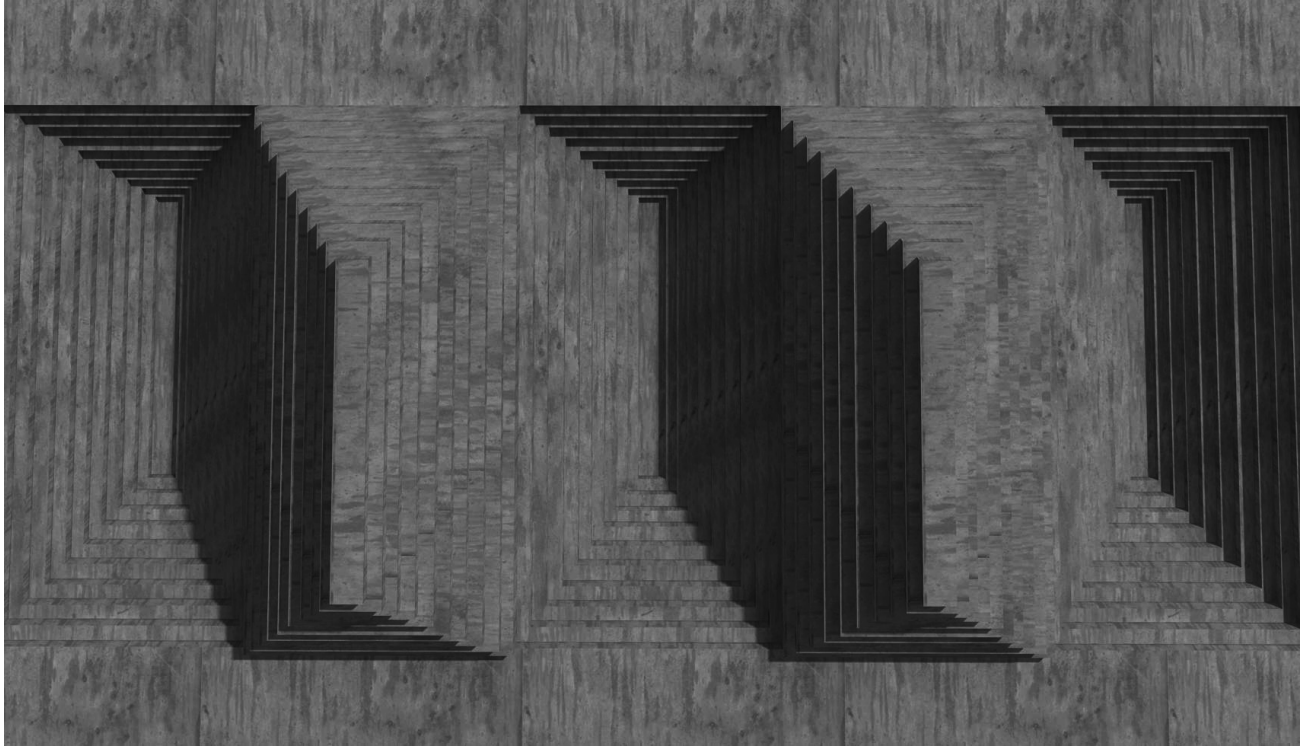


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S a m a n t h a E r i c k s t a d



A Subconscious Ascent

Exploring the Architecture of the Metaphoric Staircase

Fig. 1 Cover page - Image of the exterior wall of site two showing the effect of shadow across the stepped surface

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*'The **stairs** are the link between the various planes of the psyche...'*

J. E. Cirlot

(Experience)

Architecture

Staircase

Film

(Time)

Surrealism

(Space)

Abstract

This research explores the significance of the stair as a spatial and symbolic architectural experience. The stepped form integrated with architecture. The stair is an integral feature of architecture which has the potential to be specifically designed to enhance space and create particular experiences. A stair is not only a functional object, but a medium for design.

Metaphorical staircases are absent in contemporary architecture as a loss of meaning has resulted in monotonous designs devoid of figurative or poetic significance. The staircase has been a fundamental component of architecture since Neolithic times, however has recently been neglected. The stepped form has represented many themes including hierarchy, transcendence, or authority. In contrast, the contemporary staircase has embraced pragmatics. Safety restrictions, efficiency, and budget constraints, result in disregard for aesthetics and meaning.

Film provides a behavioural setting in which to analyse how people move, behave, interact, and experience staircases. A range of films will be analysed to identify techniques for meaningful stair design. The influence of surreal qualities will also be determined to enhance an experience. Surreal imagery offers the opportunity to create dream-like space, activating the subconscious.

The metaphoric connotations of staircases will be explored through six research categories; the stair as Symbolic, Illusive, Transitional, Kinetic, Psychological, and Iconic. Design case studies will then investigate the intersection of the staircase as architecture, filmic representation, and surreal experience. The stepped building *Casa Malaparte* in Italy acts as a reference model for the successful integration of these concepts. With influence of these themes, the staircase can once again become widely acknowledged as architecture.

1.0 Introduction



Fig. 2 Collage of existing staircases found around Wellington City

1.1 Aims and Objectives

The depiction of a stair is one of the most meaningful images of architecture. Throughout history the stepped form has held great significance in many cultures. The stair can be considered both image or object, sculpture or symbol, narrative or architecture. In contemporary society the grand staircase has been disregarded in order to reduce construction costs, save time, and comply with safety regulations. This once magnificent centrepiece to the home, civic institution, or majestic palace, can now be found concealed at the back of an office block, apartment building, or shopping complex. The need to keep up within a fast paced environment has seen technological pragmatics replace craftsmanship, with the lift and escalator. The verticality of living has expanded and the stair must evolve to meet this demand.

Architects and designers have struggled with decisions between functionality and aesthetic. In practice the physical risk understandably outweighs psychological gain. Some have succeeded in sympathetically integrating these machines into architecture, or designing eye-catching stairs for particular projects. However, the stairs we engage with on a regular basis remain neglected. These meaningless designs surround us. Contemporary staircases are devoid of metaphoric and poetic meaning. Designs symbolising themes of transcendence, hierarchy, authority, status, or achievement are uncommon in today's architecture.

The objective of this thesis is therefore to devise design principles in which to translate historic meaning into contemporary staircase architecture. Historic meaning is considered as the metaphoric connotations of staircases expressed in ancient architecture to represent a particular theme. This will be achieved by exploring the use of the stair in film and the influence of surrealist qualities. A range of films will be analysed to identify the symbolic significance of the

stair in cinema. Many of the selected films use the symbolism of the stair to create dream imagery and a sense of the surreal. This will provide the research and design with an additional layer of investigation, determining how surrealism can alter the experience of a space. The intention is that by reintegrating metaphoric meaning into stair design, the architecture will as a result become a more meaningful experience. This historic significance is still relevant today as the stair is a fundamental architectural form, and emotive meaning remains embedded in our subconscious.

- The staircase is considered the architectural object requiring emotive and metaphoric integration.
- The surreal influence is defined as the altered expression of space with the relationship to dream imagery.
- The film influence is in reference to the representation of time and narrative.
- The result is an enhanced spatial experience of architecture achieved through comprehensive design of the staircase.

Through the design case studies six miniature architectures in the form of staircases will be explored for the site of the 'Sculpture on the Gulf' walk on Waiheke Island. These designs will establish an altered narrative for the journey amongst the sculptures and the landscape.

- How can the staircase once again become an image of architecture and architectural symbol?
- How can architecture be expressed as a stepped form through the configuration of horizontal and vertical planes?
- What are the metaphoric implications of staircases in architecture and how can stairs enhance spatial experience?
- How can filmic stairs influence architectural design?
- How can surreal qualities be introduced into stair design to create a particular sensory experience?

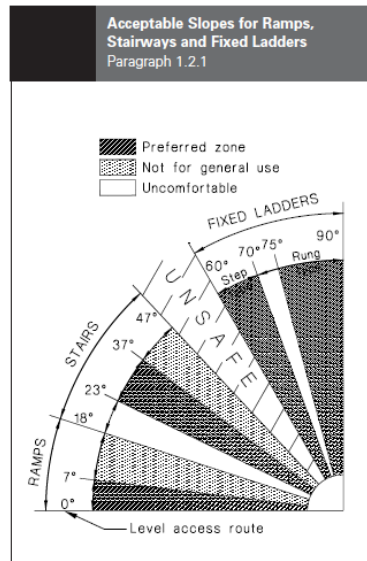


Fig. 3 Stair angle classification diagram from the Department of Building and Housing (D1) - Access routes

1.2 Background Context

1.2.1 Defining the Stair

The Oxford Dictionary (Hawker, 2009) states that a *stair* is 'a set of steps leading from one floor of a building to another, typically inside the building.' A *staircase* or *stairway* also defines the surrounding walls or structure. This comes from the Old English *stæger* (of Germanic origin) related to the Dutch *steiger* meaning 'scaffolding', and from a base meaning to 'climb'. A *step* is both the action of vertical foot movement as well as 'a flat surface, especially one in a series, on which to place ones foot when moving from one level to another.'

This does not therefore refer to any other forms of stairs not related to a building. If the building, structure, or purpose is removed does the definition then become void? The term *step* is also rather vague. By this definition it would come to include any type of platform by which to transition between levels; a lift, ladder, or stepped floor. The Department of Building and Housing stipulates the safe angles associated with ramps, stairs, and ladders (Fig. 3). The areas deemed unsafe are between 48 and 59 degrees. By this definition a 'stair' must fall between 18 and 47 degrees.

The Dictionary of Symbols (Biedermann, 1994, 326) however, provides the definition that steps and stairways represent the ascent to a higher plane, closer to Heaven. 'Climbing steps clearly corresponds to an *archetypal* longing of the psyche to approach the heavenly spheres of the cosmos.' It is apparent that the significance of the stair comes not from the physical construction of the form, yet the symbolic meaning associated with the experience.

Cirlot's *A Dictionary of Symbols* (2002, 153) also describes the stairs as the 'link between the various planes of the psyche.' This is however determined upon whether they are perceived as descending or ascending. Climbing stairs signifies that the human condition is being transcended to a higher power.

It is apparent that the traditional definition of the stair is no longer relevant. A new interpretation must be formulated. The physical and symbolic meanings need to be integrated and expanded to include contemporary innovations in sculpture, art, cinema, and architecture. Some designers and artists are exploring the boundaries of staircase design. However, the reality is that the stairs we encounter everyday have lost the significance once expressed in historic architecture.

1.2.2 Historic Significance

The stair features extensively throughout history and many texts explore the design and development of this architectural feature. The history of the staircase is substantial, therefore I will only cover some key examples to establish the background context. Templer (1995) summarises the historic evolution of the staircase. The first steps were formed by footsteps wearing away a path or basic timber ladders from Neolithic times. One of the most basic and earliest examples of the stair is the climbing pole (Fig. 9) which is still used today in some tribes in Africa and Panama. Ladders were carefully designed for defence and siege. They were also used to elevate houses for protection from rodents, water, or for ventilation. Issues of comfort and safety weren't raised until many years later.

Bryson (2010) believes that stairs may have first been designed to convey people downstairs rather than upstairs. A three thousand year old ancient wooden staircase was recently discovered one hundred metres underground in a Bronze Age salt mine in Austria. This allowed workers to ascend and descend with free use of their hands to carry heavy loads, as opposed to the ladder.

The earliest stairs were straight flight. Helical staircases were common in the Middle ages, and the grand formal stairs of the Renaissance and Baroque palaces, were generally dog-leg (Templer, 1992). This allowed for the display of ornamentation and for dramatic public descents. Since then many other forms and compositions have evolved such as the double helix, and composite sculptural designs.

Many texts on staircase design and construction feature similar brief historic introductions including; Baldon (1989), Blanc (2001), Habermann (2003), Jiricna (2001), and Slessor (2000). These references

Fig. 4 Stone steps carved into the cliff face at Sky City, New Mexico



Fig. 5 Stone steps worn away over time from use - St. Augustine, Florida



Fig. 6 Scala Regia, Vatican

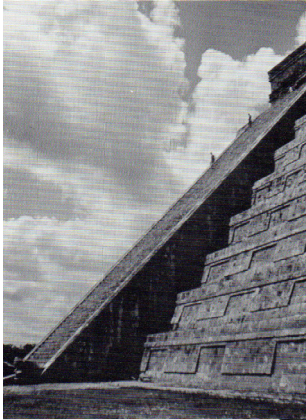


Fig. 7 Castillo, Chichen Itza, Mexico

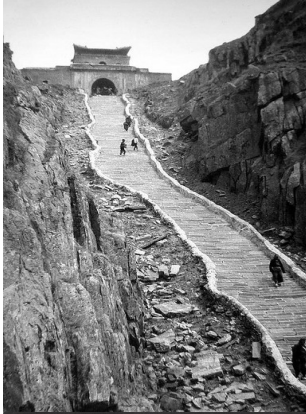


Fig. 8 Staircase to the temple on Tai Shan Mountains, Old China



Fig. 9 Climbing pole in a long house of a reconstructed Iron-Age village, Denmark

Fig. 10 Staircase up to a tattoo parlour on Cuba Street, Wellington



Fig. 11 Emergency exit staircase behind an apartment building off Ghuznee Street, Wellington



Fig. 12 Escalator going up next to the staircase at Reading Cinemas on Courtney Place, Wellington



Fig. 13 Emergency exit staircase for an apartment building in Wellington



Fig. 14 Escalators leading in and out of Burger King on Lambton Quay, Wellington



Fig. 15 Public lift leading into a garden park in Timaru

all stress the significance of the stair and its importance throughout architectural history. However, these resources seem to dismiss vital information, the focus on how to design to express the symbolic dimension. It is all very well to provide endless examples of attractive staircases as the focal point of space for designers to replicate, yet what are the fundamental components of the design composition that contribute to the overall experience?

One of the key principles is verticality. Historically, the stair has represented transcendence to a higher power or religious being. Symbolic connotations are represented in Biblical depictions, ancient Egyptian and Mexican pyramids, Greek temples, Buddhist shrines, Renaissance palaces, and throughout many other cultures (Fig. 6, 7, 8). The creation of an elevated spiritual plane gives the impression of being closer to Heaven or an alternate realm. This superiority is now used to highlight the significance of public institutions and government buildings. Generally the greater the staircase, the greater importance the architecture holds.

Alberti's contradictory view was that stairs disturbed the floor plan. 'The fewer staircases that are in a house and the less room they take up, the more convenient they are esteem'd' (Slessor, 2000, 13). Vitruvius also commented briefly on the design of stairs;

The distribution of the stairs is so difficult that one can only be successful after careful and mature study... it is said that the stairs hinder all good house designs. But those who want to have peace from the stairs, should leave the stairs to themselves in peace.
(Habermann, 2003, 14)

However, stairs are more than just technical structures. Through proposed 'careful and mature study' the functional and meaningful form can be integrated to create a renewed experience. Biedermann (1994) concludes that the structure of terraced temples and pyramids suggests that the actual construction process enabling ascent toward Heaven was itself important, not only the physical ascent.

Technological advancements, material innovations, new living conditions and functions, required the evolution of the stair. In contrast to the meaningful experience and emotive connection of historic staircases, the contemporary stair takes the form of escalators, emergency exits, and lifts (Fig. 11, 13, 14, 15). A new sense of hierarchy is expressed with stairs leading to fast food outlets, commercial businesses, and entertainment centres (Fig. 10, 12, 14). Stairs meeting minimum design requirements are hidden out of sight, only used if absolutely necessary. A set of stairs is often positioned next to an escalator, yet most people will never choose this option (Fig. 12). Surrounded by domestic, commercial, civic, and urban environments which embrace functionality, it is vital to reintroduce a metaphoric dimension and engage the subconscious. So, how can architecture once again express symbolic connotations of the stepped form?

1.3 The Staircase as Architecture - Casa Malaparte

The Italian residence *Casa Malaparte*, completed in 1942, is one of few examples of the successful integration of the staircase and architecture, with cinematic and surreal qualities. This building is a representation of the main objectives of this thesis. The staircase is part of the building form, acting in creating a spatial experience of the architecture and not just an object in space. Ascending the steps to the roof becomes a spectacle and creates suspense. A sense of narrative is implied through this exposed incremental movement and the perspective of the staircase guides the viewer to the top. There is an increasing sense of vertigo as one conquers the steps on the precarious cliff top location. This house also features in the film *Le Mepris* (Contempt) 1963, acting as a dramatic backdrop for an ill-fated love story.

The surreal notion of leading into the sky is prominent. The monumental form is reminiscent of ancient pyramidal constructions, becoming a symbol of hierarchy and transcendence. The building 'juxtaposes geometrical austerity and a surrealist exploration of archetypal, unconscious forces' (Fotiade, 2010, 325). It represents a sacrificial alter, an empty stage, pagan temple, a refuge, shipwreck, or defiant fortress. Mical (2005) discusses the stair house as playing surrealist games of quotation, dismemberment, and displacement. There is no building atop the stair, only absence.

Casa Malaparte also alludes to Giorgio de Chirico's painting '*The Evil Genius of a King*' (Fig. 17). The sharp inclined plane, red partition, exaggerated colour, bright sun with an abrupt shadow, and assortment of navigational-like instruments are all reminiscent of Malaparte's design. Owner Curzio Malaparte observed that de Chirico's work was successful as it did not rely on 'idiosyncratic imagery and intellectual or linguistic games, but that it tapped into memory'.



Fig. 16 *Casa Malaparte* - Isle of Capri, Italy (Adalberto Libera, Curzio Malaparte) 1937-42



Fig. 17 Giorgio de Chirico - *The Evil Genius of a King*, 1914-15



Fig. 19 *Casa Malaparte* - View of the staircase leading up to the rooftop and seemingly into the sky



Fig. 18 *Casa Malaparte* - View of the rooftop and mountain behind the building

Surrealist painting represents images of dreams, hallucinations or visions beyond conscious reality (Gargus, 2005), evoking the subconscious. However, the *Casa Malaparte* forms a stage prompting movement and participation. The visitor does not only engage with an image, but becomes subconsciously drawn into the architectural experience.

Playing on the edges of half-remembered, mythic space and real, embodied, lived space, the *Casa Malaparte* exploits the clash between landscape and geometry, the domesticated and the wild. An unstable, *informe* order is established between figure and ground, object and cliff, subject and object. (Gargus, 2005, 170)

These contradictory qualities establish a number of relationships in which the viewer must make their own interpretation of reality. Bachelard (1958, 39) states that 'everything comes alive when contradictions accumulate.' Architecture has an uncanny ability to influence the psyche (Gargus, 2005). The concept of contradictory associations can form an interpretation of the surreal in which reality and unreality are undefined.

So, is it that which is closer to the real more difficult to understand than that which is blatantly unreal? A merged boundary of reality and the subconscious where something appears or feels not quite right, but is difficult to place. This architecture acts to entice the visitor with its familiarity, yet engage the subconscious with its subtle surreality.

1.4 Surreal Influences

One of the objectives of this research and design investigation is to explore how surreal thought can influence architecture. This is not the relationship with the Surrealist movement, but how surreal qualities and techniques associated with surrealist imagery can be translated into architecture. This is intended to create a greater spatial awareness of architecture, enhancing the sensual experience with use of the staircase. The representation of dream-like qualities creates an environment to influence the emotions and inner psyche. 'In a reference to a dream, we grasp not only something of the dream itself, but also the world, which is always present in our waking state' (Vesely, 2010, 35).

Breton (1972) termed the experience of Surrealism as the *marvellous*. The marvellous was considered a 'vehicle for forging a union between the rational and irrational, a superior reality in which all contradictions or opposites are overturned' (Caws, 2010, 17). This quality is expressed in the symbolism of dreams, in the play of childhood and fairy tales. What the dream offered the surrealists more than anything was an experience of otherness (Richardson, 2006). The dream was an unknown experience requiring personal interpretation not public comprehension or rationalisation. In this way each person devises their own meaning and therefore experience. Mundy (2001, 13) describes surreal imagery as;

...characterised by themes of 'searching and finding, of veiling and revealing, of presence and absence, of thresholds and passages, in a surrealised universe in which there were no clear boundaries or fixed identities.

These key themes will be experimented with in the design cases studies section. The idea of contradictory associations is a familiar concept

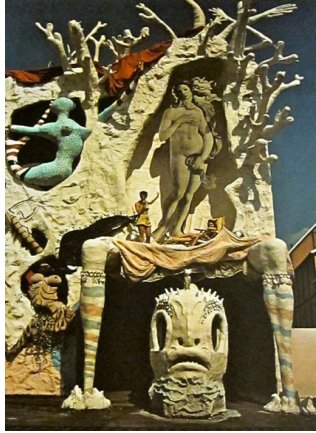


Fig. 20 Salvador Dali - Dream of Venus Pavilion, New York World Fair, 1939



Fig. 21 Edward James - Las Pozas, Mexico, 1949-84



Fig. 22 Salvador Dali - Dali Theatre-Museum in Figueres, Spain 1974

in surreal imagery. Establishing relationships between completely unrelated objects creates a sense of the material and intangible. As in Alice's mirror world 'through the looking glass', the creation of an alternate opposite world or reality is formulated.

The playful, uncanny, erotic, delirious, and convulsive are all manifestations of the surreal marvellous (Alison, 2010). Freud (1919) describes the uncanny, or the German '*unheimlich*' meaning 'unhomely', as a disconcerting sense of the unfamiliar. While Surrealism also explores these themes of fear and desire, the intention is to create an improved architectural experience, not a distressing or sexually suggestive one. So the qualities expressed in this research and design highlight the more pleasant themes of the dream world and subconscious, in particular the playful. Play was at the heart of the surrealists strategy to manifest the unconscious within the real in the form of childhood imagination, humour, and irony (Alison, 2010). The aim is therefore to express these types of gratifying and engaging qualities.

Mical (2001) discusses architectures apparent absence in surrealist thought and practice. One of the main issues I have perceived with existing surrealist architecture (omitting designs expressed in painting) is the direct translation from art to architecture. This can be seen in Salvador Dalí's creations for a Museum and Pavilion (Fig. 20, 22). The aesthetic 'failure' appears to be in the attempt to physically recreate the juxtaposed and exaggerated compositions.

One might imagine the discipline of architecture - solid, rational, grounded - to be antithetical to the surrealist taste for the unexpected. Architecture, after all, is about function, where surrealism is about fantasy. Architecture exists firmly in the real world, where the surrealists aspired to enter the world of the unconscious. (Alison, 2010, 8)

As this research and design exploration will uncover, this is not the case. I will explore how 'surreal' *qualities* can be translated successfully into contemporary architecture to create a dreamlike experience. Thus resulting in a greater spatial and sensory experience. Where architecture embraces fantasy we can unveil a new sensory and psychological experience of space and time. An unreality set amongst the architectural reality. Alison (2010, 20) states that the dream experience is 'ultimately that which disturbs our way of looking at things, that which turns the universe upside down or what you imagine turning out to be real.' The surreal cannot therefore be confined to one description, there are numerous manifestations as the definition evolves across different disciplines and applications.

Harries (1998, 212) states; 'Meaning cannot finally be made or invented; it can only be discovered, where such discovery will also be a self-discovery.' The meaning becomes a personal encounter that connects us to the architecture and resonates within our memory. In the end it comes down to the personal response between the occupant and the architecture.

1.5 Methodology

Chapter one has established the background context for the thesis through historic research summarising the significance of the stair. The evolution of the stair since Neolithic times has been extensive, therefore it is important to continue to explore the metaphoric implications of the staircase in architecture. A revised definition must be determined for contemporary design. The relationship of the stair with architecture, film, and the surreal is also identified for evaluation throughout the following chapters. The aim is to formulate specific spatial experiences of architecture through the integration of the meaningful staircase.

Chapter two begins to explore how this could be achieved. A survey of films was conducted to identify films featuring staircases. Film provides a setting in which to observe staircase interaction and symbolism, unconstrained by safety and budget concerns. Six main categories were identified which summarise key themes. These will be investigated through design case studies. Two films were selected for analysis of each topic to determine techniques to influence the design investigation.

Chapter three considers current issues regarding the physical construction of staircases including safety restrictions. The influence of surrealist thought in staircase design is examined through evaluation of surreal imagery in art and photography. The literature review also explores each of the six research topics and identifies gaps in the current research and knowledge. This will determine the issues or concepts to be developed through the design process. These six identified sections do not cover every possible aspect of staircase design, yet aim to categorise as most appropriate the relevant issues in contemporary stair design.

The research and design categories are determined as the following;

Symbolic

- *Gattaca* (Andrew Niccol)
- *Vertigo* (Alfred Hitchcock)

The metaphoric and poetic connotations of staircases are explored to establish subconscious associations and encourage physical interaction. How can the staircase represent alternate meanings in architecture?

Illusion

- *Labyrinth* (Jim Henson)
- *Inception* (Christopher Nolan)

Methods of deception will be tested to represent an alternate state of reality and entice the imagination. How can staircase illusions deceive the mind into believing a false architectural facade?

Transition

- *Blade Runner* (Ridley Scott)
- *The Truman Show* (Peter Weir)

The stair acting as a threshold for movement through space. How can a staircase represent a threshold between interior and exterior, ascent and descent, reality and unreality?

Kinetic

- *Harry Potter and the Philosophers Stone* (Chris Columbus)
- *TRON: Legacy* (Joseph Kosinski)

Reconsidering the form of the mechanical staircase and movement in multiple directions. How can motion influence the experience of a staircase and represent a narrative?

Psychological

- *Dark City* (Alex Proyas)
- *The Imaginarium of Dr Parnassus* (Terry Gilliam)

The staircase as an experience which invites the subconscious and questions the tangible. How can staircases evoke an emotive response which resonates with the viewer and activates the psyche?

Iconic

- *The Phantom of the Opera* (Joel Schumacher)
- *The Incredibles* (Brad Bird)

Formulating a new sense of the grand and monumental staircase of the future. How can the stair act as a landmark or architectural object in which to draw public attention?

Chapter four then introduces the site for the 'Sculpture on the Gulf' walk on Waiheke Island, Auckland. The design intentions and format are outlined to determine the brief. An in-depth site analysis of the wider area identifies details to consider during the design process. The background context of the location is also defined. The design section is divided into the following components;

Design 1: The Stair as Symbolic

Design 2: The Stair as an Illusion

Design 3: The Stair as a Transition

Design 4: The Stair as Kinetic

Design 5: The Stair as Psychological

Design 6: The Stair as Iconic

Chapter five describes the design process and final outcomes for each of the six case studies outlined above. A variety of techniques are applied through drawing, photography, and physical modelling to experiment with conceptual ideas. Site analyses and research of each of the individual sites are conducted to establish design parameters. A number of relevant precedents are also identified to aid conceptual development. The final forms are constructed through computer modelling and represented to highlight the particular themes.

Chapters six and seven draw the final conclusions for the thesis. Together these six interventions will establish a renewed narrative of spatial experience along the sculpture walk. The intention is to question the form of the stair and how we can create stepped architecture representing poetic ideas. The designs act as a means for inspiring the reintroduction of metaphoric representation. The result will be a design reference for considering the expression of emotive qualities for staircase architecture.

2.0 Film Research

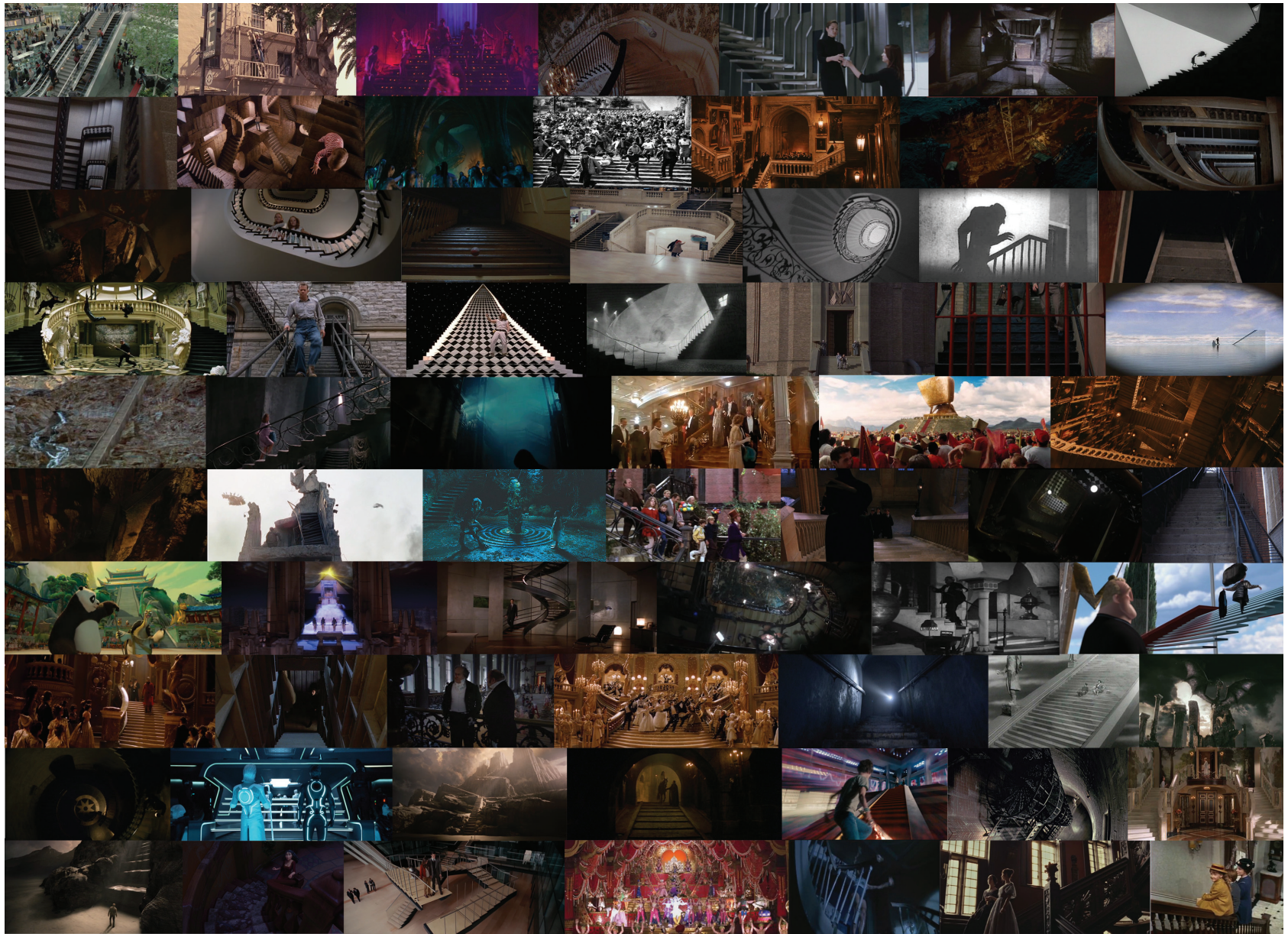


Fig. 23 Collage of a selection of contemporary and past films featuring staircases

2.1 Cinematic Staircases

The stair is used to portray many themes in cinema yet few sources have discussed the significance of this feature. Pallasmaa (2000) briefly mentions the symbolism of the staircase in film. He explains that stairs form simultaneously a stage and an auditorium. They are often used in horror films to represent fear or suspense in a haunted place or murder scene. This may be expressed in a dark and sinister space, an attic or cellar. Descending the staircase into a cellar signifies entry into the realm of fear, danger, and mystery.

Climbing the stairs implies exiting the social stage and withdrawal into privacy. This can also signal movement into a prohibited realm, or a journey to purification, judgement or absolution. Descending a stairway in film is usually related to entry into the public sphere and self-presentation. Curved or spiral stairs are particularly popular in cinema as they can present the descent of the protagonist in a spectacular form. Pallasmaa (2000) mentions the following films; Sergei Eisenstein's *The Battleship Potemkin*, Fritz Lang's *M is for Murder*, and Alfred Hitchcock's *Vertigo*.

Cinema is an important tool in representing ideas and enticing the imagination. The stair is used frequently as a motif or concept in film, or as a narrative device. Pallasmaa (2005, 68) writes, 'cinema would be devoid of its enchantment without our capacity to *enter* a remembered or imagined place.' The symbol of a stair often triggers the memory, forming subconscious associations with a scene. Surrealist Luis Bunuel states that a film is like an 'involuntary imitation of a dream... on the screen, as with the human being, the nocturnal voyage unto the unconscious begins (Alison, 2010, 10).

Baldon (1989) discusses the use of staircases in theatre, which can also be considered a suspension of reality. The stepped platforms allow performers to be seen, as well as creating tiered seating for spectators. The forms of stadia and theatres influenced by ancient Roman amphitheatres have remained largely unchanged, requiring basic design principles for maximum seating and visibility. He also states that the film industry may have made the most extensive and elaborate use of stairs, in numerous musicals, horrors, romance, and action films.

The main association with the staircase in film is the representation of time. Due to their incremental form staircases evoke a spatial narrative. Cinema lies on the edge of realities between the tangible and the intangible in the sequence of images. In many fantasy or science fiction films the stair is used as a transition between worlds or dream environments. The digital window offers the potential to represent any time, place, or reality. This screen environment where fact and fiction merge as a continuum in time, is now becoming integrated with the everyday creative realm of architecture (Penz and Thomas, 1997). The staircase can lead the viewer on a journey and reveal a story. 'For architects the narrative structure is the design philosophy, and the intentions and motives the storyboard' (Penz, 1997, 124). Story-telling offers an additional layer of experience in the interpretation of metaphoric representations. With influence of this medium we can portray meaning through the staircase and ultimately architecture.

2.2 Film Selection

A large number of films were identified which feature staircases for potential exploration. I found that the films fitted into six main categories; Symbolic, Illusive, Transitional, Kinetic, Psychological, and Iconic. I then selected two films for each of the six categories of investigation which best represent these types of staircases. This creates a comparison between different techniques for representing the concepts and themes in cinema. These categories act as the basis for the thesis structure. The themes are researched in the literature review and then this information is used to inform the case study designs.

It can be assumed that there are numerous other filmic examples that represent similar ideas, possibly with a different approach. However, I have deemed the selection adequate to make conclusions through analysis. The selected films may also refer to multiple topics. I have organised them into the most appropriate category to best illustrate the concepts for the purpose of this analysis. The entire scene has also been considered even though the image only captures one frame.

