Architecture and the Moving Image:
Cinematic strategies in design and representation

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Abstract

This thesis investigates the use of film in architecture following two paths – the first examining the use of architecture and cinematic techniques in film and the second experimenting with the use of film in an architectural design project. A discussion of the relationship between architecture and cinema shows common threads between the two disciplines. Both disciplines manipulate time, space, light, colour and sound; in the case of cinema, to reinforce the narrative of a film, and in the case of architecture, to manifest the ideas behind a design. A variety of documentary techniques in the early site analysis stage of an architectural intervention for downtown Auckland exposed deficiencies in the current space, not otherwise seen using traditional site investigation methods. Video montage techniques were then used as an alternative to the sketch design phase to explore 'what if' possibilities for attracting people to Queens Wharf. These explorations resulted in a dynamic design intervention for downtown Auckland using cinematic techniques in a short film crafted to immerse the viewer in an experience of the design that is radically different from traditional architectural portrayal methods. The research of cinematic techniques, and investigation into their application in an architectural project, has created the beginnings of a tool set for architects that provides a new utility in the documentary, editing and portrayal of design projects.

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All figures unless otherwise stated are the author's own.

Introduction

As both an owner of a small digital media company in Auckland, and an architecture student I see a potential for film to enhance the portrayal of architecture beyond conventional techniques. The chapters in this thesis follow my design project, an intervention for downtown Auckland, through three forms of research – literary, cinematic and investigative. This introduction locates the discussion of the use of film and video in architecture. Chapter one outlines current discussions of cinematic techniques and their crossover into architecture. Chapter two delves deeper into specific techniques and their uses in cinema - the architecture of sets and their deceptive qualities and how the context they create affects the narrative portrayal on screen. Chapter three provides a synthesis of the first parts of my project and how integration of the two disciplines may occur. Chapter four details the design project and its presentation as a demonstration of both the pitfalls and benefits of incorporating film into architecture.

Architecture in Cinema

Cinema, created from moving images and sound by a filmmaker bringing to life a narrative, is not often used within the discipline of architecture. Yet architecture is frequently used in cinema, albeit it mostly as a backdrop or a prop to the main action, rather than as the centrepiece subject. Each discipline assigns the other a more lowly subservient status. Film is subservient to architecture proper and architecture plays second fiddle to film's story arc. Architecture is a background to the other, whether it is a grand narrative, mundane life, political and commercial machinations or an uplifting story of the triumph of the human spirit. The recurring theme in the relationship between architecture and film is that architecture craves centre stage but rarely achieves such status.

When architecture is brought to the foreground in cinema it has the ability to greatly transform and aid the narrative. Martin Scorsese in *Hugo*[1], stages his characters in a train station - a station with architecture within architecture. Through the use of multiple sets and shots Scorsese enlarges the space between walls, inside walls and from above creating a magical yet believable space beyond the station's physical limits. Similarly in *Inception*[2], Christopher Nolan uses architecture and the architect to describe the creation of another world, one which is not entirely subject to normal constraints – a place where architecture, whether real or imagined, crumbles through disuse or is manipulated with imagination. In both these examples architecture is more than a background element. It's an element essential to the narrative – a background without which the story could not be told.

In Joseph Kosinski's *Tron Legacy*[3] we are transported into another world, one that is highly futuristic and digital. This world is portrayed through an architecture featuring glossy black and white surfaces highlighted with colourful neon lights. The architecture is intentionally taken to the extreme in order to distance itself from the real world. The end result is a convincing collection of sets and spaces that reinforce and deliver the narrative as much as, or even more than, the actors do. Architecture here is vital to the narrative of the film but it is only in a handful of shots that it can be considered the subject of the film.

Cinema in Architecture

The use of cinema in architecture has mostly been the preserve of documentaries - of finished projects, the design process, or artistic videography - essentially photography with moving images. These 'films' also tend to be targeted towards a more informed, architectural audience not just architects and engineers but also architecture fans keen to lap up what is presented to them. One example of this genre is *A Kind of Architect*[4] where the portrayal of Rem Koolhaas and his architecture uses heavily designed graphics and shows architectural documentation more than it does the spaces. At the other end of spectrum lies *Mission Statements: The Architecture of Dutch Diplomacy*[5]

1 Hugo. Motion Picture. Directed by Scorsese, Martin. USA: Paramount Pictures, 2011.
2 Inception. Motion Picture. Directed by Nolan, Christopher. USA: Warner Bros. Pictures, 2010.
3 Tron Legacy. Motion Picture. Directed by Kosinski, Joseph. USA: Walt Disney Pictures, 2010.
4 Rem Koolhaas: A Kind of Architect. Documentary. Directed by Heidingsfelder, Markus and Tesch, Min. New York: Arthouse Films, 2010.
5 Mission Statements: The Architecture of Dutch Diplomacy. Documentary. Directed by Hollander, Jord Den. Holland: Mission Statements, 2011.

which presents the architecture in the cleared format of interviews edited together with video of the embassies that are being discussed. These films were screened in Auckland this year as part of the Resene Architecture and Design Film Festival,[6] which was organised by Design Onscreen, an international organisation which produces, promotes and preserves high quality films on architecture and design. The growing popularity of events like this, which can be attested to in the fact that Auckland is now included in their events schedule that spans the USA and Canada as well, highlights the growing importance of film in architecture, even if only at a documentary level.

Compared with architecture in cinema, the existing use of moving images in architecture is at best primitive. The most common visualisation techniques employed are walk-throughs or fly-throughs. Such visualisations often include unnatural camera motion - that is to say motion that is too smooth, too fast, and too angular. Motion so distracting that it tends to get commented on rather than the architecture itself. Motion is not the only problem. Often the angle, such as those afforded by an aerial perspective, and the level of detail shown, is also at fault. Christchurch's new CBD Blueprint video is a case in point – shown entirely by aerial perspective with overlaid graphics of plans and designated clusters. The end result is an info-graphic rather than a moving image that might have shown the sort of spaces the plan creates. The Auckland city future plans and animations have a similar aesthetic and point of view. Consisting mainly of stills that are edited to give an artist's impression of the future of the city, animations are used to depict plans in 3D which utilise aerial views and mass models of the city to communicate the wide sweeping plans the council have for the city. Like the Christchurch plan these animations are unconvincing in their ability to portray the end product of the city plan to a public who want to see how they will inhabit the spaces if the plan comes to fruition.

Opposite these examples is the Wynyard Quarter animation which is largely a series of walkthroughs providing an eye level view of the proposed spaces which is more natural. This provides a better experience of the space, but the movement of the camera slides sideways in unnatural ways and the illusion of being in the space is substantially diminished.

Realisation Vs Visualisation

The current use of the moving image in architecture is in visualisations and any notion of cinematic intent is left until documentation after the building is constructed. Films, such as *Tron Legacy, Metropolis*[7] and *Inception* show that the construction of architecture

Figure 1. Christchurch Central Recovery Plan Animation

6 "Resene Architecture and Design Film Festival". Resene. Accessed September 6, 2012.http://www.resene.co.nz/filmfestival.htm

Figure 2. Wynyard Quarter Animation

for cinematic space can be incredibly compelling. Katherine Thomson-Jones puts this down to cinema's unique ability to depict both time and space to build a more realistic world than other arts.[8] By introducing cinematic techniques into the portrayal of architecture before it is constructed, it may be possible to better realise the architecture beforehand rather than relying on the ability to visualise the design. Using the portrayal of architecture to realise the built form prior to construction should therefore allow a larger audience to engage with the proposed architecture.

Cinema and Design

This thesis posits that the process and techniques through which a film is created can provide something useful to the realm of architectural design. The process of creating a film - the planning, constant revisions during both filming and editing, and critiquing the finished product – are not dissimilar to many of the processes that occur in the creation of architecture. One obvious area where film can provide a richness of both information and analysis is in the breadth of material it can capture in the documenting of building sites and their surrounds. Cinematic techniques used in film to convey and enhance narrative – by drawing focus, setting both the scene and an emotional register – can provide invaluable material for the design phase.

What film achieves that other mediums can't is moving images to draw people through spaces, direct their attention to particular aspects, and at times, disrupt expectations and preconceptions.

7 Metropolis. Motion Picture. Directed by Lang, Fritz. Germany: Universum Film, 1927.
8 Katherine Thomson-Jones. Aesthetics & Film. (New York : Continuum, c2008) 32.

1 Literary Discussion

In order to transfer strategies and techniques from the cinematic realm into that of architecture it's necessary to first establish what those similarities are. In *Agencies of the Frame* Michael Tawa points out that architecture and cinema are two distinct creative disciplines, "each with their own languages and sets of rules" but with areas of overlap. These areas are the qualities, conditions and techniques found in cinema that can "inform architectural designs, strategies, practices and representation".[9]

Tawa emphasises "drawing parallels" between cinematic ways of constructing film and architectural ways of constructing space, rather than "implying identity" between the two art forms. He suggests a focus on the common ground - "significant overlaps and resonances" - as the area of investigation[10]

Both cinema and architecture have a relationship with time, space, light and sound. Both can be analysed by selective division and isolation of each disciplines' key attributes. Cinema can be broken down into scenes, sequences and frames. Architecture can be divided into spaces, components and details. A comparison and analysis of cinematic elements can highlight the techniques that have been used. Camera movements, acting, editing decisions and all other components can be scrutinised in how a scene is composed.[11] It is proposed that such analysis will unveil techniques and relationships that can be integrated into the disciplines.

1.1 The Use of Time in Cinema and Architecture

While time is essential to the making of cinema which progresses from beginning to end, in architecture, time is a constant parameter that can be worked with but never changed. Tawa points out that time in cinema can be controlled - sped up, slowed down, or have entire moments cut out and dispensed with as though they never existed. Cinema can also mix time – able to portray past, present and future narratives together.

Jean Attali, in *Future Perfect/Time Transparency*, describes time in cinema as "animatic" - giving a sense of movement that can have a virtual presence in the past, present and future.[12] Ingerid Helsing Almaas, in *Is It Really There?*, describes time as a third dimension that can be combined with the two dimensional image[13]. All of these descriptions of time arrive at the same definition - a linear journey following a narrative that does not allow for interaction at any stage except for that peculiar type of interaction invoked by memory. Attali talks about the screen triggering thought about the past as well as provoking thought about the future: "What we celebrate today will be forgotten tomorrow".[14]This is cinema's strength as a thought provoking medium able to ask questions as well as put forward answers.

Tawa, while comparing cinema and architecture, comments that architecture's relationship with time is more passive. As time is an inescapable component of anything built,[15] it is able to be experienced in various ways that are not predetermined. A person can walk through spaces along various paths; they can avoid spaces, walk towards objects, remain in one space or run through the next.[16] In built form the occupier is responsible for their temporal experience. This is similar to Almaas's "human experience'" which is incorporated in the dimension of time and should not only be reliant on the effects time has on the building itself.[17]

9 Michael Tawa. Agencies of the frame: tectonic strategies in cinema and architecture. (Newcastle: Cambridge Scholars Pub., 2010) 1.
10 Tawa. Agencies of the frame, 1.
11 Tawa. Agencies of the frame, 18.
12 Jean Attali, "Future Perfect/Time Transparency." in Cinematic Architecture, ed. Pascal Shoning (London: Architectural Association, 2009), 18
13 Ingerid Helsing Almaas, "Is it Really There?" in Cinematic Architecture ed. Pascal Shoning (London: Architectural Association, 2009), 20
14 Attali, "Future Perfect/Time Transparency." 18.
15 Tawa. Agencies of the frame, 1.
16 Tawa. Agencies of the frame, 5.

Talk about time is usually about a collective experience of it – an experience is felt in cinema through its direction, pace and duration. Tawa highlights the issue by talking about the passing of time; "Duration… is the subjective experience of time"[18] which he categorises into three types:[19]

- "The time of projection" is the time that is taken to project the film; the duration of the film.
- "The time of action" is the time occupied in the film with specific parts of the narrative: actions
- "The time of perception" is the duration that we feel an action has taken as opposed to the actual time the action has taken. For instance Tawa mentions the use of extended durational shots "can intensify the experience of attending to the passage of time, to its viscosity and materiality"[20] and specifically mention Antonioni's works in manipulating time "by focusing on a time of watching rather than on a time of doing."[21]

Tawa then comments that cinema is able to manipulate elements – including time – to build the conditions and setting for a scenario to be played out. [22] While cinema has a high level of control over its elements, architecture – being situated in linear time – is unable to achieve such a degree of control. The experience of time in architecture usually revolves around days and seasons; time starts when a building is constructed and ends when it is demolished. Tawa notes that we use a clock to tell the time of day, to situate us within a 'chronological system' but asks what would happen if we did not know the time. He says that "not to be situated chronologically renders that situation ambiguous, uncertain and unstable. This might provoke experiences of wonder or anxiety, of ecstasy or distress."[23] By minimising architecture's location in time and focusing upon its perception – the outcome of temporal manipulation – architecture may design a scenario where the occupant is exposed to a different temporality.

The temporal experience of a space is one way in which time is related to architecture, another can be the way in which a space changes over time. Typically architecture ages if it isn't maintained. It becomes worn, nature takes over, mould grows and vines creep up walls. It may even collapse and become a ruin, an architecture of a style long past but still present. This is the lifespan of architecture. However an architecture may exist that could be adaptive to needs, able to be repurposed when necessary and be given a new lease of life - an architecture to engage with. Such architecture would have an embodied temporal capacity that at a small scale could be as simple as allowing spaces to be manipulated by occupants as they want. This is what Tawa explains as "an architecture of potential" that is "concerned with formal restraint and with quiet, slow elaboration calibrated to specific temporalities of engagement and emergence"[24] both referring here to the architecture interacting with time and to human interaction.

As an occupant moves through space, taking time to do so, they create their own temporalities based upon their speed of movement and path through the space. The space is also inherently linked in time to the previous spaces the occupant has visited and to their future destination. A linear timeline is possible through directly linked spaces, and may contain audible or visual cues of past and future spaces. Subsequently all spaces could be disconnected or interconnected disrupting the linearity either physically or visually where a space can be seen but not reached unless through a series of other spaces. Tawa cites the example of standing in a dining room and looking out to a courtyard and beyond to a forest that "allows us to have a sense of the spaces we have been in and other spaces available to use then we will have an intimation of a having-been and a to-be in previous and future settings."[25]

17 Almaas, "Is it Really There?" 20.
18 Tawa. Agencies of the frame, 147.
19 Tawa. Agencies of the frame, 147.
20 Tawa. Agencies of the frame, 148.
21 Tawa. Agencies of the frame, 151.
22 Tawa. Agencies of the frame, 184-185.
23 Tawa. Agencies of the frame, 187.
24 Tawa. Agencies of the frame, 183.
25 Tawa. Agencies of the frame, 191.

1.1.1 Conclusion

Typically an architect will only work with the passage of time where as a filmmaker only sees this as a starting point. Architects can learn from filmmakers' techniques that allow for an expanded timeline other than the general occupancy of a space. Occupancy generates experience through time and it is this which is synonymous with the duration of a film; it is what happens in this duration – the experience – that is the most vital in architecture and something that cinematic techniques can enhance.

1.2 The Use of Space in Cinema and Architecture

Space is also an area in which there is a crossover between architecture and cinema. Both disciplines are firmly anchored to location and setting, yet each engage and construct their worlds with distinctive characteristics and opportunities.[26] This relationship with space is riddled with potential in its organisation, and composition, as well as the use of patterns, tensions and energies for narrative, semantic, pragmatic or expressive ends.[27] How these are then used to frame the idea or subject is what allows cinema and architecture to link their worlds and human experience together.

1.2.1 Space in Cinema: The Frame

Space in cinema is the creation of a world within a frame, or as Tawa puts it "a setup that brings into relation different elements within an interactive field"[28] that encompasses the three dimensions and six directions of space – left, right, up, down, front and back. He goes on to state that there is then a regime of "related spatial qualities such as enclosure and exposure, layering, symmetry, scale, proportion and rhythm."[29] Here he relates space to rhythm and exposure, which are also related to time and light respectively, and hints at the interwoven nature of techniques in cinema between subject and portrayal; between space and the frame.

Without the physical dimensions of the cinematic frame we can consider the spaces within a film in order to discover the deceptive nature of a set. The spaces depicted are often half built or built in sections in order to fit a camera crew into the space along with the actors, actresses, lights, microphones and any other equipment that doesn't necessarily appear on screen. If we analyse the space itself we discover that it has no limits. Within a film it is physically located where it needs to be filmed, but the location may be anywhere.

The frame is the device through which we view cinema. It is the camera's field of view and perception that becomes ours for the duration of a film. Herbert Zettl, in *Sight Sound Motion Applied Media Aesthetics,* discusses the different aspect ratios that we see in cinematic projection. He makes reference to the old standard ratio of 4:3 and its limitations to provide enough width – which we more readily perceive than verticality. For more realistic composition of scenes the 16:9 ratio is typical. However films are often created at 2.35:1 to allow for even more horizontality, and only recently has cinema been considering the 16:9 ratio to allow for a greater immersive experience with more content on screen at the same time. These proportions have caused problems with the lack of verticality making it difficult to show tall subjects, like skyscrapers, and so other techniques such as panning and masking are used to allow these to sit inside the frame.[30]

It is the ratio of the frame, its geometry and what it contains, that Giles Deleuze, in *Cinema 1*, describes as a "closed system ... [that] can be considered in relation to the data that it communicates to the spectators: it is 'informatic', and saturated or rarefied."[31] In this case a saturated image refers to one that contains many competing subjects and a rarefied one is an image that contains few subjects. Tawa disagrees that the frame, and what is depicted in it, is a closed system. To him the frame is not just the box around but "assemblages, ensembles and systems consisting of fields of potential

26 Tawa. Agencies of the frame, 36.
27 Tawa. Agencies of the frame, 37.
28 Tawa. Agencies of the frame, 91.
29 Tawa. Agencies of the frame, 92.
30 Herbert Zettl, Sight, sound, motion: applied media aesthetics (Belmont, CA: Thomson/Wadsworth, c2008), 72-79.
31 Gilles Deleuze, Cinema 1 (London: Continuum, 2005) 19. Tawa. Agencies of the frame, 94.

that can be mobilised precisely because they are charged and in flux."[32] While both views are similar, Tawa is referring to the frame's potential to relate to something outside of the frame whereas Deleuze is referring only to what is directly in front of the camera. This clarification is important as Tawa mentions that what happens off screen may be equally, or more important, than what is happening on it.[33]

Both Deleuze and Tawa do agree that the frame is the point of view through which we view a film - not only does it contain all we see in a film, but also how we see the film. Angles in films may appear to be normal, placed at eye level, or bizarre, placed on the ground. Deleuze, however, suggests that they "must be revealed as normal and regular – either from the point of view as a more comprehensive set which includes the first, or from the point of view of an initially unseen, not given, element of the first set."[34] Tawa sees this as one possibility, that cinematic space can mirror real world space,[35] and Zettl suggests that the angles used can have a more powerful meaning if placed intentionally to enhance what is being shown.[36]

Tawa talks about layers and different densities in the frame allowing more or less spatial information which follows a thematic and narrative hierarchy: "Layers may be differently weighted to unsettle expectations for dramatic, aesthetic, political and other ends." Cinema is able to background the foreground and concentrate on the background or something off screen,[37] something which is much harder to achieve architecturally. Here, the other techniques used in the creation of a film work within the frame to refocus and manipulate the viewer's perception and gaze.

1.2.2 Space in Architecture

Architecturally the term space has a greater importance than it does in cinema. In architecture, space is one of the key building blocks and at the same time the final product. The architect's creation and manipulation of space creates the architecture that is then inhabited by the occupant. While there is a vast theoretical debate about space in architecture, most of the research in this thesis is concentrated on Tawa's writing because of its focus on architectural space in relation to cinematic space.

Tawa starts his discussion on architectural space by referring to Vitruvius' thoughts on architecture as a system of combined opposites: "order and disposition which determine composition; eurhythmy and symmetry which determine proportional harmonics and finally convenience and distribution which are the properly domestic conditions of buildings as households".[38] Tawa builds upon Vitruvius's views, adding that architecture creates a spatial field where "cosmic, tectonic and human coordinates can be played out"[39] – this is the idea of systems playing in a space.

Tawa says that geometric systems are used in architecture to frame human occupancy "in the interstices and folds of form".[40] His use of words, such as interstices and folds, reveals his position on the permeability and mutability of architectural space – something he refuses to see as having hard boundaries. This is in keeping with his view of the cinematic frame and that the opportunities both afford are dynamic and open to change.

Tawa's thoughts of a frame in architecture do not only stem from the nature of his book but also from his ideas about architectural plans. He relates architectural plans to that of a frame, an architectural frame of a site and, in particular, its relationship to landscape and setting. However his frame is more focused on looking after and searching for these relationships than looking at them directly. These can be seen in the strategies and structures that interact with the ground; how aspects are literally framed – how they are visible or invisible, how they are overlooked, or how they engage with context and situation, be it urban context or natural light.[41]

32 Tawa. Agencies of the frame, 94.
33 Tawa. Agencies of the frame, 97.
34 Deleuze, Cinema 1, 16,
35 Tawa. Agencies of the frame, 94.
36 Zettl, Sight, sound, motion, 97-98.
37 Tawa. Agencies of the frame, 95.
38 Tawa. Agencies of the frame, 93.
39 Tawa. Agencies of the frame, 94.
40 Tawa. Agencies of the frame, 116.

In terms of an architectural plan itself, Tawa does not prescribe anything. Instead he focuses on the opportunities that space, in a generic sense, allows. He encourages the use of transparency in order to blur the lines of a plan as windows do with their frames denoting a boundary and the glass allowing the exterior to mix with the interior.[42] Planning itself is a process that Tawa suggests should be left relatively undefined referring again to potential. “An architectural plan is not merely a prescription or generator for spatial, geometric and formal configuration,” he says. “Conceptually and effectively it is a certain look at organisational opportunity and potential.”[43]

1.2.3 Movement in Space: Cinema Vs Architecture

The camera in cinema is able to move through space, like humans do through buildings. Through its lens we observe through the confines of its frame. In contrast architecture defines space, creating an experience. This is why movement is important in cinema, it not only dictates how and what we see but defines the overall experience. Pascal Schoning, in his *Manifesto for a Cinematic Architecture*, reinforces this idea, describing space as something we experience through our senses - in both cinema and architecture primarily through sight and sound.[44] Sight, being the primary sense in cinema, is subject to the perception of motion and thus the movement of the camera is as important as the way in which we move around an architectural space.

