Photograph of Valerio Olgiati’s Paspels school. Looking from the rear of the building.

Figure 3.14  Diagram of ‘Paspels school’ showing the logic to the internal layout. The plan of the ground floor is reflected and the walls are rotated to fit within the form. This logic allows for six similar sized classrooms and two smaller spaces. The reflected plan is expressed on the faces of the building. The paspels school negotiates the grey area between form and programme.

Figure 3.15  Photograph of Valerio Olgiati’s Paspels school. Looking across the internal stair to the hallways beyond.

Clockwise from top left:

Clockwise from top left:
A tightness of difference

These tight projects all engage with the context and culture of place, whilst retaining an overarching formal clarity. All are compelling examples of a tight formal architecture. However, the Wanaka Market’s tightness is slightly different. The difference is the complexity brought about by the applied access/public space constraints. This additional constraint results in a harmony where a single change causes a ripple effect, resulting in a complete reworking of the building form.

For example, if the length of the building needed to be shorter A) the ramp inclines would increase, or B) the angle between would decrease. If the choice is A, the new incline would result in a difference in landing height, destroying the ability to cross between sides. This could be remedied by increasing the incline of the other side however this would result in a ratio of 1:11, eliminating both wheelchair access and the landing-to-floor relationship. If the choice is, B) the vertical incline between landings increases beyond a comfortable occupiable angle of 1:2.5, undermining the intent of the surface and therefore the project (Figure 3.16). Both of these options would also result in a change in the building’s height. A height change results in a discrepancy between the angled face of the void and the ramp landing, thus the volume and shape of these voids would increase. The increase in the voids volume directly impacts the area of the parking, resulting in a narrowing of the parking surface. The narrowed parking surface is no longer wide enough to fit the required 4.6m park depth, and the required 6.4m access way. This breaches the NZTA’s parking requirements, and results in a 45% loss of car parks. This ripple continues right through the building, affecting the inter-storey heights, the structure, and the openings.

The result then is a tightness inherent in the project, a harmony that a simple change could destroy. Rudolf Wittkower\(^52\) discusses a similar concept of Alberti’s,\(^53\) He states, “According to Alberti’s well-known mathematical definition, based on Vitruvius, beauty consists in a rational integration of the proportions of all the parts of a building in such a way that every part has its absolutely fixed size and shape and nothing could be added or taken away without destroying the harmony of the whole. This conformity of ratios and correspondence of all the parts, this organic geometry should be observed in every building…”\(^54\).

Although similar, Wittkower’s discussion focuses on a strict set of proportioning rules whereas ‘tightness’ is more concerned with a part-to-whole relationship - where all parts contribute to both the buildings appearance and its function. The idea of ‘tightness’ does not offer a strict set of applicable rules, as Alberti’s beauty does, instead ‘tightness’ relies on the (unique) conflicts that emerge from the individual design. It is in the resolution of these conflicts (form-to-programme, form-to-site, function-to-aesthetic, etc...) that an architectural ‘tightness’ can be achieved. In each project the resolution of these conflicts offers an opportunity for the building to engage critically with its surroundings.

---

\(^52\) Rudolf Wittkower (1901-1971) was a German art historian.

\(^53\)Leon Battista Alberti (1404-1472) was an Italian Architect.

\(^54\) (Wittkower 21)
Figure 3.16 Diagram of the Wanaka market showing the ‘tight’ inter-reliance between form, and function.

Top row: The final outcome. The surface reaches a height with un-disrupted views of the lake and surrounding mountains. This is achieved whilst maintaining wheelchair access (starts at 1:12 and ends at 1:14 - see chapter two pg. 104) and a cross-over between both sides and the internal floors.

Middle row: Maintaining a constant 1:12 wheelchair ramp allows the surface to extend higher. The increased height results in two problems: the cross-over between sides and internal floors is no longer achievable (the smaller side cannot reach the required height) and the triangular surface between the ramps gets incrementally steeper (at the top this is no longer comfortably inhabitable).

