Shipyard: A Public Architecture of Assimilation
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An explanatory document submitted in partial fulfillment of the requirements for the degree of Master of Architecture (Professional)

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Nicholas Michael Adams

1304937
Acknowledgments

To Mum and Dad. Thank you for your continuous encouragement, love and support throughout my years of study. Your sacrifice and investment into my life is a legacy to you both. I am sincerely grateful.

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Jeremiah 29:11: "For I know the plans I have for you," declares the LORD, "plans to prosper you and not to harm you, plans to give you hope and a future."

Thank you God for your faithfulness.
Abstract

The master thesis proposal develops a design for a shipyard located on Halsey Street Wharf, Auckland. Through deriving an architecture from the historical context of the Auckland waterfront, the proposal develops a design that questions the current paradigm of international waterfront architecture and industrial port architecture and alludes to an alternative response that allows the public to interact and engage with an active program of historic meaning and display. It is theorised that architecture should relate to the context of the site, providing an architecture of assimilation and integration.
1.0 INTRODUCTION

“Shipyard - An enclosed area of land where ships are built and repaired.”\(^1\)

1.1 Research Question

What are the aspects of architecture that provide an alternative to the current paradigms in both private industrial port architecture, and public waterfront architecture?

1.2 Aims and Objectives

To research and design an architecture derived from, and relating to historical evidence found within a specific site, and wider site context. The architectural response to the historic context within the site, i.e. shipyard, will provide a new programmatic layer upon the historical strata of the site. Through the shipyards primarily active function, the design aims to display the process of ship construction and/or ship restoration, through allowing a secondary function of public interaction and observation within the primarily active shipyard. the project aims to reverse the idea of a shipyard building or development as “An enclosed area of land.” In relation to the research question, the proposal will provide an architectural alternative to private industrial port architecture, and public waterfront architecture, creating a new paradigm through questioning conventional perceptions within these two types of design.

1. http://oxforddictionaries.com
1.3 Outline of Project

As the population expands, so too does the urban environment, commonly known as the City. Over time, boarders that once defined the isthmus become blurred and compromised, as the city edges are rapidly overtaken and engulfed, in an effort to appease this thing called progression. In order to pacify this entity, sacred spaces, and historical context, (usually port/marine industry) in which the city is founded upon, are impetuously traded in, in exchange for a few more hectares of space, where additional 'mixed use' commercial buildings may take up abode. As this form of sprawl development has taken place, and is taking place within present time, consolation prizes have been offered to the public in the form of empty squares and concrete promenades, in an endeavor to cover the innate rejection of historical context, in which heart-less development thrives. These consolation prizes, however, only serve as a reminder to the viewer, whether apparent or un-apparently, that there appears to be no limits that this mass of unapprised concrete won't cross; and leads to the question, at what point do we choose to ignore the historical context that undergirds the city, in order to satisfy the ever growing appetite of urban development? The purpose of the project is to determine an alternative approach to this form of progression, to open a new dialogue in the debate, through challenging current perceptions of what is needed within an architecture of urban waterfront context.

The thesis proposal outlines and addresses an apparent disconnect between site history and present-day outcome in architecture, with particular reference to waterfront architecture within the urban context. Accordingly, the purpose of the project is to determine an alternative approach, through deriving an architecture that regards the context in which the site has been established, displaying this context through programmatic requirements. The proposal for an active, publicly accessed shipyard on Halsey St. Wharf develops an architecture that has been derived from, and consequentially displays, the context of the site in which the project is located. As modern waterfront architecture alludes to conceptual references of maritime context, through form, materiality and façade ‘skin’ treatment, the thesis proposal interacts with the historical context of the site through the tangible, active function of the building.
The project is concerned with developing an architecture of assimilation.

The current typology of waterfront architecture consists of architectural responses that fundamentally reject the history and context of the site through the proposal of a program that is seemingly un-related. This type of architectural response seems to be concerned with creating an architectural statement, inserted upon the site in a design process of ctrl c, ctrl v. It appears that site and historic context is irrelevant.

As the urban environment expands, and city boarders widen, places that were once foundational within port cities, are rapidly becoming a clean-slate, where theatres, museums, shopping malls and multi-functional spaces may be inserted.

The thesis project does not deny development.

The project, as previously mentioned, outlines the way in which this current typology operates, and, through investigation, provides an alternative approach within this public form of maritime architectural design. Through the projects primarily active function of shipyard, the design conveys the process of ship construction and/or ship restoration as a type of performance. Unlike contemporary theatres and museums inserted into the marine context like a foreign object, the construction process taking place around and within the building becomes the theatre. Slipways, Dry-docks and Moorings provide the necessary means of an active museum display, where gantry cranes further interact, carrying large steel artifacts, and depositing them within the assembly line. Taking refuge at night, the skeletal figure of a large sea-fearing vessel is illuminated within the confines of the glass covered dry-dock, drawing parallels to that of a ship in a bottle. The performance is ever changing. Through a series of public interventions, the history of the edge is displayed, and interaction between past and present can occur.
Programmatically, the project has developed a series of spaces in which a vessel may be constructed, repaired and restored. The proposed building located along the eastern edge of Halsey St. Wharf consists of an interior dry-dock, fabrication workshops, vessel mooring, and an exterior slipway. These components are then joined together through a series of public observation paths, rising and falling over 7 levels, above and below the Waitemata Harbour.

This explanatory document will describe the processes taken in answering the proposed research question.

1.4 **Scope and Limitations**

The project develops a building located on Halsey St Wharf intended for the construction, repair and restoration of vessels. In regards to low demand for large ships in New Zealand, the project has been designed to cater for smaller ships and vessels, and is accordingly indicated in the size of the building and relative components, such as dry-dock and slipway facilities.
2.0 CURRENT STATE OF KNOWLEDGE

2.1 Waterfront Architecture

“The very fabric of many cities around the world is inextricably linked to the bodies of water that contributed to their founding and to their subsequent development.”

As the urban environment expands, maritime ports and waterfront city edges are increasingly developed and reclaimed, in an attempt to accommodate urban progression. Present-day waterfront sites within major cities have been transformed into long stretches of retail, commercial and mixed-use buildings, while most substantial industrial marine activities have been re-located along the city edge, away from a close proximity to the CBD. An industry that once defined the city has now lost relevance and meaning, and has lost its position to make way for the new waterfront, in where “deindustrialisation is opening up vast new territories.” As marine industry and ports are re-located from central locations, waterfront regeneration commences, and has seen widespread waterfront development in the main centres of Europe, Asia, United States, Australia and more recently New Zealand. Driven by economic, social, environmental and preservation factors, waterfront regeneration has transformed what is considered as the gateway to the city, from a place of industrial work, to a place of tourist attraction, in where theatres, museums and urban spaces redefine the program and usage of the city edge. As this trend of major transformation continues throughout the world, the role of the architect is increasingly pivotal, in interpreting what the city needs, and what is appropriate for the site in terms of form and function.

With the mass removal of marine industry, such as fish markets, vessel construction dry-docks, slipways, workshops and ship ports, the cities in which these activities once occurred, are fast removing any trace of maritime historic context, and further concealing the past through the insertion of new programs. In relation to the purpose of the thesis proposal, it is at this point in the waterfront regeneration development that evokes investigation, and questions a shift in the current typology of both private industrial port architecture, and public waterfront architecture.

“Theaters and concert halls represent an important category in the design of public buildings, but here, too, a bland modernity seems to have swept the globe from one side to the other sometime after World War II.”

2.2 Current Typology

In an effort to conceal and alleviate the in-habitable qualities associated with fish markets and vessel construction, and to increase tourist potential to the city, the marine industry that once existed on the waterfront, has been re-located to make way for new programs and usage upon the city edge. These new architectural interventions throughout waterfront developments across the world seem to consist of a common typology that rejects the context of the site, and what the site represents, instead opting for often lethargic references to context, and historic meaning.

“So many modern harbour-side developments either ignore their setting completely, simply exploiting the land space former port areas offer, or gesture towards some popular notion of ‘maritime heritage’ by flaunting sails, masts, funnels, portholes or ventilators – incongruously, always from a much earlier period of ship architecture.”

