VISUAL TACTILITY
ARCHITECTURAL PHOTOGRAPHY AND TACTILE DESIGN PROCESS

MASTERS OF ARCHITECTURE BY PROJECT
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RESEARCH OBJECTIVE

To investigate the designing potential of the photograph in architecture, through tactile design processes.

It can be argued there are two familiar ways architecture is portrayed in a photographic image. The first is the incidental relationship of architecture to the subject of the image. The second is the heightened objectification of the built form. The former often correlates with the depiction of a spatial interior, whereas the latter is more often seen in reference to the exterior of a building.

Walter Benjamin states:

“Buildings are appropriated in a two fold matter: by use and by perception – or rather by touch and sight…On the tactile side there is no counterpart to contemplation on the optical side. Tactile appropriation is accomplished not so much by attention as by habit. As regards architecture, habit determines to a large extent even optical reception. The latter, too, occurs much less through rapt attention than by noticing the object in an incidental fashion. This mode of appropriation, developed with reference to architecture, in certain circumstances acquires canonical value.”1

Benjamin implied that one cannot contemplate art or architecture only visually. This contemplation, which leads to habit forming tactile experiential knowledge, is what allows us to appreciate and gain a heightened experience of architecture. However, this tactile knowledge is difficult to obtain through viewing a photograph, as it is principally a visual object. The proliferation of architectural photography has led to a particular refining of content, often influenced by the designers themselves and the commercial interests for which the photograph is commissioned. Jonathan Hill states:

“The reputation of an architect is, in part, dependent on his or her ability to generate a good photograph. If an architect is successful the same image is published throughout the world, to be copied by other architects…”2

In the course of this project, my objective was to analyse the photographic image; its periphery, perspective and substance, to explore the photograph's architectural designing potential, beyond the passive representation of space.

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THE UNRELIABLE WITNESS

So why is architectural photography so prevalent in the representation of buildings, and how has this influenced our contemporary perception of architecture? Hill writes of the roles of the architectural photograph:

“…to present the architectural object as a higher form of cultural production so as to defend and promote architects and patrons, and to further the absorption of buildings and architects into consumer culture.”

As evidenced in the growing breadth and number of publications about architecture, the photographic image has become a primary vehicle by which to expand the experience of the global audience with respect to architecture. Benjamin claimed that technical reproduction puts the copy of the original in situations which would be out of reach for the original itself. Photography enables the original to meet the beholder halfway. For architecture, always inextricably linked to its site and context, this can be problematic. Hill states:

“Architectural histories often discuss the building as an object of artistic contemplation and imply that this is the familiar experience of the building. The photograph acts as the mediator between the writer and the reader, who is encouraged to assume that the experience of the photograph is the same as the experience of the building. The object of architectural discussion is often the photograph, not the building, because the former, not the latter, most closely fulfils the desires and expectations of the architect and the architectural historian for an object of artistic contemplation.”

Juhani Pallasmaa claims that the dominance of the visual image is at the expense of the experiential, non-visual aspects of architecture. The problem arises from the isolation of the eye from its interaction with other sense modalities, and the consequent elimination and suppression of other senses, all of which reduce and restrict the experience of the world into the sphere of vision.

In inhabiting architecture, the perceptual realm that we experience beyond the sphere of focused vision is as important as the focused image that can be frozen by the camera. Pallasmaa asserts that focused vision makes us outside observers; peripheral perception transforms retinal images into a spatial and bodily involvement and encourages participation. Pallasmaa states that a photographic image is usually regarded as an unreliable witness of true architectural quality, and suggests that architects would do better if they were less concerned with the photogenic qualities of their works.

Photography has both enhanced and distorted our experience of space. The representation of building is valued as much, if not more so than the physical experience of building. This may not be detrimental, but the danger is our increasing dependence on the image, and a decreasing desire

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to experience a building, settling instead for the image of building and our interpretation of it. Peter Downton states that photography plays a part in privileging of the visual as the mechanism for knowing, and we cannot naively consider images to be a faithful representation of the building.\(^8\)

In effectively flattening the image of a given view of a building, the photograph can be composed as any other piece of representation, to heighten what are seen as positive attributes and downplay the negatives. A common example of this would be photographs of the modern house, existing as a lone object in its own suburban landscape, with the neighbouring fence lines and television aerals carefully edited from view. Even when a photograph seems to only illustrate, we know selection of angle, cropping, and various subtle aspects of any image are intentional.\(^9\) The photograph has the ability to expand and contract space; to simplify or heighten a sense of architectural drama that is not as keenly present in the experience of the building itself. Benjamin states that in photography, process production can bring out those aspects of the original that are unattainable to the naked eye, yet accessible to the lens, which is adjustable and chooses its angle at will.\(^10\)

The photograph provides the viewer with the unprecedented ability to analyse an image, façade or space. This attribute encourages a preoccupation with surface, and more objectified readings of architecture. If images of buildings were the same or similar scale to the original building, then our perception would examine the context of the image more closely than when printed in a magazine sized format.

Hill states that Mies van der Rohe’s Barcelona Pavilion is an architectural icon, not only because it is seductive and much copied, but also because it has most often been perceived in conditions similar to that of the artwork.\(^11\) The photographs of the original 1929 Pavilion, taken in the same year, are arguably more well known than the original building, or its mid 1980s reconstruction. Their importance is heightened by the fact that the original building no longer exists, therefore lending a temporal power to the images.

