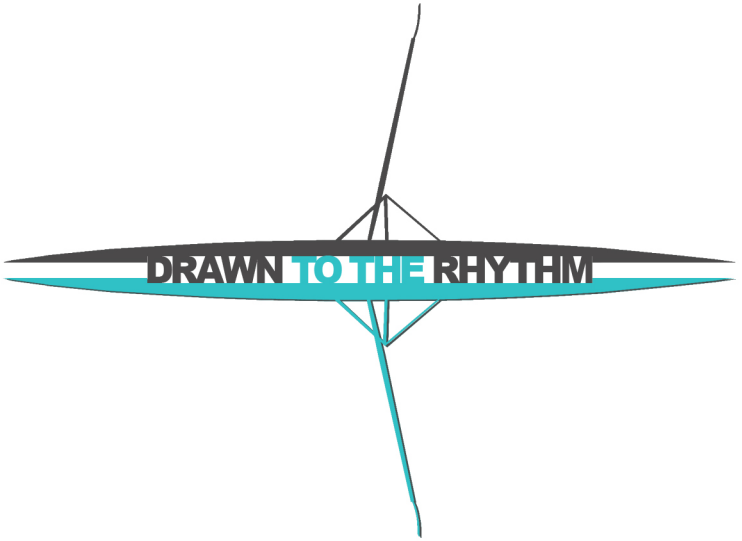

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DRAWN TO THE RHYTHM

ABSTRACT

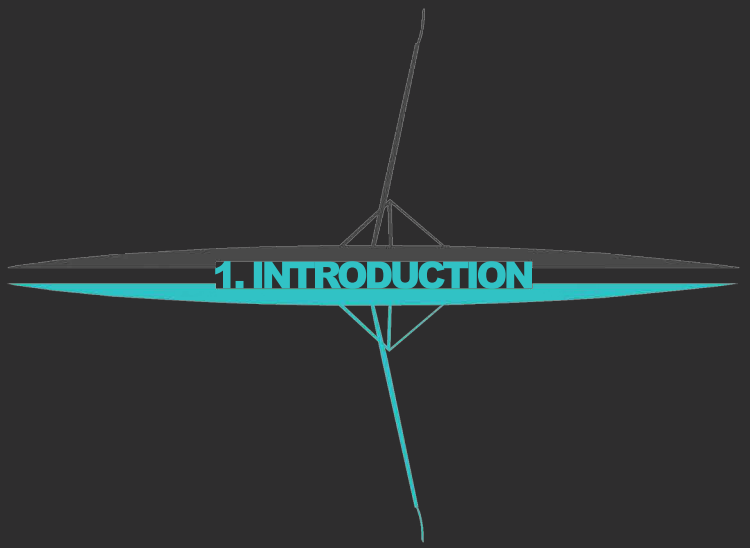
Rowing is one of New Zealand's premier international sports, and our New Zealand rowers have won significant acclaim in Olympic and World Championship competitions. Most recently at the 2012 London Olympics, three of the six New Zealand gold medals and both of the silver medals were for rowing.

The spirit, camaraderie, emotion, and atmosphere of a great sporting occasion are enhanced by a great venue; the sports stadium is not a passive backdrop but a theatre set that can only enhance the experience through its design and management. Yet unlike other premier sports in the country, such as cricket, netball and rugby, New Zealand has no permanent stadium wherein spectators can witness and celebrate rowing competitions and the training of these athletes. Typically the sport of rowing has always relied on boatshed architecture as its only relationship to the built environment. This thesis argues that the use of 'boatshed' architecture for rowing teams actively disconnects the sport from the public; but stadium architecture has its own distinct economic disadvantage, in that stadiums are empty more often than they are full. The thesis therefore proposes a new approach to a rowing stadium – integrating boatshed, stadium, gymnasium, and hospitality elements – to provide a new typology for rowing that remains activated throughout the year.

Linda Pollak and Anita Berrizebeitia believe that our relationship to the built environment has increasingly isolated us from experiencing the landscape upon which it is sited. This thesis argues that a rowing facility provides an ideal opportunity to explore how critical boundaries separating waterfront architecture and the sea can be re-examined in order to re-enforce our experience of the waterfront built environment and its unique site, offering new ways to re-connect our experience of inside and outside.

The site of this research investigation is Athfield Architects' $100 million redevelopment of the Overseas Passenger Terminal into 76 high-end private waterfront apartments in Wellington. The Wellington waterfront is in particular need of public activation, yet this new development effectively privatises an important segment; the goals of developers and cities are often at odds with one another. The thesis argues that, when set within the context of a larger waterfront program, rowing can actually help activate that larger program and enhance its economic value in the same way that a gym adds value to a residential apartment complex and sea views add economic value to a restaurant.

Our harbour cities depend on public activities along the waterfront that encourage visual as well as physical participation throughout the day. This thesis investigates how a permanent rowing facility can become a viable urban activator for both a city and a private development, while also enhancing the public's relationship with this premier New Zealand sport. Creating the opportunity for the sport and its athletes to be celebrated in the eyes of the public is important to ensure the sport continues to thrive and receives the recognition that it deserves.



1. INTRODUCTION

This chapter outlines the focus and arguments of the thesis. The objective of the research is to explore a new approach to a rowing stadium – integrating boatshed, stadium, gymnasium, and hospitality elements – to provide a new typology for rowing that remains activated throughout the year. The thesis argues that New Zealand sports in general could establish a stronger connection with spectators, if they were able to observe all phases of a sport, both indoors as well as outdoors. A permanent sporting facility for rowing with these objectives in mind could significantly enhance our connection with one of New Zealand's premier international sports.

INTRODUCTION

The spirit, camaraderie, emotion, and atmosphere of a great sporting occasion is enhanced by a great venue. The stadium is not a passive backdrop but a theatre set which can only enhance the experience through its design and management. Selling an 'experience' is the core business of any stadium, and will remain so for many years to come (Sheard, 2001, p.13).

Sporting stadiums and facilities provide the opportunity for thousands of people to gather and witness some of the top athletes perform on centre stage. These sporting spectacles generate large gatherings in one place to be part of a unique experience that only sport has to offer. The celebration of athletes entering the sporting stage not only injects energy into the thousands of spectators who have come to support their favourite athletes, but also marks the beginning of the event. The role of architecture to accommodate this experience is vital as it unites both athletes and spectators as one.

This thesis identifies the success rowing has had on the international stage with a number of New Zealand crews celebrating Olympic and World Championship glory. This highlights rowing's status as a premier sport in New Zealand. Yet unlike other New Zealand premier sports such as cricket, netball, and rugby, New Zealand has no permanent facility where spectators can witness and celebrate rowing competitions and the training of these athletes. Creating the opportunity for these athletes to be

celebrated, whether that be whilst training or making their way out into the harbour to begin a race, is important to help promote the sport to the public both socially and educationally. This thesis argues that New Zealand sports in general would establish a stronger relationship with the spectators, if they were able to observe all phases of a sport, training as well as competitions. Exposing the entirety and spirit of rowing to the public, could significantly enhance public appreciation of the sport.

The relative infrequency of actual rowing races and early morning activities makes it difficult to rationalise a permanent architectural facility for spectators to witness just the racing. Therefore, this thesis argues that if spectators can witness the entirety of the training process, in addition to the race, there is a far greater motivation and incentive for a permanent rowing facility in New Zealand for this important national sport.

Typically, the sport of rowing has always relied on 'boatshed' architecture as its only relationship to the built environment. This thesis argues that the use of boatshed architecture limits as well as hides indoor training and as a result actively disconnects the sport from the public. The Star Boating Club in Wellington is a prime example of this, where the facility is mostly a container for storing the rowing shells and hosting private functions upstairs. The historic nature of the building and lack of adequate indoor training facilities result in it not being fully equipped to deal with the demands of professional rowing today.

Stadium architecture has a significant economic difficulty in that stadiums only accommodate crowds for a limited number of events each year. The rest of the time they lie unused, without function or patrons. Beyond a few sporting hours every few weeks, they are, in effect, dead buildings (Sheard, 2001, p.2). This thesis therefore proposes a new architectural approach – integrating boatshed, stadium, training, and hospitality elements – to provide a new 'type' of unique sporting facility for rowing that is continually activated throughout the day and year.

The ritual of placing something from land into the sea is an amazing sight, one that warrants a celebratory experience for the athletes that is generated by the spectators. The very nature of rowing requires the athletes to move from inside a built facility (where the sculls are stored) to outside as part of a transition that also moves them from the built environment and into the water. Linda Pollak and Anita Berrizebeitia believe that our relationship to the built environment has increasingly isolated us from experiencing the landscape upon which it is sited. "The division has not only impoverished discourse; it has had a negative impact on the built environment" (Pollak and Berrizebeitia, 1999, p.10). This is due to these distinct boundaries separating the built environment and site from each other fails to overlap and engage with each other. This thesis argues that a rowing facility provides an ideal opportunity to explore how critical boundaries separating waterfront architecture and the sea can be re-examined in order to re-enforce our experience of the waterfront built environment and its unique site, offering new ways to re-connect our experience of inside and outside.

This thesis further argues that our harbour cities depend on public activities along the waterfronts that actively encourage visual as well as physical participation throughout the day. This thesis investigates how a permanent rowing facility can become a viable urban activator for a city, as well as enhancing our relationship with this premier New Zealand sport. The proposed site for this research is Clyde Quay Wharf in Wellington, a site that is in particular need of public activation. This waterfront site will become mainly privatised, and the addition of a permanent rowing facility as a viable activator is important, in that it enhances the city's goals to encourage public access and activity all along the harbour's edge. This addition recognises that the city's goals are often at odds with a developer's goals; this approach could actually meet the developer's goals as well if it enhances the private facilities as well as engages the public.

Design Principles for a rowing facility:

- Enable the facility to be continually activated by including year-round public access to training as well as competitions;
- Provide adequate space for sport-related training equipment;
- Celebrate the transition from the built environment to the water;
- Enable the facility to become a viable urban activator for a city;
- Enable the facility to become a viable activator for a new development.

CHAPTER 1

Introduction - This chapter introduces the research problem and summaries the format and objectives of this thesis.

CHAPTER 2

Literature Review - This chapter reflects the theoretical argument central to this thesis. The chapter firstly introduces sporting facilities and in particular rowing, which have failed to respond to the demands of professionalism in sport today. This has seen a rapid rise in the need to accommodate a range of indoor training facilities and various support personnel who have become instrumental in the development and success of elite athletes. Rod Sheard identifies one of the underlining problems facing sporting facilities; beyond a few sporting events each year they lay unused and without a function. John Geraint and Kit Campbell argue that there is a pressing need for more facilities and better use of them, promoting sports to the public to enhance their awareness and appreciation of the time and effort that the athletes put in out of sight from the public. This chapter will conclude by exploring the boundary separating the built environment and site that Linda Pollak and Anita Berrizbeitia argue has become increasingly isolated from each other.

CHAPTER 3

Case Studies - This chapter analyses two principle case studies plus two domestic and two international rowing facilities that will be instrumental in informing this research. Roche and Dinkeloo's Ford Foundation Building in New York is a successful example of interior architecture transitioning the inside outside boundary. Leuschke Group's Prince's Wharf located on Auckland's Viaduct Waterfront is an unsuccessful example of a large waterfront apartment development similar to the site of this thesis experiment; lessons learnt from these case studies will help inform a more successful design experiment. The four rowing case studies reflect upon the problems these building typologies create for the sport of rowing.

CHAPTER 4

Programme Analysis - This chapter introduces the sport of rowing that is one of New Zealand's most successful Olympic sports, and highlights some of our most memorable crew performances. The principle objective of this section is to introduce the program requirements for a High Performance Rowing Centre. The requirements for a gym that specifically accommodates rowing athletes and their training routine will be addressed. This includes not only training facilities, but also space for specialist activities such as personal trainers and nutritionists. It also includes spaces allocated for directors and managers from NZ Rowing who act as sales agents in selling this sporting facility concept to sponsors and businesses to help invest and support this new sporting typology and athletes. This is followed by detailed analysis of an international rowing course that could be set up in Wellington harbour and the different types of rowing crews and shells.

CHAPTER 5

Site Analysis - This chapter introduces Clyde Quay Wharf as the chosen site for this design experimentation. This site analysis is broken up into two parts: analysis of the greater and the immediate surrounding urban context in Wellington and a building analysis (internal and external) of Athfield Architects and Willis Bond & Co's new building that is replacing the Overseas Passenger Terminal. This chapter enables the formulation of site-specific design principles for the new rowing facility.

CHAPTER 6

Design Experimentation - This chapter incorporates both the experimental design and conclusion to this thesis. The objective of this chapter is to explore and illustrate the design of a permanent rowing facility that enables the viewing of outdoor races in the harbour, and as well as various indoor training facilities placed in the eyes of the public to see. This chapter aims to provide a unique experience for both athletes and spectators that contain programmes, which directed to the central focus of rowing and the addition of social and educational spaces that encourage the public to enjoy the sites beauty to increase the regularity in which the facility is utilised.

This chapter reflects the theoretical argument central to this thesis. The chapter firstly introduces sporting facilities and in particular rowing, which have failed to respond to the demands of professionalism in sport today. This has seen a rapid rise in the need to accommodate a range of indoor training facilities and various support personnel who have become instrumental in the development and success of elite athletes. Rod Sheard identifies one of the underlining problems facing sporting facilities; beyond a few sporting events each year they lay unused and without a function. John Geraint and Kit Campbell argue that there is a pressing need for more facilities and better use of them, promoting sports to the public to enhance their awareness and appreciation of the time and effort that the athletes put in out of sight from the public. This chapter will conclude by exploring the boundary separating the built environment and site that Linda Pollak and Anita Berrizbeitia argue has become increasingly isolated from each other.

SPORTS ARCHITECTURE

The global financial power of sport in general is increasing and the twenty-first century is gradually establishing sport as the world's first true global culture.

(John, Sheard, and Vickery, 2007, p.21).

In the twenty-first century, more people than ever are participating in sports. With increased interest and participation in sports, the extensive media coverage of sporting events worldwide has evolved sport into a massive global business broadcast live to our living rooms on television, and performed in large stadiums and venues for our enjoyment. "In the last 150 years sport has been codified and professionalised and at the same time there has been a dramatic process of urbanisation, with populations moving from the country to the city. With this social shift there has been an equally dramatic rise in the popularity of sport, perhaps as a consequence of this new urban society" (John, Sheard, and Vickery, 2007, p.21).

Professionalism has resulted in sport being more than just the individual athletes or team, but also about the support personnel and training facilities behind the scenes that together create the opportunity and environment for the athletes to achieve excellence. Some sports have struggled to provide adequate built environments for bringing together:

- Appropriate equipment and facilities to enable indoor training of outdoor sports in inclement weather;

+Figure 01: Men's Eights crew at the London 2012 Olympics. Photograph by Steve Elliott. 28 Jul 2012.

- The community to witness and understand the sport more fully;
- Economic benefits to help support the facility that enables the facility to remain open and viable year-round.

John Geraint and Kit Campbell argue that there is a pressing need for "more facilities, better use of them and the targeting of groups less likely to take part in sport and recreation (such as women, older people and disabled people and teenagers leaving school or college) [who] are necessary to promote recreation in the future" (Geraint and Campbell, 1995, p.3).

Sporting stadiums and venues have long served the public's excitement and interest in witnessing their favourite athletes and teams perform at the highest level. However, a growing concern for stadium designers and owners is the fact these building typologies are effectively occupied merely for a few hours every couple of weeks. Author of *Sports Architecture* Rod Sheard claims that,

> *Stadiums have become single-purpose facilities, serving a single-purpose crowd for a limited number of events each year. The rest of the time, they lay unused, without function or patrons. Beyond a few sporting hours every few weeks, they are, in effect, dead buildings.*
>
> **(Sheard, 2001, p.2).**

A stadium typically generates two uniquely opposite atmospheric environments: during an event, there is an eruption of excitement expressed by the spectators as they sit on the edge of their seats, plagued with emotions in a drama-packed spectacle in supporting their favourite athlete(s) and team. In contrast to this when no event is taking place; the building often resembles quite the opposite with a complete lack of human activity. There is no incentive or driver to encourage the public to interact with a traditional stadium when a competition is not being held. Ultimately, these building typologies are open to the public during an event and closed between events. This lack of activity in-between events is one of the problems this thesis addresses; the thesis argues that adding an array of spaces for training, hospitality, public recreation and sports education can help activate such facilities when there is no sporting event taking place.

The sport of rowing has no tradition of permanent 'stadium architecture' for gathering crowds and celebrating its competitions. Using architecture to enhance rowing's public presence could potentially help inspire this sport to achieve even greater heights in the future. A facility that celebrates rowers 'entering onto the playing field' would create a stronger relationship between the athletes and spectators whilst providing a lift in motivation for the athletes. Sheard explains: "Good [sports facility] design is indeed of crucial importance, quite simply because it enhances the event. Even more importantly, it honours both athletes and spectators. Why does this matter? Because to the participants and their audience, sport matters" (Sheard, 2001, p.ix).

Design principles for a rowing facility:

- Enable the facility to celebrate the ritual of the athlete entering 'onto the field';
- Enable the facility to act as a stadium for viewing competitions when they are held, and to provide other activities when competi tions are not being held.

TRAINING FACILITIES

A sporting facility or venue can play a major part in a city as a viable urban activator that also creates a strong identity for the city and celebrates its local athletes and teams.

> *Physically, a stadium can accommodate the inhabitants of a town or part of a city for a few precious hours. Emotionally, it can captivate entire cities and countries, and for certain events hold attention of up to half of the world for days on end.*
>
> **(Sheard, 2001, p.xiv).**

The size of these facilities has had to grow substantially to accommodate the increased demands that professionalism and a growing population has placed upon sport. The numbers of support staff that surround the top athletes and the number of High Performance centres for the country's premier sports have also increased. Rowing New Zealand's High Performance management consists of a high performance manager, head coach, programme manager, operations manager, and various coaches. The conditioning of world-class athletes today is also important, hence the addition of a high performance sports science/medicine team for strength training and conditioning, as well as support staff for exercise, physiology, biomechanics, physiotherapy, nutrition, sports psychology, medical director/doctor, and a coach performance advisor. Athletes strive for every advantage they can get over their nearest competitors; the aid of their support staff, be it small or major contribution, is a step in the right direction to improving an athlete's performance.

A sporting facility clearly needs the space required for these specialised personnel to work together with the athletes. Professionalism continues to place demands on athletes to improve dieting, eating, and physical wellbeing; it also targets the public with these messages. As a result, similar specialised personnel are available to the public in most cities that aim to create a fitter and healthier society. The public are often completely unaware that these individuals play an important role in the conditioning of these athletes. Their input is clearly evident by simply comparing today's athletes with those even just a decade ago. The records that continue to be broken, in some cases smashed, are a result of the rigorous training programmes and support staff expertise that help tune these athletes into peak physical and mental condition.

This lack of public exposure to the 'layering' of sport-related behind-the-scenes activities – in particular rowing being traditionally placed behind closed doors – is one of the problems that this thesis aims to address.

Design principles for a rowing facility that could help promote these essential behind-the-scenes personnel and their activities:

- Nutritionists: Include a cafe/restaurant adjacent to the sport's training facilities that displays the meal plan for one of the country's top rowing athletes so that the public understand and have a clear indication of the types of food they eat; this potentially could encourage them to implement healthy food choices into their own meal plans.

- Personal Trainers: Include a gym associated with the sport's training facilities, where members of the public are taken through a similar workout routine to some of the country's elite rowing athletes and see how they compare to them.

These design initiatives would provide incentives to encourage the public to engage with the sport of rowing through interactive means, while further appreciating what it takes to become an elite athlete. Promotional days such as "test yourself against a rowing athlete day" could be an incentive to form a stronger connection between the sport of rowing and the public.

+Figure 02: Athletes train on indoor rowing machines/ergometers. Photograph by Alice Wright. 25 Nov 2010.

New Zealand is prone to stretches of inclement weather that are disruptive to a number of outdoor sports training events that cannot be held during rain or high winds. Rowing is a sport that definitely fits into this category where the strength of winds will determine whether it is safe to row out on the harbour, lake, or river for the simple fact that the water's surface becomes too choppy and difficult upon which to row.

This is where the addition of indoor training facilities becomes important to ensure that athletes are able to train regardless of the weather conditions. Many buildings for sport training do not directly relate to the sport that they accommodate. Dr. Jan Ove Tangen (PhD in sociology) states:

> *The generic connections between the actual sport and their facilities have been overlooked and have disregarded this basic connection.*
> **(Tangen, 2004, p.38).**

Design principles for a rowing facility:

- Include rowing-specific indoor training facilities that would be visible to the general public;
- Include general athletic training facilities for the general public adjacent to the sport's training areas.

VIEWING EXPERIENCE OF SPORT

The more sport has evolved from popular games to international competitive and tournament level, the more the sport-related architecture needs to become a theatre for the spectator.

Sport is no longer just about physical performance, but also about presentation, the staging of skills.

(Sturzebecher and Ulrich, 2002, p.9).

This section addresses the ability of the community to witness and understand sport. From a spectator's perspective, sport at the top level is witnessed during game day, the final result of the athlete's hard work training and effort. Yet the training and support staff that help tune our leading athletes for most New Zealand sports generally are private, beyond the public's eye. As a result, this can lead to a disconnection of the relationship between the sport and the spectator. Sports in general could establish a stronger connection with spectators, if audiences are able to observe all phases of a sport, both indoors as well as outdoors. Organisations are highlighting the importance of encouraging more people to participate in sport as a form of exercise and social wellbeing. Providing the ability for a sport to be observed in its entirety creates the opportunity for the public to show a greater level of interest towards furthering their knowledge and participation in the sport and their own wellbeing.

No one would question that the average living room provides a higher level of comfort and amenity than most stadia, or that televised coverage of a sporting event generally provides a better view of the action, with its close-

+Figure 03: Rugby World Cup 2011 quarter final between Wales and Ireland. Photograph by Danielle Bellamy. 8 Oct 2011

ups, replays, commentary, and interviews. However, Rod Sheard states:

> *The critical ingredient which sets the live experience apart from its televised replica is the sense of 'commentary' a stadium creates, that gathering of people, focused, as one, upon a single transient show of human endeavour. This physical and emotional experience is the 'product' a stadium sells, a product quite common in modern life. There is simply no other opportunity to be part of the crowd, to yell and jump up and down with arms waving in the air at the same time as thousands of other people.*
>
> **(Sheard, 2001, p.2).**

There is no doubt that today there is a decline in spectator numbers at many sporting events around the country because sports are so readily available on television and seen from the comfort of a living room. There is a pressing need for creative and innovative design solutions that appeal to the spectators to help draw the crowds back. The ideal venue for watching any sport should capture something of the sport itself, reflecting the traditions and the atmosphere that spectators have come to expect of their sport (John, Sheard, and Vickery, 2007, p.27).

Offering a unique experience for the spectators that goes beyond witnessing the game day performance is important, as game day represents only a small portion of the work and effort that goes on behind the scenes. Creating the ability for the public to witness all aspects of the sport (in this case rowing) holistically would help them understand the facility as a sense of community with public exposure of all spaces and personnel that occupy the facility.

In the book titled *Sports Architecture*, Sheard discusses the value of spectators and the role of designers to accommodate their presence. Sport revolves around the spectators; they are the ones who come to watch the athletes perform on the biggest stage. "Without spectators, no live sport can exist" (Simon Inglis). They are as much a part of the sporting spectacle as the athletes; one cannot function without the other. This is partly why television embraces sport so enthusiastically. Sheard believes that for spectators, "...the stadium should be their Xanodu, their Hollywood, their Never-Never Land and dream factory all rolled into one. It follows that good design stadium design is more likely to emulate from designers who both understand and share such dreams, who know the thrill of a live sporting event and who are themselves captivated (and so motivated) by the experience." (Inglis, 2001, p.ix). When all this comes together successfully, for an athlete this can provide an essential added sense of inspiration when entering and performing at a world-class venue.

Design principles for a rowing facility:

- Include infrastructure and furnishings to enable the facility to act as a theatre for the spectator;
- Ensure the design of this theatre 'captures something of the sport itself';
- Ensure the design 'values spectators' and encourages them to learn more about the sport;
- Encourage this 'theatre' to enable active celebration by a large number of people.

ACTIVATION OF SPORTING FACILITIES

One of the underlining problems with sporting stadiums and facilities around the world is the fact that they lie dormant for a large portion of the year.

> *In the 1950s sports grounds around the world were filled to bursting point at every match and watching live sport was a major pastime for millions. Now, only a few decades later, those same grounds are fighting for financial survival, and owners and managers search for solutions.*
>
> **(John, Sheard, and Vickery, 2007, p.1).**

The problem with traditional stadium and facility owners who expect to make a return on their investment is that the facilities are used for sport so infrequently. This thesis proposes to go beyond ticket sales to make a sport facility economically robust by placing it within a multi-use typology situation. This internalised solution for a sports facility offers many cost benefits that make it appealing to a larger array of the public because it goes beyond just supplying the sport itself. The success of this solution will be measured by the ability of these additional spaces to simultaneously engage with and enhance the centralised sport-taking place.

Sports stadia are essentially large theatres of entertainment, which ought to be as pleasant to visit as a cinema, opera house, or play theatre, whilst also being social and architectural landmarks in their towns and cities (John, Sheard, and Vickery, 2007, p.49). Sporting stadiums and facilities

+Figure 04: IRB Rugby Sevens World series, Westpac Stadium, Wellington.crowd. Photograph by Marty Melville. 1 Feb 2013.

are one of the rare structures designed to bring entire communities together as one to celebrate an event. "We gather inside them to celebrate a unique experience. Yet so often the buildings themselves are dull and uninteresting. Sometimes they lack even the most basic of amenities and can be so bleak and unfriendly as to be almost frightening" (Sheard, 2001, p.2).

The design of a permanent sporting facility needs to involve a strategic plan that will help the building avoid becoming a single-purpose venue for just rowing. Purpose-built sporting facilities are struggling to sustain themselves, and they are economically becoming a liability to many cities around the country due to the limited amount of sporting activities that are staged.

Peter Sturzebecher and Sigrid Ulrich authors of *Architecture for Sport: new concepts and international projects for sport and leisure* argue that,

> *Sports buildings created for worldwide events catering for individual sports pose a particular problem because they require specialised structures. Other uses are therefore severely limited. More often than not, it would be sensible to erect just a temporary structure for these purposes, which can be removed and recycled after a big event .*
>
> **(Sturzebecher and Ulrich, 2002, p.9).**

Sturzebecher and Ulrich highlight the fact that the limited activity sporting stadiums and facilities receive requires a solution to encourage these structures to become economically sustainable for cities.

Councils are continuously trying to develop possible solutions to encourage greater usage of their sports facilities more regularly throughout the year. Eden Park in Auckland for example has recently undergone upgrades that were for the 2011 Rugby World Cup and the Regional Facilities Auckland

+Figure 05: An empty Westpac Stadium, Wellington. Photograph by Steve Timms. 6 Sep 2011.

(RFA) is attempting to ensure more sporting codes play at the stadium to increase the amount of days in the year that the facility is active for the public. Though the council's intentions are encouraging to promote the regularity of this venue, it does however avoid the fact that this sporting facility will not be able to be fully utilised throughout the year.

The design of how sporting facilities function during an event is just as important as how they function between events for today and in the future. For this to eventuate it is paramount that during the early planning stages, owners/developers establish a strong business plan that considers the addition of programmes that will appeal to and attract the public to engage and occupy the facility.

Athletes are constantly pushing the boundaries to discover new ways and training methods to become better athletes. Designers involved in designing both the space to accommodate these athletes and the public's witnessing of their performances need to be aware of sports' ever-changing landscape. These demands sport is constantly posing for sporting stadium and facility designers are as exciting as they are dramatic; it inspires the human spirit to create an environment for extraordinary achievements and celebrations.

Design principles for a rowing facility:

- Ensure the facility is active all day and year-round;
- Ensure that these activities provide economic support to enable the facility to thrive.
- Ensure these activities feel integrated with the sport, enhancing the public experience of it;
- Engage a strategic plan that will help the building avoid becom ing a single-purpose venue for just rowing.

BETWEEN WHARF & HARBOUR

Rowing transits the unique boundary between land and water. This threshold between the two realms is a moment where transformation begins, where exchanges between unlikely things occur, and where identities are declared.

The transitions between architecture and landscape, public and private, and work and recreation are at times overlooked and not a primary design imperative. Authors of *Inside Outside: Between Architecture and Landscape* Linda Pollak (Architect) and Anita Berrizbeitia (Landscape Architect) emphasise this by arguing that the visual, experimental, and cultural impoverishment of much of our environment stems from the inability of designers of all professions to connect their work to the world beyond the immediate sites they occupy.

> *The division has not only impoverished discourse; it has had a negative impact on the built environment.*
>
> **(Pollak, Berrizbeitia, 1999, p.10).**

The major implication of their argument is that humans fail to understand or experience the world we live in as a series of overlapping inside and outside spaces that begin to intertwine. As a result, this disconnection is clear to see where too often: “designs for parks and buildings seem to fulfil their appointed tasks as if operating in a vacuum” (Smiley, 2000). This distinct boundary separating the built environment and site is a problem that this thesis aims to address. A rowing facility provides an ideal opportunity to

+Figure 06: The boundary condition between wharf and harbour. Photograph by author. 4 Sep 2012.

explore how critical boundaries separating waterfront architecture and the sea can be re-examined, offering new ways to re-connect our experience of inside and outside by enabling these boundaries to overlap and engage with each other.

The authors encourage us to understand this territory between architecture and landscape by proposing a framework of five 'operations' that investigate a new perspective on how to both evaluate and conceptualise this transition. The five operations that Pollak and Berrizbeitia propose are reciprocity, materiality, threshold, insertion, and infrastructure: "each challenge disciplinary precepts that have served to maintain a rigid dichotomy between architecture and landscape architecture" (Pollak, Berrizbeitia, 1999, p.11). These authors explore a series of projects located throughout the United States of America and Europe. Through their discussions of these five operations, they offer ways to better understand and experience this overlooked boundary between architecture and landscape.

> *Reciprocity stands against hierarchy, an ordering principle through which architecture has historically subjugated language; materiality challenges an aesthetic tradition of disembodied contemplation; threshold precludes a fixed and static conception of boundary; insertion calls into question a figure/ground formulation of the city; and infrastructure critiques an assumption of landscape as originally ground .*
>
> **(Pollak, Berrizbeitia, 1999, p.11).**

Under the operation of reciprocity, the authors refer to the construction identity of architecture and landscape as "the machine in the garden" (Pollak, Berrizbeitia, 1999, p.15). This statement clearly depicts an alienated relationship between the two, and further emphasises the dominant presence architecture has on its site and surrounding context.

The third operation they discuss, 'threshold' allows us to understand the meaning of the machine in the garden metaphor. Pollak and Berrizbeitia believe we are designing space in a separate realm and giving less emphasis to the actual physical permeability of this in-between space that bridges architecture and landscape. The authors refer to ecologyical as an example of thresholds between two realms, stating ecology values the edge between two ecosystems as the zone of highest exchange and diversity. "In ecology terms, thresholds are the most important part of a system. The place where field meets forest is more important than either the field or the forest itself" (Pollak, Berrizbeitia, 1999, p.82). This can be readily applied to the two primary realms that rowing engages: the built environment and the harbour. The transition of the rowing crews making their way from the wharf to the harbour is a critical transition that celebrates the meeting and engagement of these two realms. Pollak and Berrizbeitia fail to expand this point in relation to the designing of these critical boundaries; the thesis design experiment will therefore test their propositions in the context of design.

The quality of thresholds is important as they can help create a better environment. Rearticulating these boundaries from a rowing perspective between wharf and harbour achieves the sport's own unique identity. This presents an opportunity to create a narrative of gradual transitions that take the rowing crews on a journey from the most private architectural realms (such as the changing rooms) to the most public environments where spectators come to express their support as the athletes make their way into the harbour.

Design principles for a rowing facility:

- Enhance our understanding of the threshold between the water front architecture and its site by engaging reciprocity, material ity, threshold, insertion, and infrastructure;
- Encourage this threshold to highlight the unique identity of the sport of rowing.

CONCLUSION LITERATURE REVIEW

The analyses from the Literature Review indicate that a successful approach to a rowing facility should:

Enhance the Urban Context:

- **be a year-round activator for the city;**
- **be a theatre for spectators that 'captures something of the sport itself';**

Enhance Awareness of the Sport of Rowing:

- **include a rowing-specific indoor training facility visible to the general public;**
- **include a health restaurant and training facilities available to the public;**
- **be a way for spectators to learn more about the sport;**

Enhance the Training of Rowing Athletes:

- **include a rowing-specific indoor training facility;**
- **include space for a High Performance Centre that includes directors, managers, and other specialists;**
- **include ready access to outdoor training;**
- **actively engage the support of the public;**

Ensure Economic Viability:

- **provide economic support to enable the overall facility to thrive;**
- **give something back to the private sector who share adjacency;**
- **give something back to the public sector;**

Celebrate Unique Boundary Conditions:

- **celebrate the ritual of the athlete entering 'onto the field';**
- **celebrate the threshold transition from the built environment to the water;**
- **encourage this threshold to highlight the unique identity of the sport of rowing.**

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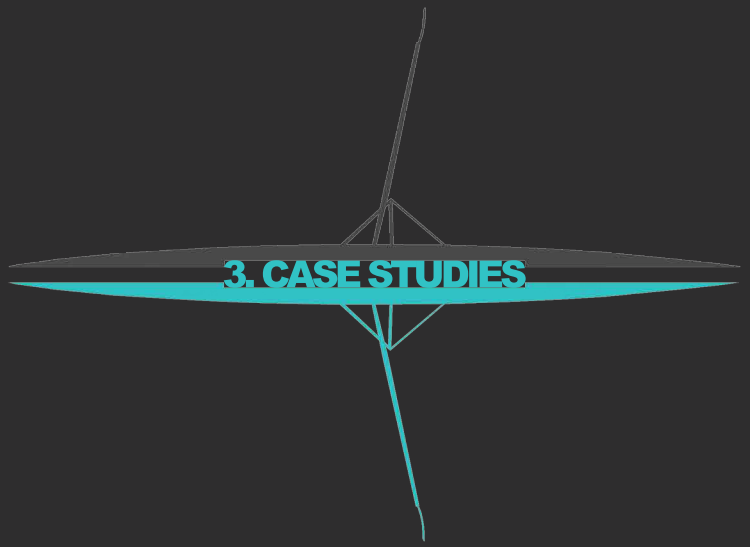
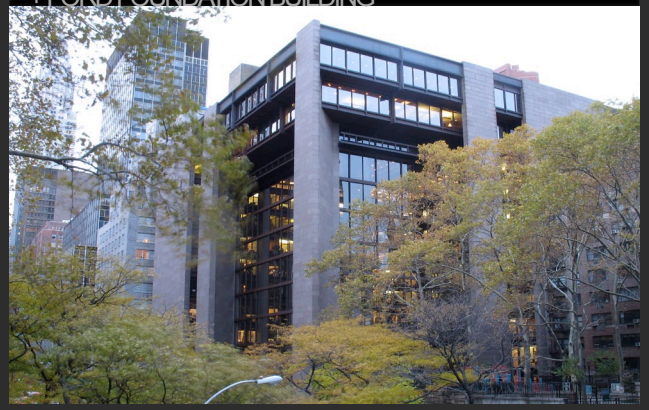


This chapter analyses two principle case studies plus two domestic and two international rowing facilities that will be instrumental in informing this research. Roche and Dinkeloo's Ford Foundation Building in New York is a successful example of interior architecture transitioning the inside outside boundary. Leuschke Group's Prince's Wharf located on Auckland's Viaduct Waterfront is an unsuccessful example of a large waterfront apartment development similar to the site of this thesis experiment; lessons learnt from these case studies will help inform a more successful design experiment. The four rowing case studies reflect upon the problems these building typologies create for the sport of rowing.

+ FORD FOUNDATION BUILDING



+ PRINCE'S WHARF

+ BOATSHED ARCHITECTURE

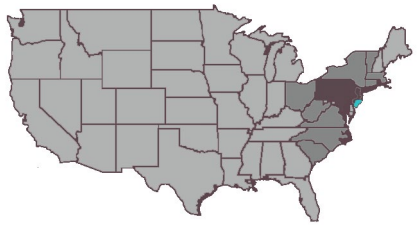
The two principle case studies and the four boatshed case studies offer unique insights into resolving some of the problems that this thesis aims to address. The Ford Foundation Building was selected as an appropriate case study for this research for the way in which it challenges issues of internal identity that convey a strong connection to the external environment; it positions a large atrium that effectively transitions between the internal working environment and an external neighbouring park. Prince's Wharf provides insights into the problematic issues evidenced by this building due to opportunities for proposed public spaces being totally disregarded, resulting in a privatised environment along the Auckland waterfront that is devoid of public engagement. The boatshed architecture section selected two national and two international examples that best display the distinct architecture with which rowing has been associated throughout its history. These case studies will analyse the problems with this building typology and how it is affecting the training and witnessing of the athletes.

To exploit the site conditions, the atrium is not placed centrally, but forms a transition between city and the workspaces, which are accommodated mostly in two 12-storey wings that form an 'L' of accommodation framing the atrium".

(WESTON, 2010)

FORD FOUNDATION BUILDING

+Figure 07: View of Ford Foundation Building on E 42nd Street, New York. Photograph by Stakhanov. 19 Nov 2007.



+ UNITED STATES OF AMERICA

+ MANHATTAN

ARCHITECT: KEVIN ROCHE & JOHN DINKELOO
BUILDING TYPE: OFFICE
COMPLETED: 1968
SITE: 320 EAST 43RD STREET,
NEW YORK, USA

The 1968 Ford Foundation Building, winner of the AIA Twenty-five Year Award in 1995, is an office building located in Midtown Manhattan, New York designed by architect Kevin Roche and engineer John Dinkeloo. This building was selected as an appropriate case study because it challenges inside outside boundary conditions, and it also effectively takes on the role of an internal 'theatre' space. Both of these attributes were noted in the previous chapter as important design principles for the thesis experiment.

Through the idea of an internal atrium, the internalised environment achieves a robust externalised identity. This building was one of two along with the Hyatt Hotel in Atlanta that took advantage of the industrialisation of glass and iron production. This enabled architects such as Roche and Dinkeloo to create wide span covered atriums that provided shelter from the weather while still allowing ample daylight to filter into the building – reminiscent of 17th century 'winter gardens' but at a much larger scale.

The building today is still recognised as an iconic piece of architecture that was ahead of its time. The Ford Foundation Building's success was widely credited to the layout of habitable floor area around an atrium space, setting a precedent for interior public spaces in Manhattan office buildings. Supported by an exposed steel structure, the building takes the form of a glass box enclosing an interior atrium that rises the full height of

+Figure 8: View from the garden level looking up at the surrounding offices, Ford Foundation Building, New York. Photograph by Jezraoui. 28 Mar 2009.

the building to a skylight. The atrium of the building becomes the stage or focal point, while the surrounding offices take on a role similar to spectators of the atrium.

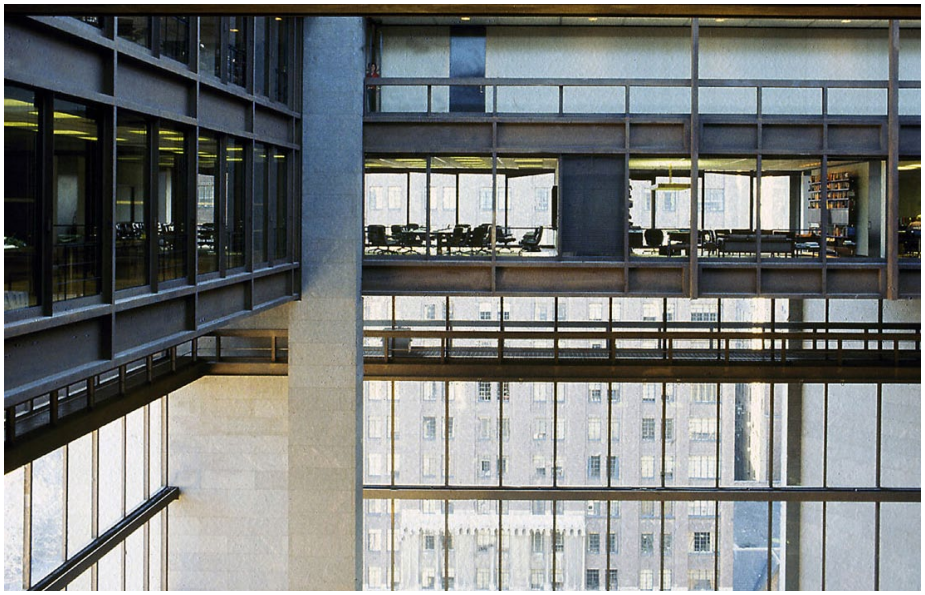
> *To exploit the site conditions, the atrium is not placed centrally, but forms a transition between city and the workplaces, which are accommodated mostly in two 12-story wings that form an 'L' of accommodation framing the atrium.*
>
> **(Weston, 2010).**

Roche and Dinkeloo took full advantage of the surrounding environment by not placing the atrium centrally, but in the corner of the site thus enabling the building to connect with the neighbouring park. This essentially formed a strong connection between building and park – inside and outside – inviting the park to metaphorically and experientially enter into the building and become part of the green internalised atrium. One of the research questions of this thesis is how to create a stronger connection between rowing facilities and the water upon which the athletes compete and train. Enabling one realm to cross boundaries and enter into the other like the Ford Foundation Building is a solution that could help resolve this problem.

> *There is a real dialogue between architecture and landscape, when the two disciplines were once completely separate. Many of the programmatic parts of the building actually float over either the garden or the walkways. You feel the entire building is a landscape. The offices feel like part of the garden.*
>
> **(Marvel, 2008).**

Many of the internalised environments are internally focussed, while simultaneously providing an external focus that integrates them with the neighbouring park and city. The atrium essentially provides the building with a set of views both internally and externally, which from a developer's perspective is an advantage as more views generally equal higher revenue. The addition of an atrium placed strategically to capture / create more views as well as the prominent views that already exist in the building is one approach that this thesis could explore to help maximise the site's surrounding views.

The Ford Foundation Building excelled in areas where many architects



+Figure 09: View of the directors offices in the Ford Foundation Building, New York. Kevin Roche John Dinkeloo and Associates Architects. 1968.

+Figure 10: View of the central atrium garden in the Ford Foundation Building, New York. Kevin Roche John Dinkeloo and Associates Architects. 1968.

continue to struggle. It maximised natural light and views to be witnessed from the workplaces. More importantly, it established a sense of privacy for the employees without losing the sense of community, as Roche explains, "If you don't develop a sense of community, you don't have a real-working organisation" (Currey, 2008).

These comments were also reflected when Roche and Dinkeloo's proposal was accepted:

> *They liked it because it wasn't another office building. They liked it because it was a special identity. They like it because we weren't relating to 42nd Street. And they liked it because its intent was to create a community.*
>
> **(Currey, 2008).**

Most typical office spaces are contained to the floor they are working on, where small windows frame the facades of neighbouring commercial buildings. The Ford Foundation Building, however, achieved its strong sense of community by effectively allowing the occupants to look inward while simultaneously looking outward. These office spaces directly engage with the atrium space that dominates the building entrance, creating a threshold between the working environment and the city street front.