Bottom row: Changing the width of the form results in the surface either losing the cross-over, or, eliminating wheelchair access. This would also significantly reduce the size of the ‘car park sandwich’ and eliminate one of the accommodation floors.
Figure 3.17 A diagram showing the basic argument (through the design outcome for the ‘Wanaka Market’). The following discussion elaborates upon this diagram.

- **Start anew**
  - ‘Pendre parti’

- **Take advantage**
  - ‘Tirer parti’

- **Programme-form**

- **Object-form**

- **Object-as-landscape**

- **Object-in-landscape**

The elegant good-figure
- ‘Tightness’
A ‘tight’ discussion

Rethinking the supermarket typology in Wanaka, the design outcome can be understood to simultaneously draw from its context, as a means of connection, whilst inflicting upon it as a means of critique. This process of negotiation between typology and context, with a parallel awareness of architectural figure, enabled a means of self-critique within the project. The iterative process of designing, questioning and re-applying the findings, resulted in a constant dialogue between ‘resolved’ elements and unearthed conflicts. The result of this process is a distilled relationship between parts and the whole – to such an end that all parts essentially become a single whole – where the building would no longer work if any part were changed or taken away - an architectural tightness.

An idea similar to architectural tightness was introduced by the 15th century architect, artist and writer, Leon Battista Alberti. Alberti states: “[…] that what we construct should be appropriate to its use, lasting in structure, and graceful and pleasing in appearance,” continuing to state that beauty is the “noblest and most necessary of all.” Here Alberti identifies that a successful project should resonate between programme, structure and form and only then may a project be considered beautiful. In clarification Alberti states: “Beauty is that reasoned harmony of all the parts within a body, so that nothing may be added, taken away, or altered, but for the worse.”

Witte’s Good Figure expands upon Alberti’s beauty; earlier in this thesis, the chapter titled ‘A return to the figure’ introduced the ‘good figure’ as a lens to critique the design, where ‘good figure’ is described as “the cross fertilization of program, technology, and form”. The ‘good figure’ goes beyond Alberti’s incorporation of use, structure and appearance, implying a more integrated model. The ‘good figure’ implies a co-reliance that interweaves these previously independent parts further implicating Alberti’s ‘reasoned harmony’.

The ‘good figure’ acknowledges the importance of technological advancement and the need for programmatic change. The ‘good figure’ utilises technology to better service the eccentric requirements of the form, enabling an open-ended figure that supports multifarious programmes: facilitating diversity and longevity. Parallel to this thinking is Fain’s ‘centering’ introduced in the discussion of surface. “Centering is a way to focus or give order and structure to space by establishing a strong sense of identity and place. Even in cases where designers use similar structures in different places, these structures can be “regionalized” by adapting them to local conditions.” Here the structure being referred to is the structure of relationships, both with and within the building.
Looking at the larger scale, ‘centering’ draws from the local condition in order to better respond to the culture of place.

“As figures become more porous and more prickly, they begin to take on many properties of the ground. A more accessible figure, in turn, promotes comparison with the ground to reveal properties there that would have been thought more the province of the figure. As distinctions involving figure and ground become ambiguous and shifting, the limitations of an antagonistic juxtaposition become apparent.”

The tight project must resolve complex and seemingly incompatible conflicts, whilst avoiding over-complication and disorder. Alberti’s ‘beauty’ can then be understood as ‘elegance’ introduced in relation to the void. Schumacher’s ‘elegance’ explicates the importance of ordered complexity: “The elegance being referred to is not the elegance of minimalism. Minimalist elegance thrives on simplicity. The elegance being promoted here instead thrives on complexity, and achieves a visual reduction of an underlying complexity that is thereby sublated rather than eliminated. Elegance thus articulates complexity.”

Tightness is therefore the 'elegant good figure', resolving a complex set of constraints to produce an architecture which surpasses its programmatic needs whilst retaining a formal coherence. The Wanaka Market is an example of a building that through ‘tightness’ aims to do more, not less.
‘Tightness’ to what end?