People present in a photograph give a sense of scale, but they also interrupt the powerful lines of perspective that aim to direct the viewers gaze towards a distant point in the building or into landscape beyond. Perspectival space is mesmerising and powerful, but only when there is no other competition for attention. As the frame of a photograph truncates the visual periphery, objects or people in the image tend to disrupt the way that the photo is experienced.\(^12\) Hill expands on this thought to suggest that all signs of life would bring an awareness of time, occupation and climate to a photograph: all incompatible with the experience of a contemplative artwork.\(^13\)

\(^{8}\) Downton, P. (2003). Design Research. Melbourne: RMIT University Press. p.120

\(^{9}\) Ibid. p.118


Photographs, like perspective, are a singular image viewed from a fixed point. They lack the ability to convey the complexity of adjacent interior, exterior and human relationships as the architectural plan, or arguably the section is able to do.\textsuperscript{14} However, engaging in a perspective can emphasise, or even encourage dialogue with a corner or connection detail, a dialogue that could be overlooked when working in plan.

The theory of perspective is both specific, and very general. James Elkins observes that each discipline has its own theory on perspective, but there has been very little cross-referencing between theories. Renaissance authors and artists thought there were many compatible perspectives, and their writings and paintings evince a “pluralist” approach in contrast to the monolithic mathematical perspective that we imagine today. It was more a collection of rational methods than a “rationalisation of sight” more a way of drawing objects than of setting them in an abstract, “pictorial space”.\textsuperscript{15}

The viewer is never seen in the perspective image, but is always present, beyond the outer limits of the image. The architectural photograph always acknowledges the presence of the viewer. In Western culture, the perspective image is immediately comprehensible, by virtue of our habitual encounters with and cultural understanding of perspective. Unlike orthographic projections (which can be objectively understood by people from different cultures with the technical knowledge) the cultural context in which a photograph is viewed has a huge influence over how it is received by the viewer, especially as visual perception is so closely linked to language.\textsuperscript{16} Jay discusses the problematic situation with regards to the contemporary image which involves the permeability of the boundary between the “natural” and the “cultural” component in what we call vision. The universality of visual experience cannot be automatically assumed, if that experience is in part mediated linguistically. Jay states that visual observation, means observing the tacit cultural rules of different scopic regimes.\textsuperscript{17}

Pallasmaa claims that the experience of architectural and spatial reality depends fundamentally on peripheral and anticipated vision.\textsuperscript{18} In this respect, photography prohibits these two visual aspects. However, Evans argues this can be compared to architectural drawing which affects what might be called the architect’s field of visibility. It makes it possible to see some things more clearly by suppressing other things: something gained, something lost. Its power to represent is always partial, always more or less abstract.\textsuperscript{19} This observation can also be extended to the architectural photograph, where the image frames the desired view and draws attention to certain attributes of the subject, eliminating the peripheral context.

\begin{itemize}
  \item \textsuperscript{14} Evans, R. (1997). \textit{Translations from Drawing to Building and Other Essays}. London: Architectural Association Publications. p.56
  \item \textsuperscript{17} Ibid.
  \item \textsuperscript{19} Evans, R. (1997). \textit{Translations from Drawing to Building and Other Essays}. London: Architectural Association Publications. p.199
\end{itemize}
Evans writes that of all the senses, sight is the most appropriate for things at the boundary of human experience, and that is what a particularly large room provides; an edge perception. In the immediate precincts of the body, the other senses prevail.20 Beyond 100 feet, the auditory cues with which man works begin to break down rapidly, whereas the unaided eye sweeps up an extraordinary amount of information within a hundred-yard radius and beyond.21 The dominance of vision in terms of precise spatial perception is reinforced.

Evan’s assertion does not take into account being in a space without light. For example, we would use our voices, listen for echoes, and feel the walls with outstretched hands to determine the size of a dimly lit cavern. At an infant’s early stages of development, the senses of smell and touch are considered more functionally vital than sight.22

22 Ibid. p.6
TACTILE DESIGN PROCESS

Tactile design processes are those which engage several senses, principally vision and touch. Pallasmaa writes that an aspect of touch is essential to vision; as we look, the eye touches, and before we even see an object we have already touched it. Touch is the unconsciousness of vision, and this hidden tactile experience determines the sensuous quality of the perceived object.23 The relationship of vision and the photograph to tactility is particularly strong, and though we take in information through our eyes, our hands can convince and reassure us of reality. Walking down a flight of steep stairs, we see the path is clear, but we instinctively grasp the handrail for reassurance. Jay states:

“…we are often fooled by visual experience that turns out to be illusory, an inclination generated perhaps by our overwhelming, habitual belief in its apparent reliability. Here the compensating sense is usually touch, as we see confirmation through direct physical contact.”24

Architectural design and documentation methods increasingly favour the virtual world, rather than the tactile, analogue processes of drawing and modelling by hand. Our increasing reliance on CAD and virtual modelling is shifting design towards visually dominant design processes. Malcolm McCullough writes of disjunction between the hand and eye in design. CAD has changed our relationship of eye following hand in drawing and modelling, to our eyes affixed to a screen, and our hand on a mouse or keyboard.25 In addition, photography has become so dominant in our perception and experience in architecture. Benjamin stated that photography freed the hand of the most important artistic functions which then relied only upon the eye looking into a lens.26

In this research project, I have chosen to examine the architectural photograph through tactile design processes. This is in part to escape visual dominance apparent in both the design and representation of architecture. Utilising the photograph in the way one works with cardboard or metal, changes the perception of the raw material. Benjamin states:

“For the tasks which face the human apparatus of perception at the turning points of history cannot be solved by optical means, that is, by contemplation, alone. They are mastered gradually by habit, under the guidance of tactile appropriation.”27

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27 Ibid. p.240

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Practitioners can look at orthographic projections and sketches and can easily replicate or assimilate parts of these into their own work, based on these various projections. However, the spatial design method of manipulating the photograph or perspectival image has not been as widely used. I chose collage as a design technique for incorporating the photograph or fragments of images into another media. Pallasmaa writes that collage and assemblage enable an archaeological density and a non-linear narrative through the juxtaposition of fragmented images deriving from irreconcilable origins. Collage invigorates the experience of tactility and time.  

