

Disruptive Surfaces | The Immersive Effects of Architectural Surfaces

by
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fulfillment of the requirements for the degree of
Master of Architecture
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Author's Declaration

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Disruptive Surfaces
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Master of Architecture 2017
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Abstract.

Public open space is defined by the relationship formed by external surfaces. Through the impact of building façades on the atmosphere the enveloping membranes evoke people's reactions. In ancient times, crafted materials and spatial sequences enhanced the daily routines of individuals, through their interaction with surfaces that engaged all of their senses. Mass production in the contemporary world, however, alienated traditional techniques of spatial composition and human interaction. Rather than ignoring the decay in the public experience, this thesis aims at strengthening it, with architecture that activates and triggers our consciousness. This thesis takes an approach that examines typical human encounters within contemporary public realm and seeks to disrupt them with compositional strategies of positioning architectural surfaces. Implementation of these strategies enhances the neglected senses and awakens self-awareness. By entering the emotional realm of architecture, this investigation considers the psychological context and complexity of a contemporary pedestrian. Thus, it questions how the pedestrian feels, moves, and responds while being engaged in a perceptual space defined by composition of architectural surfaces.

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Contents.

Author's Declaration.....	iii
Abstract.....	iv
Acknowledgments.....	v
Table of Contents.....	vi
List of Figures.....	viii
List of Appendices.....	xv-xvi
1.0 Introduction	
1.0 Introduction	1
2.0 Urban Morphology & Public Open Space	
2.1 A City of Distraction.....	3-7
2.2 Authentic Experience.....	8-12
2.3 Public Space as a Form of Experience.....	14-16
3.0 Character of Urban Open Space	
3.1 Historical Public Urban Space.....	18-35
i. Historical Precedents	
3.2 Space Defining Planes.....	36-48
i. Opening and Plane	
ii. Defining Open Space Through Boundary	
iii. Defining Open Space Through Enclosure	
iv. Circulation: Vertical vs Horizontal Plane	
4.0 The Pedestrian Realm	
4.1 Human Travel Space.....	50-58
ii The Body in Space	
ii. Spatial Sequences	
iii. Successful Urban Realm	
5.0 Materiality: Impact on Human Behavior	
5.1 Material Strategies.....	60-76
i. Semiotics of Materiality	
ii. Material Innovation & Re-Representation	

5.2	Impact on Experience.....	61-71
	i. Visual Impact	
	ii. Behavioral Impact	
5.3	Layering the Surface.....	72-76
	i. Thickened Planes	
	ii. Translucent Planes	
6.0	Design Exploration: “La Ville Des Pietons”	
6.1	Disruptive Surface Methodology: Generator for Disrupted Experience.....	78
6.2	The Walkable City.....	78-79
6.3	The Path: Pedestrian Realm Below.....	80-82
6.4	David Pecaut Square: Existing Condition	83-88
	i. Site Defining Elements	
	ii. Typical Pedestrian Events	
	iii. Circulation	
6.5	Potential Opportunities	89-90
6.6	Design Motivators.....	91-92
6.7	Architectural Proposal.....	93-136
	i. Design Concept	
	ii. Design Sequence 1	
	iii. Design Sequence 2	
	iv. Design Sequence 3	
	v. Design Sequence 4	
7.0	Design Development.....	137-148
8.0	Appendix.....	149-164
9.0	Bibliography.....	165
9.1	Works Considered.	

Figures.

Figure 1: Consistent Street Elevations

Source: Photo by Jennifer Grant

Figure 2: Mies Van Der Rohe, Toronto Dominion Centre

Source: Photo by Jennifer Grant

Figure 3: Generic Toronto Construction

Source: <https://cdn.shutterstock.com/shutterstock/videos/8776783/thumb/1.jpg>

Figure 4: Vertical vs Horizontal Surface

Source: Google Maps

Figure 5: Aura of Space

Source: Photos by Jennifer Grant

Figure 6: Aura of Materiality

Source: Photo by Jennifer Grant

Figure 7: Aura of Object

Source: Photo by Jennifer Grant

Figure 8: Switzerland Street

Source: Photo by Jennifer Grant

Figure 9: Switzerland Arch

Source: Photo by Jennifer Grant

Figure 10: Germany Cathedral

Source: Photo by Jennifer Grant

Figure 11: Switzerland Square

Source: Photo by Jennifer Grant

Figure 12: Germany Facade

Source: Photo by Jennifer Grant

Figure 13: Germany Piazza

Source: Photo By Jennifer Grant

Figure 14: Traditional Concept Plan

Source: Drawing by Jennifer Grant

Figure 15: Traditional Spatial Arrangement
Source: Drawing by Jennifer Grant

Figure 16: Contemporary Spatial Arrangement
Source: Drawing by Jennifer Grant

Figure 17: Piazza Navona
Source: <http://static.thousandwonders.net/Piazza.Navona.original.14940.jpg>

Figure 18: Place De Vendome
Source: <https://courses.umass.edu/latour/2010/vendome/Images/002.jpg>

Figure 19: Piazza Del Campidoglio
Source: <https://s-media-cache-ak0.pinimg.com/736x/57/cf/f5/57cff5424eda36dea5bf6e5da5113a4e.jpg>

Figure 20: Piazza Del Campo
Source: <http://media.gettyimages.com/videos/aerial-piazza-del-campo-circling-over-palazzo-pubblico-and-torre->

Figure 21: Piazza San Marco
Source: <http://media.gettyimages.com/photos/italy-venice-piazza-san-marco-symmetrical-view-of-architecture-in-picture-id547006173?s=170667a>

Figure 22: Experience "Within"
Source: Diagram by Jennifer Grant

Figure 23: From a Distance
Source: Diagram by Jennifer Grant

Figure 24: The Approach
Source: Diagram by Jennifer Grant

Figure 25: The Arcade
Source: Diagram by Jennifer Grant

Figure 26: The Arch
Source: Diagram by Jennifer Grant

Figure 27: Traditional Concept Drawing
Source: Drawing by Jennifer grant

Figure 28: Surface Elevations
Source: Drawings by Jennifer Grant
1-7: Ideas from Krier, R. (1979).

Figure 29: Surface Sections

Source: Drawings By Jennifer Grant
1-7: Ideas from Krier, R. (1979).

Figure 30: Surface Spaces A

Source: Drawings by Jennifer Grant
1-2: Ideas from Krier, R. (1979).

Figure 31: Surface Spaces B

Source: Drawings by Jennifer Grant

Figure 32: Stair Relationships

Source: Drawings by Jennifer Grant
1-4: Ideas from Krier, R. (1979).

Figure 33: Serguei Eisenstein Notation for Alexandre Nevsky (1938)

Source: Architecture: Concept & Notation

Figure 34: Bernard Tschumi Manhattan Transcripts

Source: Architecture: Concept & Notation

Figure 35: The Highline Infrastructure

Source:<http://cookjenshel.com/wp-content/up>

Figure 36: The High Line: Street Furniture

Source: <http://junebugweddings.com/img/photobug/January2012/nyc-same-sex-anniversa-ry-photos-by-top-seattle-wedding-photographers-la-vie-photography-02.jpg>

Figure 37: The High Line: Using surfaces

Source: <http://junebugweddings.com/img/photobug/January2012/nyc-same-sex-anniversa-ry-photos-by-top-seattle-wedding-photographers-la-vie-photography-02.jpg>

Figure 38: High Line: Structure

Source: <http://meredithgunderson.com/wp-content/uploads/2012/10/baan-gans-cutoff.jpg>

Figure 39: The High Line: Lighting

Source: <http://sanatkaravani.com/wp-content/uploads/2015/10/daha-da-fazla-new-york-3.jpg>

Figure 40: Wave Deck A

Source: http://torontoist.com/2009/06/simcoe_wavedeck/

Figure 41: Wave Deck B

Source:http://torontoist.com/2009/06/simcoe_wavedeck/

Figure 42: Wave Deck C
Source: http://torontoist.com/2009/06/simcoe_wavedeck/

Figure 43: GC Prostho Museum
Source: <https://www.thestar.com/content/dam/thestar/news/crime/2016/07/25/>

Figure 44: Seed Cathedral by Heatherwick Studio
Source: https://42mzqz26jebqf6rd034t5pef-wpengine.netdna-ssl.com/wp-content/uploads/2011/05/seed_cathedral_01.jpg

Figure 45: Seed Cathedral Detail
Source: https://42mzqz26jebqf6rd034t5pef-wpengine.netdna-ssl.com/wp-content/uploads/2011/05/seed_cathedral_01.jpg

Figure 46: Seed Cathedral Detail 2
Source: https://42mzqz26jebqf6rd034t5pef-wpengine.netdna-ssl.com/wp-content/uploads/2011/05/seed_cathedral_01.jpg

Figure 47: Blue Glass Passage
Source: Brownell, B. (2012)

Figure 48: Blue Glass Passage Effect
Source: Brownell, B. (2012)

Figure 49: Sou Fujimoto's Final Wooden House A
Source: <http://images.adsttc.com/media/imag>

Figure 50: Sou Fujimoto's Final Wooden House B
Source: <http://images.adsttc.com/media/imag>

Figure 41: Sou Fujimoto's Final Wooden House C
Source: <http://images.adsttc.com/media/imag>

Figure 52: Layered Surface Models
Source: Models by Jennifer Grant

Figure 53: Layered Surface Precedents
Source: a. http://images.adsttc.com/media/images/5243/767a/e8e4/4e67/bf00/00c9/newsletter/07_Pencil_Stereoscopic_House_Photo_Interior_Skylight.jpg?1380152948
b. http://images.adsttc.com/media/images/5243/610c/e8e4/4ecb/1700/00ce/large_jpg/04_Pencil_A_Simple_Brick_Interior_Photo_Interior_02.jpg?1380147461

- c. <https://s-media-cache-ak0.pinimg.com/236x/b5/26/61/b52661870275ae20802b936a4767bf11.jpg>
- d. <https://s3.amazonaws.com/case-challenge-production/velux-2/uploads/31f9bbeeb83d0-48db-87cb-cc3717a18bc8.jpg>
- e. <http://1.bp.blogspot.com/-fa1hw7wt22s/UPiNZpmU8MI/AAAAAAAATPs/CQnIOmps1CY/s1600/Steven+Holl+Architects+.+Ecocity+Ecology+and+Planning+Museums+.+Tianjin+%25283%2529.jpg>
- f. <http://www.checkonsite.com/wp-content/gallery/inhabit-pop-out/inhabit-pop-up.jpg>
- g. https://www.naibooksellers.nl/media/catalog/product/9/7/9781941806340_deep_veils_erik_l_heureux_erik_l_heureux_1.jpg
- h. http://static.wixstatic.com/media/369734_1d2b24c5452547d3bfc77eac487ac17.png_srz_628_429_85_22_0.50_1.20_0.00_png_srz
- i. <https://s-media-cache-ak0.pinimg.com/236x/c3/1c/b5/c31cb552e0c678dd17b82709c98a41de.jpg>

Figure 54: Saint Chappelle

Source: <https://userscontent2.emaze.com/images/9eb1e924-0875-482d-a1b0->

Figure 55: Layered Surface Diagram

Source: Drawing by Jennifer Grant

Figure 56: Path Historical Growth

Source: http://www1.toronto.ca/city_of_toronto/city_planning/transportation_planning/files/pdf/path_masterplan27jan12.pdf

Figure 57: Public Squares Connected to Path Network

Source: Drawing by Jennifer Grant

Figure 58: David Pecaut Square

Source: Drawing by Jennifer Grant

Figure 59: Site Features

Source: Photos by Jennifer Grant

Figure 60: Entrances into Path Network

Source: Photos by Jennifer Grant

Figure 61: Fruit Market

Source: <https://tayloronhistory.files.wordpress.com/2011/07/dscn0789.jpg>

Figure 62: Fashion Week

Source: <http://www.blogto.com/upload/2011/10/20111017-monothers-4.jpg>

Figure 63: Luminato

Source: <http://media.gettyimages.com/photos/luminatos-hub-in-david-pecaut-square-has-become-the-beating-heart-of-picture-id494291349>

Figure 64: Musical Performance

Source: <http://c8.alamy.com/comp/G58DX9/indulge-your-senses-festival-at-david-pecaut-square-elise-legrow-performing-G58DX9.jpg>

Figure 65: On Grade Site Circulation

Source: Drawing by Jennifer Grant

Figure 66: Below Grade Path Circulation

Source: Drawing by Jennifer Grant

Figure 67: Layered Networks

Source: Drawing by Jennifer Grant

Figure 68: Proposed Area of Exploration

Source: Drawing by Jennifer Grant

Figure 69: Pedestrian Behavior

Source: Drawing by Jennifer Grant

Figure 70: Pedestrian Movement

Source: Drawing by Jennifer Grant

Figure 71: Concept Methodology

Source: Drawing by Jennifer Grant

Figure 72: Design Concept Diagrams

Source: Drawing by Jennifer Grant

Figure 73: Multi-directional Layering

Source: Drawing by Jennifer Grant

Figure 74: Vertical and Horizontal Surfaces

Source: Drawings by Jennifer Grant

Figure 75: Concept Section

Source: Drawing by Jennifer Grant

Figure 76: Grade Level

Source: Drawing by Jennifer Grant

Figure 77: Movement Sequence : The Approach

Source: Drawing by Jennifer Grant

Figure 78: Movement Sequence : The Puncture
Source: Drawing by Jennifer Grant

Figure 79: Path Level A
Source: Drawing by Jennifer Grant

Figure 80: Movement Sequence: The Decision
Source: Drawing by Jennifer Grant

Figure 81: Movement Sequence: The Transition
Source: Drawing by Jennifer Grant

Figure 82: Path Level B
Source: Drawing by Jennifer Grant

Figure 83:
Source: Drawing by Jennifer Grant

Figure 84: Render 1
Source: Drawing by Jennifer Grant

Figure 85: Render 2
Source: Drawing by Jennifer Grant

Figure 86: Render 3
Source: Drawing by Jennifer Grant

Figure 87: Render 4
Source: Drawing by Jennifer Grant

Figure 88: Model Photograph 1 Detail Model
Source: By Jennifer Grant

Figure 89: Model Photograph 2 Detail Model
Source: By Jennifer Grant

Figure 90: Model Photograph 3 Detail Model
Source: By Jennifer Grant

Figure 91: Model Photograph 4 Section Model
Source: By Jennifer Grant

Figure 92: Model Photograph 5 Section Model
Source: By Jennifer Grant

Figure 93: Model Photograph 6 Detail Model
Source: By Jennifer Grant

Appendices

Figure A: Traditional vs Modern Facade

Source: By Jennifer Grant

Figure B: San Marco Analysis

Source: By Jennifer Grant

Figure C: Piazza Del Campo Analysis

Source: By Jennifer Grant

Figure D: Piazza Del Campidoglio Analysis

Source: By Jennifer Grant

Figure E: Gestalt Theory Concept

Source: By Jennifer Grant

Figure F: Concept for Immersed open space

Source: By Jennifer Grant

Figure G: Arch Experimental Models

Source: By Jennifer Grant

Figure H: Light and Shadow Experiment

Source: By Jennifer Grant

Figure I: Site Analysis Sketch

Source: By Jennifer Grant

Figure J: Formal and Conceptual Sketches

Source: By Jennifer Grant

Figure K: Superimposed Proportions

Source: By Jennifer Grant

Figure L: Contemporary Arcade Exploration

Source: By Jennifer Grant

Figure M: Experiential Concept

Source: By Jennifer Grant

1.0 Introduction

What is architecture? This question is generally answered by describing it as the art of building. Consequently, people invariably mention the practical and building components of architecture. Although these aspects make architecture possible, the initial process of conceiving design plays a significant role in differentiating the work of the architect from that of other professions in the industry. Architecture is the result of a creative process that not only considers the science of building but the art of designing. Created by the imagination, architectural design processes are different from construction or engineering processes. As a form of art, architecture can connect with humans emotionally, while providing them with physical conditions for their needs. Through built objects and occupied space, architecture also has the power to arouse sensations that correspond to the function of the building in question (Boulee, 1976, p.82). Whether perceived as masses or volumes, the contours of the object's planes in a composition are key contributors to a spatial atmosphere. Architectural surfaces should, therefore, be considered a work of art in the daily lives of individuals.

When discussing architectural surfaces, the facade is often the main focus. Architectural surfaces, however, are in fact everywhere. They consume our reality and shape our surrounding environment in various forms. They are not only a large part of our everyday experiences. They define them, through their distinct compositional configurations. This thesis is particularly interested in the proven ways that architectural surfaces have positively and negatively impacted one's spatial experience in the public realm.

The composition of elements that form a given space have the potential to enhance one's experience through the harmonious placement of objects. In the contemporary public realm, however, this rarely occurs. Today, humans have adjusted to their rigid and confined surroundings. They have become immune to everyday environments that consistently misuse the relationship between architecture and the lived experience. As a result, this research seeks to examine the extent to which surfaces impact the public realm and their ability to engage the human mind and body. It looks to uncover design strategies that could disrupt typical public experiences, through artistic and compositional techniques.

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Urban Morphology & Public Open Space

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2.0 Urban Morphology & Public Open Space

2.1 A City of Distraction

In a time when mass construction has predominated the architectural building process, distraction has become a psychological habit. Our routine and everyday experiences are now shaped by familiar geometries, materials and forms that prevents us from engaging mentally with the material world and the surfaces which sculpt it. This disengagement means, that while architecture, in the urban context, continues to disregard the importance of the pedestrian realm, the attention of the average urban pedestrian will continue to be diverted away from physical and tactile encounters within space.

Unlike in the past, the urban public realm today no longer is perceived through highly crafted surfaces that evoke human emotions. This is mainly due to the nature of surrounding contemporary building surfaces and their processes of construction today. On-site labour no longer involves the cutting, joining, and finishing of “raw” materials (Leatherborrow, 1993, p. 215). These days, construction consists of assembled components that are prefabricated elsewhere. Although these techniques are an achievement of building technology, they have taken over the aesthetic quality of architecture, focusing purely on the visual aesthetic of design. The immersive effects of traditional architecture, regarding its haptic imagery, have therefore been neglected (Pallasmaa, 2012, p.14). We now live in a world where focused vision has replaced peripheral vision, and has left us with minimal use of our senses. As opposed to using the large combination of these senses to envelop us in an exciting atmosphere, our vision alone simply reveals it to us in a flat and transparent encounter. From a spatial point of view, this means that the public realm is currently limited in rich architectural variety that could potentially stimulate our senses.

The primary interest of this thesis lies in the modern configuration of the City of Toronto, where public spaces designed at the turn of the 19th century began to address the growth of the population with a rational and rigid approach. Although this approach was new and innovative at the time, similar geometries and simplicity have been replicated throughout the city and are still being constructed today. Walking down a typical street, or sitting in an open space, for example, is not as pleasant as it could be. The experience involves loud noises from traffic, accompanied by a consistent wall of buildings that look very similar to one another. The city not only refrained from producing architectural character, but it also lessened the manner in which society operates within it. These spaces, however, need to be reworked to cater to the change in our mental state and our everyday needs.

Today, Toronto residents experience the “every day” within the limited sidewalk space that is sandwiched between the built fabric and the street. They also experience it in many open parks and public squares that lack their own identity. These spaces can be missed in a blink of the eye and are creating a situation that restricts us as citizens from our physical and mental engagement with the built environment.

This current state of the city is partially due to the conflicting wants of program, structure, mechanical equipment and expression that new developments continue to struggle with today (Venturi, 1966, p.16). The other conflict lies in the economic goals achieved by the efficiency of repetitive construction processes. As demonstrated in figure 1 by many neighbouring projects that line city streets, similar construction and design strategies have taken over. On a daily basis, this repetition has created a form of habit among pedestrians. Rather than enjoy the journey, the distracted citizen now tends to focus purely on their destination, without taking the time to explore their architectural surroundings.

Designers have experimented with architectural surfaces over centuries. These are conflicting opinions concerning how to deal with the architectural surface. Among these, were movements in architecture that were more concerned with the appearance of the surface than its relationship to a moving human body.



Figure: 1
Consistent Street
Elevations

The most significant movement, was Modernism. According to Robert Venturi, the simplistic view, expressed by many Modernist architects in the early 20th century, was one of the many beliefs that made the movement highly selective (Venturi, 1966, p.17). He argued that architects such as Mies Van Der Rohe and Philip Johnson were among the many modernists who ignored certain complexities of building. Although their projects are truthful in their material and formal expression, their over-simplified designs separated architecture from engaging with our mind and body. In his book *Complexity and Contradiction*, Venturi emphasizes that in order to repair the gradual disconnect between architecture and humans, surfaces require hybrid, rather than pure solutions (Venturi, 1966, p.17). This means that architectural designs need further complexity that can deal with aesthetics, meaning and function for human use. This combination is key to creating a rich architectural outcome. Our mind requires a 'shock effect' or 'disruption' in these areas, so as to heighten our body's awareness within a given space.

Figure 2 and 3 show the replicative nature of generic construction in Toronto in comparison to the famous TD Centre by Modernist Mies Van Der Rohe. The buildings share similar themes. The generic architectural example, however, shows today's superficial expansions of modernist principles. It focuses mainly on the mere 'appearance' of the building itself, instead of its physical and mental impact on the surrounding space outside.

Figure: 2
Mies Van Der
Rohe, Toronto
Dominion Centre



Figure: 3
Generic Toronto
Construction



Traditional architecture contains a strong sense of order. In construction today, however, it is my opinion that the pattern and repetition the exterior relam are excessive and have not been applied appropriately at the level of the pedestrian.

There are many approaches to defining architectural space. However, in the context of this thesis, it refers to its original meaning: the space between urban built form. Historically, urban space was unobstructed, open and public, but today, it has become limited in quantity and less articulated in terms of quality. It is the direct result of the contemporary lifestyle that assumes rigid divisions between public and private, urban and domestic (Di Pamla, 2009, p.1). Public exterior space is now noticeably divided hierarchically by individual private buildings, as opposed to collective public open spaces. This is evident in observing the top view of the city as shown in figure 4. It is clear that the majority of the city's surfaces are growing vertically, with the allotted horizontal surface becoming more reduced. Sidewalks are increasingly congested, and public open space is minimally designed. This continues as the city claims that it is "making room" for the growing population. Today, the focus of architecture is mainly on private vertical growth, rather than in the reworking of the horizontal plane, where public activity should exist. The chapters that follow explore the potential for the public and private realm to merge, using the architectural surface as a tool for enhancing and re-establishing the pedestrian experience.

As previously mentioned, today's conflicts along with the experience of architecture as a routine of the every day, have led society into a state of 'distraction'. As a result, there is now a divide in the scale in which architecture engages with the pedestrian, at both a physical and emotional level. Thom Mayne stresses the importance of contemporary architecture to navigate between these scales so it can address the city as a whole (Mayne, 2011,p.10). Urban design addresses the macro scale (master-plan) while architecture addresses the micro scale (building). A third element, however, the surface, can be considered the mediator between the two and be the key to creating an enjoyable public network throughout the city. Ultimately, it is the architectural surface that has access to both urban conditions, while also being able to engage with humans on an intimate level, creating emotional effects and behavioural reactions. Architecture's inherent surface qualities therefore hold the potential to disrupt our everyday rituals and change them into meaningful and engaging experiences (See Appendix Figure A).