The movement of the camera or the movement of subject in front of the camera – or the lack of either – creates an experience that will be perceived differently based on the positions, angles and motions in the scene. : “Camera position and movement in relation to place and action are critical” says Tawa. ‘A still camera set frontally and normal to the action that moves parallel to its picture plane will convey a very different regime of visuality and looking than one set high, shooting obliquely at an acute angle and moving diagonally in relationship to the setting and action.”[45] These are points that Deleuze expands upon mentioning that each shot will have its own focus and spatiality during its own duration.[46]

While discussing the experience of architectural space Schoning makes the comment that we have to walk through a space to experience it. “The time is takes to do this gives us another consciousness of the space. But of course that’s not all, because the events that happen during our passage through the space influence our perception of it”.[47] The motion of the camera, but not necessarily the position, height, or direction that it is generally moving in, can impact the overall experience. Karl Sabbagh, in *Building Films*, makes note that the unsteady motion of a shoulder mounted camera can bring an informal look to a film.[48]

Combining both a filmic sense of space in an architectural form Tawa uses the example of Le Corbusier’s Villa Savoye. He explains that the Villa has a cinematic spatial configuration in that it follows a narrative as it forces the occupant to walk through spaces in order to get to others. As the occupant walks the predetermined path spaces open up in front of them.[49] This could be combined with spaces that utilise transparency - the idea of time in space where past, present and future spaces are all visible at the same time.

1.2.4 Conclusion

Tawa sums up the way in which cinema and architecture work with space in that the creative person behind them - be it architect or filmmaker - works with space in different ways because of their predispositions towards areas of the creation.[50] Brette Steel in an article in *Cinematic Architecture* mentions that film is able to transform in a way in which space is both seen and experienced. He mentions that architecture is ‘haunted’ by what film can do over other forms of media because

41 Tawa. Agencies of the frame, 117.
42 Tawa. Agencies of the frame,96-98.
43 Tawa. Agencies of the frame, 116.
44 Pascal Schoning, Manifesto for a Cinematic Architecture. (London: AA Publications, 2006), 21.
45 Tawa. Agencies of the frame, 96.
46 Deleuze, Cinema 1, 23-26.
47 Schoning, Manifesto for a Cinematic Architecture, 12-13.
48 Sabbagh, Karl. “Building Films.” In Architectural Design: Architecture + Film II, edited by Bob Fear,(New York: Wiley-Academy, 2000), 81.
49 Tawa. Agencies of the frame, 119.

of “its ability to convey memory and experience in new and unexpected ways when compared to the disciplinary conventions of architecture”.[51]

1.3 The Use of Light, Colour and Sound in Cinema and Architecture

At a fundamental level both cinema and architecture are created from what we can sense, namely what we can see and hear. Tawa explains that it is light and sound that creates what we see and experience in cinema and that how this is perceived is dependent on the techniques used. In a similar fashion architecture is dependent on how materials absorb, reflect or transmit light and sound.[52] Conversely Almaas suggests that the correlation between cinema and architecture (particularly around cinematic architecture) is centred on the lack of materiality and therefore the logical material is light.[53] Perhaps these direct correlations between cinema and architecture, and their broad relationships with many techniques make it possible to bridge other areas of relevance and bring the two disciplines together.

1.3.1 Light and Colour in Cinema

Alexis Van Hurkman in the Color C*orrection Handbook* discusses the use, or rather control, of light and colour in video and cinema post production. Van Hurkman, a professional colourist, points out that the aim of colour correction is to draw focus and to aid the narrative of material that has already been filmed; however he also highlights areas that should be considered during filming. In his book he refers to a technique of creating depth by using depth cues. He describes three depth cues – perspective, occlusion and relative motion – that are worked with during filming. Three main depth cues that can be manipulated during post production: luminosity and colour contrast that can elude to depth and bring forward subjects; haze and atmosphere where higher contrast areas appear closer as do warmer colours whereas cooler colours and low contrast are perceived as being further away; and texture and depth-of-field with closer objects having more detail.[54] The overarching idea behind this work is that these cues can be utilised to bring a subject into focus.

Van Hurkman’s book is a technical manual but he has included reasoning and explanations behind common corrections such as the use of contrast, memory colours, the perception of colour and its importance. The human eye is most sensitive to light, hence black and white images are the easiest to discern and why cameras capture more luma (light) information than chroma (colour), and “the visual cues we get from image luminance and tonality have a profound effect on how we perceive the sharpness, depth, and organization of subjects within a scene.”[55] While our perception is influenced by colour, stronger changes can be noticed with small changes in luma values. Memory colours are those that people associate with specific subjects; the most common is skin tones which we expect to look a certain way, with skies and foliage having other common memory colours. However the ideal colours we associate with these subjects may not be accurate representations of their colours. In a white paper by Bodrogi and Tarczali, *Investigation of Human Colour Memory*, they explain that most memory colours have a boost in their saturation and tend to more idealised chroma values.[56] Blue skies, for instance, are often more cyan than measured values would be. Memory colours are therefore triggers that we pick up and focus on as well as being references to the perception of other colours on screen.

Van Hurkman also talks about the expectations of light and colour in relation to the time of day. He discusses the use of luma levels and contrast as well as hues and their contrast with the perception of the above keying into a registrar from memory of times of day and how they should appear. A scene shot in the evening, for example, is usually low contrast with a low white point because of the fading light. Often

50 Tawa. Agencies of the frame, 94.
51 Brett Steele. “Architecture as Light and Architect as Auteur.”In Cinematic Architecture, edited by Pascal Shoning, Julian Loffler and Rubens Azevedo,(London: Architectural Association, 2009), 4.
52 Tawa. Agencies of the frame, 38.
53 Almaas, “Is it Really There?” 20
54 Alexis Van Hurkman, Color Correction Handbook: Professional Techniques for Video and Cinema (Berkeley, CA:Peachpit, 2010), 250-252.
55 Van Hurkman, Color Correction Handbook, 41.
56 Tunde Tarczali. “Investigation of Colour Memory”.(PhD Dissertation, University of Pannonia, 2007), 7.

colour will turn towards blue, but sometimes will tend towards orange depending on the exact time – a sunset appears orange and street lamps are more orange than white. In addition to this, the lighting changes with the seasons, with summer sun bleaching colour from subjects and over exposing them if the director of photography isn't careful. Like memory colours, these lighting conditions can be an effective way to communicate time without blatantly mentioning it.

1.3.2 Light and Colour in Architecture

Architecture, like cinema, is perceived through light and sound. However unlike cinema, architecture acts as "a receptor, modifier and transmitter of light and sound."[57] The materials from which architecture is created react differently. They can "absorb, reflect and transmit light, or modify the spectrum of white light in different ways."[58] Cinema can capture this, but it is architecture that can react to it and manipulate it.

Like Van Hurkman, Tawa reiterates how light changes during the day and the effects that has on light levels, colours and clarity. He refers to high summer sunlight "that bleaches colour or dissolves the edges and boundaries of form" and low morning or afternoon light "that reinforces contour and profile, that darkens shade and shadow or reveals form and its multiple articulations."[59] The qualities of light in architecture are linked to the time of day as well as location and it is possible to manipulate these and, in doing so, one can enhance, create or locate the architecture both spatially and temporally. Schoning takes this to the extreme, pointing out that in daylight he can estimate dimensions by eye but in the dark he is unable to[60] - an obvious point, but one that clearly illustrates the dependence architecture has on light.

1.3.3 Sound

Sound is often overlooked in architecture. Acoustic properties are considered important in certain rooms, and the most common architectural interaction with sound is the removal of it. As it does with light, architecture reacts to sound. Materials absorb, reflect or transmit sound differently and can be used to manipulate it. The reverberation of a large space impacts upon auditory sense without having to see the size while the elimination of reverberation in an anechoic chamber gives no information to the occupant about the size or location of the room.

Ambient sound in architecture affects the perception of a space. "Whether next to a busy road, the ocean or a forest, a building might exclude or include ambient sound to various degrees," says Tawa. "Propagated in time, that sound manifests certain life patterns – the volume of traffic at peak hour, birds at dawn, evening wind through a grove of pine trees, a neighbour's yelping dogs, garbage trucks on an early weekday morning, and so forth."[61]Ambient sound like this connects to memory, location, time and experience.

1.4 Conclusion

This disassembly and analysis of the various techniques used in capturing and manipulating cinema and discovery of their uses and relationships, enables their reassembly and utilisation in architectural projects. Tawa argues that "design is an opportunity to collect, mobilise, and direct such diverse assemblages, assuming they and their components have been properly identified. If only a portion of their components have been recognised and worked with, the rest still remain and will influence the processes and outcomes of design."[62] Here Tawa contends that the breakdown of cinematic techniques can lead to their subsequent reassembly into an architectural design or process, even if some techniques are favoured over others, as they are all connected and don't operate in isolation.

57 Tawa. Agencies of the frame, 201.
58 Tawa. Agencies of the frame, 201.
59 Tawa. Agencies of the frame. 201.
60 Schoning, Manifesto for a Cinematic Architecture, 14.
61 Tawa. Agencies of the frame. 203.
62 Tawa. Agencies of the frame. 24.

2 Cinematic Techniques in Films

The following review of selected films has been undertaken to catalogue some of the techniques that are called upon by filmmakers to communicate their narrative. Through the analysis of how narrative is portrayed and affected by these techniques it is possible to link them to techniques or attributes in architecture where the architectural narrative can be considered to be the design idea. Tawa mentions this in the first page of his book: “The intent is to discern within cinema those qualities, conditions and techniques that might be useful for design strategies, tactics and practices.”[63] He makes the point that walking through space can be compared to the watching of cinema. Both, he says, offer a holistic view that is more engaging than a close inspection of details or techniques;[64] however the latter provides greater definition and structure for future reconstruction outside of a review.

These films have been chosen because of their successful portrayal of architecture or space through cinematic techniques. The aim of cataloguing the cinematic techniques from these particular films is to create a tool set which can be used in the design and representation of architecture. The specific areas focused on are: the use of time, the frame, light, colour and sound, all in relation to each film’s narrative.

Certain terminology used in the reviews needs some explaining:

- Subject: This refers to the central figure, object, or element of space that is the focal point of a shot. It does not exclude characters which are a central figure, but it does mean that the subject of a shot can be anything that exists inside or outside the shot.
- Look: In film terminology, the look of a film is descriptive of the colour and atmosphere of the shot. Normally this includes hues, light levels and contrast but may also include textures – film grain being the most common – that sit in front of the captured image.
- Shot Sequence Scene Film: The progression of scales through which a film is built up.
- Timelapse: A series of still photos taken at regular intervals and combined into a single video that usually depicts a large time span in a relatively short timeframe.
- Slow Motion: The opposite of timelapse: a large number of frames taken per second and played back over a longer period of time than the original.
- Focus: This has two meanings: The first being the focal point of a shot; the second is used to describe a subject’s clarity or sharpness. These two are different, but usually relate to the same subject on screen.

63 Tawa. Agencies of the frame, 1.
64 Tawa. Agencies of the frame, 20.

2.1 Time

A filmmaker may utilise the potential time has to aid a narrative or disregard it if they don't think that it will add anything to the film. Some films, such as *Timescapes*[65] and *Inception,*[66] are wholly invested in the notion of time, duration and pace. Others, such as *Les Vacances de Monsieur Hulot*[67] and *A Kind of Architect,*[68] exist on one time line, a form of documentary where linear time and the actions within it are shown.

2.1.1 Timeline

Les Vacances de Monsieur Hulot and *In Time*[69] both use the linear narrative to set the scene and deliver the narrative without reference - other than the occasional mention of something to trigger a past memory - to events in other temporalities or changes in speed. The linear sequence of events portrayed in the journey to the seaside, in *Les Vacances de Monsieur Hulot,* is continued throughout the entire film. The film is essentially a fictional documentary of Mr Hulot's journey to and vacation by the sea. The transition from day to night is shown each night with a shot looking up at the hotel's windows lit up to varying degrees. Similarly the mornings are portrayed looking down from the window at the beach. The only nonlinear time elements to the film are the memories such a film provokes: those of a journey to the beach as a child with the family (figure 3).

Figure 3. The provocation of memory in *Les Vacances de Monsieur Hulot.*

65 Timescapes. Motion Picture. Directed by Lowe, Tom. New Zealand: Southwest Light, 2012.
66 Nolan, Inception.
67 Les Vacances de Monsieur Hulot. Motion Picture. Directed by Tati, Jacques. France: Specta Films, 1953.
68 Heidingsfelder and Tesch, A Kind of Architect.
69 In Time. Motion Picture. Directed by Niccol, Andrew. USA: Regency Enterprises, 2011.

Figure 4. The first three shots in *Timescapes.*

Timescapes is a unique film from the ones reviewed as it does not contain any normal speed video. All the clips that make up the film are either faster or slower than normal. This gives the film an almost otherworldly feel and, as Lowe mentions in an interview, it's a way of "showing people things in a new way"[70]. This technique would usually be used for a single shot or montage in some films to set a scene or describe a place, time or series of events that have happened. The opening shots (figure 4) in *Timescapes* of water moving in slow motion, a slow timelapse pan around a tree and then slow motion waves hitting the shore, reset the viewer's preconceived ideas of time and narrative for the film. This conditioning of perception at the beginning of the film is important for setting the pace and scenes for the film which follows.

70 "The Curious Case of Tom Lowe: From Writer to Master Time-Lapse Photographer". In Creative Planet Network, accessed October 3, 2012, http://www.creativeplanetnetwork.com/2-pop/reviews/curious-case-tom-lowe-writer-master-time-lapse-photographer/38397

Inception is a film that deals with time on multiple registers. One of these is the level based nature of dream worlds and memories. Cobb, the protagonist of the film with a past that haunts him, escapes into a dream world to revisit memories which he transitions between by way of an elevator. As Glenn Heath says in his review of Inception "Nolan constructs the sequence around a descending elevator set-piece, where every floor represents a different memory of Cobb's guilt".[71] The elevator serves as a method of cataloguing and jumping between memories.

Figure 5. The elevator in *Inception* opens onto a beach.

71 Glenn Heath, "Inception". In Review Online, accessed September 6, 2012, http://www.inreviewonline.com/inreview/current_film/Entries/2010/7/23_Inception_%282010%29_Directed_by_Christopher_Nolan.html

Figure 6. Small movements in *Timescapes* are noticed because of the duration of the shot.

2.1.2 Pacing

The way in which Tom Lowe has filmed *Timescapes*, using timelapse photography, gives him precise control over the duration and framing of the shots. The film is only 40 minutes long and most of the shots are around 30-40 seconds. The long duration of these shots heightens the viewer's perception of detail, allowing them greater time to see, absorb and acknowledge fine details that would normally be glossed over. A great example of this in *Timescapes* is the forest, where the dolly forward by the camera is almost imperceptible as are the tiny movements of the branches (figure 6). However, because of the duration of the shot the viewer starts to notice these small movements. Other films use lingering shots in a similar way such as *Red Desert*[72] and *Les Vacances de Monsieur Hulot* where it used to dramatic effect by increasing the attention of viewers on specific shots and subjects.

72 Red Desert. Motion Picture. Directed by Antonioni, Michelangelo. Italy: Federiz, 1964.

2.1.3 Speed

Joseph Kosinski, the director of *Tron Legacy*[73], ramps speed - slowing it down or speeding it up in a single shot - at critical moments. This is used as a plot device in the ‘disc wars’ scenes where time is slowed in order to show the movement and evasion of the discs when thrown. It is also used to display and describe the light cycles and how they are generated in the middle of the film through a slow motion animation - the cycle forming as a wireframe before being fleshed out in the Tron aesthetic of reflective black surfaces and faction coloured lights (figure 7). The use of slow motion in Tron allows us to see the details of what has been constructed on screen.

Figure 7. A sequence of frames from a slow motion shot in *Tron Legacy* allows for otherwise imperceptible detail to be seen.

73 Kosinski, Tron Legacy

Figure 8. Three dream worlds that are portrayed at the same time in *Inception*

Inception utilises time through the temporal relationship between dreams. The flow of time between the different levels of dreaming is not linear, and the amount of time spent at each level of dreaming gets exponentially longer. This is visualised in one scene, where the real world runs in super slow motion, the first level of dream worlds at 1/20 speed, the second at 1/400 speed and so on. In an interview with David Heuring, the film's director Christopher Nolan described his preference for slow motion footage: "There are very few high-speed shots in anything I've done because I feel it is inherently unreal, but it's an essential component of *Inception* because there is a very specific temporal relationship between the dream world and the waking world."[74] One of the moments showing the temporal links between the dreams is the scene following a van which is in free fall having been driven off a bridge. There are many cuts back to the van falling in slow motion while the other characters are trying to complete their tasks in other levels of dreams (figure 8). The editing here allows us to understand the dynamics of the difference in time visually rather than just knowing about it through dialogue.

74 David Heuring, "Dream Thieves". American Cinematographer, accessed September 6, 2012, http://www.theasc.com/ac_magazine/July2010/Inception/page1.php

2.2 Frame

The camera's position, angle and motion; the spatial configuration of the set; and the sequence of different shots can all affect our perception and understanding of a film. Certain techniques in framing shots are more suited than others to the content of the shot itself. For instance, action scenes are more conducive to quick movements whereas they would not be appropriate for framing a conversation.

2.2.1 Composition

Layering is used in *In Time* when Will and Sylvia rob a time bank. The viewer is as unaware as the characters that a truck is going to drive through the front of the building. This is accomplished by focusing the frame, narrative and audio on the bank teller and a customer with the truck approaching in the background. As we switch between the two people in conversation we can see the truck getting bigger behind the customer (figure 9); the layers in this shot are what manage to hide the movement until the sound of the truck's horn reveals the robbery taking place and details that previously weren't noticed become apparent. Layers are often aided by the use of focus, something that Zettl mentions in his chapter about the three dimensional field of depth and volume. Specifically he calls attention to depth factors: elements and techniques that denote depth in a shot.[75] *In Time* uses the technique of selective focus to mask the truck approaching the bank and the same technique means that the more imminent the impact the more in focus the truck becomes as the layers of the shot start to merge.

Figure 9. Layers and a sequence of shots in *In Time* conceal the impending crash.

Figure 10. Layers of action in *Red Desert* define the space in which Giuliana can move.

Layers also can define space, as they do in the first scene of *Red Desert* where the director, Michelangelo Antonioni, shows Giuliana (the main character, and wife to the factory foreman, who is not of sane mind) in focus with others passing in front of her out of focus - indicating a barrier between her and the world. Here layers are used to denote what is out of reach of the characters in the narrative.

75 Zettl, Sight Sound Motion, 141-156.

In *Les Vacances de Monsieur Hulot* one shot that is repeated throughout the film has the female lead at the window of her room overlooking the beach and its activities. The angle of these shots vary in each scene - changing its position and viewpoint from eye level on the ground and first floor; and a view of looking up at the window or down at the road. These shots are manipulated to convey the narrative by setting the scene with the wide angles afforded by the elevation of the room (figure 11). This does not look unnatural as the sequence allows a plausible vantage point for the cameras set up by the ground level shots.

Figure 11. Initial camera angles set up a position for the subsequent shots in *Les Vacances de Monsieur Hulot.*

Figure 12. First person perspective in *Tron Legacy*

The arrangement of subjects within a frame can also happen from first person perspective in order to enhance the experience. An example of this is the scene in *Tron Legacy* where the main character, Sam Flynn, the son of the designer of the Tron world, Kevin Flynn, base jumps off the Encom tower. The camera moves and rotates from side to side as he glides down to the street (figure 12). This provides a heightened level of experience to the viewer. Because the camera usually moves more freely, and can be unsettling if it moves too much or for extended periods of time, it is not used a lot in films but can be convincing when it is.

Many filmmakers like to keep their subjects off centre, to give them a larger proportion of the frame and to stress the background over the foreground. In *Hugo*[76], *director* Martin Scorsese goes against this trend preferring mostly centralised framing which Zettl describes as more stable and a way to emphasise and bring forward the subject.[77] This may be done for the 3D version more than the 2D version as a centred 3D image can be more powerful than one that is at odd angles. The central framing provides the viewer with many single point perspective shots and symmetry. In *Hugo* these are used - especially when the lines of the architecture of the train station can be seen - to draw the attention of the viewer (figure 13).

Figure 13. Central framing in *Hugo* stabilises the shot.

76 Scorsese, Hugo.
77 Zettl, Sight Sound Motion, 92-99.

Figure 14. An aerial perspective in *Inception* locates the main character, Cobb, in the streets of Mombasa.

2.2.2 Establishing a Scene

Antonioni uses establishing wide exterior shots a lot in *Red Desert*. In the first shots of the film he lingers on a number of wide angles of an industrial plant spewing forth toxic yellow smoke. This is interspersed with close ups to break the monotony. It emphasises the industrial setting and sets up the location for the rest of the film.[78] This can be compared to Nolan's use of establishing "wides" in *Inception*. Although it is not the first shot in the sequence, the bird's eye view during an action scene in Mombasa shows the lead character Cobb running through the streets, The shot provides a location reference to the previous and following fast-paced action shots among the crowds (figure 14).

78 Zettl, Sight Sound Motion, 126-130.

Scorsese and his crew effectively use long tracking shots to establish not only a scene but the entire narrative of *Hugo*. One such shot shows the lead character, Hugo, moving through access ways from one clock to another. This tracking shot, appears as if it is all one shot but is actually a masterfully combined series of shots. The shots are comprised of green screen elements and passageways with carefully placed objects to obscure camera masks. The green screen allows the camera to follow Hugo through spaces it is impossible for it to fit or move through. The effect is that the viewer learns of Hugo's servicing of these clocks and much of the background narrative all before the opening title appears (figure 15).[79] *Tron Legacy* also manages to introduce us to the film through a combination of the same technique and a voice over to explain the idea of the Grid – a digital world envisaged as an inhabitable model of the internet with data highways that are used by humanised computer programs.

Figure 15. Tracking shots in *Hugo* explain the narrative.

79 Mike Seymour. "Hugo: a study of modern inventive visual effects". FX Guide Accessed September 6, 2012. http://www.fxguide.com/featured/hugo-a-study-of-modern-inventive-visual-effects/

Figure 16. The opening sequence of *Hugo* provides geographical reference as to the location of the station.

2.2.3 Motion

The motion of a camera through a space gives us more information about its spatial qualities in comparison to a locked off shot. Scorsese in *Hugo* uses an open tracking shot to provide a geographical reference to the location of the narrative. Being a timepiece film, set in the 1930's, meant that exteriors of cities had to be created digitally rather than just filmed. This allowed creative freedom for the angles and motion in the shot. The shot starts with a wide angle of Paris with the Eiffel tower prominent in the vertical pan. As the camera then moves in towards the station in the foreground, we then enter it in one continuous shot and proceed to move forward between two trains. This computer-generated imagery scene transitions near the end into a live action set. Through the motion of this one shot Scorsese has located the viewer in Paris, in winter and in a narrative that revolves around a train station all of which is shown in the first 75 seconds of the film.[80]

80 "Hugo and the History of the Movies (Part I)" B+ Movie Blog. Accessed September 6, 2012. http://bplusmovieblog.com/2012/03/05/hugo-and-the-history-of-the-movies-part-i/

Motion of the camera in relation to the character is an important technique commonly used in film, and is used in *Tron Legacy*. In one of the first real world scenes we see the lead character, Sam Flynn, on a motor cycle speeding through the city's motorway being chased by the police. The angles of these vary from pans that speed past as he closes in on the camera, to shots that are locked to his motorcycle so that he doesn't appear to be moving but the background is what gives us a heightened sense of movement and speed. The linked character and camera motion is used in many of the light cycle shots, as well as the light jet scene at the end of the film (figure 17). When combined with the 3D in the film the viewer is immersed in the action. This technique is also used in a car chase in *In Time* as well as when the main character, Will, and his mother are running towards each other near the start of the film.

