Engaging Sensibilities
An exploration into architectural techniques for multi-sensory environments

Name of candidate: Rachel Dawkins

This Thesis/Dissertation/Research Project entitled:

*Engaging Sensibilities: An exploration into architectural techniques for multi-sensory environments*

is submitted in partial fulfilment for the requirements for the Unitec degree of Masters of Architecture (Professional)

CANDIDATE’S DECLARATION

I confirm that:

* This Thesis/Dissertation/Research Project represents my own work;
* Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee.

Research Ethics Committee Approval Number: N/A

Candidate Signature: ..................................................

Date: 01 October, 2010

Student number: 126 25 28
The culture and practice of architecture is regarded as a principally visual field. The sense of sight dominates the remaining senses, which lack purposeful engagement in current architecture. This proposal ventures to recognise the potential of multi-sensory engagement in order to embellish the architectural experience.

It develops the design of a Rehabilitation Centre for those that have recently lost their sight. It has been identified that participation in group-based rehabilitation is more effective than its individual-based counterpart. The centre therefore caters to small groups of clients and their families, who participate in a programme consisting of typical daily living as well as specialised rehabilitation, which takes place in multi-purpose facilitation spaces.

The research undertaken considers a phenomenological approach, aiming to investigate and explore an architecture that is enriched with the application of the senses: touch, smell and sound in addition to sight.
Acknowledgements

This year, not to mention the previous four, would not have been the same without all of those who have offered endless support and motivation over the course of my degree. To my family, friends and colleagues, thank you for keeping me smiling.

Thank you to my supervisors, Tony Van Raat and David Chaplin for your dedicated encouragement, guidance and patience. On many occasions you went above and beyond.

Finally and most importantly, a very special thank you to my partner, whose unwavering strength and support over the course of my studies has undoubtedly encouraged me to be the best I can be. With all my love - thank you Tom.

Rachel Dawkins
Contents

1 - Introduction  1
   1.1 Research Question  5
   1.2 Research Objective  5
   1.3 Scope and Limitations  7
   1.4 Methodology  7

2 - Background  9
   2.1 Phenomenology  11
   2.2 Blindness  17
   2.3 Senses and a Multi-Sensory Architecture  19
     Sight  19
     Sound  21
     Touch  25
     Smell  31
     Colour and Light  33

3 - Design Process  35
   3.1 Project Description  37
   3.2 Intent  37
   3.3 Programme  39
   3.4 Rehabilitation Spaces  41
   3.5 Residential Spaces  43
     Schedule of Spaces  43
   3.6 Reflection Spaces  43
   3.7 Site  45
4 - Project Development

4.1 Site Selection

4.2 Site Analysis

History of the Site
Surrounding Context
Movement and Accessibility
Nature of the Site

4.3 Initial Design Exploration

Plaster Cast
Rubix Cube

4.4 Master Planning

Building Relationships
Design Process
Location and Orientation

4.5 Rehabilitation

Nature of the Space
Building Development

Bath House
Fire Pit
Library
Vertical Tower
Music and Art Facilities
Gym

4.6 Residential

Nature of the Space
Building Development

Entry Foyer
Kitchen
Dining
Living
Accommodation
Table of Figures

2.3.1 - Steel faces of the Jewish Museum


2.3.2 - Swiss Pavilion, Peter Zumthor


2.3.3 - Gordon Murray and Alan Dunlop, Hazelwood School


2.3.4 - Carlo Scarpa, Olivetti Showroom 1956


2.3.5 - Alvar Aalto, Summer House 1953


2.3.6 - Thermal Baths, Peter Zumthor 1996


2.3.7 - Tactile Map used to explain a conceptual design to the blind.


2.3.8 - Moore house, California, 1962

2.3.9 - Chapel of St Ignatius, Steven Holl 1994


2.3.10 - W. Ross MacDonald School for the Blind, G Bruce Stratton Architects


3.7.1 New Zealand Map, Locating Auckland Area.

4.1.1 - Map of Auckland with facilities for the blind

4.2.1 - Workers Cottages, Colonial Road, 1886


4.2.2 - Aerial of Chelsea Sugar Factory, 1920


4.2.3 - Original Managers Homestead, 1908


4.2.4 - Selected Site and Chelsea Sugar Works

4.2.5 Contour Model

4.3.1- Plaster Cast

4.3.2 - Rubix Cubes

4.4.1 - Building Relationship Diagram

4.4.2 - Analytical Abstractions

4.4.3 - Shape of the land

4.5.1 - Rehabilitation Sensory Relationships
4.5.2 - Series of developments of the Rehabilitation Wing.

4.5.3 - Rehabilitation Massing sitting in the land

4.5.4 - Entrance along the wall of the Bath House

4.5.5 - Interior wall of the Bath House

4.5.6 - Entrance to the Library

4.5.7 - Inside the core of the tower

4.5.8 - Exterior perspective of the Rehabilitation wing, with the gym in the foreground.

4.6.1 - Residential Sensory Relationships

4.6.2 - Series of developments of the Residential Wing

4.6.3 - Residential Massing sitting in the land

4.6.4 - Entrance to the Residential Wing

4.6.5 - Dining Room

4.7.1 - Reflection Sensory Relationships

4.7.2 - Series of developments of the Reflection Wing

4.7.3 - Reflection Massing, with whole scheme sitting in the land

4.7.4 - Entrance to the Reflection Spaces

4.7.5 Individual Reflection spaces
Introduction
On a primary physical level, the purpose of architecture is to serve, providing for the necessity of shelter. On a secondary psychological level, mere shelter is given greater importance and significance when transformed into architecture. Acknowledging the feelings, desires and pleasurable capacities of the occupants, architecture has the ability to serve a deeper function. It can offer a higher quality of life, providing the possibility of a stimulating and engaging experience. Furthermore, architecture can help to define the complex relationships between man and built space and transform one’s daily existence.

The arrangement of most space is for a particular purpose; prioritising function over the ability to engage occupants. Ideally each space should offer both; facilitating function and making the functional experience memorable, while engaging and stimulating the occupant. The space itself should “move” the occupants in and of itself.

The essence of an emotional response is the impact an object or space has on our primary senses; sight, sound, taste, smell and touch. In addition to the five primary senses, there are also subtle senses not commonly explored in daily experience. A sense of pressure, balance, rhythm, movement, warmth and even a sense of self could prove to contribute significantly in an architectural setting. Senses are the way an individual perceives the world. They provide the opportunity to identify where we are, offering the primary source of information about the world.

Technological advancements and the development of our culture have resulted in a societal shift, from one that engaged all senses to one that has an over dependence upon a single sense - vision.

As with all art, an obsession with visual aesthetics has fundamentally affected the architectural profession. It is common practice to investigate, appreciate and experience architecture primarily from a visual perspective. An experience is typically described with reference to our eyes; we describe how it looks, rather than how it feels, smells or sounds.

A physical environment provides the opportunity to stimulate all senses, a manipulation of the space can provide different experiences. The perception of a room can be altered by adapting how it looks, how it sounds, how it smells and what it feels like. When architecture is visually prioritised, are we missing out on these tactile, olfactory and acoustic experiences by not giving equal consideration to them?

1.1 Research Question

What would our experience of the world be like if we built around us a truly multi-sensory environment? This research project will critically examine what architecture would be like if it embraced all of the senses, instead of an over-dependence on one sense.

1.2 Research Objective

The focus of this project is to investigate and develop an architectural approach that engages all senses, potentially offering a heightened sense of self and surroundings.

The project objectives are:

- To identify through precedent study the examples of increased sensory engagement that are present in current design.

- To demonstrate, using the findings of this research in the design of a specific architectural proposal, how all of ones senses might be actively engaged in architecture.