There is a strong visual connection throughout the building. As Shashi Caan (President of the International Federation of Interior Architects/ Designers) explains,

> *Because people have their own offices, they have a sense of place, a sense of belonging within their own space, but visually they have a sense of a larger community. With the transparency of the atrium, they have the ability to connect with colleagues, so much a part of the organisation's institution culture.*
>
> **(Currey, 2008).**

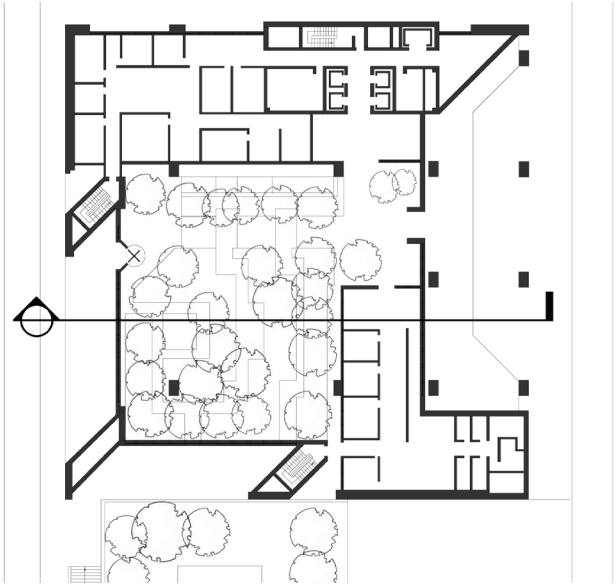
The Ford Foundation Building provided an upper 'cornice-like' habitable floor spanning the full height glass front, in order to symbolically represent classical approaches to architecture through cornice lines. It enabled every occupied floor level to have views to all other floors to maximise the sense of community and co-operation. The atrium essentially provided a basis to allow the building to become exposed and celebrated, forming a united

community that is visually understood from the moment one enters the building. Without an atrium that merges inside/outside, this building would not have achieved the same success. Utilising the maximum floor area of the building footprint instead of adding an atrium would have created a disconnection between the building and working environment.

This sense of community achieved in an office typology is a solution that could help establish a sense of community for a rowing facility on a sport, organisation, and public level. The differing floor plate widths that the Ford Foundation Building also demonstrates, creates the opportunity for different spatial programmes to occur, whereby for example; one section may occupy training facilities and the other for management offices to allow these identities to form a visual connection between the two.

Design principles for a rowing facility:

- An internal atrium that merges inside/outside would provide a way to witness all aspects of the sport, bringing the public into the 'community' of the sport;
- An internal atrium that merges inside/outside would provide a way to celebrate the threshold transition from the built environment to the water;
- A developer's goals would be met by increasing retail values through increasing the numbers of harbour views;
- A city's goals would be met by increasing the connection of the waterfront and public activities;
- Shifting an internal atrium off axis could enable larger and smaller floor areas to both be available for diverse program requirements.



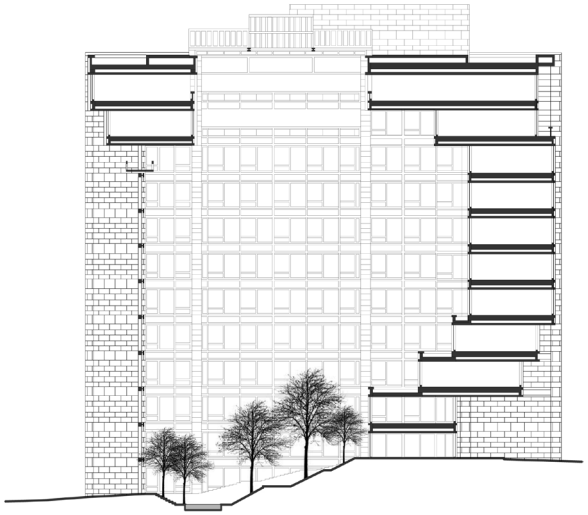
+Figure 11: Garden floor plan Ford Foundation Building, New York. Key Buildings of the 20th Century: Plans, Sections, and Elevations.

GARDEN FLOOR PLAN

This plan drawing of the Ford Foundation Building reveals the 'L' shaped nature of the office spaces located on two different floor plates around one corner of the atrium. Additional rooms such as dining facilities for all the staff, plus the office suite of the president and chairman of the board occupy the two upper floors. Surrounding the atrium on all four sides, they give greater definition to the atrium as an enclosed volume, and act as a giant cornice externally scaled to match the massive granite clad piers, two of which house escape stairs. The Ford Foundation locates its most communal shared spaces (staff dining) at the highest levels, with smaller clusters of program-specific groupings on the intermediate levels. This allows every cluster group to witness how the others function as part of a greater system.

Design principles for a rowing facility:

- Program-specific groupings on each intermediate level around the atrium would enable each aspect of rowing to be understood as part of a greater system;
- Larger public gathering and dining areas at the upper level would bring rowers and the public together, while providing an overview of the entire system.



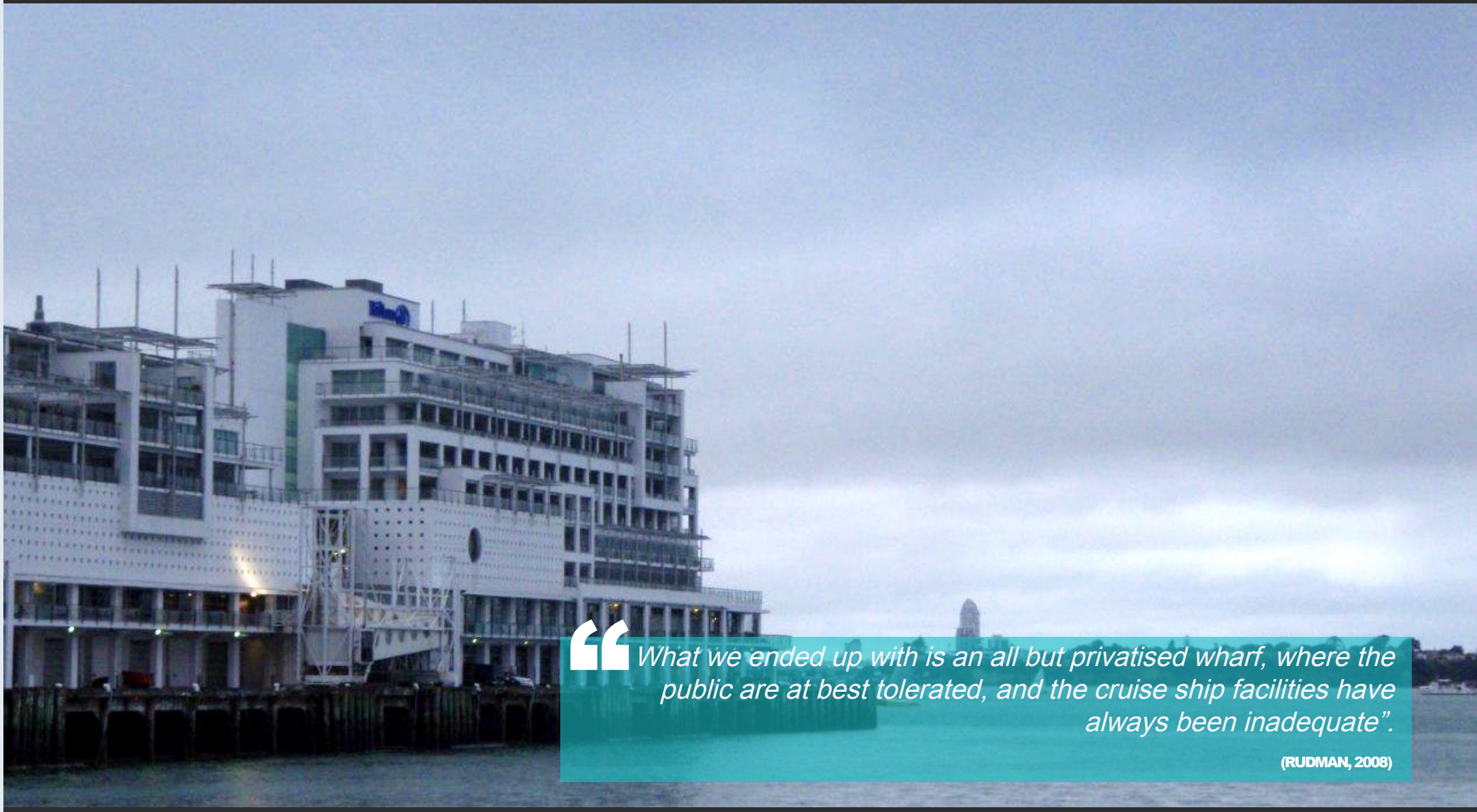
+Figure 12: Section of the Ford Foundation Building, New York.
Key Buildings of the 20th Century: Plans, Sections, and Elevations.

BUILDING SECTION

The floor plates of the wing that runs alongside East 43rd Street shifts in size moving up though the building. This creates a unique set of experiences that visually focus into the green atrium while simultaneously feeling as if the external environment of the neighbouring park is able to enter into the building.

Design principles for a rowing facility:

- **An internal atrium that merges inside/outside could be designed to work like a theatre for spectators, and by integrating the building with the harbor it would 'capture something of the sport itself'.**



"What we ended up with is an all but privatised wharf, where the public are at best tolerated, and the cruise ship facilities have always been inadequate".

(RUDMAN, 2008)

PRINCE'S WHARF

+Figure 13: View from the waterfront of Prince's Wharf, Auckland. Photograph by author. 8 Dec 2012.

+ NEW ZEALAND

+ AUCKLAND

ARCHITECT: COLIN LEUSCHKE, LEUSCHKE GROUP Ltd
BUILDING TYPE: COMMERCIAL
COMPLETED: 1998
SITE: 23/145 QUAY STREET,
AUCKLAND, NEW ZEALAND

Prince's Wharf is a commercial development located along Auckland's Viaduct waterfront, designed and documented by Leuschke Group Ltd. This building was selected as an appropriate case study not for its success but for the lessons that can be learnt from this building's failures. It was a building that promised so much with various public spaces during its planning; however it returned very little, resulting in the wharf becoming mostly privatised and a number of the proposed public spaces were effectively disregarded.

During the 1990s, plans were introduced to redevelop Prince's Wharf, as the site was in a run-down state that required attention to revitalise this location on the Auckland waterfront. Completed in 1998, some critics have described its architecture as 'urbanely sterile,' while others have criticised the restrictions private owners have placed on public access rights.

A council plan change in 1990 prescribed an appropriate balance of commercial and public activities for Prince's Wharf, including a museum and theatre or cinema as well as other facilities such as a market or gallery.

Yet go down to Princes Wharf and where do you find museums, art galleries or a market? That plan change provided for all these things explicitly and we came up with what we've got - a huge amount of space for car parking and public spaces that don't work very well.

(Cayford, 2009).

+Figure 14: Public viewing space at the north end of Prince's Wharf, Auckland. Photograph by author. 8 Dec 2012.

The design of Prince's Wharf was supposed to include a number of public spaces to help draw the public to the Auckland waterfront, harbour, and engage with activities that line this stretch of land. But many of these public facilities such as art galleries, movie theatres, and markets envisioned in the original plan for the redeveloped Prince's Wharf did not materialise, and in some cases, spaces have become dominated by uses such as car parking. Ultimately, the site has become a privatised figure on the Auckland waterfront, where the disregard of proposed public spaces resulted in the public essentially having no connection to the site, and the city losing this opportunity for enhanced waterfront identity associated with public activities.

Prince's Wharf and the proposed site for this thesis, Clyde Quay Wharf, represent similar building typologies that are both located on a finger wharf. The difficulty with these sites is that they are quite long and they explicitly require public anchor activities that encourage the public to venture down to the end and around or through the building. The failures of Prince's Wharf suggest that simply providing the best views a site has to offer is not enough. This thesis assimilates lessons learned from Prince's Wharf and argues that the design of a rowing facility will strengthen the public identity of the site if it is further enhanced with the addition of a robust mixed-use public programme that integrates sport, social, and educational spaces.

The design of Prince's Wharf is broken up into six large sheds that are positioned in a three by two formation with circulation possible around every shed. The central street that was a prominent feature of the old Prince's Wharf site has effectively become a car park. Located at the end of this central street is a tiny remnant of the fine old architecture that originally stood at the end of the wharf. This has now been converted into a public viewing space that is considered one of Auckland's best-kept public secrets. The central street essentially internalises the building and fails to capture the surrounding views of the site. However, the last section of the central street that leads into this public viewing space is an opportunity to activate a small journey that leads the occupants to this space, which frames the harbour views in the distance. The main problem is that the public is has no desire to venture down the enclosed central path to ultimately arrive at the view.

+Figure 15: Central corridor running through the building that has been converted into a car park, Auckland.
Photograph by High Profiles Ltd.

+Figure 16: Areial Photo of Prince's Wharf, indiucating the buildings 6 distinctive sheds, Auckland.
Photograph by David Wall.

Dr Joel Cayford (planner specialising in urban infrastructure and economic development planning) has written a number of articles on this building and its planning process. He highlights bodies of text in the Scheme Change No 4 (Prince's Wharf) determined by the Planning Tribunal in May 1990 that identified specific requirements that this building aims to achieve.

> *…it is a fundamental objective of the redevelopment of Prince's Wharf that it should contain an appropriate mix of uses so as to achieve a balance between commercial activity and public access and enjoyment of the Wharf. To ensure that an appropriate mix and balance of uses is provided and maintained, there is a requirement for a minimum percentage of the development to be of publicly orientated uses – 'people places' – such as Art Galleries, Museums, Theatres, Entertainment or Educational Facilities. In addition certain 'private commercial' uses shall be limited to maximum percentages of the development.*
>
> **(Cayford, Scheme Change No 4 (Prince's Wharf), 2009).**

From this, he points out that the fine print of the planning details includes various requirements that begin to deflate the positive incentives described here for the public. The specifics note percentages allocated to the programmes that was to be used in the building. The allocated space made available for the public programs was not adequate and as a result, the majority of public programs were disregarded.

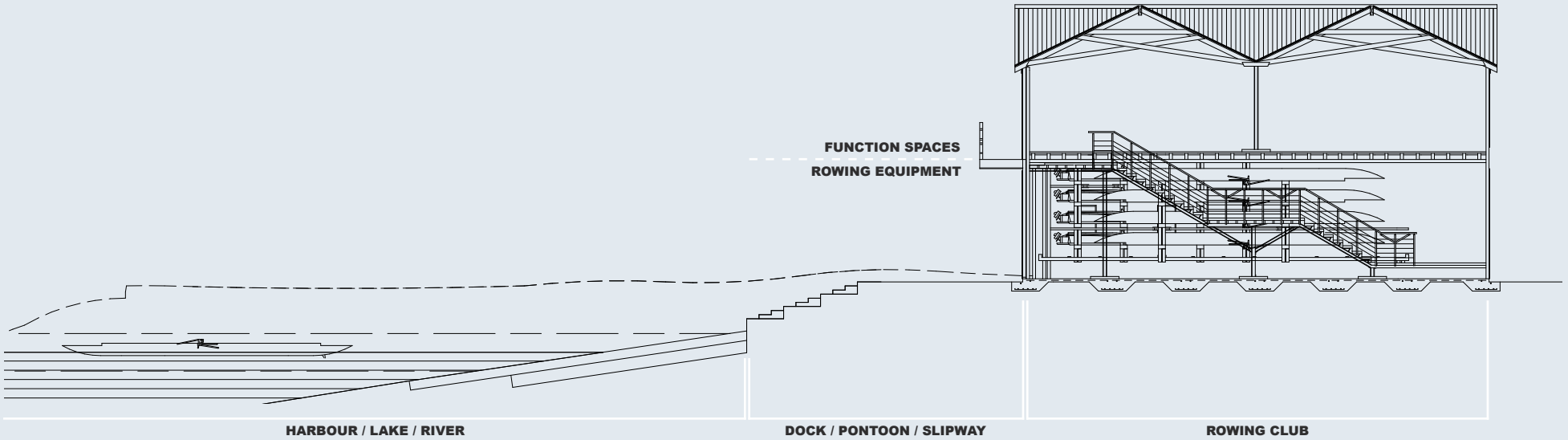
Design principles for a rowing facility:

- Ensure anchor activities are conceived for the public use, such as restaurant, bar, gymnasium, water sports, learning centre about rowing, etc.
- Maximise public access along the waterfront edges of the site and around the entire facility.
- Ensure a balance of commercial activity, public access and enjoyment.

BOATSHED ARCHITECTURE

Rowing clubs convey a very distinct figure on the water's edge of harbours, lakes, or rivers. They are specially designed facilities which typically consist of a two-storey structure with a series of repetitive doors that lead out onto a dock, pontoon or slipway on the water's edge. The ground floor is for storing the rowing shells, oars, outriggers, and other equipment, while the upper floor accommodates dining and restaurant spaces that are used by the rowing club to socialise after training or regatta and to also cater for private functions.

These building typologies pose a multitude of problems that have resulted in many rowing clubs struggling to provide adequate facilities and spaces to accommodate indoor training for athletes; they also fail to provide the opportunity for the public to become exposed and engaged with the sport. A considerable number of these buildings in New Zealand were built during the late 19th and early 20th century, with enough space to store the rowing shells on the ground floor and social spaces on the upper level. However, today's demands to provide space for adequate training facilities and support personnel have placed added pressure on rowing clubs around the country to provide more space to accommodate these additions.



Another problem surrounding this building typology is their location on the banks of the harbour, lake, or river. For a water sport this separation between building and playing field upon which they train and compete on effectively renders the building as a backdrop that does not directly engage with the water's edge. Providing the ability for the facility to enter into the water could establish a stronger connection that celebrates this boundary between building and water.

A drawing indicating the relationship between a rowing club and the water.
Drawn by author.

+Figure 17: The Star Boating Club located beside the Frank Kitts Lagoon that leads out into the harbour. Photograph by author. 4 Sep 2011.

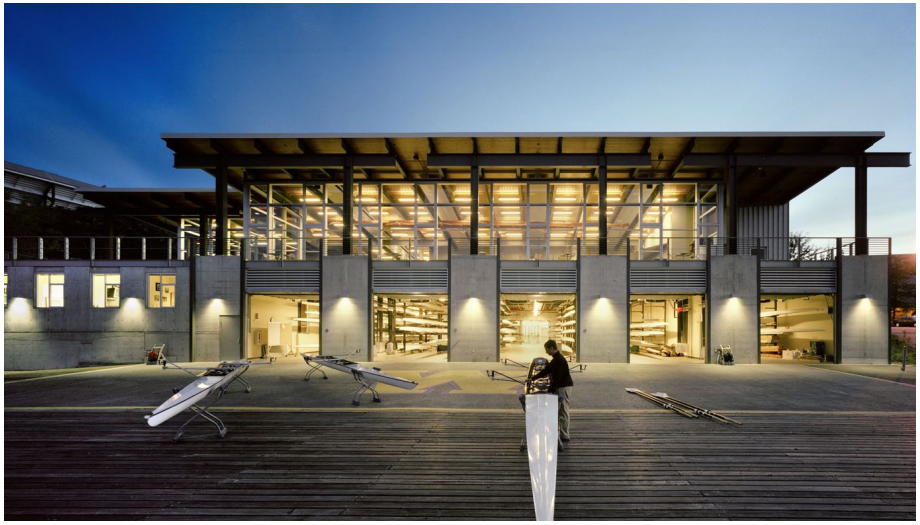
STAR BOATING CLUB WELLINGTON, NEW ZEALAND

The Star Boating Club, founded in 1866 as the Star Regatta Club, is the oldest sporting club in Wellington and the third oldest sporting organisation in New Zealand. The front facade is a prime example of boatshed architecture with the two storey building that contains the storage of the rowing shells on the ground floor and the ability to host public functions and other social gatherings on the upper floor. Due to this rowing club having been built in the mid nineteenth century, it was not designed to accommodate for the need of additional indoor training facilities and the multitude of personnel who support the athletes. It was fundamentally designed to store the rowing shells and other rowing equipment. The small size and inability for this historic rowing club to expand suggest the need to create an opportunity for a larger high performance sporting facility nearby, such as at Clyde Quay Wharf. This would provide adequate facilities for more athletes to train, which is an on-going problem at the Star Boating Club.

+Figure 18: The Hamilton Rowing Club sits on the banks of the Waikato River. Photograph by LiteFoot.

HAMILTON ROWING CLUB HAMILTON, NEW ZEALAND

The Hamilton Rowing club is located in the heart of Hamilton on the banks of the Waikato River. It was formed in 1903, and has since become an iconic figure along the Waikato River. The original clubrooms were completed in 1915 and upgraded in 1965 to the current site. The growing popularity of rowing and the increase of activity along and in the Waikato River in Hamilton suggest the need to expand and upgrade the facility to accommodate the necessary indoor training facilities and personnel. The strength of this rowing club is the large spans of glass that glaze the upper storey; providing the occupants with expansive views of rowing crews training and competing along the river. One of the weaknesses facing this rowing club is its failure to celebrate the boundary condition between the building and water. The rowing shells are taken out from the storage bays on the ground floor perpendicular to the river from which a slipway provides the connection down to the water's edge. This journey essentially disconnects the athletes from the spectators witnessing the action from the upper floor due to this side entry into the Waikato River. A form of terracing that leads into the water and hovers over the river's edge could help create a stronger connection between the rowing club and water.



+Figure 19: The University of Washington Conibear Shellhouse pontoon connecting the building and water. Photograph by Miller/Hull.

+Figure 20: The Thames Rowing Club across the road from the river. Photograph by Thames Rowing Club.

UW CONIBEAR SHELLHOUSE WASHINGTON, USA

The University of Washington Conibear Shellhouse has stood on the shores of Lake Washington since it was constructed in 1949. Home to the Husky Crew, the building underwent a major renovation that officially opened in May 2005 to transform it into a world-class facility for their athletes. The building consists of three levels: the ground floor contains the rowing shell storage bays, coaching and support offices, team room for training, and the men's and women's locker rooms. These ground floor spaces are connected by a main lobby that leads up to the first level containing a dining room, student lounge, and auditorium. The upper floor contains two study halls at the centre of the space. The new facility provides an important space for all university athletes to gather study and eat each day, creating an "athletic village by the lake" (Miller Hull, 2005). One of the strengths of this facility is the celebration of the rowing clubs history; the feature adorning the ceiling of the dining room is the celebration of the U.S men's eights crew who won gold at the 1936 Berlin Olympics.

THAMES ROWING CLUB LONDON, ENGLAND

The Thames Rowing Club is located on the Putney Embankment in West London. Founded in 1860, the rowing club has a long rich history celebrating its 150th year in 2010, catering to all levels during this time; juniors to veterans, and novices to internationals. The original Victorian Clubhouse was constructed in 1879 and in 1905; the rowing club opened the first indoor rowing tank in Britain. Major improvements were made to the original clubhouse in 2011 to upgrade the indoor training facilities and sociable dining spaces for functions and interaction between members after training or a regatta. As an acknowledgement of the rowing club's history, the refurbishment re-opened in January 2012; retaining all of the existing Victorian architectural features. Considered to be one of the largest and most successful rowing clubs in England, the Thames Rowing Club boasts some of the best rowing facilities in the country. These facilities include two gym spaces; one on the first floor with a number of ergometers and exer-cycles that provides adequate space to stretch and warm-up, and the other on the ground floor with an array of free weights as well as the indoor rowing tank. The strength of the Thames Rowing Club is the range of additional training facilities however; these spaces fail to connect with the outside by providing adequate views of the rowing clubs surroundings or river.

CONCLUSION CASE STUDIES

The analyses of the Case Studies indicate that a successful approach to a rowing facility should:

Enhance the Urban Context for the Public:

- **A city's goals would be met by increasing the connection of the waterfront and public activities;**
- **Maximise public access along the waterfront edges of the site and around the entire facility;**
- **Ensure a balance of commercial activity and public access and enjoyment.**

Enhance Awareness of the Sport of Rowing:

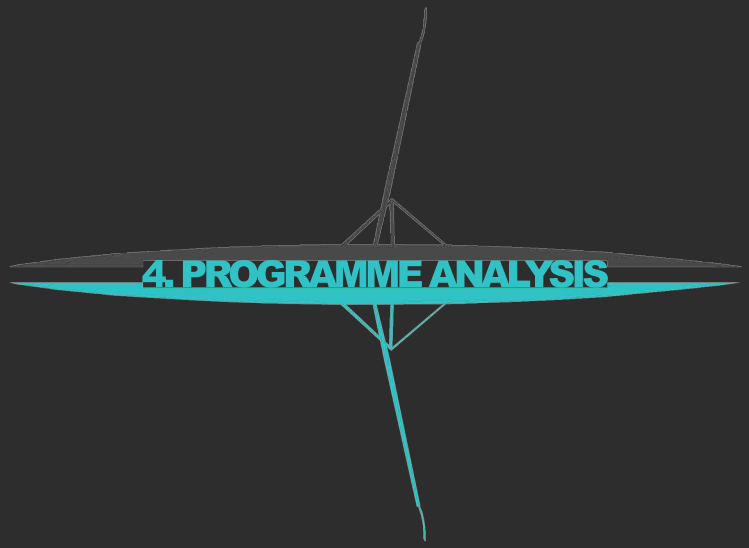
- **An internal atrium that merges inside/outside would provide a way to witness all aspects of the sport, bringing the public into the 'community' of the sport;**
- **An internal atrium that merges inside/outside could be designed to work like a theatre for spectators, and by integrating the building with the harbor it would 'capture something of the sport itself';**

Ensure Economic Viability of the Facility Year-Round:

- **A developer's goals would be met by increasing retail values through increasing the numbers of harbour views;**
- **Ensure anchor activities are conceived for the public use, such as restaurant, bar, gymnasium, water sports, learning centre about rowing, etc.;**
- **Shifting an internal atrium off axis could enable larger and smaller floor areas to both be available for diverse program requirements;**
- **Program-specific groupings on each intermediate level around the atrium would enable each aspect of rowing to be understood as part of a greater system;**

Celebrate Unique Boundary Conditions:

- **An internal atrium that merges inside/outside would provide a way to celebrate the threshold transition from the built environment to the water;**



This chapter introduces the sport of rowing that is one of New Zealand's most successful Olympic sports, and highlights some of our most memorable crew performances. The principle objective of this section is to introduce the program requirements for a High Performance Rowing Centre. The requirements for a gym that specifically accommodates rowing athletes and their training routine will be addressed. This includes not only training facilities, but also space for specialist activities such as personal trainers and nutritionists. It also includes spaces allocated for directors and managers from NZ Rowing who act as sales agents in selling this sporting facility concept to sponsors and businesses to help invest and support this new sporting typology and athletes. This is followed by detailed analysis of an international rowing course that could be set up in Wellington harbour and the different types of rowing crews and shells.

"Weightless in water, swift as the wind,
Subtle of purpose - a feather blown -
I go with my oarsmen where they will,
My beautiful body and theirs all one".

(VAN DOREN, 1970)

+Figure 21: Rowing athletes from the Star Boating Club training on the Wellington Harbour. Photograph by author. 4 Aug 2012

ROWING INTRODUCTION

Rowing is one of the oldest sports and Olympic events in the world. What began as a method of transport and warfare has evolved into a sport with a wide following. The first recorded competitive regatta took place in Venice in 1315. “Competitive rowing came to New Zealand with British settlers, and the first local club was established in 1861” (New Zealand History Online, 2012).

Here is the pairing that seems destined for gold! Gold for New Zealand is in the offering, Eric Murray and Hamish Bond. They took a stranglehold on the race around about the 800m mark and they have never let go of their grip. It is going to be a glorious day for New Zealand rowing and they follow their compatriots onto the pedestal surely. It was Nathan Cohen and Joseph Sullivan earlier but now it is going to be Murray and Bond who will take home gold for New Zealand!

(Derek Rae commentary of the Olympic Rowing Men's Pair Final, 2012).

NZ OLYMPIC ROWING

New Zealand has a rich rowing Olympic history that dates back to 1920 when Darcy Hadfield finished third in the Men's Single Sculls to win New Zealand's first rowing Olympic medal. Since this achievement, New Zealand rowing crews have amassed a total of 21 medals (9 gold, 2 silver, and 10 bronze) that includes the most recent and successful Olympic campaign at the 2012 London Olympics with 5 medals including 3 gold medal champion crews. During this Olympics New Zealand claimed their one hundredth Olympic medal, indicating that the rowing team has won a fifth of the medals in total highlighting the sports status as a premier international sport in this country.

Some of the memorable rowing performances were crews such as the Men's Eights who rowed to gold at the Munich Olympics in 1972. This performance is considered by many as one of New Zealand's most memorable highlights of our Olympic history. In recent times, the Evers-Swindell twins defended their gold medal at the Beijing Olympics in 2008 after claiming gold at the previous Athens Olympics in 2004. In doing so, they joined an exclusive club of New Zealand athletes who successfully defended their gold medal. These glory moments are events that inspire people to educate themselves about the sport and want to participate in it either socially or competitively. The addition of a museum type space in the design experiment could display and celebrate New Zealand's rowing success; this presents the opportunity for the athletes to be inspired and the public to become educated.

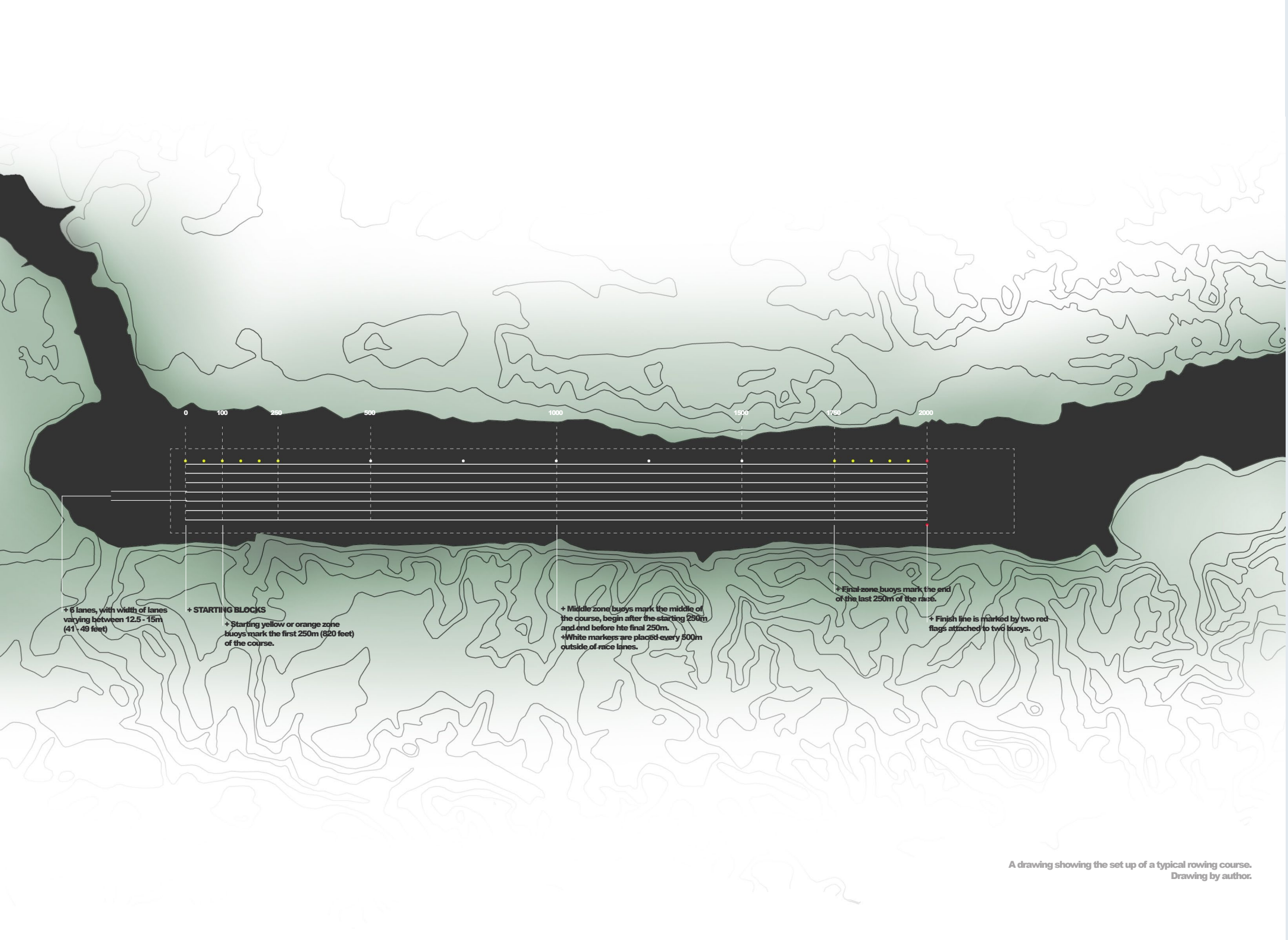
+ Collage image highlighting New Zealand's medal success at the Olympic Games.
PERSONAL IMAGE

ROWING COURSE

Rowing regattas and training take place on lakes, rivers and in harbours typically across a 2km distance. The demands rowing places on the athletes are enough to test one's endurance, while also short enough for the race to feel like a sprint that takes typically between 5:30 and 8:00 minutes depending on the type of crew.

For a race rowed over this long distance, it is difficult for spectators to capture and experience the entire race. A race has three parts: the start, middle, and finish. Spectators essentially have to determine which part of the race they would most likely want to experience. Obviously for many the most appealing and popular is the finish line. Generally, in major regattas and Olympic Games, grandstands are erected that line the water's edge for spectators to gather and join in creating an energetic atmosphere that provides motivation for the athletes as they near the end of the race.

Though the finish line attracts the most attention due to the conclusion of a race being the most exciting aspect, there is an opportunity to investigate the beginning of a race and provide the athletes with a supportive introduction as they make their way from the boatsheds to the starting blocks.

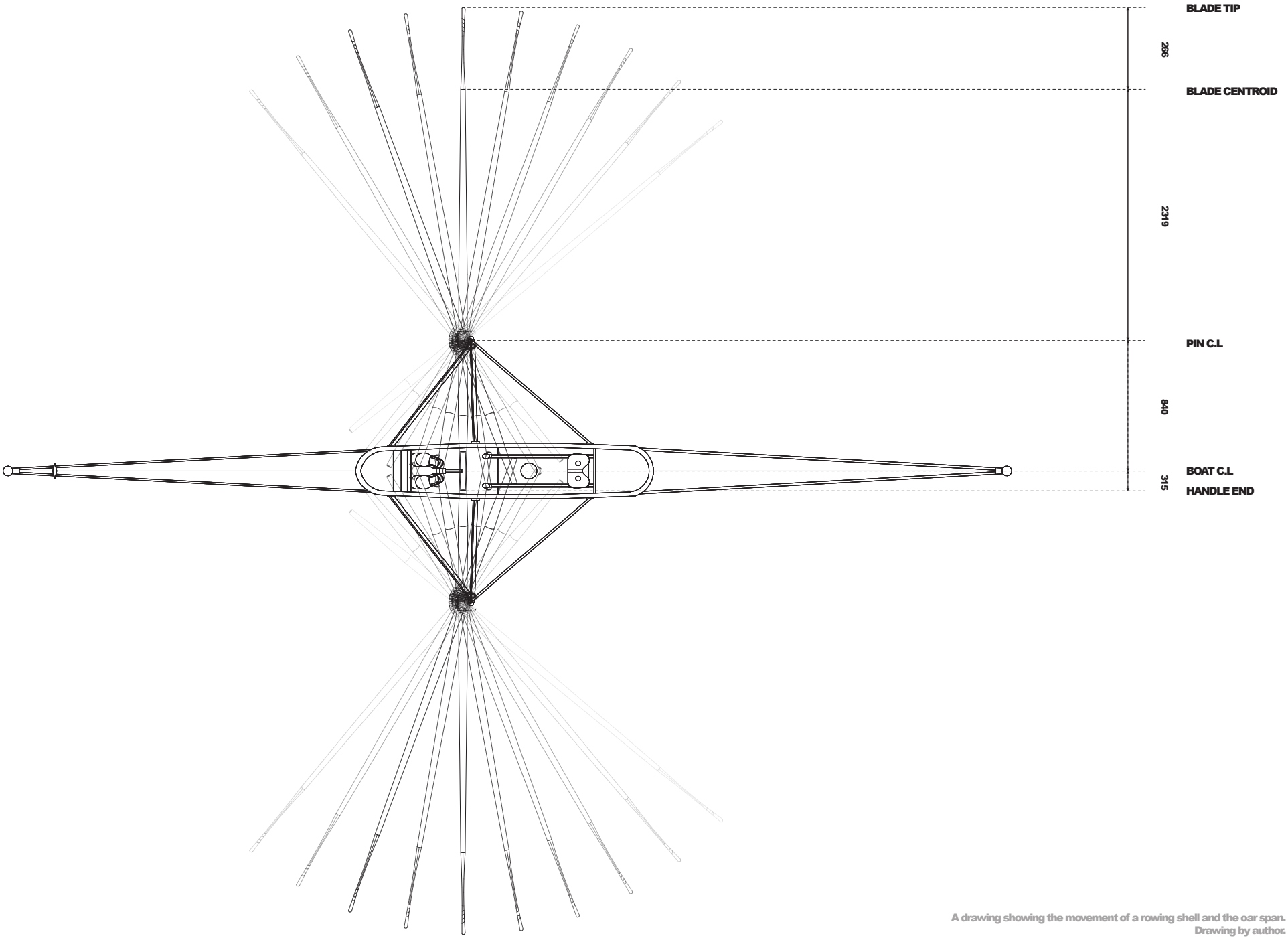


A drawing showing the set up of a typical rowing course.
Drawing by author.

ROWING SHELLS

These following pages illustrate the dimensions of rowing shells and the different types of crews that power these boats across the water. The design of these long narrow boats is elegant and can be celebrated for its craftsmanship and the historic races they have been involved in.

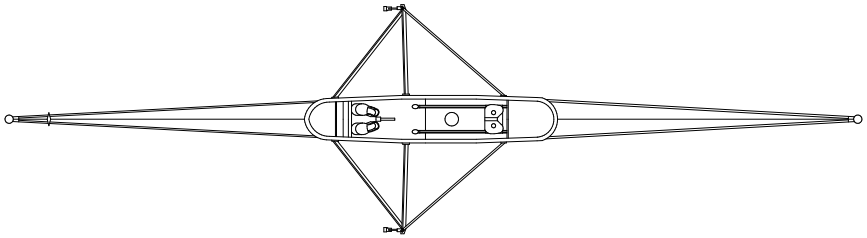
The drawing on the right indicates the dimension of the oar span. The design experiment must take into count the minimum distance required for an active rowing crew to move from the site into the harbour.



A drawing showing the movement of a rowing shell and the oar span.
Drawing by author.