Figure 17. Locked off motion shots in *Tron Legacy* heighten the sense of movement.

Figure 18. Depth of field in *Hugo* focuses the viewer on the background.

2.2.4 Focus

Focus – the sharpness of an element – is the major depth and focal tool that filmmakers use. Scorsese in *Hugo* utilises a shallow depth of field – a limited depth where the subject is sharp and the rest fades to be out of focus. This has the effect of bringing the subject forward in frame by either defocusing the foreground or background. Having an unfocussed background is the most common, as is illustrated frequently in *Hugo* where his expressions are most important, a shallow depth of field with Hugo in focus leave the viewer with few or no alternatives to look at. Foregrounding the background through focus is used less often, most notably when *Hugo* is staring at the cupboard in the house of Georg Melies, a pioneer of narrative filmmaking (figure 18). The use of focus here once again forces the viewers' attention on the subject – the cupboard – rather than Hugo who would have dominated the frame otherwise.

A rack focus – shifting focus between two or more subjects in a shot – is commonly employed by Kosinski in *Tron Legacy* to switch a viewer's attention to another character or element. This is a technique that is enhanced by the use of 3D in cinema as it is heavily involved with depth perception. An example of this is during lead character Sam's first 'Disc Battle' where the camera pulls focus from the lit disc in the foreground to Sam standing in the distance behind it (figure 19). The rack focus forces us to acknowledge the two distinct subjects that otherwise would have been revealed in separate shots. The focus change is another tool for the filmmaker to control pace.[81]

Figure 19. A rack focus in *Tron Legacy* acknowledges both foreground and background separately.

81 Zettl, Sight Sound Motion, 155-156.

Figure 20. Depth of field and animation increases the 3D appearance of a 2D image in *A Kind of Architect*

One of the more successful moments in the *A Kind of Architect* involves the photography and videography of physical models. Most of these images are still, but manage to showcase the spaces in the models. The stills are sometimes animated to zoom which gives them a more 3D appearance and by using blurring to simulate focus, removes the attention of the viewer from the subject (figure 20). This comes shortly after a series of successful animated diagrams discussing Koolhaas' use of them. The diagrams, being static and 2D in nature, are brought to life with simple animation. The movement in the previously still images is a suitable adaption for their depiction on screen.

2.3 Light and Colour

Light and colour are inherently tied together and create the look of a film which aids the narrative by creating or removing contrast and sustaining a viewer's interest in a shot.

2.3.1 Time of Day

The primary use of colour in *In Time* is to portray time more than it is to add a creative look to the film. In an early scene the main characters, Will and Henry, are on the run from a criminal gang through the streets of a city. The scene is set at night with practical lighting sources being the street lamps. Streetlamps usually give off an orange hue which is expressed in the colour for these street shots, and the proceeding shots inside an abandoned building. This same set – the abandoned building – is lit with daylight the next morning with the effect that the colours are more neutral; the light closer to white, although still tinged orange a little to provide a warmer look. This warmer look is combined with low contrast where whites that are blown out in recording are tinted orange as they tend towards grey (figure 21).

Figure 21. Light and colour creates a look for specific times of day in *In Time*

Figure 22. Light levels are keyed to emotional undercurrents in *Metropolis*

2.3.2 Coding

Colour in some films, such as *Metropolis*[82], *Red Desert, Hugo* and *Tron Legacy*, is used to code different times, places or states of mind in a similar way to which time of day is portrayed, but in a way that is not so evident at first glance. *Metropolis* uses light in the absence of colour to set an emotional register that is otherwise reliant on the musical score. The film employs a key where light scenes are used in any shot above the city, especially in the Eternal Gardens scenes. In those scenes the use of a white vignette around the frame serves to further brighten the image and convey a sense of happiness and frivolity. This is in direct contrast to the scenes in the catacombs beneath the workers' city. Here light is used sparingly to pull out characters and key background elements, and to present an image of secrecy and dark intentions (figure 22). Light can be a powerful technique when used in these ways.

82 Lang, Metropolis.

Red Desert utilises colour in a similar way to *Metropolis's* use of light to highlight the harshness of the industrial world where the colours are predominantly murky greys and browns. This contrasts to the much more vibrant colours used when the lead character Giuliana is telling her son, Valerio, a story with its oceans and beaches. The colours we see are keyed to Giuliana's state of mind - so much so that some critics have discussed a legend of colour coding "in which yellow indicates toxicity, red danger, green or brown the natural world, and blue recuperation."[83] This isn't restricted to the overall image and can be specific to elements such as the green of Giuliana's coat in the first scene or the blue of the water in the story. Progressions in techniques and equipment have enabled the use of colour to denote emotions or atmospheres for a shot by simply adding warm or cold tints – techniques not available to the director, Antonioni when the film was made.

Figure 23. Colour coding in *Red Desert* is keyed to Giuliana's state of mind.

83 Murray Pomerance, Michelangelo Red Antonioni Blue: Eight Reflections on Cinema.(Berkeley, CA, USA: University of California Press, 2011), 71.

Figure 24. The use of purple in *Hugo* signifies the hard life Hugo is about to endure.

Hugo makes use of a technique and colour that is seldom used in cinema. The colour purple can be used to create a sense of unease or dread in a film and is usually a precursor to something bad happening. In *Hugo* this is used specifically in his flashback to when he was told his father had passed away and his uncle would be taking him back to the station (figure 24). In a shot as they walk through Paris the shadows have been tinged with purple while the midtones remain blue and the highlights retain a touch of orange to draw them from the background.[84]

84 Patti Bellantoni. If it's purple, someone's gonna die. (Oxford: Focal Press, 2005) 191.

In *Tron Legacy* the contrast between the real and digital worlds is highlighted by the use of colour. Colours in the real world are mainly warm neutrals such as skin tones, incandescent lighting in buildings and on the streets and a golden sunrise at the end of the film (figure 25). There are only a couple of times that the real world deviates from this. The first of which is the scene in which the viewer learns of the disappearance of the character Kevin Flynn and his son Sam Flynn's emotional reaction; here, the depressing tones of the scene are brought out in the blue colours and the rain both of which have gloomy connotations associated with them. The other time that the warm colour scheme is discarded is in the Encom building where technology is given preference and the blue hues with LED (light-emitting diode) lighting is used, continuing the theme of warm colour for the real world and blue hues for the digital. A similar theme can be seen in architecture in the way workspaces are lit with diffuse fluorescent lighting and homes with warmer incandescent lights – demonstrating how the colour of the environment affects the experience of space.

Figure 25. The difference between the real and digital worlds in *Tron Legacy*

Figure 26. Colour contrast in *Hugo* draws focus to the character and away from the cold background.

2.3.3 Focus

Because of the importance of light and colour, it is common practice to use the two to draw focus to a subject using a variety of techniques. *Hugo* does this and utilises a consistent look to tie all scenes and shots together. This look is heavily biased towards flesh tones and their complimentary colour, blue. The abundance of blue and orange tones aid in focusing the viewer on the subject of each shot and this can be seen best in outdoor scenes. In one such scene Hugo and Isabelle are drawn forward in frame because of the colour contrast between them and the blue background of the city streets. As Alexis Van Hurkman states in his *Colour Correction Handbook*, the perceived depth of warm hues is closer than cold hues.[85] The intensity of the contrast in this scene is partly due to the time of day – the scene is set at night and so a lowering of luminosity is normal. Notably, this scene is situated in a built environment – the street – and the characters positions are also marked by light and a warmer colour that would attract attention, even if the characters were removed (figure 26).

85 Van Hurkman, Color Correction Handbook, 251.

Timescapes, unlike the other films reviewed, has a natural colour palette, but one that is not often seen by many people. The galaxies shown in the night skies, the sunsets and sunrises, the forests and the beaches all have heightened colour and this stands out even more when the shots are viewed one after another. Colour and contrast are a big part of the process for selecting focal points for the human eye. *Timescapes* utilises both components and because of this the shots are visually appealing. An added benefit to the film and its diversity of colour is that there are very few shots with people in them. People can cause issues with colour in films as skin tones all sit within the same range in a vector scope. As all skin tones are similar in hue, varying in brightness and saturation, we expect them to remain within this range when we see people in a film. This means that the most contrast is achieved with a blue background. As *Timescapes* does not have this problem we see contrast created with a range of colours and luminosities (figure 27).

Figure 27. Varied colours and luminosities can be used in *Timescapes* because of minimal skin tones.

2.4 Sound

In most films reviewed sound assists the narrative and other techniques, such as editing, in providing a continuous link throughout the visuals. Some films, such as *Metropolis* and *Timescapes*, are silent films except for the musical score. *Les Vacances de Monsieur Hulot* and *Red Desert* could almost be silent for English-only speakers. Other films, such as *Tron Legacy,* rely heavily on sound.

Produced over 80 years ago, *Metropolis* was created without any recorded dialogue. In its place is written dialogue, presented on screen on title cards. In the absence of an audio track a musical score underlines and highlights key changes in the emotional register of the film in sync with the lighting. As the lighting changes from light to dark, between the above ground Eternal Gardens and the underground workers' city, so does the music – moving from a fast paced and merry sound track to a more menacing track. The audio in *Red Desert* plays a small but crucial part in the telling of the narrative. For the most part, the film lacks a background ambient track which inadvertently places emphasis on moments where audio exists - such as when near the water with the sounds of the waves or in the cabin with the radio in the background.

Tron Legacy has one of the biggest soundtracks of recent movies. Created and composed by Daft Punk, the score underpins the entire film and is a perfect match for the futuristic theme. Most of the film has the tracks from Daft Punk playing at various levels and is especially crucial in any action scenes where the beat is increased to keep pace with the movement on screen and the editing of shots into sequences. Similarly the score for *Timescapes*, written by Nigel Stanford, also underpins the visuals, linking them together into coherent sequences. The music, its speed and tones, directly affect the perceived speed of a shot. While a lot of shots are focused around small drawn out camera movements, the music is able to amplify and, at the same time, provide a sense of normality. This is clearly seen in the timelapse sequence of hot air balloons where timelapse speeds up the balloons movements, transforming minutes into moments with a calm, serene musical undertone which seems to smooth the quick and random movements of the balloons and provides a transition to the next shot of gulls and the ocean.

At the other end of the spectrum lies *A Kind of Architect* where audio, like *Red Desert* and *Les Vacances de Monsieur Hulot*, uses sound effects to build up ambient sound. However unlike the latter films, sound in *A Kind of Architect* is distracting and has little relevance to the onscreen content. This film shows how bad audio can be far worse than uninspiring images as it hinders the flow and understanding of the film.

2.5 Narrative

Some techniques are so entangled with others that it is impossible to deconstruct them any further. The elements work together in such a way that to remove one would render the others pointless and the shot a failure. Usually such shots, sequences or scenes exist in isolation to others, noticeably different from their surrounds. One such shot is the opening from *In Time*. The film opens with a slow zoom out from the pores on the lead character Will's arm which glows green. As the zoom progresses it is revealed that this glow emanates from the digits on his 'body clock' which is used to track how much time he possesses. Overtop this single shot is a voice-over stating that time is the new currency and that when someone turns 25 they are given a year in time and have to work from there on. The narration, in combination with the visual, manages to inform us of crucial facts (figure 28). Following this we are shown Will on his way to work looking at a dead man on the ground, his body clock showing 0 seconds of life left. Jake Cole mentions on his blog that the "shots of timed-out corpses on the street as desensitised poor shuffle past speak volumes"[86] – more so than the narration at the beginning.

Figure 28. The opening sequence of *In Time*, in conjunction with a voice over, introduces the backstory of the film.

86 "In Time (Andrew Niccol, 2011)", Not Just Movies, Accessed September 6, 2012, http://armchairc.blogspot.co.nz/2011/11/in-time-andrew-niccol-2011.html

Figure 29. The decay of built architecture in *Inception.*

Architecture in *Inception* makes an appearance at the end of the film, in the lead character Cobb's dream world. It's a world of decay and neglect: where buildings are falling apart as waves crash against them (figure 29). It makes a statement about the temporal nature of architecture. Cinematographer Wally Pfister says in an interview with Co.Design that this final dream world was based on photos of a half built housing project in Morocco in order to give the sets credible elements.[87] The camera moves between these dilapidated structures, as do the characters, to the part of this world that still exists. The way this is shown, through the camera moves and colours used, communicates the idea of a place that man has spent ages building but has not been around to maintain.

87 John Pavlus, "Exclusive: Wally Pfister, Inception's Cinematographer, On Designing Dreamworlds". Co.Design, accessed September 6, 2012, http://www.fastcodesign.com/1662823/exclusive-wally-pfister-inceptions-cinematographer-on-designing-dreamworlds

Metropolis's standout content is the view of the future city. The director, Fritz Lang, together with the author, Thea von Harbou, have created a city full of New York inspired[88] skyscrapers and billboards, where vital functions are operated by machines. The opening montage is a series of present day 1927 industrial factories and machines hard at work. Here Lang has used composition and the technique of double exposing film in order to cram as much motion into each shot as possible. Double exposing film adds another image on top of the already exposed reel and, in this case, allows a machine to be cloned into either the same shot or into other shots (figure 30). Today this same effect can be implemented into any video in a matter of seconds, but in the 1920's, it was quite an achievement.

Figure 30. Composition and double exposure enhance motion at the beginning of *Metropolis*.

88 Dietrich Neuman, ed., Film architecture: set designs from Metropolis to Blade runner. (New York: Prestel, 1996) 34.

Figure 31. The architecture of the future as portrayed in *Metropolis*.

The architecture in *Metropolis* is the work of Lang, von Harbou, and three designers (Erich Kettelhut, Otto Hunte, and Karl Vollbrecht). The city consists of layers with the top layer being the futuristic result of the hard labour of the workforce. Skyscrapers stretch high above wide streets where multiple lanes of free flowing traffic move. Roads weave among buildings at various levels and planes fly over the roads. While the modes of transport and models of those (cars and planes that are from the 20's) are not futuristic in themselves, the framework in which they sit is. Certain shots of the city exemplify its height, others the transport and some even cast a darkness over the streets and reinforce the skyscrapers. In particular, the 'New Tower of Babylon' representing the heart of the city, was probably "how everyone in 1925 imagined a German city would look in the not too distant future."[89] The selection of shots, each focusing on aspects of the city allows Lang to show the city in all its glory without an overall shot of a detailed overriding plan (figure 31).

89 Neuman, Film Architecture: From Metropolis to Blade Runner, 94.

Kosinski's background in architecture may be some of the reason why architecture, in *Tron Legacy* takes the foreground in many shots to establish a scene, instead of the standard wide shots that include people. In the real world scenes the architecture is, for the most part, constrained to materials that provide texture, that is to say that concrete, painted materials and wood are used and the use of glass and metals is minimised as much as possible. All surfaces have a sense of dirtiness, grit and reality about them. This creates a contrast with the digital world where every building, person and vehicle in the city is reflective and has strips of light covering them. This contrast is most prominent in the comparison between the character Flynn's arcade in the two worlds. In the real world, it is run down, dirty and dusty and constructed from bricks. In the digital world, the same building is constructed from a smooth material with a brick pattern and then morphs into the seamless shiny material that creates the rest of the city (figure 32). These shots are the result of a culmination of techniques that would individually be relatively insignificant. For instance the lighting in some of the wides of the digital world only serves to softly illuminate the buildings and draw attention to the city as a whole, rather than any specific subject.

Figure 32. The difference in light, colour and materials in *Tron Legacy* between the real and digital worlds

Figure 33. Manipulation of architecture in *Inception.*

2.6 Conclusion

These analyses have produced a catalogue of techniques to be used in the design of architecture or in its portrayal. Some techniques cross seamlessly between the two disciplines, such as motion of the camera – which is representative of the viewer of a film or occupant of a space – or the use of focus – to steer the attention of a viewer towards the subject. Other techniques, like the use of colour to pull a subject forward in frame, don't appear to immediately have a relationship with architectural design. But because of the way they work in cinema they can be used in the portrayal of architecture.

3 Cinematic Strategies in the Architectural Design Process

3.1 Process Outline

The process through which architecture is designed typically begins with a client brief followed by site research then a sequence of conceptual and detailed design stages. This linear timeline of the design process takes the client's list of needs and wants and fits them onto the site in some form. The process, being largely linear, allows for limited feedback into the previous stages. The process for making a film can be simplified down to: writing a script; preproduction – set, makeup, costume and previsualisation; production – choosing the camera angles, lighting, sound design and ultimately recording the shots; and finally, postproduction – editing, colour grading, visual effects, sound mixing and score writing.

Perhaps it is because of the editing process at the end, or the fact that preproduction can happen at the same time as both production and postproduction, that changes can be made in the later stages of filmmaking that affect the basis of the entire film. For example, a film has the potential to be completely reassembled during editing to make something completely different to the intended work. In comparison, the architectural design process lacks the ability to make such dramatic about-turns or reversals. This design project aims to use a process that more closely follows that of a film than the architectural norm. It is worth noting this was assisted, in part, because of the lack of a client brief at the beginning project and that brief was developed from the site research.

This process began with open ended site documentation and analysis, which was used to find a brief for the site, followed by experimentation with cinematic strategies within the design process and then the design's representation in a final film.

3.2 Documenting a Site

The act of researching a site as a part of an architectural design process is one that brings together fragmented pieces of information - site plans, elevations, history, rules and regulations - within which the project may be designed. These elements of the site research vary in nature from technical drawings to photos and newspaper articles which provide a background and boundaries for the project during the design stages. However, none of the common methods of research directly record the experience of being at the site or its surrounds. Film, does just that and provides a richness to site investigation that other mediums cannot.

A documentary is the presentation in media of factual material – news, films, interviews etc. – often accompanied by a narration.[90] Filming the proposed site as a form of research to edit into a documentary, meant the gathering of information about the site – downtown Auckland and Queens Wharf – in order to identify key areas that need to be looked at in the Waterfront area.

Research had suggested two common options for filming the documentary. The first option is a highly planned and specific documentary requiring storyboards and voiceovers to be created before filming commences. This method allows for a more rigid and refined documentary that works well when filming time is restricted. Patrick Keiller, in his article *Architectural Cinematography* in *This is not Architecture*, talks about the making of his films and the tendency to linger at each location because of heavier gear[91] which has led to more preproduction planning about what to film.

On the other side of the spectrum Karl Sabbagh goes about documentary making by limiting pre-planning to allocating filming days almost randomly and keeping organised interviews and events to a minimum. He describes his choices, when making a documentary on the Tate Gallery in *Building Films*, as "more to do with when to film than what." Sabbagh says some of what happens, and some of what makes a work memorable, surprising or distinctive, is down to "seizing

90 "Documentary - definition".The Free Dictionary, accessed May 25, 2012, http://www.thefreedictionary.com/documentary
91 Patrick Keiller "Architectural Cinematography " in This is not Architecture, ed Kester Rattenbury (London: Routledge, 2002) 42.

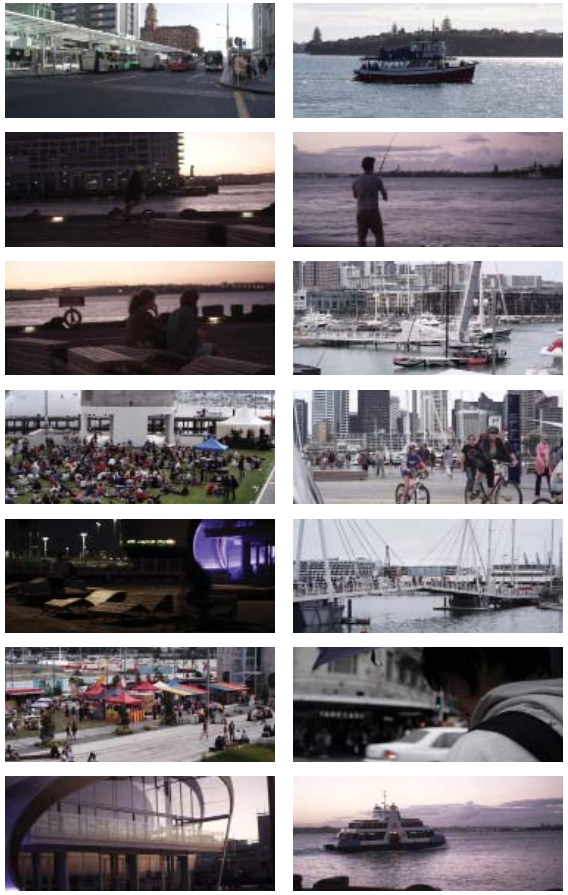


Figure 34. A selection of frames from the documentary on Auckland's Waterfront

opportunities that present themselves as a result of random occurrences."[92] This, he says, led to a much more truthful portrayal of the design and construction process of the Tate Gallery that he recorded over a five and half year period. By discovering what he could on the days he was filming he accumulated highly interesting details about the building that may have been lost or glossed over otherwise. Sabbagh mentions that "until you have all the material in front of you and until you know the programme you want to make"[93] and that 98% of the material captured won't be used.

Following the first approach would have required more pre-planning and would minimise filming time. This would involve coming up with ideas, slants and angles for the documentary and building up either a shot list or requirements of sequences. It would have meant filming with specific preconceived ideas in mind and looking for the best ways to communicate these and would have shut out other occurrences in the area.

My preference was therefore to follow Sabbagh's method. That involved going down to the areas at various times and days and capturing what was happening in the spaces. This method required almost no planning, but a much larger time spent filming and gathering a vast catalogue of video. The intention behind the extra effort and time spent filming was to capture something that otherwise would have been missed by a fully pre planned documentary.

3.2.1 The Making and Findings of the Documentary

Andrey Tarkovsky in *Sculpting Time* refers to film as the "means to take an impression of time"[94] and this was the aim of the documentary process. With 289 videos captured, mostly at various times over a 14 day period, the thought was that an open-ended process like the one described by Sabbagh would uncover previously unnoticed aspects of the spaces being filmed. Subjects filmed around the Auckland waterfront included pedestrians, cars, buses, ferries, boats, fishermen, adults, children, bridges, buildings, and both empty and full spaces.

Once this vast catalogue of shots had been collected the next stage was to sort them into categories and cull them down to the best shots. A frame per shot was taken and organised before the actual editing process began which allowed them to be quickly sifted through to find shots that were useable and contained the angles and content that was needed (figure 34). These still frames then became a preliminary storyboard for the documentary, sorting and ordering the shots into

92 Sabbagh, "Building Films",79.
93 Sabbagh, "Building Films", 81.
94 Tarkovsky, Sculpting in Time, 62.

areas based on location, history and similarities. Gaps were also left in the storyboards for relevant research, such as Rugby World Cup footage, to be integrated into the documentary as the voiceover, which was being written simultaneously, required.