Unlike other creative disciplines in the arts, such as painting or sculpture, Evans notes that the drawing or maquette in art is closer to the final product than a drawing is to a building. The directness of the author’s relationship to the actual object is significant, as nearly always the most intense activity is the construction and manipulation of the final artefact, not to provide a complete determination in advance, as in architectural drawing. This, he states, is a distinguishing feature of conventional architecture considered as a visual art.

The photographic subjects that I used were four images taken in a timber yard in Matakana, north of Auckland. I selected these images not only for their appealing content, but also because my response to the site was unexpectedly strong. These simple structures had been purpose built in timber to shelter drying logs.

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The first maquette is executed on Birch plywood, incorporating one of the photographs, the view being of two drying sheds. In examining the timber screen content of the image, I introduced this texture with hatching on the ply, both in pencil and eventually scoring the surface of the ply.

All the original images were 6" x 4" printed in matte black and white (the photograph was taken on black and white film) with a 6mm white border. Moving from the plywood to the photograph, I started by scoring its surface, the scoring pattern defining the existing lines of perspective, horizon and vanishing points. The scoring became an extension of the timber screen work on the buildings in the photograph, and led to exposing the white photographic paper beneath. Sections of the image peeled away altogether, revealing the base material, white paper pulp beneath.

In order to further neutralise the original photograph, I set about de-contextualising the image. By cutting away portions of the image, in particular of the site and elements that occurred in the image that extended beyond its frame, the original fragments of the photograph lost their sense of scale and connectivity to the original context. The white border around the image was mostly cut away. Fragments of the image were placed in different orientations on the plywood, then I again set about extending lines of site and perspective, introducing texture through ink lines and scoring. The photograph became easier to read it as part of a new piece of work.
MAQUETTE 2

The subject photograph was one of an interior of one of the timber drying sheds. The same methods – drawing, scoring, peeling the surface of the photograph, and emphasizing the existing perspectival lines were employed in the production of the second maquette. A difference in the use of the plywood was that the material was penetrated through, rather than just the surface being scored. The surface is no longer continuous and intact, and it creates more relief and shadow. Although the third dimension is not substantial, awareness of the plywood depth changes the perception of a surface collage into a bas relief.

I worked in the four orientations of the plywood, trying to create new ways of looking at the image. Lines of original columns become a solid wall, once void. Materials are suggested, not rigidly defined. The surface of the photograph now suggests other material possibilities – brick, sheet metal, concrete. The most banal orientation of the collage is the original one, as the original background context is clearly discernable.

Scoring to the surface of the photograph concentrated on the ceiling and clerestory truss area of the façade. The scored surface, much like a screen, was an attempt to take the functional yet brutal form and soften the space. It appears to make it more palatable or habitable.
The original image for the third maquette is of a close up of a stack of timber. End grain and dark shadows indicate a depth of perspectival space, but otherwise, there is a lack of context. This would turn out to be the most challenging image of the four to work with.

I try and get away from the one point perspective, by cutting strips of the image and rearranging them. This successfully creates a new texture that is not related to the original, which recalls qualities of heavy rubble, or stone. Taking the balance of the photograph, I cut it along imaginary perspective lines, and then struggle to reorganise the fragments into a satisfactory assemblage. I attempt to expand the size of the original, but this only serves to enlarge the original image, not create the different spatial qualities I was hoping for.
MAQUETTE 4

The fourth image is of a distant concrete storage shed next to piles of large uncut logs. Again beginning by scoring the existing perspectival lines through the photograph, this leads to a play with the three dimensional forms depicted in the image, and I etch two more "additions", drawing in perspective on the image itself.

The grain of the particular piece of plywood for this maquette had an attractive 3 dimensional contour effect, which ends up becoming part of the perspectival materiality. As with the other photographs, I cut along the perspectival lines, and taking fragments, create a broken textural pattern.

The background of the image is removed completely, increasingly its contextual neutrality. I offset fragments of the building image, the separation between fragments suggesting windows or taller structure. I cut a strip window from the plywood, and then highlighted the vanishing point that the image relates to. This vanishing point is now the reference point for an expansion of the original image. I draw a much larger façade, of which the existing photo fragments become only a small, textural part of. In different orientations, the building is sited in different ways. I introduce the second vanishing point. Fragments of logs in the image are replaced in the collage, as reference to, rather than exact location of site. Lastly, I applied a stain to the plywood, and try to deepen its colour in the scored portions of the surface. The ink soaks into the grazes, darkening them and heightening one’s awareness of the plywood surface.
SPATIAL DIAGONALS

Production of each maquette involved the same materials (birch plywood, black and white photographs), and similar process of acknowledging the original diagonals of perspective, highlighting them, cutting along them, and then reconstruction the image relative to the original lines of perspective. There is a definite progression over the series of four in terms of thinking and modifying the image.

Firstly, I was making an effort to occupy and control the image as I would a perspective drawing by reiterating the rules of perspective. I then progressed to getting beyond the surface of the image through scoring, then eventually penetrating through the plywood base. I utilised the photograph as a design material that can be de-contextualised and manipulated, and developed a unique reading of the space depicted in the original photographs.