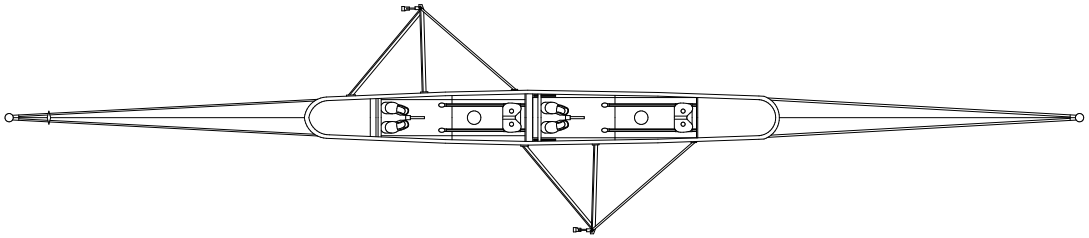
01 SINGLE SCULLS
men & women

8.23m



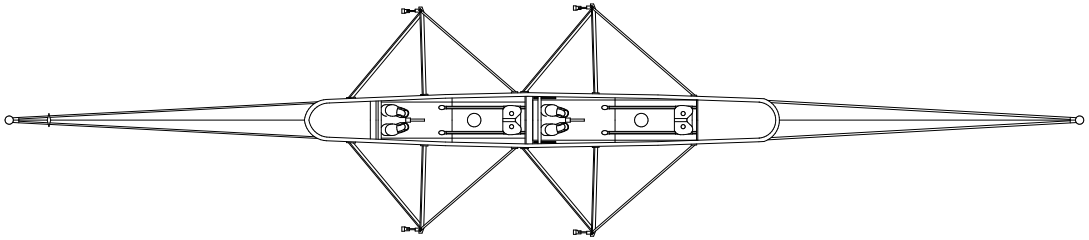
02 UNCOXED PAIRS
men & women

10.36m



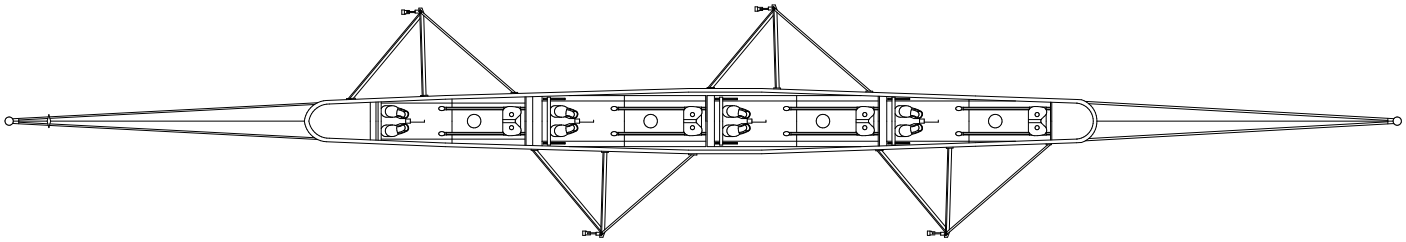
03 DOUBLE SCULLS
men & women

10.36m



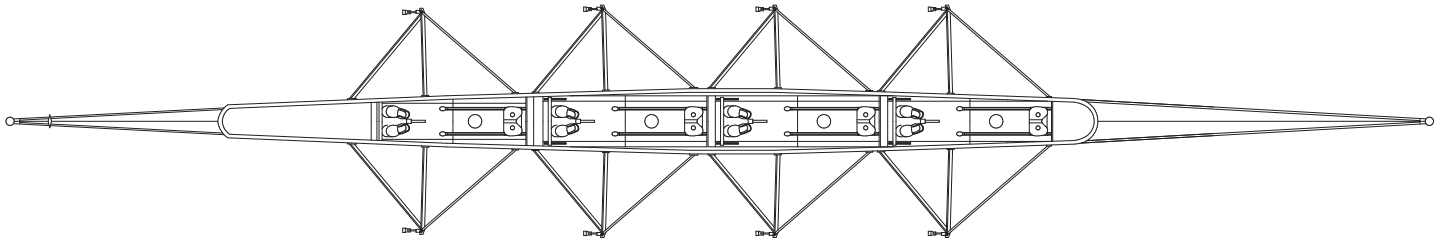
04 UNCOXED FOURS
men

13.41m



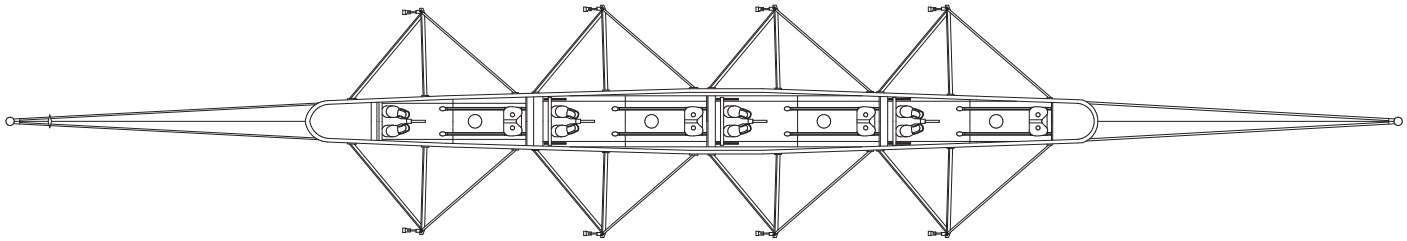
05 QUAD SCULLS
women

13.71m



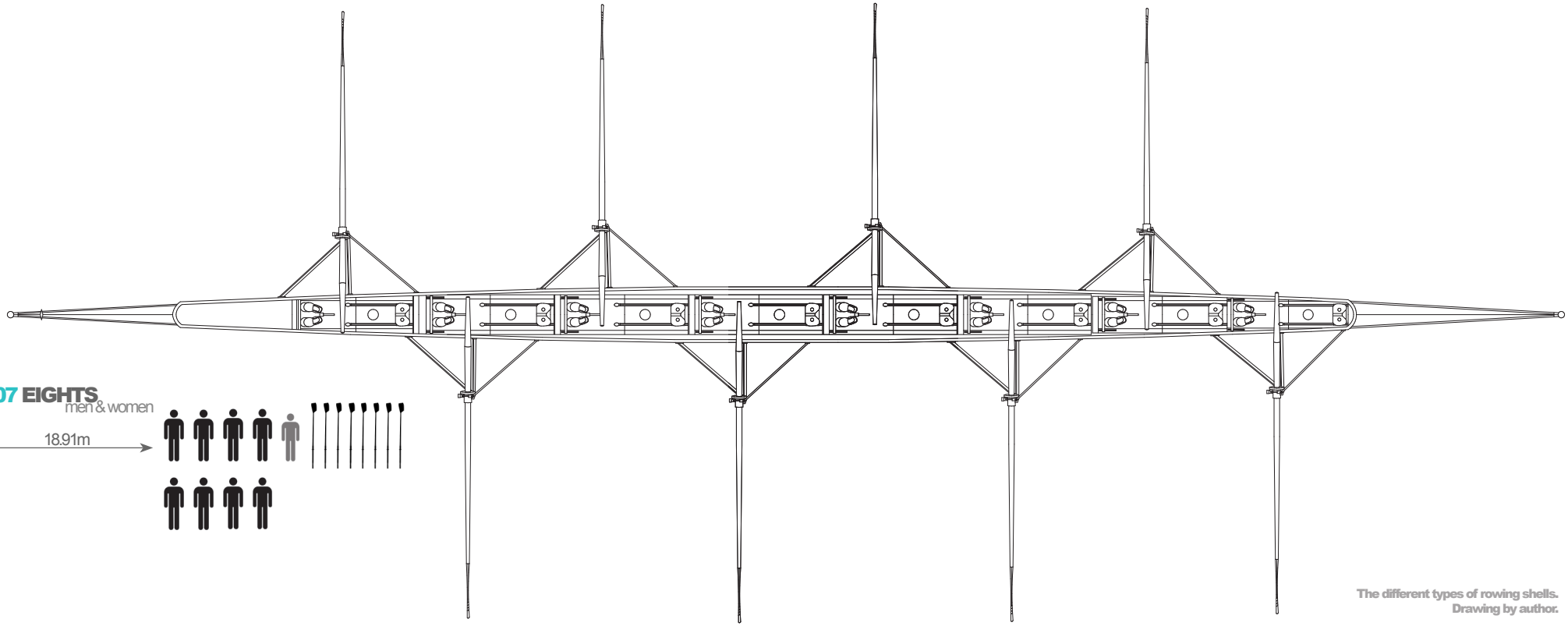
06 QUAD SCULLS
men

13.31m



07 EIGHTS
men & women

18.91m

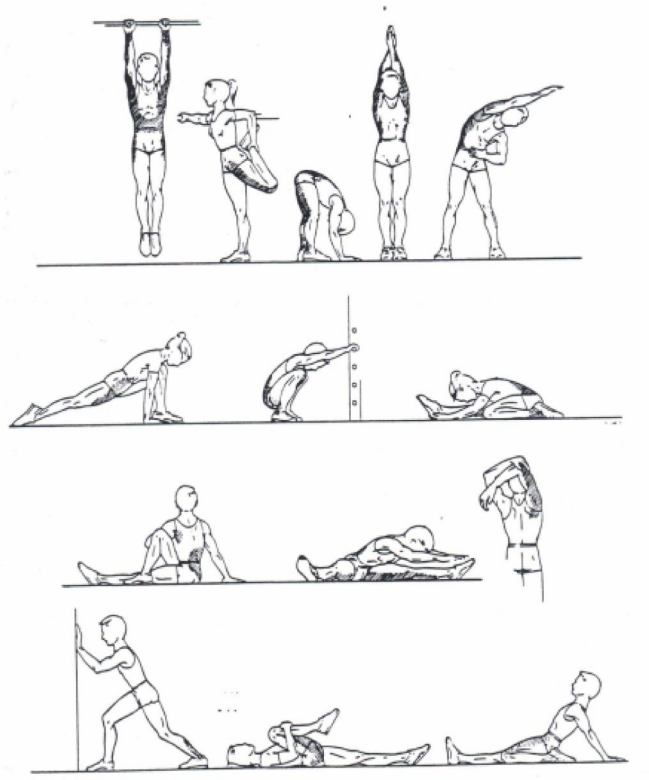


The different types of rowing shells.
Drawing by author.

TRAINING FACILITIES

Few sports require a combination of power and endurance like rowing does. The traditional distance of 2km is divided into three sections; the first 500m segment is a sprint where the athletes power to a top rate of around 47 strokes per minute. Following this is a gruelling 1,000m middle segment, where the pace steadies to between 36 and 40 strokes a minute. Lastly, the final 500m segment is when the sprinting speed resumes. Many sports require specialised training; this is necessary given the high level of competition in sport today. High performance training facilities enable the athletes to row at a stroke higher than their nearest competitors, which can result in the difference between finishing first or second.

Specific training for rowing requires a programme that emphasises the physical, technical, and psychological demands of the sport. The International Rowing Federation released a Daily Training Programme document that breaks the strength training into four sections. These sections are stretching and flexibility, circuit training using own body weight, endurance strength training, and maximum strength training (Nilsen, 2001). These four training types with the addition of cardio training (ergometers, treadmills, and bikes) can inform a gym layout that is specific for rowing. Encouraging the occupants to perform their training routine in a linear or circular process is well suited to accommodate rowing training. A well-designed training facility specific for rowing would begin with the warm up, moving through to cardio and weights and then end with the warm down.

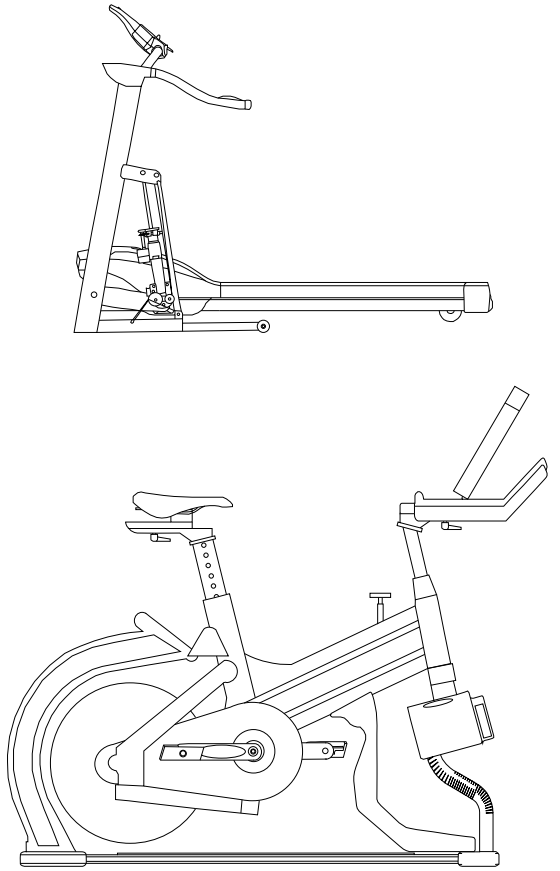


+Figure 22: Stretching and Flexibility exercises before training. Daily Training Programme.

STRETCHING AND FLEXIBILITY

Stretching and flexibility enable athletes to move their joints though an adequate range of movement, which is important in the sport of rowing. Not stretching before workouts and training increases the risk of an injury occurring.

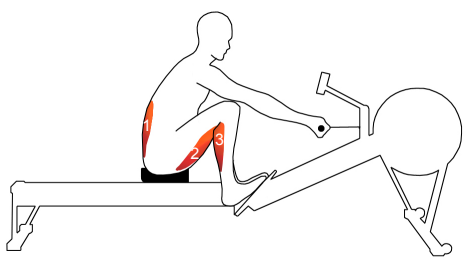
- Yoga exercise mat (1800x600)
- Dumbbell rack (1300x650)



CARDIO TRAINING

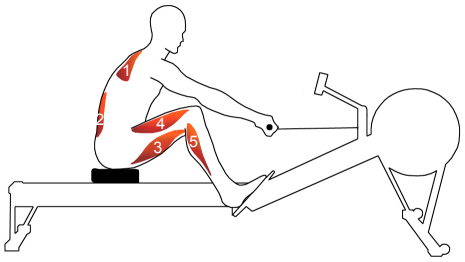
Cardio training is physical exercise performed at relatively low to moderate intensity that enables athletes to train for extended periods of time. This type of training requires similar actions and endurance conditioning as rowing does, where exercises such as the ergometer, exer-cycle, and treadmills use repetitive body and muscle moments where the rhythm of these moments are important.

- Exer-cycle (1200x600)
- Treadmill (1700x600)



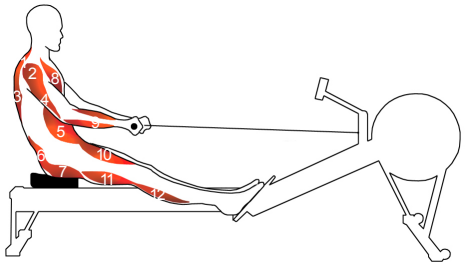
THE CATCH

1. Erector Spinae
2. Hamstrings
3. Gastrocnemius and Soleus

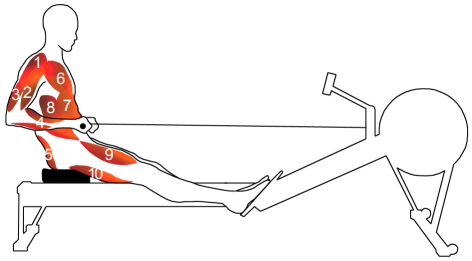


THE DRIVE

1. Rhomboids
2. Erector Spinae
3. Hamstrings
4. Quadricepts
5. Gastrocnemius and Soleus



1. Trapezius
2. Deltoids
3. Rhomboids
4. Tricepts
5. Rectus Abdominus
6. Erector Spinae
7. Glutes
8. Pectorals Major
9. Wrist extensors and Flexors
10. Quadricepts
11. Hamstrings
12. Gastrocnemius and Soleus



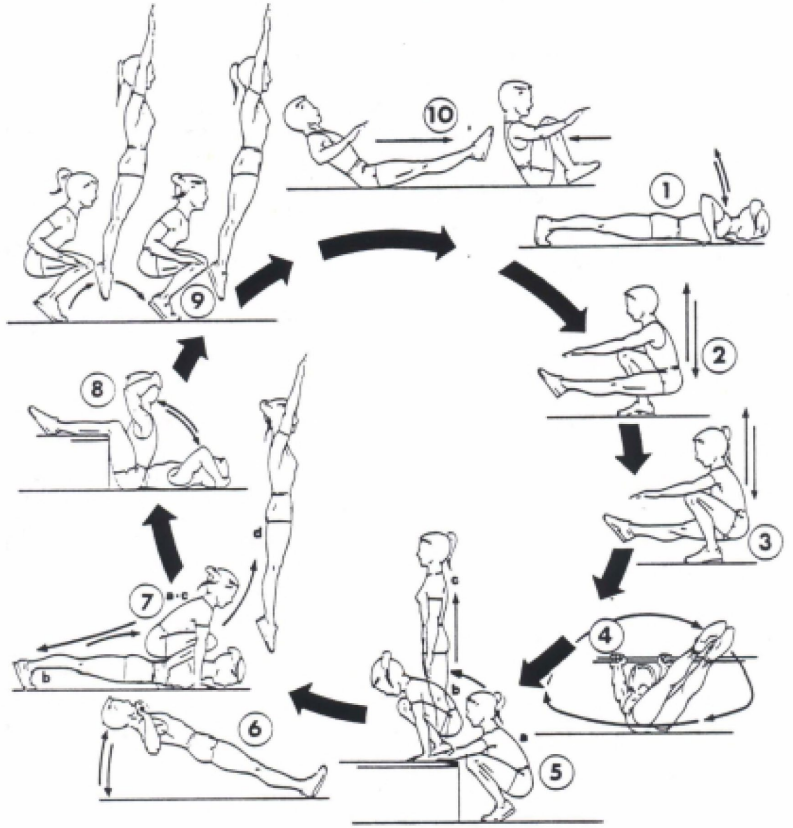
THE FINISH

1. Deltoids
2. Bicepts
3. Tricepts
4. Wrist Extensors and Flexors
5. Erector Spinae
6. Pectorals Major
7. Rectus Abdominus
8. Internal and External Obliques
9. Quadricepts
10. Hamstrings

CARDIO TRAINING cont.

Ergometer tests are used by many rowing coaches to evaluate the athletes and their performances on these machines are important selection criteria for many senior and junior national rowing teams.

- Ergometer (2400x600)

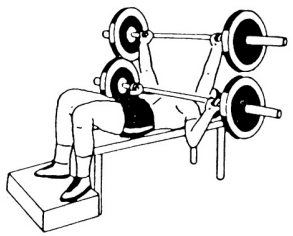


+Figure 23: Circuit Training - Body Circuit. Daily Training Programme.

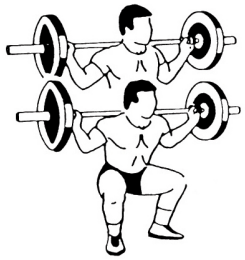
CIRCUIT TRAINING

Circuit training is a form of body conditioning or resistance training using high-intensity aerobics. It targets strength building and muscular endurance. The circuit consists of about 10 exercises that are performed over duration of 30 seconds or 30 repetitions for example.

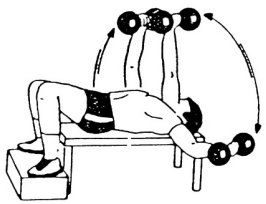
- Yoga exercise mat (1800x600)
- Dumbbell rack (1300x650)



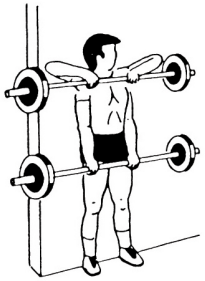
BENCH PRESS



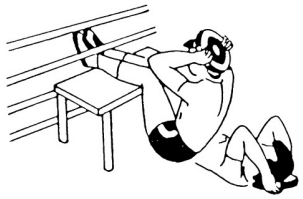
SQUATS



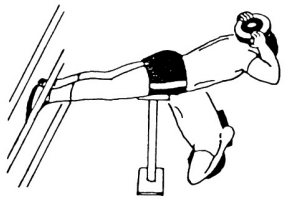
LATERAL DUMBELL RAISES



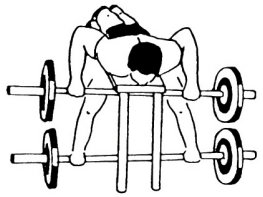
UPRIGHT ROWING



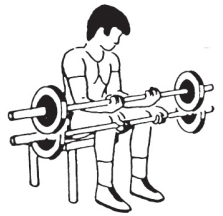
ARGMENTED SIT-UPS



DORSEL RAISES



BENCH PULLS



WRIST CURLS

Strength Endurance
Reps: 20-25
% of max: 60-65

Power
Reps: 10-12
% of max: 70-75

Maximum Strength
Reps: 4-6
% of max: 80-90

+Figure 24: Circuit Training - Body Circuit. FISA Daily Training Programme.

ENDURANCE STRENGTH TRAINING

Strength endurance training involves developing a muscle or muscle group's ability to withstand fatigue during extended periods of strength utilisation. This is particularly required during the middle 1000m of a race.

MAXIMUM STRENGTH TRAINING

Maximum strength training involves developing a muscle or muscle group's ability to overcome resistance with a high speed of contraction and generate mechanical force. This is most effective at the beginning of a race.

- **Bench (1200x350)**
- **Bench press (1200x1800)**
- **Dumbbell rack (1300x650)**
- **Leg extension (1000x600)**
- **Leg press (2050x1000)**
- **Weights station (1200x1100)**

NZ ROWING CLUBS

In March 1887, representatives of the nine current New Zealand rowing clubs established the New Zealand Amateur Rowing Association. The nine clubs that formed the association were: Union Rowing Club (Christchurch, 1866); Star Boating Club (Wellington, 1867); Canterbury Rowing Club and Wanganui Rowing Club (1875); Union Boating Club (Wanganui, 1878); Napier Rowing Club (1866); Wellington Rowing Club (1885); and the Nelson and Whakatu Rowing Clubs (Nelson).

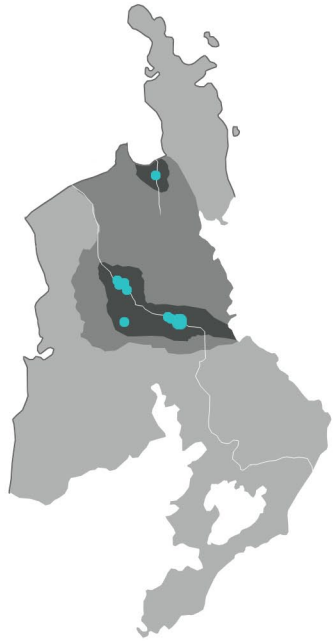
As rowing became more popular, the number of clubs affiliated with the New Zealand Amateur Rowing Association increased. The original nine became 34 in 1892 and 45 ten years later. This has now expanded to 61 affiliated rowing clubs according to Rowing New Zealand. On 5 January 1903, nine local provincial rowing associations were set up. These were the Auckland, Canterbury, Hawke's Bay (now East Coast), Marlborough, Nelson, Otago, Southland, Wanganui, and Wellington Rowing Associations. Today the clubs in Marlborough and Nelson have become the Marlborough Rowing Association and there is the addition of the Waikato and Bay of Plenty Rowing Associations. The Waikato province is home to a number of the country's top athletes at Lake Karapiro where the lake is regarded as one of New Zealand's best rowing venues; it hosted the 2010 World Rowing Championships.

NORTH ISLAND

ARA

Auckland Rowing Association

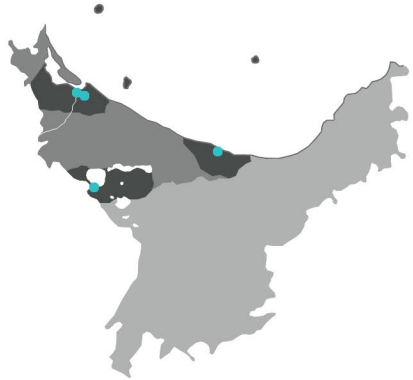
- AUCKLAND GRAMMAR ROWING CLUB
- AUCKLAND ROWING CLUB
- COUNTIES MANUKAU ROWING CLUB
- EASTERN BAYS SCULLERS CLUB
- KINGS COLLEGE ROWING CLUB
- MERCER ROWING CLUB
- NORTH SHORE ROWING CLUB
- ST GEORGE'S ROWING CLUB
- ST KENTIGERN COLLEGE ROWING CLUB
- TAKAPUNA GRAMAR SCHOOL ROWING CLUB
- WAITEMATA ROWING CLUB
- WEST END ROWING CLUB
- WHANGAREI ROWING CLUB



WRA

Waikato Rowing Association

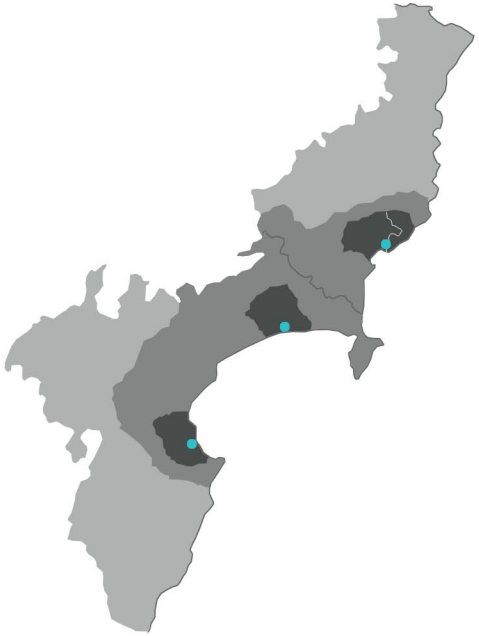
- CAMBRIDGE ROWING CLUB
- HAMILTON ROWING CLUB
- **LAKE KARAPIRO ROWING INCORPORATED**
- ST PAUL'S COLLEGIATE ROWING CLUB
- TE AWAMUTU ROWING CLUB
- WAIKATO DIOCESAN SCHOOL ROWING CLUB
- WAIKATO ROWING CLUB



BOPRA

Bay Of Plenty Rowing Association

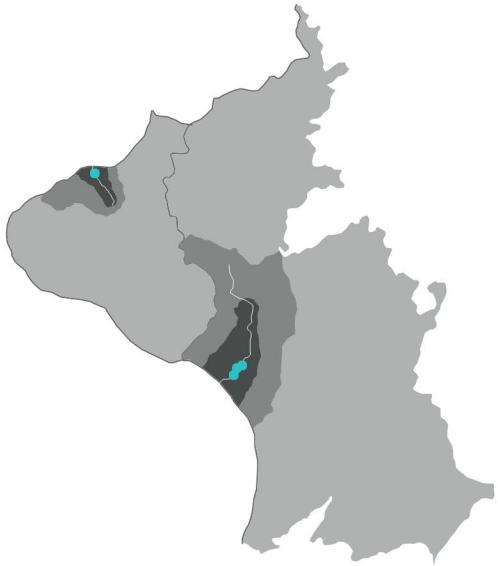
- BAY OF PLENTY COAST ROWING CLUB
- ROTORUA ROWING CLUB
- TAURANGA ROWING CLUB
- WHAKATANE ROWING CLUB



ECRA

East Coast Rowing Association

- GISBORNE ROWING CLUB
- HAWKES BAY ROWING CLUB
- WAIROA ROWING CLUB



WGA

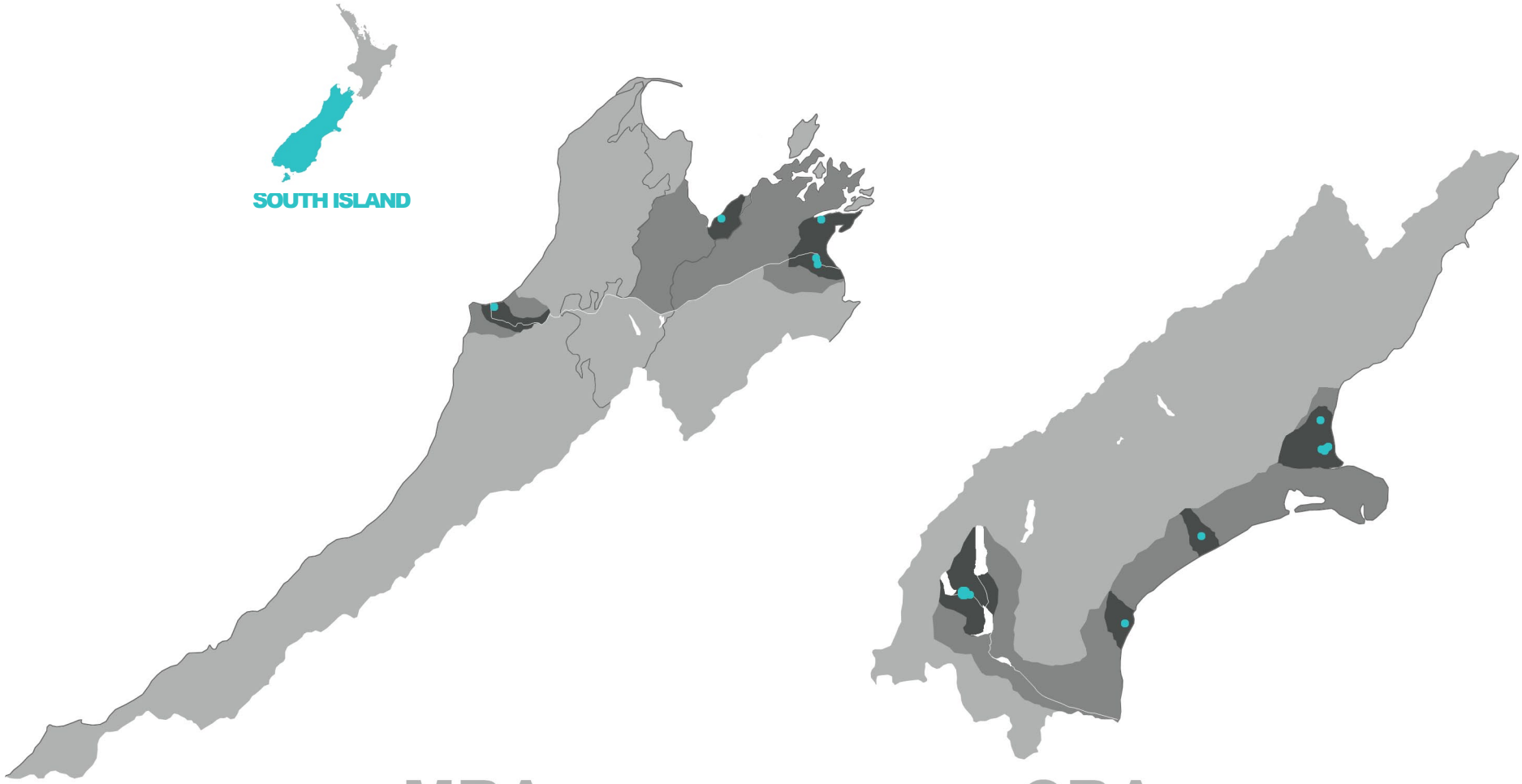
Wanganui Rowing Association

- ARAMOHO WANGANUI ROWING CLUB
- CLIFTON ROWING CLUB
- UNION BOAT CLUB
- WANGANUI COLLEGIATE SCHOOL ROWING CLUB

WRA

Wellington Rowing Association

- HOROWHENUA ROWING CLUB
- PETONE ROWING CLUB
- PORIRUA ROWING CLUB
- STAR BOATING CLUB
- WELLINGTON ROWING CLUB



MRA

Marlborough Rowing Association

- BLENHEIM ROWING CLUB
- KAWATIRI ROWING CLUB
- NELSON ROWING CLUB
- PICTON ROWING CLUB
- WAIRAU ROWING CLUB

CRA

Canterbury Rowing Association

- ASHBURTON ROWING CLUB
- AVON ROWING CLUB
- CANTERBURY ROWING CLUB
- CHRIST COLLEGE ROWING CLUB
- CURE BOATING CLUB
- **RUATANIWHA ROWING**
- TIMARU ROWING CLUB
- TWIZEL ROWING CLUB
- UNION ROWING CLUB

ORA

Otago Rowing Association

- COLUMBA COLLEGE ROWING CLUB
- CROMWELL ROWING CLUB
- DUNSTAN ARM ROWING CLUB
- NORTH END ROWING CLUB
- OAMARU ROWING CLUB
- OTAGO ROWING CLUB
- OTAGO UNIVERSITY ROWING CLUB
- PORT CHALMERS UNITED ROWING CLUB
- QUEENS ROWING CLUB
- WANAKA ROWING CLUB

SRA

Southland Rowing Association

- AWARUA ROWING CLUB
- INVERCARGILL ROWING CLUB
- RIVERTON ROWING CLUB
- WAIHOPAI ROWING CLUB
- WAKATIPU ROWING CLUB

ASB SPORTS CENTRE WELLINGTON, NEW ZEALAND

The ASB Sports Centre is located in the Wellington suburb of Kilbirnie. Striking an ovoid figure at the head of Evans Bay, the building contains a tapered central spine that is flanked by two large sporting chambers. The Wellington City Council approved construction of an indoor community sports centre after seven years of investigation and planning. The 12-court facility was designed to accommodate the existing demands and growing popularity of basketball, netball, and volleyball. It also caters to the large number of schools close to the site, where many of them do not have their own sports facilities.

> *The new ASB Sports Centre in Kilbirnie is aimed at getting more people into wider range of sport.*
>
> **(Centre Manager, Craig Hutchings, 2001).**

ASB Sports Centre Manager Craig Hutchings said the space could be used for anything, "it's not just about the traditional sports." One aim was to get 'lesser-known sports' to grow; attracting school sports, juniors, social leagues, and community programmes was all part of the parcel. The centre focuses on community sports rather than competing with the TSB Bank Arena, which is the main indoor sporting arena located along the Wellington Waterfront. The Wellington City Council's ambition for the scheme wasn't about stadium sports but chiefly to improve the physical well-being of the public by involving young people, providing them with first-class facilities from the outset (Harvey, 2013).

+Figure 25: The entrance and facade of the ASB Sports Centre in Kilbirnie. Photograph by Thermosash. 2011.

+Figure 26: First floor that overlooks one of the playing courts in the ASB Sports Centre. Photograph by Maarten Holl. 2011.

The facility contains:

- 12 sprung-floor courts for hire, suitable for most indoor sports and recreational activities
- Spectator seating for up to 2,200 people
- Three meeting rooms
- Changing rooms
- Cafe with seating for up to 100 people that can also cater for functions in the centre
- Office spaces for Netball Wellington, Wellington Basketball, Capital Football, and Capital City Futsal
- High Performance Sports Centre
- Wellington Sports Medicine (WSM)

The ASB Sports Centre is also home to the Wellington Sports Medicine (WSM) that offers a unique multi-disciplinary centre to both elite sports athletes as well as members of the public. They have a range of professionsals who work in an integrated environment to get the best results for their patients and clients. The various professions working at the Wellington Sports Medicine include:

- Sports Physicians and doctors
- Physiotherapists
- Podiatrists
- Orthopaedic
- Surgeons
- Neurologist
- Cardiologist
- Rheumatologist
- Nutritionist
- Massage Therapists
- Fitness trainers

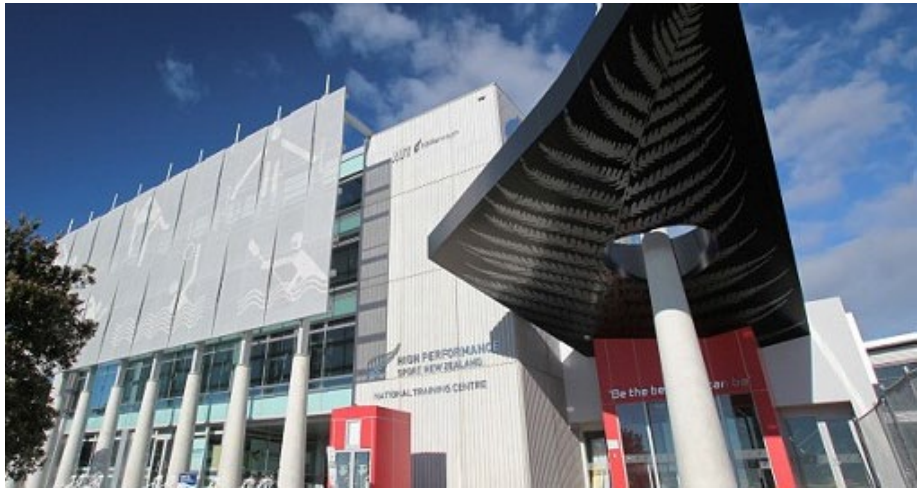
The centre is a welcome addition to the local facilities for netball, basketball, volleyball and other indoor sports. The Wellington City Council and Tennent + Brown Architects have cleverly designed a solution that ensures the facility generates ongoing activation by combining a multitude of sporting and recreational activities that can be participated in under one roof. The large spatial volumes of this building enable the occupants to understand the building as part of a greater system and experience the sporting activities on the ground floor followed by the business and operations of the office spaces above on the next level.

MILLENNIUM INSTITUTE OF SPORT & HEALTH AUCKLAND, NEW ZEALAND

The Millennium Institute of Sport and Health is located in the North Shore of Auckland. In 2002, the world-class facilities at the Millennium Institute of Sport and Health were established to support New Zealand's athletes, from the elite level to everyday people aiming to become fitter and lead longer lasting healthier lives. The recent partnership with Auckland University of Technology (AUT) and the redevelopment of the facility brings together the best of the sports research, coaching and management expertise from AUT University, the Millennium Institute of Sport and Health and High Performance New Zealand with the goal of producing more world-class sporting champions.

> *The National Training Centre has brought technology, science, medical support and world-class facilities and people under one roof creating the best environment for me to prepare for and achieve at London 2012.*
>
> **(Commonwealth Games Silver Medallist Brent Newdick).**

The High Performance Programme at the Millennium Institute of Sport and Health offers high performance organisations and clubs with world-class training facilities, services, and the opportunity to develop and push New Zealand's current and future sporting athletes/heroes to becoming world champions. The facility provides the services of leading coaches, three specialist sporting areas, and an on-site medicine and science services.



+Figure 27: The entrance to the Millennium Institute of Sports and Health in the North Shore of Auckland. Photograph by Millennium Institute of Sport and Health.

+Figure 28: The new cardio area the Millennium Institute of Sports and Health. Photograph by Emiily S.

The three specialist training facilities include: the Athletics Track and Stadium; the Sports Hall, which houses a fully equipped gym; and the Aquatic Centre, featuring an Olympic size pool. Within these premium sporting areas contains:

- Treadmills, cross-trainers, upright and recumbent bikes
- A fully-knitted out free-weights zone
- Spacious, modern work out areas and changing rooms
- An Olympic sized heat, indoor swimming pool
- 400m running track
- Fitness classes to suit all levels and schedules, including Yoga, Pilates, Boxing, Swimming, Cycling groups, and abs classes

The Millennium Institute of Sports and Health contain Conference facilities on the second floor that take full advantage of views across the athletic track and playing fields, thus creating a space for business that acknowledges and visually connects with the sporting surrounds of the site.

The Millennium Institute of Sport and Health believe that a fitter, healthier nation will also be a more prosperous nation. This is evident in their sport, health, and fitness institute that was awarded a level III Exercise Physiology accreditation - the highest award available in New Zealand.

Through the partnership with Auckland University of Technology (AUT) Sports Science Facility and on-site Biomechanics and Exercise Physiology laboratories, the Millennium Institute provides a comprehensive range of high quality sport science services that offers the following:

- Biomechanical analysis
- Physiological testing and monitoring
- Diet and nutrition
- Kino-anthropometry
- Sports Psychology
- Mental skills training
- Fitness testing

These sporting areas, training facilities, and sport science services are designed to cater for a larger number of athletes across a variety of sports; the design for a permanent rowing facility will not require the same range of facilities nor the share scale due to it primarily accommodating the sport of rowing.

CONCLUSION PROGRAMME ANALYSIS

The analyses from the Programme Analysis indicate that a successful approach to a rowing facility should:

Enhance Awareness of the Sport of Rowing:

- **Incorporate a means of educating the public to the sport and its NZ successes;**
- **Enable spectators to view as much of a race as possible by providing a view that is harbour-wide;**
- **Ensure that how people interact with the facility enables them to learn more about the sport;**

Enhance the Training of Rowing Athletes:

- **Provide high performance training facilities for cardio training, stretching and flexibility, circuit training using own body weight, endurance strength training, and maximum strength training;**
- **Enable the training routine to be performed in a linear or circular process;**
- **Ensure the design takes into account the oar span required to move through the water from the entry point;**

Celebrate Unique Boundary Conditions:

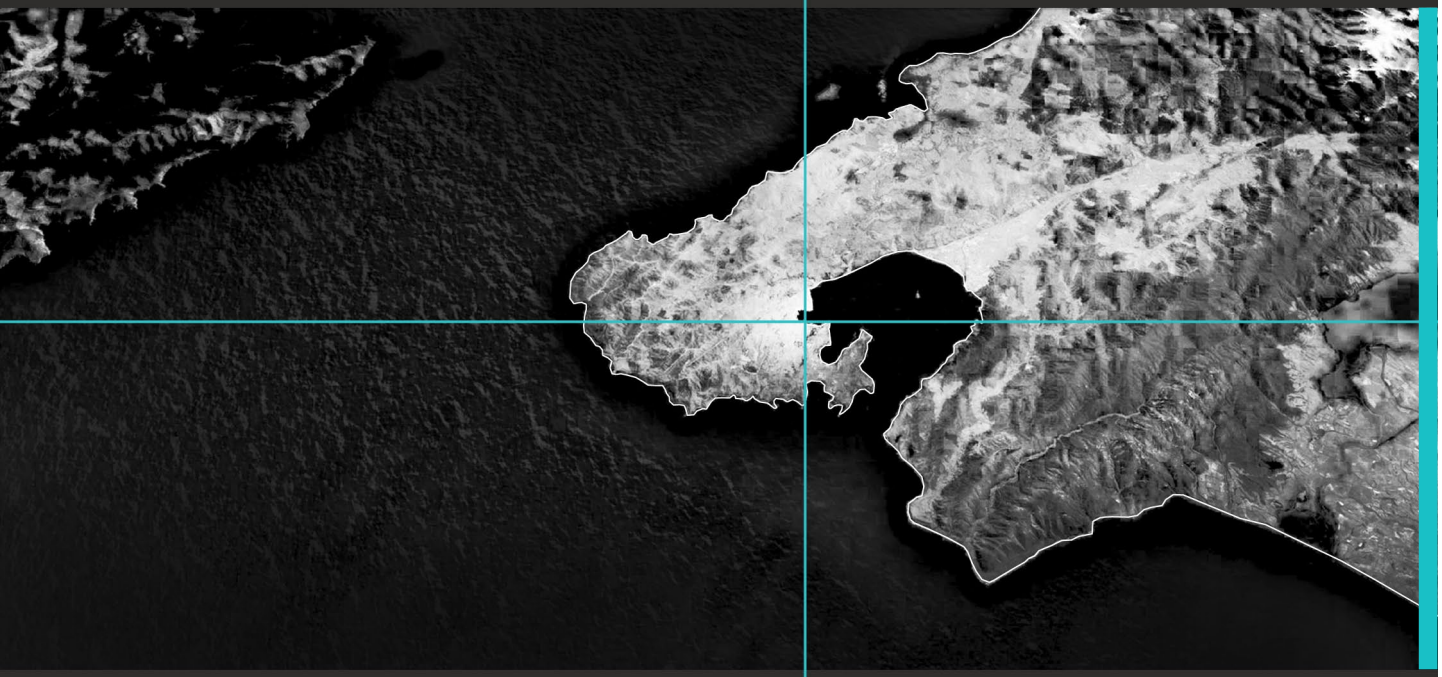
- **Enable spectators to witness how a race originates by moving from the boatshed to the starting blocks.**

This section introduces Clyde Quay Wharf as the chosen site for this design experimentation. This site analysis is divided into two parts: analysis of the greater and the immediate surrounding urban context in Wellington and a building analysis (internal and external) of Athfield Architects and Willis Bond & Co's new building that is replacing the Overseas Passenger Terminal.

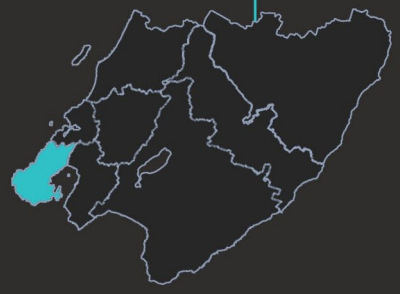
Clyde Quay Wharf is located at the northern end of Chaffers Street on the western edge of Oriental Bay in Wellington. This iconic city landmark has a well-documented and rich history on the waterfront that dates back to 1910 when the original concrete wharf was completed. In 1964, the wharf underwent further construction, to extend and widen it to make way for the new Overseas Passenger Terminal to be built. The building's purpose as a terminal was to accommodate overseas visitors entering the city. However this never eventuated as air travel rapidly overtook the international ocean travel market and as a result, the building was instead used to accommodate various functions such as small businesses, office spaces and restaurants. In 2004, a design brief was prepared by the Wellington City Council's Technical Advisory Group to develop the Overseas Passenger Terminal and Clyde Quay Wharf (Wellington Waterfront Ltd, 2012). The Willis Bond & Co proposal designed by Athfield Architects Ltd was selected and scheduled to be completed mid-2014.

This Interior Architectural thesis design exploration proposes a further new interior development of the north end of Athfield's proposal. Its location along the Wellington waterfront and the extension of the site out into the harbour makes it an ideal test site for the location of a rowing facility. This focal point on the waterfront's edge is a site that is highly visible from around the waterfront and is capable of drawing the public to the building to witness and celebrate the sport of rowing.

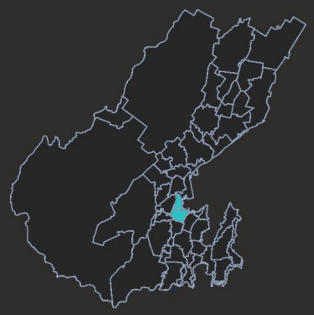
+Figure 29: Aerial photograph looking from the city into the harbour and beyond to the Hutt Valley and Western Hills. Photograph by Paul Hiller. 23 Sep 2012



+ NEW ZEALAND



+ WELLINGTON REGION



+ WELLINGTON CITY

WELLINGTON CITY

Wellington is New Zealand's centre of government and the world's southernmost capital city. It is also the country's cultural capital and the third most populous urban area in New Zealand. Wellington is at the southwestern tip of the North Island, between the Cook Strait and Rimutaka Range. Its beautiful setting on Lambton Harbour and Oriental Bay has been built up, with much of the waterfront a result of reclaimed land and further developments. The city lines the ever-popular waterfront, and suburbs are embedded in the surrounding green hills.