2.3 Film Analysis

Film provides a unique setting in which to analyse the relationship of staircases with spatial experience, unbound by safety concerns or budget constraints. Each of the following films feature a brief plot description and a discussion of the use of stairs. The stair scenes are analysed to identify the associated filmic techniques and how these reflect the determined theme. A variety of techniques were employed during the film process to compose the scenes including; lighting, perspective, composition, camera angle, movement, repetition, form, materiality, and setting. Film also provides the opportunity to observe a character(s) interaction, behaviour, and movement on the staircase and show how this can influence how the scene is perceived.

The genre of the selected films can be considered mainly fantasy/fiction. These types of films appear to make the greatest use of the metaphoric stair. A sense of surreal dream-like qualities are created which portray the various conceptual categories. Fantasy film captures the expression of childhood imagination and acceptance of unreality (Walters, 2011). 'Fantasy is precisely what reality can be confused with. It is through fantasy that our conviction of the worth of reality is established' (Cavell, 1979, 85).

The surrealists were heavily involved with the medium of film. The surreal in cinema evokes contradictions of light and dark, presence and absence, and actuality and imagination (Richardson, 2006). Whilst not considered Surrealist films, the following examples embrace subconscious themes and engage the viewers imagination.



Fig. 24 - Film 1: *Gattaca* (1997) - Vincent walks down the stairs with ease in contrast to Jerome who is restricted by his wheelchair. The staircase becomes a symbol of impairment and limitation, and also Jerome's eventual triumph over this obstacle.



Gattaca is set in a future where the genetically 'perfect' are trained for space travel. There is a common theme throughout the film to look up, reflecting the aspiration to reach the sky. A reference is made to 'going upstairs', however this is not referring to a staircase, but ascending into space.

The staircase pictured acts as a symbol of the character Jerome's disability as he is wheelchair bound and unable to get up the stairs in his own home. He is restricted by his physical environment and in a way is fighting the architecture. Jerome is forced to confront this constraint and drags himself up the stairs. In contrast, his impersonator Vincent (shown above) walks with ease down the spiral stair. They have swapped identities as he was denied access into space due to a potential heart condition. Also symbolic is the reference to the DNA helix structure with the curved form.



Fig. 25 - Film 2: *Vertigo* (1958) - Scotty confronts his fear of heights as he ascends the staircase of a church tower. The camera movement illustrates his perception of the feeling of vertigo.

Alfred Hitchcock's *Vertigo* symbolises the condition of acrophobia (the fear of heights and falling) and therefore the sense of vertigo. This is first shown at the start of the film when the main character Scotty dreams of his colleague falling off the roof of a building. This becomes a reality when Scotty ascends the gloomy tower staircase and believes he witnesses his love Madeleine falling to her death. The camera positioned above zooms out creating the experience of increasing vertigo. At the end of the film he must confront his fear again with a sublime sense of déjà vu as the previous events are disturbingly repeated.

The stair acts as an allegorical representation of the emotional state of falling, fear, and paranoia. This also alludes to 'falling down the rabbit hole' in *Alice in Wonderland*, a feeling of dreaming and disorientation.



Fig. 26 - Film 3: *Labyrinth* (1986) - Sarah gets lost in the labyrinth of staircases as she searches for her baby brother Toby.

The illusion of an infinite stair is shown in *Labyrinth* as a translation of M. C. Escher's drawing 'Relativity'. Staircases lead in multiple directions, confusing the occupant as one 'reality' suddenly becomes another. The seemingly endless space becomes disorientating as the viewer adjusts to the rotated perspectives. The Escher drawing is shown at the start of the film hanging in her bedroom. This creates a visual link foreshadowing the themes which are later revealed.

The idea of anti-gravity reflects the sense of going nowhere, being lost and trapped in the constantly changing environment. Sarah attempts to escape the infinite loop by jumping off the edge. The stairways break apart representing the removal of boundaries and therefore 'solving' the labyrinth.



Fig. 27 - Film 4: *Inception* (2010) - The illusion of the 'paradox' stair is revealed as Arthur and Ariadne reach the top step.

The 'paradox' stair is featured in Christopher Nolan's *Inception*, reminiscent of Escher's Penrose step in 'Ascending and Descending'. In the film a paradox is used to disguise boundaries in the construction of a dream world. Arthur explains that in a dream you can cheat architecture into continuous closed loops. The setting in a dream allows architecture to be manipulated by thought. The staircase does not need to be functional in the safe design sense. It becomes an object in space, the purpose defined by the user.

This staircase form is also used later in the film as a means of escape when Arthur is being chased. It is dark, with the camera view from above. Arthur moves in behind his attacker and pushes him off the edge. This illusion reflects an image of a dreamscape in which everything appears tangible, yet is actually ambiguous and unpredictable.

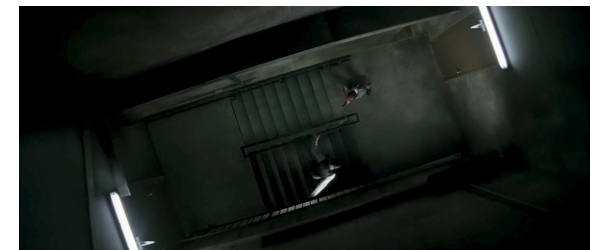




Fig. 28 - Film 5: *Blade Runner* (1982) - Deckard ascends the stairs in search of the remaining 'replicants'. The scene creates a dramatic transition space between the exterior and interior.

The elusive atmospheric and lighting qualities in Ridley Scott's *Blade Runner*, creates the sense of the interior merging with the exterior. The ambiguous space feels simultaneously inside and outside. The first time this staircase is shown the characters take the lift. However, the stair is the focus of the shot. The mechanical moving 'stair' is contrasted with the static.

In this scene (above) Deckard returns to the building in search of the remaining 'replicants'. It is dark and gloomy with moving spotlights filtering in from above. He avoids the noisy lift to make an unknown approach. When entering from the bottom Deckard is viewed from above. He is then viewed from below as he ascends the stairs, highlighting his transition and the idea of transcendence.



Fig. 29 - Film 6: *The Truman Show* (1998) - A staircase above the water leads Truman from his 'internal' world to the 'external' reality.

The Truman Show creates the surreal notion of the stair as the transition between Truman's perceived 'reality' and the actual reality. The blurred transition from water to sky and the haze around the scene creates the feeling of a dream environment. Truman sets sail to escape deception in search for the truth. He sails into a wall depicting the sky and discovers a staircase leading up from the water.

The stair symbolises the threshold between one world and the next, interior and exterior. The contradiction is that Truman believes he is outside yet the staircase leads to an indoor space. The reality is Truman is trapped inside a fake constructed world and the doorway opens to the freedom of the outside real world. He reaches the top of the stairs and must make the decision between remaining in the safety of his created world, or entering into the real world. It is then revealed that his whole existence was a fabrication.



Fig. 30 - Film 7: *Harry Potter and the Philosopher's Stone* (2001) - A seemingly endless passage of staircases transforms above the students.

Harry Potter and Philosopher's Stone (first in an eight film series) features a vertical configuration of labyrinthine moving staircases. These constantly change direction and transport people to various rooms and levels. This design is a representation of the imagery described in the novel which the film is based on.

The spiralling platforms reflect the concept of the magical and mystical castle. It seems impossible for such large and solid, traditional shaped stairs to be so easily and freely moving around. The fantasy is also created that the staircases rise never-ending into the sky.

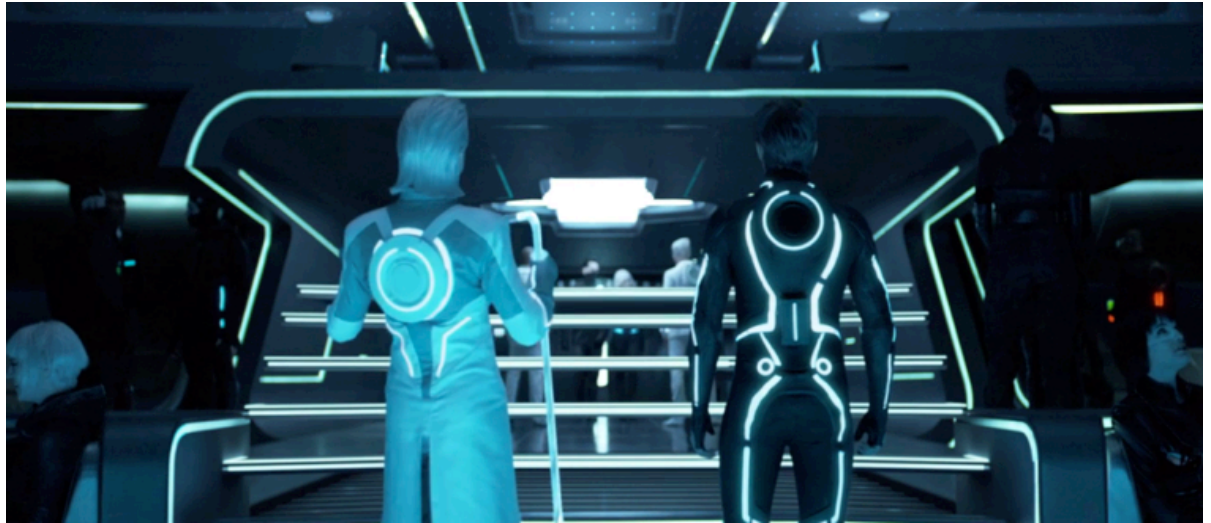


Fig. 31 - Film 8: *TRON Legacy* (2010) - A series of platforms rise out of the ground to form a staircase leading up to Zeus's private room.

The staircase in *TRON: Legacy* is formed by moving platforms which rise up from the floor. The floating steps appear when Zeus taps the ground and lead up to his private room.

The potential of this design includes functions for space-saving, concealment, protection, freedom of movement, and privacy. This is the portrayed 'idealistic' creation. When not in use the platforms appear only as lines on the ground, also acting as an aesthetic feature. The integrated lighting and minimalist design redefines the classic staircase form and reflects the futuristic themes of the film.



Fig. 32 - Film 9: *Dark City* (1998) - The camera spins up and down the stairs creating a disorientating movement for the viewer as John Murdoch tries to escape.

Dark City is set in an alternate reality where 'Strangers' control the physical world, tuning and altering reality with their minds at will. In this scene, John Murdoch is chased down the staircase as he attempts to escape the ambiguous space.

The movement down the stairs disorients the viewer as the camera switches between spiralling down and then spiralling up in the opposite direction. This reflects the sense that nothing is tangible, everything could change at any moment. It is all about confusing the mind, altering reality and the perception of space.



Fig. 33 - Film 10: *The Imaginarium of Dr Parnassus* (2009) - A giant stairway leading to the sky offers the drunk patron a choice between redemption and temptation.

A stairway to Heaven is portrayed in *The Imaginarium of Dr Parnassus*, representing the decision between redemption and temptation, Heaven and Hell, right and wrong, good and evil, light and dark, up and down. An ethereal light breaks through the clouds and highlights the giant stone steps. The staircase becomes the passage of equilibrium.

The drunk man (shown above) is placed in a surreal barren landscape. He rejects the challenge to climb the steps, giving in to alcoholic temptation and resulting in his inevitable demise. Later in the film the staircase appears again, this time a mob chases the main character Toni to the top of the mountain staircase to face his fate at the gallows.



Fig. 34 - Film 11: *The Phantom of the Opera* (2004) - Guests dance down the grand staircase at the Masquerade ball.

The Phantom of the Opera, set in 1925, presents the staircase as a stage for public spectacle. The symmetry, scale, grandeur, and ornamentation, create a dramatic cinematic performance space. This staircase features multiple times throughout the film, acting as an interaction or mediation point for the characters. The set is brightly lit and extravagant during this dance scene (above) until the Phantom interrupts the festivities. The music deepens and the lights darken, and he slowly descends the stairs.

The iconicity of the stair is formed by the Classical design and the composition of the shot. The visual experience becomes an iconic 'image'. The camera is positioned below and angled up to exaggerate this spectacle of movement down the stairs and the performance is symmetrically framed.



Fig. 35 - Film 12: *The Incredibles* (2004) - Edna Mode ascends the cantilevered metal platforms of the staircase in her home.

In contrast with *The Phantom of the Opera* (which was released in the same year), animated film *The Incredibles* is set in an imaginary future. The staircase explores ideas of defying gravity with its seemingly weightless and almost floating form. The use of animation allows futuristic possibilities for stair designs to be explored, devoid of handrails and freedom from any form of safety restrictions.

The grand Classical staircase which was once fashionable, is now replaced by the desire for an impossibly thin cantilevered, minimal design. There is a new sense of the 'grand' and iconic in contemporary architecture.

3.0 Review of Literature

3.1 Conceptual Framework

The image of the stair in contemporary architecture has become purely pragmatic. Many current examples of staircases are pushing the boundaries of aesthetics and form, yet disregard meaning and experience. A range of publications explore the history of the staircase, construction techniques, and design ideas. However, very few have investigated how to incorporate meaning and symbolism to alter spatial awareness. How can we redesign the image and experience of the functional staircase? How can the stair once again become a universal depiction of architecture?

The following literature review will compare the existing opinions regarding each of the six previously outlined research topics defined by the filmic analysis. This summary will be used to determine strategies for which to investigate the design case studies. The research will also cover safety issues and surrealist interpretations. Surrealism plays a significant role in expressing dream imagery in art, photography, and architecture. This significance is yet to be explored in staircase design. How can surreal concepts enhance the spatial experience of the stair?

3.2 Safety Issues

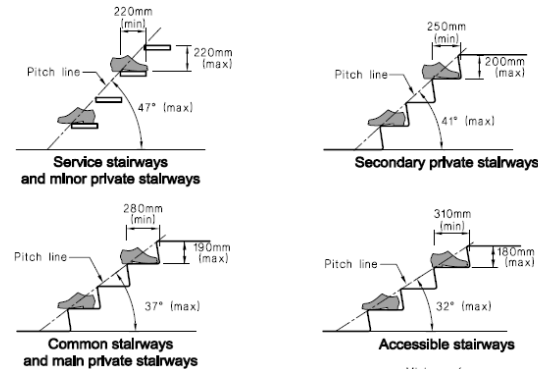


Fig. 36 Dimension requirements for different types of stairs set by the Department of Building and Housing (D1) - Access routes

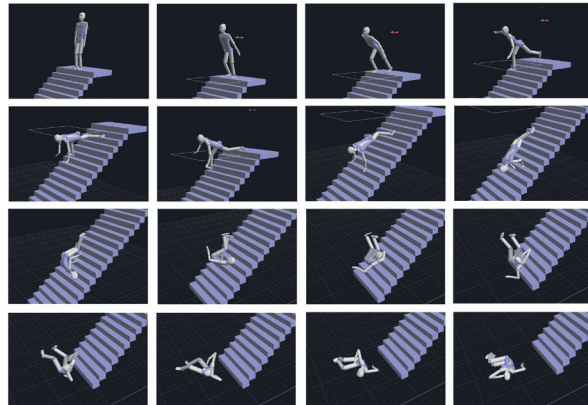


Fig. 37 Computer representation of a body falling down the stairs (authors image)

Since the beginning of time, man has sought safety and protection in elevated locations. This instinct still remains today, to look out over one's land with a defensive stance (Baldon, 1989). Many have published their opinion for ideal dimensions such as Vitruvius (1926), represented as a mathematical relationship between risers and treads. In New Zealand the Department of Building and Housing (2006) sets a minimum tread of 280mm and a 190mm maximum riser for common stairways (Fig. 36). A handrail must also be provided between 900-1000mm in height, and landings must be positioned after a vertical rise of 2.5 metres.

A poorly designed stair can be dangerous and even fatal to users. Careful analysis and design of the stair can reduce the risk of falling. Staircases cause many injuries and deaths each year. ACC (2010) statistics reveal that there are a staggering 87 stair related injuries in New Zealand every day which result in a claim. Over 27,000 people in 2010 were seriously hurt falling down the stairs or steps at home. In 2011 falls accounted for over forty percent of injuries in the home.

Templer (1992, 4) has dedicated an entire book to studying the safety hazards of staircase design. 'A lack of a system of design principles has obliged designers to make assumptions or to guess at what constitutes a stair that is safe, comfortable, and convenient.' He explores issues including the tread and riser relationship, handrails, lighting, slip resistance, irregularity of design, and user behaviour such as running and carrying items. Design and construction methods are now determined by building code regulations in each country.

Bryson (2010) explains that stairs must convey people safely in both directions, however the mechanics of movement require different postures to ascend and descend. You lean into the stairs when going up, however you hold your centre of gravity back when going down. Therefore a 'safe' stair may not be truly safe in both directions. The beginning and end of the staircase are the most dangerous locations as you are more inclined to be distracted. Analysis of stair movement can help devise the most ergonomic design option. Eadweard Muybridge explored the movements of the body in a series of photographic studies of the male and female forms moving up and down the stairs. The change in body posture can be seen in Fig. 38 and 39.

Staircase design must adhere to strict guidelines in order to protect the safety of users. The drawing in Fig. 40 was constructed following the dimensional requirements outlined by the New Zealand Department of Building and Housing. This conventional design provides minimal leeway for architects to explore innovative concepts. It is therefore vital to determine how this pragmatic staircase can be manipulated to enhance spatial experience. How can the staircase evoke meaning and be visually appealing, while allowing safe travel between levels?

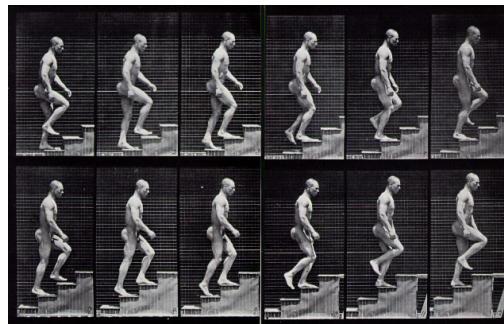


Fig. 38 Eadweard Muybridge - 'Man Ascending Stairs' (from the series - *The Human Figure in Motion*) 1955

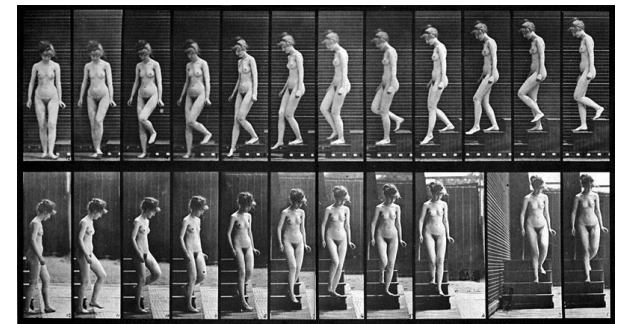


Fig. 39 Eadweard Muybridge - 'Woman Descending Stairs' (from the series - *The Human Figure in Motion*) 1955

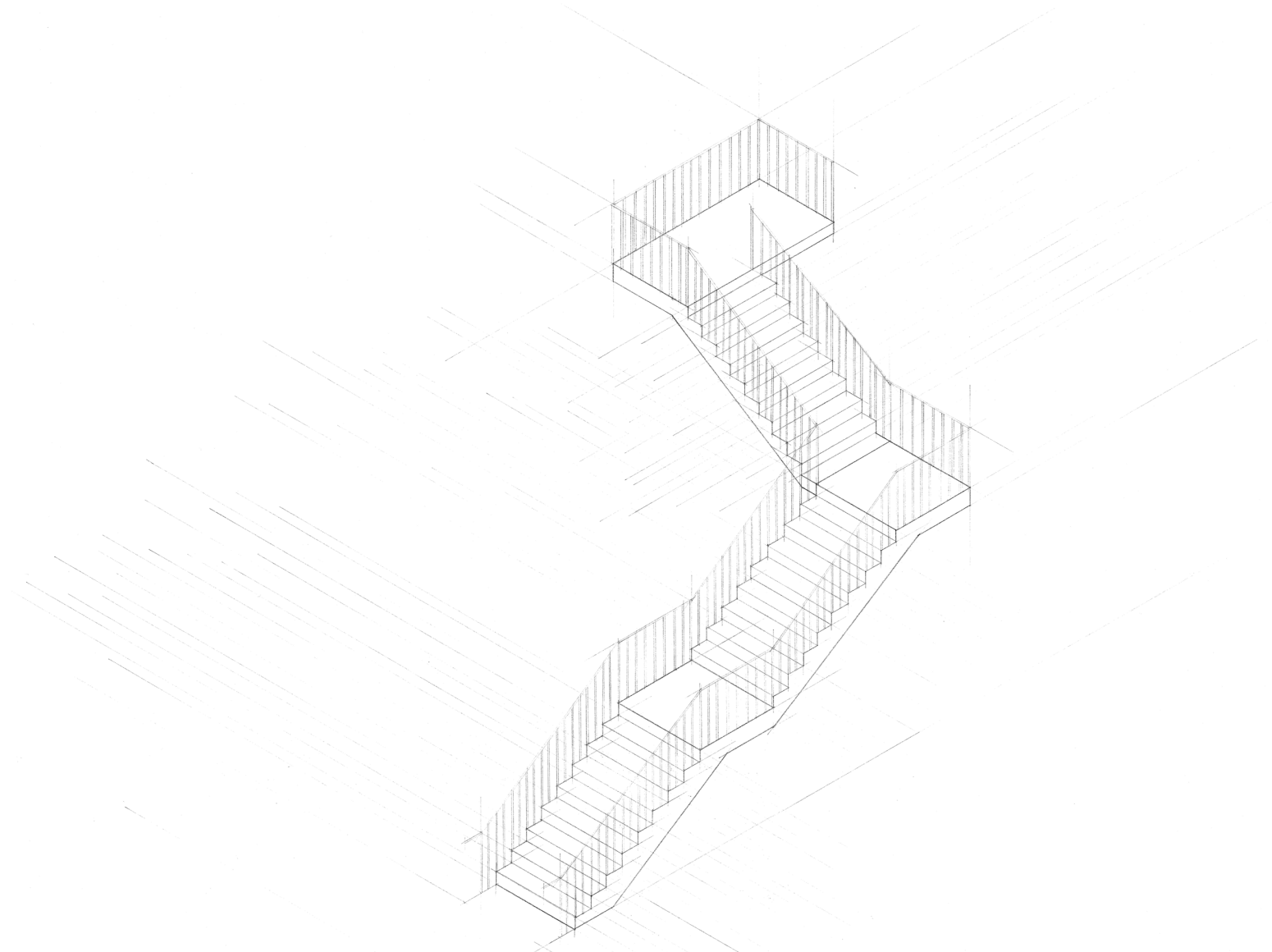


Fig. 40 The Functional Staircase - Modelled off dimension requirements set by the Department of Building and Housing (Authors image)

3.3 Surreal Imagery

Few sources mention the association of the staircase with surrealism, yet many examples of art and photography feature the stair. The relationship of the staircase to the surreal is potentially due to the ambition to experience the impossible. Aspirations to defy gravity, reach the sky, and move freely through space, are common expressions of the imagination. Jiricna (2001, 8) expresses the concept that 'what we have not seen, or experienced, stretches our imagination, initiates dreams of gaining the extra power or skill to achieve the unachievable.' Often the stair is used to create dream imagery. The surreal may be a representation of an otherworldly experience. The dream, expressed as a parallel reality.

Surrealism is defined as the unrestrained and erratic expression of the subconscious. It is based on the 'belief in the superior reality of certain forms of previously neglected associations, in the omnipotence of dream, and in the disinterested play of thought' (Breton, 1972, 26). Freud's methods of dream analysis largely influenced the Surrealists. The stair is often depicted in surreal imagery with unexpected juxtapositions, hinting at leading to another dimension. Bachelard (1969, 8) comments;

By the swiftness of its actions, the imagination separates us from the past as well as from reality; it faces the future. To the function of reality, wise in experience of the past, as it is defined by traditional psychology, should be added a function of unreality, which is equally positive... If we cannot imagine, we cannot foresee.

In surreal art the stepped form becomes a symbol representing a variety of meanings. In Magritte's *Forbidden Literature*, a staircase leads to nowhere (Fig. 49). Spilliaert also features a surreal staircase using long deep shadows to exaggerate the form and create a sense of movement in *Vertigo, Magic Staircase* (Fig. 54). Dali uses the symbol of the stair in multiple dream scene images to represent ascendance (Fig. 45 and 55). In *Nude Descending a Staircase*, Duchamp explores the overlapping motion of the body when going down a staircase (Fig. 56). This was inspired by Eadweard Muybridge's photographic study of people moving up and down stairs.

In Kales image '*The Thirty-Nine Steps*' (Fig. 41), the contrast of light and shadow on the stairs creates a distortion as the levels merge together. The viewer becomes absorbed in counting the number of steps, yet must consciously focus on the intersection of planes to remain in position. The woman's flowing dress breaks up the rigidity of the stairs, reflecting a sense of fluidity and grace.

Photographer Eugene Atget took a number of photographs of staircases in early twentieth century Paris (Fig. 44). His images captured the sense of the city as connected by thresholds, doorways, and stairways of great houses or apartment buildings (Dillon, 2010). The result is a sublime absence of inhabitation, space suspended in time.

I believe the appeal of these images stems from the capture of emotive lighting qualities, the careful composition and perspective, but most of all is the sense of narrative and mystery, there is a story being told and the viewer wants to know more. There is a feeling of wanting to know what happens next and the viewers curiosity is instigated. The senses are engaged as personal associations resonate within the subconscious. The images evoke a quality and interaction which draws the viewer into the psychic world.

Staircase Art



Fig. 45 Salvador Dalí - *The Broken Bridge and the Dream* 1945

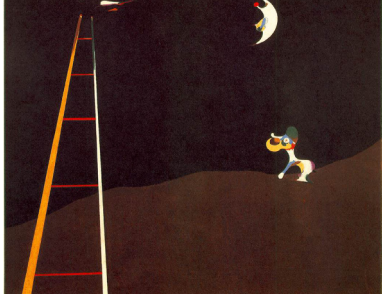


Fig. 46 Joan Miro - *Dog Barking at the Moon* 1926



Fig. 47 Eric White - *Portal* 2010



Fig. 48 Dorothea Tanning - *Eine Kleine Nachtmusik* 1943



Fig. 49 Rene Magritte - *Forbidden Literature (The Use of the Word)* 1936

Fig. 50 Rene Magritte - *The Summer Steps* 1938



Fig. 51 Dorothea Tanning - *The Truth about Comets and Little Girls* 1945



Fig. 52 Rembrandt - *Philosopher in Meditation* 1632



Fig. 53 Hannah Hoch - *The Staircase* 1926

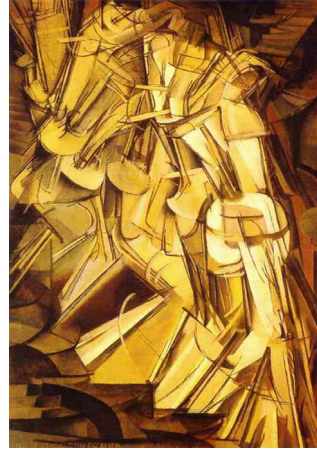


Fig. 56 Marcel Duchamp - *Nude Descending a Staircase, No. 2* 1912



Fig. 55 Salvador Dali - *My Wife, Nude, Contemplating her Own Flesh Becoming Stairs, Three Vertebrae of a Column, Sky and Architecture* 1945

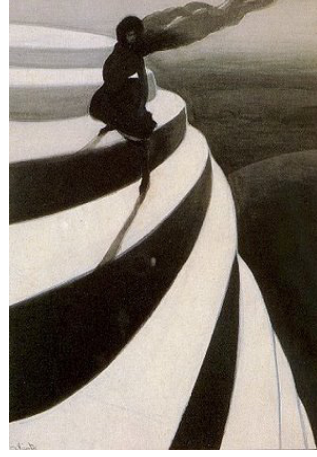


Fig. 54 Leon Spilliaert - *Vertigo, Magic Staircase* 1908

The significance of staircases in art and photography seems to arise from the all encompassing aspiration to transcend higher. This connection to the sky is a significant theme in Gothic architecture. From the Gothic is where surrealism acquired an intrigue with doors, portals, hallways, thresholds and stairways (Dillon, 2010, 55).

Another key feature in surreal imagery is the relationship with the landscape. Freud (1911) explains that the landscape was where painters placed their dream vision and made apparent how deeply imbedded the landscape is in our conscious and unconscious. A banal environment can be emotive when there is a changing, shifting perception in a state of paradox (Breton, 1999). Juxtaposing the real landscape with unfamiliar objects creates a unique and ambiguous relationship referencing the dream. This type of exploration is evident in the paintings of Giorgio de Chirico, Salvador Dali, and Joan Miro. The depiction of the landscape is important, as it challenges the viewer's perceptions of what is known to be real against the surrealist meaning created by the artist (Mical - Magallanes, 2005).

These techniques can also apply to architectural representation. Marche (2005) discusses that creating 'gaps' in architecture allows the viewer to fill in the blank. This might be the boundary between reality and the dream, truth and fiction, where the transition becomes undefinable. The occupant must make assumptions to comprehend what they are viewing and experiencing. The senses are captivated by an image of intrigue, suspense, and mystery. Revealing these gaps in architecture invites the imagination.

Staircase Photography



Fig. 41 Arthur F. Kales - *'The Thirty-Nine Steps'* (photograph) 1922



Fig. 42 Frederick H. Evans - *'Ancient Crypt Cellars in Provins'* (photograph) 1910



Fig. 43 Alexander Rodchenko - *'The Stairs'* (photograph) 1929

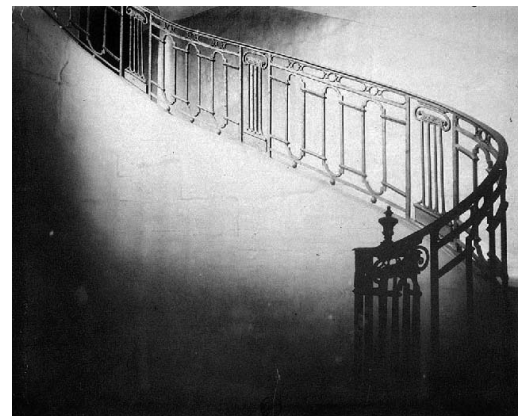


Fig. 44 Eugene Atget - *'Staircase'* - Hotel de Jean de Fourcy, Paris (photograph)

3.5 Categories of Investigation

3.5.1 The Stair as Symbolic

The stair is a universal symbol with many interpretations in different cultures. Staircases frequently act as symbols representing various meanings in architecture, art, sculpture, and film. The metaphoric connotations of stairs have evolved throughout history expressing concepts such as transcendence, vertigo, movement, sacrifice, aspiration, fear, adjudication, absolution, disorientation, confusion, confinement, or prosperity.

Many staircases of today lack these emotive qualities, even the not so desirable characteristics. Pallasmaa (2000) argues that contemporary staircases have lost their symbolic dimension and therefore meaning needs to be reintroduced into design. The contemporary stair, with some notable exceptions, is generally designed with function and efficiency in mind. In order to make architecture more meaningful, it is important to start with one of the most significant components. By creating symbolic references in staircase design we can begin to make architecture a greater spatial experience, engaging the public on both a physical and emotional level.

Film theorist Wollen (1996) describes the staircase as the symbolic spine of the house. Pallasmaa (2000, 9) expands on this concept; 'Stairs have the same significance to the vertical organisation of the house as the spine to the structure of the body.' Bachelard (1969, 136) shares this sentiment for symbolism within the house; '...every corner in a house, every angle in a room, every inch of secluded space in which we like to hide, or withdraw into ourselves, is a symbol of solitude for the imagination.' The staircase can be designed as a focal point of space at a domestic, commercial, or civic scale. This therefore acts as a visual connection between areas of a building, guiding people through space.

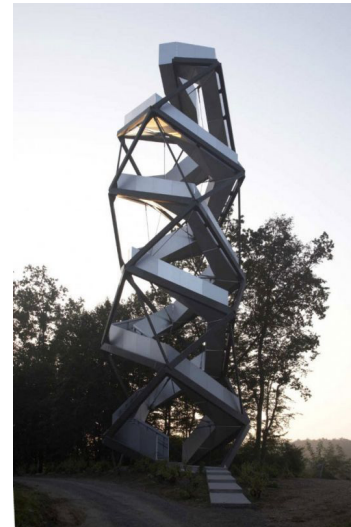


Fig. 57 Terrain Architects (Loenhardt and Mayr - *Murturm Nature Observation Tower*, Mur River, Austria (2010)

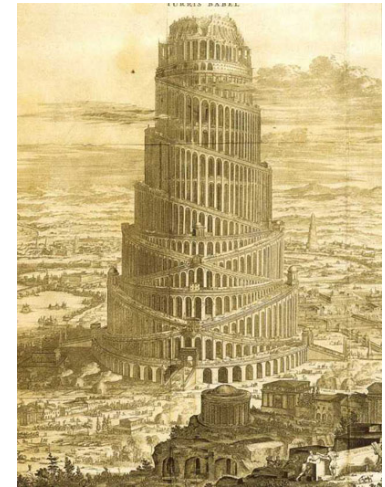


Fig. 58 Illustration of The Tower of Babel - Livius Creyl, 1670



Fig. 59 Steps to the Philosopher's Stone - Alchemists Allegory, St. Michel-spacher, 1616

The image of a stair can evoke an emotive response, alluding to themes of transcending to an alternate reality. The stair becomes a symbol of the dreamt, the unknown, and the unconscious. Jung (2001, 136) discusses that the depiction of steps and ladders in dream symbolism portrays the process of psychic transformation with up and down movements. 'Our psychic prehistory is in truth the spirit of gravity, which needs steps and ladders because, unlike the disembodied airy intellect, it cannot fly at will.'

Freud (1911) believed that the image of staircases in a dream represented repressed sexual fantasies and desires. Ascending the incremental steps in rhythmic movements with increasing breathlessness, only to descend again with one giant leap. These connotations however seem of little importance in the wider scheme of contemporary symbolic representation.

Ancient temples or pyramids were once symbols of worship and sacrifice to a perceived 'greater' power. The pyramid represents the abstract dematerialisation of architecture in its ontological form (Jormakka, 2005). They are expressions of man's attempt to close the gap between earth and sky, as well as representing the skill and craftsmanship of the workers. These stepped architectural structures draw thousands of visitors each year. However, are these symbolic structures now only visual tourist attractions rather than meaningful structures of devotion? Symbols in historic architecture were used as a language to communicate meaning, not only to the people of the time, but can now provide answers to decipher the cultures and meanings of the past (Jiricna, 2001). There is potential for staircases to once again express symbolic meaning to influence contemporary architecture and to become a universal architectural symbol.