Throughout the process of creating the maquettes, I was continually reinforced its relationship to building and building elements. Cuts in the plywood or images were often to mould the architectural form in a particular, elemental way. By the fourth maquette, the technique was well practiced, and I could concentrate more on the production of design through collage. The viewer must examine the maquettes at close range from oblique angles and hold them in their hands to see the holographic effect of the plywood grain. Of the four, I believe the last is the most successful, and the least like its original photograph.
Shearing along the diagonals of perspective helped to retain a spatial depth to each maquette. Elkins states that drawing lines over photographs is a typically modern development, a way of revealing perspective without using perspective.\textsuperscript{29} Unlike an art historian's analysis of an artwork, where perspective lines are drawn to reveal the hidden perspective with in a painting or fresco, revealing the perspective in a photograph shows the exact geometric relationship that artwork may not have.

Perspectival diagonals converge at a vanishing point or points of infinity, and it is through the definition of infinity that spatial depth in a 2-D image can be read. Along with the horizon, these reference elements position the viewer specifically outside the image, looking in. Congruent, parallel lines can go into infinity, with no end, and no beginning, and subsequently little spatial depth reference.

Elkins disagrees with the practice of drawing lines over paintings or photographs of paintings, because this assumes there is an underlying perfect geometry behind the artwork's creation. Often on closer analysis, even the most seemingly rigorous Renaissance artwork had perspectival flaws which questioned the conviction of attachment to such a practice and whether the artists themselves were concerned with this as much as is now assumed. By revealing lines of perspective in art, Elkin argues that art historians may be missing the point of the artwork because it is like trying to find a hidden mathematical truth that does not exist.\textsuperscript{30}

On the other hand, the analysis of painting in this way reveals that perspective is not precise, that it was composed and executed by an individual. Evidence of the hand of the artist is proven through examining perspectival structure, which further reinforces the role of tactility in visual art. In making the diagonals visible in the photographs, and in the particular method of scoring the photographs, the collages revealed more of the nature of the materiality and the physicality of the photograph itself. It is a representative image, a material that can be manipulated.


\textsuperscript{30} Ibid.
DESIGN STUDIES PART II

STRANGELY BUILDING

I went through a process of photographing the maquettes, in an effort to distance myself from my collage work, and shift my thinking about the making of the collages, to the architectural significance of the works themselves. The photographs are significant enlargements of the maquettes, and they have been framed without a preferred orientation.

In the images there is a strong presence of shadow, which gives the impression of a heightened materiality. The different textures of the smooth versus scored plywood is contrasted with the smooth surface of the photographic fragments. The strong lines of the plywood grain could be read as drawn lines rather than a feature of the material.

The photographs were taken with the maquettes at a slight angle, in order to create a perspectival depth. This technique created some interesting views. Some of the images read as a site viewed from above, with terrain present but out of focus in the distance. Other images can be read as elevational detail images of parts of buildings. The many scales that the photographs can be read at gives the set great potential for being incorporated throughout a design process, from general to particular conditions.

Landscape, elevations, details, and grids emerged from the images. Collectively they possessed an impression of the buildable or the built, or an inscription for building. A transition has been made from seeing a photograph as a representation of a subject, to reading an image as architectural documentation.
The number of readings that these images were able to be given lead me to the conclusion that several interrogations should be done on the photographs, with different mediums. Effectively, I re-examined these photographs as a new, neutral design material. The different tactile design techniques and mediums I set out to explore included:

- Physical modelling
- Virtual modelling
- Animation / Film

I anticipate that rephotographing my work and incorporating the new images into my work will occur, as a way of folding my progressing design work into design in progress. My ultimate goal for my research is in the culmination of these design studies into a design for a building, sited in Las Vegas.
DESIGN STUDIES PART III

MODELS FROM PHOTOGRAPHS

Through modelling, I hoped to better understand the creation of interior and exterior spatial forms through manipulation of a flat photograph, paying attention to the intuitive assembly instructions and materiality within each photograph.

I selected a dozen images from my Strangely Building series, and printed them in neutral black and white on A5 sized paper, mounted on lightweight cardboard. I want to neutralise the effect of the colour in the photographs. Employing the same techniques as used for the creation of the birch maquettes, I continue to cut along lines of perspective (diagonals within the images), and instead of shearing them on a flat surface, these lines become folded angles. The photographic images move into three dimensional form, they take on the qualities of built fragments or components from a larger whole. By cutting and turning images inside and outside onto themselves, glimpses of interiority start to form, but it is very challenging. My first instinct is to fold the image from front to back, which results in creating a box, with the photograph on the outside, and the cardboard on the inside. The difficulty in transforming an image into an interior is related to its surface completeness and totality.

I put these photographic form fragments together in an assemblage, and then photograph the arrangement. I then montage this with a background of the Las Vegas Strip, giving the model fragments a context close to my final project intent. The broken façade of the exterior form is very intentional, and helps to form these interior, partially enclosed spaces on the exterior of the building. The assemblage resists being either object or enclosed, neither interior nor exterior.
SHADOWS AND REFLECTIONS

Prominent aspects of the photographic montage are the light, shadows and reflections. The surface material can be read as reflections of the site, sky and surrounding landscape, which are distorted and fragmented on the jagged façades. The model fragments in the foreground of the image have space between them, and almost appear to float off the desert sand. There is a curious glow of light around the perimeter of the objects, which makes them appear floating, almost not touching the earth.