As seen in recent waterfront developments, such as the Mann Island development, central Liverpool, England, Copenhagen Library, Copenhagen waterfront, Denmark, The Wave, Vejle, Denmark and the Marine Events Centre located on the proposed thesis site, the current typology is illustrated through an architecture of un-assimilation.

The Mann Island Development provides an example of modern waterfront architecture that refuses to acknowledge the marine industry, and instead opts for a type of architectural insertion, within the historic site. Situated on the Liverpool waterfront, the Mann Island Development is made up of the Museum of Liverpool by 3XN Architects and a mixed-use scheme by Broadway Malyan, Architecture Urbanism Design.
The development, adjacent to two operational dry-docks, comprises of three distinct buildings, two of which are mixed-use, containing 12 commercial and 14 residential storeys, while the third building, stretched along the Mersey River is a national museum of Liverpool. As shown in figure 2.2.1, the Mann Island Development essentially consists of three stand-alone objects that are seemingly un-related to each other, as well as the site context. With no reference to maritime industry, or to the heritage buildings next to the site, the architecture seems to offer little back to the area that contains a richness of historic meaning. The development, with particular regard to the national museum, illustrates the notion of the foreign object, inserted onto the site, and acts as a clear example of a needed paradigm shift in modern waterfront architecture, in where the site is acknowledged, and referenced in form and/or program.

Figure 2.2.3: Mixed-Use/Apartment Building, Broadway Malyan, Architecture Urbanism Design

Figure 2.2.4: The building appears inappropriate within the context
The Copenhagen Library extension, Copenhagen waterfront, Denmark is also another example of the current waterfront typology. Designed by Schmidt, Hammer and Larssen Architects, the library extension, much like the Mann Island Development alludes to the idea of the foreign object, in terms of program, as well as form and general aesthetic, reminiscent of security driven architecture such as banks and prisons. With an inwardly-focused program; the library appears un-integrated into the once historic site.

Figure 2.2.5: Copenhagen Library Extension, Copenhagen, Denmark, Schmidt, Hammer & Larssen

Figure 2.2.6: Interior alludes to aquatic context
The Wave, Vejle, Denmark, designed by Henning Larsen Architects, is a residential project of conceptual aesthetic, in which the harbour, as well as land forms of the local area are referenced in the waterfront design. It has been noted, and well documented that modern architecture of the 21st century has become increasingly conceptual, in that the form and language of design are manipulated to represent an idea or theme. The wave apartment complex provides an example of this type of conceptual architecture, with an obvious reference to the harbour context. In relation to the thesis project, and research question, the purpose of the project is to look beyond such references to context, in an attempt to go further in questioning how to integrate a building within the context, while also displaying, and therefore retaining the historic context of the site through program.

Figure 2.2.7: The Wave, Vejle, Denmark, Henning Larsen Architects: Oulined in the building title, the project utilises the immediate context as a form generator
The Viaduct Events Centre, designed by Moller Architects, is another example of a waterfront project of un-assimilation within the maritime context. The building, which currently occupies the project site, is essentially comprised of a large glass rectangle and curved roof, which reference the adjacent harbour. Though the building offers an observation deck on the northern end, the building is of a private function, and does not offer any public activities or amenities, prompting the question of appropriateness, as the building sites in the middle of publicly utilised space.

Figure 2.2.8: Viaduct Events Centre, Moller Architects

Figure 2.2.9: The Viaduct Events Centre within the Halsey St. Wharf context
2.3 Industrial Port Architecture

“A port serves hinterland and horizon alike, its functional architecture defining that unique meeting of land and sea.”

To provide an alternative architectural response to the current paradigms of public waterfront architecture, private industrial port architecture also needs to be considered, as stated within the research question. This type of architecture, where form follows function, has been a constant component within the urban marine industry, and contains often utilitarian components and programs that allows the architecture to connect to the marine site context. This form of architecture is often purely utilitarian in its design and construction, and private in its usage, due to dangerous machinery, fuels, and materials, as well as confidentiality in product construction and distribution. Unlike modern waterfront insertions, with tacked-on references to an aquatic context, industrial port architecture, and indeed industrial architecture in general, is a type of machine in itself, where the architecture is simply an extension of the program within the skeletal form, and where the program, is an extension of the location in question.

“The importance of sites contributing to a historical ambience goes beyond that of attracting and satisfying exclusively tourists.”

Figure 2.3.1: Dry-dock, Brooklyn Navy Yard, 1991
Figure 2.3.2: Genova, 1985
Figure 2.3.3: Genova, 1985
Figure 2.3.4: Woolloomooloo finger wharf & Garden Island crane, 1990
Figure 2.3.5: Erpen, 1988
In an architecture of pragmatics, the facades and exterior surfaces of industrial buildings often indicate the internal environment, including layout and subsequent usage. When looking at the modern waterfront examples previously discussed, the majority of programs required a dis-connect from the outside environment, and accordingly, a detachment between the interior and exterior occurred, creating a building that appeared unrepresentative of its purpose. Because of this, modern waterfront architecture tends to develop a detachment from the wider area, and comes across as an insertion upon the city edge landscape, while industrial architecture appears more integrated, as the industrial typology in question, is a type of design that heavily relies on location and derived program.

"Much of what has been built in former port areas – residential apartments, leisure facilities and museums – trade shamelessly on shallow 'maritime' fantasies – on the other hand, 'real' ports flourish as never before, in accordance with those rapidly changing priorities and processes which have characterised ports historically."\(^8\)

As seen in the example of Berth 30 Container Terminal, 1994, Oakland, United States, port industrial architecture integrates into the context through its utilitarian design ideology. Designed by Jordon Woodman Dobson, the architectural response becomes part of the site, through becoming part of the program, and allowing the program to function. Forming a bridge, the administration building for the port is elevated above the ground to allow truck lanes to pass through into the dock area, and acts as a type of gateway into the industrial zone. The building acts as a filter, where both industrial program and administrative program interact, yet at the same time, allows each program to operate as intended.

Figure 2.3.6: Berth 30 Container Terminal 1994, Oakland, United States, Jordan Woodman Dobson Architects
Figure 2.3.7: Site Plan illustrating truck lanes leading under the Administrative Building into the dock area

Figure 2.3.8: Plan of Administrative Building and bridge connecting to Maintenance Facility
Figure 2.3.9: Exterior stair structure integrated into curved form
2.4 Precedents

The following is a compilation of the major architectural precedents and architects that will influence the shipyard project.

Sean Godsell,
Sean Godsell Architects, Melbourne, Australia

The work of Australian architect Sean Godsell will provide a strong influence to the project. Godsell's use of exposed oxidised steel structure, glass, and weathered steel cladding will influence the outcome of the project, in terms of the exploration of exposed structure and cladding processes, as well as materiality. Largely involved with residential design in the semi-arid Australian environment, Sean Godsell's aesthetic is one that relies on a type of primordial and functional approach to residential dwellings, where the internal environment is defined through oxidised steel structure, and perforated cladding. Industrial in material palette, Godsell's buildings act as operational machines through large exterior panels that adjust to the climatic condition, and provide shading and ventilation to the interior environment. In terms of the publicly accessed shipyard program, Godsell's aesthetic of perforated steel cladding, and connection to the outside environment provide an important example of ventilation of space and visual permeability, and would allow the process of ship construction within the building, as well as observation of such processes.
Figure 2.4.1: Glenburn House, Victoria, Australia, 2004-2007, Sean Godsell Architects
Glenburn House,
Victoria, Australia, 2004-2007

Figure 2.4.2: Floor Plan

Figure 2.4.3: Elevation illustrating metal grill permeability

Figure 2.4.4: Operational door
Figure 2.4.5: Exposed oxidised steel structure

Figure 2.4.6: Weathered metal grill
St. Andrews Beach House,
St. Andrews Beach, Victoria, Australia, 2003-2006

Figure 2.4.7: Operational metal louvers with permeable roof indicated in background

Figure 2.4.8: Permeable metal grill reveals oxidised steel structure

Figure 2.4.9: Interior breezeway allows connection to the climate
Herzog de Meuron,
1111 Lincoln Road, Miami Beach, Florida, United States,

1111 by Herzog de Meuron illustrates a type of architecture that utilises the idea of cutting and folding to create form and allow circulation throughout the building. Each floor plate is cut and folded, creating ramps within the structure that appear integrated into each floor plane. The idea of cutting and folding planes is an aesthetic that will be integrated into the project, where the wharf plane will be scored, cut and folded to create new spaces on the site, and circulation through the site and building.