The number of staircases is significant in many religions or societies. Three steps leading to the altar in medieval churches symbolises faith, love, and hope (Slessor, 2000). In Freemasonry, three steps correspond to moderation, justice, and benevolence, representing degrees of initiation (Pallasmaa, 2000). Seven steps however represent the seven liberal arts of the medieval world, the seven ages of man, the seven cardinal virtues, and allegedly seven steps lead to the Philosopher's Stone (Fig. 59). These were believed to lead to self-knowledge, mastery, and improvement (Pallasmaa, 2000). Stairs on the banks of the Ganges River in India represent Hindu rituals of life and death (Slessor, 2000).

Vitruvius (1926), stated that temple steps must always be arranged with an odd number. This is so the right foot mounts the first step as well as being the first to reach the altar. Stairs can also symbolise the gradual progression towards a goal. The point seems to be that 'this material cannot be communicated all at once but must come gradually; the candidate must not be taxed, but rather shown the way step by step' (Biebermann, 1994, 326). It therefore takes some form of sacrifice and dedication to obtain a goal or reward.

3.5.2 The Stair as an Illusion

Inspired by many illusory artworks, the stair is often used to create illusions in contemporary sculpture. These inconceivable designs however are rarely found in architecture, due to the constraints of gravity. Jiricna (2001, 10) observes that when stairs were built the 'rules of their functional performance were instinctively or empirically applied, dictated on the one hand by the shape and proportion of the human body, on the other by the forces of gravity.'

Illusions entice the subconscious and evoke the imagination. Often the stair is shown as an infinite loop, leading to nowhere. The stair becomes an object rather than a functional means of transportation between levels. Optical techniques can be used to deceive the eye, creating a different spatial experience than the physical conforms of the structure. Yet, how can these illusive experiences be translated into functioning architecture?

These fantasy staircases are generally found in art, sculpture, and film. Due to the dreamlike nature of the designs it is difficult to translate these concepts into real life pragmatic situations. Often illusions are created by the apparent absence of gravity, such as M. C Escher's drawings 'Ascending and Descending' and 'Relativity' (Fig. 61 and 62).

The sense of gravity is the essence of all architectonic structures and great architecture makes us aware of gravity and earth. Architecture strengthens the experience of the vertical dimension of the world. At the same time that architecture makes us aware of the depth of the earth, it makes us dream of levitation and flight. (Pallasmaa, 2000, 47)



Fig. 60 Giovanni Battista Piranesi - *Drawbridge* (Etching from 'Carceri' prison series) Rome, 1745

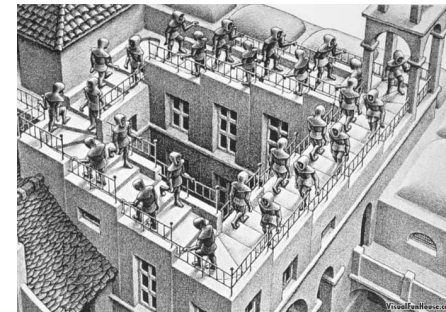


Fig. 61 M. C. Escher - *Ascending and Descending* 1960

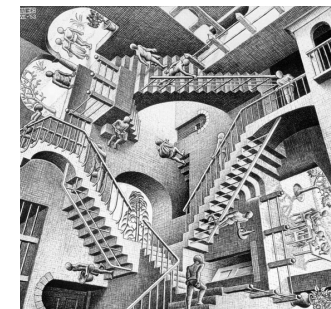


Fig. 62 M. C. Escher - *Relativity* 1953

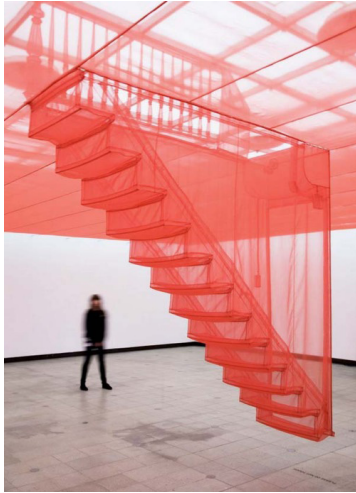


Fig. 63 Do Ho Suh - *Staircase IV*, Venice (2004)

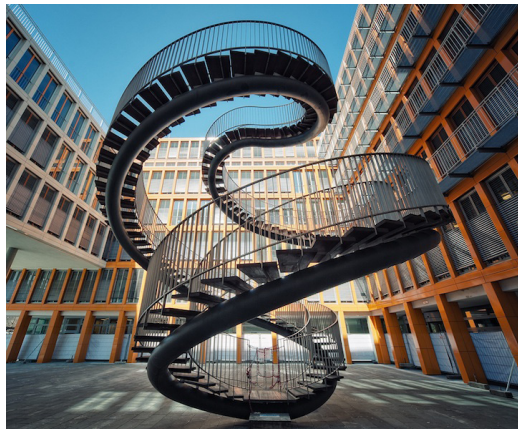


Fig. 64 Olafur Eliasson - *Rewriting*, Munich, Germany (2004)

The labyrinthine composition of Escher's images create infinite passages and alternate dimensions, an endless maze. Many of his drawings featured the illusion of never-ending staircases such as the Penrose loop (Fig. 61), which has been imitated in many films, shows, and artwork. His images represent continuous movement, repetition, and disorientation. Escher's interest in the staircase was due to the use of mathematical relationships through geometry and sequence. Piranesi (Fig. 60) also explores these ideas of the staircase as a vertical labyrinth in his Carceri Prison series. Machinery, bridges, and stairs are depicted evoking anxiety and unease. Breton described the house as labyrinthine, symbolising the structure of the unconscious (Caws, 2010).

Optical illusions in stair design may be formed through altered perspectives, lighting techniques, infinite loops, mirrors or reflections, suspension, weightlessness, rotated ground planes, or movement. By choreographing the space, false perspectives can be used to magnify and exaggerate to create dramatic scales (Slessor, 2000). Artists working in a two-dimensional medium often use stairs or ladders as an effective compositional device to create the sense of depth (Baldon, 1989). Cryptic architecture and mind games can stimulate both mental and physical interaction. The viewer is forced to make sense of what they are experiencing.

Illusive dream imagery creates an altered perception of reality in which to engage the imagination. Freud (1911) believed that the interpretation of dreams revealed the unconscious activities of the mind. Many sculptural installations experiment with the form of the stair. Olafur Eliasson's looped staircase takes people on a journey that goes nowhere (Fig. 64). In Fig. 63 Do Ho Suh created a series of staircase installations made of sheer fabric which appear to float above the ground with an ethereal quality. The design is not functional, however it evokes contemplation, ambiguity, and subconscious reflection.

3.5.3 The Stair as a Transition

The stair essentially allows a vertical transition through space. Each step creates a sequential narrative. Often the transition is between the interior and exterior, forming an ambiguous space in between. Is the stair therefore suspended in limbo, on the boundary of interior and exterior, ascent and descent, reality and unreality? It is easy to see the relationship to Heaven and Hell, caught in the purgatory zone or seeking repentance, on the stair into the sky. The diagonal movement up or down the staircase is an event creating a narrative of movement for the inhabitant and spectacle for surrounding viewers.

Templer (1995) explains that the stair evokes by its very nature a sequential experience. It may be a private stair for personal use or a great public stair to be viewed by many people. Landings create chances for pause, contemplation, interaction, or an opportunity to observe. Alcoves also divide the movement into segments. The size of the step can influence pace and behaviour. In the past moving upwards very often meant moving to a place of increased safety from predators, or an elevated site in which to view approaching enemies (Jiricna, 2001). This notion is still common today. People generally like to live on top of hills with views, or reflect on the ownership of their surrounding land.

Often a stair acts as a threshold between the interior and exterior. This can be a dramatic transition, leading up to an important building, or may represent a liminal zone into an altered reality. A gateway to an ephemeral experience. Lang Baumann designed a series of staircases experimenting with the form of the stair. In Fig. 67 a staircase clutching to the side of a building hints at function, yet expresses a terrifying passage.



Fig. 65 Oscar Niemeyer - The Ministry of Foreign Affairs, Brasilia (1952)

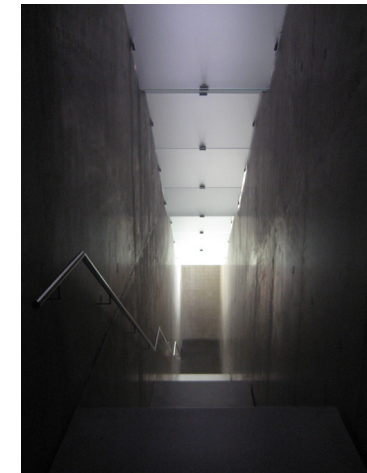


Fig. 66 Peter Zumthor - *Kunsthaus Bregenz* (Bregenz Art Museum), Austria (1997)

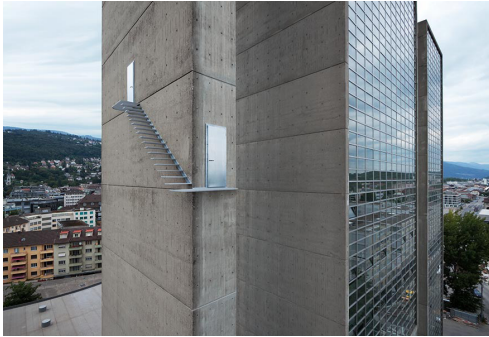


Fig. 67 Sabina Lang and Daniel Baumann - *Beautiful Steps #2*, Utopics Exhibition: Biel, Switzerland (2009)



Fig. 68 Lang Baumann - *Beautiful Steps #5* (2010)

Oscar Niemeyers staircase in Brasilia takes the form of a sinuous curve between floor and step (Fig. 65). The transition becomes one continuous movement where the boundary is almost undefinable. Underneath, reminiscent of a shadow, is another staircase descending below.

Vitruvius explains that stairs have three openings. The first is the doorway, providing entrance to the stair. The second is the window, which allows light to enter and establishes a connection with the exterior. The third is the opening in ceiling or floor forming the transition space between levels (Habermann, 2003). The level of enclosure and surrounding space can control movement through the staircase. A narrow internal corridor encourages a faster motion, whereas a wide open external stair invites a slower experience. The form of a stair can also influence the transition. The spiral stair creates a smooth and gracious transition to the next level, whereas a dogleg can create a slower paced, incremental ascension.

The body interacts with the stair in a variety of ways. The foot on the step, hands touching the rail, legs and arms engaging in movement, balancing and navigating the platforms one by one. Baldon (1989, 14) defines steps as 'simply the upward extension of people walking, their proportions and configuration controlled by human size.' Bachelard (1969, 14) explains that our memories of a space become physically inscribed in us. 'After twenty years, in spite of all the other anonymous stairways; we would recapture the reflexes of the "first stairway," we would not stumble on that rather high step.'

However, what happens to the transient experience when we alter this repetitive movement? Jumping down the stairs, skipping alternate steps, sitting, running up and down, or even sliding down the bannister. The stair becomes an interactive architectural object, the user adapting the function for their own purpose and behaviour.

3.5.4 The Stair as Kinetic

The escalator and lift has replaced the staircase in many examples of contemporary architecture. The urgency to travel between spaces quickly and with ease has overcome the desire for aesthetics. The necessity to accommodate people with disabilities has also required installation of these machines in most multilevel buildings. Designers and architects have attempted to integrate the staircase into architecture. However, the actual design of the moving metallic platforms remains the same. Lifts can also be designed as a striking feature within a building, yet the vertical experience is quite removed from that of the sequential staircase.

Has the purpose of the stair evolved? The fundamental desire to travel vertically has remained the same. Yet, the way we do so has essentially changed. The escalator removes us from the sense of narrative; there is no incremental progression, no chance for pause, merely a quick diagonal movement through space. The lift also detaches us from this experience, we are closed in a metal box, and then suddenly the doors open and we have moved to a completely different location. There is a sense of unreality, has the transition taken place?

The once grand stair is now a purely functional machine. Banished to hidden emergency exits tacked onto buildings, or replaced by poorly designed escalators or lifts. Bachelard (1969, 27) believes that 'elevators do away with the heroism of stair climbing so that there is no longer any virtue in living up near the sky. Home has become mere horizontality'. Jiricna (2001, 108) also has a similar view that 'as a rule, modern escalators and elevators are purely commercial objects without anything exciting to offer.'



Fig. 69 Renzo Piano - *Pompidou Centre*, Paris, France (1977)



Fig. 70 Martinez Lapena - *La Granja Escalators*, Toledo, Spain (2000)



Fig. 71 Peter Marino - *Louis Vuitton Maison*, Bond Street, London (2010)



Fig. 72 Martinez Lapena - *La Granja Escalators*, Toledo, Spain (2000)

The escalator is a machine for practical living in modern society, yet how can we integrate this architecturally? Designers have tried to make the escalator more attractive by changing the exterior. Both Renzo Piano's Pompidou Centre (Fig. 69), and Martinez Lapena's La Granja (Fig. 70 and 72), have united their architecture with the form of the escalator. It offers a new moving visual experience of architecture, however the physical interaction is only equivalent to stepping on multiple escalators in a row.

Then we come to the stairs that are not technically kinetic yet evoke a sense of movement. There are a number of interactive stair installations including this design for Louis Vuitton in London (Fig. 00). LED lighting, moving images projected on the steps, and even platforms which respond to touch, can create dynamic architecture.

The form of the stair evokes a sense of dynamism, it is essentially a vertical movement through space. The appearance of liquid movement is shown in Michelangelo's stair design for the Laurentian Library created by curved stairs of increasing size. The design of the stair can control pace and rhythm using techniques of scale, form, landing placement, composition, lighting, and tread and riser size. Bachelard (1969, 11) suggests that we would 'find countless intermediaries between reality and symbols if we gave things all the movements they suggest.' Gideon (1964) claims that the historic stair is a symbol of movement, however Templer (1995) explains that the contemporary escalator and elevator are now the dominant architectural symbols of movement.

Bryson (2010, 425) believes that in a perfect world a stair would change shape depending on whether we were ascending or descending. 'In practice, every staircase is a compromise.' There is potential for the staircase to accommodate the needs of the user regarding spatial movement, behaviour, and interaction.

3.5.5 The Stair as Psychological

One of the main psychological aspects of the stair is the representation of religious references. The relationship with the esteemed higher powers, ascending toward Heaven or descending into the depths of Hell. The stair features frequently in religious artwork. Light and shadow is often used to highlight transcendence or descent into the subterranean world. The image of the stair resonates with the inner psyche, establishing emotional associations. When faced with a staircase leading to the unknown, each step is a chance for pensive reflection. The relationship with the surreal is strong, a connection to the imagination, the ethereal, or an alternate reality.

The fundamental principle of the staircase, as the organisation of horizontal and vertical planes, is to aid the body in ascent or descent. Bachelard (1969) discusses the psychology of the house in terms of verticality and the dialects of up and down. This is explained by his descriptions of the Attic and Cellar as inhabiting areas of the mind, both accessed by staircases. We move down to the basement and ascend to the attic, creating references to our real and imaginary lives. He draws reference to bounding carelessly up and down the stairs as a child.

One of the strongest historic connotations of the staircase is the representation of Heaven and Hell. These relationships can have significant effect on one's psyche and awareness of space. Jiricna (2001, 10) proposes the question; 'How else to get to elevated destinations but by climbing endless stairs?' Many religious architectural buildings, both historically and in contemporary design, express this connection. These rituals of stair movement are common in many cultures and religions. In Christianity, Jacob dreams of a ladder rising to Heaven;



Fig. 73 Rachel Whiteread - *Untitled (Stairs)* (2001)



Fig. 74 Lang Baumann - *Beautiful Steps #4* (2009)



Fig. 75 Gerard Hoet - *Jacob's Ladder* (1728)



Fig. 76 Charles Sheeler - *Doylestown House - Stairs from Below*, (1917)

And he dreamed, and behold a ladder set up on Earth,
and the top of it reached to heaven: behold the angels of
God ascending and descending on it. And behold, the
Lord stood above it, and said, I am the Lord God of
Abraham thy father, and the God of Isaac.
(Templer, 1995, 7)

Stairs can often invoke feelings of fear or menace. They are frequently portrayed in horror films featuring haunted houses, or as the location of a murder or mysterious occurrence. Leading into the unknown darkness at the top or base of the stairs can create unease and anxiety. The sense of mystery and uncertainty creates suspense which the viewer interprets in their mind, imagining and fearing the worst case scenario. Sheeler captures this uncanny feeling in his photograph taken underneath the stairs (Fig. 76). The staircase is also often mentioned in poetry to evoke a particular theme or tone. The poem 'Antigonish' by Hugh Mearns (1889), expresses the childhood imagination of a ghostly figure lurking on the stairs;

Yesterday, upon the stair,
I met a man who wasn't there
He wasn't there again today
I wish, I wish he'd go away...

The dark and shadow can heighten the risk of falling. Pallasmaa (2000) explains that the fear of falling in dreams does not arise from the terror of hitting the ground, but from the fear of not reaching the ground at all, remaining in constant free-fall for eternity. Bachelard (1969) interprets the imagination of a fall as an inverted ascent. This is reminiscent of Alice in Wonderland falling down the rabbit hole, or going through the mirror into a contradictory world.

Staircases can also engage the subconscious and inspire the imagination. Bachelard (1969, 7) reveals that people crave spaces that inspire daydreaming and reminiscence. The 'innermost, almost archetypal responses to stairs carry with them cultural memories embedded in the psyche – part myth, part religious mystery, part dream, part fairy tale.' Stair sculpture engages the subconscious as the interaction is not physical, but intellectual. Rachel Whiteread's sculpture (Fig. 73) is a cast of the negative space of staircases. Her installations explore vertical ambiguity, stability, absurd impossibilities, and the deception of gravity (Schneider, 2005).

3.5.6 The Stair as Iconic



Fig. 77 Francesco de Sanctis and Alessandro Specchi - *Spanish Steps*, Rome (1725)

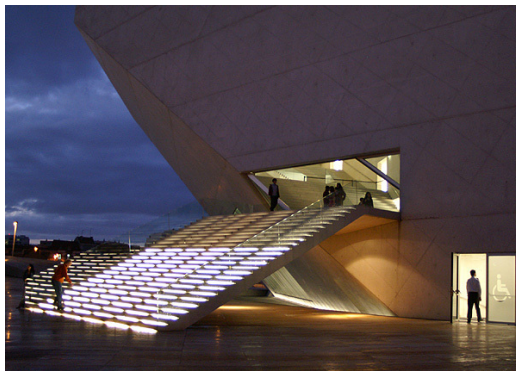


Fig. 78 Rem Koolhaas (OMA) - *Casa de Musica Porta*, Portugal (2005)

The stair is often the focal point of civic architecture, both in the past and present. The types of civic architecture however has changed, and a new sense of 'iconic' design has been established. New technologies and design techniques have advanced the structure and construction of the staircase. Ideas of status, hierarchy, and grandeur are represented quite differently today than in Classical times. The definition of the grand as an extravagantly ornamented staircase of the Renaissance, is now one of light, floating, minimal material and structure. Will these contemporary structures be representative of our era for future generations?

Templer (1995) explains how hierarchy, authority, wealth, and status can be expressed through stair design using techniques of scale, symmetry, and an emphasis on approach. These concepts however are uncommon in contemporary stair design. Historic designs are still significant and highly regarded however their function and purpose has dramatically changed. Famous staircases such as the Spanish steps in Rome (Fig. 77) or ancient temples and pyramids are now tourist attractions, not meaningful journeys or rituals.

Many extravagant palaces loss their relevance at the end of the Age of Enlightenment. 'The power of the state was invested in civic institutions, rather than absolute monarchs' (Slessor, 2000, 14). The new palaces were public buildings; museums, universities, courthouses, opera houses, and theatres. Straight flight stairs replaced superfluous curved or spiral designs. They were considered appropriately monumental. A modernised functionality rather than extravagant ornamentation, emphasised this alternate governmental architecture. The large scales, once important for ceremonial occasions, were essential to accommodate large crowds of ordinary citizens who frequented these

buildings. Stair capacity and safety gradually became as important as location and effect (Slessor, 2000).

Iconic staircases of today may also be sculptures, monuments, landmarks, or part of the landscape. Platforms or landings are often carefully positioned to frame a view. Materiality, lighting, form, and scale, are all determined to emphasise the presence of a stair. An iconic stair may not be a bold, extravagant design, but an intimate space that gives character and sense of place to a town or city or even home. It is the qualities of the surrounding space that can make the staircase memorable, distinctive, or unique.

Monuments and memorials can also be considered iconic architecture. Many monuments such as obelisks and war memorials feature stairs as a plinth. Speteri (2005) argues that monuments play an important part in the process of commemoration by giving visual form to the abstract ideas of sacrifice and nationhood. These structures relate to the collective memory, providing a location for contemplation and reminiscence. Overtime the function of the public monument may change, becoming representative of different events or meanings.

This translation of public buildings in a new age culture may have redefined the function of stairs, but the theory is much the same. Significant public architecture today still uses the stair as an iconic device. The Casa de Musica by Rem Koolhaas (Fig. 00) is an example of a bold contemporary staircase guiding visitors into the building. The form acts as an architectural icon, integrated with the architecture.

The political importance of a building increases with a large public staircase surrounding it and the same could be said about its architectural impact. Every sculptor knows how important the pedestal is to his sculpture, every architect has experienced the struggle of marrying his building to the earth. (Jiricna, 2001, 22)



Fig. 79 Eva Jiricna - *Boodles Jewellers*, Liverpool (2004)

Historically, iconic staircases have functioned as monumental forms of civic institutions, public buildings, governmental buildings, and religious structures. However, the new iconic staircase may be a trademark design brand or sculptural landmark. Apple have designed a number of staircases for their multitude of stores (Fig. 80). The glass designs with exposed structural elements have become icons for the Apple brand. New technologies and materials have allowed for wider design options in staircase forms. Eva Jiricna is pushing the boundaries of stair design with her structural explorations, also in glass and metal (Fig. 79).



Fig. 80 *Apple Store* - Fifth Avenue, New York (2006)

4.0 Design - Site Introduction

4.0 Design - Site Introduction

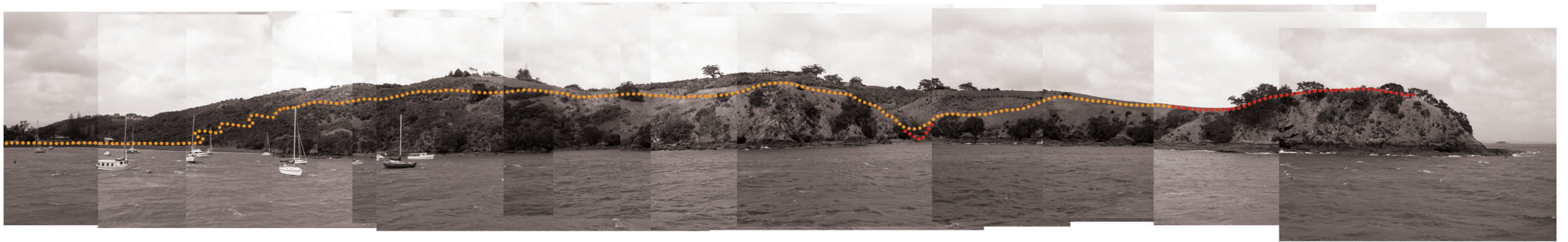


Fig. 81 View from Ferry showing the site 'Sculpture on the Gulf' trail on Waiheke Island (main route illustrated in orange and extended path in red)

4.1 Purpose of Design

The purpose of this design is to explore the potential of the staircase as architecture. The objective is to formulate new spatial experiences with use of the stair. The intention is not to create a multitude of new stair designs, but to discover specifically how stair design can represent a particular meaning and create a unique architectural experience. This site draws allusions to the *Casa Malaparte* with the representation of a dramatic cliff edge, sea views, undulating typography, and the island location.

The surreal introduces emotive qualities and meaning through contradictory relationships, juxtaposition, displacement, irony, and the evocation of psychic states. This 'dream vision' reintroduces the sense of whimsical childhood imagination and spatial awareness. The visitor is taken on a unique passage through a perceived 'evolution' of the staircase. Filmic techniques influence spatial composition, narrative, form, and perspective. In this instance I will refer to narrative as story-telling. An exploration revealing the architecture of the staircase. Consider the experience as walking through a series of dream phases. The sculptures act as the transition between each of the interventions, creating an experiential journey.

Set amongst expressive landscapes, the unconventional objects act as moments of subconscious interaction. The specific experience will therefore differ between each visitor based on their own preconceptions, memories, values, and past experiences. These structures are intended to be both physically interacted with as well as forming contemplative space. What if staircases referenced metaphoric and poetic meanings in contemporary architecture? Envisage a spatial experience on the verge of reality and the dream.

4.2 Site Introduction

The site for my case study investigation is the '*Sculpture on the Gulf*' trail on Waiheke Island in the Hauraki Gulf. Established in 2001, the sculpture walk is held biennially during February for three weeks. In 2011, the event featured around 40 renown and emerging New Zealand artists and saw 40,000 plus visitors. The walk itself is open to residents and visitors during the rest of the year. The trail starts near the Matiatia Ferry Terminal and is about 2.5 kilometres in length. The official end is in Church Bay, however the walk may also be completed in reverse.

I choose this site as it features an existing sense of narrative, reflecting the idea of the staircase as an incremental experience. It also alludes to the sequential experience of film, capturing a series of moments or frames in time. This allows for the exploration of multiple staircase designs to explore each of the research concepts and consider how they would work together as a series. The location provides the opportunity to establish an architectural relationship with the landscape as well as the integration with the sculptures. A journey of ascent and descent across the terrain. A link is also formed to surrealist imagery of staircases and the landscape.

I grew up on Waiheke and have frequented the sculpture walk. In a way I have a childhood perception of the island. I am very familiar with the area and island lifestyle. As both resident and now visitor, I feel a personal connection in designing architectural interventions for the community. It is important to remain sympathetic to the island design mentality and sense of locality. I believe a series of smaller architectural interventions can achieve this. These miniature architectures positioned amongst the landscape are in stark contrast to the imposing large scale architecture dominating the area.



4.3 Client and Brief

The following design interventions are for the headland ‘*Sculpture on the Gulf*’ art trail. It is one of New Zealand’s most popular contemporary outdoor exhibitions for sculpture. The event is organised by the Waiheke Community Art Gallery and sponsored by local businesses. During other times of the year the area remains an existing public walkway leading to various attractions on the island. The site features no existing permanent architecture, except for the surrounding houses on the hilltop. There is potential to integrate small scale architectural interventions within the landscape and sculptures. The aim is to enhance the walk with a series of architectural interventions for the public to interact with.



Fig. 82 Map of Waiheke Island showing location of the sculpture walk in Matiatia Bay



Fig. 83 Map showing the sculpture walk around the peninsula from start to finish

Fig. 84 Site photographs featuring sculptures from 2011 exhibition





Site Photos



4.4 Site Analysis

The island is accessed by ferry from Auckland city. The start of the walk is near the Ferry Terminal in Matiatia Bay. The diagram opposite shows the location of sculptures in the 2011 exhibition (Fig. 85). When arriving by boat there is a unique perspective in viewing some of the sculptures before beginning the walk. There is a small temporary cafe located along the trail. At the end of the walk a bus collects you to return to the ferry or travel into Oneroa village. There are also vineyards within walking distance of the end of the trail.

The land on which the exhibition is held is council owned reserve. A number of large contemporary houses populate the ridge line and overlook the harbour. As you travel around the headland the experience of viewing the sculptures is interjected by the existing architecture. However, as you progress up the hillside the views across the harbour and to the surrounding islands detract from this. The continual visual connection to the water, the islands, and even back to the city is a constant reminder that you are on perched on the edge of a peninsula. The surrounding visible islands include; Motuihe, Rangitoto, Motutapu, Rakino, and the Noises (Fig. 87).

The terrain evokes movement as you are forced to move up and down with the contours of the landscape. There are a number of small existing steps located along the walk to aid this ascent and descent. Many layers make up the topography of the site (Fig. 86). This experience can be considered as a series of constant transitions between each layer of the landscape. The relationship between inhabitation and the environment is important to consider when designing the installations for visual integration.

Fig. 85 Map of the 'Sculpture on the Gulf' walk showing locations of the sculptures in 2011 exhibition and main facilities

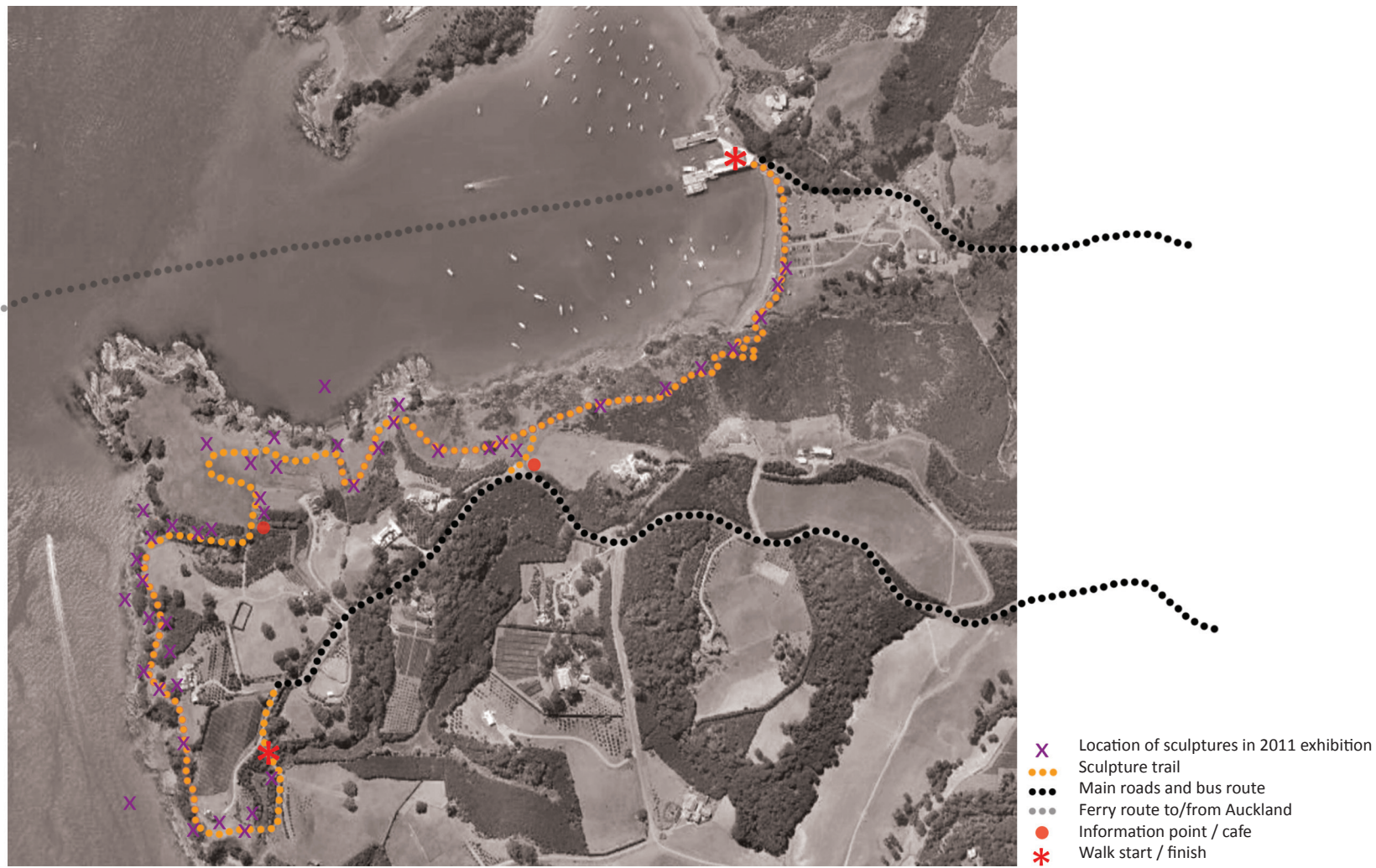
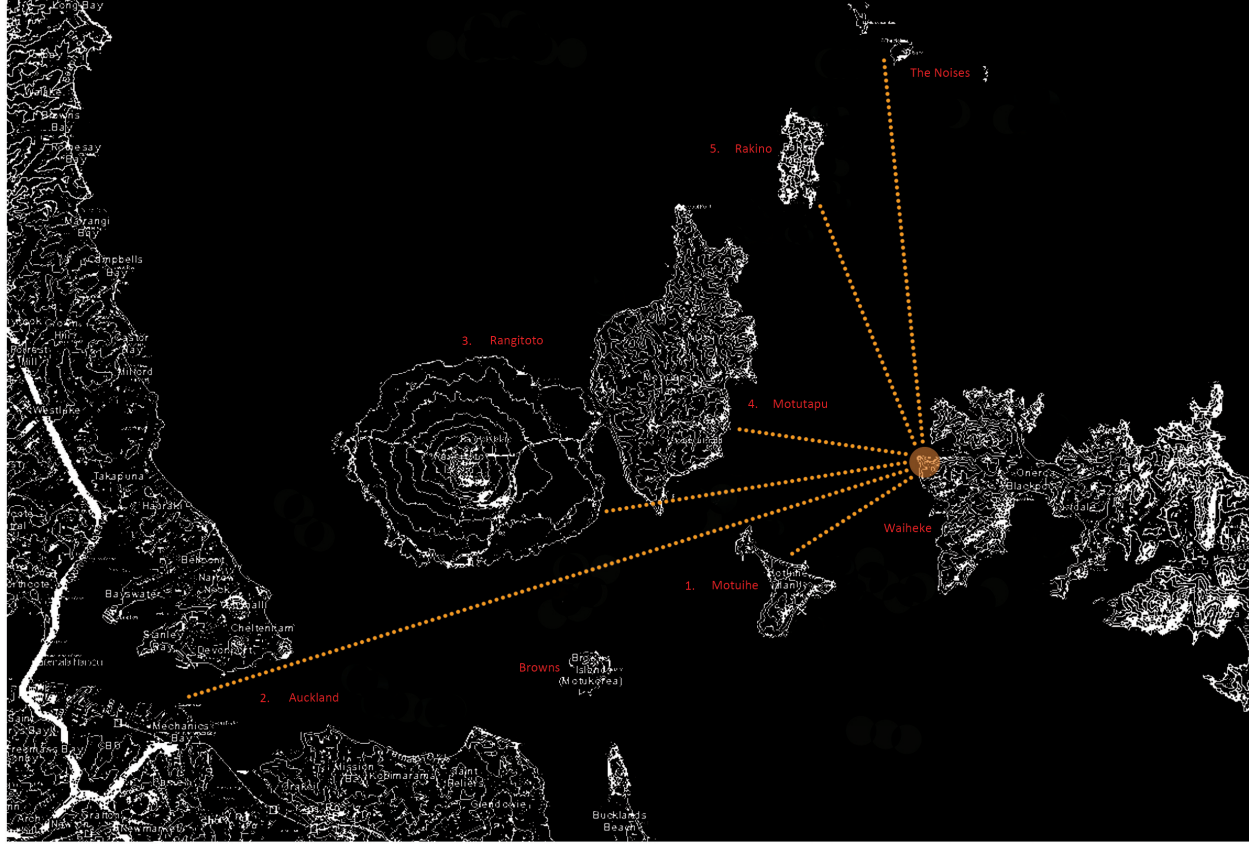


Fig. 86 Analysis of the transitions between layers of the site



Fig. 87 Analysis of the viewpoints to the surrounding islands and Auckland City



A series of photomontages were taken as I walked through the site, overlaying various scenes to create an visual expression of the experience (Fig. 88). These resulted in a surreal representation of the journey as a sequence of incremental yet integrated moments. The ambiguous images create a sense of the dream experience. A number of contrasts are evident; light and shadow, up and down, land and sky, solid and liquid, opaque and translucent, physical and ethereal, tangible and immaterial.