Figure: 4
Vertical vs
Horizontal
Surface

2.2 Authentic Experience

As humans, we form our perception according to our senses and life experiences. Touch, smell, hearing, sight and taste play roles in altering our sense perception, and ultimately shaping our overall experience. When we look out at a scenic view of the mountains or the decaying materials of an old European town, our senses enable us to experience an abundance of emotions all at once. These feelings occur naturally while our body and mind interpret information about the surrounding atmosphere.

In *The Work of Art in the Age of Mechanical Reproduction*, Walter Benjamin uses the term 'aura' to describe this feeling. According to him, aura is experienced by an individual, upon engaging with something that has not been replicated or reproduced.

Aura: The distinctive atmosphere or quality that seems to surround and be generated by a person, thing, or place.
(Oxford Dictionary, 2017)

In his book, Benjamin uses the example of an original work of art versus the technologically reproduced versions that we have become accustomed to today. In the contemporary world, the continuous copying of original work decreases not only the richness of its authentic meaning but the emotional effect it imposes on our perception. Thus, mechanical reproduction reduces the original character, and the alters the overall atmosphere for the observer.

Throughout history, replication of the arts has been practiced. As society evolved, however, the techniques became increasingly more efficient. The Greeks, for example, only relied on two ways of reproducing art, casting and embossing. The chances of reproduction at the time were therefore very slim because only skilled craftsmen could reproduce things. As a result, society's engagement with authentic material character occurred throughout their daily routines. A huge change took place with the coming of wood engraving, that made art technologically reproducible (Benjamin, 1935,p.1). For the first time, artwork was capable of detaching itself from the original. Later, the invention of the printing press followed, reproducing written words by technological means. The very process of carving words into a stone was overtaken by a speedier process. With the coming of photography, the process of reproduction became even quicker, enabling individuals to reproduce a picture with the click of a button. As a result, the eye became capable of perceiving at a greater speed, reducing long lasting visual experiences to quick and meaningless ones.



Figure: 5
Aura of Space

The following collages contain photos that I have taken during my travels in Europe. Within these images, are moments which we have all experienced at some point in our lives. These moments occur when our everyday experience is disrupted by something extraordinary and authentic. Our minds become immersed in the effects of our surroundings. If we analyze them, each of these moments are shaped by the surfaces which surround them. Their composition in space, as well as their formal gestures, enable various effects that impact our overall experience of the spatial character.



Figure: 6
Aura of Materiality

As part of the series of personal photos, this collage demonstrates the effects of light and shadow on various materials. Here the atmosphere experienced is a direct result of the forces which act upon different materials. The texture of the stone, the knots in the wood, as well as the geometry of the metal, each spoke to me differently. Each of these images, however, captures the overall sensation I received when engaging with these surfaces.

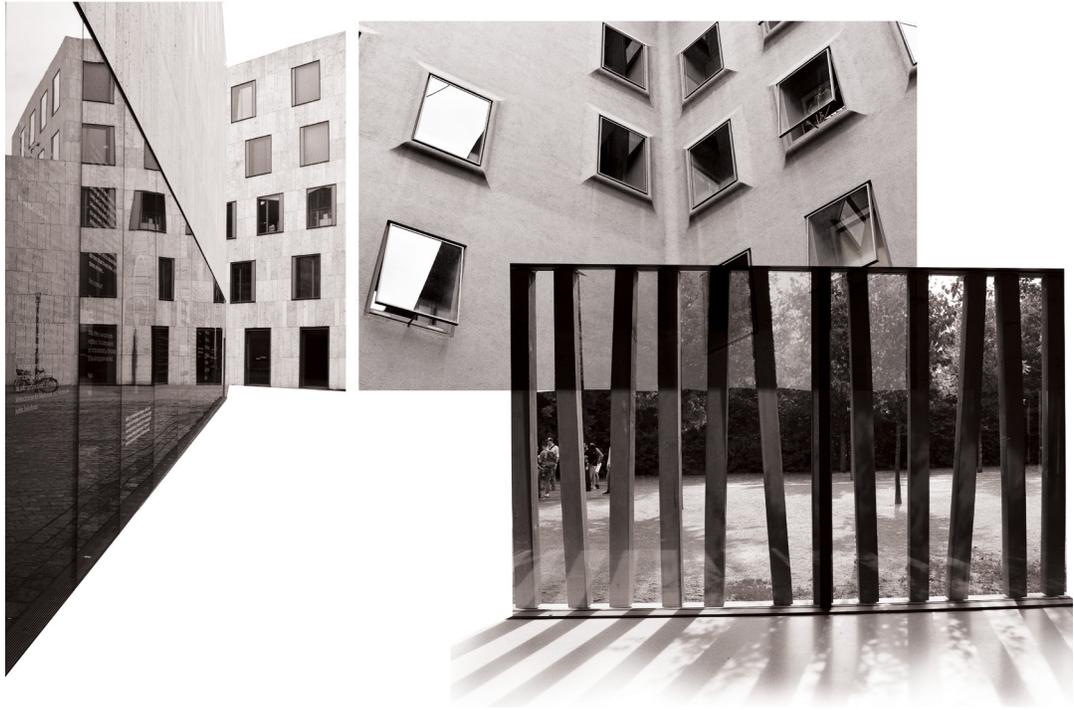


Figure: 7
Aura of Object

From these photos, I experienced the surface as an object. The unconventional configuration within each of these moments demonstrates the emotionally expressive potential of surfaces. Their disrupted application grabs our attention and causes us to mentally assume particular meanings and intended architectural ideas, allowing us to connect with them on another level emotionally.

The convenience of reproduction that grew throughout the modern city, marked a change in society's relationship to authenticity. It altered the way in which humans began to operate and view the world. Thus the fading of spatial character was introduced to the everyday experiences that we encounter today. Benjamin describes this as the fact that:

*“Getting closer to things in both spatial and human terms
is every bit as passionate a concern of today's masses
as their tendency to surmount the uniqueness of each
circumstance by seeing it in reproduction”*

(Benjamin, 1935, p.9).

Today's common desire to see things quicker and more conveniently has stripped art and architecture of their authentic character. It has created a world that is made up of similar things, replications and reproductions. In many instances, the rationalization of simplification significantly helped modern societies express organization and the transmission of information as represented in appendix figure B.

As evident from photos in figures 5,6 and 7 that I took in Europe, it is not the use of order that is the problem with contemporary surfaces. Instead, it is the rigid and oversimplified composition of materials. The consistent use of glass, in combination with rigid applications of steel and concrete opened architecture up to a world of dull experiences. Complex compositions of surfaces are more likely to engage with our imagination on a deeper cognitive level. This was experimented through a series of models shown in the appendix figure C. Our ability to connect emotionally with our surroundings, therefore, primarily relies on the unique configuration of surfaces and their authentic application.

“The eye does not want to be too easily or too quickly satisfied in its search for unity within a whole”
(Venturi, 1966, p.104).

2.3 Public Space as a Form of Experience

During my own experience of European open spaces, I was able to obtain first-hand, exposure to authentic and character defining surfaces. I noticed that their composition was significantly different from those that I typically interacted with in the contemporary world. I discovered that the spaces which I perceived to have multiple layers to them, enabled me to feel more “within” the public space. The depth of the pathways also increased my awareness and connection to the greater urban context. This was caused by the intricate design of the entrances and the arcades that connected them. The ability to imagine that there were spaces beyond spaces, and spaces connecting to spaces, re-affirmed my position within a given time and place. This was an authentic experience that was true to context and the spirit of the historical place. The material palette, form and arrangement, created a unique composition that could not be found anywhere else. What I had experienced, was due to something that many theorists and architects have taken particular interest in over the course of history, the phenomenology of perception and imagination.



Figure: 8
Switzerland Street



Figure: 11
Switzerland Square



Figure: 9
Switzerland Arch



Figure: 12
Germany Facade



Figure: 10
Germany Cathedral



Figure: 13
Germany Piazza

Juhani Pallasmaa took keen interest in studying the relationship between our perception and the physical realm. He suggested that architects do not merely design a building as a physical object, but rather they choreograph the images and feelings of the people who occupy them. As a theory, this suggests that there is another dimension to architecture, one that is not visible, but is in fact conveyed by the eye through the human body. This dimension of “feeling” that I experienced in the streets of Europe, is similar to Pallasmaa’s description of how we experience a work of art. In his book *The Eyes of the Skin*, he describes our imagination as the key to a heightened experience. When engaging with a work of art, an exchange takes place. The character of the work gets projected on to us and we, in turn, project our own emotions onto it. This is how we understand a work of art, a building or a city, through a reality perceived by our senses, thoughts, assumptions and experiences. This is what allows us to imagine spaces beyond spaces. It lets streets in paintings continue around the corner and past the edges of the picture frame into the invisible (Pallasmaa, 1996, p.68). In other words, surfaces can shape our perception as we use the combination of our senses and imagination.

Pallasmaa continued this study, by understanding the effects of architecture through a number of primary feelings. These feelings have a tendency to work together to create an “architectural language” in our minds. They are also what differentiates architecture from other forms of art, as they can only be produced through the experience of built structures. Pallasmaa defines the following experiences as examples of “primary feelings”:

- Approaching a building (recognizing the typology)
- Having a roof over your head (being sheltered or shaded)
- Encountering the light and dark that dominates a space (surface openings)
- Stepping into a house (using a door)

Through senses, we naturally can perceive these “feelings” as we react to certain surface configurations. In this case, the senses are a tool for interpreting our relationship to our environment. Today, however, Pallasmaa claims that there is an imbalance in our sensory system (Pallasmaa, 1996, p.21). We are confined to typical everyday experiences and no longer confront to those that may disrupt it. This disruption, however, could be the key to reconnecting us to our haptic sensibility and pulling us out of a narrow minded, distracted state.

If architectural surfaces can once again activate our imagination in the public realm, this activation will help to bring us out of a “distracted” state of mind, and reconnect our mind and body. We will then begin to respond to spatial encounters in our personalized ways, rather than in a pre-conceived manner. My perception of the former public spaces in Europe demonstrates how an individual can react to what they see and imagine things.

This suggests that heightening of the senses at particular moments, whether at an entrance to a building or into an open space, enables the user to naturally consume more information about the space than they normally would, thus enveloping them in an extraordinary atmosphere. Rich architectural meaning thus is achieved through the careful composition of surfaces in one space in relation to another. For example, when one space lacks what another has, it sparks a sense of interest for the user. It causes them to assume additional meanings about both spaces. The chapter that follows, therefore, explores the spatial sequence found within ancient public space, to investigate the exact moments where the heightening of the senses should occur.

3

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Character of Urban Space

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Continuity

3.0 Character of Urban Space

While surfaces have ways of interacting with the mind, it is through their physical characteristics that they enhance a space. Rob Krier was very interested in the effects of architectural elements on urban space. From his many experiments, he concluded that the aesthetic quality of the elements of urban space is characterized by the interrelation of detail (Krier, 1979, p.17). The elements that he refers to are the square and the street. Although they are completely separate realms, their dual existence is essential for the full function of the pedestrian experience. The differences in their physical characteristics are what set them apart from one another, while they also communicate their dependence on one another. A similar example would be the existence of light outside of a dark space. For the space to have its most powerful level of expression, it must be compared to the adjacent bright space. This contrast is what heightens meaning.

The Square

The square was the first way that humans first discovered the use of urban space. It was produced by a surrounding arrangement of houses grouped together around an open space. This method enabled the efficient control of the inner space while acting as a defense system from external forces. Over the course of history, this spatial arrangement became the symbol of a holy space, as well as a pleasurable place to pass the time.

The Street

Historically, pedestrians used the street as a means of traveling on foot across the city, street evolved into a product of leftover space from the spread of housing settlements. It provides a framework for the division of plots of land, while acting as a functional part of the city network. Although it's functional character is more apparent than the square, the street is confined by traffic and fast pace movement, with architectural gestures that support ones journey towards a destination. Its architectural backdrop perceived only in passing (Krier, 1079, p.17).

3.1 Historical Public Urban Space

While the condition of urban space has consistently been a concern in architecture, it is important to first understand the context from which it developed, and how it has emerged in the contemporary world. Traditionally, surface infrastructure played a significant role in defining public space. Considered as the site of everyday activities as well as a theatrical arena for the staging of great civic and religious ceremonies, the public square or piazza,

embodied the life of the city (Fenlon, 2009, p.xiv). Embellished with external ornament, important buildings not only framed the square but were situated within it. Buildings and their exterior surfaces became part of the public experience itself. The defined open space created daily “urban spectacles”, where ideas flowed freely and goods were exchanged. On a regular basis, the square was the heart of public engagement, and its architectural elements enabled a unique and authentic experience, both within the square, and upon approaching it.

The physical notion of public urban space can be defined in multiple ways, one of which is found prominently in European cities. As demonstrated by figure 14, the traditional town square in Europe was typically surrounded by an almost continuous wall of buildings. Within these buildings, were openings, known as ‘arcades’, that led people in and out of the square. The arcade punctured the barrier that would have separated interior from exterior space. The arcade punctured the barrier that would have separated interior from exterior space. Arcades and perforated openings played a significant role in transporting people from one point to another, while also acting as visual enclosures. Partially obstructing pedestrian views, this created anticipation before moving into or out of the open space.

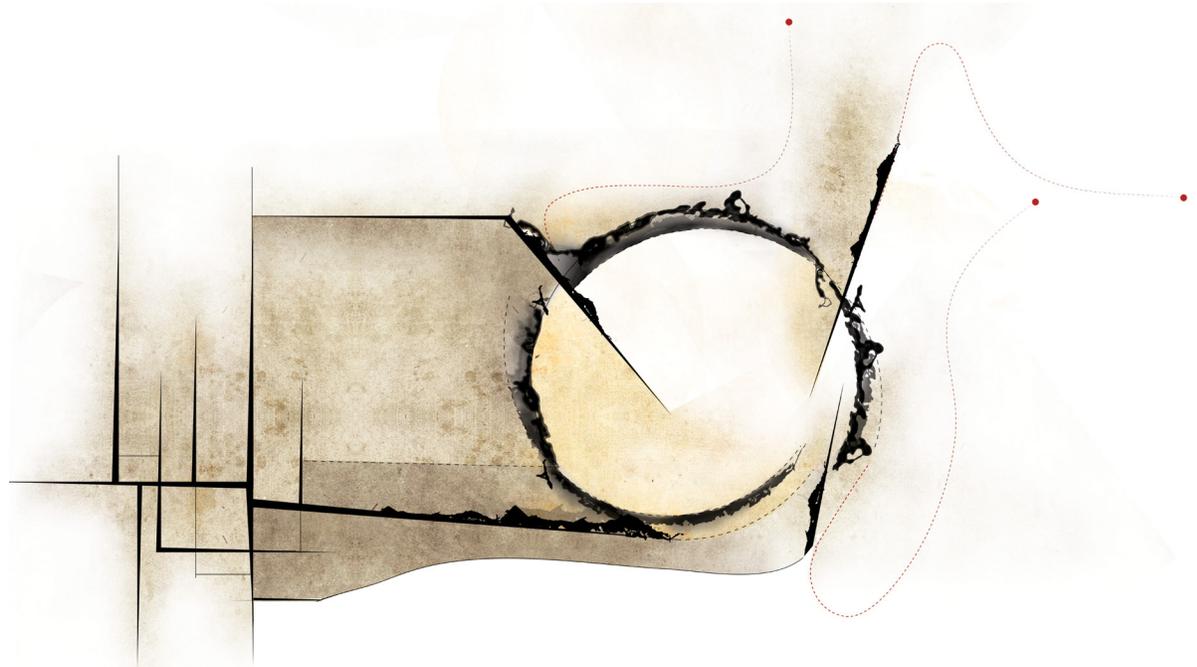


Figure: 14
Traditional Concept Plan

This drawing illustrates the overall concepts of traditional public surfaces, and the importance of continuity in public space. The public experience was choreographed through a designed sequence of connected pathways. Thus the public open space was not a single end-point in the city, but rather a node within the greater network. Pedestrians approached the open space from narrow paths within the city's network, where they then began to interact with the textured and perforated surfaces that surrounded the open space. They transition through the darkened travel spaces to enter the open space or continue down other corridors that lead out to the city.

This provided people with the sense of being “inside” the square while at the same time being a member of a collective neighbourhood. Dramatic effects were created in the square by more imposing buildings and sculptures that articulated the vertical axis. Each building was decorated with embellishments that communicated their internal building function and added to the overall character of the surface. The rhythm of perforations and continuous flow of materiality along the ground plane created a network infrastructure, where community, democracy and culture were fostered (Crowhurst, 2004). The buildings that contained the public space were neither here nor there, but part of a larger network. The ambiguities in its function as a public square, and as an infrastructural network for the city, created a hybrid solution for the complexities of a functioning city. It also created an active pedestrian environment, with spaces of contrasting light, materiality and use.

An open place within the pedestrian realm has become a widely different one today from previous times. These days, open space is rarely used for daily traditional activities. Open spaces today are either empty green spaces that share no relationship to the surrounding blocks, or an empty space defined by a concrete slab that spans between city streets. In ancient times, the description of open space was very different. The piazza was the hub of everyday life in the city. It was an open enclosure that housed daily performances, markets and exchanges amongst the people. It created a space that was enjoyable, not only because of the activities that occurred but more specifically, due to the spatial composition. The relationship between the pedestrian, the open space and the built fabric were united into an artistic synthesis (Sitte, 1978. p. 13). This relationship created a sense of spatial character that was individually perceived by the people who navigated in and out of the space regularly. The material and formal expressions were so unique and authentic that even to this day the spatial character in many traditional open spaces remains memorable. Although today, it would be impossible to replicate the exact atmosphere of these spaces, we can, however, study their shared compositional principles. Understanding the function and purpose of their strategies will lead to new and innovative methodologies for dealing with the contemporary pedestrian realm.

Rob Krier, defined the traditional spatial arrangement of cities to be a cohesive urban structure (Krier, 1979, P. 81). Public space was defined by barriers that carved out pedestrian movement. The gaps between barriers, were visually and physically noticeable as being dedicated to public space such as squares or piazzas.

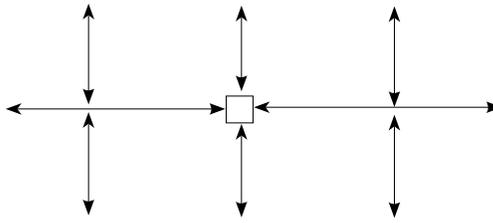


Figure 15:
Traditional Spatial
Arrangement

The following two figures demonstrate the difference between the ancient and contemporary spatial arrangement of the city. Here, the traditional city is conceptually demonstrated through its structure around pedestrian use and movement. Open spaces were designated specifically for pedestrian use, through the articulation of its surrounding surfaces and the that connected them.

The historic diagram in figure 15 shows the types of spaces that once catered to the human body as it moved slowly through space.

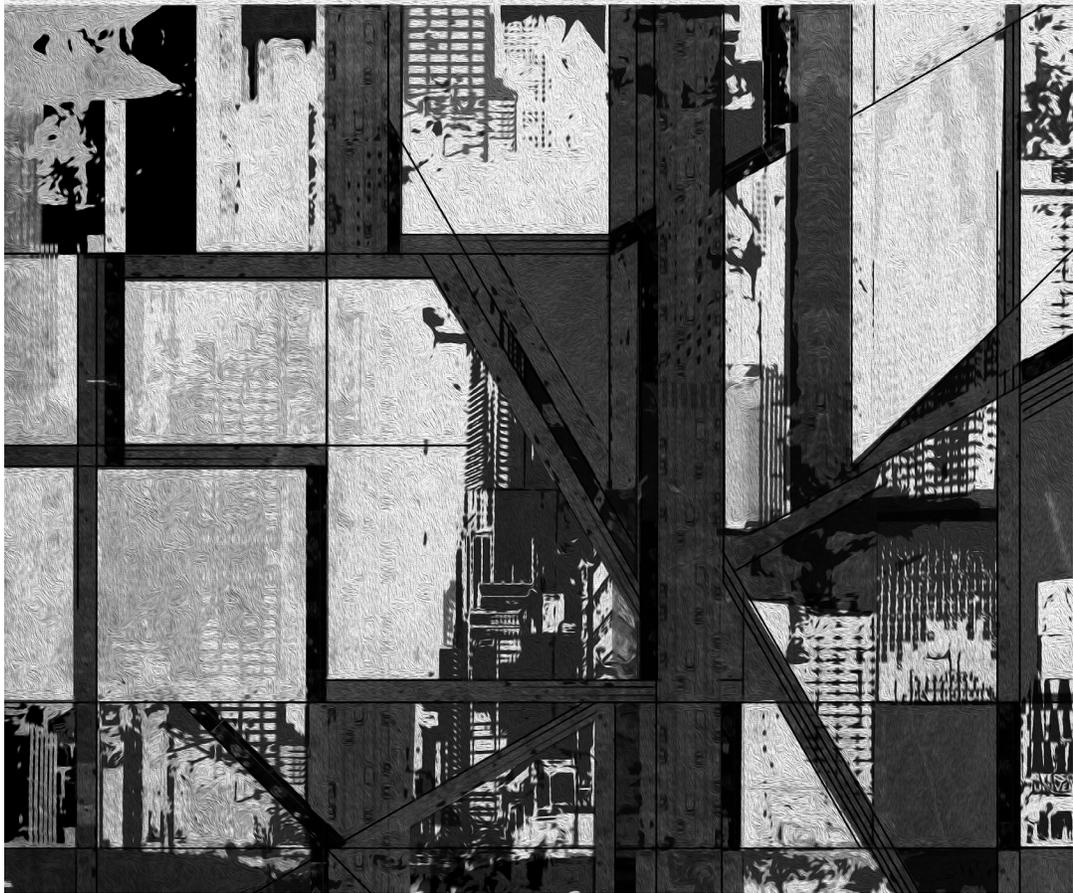
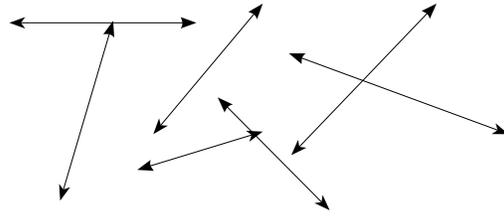


Figure 16:
Contemporary
Spatial Arrange-
ment

In the Contemporary city, urban space is disorganised and more focused on the rapid movement of people from one destination to the next. Here, the traditional experience of "traveling" is destroyed, and destination points become the main interest. Meaningful connections between spaces are lost, and spatial composition ignored.

In comparison, the modern city represented by figure 16, is composed of isolated parts of barriers. All sides of these barriers are congested with urban activity, with little to no room left for meaningful orientation, creating nothing more than a jumble of buildings (Krier, 1979, p. 81). These 'barriers' can be translated as rigid architectural surfaces, defining the public from the private realm.

i. Historical Precedents

The following public squares are among many that have been chosen as precedents for this thesis investigation. Each public square contains elements that make them distinct from each other, yet common in their overall approach to architectural expression. As demonstrated in the images and diagrams to follow, the projects share principles regarding the importance of artistic composition and the impact of vertical surfaces on the circulation through and within the open space. Their designs take into account the control of light, materiality, texture and positioning of objects, which have led to their long-lasting positive effect on the pedestrian realm. Each precedent provides useful examples of how various atmospheres can be created in open space, using various formal combinations in space.

While the followings drawings provide an overall view of the public spaces, their further analysis can be found in appendix figures D, E and F. Their detailed analysis on materiality is further discussed in the chapters to follow.



Figure 17:
Piazza Navona

Piazza Navona contains multiple entrances to the open space. This creates a feeling of enclosure, as defined by the solid walls, while the openings create a feeling of connectivity. This means that pedestrians feel as if they are part of a collective experience within the piazza, without the loss of visual and physical connection to the rest of the city's network.