After the initial rough edit, shots that stood out were ordered into sections based on the findings (figures 35 and 36). Major findings included:

- That Queens Wharf is hardly used. Among the hundreds of shots taken there were very few that contained people using Queens Wharf.
- That when Queens Wharf was used it was by specific groups of people or at certain times of day. For example it was used by fishermen during the day no matter what the weather was like and occasionally city residents would come to the end of the wharf on a clear and calm evening to watch the sun set (figure 37). Other residents would use the area as an informal skate park and ferry commuters would spill out onto the south portion of the wharf while waiting for their transport.

Figure 35. Top. The emptiness of Queens Wharf
Middle. Residents fishing off the end of Queens Wharf
Bottom. Wynyard Quarter's car park is responsible for the large number of occupants

Figure 36. Top. Pedestrians crossing Queen and Customs Streets on their way home at the end of the day.

- That Wynyard Quarter's popularity was due to its public space and events programs that were heavily dependent on the site's proximity to car parking in order to be accessible to its large number of visitors.
- That there was an abundance of areas not being used or areas that received a lot of foot traffic, such as Te Wero Island in the Viaduct, that only contain car parks.
- That access to Queens Wharf is surprisingly difficult for pedestrians because of the barrier that is Quay St.
- Based on footage from the Rugby World Cup there was a time where Queens Wharf was a successful space filled with people.

3.2.2 Documentary of Queens Wharf and Responses

The documentary (Appendix B.1), much like an architectural design went through multiple iterations. The first version used a traditional architectural site analysis documenting history and location information, followed by findings from the process. A voice over was employed to discuss the main issues about the spaces, covering design competitions and statistics for the area. However the first audience that was shown the edited documentary found it mundane and not particularly informative. The documentary had failed to communicate how valuable and useful the process had been for me.

In order to remedy this, the vast majority of the initial informative section was removed to refocus the documentary on the discoveries that were made in the process. As it turned out, version two also had little effect on the audience at the next viewing. They seemed to want a video with a predetermined narrative – a technique not commonly used in documentary films except in re-enactments. The idea to not include a strong narrative was an attempt to immerse the viewer with the same approach that I'd used in making the documentary.

Figure 37. Queens Wharf with good weather and attractions has the potential to be a vibrant space.

3.2.3 Film of Queens Wharf and Responses

By completely reworking the documentary into a new video - version 3 (Appendix B.2) - it now focused on what was framed and captured in the process of filming. The intention was to use the video as a way of seeing the wharf. By taking away the voice over and timing the video to a piece of music, the documentary lost some of its informative quality, but what it gained was a sense of the observer and encouraged the viewer to think about what they were seeing. Like *Timescapes*, this film of the footage captured uses the score to determine the pace of the edit and stress the impact of crucial shots.

A documentary without a voice over is strategic, as seen for example in Murray Grigor's *Cinematic Scarpa.* Grigor describes his film as "show rather than tell"[95] and asks the question: "How can viewers comprehend what you're showing them without a journalist on screen explaining what they're seeing?"[96] One answer would be a cinematic experience that replicates the rich sensory experience of the place. For Grigor the subject, Carlo Scarpa, provided him with the rich images and sound needed to create this experience from the footage gathered. In this version focussing on Queens Wharf, the film relies on the musical score to set its pace and enhances the observational point of view. Audience reaction was much more positive to this film as it was more accessible and focused on the moving images and their association to sound rather than a voice over containing information; the shots had become that information.

Figure 38. Queens Wharf at sunset as seen from Princes Wharf

95 Murray Grigor "Cinematic Scarpa." in Architectural Design: Architecture + Film II, edited by Bob Fear (New York: Wiley-Academy, 2000) 75.
96 Grigor "Cinematic Scarpa", 75.

3.2.4 Timelapse: An Alternative Technique to Document a Site

One technique, that had previously been observed, stood out in its ability to document both space and time was timelapse - the portrayal of a large amount of time within a relatively short time span - as seen in *Timescapes.*[97] It is uniquely able to show the use of a space from the beginning of a day until its end. A sample of seven hours was taken on Queens Wharf involving a fixed camera position on the wharf capturing one frame every second. This result was seven hours was reduced to almost 17 minutes when played back at 25 frames a second. The duration of 1 second (chosen more because it was the lowest available frame rate on the camera than for any other reason) combined with a shutter speed of half a second (giving continuous motion blur between frames) meant that inert objects were the sharpest and people quickly passing through the space became faint and their imprint in the video less visible (figure 39). The extended length of this video heightens the viewer's passage of time – what Tawa calls "time of perception."[98]

The resulting video (Appendix B.3) shows the sporadic nature of the wharf with occupants lounging around during their lunch break and crowds coming and going. The crowds that pass in front of the camera merged into a single mass that moved towards the Cloud, while people who came for their breaks were brought into a kind of focus as they became more noticeable

Figure 39. A frame from a timelapse on Queens Wharf shows the temporal nature of the technique as people shift in and out of focus with their movement.

97 Lowe, Timescapes.
98 Tawa. Agencies of the frame, 151.

Figure 40. A sequences of timelapse frames showing the vast period of time captured in one video.

and sharp in the video the longer they stayed. In an extreme version of a similar technique - long exposure photography - photographer Michael Wesley, in his work *29 July 1996 - 29 July 1997*, exposed a room to a camera for an entire year revealing the use and activity of the space in a single frame.[99] The results of this timelapse were similar although less pronounced as occupants can be seen because of the shorter shutter speed and don't become ghosts in the space.

There was a surprising amount of engagement and activity happening in the frame which was emphasised by the rapid nature of timelapse; activity such as the movement of seating by occupants and arrival and departure of buses and trucks. This illustrates Tawa's view of time in architecture as "an architecture of potential"[100] where the occupants start to define and control the spaces created through interaction and use. The space itself changes with the crowds that pass through, at times creating a barrier between the Ferry Terminal and the East side of the wharf. Of note is that there was an event on at the Cloud and Shed 10 and so the amount of activity was higher than normal.

The timelapse video managed to highlight the limited use that Queens Wharf receives, even with good weather and an event happening, reinforcing the need for a project to activate the space. No other medium can capture this extended duration of spatial use in such detail which makes timelapse a critical tool for an architect to understand spatial use.

99 William Firebrace "Slow Spaces" in Camera constructs: photography, architecture and the modern city, ed. Andrew Higgott and Timothy Wray (England: Ashgate, 2012) 247-254.
100 Tawa. Agencies of the frame, 183.

3.2.5 Film of Wellington (Precedent)

Prior to designing an architectural response to the problems that surfaced during the site documentary stage I took a trip to Wellington to study its waterfront – using the same approach used in documenting Queens Wharf (Appendix B.4). Wellington's waterfront has a similar position in relation to its CBD although the city itself has a smaller population. However it was clearly evident the waterfront space was used a lot more than Queens Wharf in Auckland.

Capturing video of Wellington's waterfront only occurred over one day which showed a multitude of events and urban planning mechanisms that activated the space for public use (figure 41). These included:

- Close proximity to car parking on the waterfront itself, similar to the situation in Wynyard Quarter.
- Weekly public markets housed in one of the car parks brought residents and tourists to the waterfront.
- Waterfront activities - paddleboats, kayaks, swimming etc. - brought residents down to the water's edge.
- The barrier formed by a major road running alongside the waterfront was overcome by bridging over the road from the Civic Square.
- Un-purposed green space provided an area for groups to meet.
- Entertainment - a stadium, restaurants and bars etc. - attracted people to the waterfront along with the numerous art installations.
- Varied levels provided a dynamic space to move around and a transition from the bridges over Jervois Quay

Figure 41. Top. Wellington's harbor being used by residents
Middle. Green space on the edge of Wellington's harbor
Bottom. Traffic is bridged for pedestrian access

3.3 Designing with Cinematic Strategies

3.3.1 Deciding on a Program

The program for Queens Wharf had to address the findings from the documentary phase as this was the start of film's feedback into an architectural process. The biggest revelation that came from the documentary on Queens Wharf was its emptiness and that the design would need to bring people to the site. This was reinforced by the crowds that could be drawn for events – such as the Rugby World Cup and during specific conditions such as when there were clear skies or no wind or at sunset. It became clear that the wharf needs something to attract people onto it - as the World Cup did in spring 2011.

The proximity of Wynyard Quarter to an adjacent car park also had a clear influence on people's decision to go to the area. Combined with the numerous shots of traffic in the central city, the car parks showed that cars are an unavoidable part of Auckland City that needs to be considered rather than ignored. It was also noted that Quay St was extremely busy and pedestrian access across the street was hindered by the traffic. To this end the area needs to separate vehicle and pedestrian traffic and it would be beneficial for access to Queens Wharf if there was car parking on the wharf or nearby.

The wind and rain that plagues the Auckland's waterfront, especially when attempting to move from one place to another during the winter months, is an additional factor to consider when people move through the space.

3.3.2 Initial Ideas

Ideas for downtown Auckland were generated from the findings from the both the documentary and timelapse of Auckland's waterfront as well as the success of Wellington's waterfront (figure 42):

1. A car park on Queens Wharf in order to provide access to potential users of the space who do not, or will not, use public transport. The use of the city's premier wharf as a car park is not one that appeals to many people, however it would appear that this is one of the best methods to gather people on the Wharf as was shown by the use of car parking facilities at both Wynyard Quarter and Wellington's waterfront and combined with Auckland's dependence on cars.
2. An undergrounding of Quay St to remove the barrier that is created by the traffic on Quay St that was uncovered in the first video. The collapse of the wall of traffic will increase the flow of pedestrians from Queen St and Britomart as the Wharf becomes more easily accessible.
3. A covering over Quay St that both buffers pedestrians from high winds that sweep the area and protects from rain that makes the area inhospitable at times.
4. A cruise terminal on the wharf is part of Auckland Council's future plans for the wharf to both increase activity on the wharf and the economic benefits associated with the ability to host more cruise ships in the city.
5. Activities for the wharf that would attract visitors as this is what the Auckland really needs: a space that is inviting for the residents of Auckland and visitors alike that is easily accessible by a multitude of transportation types. Queens Wharf is a fitting location for this and it is only the aforementioned points that need to be remedied in order to aid any activities.

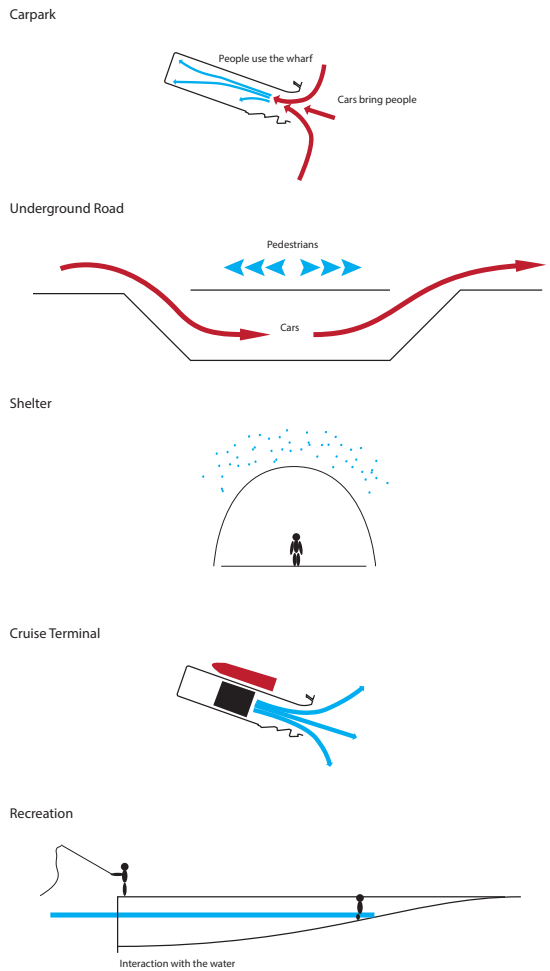


Figure 42. Diagrams of ideas for downtown Auckland and Queens Wharf

Figure 43. An example of montage in the moving image

3.3.3 Moving Image Montage

The use of cinema in architecture, having mostly been relegated to post construction films, has meant that the use of cinematic techniques is not considered in the visualisation process. This is in part because the visualisation process is, when it is a moving image, an animation where defaults, such as infinity focus, colours etc., are often left unchanged. One of the best ways to integrate cinematic techniques into this animation workflow is through montage. The technique is often used with stills by architects to show their architecture, at either initial or finished stages, and by filmmakers for digital set extensions or backdrops.

The montage can be created either as recorded footage layered on recorded footage or as a 3D animation layered on footage. The first provides a starting point for discussions around ideas while the second takes more time and therefore would be more suited to visualisations of a final design. A video showing the technique of footage-on-footage montage was created (Appendix B.5) illustrating a crossing over Quay St (figure 43). Using two shots from the documentary phase - the background plate of Quay St traffic and the foreground of Te Wero bridge - the montage simply illustrates how a bridging device could be used to cross the barrier that is the traffic on Quay St.

When using 3D models as the montage material there are a myriad of factors to consider during filming, 3D modelling and compositing the two together. Motion tracking - the process through which camera movement is computed into 3D movement that can be mapped to a virtual camera - allows for the real and virtual cameras to be aligned. That in turn allows a rendered animation to be placed on top of the footage and made to match through colour and other adjustments - a process termed compositing. Because the material from the documentary was shot on a Red Epic-X, a camera which films at more than 4x HD resolution, there was plenty of data for the motion tracking application to work with. Data from the lens such as focal lengths and distances were also recorded which is useful when compositing rendered objects onto the image later on as it provides settings for the virtual camera to match the footage more accurately.

Figure 44. Left. The effects of a car park on Queens Wharf.
Right. The effects of a ferry terminal on Queens Wharf.

Figure 45. Left. How a covering over Queen Street could react to the weather.
Right. Moving image montage of a beach on Queens Wharf.

3.3.4 Moving Image Montage in Design

A simple design was created for each idea and placed into footage from the documentary stage (figures 44-46). The aim of these designs and videos was to provoke thought about the current use of the spaces and the potential they had to be activated by architectural interventions. In *Architecture And Film: Experiential Realities And Dystopic Futures* Terri Meyer Boake talks about the ability of film technologies to realistically represent architectural possibilities as just one of the many ways the medium can impact thinking about the design of current and future environments. “Film has the ability to convincingly ask, “what if?”[101]

101 Terri Meyer Boake. “Architecture And Film: Experiential Realities And Dystopic Futures.” accessed May 30 2012, http://www.architecture.uwaterloo.ca/faculty_projects/terri/pdf/boake_arch_film_colour.pdf 27/5/12p1

The videos themselves were primarily montages, however a couple had short narratives to them and these were the most successful (Appendix B.6-10). One such video depicts a short narrative of the covering over Queen St (figure 45). Starting with an open street we see the structure and pedestrians walking along the footpaths. Next we pan up and the sky darkens and rain starts to appear along with a shelter connected to the structure. The camera move ends panning down with the rain stopping but the atmosphere remaining dark (Appendix B.8).

The undergrounding of Quay St shows a process as narrative (figure 46). In this shot the camera remains locked off. We see traffic move along the street and then part of the street fades to remove the cars and a line appears delineating the grounds edge where the cars will re-emerge from the tunnel, on top of which pedestrians now start to walk. The process is the before and after comparison that has been performed in a one shot example (Appendix B.10).

Figure 46. Undergrounding of Quay St would allow unrestricted access across the street for pedestrians.

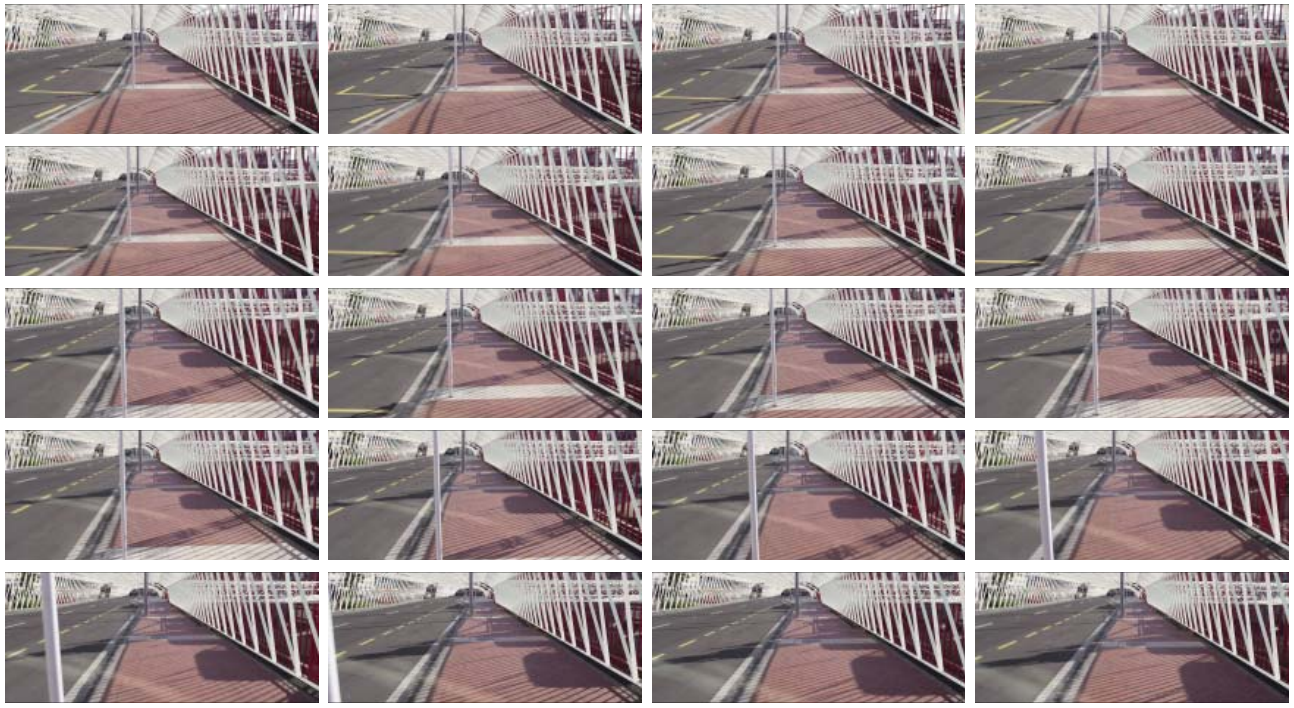


Figure 47. A series of frames from a first person perspective used in conjunction with a montage of a 3D model.

3.3.5 Frame and Motion

During the documentary phase a combination of static, locked off shots were taken, along with horizontal and vertical pans. These angles are a staple of a film and are often combined with close ups of elements and details. However, during a documentary focused on spaces and its use there isn't a subject that could be used with other camera angles to provide close ups or crossovers.

As discovered in *Tron Legacy,*[102] the engagement of a viewer with a scene can be enhanced through the use of first person perspective. Zettl calls this the subjective camera that involves itself in the scene rather than observing. It may replace the character, acting as if it were their eyes.[103] The next round of filming the wharf and its surrounds positioned the camera as if it were an occupant in the architectural space. Walking with the camera shoulder mounted gave an image that moves as the camera operator does with each step (figure 47). The abrupt change between a carefully executed dolly forward as would be the norm in cinema, and what is expected in architectural videography, to the large movements that occur while walking increase the experiential quality of the shot. A similar and less alarming way to achieve this was also trialled: situating the camera in a car so that the windscreen and part of

102 Kosinski, Tron Legacy.
103 Zettl, Sight Sound Motion, 192.

the driver were visible. The result was that the frame of the windscreen allowed the viewer to recognise the environment in which they were being placed and felt as if they were actually in the backseat of the car looking out the front window (figure 48).

These camera techniques were used in the next film (Appendix B.11) to provoke a greater reaction from audiences to showcase the design ideas interacting with each other. The film itself revolves around a simple narrative about the journey to Queens Wharf. Shots are combined which follow what could be three people's journeys through the city - by car, train and on foot all in first person perspective. The opening, which doesn't contain any design, sets the scene for the viewer with the journey to the outer reaches of the area. Slowly the designs are revealed:

A cover to protect pedestrians from the wind and rain that is an open structure when it is dry and calm but when the rain or wind picks up it is covered over. This was enhanced over the previous videos by continuing the theme of rain through multiple shots by compositing rain behind the cover and colour grading to make the weather look dark and miserable.

Figure 48. Different points of view using various transportation methods to get to Queens Wharf

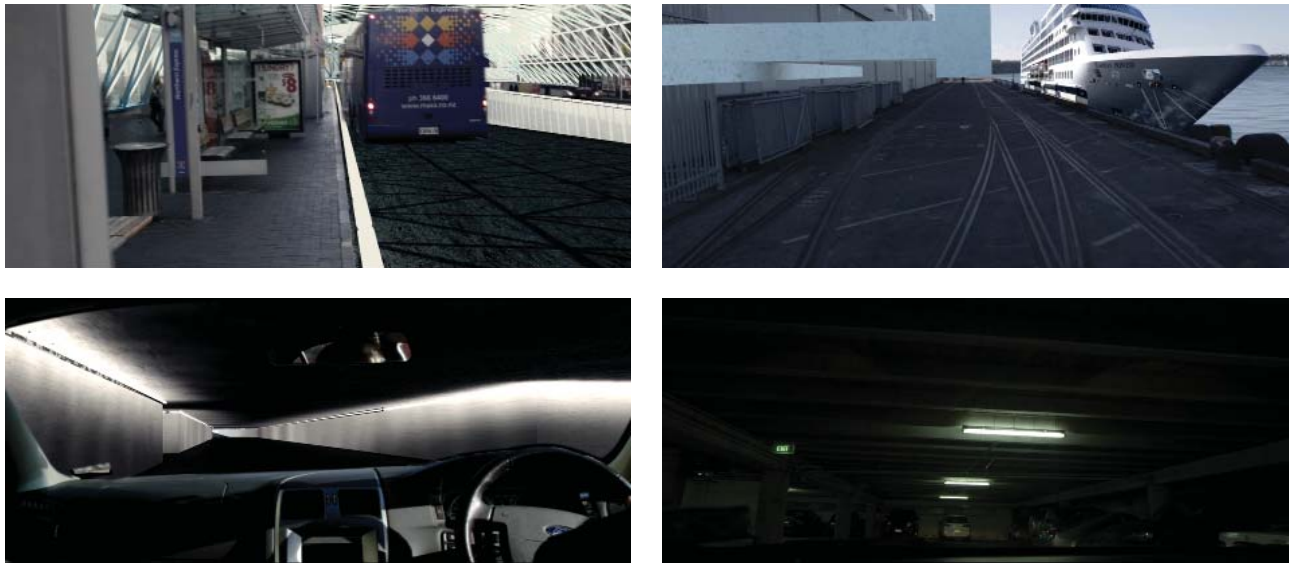


Figure 49. Top Left. Looking around at the shelter over Queen and Quay St
Top Right. Walking towards a cruise ship terminal on Queens Wharf
Bottom Left. Driving through the underground Quay St
Bottom Right. Driving through the car park on Queens Wharf

The undergrounding of Quay St which is explored and ‘driven’ through the space which is devoid of pedestrians. These shots are mostly 3D animation which can detract from the realism of a film when this obvious, however because they are composited behind the windscreen of the car we have the recorded footage to ground us (figure 49). Above ground we walk along the road which is devoid of cars. The utilitarian nature of the space is highlighted by the monochromatic colour of the space and the brightness stands in stark contrast to what is expected underground.