Six sites were selected along the walk where each of the topics could be explored accordingly (Fig. 89 and 90). They are also relatively spread out to create a coherent narrative among the sculptures. I have also established sight lines between most of the interventions to create a visual guide for visitors. A feeling of suspense is created as glimpses of the forms can be seen in the distance. The small-scale architectures are intended to experienced both individually and as a collective. Aspects of each design hint at the themes of the following design.

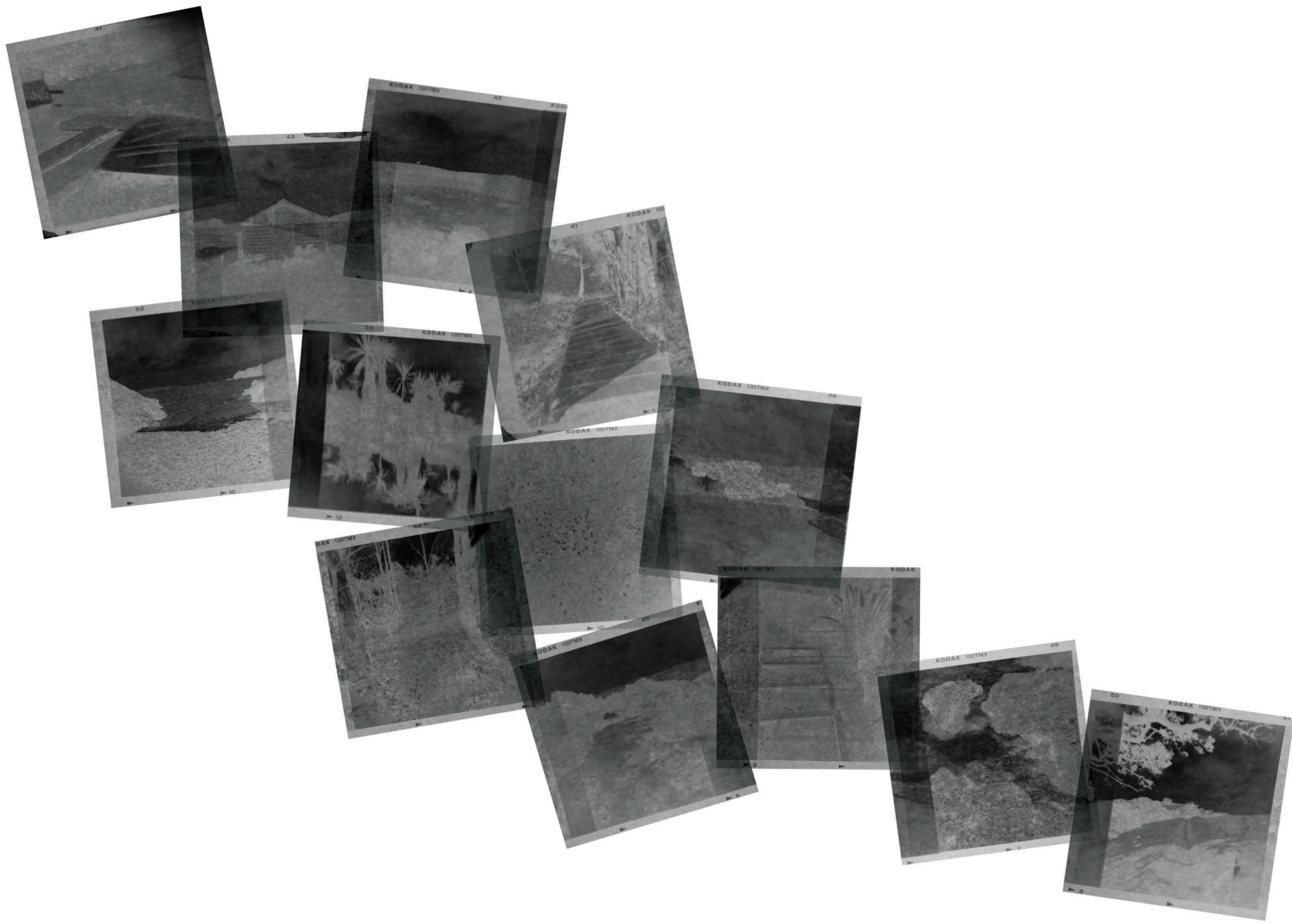


Fig. 88 Surreal photomontages taken at various locations along the walk

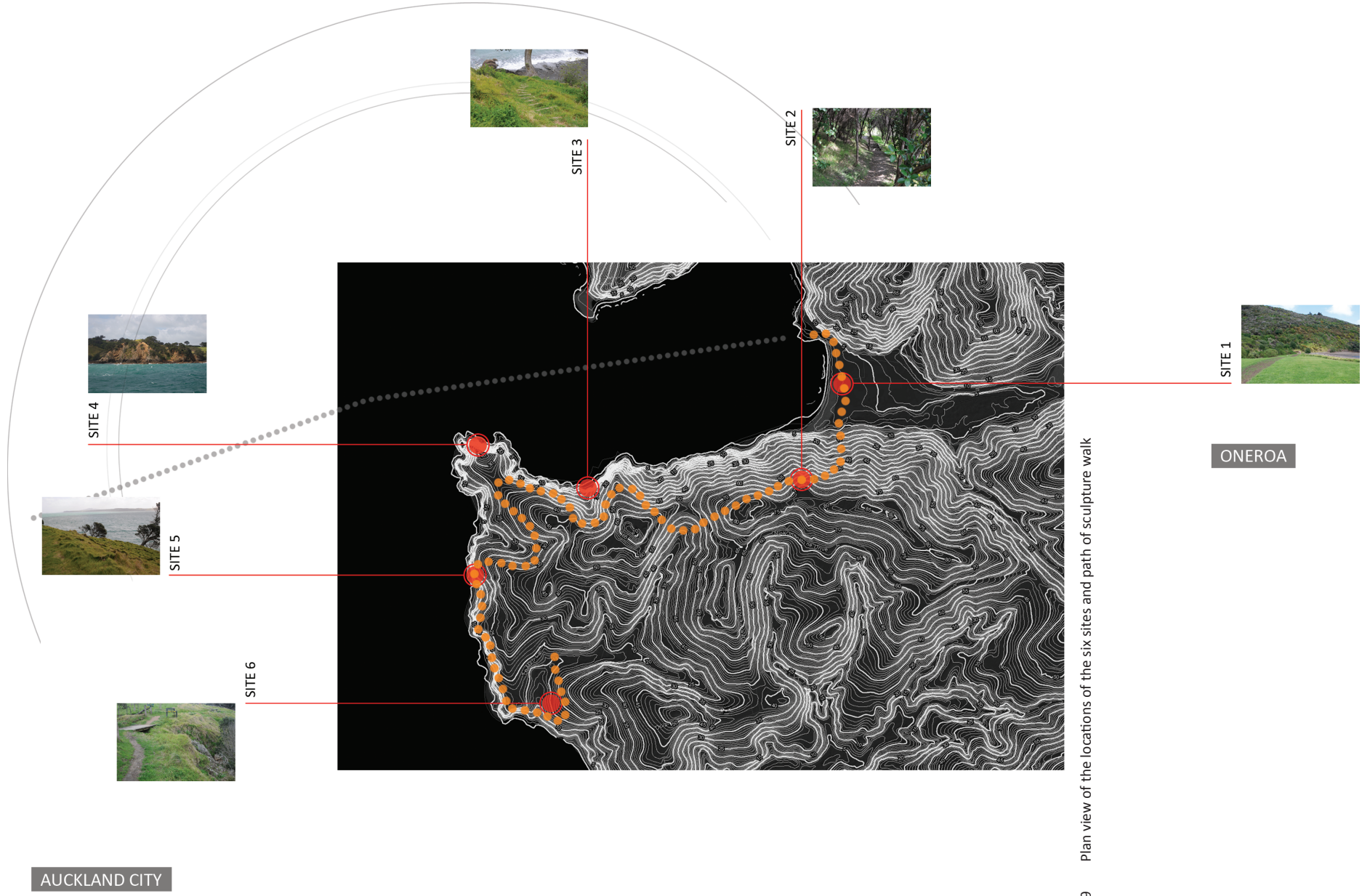


Fig. 89 Plan view of the locations of the six sites and path of sculpture walk

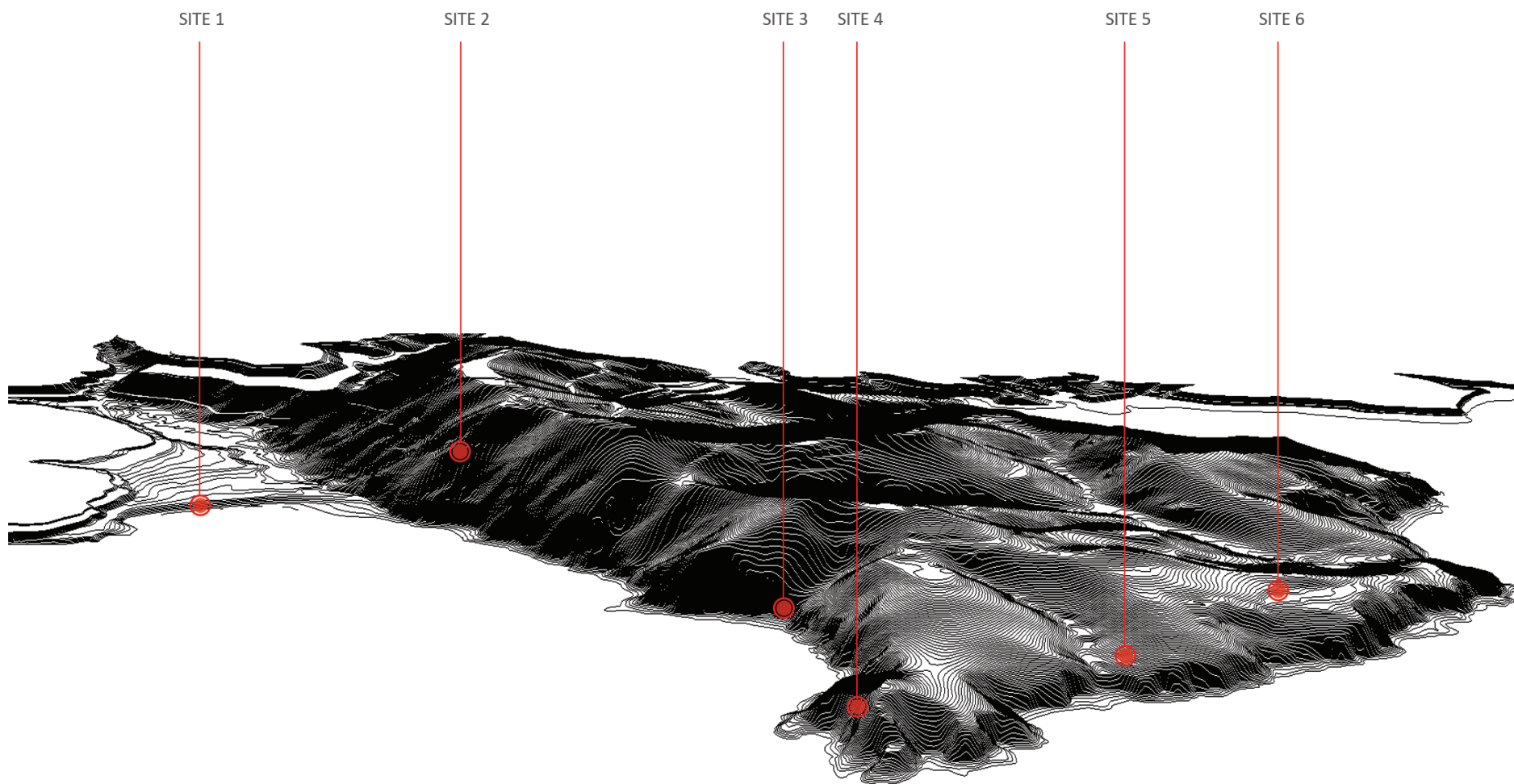
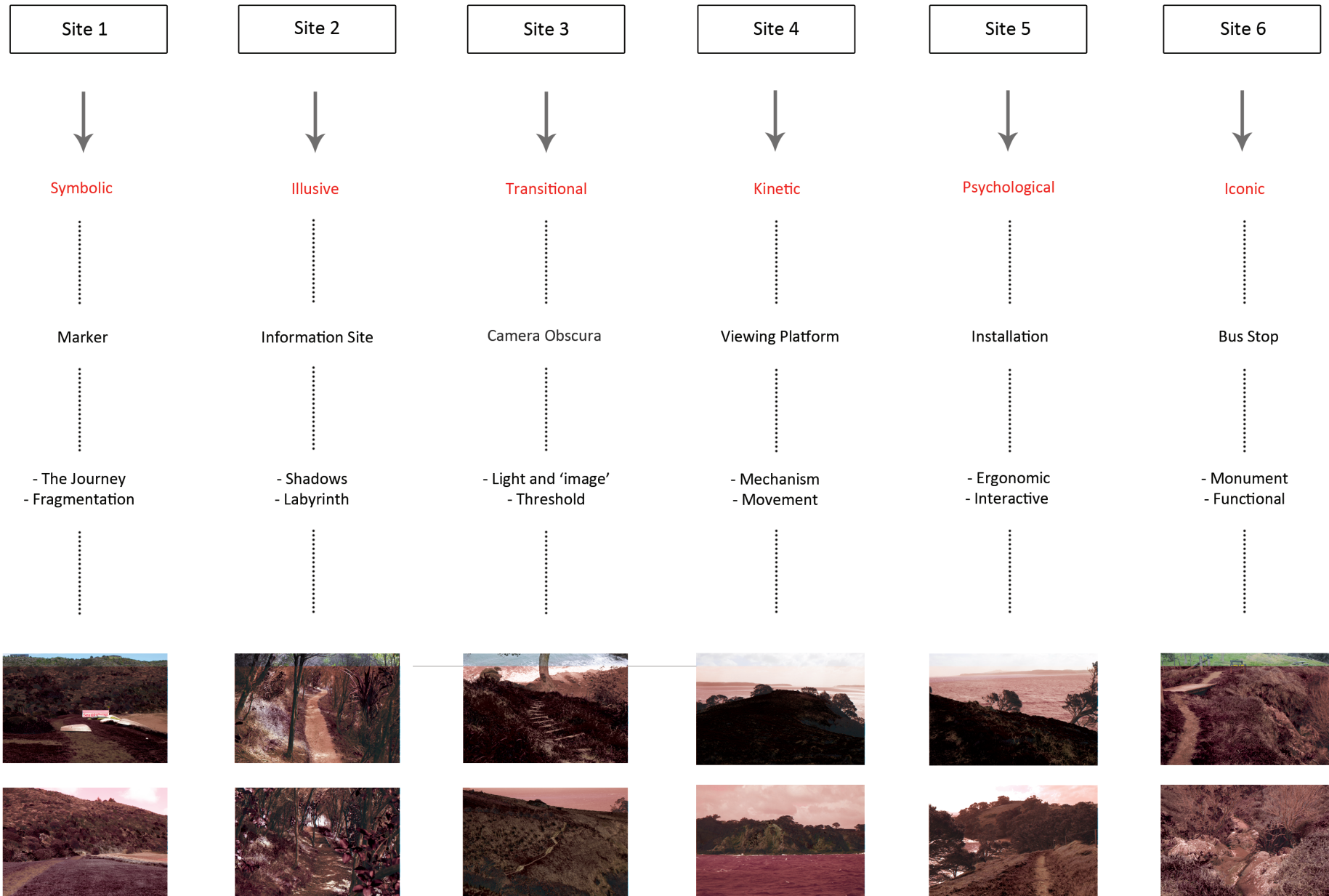


Fig. 90 Three-dimensional contour map showing the locations of the six sites

4.5 Design Process

In the next chapter I will discuss the design process and outcomes for each of the six interventions. I have used techniques of drawing, photography, and physical and computer modelling to generate architectural forms. Each section experiments with a different method to formulate a design incentive. Individual site analyses establish the context. A number of precedents are also reviewed to provide inspiration. Development of the conceptual exploration leads to the final outcome and presentation.

I have devised loose programmes for each of the sites to define the brief, however the designs are not restricted by these functions. More so the function must conform to the architecture produced through the design process. The diagram opposite illustrates the site topics, functions and key themes (Fig. 91).



5.0 Design - Case Studies

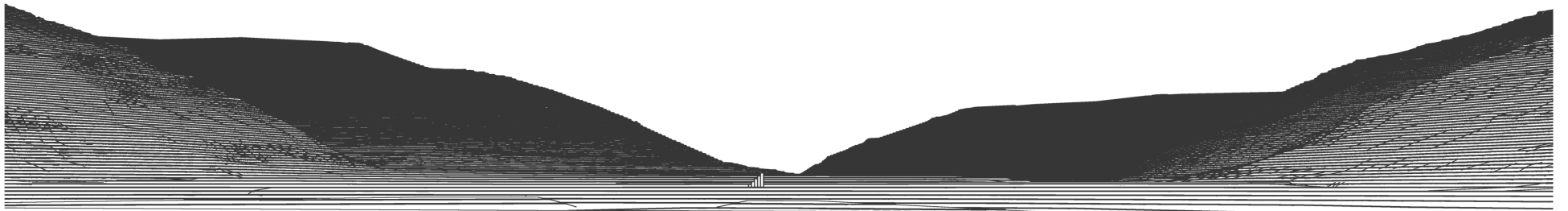
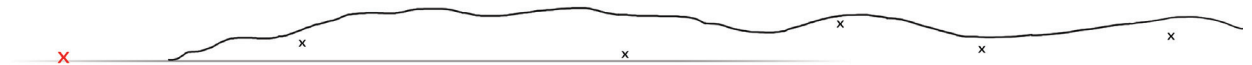


Fig. 92 Conceptual computer model representing the generic stair form as a visual symbol

Site One - Symbolic

In the Presence of Absence...

1.



5.1 Site One - The Stair as Symbolic

5.1.1 Site Analysis

The first site is located near the start of the walk just past the Ferry Terminal, marking the start of the walk. Along the path is the grave of Ropata Te Roa who died in 1894. He was in charge of many of the areas farming ventures and operated boats which transported produce to Auckland markets (Auckland City Council, 2008). There is also an old boat shed on the waters edge. As visitors walk along the beach front to the start of the walk they can look out over Matiatia bay as a reminder of the passage they have already taken. Local visitors or those approaching by land will experience a different perspective.

The aim of this architectural intervention is therefore to symbolise the beginning of the journey. However, this must be ambiguous as this point can also be the end if people choose to complete the walk in reverse. This is more common during the year when the exhibition is not running. As shown in the site images (Fig. 00) there was an upturned dingy lying on the path. This acts as an obstacle at the start of the trail which the visitor is forced to interact with. I therefore wanted the staircase design to prompt both physical and emotional interaction. The connection with the water is also significant in establishing a narrative awareness and guiding people to the walk.



Fig. 93 Site One photographs - Start of the walk in Matiatia Bay showing the beach and boat shed

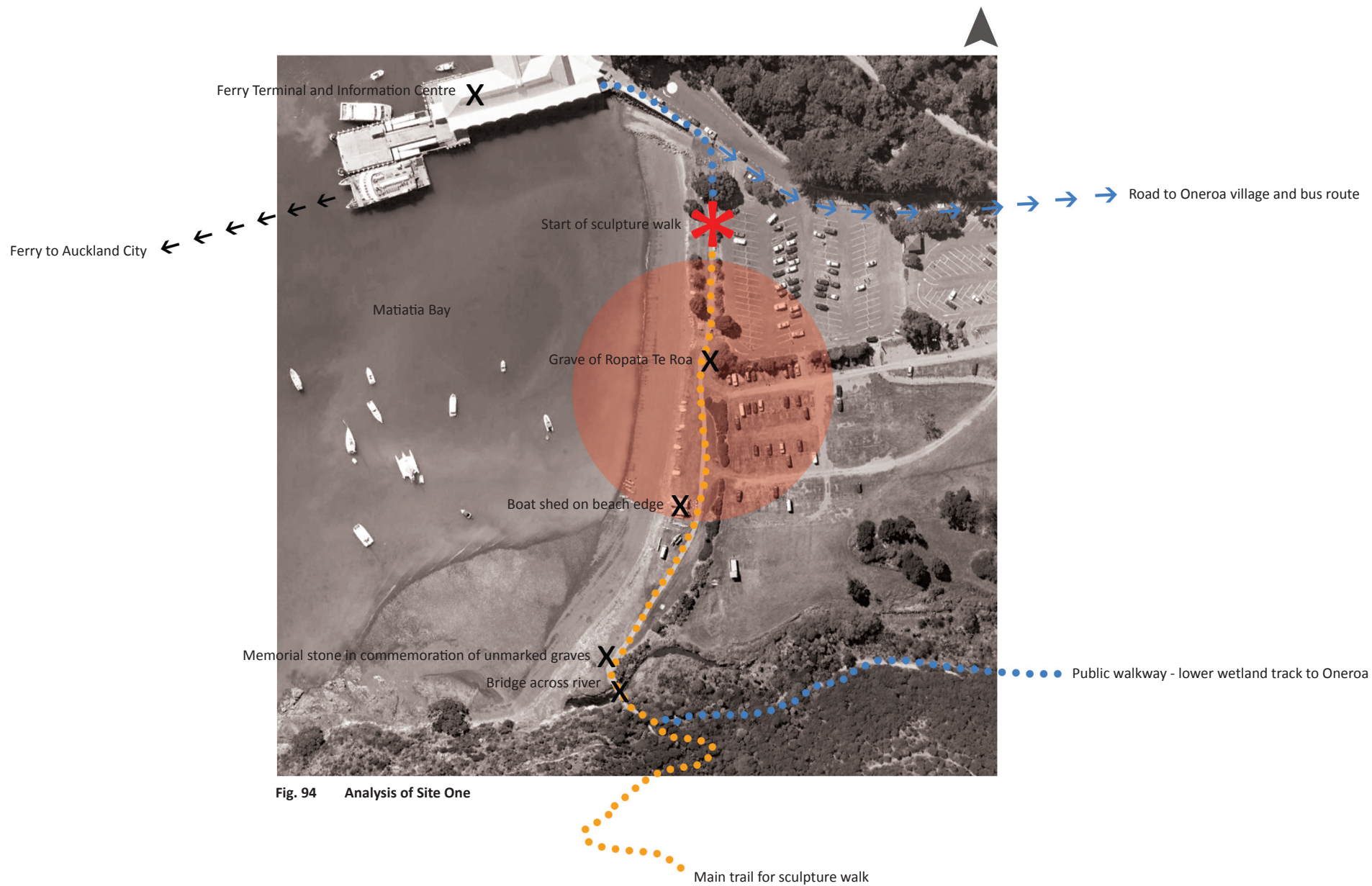


Fig. 94 Analysis of Site One

5.1.2 Precedents and Inspiration

This staircase intervention was inspired by the concept of a stile. Stiles are traditionally used for ease of passage across a boundary, fence or gateway. They can either take the form of steps, ladders, or platforms (Fig. 95, 96, 97). The stair/stile will act as an obstacle on the path which visitors must interact with in order to 'enter' the walk. As the walk can also be completed in reverse, this design must also be symbolic of ending the journey. The shape therefore symbolises the contradictory relationships of starting and ending, entering and exiting, presence and absence, defined and undefined space.

The most common representation of the staircase is the image of a stepped outline. This universal symbol will act as the basis for the exploration into the stair as a visual sign or marker. The boundaries of recognition are investigated by examining the fundamental components of the staircase.

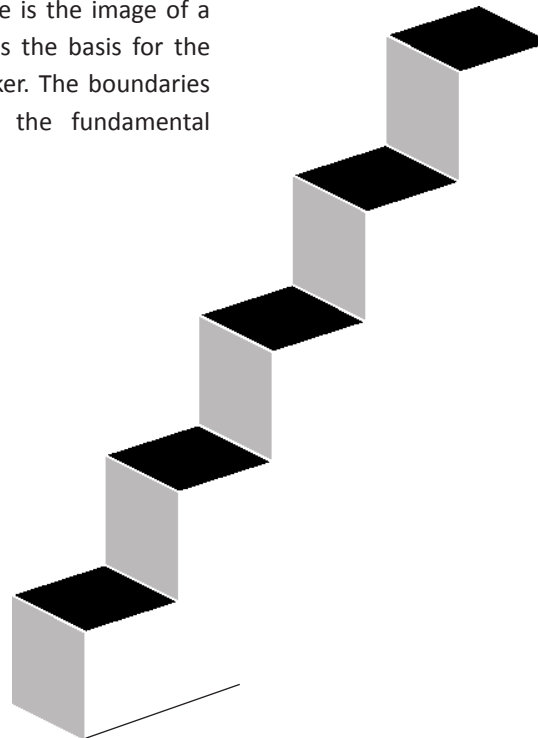


Fig. 95 Stile in the form of a ladder



Fig. 96 Stile in the form of stairs



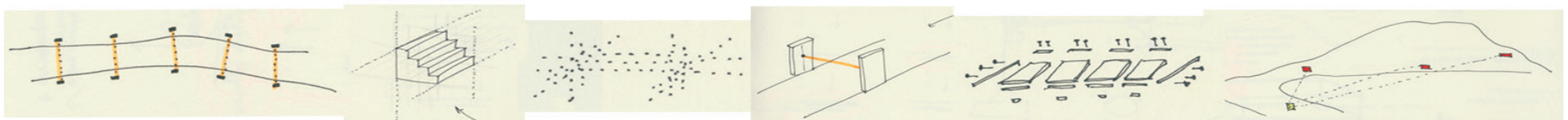
Fig. 97 Stile in the form of stacked platforms

5.1.3 Conceptual Exploration and Development

I began by exploring the form of a single step. Using a standard stair module (1200mm x 190mm x 220mm), I experimented with fragmenting or expanding the volumes (Fig. 99). The various investigations considered a variety of modules and techniques to redefine the stair symbol. The intention was to break apart the expected form of a stair to encourage visitors to question the necessary components of its construction. What is required to convey the function and meaning of a stair?

I have explored separating the form in the x, y, and z directions to examine the effect of opposing planes. It was also important to establish a visual relationship with the next interventions located along the hillside. This enables the viewer to locate themselves within the narrative. People can see where the path will take them and catch glimpses of the forms. Viewing slots or frames allow the user to contemplate the journey at the start, or to reflect on the journey at the end.

The form becomes an object in space. The interaction may be physical and conscious, however it may also be subconscious. People must either consciously step over the form or move around it to avoid the obstruction. Are you subconsciously walking over it or is it a conscious decision? It is as though you are stepping through the entrance to the space. The stile form acts as a point of interaction, either to step over, sit on, walk around, or contemplate.



5.1.4 Final Outcome

The final design takes the apparent form of a generic staircase. When viewing from the water on the ferry, the architecture is visible as a stepped symbol. However, upon approach of the structure the true form is revealed. The sequence of changing events and viewpoints as one travels toward the stair is reminiscent of a film strip (Fig. 101). The architecture functions symbolically in a variety of ways to introduce meaning. First as a physical symbol, as symbolic of undertaking the journey, and also as representative of the elements of the stair.

This image of the stair is composed of a number of fragments strewn across the pathway. We begin to see references to particular features of the stair; the vertical riser, the horizontal tread, the diagonal slope of the stringer, the landing, and the handrail. The 'objects' symbolise parts of a reconstructed structure. Together these objects create a form reminiscent of a stile. The inhabitable space is loosely enclosed by the modular segments. The defined space is both positive and negative, absent and present.

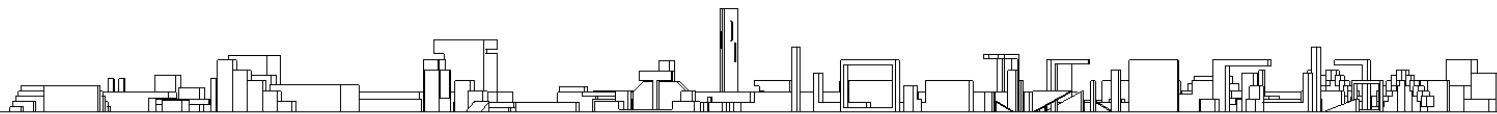


Fig. 98 Elevation of experimental concept models

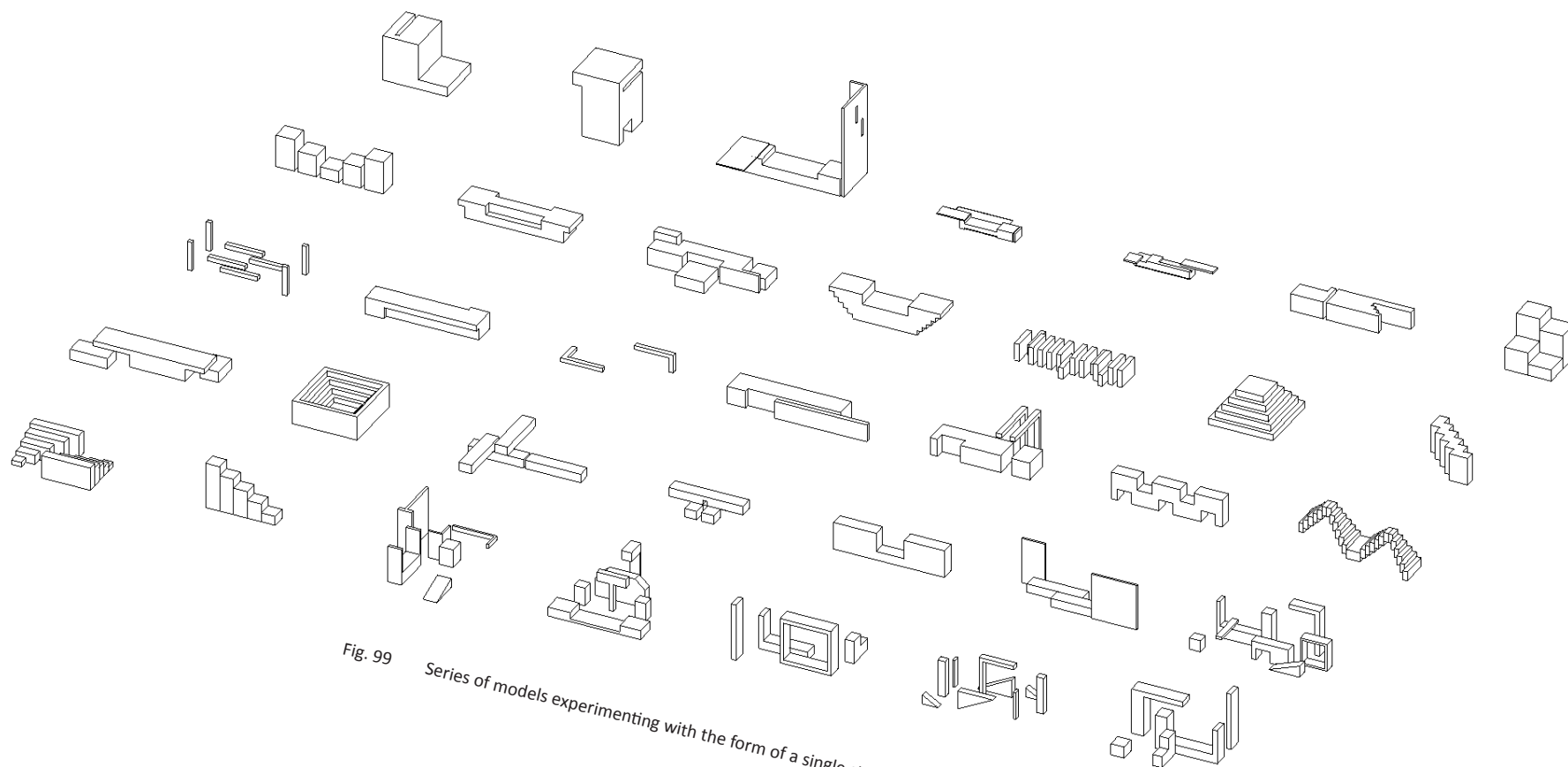


Fig. 99 Series of models experimenting with the form of a single step inspired by the concept of a stile

The design appears as a stair starting at ground level and leading up, pointing to the path continuing up the hillside (or heading back down in the opposite direction). The white-plastered components are reminiscent of objects scattered in the surreal landscape of a painting. The arrangement questions the symbolism of the stair. Is the broken shape still symbolic of the originally perceived form? This visual guide controls the visitor's gaze, guiding the eye toward the hillside and framing the following interventions between the horizontal and vertical planes (Fig. 102).