Addressing the concerning pattern of growth in Wanaka, the following pages offer a discussion around ideas emerging from the design, and their implications, in particular the notion of ‘tightness.’ Here, the research found insights into creating a site-specific and responsive alternative to big box retail.

The initial modelling focused on form and the spaces created between, seeking to create a better connection to the surrounding landscape. Here, conflicts were discovered between the modelling and the BBR typology: a connection to place vs. the BBR’s inherent introversion. These conflicting approaches directed the focus toward an alternative to BBR; a response appropriate to the outdoors culture of Wanaka.

The outcome aimed to retain the BBR typology’s ‘fitness for purpose’, however engage with it critically in order to better respond to the Wanaka landscape.

This research offers a single example (the Wanaka Market) of an architecture that explores the friction between typological function and formal connection to place. This thesis sees opportunity for architecture to operate (and itself attempts to operate) in this grey area. Mary McLeod offers further clarity to this position, stating: “Function brings variation and imagination to arbitrary and overly generalized abstract form, just as form brings invention and play to the mechanistic dimensions of an instrumental, codified functionalism.”

Here, McLeod identifies the potentials of reciprocity between these two, somewhat conflicting, ideas. She continues: “Each potentially challenges the stasis and hermeticism of the other. It is in this dialectical tension between form and function – their ambiguous, complex, and fluid relationship – that much of architecture’s potential richness, both aesthetic and social, resides.” This echoes the design discovery that architecture can utilise this conflict, as a way to allow form to transcend the impractical, frivolous, or excessive, whilst alternately opening pure function – as expressed in the BBR typology - in order to challenge the otherwise accepted (rolled off the production line) normative solution.

Through the project of the Wanaka Market, the research is able to investigate this conflict. Not intended as a ‘solution’, the project merely enables a critical discussion around a particular typology, BBR, through a site specific project. An outside problem - the people of Wanaka’s affinity for the landscape - enables a way into the typological vacuum, without which, as Alejandro Zaera-Polo suggests will result in the reproduction of an unresponsive and inert architecture.

“The problem with typology, of course, is that it has been used in the past as a recipe to reproduce existing conditions, thus making it inadequate for dealing with […] social, cultural, and political change […]. Typology can become a catalyst for architectural experimentation […], especially if we conceive of types as objects for manipulation and adjustment rather than for imitation.”

64 Mary McLeod is a professor of architecture at Columbia University
65 (McLeod 51)
66 Ibid
67 (Maas 49)
68 Architect Alejandro Zaera-Polo is the cofounder (with Farshid Moussavi) of Foreign Office Architects
69 (Zaera-Polo 56)
In conclusion

The BBR typology’s application in small towns fails to engage with the landscape. The outcome is an inert architecture, both unresponsive and numbing to the small town situation. The project ‘the Wanaka Market’ is an example of an architecture that attempts to re-engage with context. Through an exploration of figure, the project is able to achieve a multiplicity of function, which allowed the development of a BBR alternative that is appropriate and responsive to the outdoors culture of Wanaka.

Emergent in this research is ‘tightness’: a way of exploring an architecture that, through managing conflicts, does more, not less.

While the project explores a single situation in Wanaka, the implications of this research are much broader. The growing population’s need for supply is commonly met with the application of the BBR typology which offers little more than a means of efficient supply. ‘Tightness’ offers an alternative, more productive strategy that could be employed as a critical device to allow architecture to incorporate the needs of the typology and encourage a unique response to place.

Tightness offers one way to re-engage the isolated and car-centric big box retail typology with a unique context. This engagement offers an avenue for BBR to relate to both context and culture and, in-turn, open a way to explore the role of architecture in the creation of public places. For small towns, where BBR become nodes for car-centric development, ‘tightness’ offers one potential way that architecture can contribute to create better urban spaces through an engagement with the surrounding environment.


List of figures

Introduction and Chapter 1: The Design

Figure 1.1: View of the building from Bullock Creek walkway. Author’s own image.

Figure 1.2: Matrix of Wanaka township aerial photographs.


Figure 1.3: Diagram of the thesis structure. Author’s own image.