1.3 Scope and Limitations

1 – Sighted observers, possessed with the faculty of sight, have difficulty experiencing architecture without this sense. Although efforts have been made to ensure a more qualified understanding of the world without sight, this project cannot be pursued or understood on a fundamentally first hand basis. A variety of buildings and spaces that exhibit differing environments have been explored, focusing on the multi-sensory experience that each offers. The understandings derived from the differing spaces has allowed a greater understanding of the nature of spaces and how to manipulate them, one of which is given in Appendix A.

2 – This research-by-design project will not seek to record the opinions or needs of the blind directly. There is sufficient published information that can be utilised without the need for ethics approval.

1.4 Methodology

The methodology of the thesis is a cyclical process between research-for-design and research-by-design. Research through literature and case studies were crucial to build an understanding of current knowledge and practice. This project utilised a qualitative process, where conclusions are drawn based on interpretation of the research material reviewed.

The research was undertaken using an experiential approach, stressing the importance of the multi-sensory. This was then translated and interpreted in the exploration of three dimensional space using drawings and models.

Central to this project is the development of a Rehabilitation centre for those that have recently lost their sight, demonstrating how all senses can be stimulated. This project provides without bending over backward for the blind but it can’t ignore the needs of the sighted staff and visiting family who will, in fact, be the majority users of the project on a continuing basis. The multi-sensory nature of the project needs to be seamlessly integrated in order to assist with navigation and movement of the blind.
2 Background
2.1 Phenomenology

Architectural theorists have attempted to enrich the awareness of architectural space by using the philosophical field of Phenomenology. With the intention to design a multi-sensory facility for the newly blind, this theoretical endeavour has particular relevance.

Phenomenology is the study of the phenomena or experiences of everyday human life and is part of the development of Western philosophy. Its aim is to examine and clarify individual experiences of the world in greater detail.

People have, of course experienced the world informally for millennia, however this field was developed by the German philosopher Edmund Husserl in the early years of the 20th Century to formally theorise such experience.¹ Phenomenology and architecture were linked in the 1970’s² by Christian Norberg-Schulz. Most phenomenology-based studies in architecture have utilised the works of philosophers such as Husserl, Heidegger and Merleau-Ponty.

The architectural application of phenomenology is an approach; a perspective that aims to deepen and add significance to the experience of buildings and architecture. It is important to understand that a phenomenological experience cannot be quantified or reduced to numbers or statistics; phenomenology is an art not a science, a qualitative approach that examines direct personal experiences. People see the world in certain ways because of a personalised model of the world, a model unique to each and everyone.

Phenomenology explores the experiences of phenomena through the senses, considering the diversity of sensations an experience can offer. Our experience is generally much richer in content if more sensory tools are used to explore an environment.

The world is filled with raw sensory data that can then be interpreted by the accumulated experience of an individual. Any object, event or experience that a person can see, hear, touch, smell, taste, feel or understand is a legitimate focus for a phenomenological investigation.³

Husserl believed that there were means that enabled an individual to interpret and understand their own experiences.⁴ Each phenomenon, the raw sensory data that we experience, is considered by the way that it appears to us. How we assess it, judge it and what we feel about it emotionally results in a personal evaluation of the experience.⁵ The response of an individual is a unique understanding of the experiences they encounter. However, such a unique understanding is influenced by; culture, age, gender and beliefs, resulting in the individual experience and response we have to each phenomenon.

An emotional response to an experienced phenomena cannot be forced but can be fostered by providing rich raw sensory data that a perceptive person can experience in depth, to a level that might reflect a phenomenological interpretation. A phenomenological experience is not based on the quantity of raw sensory data loaded into an environment, but the quality of that data. An inundation of stimuli does not produce a richer experience, indeed the absence of stimuli can still allow an individual to engage with and be moved by an experience.

An anechoic chamber for example is devoid of all acoustic experience, the sound is clipped, vanishing immediately. Despite the acoustic deprivation, a strong sensory reaction to an environment is possible. Your sense of balance is questioned as the inner ear cannot balance off the sound reflection and reverberation as it usually would. The eye can also absorb more physical details and the light and shadow contrast off the foam wedges that are arrayed around the chamber. Similarly, a flotation chamber is completely isolated from external stimulation but still enables a strong personal response. The ears are submerged underwater greatly reducing acoustic awareness. The sensation of touch

⁴ Ibid.
is also deprived as the temperature of the air, water and skin are all the same, reducing
distinction of physical boundaries.

Stimulating the senses encourages individuals to open their senses and to explore and
experience their environment discovering raw data resulting from a wider, more varied
data awareness. When an individual reaches a state of inner observation and questions
their own experience, they have responded to the phenomena in a way that is unique
to them. The response generated is for personal contemplation within and enables a
personal understanding of the world and more engagement with an environment than
was previously experienced.

The experience of architecture is a private dialogue between the body, mind and the built
environment. An encountered space is approached, related and confronted by one’s
entire body. The inclusion of the entire body enables the involvement of all the senses
and not just sight. The body can sense the texture of the environment, its warmth, sound
and smell.

In conclusion, phenomenology attempts to focus a heightened awareness of one’s
experiences. A personal analysis of experiences will allow the understanding of the
eliciting factors of one’s design, its perception, spatial composition, or any of the other eliciting factors by which we experience
space. This analysis offers indications of the desired achievement of one’s design. It is
important however to clarify that the data of the raw response is intimately personal and
not universal.

The experience of architecture is a private dialogue between the body, mind and the built
environment. An encountered space is approached, related and confronted by one’s
entire body. The inclusion of the entire body enables the involvement of all the senses
and not just sight. The body can sense the texture of the environment, its warmth, sound
and smell.

In conclusion, phenomenology attempts to focus a heightened awareness of one’s
experiences. A personal analysis of experiences will allow for understanding one’s
experiences. A personal analysis of experiences will allow the understanding of the
eliciting factors of one’s design, its perception, spatial composition, or any of the other eliciting factors by which we experience
space. This analysis offers indications of the desired achievement of one’s design. It is
important however to clarify that the data of the raw response is intimately personal and
not universal.
2.2 Blindness

The Royal New Zealand Foundation of the Blind (RNZFB) has approximately 11,500 members who are blind or have serious loss of sight. Every year in New Zealand there are nearly 1200 people who become blind and are eligible to receive services from the foundation. The RNZFB provides its members with habilitation and rehabilitation services.  

There are various degrees and stages of blindness: a person is not either totally blind or has excellent vision. Eye conditions can occur due to ageing, genetics, medical complications and accidents including; age-related macular degeneration, glaucoma, retinitis pigmentosa, cataracts and diabetic retinopathy. In New Zealand, the majority of people classified ‘legally blind’ are not in fact completely in the dark. They are able to perceive specific colours, shapes and changes in light. For those who become blind later in life, (acquired blindness), memory also plays a large part in the perception of new environments by relating aspects to previous experiences.

To understand space, a blind person must draw on all of their remaining senses, combining this information and using their senses in cooperation, rather than isolation, to be certain of their surrounding environment. This spatial perception is not possible without the combination of all of the senses, unlike the primary reliance on the visual by the sighted. Blind people almost certainly require more time to become accustomed to environments, they explore the building, listening to the spaces and the way their body influences the space. They touch and physically engage with the building, becoming more aware of their surroundings. Like the sighted, the blind walk through time not through space, but their awareness and engagement with space is likely to be much richer than the experience of a sighted person.

7 Ibid.
8 Ibid.
2.3 Senses and a Multi-Sensory Architecture

**Sight**

Architecture is regarded as a visual phenomenon. We largely generate, present, communicate and explore architecture through visual means. The sense of sight has dominated the culture of architecture - if not also life in general. The adage 'A picture says a thousand words' sums up the expectation that everything is immediately presented to us. Even the most complex of ideas can be presented and explained with just one single image.