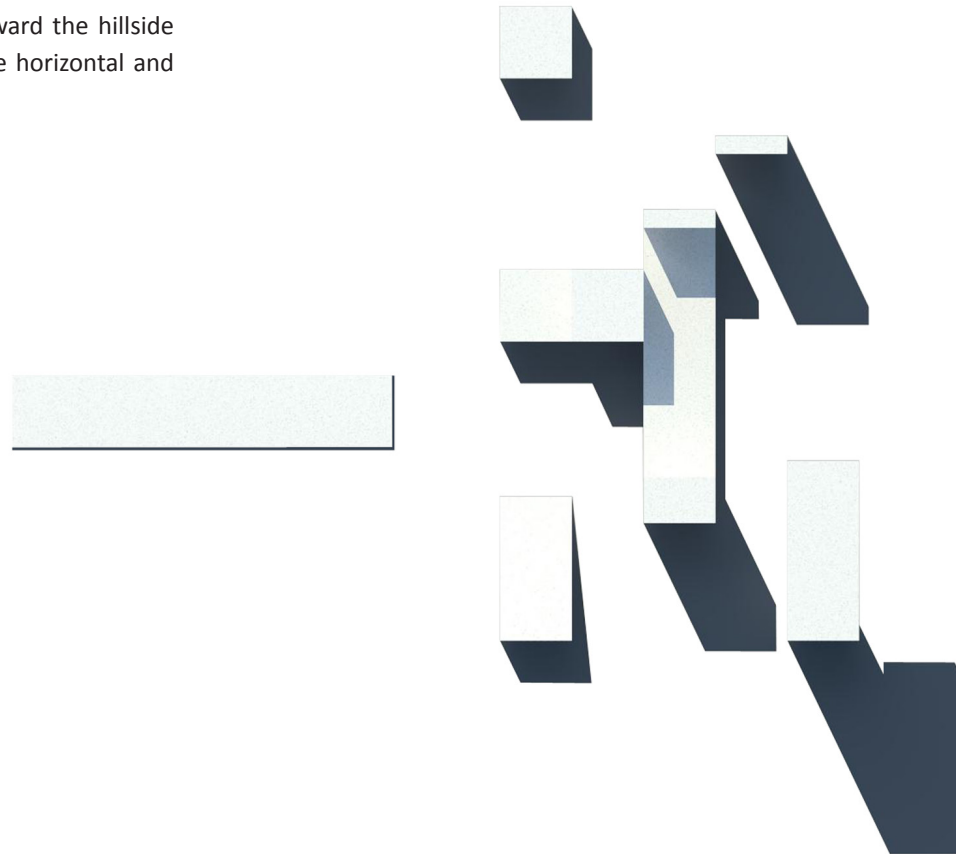


Fig. 100 Plan view of objects with shadows

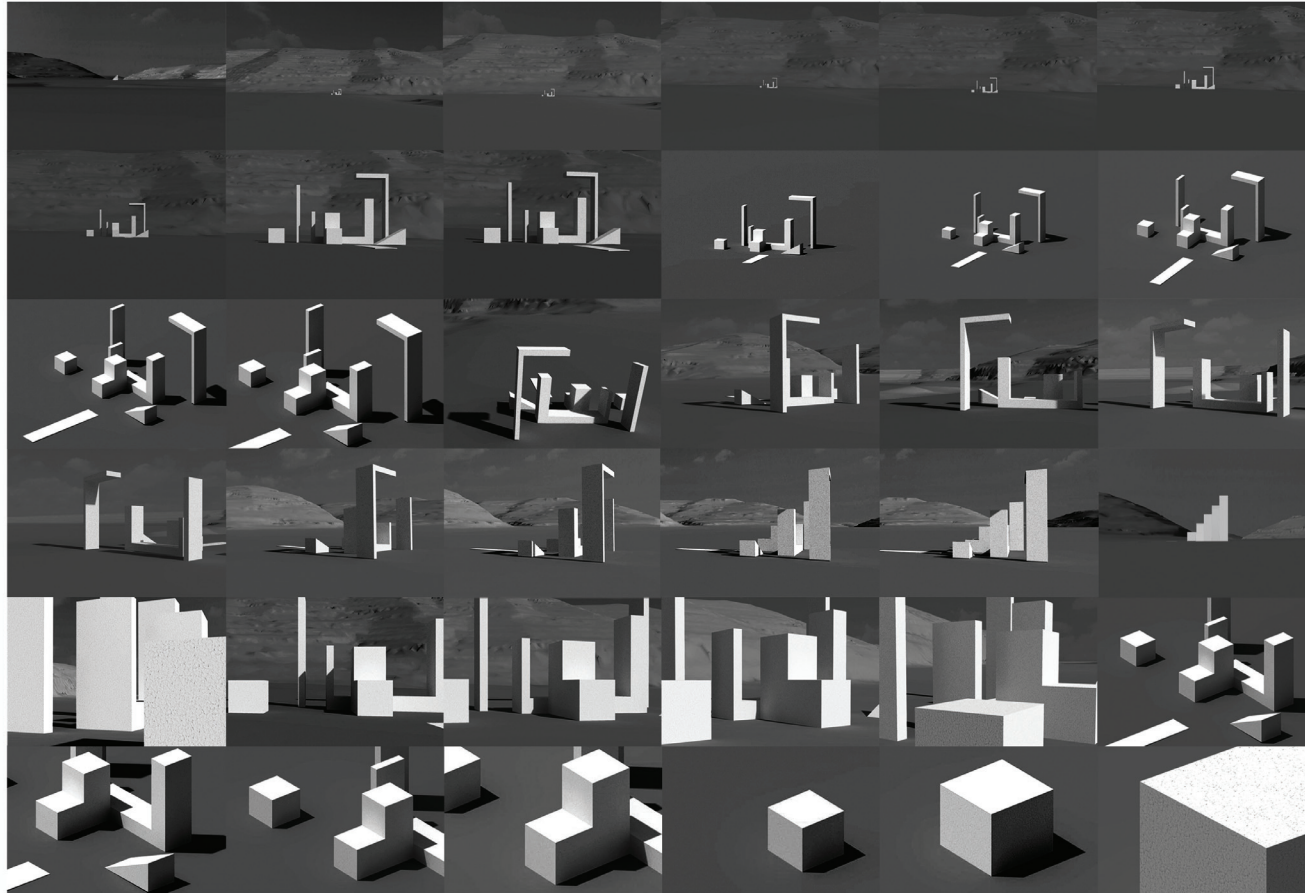


Fig. 101 Sequence of images showing the journey from the ferry to interacting with the objects in the landscape

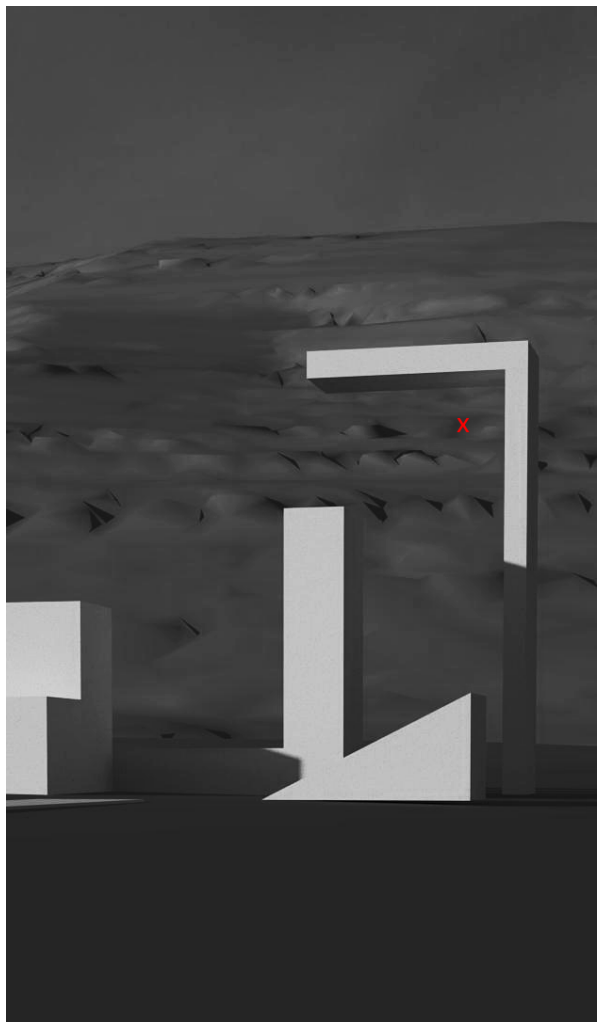
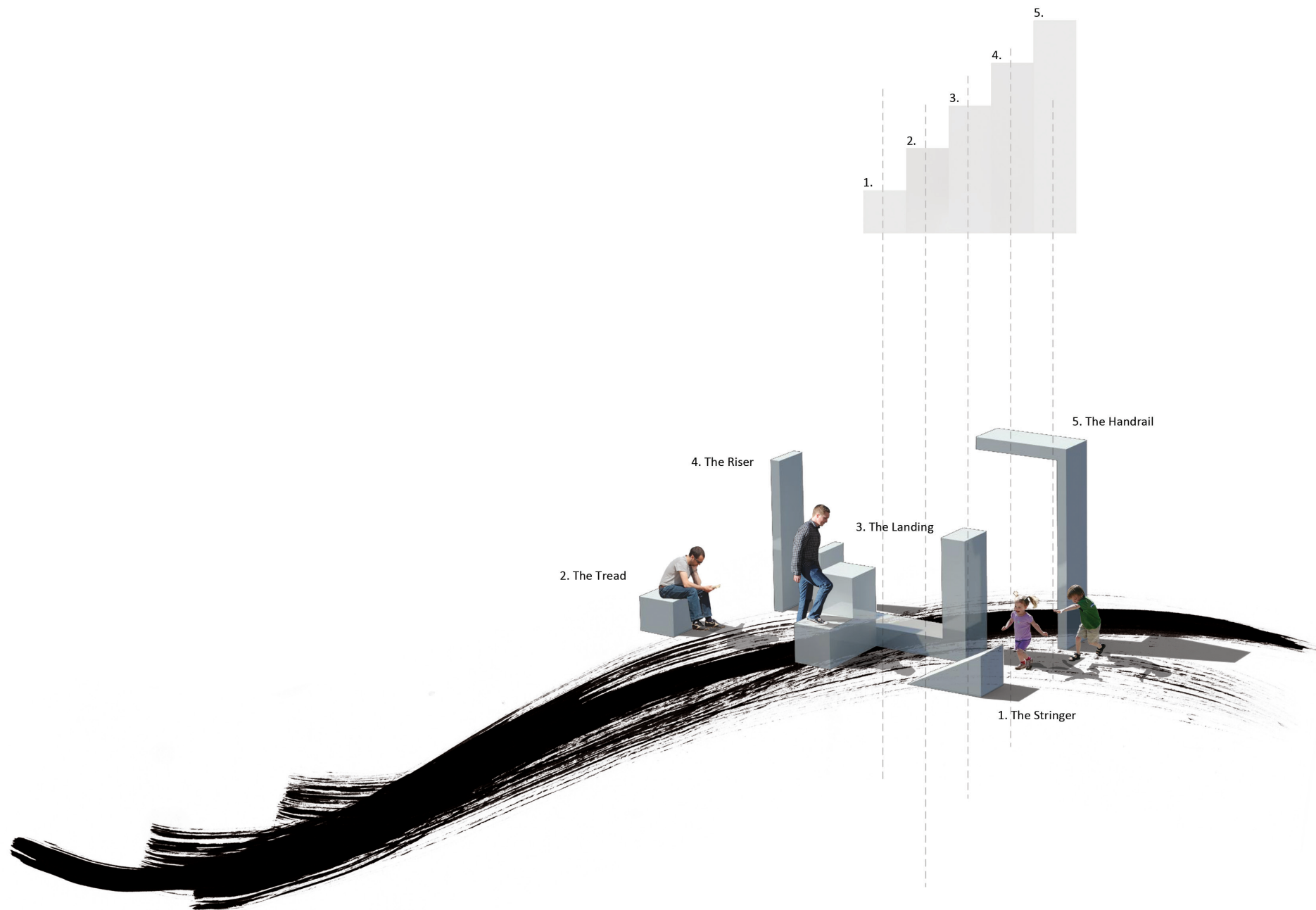


Fig. 102 The form framing the location of site two on the hillside above

Fig. 103 Elevation of intervention showing generic form and view of actual form revealed



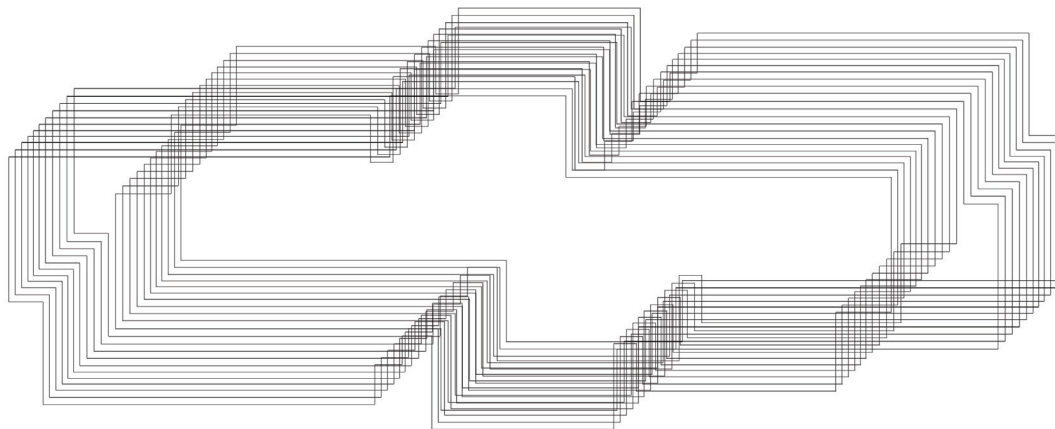


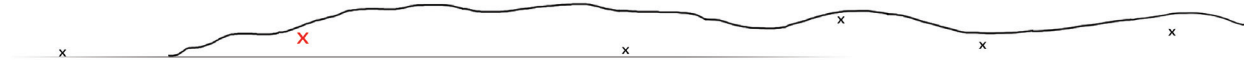
Fig. 104 Experimental drawing exploring the form of a labyrinth and overlapping composition

Site Two - Illusion

Stratified Shadows...

111

Σ.



5.2 Site Two - The Stair as an Illusion

5.2.1 Site Analysis

I chose this site due to the effect of light filtering through the trees. The stair illusions in M. C. Escher's drawings show spaces that could not be physically possible in the presence of gravity. The set designs for the case study films *Labyrinth* and *Inception* also devise worlds in which the illusion is an unreality. However, the use of shadows can solve this issue and allow the illusion to be experienced in reality. The effect of changing shadows throughout the day will create the appearance of staircases extending in various directions, a constantly evolving form and experience.

On the site a bridge leads to the pathway up the hillside. Next to this is a group of unmarked graves with a memorial plaque asking visitors to 'respect the sanctity of this sacred space'. On the other side is a Wood Pigeon sculpture in memory of Don Chapple 1929-2005. He contributed many years to the protection of native birds through this area (Auckland City Council, 2008). The shadows reflect this sense of reminiscence and internal contemplation.

As you ascend the slope glimpses of the harbour can be seen below, hinting at your location. The winding path disorientates the perception of direction, until all is revealed when emerging from the tress near the summit. The path features a number of existing steps and stairways aiding ascent. The design for this site must act as a guide for visitors, an expression of shadows and illusions, the representation of a surreal experience, and an advocacy for architecture as a stepped form.



Fig. 105 Site Two photographs - showing the bridge over a stream and trail through the bush up the hill

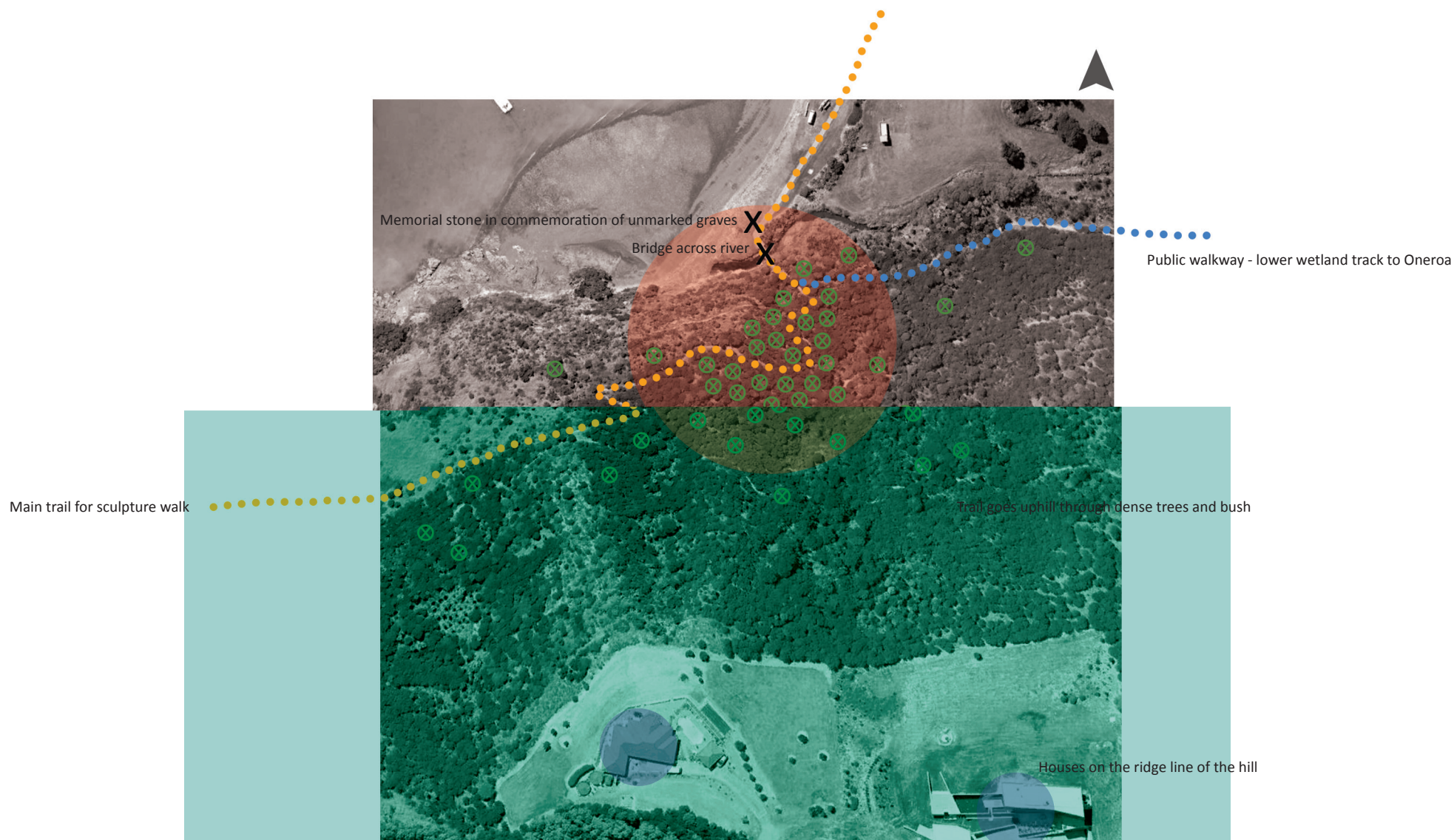


Fig. 106 Analysis of Site Two

5.2.2 Precedents and Inspiration

I was strongly influenced by the stepped forms Carlo Scarpa used in his work. His techniques of layering create the appearance of numerous expressions of stairs. The stepped form is integrated with architecture. This linear 'ornamentation' and attention to detail was a definitive feature of Scarpa's architecture. As Schultz (2007) describes, the principle of layering can be used as a formative method allowing multiple elements from different origins to be integrated into the whole. The technique of stratification is used to define space and represent levels of history in the objects construction.

Scarpa's layered architecture makes visible the time-related sedimentation of material and meanings. It is especially at points of transition and interface that layering becomes a narrative element that elucidates the tectonic qualities of the building. (Schultz, 2007, 5)

As shown in the images of Brion Cemetery (Fig. 107), the changing light qualities cast stair shaped shadows on the facade. I therefore wanted to explore how shadows could be used to create illusions of more stairs. A surreal representation of space and time is established through the relationship with the sky. The layers project in contrasting directions forming both positive and negative spaces. This fragmentary architecture gives the impression of an existence in which layers could be added to over the years, or left neglected to dissipate into ruin. The structure becomes a manipulable presence awaiting either psychological or physical interaction.

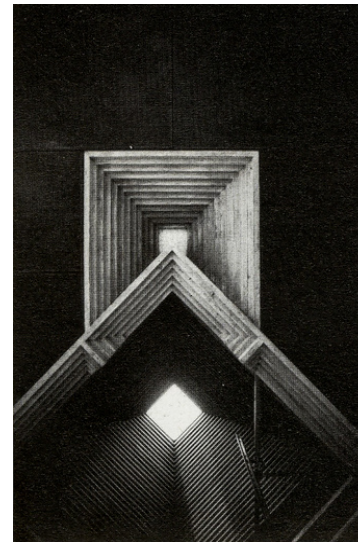
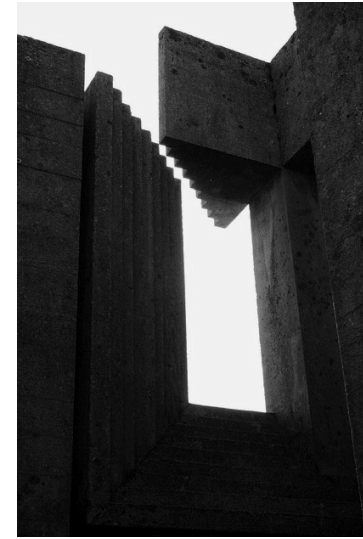
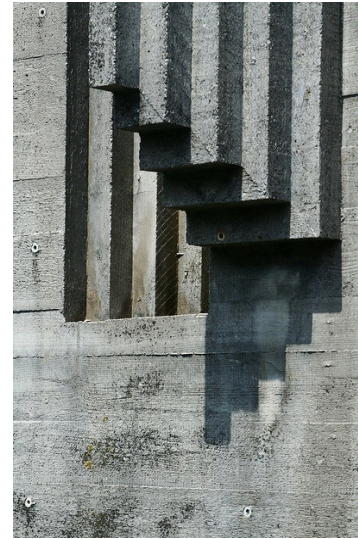
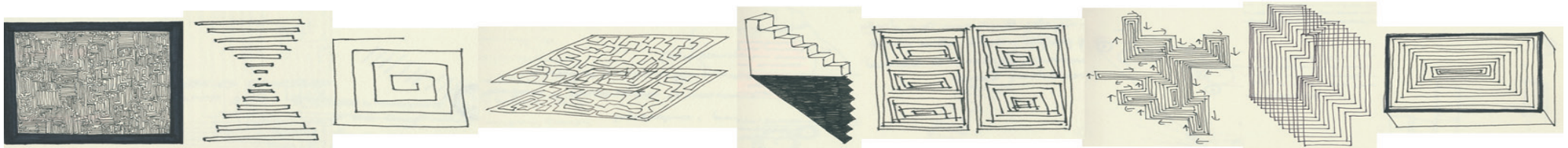


Fig. 107 Carlo Scarpa - Brion Cemetery (San Vito d'Altivole, Italy) 1970-72

5.2.3 Conceptual Exploration and Development

In reference to Scarpa's designs, I completed a series of wax models to experiment with various stepped forms. The structures have a tomb-like resemblance, reminiscent of a sarcophagus (Fig. 108). There is an impression of memory, mystery, and emptiness. With the addition of light the shapes are transformed into architectural space. The contrasting shadows evoke an ambiguous ethereal quality, dissipating into the surrounding darkness (Fig. 109). The stairs lead in different directions with the resultant shadows acting as the extension of tangible space.

The labyrinth has also influenced this design, not so much in physical translation, but in the composition of elements creating a labyrinthine movement through space. Escher's images represented infinite loops and intersecting realities. The overlapping levels, planes, and directions allude to implausible compositions and deceptive illusions. The multitude of layers can create a variety of areas and altered stages of experience. Spaces within spaces, within spaces.



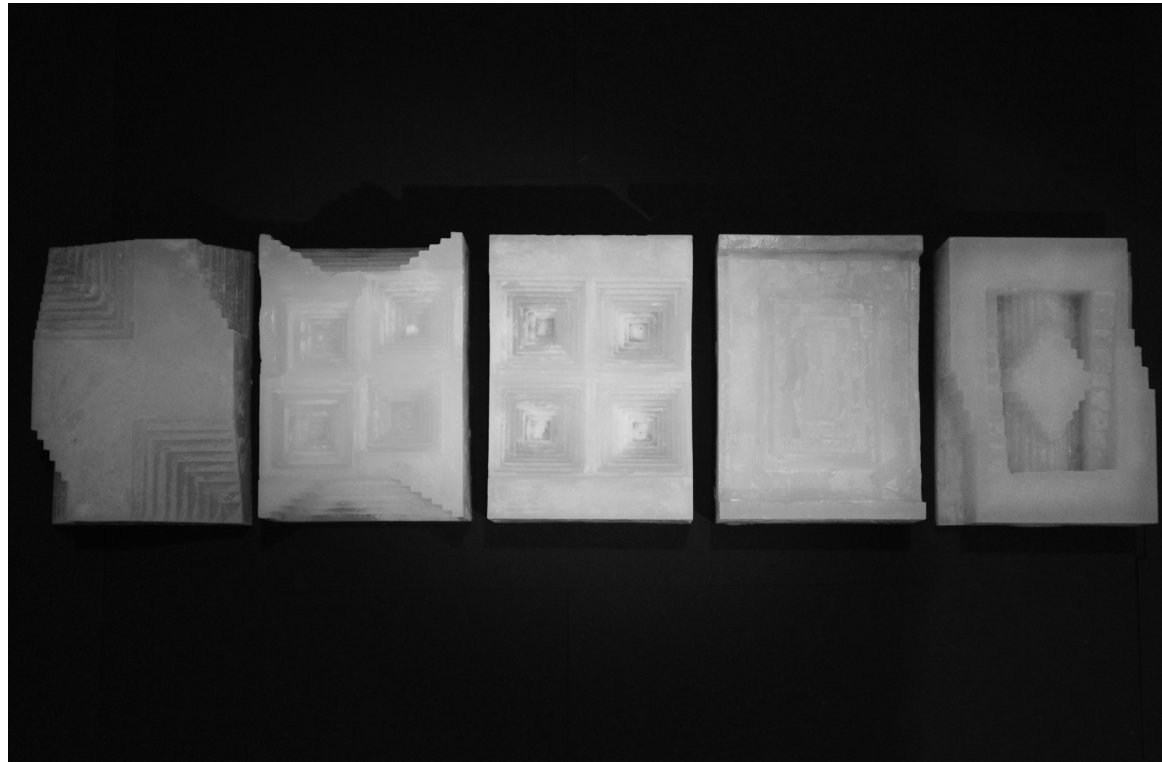


Fig. 108 Experimental wax models testing various forms of stairs in different directions

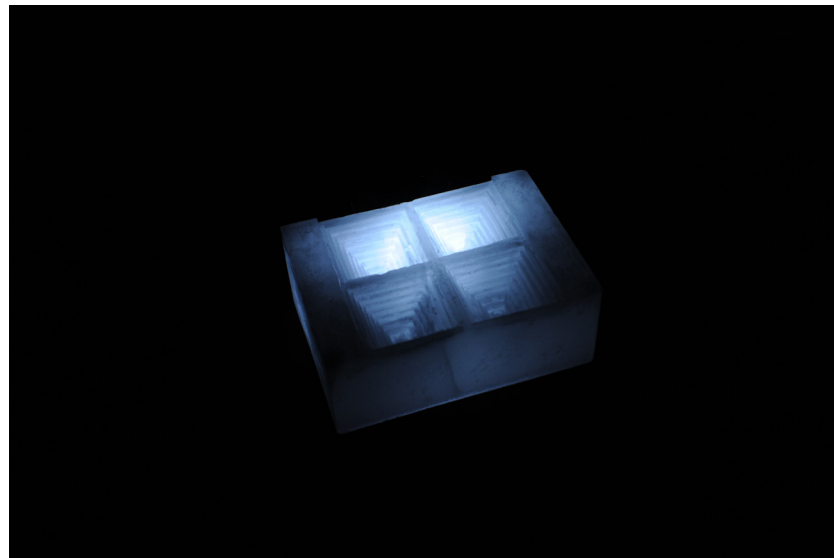
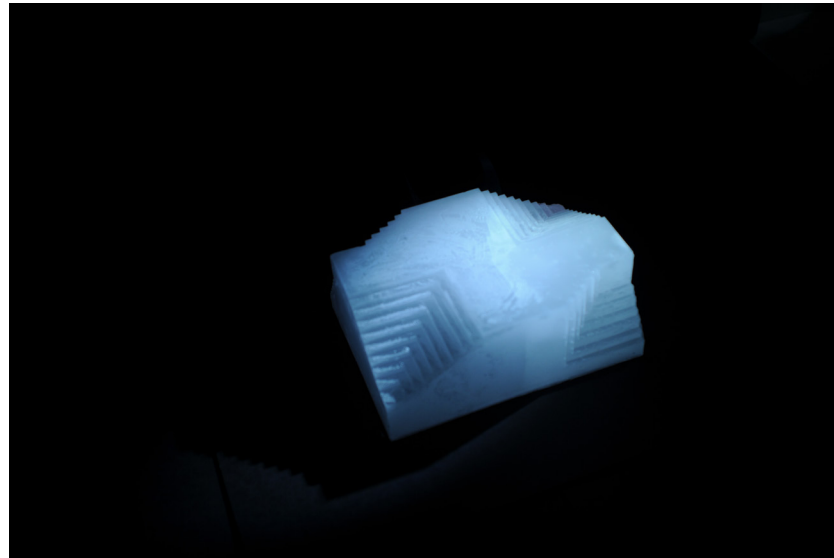
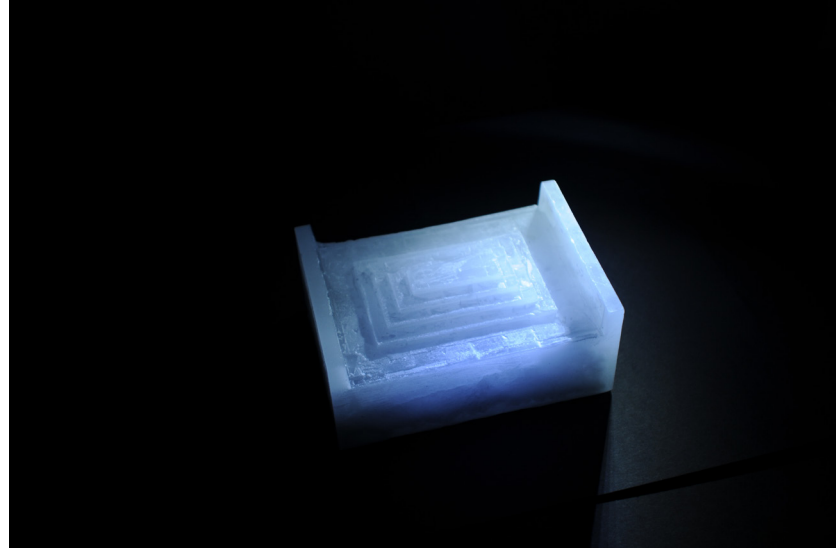
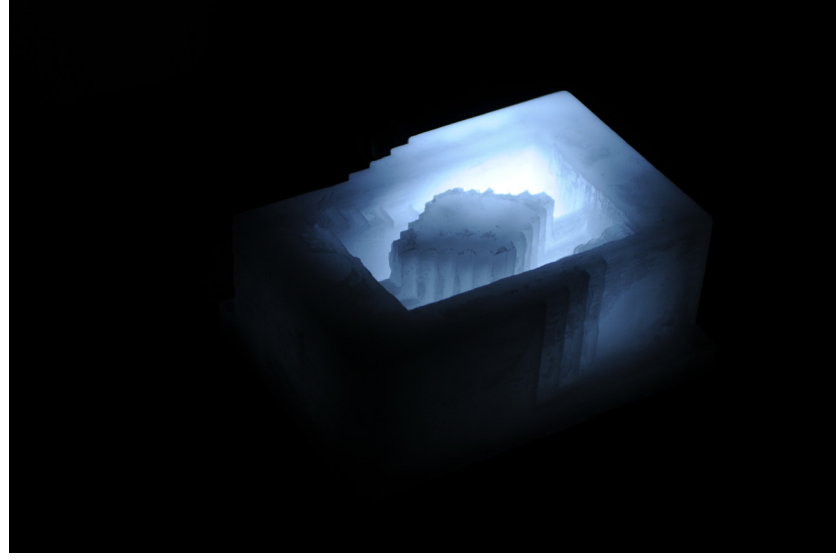


Fig. 109 Photographs of wax stair models to create illusions through the contrasting effects of light and shadow



5.2.4 Final Outcome

The final architectural intervention combines a number of techniques to devise illusive shadows. The stepped form is created through layers of concrete stairs leading in contradicting directions. The design is reminiscent of monumental pyramidal architecture. There is an illusion of timelessness which also adds to the deception of space, time, and experience. The building takes the visitor on a winding journey, up and down the hillside.

As shown in the series of interior images (Fig. 112), the shadows become an extension of the surrounding architecture. They mould and manipulate the form of the spaces, creating the effect of even more stairs leading to unknown realms of inhabitation (Fig. 111). The soft cast shapes seem impermanent and ethereal. Across the day and during varying times of the year, the effects of light and shadow will constantly alter the experience. Movement of the surrounding trees also adds to expression of evolving shadow forms (Fig. 110). Visitors interacting with the architecture contribute their own silhouette to the fleeting expression of the surrounding shapes.

Architecture has the opportunity to manipulate reality and explore new possibilities in spatial design. With the use of light and shadow, the dream-like stair appears tangible. The stair is not only a means for movement between levels, but a chance to engage the senses and the entice the imagination.