Herzog de Meuron,
Tate Modern, London, United Kingdom

The Tate Modern conversion by Herzog de Meuron also illustrates the power of a sloping surface. As viewers approach the west entrance of the building, the ground plane starts to decline, and gently drops down to basement level as viewers pass through the large void interior space. In referring to the thesis project, the wharf plane has the potential to be cut and folded down, creating a sub-wharf experience within the proposed structure.
1111 Lincoln Road,
Miami Beach, Florida, United States, 2005-2008

Figure 2.4.10: Floors cut and then folded to create internal stair case

Figure 2.4.11: Triangular void and stair case
Tate Modern,
London, United Kingdom, 2005-2016

Figure 2.4.12: Ramped entrance within large void space
Tadao Ando,
Langen Foundation, Neuss, Germany

The Langen Foundation is also an example of circulation ramp architecture. The ramps take the viewer through the building, allowing gallery spaces to be observed from different levels and vantage points. This technique of revealing space through journey will be incorporated into the thesis project, where the public can interact with the ship construction process through a series of different heights and angles within the structure.
Langen Foundation,
Neuss, Germany, 2004

Figure 2.4.13: Ramped floor descends through gallery space
3.0 PROJECT DEFINITION

3.1 Site Analysis

The following is a documentation of site analysis, site criteria, and site location for the project. As the proposed shipyard program relies heavily upon site location, site analysis plays a pivotal part in contributing to the success of the project.
3.1.1 Criteria

Through investigating the current typologies of both public waterfront architecture, and private industrial port architecture, the chosen site for the project would have to include the following factors to achieve a building of both maritime program and public usage:

1. Located on a waterfront or port of high usage and large scale;
2. Located in close proximity to buildings of industrial program;
3. Located within walking distance to the CBD of the city to attract public usage;
4. Located on a site and/or in an area of historic maritime meaning;
5. Allows access to the harbour for dry-dock flooding/launching and slipway access;
6. Allows for public urban space and slipway/mooring ‘display’.

The site would have to be large in scale to allow for vessel construction and subsequent public observation to occur within a closed or partially closed structure. Furthermore, the site would have to be in close proximity to the central building district, and have a high level of pedestrian accessibility to the site for the public domain.
3.1.2 Location

Halsey St. Wharf, Viaduct Harbour, Auckland

As Auckland contains the largest active port industry in New Zealand within the largest city in New Zealand, the Auckland waterfront provides the best opportunity for the development of a vessel construction, shipyard building and facility. With a richness of maritime heritage, the reclaimed shoreline of the city edge has been utilised throughout the relatively young history of Auckland as a place of trade and distribution, as well as vessel construction, seen off Beaumont St. and mooring facilities in Westhaven and the Viaduct Basin. In terms of the stated criteria for the selection of the project site, the Auckland waterfront provides a place of large scale that is in close proximity to the central building district, as well as the port of Auckland facility and ship construction facilities, westward of Auckland city. The waterfront provides places of easy access to the Waitemata Harbour, where a vessel could be constructed and launched from a dry-dock, and where a vessel could ease to and from a tidal slipway. Furthermore, as parts of the Auckland waterfront are currently under redevelopment, an opportunity exists to design the shipyard building within the proposed framework of the new waterfront, creating an alternative to the current proposition of regeneration.

The selected site within the Auckland waterfront is Halsey St. Wharf, located on the western boundary of the Viaduct Basin, and northern gateway into the Basin from Freemans Bay. The site, with its close proximity to the central building district east of the site, and maritime industry west of the site such as the Percy Vos yard on Hammer St., will act as a link between the two, through allowing public access and observation of a once private maritime discipline. As the site sits as a medium between the two industries within the city, it seems an appropriate fit for the thesis proposition.
Figure 3.1.2.1: Halsey St. Wharf, Viaduct Harbour, Auckland
Figure 3.1.2.2: Proposed site boundaries for project
Figure 3.1.2.3: *Halsey St. Wharf and wider waterfront context*
3.1.3 Analysis

Halsey St. Wharf provides an opportunity to design an architecture of assimilation that can relate to the maritime context, as well as the city context and public realm. As mentioned previously, Gordon Moller’s Viaduct Events Centre currently occupies the site; however, as the thesis is concerned with providing an alternative to the current urban framework of the precinct, and the current typologies of waterfront and industrial port architecture, the proposed thesis project is presented as an alternative option, that may relate more appropriately within the context of the wharf and waterfront.

The wharf extension, designed by Beca Construction, was built in 1999 as a base area for Team New Zealand, for the 2000 America’s Cup challenge hosted in Auckland, after New Zealand gained victory in the 1995 regatta. In preparation for the 2000 event, the Viaduct Basin underwent redevelopment, and several yacht bases where constructed for both challengers of the Cup and Team New Zealand. The Cup was retained, and Auckland was to again host the event in 2003, which stimulated further development of the Viaduct Basin with the addition of restaurants, hotels/apartments and public promenades around the waterfront. However, with the loss of the 2003 defense, and 2007 challenge, the Viaduct Basin surrounding context was in need of an identity outside of the America’s Cup, and accordingly development commenced in 2010 for the Wynyard Quarter (Tank Farm/Western Reclamation) precinct and wider framework. Located within the Wynyard Quarter redevelopment, the Halsey St. Wharf site provides an opportunity for the design of a building that relates to the proposed framework, as well as to the maritime history of the area.
Urban Framework Analysis

In accordance with Waterfront Auckland Ltd, and the Auckland City Council, an urban framework has been developed for the area that outlines the regeneration that will occur from 2010-2040. The following is a broad analysis of the major factors contained within the most recent urban framework, and how these relate to the thesis proposal.

The diagram outlines the major precincts within the Wynyard Quarter development, and illustrates how these individual precincts divide into the space. The diagram indicates a connection between the selected site located within the Marine Events Precinct and the Marine Industries Precinct through the Jellicoe Precinct. As the Marine Industries Precinct still remains removed from the public, the selected site provides an opportunity for a more public observation of a founding industry within Auckland City.
Figure 3.1.3.1: Proposed Precincts as per Wynyard Quarter, Urban Design Framework
The diagrams illustrate the overall master-plan of the Wynyard Quarter Precinct. Indicated in orange, pink and blue, the diagrams show a large percentage of the waterfront area will be occupied by commercial, mixed-use and entertainment/retail facilities, which surround the current marine industry area. Indicated in yellow, figure 3.1.3.2 also shows the amount of urban space provided for the public, with promenades around most of the waters edge, and a large scale public park space at the tip of the western reclamation. In terms of the thesis proposal, the selected site provides an opportunity to move an aspect of the marine industry into a more prominent position, in where the public can observe and interact with the process of vessel construction, restoration and repair. Furthermore, as the marine industry makes up a small percentage of the overall waterfront area, a primarily active shipyard building would further reaffirm the context of the area, through referencing the historic context of the site.

![Diagram of Wynyard Quarter Precinct](image)

Figure 3.1.3.2: *Indicative uses diagrams as per Wynyard Quarter, Urban Design Framework*
The diagrams illustrate key pedestrian routes and transportation facilities within the Wynyard Quarter development. As shown in Figure 3.1.3.3, the main pedestrian access to the site is across Te Wero Bridge, which allows a connection from the central building district, along the southern boundary of the site, right through to the Marine Industries Precinct along the western edge. The site can also be accessed from the Viaduct Basin, as well as from the main axial route along Daldy St. and Jellicoe St. Figure 3.1.3.3 also shows the main transportation facilities within the development, and indicates the prioritised transportation along each road. As the site is limited to pedestrian access only, car parking facilities do not need to be integrated into the proposal.

3.7.2 Promote Pedestrian and Cycle Activity

Pedestrian and cycle networks and supporting infrastructure will be integrated into the public space and street networks. Proposals include:

1. Existing Britomart Bus and Rail Interchange;
2. Queen Street/CBD retail hub;
3. Existing Ferry Interchange;
4. Waterfront Axis and Te Wero Bridge;
5. Midtown CBD pedestrian link;
6. Daldy Street pedestrian spine;
7. Pedestrian/cycle network;
8. Viaduct Harbour pedestrian promenade.