The car park is revealed as we drive into it and once again while we are outside we are shown it depicted as a long, low structure. The encasing of the car park and building it into the wharf minimises the visual impact as well as providing a varied topography on the relatively flat site as is shown in the selected angles.

A cruise ship terminal carried over from the previous videos, however when combined with the other designs it would appear to obstruct the space rather than promote it. This barrier was evident in the videos, obscuring the views of the harbour and dividing the wharf into sections.

The latest video provided useful insights into how the incorporation of cinema into architectural representation and design may work. It also showed that narrative and cinematic techniques can allow viewers to experience the space and highlight key aspects of the design. As Boake points out, using current CGI technologies, many of the spatial representations that are represented in film and gaming environments are “far more daring and potentially richer than much of what budget has permitted to be built in the real world.”[104] Cinema shows us what it is possible to achieve although it may be unnecessarily complicated and time consuming to reach the quality level of films; there will be a line where the quality is no longer viable in terms of time and money to produce an architectural film before the building is constructed.

3.5 Conclusion

The use of cinematic strategies in the design process – as documentary in the site research and analysis phase, and techniques such as video montage in the initial concept phase – has the potential to be a powerful tool for any architect. The use of timelapse, in both the time spent observing a site and the compression of this time in a video, provides a valuable in-depth understanding of a space prior to development. Documenting a site with video also provides a unique observational power in its ability to capture and analyse time. Its use can offer detailed and considered briefs for sites and can provide information for projects that need to consider the existing use of a site in great detail. An edited documentary also provides a way to easily communicate site research to clients or the public.

During idea creation cinema had the ability to situate the designer in the design to a greater degree than other media. Cinematic techniques allowed the design to be experienced with a personal perspective and motion instead of unrealistic angles and movement that are normally seen during architectural animations. The use of montage further enhanced the experience by adding moving images to existing spaces to create an engaging environment to communicate the ideas. The heightened immersion in a design at an early stage helped test ideas to gauge their success and to see which combination of ideas worked best together. One example was the way that a cruise terminal was shown to be a barrier to the use of Queens Wharf despite the tourists it would bring. This research has shown fertile examples of how cinema can be integrated into the rchitectural design process.

104 Boake, “Architecture And Film: Experiential Realities And Dystopic Futures” 8.

4 Cinematic Techniques in the Design and Representation of Architecture

The final outcome of this thesis is the representation of a design using cinematic techniques – a culmination of documentary research and video montage experimentation. Through the integration of these techniques an architectural intervention of Queens Wharf and the downtown Auckland area was explored. This intervention would open up the space, removing the boundaries imposed by traffic whilst improving access to Queens Wharf and providing shelter to pedestrians from wind and rain. The design utilised cinematic techniques such as time, spatial composition, light and colour in its creation.

4.1 Cinematic Techniques in Architectural Design

The design for Queens Wharf and downtown Auckland centres on the journey to the end of the wharf utilising cinematic techniques to aid and enhance this experience. It features an artificial landscape covering lower Queen St and Quay St in order to facilitate movement across the streets while they are still being used by cars and buses on the existing street level. The ease of movement allows more visitors onto Queens Wharf where the journey continues and is directed along the length of the wharf. Further accessibility is provided by a car park that is designed to reside under the wooden landscape on the eastern side of the Wharf around the lower level of Shed 10. By providing a car park on the Wharf it is likely to attract people in a similar way as it was found the car park adjacent to Wynyard Quarter does. Shelter from the elements is provided alongside vehicle transport under the artificial landscape.

4.1.1 Time

Getting to Queens Wharf from downtown Auckland – via Customs St, Britomart, the Viaduct or the eastern end of Quay St – is made easier with the raised pedestrian landscape. The landscape limits the number of routes, providing quick access from origin to destination with major routes leading to the wharf given preference over others. Three tiers of access – paths with differing widths – are designed to support this flow towards Queens Wharf with smaller routes joining up with major arterial pathways. A visitor will experience this flow towards the wharf and once there be guided along the periphery, past the Cloud, the elevated beach and the end of the wharf in order to descend to the water's level beach on the eastern side of Queens Wharf. Thus the visitor to the area starts with a few choices on first arrival, each of which becomes its own linear journey to the end of the wharf and its surrounds. The linear journey increases the focus of the visitor on the end of their journey: the water activities between Queens Wharf and Captain Cook Wharf; the view across the Waitemata Harbour (figure 50); and, to a lesser extent, the short trips between the public transport hubs of Britomart Station and the Ferry Building.

Figure 50. The main characters looking out over the harbor from a viewing platform on Queens Wharf.

Figure 51. The main characters looking at their future location: a beach on Queens Wharf.

During the journey to Queens Wharf visitors are presented with glimpses of their future locations: the network of bridges outside Britomart can be seen from the public square; the elevated beach with its tables, chairs and umbrellas can be seen from the western end of Quay St (figure 51); Queens Wharf and its landscape, the Cloud and Shed 10 can be seen from the higher points of the bridge network outside Britomart. These views of future locations are visual cues as to a visitors' destination; when they look back from these locations the reversed views recall the memory of having been in that space previously.[105] The nature of the wharf itself being a projection perpendicular to Quay St allows for these views while the landscape and allocation of areas to sit allow for the recognition of these temporal connections.

105 Tawa. Agencies of the frame, 191.

4.1.2 Spatial Composition

Having removed the downtown shopping centre from its current site, Queen Elizabeth II Square has been opened up and raised to provide a more level transition to the landscapes above the surrounding streets and the bridges over lower Queen St. The square itself is large enough to host weekly markets and small events in the downtown area. This is intended to bring more people to an area with close proximity to public transport. The square is surrounded by buildings restricting views to only the city which is being left behind and to the landscapes and bridges beyond (figure 52).

Figure 52. Expanding Queen Elizabeth II Square to create a public square that can be filled with weekly markets and other activities.

Figure 53. The main charactes looking down at the traffic below.

Should the weather in Auckland be raining or windy the landscape across the streets is unlikely to be very inviting. To this end a small walking path is allowed for underneath the artificial landscape beside the roads so that pedestrians may get around while sheltered from the elements. The landscape above is perforated where possible by openings or a glass structures in order to let natural light into the interior and to separate the inside and outside worlds (figure 53).

The landscapes over Queen and Quay St are designed with curved surfaces and very few hard edges. The few hard edges that are there stand out from the smooth contours and it is for this reason that there are many ramps to traverse the levels as stairs would introduce intense points of focus in the landscape. Flowing on from the landscape over the streets, the wooden structure on Queens Wharf continues the use of curves however the edges become progressively more pronounced as it reaches the end of the wharf. In this way the eye is drawn to the end which is abruptly cut off and serves as the focal point for the entire wharf. This focal point is visible from the landscapes to both the artificial beaches which have curved perimeters (figure 54). Secondary focal points are created at each of the major nodes - Britomart and the Ferry Building - that attract attention but not necessarily movement towards them as form is the only focusing factor whereas the end of the wharf employs form, colour and time.

Figure 54. Hard edges draw focus towards the structure on Queens Wharf

Figure 55. The colour of the wood contrasts with the colour of the water and grass.

4.1.3 Light and Colour

Materials throughout the design were chosen to create focus and attract visitors to Queens Wharf in conjunction with other techniques. Wood was chosen as the external material for the landscape encompassing Shed 10 and the eastern side of Queens Wharf because of its warm hue and ability to be made into both smooth and hard edged forms. The warm colour of the wood creates a colour contrast between the neutral grey of the concrete and the green of the grass (figure 55). The warmth of the wood brings it forward in the visitor's perception creating a focal point, aided by the shape itself, which draws focus along the landscape to the hard edged viewing platform at its end.[106]

106 Van Hurkman, Color Correction Handbook, 250-252.

Light levels are manipulated underneath the Quay St landscape to highlight the locations of entry and exit points so that they stand out from the low light levels in the rest of the utilitarian space (figure 56). Artificial lighting softens the contrast caused by these openings which are dependent on both the time of day and the weather as these influence the external lighting. A similar contrast occurs with the layering of bridges outside Britomart Station the fluctuation of light here creates an environment of depth and complexity that accentuates the intertwined nature of the ramps and stairs that move between the various destinations.

Figure 56. Light from outside provides contrast when under the artificial landscape

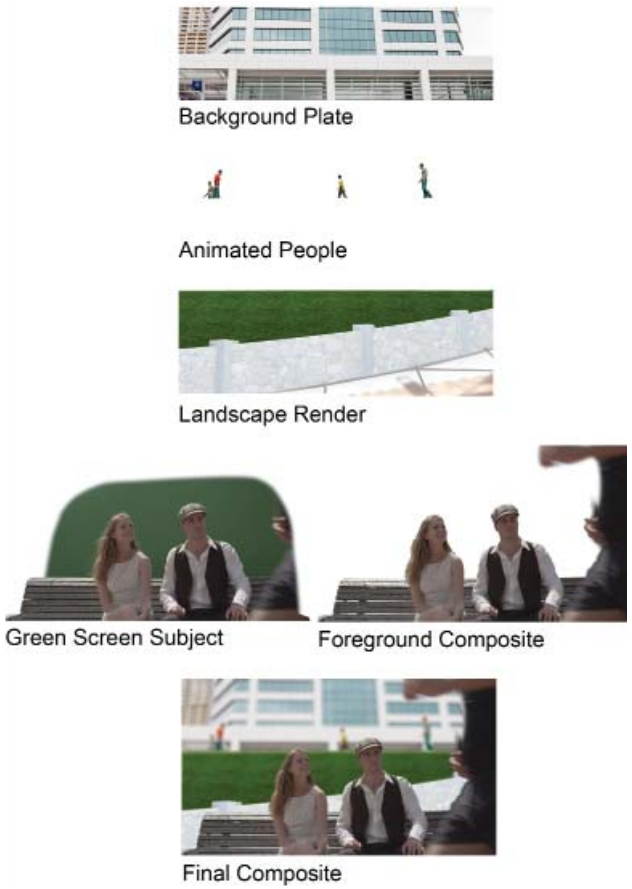


Figure 57. A breakdown of the layers involved in creating the film.

4.2 Cinematic Techniques in the Representation of Architectural Design

The design and creation of a short film (Appendix B.12), which represents the architectural intervention into downtown Auckland, is based on cinematic techniques and a simple narrative rather than the traditional forms of moving image architectural representation of aerial flyovers or walkthroughs. The aim of the film is to convince the viewer that the design could exist and highlight its benefits. For this to happen the representation must immerse the viewer in the design and allow them to experience the space before it is constructed.

The short film was created using a system of layers for each shot, the number of which varies dependant on its complexity (figure57). Initially conceived in a series of storyboards outlining each shot, a typical shot would consist of a background plate which might be a locked off shot of a background space or an actual shot with characters or other people in it. On top of this background plate is the 3D model, either a still frame or a sequence of frames. On top of the model would typically be either green screened characters or characters and details cut out of the background footage. Further layers may be built up with animated people or other foreground elements. The layering helps blend the 3D animations into the clips; this is also aided by the use of depth of field and motion blur to blend the digital model into background elements, and motion tracking to match the models movement to that of the reference camera. Here the integration of the 3D elements into each shot is more important than the previous films as it is to be more immersive than the other films. This is because it is less of a working film quickly depicting a space, and more a tool for an architect to illustrate their design to a client or the public either before or after detailed design.

4.2.1 Narrative

This film contains a simple narrative in order to aid the pace and rhythm and provide reasoning behind why shots are shown as they are as well as the selection of shots included in the film. The film centres on a 1950's dock worker on his lunch break who is transported through time to the present day (figure 58). Here he is confronted by many of the problems that were discovered in the initial documentary phase on Auckland; he is lost and confused, wondering what has happened to his wharf that was busy in his day but has since been left to deteriorate. While wandering around downtown a girl takes him by the arm and starts to guide him through a new, designed space (figure 59). The simple narrative is thus introduced and the viewer is now watching as the dock worker is being guided through the design for the first time. The dock worker here is representative of the audience being guided through the space.

Figure 58. The start of the film transforms Queens Wharf back into a 1950's port wharf.

Figure 59. The start of the transition from present to the future architectural design as the female lead character guides the male in the right direction.

The use of a narrative story to guide the viewer through the design allowed for a backstory to be shown; the history of the wharf as an industrial port not only recalls specific memories for some viewers but also reminds them that the wharf was once a hub of Auckland and it should be reinstated as one. The narrative allows for the jumps in time to occur from the port in the past, to the unused space in the present and to the future design. Without the narrative and continuity of the main characters the viewer would have seen three disconnected timeframes that they would need to reconcile before taking note of other points in the film. As well as the narrative linking the scenes and shots together the musical score is timed to cuts and major events and binds all the shots into one coherent film.

The simple narrative may be seen to take precedence over the architecture of the space at times; however it is the interaction of the main characters with the design which is being highlighted in the film. The main characters serve to show the use of spaces which would otherwise be empty and create an environment that showcases the architecture being used in a way that only cinema can.

The film is a collection of scenes held together by the narrative and musical score. Transitioning between the scenes where there has been a jump forward in time happens through the use of fades which let the viewer know that a change in time has occurred. The first and most noticeable use of this technique is the transition from 1950 to the present where the look of old film fades from highly granular black and white film to a clean, coloured image of the cigarette floating in the water (figure 60). In a similar way this happens at the end of the scene situated on Quay St under the landscape where the image fades to white as if emerging into the sunlight.

Where the transition is between two different perspectives – such as the jump from sitting on the wharf to looking back at the wharf from a ferry – the second location is shown in the first shot as a way of bridging the two. As the viewer has therefore seen the location of the next shot the angle is not so out of place.[107]

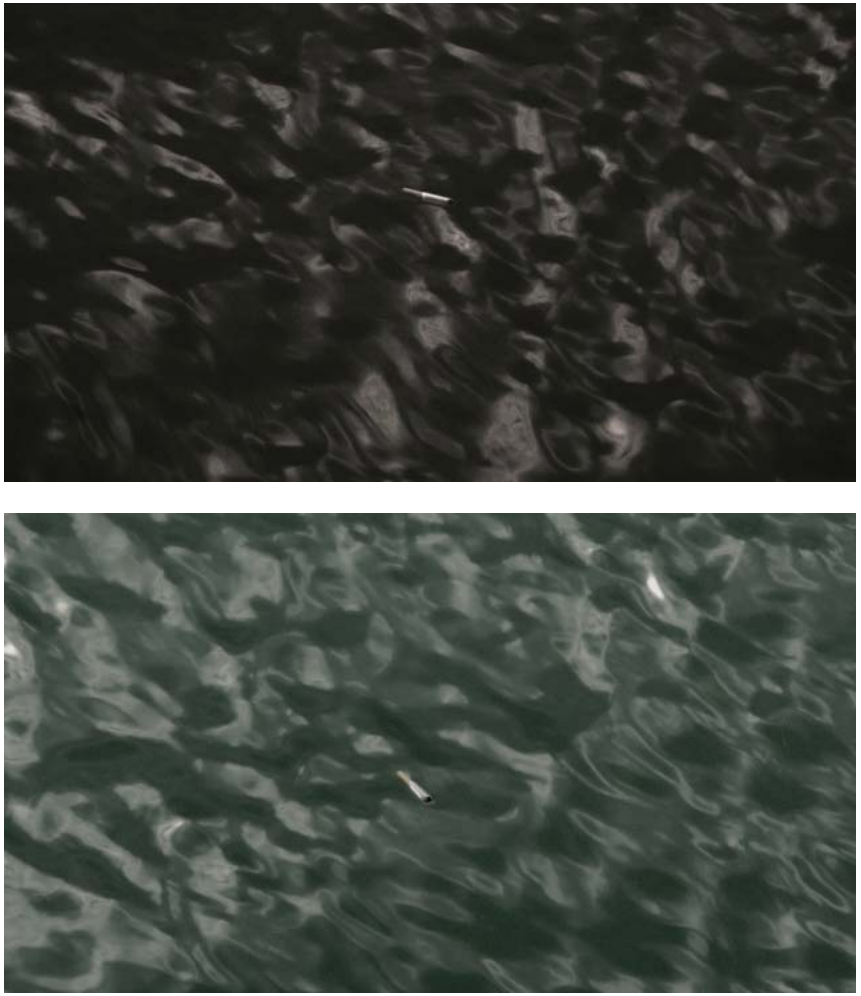


Figure 60. A drawn out transition increased awareness of the slow change in colour and increases anxiety for what is to come.

107 Deleuze, Cinema 1, 16,

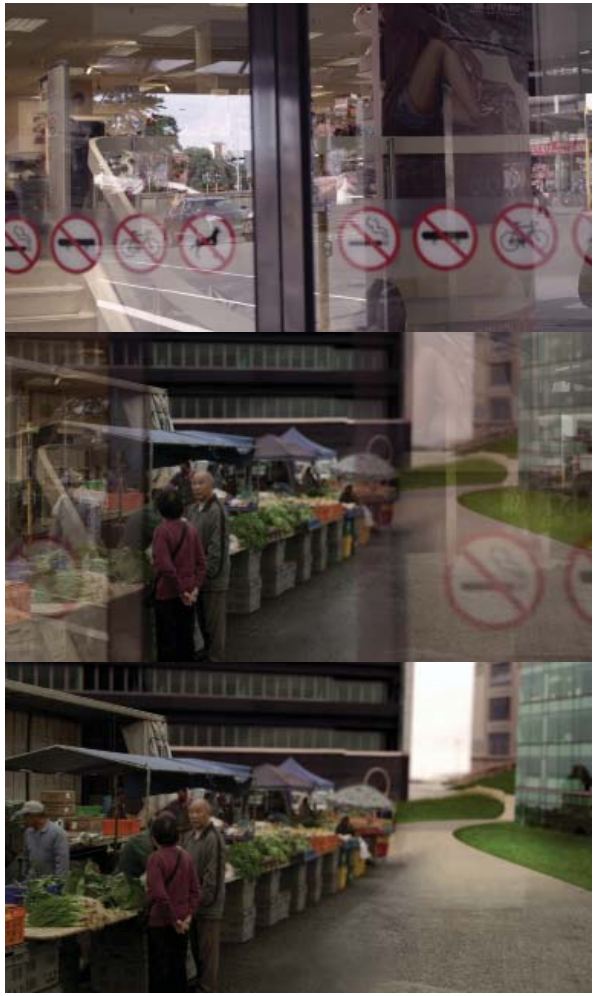


Figure 61. The transition from present day buildings to the future design through both the sliding doors opening and a fade.

4.2.2 Time

In conjunction with the narrative the film starts in the 1950's and proceeds through two scenes situated in the past and present before the viewer is shown the design. These two scenes setup the narrative and are crucial for establishing the linear timeline that then follows the two jumps in time. As with the transition from the 1950's to present day the transition to the future design occurs with the fading in of Queen Elizabeth II Square enlarged in place of the current shopping mall at the same time as the doors open (figure 61). From this point on the film is based upon all the events happening in one day. The linear timeline sees the film move through the market to the bridges; bridges to the underside of the landscape; from the outside of the landscape to Queens Wharf, from the wharf to the car park and from there to Princes Wharf overlooking the entire project. This sequence of events showcases the different elements in the design without excessive jumps in time and location that would confuse the viewer about their current position.

The majority of shots in the film have an extended duration and linger fractionally longer than they should if the flow of the film was a priority. This cinematic technique of long shots has been used to increase the amount of time that the viewer has to consider a shot. The extended length means that the viewer can observe the narrative action and move onto analysing the space in which the main characters are situated which is critical when the focus of the film is the architecture of the spaces. The longest shots in the film are also the most complex with a lot of information to be absorbed by the viewer and so this technique gives them the time they need to do so.

Figure 62. The main characters look back at Princes Wharf and a ferry departing for Devonport.

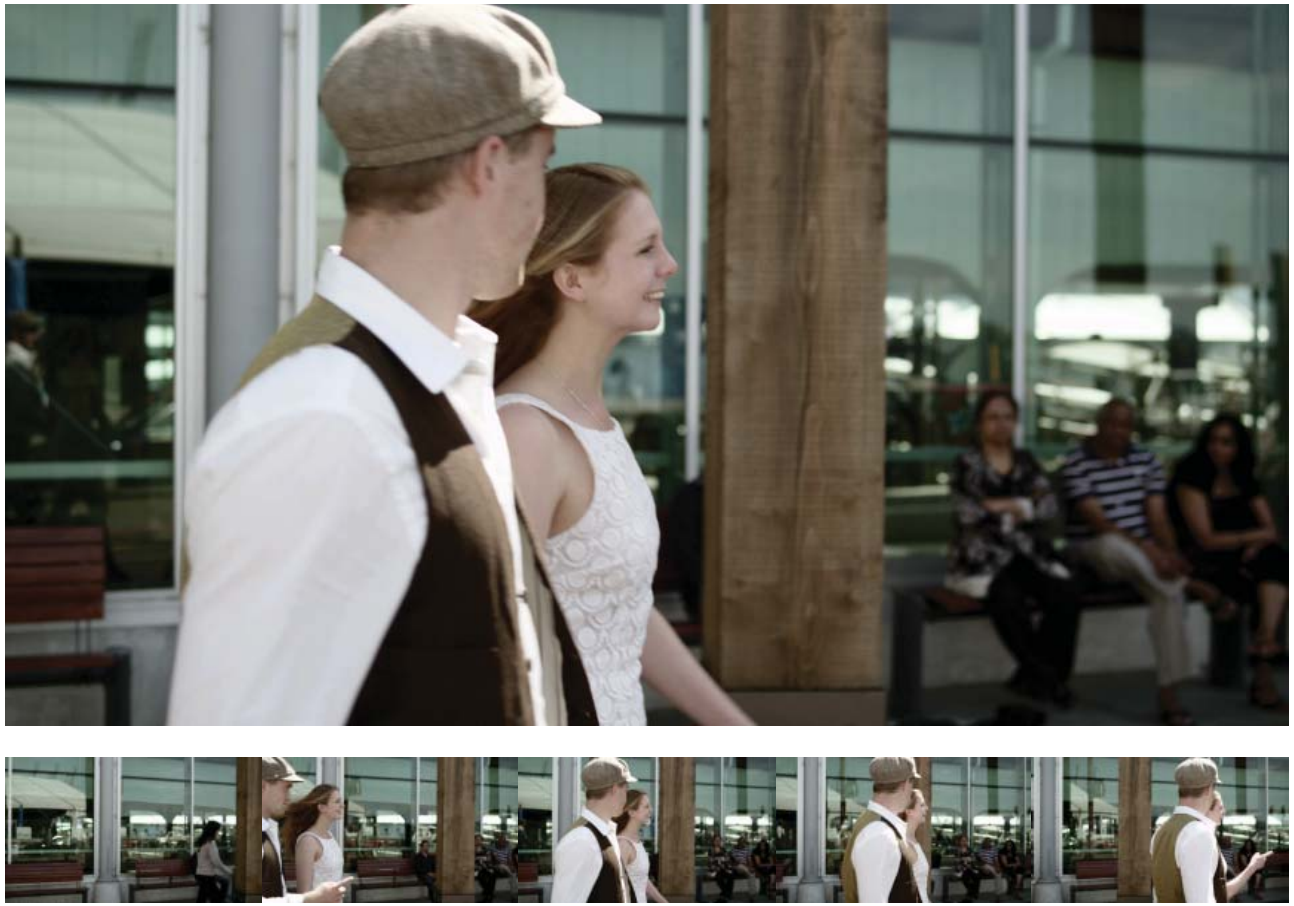


Figure 63. The motion from camera left to camera right of the main characters increases the pace and smooths cuts.