Lonely Planet's Guide to Best in Travel 2011 named Wellington as fourth in its Top 10 Cities to Visit, referring to the New Zealand capital as the "the coolest little capital in the world." With reason too, the city is home to many museums, art festivals, world class sporting events, and countless walking tracks that present breathtaking views of the city and its surroundings.

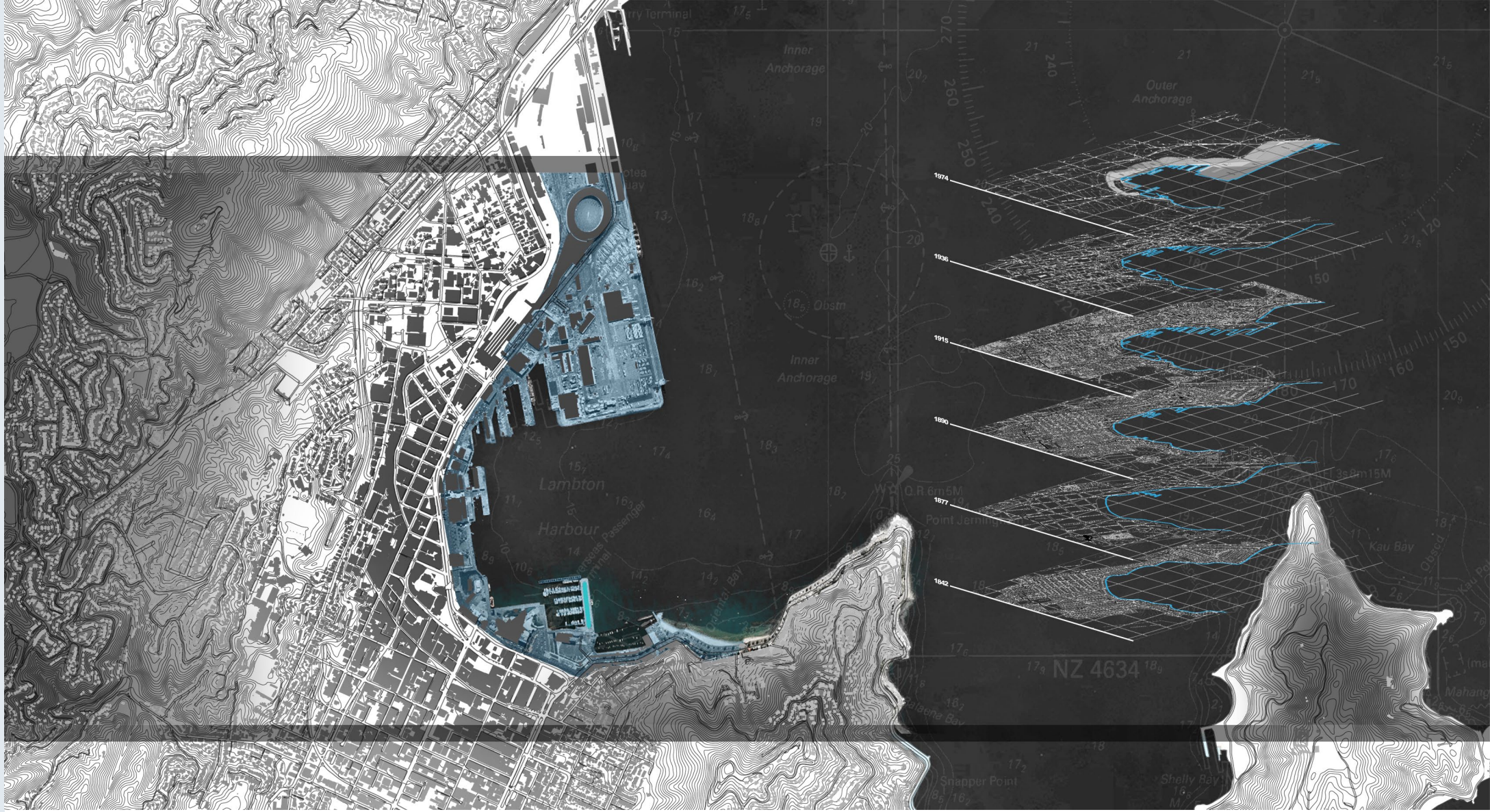
During much of the nineteeth and twentieth centuries, Wellington's waterfront was full of activity including an active port. The port has now become much more concentrated to the north of the city, enabling the waterfront to evolve and continue to become one of the city's most distinctive and attractive boundaries separating the city from the sea.

WELLINGTON CITY

The Wellington waterfront is a critical threshold that separates the city from the sea. Lambton Harbour is the playing field for the rowing athletes where they compete and train outdoors. Wellington city's unique harbourscape allows it to act like an urban sporting arena. Lambton Harbour is the sporting stage upon which the athletes perform; the waterfront provides a sideline experience to the witnessing of the sport, and the surrounding hills and high-rise buildings are the current terraced seating that contains the larger number of spectators.

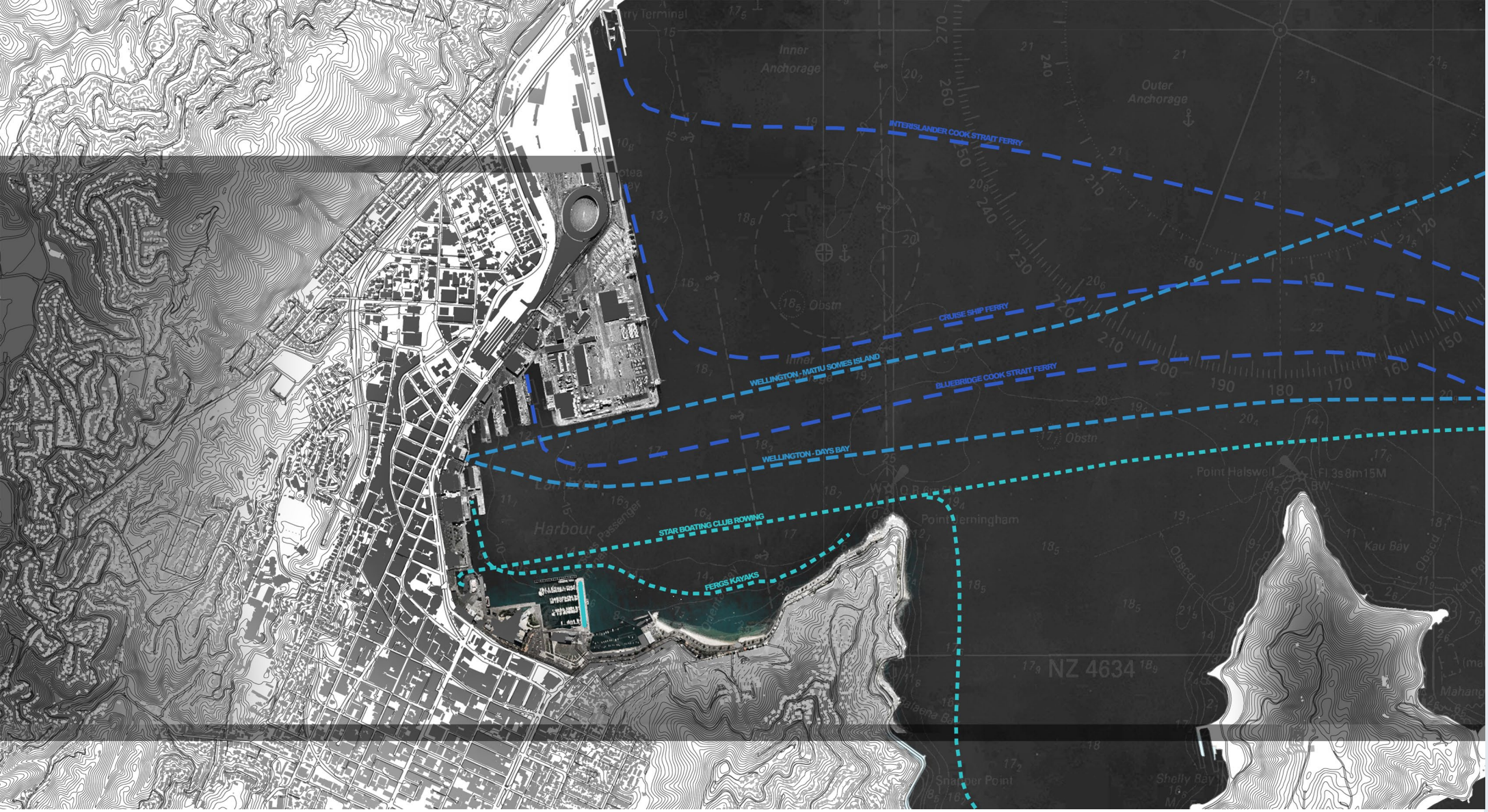
WELLINGTON BASE LAYERS

The Wellington city base map separates the city into four key layers (land contours, harbour contours, city grids, and building footprints). This demonstrates how each individual layer shapes and impacts on the city. The land contours clearly indicate the flat nature of the CBD and the hills surrounding the city. The city grids inform the reader of the city's networks that wrap around the waterfront. The building footprints indicate the density of buildings, which is most dense in the CBD and more dispersed in the outer suburbs and surrounding hills.



WELLINGTON WATERFRONT

The waterfront has changed substantially from the bustling port of old. The Wellington City Council and a number of passionate Wellington residents involved in Wellington Waterfront Watch are interested in developing a vision for the waterfront and its future. Wellington Waterfront Ltd (WWL) is a council-owned company charged with turning that vision into reality. Extensive work has been put into developing the waterfront into a city asset that welcomes the public to live, work, and play in user-friendly spaces that connect the city to the sea. Historically a privatised waterfront to accommodate the large number of shipping exports arriving and departing from the city, the harbour has slowly developed into a waterfront that is highly popular for the public. The Wellington City Council now has a mandate that all new building must be accessible to the public.

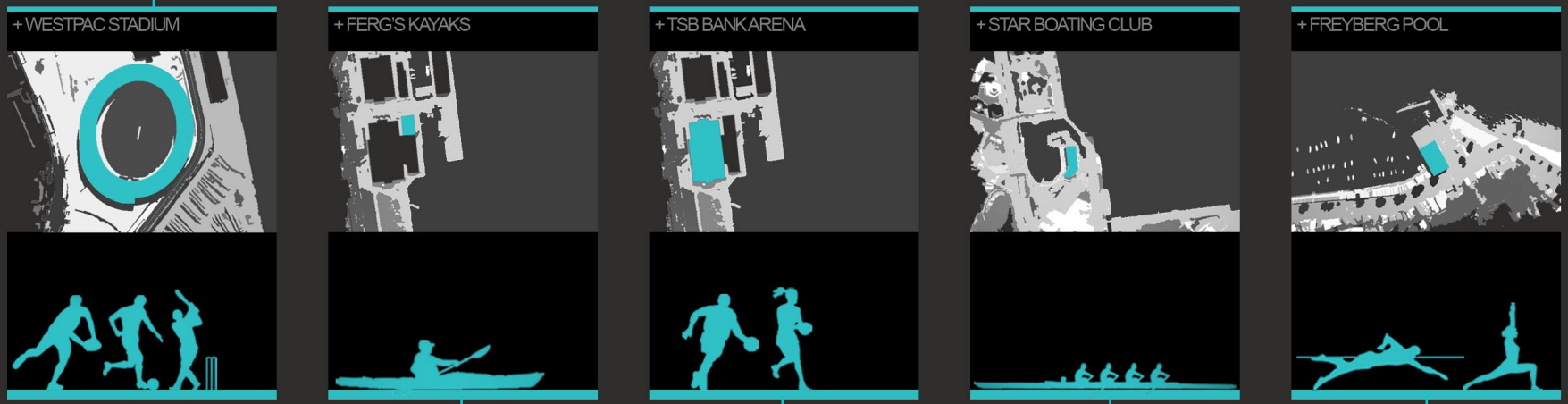


BOATING LANES

This map of the Boating lanes locates the various vessels that traverse the harbour to and from the waterfront edge. The blue lines (located around the port) represent the larger boats: shipping containers and cruise ships from around the world heading to and from the Cook Strait. The green lines indicate the routes of smaller boats, including rowing crews occupied by athletes training and competing, and recreational kayakers from Ferg's Kayaks paddling round the waterfront's edge and Oriental Parade. The harbour is effectively divided between machine powered and human powered.

SPORTING & GREEN SPACE

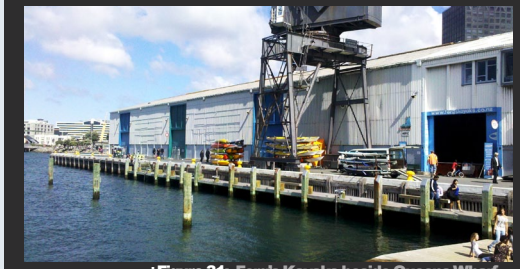
The Wellington waterfront provides a natural amphitheatre for witnessing any sporting event or activity that is happening on Lambton Harbour. The many open public vistas and vantage points along the waterfront provide this visual connection between land and water. As a public vantage point that juts out into the harbour itself, Clyde Quay Wharf presents an ideal opportunity for a sporting facility in the heart of the Wellington waterfront. This will enable the public to witness and celebrate the rowing athletes while they train and compete. The existing waterfront sporting facilities identified below all display unique qualities, which will be assessed to create parameters for a successful rowing facility.


+ WESTPAC STADIUM
+ FERG'S KAYAKS
+ TSB BANK ARENA
+ STAR BOATING CLUB
+ FREYBERG POOL

+Figure 30: Westpac Stadium in Wellington.
Photograph by author. 31 Mar 2013.

WESTPAC STADIUM

While not on the waterfront, the Westpac Stadium is a visible participant of the waterfront and a key symbol of sports in Wellington. Built in 1999, the Westpac Stadium is the major sporting venue in the city that has successfully staged large international sporting events including: rugby, cricket, and football. The location of the building near the Wellington train station enables it to be more accessible to the public who are living in the Hutt Valley. The 34,000-capacity seating generates an energetic atmosphere during these sporting events, a spectacle and atmosphere that this thesis will explore to help celebrate the sport of rowing and their athletes. Its principal weaknesses include a total lack of visual connection from inside the stadium to outside, and it lies vacant a majority of the time since competitions are relatively infrequent. This suggests that the rowing facility design would benefit from inside outside connections and activities that enable it to be continually active.



+Figure 31: Ferg's Kayaks beside Queens Wharf.
Photograph by author. 2 Apr 2013.

FERG'S KAYAKS

Ferg's Kayaks is located in Shed 6 on Queens Wharf beside the TSB Bank Arena. It is a recreational centre that provides adventurous activities for the public, including rock-climbing, inline skating and of course kayaking. The location of Queens Wharf jutting out into the harbour acts as an intimate protected harbour environment as the kayakers enter the water before paddling out from a calmer contained area into the exposure of the harbour. This intimate harbour environment has a strong visual connection to the public who walk along the waterfront's edge on the same parallel path; allowing the public to witness the kayakers and for the kayakers to feel as if they are been celebrated by the public. This reinforces the importance of inside outside connections and celebrating the relationship between athletes and spectators.

+Figure 32: Main entrance into the TSB Banks Arena.
Photograph by author. 2 Apr 2013.

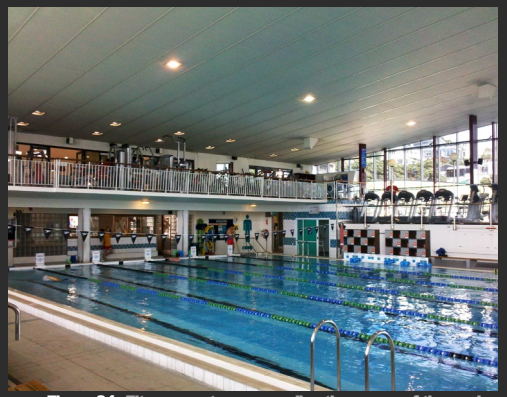
TSB BANK ARENA

Built in 1995, the TSB Bank arena, previously recognised as the Queens Wharf Events Centre, is an indoor arena located beside Shed 6. This building regularly stages sporting events such as basketball, netball, and various exhibitions are held each year. The appealing nature of this location for the public attending these sporting and cultural events is the close proximity to popular restaurants along the waterfront. This enables the public to dine at one of many popular restaurants before attending the events at the arena. While its principal weaknesses include a total lack of visual connection from inside the stadium to outside, it enhances its activities through close adjacencies to nearby bars and restaurants.

+Figure 33: Star Boating Club looking into Frank Kitts Lagoon. Photograph by author. 2 Apr 2013.

STAR BOATING CLUB

The Star Boating Club, as noted earlier is one of the oldest sporting clubs in New Zealand. This historic building was moved four times before finally being sited at its present location. The sheltered artificial lagoon where the rowing club is located creates a protected mini-amphitheatre with the diverse range of activity surrounding the water's edge. Its principal weaknesses include very limited public connection to its interior functions. And being a 'Category A' historic building it cannot be expanded or changed. One of its strengths is that it includes a public events facility on the upper floor for additional income and activation in the evenings. It is perfectly suited for community rowing activities, but a High Performance Rowing Centre would require far more extensive facilities and equipment.



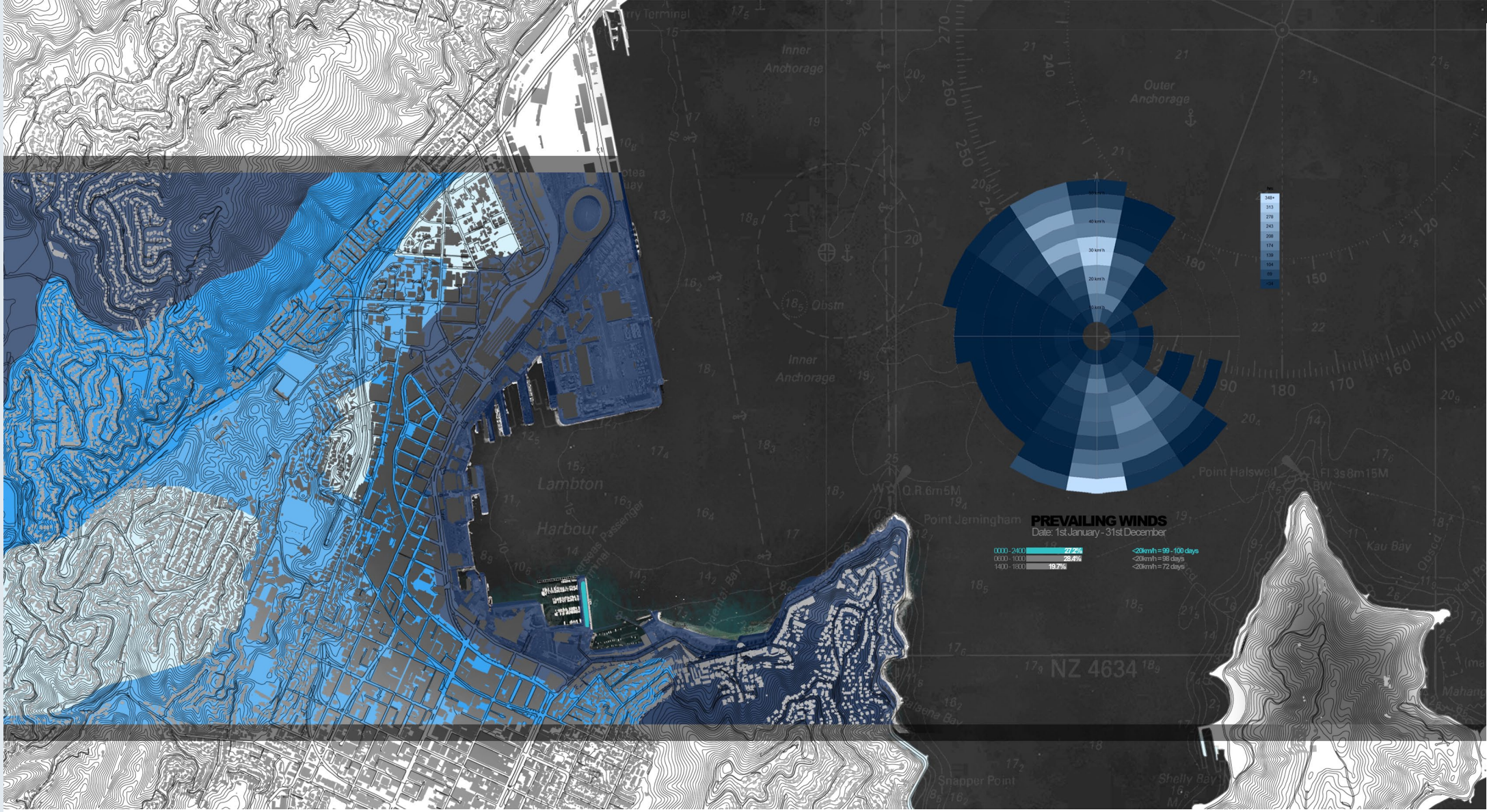
+Figure 34: Fitness centre surrounding the corner of the pool. Photograph by author. 2 Apr 2013.

FREYBERG POOL & FITNESS CENTRE

Freyberg Pool & Fitness Centre located along Oriental Parade is a swimming and fitness centre that contains a 33m heated indoor pool, spas, sauna, steam room, fitness centre and aerobics studio. Naturally, swimming is an activity that must remain visible to ensure the lifeguards on duty can see all occupants in the pool. Freyberg Pools take this a step further where the fitness centre wraps around two sides of the pool area on a mezzanine floor that looks directly towards the swimming pool. This fitness centre with the members working out provides a greater set of eyes along with the lifeguards to create a safer environment. The swimming pool is the central focus of the building and other various programmes revolve around it. The water becomes the visual focus of the other activities, ensuring that potentially tedious activities like treadmills are strategically activated by views of the water sports. The thesis argues that a similar proposition may be very successful in a rowing centre. Its principal weaknesses include limited views of the harbour even though the facility is situated directly on the water. Its strengths include a central focus on water (the pool), with the smaller support activities surrounding the pool to strengthen them. This also enables all activities to be recognised as part of a greater system. Its multi-program approach with refreshments, gym, pool, and leisure ensures continual activation by a wide range of visitors.

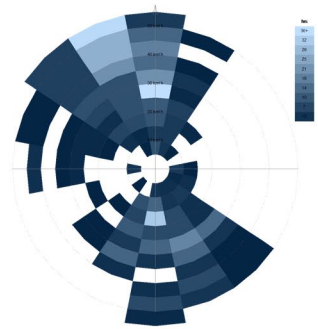
Design principles for a rowing facility:

- Maximise visual connection of inside and outside;
- Ensure the facility is activated all day and year round;
- Incorporate restaurant and bar facilities to ensure public connections to sporting and training activities and to ensure activation in the evenings;
- Central focus on water activity;
- Smaller support activities surround the central water to strengthen them;
- Multi-program approach to ensure continual activation by a wide range of visitors.



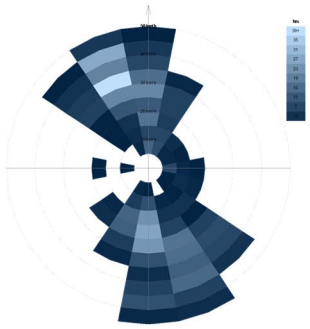
WEATHER: WIND ANALYSIS

Wellington's weather can play havoc with rowing athletes due to its unpredictable nature that often limits opportunities to get out onto the harbour. This wind map shows the principal wind zones and their relative strengths in Wellington. As the map indicates, the location on the waterfront is prone to intensive winds that increase intensity as they pass over neighbouring hills and across open flat expanses of water (the harbour). This occurs in Wellington due to the prevailing winds coming from the North and Northwest more than 50% of the time. Though strongly affected by the winds from the north, the winds from the south do not have the same impact due to the surrounding landscape of Mount Victoria providing adequate shelter.



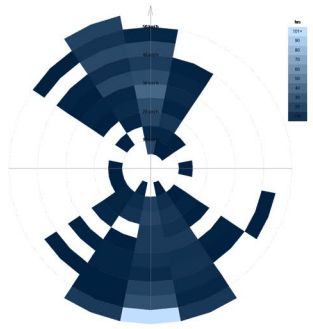
JANUARY
Date: 1st January - 31st January

0000 - 2400	28.4%	<20km/h = 9 days
0600 - 1000	22.6%	<20km/h = 7 days
1400 - 1800	21.7%	<20km/h = 6 - 7 days



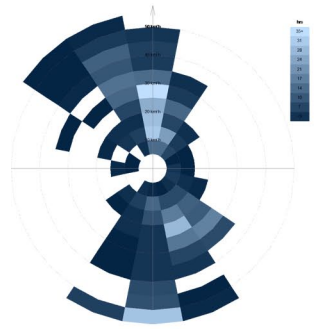
FEBRUARY
Date: 1st February - 28th February

0000 - 2400	27.5%	<20km/h = 8 days
0600 - 1000	24.6%	<20km/h = 7 - 8 days
1400 - 1800	15.2%	<20km/h = 4 days



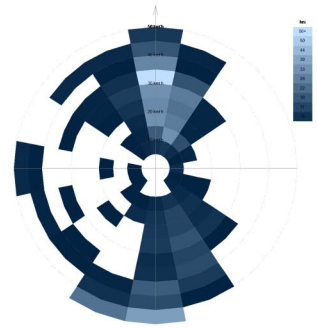
MARCH
Date: 1st March - 31st March

0000 - 2400	22.8%	<20km/h = 7 days
0600 - 1000	21.3%	<20km/h = 6 - 7 days
1400 - 1800	22.7%	<20km/h = 7 days



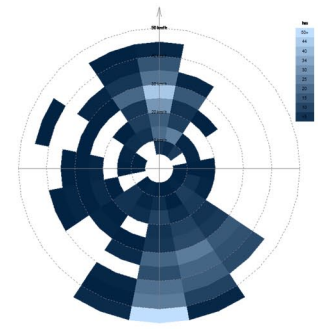
APRIL
Date: 1st April - 30th April

0000 - 2400	39.1%	<20km/h = 11 - 12 days
0600 - 1000	40.5%	<20km/h = 12 days
1400 - 1800	33.1%	<20km/h = 10 days



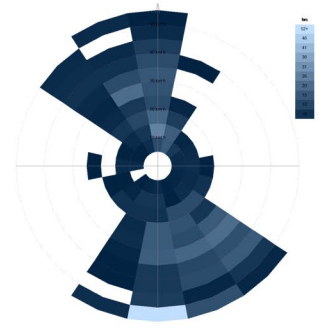
MAY
Date: 1st May - 31st May

0000 - 2400	29.7%	<20km/h = 9 days
0600 - 1000	32.0%	<20km/h = 10 days
1400 - 1800	24.2%	<20km/h = 7 - 8 days



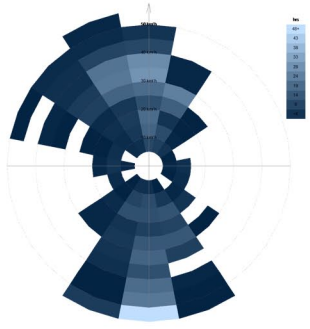
JUNE
Date: 1st June - 30th June

0000 - 2400	28.1%	<20km/h = 8 - 9 days
0600 - 1000	38.7%	<20km/h = 11 - 12 days
1400 - 1800	19.4%	<20km/h = 6 days



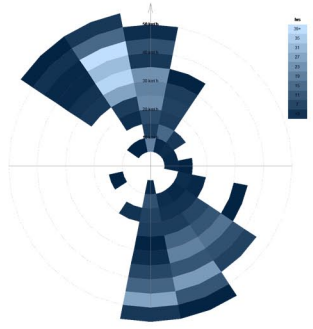
JULY
Date: 1st July - 31st July

0000 - 2400	36.0%	<20km/h = 11 days
0600 - 1000	42.2%	<20km/h = 13 days
1400 - 1800	24.3%	<20km/h = 7 - 8 days



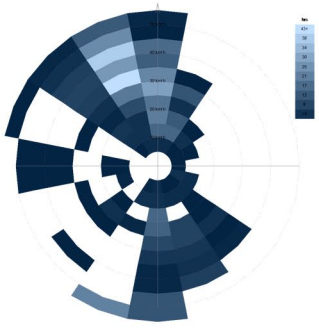
AUGUST
Date: 1st August - 31st August

0000 - 2400	31.2%	<20km/h = 9 - 10 days
0600 - 1000	27.4%	<20km/h = 8 - 9 days
1400 - 1800	25.5%	<20km/h = 8 days



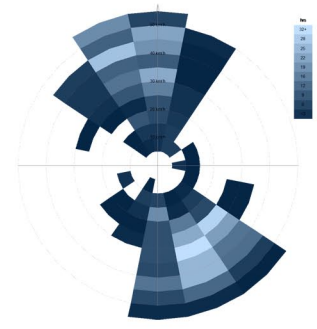
SEPTEMBER
Date: 1st September - 30th September

0000 - 2400	18.5%	<20km/h = 5 - 6 days
0600 - 1000	19.4%	<20km/h = 6 days
1400 - 1800	16.1%	<20km/h = 4 - 5 days



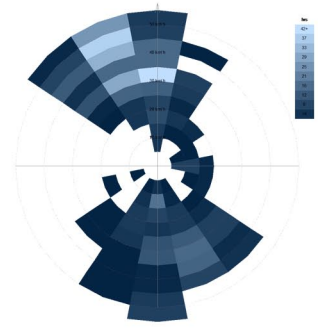
OCTOBER
Date: 1st October- 30th October

0000 - 2400	25.4%	<20km/h = 7 - 8 days
0600 - 1000	21.4%	<20km/h = 7 - 8 days
1400 - 1800	9.4%	<20km/h = 3 days



NOVEMBER
Date: 1st November - 30th November

0000 - 2400	17.2%	<20km/h = 5 days
0600 - 1000	20.3%	<20km/h = 6 days
1400 - 1800	4.4%	<20km/h = 1 days



DECEMBER
Date: 1st December - 31st December

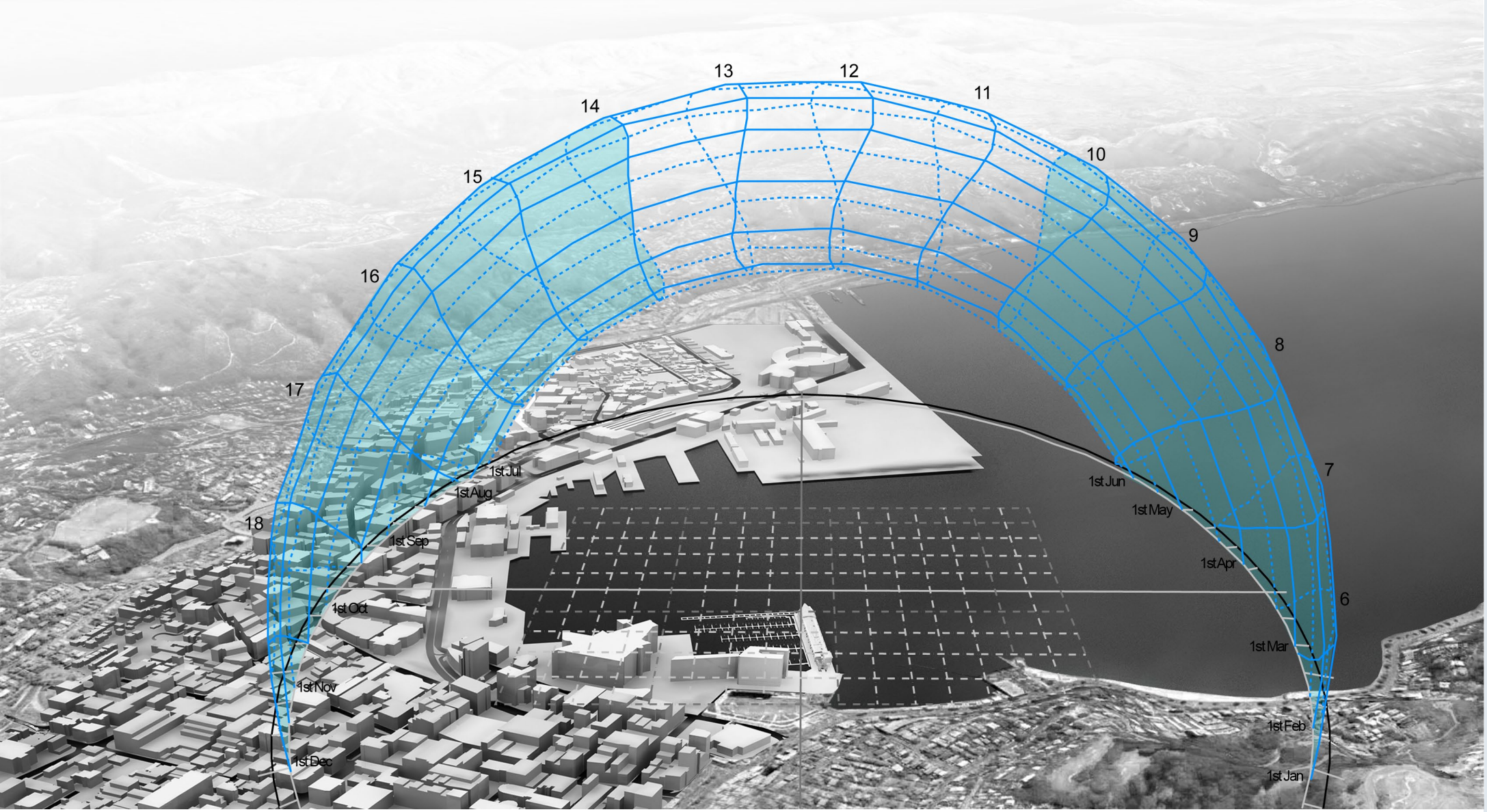
0000 - 2400	21.5%	<20km/h = 6 - 7 days
0600 - 1000	18.6%	<20km/h = 6 days
1400 - 1800	14.0%	<20km/h = 4 - 5 days

WIND MONTHLY DATA

An important aspect of this thesis is to understand how much the Wellington Harbour weather affects the activities of the rowing athletes. Any winds above 20km/h are too strong to row in. Therefore, the wind graphs above with the help of Ecotech, document the percentages both annually and monthly that are below 20km/h. Also documented are mornings (0600 - 1000) and afternoons (1400 - 1800) which are the prominent times when rowing takes place in the Wellington Harbour. The results are quite astonishing as noted in the annual wind graph, where on average only 27.2% of the year (which equates to approximately 100 days of the year) are the winds below 20km/h and suitable to row in the harbour. Hence, these numbers strongly suggest there is an important need for interior facilities to accommodate the athletes' training when the weather becomes unsuitable.

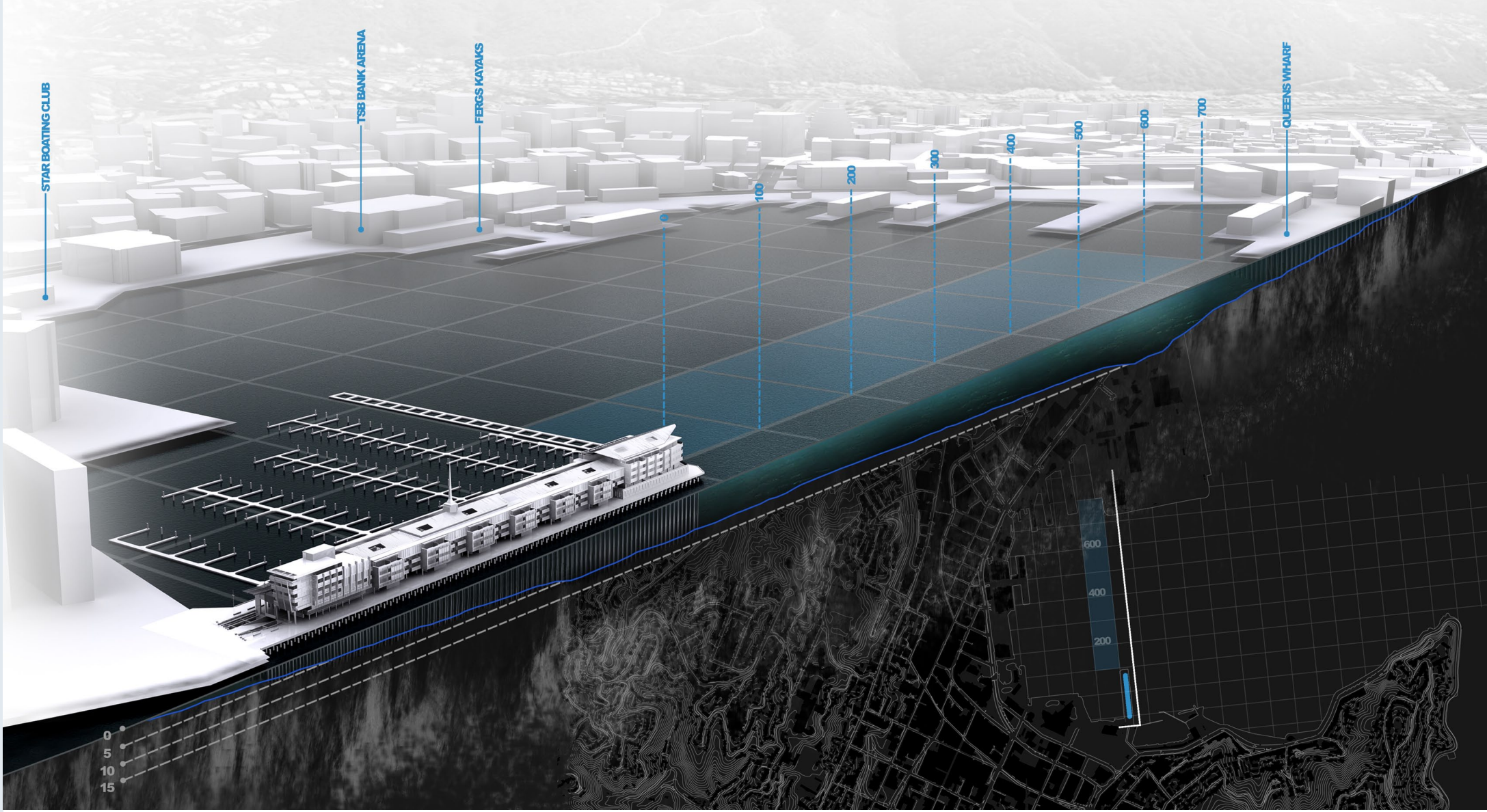
TIDE LEVELS

The fact that this building is located on a wharf hovering over the harbour's edge creates some unique site conditions that provide many challenges as well as opportunities. Any transition that deals with the above and below, for example the descent of the athletes moving from the wharf down to the water will have to take the tidal changes into consideration. The average change from high tide to low tide in this area is approximately 1.2 meters. The shaded area on the diagram indicates the two key times of day when the athletes train in the harbour; morning (0600-1000) and afternoon (1400-1800).



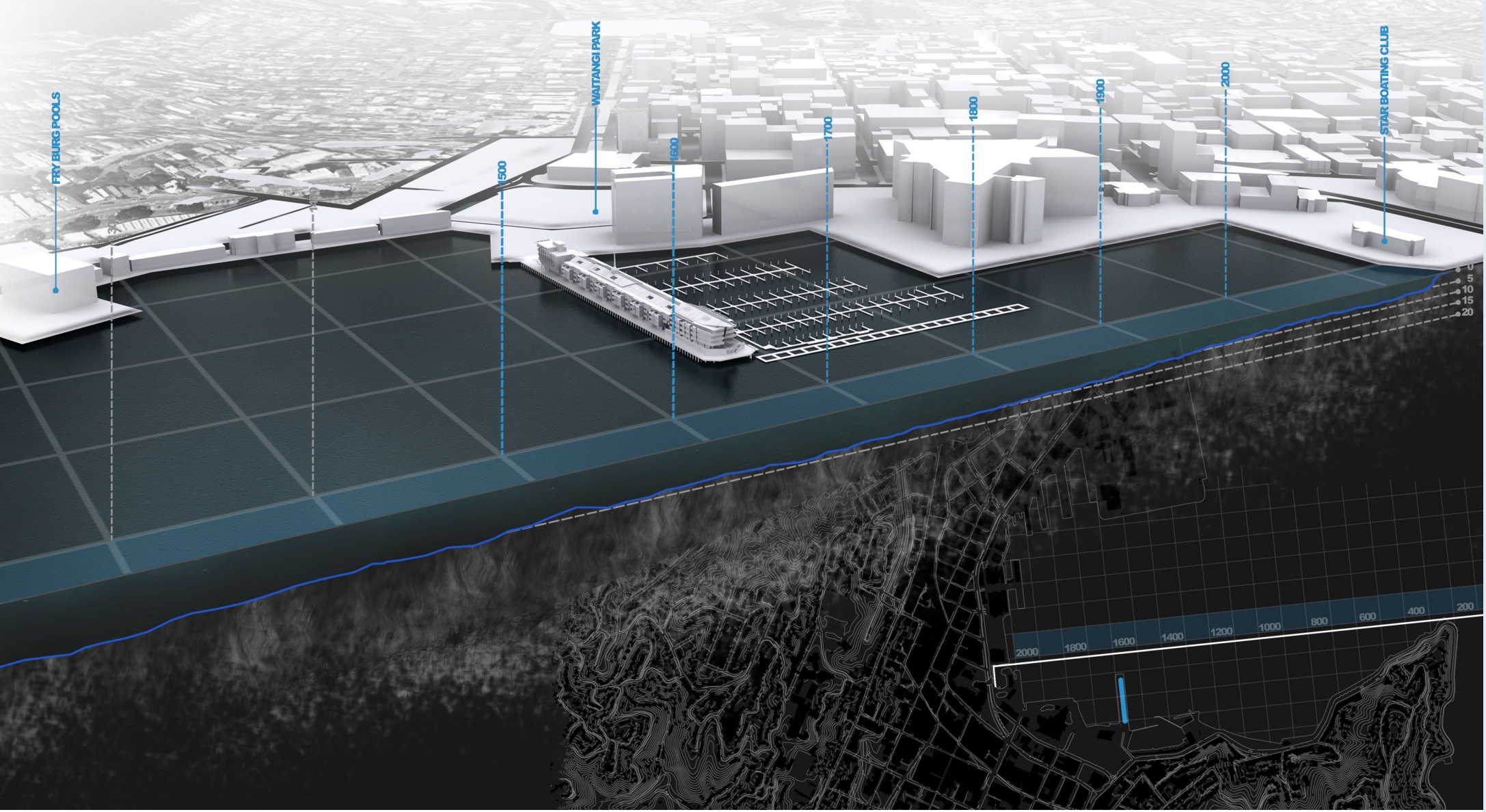
SUN ANGLE DIAGRAM

This drawing indicates the relative amount of sun the site receives throughout the day assuming limited cloud cover. As noted in the wind analysis, the athletes typically train in the mornings (0600 - 1000) and in the afternoons (1400 - 1800). The north-south orientation of Clyde Quay Wharf and location in the Wellington Harbour enables the site to make the most of the sun available throughout the day. The north-facing end of the building provides an opportunity for the building to open up and make the most of the sun available.