3.7.1 Integrate Land and Water Based Transport

Daldy Street will function as the key location for bus interchange within the Wynyard Quarter. Proposed bus routes will service both local waterfront destinations and wider CBD connections. New and existing ferry services will berth on the western edge or within Jellicoe Harbour.

1. Existing Britomart Bus and Rail Interchange
2. Proposed Te Wero Bridge
3. New Point Park bus stop
4. Daldy Street Bus Interchange
5. Potential passenger ferry stop
6. Potential passenger/goods ferry stop
7. Regional bus service North Shore - CBD

3.7.3 Integrate Sustainable Principles

Rainwater treatment and renewable energy use will be integrated in the Wynyard Quarter development. The Jellicoe Precinct will function as the trademark sustainable development and could integrate solar power, wind power, and green roof approaches. Stormwater management will be dealt with locally.

1. Existing Freemans Bay catchment area
2. Existing outlet for Freemans Bay stormwater catchment
3. Proposed Stormwater Treatment Pond
4. Potential for green roofs/solar panels on Jellicoe Street developments
5. Public space incorporate stormwater/rain garden design principles

Figure 3.1.3.3: Pedestrian diagrams as per Wynyard Quarter, Urban Design Framework
The diagrams illustrate the existing street network and proposed street network of the urban framework and the proposed street hierarchy within the redevelopment. Shown in the central diagram, roads have been extended to form a grid around the area, which improves the accessibility of the overall redevelopment, as well as to the selected site. Madden St. has also been extended horizontally to the western edge of the site to help interaction with the Marine Industries Precinct. As shown in figure #, the main routes to the selected site are pedestrian and cycle routes from Jellicoe St. or the Te Wero Bridge access.

3.5.4 Existing Street Network

The existing street network is established by a series of east-west and north-south streets which create typical lot sizes of approximately 200m x 120m. This is considered too large to provide development of the desired scale and form appropriate to the waterfront and urban context.

A new street network is proposed which will:

- Create a network of high-quality streets;
- Create a legible street hierarchy and urban structure;
- Improve permeability and establish pedestrian priority and safety;
- Facilitate better access and circulation between transport modes;
- Define streets and public space frontages and facilitate appropriate urban outcomes.

3.5.5 Proposed Street Network

The existing street grid will be completed by extending Daldy Street to link Jellicoe Street with Fanshawe Street and extending Madden Street to the waterfront edge at its Westhaven (west) end.

The existing large development sites will be divided by a central east-west lane way and a series of north-south lanes to create smaller development sites measuring approximately 70m x 60m. At the Point Precinct a series of east-west lanes will establish similarly sized blocks which will provide visual connections between the precinct, Harbour and CBD.

The proposed street network will establish a finer grain of development and smaller lot sizes to enhance pedestrian amenity and legibility. Street sections are illustrated in section 4.09 - 4.12 of this document.
The perspectives below further illustrate how the redevelopment occupies the area. As a large percentage of the development consists of commercial and residential buildings on the waterfront, the selected Halsey St. Wharf site proves to be an optimal site for the thesis proposition.

Figure 3.1.3.5: Wynyard Quarter Perspectives illustrating main axis, as per Wynyard Quarter, Urban Design Framework
3.2 Programme

The master thesis proposal develops a design for a shipyard located on Halsey Street Wharf, Auckland. The design aims to develop an architecture of historic meaning and display, through referencing the maritime context in the program of the building. The thesis is concerned with creating an alternative typology, through investigating public waterfront architecture and private industrial port architecture. Questioning these typologies, the brief requires the design of a waterfront building, where the active function of a shipyard provides the primary program. This program of active ship construction, restoration and repair is observed through the secondary function of public interaction, allowing a once private program of historic significance, to be displayed and viewed by the public.

The project will develop a shipyard through the following programmatic requirements:

- Main internal dry-dock
- Dry-dock storage
- Dry-dock workshops: Steel fabrication and Assembly workshop, Machine workshop, Blacksmith and Forging workshop
- Worker changing-rooms/toilet facilities
- Public Observation Floors
- Dry-dock sub-water observation
- Ship mooring
- External vessel restoration and repair slipway
- Urban Space
- Restaurant
- Reception
- Toilet facilities
4.0 PROJECT DEVELOPMENT

4.1 Site Occupation

The first design response to the site was determined through analysing sun movements across the site, as well as acknowledging the main pedestrian access points to the site. An elongated form was generated, that responded to the unimpeded eastern morning sun and western afternoon sun. As the western sun would cast a large shadow of the building, the form was positioned closer to the eastern edge of the site, allowing the western edge to be activated as a public urban space, while the eastern edge would act as a promenade that would link into the building. An angle shift occurs at the southern end of the form, creating an opening into the building from the main Jellicoe St. entrance. The south-eastern tip of the building protrudes over the site boundary and hovers over the water, reaffirming the idea of the wharf being a plane over water, and allowing an enhanced interaction with the water for the viewer. The western façade stretches past the majority of the internal form, protecting the interior program from the low angle sun. The southern edge of Halsey St. Wharf was also investigated, with a potential promenade that would subsequently link to the entrance of the building as shown in Figure 4.1.1.
Still, architects find ways of expressing local nuances over the global idea, a sort of indigenous swipe, a suggested pallial and personality which somehow located a building in time and place.
Figure 4.1.1: Early site occupation sketch drawing
4.1.1 Layer Diagrams

The form was then investigated in plan, through breaking down the main elements into layers, and building the form back up, through the addition of altered layers. This investigation helped to develop main spaces within the building, as well as ‘journey’ paths through the building, from several different entrance/exit points. Furthermore, the investigation also helped define the edges of the building, and how the facades would close the building in at certain points, as indicated in a heavier black line.
Figure 4.1.1.2: Investigative layer drawings: Drawings were developed through building up layers of information. Each iteration is a refined version of the previous layer. The drawing process helped to generate form boundaries, circulation and main space.
The result of this layer investigation was then further refined within the context of the site and programmatic requirements through a 1:500 model and investigative plan drawing, as shown in the below figures. The entry, internal dry-dock, and south-eastern tip were established, as well as several cuts and extensions within the wharf structure.
The investigative plan was then modeled at 1:500, displaying the dry-dock space, entry ramp and ramping south-eastern promenade ‘path’ that were developed through the previous plan drawing. The 1:500 model proved to be an important development within the design process, as it displayed the major components of the building, and how they interacted with the site in both plan and section.
Figure 4.1.1.7: Development Model
4.1.2 Main Building Components

The model illustrated a refined iteration of site occupation for the major components, as discussed below.

Main Entrance

As previously mentioned, the main entrance to the shipyard building has been established at the southern end of the wharf, in close proximity to the main entrances to the site from Jellicoe St. and the Te Wero Bridge. The entrance is further connected to a large public urban space at the 'gateway' to Wynyard Quarter from the Te Wero Bridge access, ensuring easy, visible access into the building for the public. Through positioning the entrance here, public observation of the ship construction process is promoted, as the entrance occupies a space where most people will pass and/or inhabit. As the building is an active shipyard building, the entrance will also be used by trucks and forklifts, that will deposit large prefabricated members and ship machinery into the dry-dock area.

Entrance Ramp

When entering the building, the viewer will pass under a façade and down a concrete ramp that takes the viewer sub-wharf. As seen in the Tate Modern Building by Herzog de Meuron, the ramp is used as a device to take the viewer into the 'depths' of the building, where, in this case, they are confronted by a skeletal vessel patiently sitting within a dry-dock void. The ramp also relates to the idea of cutting/scoring and folding as seen in Herzog de Meuron's 1111. This technique is utilised throughout the project as a means of interacting with the wharf surface and water beneath, allowing the building to appear a part of the wharf; creating a language of physical assimilation.
Dry-dock

As the program of the building consists of vessel construction, restoration and repair, the dry-dock in which vessels are constructed needs to be a dominate part of the project. Accordingly, the dry-dock space is located in the heart of the building, creating a void space 28.000 in height, 17.000 in width and 60.000 in length. Valves are located within the concrete wall of the northern end, and open to flood the dry-dock space once the vessel is deemed sea-worthy. Once flooded, the northern wall of the dry-dock descends down into the harbour on a steel rail system, allowing the vessel to sail out of the dry-dock, into the Waitemata. Upon flooding, the north wall ascends from an underground chamber back into position, and the water is pumped out of the dry-dock, through the northern wall. To ensure large vessels can be constructed within the space, the dry-dock sits 8.000 below mean sea level.