The reliance we have upon a visual world can be traced back to classical times; philosophical writings, many contained “ocular metaphors” and certainly centered around vision and visibility. In Western thinking, vision has long been thought ‘the noblest of all the senses’ and is associated with qualities such as knowledge and truth. During the Renaissance, the eye was once again glorified, with sight at the top of the hierarchy of the five senses. The dominance of sight has continued and today technological advancements have assisted in separating the senses even further. We now rely on vision so much that our other senses are being suppressed and neglected.

This development has implications for architecture today, where buildings enhance this trend, designed to please the eye, not delight the totality of the body. The realisation of what is occurring with our sensory systems has been noted by philosophers and architects alike: “the inhumanity of contemporary architecture and cities can be understood as the consequence of the body and the senses, and an imbalance in our sensory system.”

With the ability to see, people think they can understand a new environment almost immediately. Once satisfied they can understand the environment, they stop working for

---


11 Ibid.


2.3.1 - Steel faces of the Jewish Museum
further information to understand the nature of the space. The experience gained is not a complete understanding of the space, they merely know, for example where the doors are and what colour the paint is. Sensitive moves by architects now need to be made to reintroduce the non-visual senses, reversing the current emphasis of an ocular-centric culture and attention to the neglected senses so that occupants might be led into a more rewarding experience.

Sound

The way a building sounds is the combination of the form and volume of the rooms, the material surfaces and their application. A building usually focuses on the absorption of sounds, reducing and isolating them, although spaces crafted for acoustics have the potential to act as an instrument, enhancing a multi-sensory experience and assisting the blind in their exploration and understanding of space. The contrast of the volume and the stillness of sounds may enrich the experience of these spaces, defining a particular character for each one.

People are naturally able to determine the direction of a sound, even from above or behind, and identifying sounds and echoes can help the unsighted orientate themselves and navigate through a room. The success of this can be greatly enhanced when there are differences of form, volume and materials within a space, allowing for different pitched sounds, reverberation times and sound absorption.

The distinction between the different acoustics of spaces can enrich the auditory experience one has of a space. It is also interesting to consider if the sounds a space produce are created by the building itself, or is the result of one’s interaction with that space.

The Jewish Museum in Berlin, Germany, designed by Daniel Libeskind, is a rich example of how an individual can manipulate the sounds a building produces. One of the floors in the memory void is covered by a sculpture of thousands of open mouthed faces coarsely cut from steel and loosely secured. When the space is entered, a step onto a face

14 Malnar, Joy Monice and Frank Vodarka, Sensory Design. (Minneapolis: University of Minnesota Press, 2004), 144

2.3.2 - Swiss Pavilion, Peter Zumthor
plates makes the faces clatter and chime underfoot as reverberations fill the height of the
volume. The sounds cannot be escaped until intense experience has been left.  

The Swiss Pavilion, Germany, by Peter Zumthor, is a building designed to demonstrate
acoustic qualities naturally. The pavilion was constructed from wet timber and was
secured without the use of nails, screws or glue. This allowed the building to dry into
place once it had been constructed. Under the temperature fluctuations over time, the
building creaked and groaned around the occupants as it dried and settled into place.

In a more practical precedent, the Polytrauma and Blind Rehabilitation Centre, currently
under design, is due to open in three to four years in Palo Alto, America. The facility
features different textured flooring to allow the unsighted to register where they are by
the different sounds each surface produces under foot or cane.  

---


2.3.3 - Gordon Murray and Alan Dunlop, Hazelwood School

2.3.4 - Carlo Scarpa, Olivetti Showroom 1956

2.3.5 - Alvar Aalto, Summer House 1953
Touch

“The architecture of the eye detaches and controls, whereas haptic architecture engages and unites”19 The tactile sense plays a crucial role in the sensory experience of a space. It incorporates not only the typical experience of physically touching an item but is also applicable in the reading of spatial volume and temperature, understanding one’s world through the entire body and not just through the hands.

A single texture is rarely uniformly applied to a building, but purposeful textural variation is also not thoroughly explored. A variety of materials demonstrates not only a textural difference but also a temperature difference, producing variety in experience - stone is never cold like steel, or never bland like paint. Tactile definition can be executed in one, or the combination of a few. The variation and complexity of the textural resources can act to define and create space, but regardless, the sense of touch is probably the most important for the blind. 20

Materiality has been exploited in both the W. Ross Macdonald School for the Blind and the Hazelwood School for the Multiple Sensory Impaired.21 The architects acknowledged the importance of tactile change for the blind, "creating a strategically touch - sensitive environment."22 Pallets of materials were selected for their sensory qualities, and then juxtaposed to indicate key junctions assisting in the navigation and orientation to help students find their way through the school.23

Architects such as Carlo Scarpa and Alvar Aalto not only designed to appeal to the eye but their work “reaches” out, asking to be touched and explored. Their compositions explore the nature of each selected material, turning standard building elements into

2.3.6 - Thermal Baths, Peter Zumthor 1996
pieces of art, composing multiple materials to engage and entrance the occupants.

Our thermal environment is felt through our skin with tactile changes, coming to meet our bodies, rather than us reaching out to engage with them. Although temperature is heavily regulated by air conditioning in many homes, cars and offices, people enjoy a diversity in temperatures, even extremities of thermal change as seen by the Finnish and Japanese who enjoy scalding baths and saunas.²⁴

A cool breeze from an open window or door can provide a clue as to wind direction and external conditions, especially for those that cannot see out. Likewise, a heat source, such as a thermal mass wall, can be used to help locate a particular place.

Contrast in spatial volume is an experience that can also be felt and sensed by an occupant through a sense of enclosure or openness. This spatial device can be experienced by simply transitioning between two different volumes of space. The change in volume can define a boundary from one space to another, occurring suddenly in broad contrast or as a gradual transition, breaking up a monotonous volume of space.

Peter Zumthor’s Thermal Baths in Vals uses the spatial device of volume to articulate and define different areas of bathing. Internally and externally there is an evocative sequence of spaces, giving the freedom to explore. Private intimate spaces are enclosed in a small volume, larger volumes just shelter overhead, while others are defined at the perimeter but are completely open to the elements. Within the internal structure of the rooms, Zumthor works under a consistent ceiling height, articulating the ground plane, and moving people on vertical transitions through space. The resulting volumetric difference also has implications on the acoustic temperature and acoustic qualities of the spaces.

2.3.7 - Tactile Map used to explain a conceptual design to the blind.
At the start of this year, first year students at the Unitec School of Architecture, participated in a studio project that required the design of a Museum for the Blind. As part of this paper, students had to present their final designs as a tactile map. I participated with the tutors in being blindfolded and then attempting to read the tactile maps without prior knowledge of the designs. All of us that typically relied on our sight to understand space found it particularly difficult to build a spatial model in our heads. When allowed later to see the design we were not familiar with it even having engaged tactiley with the design map.

Tactile maps are a means of communicating spatially with the blind. As seen in figure 2.3.7, the map is tactiley defined for the unsighted user. The walls are raised from the plan and textured surfaces can determine different spaces, both internally and externally. Braille can also be used to label different spaces. The blind will only use one fingertip when reading a tactile map, which is a very different experience from reading everyday objects which are read with two hands so that they can perceive its context and parameters.
2.3.8 - Moore house, California, 1962
Smell

The olfactory experience of architecture is probably not commonly considered by many but scents can leave lingering memories and assist the blind in distinguishing directions or spaces.

The presence of a particular smell, density and the intensity with which it is engaged, can also define specific places. The scent can hang heavily in the air or waft past pushed on by a passing breeze.

Charles Moore designed a house for a blind client in which he positioned high windows for ventilation. Specific planting was located on the four different sides of the house which enabled the occupant to determine from which direction the wind was blowing by the scents that filled the room.

The way a material is finished can also effect smells which could identify for the blind what a particular material is. This relates particularly to timber as it has a recognisable natural aroma. This can either be enhanced or subdued depending on the chosen finish; wax, varnish or polish. Variety in the application of these finishes could result in an engaging experience for the blind as they decipher the various scents.