LONGITUDINAL SECTION

These sections through the Wellington Harbour indicate the possibilities of having rowing regattas being raced in the harbour. This drawing suggests a sprint race that begins at the end of Chaffer's Marina in front of the wave breakers and finishes at the port which lies opposite across the harbour. The locations of neighbouring sports facilities are identified along the harbour's edge.



LATITTUDINAL SECTION

This section indicates the potential location for a rowing regatta race that traditionally spans 2km. The race could begin out at Point Jerningham and finish in front of Frank Kitts Park, at the hub of the harbour's natural mini-amphitheatre, attaining an energetic atmosphere due to the large public population who generally occupy this area of the waterfront. This would enable the entirety of the waterfront from Frank Kitts Park and along Oriental Parade to Point Jerningham to be a witness of a race that is happening across the harbour.

+Figure 35: Photo render of the new Clyde Quay Wharf proposed by Willis Bond & Co designed by Athfield Architects Ltd.
Image by Athfield Architects Ltd.

CLYDE QUAY WHARF

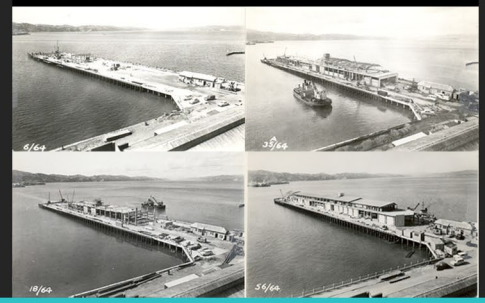
Wellington Waterfront Ltd. is a Wellington City Council Controlled organisation charged with transforming the boundary between city and harbour into an inviting public haven that is popular and full of activity. Part of this waterfront development includes the re-design of Clyde Quay Wharf; the design commission for this historic and popular site was awarded to Willis Bond & Co's proposal designed by Athfield Architects Ltd. The firm describes this building and site as "living on the edge," a lifestyle for apartment owners that directly engages with the harbour upon which this building is sited.

Clyde Quay Wharf is located on a unique finger wharf site located on the south edge of Lambton Harbour. The wharf is composed of eight adjacent lots; No. 1 Clyde Quay Wharf defines the north end jutting into the harbour, and No. 8 Clyde Quay Wharf is the south entrance from the land. The new design replaces the old Overseas Passenger Terminal that was built in 1964. The city required that its principle characteristics be visually maintained in the new design, even though it needed to be completely demolished for structural reasons; Athfield Architects Ltd. designed 76 high-end residential apartments that begin on level 01 spanning three floors and increasing to five levels at No.8 Clyde Quay Wharf. The ground floor of the new design consists of various public retail and dining spaces, effectively restricting the public experience of the site to the wharf level.

+ ORIGINAL CONCRETE WHARF

+ EXTENSION AND WIDENING OF THE WHARF

+ OPT CONSTRUCTION



1900 **1910** 1920 1930 1940 1950 1960 **1963** 1970 1980

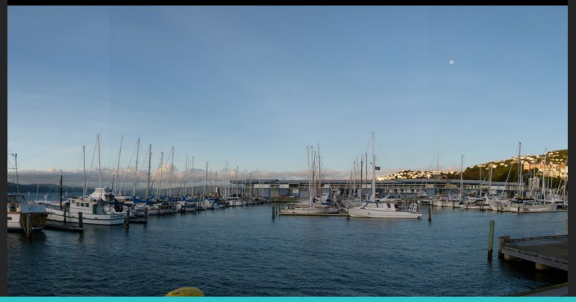
The original concrete wharf of Clyde Quay was completed.

The wharf was extended and widened for the construction of the Overseas Passenger Terminal.

However, as air travel rapidly took over the international travel market, the new building's purpose as a terminal for overseas visitors and migrants was never fully realised (Wellington Waterfront Ltd, 2012).

Over the years, the Overseas Passenger Terminal accommodated a function centre, office spaces, and various restaurants and businesses.

+ CHAFFERS MARINA



+ RENDERING OF ATHFIELDS CLYDE QUAY WHARF

+ THESIS

?

1990 **1993** 2000 2010 **2014**

Chaffer's Marina was built as an internationally classed floating marina with a prime location near Museum of New Zealand Te Papa Tongarewa and Wellington's inner harbour.

Completed in 1993 it offers facilities and services to both visiting vessels and private berth owners. The marina is protected by a floating breakwater and is attached to Clyde Quay Wharf.

The construction of Athfield's new Clyde Quay Wharf commenced on 16 January 2012 with the deconstruction of the old Overseas Passenger Terminal. The building is expected to be completed mid 2014.

This thesis experiment is proposed as a further consideration of Athfield's Clyde Quay Wharf Development that aims to create the addition of a rowing facility at the north end of the building at No.1 Clyde Quay Wharf. This section of the building is most suited for the programme of a rowing facility due to its direct engagement with the harbour, and its position as a public anchor activity at the end of the wharf.

FROM THE LEFT

+Figure 36 - 41: Historic photos of the wharf and Oversea Passenger Terminal construction.

+Figure 42: Overseas Passenger Terminal and Chaffer's Marina, Wellington.

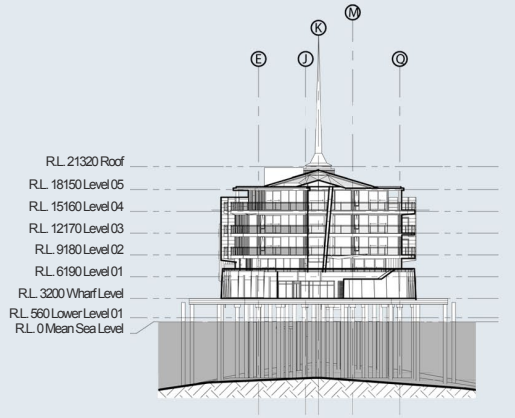
+Figure 43: Photo render of the new Clyde Quay Wharf proposed by Willis Bond & Co designed by Athfield Architects Ltd.

BUILDING ELEVATIONS

This thesis explores an alternative approach to the interior architecture of No.1 Clyde Quay Wharf at the north end of the new complex. The Athfield Architects Ltd. design of the entry at No.8 Clyde Quay Wharf and high-end apartments in No.2-7 Clyde Quay Wharf) remain. In similar developments of this nature, the harbour end of the building could effectively pay for the entire development due to having the best views that equate to a higher retail value. There is commercial pressure placed on designers to fill the end with high-end apartments, and as a result, Athfield Architects Ltd. placed the most expensive apartments at the north end. This results in a problem for the city and the waterfront development, as it prioritises the apartment owner rather than furthering a city mandate that encourages public access to this historic site. This thesis argues that there is an opportunity to turn this privatisation into a public facility that still improves the property value, while simultaneously solving the problems of rowing and celebration of the sport.

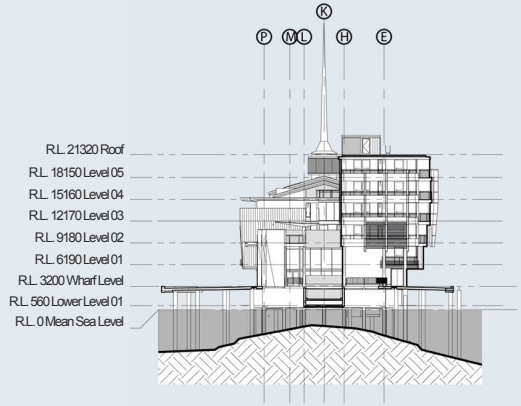
Design principles for a rowing facility on Clyde Quay Wharf:

- Maximise public activities on the northern anchor end of Clyde Quay Wharf.



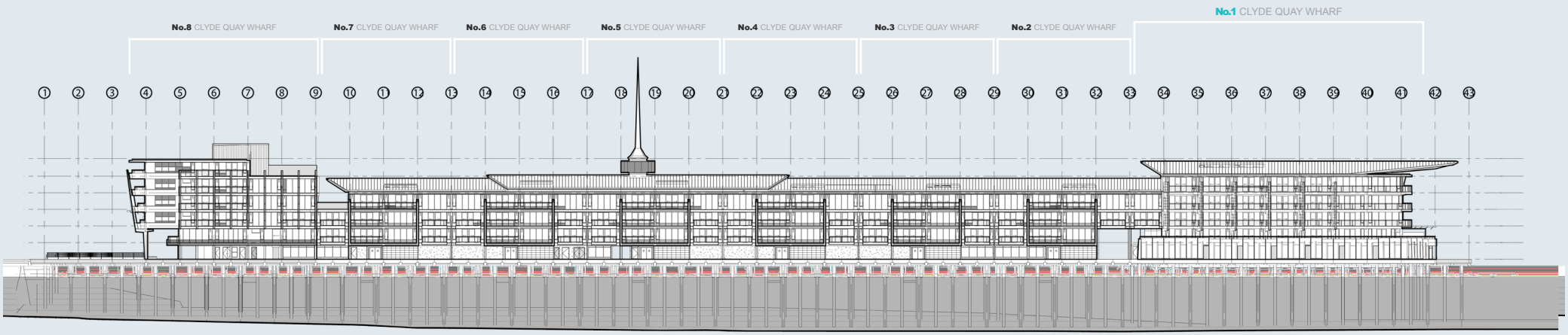
WEST ELEVATION

CLYDE QUAY WHARF



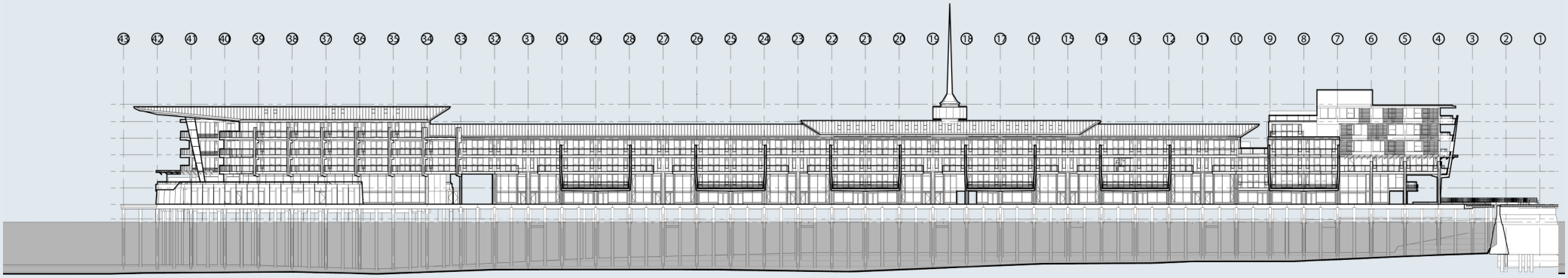
EAST ELEVATION

CLYDE QUAY WHARF



NORTH ELEVATION

CLYDE QUAY WHARF



SOUTH ELEVATION

CLYDE QUAY WHARF

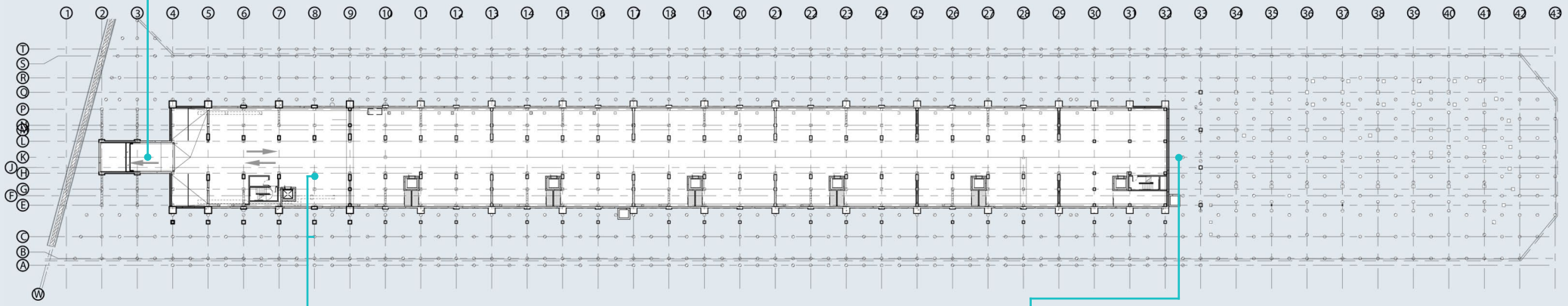
+ Clyde Quay Wharf building elevation drawings kindly supplied by ATHFIELD ARCHITECTS

BUILDING FLOOR PLANS

+ Clyde Quay Wharf floor plan drawings kindly supplied by ATHFIELD ARCHITECTS

+ ENTRANCE

The Athfield Architects Ltd. Design begins with a central axis car park ramp at No. 8 Clyde Quay Wharf that descends down underneath the wharf for the residents of the apartments.



+ STRUCTURAL GRID

Athfield Architects Ltd. Has acknowledged the historic wooden piers of the wharf, by placing the structural grid of the car park on the same grid as the piers. The thesis argues that the design of the rowing centre at the north end should also recognise and reflect the piers underneath the wharf.

+ CAR PARK END

This under wharf car park ends at the beginning of No. 1 Clyde Quay Wharf; this presents an opportunity to explore the unique opportunities of the Lower Level when redesigning No. 1 Clyde Quay Wharf.

LOWER LEVEL 01

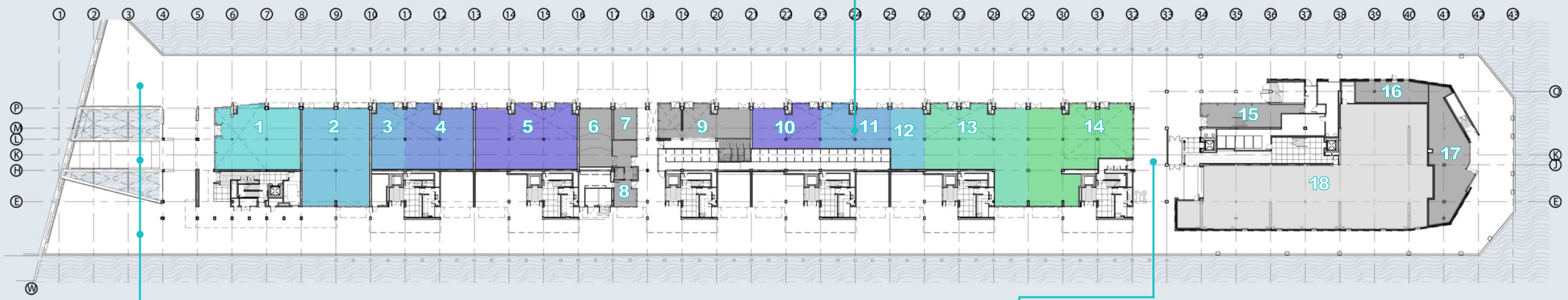
Lower Level 01 highlights the addition of an under wharf car park for the apartment residents. As noted the car park does not extend the entire length of the wharf, inviting an exploration of these beautiful spaces underneath the wharf, and engaging with the transforming datum line of the tidal plane. The vehicles enter the building on a central axis, this central axis wants to be reflected at the end of the building as well. Cars entering at one end, rowing sculls departing at the opposite end.

+ PROPOSED PROGRAMME

1. Bakery/cafe
2. Proposed Restaurant
3. Proposed gallery
4. Deli/hospitality
5. Proposed Day Spa/Beauty
6. Residence Theatre
7. Proposed Residents Amenity
8. Business Meeting Room
9. Residence Gym
10. Proposed Health/Lifestyle
11. Proposed Art Gallery/Studio
12. Proposed Design Studio
13. Chaffers Marina Office & Services
14. Marina Related Retail
15. Entry to Level 01 Area
16. Public Toilets
17. Wellington Waterfront Area
18. No.1 Clyde Quay Wharf Car Park Area

+ RETAIL SPACES

Shops and cafés line the west of the building, inviting the public to venture along to the end of the wharf as it creates a type of public waterfront street.



+ ENTRANCE

At ground level, vehicles enter on the central axis, while pedestrians enter on either side of the building.

+ PUBLIC CORRIDOR

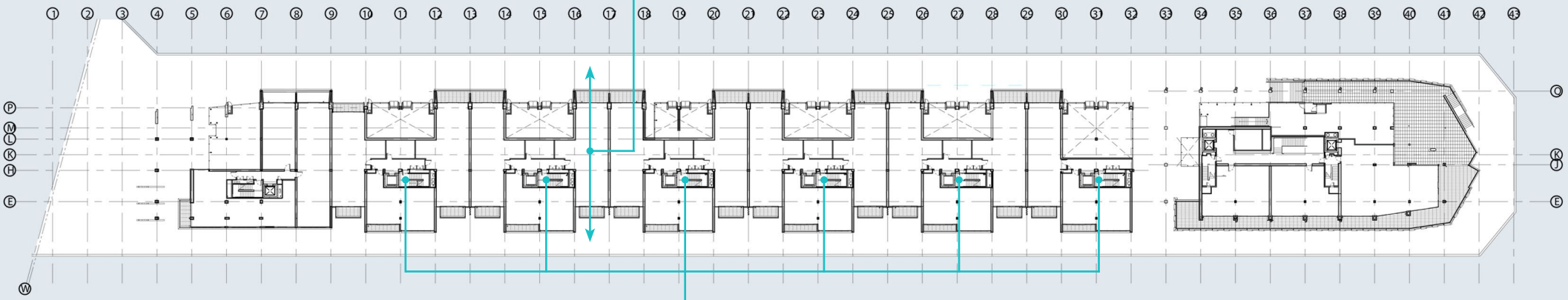
This exterior public corridor separating No.1 and No.2 Clyde Quay Wharf presents an opportunity to bring the public into the new rowing facility on a central axis that provides an internalised focus of rowing crew's departing the building into the harbour.

WHARF LEVEL

The Athfield Architects Ltd's design of the wharf level engages the public with various shops and cafés on the west side but not the east. This avoids some of the problems encountered by Prince's Wharf in Auckland by encouraging the public to progress along the perimeter of the wharf. However, Athfield places parking and storage in the prime north quadrant as well as only service functions of the harbour facing east side.

+ EMPHASISING THE EAST & WEST VIEWS

Athfield Architects Ltd's design avoids internal corridors by using modular repetitive cores to achieve the developer's vision of creating expansive views that can be experienced to both the east and west. As evident in the plan there is no central corridor connecting the apartments; instead a series of repetitive cores accessed from the east side of the building provide access for residents to their apartment. This enables maximum views from the apartments. Any impeding structure that limits these views is a potential decrease in the apartment's value.

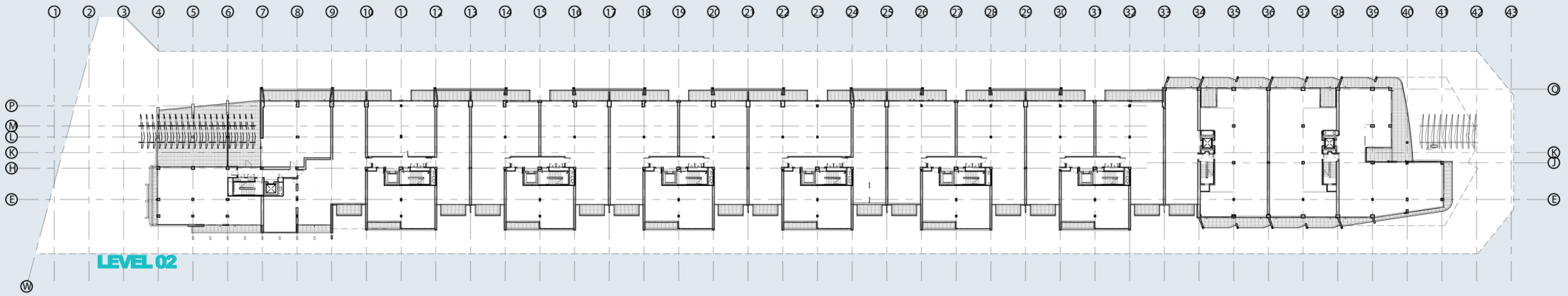


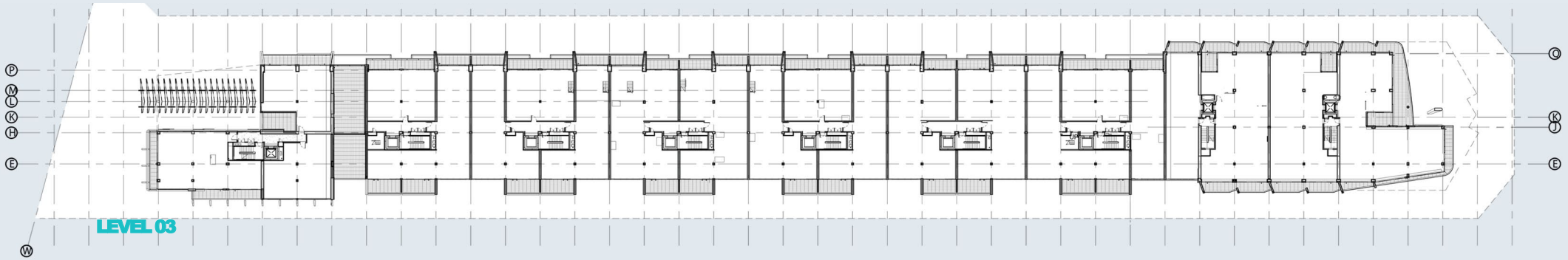
+ REPETITIVE CORES

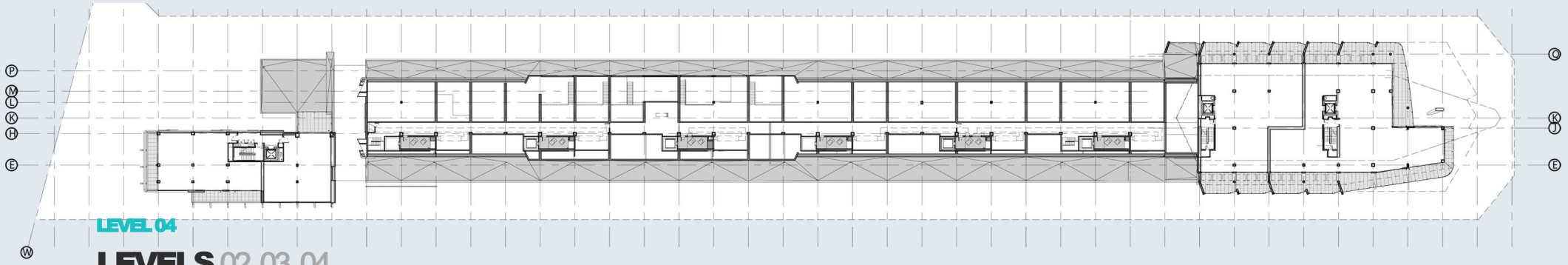
These repetitive cores establish a rhythm to the building that responds to the historic pattern of the new envelope, while maximising water views and the direct visual axis from east to west.

LEVEL 01

Athfield Architects Ltd's design uses a modular core repetition as one of the principal ordering devices of the building. The thesis argues that this ordering device should be respected in the new design experiment, but allows the cores to become public at the northern end.







LEVELS 02, 03, 04

The following three levels of Athfield Architects Ltd's design further highlight the repetitive cores through No.2 to No.8 Clyde Quay Wharf of the building. These high-end apartments also establish the strong viewing vistas to the east and west of the building.

CONCLUSION SITE ANALYSIS

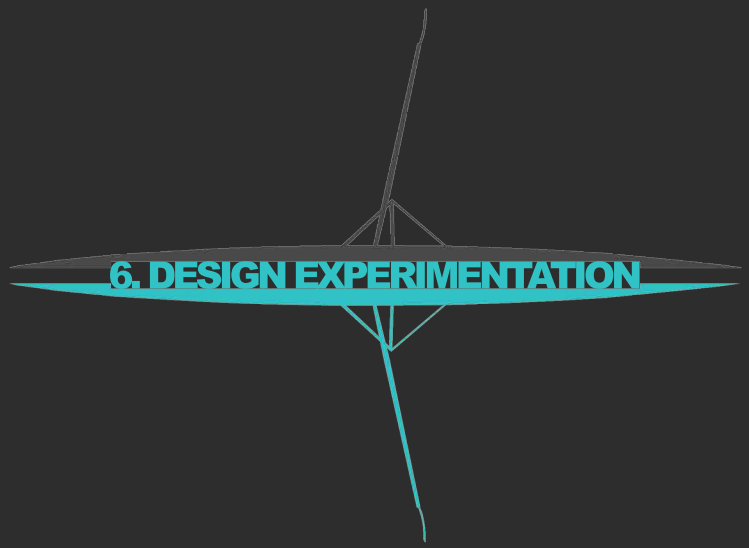
The analyses from the Site Analysis indicate that a successful approach to a rowing facility should:

Design principles for a rowing facility arising from the Site Analysis:

- **Maximise visual connection between inside and outside;**
- **Ensure the facility is activated all day and year round;**
- **Incorporate restaurant and bar facilities to ensure public connections to sporting and training activities and to ensure activation in the evenings;**
- **Central focus on water activity;**
- **Smaller support activities surround the central water to strengthen them;**
- **Multi-program approach to ensure continual activation by a wide range of visitors;**
- **Interior training facilities are required that can mimic outdoor training;**

Design principles for a rowing facility on Clyde Quay Wharf:

- **Maximise public activities on the northern anchor end of Clyde Quay Wharf.**
- **Engage the lower level (below water) on the northern anchor end of Clyde Quay Wharf;**
- **Invite a return of the central axis arrival at the northern anchor end of Clyde Quay Wharf.**



This chapter brings together the design principles assembled during the research analysis chapters and tests them in a design for a rowing facility sited in Athfield Architects Ltd.'s $100 million redevelopment of the Overseas Passenger in Wellington. This design research chapter investigates how a permanent rowing facility can become a viable urban activator for both a city and a private development, while also enhancing the public's relationship with this premier New Zealand sport. Our harbour cities depend on public activities along the waterfront that encourage visual as well as physical participation throughout the day. And creating the opportunity for the sport and its athletes to be celebrated in the eyes of the public is important to ensure the sport continues to thrive and receives the recognition that it deserves.

DESIGN INTRODUCTION

Athfield's Clyde Quay Wharf provides the ideal site to test these propositions. The context of this building has its own set of constraints that this design must also take into consideration. One of the major imperatives of the developer for Clyde Quay Wharf is to maximise the available harbour views and effectively de-materialise as many walls as possible to create a transparent vista of the harbour through the building from the east to the west, as well as to the north.

From an economic perspective, the developer located the more expensive apartments at the north end of the building where the best harbour views command higher prices. However, this becomes a problem as it privatises the entire facility above the wharf level, rather than following the city mandate to keep this historic site and other waterfront sites available to the public. The developer circumvents this public mandate by providing public amenities only on the wharf level of Clyde Quay Wharf while the floors above remain privatised with living apartments. This design experiment introduces new programmes – shared by both the general public and the apartment residents – into the building to engage the public vertically and enable the wider community to experience the view out into the harbour and the rowing action happening below.

This thesis argues that sporting facilities have failed to meet the demands professionalism has placed upon sport. This design experiment explores the design of a facility that simultaneously: enhances the urban context for the public; enhances public awareness of the sport of rowing; enhances the training of rowing athletes; ensures economic viability of the facility year-round; and celebrates the unique boundary conditions separating the built environment from the water.

New Zealand is a water-surrounded country, yet its water sports receive far less attention than the likes of rugby and other sports located in a central arena. Therefore, the creation of means to activate water sports is an imperative, where this design experiment has the potential to be recognised as a precedent for other water sports that celebrate the land-water boundary.

DESIGN PRINCIPLES

The analyses in the research chapters indicate that a successful approach to a rowing facility should:

Enhance the Urban Context for the Public:

- **Be a year-round activator for the city;**
- **Be a theatre for spectators that 'captures something of the sport itself';**
- **Meet a developer's goals by increasing retail values through increasing the numbers of harbour views;**
- **Meet a city's goals by increasing the connection of the waterfront and public activities;**
- **Ensure anchor activities are conceived for shared public use, such as restaurant, bar, gymnasium, water sports, learning centre about rowing, etc.;**
- **Maximise public access along the waterfront edges of the site and around the entire facility;**
- **Ensure a balance of commercial activity and public access and enjoyment.**

Enhance Awareness of the Sport of Rowing:

- **Include a rowing-specific indoor training facility visible to the general public;**
- **Include a health restaurant and training facilities available to the public;**
- **Incorporate a means of educating the public to the sport and its NZ successes;**
- **Ensure that how people interact with the facility enables them to learn more about the sport;**
- **Enable spectators to view as much of a race as possible by providing a view that is harbour-wide;**
- **Provide an internal atrium that merges inside/outside designed to work like a theatre for spectators; by integrating the building with the harbor it would 'capture something of the sport itself';**
- **Provide a central focus on water activity with smaller support activities surrounding the central water to strengthen them;**
- **Provide program-specific groupings of activities on each intermediate level around the atrium to enable each aspect of rowing to be understood as part of a greater system;**
- **Provide larger public gathering and dining areas at the upper level to bring rowers and the public together, while providing an overview of the entire system.**

Enhance the Training of Rowing Athletes:

- Actively engage the support of the public;
- Include a rowing-specific indoor training facility;
- Provide interior training facilities that mimic outdoor training;
- Include ready access to outdoor training;
- Include space for a High Performance Centre that includes directors, managers, and other specialists;
- Provide high performance training facilities for cardio training, stretching and flexibility, circuit training using own body weight, endurance strength training, and maximum strength training;
- Enable the training routine to be performed in a linear or circular process;
- Enable larger and smaller floor areas to both be available for diverse program requirements.

Ensure Economic Viability of the Facility Year-Round:

- Ensure the facility is activated all day and year round;
- Incorporate a multi-program approach to ensure continual activation by a wide range of visitors;
- Give something valuable back to the private sector who inhabit the adjacent apartments and to the public sector who inhabit the waterfront;
- Enable the gym, restaurant and bar facilities to be available to both sectors to ensure public connections to sporting and training activities and to ensure activation in the evenings.

Celebrate the Unique Boundary Conditions Separating the Built Environment from the Water:

- Celebrate the threshold transition from the built environment to the water;
- Celebrate the ritual of the athletes entering 'onto the field';
- Enable spectators to witness how a race originates by moving from the 'boatshed' to the starting blocks;
- Maximise visual connections of inside and outside;
- Provide an internal atrium that merges inside/outside to celebrate the threshold transition from the built environment to the water;
- Provide an internal atrium that merges inside/outside to enable witnessing all aspects of the sport, bringing the public into the 'community' of the sport;
- Encourage this threshold from the built environment to the water to highlight the unique identity of the sport of rowing.

Design Principles Derived from the Site Conditions

The analyses in the research chapters indicate that a successful 'site-specific' rowing facility on Clyde Quay Wharf should also:

- **Ensure the design takes into account the oar span required to move through the water from the entry point;**
- **Invite a return of the central axis arrival at the northern anchor end of Clyde Quay Wharf;**
- **Maximise public activities on the northern anchor end of Clyde Quay Wharf;**
- **Engage the lower level (below water) on the northern anchor end of Clyde Quay Wharf.**

NORTH END No.1 CLYDE QUAY WHARF

The design exploration of this research is sited at No.1 Clyde Quay Wharf (removal of 13 apartments), which is at the northern end of the new development furthest away from land. This end location was selected as the ideal location to enhance public engagement.

The design research experiment uses this location to test three of the above Design Principles relating to:

Enhance the Urban Context for the Public

- **Ensure anchor activities are conceived for shared public use, such as restaurant, bar, gymnasium, water sports, learning centre about rowing, etc.;**
- **Maximise public access along the waterfront edges of the site and around the entire facility;**
- **Ensure a balance of commercial activity and public access and enjoyment.**

This section of the building is considered the most appealing on the site that is home to the most expensive apartments that offer some of Wellington's best views of the city and harbour. The fact that this north end is the most prominent and privatised of the entire building is a problem in relation to the lack of community access, effectively restricting this part of the building to the private apartment owners. This thesis argues that the addition of public programmes can help activate the north end of Clyde Quay Wharf and further highlight this site as a vibrant hub along the Wellington waterfront that contributes actively to the wider community as well as the residents.

As noted in the Case Study chapter, Prince's Wharf in Auckland is a similar building typology to Clyde Quay Wharf in Wellington. Prince's Wharf potentially could have avoided a number of the privatisation problems had the design explored opportunities to maximise engagement of the public at the northern end of the site.

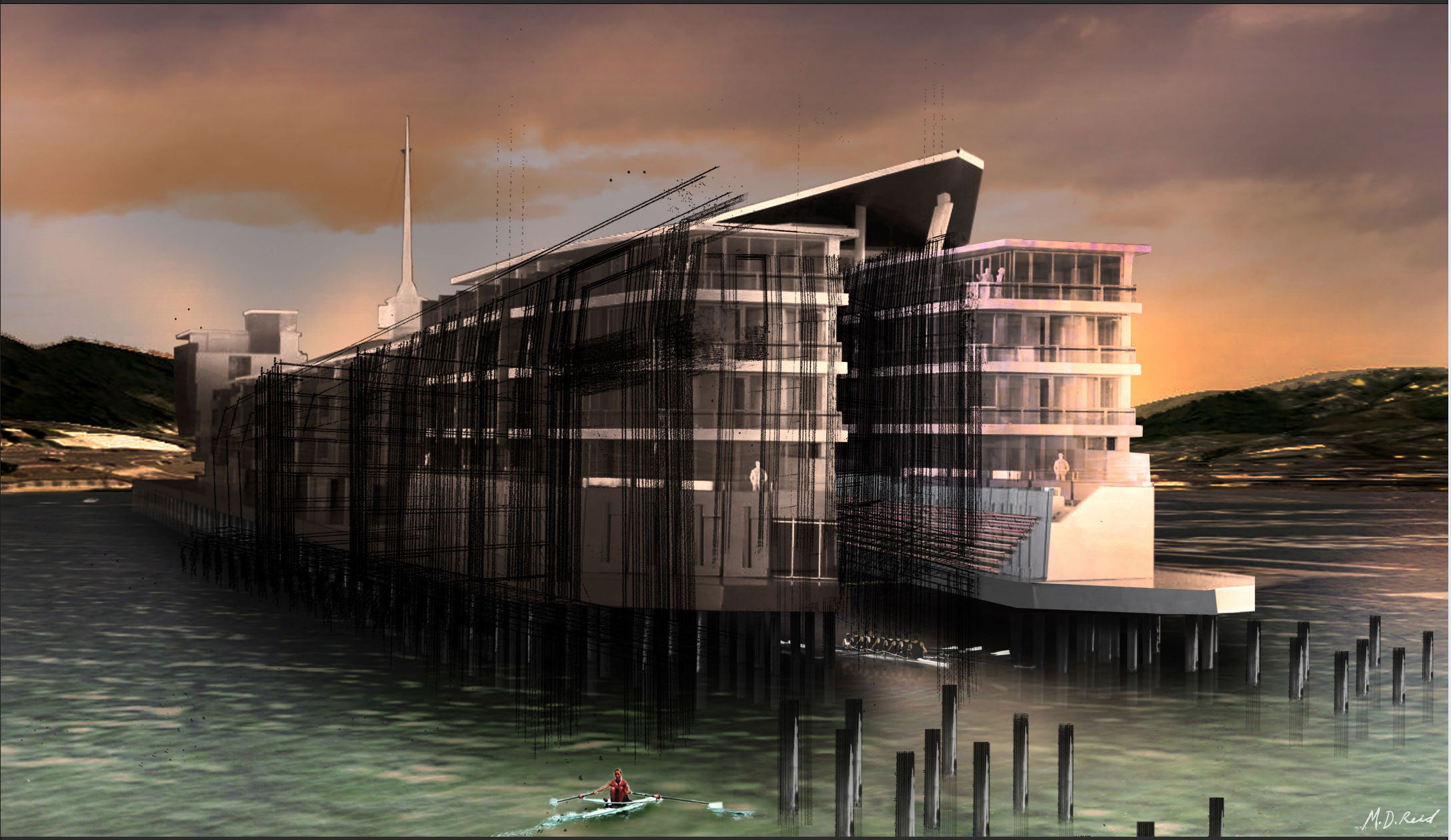
HARBOUR EXPERIMENT

These early concept development drawings illustrate the initial experiments for the design of a mixed-use facility at No.1 Clyde Quay Wharf. As indicated in this drawing, the first test move was to cut a substantial section in the building floor to allow the harbour to enter into a central atrium of the facility; in this way the boundary between the built environment and the water becomes 'blurred', a form of reciprocal relationship to create a seamless transition between the two realms.

This design research experiment tests Design Principles that:

Celebrate the Unique Boundary Conditions Separating the Built Environment from the Water:

- Celebrate the threshold transition from the built environment to the water;
- Maximise visual connections of inside and outside;
- Provide an internal atrium that merges inside/outside to celebrate the threshold transition from the built environment to the water;
- Provide an internal atrium that merges inside/outside to enable witnessing all aspects of the sport, bringing the public into the 'community' of the sport;
- Encourage this threshold from the built environment to the water to highlight the unique identity of the sport of rowing. Cutting a section into the building provided opportunities to create a number of new views that look into the building as well as out through the north end, while retaining the existing east and west views of the city and Oriental Bay.


M.D.Reid

INTERIOR EXPERIMENT

This next drawing shows an early experiment exploring the interior condition of this cut out section in the building. The view depicts two wings on either side of this channel of water that enters into the building creating a ceremonial transition between building and harbour for the rowing athletes. It is a chance for spectators to gather and show their support to the departing and arriving athletes.

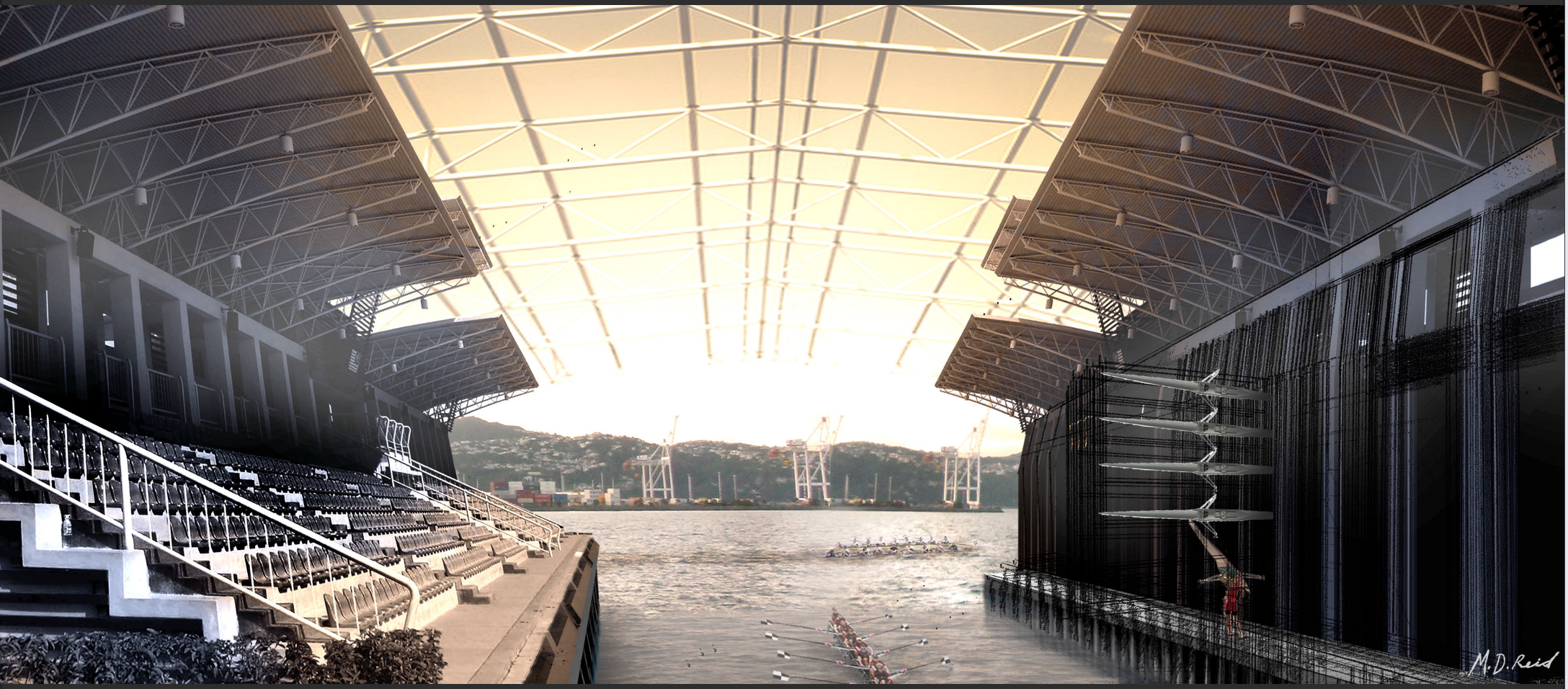
This design research experiment tests Design Principles that:

Celebrate the Unique Boundary Conditions Separating the Built Environment from the Water:

- Celebrate the ritual of the athletes entering 'onto the field';
- Enable spectators to witness how a race originates by moving from the 'boatshed' to the starting blocks.

Strengths: The positive attribute of this initial experiment is represented by the water atrium in the centre where architecture and surrounding programmes offer views directed towards this central focus as opposed to only emphasising the views to the east and west. These extra inward and northward views would add value to the building by internally creating a unique spatial experience for the occupants.

Weaknesses: A negative attribute of this initial experiment was how the amphitheatre seating reduced harbour views to the west and was oriented only toward the departing boats rather than northward toward the race itself.