Gantry Crane

To allow vessel construction within the dry-dock, a gantry crane occupies the void, and slides to the intended position via a rail system on the eastern and western sides of the concrete dry-dock. The operation of the gantry crane further reinforces that idea of the building being a predominantly active shipyard, with moments of observation as a secondary function.
Eastern Promenade

The eastern promenade is also a main component of the building, and affirms the idea of journey and observation for the public realm. As outlined in the 1:500 model, the eastern edge of the site leads the viewer around the building and out over the harbour, before coming back around to enter into the building via the main entrance. Through taking the path route, the viewer observes the dry-dock and vessel through the perforated eastern façade, as well as the mooring facilities within and around the site. Throughout the design process, the idea of a path and journey that reveals the construction process is developed and further built upon as a main theme within the building.

4.2 Spatial Design Process

Once the site occupation of main components was established, the spatial qualities of the building were explored through a large number of iterations. These iterations explored the current ideas within the initial plans and models, as well as developed further ideas, such as utilising the idea of journeying in architecture, in where the building and/or program is revealed to the viewer in a calculated manner. The following is a documentation of all important stages within the design process:
The figures below illustrate an initial spatial iteration for the shipyard building, displaying information from the 1:500 model, such as the main entry, entry ramp, dry-dock and eastern promenade. To define the building on the site, a folded façade was added along the eastern edge of the building, as well as the southern end or entrance of the building. The southern façade is elevated 3.000mm above ground level, allowing the viewer to walk underneath the structure while entering the building. In referring back to the main precedents, the facades of the building will comprise of a perforated metal grill component, seen in Sean Godsell buildings, such as the Glenburn House, Melbourne, Australia. This metal grill component will be utilised throughout the project as a reference to the metal used in ship manufacturing, and also for its ventilation qualities and visual permeability (Refer to Facades 4.2.4). Further shown below, is the lift, placed alone the western edge of the entrance atrium space. As the viewer enters the building, the lift is located on their immediate left, allowing the viewer easy access to the first floor, and subsequent levels. The first iteration of the first floor design is also shown below. The observation floors for the building are located along the western edge of the building, capturing the afternoon sun, while also shading the interior work environment, (Refer to Floors 4.2.2). Below the floors, the wharf has been scored and folded to create a ramp that takes the viewer down under the dry-dock, and through an observation loop within the dry-dock foundations. This allows for observation below the ship during construction, as well as observation of ship launching during dry-dock flooding (Refer to Dry-dock Path 4.2.3). The figures also show a gantry crane on an elevated rail system, which helps facilitate vessel construction within the concrete dry-dock space.

Figure 4.2.1: Initial spatial iterations
4.2.2 Floors
Once main components were established, the floors needed to be designed along the western edge of the dry-dock. The following is a documentation of the important stages within the floor design process:

The first iteration displays the first floor level wrapping around the ramp to the second floor level. As indicated below, the ramp occupies the eastern edge of the observation floor, and leads the viewer up to level two, in where the northern end of the floor folds upwards.
The second iteration displays the first, second and third floor level designs, with interconnecting ramps located along the eastern edge. The floors relate to the south western corner of the building through the design of the tip of the floors extending 6,000mm past the lift access. The floors are designed around a triangular void shape that gives the viewer an unimpeded view of the wharf surface below. However, as the dry-dock is located on the eastern side of the floors, the ramps would have to move to the western side, to allow for observation along the eastern edge.
The third iteration displays the first and second floor levels, with eastern and western ramp iterations. To allow for observation along the eastern edge, a bridge was utilised, as shown in the below perspectives. This allowed for public observation along the eastern edge; however the width is minimal. The diagrams also shows ramp access to the third level which is accessed from the northern end of the floor. To allow for public observation along the eastern edge, it was decided that all ramps needed to be located along the western edge.
The forth iteration displays the first, second and third floor levels, with interconnected ramps located along the western edge. Each ramp is now accessed through the slender joining component located at the southern end of the floor. Through moving the ramps to the western edge, the public can now observe the ship construction process along the entire eastern edge of the floor levels.
The fifth iteration displays the first, second and third floor levels, with interconnected ramps located along the western edge. The first floor level folds around the northern end and back down the eastern edge, allowing a closer observation of the dry-dock at level one. As shown below, the ramp leading up to level three extends past floor level, and joins back to floor level along the eastern edge, further displaying the idea of folded planes within the project.
The sixth iteration displays the first, second, third and fourth floor levels, with interconnected ramps located along the western edge. As shown below, the fourth floor level continues the floor angle of the southern void, and crosses over the lower floors, meeting directly above the eastern edge of the level three floor plane.
The refined floor design was then inserted back into the main building, where building heights were adjusted to compensate for additional floor levels. As shown in the figures on pg. 70, the height of the building from Dry-dock floor to gantry crane is 26.500mm. The figures also displays the first floor bridge across the southern end of the dry-dock, within the entrance atrium space. The bridge wraps around the outer edge of the gantry crane rails, and folds down the eastern edge, meeting the ground at the northern end of the dry-dock area. In terms of building access, the bridge offers an alternative route in entering the building, and subsequent floors. Furthermore, the bridge and folding ramp allows the viewer to observe the construction process through differing views within the building. For large pre-fabricated vessel components, trucks would drive under the 6.000mm high bridge, where the gantry crane would be positioned for collection of the parts at the end of the rail system that overlaps into the atrium space. The figures also show the addition of operational glass louvers along the eastern edge of the dry-dock, outside the gantry crane rail line. As the louvers are operational, and the eastern outside façade comprises of a permeable metal grill, the eastern edge allows for ventilation of the work environment, and enhances observation of the dock through the visually permeable materiality. As opposed to vertical louvers, horizontal louvers were selected to mirror the horizontality of the neighboring floors, as well as the eastern façade, which would also be predominantly horizontal to help combat the low angle eastern sun.
The observation floors were further refined within the building in terms of floor usage and program. White glass walls were added along the second floor level, to create a Gallery Floor, displaying vessel heritage within the Auckland waterfront historic context. The views of the dry-dock are concealed along the entirety of the second floor, and are then revealed on the third floor level, allowing for a noticeably different view of the construction process as the viewer moves through the building. Indicated below, the metal grill component was also added into the floors in transitional areas to help guide the viewer through the building. The metal also reminds the viewer that they are indeed within an active industrial building, reaffirming programmatic hierarchy. Walls were also added below the first floor level to create a restaurant/cafe space for the public along the western urban space edge.
the following figures show the further refined observation floors within the building context. They also show the additional observational bridge on level four, which bends around the gantry crane rails like the first floor bridge, and occupies the eastern void, created by the glass louvers and eastern façade. Once at the highest point in the building, the bridge takes the viewer around the dry-dock from the western edge to the eastern edge, revealing different angles of the vessel throughout the journey.
Figure 4.2.2.1: Early perspective illustrating observational floors, bridge walkways and gantry crane. Refer to the figure observing the dry-dock to gain a sense of scale.
4.2.3 Dry-dock Path
A path was generated below the dry-dock to further expose the vessel construction process to the viewer. To enter the path, the viewer would descend down a ramp along the western edge of the dry-dock, accessed from the main entrance atrium space. Once at the bottom of the ramp, the viewer would pass through an opening in the concrete wall, and begin to make their way around the observational path. Much like an aquarium, the ceiling of the path is comprised of 1.000mm thick glass, allowing the viewer to see the vessel during construction, or during launching when the dry-dock is flooded. The walls of the path are angling to provide a sense of disorientation, and reaffirming of the idea that a path below an active dry-dock defies what is considered normal practice.

Figure 4.2.3.1: Red indicates Dry-dock path

Figure 4.2.3.2: Dry-dock slanted walls
4.2.4 Facades
Western Façade

As previously mentioned, the facades of the building will consist of a steel grill component. As the internal program of the building is essential an active display, the facades of the building have an opportunity to extend the idea of display from an internal idea, to an idea that operates from the externalities of the building. To achieve this, a number of façade designs and iterations ensued, with each one taking into account: sun orientation, visual permeability, public restaurant/café access, programmatic requirement and materiality appropriateness.