2.3.9 - Chapel of St Ignatius, Steven Holl 1994

2.3.10 - W. Ross MacDonald School for the Blind, G Bruce Stratton Architects
Colour and light

Many people classified as blind can in fact register the contrast of different colours. The perception of light and colour also relates to the sense of touch as both light and colour radiate temperatures that can be felt on the surface of the skin.

This is demonstrated in the W. Ross Macdonald School for the Blind, Ontario, Canada. Large blocks of contrasting colour are used to guide students through the hallways. The bright colours are noticed by those with limited sight, and can be used to assist the formation of a mental map of their environment. It also enlivens the school environment, uplifting what would be a monotonous environment for the partially sighted. Many students at the school are also sensitive to the sun’s glare. Windows have been sandblasted and protected with screens to limit direct light.

Stanley Tigerman designed the Illinois Regional Library for the Blind and Physically Handicapped. Similarly to the W. Ross Macdonald School, bold colours have been used to delineate architectural elements. Red has been used for the exterior walls, the structural system is indicated in yellow and ducting in a bright blue.

Steven Holl designed the Chapel of St Ignatius, Washington, a small chapel constructed from various irregular volumes. The chapel fuses a gathering of different lights, focusing tunnels onto specific places within the chapel. Inhabitants journey through the different passages of light, enticed by the way the varying light dances on the textured plaster of the interior walls.

In Cologne there is a bar, Unsight Bar, where the matter of light and colour is removed altogether. Guests are invited to dine in complete darkness becoming “more receptive to differences in scent, taste, texture, consistency and temperature.”

3 Design Process
3.1 Project Description

This project addresses the need to provide facilities for those who have suddenly lost their sight due to an accident or illness. The project will provide rehabilitation facilities and residential quarters for those undertaking the rehabilitation programme.

3.2 Intent

The intention of this building/s will be to ultimately enhance a multi-sensory experience. ‘Multi-sensory’ does not exclude the visual - and despite this programme resulting from the needs of the blind, a visual environment is necessary for sighted staff and visiting family who will also be served by the centre. The design aims to provoke a multi-sensory experience that can be appreciated by both the blind and the sighted. Particular attention must be paid to light, volume of space, temperature, texture of materials, acoustic qualities of materials and the smell of materials and spaces.

Some characteristics should be maintained to form a constant thread for ease of use and security, whilst others can vary to challenge the developing skills of the blind.

While there are conventional architectural strategies to assist blind people’s ability to use a building, the intention here is to integrate them into a coherent, seamless whole.

Two of these architectural strategies are;

- The ability of the blind to know and reference where they are going and the direction from which they have come.

- The ability to reference position in the building in relation to starting origin or level. This is particularly important when vertical levels are introduced.

The relationship between rehabilitation and residential facilities needs to be established, ensuring the two spaces will respond to one another whilst still remaining individually defined.
3.3 Programme

The programme offered by the rehabilitation centre will be undertaken over a thirty day period. Clients will arrive at the centre after medical complications have been stabilised and they are ready to begin rehabilitation. The loss of sight is not generally something that can be recovered - this rehabilitation centre will therefore focus on respite and adjustment, helping clients come to terms with what has happened. The treatment programme is designed to cover a holistic range of treatments, addressing mind, body and soul.

The model of a rehabilitation programme for the blind not only suits the multi-sensory nature of this project but it also has ideals that are rooted in reality. The Royal New Zealand Foundation of the Blind (RNZFB) has been identifying areas to develop within their current services. The need to develop services from individuals to groups has been identified. This project scenario is an example of how local group based centres may work.¹

For the first ten days of the programme, clients reside at the centre and are supported by 24 hour carers. The programme is undertaken in small groups of four clients to ensure the necessary care and support can be given to each client and to enable them to assist each other, knowing that someone else is also going through the same experience. For the remainder of the programme, clients engage with the wider community, returning to the centre for short workshops. On these returning visits, the various client groups may integrate and the newer clients can engage with those who have been through similar experience and can benefit from this experience.

During the day, there will be a staff to client ratio of 1.5:1. Overnight there will be a staff to client ratio of 1:2.

3.4 Rehabilitation Spaces

The rehabilitation spaces will develop the client’s skills as they move through various physical and emotional changes engendered by their blindness. The design will include facilities that support and educate clients and their families as these transitions are made, providing a range of activities which encourage the clients to gain an understanding of and confidence in their new condition to move forward with a positive attitude.

This building has a public aspect, and is likely to cater for 10 - 30 people including visiting specialists, current and past clients and their families. The rehabilitation space will be easily accessible from the main arrival point of the site. It will also link to the residential spaces as well as having a well connected relationship to the site.

As part of the programme, this building will enable the clients to challenge and help to develop their skills as a blind person. It will test their ability to navigate space, getting to know the shape of the building through senses other than visual.

Schedule of Accommodation

Entry
Quiet Retreat
Physical Conditioning
Group Counselling
Private Counselling
Yoga Room
Massage Room
Art Room
Music Room
3.5 Residential Spaces

The residential spaces will provide residential facilities including kitchen, dining, living and sleeping spaces. The building will sleep up to six people (four clients and two staff) at any one time.

This space is a rest area from the rehabilitation activities and will relax and comfort the clients. The building is safe and easier to navigate than the rehabilitation spaces and provides a more calming environment. Alongside community spaces each client will have their own personal space. Family and guests can enter by invitation only. Therefore it will not be as easily accessible from the main arrival entry to the site and will be more secluded.

Schedule of Accommodation

Entry Foyer
Kitchen
Dining
Living
Staff Accommodation x2
Client Accommodation x4
Bathrooms x 4
Laundry
Herb Garden

3.6 Reflection Spaces

As the name suggests, the reflection space is there to allow for personal reflection. It will also accommodate any personal religious needs a client may have.

This space is linked to the private areas of the residential space, but will be designed to be more remote. The journey to this space may be part of the reflection process itself.
3.7.1 New Zealand Map, Locating Auckland Area.
3.7 Site

The search for an appropriate site will be undertaken in Auckland, New Zealand. Whilst this proposal could be developed in many areas, it is important for the designer to have consistent access to the selected site in order to understand its experiential qualities throughout all seasons.

The programme requires a location that is removed from the immediate confusions and inundation of sensory overload that is common to a city setting. Stimulating and enhancing the senses further within the city could prove pointless with the occupants overwhelmed and unable to differentiate between the intended stimulation and the chaos of the city.

On the other hand, a rural setting would not be entirely suitable as the proposal requires close proximity to medical facilities as well as a nearby town centre for ease of use and accessibility for supporting family and day clients to visit, as well as a controlled introduction of city sensory experiences, reinterpreted now without the parallel assistance of sight.

The site therefore seeks the qualities of a rural site but within an urban location. Unoccupied by other buildings, a rural setting will reduce conscious input of the wider surroundings, allowing for the enhancement of sensory stimulation without competition of man-made enhancements, offering the most suitable location for the implementation of this proposal.

The building/s needs to respond to the nature of the site and to take this into account with positioning, footprint and scale in relation to this context. The relationship to the land may question the need for the mass to be broken up for less impact at one specific point and more engagement with the natural surrounding.
4

Project Development
4.1.1 - Map of Auckland with facilities for the blind

- Homai School
- Auckland Eye - Remuera
- Eye Institute - Remuera
- Eye Institute - Albany
- Milford Eye Clinic
- Retina Eye Specialists
- Royal New Zealand Foundation of the Blind
- Ascol Hospital
- Auckland Hospital
- North Shore Hospital
4.1 Site Selection

As previously identified, the site is Auckland, New Zealand. The process of defining an appropriate site started with the identification of the existing facilities that are available for the blind and visually impaired within the Auckland area. This included educational facilities and specialist eye clinics. Whilst studying the aerial map of these facilities it became obvious that there was a lack in both the North Shore and West Auckland areas. It is necessary to develop local centres that can each serve a portion of the wider Auckland Community.