M.D.Reid

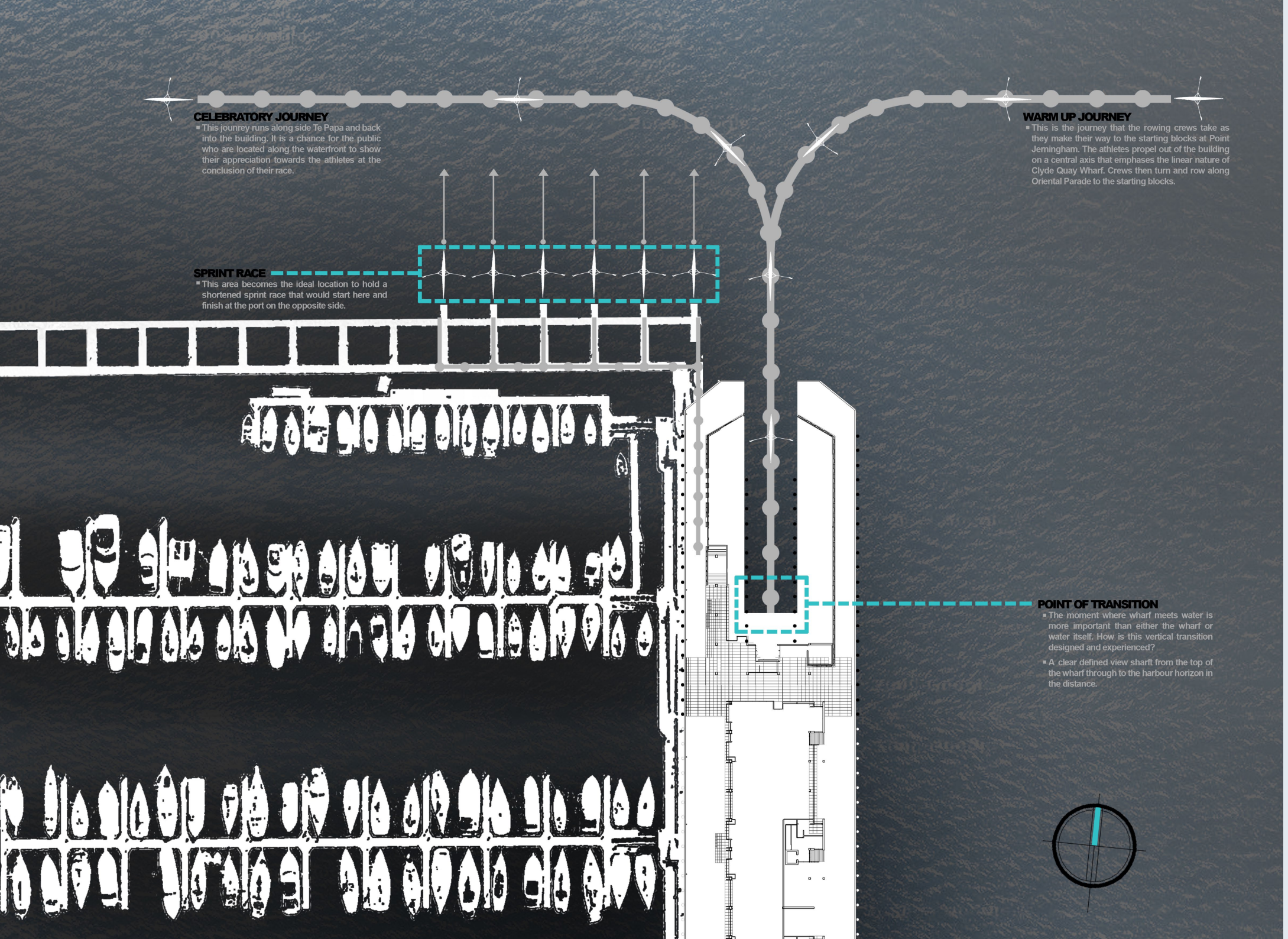
WHARF CUT OUT EXPERIMENTATION

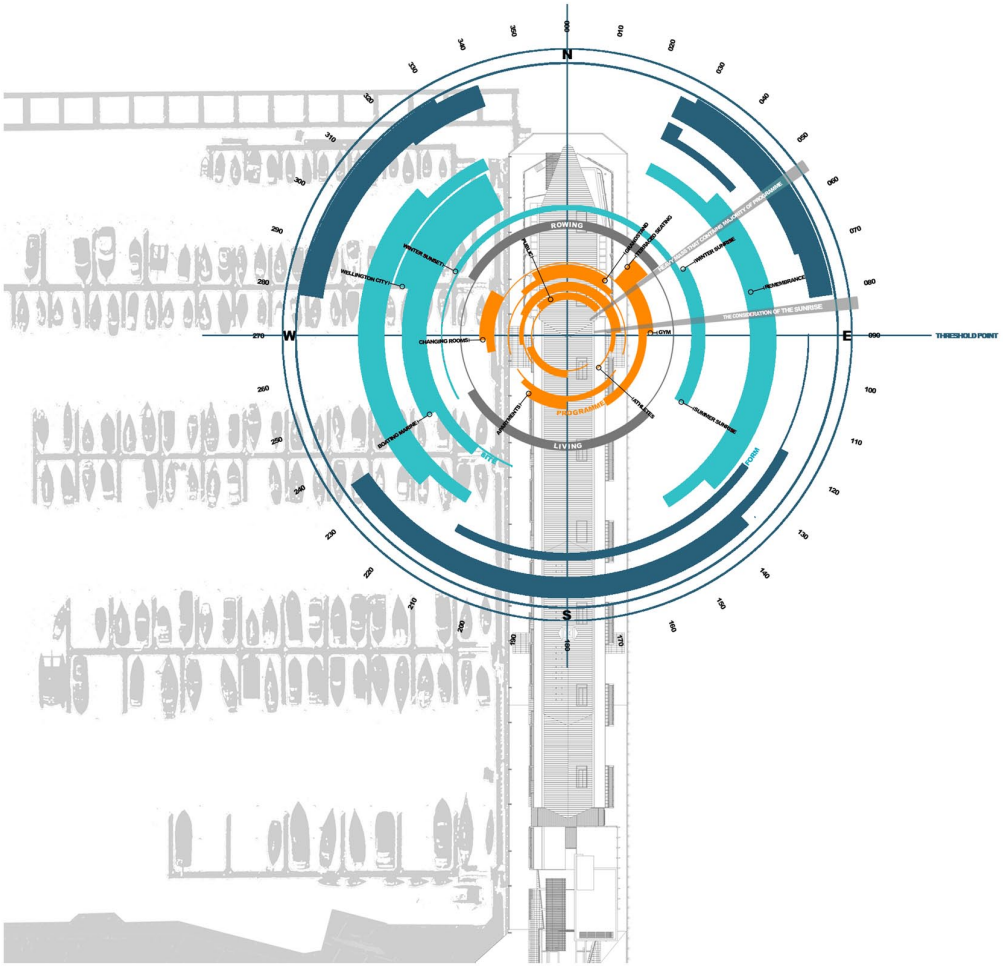
This drawing is a further development of the initial design shown in plan. Athfield's Clyde Quay Wharf emphasises the strong axial nature of the site. The central axis was considered valuable real estate as the developer wanted to strongly emphasise the east west views. This design resolves the north end of the building by re-integrating the central axis, thereby reflecting the south end of the building where vehicles enter on the central axis.

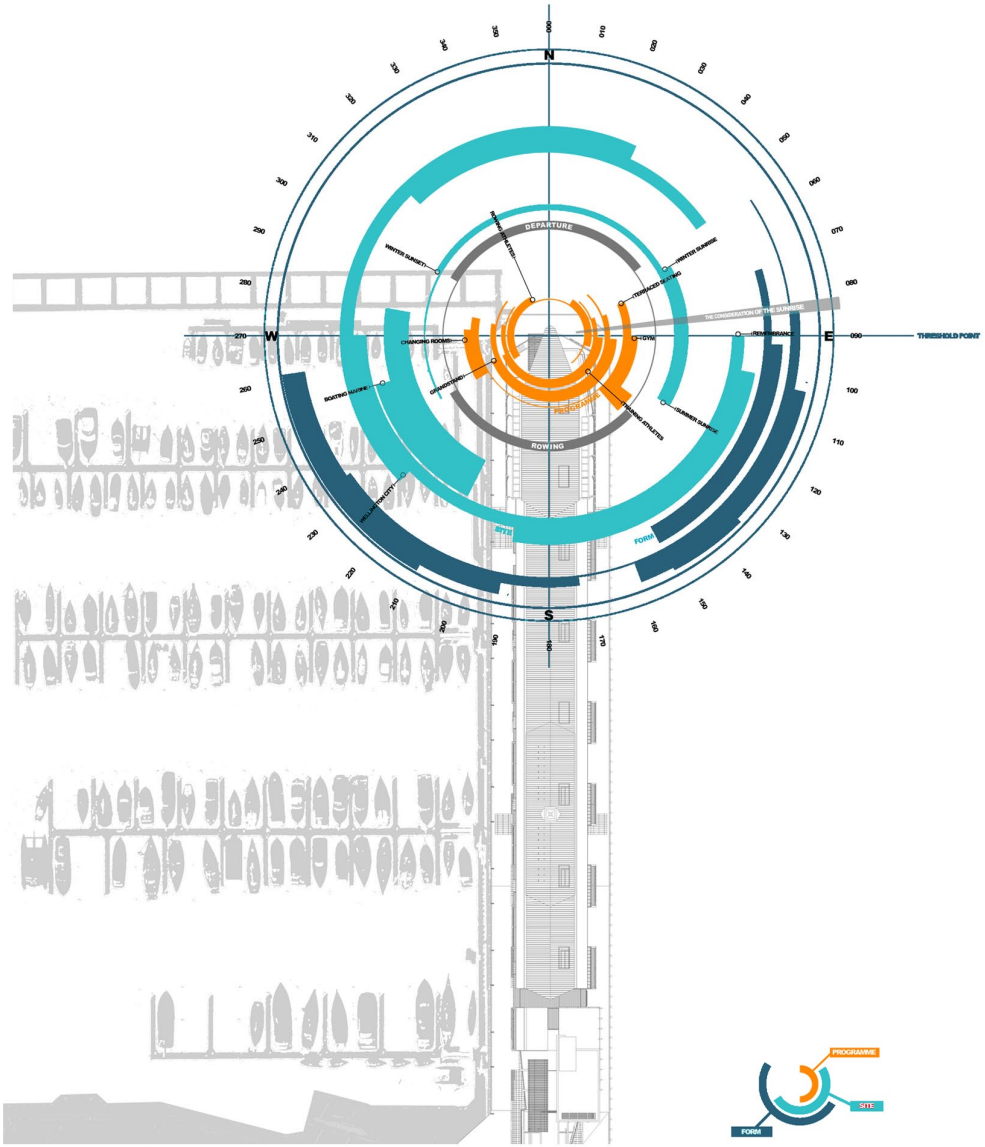
This design research experiment tests Design Principles Derived from the Site Conditions:

- Invite a return of the central axis arrival at the northern anchor end of Clyde Quay Wharf;
- Engage the lower level (below water) on the northern anchor end of Clyde Quay Wharf.

The drawing also identifies key moments that the athletes will encounter along their journey into the harbour and towards the starting blocks that are located out towards Point Jerningham. From a theoretical perspective, celebrating the boundary condition between the built environment and site is highly important. Pollak and Berrizbeitia argue that the place where field meets the forest is more important than either the field or the forest itself. This provides opportunities to explore how the two realms engage with each other and the merging or transition of them. In this case the place where the wharf and the harbour meet is an important design consideration as this is where the athletes will make their way into the harbour. It also contributes to establishing the facility as a theatre for spectators that 'captures something of the sport itself'.


CELEBRATORY JOURNEY
This jounrey runs along side Te Papa and back into the building. It is a chance for the public who are located along the waterfront to show their appreciation towards the athletes at the conclusion of their race.
WARM UP JOURNEY
This is the journey that the rowing crews take as they make their way to the starting blocks at Point Jerningham. The athletes propel out of the building on a central axis that emphases the linear nature of Clyde Quay Wharf. Crews then turn and row along Oriental Parade to the starting blocks.
SPRINT RACE
This area becomes the ideal location to hold a shortened sprint race that would start here and finish at the port on the opposite side.
POINT OF TRANSITION
The moment where wharf meets water is more important than either the wharf or water itself. How is this vertical transition designed and experienced?
A clear defined view sharft from the top of the wharf through to the harbour horizon in the distance.



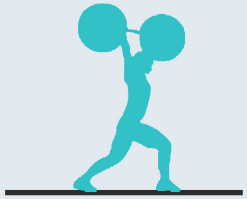


EARLY CONCEPT MATRICES

At the north end there are two key transitions identified that are critical to the athletes arriving at and departing from the building. These two matrices analyse from the athletes' perspective the surrounding environment on three different levels: programme, site, and form. This evaluated the important elements of the site that could help inform the layout of the design. The first matrix highlights in light blue the strong viewing experience to the east and west and suggests an opening in the centre that connects the harbour with building wings flanking either side.

01 ARRIVAL

The arrival of the athletes and spectators moves from a dual axis along the ground floor of No.2-7 Clyde Quay Wharf to a central axis at the north end (No.1 Clyde Quay Wharf). This central axis upon entry looks directly through and out into the harbour.

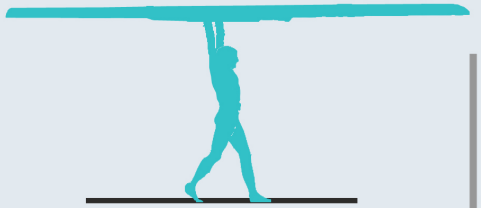


02 TRAINING

The training aspect for the rowing athletes is important. Ensuring they are provided with first class facilities and customised gym equipment to accommodate exercises that are directly related to improving the rowing athlete's strength and endurance is highly beneficial to the sport.

For a location in Wellington, it is paramount that these facilities enable the athletes to train regularly due to the inclement weather that has a major impact on the city.

Placing this training before the eyes of the public is also important; it not only helps educate the public but also inspires the younger generation to pick up an oar and participate in the sport.



03 CELEBRATION

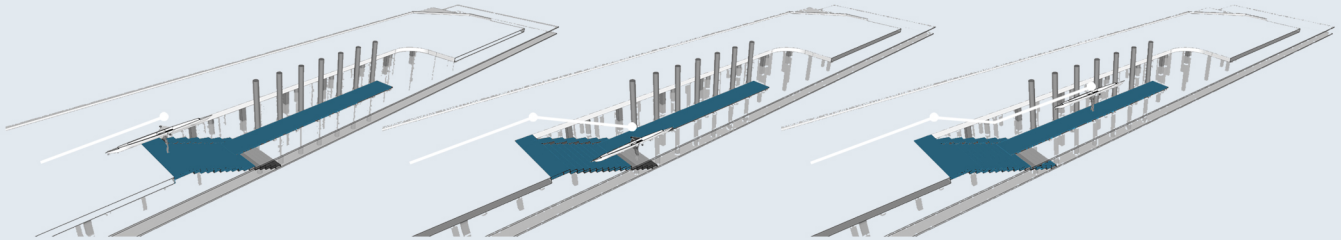
The celebration phase of this design presents the opportunity for the athletes and spectators to unite as one, utilising the central axis as the focal point of the building. This enables the spectators who have gathered to witness the athletes, show their support, and cheer for their favourite athletes.

04 DEPARTURE

The departure is the moment the athletes make the transition from the surroundings of the building and out into the harbour. This is the last chance for spectators lining the wharf and viewing stages on the water's surface to offer their support to the athletes as they make their way to the starting blocks at Point Jerningham.

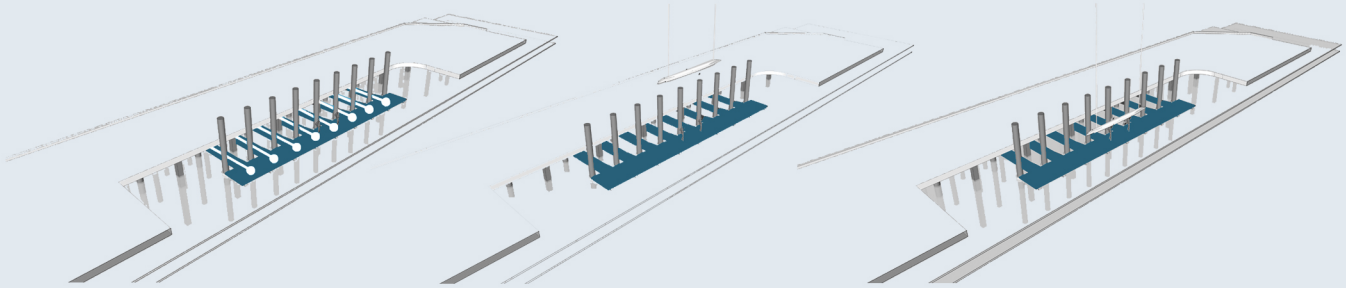
JOURNEY THE DESCENT

EXPERIMENT 01 STAIRS



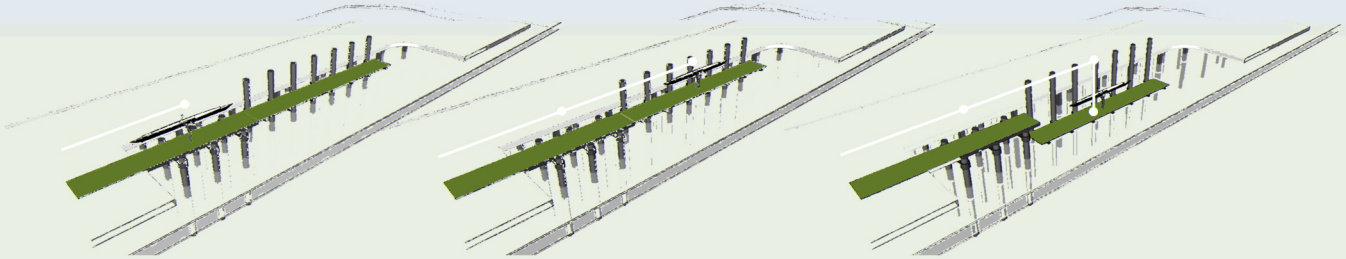
This first experiment explores a large set of stairs to bridge the boundary between the wharf and harbour. This set of stairs descends below the water's surface creating a sacred experience for the athletes entering into the water. The water gently washes up against the stairs as the tide moves up and down.

EXPERIMENT 02 UNDER WHARF



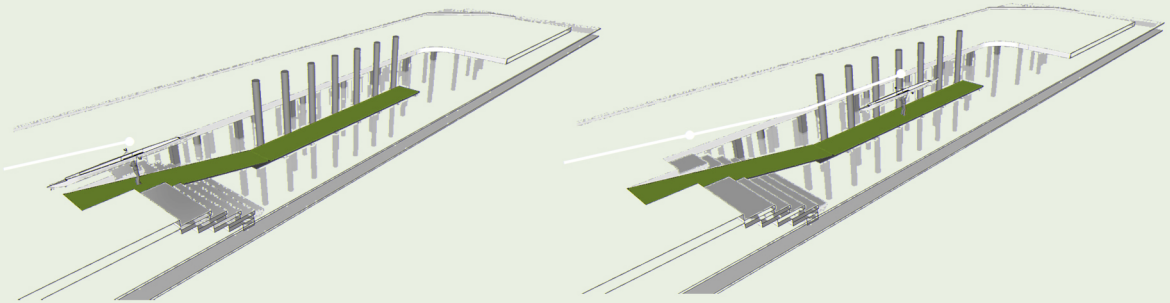
This experiment is not only a celebration of the athletes but also the machine they power across the water. Instead of walking down from the wharf on the central axis, this experiment explores the idea of the athletes emerging from under the wharf. A path for each athlete is drawn out from under the wharf to a pontoon that floats on the water's surface where the rowing shells are lowered from above becoming the central focus for all occupants in the building.

EXPERIMENT 03 VERTICAL DESCENT



This experiment explores the use of a platform that lowers the athletes from the wharf to the water's surface. Located on the central axis, the platforms positioning is directly in front of the spectators that line the water's edge providing full visual dialogue between athletes and spectators. The length of the platform is long enough to fit an eights rowing scull.

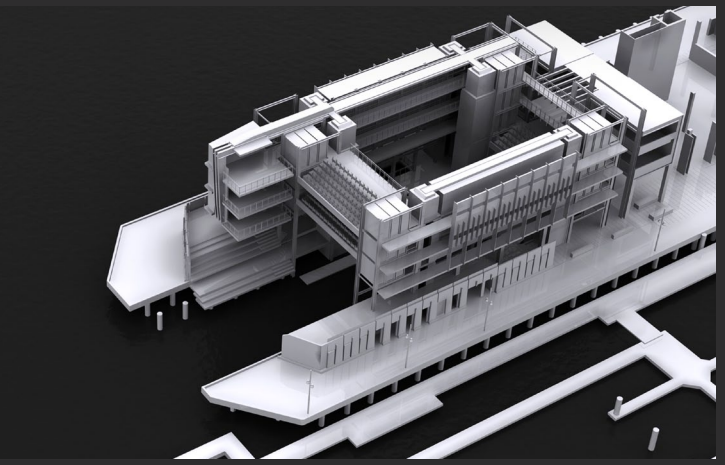
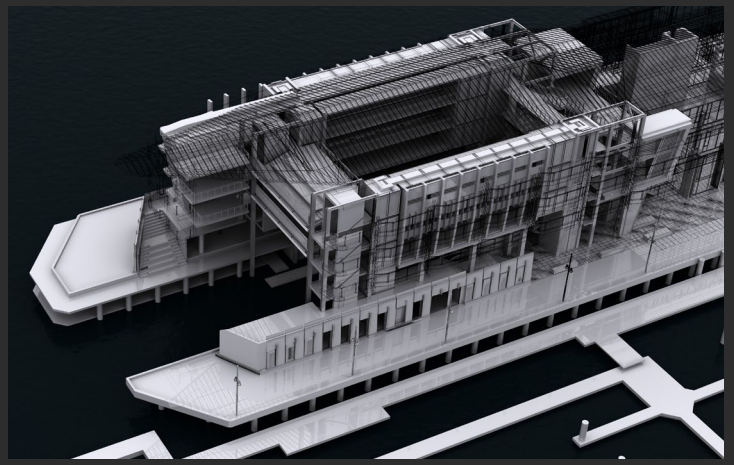
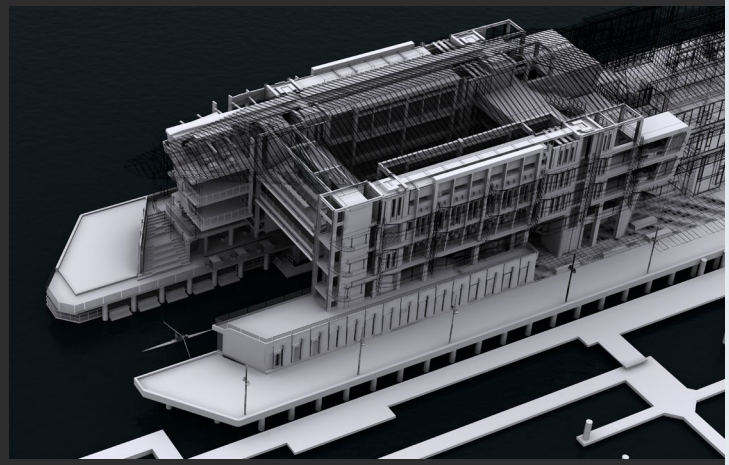
EXPERIMENT 04 RAMP



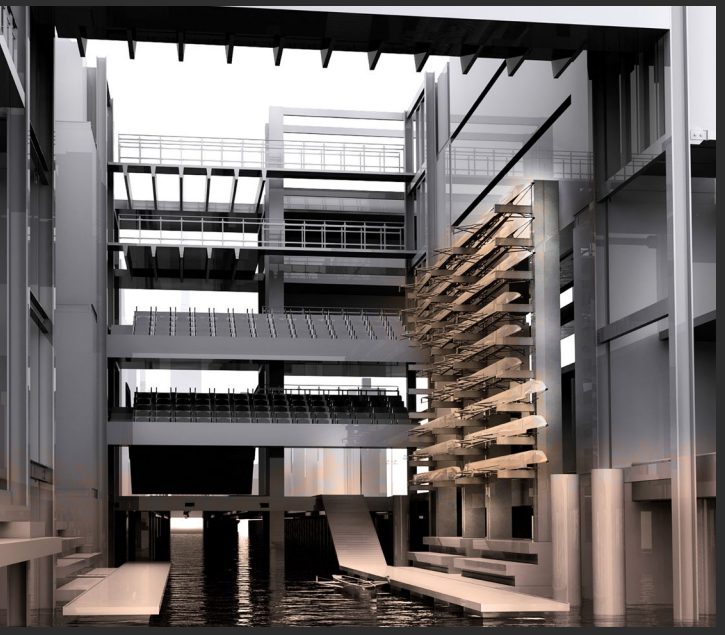
This last experiment directs the athletes along a narrow ramp that bridges the boundary between wharf and harbour. The ramp intersects a set of stairs that lead down to the water's edge that provides the opportunity for spectators to sit and gather to have a close up experience of the athletes and they enter the water.

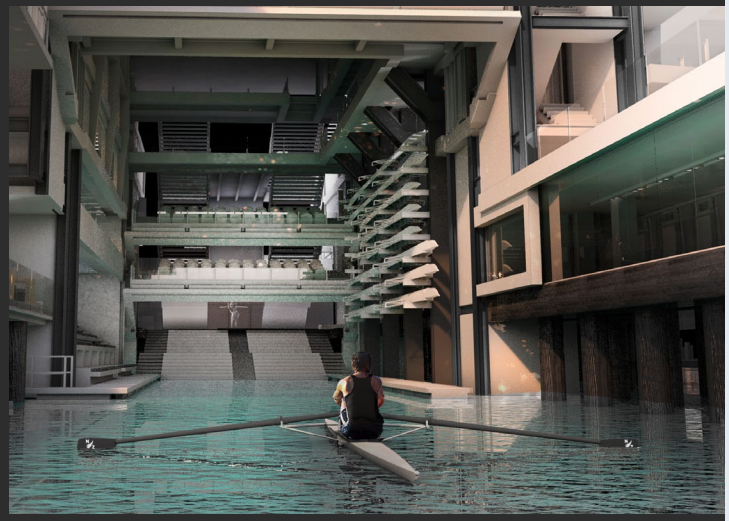
INITIAL EXPERIMENTS

Weaknesses of initial experiments: The initial testing of traditional stadium seating at the upper levels was not successful because it re-introduced similar problems of traditional stadiums being only functional during competitive events. The final design therefore tests how terraced seating for watching an entire rowing event can be conceived as dining and bar seating when competitions are not scheduled.

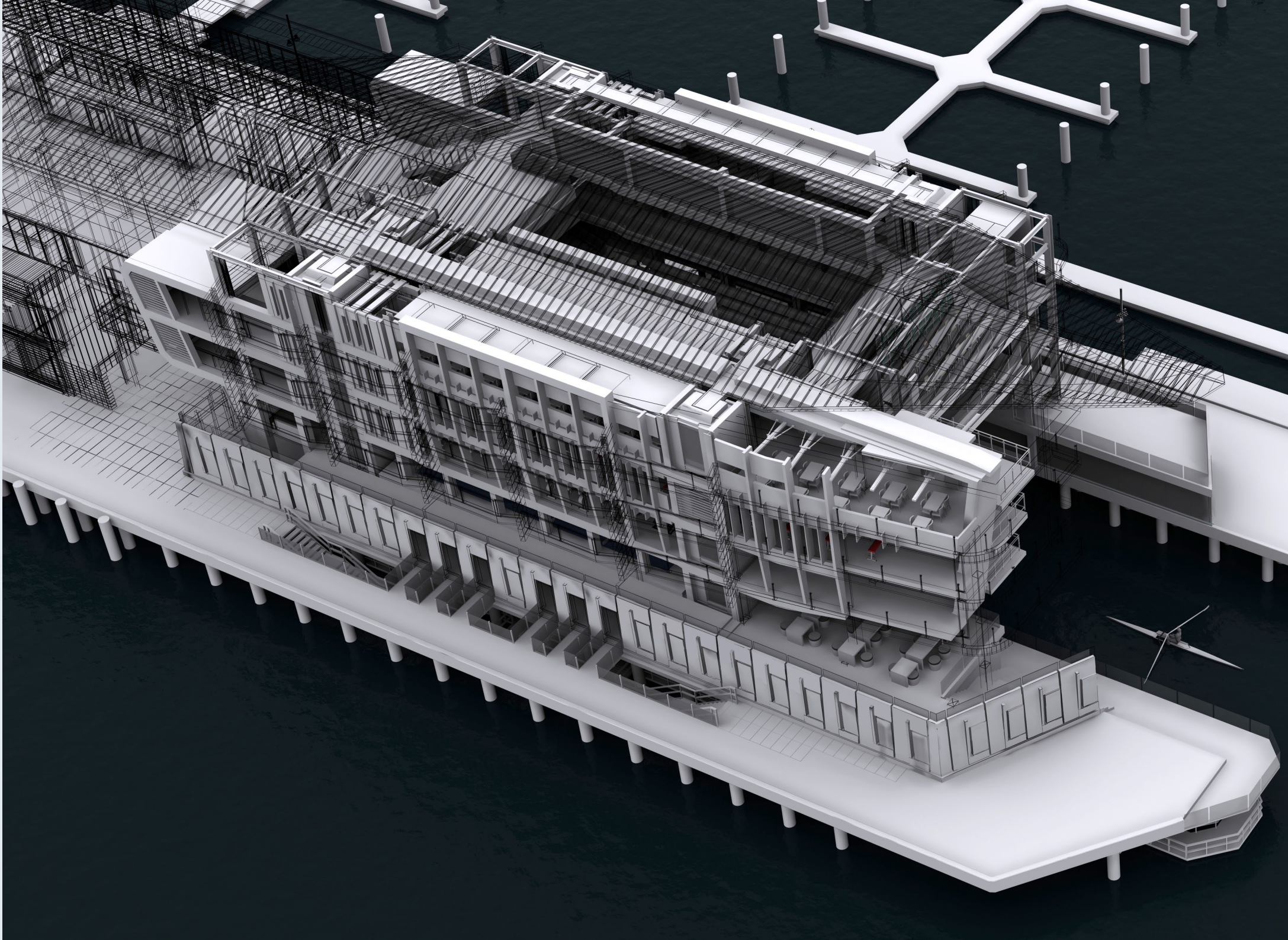




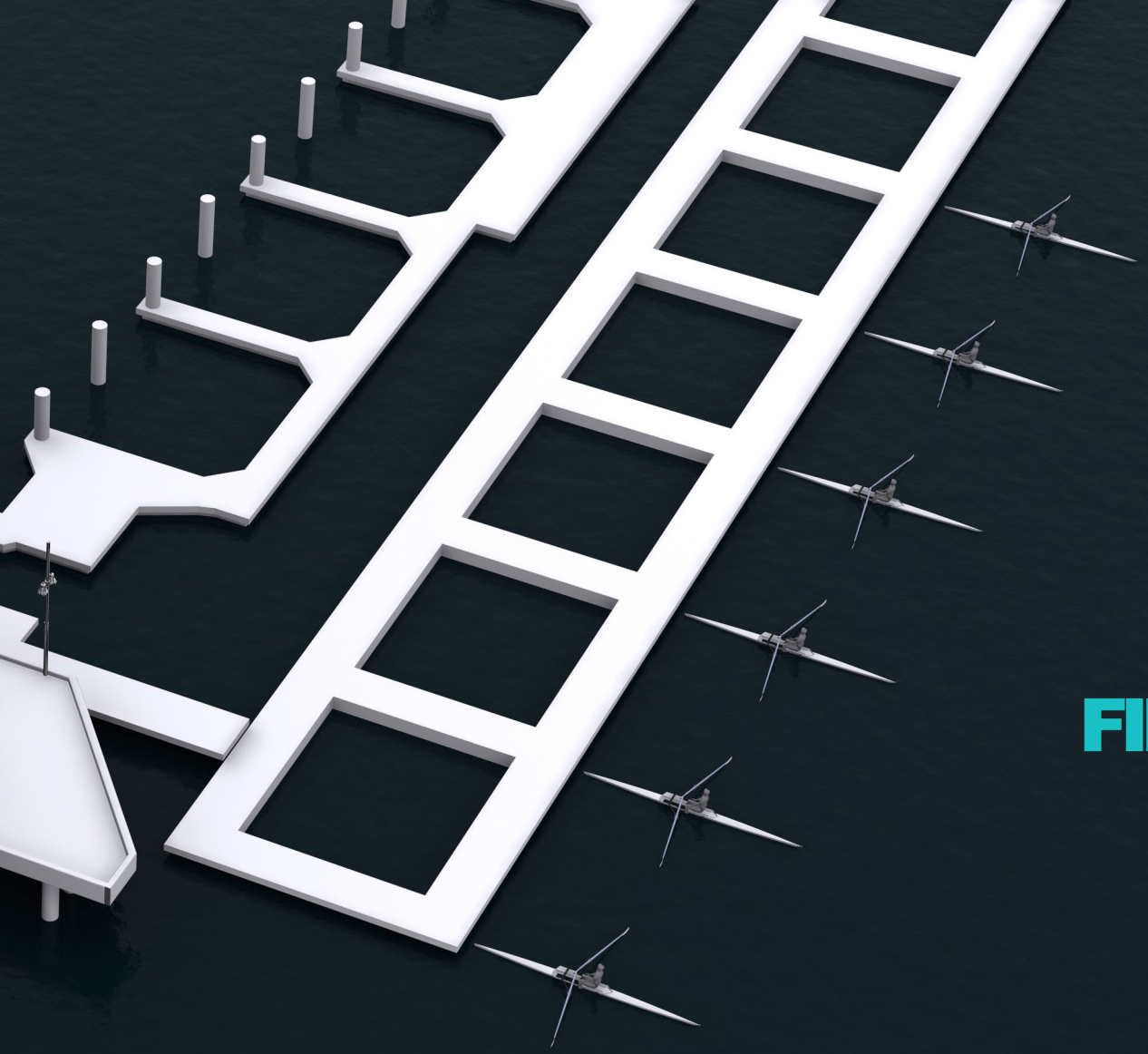
TECTONIC DEVELOPMENT





INTERIOR DEVELOPMENT



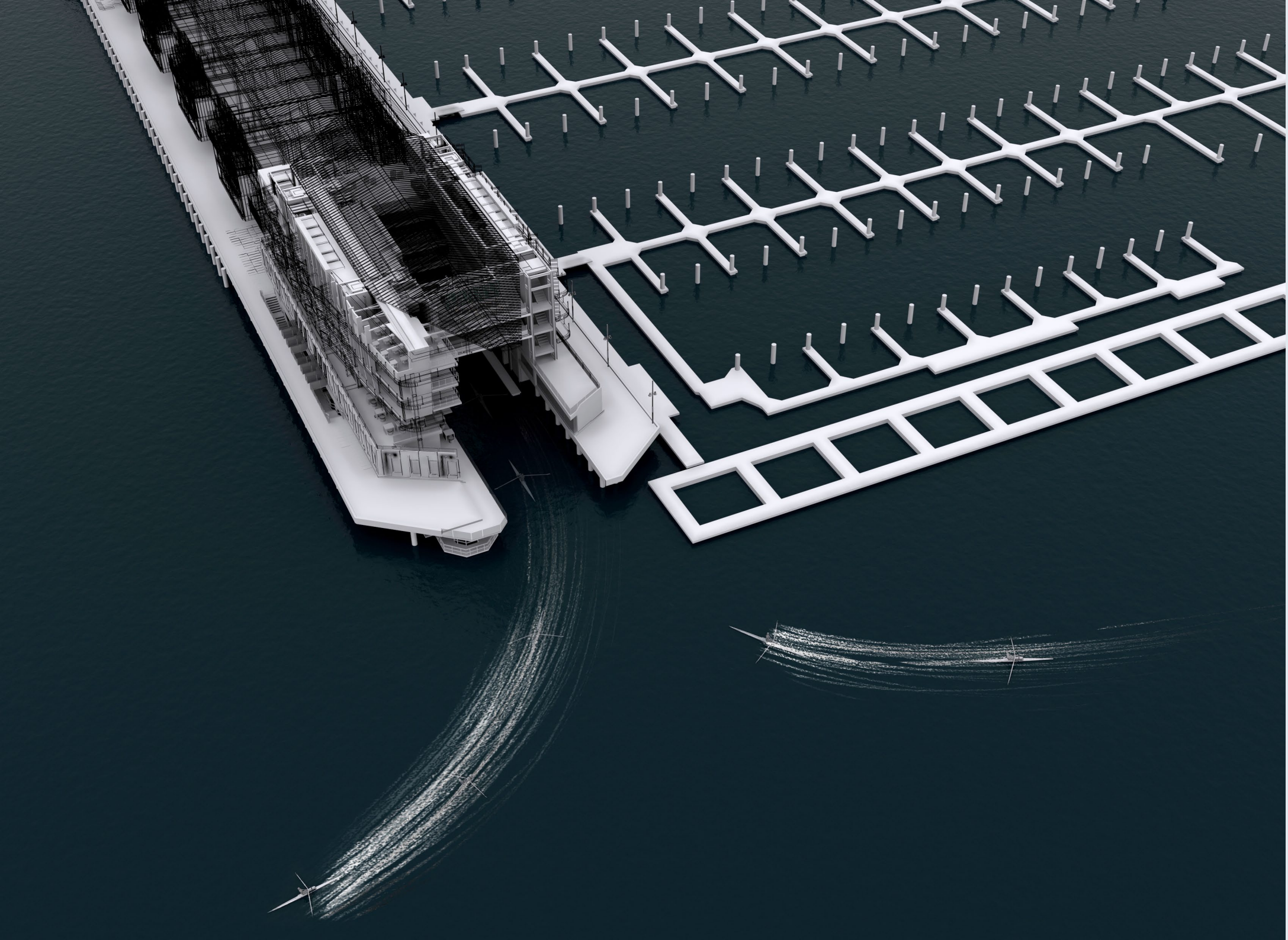


FINAL DESIGN

ATHLETES' ARRIVAL & DEPARTURE

This drawing illustrates the arrival and departure of the rowing crews into the building. When departing the building, rowing crews turn right and head out past Oriental Parade to Point Jerningham to the starting blocks if they are involved in a race. Rowing crews complete their race outside the front of Frank Kitts Park, where large groups of spectators are able to witness the final stages of a race. From there, the crews row past Te Papa (to the west of Clyde Quay Wharf) before arriving back into the building to be greeted with support from the spectators lining the wharf and occupying the various programmes.

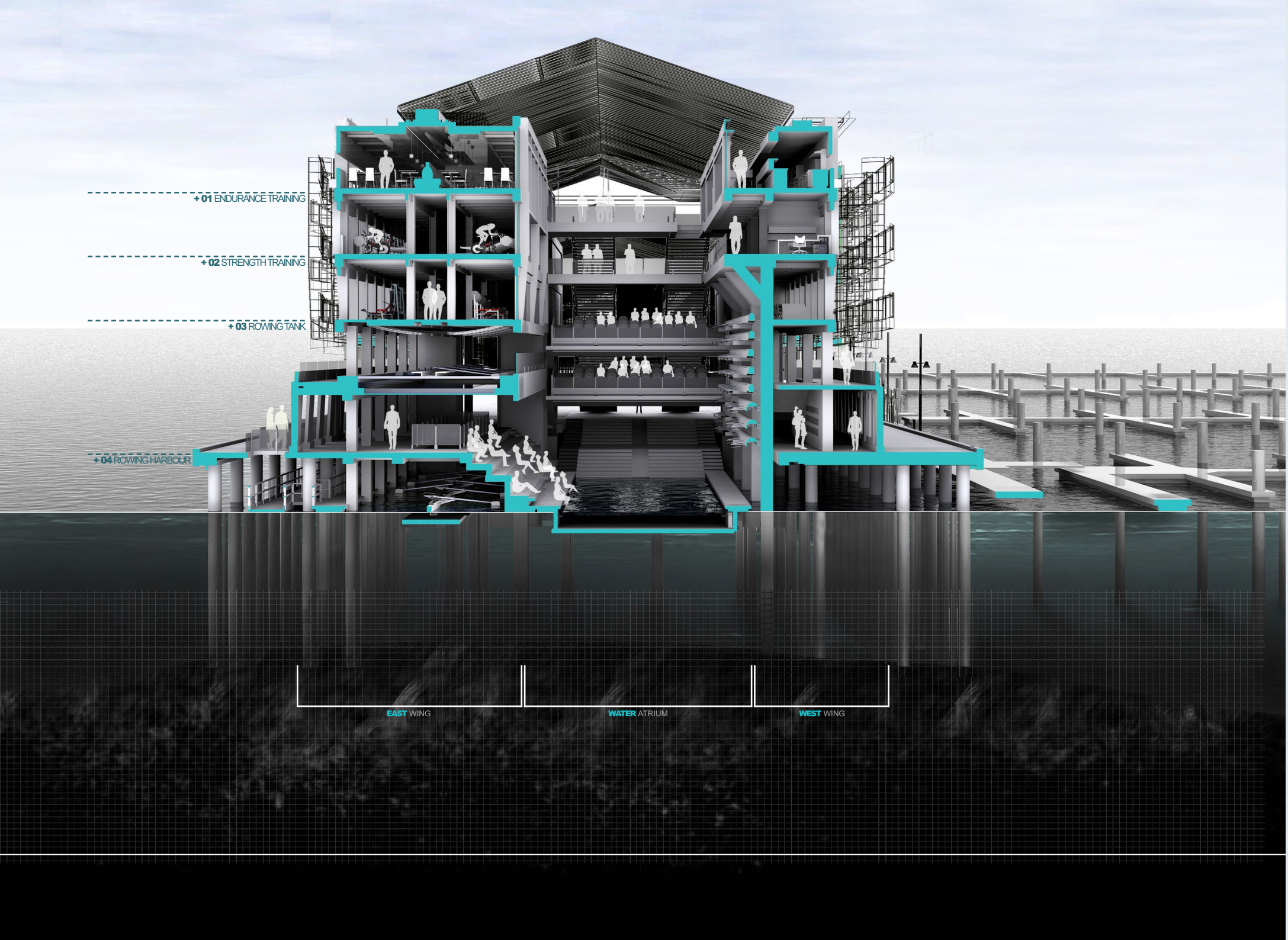
One of the problems facing rowing races is that they stretch 2km and from a spectator's perspective it is difficult to experience the entirety of the race. The design experiment addresses this problem by enabling the spectators to witness the rowing crews entering and departing the harbour; it also provides public spaces above for spectators to witness the majority of the race with uninterrupted views.