Figure 4.2.4.1 illustrates the large wrapping façade of the western edge. The solid metal façade extends from the main entrance to the observation floors, in where it turns and follows the forth floor, wrapping around the northern end. As shown in Figure 4.2.4.1, only the top 4500mm continues to follow the floors, allowing a large area of the western façade to be clad with the visually permeable metal grill. The metal façade acts as a background component that emphasises the permeability of the subsequent metal grill, and prevents the building from over-heating from the western sun. Figures 4.2.4.2, 4.2.4.3 and 4.2.4.4 illustrate an exploration of the western folded metal façade. The facade folds around the northern end of the observation floors, then returns into the building along the western edge of the dry-dock. The aim of the exploration was to develop the idea of folding a surface to enclose space.

Figure 4.2.4.1: Folded metal facade
Figure 4.2.4.2: Metal facade exploration
The below perspectives illustrate a vertical louver system extending across the western edge of the observational floors. The concrete louvers were explored before the metal grill component was utilised. Though they achieved a sense of visual permeability, they appeared unrelated to the program, site and wider waterfront context.
Figure 4.2.4.3 illustrates the first iteration of the metal grill western façade. The façade hangs off the floor structure and cantilevers out into the urban space, creating a shaded seating/observation area where the restaurant/café is located. The façade allows for visual permeability into the building, and emphasises a skeletal language, through exposing the internal program. In terms of the western sun, solid vertical components were added within the metal grill system, acting as vertical louvers. These louvers turn on a vertical pivot, and adjust angles for optimum shading of the interior environment.
Based on the first iteration, the metal grill and vertical panels have been pushed forward on an angle, creating a sense of motion towards the Waitemata Harbour.
The second iteration explores a gradual angle change within the metal grill and vertical panel. The grill starts vertically at the northern end, and gradually leans to the right throughout the façade. Much like the first iteration, the second iteration is an exploration of movement within the façade.

The following perspectives outline the final iteration of the western façade design. The angle of the metal grill and vertical panels is kept constant throughout the façade.
Figure 4.2.4.4: Early perspective illustrating the final iteration of the western facade
Eastern Façade

The eastern façade also utilises the metal grill component to allow the public to interact with the internal program of the building, bridging the gap between public waterfront architecture and private industrial port architecture.

The façade encloses the eastern edge of the building, as well as the roof of the eastern void observational space. Similar to the western façade, the eastern façade angles out from the building, before returning to a vertical position through a triangular fold. Within this triangular fold, the metal grill density halves, creating a visual variance within the overall composition. A solid 'saddle' form wraps around the façade face and ceiling fold, visually breaking the façade into differing components.
4.2.5 Plans
To allow the building to operate as an active shipyard, several programmatic requirements had to be integrated into the design, such as work shop facilities, changing rooms, toilets and storage space. To accommodate such spaces, the project utilises sub-wharf and sub-water spaces that where created through the cut and folded wharf plane. The floor plans for the building are as follows:
Sub Wharf Floor Plan

The Sub Wharf Floor Plan is located at dry-dock level, 7.500mm below the wharf and water. Shown in the plan are the dry-dock 1.200mm concrete walls, workshop dry-dock entrance, workshop lift entrance, workshop ramp entrance, workshops, changing rooms, toilets and storage. Outside walls are 1.200mm thick to withhold water pressure. Indicated in the plan are the western and eastern gantry rails that protrude out of the building, allowing the gantry crane to maneuver objects to and from the Waitemata Harbour.
Ground Floor Plan

Shown in the Ground Floor Plan are the gantry crane rails, eastern ramps ascending to wharf level and level one, western restaurant/café, toilets, entrance atrium foyer, entrance ramp, journey floor metal grill, CHS 200mm diameter columns, mooring facility, western viewing platform, bridge access across northern end of dry-dock, and urban space slipway. The viewing platform is a public platform cantilevered over the harbour, allowing the public to watch vessel launching from the flooded dry-dock. The slipway acts as a focal point of attraction within the public urban space, and is used to conduct repairs on large vessels. The Ground Floor Plan also shows the northern façade of the building, that pivots up to allow vessels to launch from the central dry-dock space.
GROUND FLOOR PLAN 1:250

01. MAIN INDUSTRIAL/PUBLIC ACCESS
02. MAIN ATRIUM/LOADING DOCK
03. DRYDOCK
04. SUB DRYDOCK OBSERVATIONAL PATH
05. GANTRY CRANE RAILS
06. GANTRY CRANE
07. PUBLIC RAMP ACCESS TO LEVEL ONE
08. PUBLIC METAL GRILL EASTERN PROMENADE
09. CAFE
10. CAFE SEATING
11. CAFE KITCHEN FACILITY
12. BUILDING SERVICES STORAGE
13. W/C
14. PUBLIC RAMP OVER DRYDOCK
15. SHIP LAUNCH OBSERVATIONAL DECK
16. PUBLIC WHARF AREA
17. SHIP REPAIR/RESTORATION SLIPWAY
18. FISHING INDUSTRY ACTIVE EDGE
**Level One Floor Plan**

The Level One Floor Plan is located 4.000mm above wharf level. Shown in the Level 1 Plan is the first floor level and eastern connection ramp (Shown as dotted). Structure is also indicated (Refer to 4.2.6 Structure), as well as the building facades.
01. PUBLIC RAMP ACCESS TO LEVEL ONE
02. FOLDED BRIDGE OVER LOADING DOCK
03. LEVEL ONE OBSERVATIONAL FLOOR
04. RAMP ACCESS TO LEVEL TWO
05. PIVOT DRYDOCK WALL
06. METAL GRILL WEST FACADE
07. METAL GRILL EAST FACADE
08. METAL EAST FACADE
09. METAL WEST FACADE
Level Two Floor Plan

The Level Two Floor Plan is located 8.500mm above wharf level. Shown in the Level 2 Plan is the second floor level. This level comprises of a gallery space defined by an internal wall and cantilevered white glass wall along the eastern edge of the floor. The southern tip of the floor is utilised as storage space.
LEVEL TWO FLOOR PLAN 1:250

01. LEVEL TWO HERITAGE/GALLERY FLOOR
02. WHITE GLASS GALLERY WALLS
03. GALLERY FLOOR STORAGE
04. RAMP ACCESS TO LEVEL THREE
**Level Three Floor Plan**

The Level Three Floor Plan is located 13.000mm above wharf level. Shown in the Level 3 Plan is the third floor level. This level comprises of an observational floor, in where the white glass wall from level two folds over the eastern edge to create a leaning handrail as the viewer observes the construction process.
Level Four Floor Plan

The Level Four Floor Plan is located 17.500mm above wharf level. Shown in the level 4 Plan is the fourth floor level and observational path. Once on the fourth level, the viewer journeys over the atrium bridge, and into the eastern void space. Once at the end of the path, the viewer can observe the vessel construction process from the eastern side of the dry-dock, before returning once more to the fourth floor.
**Acoustic Panel**

The perforated timber panel is located 1.500mm below the roof level, and helps absorb and dissipate the sounds produced from vessel construction. The panel also hides the 'I' section beams spanning between the floor CHS columns, and glass louver CHS columns.

**Roof Level**

The Roof is located 23.500mm above wharf level. The Roof Plan includes elevated roof components, such as a lift motor room and services room, as well as the eastern façade metal grill folding along the eastern edge. The elevated services components follow the shape of the fourth floor level and bridge, and help guide the viewer along the path, through allowing natural light to emit through the roof. The eastern metal grill folds over a glazed roofing system, allowing light to penetrate the eastern void space. The roof is also elevated directly over the northern end of the fourth floor to provide service plant rooms for the lift, air handling units, chillers and water pumps.
4.2.6 Structure
The main structure of the building is comprised of CHS 200mm diameter columns and 250mm by 150mm ‘I’ section beams, located on existing wharf gridlines. The CHS columns are located within the central floor cavity, along the eastern edge of the glass louvers, along the eastern edge of the eastern façade and within the entrance atrium space. The floors are cantilevered from the CHS columns, through the use of ‘I’ section 250mm by 150mm beams at 8.033.7mm (wharf) centres. The ‘I’ section beams also span over the acoustic dry-dock roof panel, to the glass louver CHS columns, and eastern façade columns. The lift acts as a bracing system, and supports the southern ends of the floors. The floor themselves are 150mm hollow-core concrete slabs, with 100mm concrete topping. The entrance atrium and atrium roof is supported through the same CHS and ‘I’ section beam structural device. As previously mentioned, the western facade cantilevers off ‘I’ section beams that protrude from the first and fourth floor, with glazing over the fourth floor beams, creating a glass roof for the western space.