This map was then taken a step further and local hospitals were located on the map, and a travel distance of 10km outlined, established as a suitable distance to travel for medical assistance. It is from within these travel distance bands that an obvious open area was noted and proved suitable for further exploration.

The landscape proved rather dramatic and the coast line of Chelsea Estate Heritage Park was selected as the site for this project.

The journey to, as well as the destination of Chelsea Estate, is a multi-sensory experience in itself truly enhancing the nature of this project right from the outset. The arrival sequence to the site will bring clients away from the speed and noise of the motorway, travelling up towards the local centre of Highbury, this transitions into a residential area slowing the pace to the site.

There is a slow descent down the curves of Colonial Road and into the grounds of Chelsea Estate. It is on this road that the most noticeable changes are experienced. The sound of the rush of cars disappears while the sound of trees and birds fills the air, the air becomes lighter as the car fumes are left behind. At the base of Colonial Drive, the journey ascends up a private road, rounding the back of the site. Cars stop short of the site area and the last of the journey is experienced on foot. The crunch of leaves is heard underfoot, light dances through the tree foliage and there is the increasing pounding of the water. As you rounds the base of the site, the contour flattens off and opens to the site and the sea of the harbour.
4.2.1 - Workers Cottages, Colonial Road, 1886

4.2.2 - Aerial of Chelsea Sugar Factory, 1920

4.2.3 - Original Managers Homestead, 1908
4.2 Site Analysis

History of the Site

The site of Chelsea Estate Heritage Park was purchased in 1883, originally occupying 160 acres. Today the Estate covers 54 hectares and from 1884 has been the site of the iconic Chelsea Sugar Refinery, which is still functioning today.1

Clay from the site excavation “was used to make 1.5 million bricks by hand”; to be used in the construction of the refinery.

The site has four dams, constructed over 37 years, between 1883 and 1920. The dams were built to provide fresh water for the refinery and are still in use today. 3

There are five original dwellings that still remain on Chelsea Estate. Four brick cottages built in 1909 remain on Colonial Road and are currently occupied as private residences. The original manager’s homestead is also still standing but is no longer occupied. This was constructed on 1908 and sits at the top of the hill above the refinery.4

In order to ensure the grounds of Chelsea Estate Heritage Park are retained as park lands for future generations, 37 hectares were sold in 2008 to the Heritage Park Trust.5

---

3 Ibid.
4 Ibid.
5 Ibid.
4.2.4 - Selected Site and Chelsea Sugar Works
Surrounding context

The site is located along the coast of Chelsea Estate Heritage Park, which forms part of a 240 hectare continual stretch of coastal bush land, the longest on the Waitemata Harbour.

The site is yet to be built upon and, excluding the unoccupied original homestead, is about 300m away from any other buildings.

The surrounding area has a mix of residential, commercial and industrial buildings. The site is about 3.7km from the Onewa Road entry/exit to the motorway and 1.2km from the local town centre of Highbury, Birkenhead.

The town centre has most basic amenities including a supermarket, post office, pharmacy and cafes. This is an ideal environment for clients for day trips and for adapting to a typical day scenario.

Movement and Accessibility

Current access to the area is achieved through Colonial Road, and then up a private access way. From here one must venture by foot to the site. The closest bus stop is located 550m away on Mokoia Road. This proximity coupled with the steepness of the road anticipates most clients and visitors will arrive by car.

The grounds are open to the public and provide numerous walking tracks throughout the estate and leading around the coastline. This project will maintain these walking tracks and encourage this means of interaction with the landscape.
4.2.5 Contour Model
Nature of the Site

The grounds are home to a diverse range of plant and bird species. “Most of the trees on the estate today, including much of the native bush, have been planted by the Company since 1900.” The most common trees on the site include; kauri, manuka and kanuka, with some pohutukawa and kowhai along the coastal edge.

In and around the ponds on the site there are birds such as mallard duck and swan. Further into the bush and towards the sea there are many birds to listen to, including fantail, tui, grey warbler and species of gull.

The site features dramatic contouring, approximately 50m down to sea level. Although this may seem challenging for the blind, this integration with nature will be used as a rehabilitation and learning tool, teaching clients to trust their bodies, enabling confidence to venture out into the world. A physical model has been constructed at 1:1000 of the surrounding context in order to gain an understanding of the challenging site contours.

The centre is entered on a relatively flat area of the site but once the banking at the back of the site has been rounded, it opens up to the climate and you arrive at the top of the valley as the land dives down to the coast line. From this position one is exposed to the south westerly winds that blow up the line of the valley.

4.3.1- Plaster Cast

4.3.2 - Rubix Cubes
4.3 Initial Design Exploration

Plaster Cast

In order to understand which tactile qualities the nature of the site could offer, plaster casts were generated that recorded the textural qualities of the natural features from the site. These included; leaves, branches, bark and ground coverage. The casts were modelled in white plaster in order to remove the visual identification that these site samples would usually carry.

A series of moulds were constructed, refining the mixture and technique to ensure the moulds represented the natural textures as much as possible. Each mould is comprised of a variety of site samples so that one can feel the difference between objects.

Despite the fact that people engaged with these in a tactile manner, they were unable to determine what exactly it was that they were feeling.

Rubix Cube

As a consequence of the above, it was acknowledged that the relief of an object and what is able to be felt through the size and sensitivity of a finger pad is crucial to the blind in terms of understanding the nature of an object. The relief of the plaster castings and difference in texture was not enough to decide differences in what was being cast. This led to the exploration of the extent to which different textures can be identified.

A typical rubix cube was used as the basis for this consideration. Instead of using the colours to orientate the rubix cube into the right orientation, textures took over this role.

Each colour was replaced with a different grit of sandpaper. These ranged from P2000 - P40. Each different grit of sandpaper was selected in a black colour. Although these were not all exactly the same shade, it worked much the same way as the plaster, by removing the immediate visual identification.

Many people were able to complete the rubix cube to its correct orientation but acknowledged difficulty distinguishing the squares that were close in grit, especially at the lesser end of the grit scale. This was important to decipher, as now when articulating textural differences it will be important to ensure a noticeable change.
Those that played with the Rubik's cube were sighted, not blind. For the purpose of these considerations a sighted person was determined the most appropriate as they who will use the rehabilitation centre have not become accustomed to a world without sight.

90°

The notion of being able to identify and locate orientation in space is an important ability for the blind. They like to register and remember their orientation in relation to their original starting point. 7

This is the case in a horizontal plane when moving from space to space but is also important in a vertical place. Although it may appear more difficult to navigate, steps are preferred to ramps for the blind, because ramps do not allow for estimates of vertical travel accomplished. 8

The architectural articulation of space can greatly support the blind as they navigate through space. This can be achieved in a number of ways; but overall it is consistency and regularity that will allow the blind to clearly form a map in their heads to recall from where they have come and to where they are going.

For the purpose of this project I have selected to work with a 90° angle in both plan and section.

7 Luighennet Tekle, Personal Communication, May 03, 2010
8 Luighennet Tekle, Personal Communication, May 03, 2010
4.4.1 - Building Relationship Diagram
4.4 Master Planning

Building Relationships

It was determined early on to separate the working rehabilitation spaces from the residential living and reflection spaces. The residential facilities require a more private nature. Physically separating these spaces from the rehabilitation ensures more control over access to these spaces and when.

It was important to note the difference between the restful nature of the residential and the more testing rehabilitation regime. By providing a journey and transition between the two, the clients can decide to leave the stress and focus of the rehabilitation behind when they move to the more relaxed nature of the residential.