LATITUDINAL SECTION

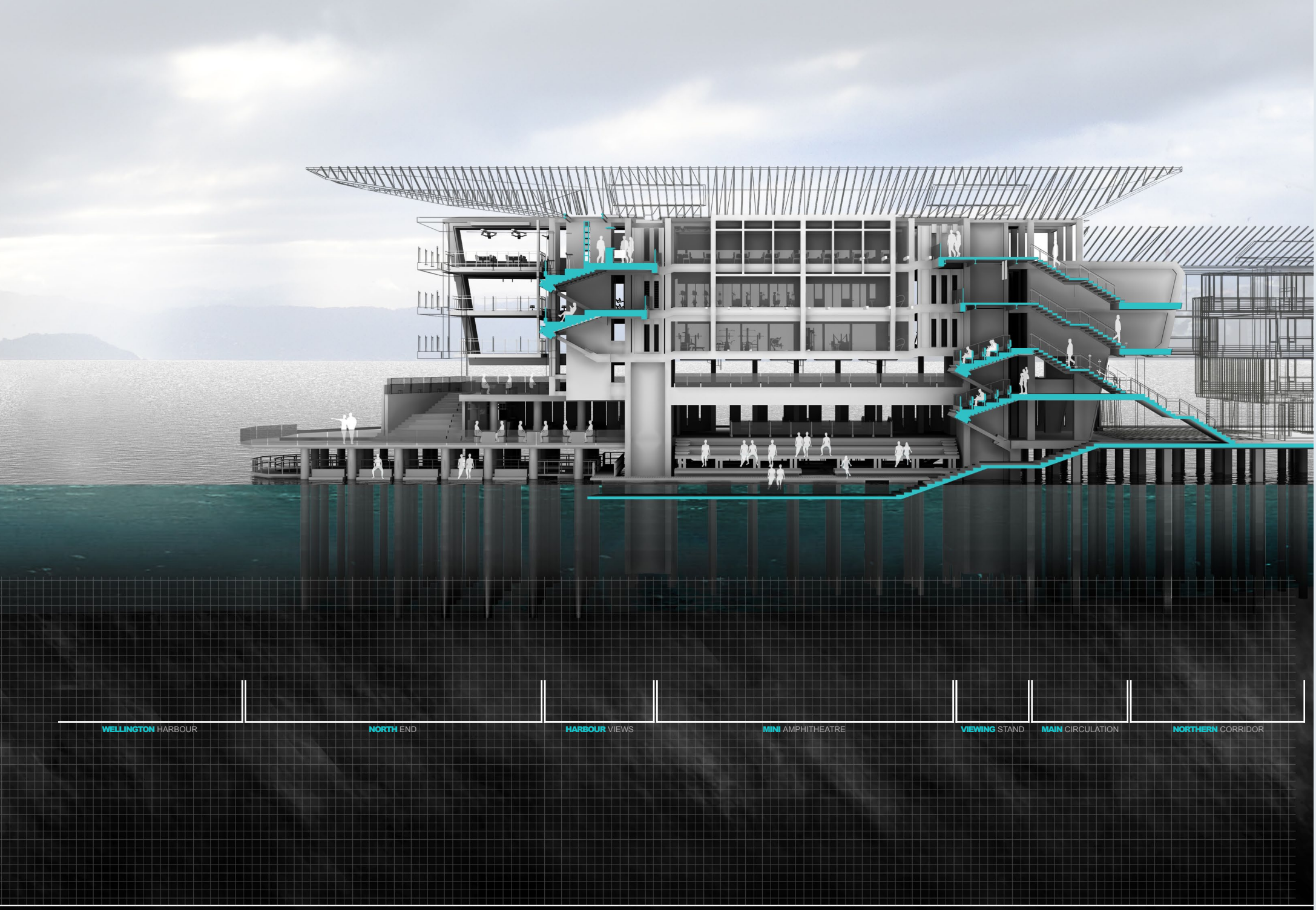
This drawing illustrates the cut out in the wharf to allow the water to enter into the building; this has resulted in two distinct wings (East and West wing) that flank this water atrium. Placing the water atrium slightly off centre has created different sized floor areas for the east and west wings that encourage different programmes. The assembly and arrangement of these spaces ultimately organised all of the indoor training facilities and many of the public spaces in the east wing due to the larger floor area, while the west wing contains the business and personnel who support the athletes and help manage rowing in this country.

The east wing contains all of the training facilities and has been structured to establish a strong hierarchy on each floor level that is about a progression that begins near the top and moving down to the harbour's surface. This transition begins on level 03 with the first phase of the gym that contains the stretching and endurance training, which leads down to the weights training on level 02. Training shells on level 01 and underneath the wharf provide the ability for the athletes to practice and enhance their stroke before having the opportunity to make the descent into the water atrium and row out into the harbour. This training hierarchy located in the east wing is visible from many vantage points in the building as it conveys a strong visual connection between spaces throughout the building; much like the Ford Foundation Building with the atrium enabling the building to be understood as a greater system.


+ 01 ENDURANCE TRAINING
+ 02 STRENGTH TRAINING
+ 03 ROWING TANK
+ 04 ROWING HARBOUR
EAST WING
WATER ATRIUM
WEST WING

LONGITUDINAL SECTION

This drawing illustrates the bridges that brace and connect the east and west wings together. It also indicates the various occupied regions that begin between No.1 and No.2 Clyde Quay Wharf and leads out into the harbour. The main entrance into the rowing facility moves the occupants up vertically from which they are able to divert into either of the east or west wings. The intention of this main circulation is to engage the occupants with the water atrium at the top of each floor level, whereby open stair treads provide them with a sneak preview of the view they will experience at the top of the floor level. This main circulation along with the bridges at the north end connecting the two wings together enable the occupants to witness and experience the interior visually as a system of spaces that together create a strong sense of community providing year round activation.


WELLINGTON HARBOUR
NORTH END
HARBOUR VIEWS
MINI AMPHITHEATRE
VIEWING STAND
MAIN CIRCULATION
NORTHERN CORRIDOR

LOWER LEVEL 01

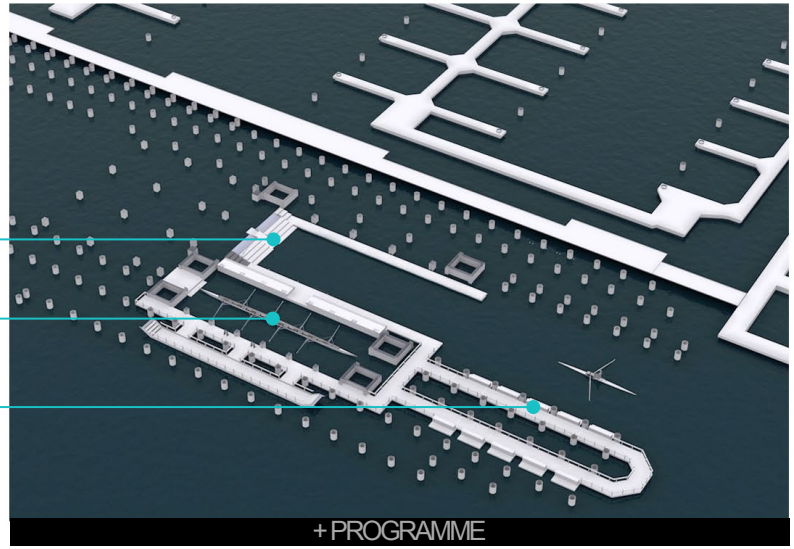
This floor is located underneath the wharf in the east wing on pontoons that float on the harbour's surface. The unique nature of this floor from an interior architectural perspective is that the spatial height is constantly changing with the movement of the tide levels. The difference between high and low tide is approximately 1.2m; entering this space at high or low tide will create a completely different spatial atmosphere. At high tide the height between water surface and bottom of the wharf is approximately 2.2m.

A series of walkways that float on the harbour's surface provide the opportunity for the public to enter below the wharf and experience the beauty of this historic site and the weathering effect the tide has had on the timber piers. The timber cut out of the wharf in the centre would be recycled and used to make the timber walkway that reflects the weathering rustic nature of this space. These walkways capture views of the eights training, any race that is taking place and the rowing crews arriving to and departing from the building.

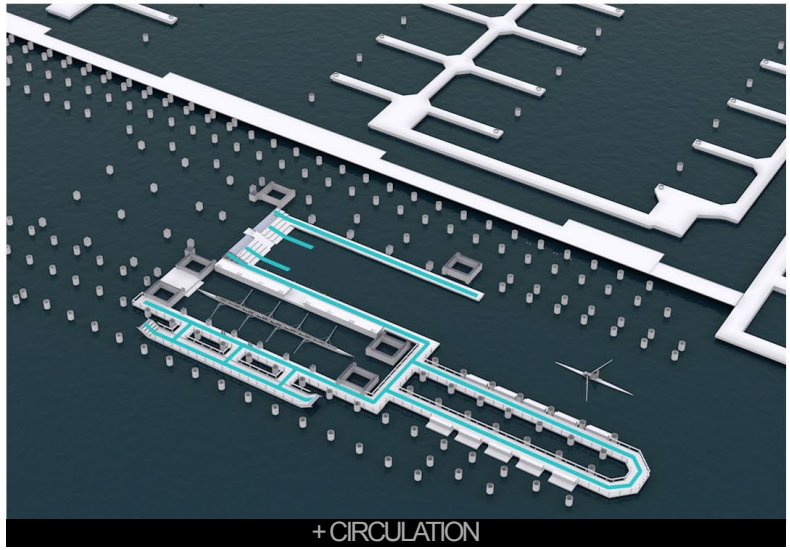
01 + PLAYING FIELD ENTRANCE

02 + UNDER WHARF TRAINING

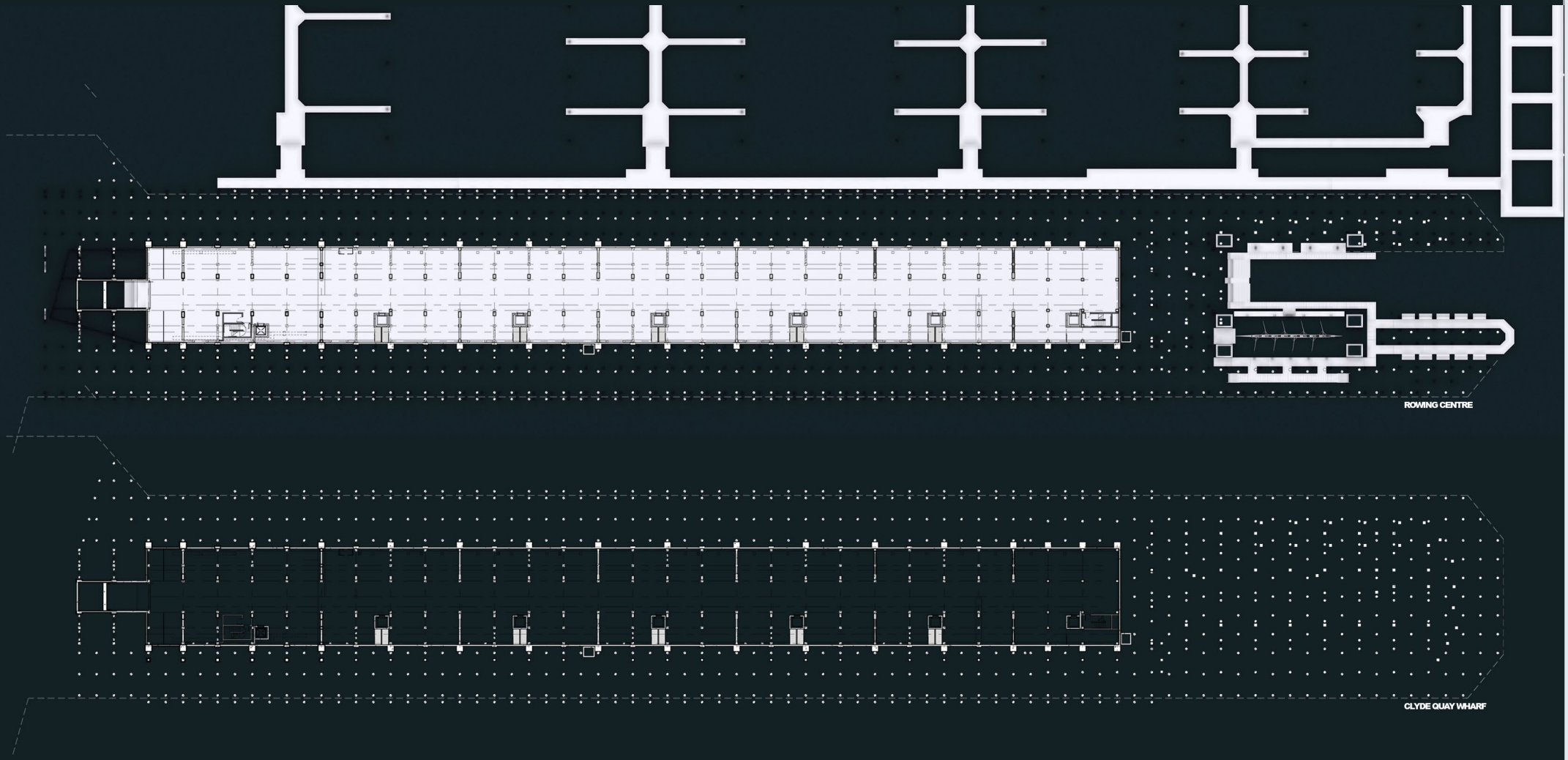
03 + PUBLIC VIEWING



+ PROGRAMME

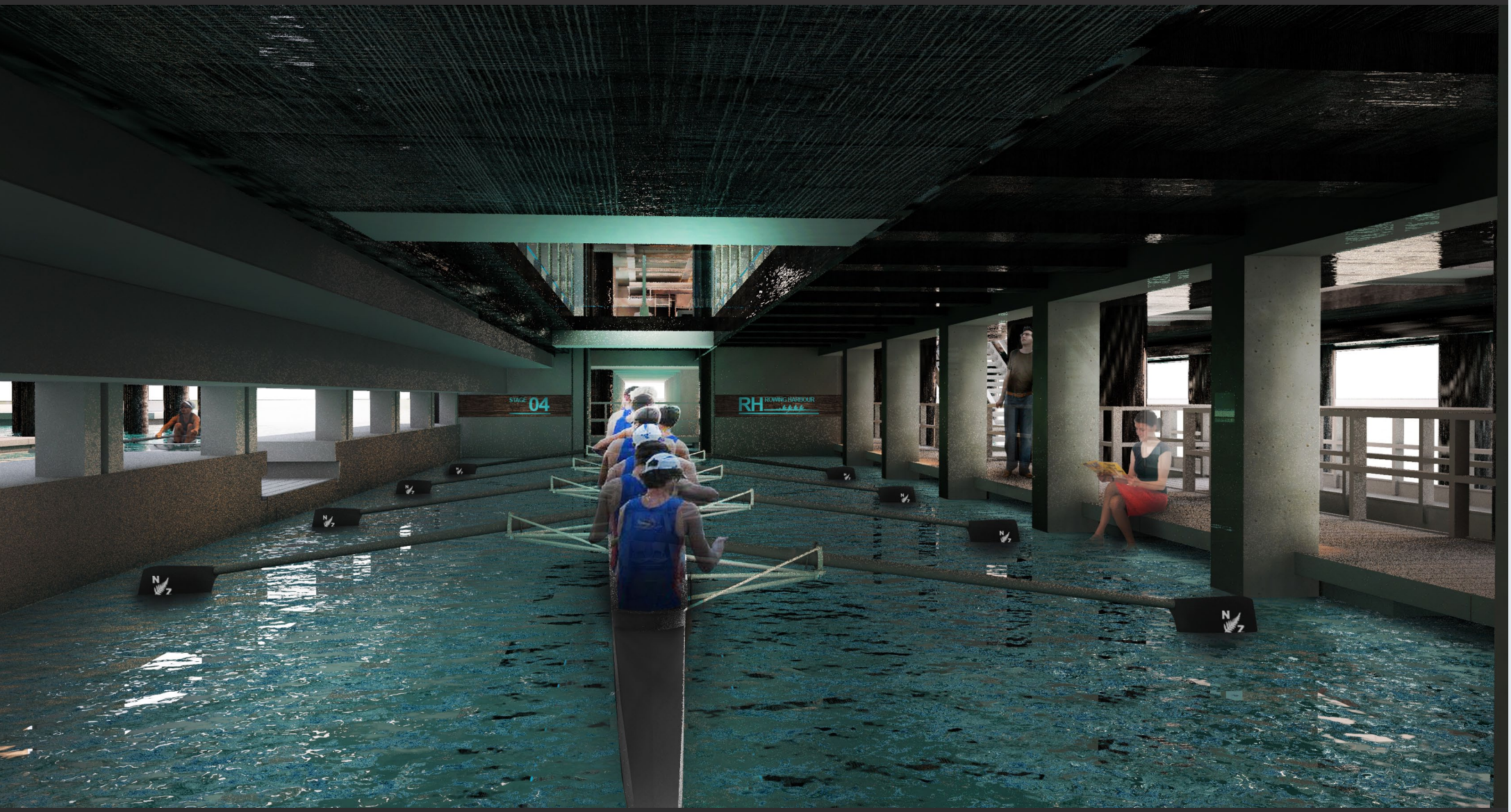


+ CIRCULATION


ROWING CENTRE
CLYDE QUAY WHARF

UNDER WHARF TRAINING

Rowing requires athletes to move from inside to outside as part of a real progression, where they effectively move from land to water. The ability to train on both spatial conditions is important. This on-water training shell located under the east edge of the building is a training facility that provides the opportunity for athletes to train on the harbour's surface, testing the water's density and becoming comfortable with the externalised conditions that this facility has to offer.

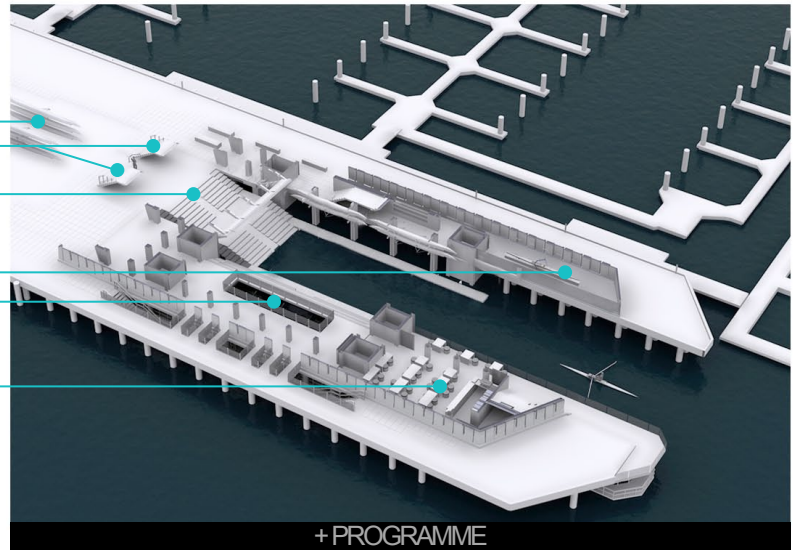

STAGE 04
RH ROWING HARBOUR

WHARF LEVEL

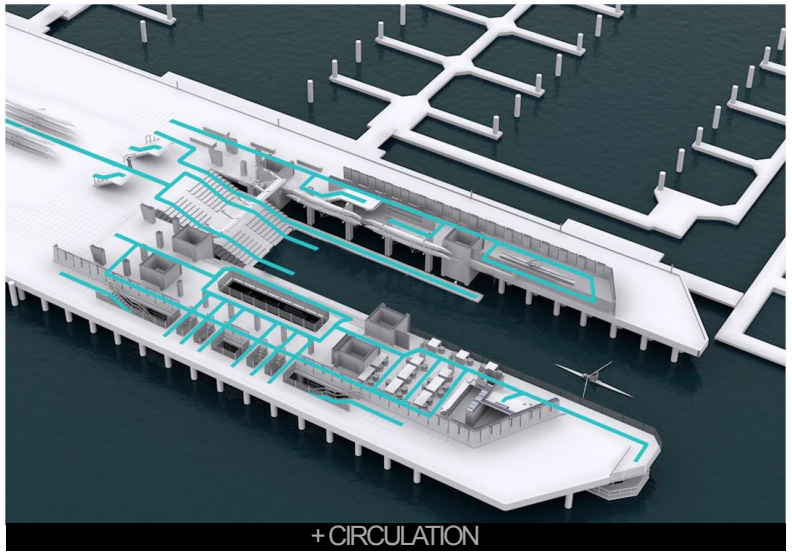
The wharf level provides access into the central atrium. Cutting this section out of the wharf enables the water to enter into the building and the building to surround the water. This creates a reciprocal relationship between building and water, and the rowing athletes enter the water in the eyes of the public on the wharf level as well as the levels above. The wharf level provides access into the central atrium. Cutting this section out of the wharf enables the water to enter into the building and the building to surround the water. This creates a reciprocal relationship between building and water, and the rowing athletes enter the water in the eyes of the public on the wharf level as well as the levels above. The athlete's journey begins by collecting the rowing shell, which are stored on the wharf level of No.2 Clyde Quay Wharf; this vertical stacking of rowing shells act as a screen for the public upon arrival to the rowing centre. Following this, a large set of stairs leading down into the water is a moment for spectators to celebrate the ritual of athletes entering 'onto the playing field.'

Vehicles enter the building at the southern end on the central axis. It was important that this design exploration re-strengthen the axial nature of the building by creating a central axis in the north end to echo the one to the south. Vehicles enter on axis from one end and rowing crews exit on axis from the other. The wharf level programmes include a museum that displays some of New Zealand's Olympic rowing history, terraced platform seating that enables the public to gather and relax while witnessing crews moving in and out of the building, and a cafe for the public and athletes to intermingle as they enjoy the experience and beauty that this site has to offer. The terraced platforms double as café seating when competitions are not taking place. These spaces all directly engage with the water atrium in the centre focussing on the activity of athletes arriving and departing.

01 + ROWING SHELL STORAGE
02 + ROWING CENTRE ENTRANCE
03 + ATHLETES' ENTRANCE
04 + ROWING MUSEUM
05 + PUBLIC VIEWING
06 + PUBLIC CAFE



+ PROGRAMME



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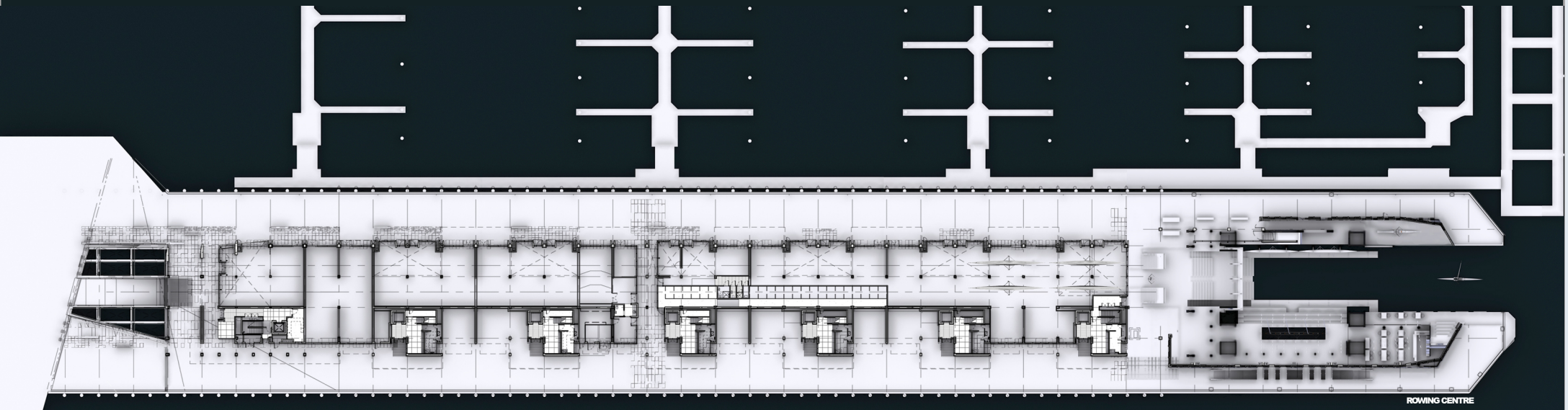
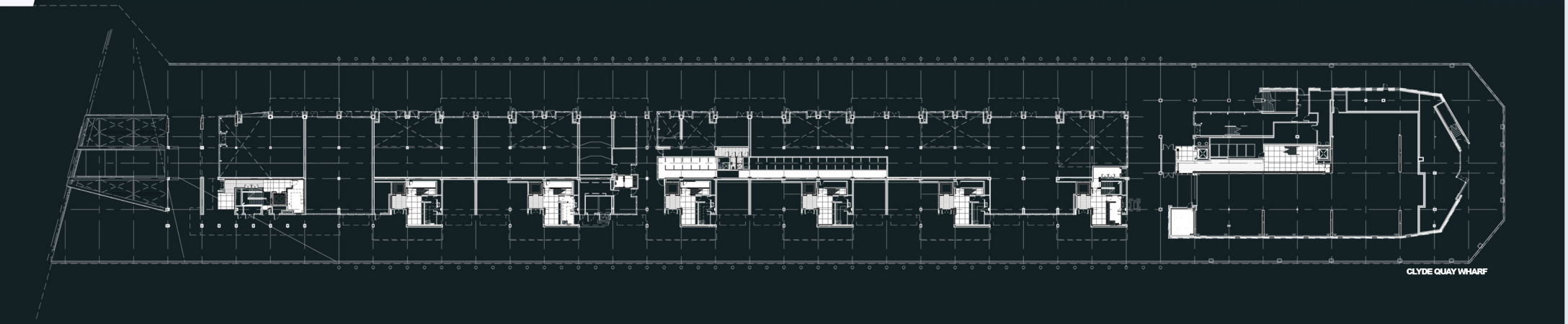

ROWING CENTRE


CLYDE QUAY WHARF

ROWING MUSEUM

This rowing museum located on the ground floor in the west wing provides the public with a display of New Zealand's rich rowing Olympic history that dates back to 1920 Antwerp Olympics where Darcy Hadfield become our first rowing medallist. Museums are important educational tools for the younger generation as they present the opportunity to inspire them to grab an oar and possibly take part in the sport. The added advantage of this museum's location is that it looks out into the water atrium and provides one of the best views of the entire rowing facility.

PUBLIC VIEWING

This space offers quite a unique experience of witnessing the athletes in action. Accessed from the east side of the east wing, this space provides the public and coaching staff with a unique perspective of the sport that is difficult to capture. The rowing tank above has a glass bottom that enables those on the wharf level below to witness the silhouette of the oars elegantly piercing the water, while a cut out in the wharf provides a view of the training shell underneath the wharf below. These viewing experiences paint athlete and machine in complete harmony in a rhythmic action that offers an education tool for the public, the athletes, and coaches analysing their stroke.

PUBLIC CAFE

The café at the north end of the east wing is a space that helps ensure the building facility is continuously utilised throughout the year. Sporting facilities to their credit are amazing spectacles when an event is taking place; however they are typically uninhabited between events when they lie dormant and in need of additional programmes to reignite them. Implementing year-round programmes such as eating spaces and the museum encourage the public to use the facility when events are not on. Locating the café on the ground floor makes it highly accessible for the public. And much like the rowing museum on the opposite side in the west wing, it provides one of the best views to look out into the harbour.

Sliding glass screens enclose the café at the end of the day and during inclement weather. Wooden pylons from the wharf are used internally, to increase the sense of intimate participation with the wharf environment and materiality. The design of the café reflects the vocabulary of the wharf and the seating looks as if the piers are extending through the wharf.


SALADS
SOUP
SANDWICHES
CAFE

LEVEL 01

Access to level 01 is via the central stairs at the entrance to the rowing facility. There is also a fire stair at the far north end in the east wing, and a series of lifts that reflect the repetitive cores through the mid-section of Clyde Quay Wharf. The main staircase provides the occupants with an axial view that captures all the programme types of the floor and the water courtyard in the centre that connects into the Wellington harbour. The open treads of the staircase provide the occupants with a preview of these viewing experiences that greet them at the top of the stairs.

The east wing contains an eights rowing tank with a glass bottom to allow the public below on the wharf level to experience this training facility, whilst pathways provide the public with views from the side. At the north end of this wing is additional seating for the cafe below on the wharf level that also provides a vantage point to witness a rowing race that is running perpendicular to the site.

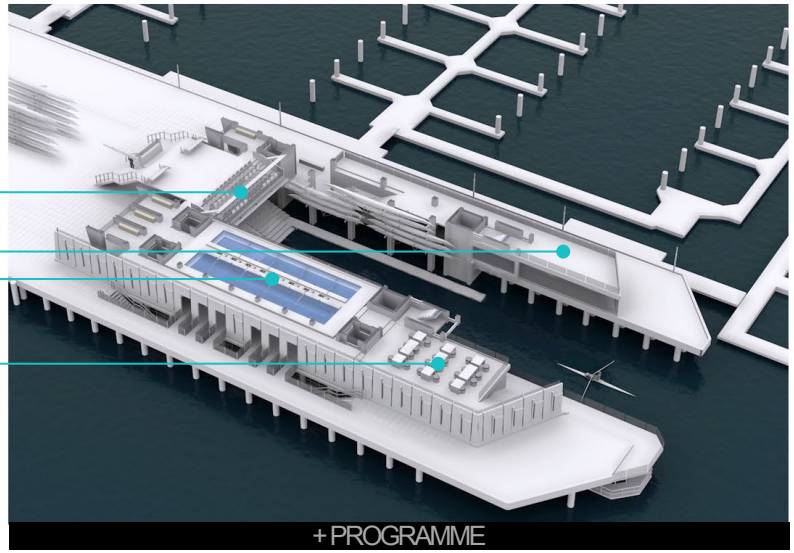
The west wing offers a chance for the public to get up close to some of the historic rowing shells that have graced these water's and beyond. These historic shells are displayed vertically and invite the public to read the names of the crewmembers and the various winning performances that have resulted in them being celebrated. They effectively act as a balustrade, as well as a continuation of the museum below.

01 + VIEWING STAND

02 + VIEWING DECK

03 + ROWING TANK

04 + CAFE SEATING



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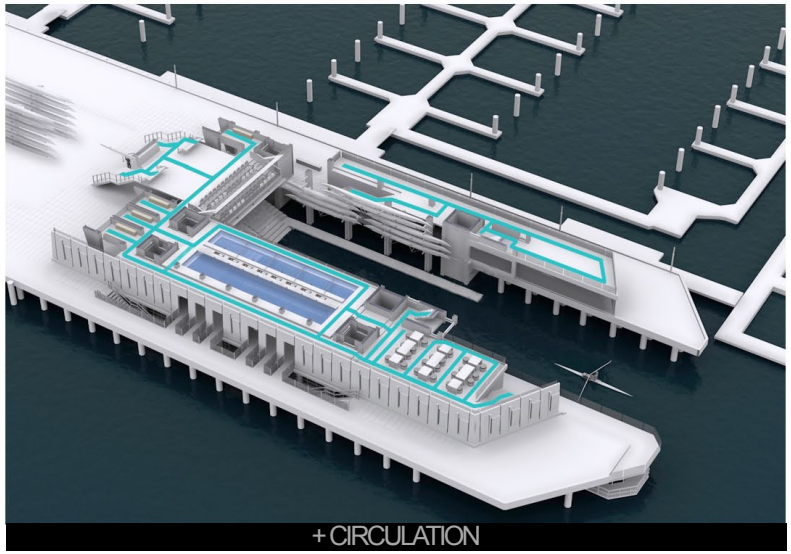

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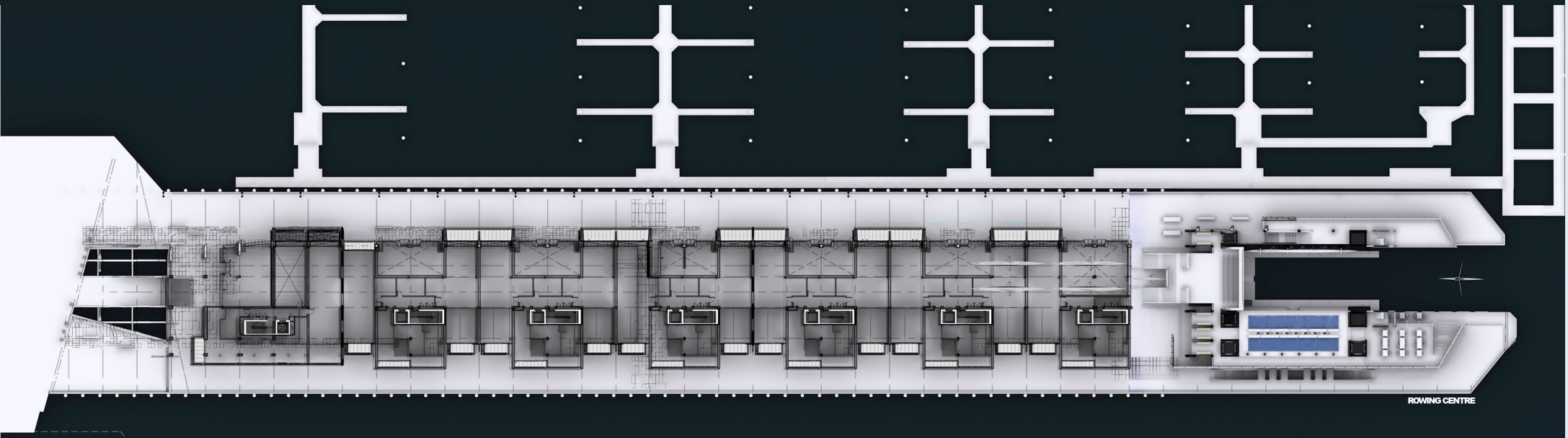
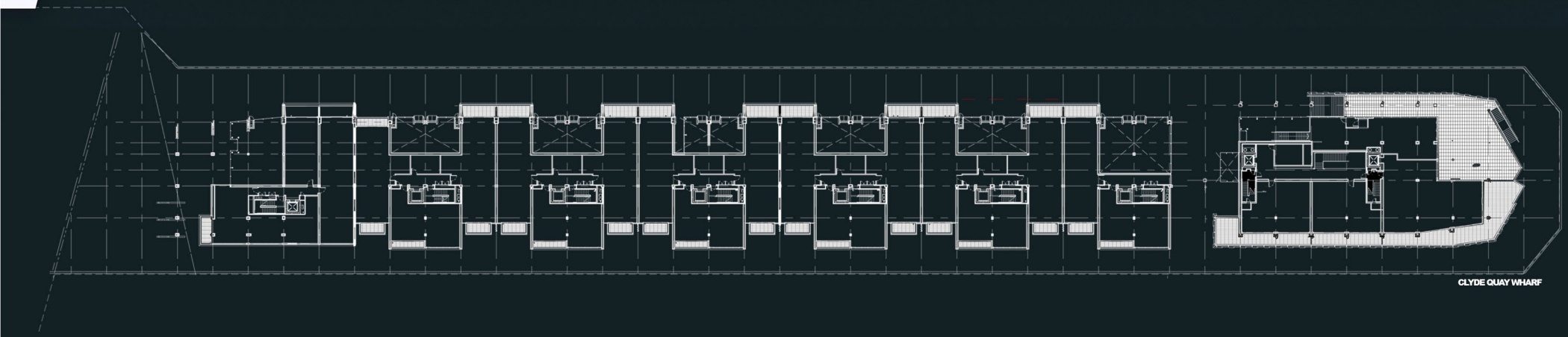

ROWING CENTRE


CLYDE QUAY WHARF

ROWING TANK

The second of the two training shells in this building facility is located in the east wing. The addition of this rowing tank and the training shell underneath the wharf is crucial for this site. Wellington is prone to disruptive weather that can create frustration for athletes trying to get out onto the water and train. This indoor training facility provides the ability for the athletes to train in an internalised environment that is protected from the outside weather conditions. In this controlled environment, the athletes are focusing on their technique and stroke, which can be watched closely by the coaches. This facility also provides the opportunity when not occupied by the athletes, for the public to participate and engage in the sport physically by getting into the training shell and rowing a few strokes.

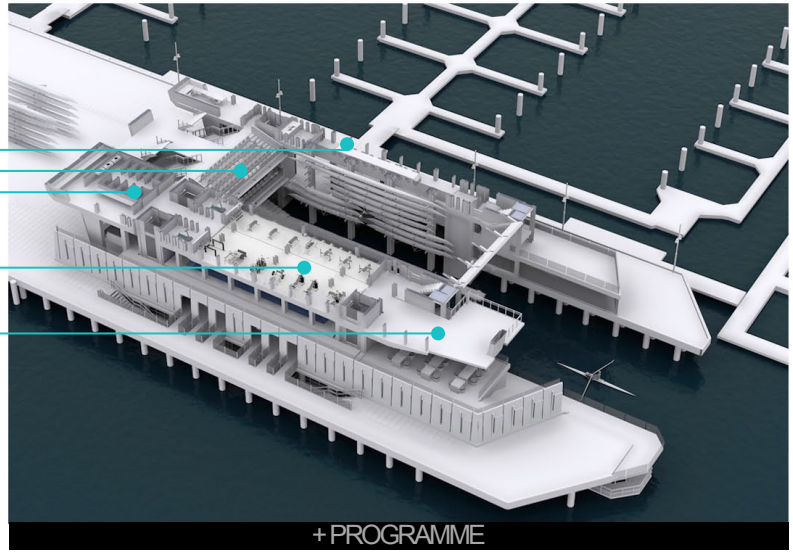

STAGE 03
RT ROWING TANK

LEVEL 02

The development and training of athletes are traditionally done out of sight from the public; however exposing this aspect of sport can help educate the public and enable them to appreciate the time and effort that goes into becoming a top athlete. The central atrium exposes every layer of activities on each floor and allows the public to experience every stage of training from the many vantage points that showcase these events and activities.

Level 02 begins with a viewing stand that looks straight along the central axis of the water atrium and into the harbour in the distance. As well as having full vantage of seeing the rowing crews row out into the harbour, it also provides a clear view of the surrounding programmes located in the east and west wings that flank the water atrium. The wider east wing provides gym spaces that are shared by the athletes and the general public; the narrower west wing is primarily for the business and support staff of the athletes and sport. Each floor acts as a gathering space during an event; while between events the seating is used by café patrons; this makes full use of this space that otherwise would contain empty seating in a typical sports stadium. This floor contains the second stage of the gym (the strength training) this is followed by a space allocated for personal training sessions with individual athletes along the east wing and a conference room located in the west wing. Both facilities are fully visible to the public through clear glazing that captures the sea views in all directions. The gym is available to the residents of the Clyde Quay Wharf Development as well as the general public, giving back something valuable to both cohorts.

01 + VIEWING STAND
02 + VIEWING STAND
03 + WOMEN'S CHANGING ROOMS
04 + STRENGTH TRAINING
05 + CIRCUIT TRAINING & YOGA



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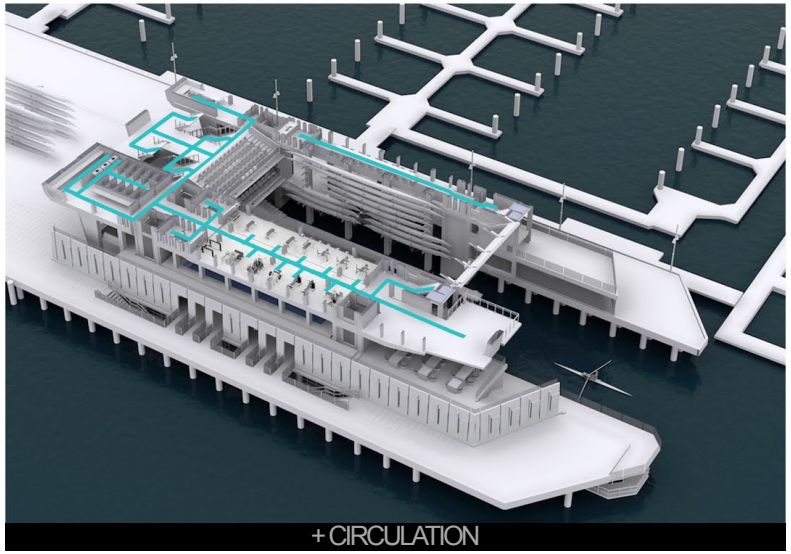

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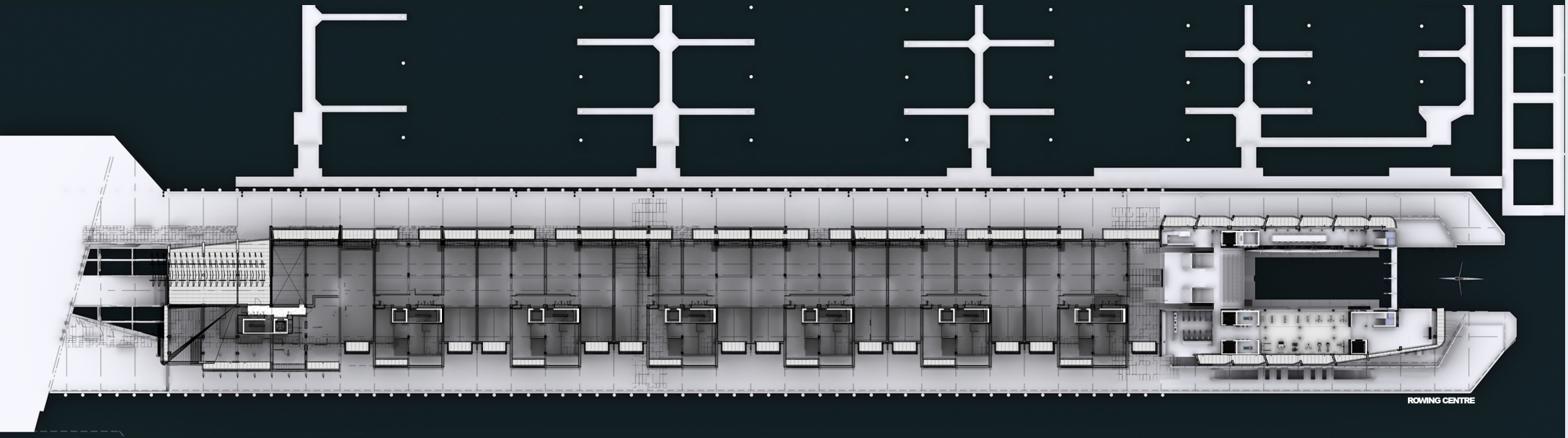
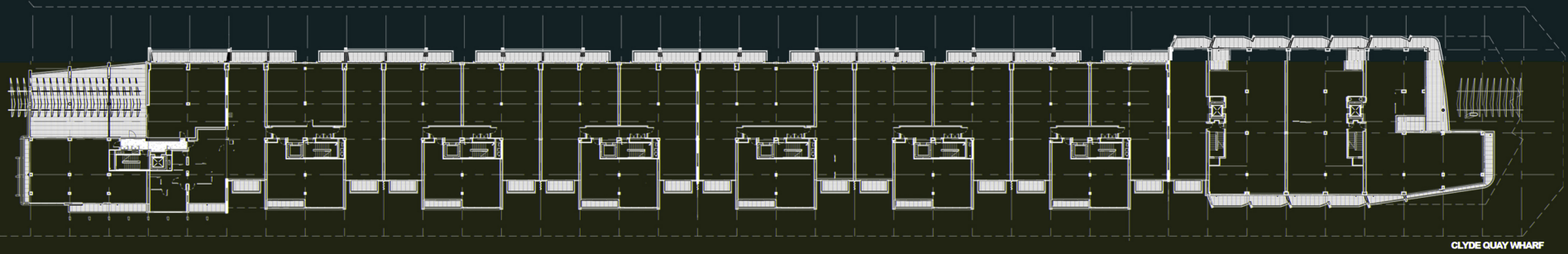

ROWING CENTRE


CLYDE QUAY WHARF

CONFERENCE ROOM

The conference room is located in the west wing of level 02. The addition of spatial typologies such as this is important as they offer flexibility in regards to the personnel who can occupy the space; they are not only valuable for the sport, but they also enable additional rental income. The location and views that this space has to offer makes it highly attractive for corporations and businesses to host meetings with clients and their management groups. This space can also be utilised by athletes with their coaches to review performances and engage in discussions about their technique and training programmes.


5 GBR
6 NZL

VIEWING STAND

This drawing illustrates the view in which spectators will encounter this space. The space offers the ability to witness the strong verticality of the building and the diverse training activities that are located on all levels and all sides. This view demonstrates the diverse hierarchy of the east wing that establishes a process of training that contains gym spaces on levels 03 and 02, a rowing tank on level 01 and another training boat located underneath the wharf. The goal for these athletes is to get to the water; having the opportunity to row out into the harbour is recognition of all the hard work and effort that has taken place throughout the various training facilities in the east wing.

This stadium type seating arrangement enables the facility to accommodate as many spectators as possible when an event is taking place. Between events these seats can be used by the patrons of a mini cafe that invites the public to enjoy a cup of coffee and something to eat while simultaneously witnessing views of the training activities to the right, high performance personnel to the left, and out into the harbour.