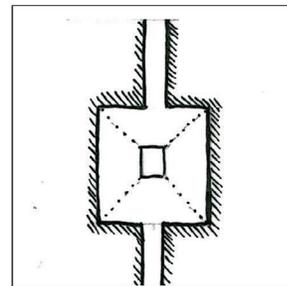
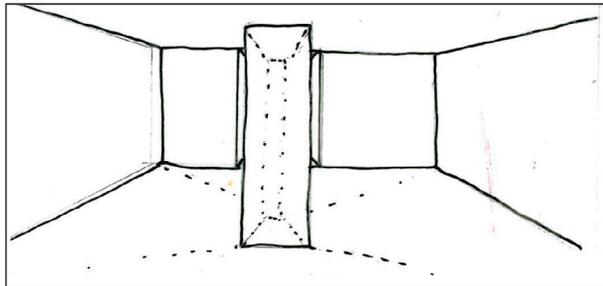


Figure 18:
Place De
Vendome

In Place De Vendome, a sculpture punctures the space. This gesture, creates a feeling that the space contains multiple parts. The object which projects into the space naturally divides the space according to the number of faces on the objects surface. As a result, the attention of pedestrians would be drawn to that central object, and the side of it that their own body faces.



Figure 19:
Piazza Del
Campidoglio

In Piazza Del Campidoglio, the elongated stair exaggerates the approach as one travels toward the middle of the open space. This points emphasis on the surrounding buildings and the two additional corridors on either side.

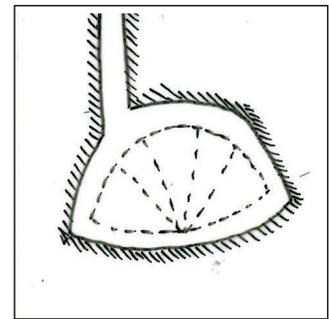
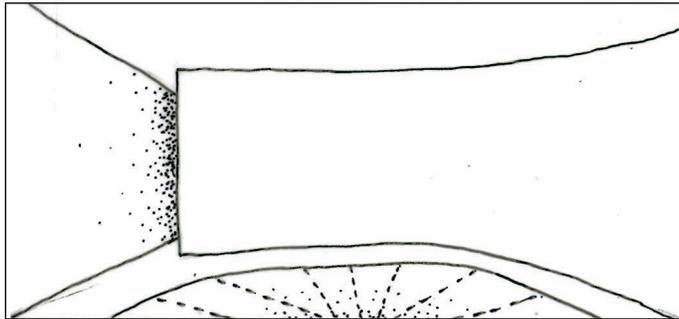


Figure 20:
Piazza Del
Campo

In Piazza Del Campo the sunken-in ground plane naturally guides the pedestrian gaze toward the middle of the piazza. This subtle manipulation creates a large amount of effects. Activities within the site become more organized, while effects of light and shadow are altered throughout the day. The minimal entrance corridors into the piazza also play a large role. With one single corridor visible at a time, users feel a sense of mystery and connection to the spaces beyond, while also feeling more connected to the open space as they would with multiple entrances.



Figure 21:
Piazza San Marco

Among these traditional public spaces, Piazza San Marco particularly stands out. As a historic public square in Venice, it is an example of an immersive exterior experience unlike any found in contemporary cities. This is because the outer surfaces of the square are treated fairly to those on the interior. One's sense of reality is strengthened by the constant mind-body interaction with the physical environment. Here, a synergy takes place, as the eye communicates through the mind to the body. When the eyes look at the repeated pattern of dark archways, the body immediately perceives its texture. Our legs naturally want to walk through the corridor and bring us into a new space of darkness. When they look at the stone ornaments around each column, the hand immediately want to feel every crafted detail. The sound of people interacting with one another echoes through the space, making it feel connected to other beings.

Throughout the day, the atmosphere of the space transforms, as light changes and the number of people moving through the space modulates. This also means that from any point in the piazza, one's experience may vary depending on the time of day or their positioning in the space. This is further explained in figures 22-25.

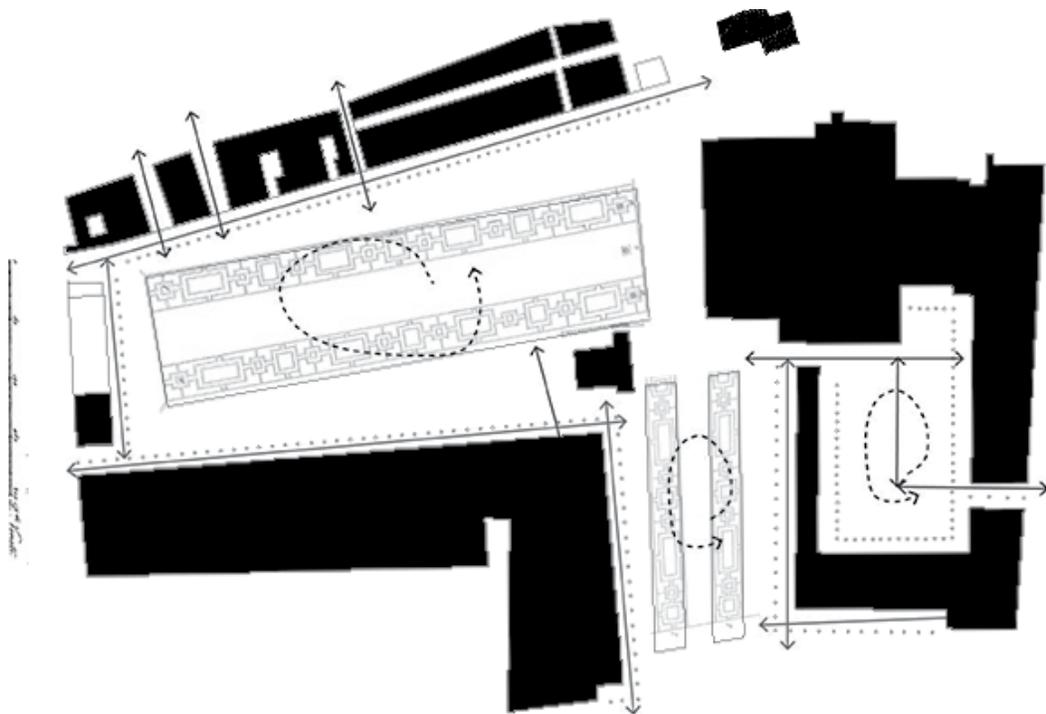
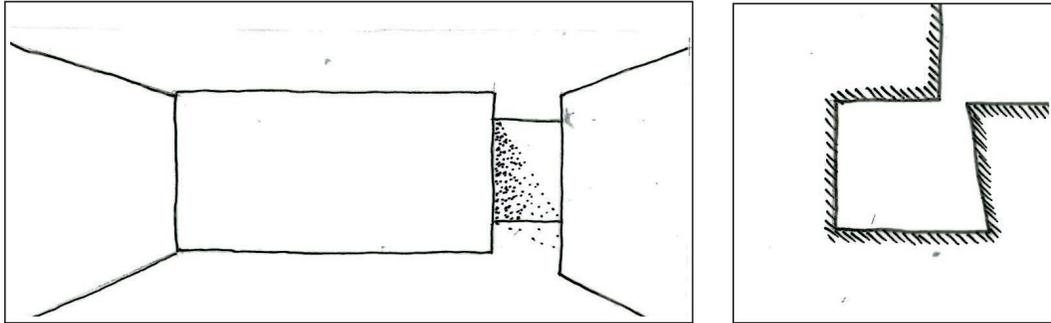


Figure 22:
Experience
"Within"

The diagram above demonstrates the spatial effects on circulation and interaction among the open space in Piazza San Marco. As shown, the surrounding arcade provides multiple functions that add to pedestrian engagement with the space. The openings provide easy access into the square from multiple streets within the city. Not only does this provide continuity through the vertical surface, but it also creates an arcade condition that shapes the entire human experience.



Figure: 23
From a Distance

From a distance, the surface becomes a container for the open space. Porous facades appear to be solid definers of space, while also being connectors to the rest of the city. This duality enables the pedestrian to feel compressed, and "within" an important space, thus communicating ideas of hierarchy and meaning. The person feels as though they are in a different place than they are normally used to, one that is meaningful. The sculpted details on the surface are also very small, making them read as a texture. The texture changes according to various times of the day creating rhythms of shadow and light that dance across the surface. Their constant change in appearance shocks the human senses, repeatedly re-engaging the user.

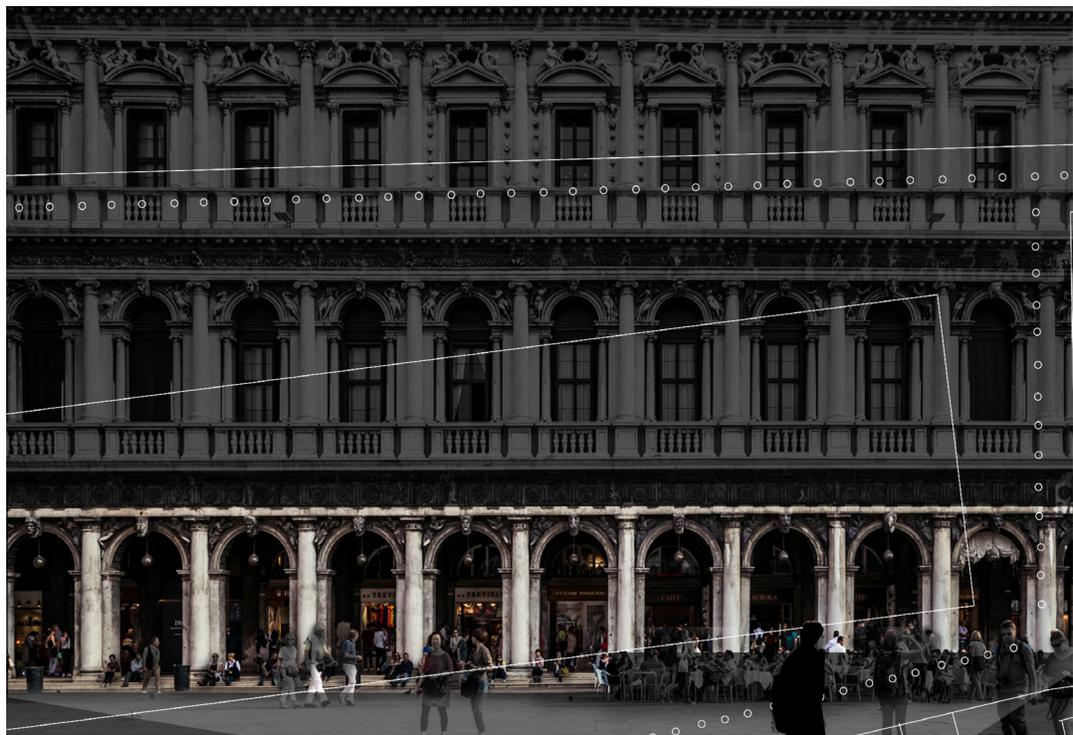


Figure: 24
The Approach

As the pedestrian begins to approach the surface, the experience becomes more engaging. They become more aware of the space that lays behind the open space. This is due to the arcade that acts as an interface between the interior of the building beyond, and the external open space. It creates a space that is in-between the two realms. It also connects people to different zones within the square, as well as beyond the square itself. Upon the approach toward the arcade, the pedestrian also becomes more aware of scale, and their personal relationship to the openings of the facade. They begin to feel more engaged with the surface. They can touch and see every crafted detail that makes it authentic and expressive.

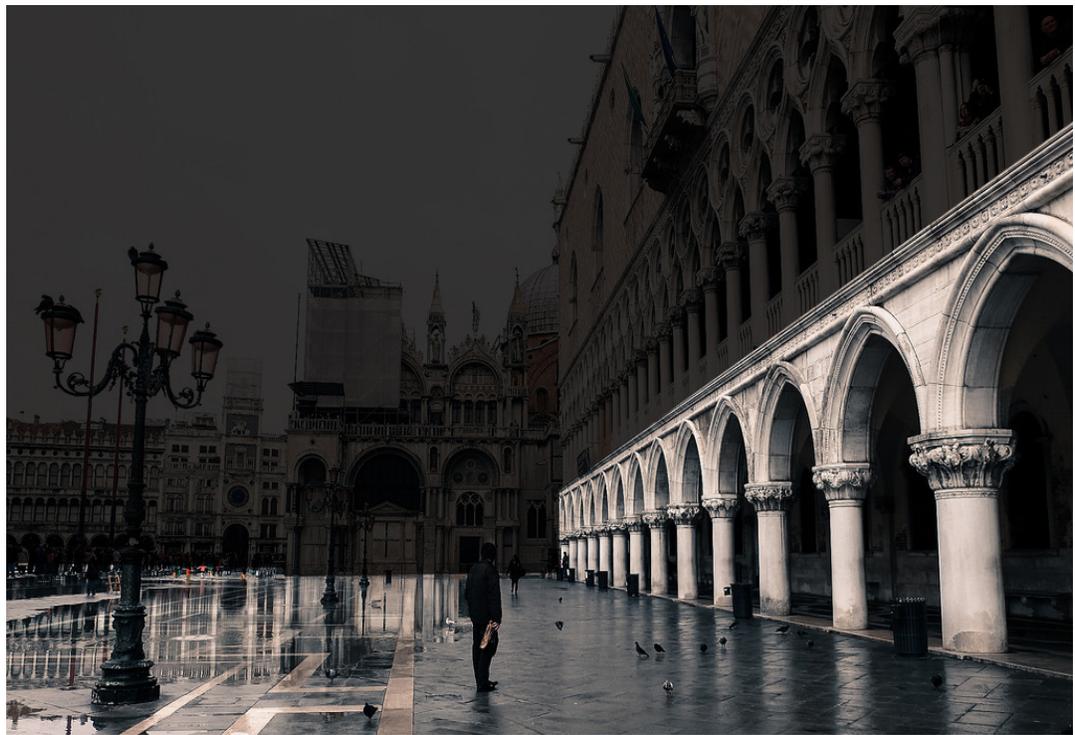


Figure: 25
The Arcade

Upon entry into the arcade, the pedestrian becomes a part of the intermediate space. They begin to feel the effects of the surface on another psychological level. They become even more aware of details, materiality, and the environmental forces that alter them. Here, the arches of the arcade significantly affect the senses, altering the one's perception and state of mind. In this sense the relationship between the open space and the spaces beyond greatly affects how the pedestrian perceives the spatial composition as a whole.

The arch itself can be seen as a way of passage into another realm. It is what moves people from the open space, into the private space of the building. Here, we can see that the archways provide a distinct surrounding texture, due to the way that light is shared by both the open space and those further beyond.

Pedestrians use the arch as a means for transitioning from one space into another. This means that their body is impacted by its material effect while they are traveling. This space can therefore be considered a “travel space”, an intermediate space between two zones within the network.

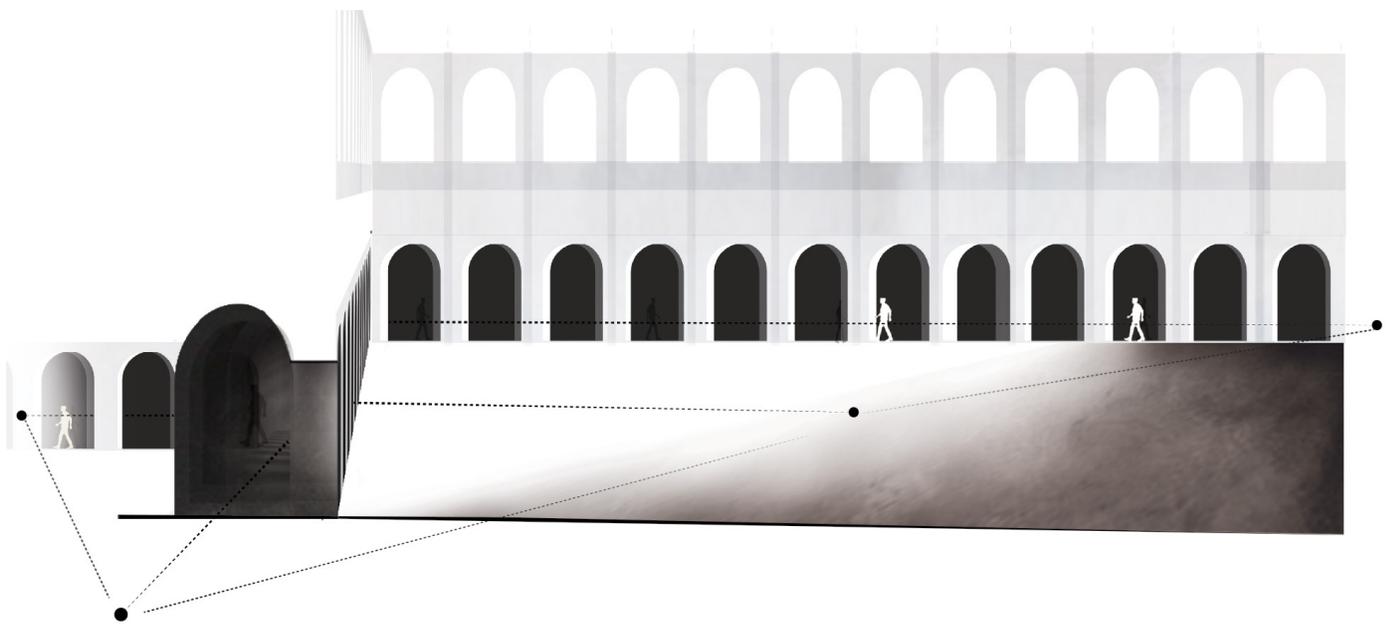


Figure: 26
The Arch

Within the intermediate space, light spills in creating a contrasting effect between the open and intermediate space. Here, light is condensed in one space, while it flows freely in another. This duality stimulates the pedestrian's senses and draws them into one space versus another.

In section, the travel space is neither inside nor outside. It is where the traveler becomes most aware of their own senses, through physical and cognitive interaction with the surfaces and the environmental elements which act upon them.

The contrast between the open space and the semi enclosed travel space is what heightens the overall experience. The perforated structure of the arcade divides the two spaces, yet connects them through their immediate contrast against one another. The dividing structure of the arcade is therefore, the architectural space itself. It is an occupied space that is organized entirely by the composition of surfaces within a larger network.

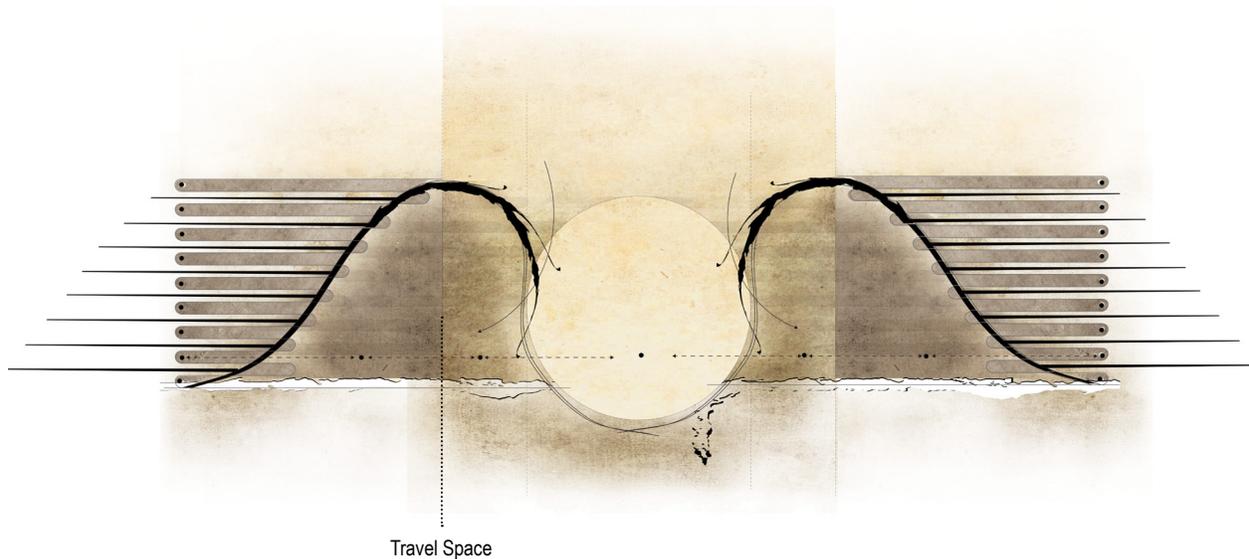


Figure 27:
Traditional
Concept Drawing

This drawings conceptually demonstrates the travel space and its connection to the open space and the overall city network.

From this analysis of historic pedestrian spaces, it has been revealed that many design strategies lend to creating an extraordinary public atmosphere. As discovered, one of the most powerful strategies is the idea of continuity. The contrast between one space and another creates an interesting relationship for human perception. It causes us to realize our own position within a greater network, and therefore our direct connection to the surrounding environments

The way in which the corridors penetrate the open space can either positively or negatively impact the experience of the pedestrian. As discovered, the entry points should be maintained at the pedestrian level, for their effect to be fully perceived by the pedestrian body. Points of entry should be easily accessible and appear to be blurring the line between one realm and another. This overlap creates a smooth transition and continuity among spatial zones.

3.2 Space Defining Planes

By continuing this study, the architectural surface should no longer be considered a simple spatial barrier, but instead as a complex conceiver of space. This requires investigating its effects on open space at a finer level of detail. Using Rob Krier's typology sketches as a guiding tool, this experiment analyses the spatial effects of various surface configurations. The series of sketches begins to investigate the formal impact of various surface compositions in a continuous public realm.

i. Opening and Plane

The vertical surface plays a significant role in shaping our experience. The geometry, proportion and rhythm naturally express a building's character, and act as a backdrop to exterior public activity. As discovered by the investigation of traditional architecture, openings that penetrate the outer surface are essential in creating continuity between spaces. Not only can they create interesting effects, but they also substantially impact our self awareness as we move in and out of open space. This series of sketches in figure 28 therefore explores various forms and scales of openings and how they affect public.

1. The first row of sketches, analyses the difference between the size of openings, ranging from the pedestrian scale, to the scale of the building. As discovered, smaller openings create a greater level of texture across the surface, while larger openings increase the perceived scale.

2. The second row analyses the depth of openings, specifically at the pedestrian level. As the openings become deeper, the pedestrian would begin to feel more integrated within the building. The spaces between the interior and exterior realm becomes an 'in-between' or an intermediate space between the interior and exterior realm. Light and shadow also play a large factor in influencing the emotional effects of the user, creating mystery and intrigue with the use of the shadow.

3. The third row demonstrates modifications within an ordering system. The grid enables complex design to be created from a simple structure.