The form shaping characteristics of shadow is one distinguishing feature of the photograph. In the manipulation of the photograph, the inverse of the original photographic image appears to emit light. This light is contained, hidden, protected under vast canopies, or they could be up lit from within and reflecting onto the ground. Light sources are hidden and discreet, and light escapes through cracks and slippages in the façade.
The model appears to be fallen fragments of a larger structure. Like a building that has been turned inside out, it doesn't look complete, yet it forms its own landscape of jagged planes. There is a feeling of the interior turned inside out.

The building has the potential to capture its subject in the reflections of its façade, and these reflections can extend beyond the exterior, into the interior. One could imagine standing at a window on the interior, faced with both the view of the horizon and a reflection of themselves, with the room behind. The periphery of one's perception is sharply brought into focus as subject.

Different polished surfaces offer different levels of reflectivity, and a reflective surface can reflect light onto the floor and ceiling planes as you enter the building. By virtue of their reflectiveness, the built forms can “disappear” into the night or fragment the view of the landscape under the midday sun. They defy the desert climate by reflecting heat off exterior cladding.

The interior of the spaces could be finished in subtle, nuanced reflective surfaces to always engage the visitor, both directly (reflection of the visitor) and obliquely (reflections of light, movement). The boundaries of space and perspective also augment when reflections of space are involved, and the periphery of the visual field is expanded. The use of reflection as a device may help to combine the haptic, with photography and the appearance of tactility and depth.

When the visitor is faced with both a reflection of oneself, the exterior, and the interior of the building, the interiority and exteriority are at once in the same visual plane. The line of the boundary, the periphery, could either be framed or frameless. The periphery is in focus, and the interior / exterior world is blended in an unusual way. That which is behind the viewer becomes important, as it is that which is framed in the reflection the visitor sees. Foreground, background, subject all augment and are present at the same time.

Through this exercise, insight was gained into how aspects of my final project could be framed functionally and aesthetically.
The move into animation and film from the photographic image was intuitive. Photography and film are inextricably linked, as Benjamin states, and film elevates photography beyond art representation, into a scientific technique. Filmed subjects lend themselves more readily to analysis because they can be isolated more easily. Therefore, film is a useful method of interrogating photography for the purposes of my project.

Benjamin writes:

“Here the camera intervenes with the resources of its lowerings and liftings, its interruptions and isolations, its extensions and accelerations, its enlargements and reductions. The camera introduces us to unconscious optics as does psycho analysis to unconscious impulses.”

The film forces the viewer to be in the moment, unable to focus on any one frame or image. The normal function of the eye is to be in constant rapid motion, and we cannot freeze its movement for very long without painful eye strain. As opposed to the contemplative art status that Hill discusses with respect to Mies’s Barcelona Pavilion, viewing film leaves no time for contemplation. One reacts, emotionally, psychologically, to the filmed action, and is absorbed in the temporal experience. It is not until the film’s end that one is able to contemplate the whole, and the specific details of a particular shot are organised with respect to the overall sequence.

Benjamin writes:

“The painting invites the spectator to contemplation, before it the spectator can abandon himself to his associations. Before the movie frame he cannot do so. No sooner has his eye grasped a scene than it has already changed.”

Taking a large selection of my Strange Building photographs, and photographs from the physical models built from these photographs, I created an animated film of the images in an Apple computer package called iMovie. This short film was set to a syncopated rhythm soundtrack which had acoustically spatial qualities to it.

In the photographic animation, the viewer’s gaze is moved, panned, zoomed around the static image, rather than the object moving around the viewer. Effectively, the image is still a static representation, and by virtue of panning around the image, the spatial qualities of the perspective are reinforced. Certain details in each image were initially focused on, and then the camera panned around the image, or zoomed to expand the

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32 Ibid. p.237
view. Though the image remains static, a strong sense of movement and spatial depth is generated through this method. The eye moves and touches many parts of the image. The panning and zooming effect is present in the photographic maquettes; the step towards movie making explores a process already evident in the collages.

The nature of the film medium does change the viewer's examination of the photograph in unexpected ways. The experience is certainly more spatial and intense. Even the music accompanying the animation also lends a spatial quality to the experience, and the feeling of movement is very strong.

The depiction of the interior / exterior relationships, and movement, are key challenges to examine in my research on architectural photography. Creating a sense of interior from an exterior surface, through modelling can now be compared with the movement of the camera from a focused detail on an image, to a zoomed out view. Though the image is static, the impression of movement, from one space to another, from an interior to a larger interior or exterior view is convincing.

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35 The Ken Burns Effect, made famous by American documentarian Ken Burns, refers to a technique of embedding still photographs in motion pictures, displayed with slow zooming and panning effects, and fading transitions between them. In his documentaries, Burns often used this technique to give life to still photographs by slowly zooming in on subjects of interest and panning from one subject to another. The effect can be used as a transition between clips as well. The zooming and panning across photographs gives the feeling of motion, and keeps the viewer visually entertained.
Western society is becoming more ocular-centric, but it is also becoming more precisely mathematical. In the relentless pursuit of precision, accuracy and perfect geometry, architecture has had to turn to the computer to undertake increasingly more complex calculations.

This design study involved creating a 3D model utilising my Strangely Building photographs, which would be developed into my final project. I chose to use a 3D modelling / visualisation program called SketchUp. SketchUp is known as a more intuitive modelling program than many 3D modelling packages available, and it has a unique set of tools that allow you to stretch, push, pull and move objects around in a perspectival world, much like how one would mould a clay model. The user can create a model without use of fixed dimensions, relying on proportion and the scale of a model human being in the virtual environment. SketchUp also allows the user to easily add surface colour, materials and finishes to any plane.