Figure 4.2.6.1: Lift Shaft, 250mm by 150mm ‘I beam’ floor ring beam (cross beams indicated by single line)

Figure 4.2.6.2: 150mm hollow-core concrete slabs with 150mm concrete topping

Figure 4.2.6.3: Level two gallery walls
5.0 Design Outcome
The design outcome explores the idea of integrating observational components within an industrial building, allowing public viewing of a once private discipline. The observational floors and ramps adhere to, and wrap around the primary function, acknowledging programmatic hierarchy within the active form. As a result, the wrapping and folding floors allow the viewer to journey through the building, observing the construction process and mooring facilities from differing angles and heights. Furthermore, the design outcome provides ship workers with ample workshop and construction facilities, ensuring the building can operate as intended. Though the dry-dock can be viewed by the public from most angles above and beneath the floor surface, the dry-dock floor level remains restricted, allowing workers to complete the vessel construct without distraction. To reinforce the idea of displaying a program of historic reference, the facades of the building allow for visual permeability into the building, revealing the vessel to the viewer, and inviting closer inspection through a series of entrance points.
6.0 Conclusion

Through exploring the current paradigms in public waterfront architecture and private industrial port architecture, and developing ideas of journeying, display and physical integration, the final design provides a building of assimilation within the maritime historical context. Through initiating these main design principles, the building allows the public to interact with an historic and contextually relevant program that is otherwise un-seen and un-experienced. In doing so, the project provides a new typology, in where the construction process becomes an active display.
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List of Figures

Figure 2.2.1: Mann Island Development, Liverpool, England. http://www.e-architect.co.uk/images/jpgs/liverpool/mann_island_liverpool_bm07.jpg
Figure 2.2.2: Museum of Liverpool, 3XN Architects. http://www.urbanrealm.com/images/news/news_3010.jpg
Figure 2.2.3: Mixed-Use/Apartment Building, Broadway Malyan, Architecture Urbanism Design. http://1.bp.blogspot.com/-Sk_i7TsVjwo/TbO9sflSmpl/AAAAAAAAAv4/Hb47yNH7WqU/s1600/Waterfront2.jpg
Figure 2.2.4: The building appears inappropriate within the context. http://4.bp.blogspot.com/-MI8UJL0D4Q4/ToCNRla2NpI/AAAAAAAAAable/S2qNLD14bww/s1600/Mann+13.7.11+2.JPG
Figure 2.2.5: Copenhagen Library Extension, Copenhagen, Denmark, Schmidt, Hammer & Larsen. http://changehere.files.wordpress.com/2011/08/ap1030064.jpg
Figure 2.2.6: Interior alludes to aquatic context. http://shl.php.dir.dk/maillist/shl-uploads/Image/Kongelige%20Bibliotek/Royal-Library_300_foyer.jpg
Figure 2.2.7: The Wave, Vejle, Denmark, Henning Larsen Architects: Outilined in the building title, the project utilises the immediate context as a form generator. http://plusmood.com/wp-content/uploads/2011/03/Wave_Henning-Larsen_plusMOOD_SECTION_Longitudal.jpg
Figure 2.2.8: Viaduct Events Centre, Moller Architects
Figure 2.2.9: The Viaduct Events Centre within the Halsey St. Wharf context
Figure 2.3.1: Dry-dock, Brooklyn Navy Yard, 1991. P, Quartermaine, Port Architecture. (Great Britain: Academy Editions Ltd, 1999)
Figure 2.3.2: Genova, 1985. P, Quartermaine, Port Architecture. (Great Britain: Academy Editions Ltd, 1999)
Figure 2.3.3: Genova, 1985. P, Quartermaine, Port Architecture. (Great Britain: Academy Editions Ltd, 1999)
Figure 2.3.4: Woolloomooloo finger wharf & Garden Island crane, 1990. P, Quartermaine, Port Architecture. (Great Britain: Academy Editions Ltd, 1999)
Figure 2.3.5: Erpen, 1988. P, Quartermaine, Port Architecture. (Great Britain: Academy Editions Ltd, 1999)

Figure 2.3.7: *Site Plan illustrating truck lanes leading under the Administrative Building into the dock area*. A, Breen, D Rigby, *The New Waterfront*. (London: Thames and Hudson Ltd, 1996) p. 180.


Figure 2.3.9: *Exterior stair integrated into curved form*. A, Breen, D Rigby, *The New Waterfront*. (London: Thames and Hudson Ltd, 1996) p. 181.

Figure 2.4.1: *Glenburn House, Victoria, Australia, 2004-2007, Sean Godsell Architects*. http://www.archdaily.com/2517/glenburn-house-sean-godsell/

Figure 2.4.2: *Floor Plan*. http://www.archdaily.com/2517/glenburn-house-sean-godsell/

Figure 2.4.3: *Elevation illustrating metal grill permeability*. http://www.archdaily.com/2517/glenburn-house-sean-godsell/

Figure 2.4.4: *Operational door*. http://www.archdaily.com/2517/glenburn-house-sean-godsell/

Figure 2.4.5: *Exposed oxidised steel structure*. http://www.archdaily.com/2517/glenburn-house-sean-godsell/

Figure 2.4.6: *Weathered metal grill*. http://www.archdaily.com/2517/glenburn-house-sean-godsell/

Figure 2.4.7: *Operational metal louvers with permeable roof indicated in background*. http://www.topboxdesign.com/st-andrews-beach-house-by-sean-godsell-architects-australia/st-andrews-beach-house-by-sean-godsell-architects-in-australia/

Figure 2.4.8: *Permeable metal grill reveals oxidised steel structure*. http://www.topboxdesign.com/st-andrews-beach-house-by-sean-godsell-architects-australia/st-andrews-beach-house-by-sean-godsell-architects-in-australia/

Figure 2.4.9: *Interior breezeway allows connection to the climate*. http://static.worldarchitecturenews.com/news_images/720_5_st%20andrews%20sean%20godsell%20architects%20int02.jpg

Figure 2.4.10: *Floors cut and then folded to create internal stair case*. 
Figure 2.4.11: Triangular void and stair case. http://4.bp.blogspot.com/_01OKU0SrAp4/TN_bcBBYtuUI/AAAAAAAAA04/bFCbyDuvDcU/s1600/architecture_2.jpg

Figure 2.4.12: Ramped entrance within large void space. http://v9.nonxt3.c.bigcache.googleapis.com/static.panoramio.com/photos/original/14268800.jpg?redirect_counter=1

Figure 2.4.13: Ramped floor descends through gallery space. http://www.brittexusa.com/xsites/Appraisers/brittexusa/content/uploadedFiles/1111%20Lincoln%20Road_stair.JPG

Figure 3.1.2.1: Halsey St. Wharf, Viaduct Harbour, Auckland. Google Earth Pro

Figure 3.1.2.2: Proposed site boundaries for project. Google Earth Pro

Figure 3.1.2.3: Halsey St. Wharf and wider waterfront context

Figure 3.1.2.4: Site photo taken from silo two, Western Reclamation

Figure 3.1.3.1: Proposed Precincts as per Wynyard Quarter, Urban Design Framework. Google Earth Pro

Figure 3.1.3.2: Indicative uses diagrams as per Wynyard Quarter, Urban Design Framework. http://www.waterfrontauckland.co.nz/aucklandwaterfront/media/other_documents/2007-07-03-Urban-Design-Framework.pdf

Figure 3.1.3.3: Pedestrian diagrams as per Wynyard Quarter, Urban Design Framework. http://www.waterfrontauckland.co.nz/aucklandwaterfront/media/other_documents/2007-07-03-Urban-Design-Framework.pdf

Figure 3.1.3.4: Street Network diagrams as per Wynyard Quarter, Urban Design Framework. http://www.waterfrontauckland.co.nz/aucklandwaterfront/media/other_documents/2007-07-03-Urban-Design-Framework.pdf