The pace of the film, while slowed by the long duration of the shots, is sped up by the techniques that link the shots together. This includes the musical score, which ties the entire film together, and the use of motion between shots. Motion is an important part of what contributes to the success of video over still photography in the representation of architecture. It is the capturing of time – and therefore the movement within this time – that we have discerned that allows the viewer to experience a space. Motion is critical to the pace of the film, for this reason many shots incorporate the main characters moving from one side of the screen to the other. It is the movement that allows a natural progression from one shot to another, especially when the shot lingers fractionally longer than their onscreen presence.

For the most part the shots in the film are recorded and played back at the standard 25 frames a second as this is how the architecture would be experienced in real time. However high speeds up to five times faster than normal are used in one shot where the camera is situated on a ferry looking back at the wharf (figure 64). High speed video here allows the viewer to see more of the wharf in an establishing wide for the location of past and future scenes that would otherwise drag on for an unnecessarily long time. This shot also employs speed ramping where the speed is adjusted between three and five times faster than normal in the same shot. This allows for a longer time spent focusing on details of the design during selected segments instead of others.

Figure 64. A series of frames from a high frame rate shot provides an almost timelapse-like impression of the space.

Figure 65. The aspect ratio allows the full height of the characters to be visible as they run towards the camera escaping the rain.

4.2.3 Frame and Motion

Unlike the previous films which were shot in 2.35:1 – because they mainly consisted of landscapes which are most suited to wide proportions – this film was shot in 16:9 in order to take advantage of the extra vertical field of view and therefore extra resolution offered by the format. The main advantage of this is that shots had the potential to be closer to the subject. The extra resolution gives the viewer more information about the film and its environment which enhances the experience represented in it (figure 65)..

Most scenes in the film include a shot that provides an overview of the design showcased in the scene. The angles used in these shots help locate the other shots in the scene and are usually located near the beginning of the scene in order to provide clarity to the viewer early on. This technique is used in the scene set on the bridges outside Britomart Station. Here the viewer is shown a series of moving transitions that are intentionally shown before the establishing shot as they could be anywhere in this area; the establishing shot is shown once the main characters are stationary so that the viewer may place them in the wider design (figure 66).

Figure 66. Wide shots allow a large section of the design to be shown while at the same time allowing close ups to be located in the design.

Figure 67. Close ups allows a high level of resolution in the design to be show.

Close ups in the film, similar to a large scale in architectural drawing, allow for a higher level of detail: for instance the exchanges in the market scene. This technique easily adds a level of resolution about the project that increases the experience for the viewer. The way that these shots were filmed – so that they required little or no visual effects work – meant that they were some of the easiest shots to create with the same degree of engagement that other effects heavy shots had. This is due to their lack of locational reference but high level of detail (figure 91). They gain their location from the sequence of shots leading to them that establish where the market is situated. The combination of establishing wides and close ups on details was very effective in creating a compelling scenario within this film.

First person perspective is used sparingly in this film, unlike its predecessors. This is partly because the narrative would not be as compelling if it only contained first person perspective shots but also because it would have been much harder to create compelling imagery for such a long duration using this technique because of the complexity of motion. First person perspective does however create another layer of experience for the project and this is why it is utilised in the film sparingly when the experience of moving through the space is required

Figure 68. First person perspective walking along Quay St

Figure 69. A dolly under the artificial landscape creates a dynamic shot that helps integrate the 3D elements into the shot and aids the pace of the film.

Motion of the camera and of the subjects contributes to the overall effectiveness of the film; they influence the look and feel of the film as well as its pacing. Natural motion where the camera is hand or shoulder mounted can make effects harder but it helps integrate 3D elements and produces shots that are then able to be easily embraced by the viewer. Quick cutaways and close ups are more easily integrated into the pace of the film when subtle motion is introduced. These shots have both served to provide a higher level of resolution to the design because of their composition and movement.

Shots that already have movement in them (for example the main characters walking past the camera) do not necessarily need the camera to move. As has already been established, motion helps create a dynamic shot that engages the viewer. However too much motion and the viewer is distracted, to this end shots that have the camera moving have minimised the motion of the main characters.

4.2.4 Light and Colour

In this film colour has many uses, one of the most obvious is in the look of the opening shots set in 1950. In order to make it look like it was shot in 1950 the shots are graded to resemble black and white film stock. Although it has a slightly warm tint to it the overlook is black and white with film stock grain overlaid to give the shots a gritty texture. The shots also have a heavy vignette – a darkening around the edges of the frame – which directs the viewer to look at the centre. The shots have also preserved the highlights as black and white film does providing a high dynamic range (figure 70). All these techniques come together to create this 1950's look which is clearly from a different time and is easily distinguishable during the long transition at its end from the past to the present day.

Figure 70. Black and white with overlaid film grain help set the time of the film in the 1950's.

Figure 71. Desaturated, low contrast shots differentiate the present day scene from the rest as well as indicating the time of day as morning.

During the present day scenes the colour is desaturated and low contrast is used to create a look that both places it in the morning and differentiates it from the other morning scenes in the film (figure 71). The differentiation is made through the use of colour; the present day morning has a blue, desaturated hue to it while the future morning is more orange with a greater degree of colour contrast and saturation. This completes the differentiation between the three times represented in the film: past, present and future.

One of the biggest uses of light and colour in the film is as a basis to convey the time of day[108] in the film so that its passage may be noted, this is especially important in this film as the narrative occurs in one day from morning until evening. In the first shots of the future design the morning markets are set near sunrise, warm high contrast light gives this appearance which subsides to a slightly cooler, lower contrast morning at the end of the scene. The morning continues in the bridge scenes before giving way to harsh midday light with the introduction of the artificial landscapes. The harsh midday light is portrayed with high contrast neutral light as opposed to any warm or cool colour cast.

As the film moves into the afternoon a warm colour cast is added which also aids the desirability of the main part of the design on Queens Wharf. Along with this cast a higher ambient light level is added to shots portraying the design on Queens Wharf as the early afternoon sun hits the western side of the wharf. After the long shot from the ferry overlooking Queens Wharf contrast is reintroduced as the afternoon progresses. At the end of the film the colours are tending towards deep blues and oranges as the sun starts to set, as the final shot pans across the view of the waterfront (figure 72).

Figure 72. Warm highlights and angular light mark the time as close to sunset.

108 Tawa. Agencies of the frame. 201.

Figure 73. Cool colours and darkened highlights indicates the onset of rain.

In the second future scene depicting the bridges colour is used to depict weather conditions changing from a clear morning to rain. The cool colour cast added contrasts against the previous shots clearly signifying a change.[109] The blue tone, the reduction of light levels and contrast hints at something untoward about to happen which is reinforced in the subsequent shots by the appearance of a rain (figure 73).

109 Van Hurkman, Color Correction Handbook, 154-155.

Light and colour attract focus in many scenes where the architecture or the characters are highlighted using light or colour contrast. For example the lightness of the wooden structure and Shed 10 when we see them for the first time separate it from the sky behind and the characters that pass by in front (figure 74).

Figure 74. Differences in brightness between the foreground and background separate the two elements.

Figure 75. Inside Shed 10 the lighting is tinted a green hue to match the fluorescent lighting is high in contrasts to differentiate it from the previous exterior shots.

Contrast between interior and exterior shots are highlighted by the various changes in light levels and contrast. Shots situated under the artificial landscape have a high level of contrast that over exposes the outside world. The high contrast establishes that the shot is in a location with different intensities of light sources. In the case of the car park on Queens Wharf a low light level is used overall and a green colour cast is added to be representative of the fluorescent lighting used in car parks.[110] The colour of interior shots is usually representative of the main light source which provides information to the viewer about the atmosphere of the space. The green light emitted by fluorescent light in a car park is instantly recognisable but not as pleasant to occupy as natural or incandescent light is (figure 75).

110 Van Hurkman, Color Correction Handbook, 114.

The green of the grass, the blue of the sky and the orange of the flesh tones were the most important colours to focus on in the film. This is because they are all the most important memory colours that people look for in an image.[111] If these colours don't look correct then a shot can appear out of place. In the first person perspectives showing the artificial landscape the green of the grass doesn't match the green of the trees in shot, because the viewer expects to see the grass a certain colour is most appeasing to them.

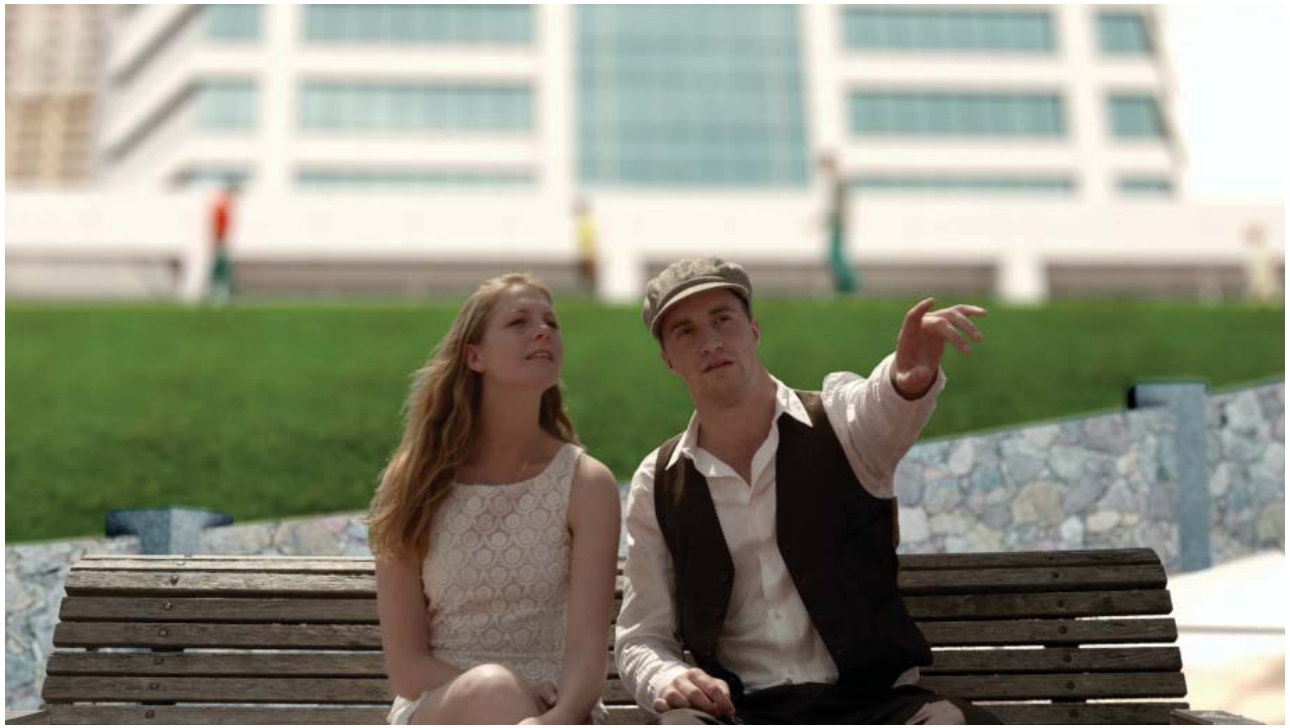


Figure 76. The green of the grass and colour of skin tones can significantly alter the perception of other colours and the overall feel of a shot.

111 Tarczali. "Investigation of Colour Memory", 7.

4.3 Conclusion

Building on the documentary based site research and trial of initial concepts meant that the design had a firm base of cinematic considerations before it was developed. During the design process, and while the representation phase was occurring, cinematic decisions adjusted and improved the design. Cinematic techniques such as first person perspective and focus meant that some areas were concentrated on where flaws or deficiencies were found. This process led to a design that considered many facets of cinema in its creation but focused on the movement of people through the space.

The techniques utilised in the design aided the flow of pedestrian movement from one space to another and reinforced key concepts of the design centering on the journey to Queens Wharf. The representation of the design, with a multitude of techniques employed in its creation, further reinforced the key concepts to create a portrayal of the space that could exist on the site. In the representation, techniques were used to bind the film together into one coherent piece of work spanning a day exploring the main elements of the design. Audio and visual elements came together to showcase the design in a way not normally seen in architecture.

All the techniques described in this chapter, in both the design and representation of architecture, came together to create an intervention for Auckland's waterfront and portrayed it in such a way that initial responses from people who saw the film during an exhibition were positive. Reactions included: "I want that on our waterfront". Or: "I could see that working there." The responses provided validity for the representation of architectural design through cinema, which this thesis set out to demonstrate.

Conclusion

The use of cinema in architecture has, in the past, been limited to post construction documentaries and artistic videography. The use of the moving image in pre-construction documents has been limited to often clumsy walkthroughs or unrealistic points of view in flyovers that inadequately depict designs or future plans. What has been lacking in the architecture profession is an understanding of what cinema can bring to the profession and how it can be used to improve projects. The integration of cinema into architecture in this thesis has shown that another level of detail can be achieved and communicated in an architectural project through the use of cinematic strategies throughout the design process.

The culmination of the body of work shown in this thesis – three forms of research covering literature, cinematic reviews and practical investigation – have created a catalogue of techniques that can be added to an architect's set of tools. These tools bring a new level of detail, observation, analysis and editing techniques to their projects and enable new ways to communicate their design to a wide range of people.

At the forefront of these findings is the critical ability of the moving image to capture and depict time, to create a more realistic world than any other media is capable of.[112] Shown throughout the research, the separation of time from cinema is impossible and its manipulation serves to enhance its presence. Timelapse documentary methods allowed for an enormous amount of detail about Queens Wharf to be viewed in a short duration, while the creation of the documentaries produced a library of short clips about various spaces and elements that could be recalled and sorted through to uncover concepts that may have otherwise been lost.

In the design process it was found that the moving image provided a valuable form of feedback by constantly positioning the designer in the design and critically thinking about how the end user will experience the space. Here it is the creation of an environment for the end user to experience that the architect is designing and it's hard to imagine a better tool to capture and preview this than film. Through this process the designer can manipulate a design to consider cinematic techniques in the way it is created, shaped or coloured.

The end product of the design process, the cinematic representation, has added a new dimension compared to current uses of the moving image in architecture. Walkthroughs and flyovers have been replaced by a set of different camera techniques and vantage points that more accurately describe what a space will be

112 Thomson-Jones. Aesthetics & Film, 32.

like to a viewer. Integrated live action backgrounds and foregrounds enhance the detail of each shot with their complexity of motion. The use of live action footage taken from other locations introduces a level of realism and detail otherwise unobtainable. Controlled techniques such as lighting and colour are able to direct and focus viewers on select subjects or create atmospheres that they can experience. The uniting elements of narrative and musical score combine all these techniques and the design together into one integrated project.

The benefits of the moving image are not without their pitfalls however. Creating with moving images is time consuming and requires another set of skills not necessarily available to all architects. However time spent on cinematic endeavours has the ability to be scaled to fit a desired timeframe at the cost of depth and detail. Showcased throughout the design process initial ideas can be mocked up and shown through the moving image relatively quickly to gauge client or public reaction. However final representations can take a lot more time to get right. The final film for this project for example took around 500 hours to create. Despite the time intensive nature of working with the moving image the outcomes reflect this invested time in the level of detail achieved.

In order to delve into the selected areas of cinematic production some techniques have been looked at briefly or not at all. For instance the analysis in this thesis of the use of sound in cinema and the implications it has in the design and representation of architecture is minimal, yet even a simple score timed to cuts of a documentary helped hold the films created together. Sound has the potential to create space on and off screen through another set of techniques exclusive to it that can also be utilised in cinema and in architecture. An expansion into other techniques and addressing some in more depth would be material for another project that has the ability to feed into a greater tool set that architects can use to enhance their projects.

This catalogue of techniques created here to aid in the design and representation of architecture is one that has the potential to grow, expanding to include a greater range of techniques derived from cinema. Future work that bridges the two disciplines will continue to help create more compelling architectural projects that have the ability to be portrayed in more persuasive ways.