As indicated by the drawing, 4.4.1, the reflection area will primarily be accessed from the residential space. The residential area can act as a buffer between the entry and the reflection space, ensuring the highly personal nature of the space is maintained.

This project also aims to achieve an active relationship with the external natural environment. The separation of the buildings from one another encourages accessible interaction with the landscape and climate, allowing the sense of wind rustling the trees and the feel of rain on the face. These sensory experiences are typically taken for granted, but will be a critical part of this project.

The separation and journey between buildings as well as interior spaces has developed this as a project of boundary and threshold. As the spaces do not seamlessly flow on from one another, the navigation of the blind is challenged further. The juxtaposition of change between each space should be great so that the occupants clearly note when thermal, volumetric and tactile transitions have been made.

Three primary materials have been selected for this project; concrete, timber and metal, each selected for their textural, thermal and acoustic qualities. Each wing may favour a certain material, but the palette will stay consistent. Another consistency across the scheme is the structure of the buildings. Beams will be exposed to allow occupants to feel the volumetric rhythm through space. The structure will run in a consistent direction through the whole scheme. Occupants can orientate themselves within the scheme by noting if they are running parallel to or adjacent the beams.
Design Process

Initially, the overriding intentions of the masterplan were conceived. From here, the location and orientation of each wing was established. The subsequent spaces of each programmatic area were explored and the nature and multi-sensory experience of each continually resolved to bring it back to the whole to ensure every move, every joint is in such a place as to reinforce the multi-sensory experience of the project.

Some multi-sensory experiences are deliberately desired or avoided either at the boundary, or within each specific space and these spatial relationship diagrams indicate those. If an experience is not indicated, it does not reflect that it won’t occur, rather that it’s not crucial to the transition between each space.

Although the rehabilitation, residential and reflection areas have been separated into sections for the construction of this document, it does not reflect the nature in which the project was developed. These three spaces were worked on in a cyclical process to ensure that they were all working toward a unified whole.

The methodology of the development of this project was a continual process of considering the macro and the micro. Once the initial master planning for the whole scheme was drafted out, a similar process was undertaken with each of the rehabilitation, residential and reflection spaces. From here the individual buildings of each were each considered in more detail and then brought back to the master scheme to ensure they were all working together to support the central aim.
Location and Orientation

In order to determine where exactly on the site the proposal was to be developed, the shape and form of the site was analysed. The characteristics embedded within the site are represented as a series of analytical line abstractions.

The initial analytical line represents the heavily present south west wind where it strikes the edge of the bay. The subsequent sketch lines indicate the base and the centre of the bay. Acknowledging the 90° navigation concepts for the blind, the top and side of the bay were recorded. This started forming a shape that reinforces the natural structure of the bay.

This shape was then considered in conjunction with the typology of each building and the shape of the land. The Rehabilitation and Residential wings will provide a gateway to the main arrival on to the site, allowing the reflection space to become further separated from the public areas. The contouring of land of the south west side of the slope is much more dramatic and suits the challenging nature of the rehabilitation whilst allowing the residential to “nuzzle” into the back of the bay. The reflection area is more suited to the north east of the site where the point of the bay starts to form, removed from the main site access.

Just as the 90° is important in vertical changes, a long straight building will not tempt or excite its occupants as much as a space that moves horizontally. With this in mind, the lines of axis that each building represent were further analysed, looking into the shape of the site as it sits along each line. The lines push and pull, moving to represent where the contours naturally extend or retreat into the bay. It is along these axial lines that each space will be aligned. These lines were conceived of as backbones from which occupiable spaces can be constructed, creating platforms within the steep site. The wings of the buildings are kept narrow within this platform to reduce buildable floor area and perform optimally for natural ventilation.
4.5.1 - Rehabilitation Sensory Relationships
4.5 Rehabilitation

Nature of the Space

The rehabilitation building is designed to actively test the blind, offering a challenging environment that will allow the blind to gain confidence by learning to navigate through space now that they have lost their sight. This wing of the facility is where occupants will spend most of the day and are encouraged to participate in a variety of activities. The space features more open transition spaces between each programmatic environment as well as vertical level changes. Transitions through space will be defined by texture, temperature, acoustics and volume. These is also a small water feature running through the first half of this scheme. The acoustics of the water will help initiate the blind with the direction of movement.

To relieve anxiety and ensure a more comfortable environment, rehabilitation will take place in and around multi-purpose, activity-based spaces, rather than sterile rooms with a table and chair. The activity and nature of these spaces have been considered with programmatic positions that include the entire body and will assist in the scheme-wide application of multi-sensory experiences. The nature of this space is to support and encourage personal exploration. To encourage this, a strong, heavy building has been designed with the primary building material being concrete.

Building Development

The following were identified within the outline of the programme and brief as the spaces required within the rehabilitation facilities; Quiet Retreat, Group Counselling, Private Counselling, Physical Conditioning, Yoga Room, Massage Room, Art Room and Music Room.

After consideration of the multi purpose spaces that could house these activities, the following programmatic requirements were formally considered to accommodate each of these requirements. These spaces include; Bath House, Library, Fire pit, Music and Art Facilities, Gym and a vertically suspended room (Tower). The spaces will adaptable in catering for individuals or larger groups.
4.5.2 - Series of developments of the Rehabilitation Wing.
The exploration of each space begins by considering the multi-sensory nature of each. The spatial relationships between each of the spaces are then introduced considering their desired multi-sensory connections. This process explores and loosely relates together suitable functions through the diagram of sensory relationships, considering which spaces should neighbour and lead on from one another, (see Figure 4.5.1).

Observation of this diagram shows the spatial configurations within the platform, assisting in the overall organisation of the rehabilitation wing. The spaces and organisational network shown in this diagram allow for each space to be further developed as its relationship to the whole has been identified. With a more testing environment of rehabilitation in mind, the location of the buildings on the platform is daring, situated on the each of the platform, pushing out into the exposed bay and roughness of the weather.
4.5.4 - Entrance along the wall of the Bath House

4.5.5 - Interior wall of the Bath House
The Bath House provides two private baths and changing facilities where clients can relax and unwind. It is placed along the main entrance route of the rehabilitation wing. The entrance path is raised higher than the entry to the bath house, and a negative detail between the wall and roof provides a handrail to guide you into the main space before opening up to a communal courtyard.

There is a small water feature that winds through the first half of the rehabilitation wing, starting within the bath house and slowly descending along the length of the back wall. At times the water drops from its main route to feed the supply of the two baths. The channels that the water follows have a vertical distance between them, creating a loud sound as the water reaches its next channel. The wall down which the water descends is highly tactile and embedded with various kinds of relief and materials. The journey the water takes, relates to these elements, passing in front and behind various components, inviting occupants to interact with the wall.

The volume of the space is rather enclosed, with a low, heavy roof to give an intimate personal experience. The baths however are set into the floor, providing a change in volume for the users when they enter the bath. Above one of the baths, the roof peels away to open to the elements and increase the volume of the space even more.

Also to be noticed, due to the low stud height, are the prominent beams running the width of the space. Set 400mm deep within a low space, the occupants can feel when they are passing under the beams, feeling the rhythm of the space.
4.5.6 - Entrance to the Library
Fire Pit

The fire pit is primarily designed around temperature-based experiences but also incorporates volume variations as the space encloses and descends around the fire to create more cave-like qualities.

The space features heavy concrete walls that hold the temperature of the fire, but set intermittently into these walls are doors that pivot vertically to encompass the main courtyard adding additional heat on cooler days.

Apart from when the doors are pivoted open, no natural light will be admitted into the space which will enhance the cave qualities.

Library

The library space cantilevers out into the bay, for a moment of personal quiet time. Although the blind are now unable to read printed literature, this space provides the comfort and memories that the books hold and provides education on learning to read braille.

The front of the library runs the length of the building, with pivoting doors that connect the interior and exterior. The water feature also runs along this length of building, dropping off the edge of the cantilever.