Fig. 110 Stepped form of intervention set amongst the trees showing shadows cast on the structure

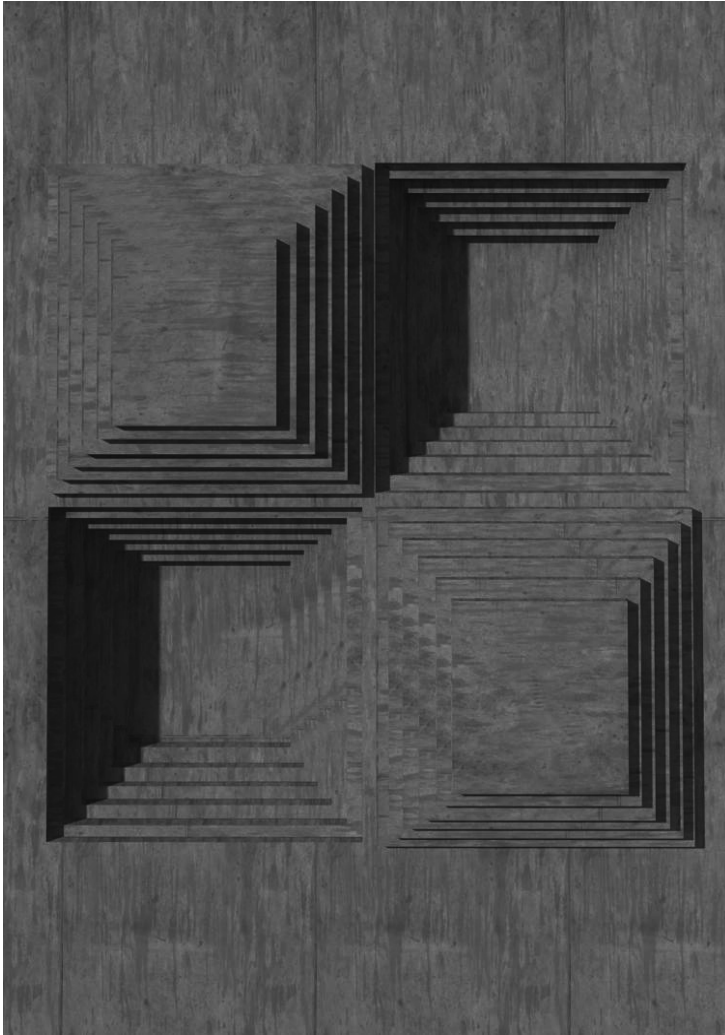


Fig. 111 Image of exterior wall showing the formation of stepped shadows

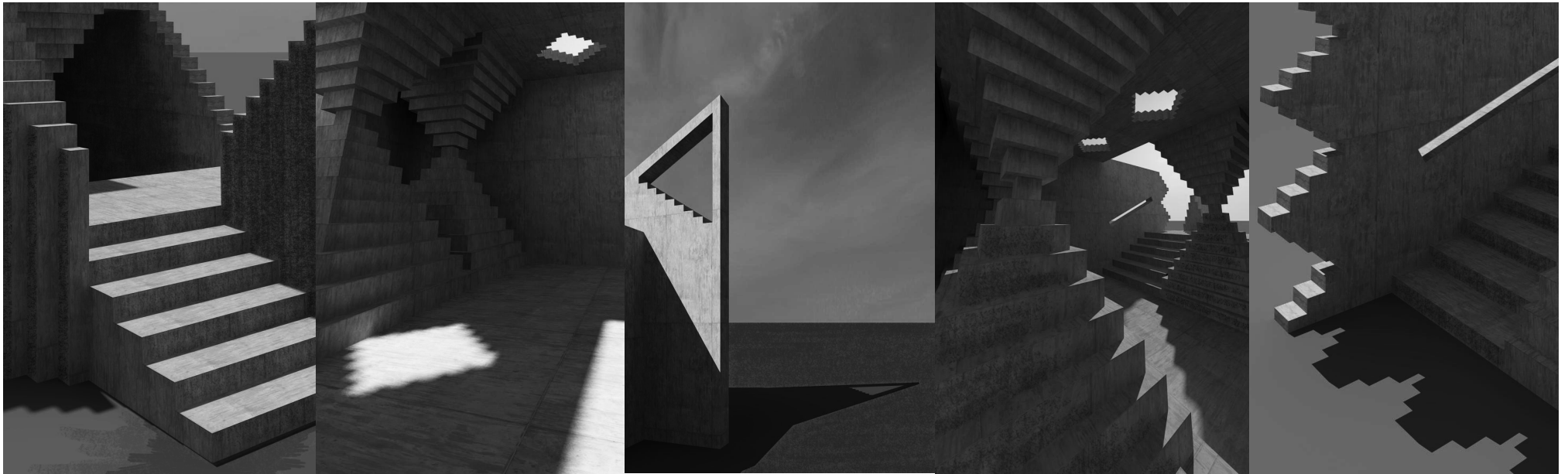


Fig. 112 Interior images showing the effects of light and shadow to create the appearance of more stairs



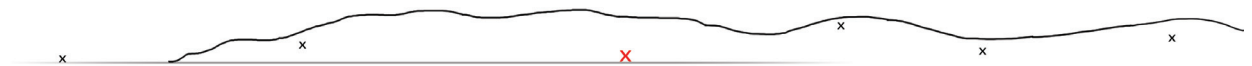
Fig. 113 Illustration of an Italian camera obscura from the 1600's

Site Three - Transition

An Ephemeral Vision...

125

ε.



5.3 Site Three - The Stair as a Transition

5.3.1 Site Analysis

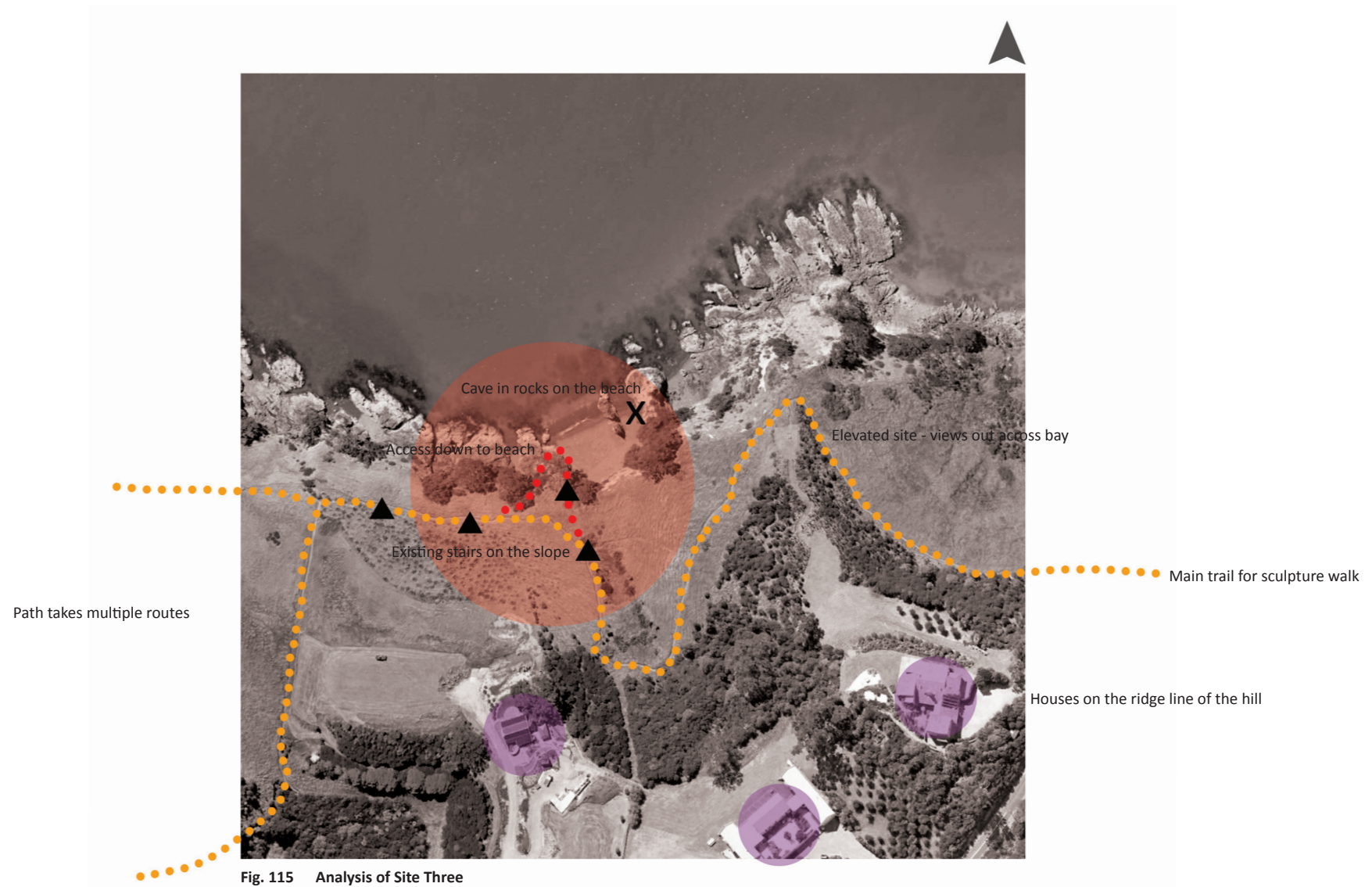
This site represents the transition between the path and the beach. The sculpture walk does not actually go down to the water, however there is a small trail allowing access to the beach. The path winds with the contours of the landscape. There is a cave on the beach which water runs in and out of depending on tide levels. The rocky outcrop must be carefully manoeuvred to reach this area.

A number of existing steps comprise this section of the walk to aid movement up and down the slope (as shown in Fig. 115). I have therefore chosen to incorporate these with the new structure. The intention is for the structure to encourage people to consider the form of the staircase and observe other peoples movement, interaction, and behaviour. Views out across the water and bay must also be highlighted.

There is potential to explore the effect of many surreal contradictions around this site; land and sea, earth and sky, path and beach, light and dark, interior and exterior, ascent and descent, material and image, reality and unreality.



Fig. 114 Site Three photographs - showing existing staircases on walk along the hillside and down to the beach



5.3.2 Precedents and Inspiration

While site two used influence of the labyrinth translated as movement and spatial experience, this design looks at the physical composition of the one route circulation. The sculptor Richard Serra creates large steel structures intended to create specific spatial qualities. The conical and spiral forms shown in figures 116 and 117, prompt movement around and between the unique spaces. The occupant becomes aware of the transition, yet the exact boundary is undefined. Architectural space is defined by the monumental volumes.

Scarpa's work also frequently dealt with boundaries and borders, thresholds and gaps. 'The *boundary* and the *threshold* are absolutely indispensable to the constitution of Scarpa's architecture' (Frampton, 2006, 365). These examples will be used to inform the design process in terms of layout and configuration.



Fig. 116 Richard Serra - *Band* 2006 (steel sculpture) - In construction
Installation at the Museum of Modern Art

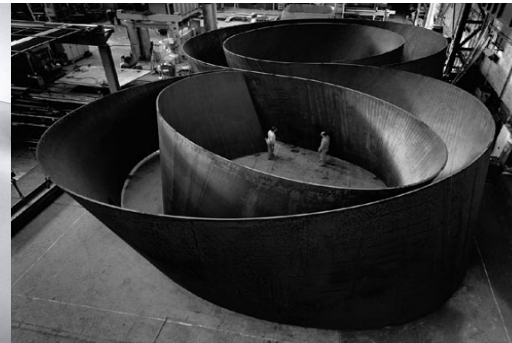


Fig. 117 Richard Serra - *Sequence* 2006 (steel sculpture) - In construction
Exhibition at the Museum of Modern Art



When considering the function of this intervention it was important to integrate the architecture into the surrounding landscape. Due to the assortment of existing staircases located in this site, I wanted to incorporate the influence of these structures into the design. Linking to the previous filmic research, I explored the concept of capturing an image for the viewer to experience. This cinematic relationship to the 'image' can be considered the representation of a still frame suspended in time.

A camera obscura is a device used to transpose an image onto an interior surface through light transfer. Berzl and Deutsch designed a camera obscura in Greece on the foundations of a WWII anti-aircraft base (Fig. 118). Light enters the dark cylindrical room through twelve small openings encircling the building. A 360 degree panorama is then projected on the interior walls upside-down and reversed. The effect is a surreal experience of the surrounding exterior landscape. This design programme combines the disciplines of sculpture, art, and architecture into one blurred definition.



Fig. 118 Camera Obscura - Franz Berzl and Gustav Deutsch (Aegina, Greece) 2003

5.3.3 Conceptual Exploration and Development

This intervention therefore takes the form of a camera obscura intended for viewing the existing staircases on the site. I constructed a pin-hole camera to recreate this effect and photographed the images projected on the interior of the box (Fig. 119). There is a surreal dream quality to the images with the distortion, rotation, and washed out colours. The soft focus of light and shadow gives the effect of a transient and ephemeral space caught in time. Mirrors can be used to reverse the images, however I have left them upturned to enhance the sense of a dream-like disarray.

This is reminiscent of the transitory period in sleep where one dream becomes another. As well as the oneiric zone between sleeping and waking. This transitional state just before sleeping is termed 'hypnagogia'. Threshold consciousness establishes the opportunity to explore the concept of a surreal transition between realities.

...the remembered dream is only accessible in the waking state, by which it is influenced and transformed. The transformation of a dream encompasses the distance between the reality of the dream and the waking reality... (Vesely, 2010, 35)

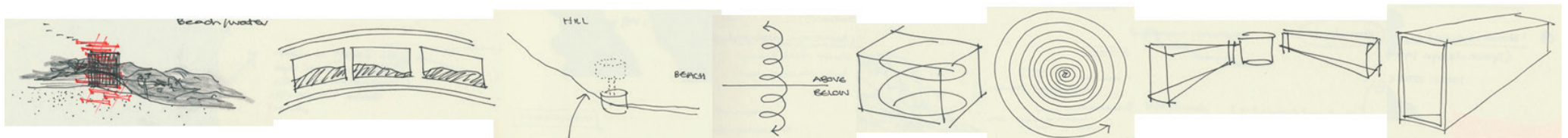




Fig. 119 Experimental photographs of stairs in Wellington City taken using a pin-hole camera

5.3.4 Final Outcome

A metallic black spiral staircase perches on the beach edge. People transition into the darkness at the base of the structure. Depending on the quality of light, visitors can view the exterior stairs as images projected on the interior walls of the central core as they ascend the staircase. The reflective surface also displays a distorted mirror image of the existing stairs and surrounding landscape.

Small holes positioned around the sides of the structure allow light into the interior space to project the images. Upon reaching the top of the staircase, visitors are then exposed to the light again, emerging at the top of the form. A wooden slatted viewing platform is located here to provide a vantage point in which to look outward across the water.

A unique relationship and perspective is established between the experience of the physical staircase and the view of the staircase as an 'image'. It is a chance to step back and consider the visual significance of the stair as object, metaphor, and architecture. One can also observe the movement of other people walking up and down the stairs.

Not only is there a transition between interior and exterior, but also light and dark, the physical and the image, reality and unreality, the tangible and the dream. Although the light pictures depict real forms, the viewer feels removed from this as the visual representation evokes dream-like distortions which engage the subconscious being.

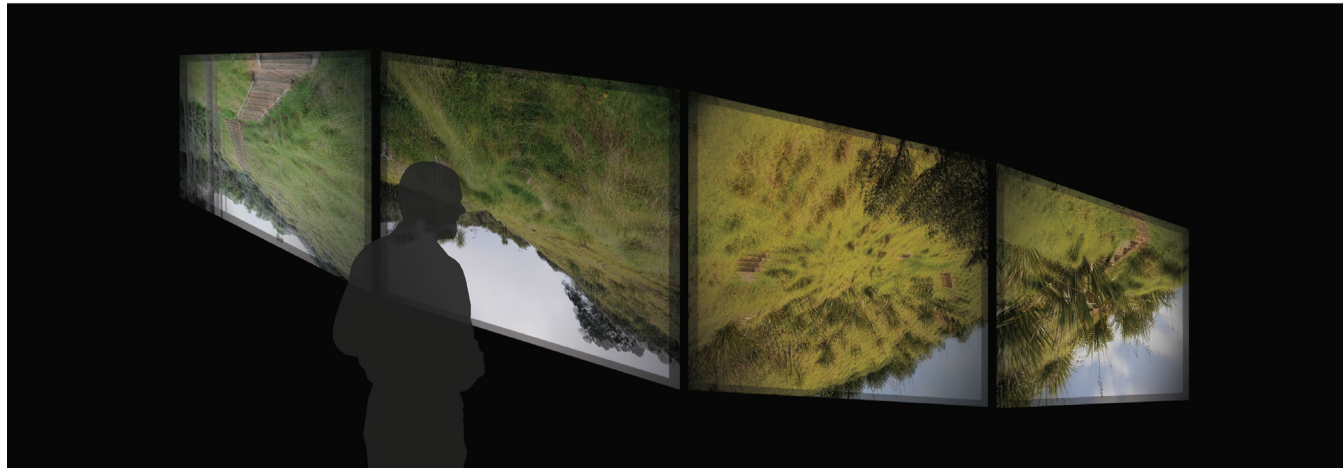


Fig. 120 Interior image of the Camera Obscura showing the exterior staircases projected on the inside wall

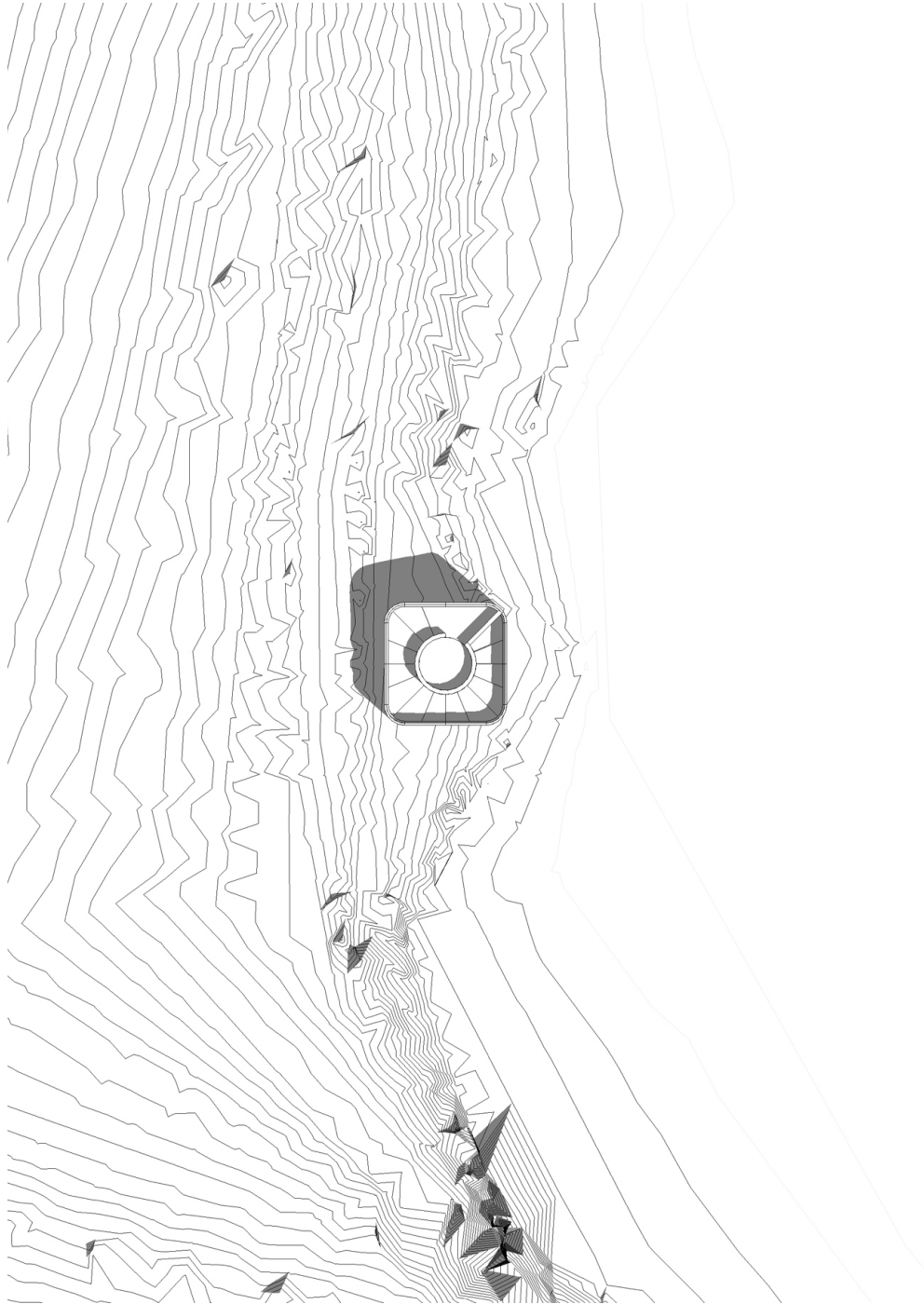


Fig. 121 Plan view of the staircase perched on the beach edge



Fig. 122 Interior image of the staircase showing the transition between light and dark and exterior to interior



Fig. 123 View of the Camera Obscura staircase from the water

Fig. 124 Exterior view of the Camera staircase set in the surrounding landscape and showing the projection lines

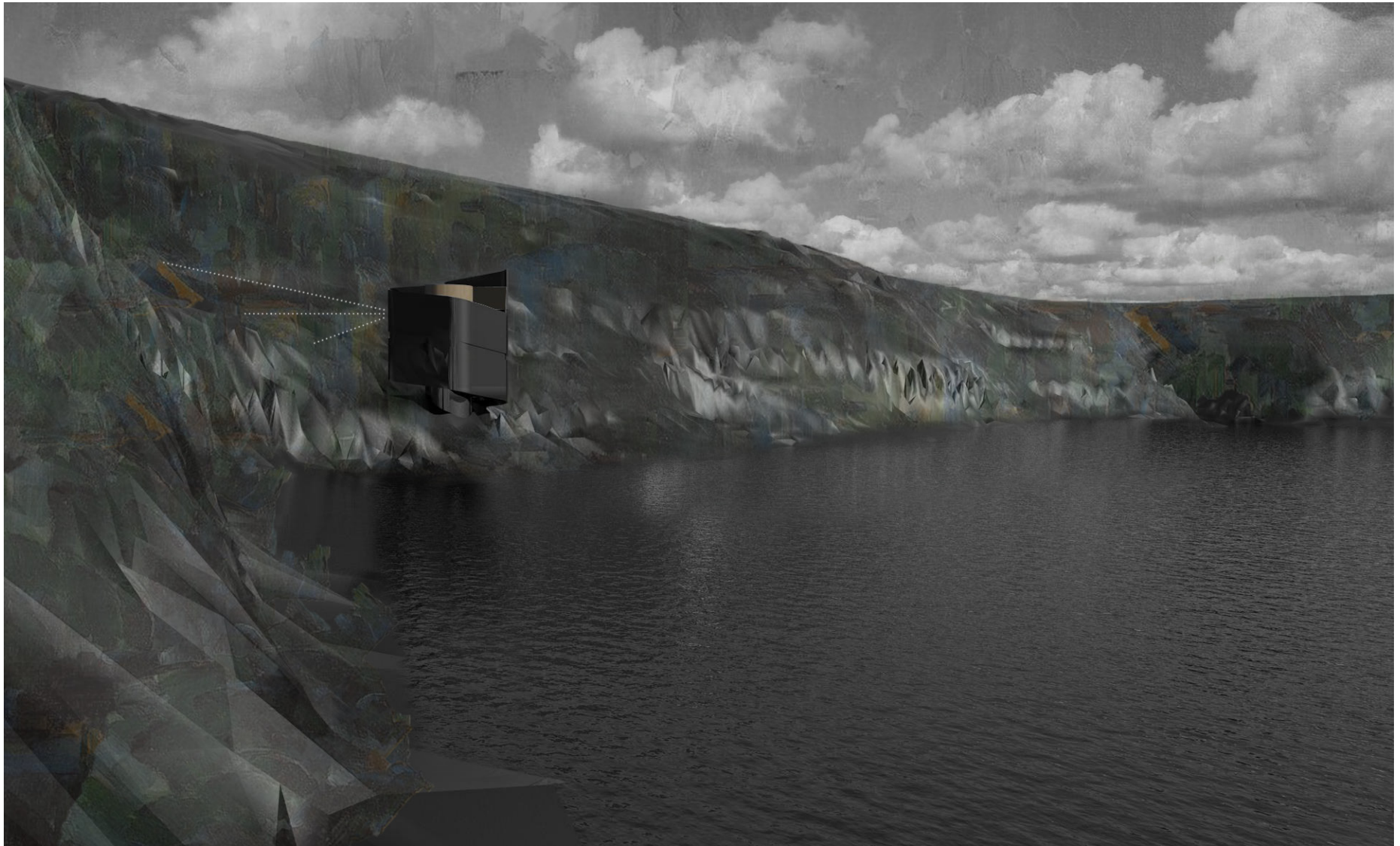


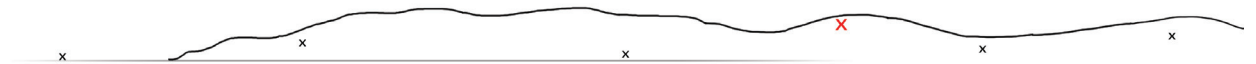


Fig. 125 Photograph of initial conceptual model for pulley mechanism

Site Four - Kinetic

The Point of No Return?...

4.



5.4 Site Four - The Stair as Kinetic

5.4.1 Site Analysis

This section of the headland was gifted by the first pakeha landowner, Fred Alison, to a Maori family in appreciation for saving his nephew from drowning (Auckland City Council, 2008). The area is now a natural reserve owned by the council and open for public access. The site becomes a dramatic peak of the walk, venturing out to the edge of the peninsula. The sculpture walk does not generally go all the way to the cliff side, however there is an existing pathway. I have extended the walk out to this point to allow visitors to greater experience the expansive views.

This is the first intervention seen by visitors arriving by boat. The design must therefore act as a bold statement, enticing people to venture on the walk. The design intention is to frame the surrounding views and assist movement around the precarious location. It is the pinnacle of the walk, the summit, a climactic edge, and the perceived midway point of the walk.

The posture of the body is dependent on whether movement is in ascent or descent. Bryson (2010) therefore suggested that the safest and most practical staircase would alter in response to this change in requirement for travel up and down. The aim of this design is to investigate how motion influences the experience of the staircase.



Fig. 126 Site Four photographs - showing the peninsula and view of the surrounding islands

Views out across the water to surrounding islands and Auckland city

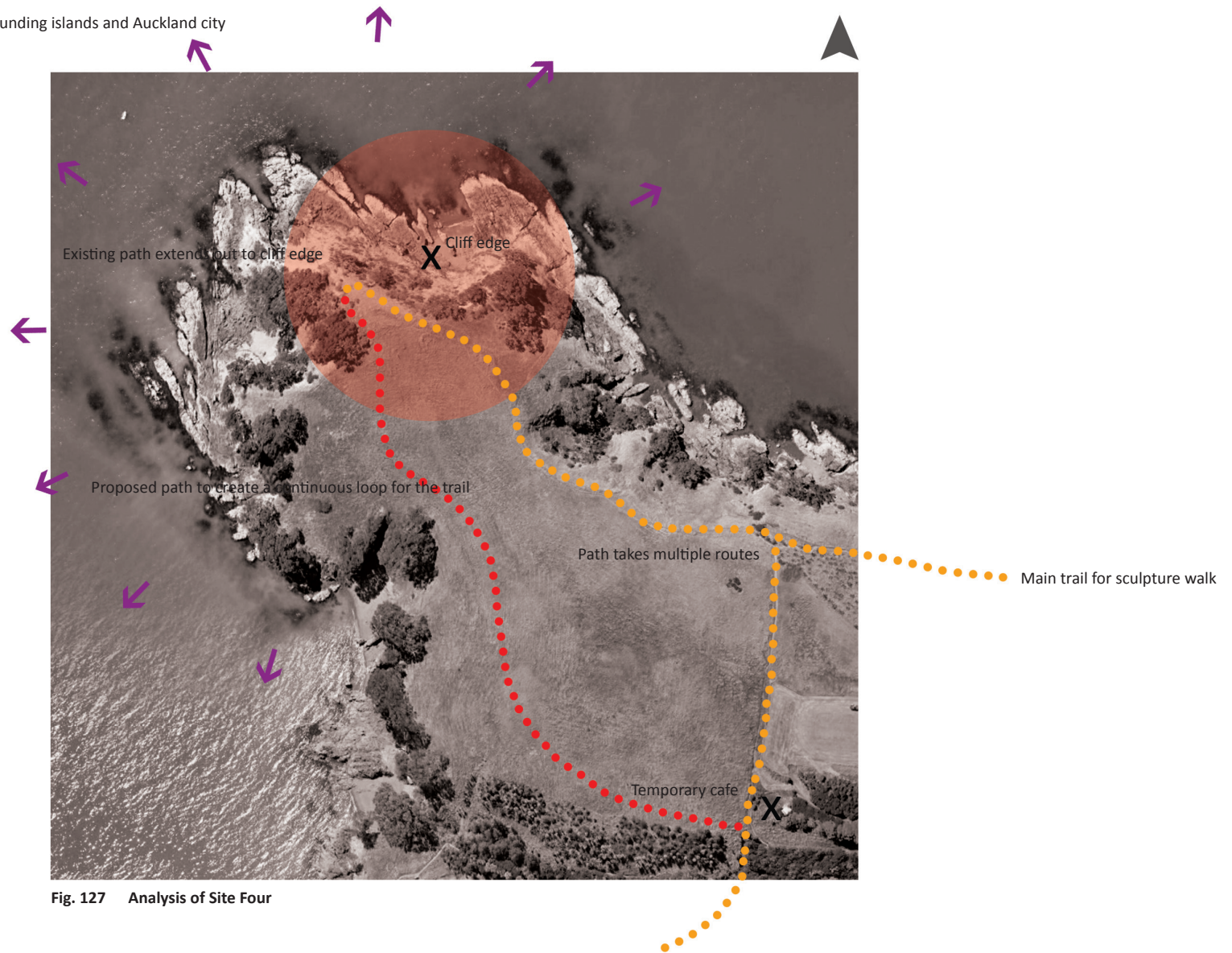


Fig. 127 Analysis of Site Four

5.4.2 Precedents and Inspiration

I began by researching the interior mechanism of the most common kinetic staircase, the escalator. Escalators feature a complex arrangement of moving components generally operated by a belt drive system (Fig. 128 and 129). These systems are relatively quiet and efficient. I wanted to break down the machine to its simplest form as a looped network.

The utilitarian escalator offers little in the way of design. It is designed for functionality, efficiency, and economy. Typically, the everyday escalator is much the same as another, the event lacking in inspiration. The monotonous diagonal movement is far removed from the meaningful staircase. The intention is for this piece of architecture to develop a new design definition of the kinetic staircase.

Bringing the machine back to its fundamental principles, I explored the concept of a pulley system. Carlo Scarpa devised a series of pulleys and weights for a door design in Brion Cemetery (Fig. 130). The intricate layout of the circular pulleys and the large steel weights create a visually appealing mechanical structure. The door is located on the opposite side of the wall so visitors see only the pulleys or the door moving at once and must then make the connection between the components.

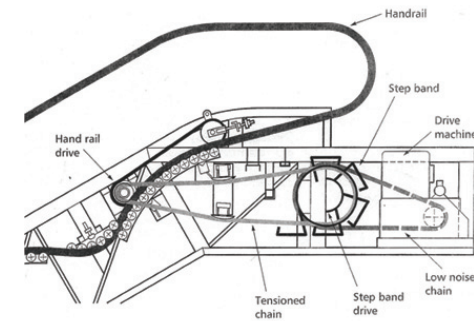


Fig. 128 Internal mechanism of an Escalator showing belt drive system

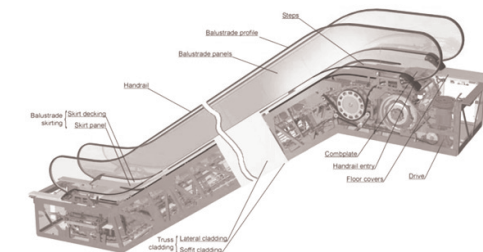
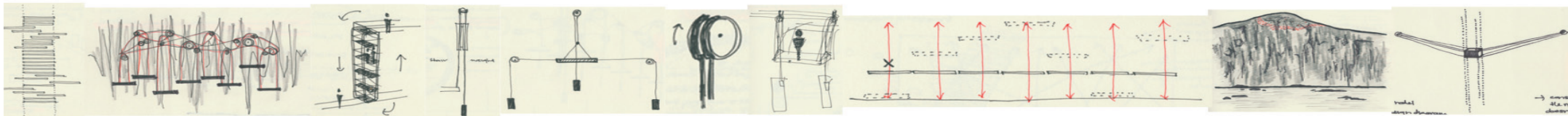


Fig. 129 Section through an escalator showing all the working components



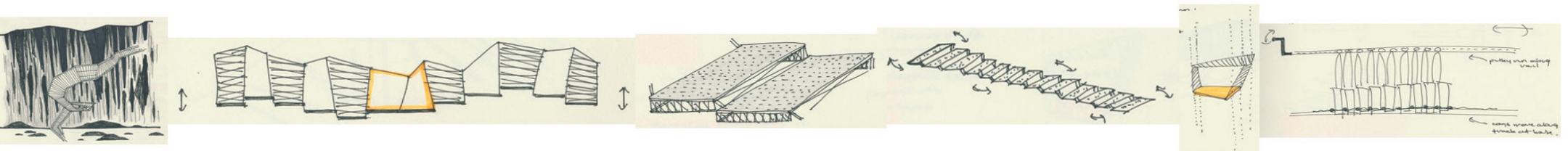
5.4.3 Conceptual Exploration and Development

Experimental drawings and models determined the feasibility of the moving structure. Fig. 131 shows a conceptual arrangement of the pulley components and weights. The working model I devised, as shown in Fig. 132, allows a single platform to move vertically up and down, and horizontally left and right. The weights enable the central step to move as the wires pull around the circular pulleys. Various options and configurations were considered to achieve the desired outcome.

It was important to expose the internal structure of the mechanism in order for the viewer to visualise the working components. The mechanics can be designed to enhance aesthetic qualities. This allows the visitor to experience the process of movement and engage with the system. The occupants become a part of the overall functioning network.



Fig. 130 Carlo Scarpa - Pulley system for a door in Brion Cemetery, 1970-72.