Appendix

Appendix A: Written Appendix

A.1 Auckland Documentary Filming Locations

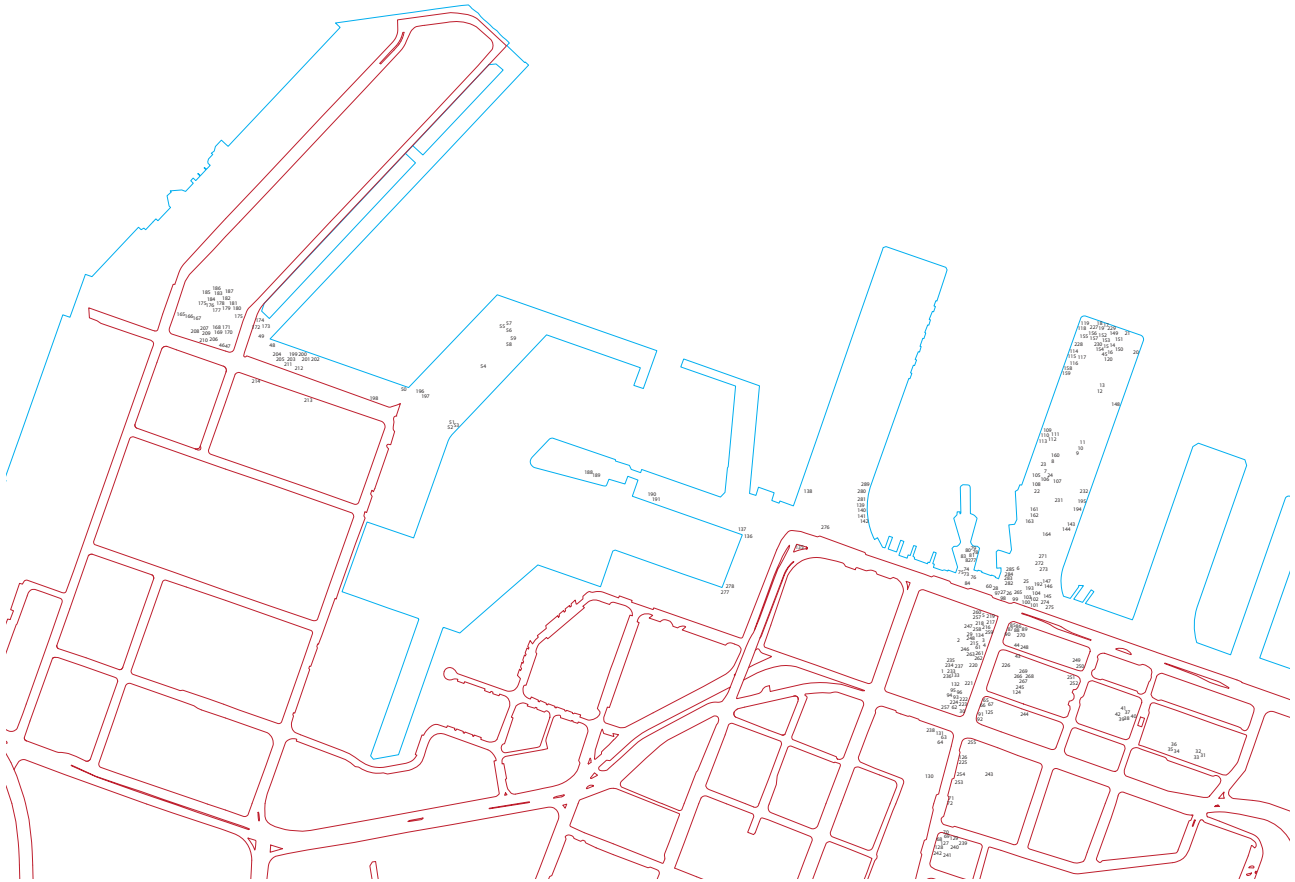


Figure 77. Map of 285 shots for the Documentary on Auckland's Waterfront

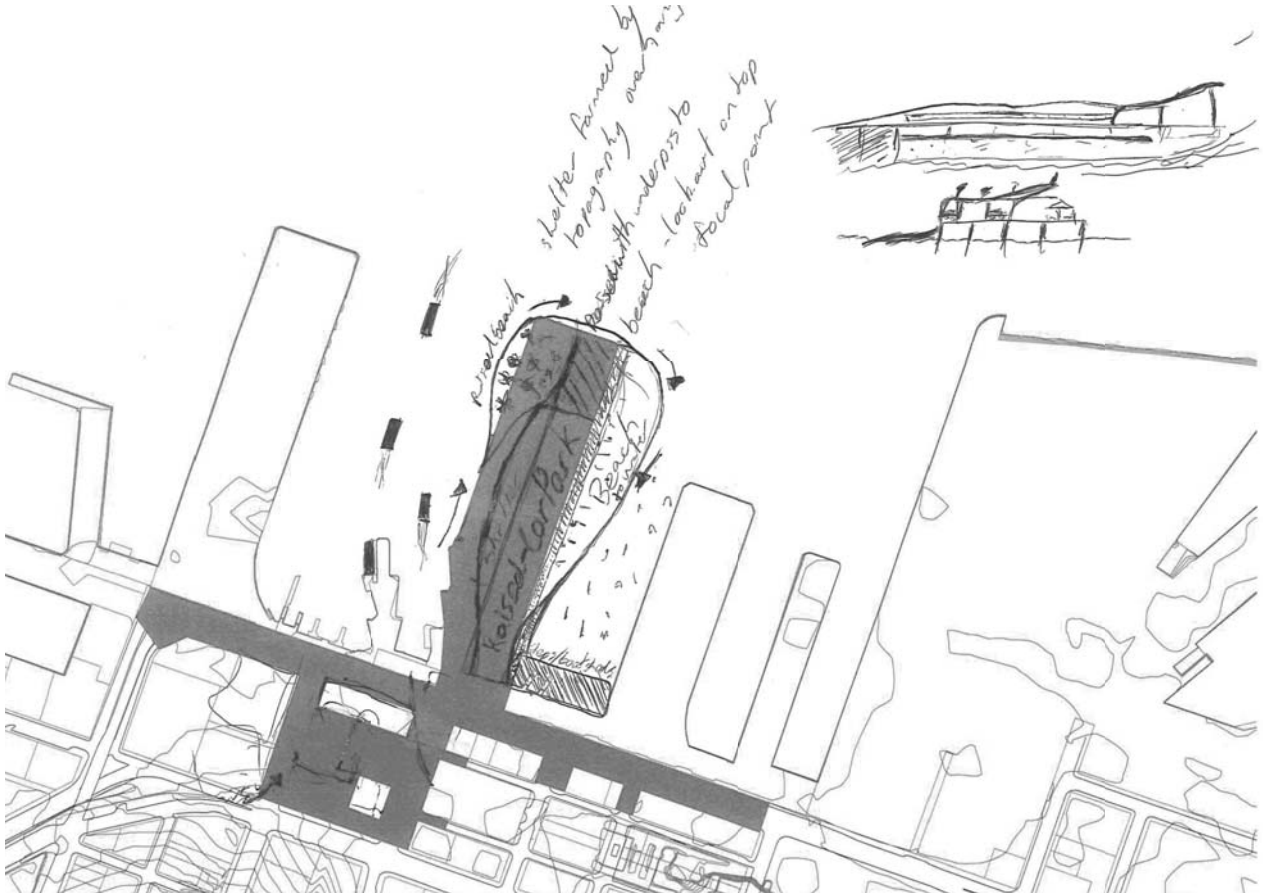


Figure 78. Plan of initial design ideas for Queen's Wharf

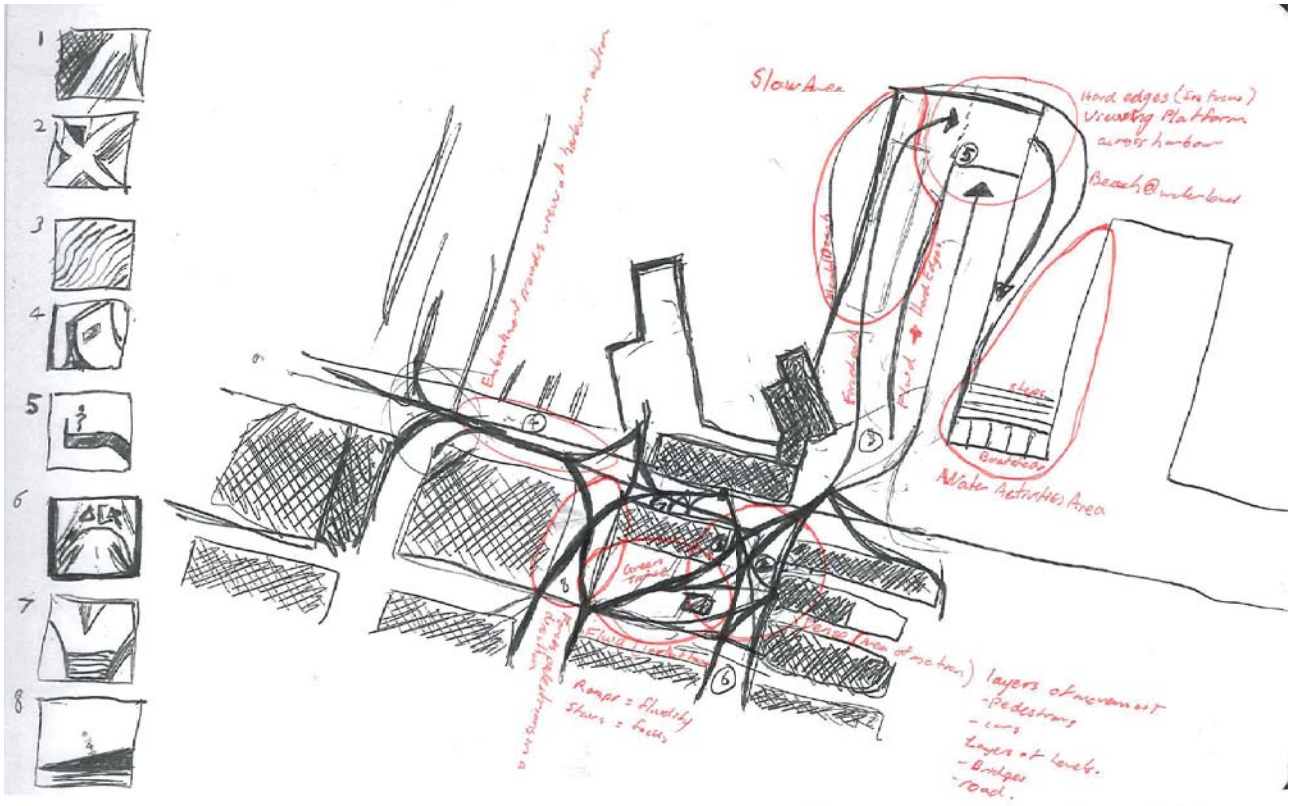


Figure 79. Plan showing cinematic techniques used in relation to location

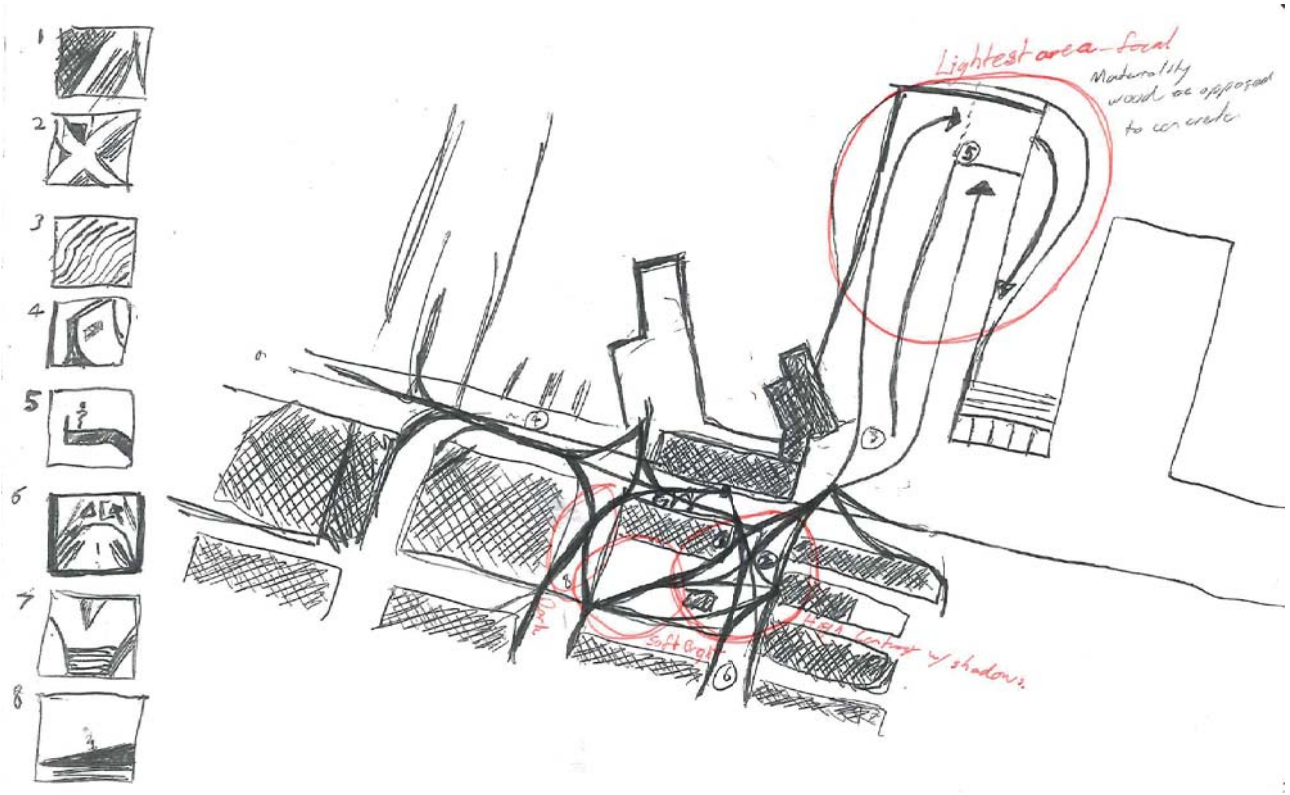


Figure 80. Plan showing cinematic techniques used in relation to location

A.3 Final Film Story Boards

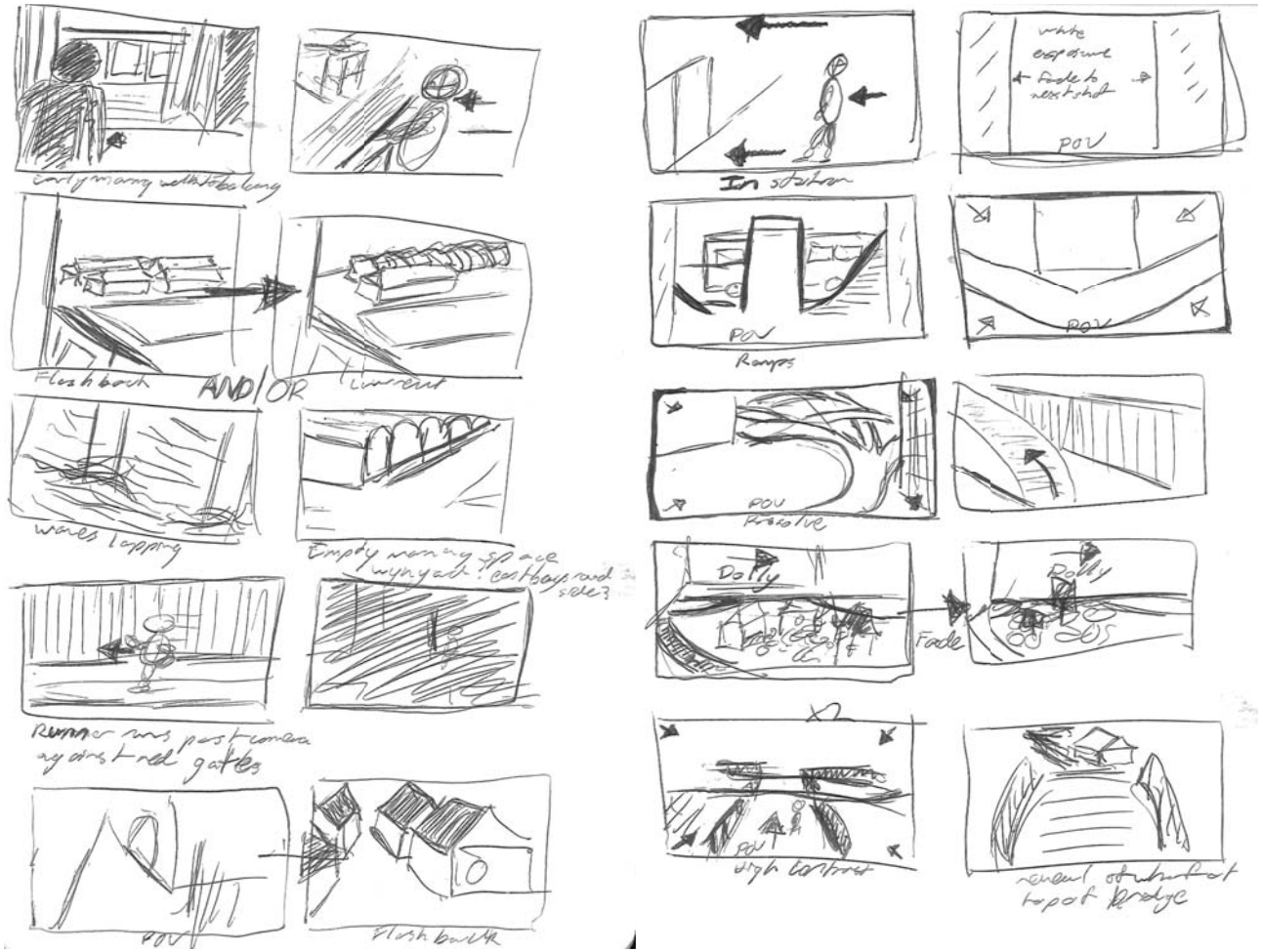


Figure 81. Initial storyboards of shots created while designing

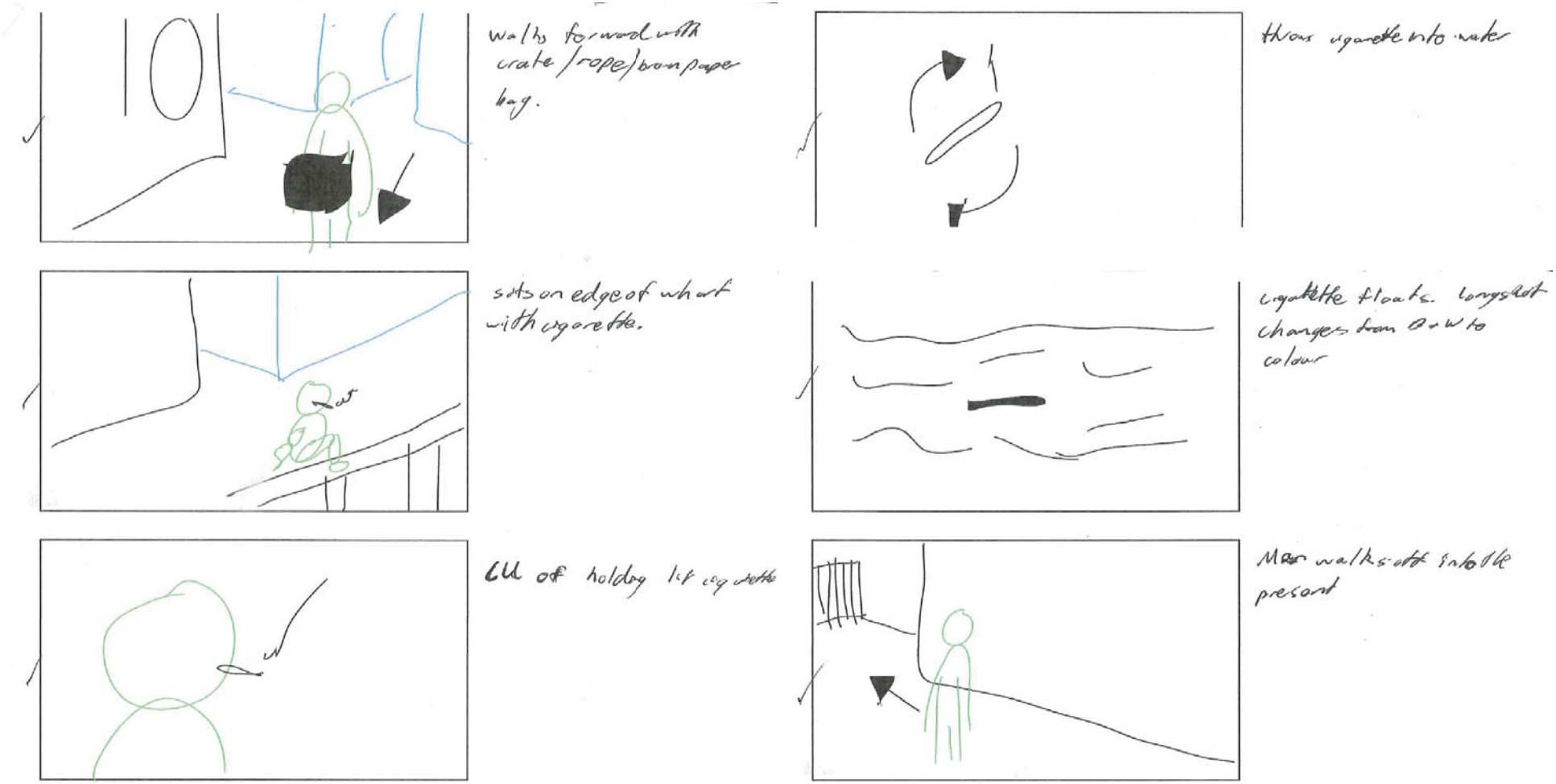
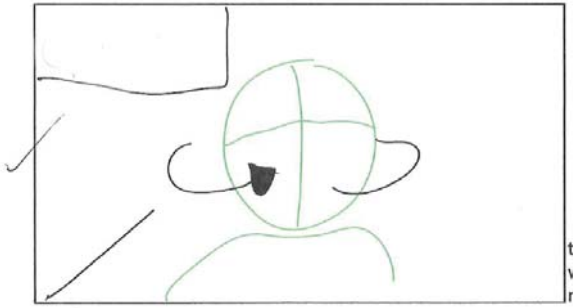
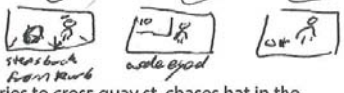


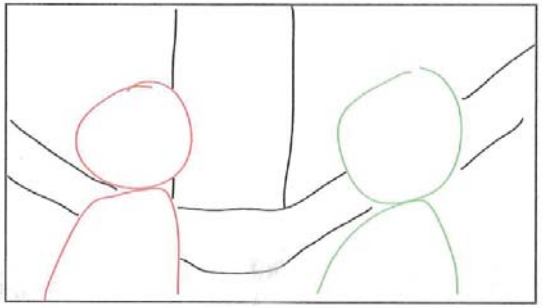
Figure 82. Gallery of the storyboards used to construct the final film



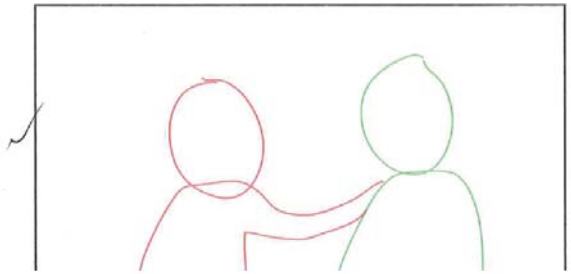
XS
- confused
- new place.
- problems with traffic



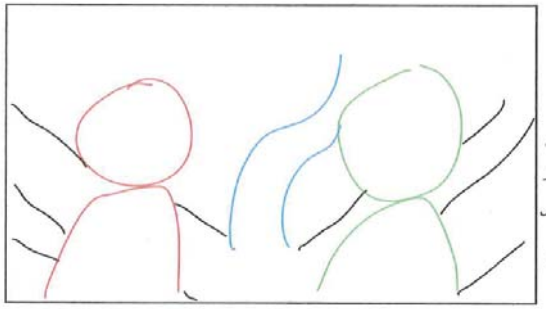
tries to cross quay st, chases hat in the wind, aknowleges change and emptyness of wharf and city



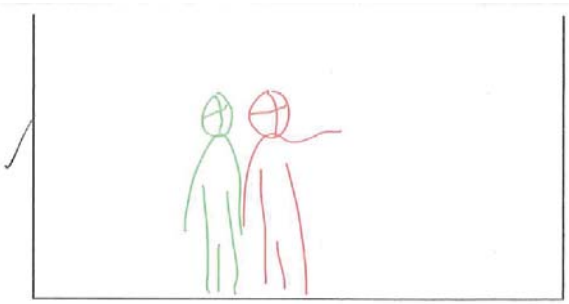
walking to Downtown mall



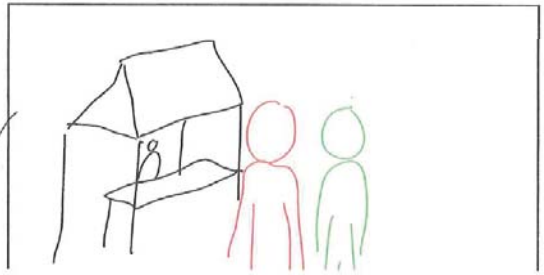
girls approaches.
guides the guy



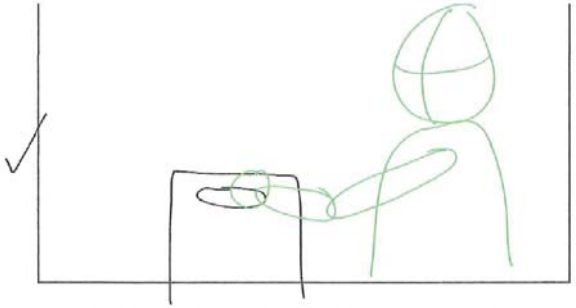
P1500 / VOS into square with market
screen people looked off plate
Try a POV pass
try a actual pass



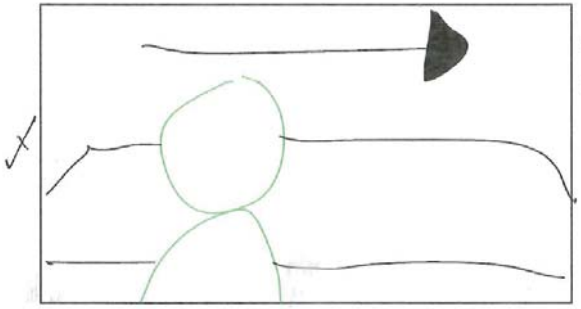
points. lets go over here



Markets,
wide where possible
above tents don't matter, will be replaced.

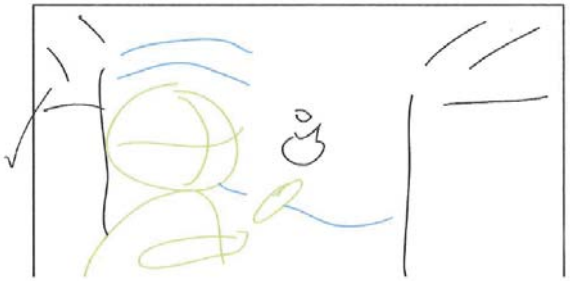


Buying of goods.



Dolly behind Guy/girl/guy + girl with wares on focus

Dolly following the people with stalls behind

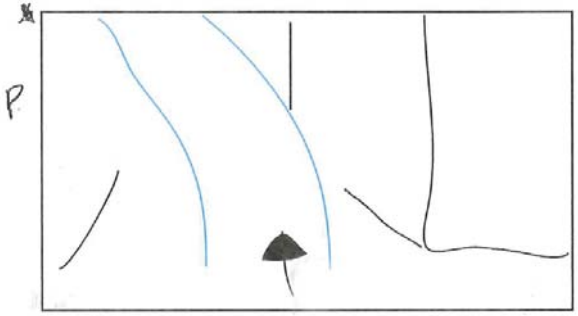


Eating an apple/something between 2 stalls

Try Blue screen the gap if possible.