Figure 1.4: Approaching the building from Brownston Street. Author’s own image.
Figure 1.5: Wanaka’s location within New Zealand. Author’s own image.

Figure 1.6: Lake Wanaka, Lake Hawea and the Southern Alps. Adapted from: Maps.QLDC. Web. 16 March 2013. <http://maps.qldc.govt.nz/qldcviewer/>

Figure 1.7: The Wanaka township, Roys Bay and the extended town boundary. Adapted from: Maps.QLDC. Web. 16 March 2013. <http://maps.qldc.govt.nz/qldcviewer/>

Figure 1.8: Central Wanaka and Roys Bay. Adapted from: Maps. QLDC. Web. 16 March 2013. <http://maps.qldc.govt.nz/qldcviewer/>

Figure 1.9: The project site and Bullock Creek. Adapted from: Maps. QLDC. Web. 16 March 2013. <http://maps.qldc.govt.nz/qldcviewer/>

Figure 1.10: Site plan. Author’s own image.

Figure 1.11: Site section. Author’s own image.

Figure 1.12: Views of the surrounding mountains and Lake Wanaka from the walkway. Author’s own image.

Figure 1.13: Public green space along the walkway. Author’s own image.

Figure 1.14: Roads, car parks and vehicle access. Author’s own image.

Figure 1.15: Bullock walkway and secondary walking paths. Author’s own image.

Figure 1.16: Longitudinal section through Eastern wedge. Author’s own image.

Figure 1.17: Transverse section through building. Author’s own image.

Figure 1.18: The ground floor plan. Author’s own image.

Figure 1.19: The first floor plan. Author’s own image.

Figure 1.20: The second floor plan. Author’s own image.

Figure 1.21: The third floor plan. Author’s own image.

Figure 1.22: The fourth floor plan. Author’s own image.

Figure 1.23: Approaching the building from Brownston Street. Author’s own image.

Figure 1.24: Entering the market from the Brownston Street entrance. Author’s own image.

Figure 1.25: Inside the back of the market space. Author’s own image.

Figure 1.26: Inside the front of the market space. Author’s own image.

Figure 1.27: Inside the shared living, dining, kitchen of the accommodation levels. Author’s own image.

Figure 1.28: Approaching the building along the Bullock Creek walkway from Dunmore Street - a summer day. Author’s own image.

Figure 1.29: Approaching the building along the Bullock Creek walkway from Dunmore Street - an evening concert. Author’s own image.

Figure 1.30: Approaching the building along the Bullock Creek walkway from Dunmore Street - a snowy winter afternoon. Author’s own image.

Figure 1.31: Inside the juice bar, looking toward the fire on a winter afternoon. Author’s own image.

Figure 1.32: Inside the juice bar, looking over Roys Bay toward the Buchanan Mountains. Author’s own image.

Chapter 2: The Design

Figure 2.1: Photo by author. Examples of initial formal model experiments. Author’s own models.

Figure 2.2: Photo by author. Examples of initial formal model experiments. Author’s own models.
Figure 2.3: Existing big box and central wanaka. Author's own image.

Figure 2.4: Wanaka New World - lack of response to grain and topography. Author's own image.

Figure 2.5: Diagram of the ‘retail wall’. Author's own image.

Figure 2.6: Photo by author. Wanaka New World, an example of the ‘retail wall’.


Figure 2.8: Diagram of the ‘retail island’. Author's own image.

Figure 2.9: Diagram of the ‘retail complex’. Author's own image.

Figure 2.10: Photo by Unknown. “Bucking Recession: Remarkables Park Town Centre.” Scene.co.nz: Mountain Scene, 2008. Web. 10 November 2013

Figure 2.11: Figure/ground study of supermarkets in 16 New Zealand towns. Author's own image

Figure 2.12: Kapiti Pak’n’save figure/ground study. Author's own image

Figure 2.13: Photos by author. Examples of formal models exploring ‘breaking the figure’. Author's own models.