Figure 3.1.3.5: Wynyard Quarter Perspectives illustrating main axis, as per Wynyard Quarter, Urban Design Framework. http://www.waterfrontauckland.co.nz/aucklandwaterfront/media/other_documents/2007-07-03-Urban-Design-Framework.pdf

Figure 4.1.1: Early site occupation sketch Drawing

Figure 4.1.1.1: Investigative layer drawings
Figure 4.1.1.2: Investigative layer drawings: Drawings were developed through building up layers of information. Each iteration is a refined version of the previous layer. The drawing process helped to generate form boundaries, circulation and main spaces

Figure 4.1.1.3: Investigative layer model

Figure 4.1.1.4: Investigative Plan

Figure 4.1.1.5: Investigative Plan facade components

Figure 4.1.1.6: Development Model displaying dry-dock, entry ramp and ramping south-eastern promenade, indicated in red

Figure 4.1.1.7: Development Model

Figure 4.2.1: Initial spatial iterations

Figure 4.2.2.1: Early perspective illustrating observational floors, bridge walkways and gantry crane. Refer to the figure observing the dry-dock to gain a sense of scale

Figure 4.2.3.1: Red indicates Dry-dock path

Figure 4.2.3.2: Dry-dock slanted walls

Figure 4.2.4.1: Folded metal facade

Figure 4.2.4.2: Metal facade exploration

Figure 4.2.4.3: Metal grill facade iteration one

Figure 4.2.4.4: Early perspective illustrating the final iteration of the western facade

Figure 4.2.6.1: Lift Shaft, 250mm by 150mm ‘I beam’ floor ring beam (cross beams indicated by single line)

Figure 4.2.6.2: 150mm hollow-core concrete slabs with 150mm concrete topping

Figure 4.2.6.3: Level two gallery walls

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Nicholas M. Adams

Shipyard: A Public Architecture of Assimilation,
Second Year Masters Architecture, MARCH(P); Design Studio Thesis Project, 2011

Principal Supervisor: Dr. Branko Mitrovic; Secondary Supervisor: David Chaplin
Abstract

The master thesis proposal develops a design for a shipyard located on Halsey Street Wharf, Auckland. Through deriving an architecture from the historical context of the Auckland waterfront, the proposal develops a design that questions the current paradigm of international waterfront architecture and industrial port architecture and alludes to an alternative response that allows the public to interact and engage with an active program of historic meaning and display. It is theorised that architecture should relate to the context of the site, providing an architecture of assimilation and integration.

1.0 Introduction
1.1 Research Question

What are the aspects of architecture that provide an alternative to the current paradigms in both private industrial port architecture, and public waterfront architecture?

1.2 Aims and Objectives

To research and design an architecture derived from, and relating to historical evidence found within a specific site, and wider site context. The architectural response to the historic context within the site, i.e. shipyard, will provide a new programmatic layer upon the historical strata of the site. Through the shipyards primarily active function, the design aims to display the process of ship construction and/or ship restoration, through allowing a secondary function of public interaction and observation within the primarily active shipyard. In relation to the research question, the proposal will provide an architectural alternative to private industrial port architecture, and public waterfront architecture, creating a new paradigm through questioning conventional perceptions within these two types of design.

1.3 Outline of Project

As the population expands, so too does the urban environment, commonly known as the City. Over time, boarders that once defined the isthmus become blurred and compromised, as the city edges are rapidly overtaken and engulfed, in an effort to appease this thing called progression. In order to pacify this entity, sacred spaces, and historical context, (usually port/marine industry) in which the city is founded upon, are impulsively traded in, in exchange for a few more hectares of space, where additional ‘mixed use’ commercial buildings may take up abode. As this form of sprawl development has taken place, and is taking place within present time, consolation prizes have been offered to the public in the form of empty squares and concrete promenades, in an endeavor to cover the innate rejection of historical context, in which heart-less development thrives. These consolation prizes, however, only serve as a reminder to the viewer, whether apparent or un-apparently, that there appears to be no limits that this mass of unapprised concrete won’t cross; and leads to the question, at what point do we choose to ignore the historical context that undergirds the city, in order to satisfy the ever growing appetite of urban development? The purpose of the project is to determine an alternative approach to this form of progression, to open a new dialogue in the debate, through challenging current perceptions of what is needed within an architecture of urban waterfront context.
2.0 PROJECT DEFINITION

2.1 Site Occupation

The first design response to the site was determined through analysing sun movements across the site, as well as acknowledging the main pedestrian access points to the site. An elongated form was generated, that responded to the unimpeded eastern morning sun and western afternoon sun. As the western sun would cast a large shadow of the building, the form was positioned closer to the eastern edge of the site, allowing the western edge to be activated as a public urban space, while the eastern edge would act as a promenade that would link into the building. An angle shift occurs at the southern end of the form, creating an opening into the building from the main Jellicoe St. entrance. The south-eastern tip of the building protrudes over the site boundary and hovers over the water, reaffirming the idea of the wharf being a plane over water, and allowing an enhanced interaction with the water for the viewer. The western facade stretches past the majority of the internal form, protecting the interior program from the low angle sun. The southern edge of Halsey St. Wharf was also investigated, with a potential promenade that would subsequently link to the entrance of the building.

2.1.1 Layer Diagrams

The form was then investigated in plan, through breaking down the main elements into layers, and building the form back up, through the addition of altered layers. This investigation helped to form main spaces within the building, as well as ‘journey’ paths through the building, from several different entrance/exit points. Furthermore, the investigation also helped define the edges of the building, and how the facades would close the building in at certain points, as indicated in a heavier black line.
3.1 Spatial Design Process

Once the site occupation of main components was established, the spatial qualities of the building were explored through a large number of iterations. These iterations explored the current ideas within the initial plans and models, as well as developed further ideas, such as utilising the idea of journeying in architecture, in where the building and/or program is revealed to the viewer in a calculated manner.
The master thesis proposal develops a design for a shipyard located on Halsey Street Wharf, Auckland. The design aims to develop an architecture of historic meaning and display, through referencing the maritime context in the program of the building. The thesis is concerned with creating an alternative typology, through investigating public waterfront architecture and private industrial port architecture. Questioning these typologies, the brief requires the design of a waterfront building, where the active function of a shipyard provides the primary program. This program of active ship construction, restoration and repair is observed through the secondary function of public interaction, allowing a once private program of historic significance, to be displayed and viewed by the public.

The project will develop a shipyard through the following programmatic requirements:

- Main internal dry-dock
- Dry-dock storage
- Dry-dock workshops: Steel fabrication and Assembly workshop
- Machine workshop
- Blacksmith and Forging workshop
- Pipe-Work, Copper-Smithing and Alloy Piping workshop
- Worker changing-rooms/toilet facilities
- Public Observation Floors
- Dry-dock sub-water observation
- Ship mooring
- External vessel restoration and repair slipway
- Urban Space
- Toilet facilities
LEVEL FOUR FLOOR PLAN 1:250
01. LEVEL FOUR OBSERVATIONAL FLOOR
02. LEVEL FOUR ATRIUM BRIDGE
03. OUTDOOR PUBLIC WALKWAY
04. EASTERN DRYDOCK OBSERVATIONAL FLOOR

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The design outcome explores the idea of integrating observational components within an industrial building, allowing public viewing of a once private discipline. The observational floors and ramps adhere to, and wrap around the primary function, acknowledging programmatic hierarchy within the active form. As a result, the wrapping and folding floors allow the viewer to journey through the building, observing the construction process and mooring facilities from differing angles and heights. Furthermore, the design outcome provides ship workers with ample workshop and construction facilities, ensuring the building can operate as intended. Though the dry-dock can be viewed by the public from most angles above and beneath the floor surface, the dry-dock floor level remains restricted, allowing workers to complete the vessel construct without distraction. To reinforce the idea of displaying a program of historic reference, the facades of the building allow for visual permeability into the building, revealing the vessel to the viewer, and inviting closer inspection through a series of entrance points.
NZIA GRAPHISOFT STUDENT DESIGN AWARD

FINALIST
YEAR 5 STUDIO

PRESENTED TO: Nick Adams

CHIEF EXECUTIVE NZIA:

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