4. The fourth row analyses heights and proportions, altering the rhythm across the surface.

5. The fifth row looks at various geometries for the opening, demonstrating various outcomes inspired by simple shapes.

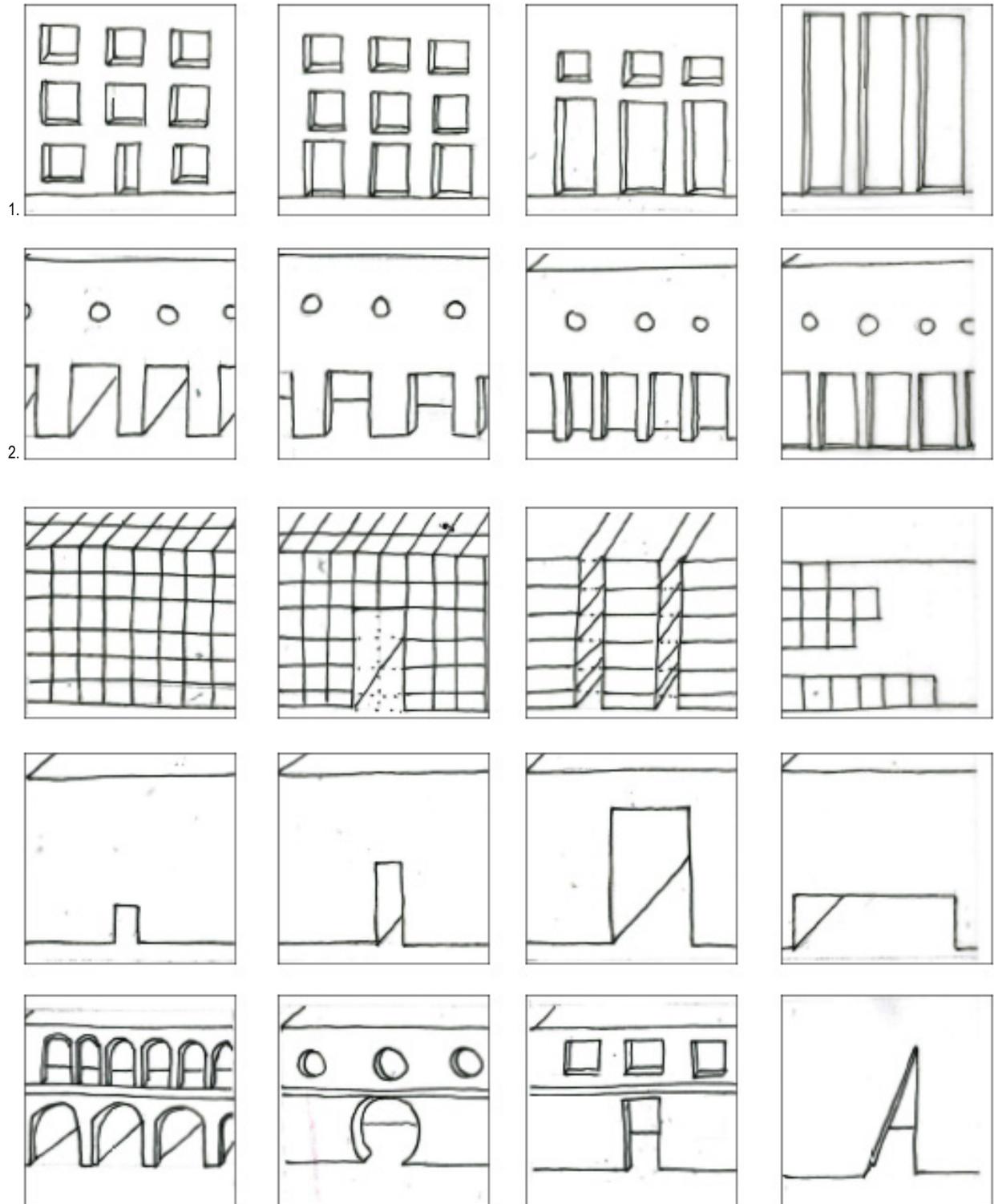


Figure 28:
Surface
Elevations

From these exploratory sketches, I found that the size of the opening plays the largest role in defining the use of the intermediate space between the open space and the building. When the opening is smaller, the arcade caters more intimately to the scale of the pedestrian. It also creates a subtle transition through the 3 spaces, since the openings act more like perforations. When the openings are larger, the level of intimacy changes. The opening reads as a grand entrance, that is catered more to a large crowd. It is less likely to have engaging effects on the human body.

ii. Defining Open Space Through Boundary

The second set of analytical sketches investigates the relationship between the vertical surface and the horizontal surface. Throughout figure 29, the vertical is considered the wall, while the horizontal is considered the adjacent open space for public activity.

1. The first row across the page experiments with the most common types of surface relationships within the contemporary city. Here the setbacks are used to define the pedestrian scale, in order to minimize the towering affect of the adjacent facade.

2. The second row, deals with the angled surface, both on the ground and along the wall. Each instance gives a different interpretation of the open space. When the vertical angle is directed away from the open space, it feels as though the space is more open. This portrays a sense of hierarchy to the public space, as opposed to the building. When the surface tilts into the open space, it represents the opposite.

3. The third row demonstrates the situation of an arcade. The arcade can either be below the building, defined by columns, or it can be a gap that separates the vertical from the horizontal surface. Both instances begin to introduce a dialogue between public and private, where the arcade blurs the line between both realms.

4. The Fourth row demonstrates cut out such as balconies or overhangs. These share a similar effect to the angled surface, where they create a dominant dialogue between the bounding surface and the open space.

5. The fifth row looks at how space is affected when introducing it to objects. Some objects are projected into space from the vertical surface, while others are stand-alone objects. Where ever an object is placed, it begins to alter the form of both realms. It also begins to define new spaces within the open space.

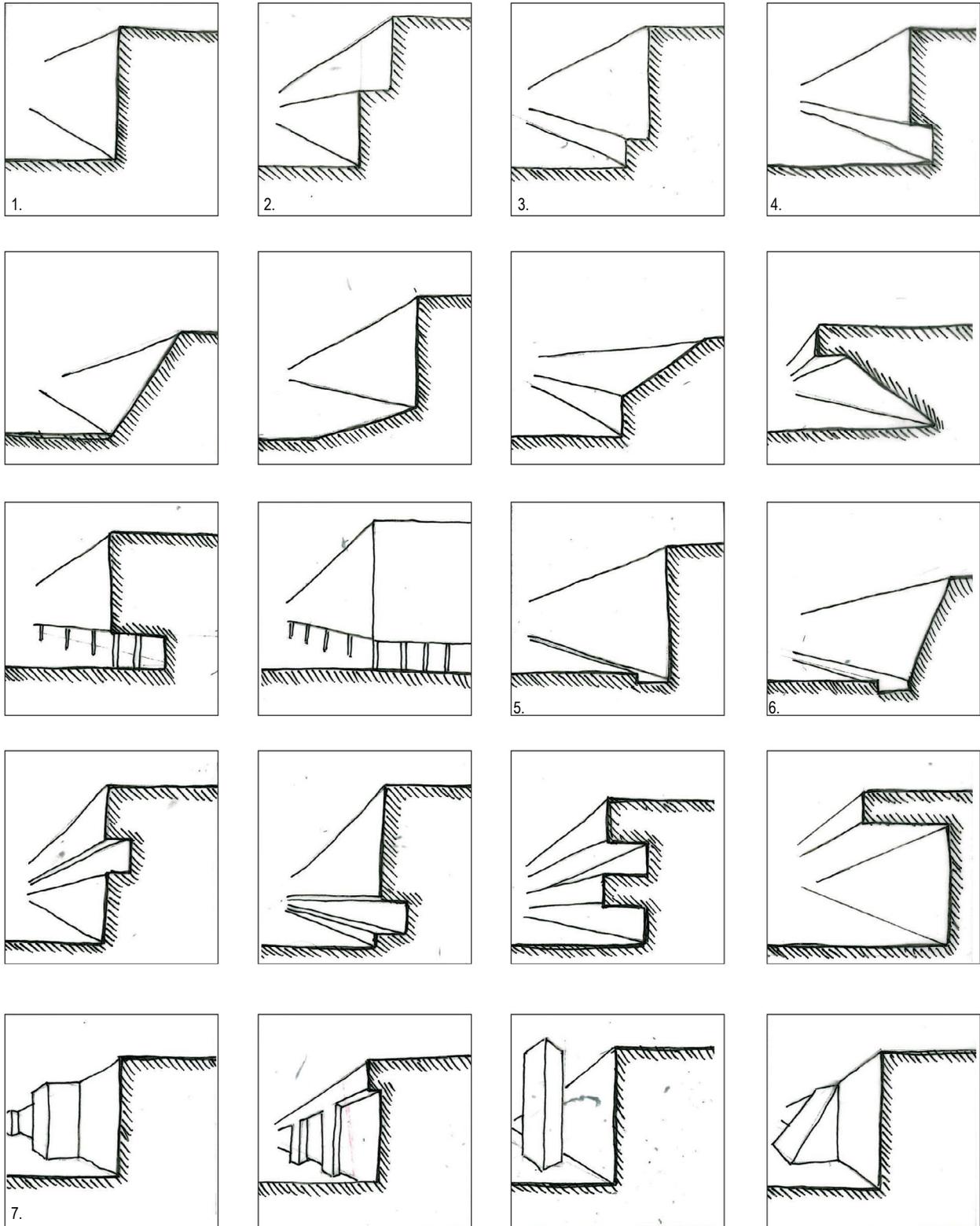


Figure: 29
Surface
Sections

This series of sketches helped to identify the effects of projected elements into the open space. From this I discovered that the arcade condition creates a subtle yet interesting play of texture across the vertical surface. This would also create a space full of shadow that would surround the open space, a condition that is not normally encountered along

iii. Defining Open Space Through Enclosure

The following two pages of sketches, figures 30 and 31, analyze the effects of surfaces once they begin to define a more enclosed space in multiple directions. Here existing piazza configurations are shown diagrammatically, while the other configurations are merely based on my personal encounters within the contemporary public realm.

1. The first row demonstrates a generic enclosed space, for our reference.
2. The second row shows a condition where one or more paths begin to enter the space. This alters the sense of enclosure, and sends our focus more centrally within the space. This also creates a sense of mystery, as the paths appear to disappear into another space, making us aware of a greater context.
3. The third row is inspired by Piazza San Marco. It shows what happens when two open spaces connect in a specific way. This acts similarly to the condition above, however, now we become aware of a space that is in closer proximity. This makes it feel as though we are now part of one large space, as opposed to two spaces that share a connection.
4. The fourth row demonstrates the intersection of 4 multiple paths. This creates an even deeper level of connection to the outside world. It does however begin to decrease the sense of enclosure slightly.
5. The fifth row incorporates an object in the space. When the object penetrates the space, our perception begins to naturally define other zones within the space, according to our orientation with the object.

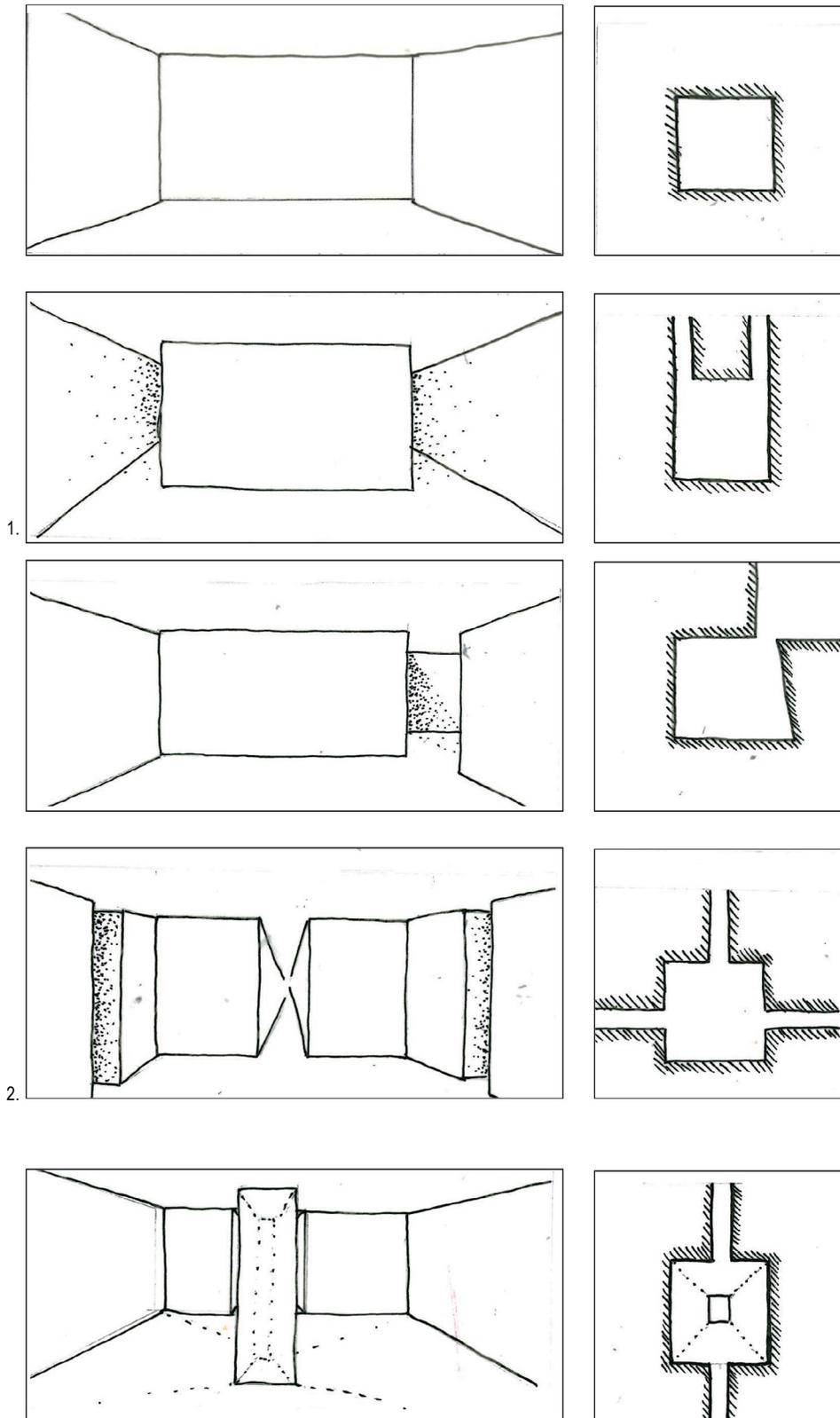


Figure 30:
Surface
Spaces A

6. In the following drawings, the first row is inspired by Place Des Vosges. Within this space, the ground begins to add to the spatial enclosure. It works to direct movement throughout the space, thereby controlling our positioning within it.

7. The second row is inspired by Piazza Del Campo. The ground surface is manipulated in order to direct us towards a certain focal point within the enclosure. This creates a unique experience, as it is not a typical technique that is used in many exterior spaces today.

8. The third row analyzes what happens when an object or path crosses above the space. This furthers the level of enclosure, and begins to break up zones within the space, based on its positioning and proportion.

9. The Fourth row demonstrates an enclosure defined purely out of pattern. Here, there are not any walls to confine us, however our bodies become confined purely by our own cognitive awareness of the pattern on the ground. This is an interesting way to modify space without vertical surfaces.

10. The fifth row was conceived purely from my imagination and personal experience. It demonstrates an enclosure that is defined by a variety of heights. It changes our perception as we move around the space, each time we encounter a different elevation

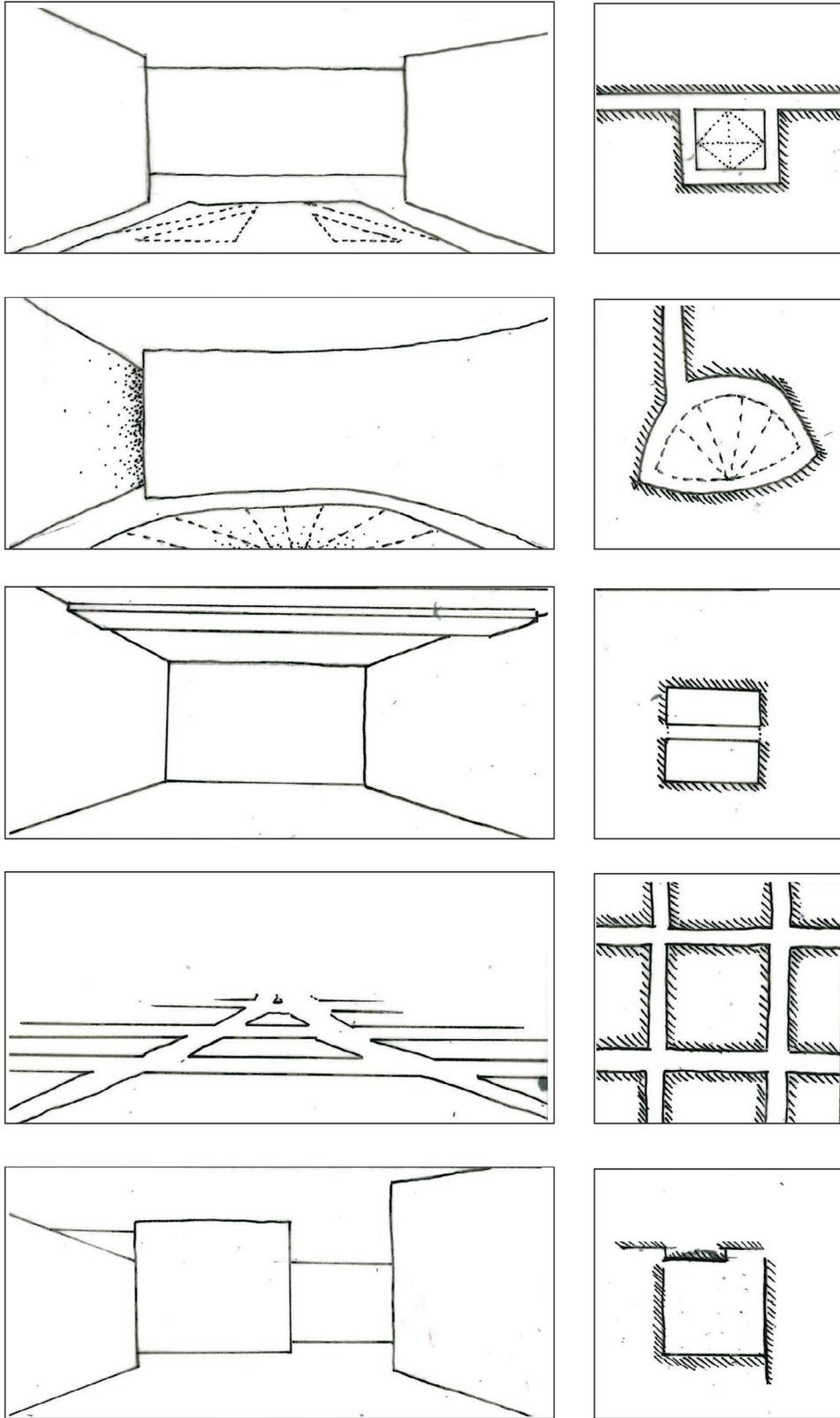


Figure 31:
Surface
Spaces B

The experiments involving the enclosure of the space taught me that corridors that enter a space create an interesting physical and metaphysical experience of a space. Their depth and shadow contrast against the bright walls that define the open space. This highlights the corridor and intrigues pedestrians to enter it.

iv. Circulation: Vertical vs Horizontal Plane

In the external realm, public stairs and ramps define urban environments and determine the type of public use. They determine how many people can use it at once, as well as whether or not it can also be used for leisure use, such as seating. The way in which one enters and exits the stairs can also have variety of possibilities. The direction and number of entrances determine where the user will end up, in relation to where they began. The stairs and ramp, therefore are key elements of the architectural surface and its relationship to open space.

The following analytical sketches investigate a variety of stair configurations. With each sketch, there is a new encounter amongst users, as well as new opportunities for a variety of views.

1. The first row demonstrates a condition where users would enter the stairs, and then choose their own out of the two paths. Each path ends up in a different location, determining the destination of the individual.
2. The second row demonstrates two entrances and two exits. This again creates options for users, Their view, however, remains the same in both instances, as they both point in the same direction and provide the same experience.
3. The third row enables users to start and end at the same location while experiencing them slightly differently. One user may choose to turn left to enter, while the other may decide to turn right.
4. The fourth row demonstrates a stair that runs parallel to the upper level. It enables the geometry on grade to be repeated below grade, continuing the experience along both horizontal surfaces.
5. The fifth row looks at a grand stair, designed by Michelangelo. This stair typology creates a stair as a statement piece within the space.

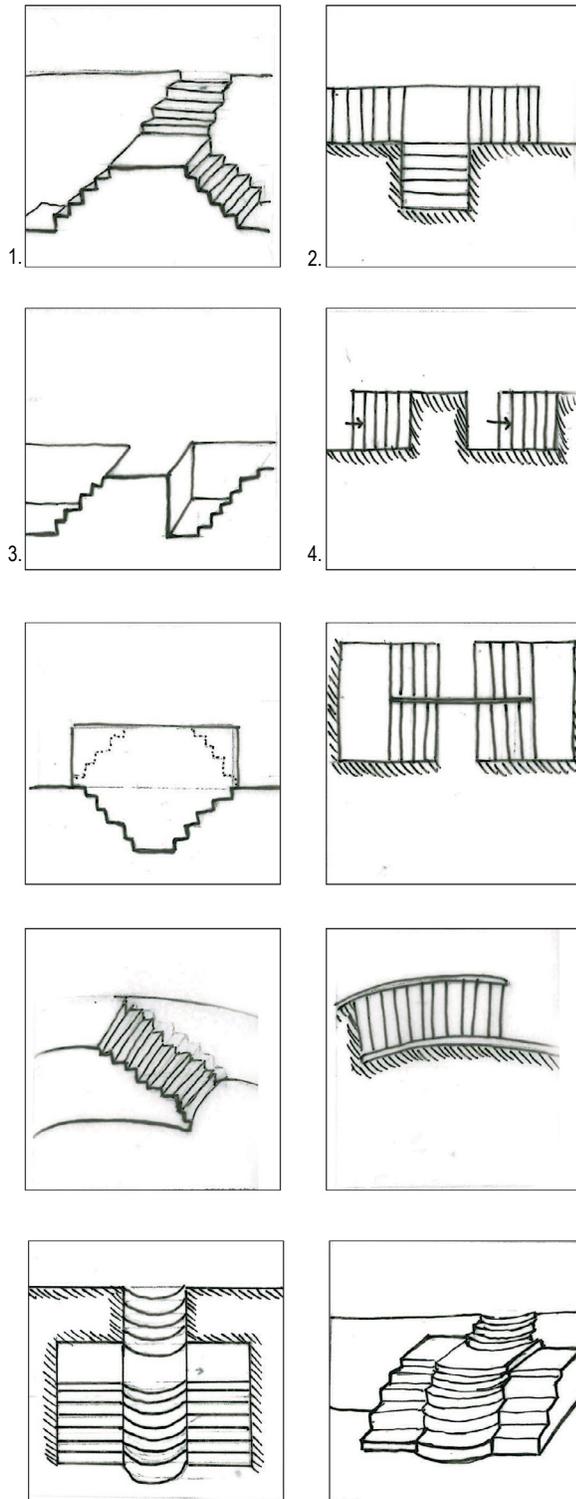


Figure 32:
Stair
Relationships

From this experimtn I found that the stair can be used as a folded plane, one that can easily choreograph the experience of the individual using it. A stair that allows people to enter facing one direction, and land facing another, provides people with more of an interesting and engaging experience than those that simply face one direction at all times.

In sum, the experience of urban space is, without a doubt, dependent on spatial forms and their typology. Their significance within the pedestrian realm is based on their physical relationship to the human body, as well as their size and proportions with a given space.