Figure 2.14: Photos by author. Examples of formal models exploring ‘breaking the figure’. Author's own models.

Figure 2.15: Photo by unknown. “Geyser.” Pattersons.com: Pattersons, 2012. Web. 05 November 2013.

Figure 2.16: Photo by unknown. “Geyser.” Pattersons.com: Pattersons, 2012. Web. 05 November 2013.

Figure 2.17: Photo by author. 1:500 model of design iteration 1.0. Author's own model.

Figure 2.18: Photo by author. 1:200 section model of design iteration 1.0 - cut through Bullock Creek. Author's own model.

Figure 2.19: Design iteration 1.0 site plan, showing apertures and framed views of the surrounding context. Author's own image.

Figure 2.20: Design iteration 1.0 site plan overlayed with pedestrian paths, views and grid. Author's own image.

Figure 2.21: Design iteration 1.0 plans at 1:1000. Author's own image.

Figure 2.22: Design iteration 1.0 longitudinal section. Author's own image.

Figure 2.23: Design iteration 1.0 transverse section. Author's own image.

Figure 2.24: Diagram of design iteration 1.0 showing spatial volumes of apartments. Author's own image.


Figure 2.27: Diagram of ‘Super Market’ showing how the “blind facades” are broken and public spaces are created. Author's own image.

Figure 2.28: Breaking the figure of ‘Super Market’, creating a public courtyard and minimising the effect of the “blind facades”. Author's own image.

Figure 2.29: Breaking the figure of design iteration 1.0, continuing the walkway across the site and creating view shafts. Author's own image.

Figure 2.30: Sketch diagram of design iteration 1.0. Author's own image.
Figure 2.31: Diagram of the existing car parking utilised by design iteration 1.0. Author's own image.

Figure 2.32: Diagram of the New World Wanaka building showing its visual separation from the surrounding context; surrounded by car parking. Author's own image.

Figure 2.33: Figure/ground study of supermarkets (including car parking) in 16 New Zealand towns. Author's own image.

Figure 2.34: Design iteration 1.0 diagram showing the multiple functions of the stair. Author's own image.

Figure 2.35: Design iteration 1.0. Diagram showing the multiple functions of the stair. Author's own image.

Figure 2.36: The underground car park diagram. Author's own image.

Figure 2.37: The roof-top car park diagram. Author's own image.

Figure 2.38: Photo by LT McGuinness Ltd. “Moore Wilson’s.” moorewilson.co.nz: moore wilson's. Web. 18 January 2014.

Figure 2.39: Photo by Michael Ng. “Countdown Warkworth.” ascarchitects.co.nz: Asc Architects, 2011. Web. 18 January 2014.

Figure 2.40: Site diagram showing the lack of vehicle access from Dunmore Street. Author's own image.

Figure 2.41: Switchback rooftop car park diagram. The small diagram shows the conflict between the car and pedestrian raised above the ground. Author's own image.

Figure 2.42: Photo by author. Model iteration of the initial switchback form with rooftop car parking. Author's own model.

Figure 2.43: Site diagram showing the available vehicle access from Brownston Street. Author's own image.

Figure 2.44: Underground car park diagram showing the required ramps (straight) for vehicle access from Brownston Street. Author's own image.

Figure 2.45: Underground car park diagram showing the required ramps (spiral) for vehicle access from Brownston Street. Author's own image.

Figure 2.46: Longitudinal section of final scheme, showing the car park sandwich at 1:200. Author's own image.

Figure 2.47: Diagram of initial car park sandwich exploration. This shows the problem of height under the surface. Author's own image.

Figure 2.48: Diagram showing the lifting of the surface at Brownston Street to resolve the height issue. Author's own image.

Figure 2.49: Photo by author. 1:200 Physical model exploring pedestrian access to the (now raised) surface and vehicle access to the car park [1]. Author's own model.

Figure 2.50: Photo by author. 1:200 Physical model exploring pedestrian access to the (now raised) surface and vehicle access to the car park [2]. Author's own model.

Figure 2.51: Photo by author. 1:500 Physical model showing the formal implication of raising the surface. Author's own model.