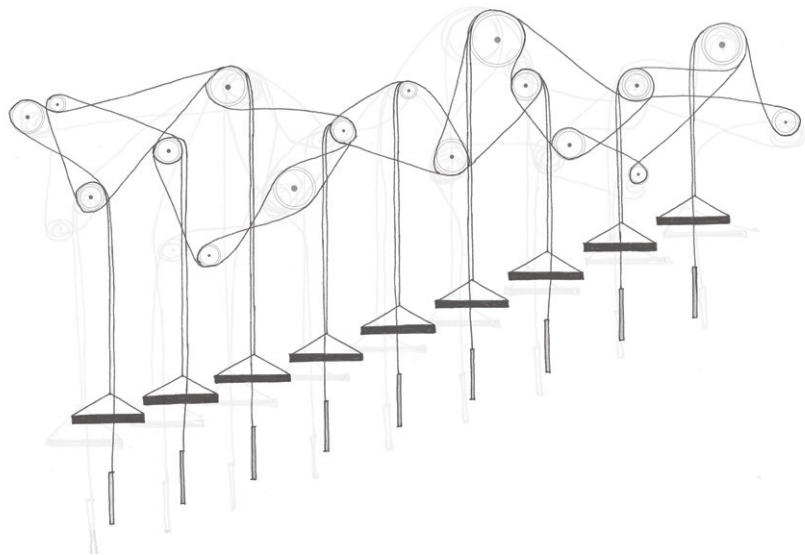


Fig. 131 Conceptual sketch of the kinetic staircase design with pulley system and counter weights to control vertical movement up and down

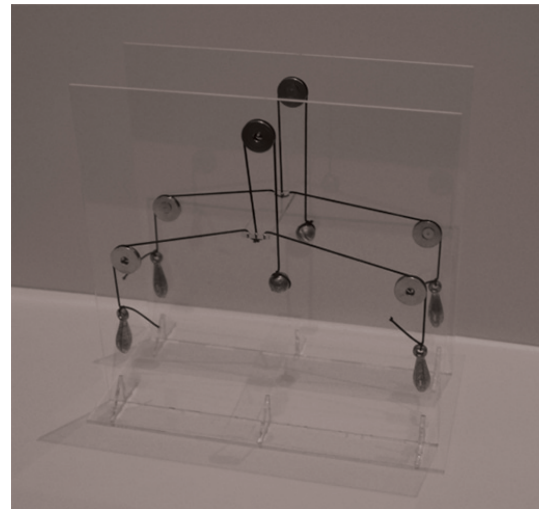


Fig. 132 Model investigating the movement of a single step - platform moves vertically and horizontally through integrated pulley systems



5.4.4 Final Outcome

The final mechanical staircase cantilevers over the cliff-face. The dramatic backdrop yields a cinematic quality and a surrealist unreality. This expression of movement forms an unpredictable interior experience. The inhabitants become suspended in space and time. Visitors become engaged with the exposed working mechanism. As people move through the form they are also exposed to a series of framed views, capturing a unique perspective of the surrounding environment.

The structure is divided into a series of segments each containing one step. Each platform is composed of a mesh surface. These individual components are then controlled by the pulley system above which moves the steps slowing up and down. Steel cables support the steel weights below the structure, positioned either side of the stair form. At the highest point of ascent the weights hang lowest, and vice versa at the lowest step the weights are at their highest point. The weight of the occupants can also offset the stairs further along the line. The larger interaction from people, the greater the range of movement.

The staircase is accessed via an existing pathway which extends out to the edge of the peninsula. A new path is proposed set into the cliff-face to allow passage to the structure. Venturing out into space visitors may be confronted with feelings of vertigo or unease, yet intrigue and anticipation.

This intervention offers an alternate perspective on design strategies for kinetic staircases. Movement in architecture provides an additional layer of spatial awareness in which to experience the dimension of time.

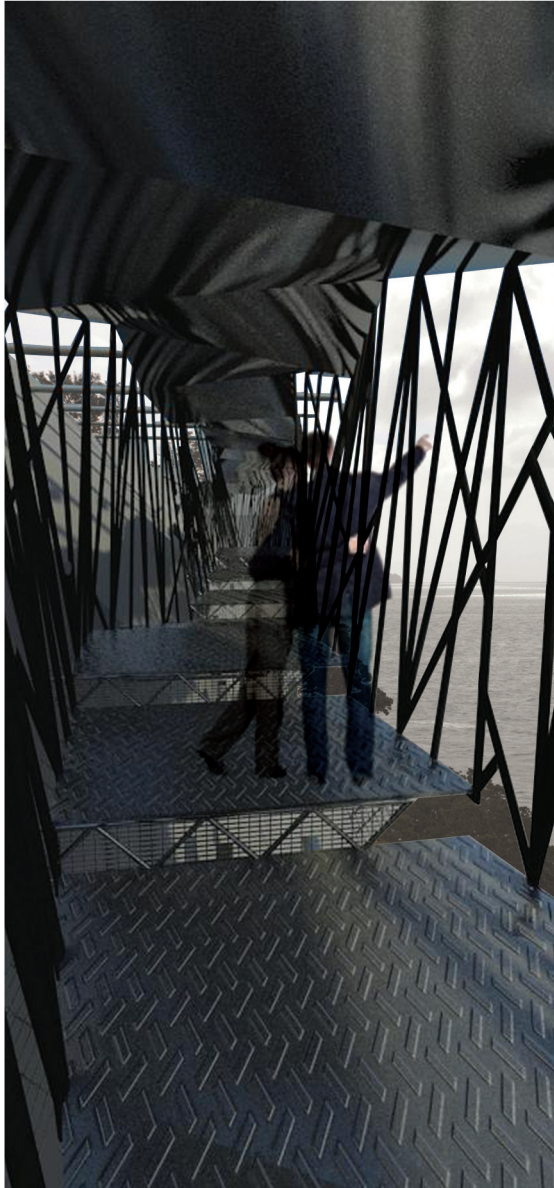


Fig. 133 Interior of kinetic staircase showing the views out over the water

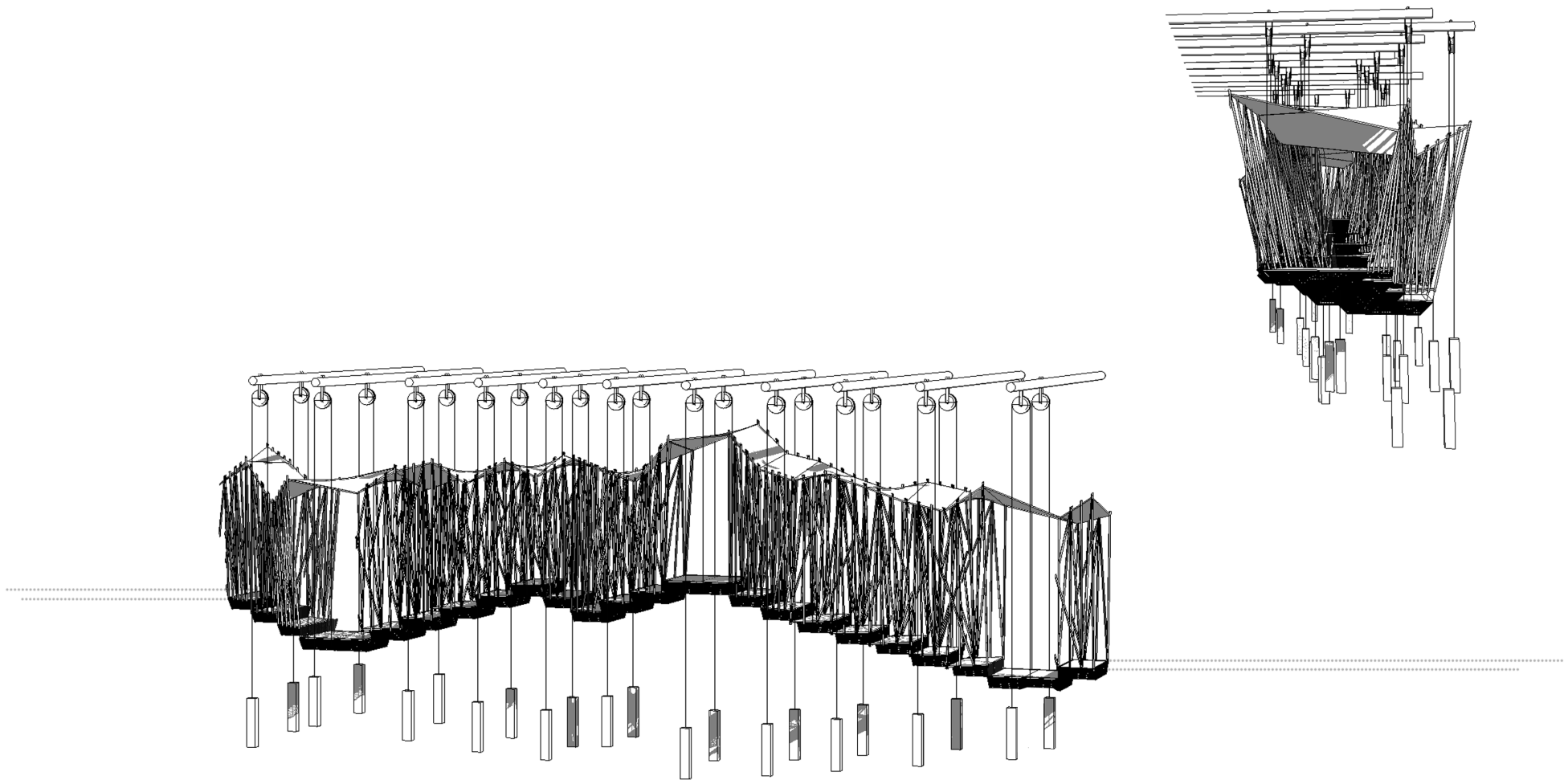


Fig. 134 Front and side elevation of the mechanism showing the pulley system

Fig. 135 View from Ferry of the kinetic staircase suspended above the water



Fig. 136 View of the mechanism on the cliff face with proposed path extension



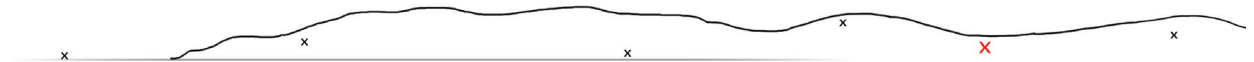


Fig. 137 Photograph of an experimental plastic model exploring the stair as a curved and fluid form

Site Five - Psychological

A Fluid Fantasy...

2.



5.5 Site Five - The Stair as Psychological

5.5.1 Site Analysis

This site is located towards the end of the walk and offers impressive views back to the city and surrounding islands. A large open slope leading down to a small beach provides an ideal platform to experiment with this theme. Visitors emerge from the trees around the corner to be confronted with this exposed space. Before reaching this area there is also an existing temporary cafe offering snacks and refreshments. This is only available during the weeks the sculpture exhibition is running.

For this design I have explored the boundaries of the generic staircase form and aimed to evoke a psychological experience. Bachelard (1969) discusses the staircase in relation to one's psyche. Ascending stairs is associated with the attic, descending is representative of the cellar. Psychological influence can be both religious or personal, misleading or evocative. The unfamiliar and dreamlike unreality can engage the imagination, activating the subconscious.



Fig. 138 Site Five photographs - showing the sloped location and beach below

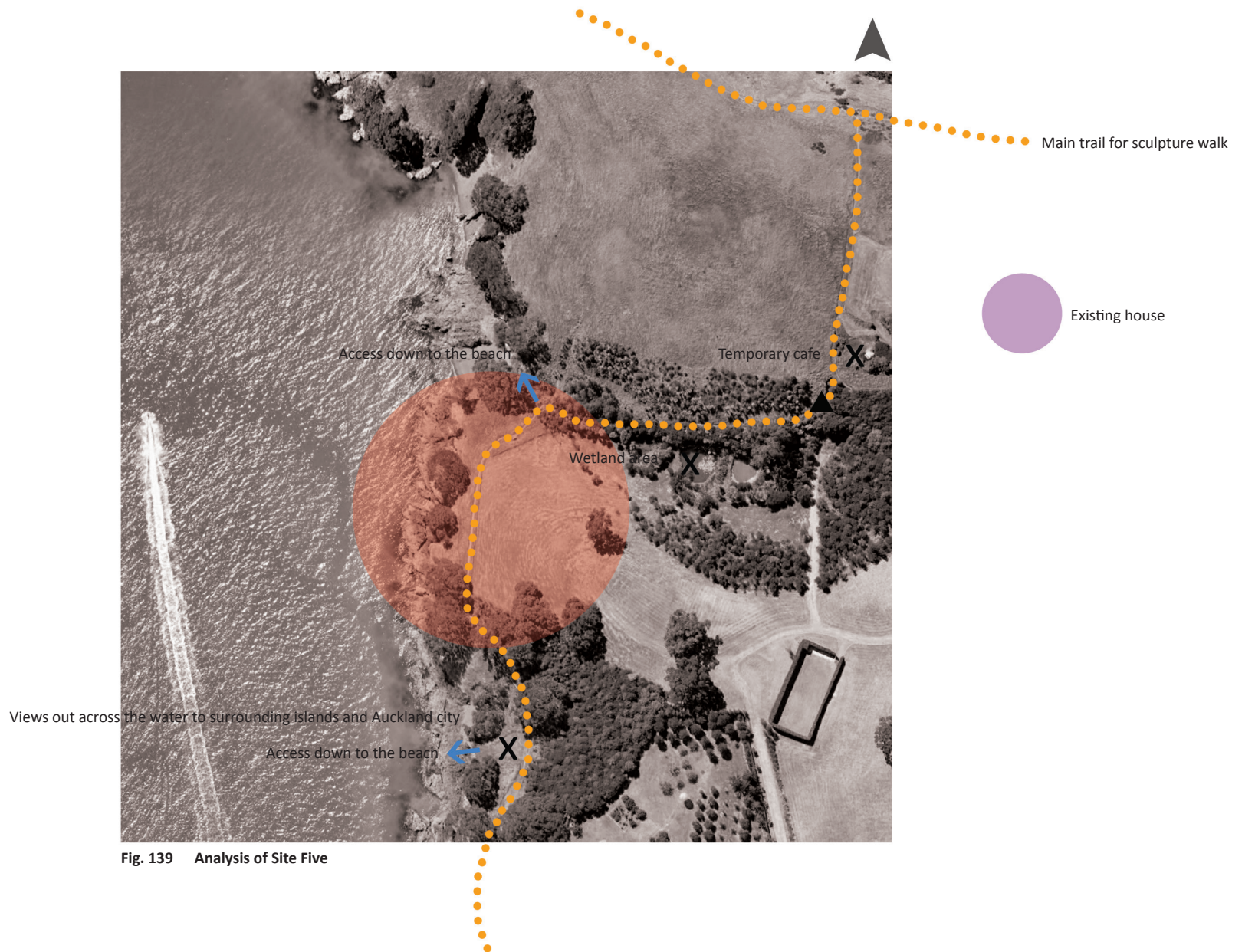


Fig. 139 Analysis of Site Five

5.5.2 Precedents and Inspiration

Modifying the form of the staircase can effect how we perceive the definition of a stair. Innovative designs entice the imagination and question reality. Michelangelo's staircase for the Laurentian Library in Florence (Fig. 141) explores the concept of the 'fluid' staircase. His design of curved steps was revolutionary and gives the appearance of movement.

In the 1903 photograph '*A Sea of Steps*', Frederick H. Evans also captures the presence of a fluid staircase, eroded overtime from years of use (Fig. 140). These examples question the solid and functional ideal. The experience becomes less incremental, appearing instead continuous and flexible. There is a feeling of transcendence and surreality with the soft lighting. Caws (2010) described the ideal surrealist space as flexible and fluid. The impression that space is manipulable evokes the sense of unreality.

Templer (1995) has investigated the concept of the 'soft' stair as a means for safer design. Careful selection of forms and detailing can reduce injuries and can improve ease of movement. Smooth surfaces and soft materials are also recommended.



Fig. 140 Frederick H. Evans - '*A Sea of Steps*', Stairs leading to the Chapter House in Wells Cathedral, London (1903)



Fig. 141 Michelangelo - *Staircase for the Laurentian Library*, Florence, Italy (1571)

5.5.3 Conceptual Exploration and Development

I conducted an initial light study representing the body movements up and down a staircase. Lights were attached to various parts of the body and long exposure photographs documented the movement. This resulted in the representation of stair movement as a fluid motion. In Fig. 142 and Fig. 143 there is a clear difference in the foot gestures. The toe and ankle are shown in red and green lights at the base of the stair. In the first image walking up the stairs the movement is a high circular shape. In contrast walking down the stairs is a shallower flat movement. In running up and down the stairs (Fig. 144 and 145) the shapes are all more exaggerated due to the faster pace. Examining the hand gestures along the handrail, the points of interactions with the rail and gliding movement between are shown in green. (Fig. 146 and 147).

I then translated this fluid motion into physical forms. I experimented with many physical models, moulding plastic around surfaces to create curved shapes (Fig. 148). Particular shapes started to emerge which could accommodate various parts of the body. The aim was therefore to devise a fluid stair form which responded to the human figure. These experiments were then transferred into a computer model to further develop the design.



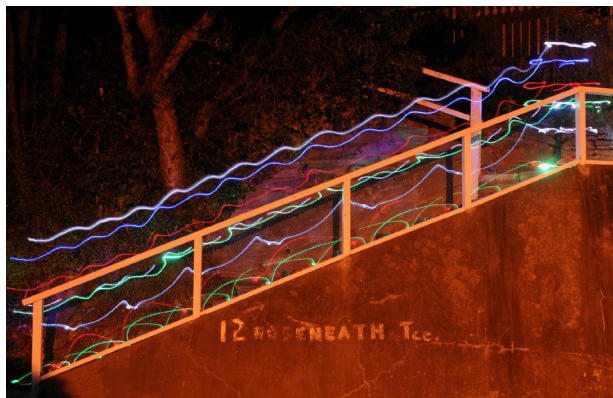


Fig. 142 Walking up the stairs

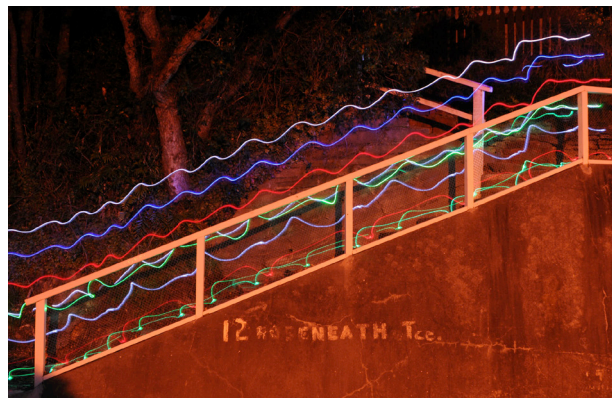


Fig. 143 Walking down the stairs

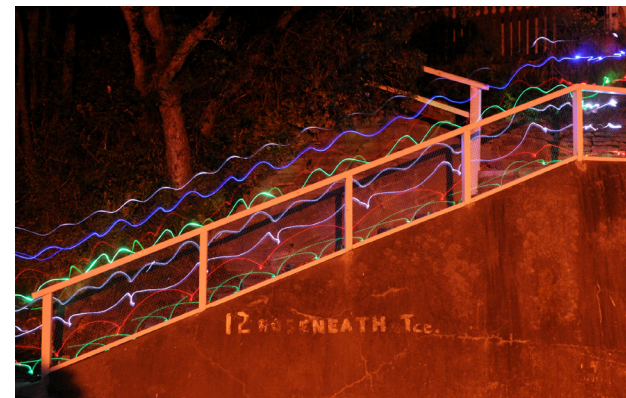


Fig. 144 Running up the stairs

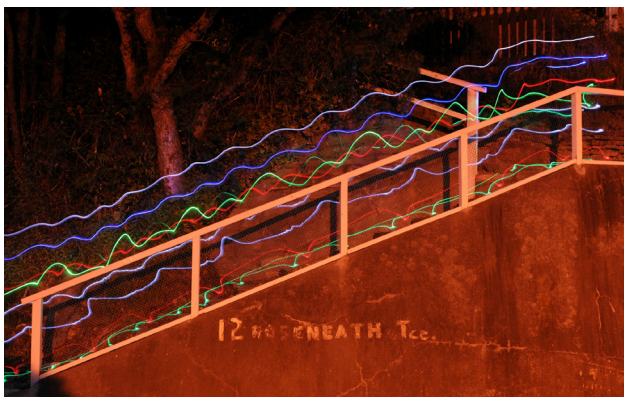


Fig. 145 Running down the stairs

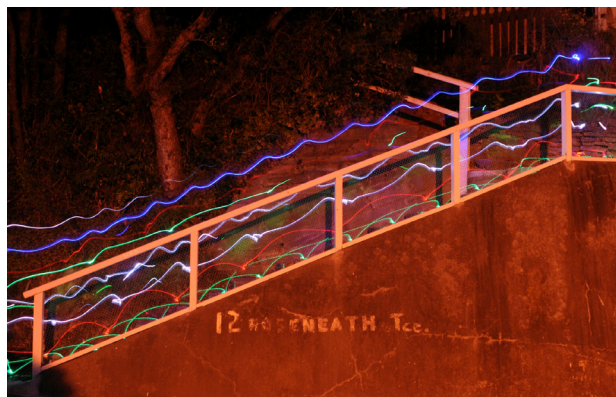


Fig. 146 Walking up stairs with handrail

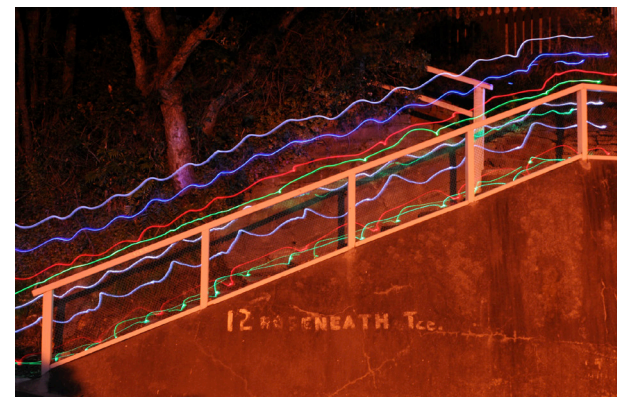
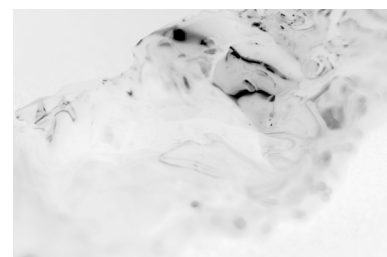
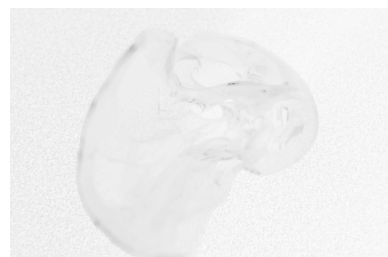
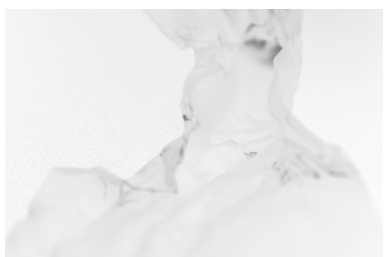
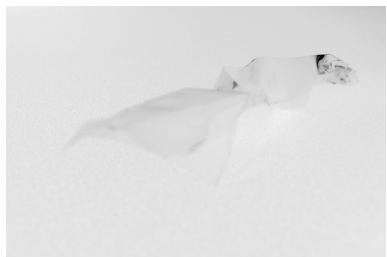
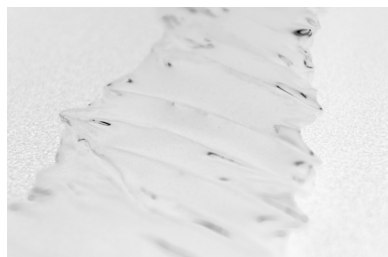
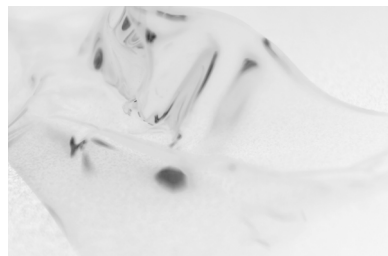


Fig. 147 Walking down the stairs with handrail



5.5.4 Final Outcome

This final design takes the form of a bold, red plastic structure spirally along the landscape. The form is representative of the staircase as a fluid movement. The surface was developed to provide curved notches for the feet and hands (Fig. 149). The architecture is responsive to the needs of the user and the shapes of the body. People can engage with the structure, either climbing on it or walking between the central loop. The shape also alludes to the form of the ladder. The passage must be navigated, prompting a climbing movement requiring the use of both hands and feet.

The curving form is playful, whimsical, and an unexpected addition to the landscape. The subconscious is engaged as one must question the form and definition of a staircase. Visitors preconceptions are challenged. The stepped indentations and function of the staircase are present, yet the configuration is far removed from the generic stair. The central curve must then be stepped over in order to pass, acknowledging the design as a stair. The architecture becomes part of the landscape, undulating in and out of the ground, and almost running off the edge.

A psychological existence is explored as people stand between the curves of the structure, the eye is guided upward to the sky (Fig. 150). This theme of transcendence engages psychic awareness of a greater presence, or an alternate reality.

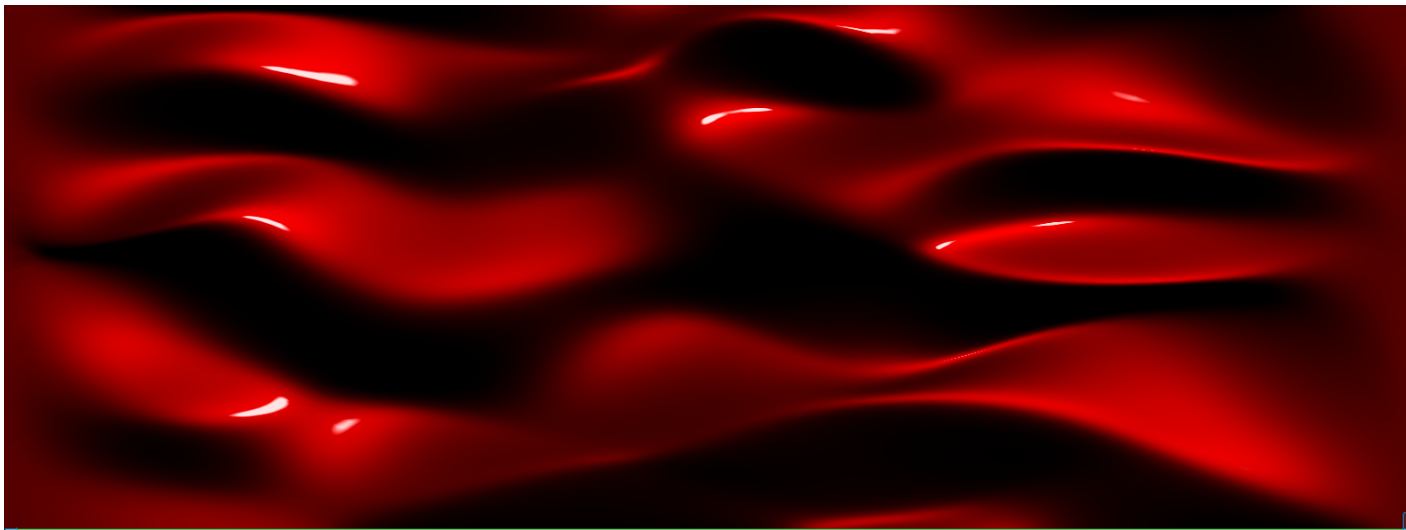


Fig. 149 Close up of a portion of the panelling for the curved design showing the ergonomic forms

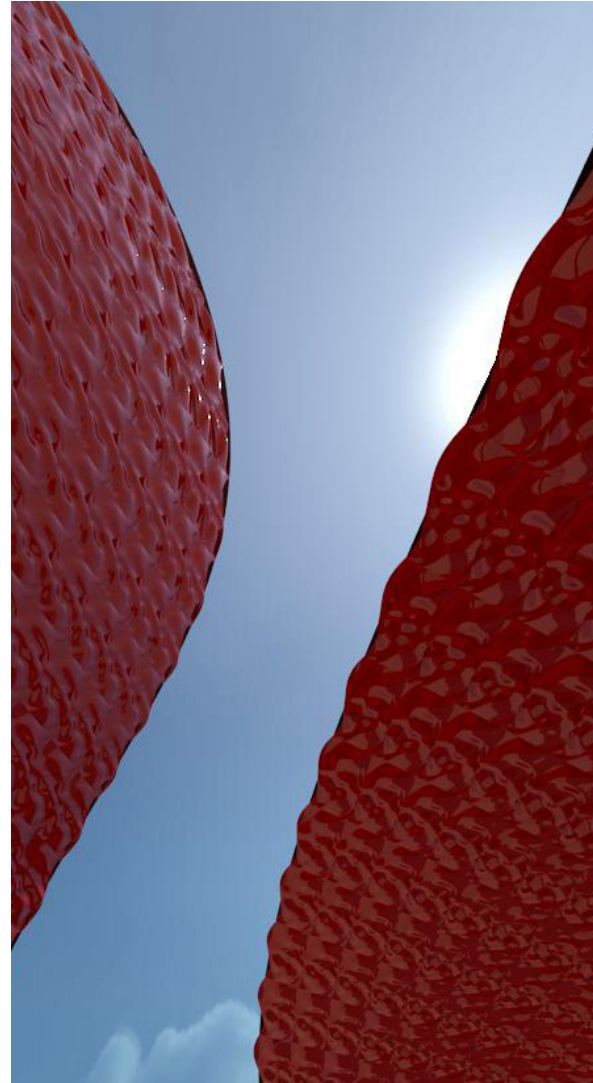


Fig. 150 Looking up between the curves of the structure framing the view of the sky

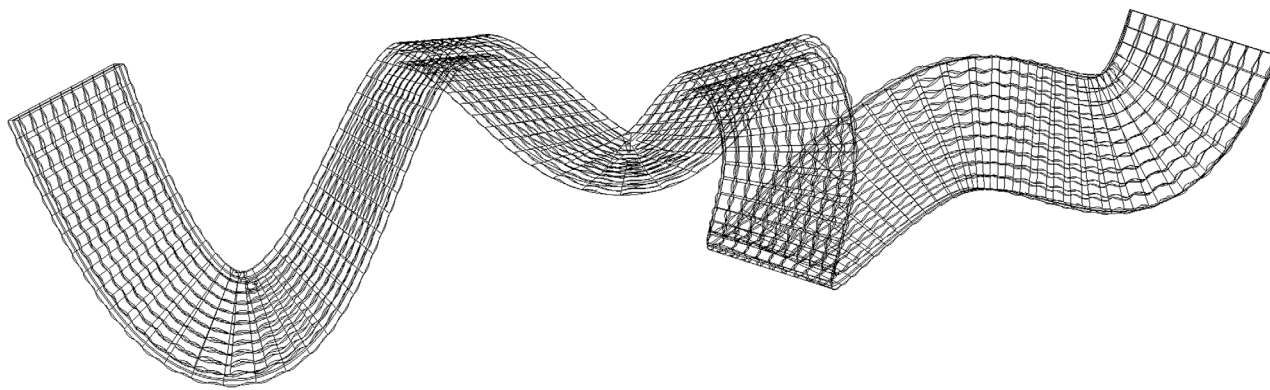


Fig. 151 Plan view of the curved staircase form

Fig. 152 Final intervention exploring the 'fluid' and ergonomic qualities of the staircase



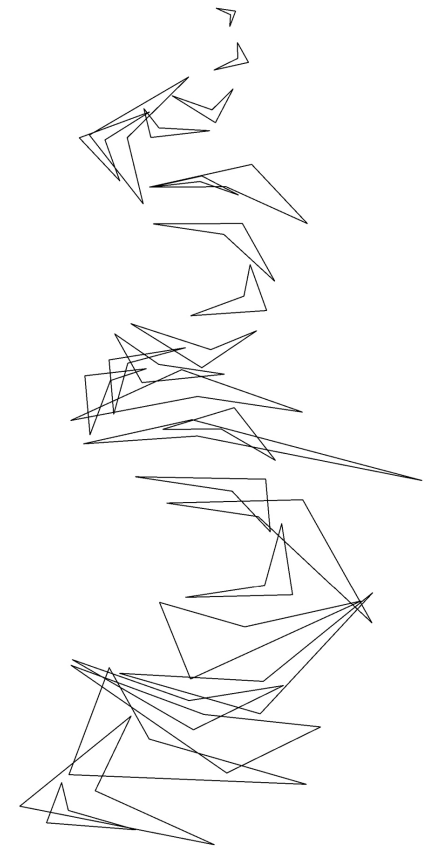
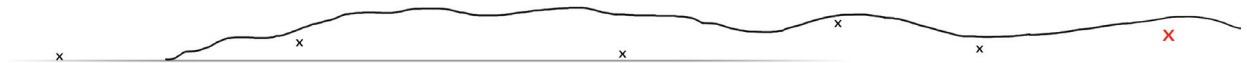


Fig. 153 Base form of spiral structure for site six monument

Site Six - Iconic

Reflecting on the Future...

d.



5.6 Site Six - The Stair as Iconic

5.6.1 Site Analysis

This final staircase is intended to act as an iconic landmark marking the end of the journey. The design however must be ambiguous as the walk can also be started from this point and completed in reverse. A bridge leads over a small waterfall to reach the final destination. The elevated area looks over vineyards in Church Bay and towards Motukaha island (Fig. 154). A number of also houses are located in this area. At the conclusion of the sculpture walk visitors must progress up to the bus stop or can walk back to the ferry or into Oneroa village. There is also a temporary stall offering refreshments and ice cream when the exhibition of running.

I have developed this intervention as a monument and as a play on the idea of a 'futuristic' staircase. The design is a contrast between the perceived futuristic staircase and the Classical monumental staircase. Acting as a reflection of time.