From a small selection of my Strangely Building images, I created components of the images within SketchUp. The component tool is a standard feature of the program, and is primarily used to create building elements that are replicated in the model, such as windows. A modification to this technique I employed in the creation of the 3D model was that I stretched and moulded components into an arrangement that I found appealing, rather than just inserting them into the model. The ability to distort and enlarge these components, from small objects to the size of a building, proved to be very powerful. Theoretically, a 3D model could be made out of a couple of components which are arranged and copied at different scales, orientations and sizes. Components can also be easily moved around and arranged with other components, as they keep their individual integrity.

A flattened component object serves as a site plan and initial floor plan, then other components were brought onto the site and arranged. In the building of the components, the relationship between walls, ceiling planes and floor layouts are all present, and it forced me to develop the design in the round. SketchUp encourages the user to design in perspective, and any wall or plane that you push out or pull in becomes a 3 dimensional, perspectival form. From Google Earth I chose several images, both in plan and perspective of the site, with 3D buildings and terrain toggled on.

SketchUp allows the user to import, at scale, Google Earth satellite map images of specific locations around the world, into SketchUp models. These tools allow the user to quickly and effectively create an accurate 3D environment, and it this supports the user to think broadly about the building design in relation to its specific site and context. Though the Google Earth images are generally flattened satellite images, there are certain functions that allow you to toggle on accurate terrain and 3D buildings. It is predictable that soon the user will be able to see accurate terrain and buildings for most locations around the world, becoming a very powerful context design tool for architecture and landscape.

**LAS VEGAS**

Site was introduced into my project through the Strangely Building photographs, and the photo montage of cardboard models against the Las Vegas Strip background. Up to this point, my virtual model was without specific site context, and this aspect of the project had to be developed in order to fit with an architectural design programme.

The chosen site is in Las Vegas, Nevada, USA. This small parcel of land is on the corner of Russell Road and Polaris Avenue, which is west of Las Vegas Boulevard (The Strip) and southwest of the casino complex called the Mandalay Bay. It is on the south east corner of a very busy intersection and adjacent sites include a hotel, a service station, and other empty lots. Even though the site is separated from the Strip by the Interstate 15, the main freeway through Las Vegas, the site is elevated, and there is a strong visual proximity to the Strip.

The site is also located in what is known as the "no-mans land", occupied by light industrial buildings and warehouses, and adjacent to the buildings that house the services for the Strip casinos. The location is also physically cut off from the rest of the city to the west by the Pacific Railway line, and to the east by the Interstate 15. The contrast between the two environments - that of the Strip and the surrounding city is an important contrast for my project, and the site is located on an island within the city development.
Las Vegas is a city of nemeses and of polarisations. The Strip is a glittering tardus of space and time, with the ultra-conservative low rise suburban sprawl around it. Enamoured with visual appearance, Las Vegas has no sentimentality or nostalgia for its past. The vast, inhospitable desert surroundings are an appropriate backdrop for the constant purging and renewal of the built environment, as old casinos are destroyed to make way for the new.

Denise Scott Brown and Robert Venturi write about Las Vegas and Rome: “Each city is an archetype rather than a prototype, an exaggerated example from which to derive lessons for the typical. Each city vividly superimposes elements of a supranational scale on the local fabric: churches in the religious capital, casinos and their signs in the entertainment capital.”

Since Brown and Venturi examined the Las Vegas Strip 30 years ago, it is still larger than life but its built form and people’s interaction within it has changed. Brown and Venturi noted that on the Strip, the forms of the buildings were secondary to the signs in visual impact and symbolic content. Today the casinos are built right up to the kerb, so the building forms and the large signs work in symbolic unison. While the car is still the dominant means to get from one end of the Strip to the other, there is also a large pedestrian population. Casinos are increasingly encouraging visitors to explore the Strip on foot, and some entertainment drawcards, for example the Bellagio fountains or the Treasure Island Pirate show, can only be fully appreciated by standing on the sidewalk.

The interiors carry on the themes of the building exteriors, but there is little ability to comprehend the vastness of the casino interiors by looking at their enormous façades. The lack of shadows is quite noticeable. This denial of the passing of time puts the Strip in a permanent twilight.

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38 Ibid. p.116
Brown and Venturi write of Las Vegas interiors:

“The intricate maze under the low ceiling never connects with outside light or outside space. This disorients the occupant in space and time. One loses track of where one is and when it is. Time is limitless, because the light of noon and midnight are exactly the same. Space is limitless, because the artificial light obscures rather than defines its boundaries. Light is not used to define space. Walls and ceilings do not serve as reflective surfaces for light but are made absorbent and dark…The lighting is anti architectural.”

What is interesting about Brown and Venturi’s description is that casino interiors tend to favour many of our senses, by downplaying our reliance on vision. Casinos are enriching their interior spatial experiences through deliberating forcing visitors to rely not only on sight to comprehend their environment. Sound, touch and smell aid in the comprehension and experience of Las Vegas, accompanied by a temporally static environment, in which the only important time is the present. A heightened tactile environment is an interesting premise for my building project.

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The functional brief for the building project is a Community Performing Arts Theatre and Art Gallery. Space requirements include:

- Enclosed theatre / performance space
- An outdoor theatre / performance space
- Enclosed art exhibition space
- An outdoor courtyard with potential use as exhibition space
- Administrative offices, meeting rooms, and back of house function areas
- Café / Restaurant
- Car parking structure for 50+ cars

With many theatre spaces in Las Vegas buried deep within other buildings, exploring a purpose built theatre programme was in response to the growing, yet transient city population. Population growth has increased at a very fast pace, so new and established residents are challenged to find a cultural identity for Las Vegas, beyond the glittering casinos.