STRENGTH TRAINING

This drawing illustrates the upper level of the gym with strength training equipment dominating the majority of this wing. Much like the floor below with the cardio and endurance training spaces, it was important that the weights training space also encouraged a methodical and sequential training process of working through their workout routines. The weights training is split into two sections where the left side contains free weights and various benches to accompany maximum strength training, while the right side contains all the machines for endurance strength training.

For the public to establish a stronger connection with the athletes and sport, the gym is available to the apartment owners (as well as the public for a fee). This results in the north end of Clyde Quay Wharf becoming a bonus, rather than a loss for the apartment residents. To further enhance the engagement between the public and athletes, there could be days in which the public test themselves against the rowing athletes. This could be done with ergometer races or by providing the opportunity for them to run through a similar rowing training routine. These interactive encounters between athletes and the public would provide the public with a greater appreciation of what it takes to become top athletes and greater understanding of the sport.


02
STAGE
S
STRENGTH

LEVEL 03

Spatially level 03 conveys a similar layout to level 02 where a set of changing rooms are followed by the first stage of the gym located in the east wing. This first stage of the gym contains the stretching and cardio training for the athletes to begin their training routine before moving through to the circuit training phase or descending down to level 02 to engage with the weights training stage. The west wing contains a series of office spaces for management from Rowing NZ and others from their High Performance programmes.

The planning of the two levels of gym provides an opportunity for the occupants to complete a full circuit of training; the addition of a bridge connects the east and west wings together at the far north end of the building. In much the same way as the Ford Foundation Building's use of the director's offices to form a cornice that completes the atrium of the building, this experiment uses this bridge to complete the atrium and establish a type of visual cornice. This bridge also enhances the public's ability to witness and celebrate the athletes making the transition from the wharf down to the water and out onto the harbour.

01 + COACHING & TRAINERS OFFICE

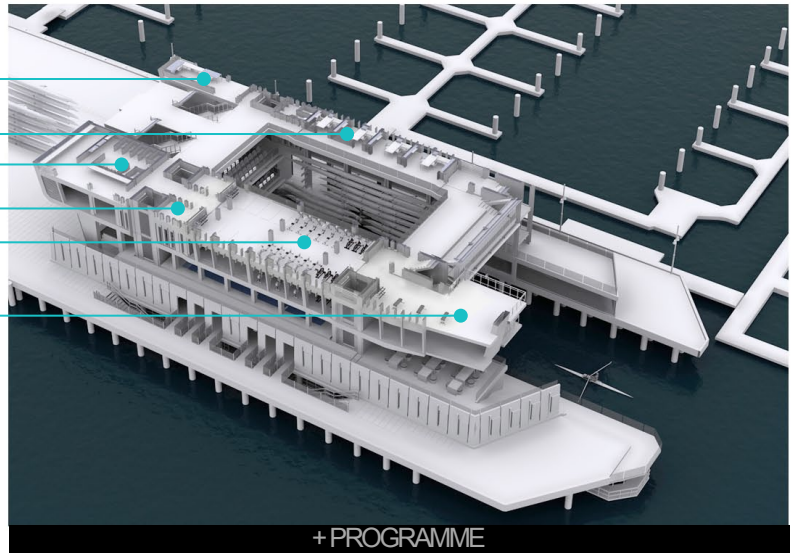
01 + NZ ROWING OFFICES

02 + MEN'S CHANGING ROOMS

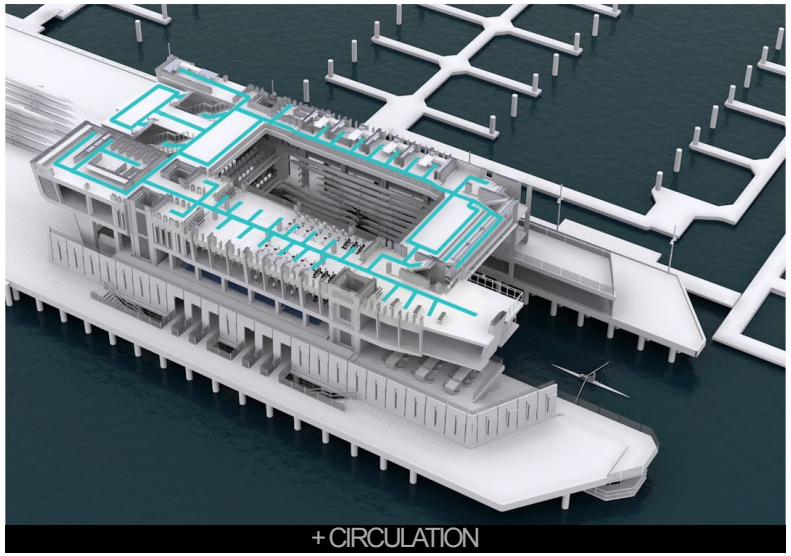
03 + SPORTS SCIENCE

04 + ENDURANCE TRAINING

05 + PERSONAL TRAINING SPACE

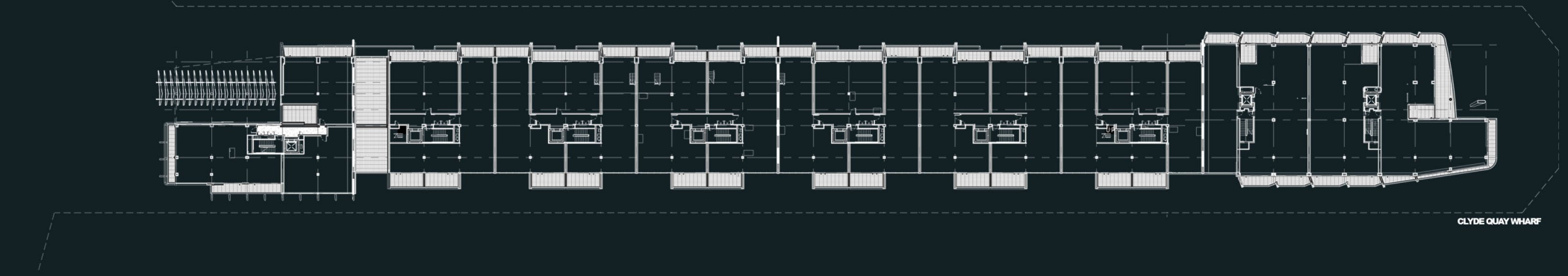


+ PROGRAMME



+ CIRCULATION


ROWING CENTRE


CLYDE QUAY WHARF

ENDURANCE TRAINING

As noted in the programme analysis, there are five key training methods for rowing: 1) stretching and flexibility, 2) cardio, 3) circuit training, 4) endurance strength training, and 5) maximum strength training. This drawing illustrates the lower level of the 2-storey gym that contains the stretching, and cardio exercise spaces. It then moves through to the circuit training at the end. The layout of a gym and its equipment is important as they can help inform an athlete's workout routine and the sequence in which to do so. This space begins with the stretching and warm up area that leads through to the cardio training where ergometers and exercycles are located to help build the athletes' endurance. This continues through to the circuit training at the end, before moving up to level 03 where the strength training is located. All exercise spaces are enhanced by views of the harbour and into the atrium.


01
STAGE
E
ENDURANCE

NZ ROWING OFFICES

This split – athletes occupying the east wing, while management and support staff occupy the west wing – creates a distinct visual dialogue between the two parties across the water atrium. The location of these office spaces in the west wing serves an important role from a business perspective as it clearly showcases all of the rowing activities and training spaces that are taking place in the east wing. For the directors and managers of Rowing NZ this becomes beneficial as they can use these views of the athletes training and the rowing-centred surrounding environment as a marketing point for how this facility differs from other sporting facilities; in this way it also has the potential to attract more sponsors.

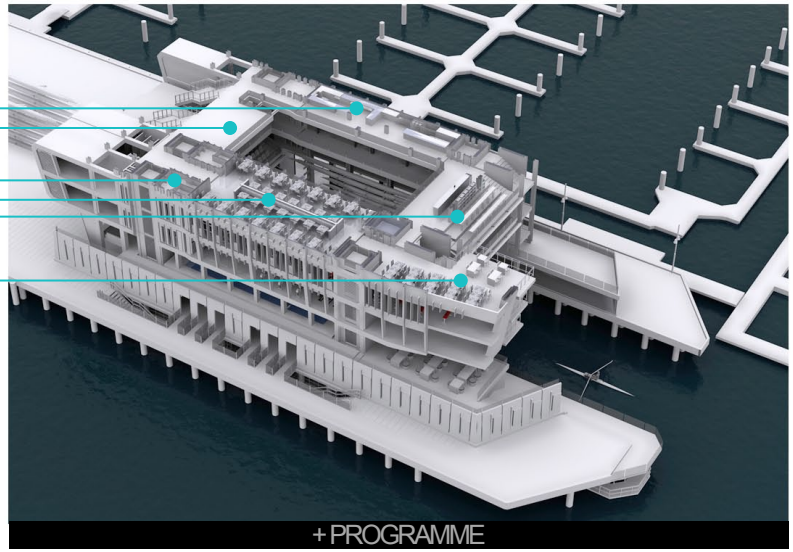
LEVEL 04

Level 04 offers the building another dimension that allows it to be regularly utilised by the general public, the residents, the athletes and their sponsors with the addition of an upper level bar and restaurant. The major implication of a number of these spaces is its location in the building and its surrounding views of the harbour and city in the distance. Capturing these views is achieved not through a series of small portholes as in Auckland's Prince's Wharf, but through full height glass windows that frame the site's surrounding beauty. The bar and restaurant encourage the building facility to be socially active during the day but most prominently at night where any waterfront location at night offers a beautiful setting for dinner or drinks. Most importantly, this level provides 180-degree harbour views enabling spectators to witness the entirety of a rowing event. Patron seating during an event becomes restaurant and bar seating between events.

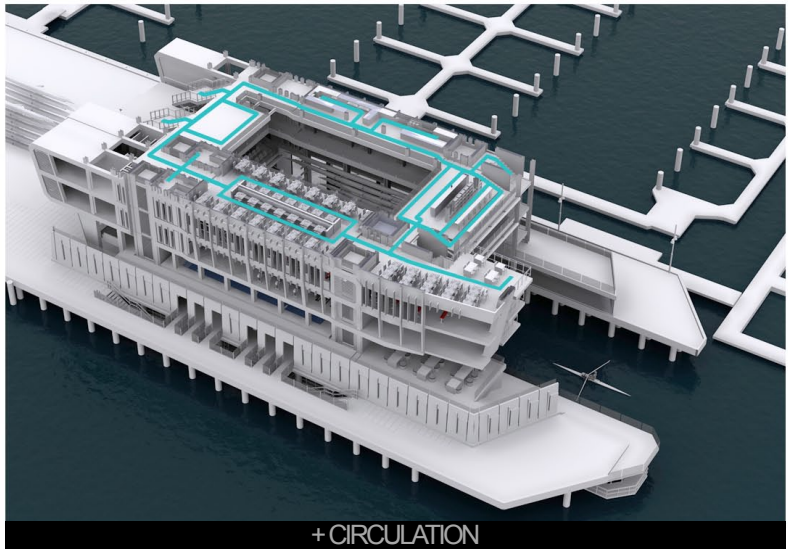
01 + KITCHEN
02 + COACHING & TRAINERS OFFICE

03 + MEN'S & WOMEN'S TOILETS
04 + RESTAURANT
05 + BAR

06 + PRIVATE FUNCTIONS



+ PROGRAMME



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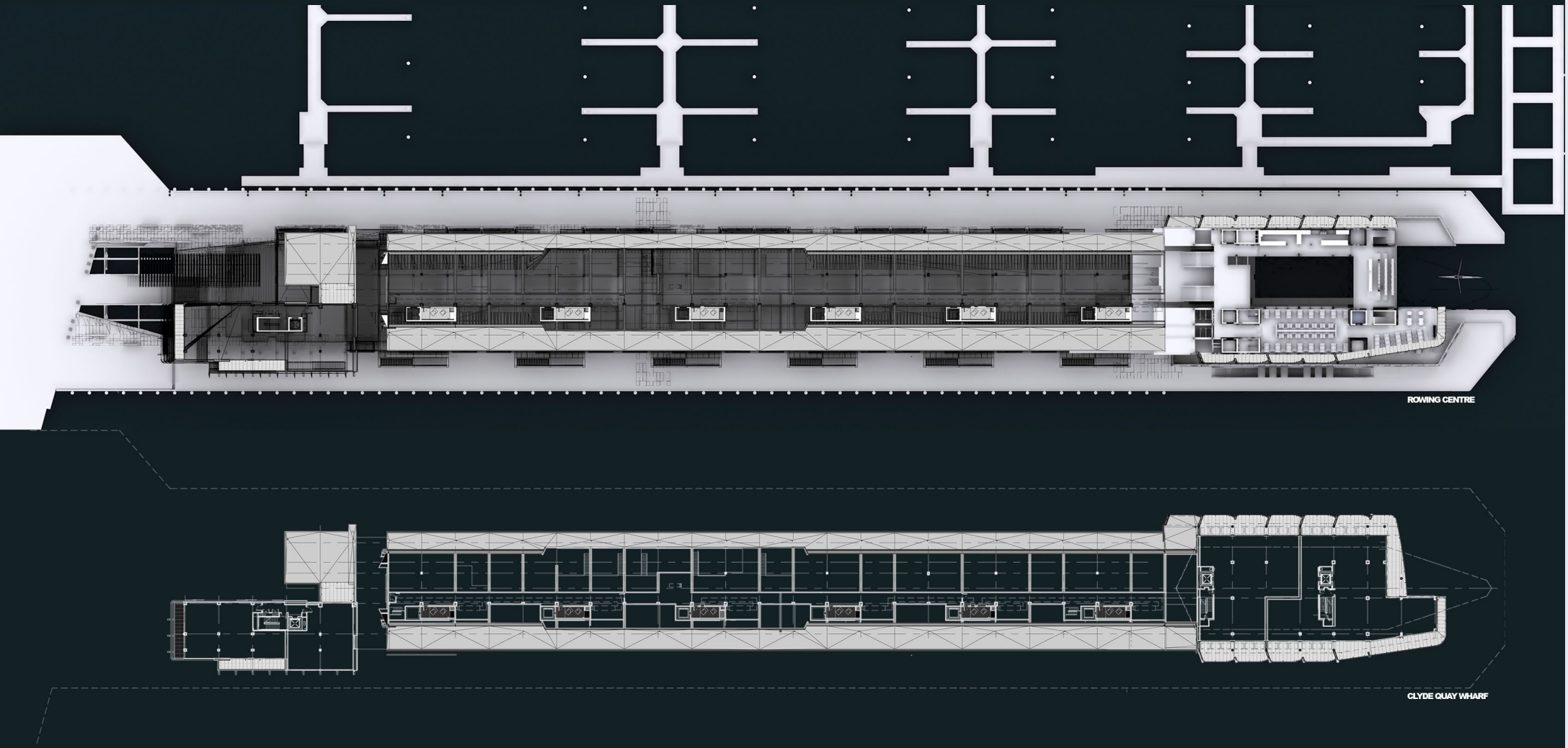

ROWING CENTRE
CLYDE QUAY WHARF

RESTAURANT

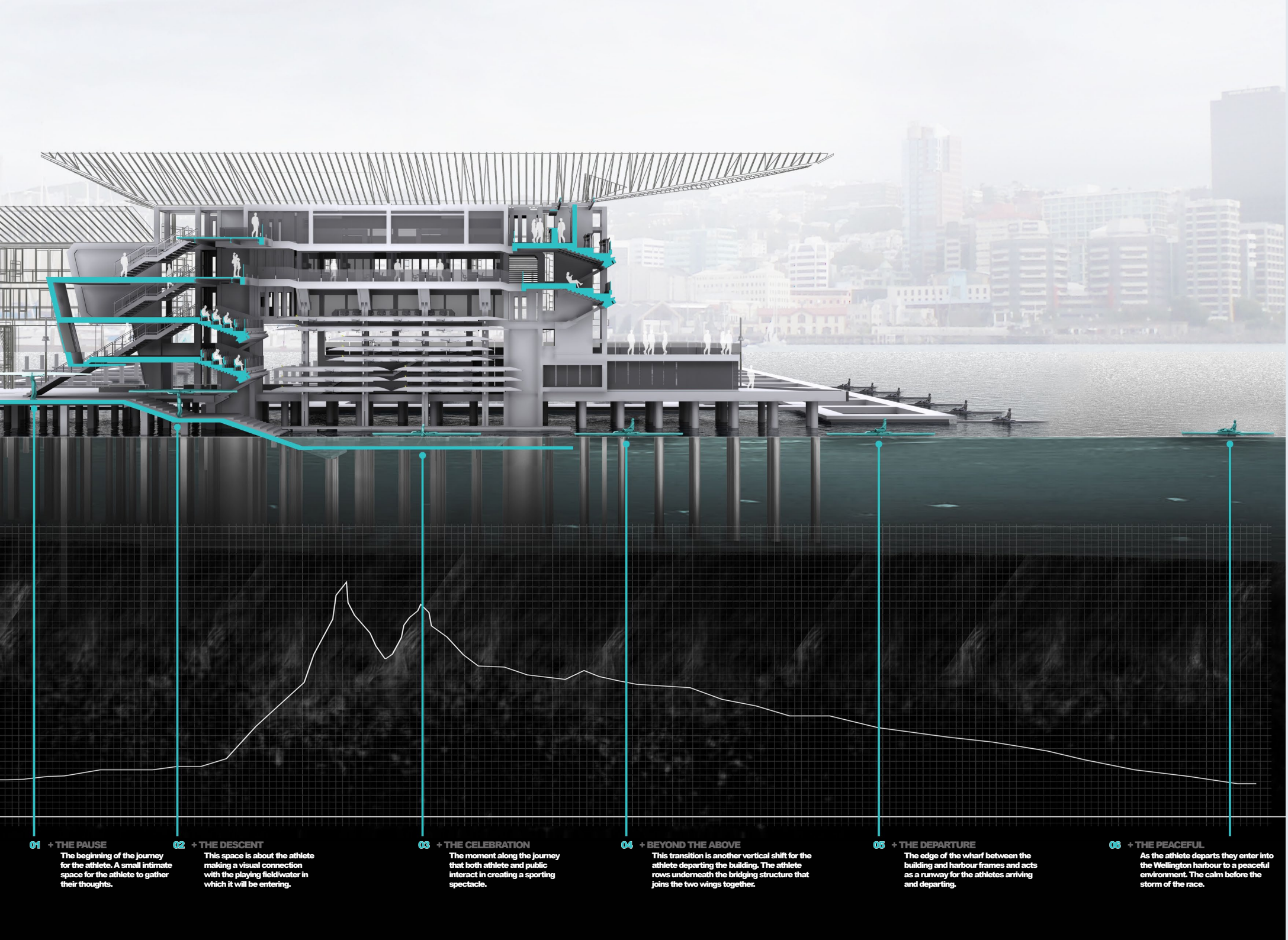
Located in the east wing, the restaurant provides a great setting that captures the site's surrounding beauty with large openings offering expansive views of the harbour and out towards Oriental Parade. The strong visual engagement between the east and west wing that is prominent throughout the majority of the building is also evident in the restaurant. This space offers a multitude of viewing experiences created by the water atrium, which enables the building to be understood as a greater system by providing spaces to visually connect with another. Exposing these spaces to be witnessed from different vantage points, celebrate the activities that in some cases are not experienced by the public. This restaurant offers one of these experienced by being able to see your meal prepared across the water atrium in the restaurant kitchen.

BAR

The bar is located on one of the bridges at the north end, which connects the east and west wing together. This space presents two distinct viewing opportunities; one with an internalised experience that provides the ability to witness the training activities and rowing crews entering on to the playing field below. The other is externalised capturing the 180-degree views of the harbour that allows the occupants to sit and have a drink while watching various rowing crews racing across the harbour during a regatta. The island bar facilitates these spatial experiences by providing a transparent boundary to divide the two space while still allowing the bar seating areas to engage with each other.

ROWING JOURNEY

The transition of the athletes from wharf to harbour is a celebratory journey that engages both athletes and spectators. This journey is comprised of six key moments that shift in scale and fluctuate in atmosphere. The beginning of this journey presents the opportunity for the athletes to pause for a moment before descending down to the water where they visually engage with the playing surface/harbour's edge. This third phase of the journey is the moment where the athletes enter into the water and into the spectator's eyes that creates a celebratory moment uniting both athletes and supporters as one. A series of transitions begin to shift in scale as the athletes make their way out into the harbour. These transitions are points in which they depart and move beyond the building and wharf. This has effectively results in the athletes shifting through a multitude of transitions across the boundary between inside and outside, and from an intimate human scale to an urban scale when they enter into the harbour. The athletes – and the viewing public – understand what it is to co-exist between the two spatial realms of inside and outside simultaneously.



01 + THE PAUSE
The beginning of the journey for the athlete. A small intimate space for the athlete to gather their thoughts.

02 + THE DESCENT
This space is about the athlete making a visual connection with the playing field/water in which it will be entering.

03 + THE CELEBRATION
The moment along the journey that both athlete and public interact in creating a sporting spectacle.

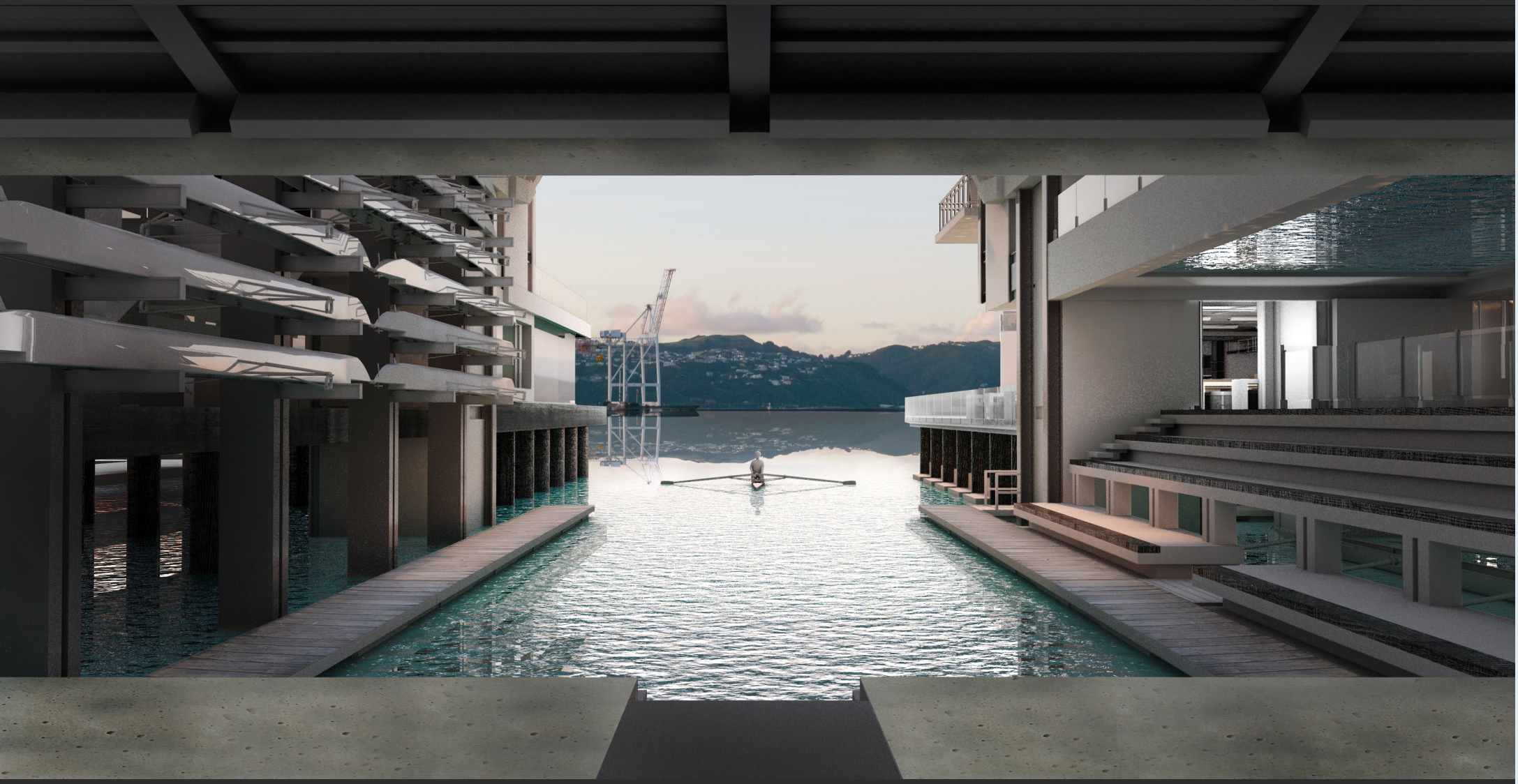
04 + BEYOND THE ABOVE
This transition is another vertical shift for the athlete departing the building. The athlete rows underneath the bridging structure that joins the two wings together.

05 + THE DEPARTURE
The edge of the wharf between the building and harbour frames and acts as a runway for the athletes arriving and departing.

06 + THE PEACEFUL
As the athlete departs they enter into the Wellington harbour to a peaceful environment. The calm before the storm of the race.

02 + THE DESCENT

This space is about the athlete making a visual connection with the playing field/ water in which it will be entering.



04 + BEYOND THE ABOVE

This transition is another vertical shift for the athlete departing the building. The athlete rows underneath the bridging structure that joins the two wings together.

06 + THE PEACEFUL

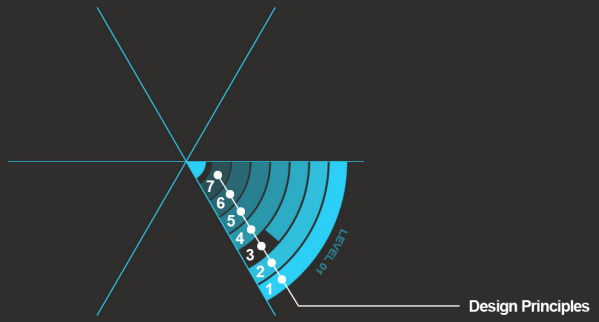
As the athlete departs they enter into the Wellington harbour to a peaceful environment. The calm before the storm of the race.

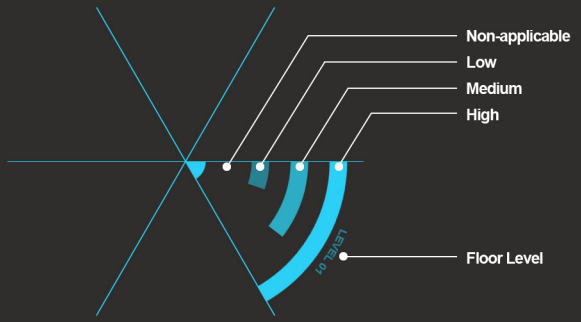
CRITICAL REFLECTION

Upon critical reflection of the final design, many of the design principles and objectives have been achieved. Several design principles are more applicable to some floors than to others, which is why they receive a lower rating on the charts.

•The greatest strengths of the final design experiment are on the lower levels where the sport and public activities achieve active engagement with the water environment; one weakness of the lower levels is reduced climate control in winter.

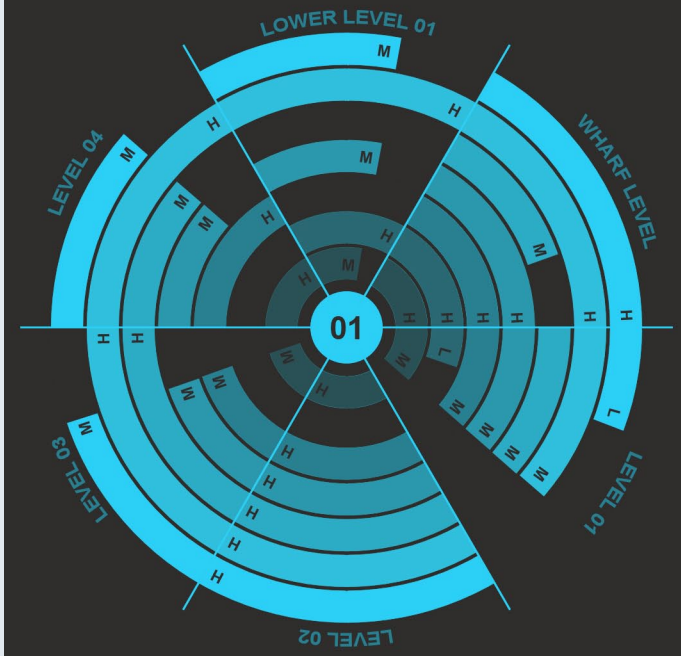
•The greatest weaknesses of the final design experiment at this stage involve the upper levels, particularly the fitout of the dining and observation levels, which would be more successful with custom designed furnishings specifically conceived for dual capabilities of dining and spectator viewing. Within the timeframe of this thesis, custom furnishing design was not possible; but this would be an important step in future stages of this project.

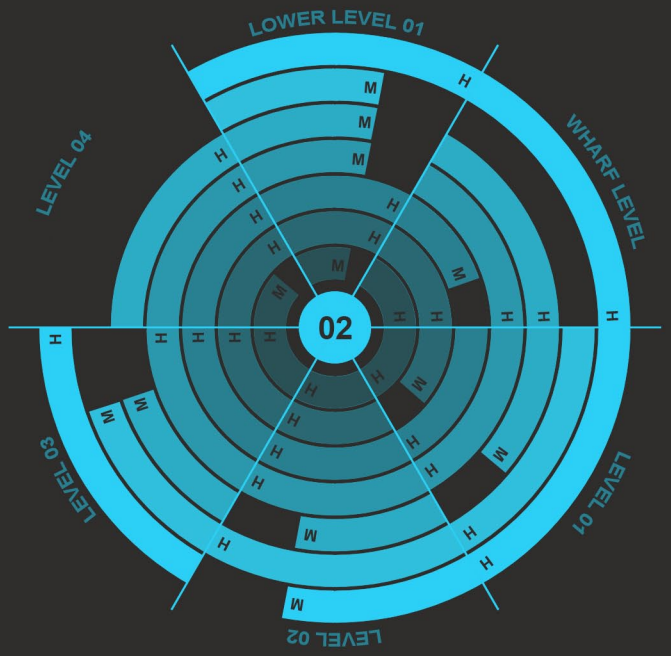


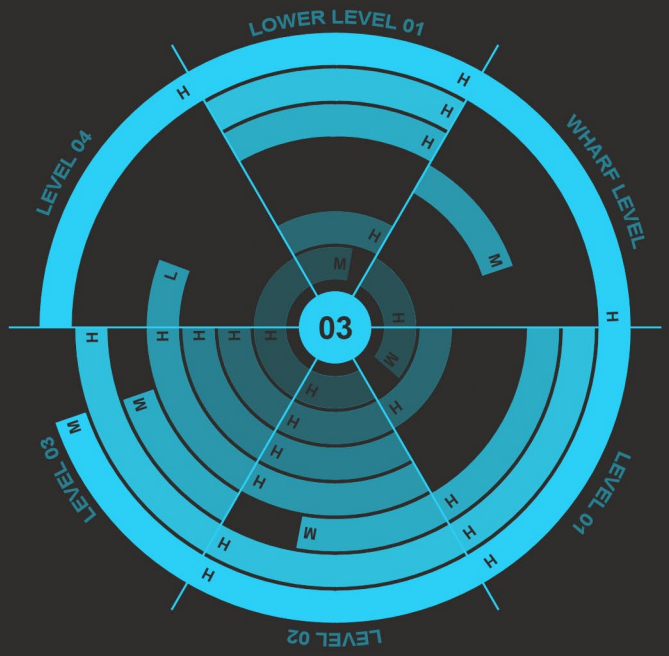


The following diagrams illustrate a comparison of the design principles within each of the final designs floor levels. Divided into five different categories, each design principle is measured from low, medium to high depending on the success in which each floor level has achieved.

Strengths (H) and weaknesses (L) of the final design experiment.







ENHANCE THE URBAN CONTEXT

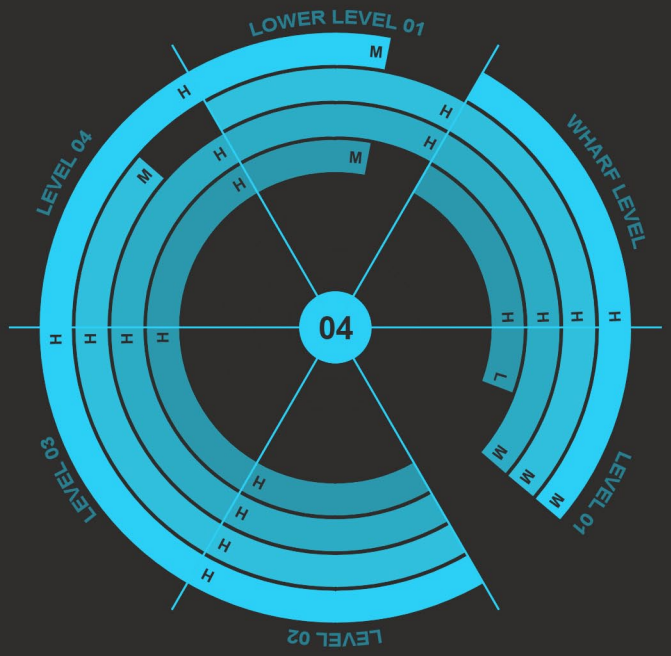
1• Be a year-round activator for the city;
2• Be a theatre for spectators that 'captures something of the sport itself';
3• Meet a developer's goals by increasing retail values through increasing the numbers of harbour views;
4• Meet a city's goals by increasing the connection of the waterfront and public activities;
5• Ensure anchor activities are conceived for shared public use, such as restaurant, bar, gymnasium, water sports, learning centre about rowing, etc.;
6• Maximise public access along the waterfront edges of the site and around the entire facility;
7• Ensure a balance of commercial activity and public access and enjoyment.

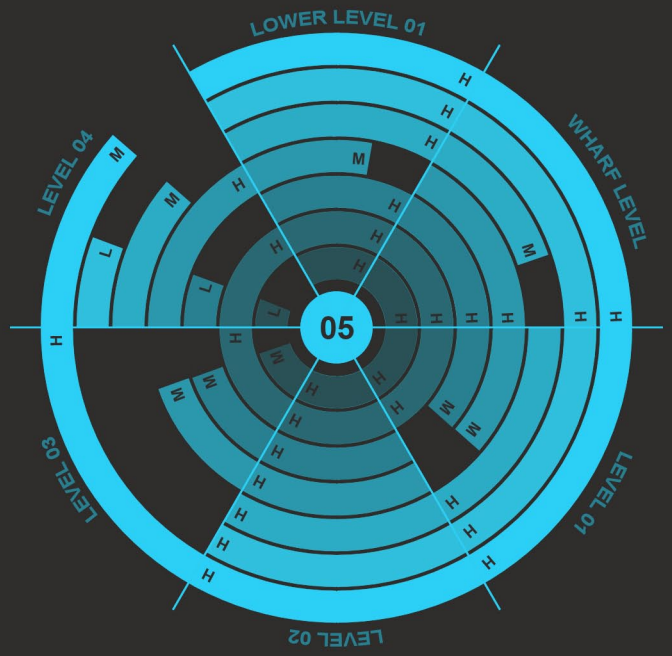
ENHANCE AWARENESS OF THE SPORT OF ROWING

1• Include a rowing-specific indoor training facility visible to the general public;
2• Include training facilities available to the public;
3• Incorporate a means of educating the public to the sport and its NZ successes;
4• Ensure that how people interact with the facility enables them to learn more about the sport;
5• Provide an internal atrium that merges inside/outside designed to work like a theatre for spectators; by integrating the building with the harbor it would 'capture something of the sport itself';
6• Provide a central focus on water activity with smaller support activities surrounding the central water to strengthen them;
7• Provide program-specific groupings of activities on each intermediate level around the atrium to enable each aspect of rowing to be understood as part of a greater system.

ENHANCE THE TRAINING OF ROWING ATHLETES

1• Actively engage the support of the public;
2• Include a rowing-specific indoor training facility;
3• Provide interior training facilities that mimic outdoor training;
4• Include space for a High Performance Centre that includes directors, managers, and other specialists;
5• Provide high performance training facilities for cardio training, stretching and flexibility, circuit training using own body weight, endurance strength training, and maximum strength training;
6• Enable the training routine to be performed in a linear or circular process;
7• Enable larger and smaller floor areas to both be available for diverse program requirements.





ENSURE ECONOMIC VIABILITY OF THE FACILITY YEAR-ROUND

1• Ensure the facility is activated all day and year round;
2• Incorporate a multi-program approach to ensure continual activation by a wide range of visitors;
3• Give something valuable back to the private sector who inhabit the adjacent apartments and to the public sector who inhabit the waterfront;
4• Enable the gym, restaurant and bar facilities to be available to both sectors to ensure public connections to sporting and training activities and to ensure activation in the evenings.

CELEBRATE UNIQUE BOUNDARY CONDITIONS

1• Celebrate the threshold transition from the built environment to the water;
2• Celebrate the ritual of the athletes entering 'onto the field';
3• Enable spectators to witness how a race originates by moving from the 'boatshed' to the starting blocks;
4• Maximise visual connections of inside and outside;
5• Provide an internal atrium that merges inside/outside to celebrate the threshold transition from the built environment to the water;
6• Provide an internal atrium that merges inside/outside to enable witnessing all aspects of the sport, bringing the public into the 'community' of the sport;
7• Encourage this threshold from the built environment to the water to highlight the unique identity of the sport of rowing.

CONCLUSION

The aims of this research investigation were to develop a model for a permanent rowing facility that addresses the unique needs of rowing, while resolving weaknesses associated with traditional sporting stadiums and training facilities, going beyond what they currently offer. The sport of rowing is one of New Zealand's premier international sports; it has achieved unparalleled success in the past at a number of Olympic Games and World Rowing Championships. Yet unlike other premier sports in the country such as cricket, netball, and rugby, New Zealand has no permanent high-performance training facility wherein spectators can witness and celebrate rowing races along with the training of these athletes. The era of professionalism in sport has created a multitude of demands that designers of sporting facilities need to accommodate, none more so than economically viable ways to encourage the use of the facility between events. The research examined how New Zealand rowing could establish a stronger relationship with spectators if they were able to observe all phases of the sport, both indoors and outdoors, while also celebrating the unique boundary conditions between the built and natural environments where rowing takes place and which enhance the unique identity of water sports.

Rowing regattas take place over a considerable distance; no traditional stadium typology applies to these unique conditions. Training for rowing also has unique requirements; training for rowing athletes on the water occurs during the early morning and late afternoon making it difficult to appeal to the public. Existing rowing facilities are generally contained

within ‘boatshed’ architecture, which disconnects the athletes and sport from the viewing public. Rowing is a water sport, yet its facilities do not embrace these unique boundary conditions to enhance identity for the sport and appeal further to the public.

The lessons learned from Prince’s Wharf in Auckland establish that the building’s failure was due in large part to becoming a privatised figure on the Auckland waterfront. The disregard for public identity and harbour-edge spatial activity to encourage the public to activate this site is a situation that this thesis has aimed to resolve. The location of a permanent rowing facility needs to be carefully considered not only in relation to providing direct access to the water, but also the way in which it celebrates and embraces the water. The chosen site for this design experimentation, Clyde Quay Wharf, is located on a finger wharf that juts out into the harbour further encouraging the site to engage with the water; the new Athfield building is in need of public activation to help ensure Wellington’s waterfront sites are publically accessible.

As an interior architecture design experiment confined to the interior of Athfield’s Clyde Quay Wharf design, there was in principle little opportunity for the rowing facility to establish an external identity that is recognisable to the public from a distance. The Ford Foundation Building in New York offered a solution, with the addition of a large atrium that connects to the facade of the building fundamentally exposing the buildings internal floor levels. This ultimately enabled the building to take full advantage of its surrounding environment by forming a strong connection with a neighbouring park as if the park were able to visually enter into the building and become a part of the green internalised atrium. The design experimentation explored applying this solution to a harbour edge condition by removing a section of the wharf and adding a high visibility public atrium. This created a central internalised focus for the building that simultaneously provided athletes and the public with an externalised experience that connects with the Wellington harbour. It also enabled a major interior space to become a defining feature when the building is seen from the harbour.

One of the main advantages of opening a sporting facility to the public during training as well as competitions is the opportunity for the facility to generate a greater public awareness of the sport. One of the underlining economic problems facing stadium architecture is that they are only occupied for a limited number of events each year. Sheard claims, “Beyond a few sporting hours every few weeks, they are, in effect, dead buildings” (Sheard, 2001, p.2). This research identified key design principles, categorised into five important sections, which can lead to a successful approach for a rowing facility. The design must:

- Enhance the urban context;
- Enhance awareness of the sport of rowing;
- Enhance the training of rowing athletes;
- Ensure economic viability;
- Celebrate unique boundary conditions.

In the design experimentation, these five important sections were applied to the design of a rowing facility to simultaneously address critical issues of identity, economic sustainability, and contextual responsiveness. The design experiment integrated combined ideas taken from boatshed, stadium, training, and hospitality typologies to provide a unique mix-use sporting facility for rowing that is continually activated throughout the day and year.

The thesis argues that New Zealand rowing will establish a stronger connection with spectators if they can observe all phases of a sport, both indoors and outdoors. The water atrium created multiple vantage points to enable the spectators to witness – and even participate in – the diverse approaches to training located in the building. The design included a water atrium located on the central axis with two wings flanking either side of this central focus. This resulted in the facility experiencing very real externalised conditions that required the spaces from level 02 upwards to be glazed and weather tightened; the operable glazing can be fully opened during fine weather.

The sense of community engagement is heightened by the strong visual connection between served and service spaces and the ability for the building facility to be experienced holistically as a greater system. The thesis argues that a rowing facility should enhance the unique identity of rowing, in this case by explicitly engaging and celebrating the built environment / water interface by creating a visually dominating entry between the building and harbour.

Sporting facilities constantly struggle economically with the problem that there is substantial inactivity between events. There is a real need for these structures to be more regularly accommodated in ways that are flexible and appealing to the public, ways that can be educational, inspirational, and provide spaces that enable the public and sports figures to feel they are involved in the sport as one. This research could help inform other long endurance sports such as road cycling by enhancing the identity of the sport through the architecture and ensuring an integrated approach to community engagement.

The sports stadium should not be a passive backdrop but a theatre set that can enhance the experience through its design and management. While it is outside the scope of this thesis investigation, it would be hoped that in the near future stadiums and facilities for other sports can establish architectural spatial solutions that encourage the expanded use of these buildings and the integrated interaction and engagement of the sport, athletes, and public together.

Our harbour cities depend on public activities along the waterfront that encourage visual as well as physical participation throughout the day. This thesis tested how a permanent rowing facility can become a viable urban activator for both a city and a private development, while also enhancing the public's relationship with this premier New Zealand sport. Creating the opportunity for the sport and its athletes to be celebrated in the eyes of the public is important to ensure the sport continues to thrive and receives the recognition that it deserves – housed within a unique sporting facility that encourages the public to be **'Drawn to the Rhythm'.**