This room provides tactile clues primarily on the floor as another education tool for learning to navigate free standing furniture. The bookstands also help to divide the space into more private areas. High windows allow the northern light to filter overhead providing soft lighting that is desirable for this function.

The library shares a wall with the fire pit so the radiant heat transfers through this wall and into the library. A gradient of temperature within this space occurs as the opposite end of the building fares the worst of the cold, south west wind. The library, situated on a cantilever is also susceptible to vibrations from these winds.
4.5.7 - Inside the core of the tower
Vertical Tower

The vertical space is without floor levels and comprises of four walls ascending to the sky. It is a space the expresses verticality of volume, primarily denying light from the sides but opening to the sky. Occupants can feel comfort in resting against the walls of the space and hearing the wind overhead while being protected from it.

For a more invigorating experience, the north westerly wall features tactile ascents that double as foot and hand levers for occupants to utilise as a climbing wall, gaining access to a small mezzanine level at the top of the wall. This level overhangs the retaining wall and sits above the tree line for an intense perspective of the sounds of the trees and birds.

Music and Art Facilities

The music and art facilities have been designed within one space as they are both intend to encourage occupants to actively use their bodies in the creation of music and art.

Occupants are lead to a central atrium, indicated by timber panelling running parallel to the entrance. The two spaces are formed off either side of the atrium.

Both spaces implement bright contrasting colours to provide a stimulating environment for those with limited sight. Small holes are punctured into the face of the building allowing light to filter into the space.

The art space features clay and painting that encourages the sense of touch and movement. The intimate nature of these smaller pieces of work attune the fingertip to picking up more detail.

The music space provides instruments with which the occupants can explore sound. Within the space there is a play on spatial volume and surface treatments for absorption and reflection of sound.
4.5.8 - Exterior perspective of the Rehabilitation wing, with the gym in the foreground.
The Gym is accessible by descending from the main platform and into the space retaining the edge of the cliff.

This environment also encourages the active use of the body but as more of a whole rather than isolated elements of the body. This includes learning to trust the sighted and also oneself in using one’s body. This will be encouraged through yoga type exercise. Means of balance will also be tested within this space by floor treatments including sponge and spring based flooring.

There are no windows within this space, the only lighting comes from above through a small glazed roofing section, which will only highlight the changing facilities. The remainder of the space is primarily left dark so that the sighted can benefit just as much as the blind from this experience.
4.6.1 - Residential Sensory Relationships
4.6 Residential

Nature of the Space

The residential building is for repose, looking after people gracefully, supporting, but not actively challenging its occupants. Although the same sensory devices of texture, temperature, acoustics and volume are used, these have a more subtle application in noting and depicting changes that are made between spaces. When the occupants are ready and have adequately tuned their sensory skills, the buildings will reveal more of themselves over time. This may be at the end of their stay in the rehabilitation centre or may not be until they return to the centre at a later stage.

The residential facilities retreat more from the main entrance, tending to nestle into the hill for protection and comfort amongst the dramatic landscape. The orientation of the individual buildings is designed to create protected outdoor spaces that utilise the northern sun. This provides spaces for a variety of weather conditions, varying the environments and experiences for the occupants.

The building is designed to house the typical daily living spaces. Although public in nature, these spaces are not openly accessible to the wider public and provide communal spaces for the clients and their family while attending the rehabilitation programme. These communal spaces are of a scale to accommodate the group as a whole, whereas the bedrooms and private outdoor spaces are more appropriate for intimate gatherings.

With a soft and supporting nature, the building form and materiality will also reflect this, featuring lighter construction and form as well as the natural warmth of timber. The timber will be explored in a number of finishes; oil, wax and polyurethane to produce varying olfactory and tactile experiences throughout the buildings.

Building Development

The residential spaces include Kitchen, Dining, Living and Accommodation. As previously undertaken with the rehabilitation, the exploration of each space initially considers their own multi-sensory nature and then the connections and overall organisation of these spaces as a whole.
4.6.2 - Series of developments of the Residential Wing
The design concept is two main masses; the main communal areas and the accommodation, connected by occupiable outdoor space. The communal spaces are located closer to the main entry to the site, ensuring anyone invited to the residential space enters into communal spaces initially.
4.6.4 - Entrance to the Residential Wing
Entry Foyer

A long insitu wall slices along the direction of the residential wing, the horizontal layering of the wall will act as an element to draw people into the arrival foyer. The entry approach starts off uncovered, with a floating roof slicing into the space along the journey. The junction of arrival and destination is intersected with an increase of volume and light denoting the entry foyer. The foyer is a collection of spaces that will deliver occupants to various areas of the building. This space does not just follow one corridor but instead provides a more open plan environment allowing the blind to navigate space.

Columns within the space further define areas. These are cased with metal at finished floor level, contrasting the main concrete floor and indicating to the blind that their movement path is not clear.

A light shaft linking from the herb garden provides natural lighting into the center of the foyer. This can also be opened to allow sufficient natural ventilation into the space if the south westerly winds are too strong to open the main face of the building.

Kitchen

The kitchen is directly located off the main entry foyer and is bounded by a herb garden. The smells from the garden will help to indicate to the blind where the kitchen is, but it is also encouraged that the blind explore the tactile nature of the plants.

Although the kitchen is staffed, it provides the opportunity for the blind to learn to navigate around a kitchen environment and start to become more self-sufficient. Tactile clues are found both on the floor guiding a circulation path as well as within the cabinetry to locate specific kitchen amenities.
Dining

The dining room adjoins the arrival foyer and is closely linked to the kitchen. Enclosure is created around this space with sliding doors to close off the foyer and a lowered ceiling to create a more intimate environment. Diffused slivers of light are achieved by vertical slot windows rather than large picture windows.

The dimmed environment means that the typically sighted can also experience, along with the blind, a more receptive interest in the meal. The smell, taste and texture of the food engages more when there is no knowledge of what to expect as food is placed in the mouth.

Living

The living space is separate from the main arrival, making closer connections to the outdoors.

A cozy space is enclosed around a fire, while the remaining space has the option of opening up to invite the outdoors in. Materials help to define the change in floor surfaces while overhead structure becomes prominent to alter the volume of the space. Light qualities also influence the space with limited lighting around the fire and the flood of light when connecting to the exterior.

The furnishings within the space will vary in materials, off which sounds within the space will resonate differently. This will assist the blind in navigating around freestanding furniture.

Accommodation

This space is more private in contrast to the communal living spaces and is separated by an outdoor transitional space. There are private rooms accommodating four guests and two rooms for 24 hour carers. Each private room faces north east, turning its back to the winds and opening out to their own courtyard. Each courtyard is landscaped with various plants that release scents, indicating to guests when they have reached their rooms.
4.7.1 - Reflection Sensory Relationships

- Touch
- Smell
- Sound
- Physical

Diagram:

- Residential
- Physical
- Reflection
- Entry
- Water
- Prayer
4.7 Reflection

Nature of the Space

The reflection space is for occupants to do just that - reflect, in their own way, whether that be meditation, prayer or contemplation of the journey they are undertaking. This provides space where individuals can come to have their own time away from the main centre.

Located off the residential wing, this private space is not readily accessible to the public or even extended family. The building will be a small space for the clients of the rehabilitation programme to be a great deal more introspective.

In order to locate the reflection space the furthest from the main entrance, it sits on the eastern edge of the bay. Although it may seem to contradict the private nature of this space, its location is open to the environment, resting on the tip of the bay. The main individual areas will be protected within the building, while the front of the building opens up to the bay in a larger setting, providing for a variety of settings.