Figure 2.52: Photo by author. 1:200 Physical model exploring pedestrian access to the (now raised) surface and vehicle access to the car park [3]. Author's own model.


Figure 2.55: Section comparison of Anvil and Wanaka market. Author's own image.

Figure 2.56: Diagram showing the implications of using a split level parking system in the Wanaka market. Author's own image.

Figure 2.57: Diagram showing the impact of separate entrance/exit locations at the Wanaka market vs. the single entry/exit at Anvil. Author's own image.

Figure 2.58: Diagram showing the implication of re-connecting the surface to the ground at Brownston Street. Author's own image.

Figure 2.59: Diagram showing the implication of increasing the pitch of the surface. Author's own image.

Figure 2.60: View of the surface from the Bullock Creek walkway (at Dunmore Street end). Author's own image.

Figure 2.61: Diagram showing the initial exploration of the surface as car parking. Author's own image.

Figure 2.62: Diagram showing the surface breaching the 6m height plane (where un-obstructed views of the lake and surrounding mountains are available). Author's own image.

Figure 2.63: Diagram showing the loss of wheelchair access as a result of increasing the surface pitch. Author's own image.

Figure 2.64: Diagram showing the tessellated surface as a solution to wheelchair accessibility. Author's own image.

Figure 2.65: Photos by author. Examples of formal models exploring surface and the switchback form. Author's own models.

Figure 2.66: Diagram of the early switchback exploration. Author's own image.

Figure 2.67: Diagram showing the advantage of connecting the surface at the Dunmore Street end. Author's own image.

Figure 2.68: Diagram showing the incremental change in length and angle of the module. Author's own image.

Figure 2.69: Diagram showing the difference in wheelchair ramp angle between the top and bottom modules of the surface. Author's own image.

Figure 2.70: Diagram of the surface's consistent rate of incline and its impact on the buildings formal clarity. Author's own image.

Figure 2.71: Diagram showing the implications of maintaining the same ramp ratio (as opposed to the overall surface) on the buildings proportions. Author's own image.

Figure 2.72: Image by RPBW. “Stavros Niarchos Foundation Cultural Center.” rpbw.com: Renzo Piano Building Workshop, architects, 2008. Web. 10 June 2013.

Figure 2.73: Image by RPBW. “Stavros Niarchos Foundation Cultural Center.” rpbw.com: Renzo Piano Building Workshop, architects, 2008. Web. 10 June 2013.

Figure 2.74: Photo by author. Physical model exploring the form of the Stavros Niarchos Foundation Cultural Center. Author's own model.

Figure 2.75: Section comparison of Wanaka market and SNFCC. Author's own image.

Figure 2.76: Section diagram of Wanaka market and SNFCC showing the separation of program and relationship to surface. Author's own image.
Figure 2.77: Diagramatic study of program and form at Wanaka Market and SNFCC. Author’s own image.

Figure 2.78: Sketch by RPBW. “Stavros Niarchos Foundation Cultural Center.” rpbw.com: Renzo Piano Building Workshop, architects, 2008. Web. 10 June 2013.

Figure 2.79: Diagram showing the form as part of the landscape. Author’s own image.

Figure 2.80: The overhanging face and the vertical sides declare the Wanaka market as ‘object in landscape’. Author’s own image.

Figure 2.81: The surface rises over the building allowing the building to be read as ‘object as landscape’. Author’s own image.

Figure 2.82: Transverse section through building showing the voids. Author’s own image.

Figure 2.83: Diagram showing the initial exploration of a physical connection through the form. Author’s own image.

Figure 2.84: Diagram showing the car park and accommodation levels being ‘peeled’ off the building face. Author’s own image.

Figure 2.85: Extending the form toward the Dunmore Street edge. Author’s own image.

Figure 2.86: A sketch diagram showing the visual connection to the sky created by the skylight. Author’s own image.

Figure 2.87: Photos by author. Model of ‘House T’, Miyazaki, Japan, by Tsukan Architect office. Author’s own model.