In traditional architecture, this level of detail was highly considered, as demonstrated by the intricate designs shown in the analyzed piazzas. They not only sparked awareness and self-orientation for the pedestrian, but they also promoted the increased use of the open space, making it a positive part of people's daily routines. This is because anticipation and mystery were experienced by the pedestrian upon each encounter. The anticipation of other parts within the whole public network was amplified, enabling opportunities for surprise and serendipity (see appendix figure G for background research). The level to which each portion of the public space was detailed ultimately determined the extent of these effects on users and the overall atmosphere.

From the analysis in this section, it has been discovered that when surfaces are detailed at a finer scale, they become more deeply interpreted by the static or slowly-paced moving body. The more elongated the journey, the more meaningful the experience, since the body received more time to interpret information and physically respond accordingly.

4



The Pedestrian Realm



Action

4.0 The Pedestrian Realm

While the surface itself plays a major role in shaping the public realm, the way in which it responds to human tendencies is also important. Bernard Tschumi says that this is because:

“Urban space is a place where there is always something happening. The space of event and action”

(Tschumi, 2014, p.22).

From this, Tschumi argues the importance of human action within a given space. Architecture is not simply about designing for the static human body, but rather, designing for its dynamic tendencies when in certain situations. In the public realm, these situations should include all of our daily experiences. Our environment should allow us to easily navigate between our home and our destinations on a regular basis. Unlike the vehicular realm, external open space and sidewalks should enable us to experience the street at a more intimate level, through the activity of walking. In Toronto, however, as the city continues to overly concern itself with the rapid transportation of people, the experience of walking in the downtown core has been pushed to the side. This has caused a divide between the pedestrian network and public open space.

4.1 Human Travel Space

In Toronto, this divide is most evident in the lack of continuity between the public and private realm, the intermediate space. In *The Production of Space*, Henri Le Febvre suggests that architectural space is experienced by the traveling subject. Travel spaces are, therefore, one of the most important elements within a design, as they guide one's actions and feelings throughout a journey. During a sequence of movements, the pedestrian can become connected to all aspects of a public space. Their interaction with various atmospheres continually changes, as they move from one point to another, constantly disrupting their senses and perception. This creates a compositional atmosphere. It is generated by the collaboration of various surfaces within one spatial composition.

This concept, shares similar concerns to architect Stan Allen’s position concerning interactions within environments. He suggests that:

“A site should be seen as a continuous matrix where
the horizontal and vertical are woven together, and
both are understood as architectural material”
(Allen, 2004).

This quote demonstrates a vision for a flexible city, where the form of urban space accommodates human use and programmatic needs. Whether alone, in a group or a crowd, human actions would change. The design, therefore, would require flexibility to accommodate the changing behaviours and movements that come along with it. Thus, the design of spaces would need to be motivated by people and their activities. The form of architecture would ultimately depend on these factors (Tschumi, 2014, p.23).

Bernard Tschumi discovered a way for preparing a design for these changing movements and behaviours. As a model for his research method, he used Serguei Eisenstein’s notation for Alexandre Nevsky (1938) as seen in the figure below. The diagram expressed the moving body as an active user within space.

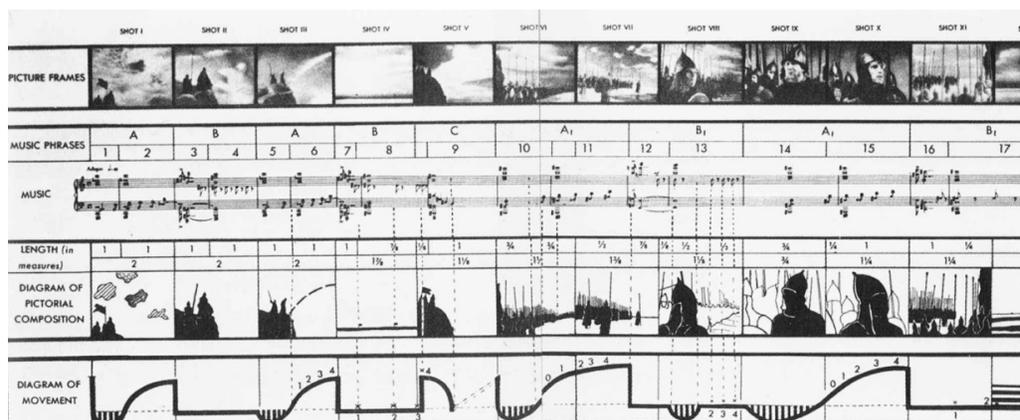


Figure 33:
Serguei Eisen-
stein Notation
for Alexandre
Nevsky (1938)

This image shows Eisenstein’s diagrammatic representation of movement. It served as a model for Tschumi’s architectural notation.

i. The Body in Space

Tschumi, was able to apply Eisenstein's method in an architectural manner. The following diagrams demonstrate Tschumi's way of exploring the relationships between space and action. He created a form of movement notation that architecturally plans-out the movement of people as they operate in various tasks or events. Through this, he was able to study the body's intervention in urban space.

In doing so, he created a 'three-square' principle that tells stories of human action based on three types of representation: photographs, plans and actions. Photographs demonstrate the action, plans reveal the temporal architectural configuration and diagrams indicated the specific movement of individuals. This method shows the temporal nature public space and the importance of versatile surface compositions.

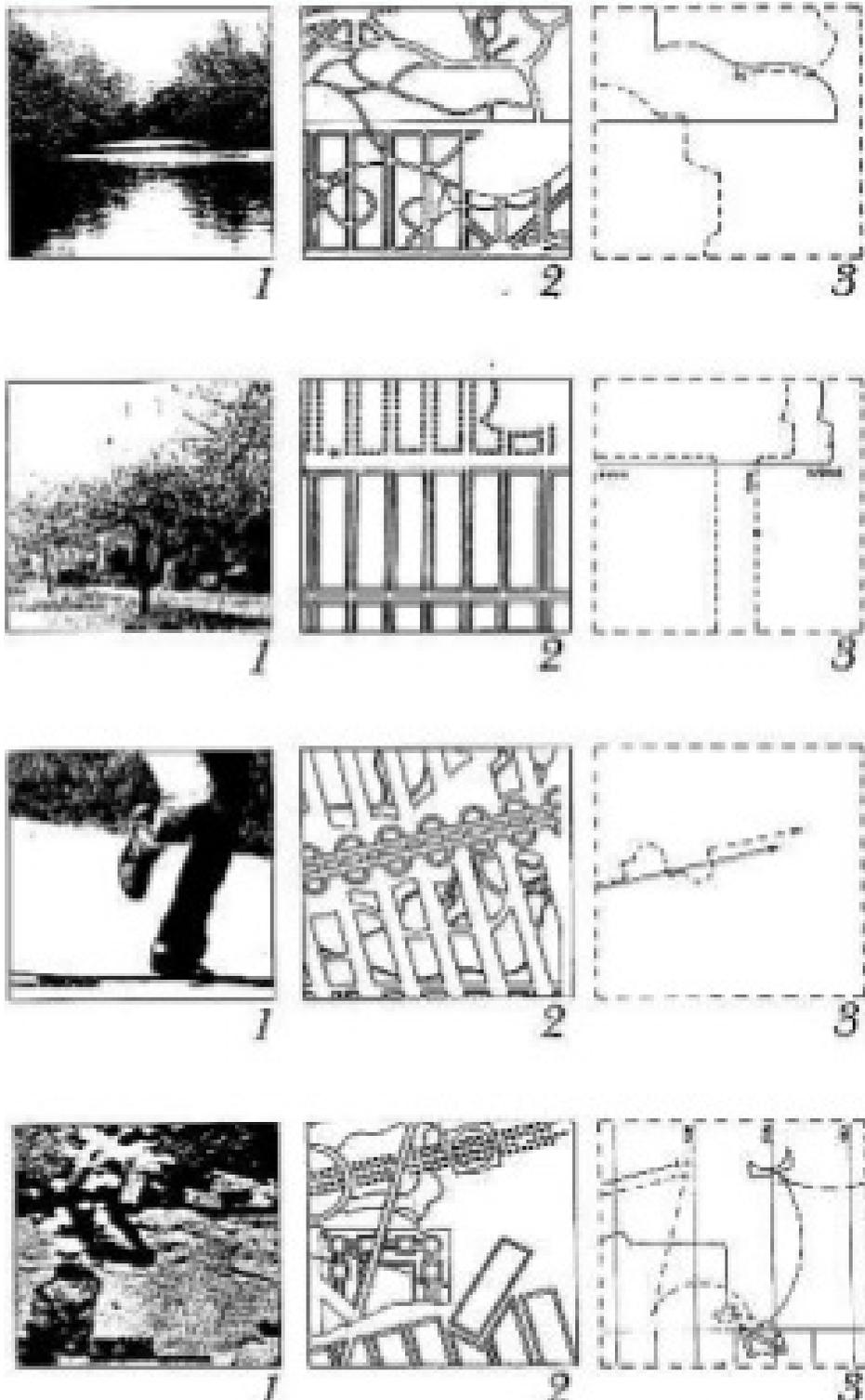


Figure 34:
Bernard Tschumi
Manhattan Tran-
scripts

This image shows one of Bernard Tschumi's drawings in the Manhattan Transcripts. This form of notation demonstrates the story of a body as it moves through space, using his three square principle.

ii. Spatial Sequences

Actions that take place within public space are determined by our dynamic human tendencies in certain situations. Thus, the design for pleasant and functional public space requires the staging of movement and events in space. Tschumi's investigative drawings demonstrate that it is through the sequence of movements that pedestrians truly begin to interact with the material world. This theory, suggests that pedestrian infrastructure holds great potential to affect the human experience in cities, since they encounter it on a daily basis. This is partially what makes the experience within traditional European cities so special. Their surfaces are designed to move people throughout the infrastructure of the city, creating long lasting interaction with the human body and the body's activity.

The pedestrian infrastructure is physically static; its primary function is to move goods and people, making connectivity of lines its main mode of operation. Connectivity through the expansion of surface is also important (Allen, 2004). Architect and theorist Stan Allen advocates for integrating architecture and infrastructure. His theories on landscape urbanism discuss the potential for architectural qualities and formal gestures to appear in infrastructure. Allen proposed that:

“Working with surface connectivity, the vertical axis is materialized as building and the horizontal as infrastructure and landscape. This suggests an idea of site as a continuous matrix, differentiated locally as movement, building, infrastructure or open space. The horizontal and the vertical are woven together, and both are understood as architectural material (Allen, 2004).

In essence, the challenge of using the architectural surface as a network to promote human engagement with their surroundings is one that requires flexibility. This suggests that the physical qualities of surfaces should be both; functional for the city, and disruptive for our human experience. Elements of landscape, urban design and infrastructure can, therefore, return architecture to its authentic and unique mode of expression within urban culture.

iii. Successful Urban Realm

The presence of infrastructure, in all of its forms, naturally plays a role in the everyday lives of a functional city. Whether we walk along the streets, cross a bridge, or sit in an open space, we are continually surrounded by infrastructure that directs our movement through cities. For this reason, Stan Allen argues that we should manipulate infrastructural surfaces to create a significant public realm that addresses the dynamics of use, behaviour of crowds, and the complex geometries of masses in motion (Allen, 2010, p.129).

The High Line

Consider the High Line Project in New York as an example. Built on an abandoned elevated railway, the 1.5 mile linear park was designed by landscape architects James Corner Field Operations and architects Diller Scofidio + Renfro, in 2009. The park as a whole can be seen as an instance where the vertical surface and the horizontal surface meet to create a unique everyday experience for users. Rather than creating new barriers that limit the extent of the public realm, the High Line uses the city's pre-existing infrastructure to create usable public space in a city that has little room left for intervention. The design also incorporates techniques of architecture and landscape to choreograph the experience.



Figure 35:
The Highline
Infrastructure

At the park level (horizontal surface), the park features a mixture of landscaping elements including plantings, viewing decks, comfortable and unique park furniture and water fountains. Although it is reproducing a natural setting, it is doing it authentically, creating “real” outdoor experiences for the users. This is an example of how surfaces can engage contemporary pedestrians in new and surprising ways. This project enables people to participate in extraordinary experiences, where the human is mentally removed from the typical mass consumerist world, and brought into a new place. A place where spontaneous conversation between strangers occurs or where individuals feel comfortable enough to sit alone and enjoy the space, without the need to constantly look at their digital devices. It is a place that responds to both open (public) and built (private) urban space while creating unusual experiences of the everyday experience of the city.

From the displayed images, it is clear that the High Line utilizes the vertical private surface as a means of informing the horizontal public surface. This is done by creating moments of complexity and contradiction that operate at the scale of the human body. Here, a combination of wall murals and projected media dramatize the experience, which may be similar to how we feel as we engage with our personal devices. The design also displays forms of contemporary art that are authentic to their context and provide users with a unique experience within the city. These techniques have re-framed the public realm within the city and have established a dynamic landscape. This is a landscape that supports the easy flow of pedestrian traffic, while still acting as a flexible and pleasurable space that improves the walkability of the city.

Figure 36:
The High Line:
Street Furniture



Figure 37:
The High Line:
Using surfaces



Figure 38:
High Line:Structure



Figure 39:
The High Line:
Lighting



WaveDeck

Located in Toronto, WaveDeck provides another example of how modified surface infrastructure can produce extraordinary experiences. The project uses undulating wood panels that create a ribbon-like effect along Toronto's lakeshore. The project's abnormal treatment of form and material, make the human body move in a unique way. The body rises upwards and then dips down, nearly touching the surface of the water.

From the images below, it is clear that WaveDeck uses a geometry that stands out in the city. The curved ground plane provides people with a feeling liberation, as they walk along a choreographed surface. At times the ground appears to be carved out, while at others it seems to be projected up into the space, which accomodates for differing view of the city.

This project can be considered a travel path. The human body is transported from one point to another while experiencing an elongated encounter with a disruptive surface. Connectivity and material strategies become the leading factors of the project's success.



Figure 40:
Wave Deck A:
Source:



Figure 41:
Wave Deck B



Figure 42:
Wave Deck C

5

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Materiality: Impact on Human Behavior

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Surprise

5.0 Materiality: Impact on Human Behavior

While the shaping of public space through connectivity and use are extremely important, an understanding of the nature of material relationships plays a crucial and ultimate role in shaping our emotional responses. The flatness of generic construction today is largely due to the decreasing attention to materiality. Traditional architecture, however, used natural materials such as stone, brick and wood that enabled us to emotionally engage with their surfaces and extend their existence in time. This was mostly achieved through their change over time. As this expressed their age and use over time, it created a rich atmospheric experience. This atmosphere was also generated by the way in which the materials were applied, in relation to those around it. This contrasts the ubiquitous man-made materials of today, such as clear glass, metal and plastics, that lack authenticity. In this era, these materials usually tend to strive for perfection, with little to no trace of wear or age. Together these have dulled our senses and have mentally impacted society. In recent decades, however, new and innovative ideas of materiality have come about. Both new and natural materials are starting to be applied in a way that turns immateriality and weightlessness into a positive experience of space, place and meaning (Pallasmaa, 2012, p.35). This is because they have the ability to disrupt our typical encounters with surprise.

5.1 Material Strategies

While new products and processes are transforming architecture's approaches to spatial configuration and construction techniques, the architect's use of materials in new and surprising ways has shown the power of contemporary architecture to stimulate human emotion. This has led to tendencies to improve the quality of occupied space with the hopes of impacting the behaviour of individuals.

The pace of social and technological change today is remarkable. Technologies have quickly proliferated, providing new products and new opportunities for architecture. This means that we need to rethink our architectural materials and the manner in which we modify them in space. To do so, we need to look for alternative methods of design that use a strengthened sense of materiality. By revisiting Robert Venturi's theory on surface complexity, in combination with new material strategies, the perception of architectural surfaces can begin to change. Architects can reinvigorate the importance of surface. Consequently, people's expectations will ultimately shift, as they return to encounters with authentic experiences. This holds the potential to bring aura into the contemporary public realm.

Media philosopher Marshall McLuhan, states that introducing individuals to unexpected elements of design, will expose the limitations of traditional practices, and transform the environment into a work of art (Meikle, 1995, p.6). Furthermore, McLuhan's theories concerning material methods and innovation, provide insight for creating unexpected experiences. When applied to the public realm, these techniques hold the potential to create serendipitous disruption on a collective level.

i. Semiotics of Materiality

McLuhan coined the term "disruptive technologies" as describing a new product or material that displaces an old one unexpectedly (Brownwell, 2012, p.9). One example, is the LED lighting that quickly emerged, offering better efficiency over its the competing incandescent or fluorescent lighting. Similarly, a "disruptive application" is an unexpected replacement of a conventional design or construction practice with a new one (Brownwell, 2012, p.9). While disruptive technologies refer to the material or product, disruptive application refers to the physical assembly or system, within the larger context. A disruptive application is not always an outcome of a disruptive technology but is instead the consequence of a new approach or method. For example, replacing the work of a bricklayer by a robot disrupts the authentic process. It replaces the work of the human hand with a mechanical method that can complete the same task with increased speed and precision. Both types of disruption, however, attain an unexpected outcome, where innovation reveals the limited nature of another system. In architecture, disruptive innovation may also become a tool for expressing ideas. It enables hidden meanings to lie in the material surface which can be uncovered by our perception. Architect Jun Aoki, describes this phenomenon as a "material code". He states,

"A material is perceived according to a code- a social code. And so we can manipulate the code itself"
(Aoki, 2011, p.15).

This statement, depicts his understanding of the cognitive effects of re-codification. Recodification means the modification of meaning. To do so, Aoki suggests that we need to understand the anticipated audience and their expected means of engagement within space. We first need understand their typical form of habit, in order to break it. In a city such as Toronto that contains thousands of residents and daily commuters, the tendency of creating "habit" is very strong. Here, the term "habit", parallels Walter Benjamin's theory of the "distracted citizen", as previously discussed.

If these habits can be determined, the architect can, therefore, create novel experiences. According to Aoki, this will broaden a user's experience and intensify their perceptions. This being the case, surfaces can not only define space through form but can also choreograph a person's interpretation of information. The re-codification of material strategies can achieve this.

ii. Material Innovation and Re-representation

In his book, *Material Strategies*, author Blaine Brownell dissects the question of material innovation and re-representation. He explains five strategies of material innovation that can be found in the most influential architectural projects. These strategies include push limits, assimilate, reveal-conceal, surprise, and edit. Although they tend to overlap in many areas, the strategies provoke the contribution of both the art and the science of material innovation as follows:

1. Push Limits:

Pushing the limits refers to avoiding today's tendency of delivering predictable designs. The challenge may involve redefining structural, technical, formal, environmental or cultural matters. Architect Stan Allen believes, that pushing the limits is achieved by those who use their imagination and who are working to push the limits of the discipline (Allen, 2003, p.6).

2. Assimilate:

Assimilation refers to making a whole out of opposite parts. This blurs the line that distinguishes the parts from one another. For example: inside and outside, architecture and engineering, wall and floor. Thus, the meaning of assimilating is to merge two opposites, into a unified concept.

3. Reveal - Conceal:

Again, using the International Style as an example, the concern for simplicity resulted in reduced amount of detailing. This led to the suppression of certain materials that would traditionally be exposed, for example, a window frame. Instead of the honesty that they advocated, it created a false reality. Therefore, architecture must carefully consider the intersection of materials, as they ultimately shape how we interpret the final result. Craft is essential for creating unusual material innovations.

4. Surprise:

As a form of art, architecture can surprise people and elevate their consciousness. Architect Kengo Kuma, believes that all design requires an element of surprise. In his designs, Kengo deliberately upsets the expected relationships of structure, materials, and light. This creates an element of surprise in the ability for his projects to counteract architectural convention. It awakens our consciousness from the realm of the "every day".

5. Edit:

Editing seeks to eliminate non-essential components, typically limiting the material palette. Its design intention is one of 'simplicity', where the complexities of practice are controlled by a set of rules (Brownwell, 2012, p.11). These rules ensure that the design is both, complex in meaning, and easy to comprehend.

Material Innovation



Figure 43:
GC Prosthesis
Museum

This unique project by Kengo Kuma changes the manner in which wood, as a building material, gets perceived. He alters the typical construction logic, by twisting wooden sticks together. The system fits together without the need for screws or nails. Inspired by an old Japanese toy "Cidori" which uses a system of unique joints. This project uses the simple expression of a grid, to showcase its simple construction. However, its innovative strategy is creatively complex. As a whole it shows that the art of "craft" can still exist in contemporary architecture.

“If design is a little unreal, there is a little bit of surprise. If there is no surprise with something, it is not real, because it goes unnoticed. It might as well not exist”
(Kuma, 2011, p. 42).

5.2 Impact on Experience

These strategies of re-codification, create experiential and behavioral effects on the user. They may evoke various responses from individuals depending on their degree of their innovation.

i. Visual Impact

Visual effects parallel Le Corbusier's term of "plastic invention" (Brownwell, 2012, p.12). It is through the interplay of light and material and the use of unexpected forms that one perceives these visual effects. Of this list of behavioural and experiential effects, visual effects result in the most literal re-coding of meaning, where striking features visually demonstrate the adjustment of meaning. These striking features can be seen in the acrylic rods of the "Seed Cathedral" project, by Heatherwick Studio. They can also be seen in subtler strategies found in James Carpenter's glass bridge in the "Blue Glass Passage" project that follows.

Visual Effect

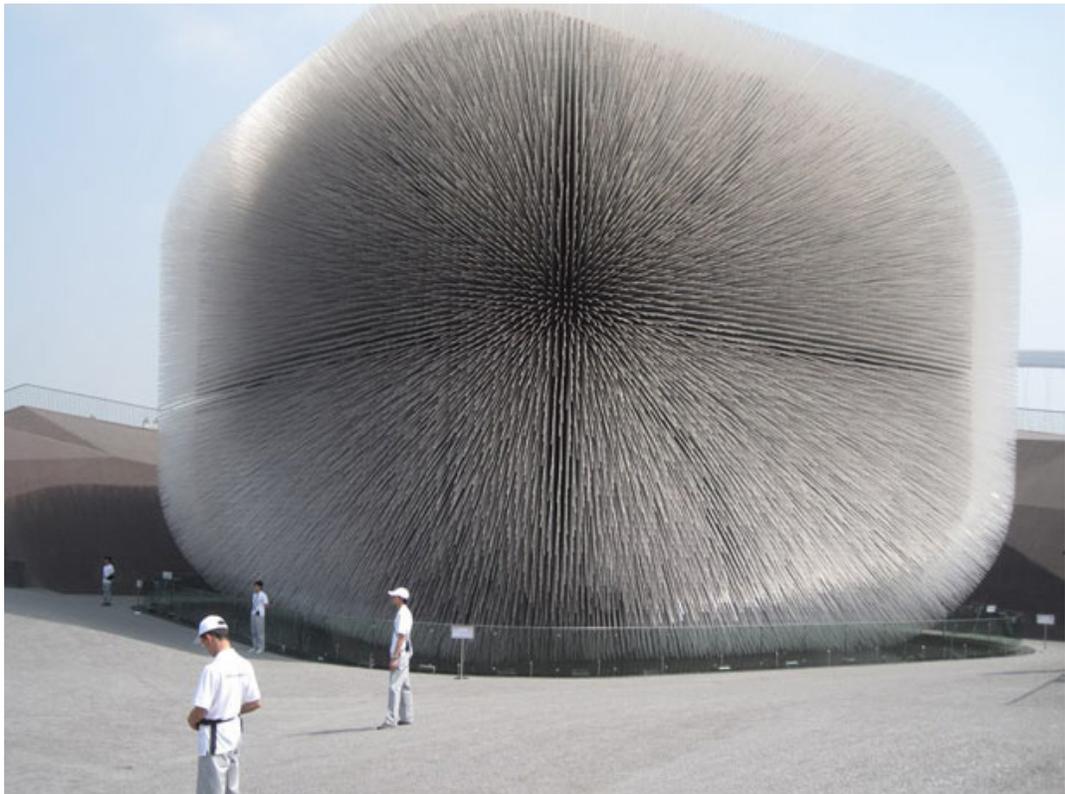


Figure: 44
Seed Cathedral
by Heatherwick
Studio

This project plays with the optical experience. The pavilion is covered in thousands of acrylic rods that transmit light and extend the territory of the vertical surface. The surface appears to project into space, in an unconventional manner. This thickens the appearance of the envelope and results in a dream-like state.