Taking into account Las Vegas’s desert climate, solar control, orientation and seasonal usage were primary concerns for the function of the building. Between the furnace hot summers and cold crisp winters, there are several months in the year that Las Vegas’s climate is warm and pleasant. Residents and visitors seek out these outdoor spaces, but until now Las Vegas recreational facilities have been dominated by the interior experience.
MODEL INTO ANIMATION

The Community Performing Arts Theatre and Art Gallery is a series of pavilions, connected via an outdoor courtyard / gathering space. A café flanks one side of the courtyard, and seated patrons can also look beyond the courtyard to the outdoor performance stage. At the centre of the outdoor courtyard is a reflection pool - a reminder of the presence of water below the surface of the earth.

Visitors move from facility to facility via interconnecting levels. As the facades of the pavilions are quite permeable, changes in level accentuate movement from one space to another. Motorised solar shade roofs adjust to the sun’s angle and intensity. These roof forms also incorporate photovoltaic cells to generate electricity for the facility.

The street façade of the complex appears hard and impenetrable from the street, sheltering the interior functions from the torrent of traffic on Russell Road. The parking facilities are housed on the ground and first floor levels of the building. Basement structures are not common in Las Vegas, due to the weak sedimentary earth conditions. There is also a very high water table, making dewatering a constant necessity if a building is dug into the earth.

Though views of the Strip and surrounding environment are framed, the physical presence of the building on the site is one of an island. It is a self contained facility, predominantly accessed by car. Monorail access would ideally be extended from the Mandalay Bay, making the complex very accessible from the Strip for pedestrians.

Referring back to my work on models made from photographs, the use of shadow as a form shaping characteristics, and reflections of the cladding and interior are important to the building design. The impression of the interior is turned inside out, so the entire interior and exterior give the impression of the singular surface folded back on to itself to create an interior is intriguing. The reflectivity of the cladding would camouflage the exterior, and act as heat deflector.
As for the Strangely Building animated film, I created an animated film from still images of the 3D model to initially present the Performing Arts project. With several exterior and interior perspective views of the building, I created montage images of the site and the surroundings, from images taken from Google Earth. Immediately, a site image gave an image of the model a sense of context.

Like my first animated film, the images were then put together as video clips in iMovie, and set to a soundtrack. The lens of the camera pans slowly, zooming in and out over the images, to give a sense of movement, interior and exterior. Though the renderings of the SketchUp model are quick and not photorealistic, I wanted my presentation to still have a somewhat loose quality. My objective was not to create photorealistic images, as then I would be moving into a mode of representation rather than exploration.

In analysing my virtual modelling process, the components that the 3D model was constructed from could have been generated via another base image, other than a photograph. However, for my project to this point, the absence of drawing was a noticeable difference in the design process, and the goal was to keep extending research into the photographic image. Photography plays the duel role of documentation and representation in the design. However, the animated still images are the most successful in conveying the feel and depth of the spaces within the model.

Though photography and modelling have taken the design to a clear conceptual form, the further development of the design required drawing. A more detailed animation of the design would be able to convey the temporal aspects of the design, its movements and functions in greater detail. However, the specific design of these systems and elements would precede creating an animation.
PERSPECTIVE AND PROPORTION

The generation of a perspective in architectural production is not generally recognised as a design method, but rather as a translation and distortion of existing 2D information into 3D representation. The established relationship between architecture and orthographic projections is analytical and scientific when compared with perspective drawings. Comprehension of a plan or section relies on the technical knowledge the viewer has, and the knowledge one has is proportional to the interest and complexity that a drawing can reveal. Plan and section cut through a building and cleave it open at a set point, but there is no direct spatial relationship of the viewer to the drawing, or a set pattern of movement through a drawing.

Designing in perspective can be frustrating, especially if the expectation is to resolve spaces in the way that a plan drawing does – efficiently and exactly. It is difficult to pin down the extent of a space in a perspective drawing, as it is in a photograph. The complexities and nuances of space can be represented, but not sufficiently described in the detail required for complete spatial comprehension or construction. Perspectival design drawings are less exact, and more object-oriented and experiential. Exterior form is much simpler to resolve in perspective, though these have a tendency to become object-like representations. Shifting of focus from exterior, to interior, to detail, to an idea of materiality or construction method seemed effortless. Without a method of measurement or scale, the massing and detail rely on proportion of space in relation to the body.

In perspective, proportion overrides reliance on dimensioning involved in producing or reading orthographic representations. The development of a design could be done principally on judging by the eye what looks in proportion. This method is quicker than constructing perspective geometrically and to scale, and objects within the perspective are built line by line into spatial forms. The significance of proportion is reinforced by Pallasmaa, in reference to our experience of built space. He states understanding architectural space implies the unconscious measuring of the object or the building with one’s body, and of projecting one’s body scheme into the space in question. We feel pleasure and protection when the body discovers its resonance in space.40

Multi levels of form, junctions and connections are privileged in perspective. The corners and the junctions are the hinge points of drawing in proportion, so these areas were given the most attention. The perspective encouraged dialogue with a corner or connection detail, a dialogue that could be overlooked when drawing in plan. However, we need to remember that as Merleau-Ponty stated, “The lived perspective, that which we actually perceive, is not a geometric or photographic one.”41

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THE PHOTOGRAPH AS DESIGN MATERIAL

Each successive design study into photography and use of a tactile design process has brought my work closer to architectural form. Working from photograph to model, then model back to photograph has been an intuitive move, but calculated in terms of my design objectives.