Figure 2.88: A sketch diagram showing the effect of adding an additional band of glazing to the building face. Author’s own image.


Figure 2.91: Diagram of ‘house Val d’Entremont’ showing the 360 degree view out of the living, dining, kitchen level. Author’s own image.

Figure 2.92: Diagram showing the voids functions: lighting the upstairs and offering a spatial relief to the living level. Author’s own image.

Figure 2.93: Diagram showing the extent of the glazing on the East face of the void at the Wanaka Market. Author’s own image.

Figure 2.94: Diagram comparing the required height of illumination between the Wanaka Market and house Val d’Entremont. Author’s own image.

Figure 2.95: Diagram of ‘house Val d’Entremont’ morphing into the Wanaka Market. Author’s own image.

Figure 2.96: Photos by author. Model of ‘house Val d’Entremont’. Author’s own model.

Figure 2.97: Photos by author. Model of the Wanaka Market light void development. Author’s own model.

Figure 2.98: Study of the wall depth required to block views through the skylight at the Brownston Street end. Author’s own image.

Figure 2.99: Study of the wall depth required to block views through the skylight at the Dunmore Street end of the Glazed face. Author’s own image.
Figure 2.100: Sketch diagram showing the formal implications of using stone. Author's own image.

Figure 2.101: Sketch diagram showing the formal implications of using reinforced concrete. Author's own image.

Figure 2.102: Sketch diagram of truss options. Author's own image.

Figure 2.103: The steel panels expressing the vierendeel truss on the external face. Author's own image.

Figure 2.104: The steel panels expressing the vierendeel truss on the internal face. Author's own image.

Figure 2.105: Exploded diagram of the vierendeel truss. Author's own image.

Figure 2.106: Transverse section diagram showing the use of the void in the longitudinal direction. Author's own image.

Figure 2.107: Diagram of car park volume showing natural stack ventilation. Author's own image.

Figure 2.108: Diagrams of the multiple pedestrian routes through/over the building. Author's own image.

Figure 2.109: Entering the market from the Brownston Street entrance. Looking down the void. Author's own image.

Chapter 3: A Discussion

Figure 3.1: Photo by Tony Hunt. “Nord Lb - Hannover Pt.2 [1].” fotocommunity.de2011. Web. 02 September 2013.

Figure 3.2: Diagram of the ‘Nord LB building’, showing that the addition of extrusions has very little impact on the buildings formal clarity. Author’s own image.

Figure 3.3: Photo by Tony Hunt. “Nord Lb - Hannover Pt.2 [1].” fotocommunity.de2011. Web. 02 September 2013.

Figure 3.4: Photo by unknown. “Guggenheim Bilbao.” guggenheim-bilbao.es: Guggenheim Bilbao Museoa. Web. 12 January 2014.

Figure 3.5: Diagram of the Guggenheim Bilbao showing the disconnect between the exterior form and the internal spaces. Author’s own image.


Figure 3.7: Photo by Ariel Huber. “Christian Kerez.” afasiaaq.blogspot.co.nz2008. Web. 09 October 2013.

Figure 3.8: Diagram of ‘House with one wall’. Author’s own image.


Figure 3.10: Photo by unknown. “Xpo.” Big.dk: Bjarke Ingles group, 2010. Web. 04 August 2013.

Figure 3.11: Diagram of the ‘Danish pavilion’ showing the relationship between the form and the function of the building. Author’s own image.

Figure 3.12: Photo by unknown. “Xpo [2].” Big.dk: Bjarke Ingles group, 2010. Web. 04 August 2013.


Figure 3.14: Diagram of ‘Paspels school’ showing the logic to the internal layout. Author’s own image.

Figure 3.16: Diagram of the Wanaka market showing the ‘tight’ inter-reliance between form, and function. Author’s own image.

Figure 3.17: A diagram showing the basic argument (through the design outcome for the ‘Wanaka Market’). Author’s own image.

Figure 3.18: Diagram of Alberti’s Santa Maria Novella in Florence, Italy. Author’s own image.