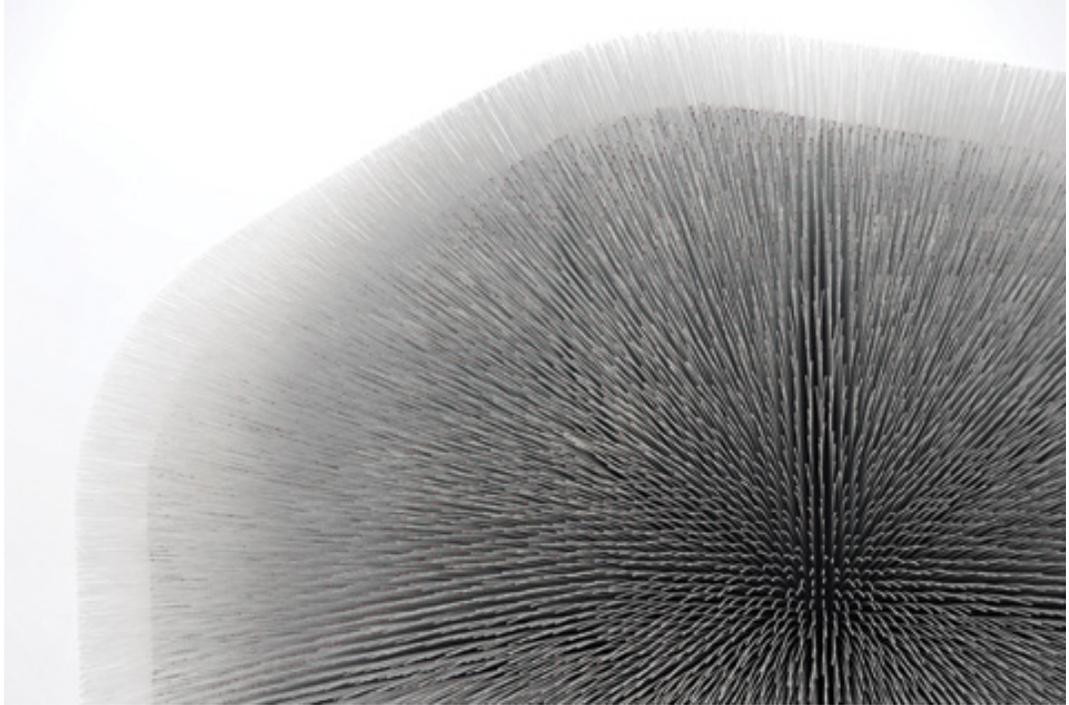


Figure: 45
Seed Cathedral
Detail

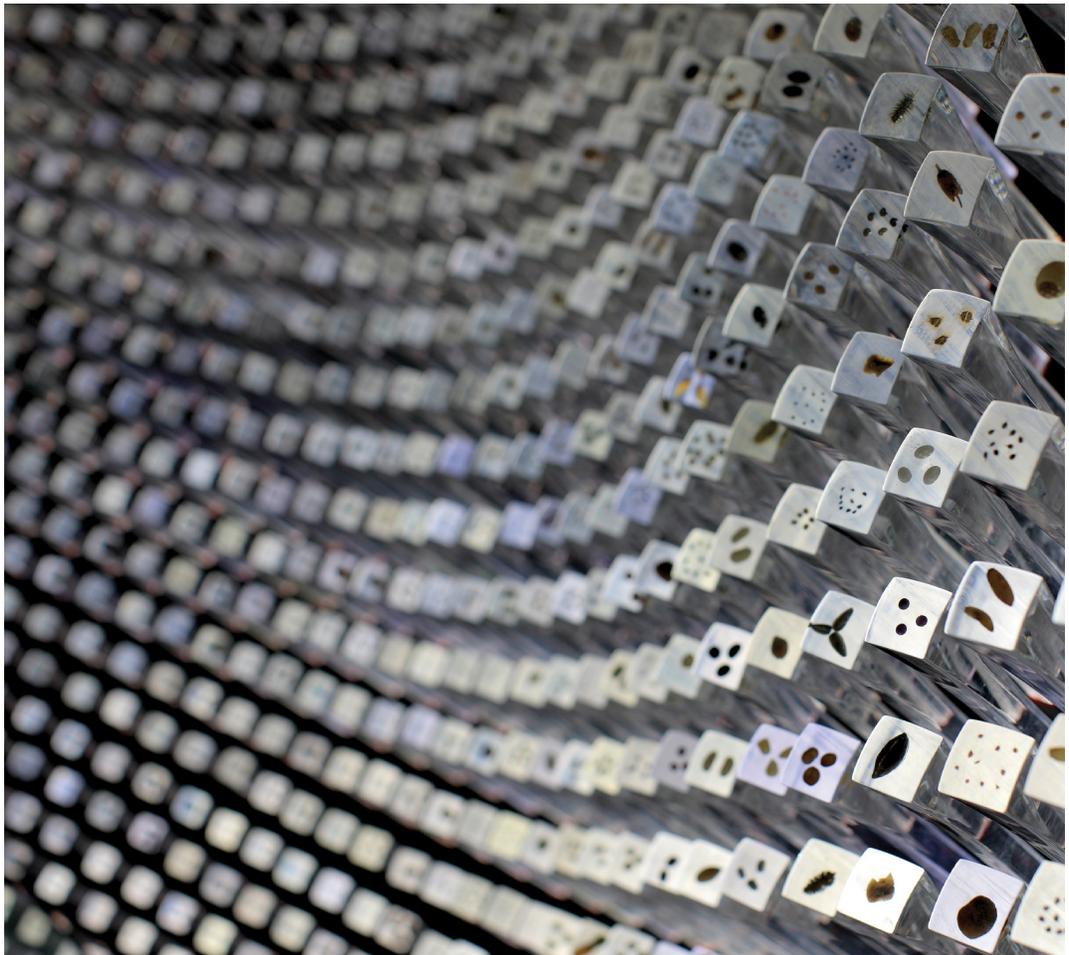


Figure: 46
Seed Cathedral
Detail 2

Visual Effect



Figure 47:
Blue Glass
Passage

This project pushes the limits of fragility and transparency of glass. It uses glass as a walkable surface, in a manner that results in the play of visual and behavioural effects. Here the senses are challenged, as the user below receives a feeling of uncertainty and discomfort, knowing that there is only a thin layer that supports the blurred view of the person above.

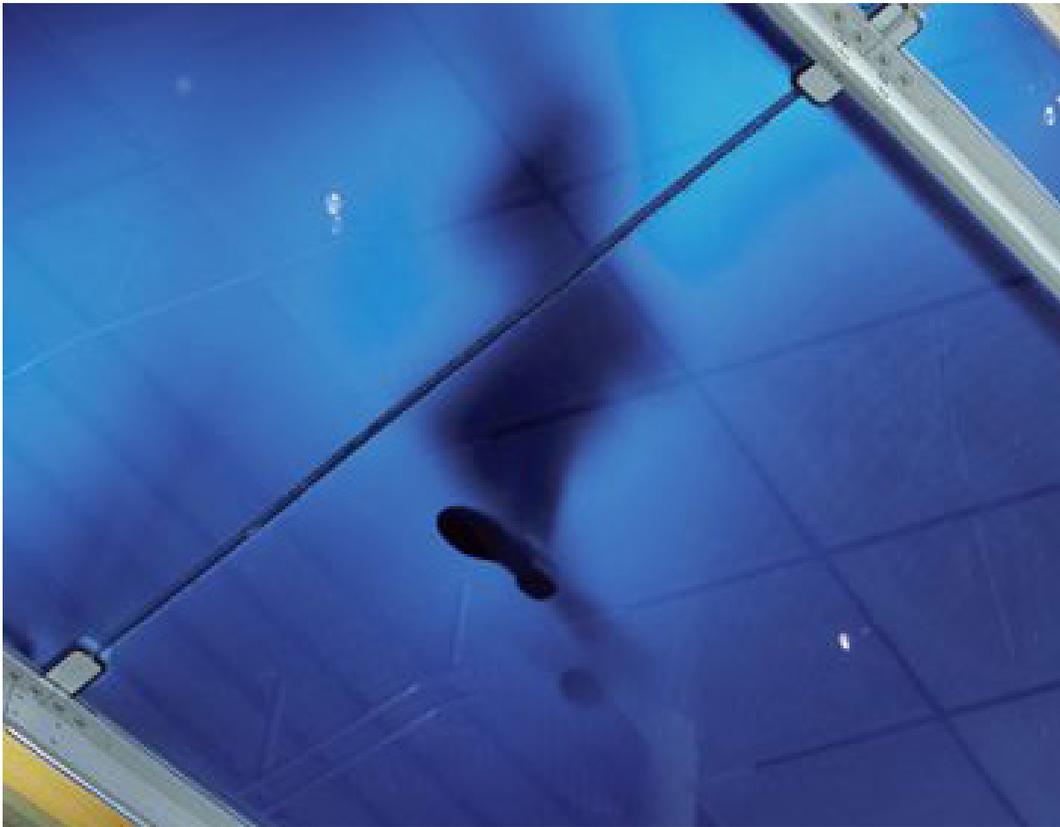


Figure 48:
Blue Glass Pas-
sage Effect

ii. Behavioral Impact

Behavioural effects occur when the chosen material alters the actions of individuals. These effects can be due to multi-sensory conditions, or the reformulating of program and circulation. It considers the physical relationship between the human body, space and the surface. It, therefore, relates to the scale of the individual or group, in relation to the object or material. Also, behavioural effects often produce temporary results (Brownwell, 2012, p.12). These are often found in flexible designs that contain an open-ended variety of uses, which allows users to modify their own experience within each encounter.

Using Sou Fujimoto's Final Wooden House, the stacking of timber implies multiple functions. Here, the user's experience is determined by individual choice, as opposed to one that is pre-conditioned. Users can decide to use the staggered timber blocks as stairs, tables, seating or work surfaces, providing a flexible behavioural opportunity that responds to the physical conditions of the building.

Behavioral Effect



Figure 49:
Sou Fujimoto's
Final Wooden
House A

This project uses engineered lumber that is arranged in various formats. The placing of the lumber is tailored for different uses, based on their spatial position within the space. Users are able to choose the manner in which they use the wooden blocks, giving them the opportunity for creative use in a confined space. Users become the creators of their engagement, due to the choreographed spatial arrangement that the architects provided for them.



Figure 50:
Sou Fujimoto's
Final Wooden
House B



Figure 51:
Sou Fujimoto's
Final Wooden
House C

As evident from these examples, human experience is largely affected by material application. At a small scale, material application affects how an individual perceives and behaves, while at a large scale, it creates significant transformations in how society operates. Both instances require key innovative strategies to create the element of surprise that is naturally desired by our human psyche. Inevitably, architecture must have an element of surprise if it intends to re-code typical conventions and elevate consciousness. The architectural surface is key to doing so, as it is capable of producing mental and physical effects.

In addition, the basic history of a material is also an important aspect of the recodification process. It enables the designer to understand habits and conventions so that they can then alter them with disruptive surfaces (See Appendix figures I & J).

5.3 Layering the Surface

Although each of the precedents discussed contain their own unique type of material strategy, there is an overarching principle that links them together. That is their multi-dimensional application, which allows for elements of surprise and serendipity. This is what makes them 'disruptive' from our typical encounters. Visually, each of the projects contain surfaces that have been re-considered as multidimensional planes. As the surface becomes a volume in itself, it forms a spatial atmosphere that can be felt by the human senses entirely. Historically, this was created by the depth of the arcade. Today, however, new building techniques and technologies enable contemporary architecture to explore other ways of creating similar atmospheric effects, using similar concepts to those use historically.

i. Thickened Planes

The models in Figure 52 provide examples of the thickened plane, using the common process of laser cutting to create specific forms. The powerful effects of thickened planes are the relationships they create within a given space. It is about the beauty of light and shadow interacting through its depth. What intrigues us most, is the use of the surface as a tool to control light against shadows. When we thicken the surface, this relationship becomes even more dramatic, as the intermediate space in between, lengthens and merges both sides of the surface. The subsequent images within figure 53, however, demonstrate more developed architectural projects. In addition to thickened surfaces, they show how layered surfaces create more expressive atmospheric effects.

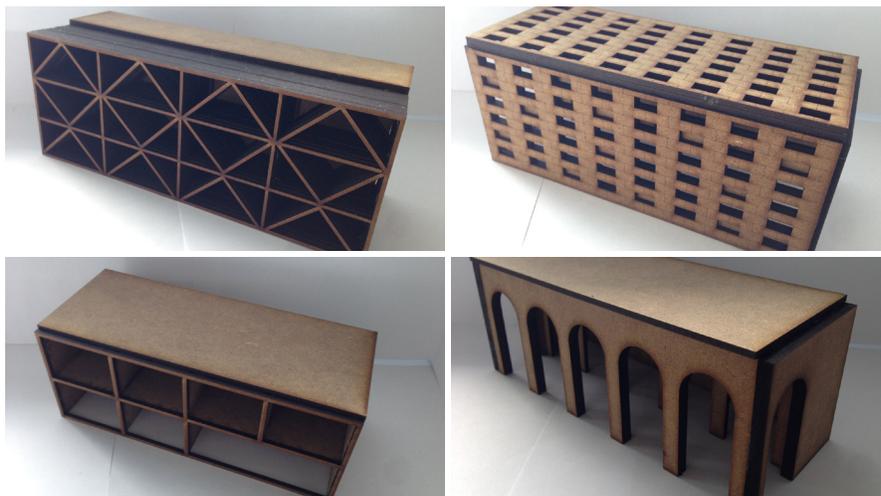


Figure 52:
Layered Surface
Models

Each model demonstrates various thickened surfaces. In these examples, the vertical surface is layered, with perforations leading to the "interior space". In combination with the depth of the surface itself, this creates a volumetric surface condition, where the layered surface becomes occupied space.

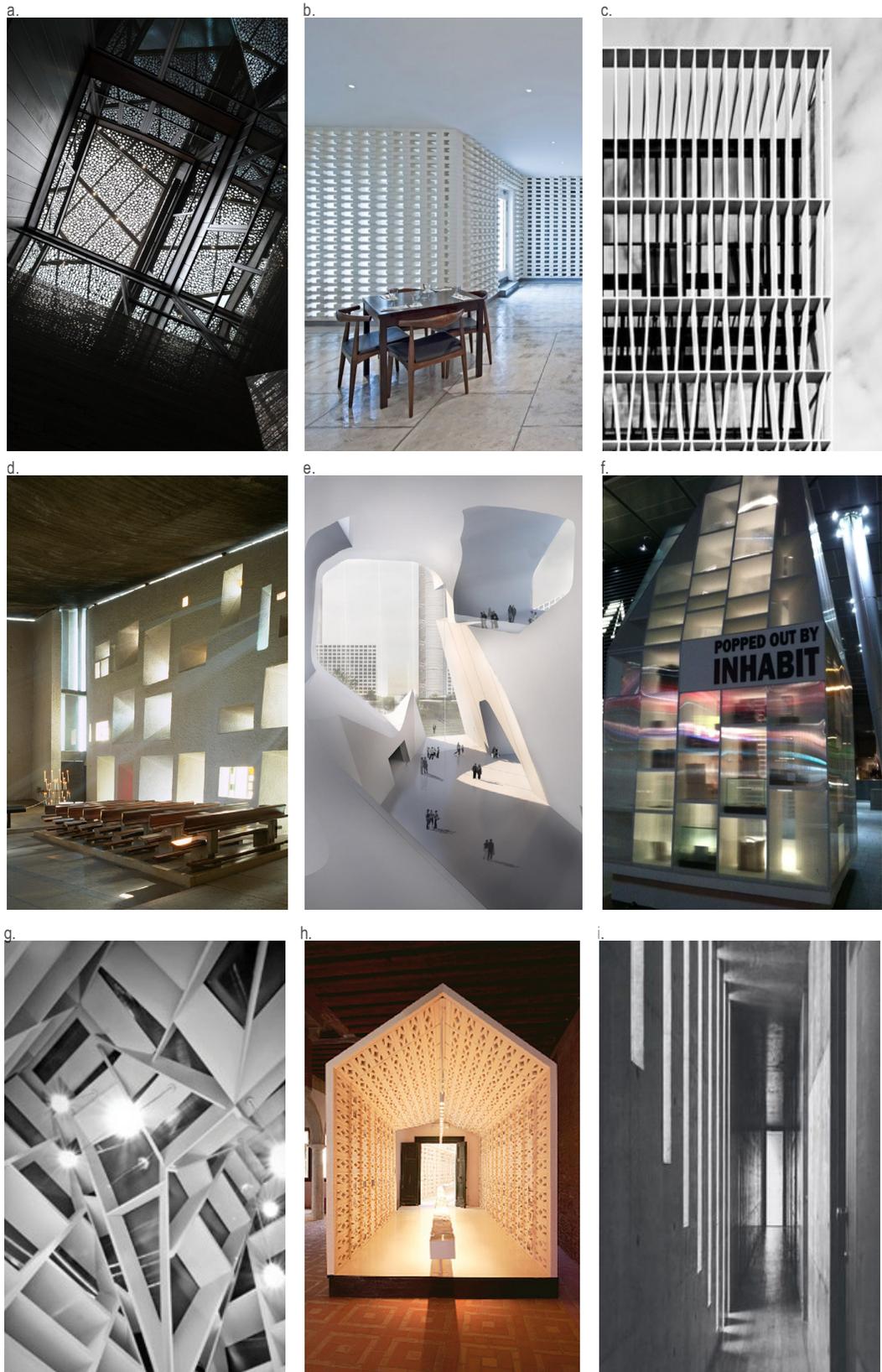


Figure 53:
Layered Surface
Precedents

Thickened and perforated surfaces can become even more powerful when layered. This is because of their ability to join two spaces visually. The joined relationship opens up a wide variety of atmospheric effects, including; contrasting spaces of light and visual obstruction. Since environmental conditions change, these effects never remain in a fixed state, so, wherever the body is positioned, the effects of light, wind and noise will always be altered against the surface.

ii. Translucent Planes

“For me, buildings are the ultimate interactive experience. We are immersed in them, moving through spaces with new vistas and perspectives constantly opening before us. My vision of transforming architecture extends and inverts this process: instead of moving through a building, the viewer may be stationary and it is the building itself that changes. Walls disappear and reappear. The inside becomes outside”
(Hoberman, 2006, p.70-71).

Layered surfaces in public spaces significantly impacts the overall atmosphere. They determine how light disperses within the space, how textures are perceived and, as seen from previous examples, they can differentiate one space from another using their material properties. This use adds to the ability for architectural surfaces to alter people’s behavior in one space versus another.

While transparency is characterized by the visual openness and the direct transmission of light, opacity is the opposite, resulting in a complete blockage of light and visual connectivity (Murray, 2013, p.1). Translucency, however, is the merging of the two. As opposed to revealing or concealing, translucency obstructs. Its dual properties of transparency and opacity enable it to sufficiently alter ones perspective and awareness in space. When the surface is translucent, this optical obstruction distances the user from the opposing space physically, and connects them visually, inviting the user’s perception into the depths of the surface. The user becomes aware of their distance to the surface, and their relationship to the space beyond. This is because light is compressed within the translucent surface, which contrasts the shadows on the other side.

The beauty of translucency is how light and shadow interact through the surface. It creates serene atmospheric effects that cannot be performed by those that are opaque or transparent. Architect Scott Murray described this as a transformable nature, as translucency produces constantly changing effects (Murray, 2013, p.1). The effects are never in a fixed state, due to combinations of environmental conditions and the positioning of the human body. In this sense, light, air, noise and temperature determine the extent to which one interacts with a perforated or translucent surface. This is because of their changing interaction with these surfaces throughout the day.

In historical architecture, translucent architectural elements were most commonly found in Gothic cathedrals whose walls were lined by stained glass and large spanning columns that created openings for light to enter. This poetic combination of materiality and structure led the architectural eras to follow, with an interest in the significance of light to our surroundings (Murray, 2013, p.4). Steven Holl took particular hold of the topic, claiming that:

“Light is for space what sound is for music”
(Murray, 2013, p.4).

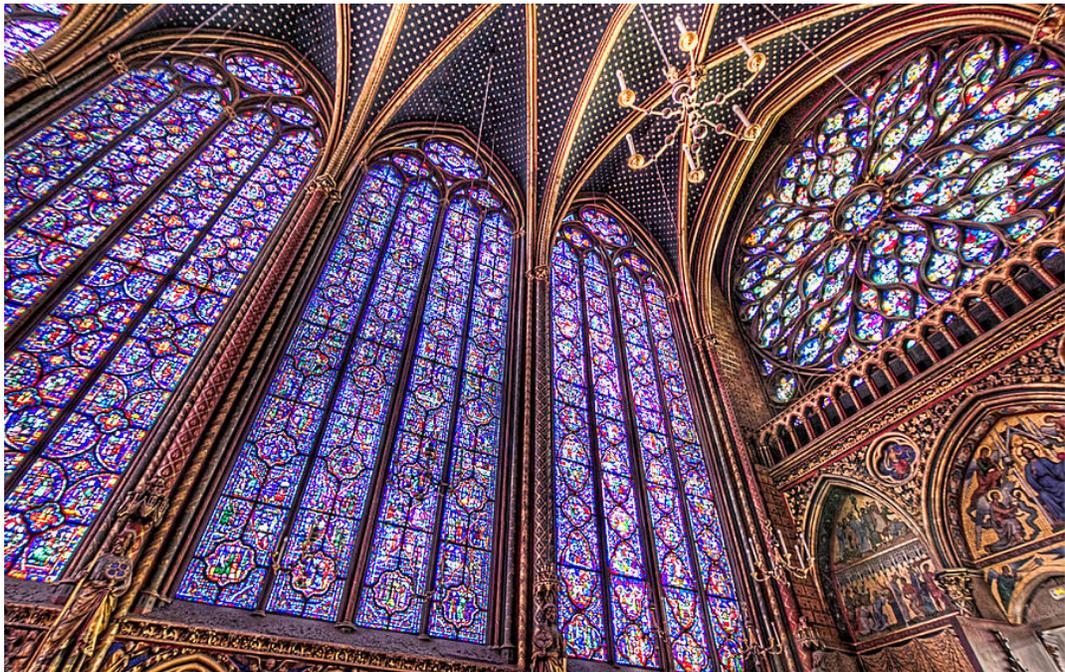


Figure 54:
Sainte-Chapelle

This statement suggests that without light, architectural surfaces would not perform to their fullest extent. As such, figure 55 conceptually demonstrates the strategies uncovered for creating an engaged pedestrian realm. In public space, layered surfaces significantly impact the overall space, in terms of atmosphere and use. Here, the pedestrian’s view becomes obstructed, distancing them physically from the opposing space and other people. This creates elements of surprise that intrigue the user. The visual connection that remains, invites their perception to interact with the multi-dimensions of the surface and its designed elements of surprise. The pedestrian literally becomes immersed in the surface. Openings in the surface creates intermediate travel spaces that guide the body through a sequence of contrasting spaces, all while connecting it to the larger network. In combination with the events that the space caters to, this continuity provides functional uses for the public space and the pedestrian actions in which it caters to. The combination of these concepts causes a heightened experience for the human senses.