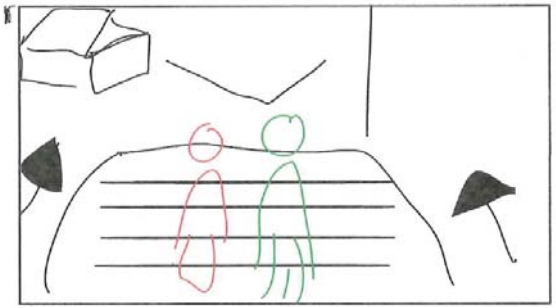
walking away from the market they disappear leaving an empty square

locked off plate + Green screen where people overlap surrounds

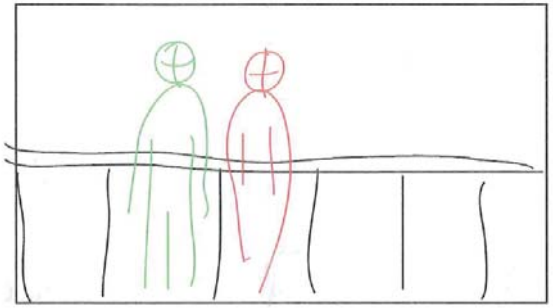


POV angled camera up, emphasises height

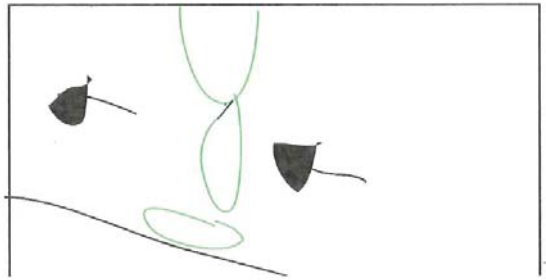
Film locked off plate for a possible green screen with guy walking forward.



lockedoff plate
Green screen at top of stairs
camera as high as possible in right direction
steps beside ~~[illegible]~~ at gallery



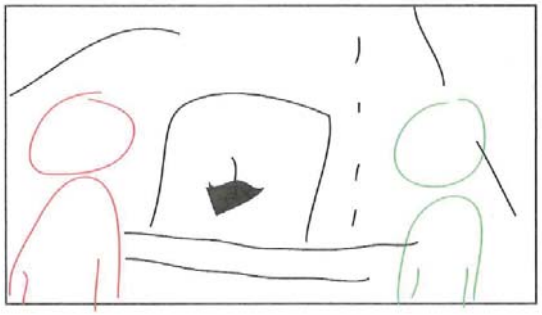
looking up at them from a bridge try practical setup + green screen setup



walking past camera
CU + MCU

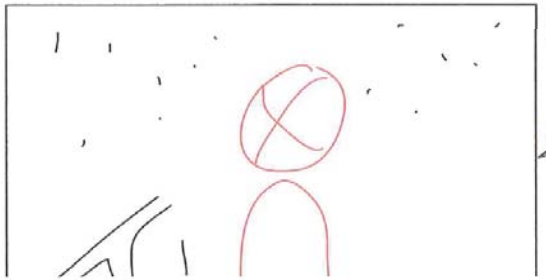
Ramp possibility
- outside and overpass w/ green screen.
- ramp starts off building.

+ Other Ramp and steps close ups and MCU



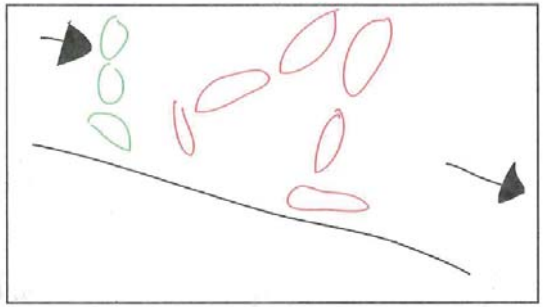
camera looking past them at the traffic below.
- symmetrical overbridge.

plate lockedoff
green screen

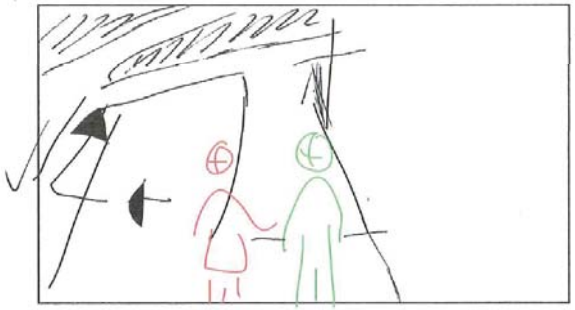


notices a small bitcoin rain.
gs set extension

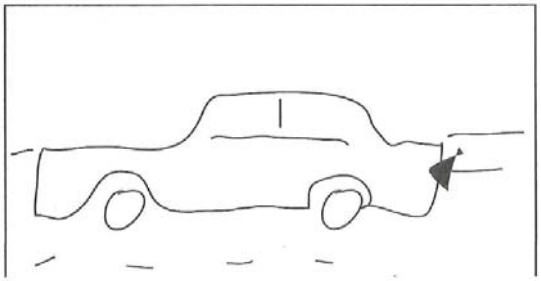
locked off plate
green screen
run off screen
plate [illegible] from a s.f.



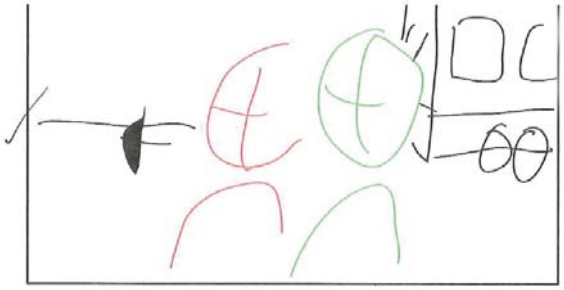
running down slope



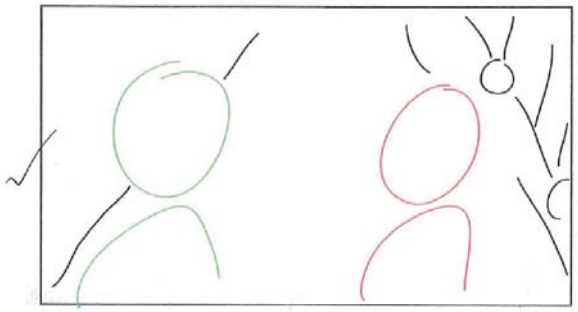
line beside Britannia
still plate + green
screen extension
run under cover



following car ?
- get angle of traffic as Allen

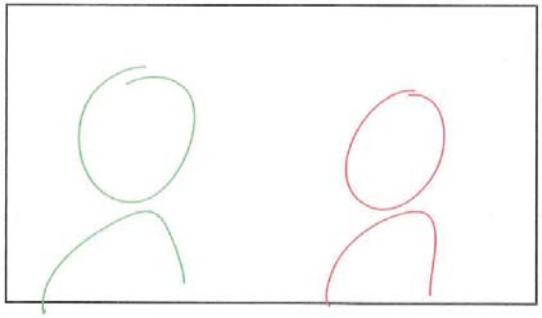


walk past camera +
camera follow

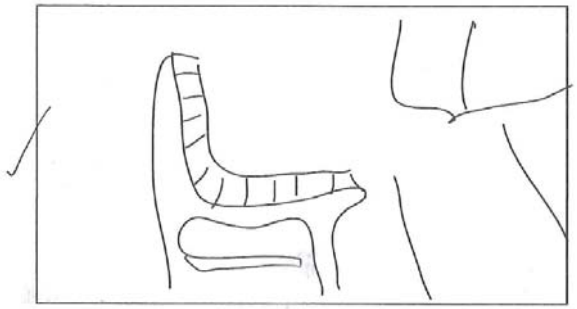


POV plate walking forward
green screen locked off walking on spot

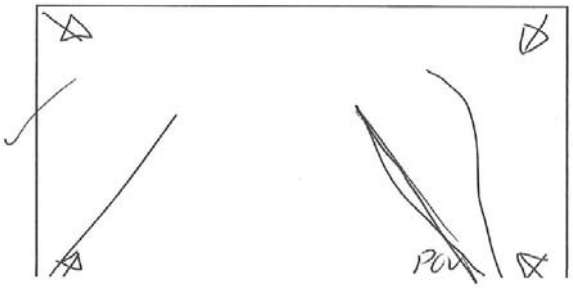
+ green screen
close up of face ?



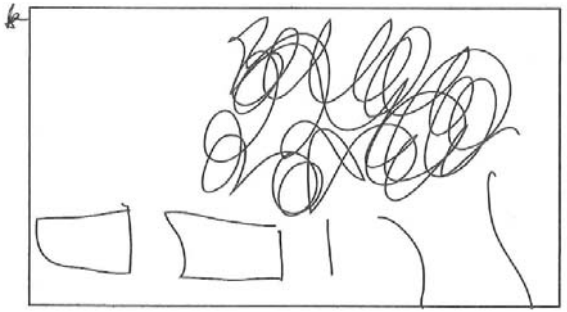
continuation of previous shot.
white envelopes couple



CU of benches
green screen bench
and plate on the other direction.

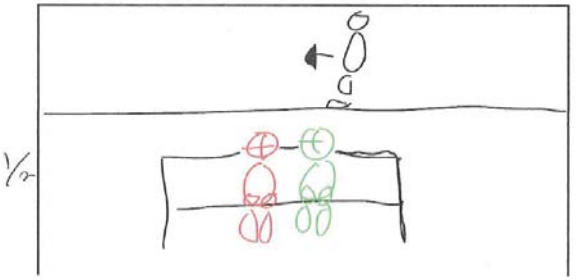


POV walking forward
walk all along to cover another continued shot.



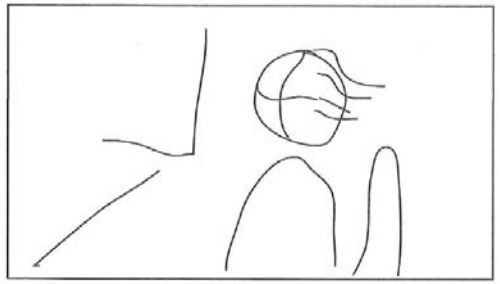
tree with wind blowing.

people relaxing in
open space
Green screen maybe,
probably not
Plate & Albert park.



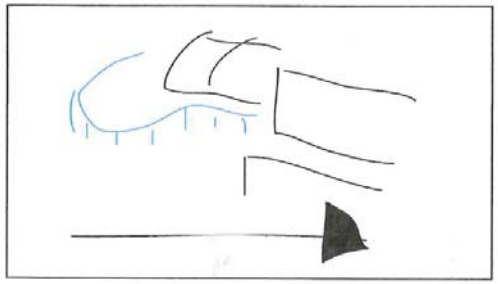
2 shots
one walking along elevated
path - extra
one of them on bench
try green screen behind
them & more vertically.

✓ y/p

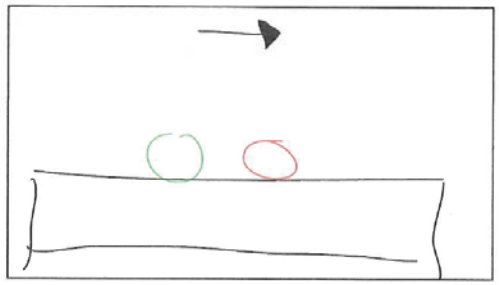


Green screen with plate to flop shot

✓ still plate

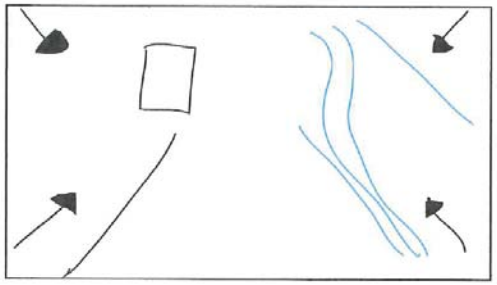


✓ still

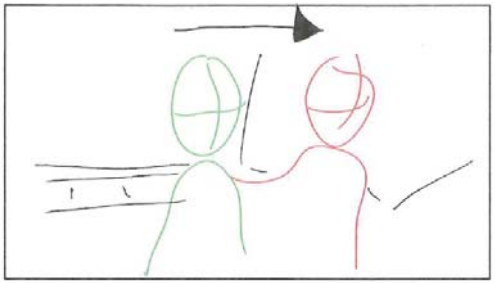


Dolly behind bench over looking harbour.

✓

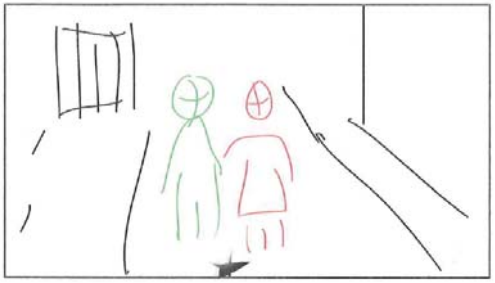


POV walk along construction from similar shot

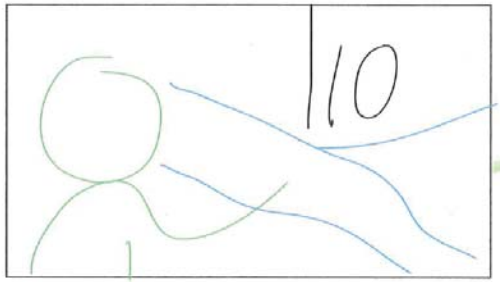


Dolly with ferry terminal in background

let them pass camera for one take.

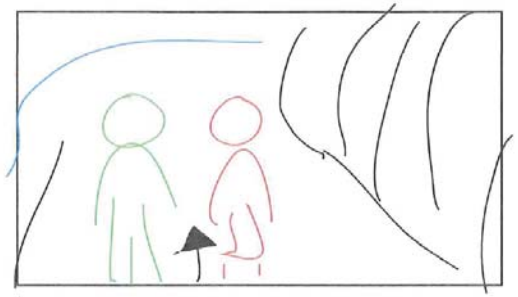


walk past camera + dolly back



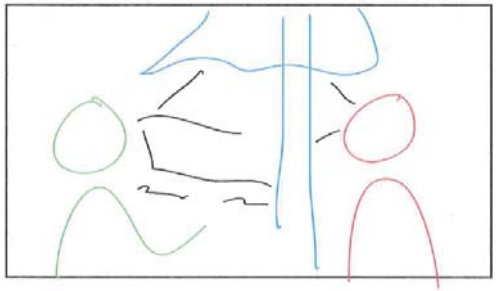
point out shell 0
lockedot plate
+
green screen

pass camera +
dolly along side.

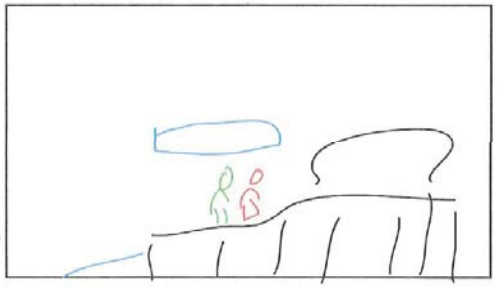


lockedot
slow walk away from
camera

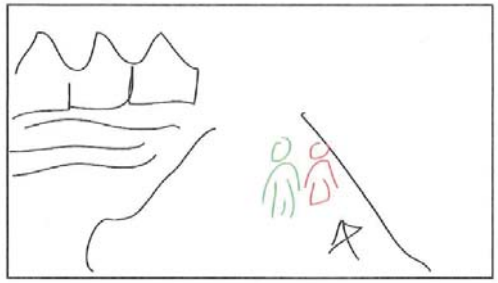
over shoulder of extensto
plate needed
green screen



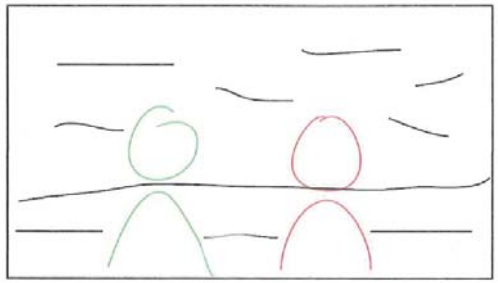
sit on boxes to
watch ferries



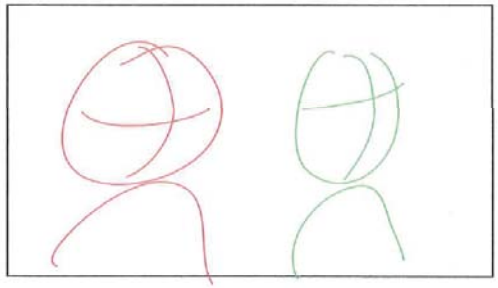
from ferry shot
greenscreen sideon
walking on spot.



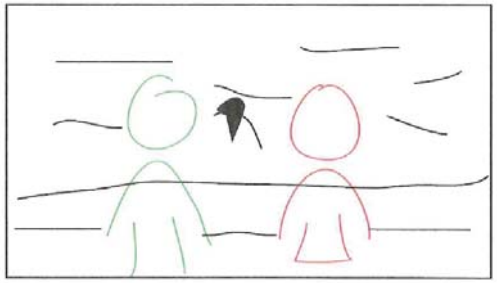
comp on to large shot
- steps
- boat sheds
- walking along
- mission bay
- okahu beach
(elements locked off.



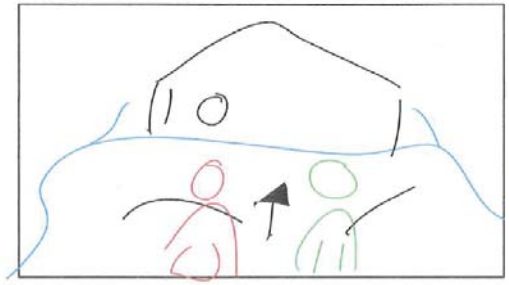
wynyard steps.
point out boats/
kayaks.



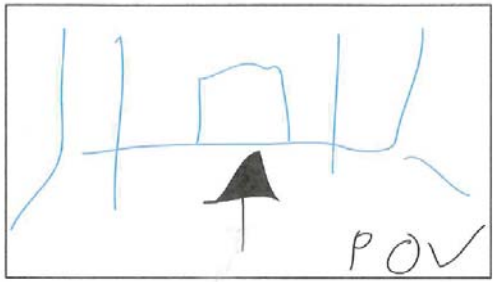
looking up, sky background

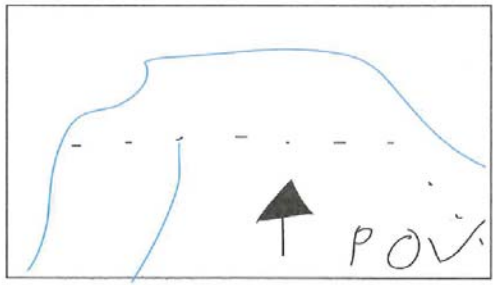


get up, turn
around, walk off.

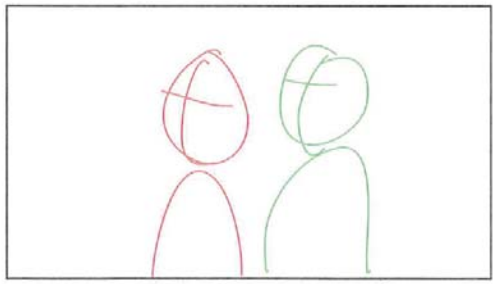


walk towards shed 10
try the action
take photo
+ green screen.



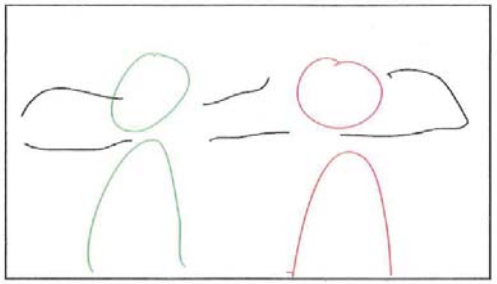


mapping from walk,



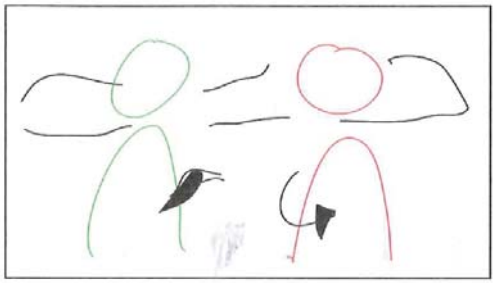
looking up at them against stay possibly switch reel

GS + Live action

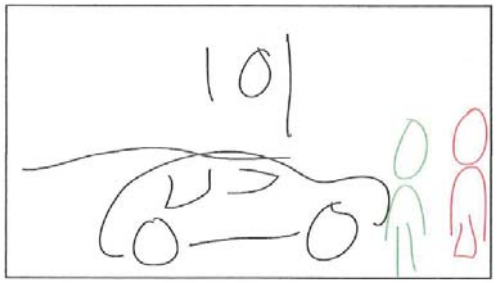


overshoulder look across harbour

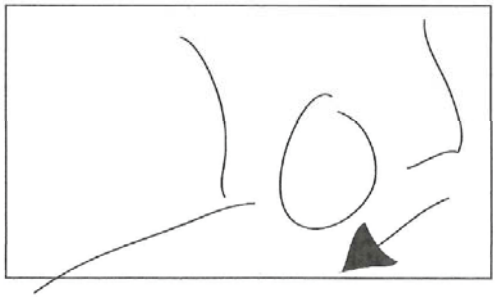
take a pan POV as well



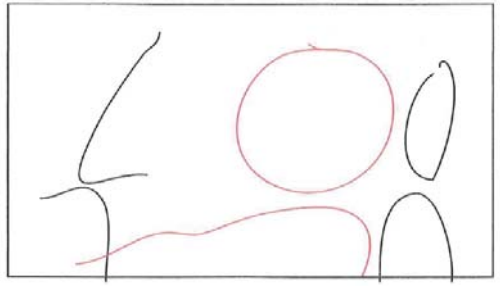
turn around and leave - continuation previous.



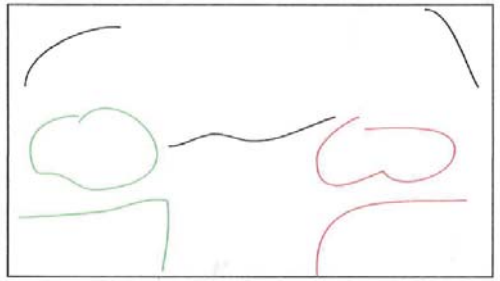
walk to car
- sled 10 plate
- car park at office



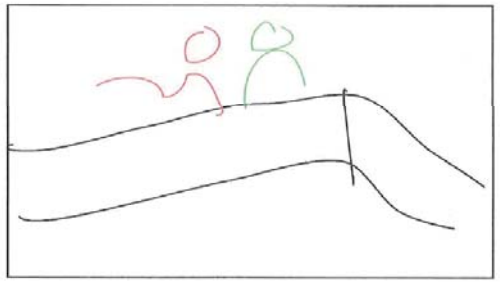
cu of sled leaving screen



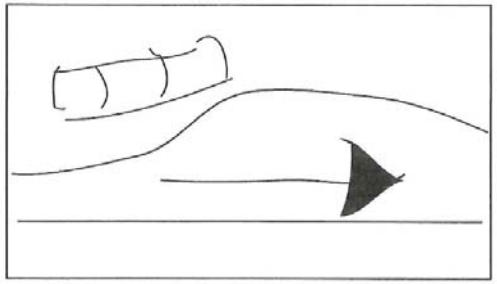
girl driving
- green screen behind
- footage from Vic Park tunnel
- similar angle to gary



Green screen through windscreen.



walk up to balcony end of princes wharf and point at view



Pan across design

Appendix B: Video Appendix

This can be found on the included DVD.

B.1 Documentary of Queens Wharf

B.2 Film of Queens Wharf: Auckland's Waterfront

B.3 Time-lapse of Queens Wharf

B.4 Film of Wellington Waterfront: Wellington's Waterfront

B.5 Moving Image Montage: Bridge Over Quay St

B.6 Moving Image Montage in Design: Queens Wharf Car Park

B.7 Moving Image Montage in Design: Queens Wharf Cruise Terminal

B.8 Moving Image Montage in Design: Queen and Quay St Shelter

B.9 Moving Image Montage in Design: Queens Wharf Recreation

B.10 Moving Image Montage in Design: Undergrounding Quay St

B.11 Film of Proposed Ideas: A Journey to the Waterfront

B.12 Film of the Final Design: Discovering a New Waterfront

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