Initially, it involved taking images evocative of material, space and building, it has been challenging turning those visual attributes into physical collages and models, and attempting to convey those tactile qualities through a smooth surface. The creation of the plywood maquettes was a successful incorporation of photographs with other modelling materials, and the materiality in the photographs would not have been as evident if the plywood was not in close proximity to the images.

Moving away from the 2D image into 3D modelling was an effective alternate way of evaluating the photograph as design material, and reinforces its potential use within a familiar architectural design context. The creation of the animated films was an investigation into still imagery and representation, and whether it was possible to represent the photograph in a more tactile and spatial way. Overall the film animation and photography outcome was stronger than the physical modelling from photographs. Though the cardboard models themselves were convincingly buildable, they were disjointed and fragmented.

In architecture, the photograph, being a cultural vehicle, is more prone to subjective interpretation than orthographic projections. The same way that a sketch or model is drawn upon as inspiration for design work, so too can we utilise the photograph. Like other design material, the original photograph or images will eventually be set to one side as the design develops. Considered this way, an image’s usefulness to a design process will not hinder the development of the design, or lend too much meaning to a project.

A desensitization to the photograph occurred in the duration of the research, as the coherent surface of the photograph was repeatedly cut, scratched, fragmented and rearranged. Cutting through a photograph there is an initial sense of loss. Reading a photograph as building document, and paying close attention to the instructions for building required a knowledge of perspective construction. Cultural taboos, such as not touching the surface of a photograph, were moments of realisation about the nature of the material being worked with. However despite the cultural bias of photography when compared to other architectural representation, the photograph is no more difficult to assimilate into architectural design process. Peter Downton writes that any use of an object or its representation is evidence of the ability of the designer to employ the object as a source of knowledge. Overall, this research has determined the versatility of the photograph to contribute as a design material in many different mediums, and the work produced in these design studies has been rewarding.

A recurring challenge has been how to depict an interior / exterior relationship with photography. Orthographic projections such as plans and sections overcome the difficulty of representing the interior and exterior at the same time by not dealing with perspective at all. They are abstracted representations of a building project, and plan and section tend to downplay the object in their impossible depiction of interior and exterior. The objectified representation is not a dilemma for orthographic projections.

When attempting to make a 3D form out of a flat image, the inclination is to fold it in on itself, like a box, with the image on the exterior and the blank face to the interior. This is not a satisfactory method for creating a complexity of interior and exterior space. Instead, through this research a more successful method is to fold an image on itself, so an interior surface becomes an exterior surface. Creation of a sense of interiority from an image requires the incorporation of another image.

Without a reliable form of scale or measurement to apply to a photograph, a designer must gauge proportion visually. An understanding of proportion can be directly linked to Benjamin's argument for how we understand buildings – through touch and by sight. Through our interaction and used of buildings, we become familiar with ergonomic relationships to buildings, and therefore hone our sense of proportion. This suggests that utilising photography and perspective solely as a means of designing cannot be easily undertaken by an inexperienced designer. For architecture, visual comprehension and a tactile knowing of space are inextricably linked.

Replicating the processes detailed in this research can be achieved, and like any other design technique, it takes a certain practice and persistence to get good results. The thinking behind the techniques could be applied into different mediums and programs. For instance, a designer could engage the photographic collage technique, but execute the work in an image manipulation computer program like PhotoShop. The strong potential for incorporation of the photograph into a design process opens up new ways of dealing with and reading a representational material, with the goal of injecting the architectural design process with greater insight and complexity.
**VISUAL TACTILITY**

Representation of architecture has been a strong presence through my work. My primary research objective has been to investigate the photograph through tactile design processes, but in doing so the strength of film as a medium for conveying architecture has become apparent.

Film is more akin to our experience of architecture, and therefore perhaps a better medium than photography through which to convey its ethereal and spatial qualities. Benjamin states, “Architecture has always represented the prototype of a work of art the reception of which is consummated by a collectivity in a state of distraction.”\(^43\) Benjamin also asserts the state of distraction increasingly noticeably in all fields in art, which is symptomatic of profound changes in apperception, and that film is the ultimate means of representation to respond to this condition.\(^44\)

Architecture and print media have been symbiotically aligned for a long time. The format of the magazine or book has greatly dictated an accessible representation of architecture to architects and to the public. The architectural profession tends to hold popular culture at arms length, and architecture can be perceived to hold idealist values and have increasingly distant relevance to society. Film is an accessible medium to the public, more so than drawings or arguably photographs.

Jay writes:

“...it is wrong strictly speaking to equate sight with stasis – the eye's saccadic jumps, scanning of images, ability to glance as well as gaze, and so on, all contradict the equation – vision more than any other sense seems to betray an affinity for synchronicity, which our culture has often exploited by freezing the glance into the gaze.”\(^45\)

The natural function of the eye favours movement over contemplative stasis. The way we see and take in our surroundings is at odds with the objective representation of architecture in a photograph. In film, the movement over the camera over a scene or a still image guides the viewer’s eye around a subject. The viewer can concentrate on the overall feeling of the subject, rather than on static detail. Though an art form in itself, film is less art work like than photography.

Orthographic projections and photography share a common attribute – they are all static representations of a subject. Although technical knowledge and training in architecture favours these attributes, in a time when the animation, film, and building information models are becoming more commonplace in design practice, we are already in a mode of adjusting our understanding of the moving image in relation to architecture.


\(^{44}\) Ibid. p.240

B I B L I O G R A P H Y


APPENDIX A

STRANGELY BUILDING
APPENDIX B

MODELS FROM PHOTOGRAPHS
APPENDIX C

DVD OF ANIMATED FILMS