ACTION

SURPRISE

CONTINUITY

Figure 55:
Layered Surface
Diagram

6

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Design Exploration
“La Ville des Pietons”

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6.0 Design Exploration

6.1 Disruptive Surface Methodology: Generator for Disrupted Pedestrian Experience

The analysis of successful traditional urban spaces, and the use of current new technologies reveals that potential for various surfaces to create disruptive experiences in the public realm. To disrupt public space, the techniques uncovered throughout this thesis must be present in the design of the exterior public realm. These techniques provide a method for redefining the public realm and reinventing the experiences that take place within it. This method involves several strategies as demonstrated in the previous drawing including:

1. Define public space through continuity of travel spaces
2. Layer surfaces to create a multidimensional occupied space
3. Understand the nature of material properties to create phenomenal effects

As a result, the final step in this research applies this methodology to a specific site in downtown Toronto. This will demonstrate how pedestrians would ultimately be affected by disruptive surfaces and re-introduce designed public architecture to extraordinary daily experiences.

6.2 The Walkable City

Among many western cities, Toronto has been rated one of the healthiest cities in the world. Healthy cities are those which are livable, equitable and sustainable (Design Report, 2012). They allow people to choose sustainable methods of transportation, such as walking or biking, that leads to multiple benefits. This also decreases emissions of air pollutants, greenhouse gases and traffic congestion. Not only does this improve the health of the city, but also the physical and mental well-being of its citizens. Providing walkable spaces that fuse together the horizontal and vertical plane will enable pedestrians to experience the city through its multiple dimensions. It will also provide a smooth transition as they travel through contrasting spaces. This outcome can only be achieved through the detailed planning of a city and the careful design of its architectural surfaces.

In the City of Toronto, there is a solid support for walkable spaces. This includes residents who want to walk and bike to work, as well as thousands of commuters who walk from various public transit locations. If future external spaces offer disruptive experiences for pedestrians, it could open opportunities to decrease the number of drivers in the city.

A survey was conducted recently by Toronto Public Health and Safety concerning the transportation preference of residents. It discovered that three-quarters of Toronto residents who were surveyed expressed a strong preference for walkable neighbourhoods, while only 6% expressed a strong preference for auto-oriented neighbourhoods. This shows that the desire to choose the slower pace and healthier methods of transportation are preferred for the city's lifestyle.

With the downtown's residential intensification, including the growing population and visitors, there is a need to improve and expand the public realm. Doing so, however, may be difficult in a city that is experiencing rapid intensification. Available space for expanding parks and public squares is very limited. We must, therefore, look for opportunities where there is enough room for the public realm to merge with the private. This will create hybrid experiences within the city, where pedestrians can continue their daily walk outside, while enjoying a pleasant architectural experience.

As such, the theories and concepts explored suggests that pedestrian infrastructure holds great potential to effect the human experience in cities, since it is used on a daily basis.

This is partially what makes the experience within traditional European cities so special, as well as the projects explored throughout this thesis, including The High Line and Wave Deck. Their surfaces are designed to move people throughout the city's infrastructure, creating long lasting interactions with the human body. This disrupts the typical interactions that pedestrians are normally used to in the city. In order to test this theory, this thesis is explored through a design within Toronto's infrastructural pedestrian network. The design attempts to create a disruptive moment in the daily lives of Toronto Pedestrians using the concepts discussed thus far.

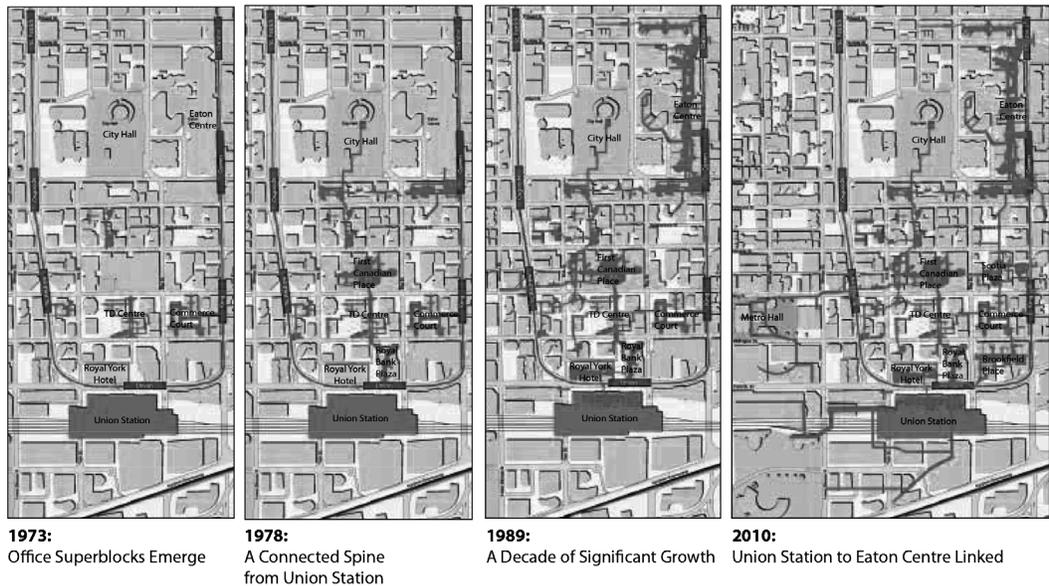
6.3 The Path: The Pedestrian Realm Below

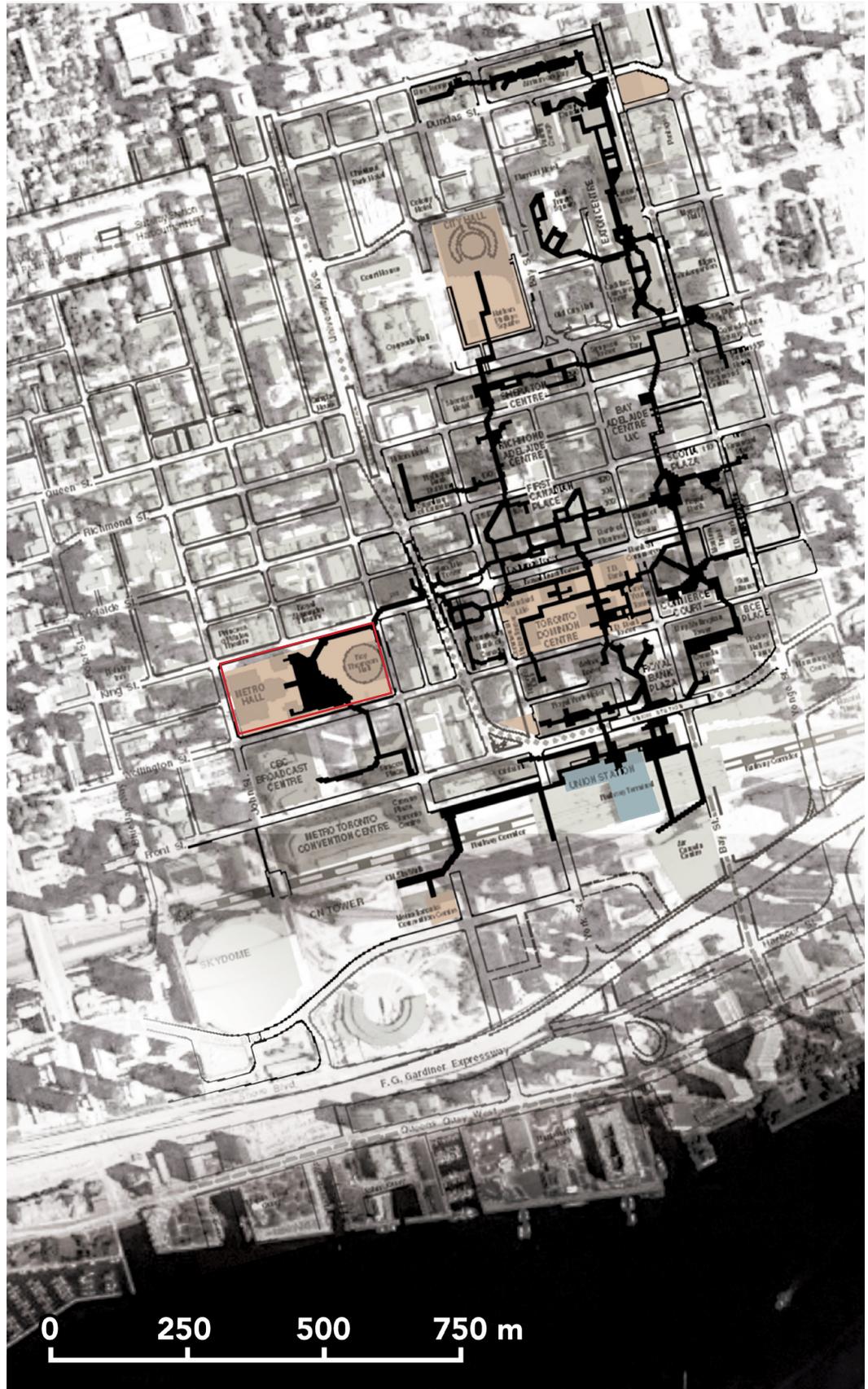
Currently, the city of Toronto operates on a highly used and well operated underground pathway system. This system has become known by many residents and frequent visitors as “the Path Network”. Visitors from outside of the general area, however, are often unaware of this system due to its lack of explicit ways of finding it, such as signage and noticeable entrances. The entrances into the Path Network are widely overlooked as one passes by, with little to no visual connection to the lively system that functions below them. This means that many Toronto pedestrians who are unaware of the system are lacking multi-dimensional experience.

The Path Network is a climate controlled underground network that connects building and subway stations in Toronto’s downtown core. While connections have existed between the city’s buildings since before World War Two, the City of Toronto became involved with the vision of the pedestrian network in 1969. The city initiated a way-finding system to support the growth of the city above and below grade. The Path network, passes through many of the cities most notable privately and publicly owned buildings while moving people through many parts of the city entirely underground. Its growth has occurred over the years as a response to a number of people who use it on a daily basis, as it connects to major transportation arteries, including Union Station and other TTC nodes. The Path Network has, therefore, become a key component of pedestrian mobility in the city. It is now home to 1,200 stores and services and acts as more than just a mall or transportation infrastructure. It has come to play a major role in the walk-ability and pleasurable experience of Toronto.

As seen in the following series of maps, the growth of the Path Network has occurred over decades according to the growth of the city. As new infrastructure and the general population grew, more pathways were added to the overall network. Using Union Station as a major node in the network, the network continued to grow in 1973, reaching out far beyond the financial district, and spreading to cultural/ public destinations such as Metro Toronto Convention Centre, the CBC Building, the CN Tower, Rogers Centre, Air Canada and Metro Hall. This opened up the Path Network to a diverse range of pedestrians who began to rely on it as a means of everyday travel through the city.

Figure 56:
Path Historical
Growth





- Public Squares
- Path Network
- Network Hub (Union Station)
- David Pecaut Square

Figure 57:
Public Squares
Connected to
Path Network

6.4 David Pecaut Square: Existing Condition

A few of the many entrances to the Path Network are located at David Pecaut Square. It is one of the western nodes along the underground Network where residents from around Toronto's growing entertainment district have their most proximate access. This node brings people from the public square into the underground network and moves them towards another destination in the city. The square holds a variety of buildings, including Metro Hall and Roy Thomson Hall, as well as multiple retail shops below grade. It also immediately connected to St. Andrew Station. (See Appendix figure A for initial site analysis sketches)



Figure 58:
David Pecaut
Square

i. Site Defining Elements

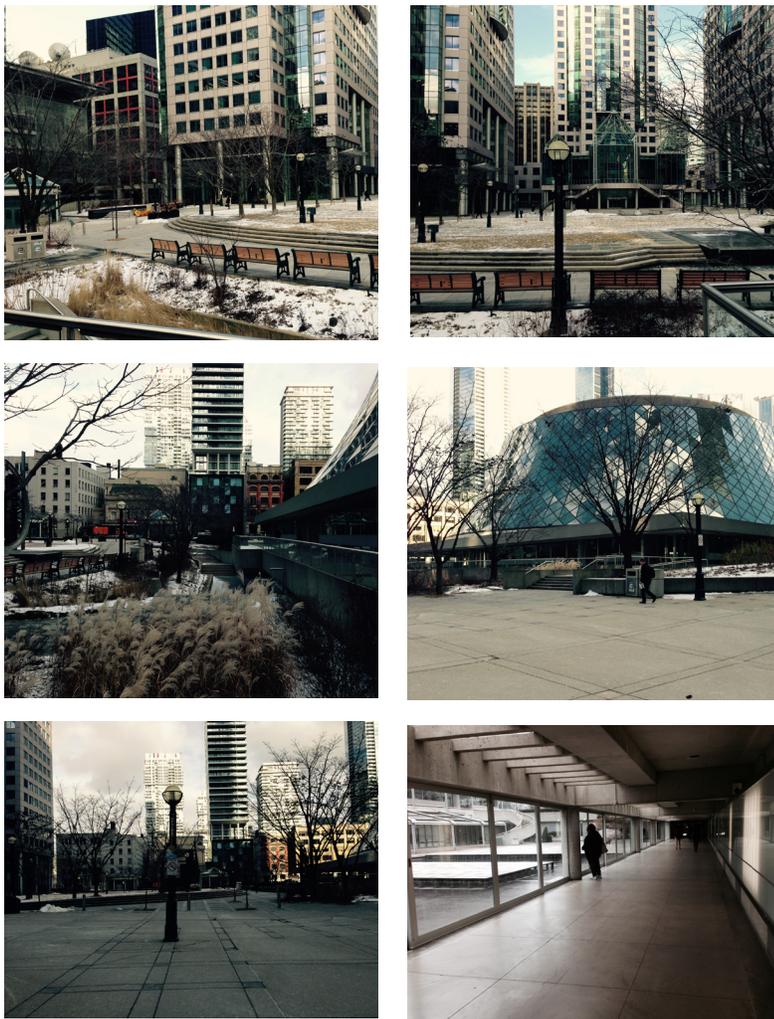


Figure 59:
Site Features

The above images show the buildings on the site, as well as the surrounding context. Here, we can see that there is an open green space in the center where most of the events are held.

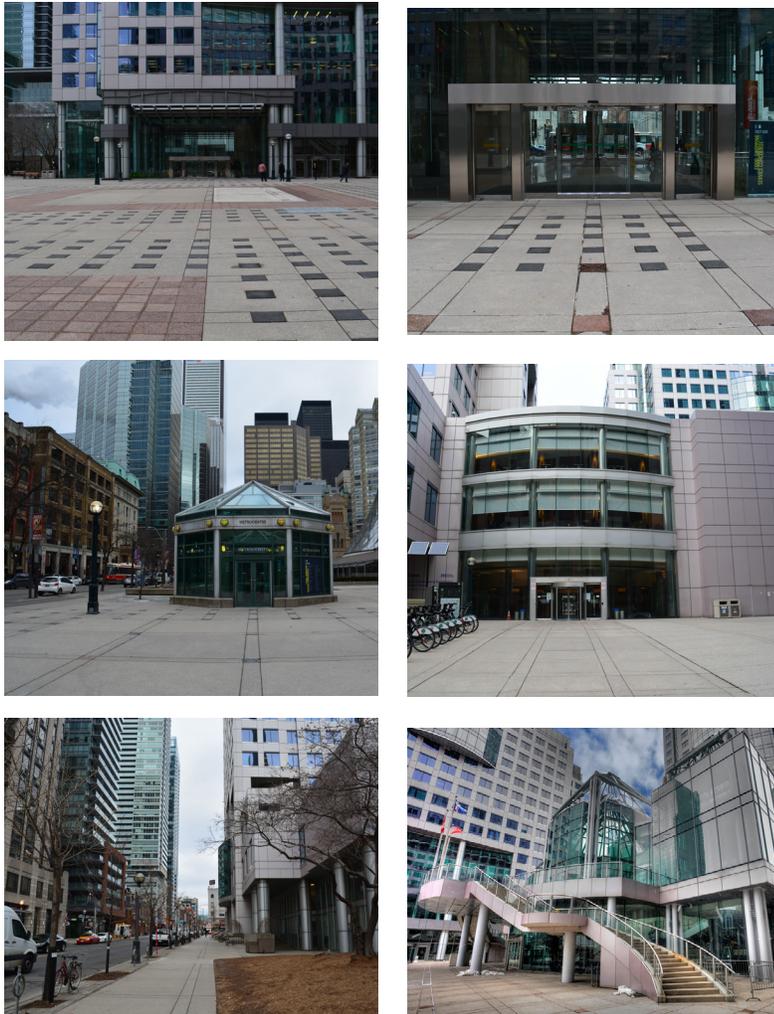


Figure 60:
Entrances into
Path Network

The above images show the entrances into Toronto's underground Path Network. It is clear that these entrances currently lack their own identity, as they are located within Metro Hall or small Vestibules. The horizontal and vertical surfaces on grade clearly do not inform pedestrians of this other dimension to their city. This adds to the argument of the "distracted citizen" and our lack of engagement with external elements of contemporary architecture.

ii. Typical Pedestrian Events

At grade level, the site is also home to many public events throughout the year.

Annual Events

Toronto International Film Festival (TIFF)
Canada Day celebrations
Nuit Blanche
Fashion Week

Frequent Events

Fruit markets
Movie nights
Music performances
Pop-up Entertainment

With each of these events, comes a unique set of parameters and types of users. For large events, tent-like structures are normally constructed in the middle of the site. For frequent and smaller events, temporary booths and tables are implemented. The configuration of the site, however, should have more permanent qualities to it, so as to improve the site for daily and more frequent use. In addition, the surfaces that shape the site should be further explored both above and below the square. The merging of both realms will introduce people to multiple directions within the site's pedestrian network where it can become both functional and experiential all at once.

Figure 61:
Fruit Market



Figure 62:
Fashion Week



Figure 63:
Luminato



Figure 64:
Musical
Performance



Site Features

During special events, temporary structures are merely placed on top of the open space. There is no architecturally defined public event space on the site

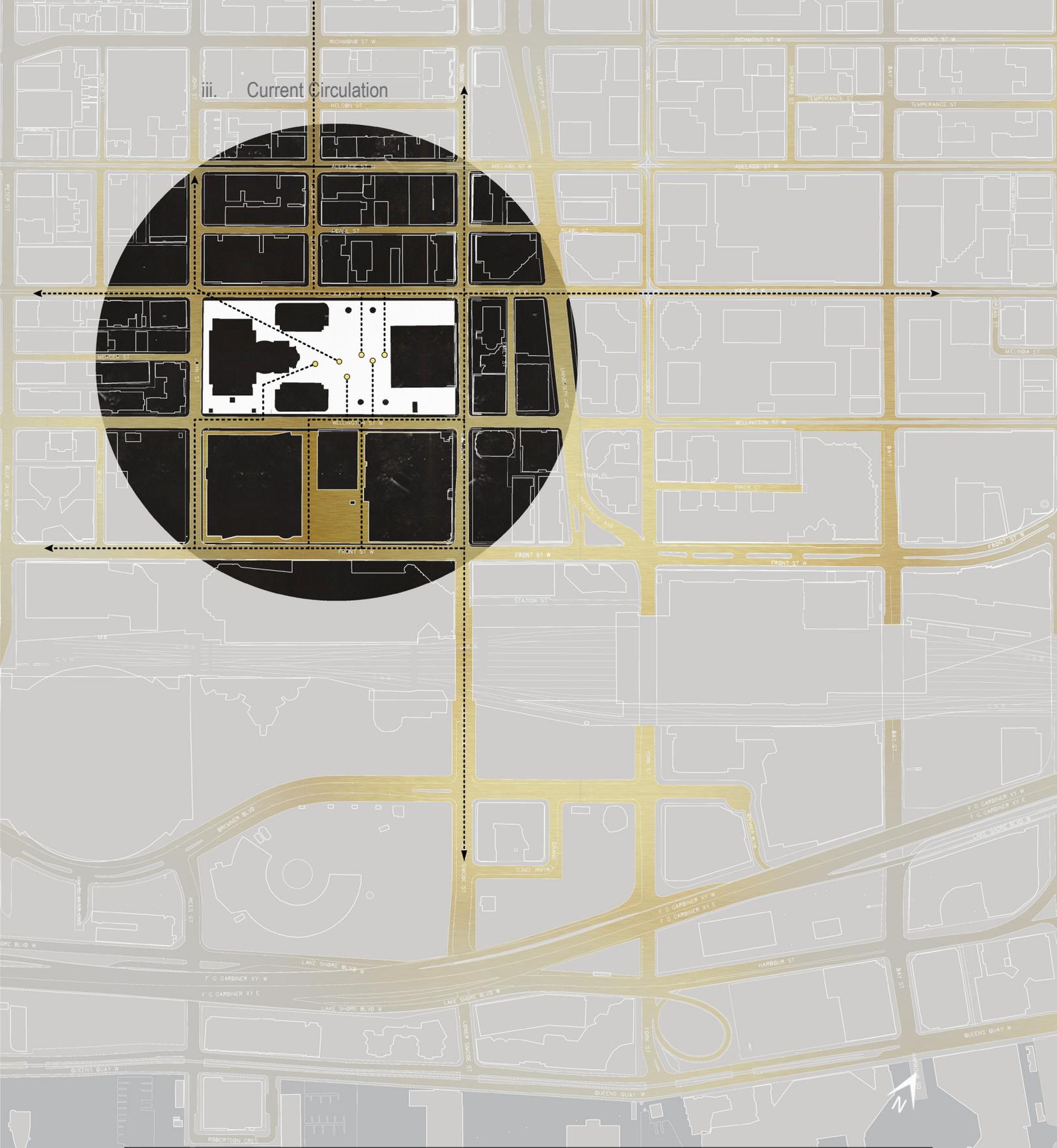


Figure 65:
On Grade
Site Circulation

On grade, pedestrians currently enter the site between buildings and from the surrounding sidewalk. They also wander around or sit on the grass that is located in the middle of the square. The direct connection to sidewalks, the underground Path Network, subway stations and the city's built infrastructure make the existing site a great place to investigate the Disruptive Surfaces methodology. It's dual nature as a node within the pedestrian network, and an open urban space, makes it a great place to explore the effects that architectural surfaces can have on the daily lives of Toronto pedestrians before they continue onto another part of the city.