Building Development

On contemplation of the nature of the spaces; reflection and prayer, it was noted they were actually desiring the same thing. Therefore a space for the individual has been designed where they can utilise the space for their own requirements, be they just for personal alone time or for prayer.
4.7.2 - Series of developments of the Reflection Wing
4.7.3 - Reflection Massing, with whole scheme sitting in the land
4.7.4 - Entrance to the Reflection Spaces

4.7.5 Individual Reflection spaces
**Arrival and Approach**

The journey to the reflection wing, departs from the residential wing and progresses along the line of a heavy concrete wall, protecting and guiding the occupants to their individual retreats.

A recess is formed within this wall, creating a small water bath to offer the cleansing of ones hands before entering the space. The water continues to flow along the line of the wall, where it will later spring up in individual reflection pools.

**Individual Spaces**

The main body of the space is separated into four individual reflection areas. Although based around a similar setting, the volume of each area changes, as under a consistent ceiling height. Gradual steps descend through the building responding to the natural topography. Platforms are formed off these stairs for each individual space.

The solid wall used to guide occupants into the space forms the back of each space. Intimate cradles are formed within the wall, where one can sit for protection. This wall, constructed from concrete will collect heat throughout the day and release this warmth into the internal space. This will be felt by the skin when one rests up against the wall within their personal spaces.

Narrow slit windows located on the opposite wall to the cradles, allow shafts of light into the space, while bouncing off each individual reflection pool.

**Communal Space**

The end of the building, at its most exposed position, provides a communal space. In contrast to the private spaces, this opens up directly facing into the south westerly winds. This provides a direct contrast with sensory qualities; sound, smell, volume, light, colour and temperature. A space of this nature may be preferable to clients over the quiet intimate spaces.
6 Conclusion
Architecture needs to fulfill its practical purpose, but parallel to this, it must outmatch the purpose the built environment has. It needs to push beyond the boundaries of mere shelter and start to question and explore the potential for environments to achieve more than just the typical shelter. A building should not be passive, but actively and seamlessly support the users of the building.

An important area of self awareness is the ability to not only take note of your surroundings, but also to analyse these and acknowledge the feelings derived from the built phenomena. Although this may not happen to all people at all times, it is happening – without the necessary awareness of the term phenomenology. Phenomenology doesn’t make life better or more beautiful like our senses have the ability to do, but it enables people to process their sensory experience and be more aware of their world.

While undertaking the study of senses within architecture, it became noticeable that there are areas of sensory engagement that are currently under utilised within design. This lack of purposeful design with relationship to intangible senses prohibits a fully multi-sensory engagement. It is inevitable that all senses are present in design - but these are not necessarily consciously designed for. A space primarily designed with a resulting image in mind can still be touched and listened to, but these are consequents upon the visual intentions. Some architecture has started to pursue a multi-sensory nature but typically only addresses individual senses rather than the whole experience. Furthermore, some techniques do not utilise all facets of sensory engagement, such as light which is rarely appreciated for the temperature it can emit, or a space which primarily investigates the physical connections rather than volumetric.

The building that has been designed in conjunction with this explanatory document illustrates some of the techniques possible to actively engage the senses in architecture. The collective of senses; touch, sound and smell have been explored within this project on varying levels and in different experiential environments. Their inclusion can undoubtedly engender the engagement and interest to enrich one’s spatial experience. It implements the conclusions drawn from the initial research with design decisions based on the understandings gained.
The final outcome is a sequence and collection of spaces that create intangible sensory experiences. The design focused on creating a stimulating environment that integrates multi-sensory experiences to provide spatial cues.

Textural exploration has to be strongly considered through both horizontal and vertical planes. The selection and layers of materials is critical, not only considering their immediate tactile differences but also their thermal and acoustic qualities. Beneath the textural explorations, each wing has a primary material employed to reinforce a coherent unity, which also assists the occupants in locating themselves within the scheme.

The project has provided a variety of contrasting volumes, with sharp transitions on the boundary between spaces to differentiate between programmatic areas. The changing volume is also useful to break up the potential monotony of the scheme. This retention of 90° transitions within the vertical plane does not optimise potential excitement however. Further exploration of volume and contrast in scale, may have offered more dramatic results.

The acoustic qualities within the project are evident in the changing volumes of the space as well as the various materials that respond to the occupants within the space. Materials were selected in contrast to one another, either absorbing or reflecting the sound within the space. The acoustic qualities are realised by the occupants by either directly walking over or touching part of the architecture. Further explorations could have realised the building acoustically responding to secondary external effects.

The detailing and finishing of a project of this nature is where sensory qualities can be enhanced. The finishing of natural materials such as timber exploits the sense of smell as there are aromatic differences between wax, oil and polyurethane finishes. These also provide tactile clues to the more attuned.

Specific planting around the scheme also allows fragrance to waft through the space depending on wind direction and intensity. Given the right conditions, these olfactory applications can assist with the acknowledgement of where one is.
The final success of this scheme is the test of whether it provides for its occupants and engages their senses. A challenging aspect of this design proposal is the theoretical nature of the design. It is difficult to accurately envisage the sensory qualities of touch, sound and smell. The formulation and presentation of the design primarily relies on the typical conventions of models and drawings, where possible multi-sensory presentation methods have been used.

This proposal has identified that the work of architecture has the potential to, and should, contribute to the daily phenomena that inspire our world. Unlike many other art forms, a work of architecture offers phenomenon that we have the ability to experience not only visually but through all our senses. If we pursue the details of working towards a multi-sensory architecture, architecture will be an even more valued piece of art, significantly moving the occupants it houses.
7 Bibliography


The following presents my idea of an experience, the awareness of my personal response to an environment in a phenomenological analysis of space. This is not just about the visual experience. We are so often presented with buildings in the form of visual images; the greatest importance is usually given to the image of the building. I will set out to explore the building through phenomenology, analysing its ability to engage my senses and enrich my experience. The selected building acts as a backdrop to Auckland, facilitating the city’s movement – Britomart. It features an integration of old and new, filling the shell of the former Post Office as well as featuring an expansive post-modernist extension.

I have crossed the harbour, negotiated the frantic buzz of Queen Street, ascended a flight of stairs to arrive at this point, but I forget it all. The doors slide away, devoured by the heavy wall. The weight of this building reassures me. The sound of tyres and horns are gone. I stand quietly taking in my own presence, relishing the moment. I catch a glimpse of people scurrying past, the waft of burnt coffee burning my nose and I am reminded of where I am.

Now inside, I open my body to the space. Down the straight axis, harsh light flood the space reflecting off the glossy finishes, though not quite long enough for the glare to reach my eyes. I savour where I am standing. The space is filled with soft dappled light warming my body. The sun’s gaze filters through stained glass, the colours dance on the ground.

It is so homely to feel real timber under my feet, proudly wearing the marks of time. It is ageing gracefully, recording and responding to the heels of those that have been before. The richness of the material allows the smell of freshly sawn timber to fill me even though it is long gone.

I feel contained in this space, the columns large and grand seem to hug me as I move past. I reach out to touch them, I feel let down. A thick layer of paint is regrettably painted on. The texture I so wished to embrace is not there.
I carry forward into the space down a few stairs. I reach for the handrail. They are stainless, cold to the touch and to the eye. They remind me of a hospital, sterile and distant. I shiver remembering too many discontented visits to the hospital.

Polished and skilfully rounded timber slabs rest atop chunks of stone, raw and rough. This is something to unashamedly stare at, touch and feel the textures on your tongue. The timber is lacquered, smooth and light after the crafting of a careful hand. The stone is rough, dark and fragmented as if just pulled from the ground. I slide onto the seat, my body is much more aware of the seat as I had taken the time to savour it before sitting. I allow my head to tilt back and survey the ceiling. It is so high above my head. Inviting details encourage the eye to pour over their intricate nature – look in awe through the shadow and contrast, the depth of the craft. I am reminded of the unfortunate truth of the columns.

I close my eyes. Almost immediately I hear more clearly. I am entranced by the space while others rush through missing the beauty that is at their fingertips. This is my world only.