Fig. 154 Site Six photographs - showing a small waterfall at the end of the walk and views out across Church Bay

Main trail for sculpture walk

Road to Oneroa and bus route

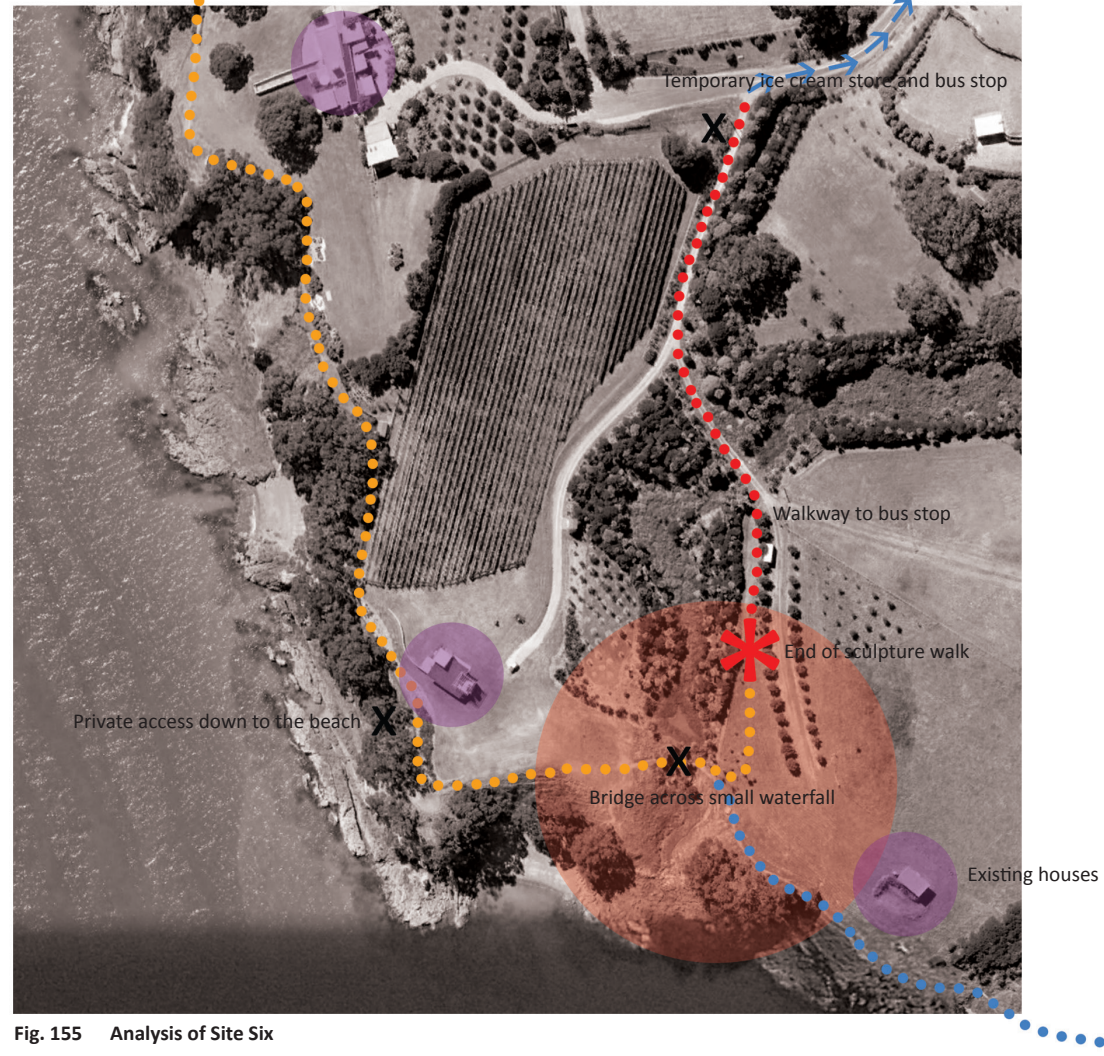


Fig. 155 Analysis of Site Six

5.6.2 Precedents and Inspiration

Aldo Rossi's Pertini monument in Milan (Fig. 156) combines the form of the staircase with architecture. This space reminiscent of a plinth provides a setting for people to relax and view and the surrounding area from an elevated location. The design acts as an iconic landmark in the urban environment. The structure also alludes to the forms of historic monumental buildings and ancient temples, representing themes of hierarchy, status, power, authority, wealth, sacrifice, or transcendence.

Venezuelan artist and sculptor Gego (Gertrude Goldschmidt) uses the concept of 'line' in her work to represent space, movement, shadow, and emotion. The result is an intricate composition of elements (as shown in Fig. 157), creating a feeling of simultaneously absence and presence, positive and negative. Space is defined by the form, yet feels unrestrictive and open. The shape is reminiscent of a mesh or cage-like structure, spreading around the room, and provoking a desire to climb and ascend.

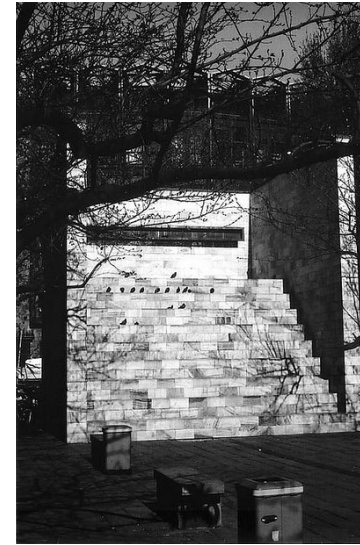


Fig. 156 Aldo Rossi - Monument to Sandro Pertini (Piazzetta Croce Rossa) Milan, 1988

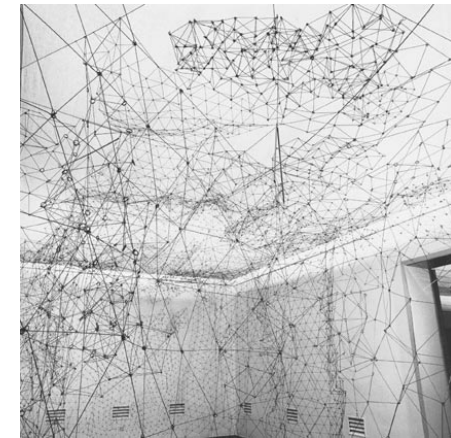


Fig. 157 Gego - *Reticularia* (MBA Centre - Caracas, Venezuela) 1969

5.6.3 Conceptual Exploration and Development



Fig. 158 Eliot Elisofon - Marcel Duchamp
Descending a Staircase 1952



Fig. 159 Etienne-Jules Marey - *Man Walking* (chronophotography) 1890-91

With reference to Eadweard Muybridge's photographic study of movement on stairs and Marcel Duchamp's paintings, I have conducted my own exploration through drawing. This allowed for the representation of the overlapping configurations of multiple body movements ascending and descending the stairs. Photographs were taken of a male and female walking, running, climbing, and jumping up and down the staircase in Civic Square, Wellington. The images were all traced to recreate the sense of motion (Fig. 160-163).

After collating these drawings I produced a series of analytical images defining the angles of the body as a representation of lines. Referencing Marey's image '*Man Walking*' (Fig. 159), I examined the relationship between the various parts of the body; head, shoulders, arms, legs, hand, and foot (Fig. 166 and 167).

I then used influence of Gego's concept of line representation and adapted it to my design development. The effect of the drawing analysis was translated into the creation of the final form. A series of potential components were considered through computer modelling in Fig. 168.

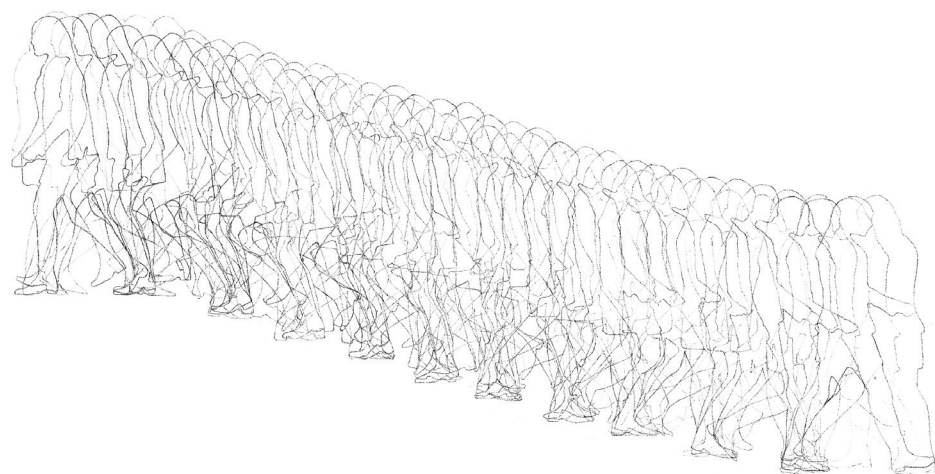


Fig. 160 Drawing study - Movement of a woman ascending and descending stairs overlaid

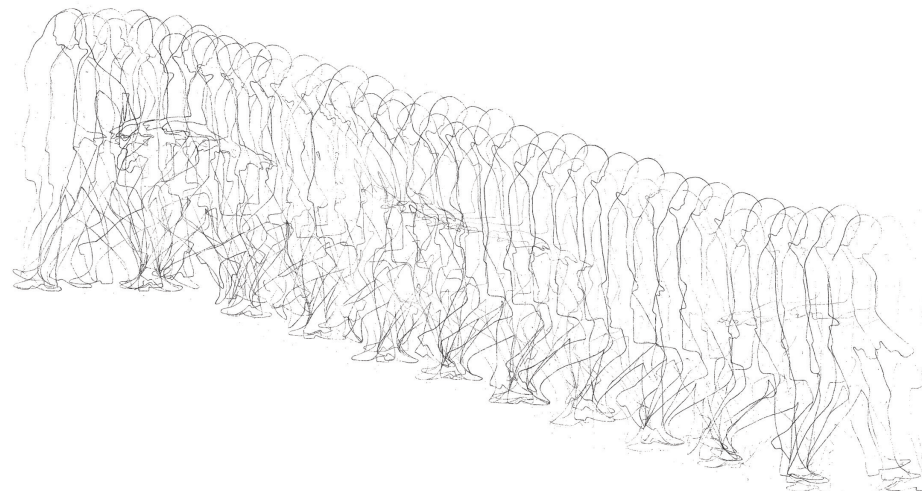


Fig. 161 Drawing study - Movement of a woman ascending and descending stairs using handrail overlaid



Fig. 162 Drawing study - Movement of a man running up and down the stairs overlaid

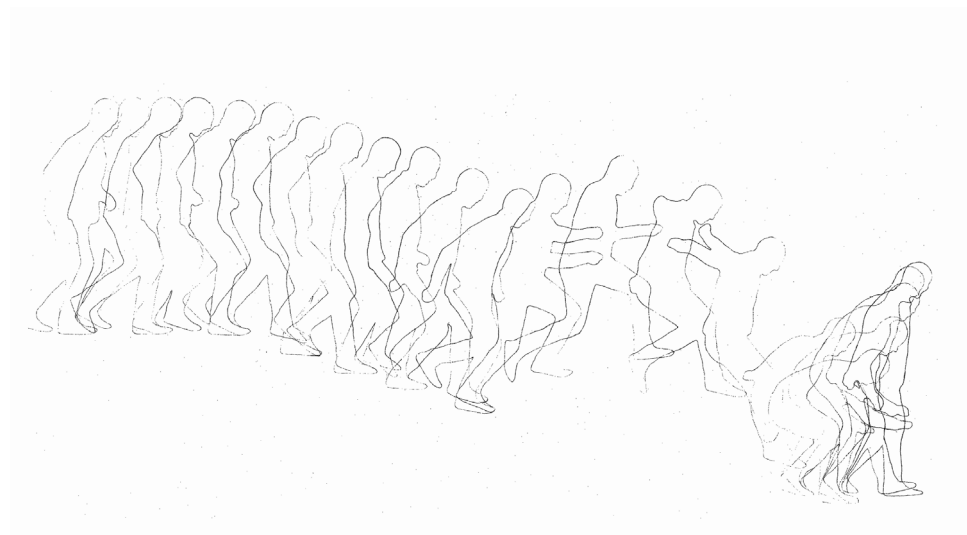


Fig. 163 Drawing study - Movement of a man jumping down the stairs

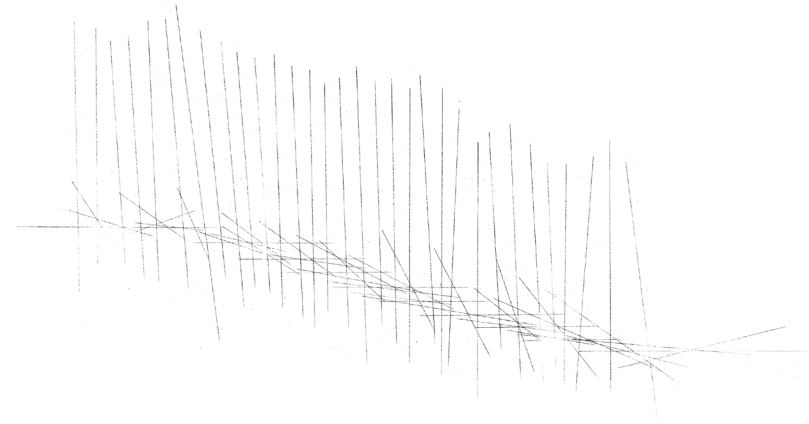


Fig. 164 Lines representing the angles of the body when descending the stairs
(Figure leaning back in descent)

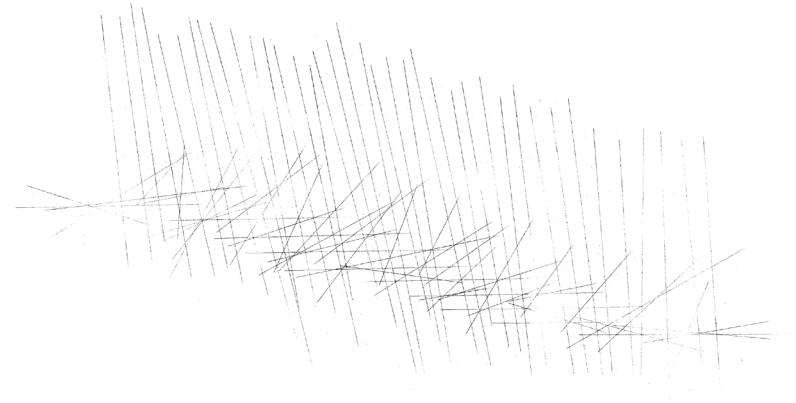
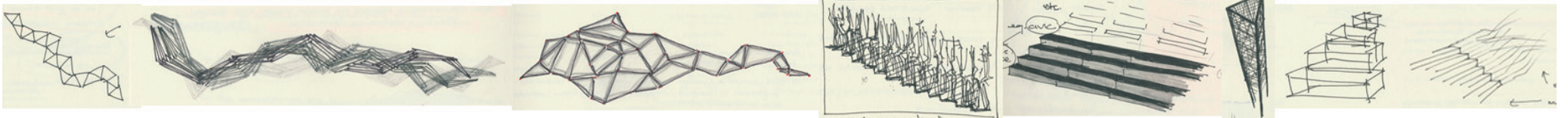


Fig. 165 Lines representing the angles of the body when ascending the stairs
(Figure leaning forward in ascent)



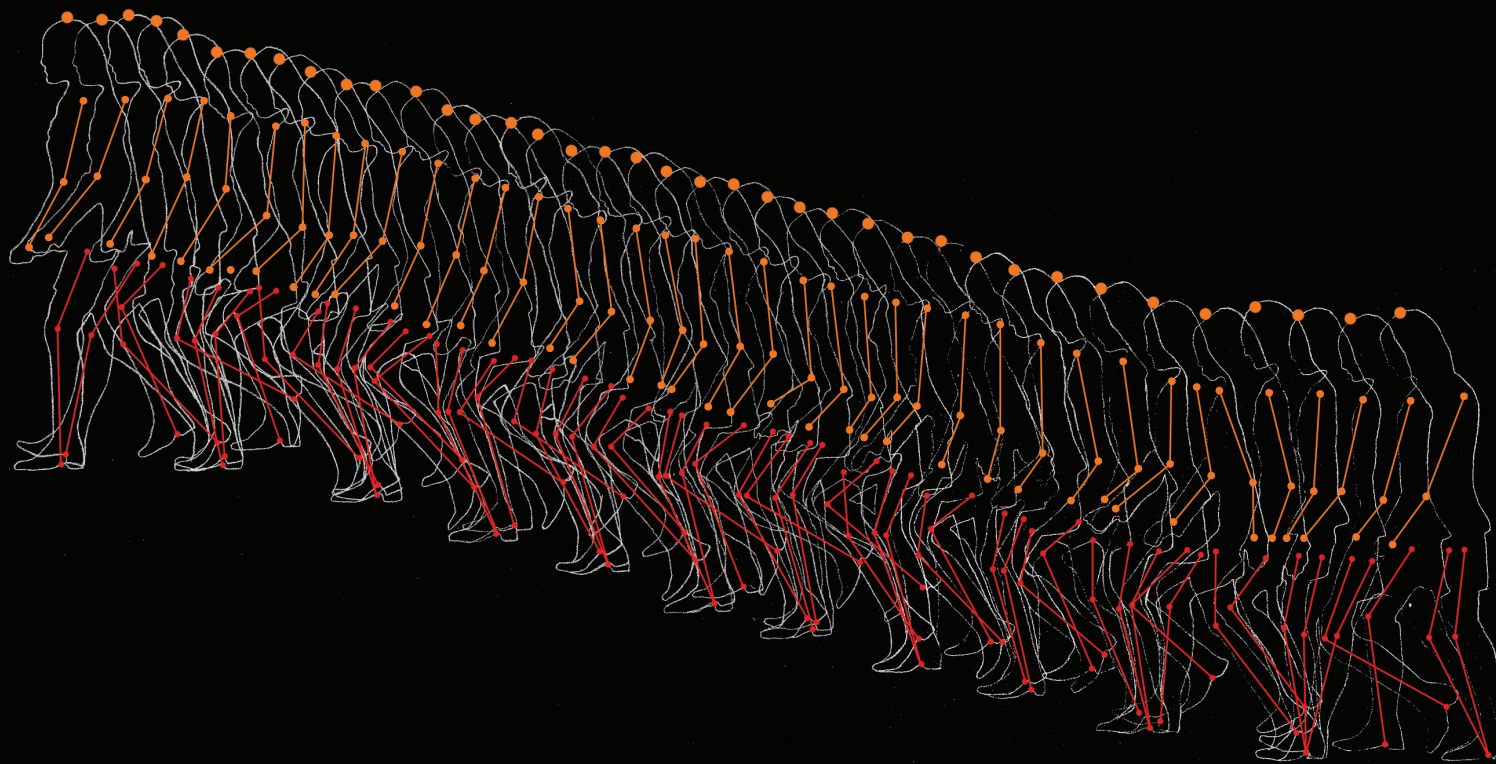


Fig. 166 Movement diagram of a woman ascending stairs showing angles of legs and arms

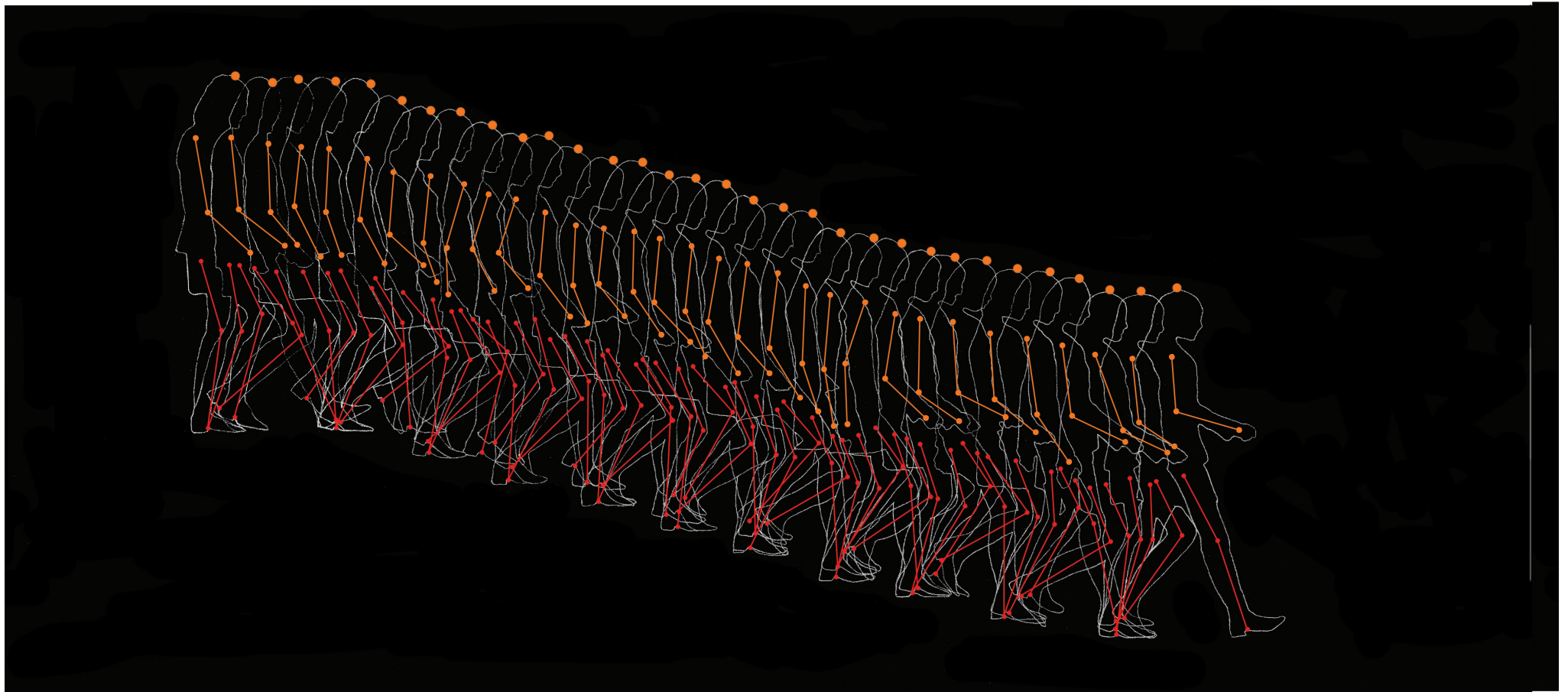


Fig. 167 Movement diagram of a woman Descending stairs showing angles of legs and arms

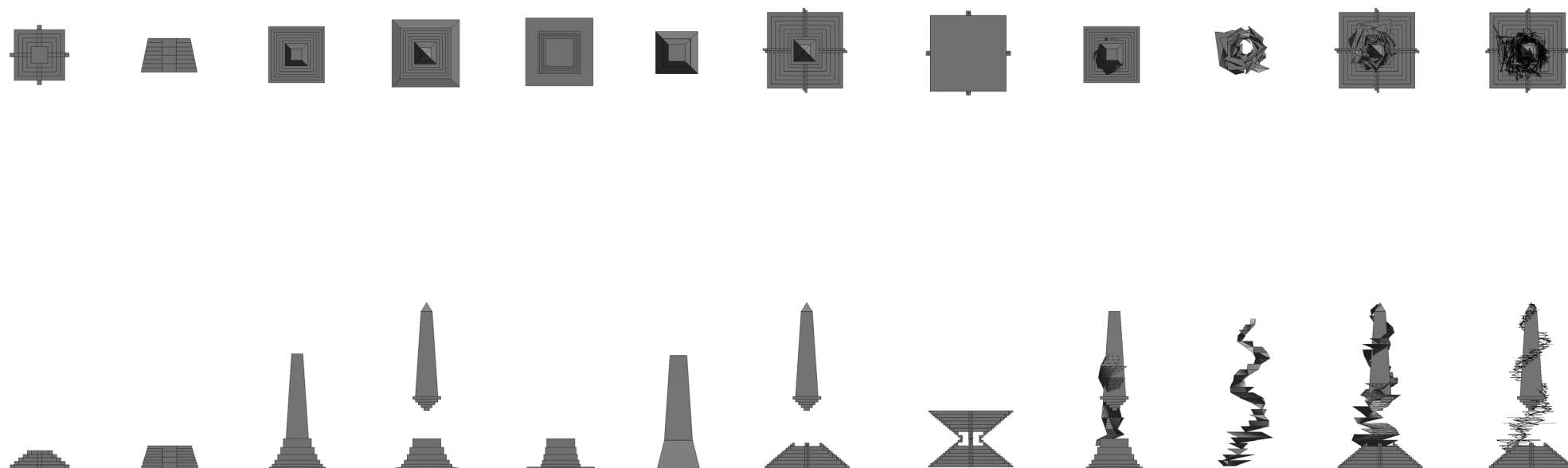


Fig. 168 Development of the components for the monument form shown in plan and elevation

5.6.4 Final Outcome

The sculpture walk is concluded with this iconic landmark positioned on the edge of the water. An architectural monument to the journey and representation of the spatial experience of the staircase. The elevated form allows for views over the path and to the surrounding islands, focusing the view. The Classical stepped form is intersected with the deconstruction of a spiralling fragmented shape engulfing it.

The completed monument is composed of a number of contrasting elements. The concrete base 'plinth' provides the opportunity to pause, turn, and reflect on the past journey (or a chance to contemplate venturing on the journey). The smaller steps were designed with reference to the climbing pole, allowing visitors quicker access to the upper platform. This area is mirrored to create the effect of an infinite passage into the ground by reflecting the inverted pyramid above.

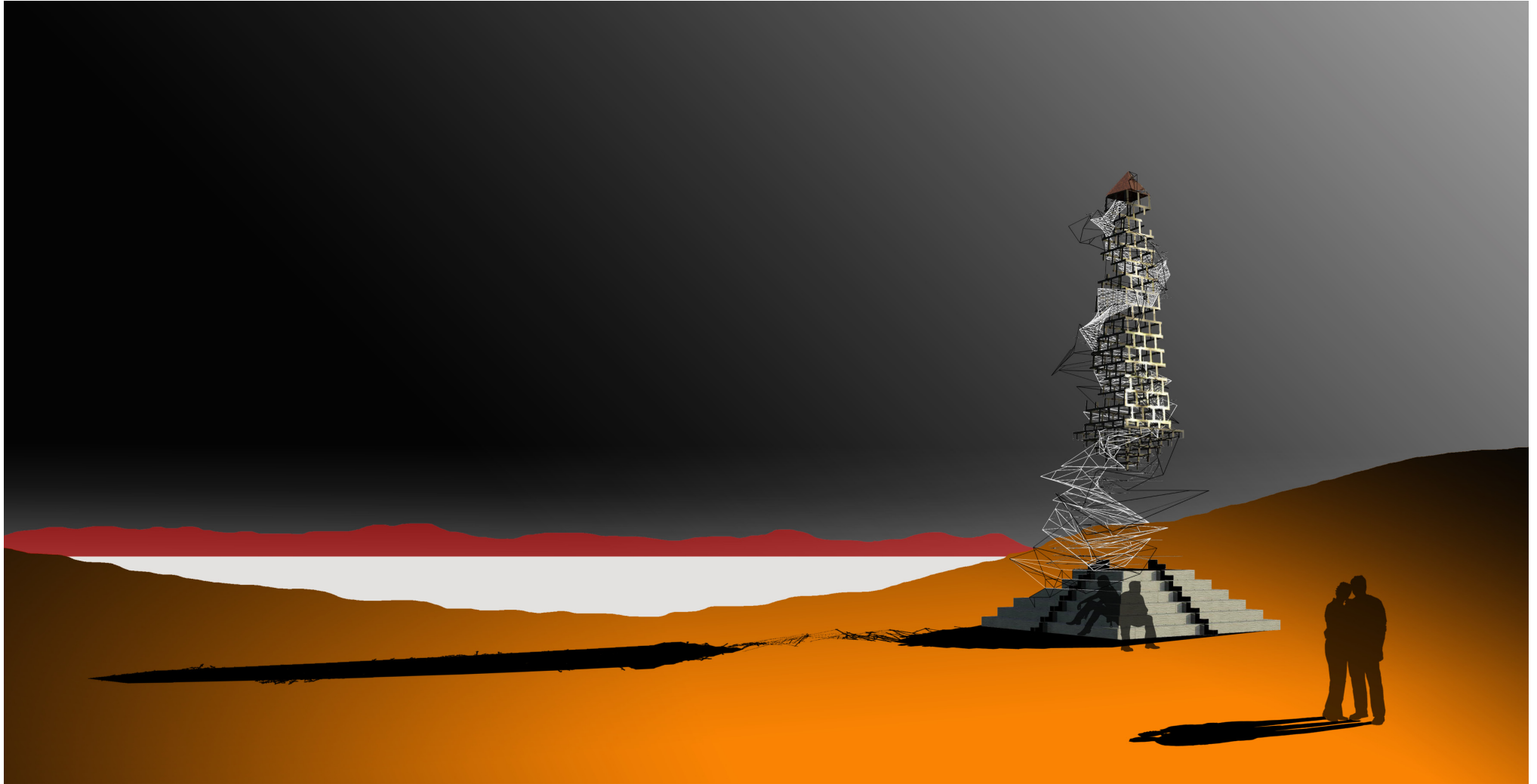
Rising up over this is a metallic pillar. The spiral shape encompasses this breaking up the rigid shape. The metal framed shape was inspired by the movement analysis drawings. This resulted in a series of platforms and protruding elements which increase in difficulty to ascend. Devouring the monumental form, the futuristic representation begins to emerge. The top of the structure is adorned with a copper pyramid acting as a focal point, creating the sense of infinite passage into the sky, and to form a sharp shadow on the ground.

The intention is for visitors to feel as though they are experiencing the stair itself. You physically walk on the solid stair, yet you are spatially experiencing the form of the surrounding staircase. Sitting below the triangular pillar evokes the feeling of sitting underneath the stairs with the stepped space above.

The overall form alludes to obelisk monuments of commemoration. The journey represents the 'sacrifice' to reach the desired goal. In a way it also resembles a ruin, with the future form 'decaying' the past form. This represents a sense of timelessness in which the architecture is both the beginning and end point. There is the impression of melancholia and nostalgia. The journey has ended, but the memory remains.



Fig. 170 Final intervention on site six showing the monument form and view back towards the city



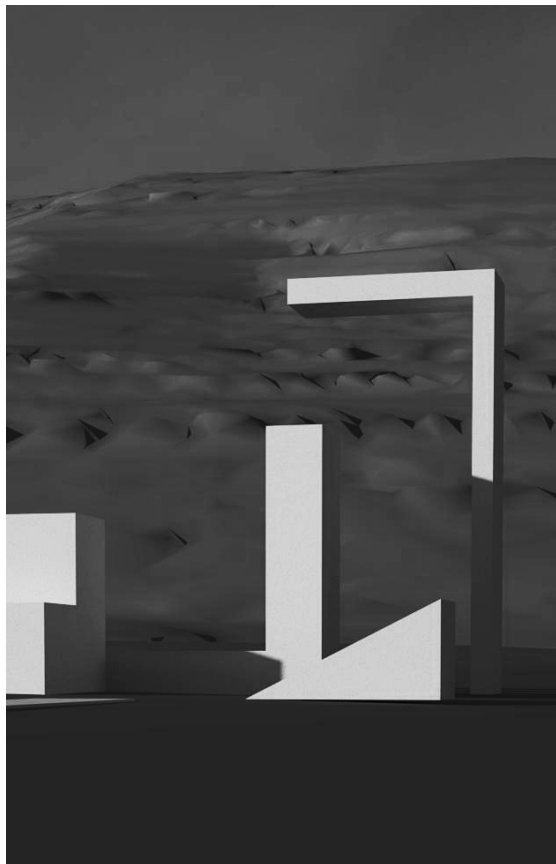
6.0 Final Images

6.0 Final Images





Fig. 171 Section of peninsula showing the location of the six designs together as a series



1



2



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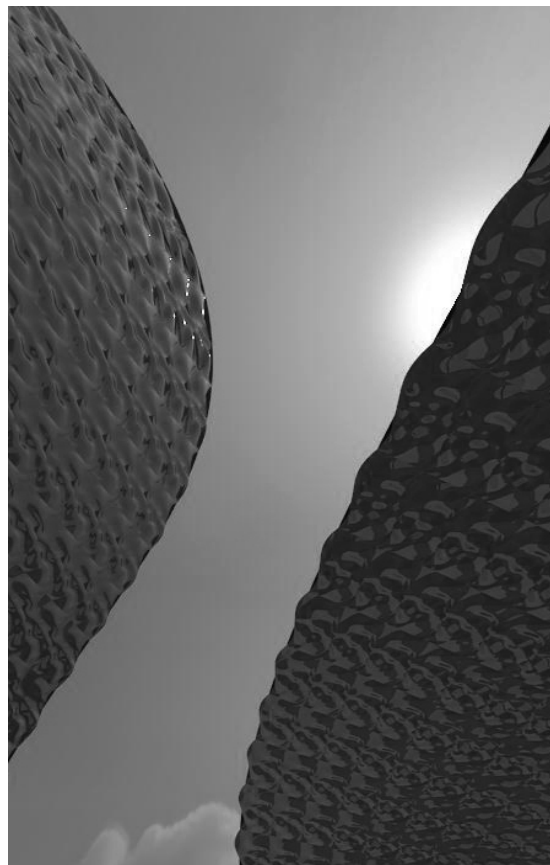


Fig. 172 Final sequence of the six architectural interventions as a sequence representing the spatial experiences achieved through staircase design

7.0 Conclusion

7.0 Conclusion

The staircase has come to represent a range of definitions; symbol, object, structure, metaphor, and now architecture. The stair is not only a functional machine but a vessel for expressing poetic meaning. A particular architectural spatial experience can be determined by form, materiality, orientation, direction of movement, or scale. Reflecting on the relationship to *Casa Malaparte* we can begin to see a new form of the staircase emerging, integrated with the architecture. The incorporation of stairs, film, and the surreal with architecture has been revealed through the design case studies.

As a series, the six interventions create an evolving journey through landscape, sculpture, and architecture. The result is a sequence of events which encompasses specific spatial experiences determined by comprehensive design of the staircase. A new definition of the staircase can be considered as an intersection of disciplines and reinterpretation of historic meaning.

The medium of film provides a context in which to explore new design techniques. Unrestrained by safety regulations and budget constraints, the boundaries of staircase design continue to be expanded. Cinema has the potential to replicate the uncanny effects of actual space. Techniques such as perspective, lighting, contrast, camera angle, or movement contribute to the cinematic representation. Film establishes a narrative which can be translated into stair design, creating an incremental journey. The depiction of time is controlled and altered, or even suspended. Through the use of stairs, architecture can also begin to tell a story.

The qualities of surreal space have the potential to be integrated within mainstream design methods. The dream environment detracts from daily monotony, testing the parameters of reality and the imaginary. A surreal stair questions the articulation of the stepped form, not as

function, but as emotive experience. The surreal can be expressed through techniques including; lighting, juxtaposition, contradictory associations, emotive qualities, displacement, subjective relationships, or irony. The expression of play, humour, or childhood whimsy, engages the imagination and taps into the subconscious. This affinity with the world of childhood links to ones memories, and inner psyche.

The stair remains a vital component of architectural history. It is therefore important to continue to integrate the staircase in contemporary design. We interact with these structures on a daily basis. The process of ascending and descending will always be a significant part of architecture as living expands upwards, and downward. This thesis has revealed that metaphoric meaning can influence how we experience space. The staircase provides the means of expressive vertical and horizontal movement.

In architectural practice, the stair must not always be bound by conformity. The design of an emotive or metaphoric staircase need not be extravagant and time-consuming. Often the intimate and unique space can be the most evocative and memorable. This research and design has aimed to identify an incentive to adapt these observations of stair design in future architecture. An architecture that embraces the staircase as its own.

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8.0 Table of Figures

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