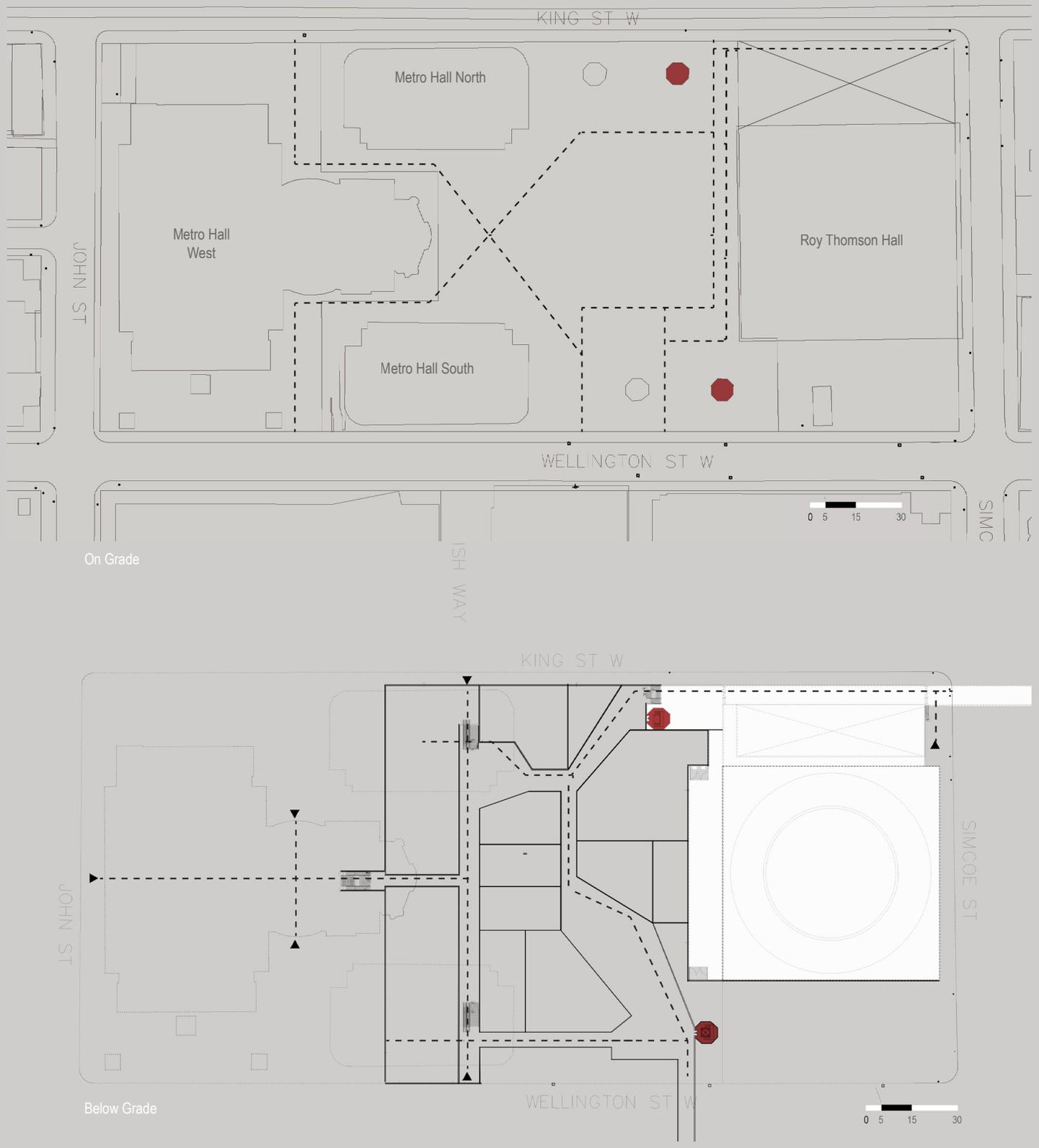


Figure 66:
Existing Site
Circulation

On grade, pedestrians currently circulate around the buildings on site to get to their intended destination. To enter the two underground levels of the Path Network, they use the entry doors in the Metro Hall buildings, where they then descend down the escalators. The first level of the path network (Path Level A) is highlighted in white. It connects directly to st Andrew station and the lowest level of Roy Thomson Hall. The second level (Path level B) contains a double height ceiling. Currently the most direct forms of traveling between the levels is through the emergency exits as highlighted in Red. As evident from the photos, the lack of signage and explicit entrances do not present a meaningful or intriguing invitation down to the pedestrian infrastructure below.



6.5 Potential Opportunities

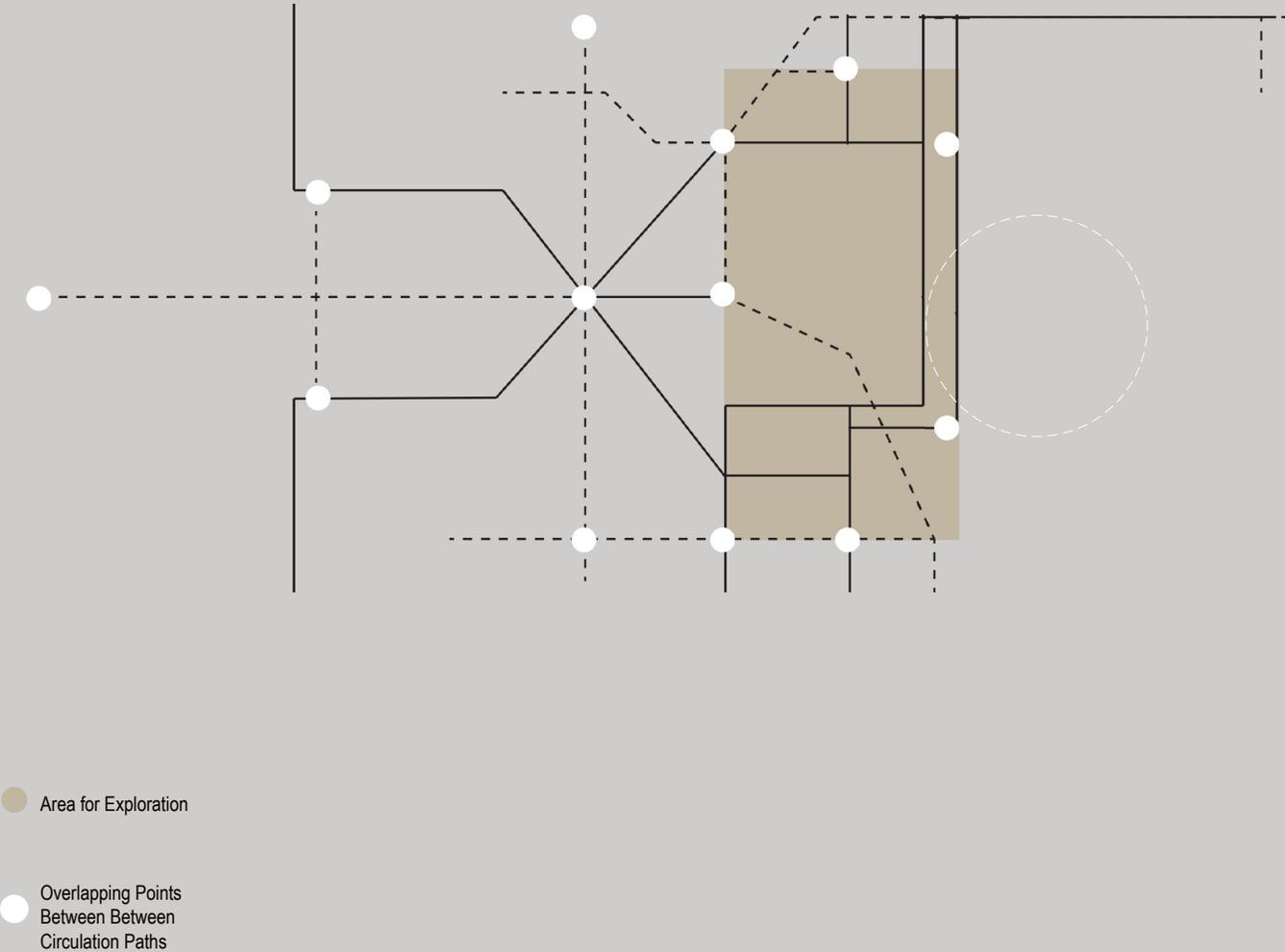
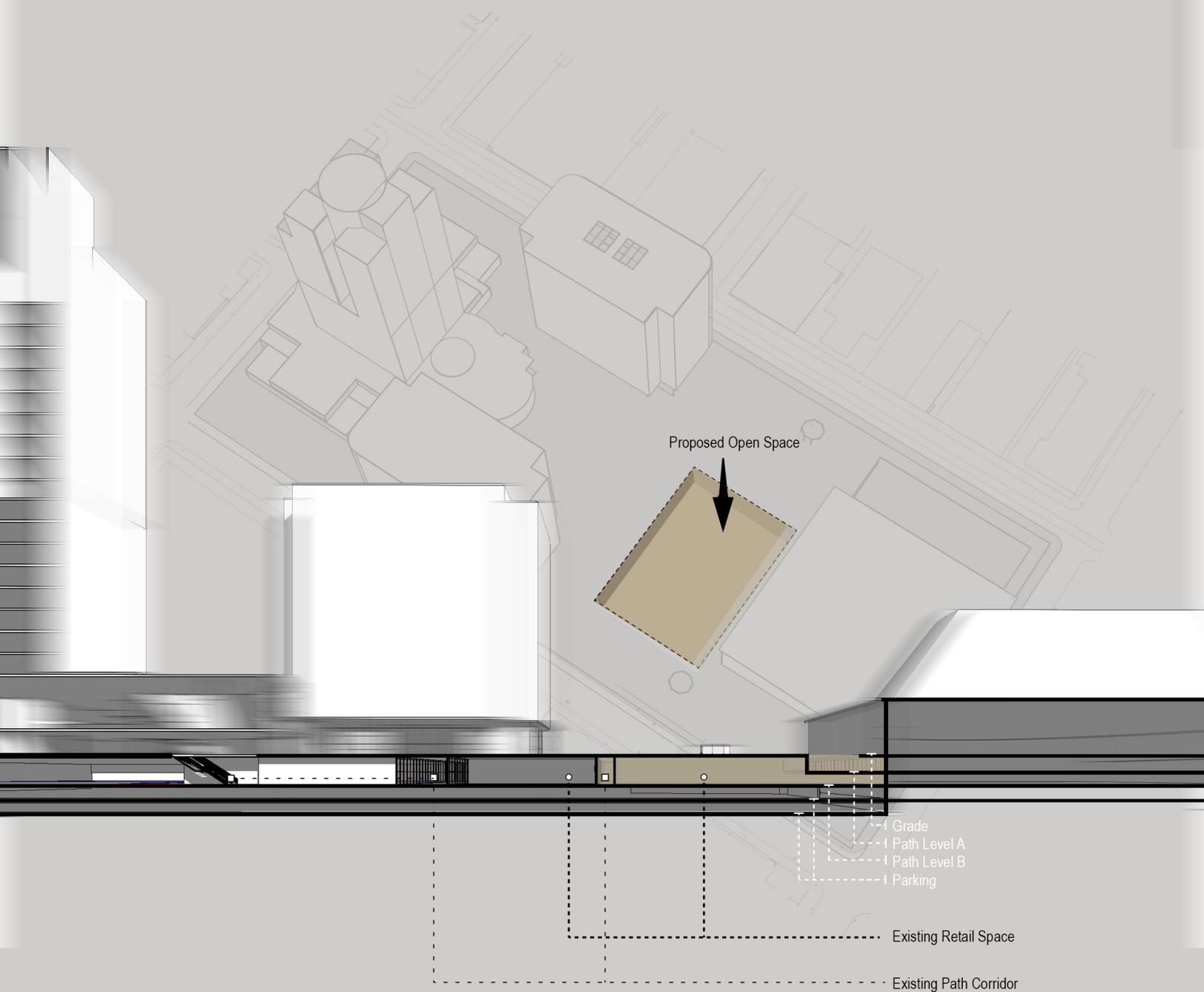


Figure 67:
Layered Networks

With the variety of intersecting movement patterns and the amount of temporary events that take place annually and weekly, the site has the potential to become more lively and enjoyable on a daily basis than it currently is. As highlighted in yellow, the open space on grade aligns with many points within the network. These could act as potential entrances into a new outdoor performance space that would merge both levels of the path with the activities on grade.





● Proposed Gesture

Figure 68:
Proposed Area of
Exploration

The newly proposed space will engage with both the above and below circulation. At the same time, it will act as a disruptive moment within the public realm, that applies the methodology uncovered by this thesis.

6.6 Design Motivators

Users are the prime motivators for the proposed design of the square. The importance of action within public space is therefore important. Using Tschumi's Investigative method, I was able to analyze the different types of places that would be required in the new open space, in order to accommodate for the various forms of movement and behaviour that would be engaging with the design. The open space would be required to accommodate for individuals, groups and crowds, who each have their own set of behaviours. Using Tschumi's style of notation as a model, the following drawing exercise shows how these behaviours affect the treatment of architectural space in the public realm.

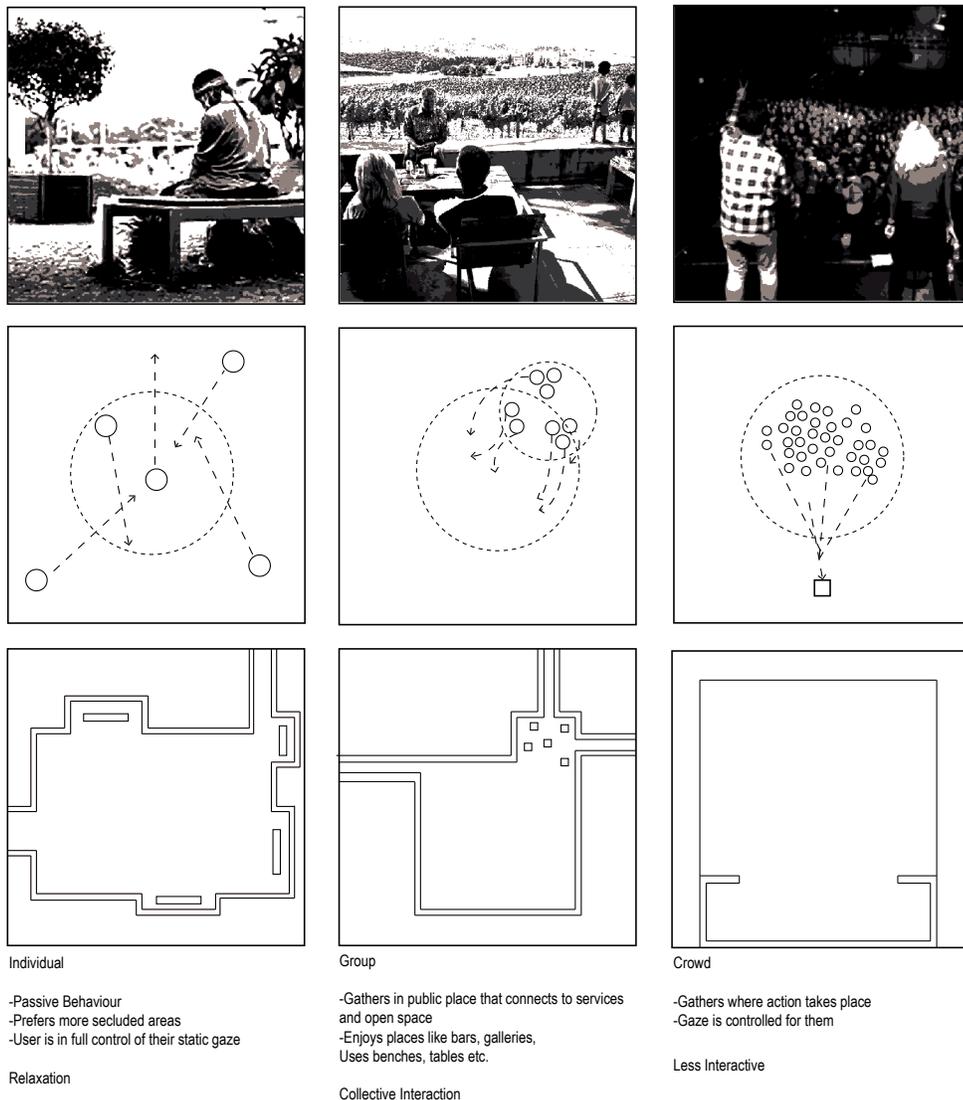


Figure 69:
Pedestrian
Behavior

These behaviours also have their unique forms of movement. These are determined by the activity in which they partake, as well as the destination that they typically focus on. As a result, the drawing below shows their various paths of bodily movement. It also shows the ways in which people operate in open space, due to distracted habits and unconscious behaviour.

Together, these exercises reveal that the new design requires; convenient access routes in and out of the space for commuters or people that are in a hurry, places of rest that look onto the open space, for small groups to interact with others, and finally, an open space in the middle for large groups during events or performances. This method helped me determine a spatial composition and sequence for moving pedestrians.

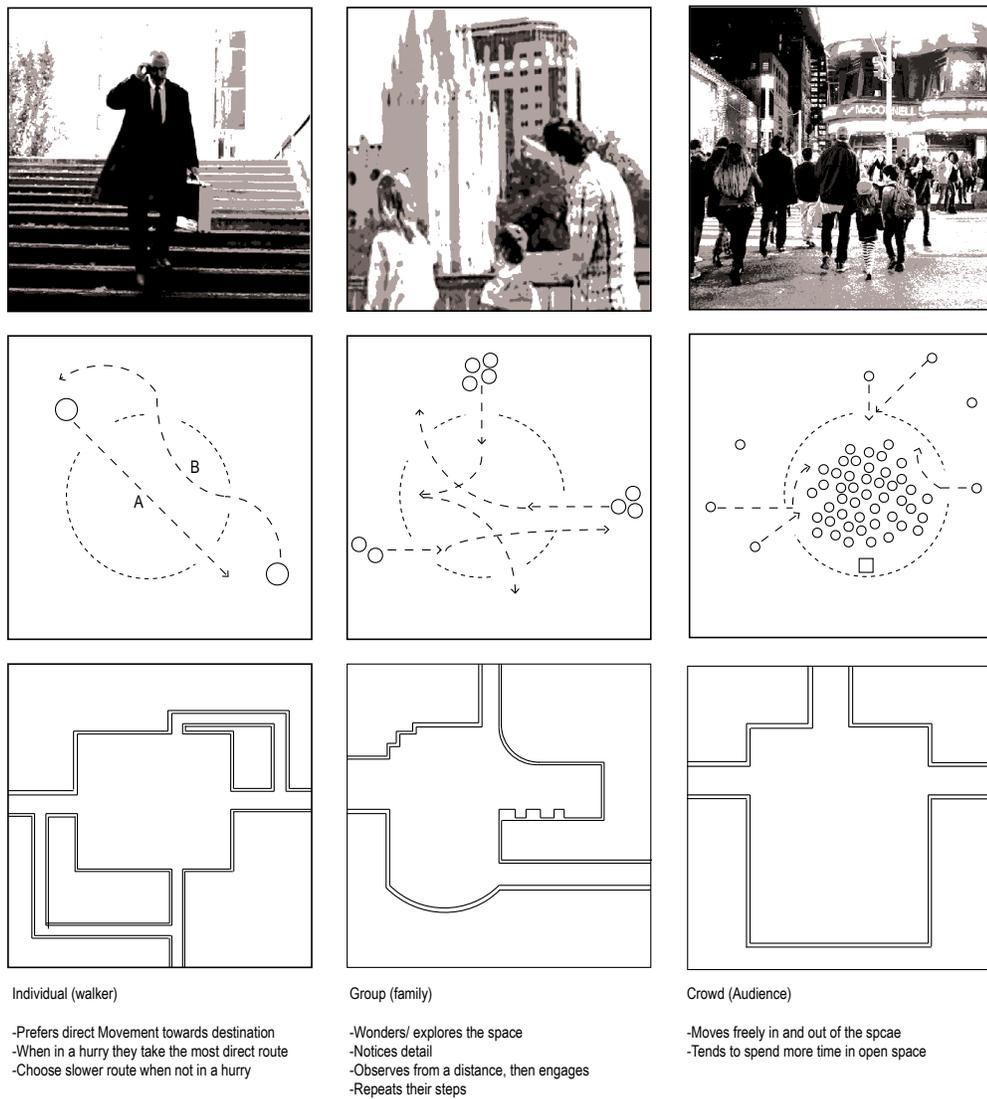
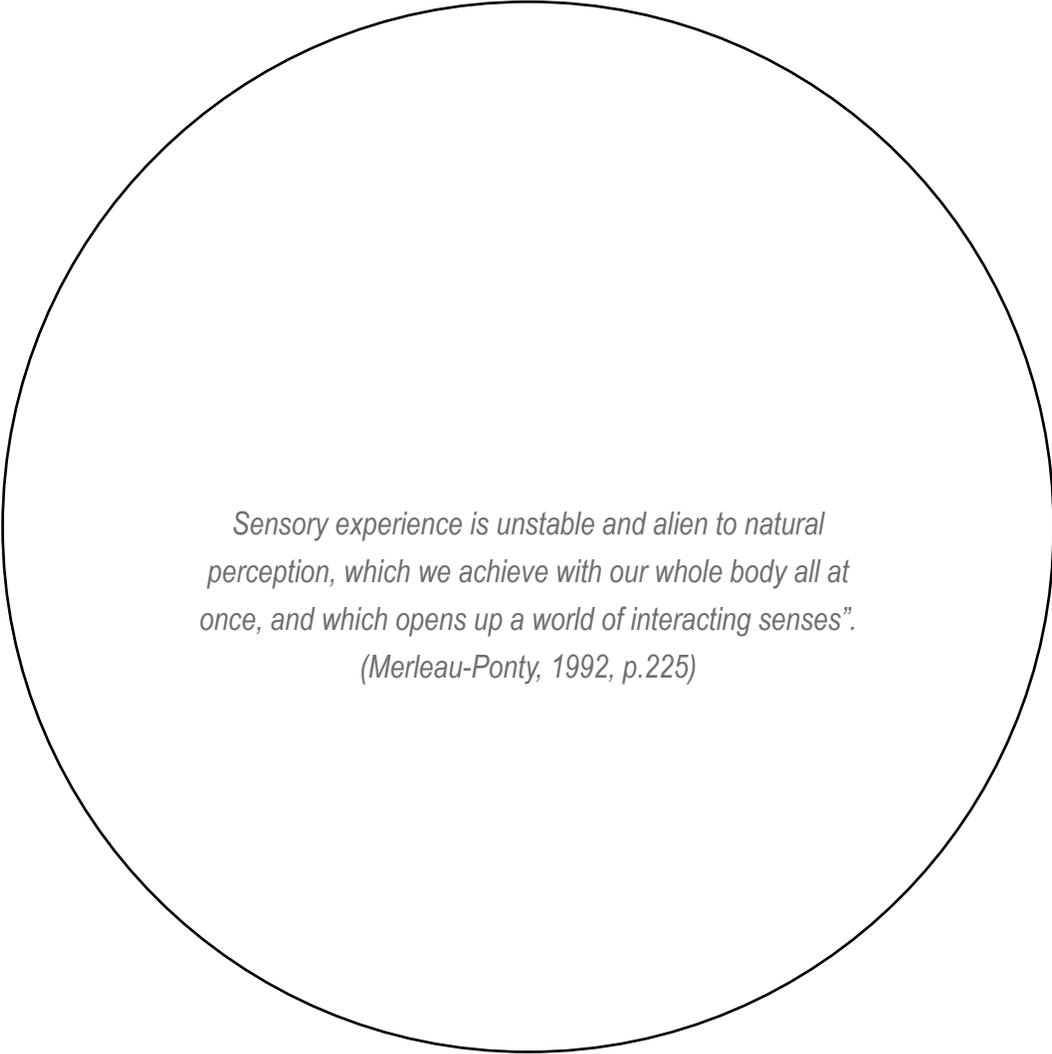


Figure 70:
Pedestrian
Movement

6.7 Architectural Proposal



Sensory experience is unstable and alien to natural perception, which we achieve with our whole body all at once, and which opens up a world of interacting senses".
(Merleau-Ponty, 1992, p.225)

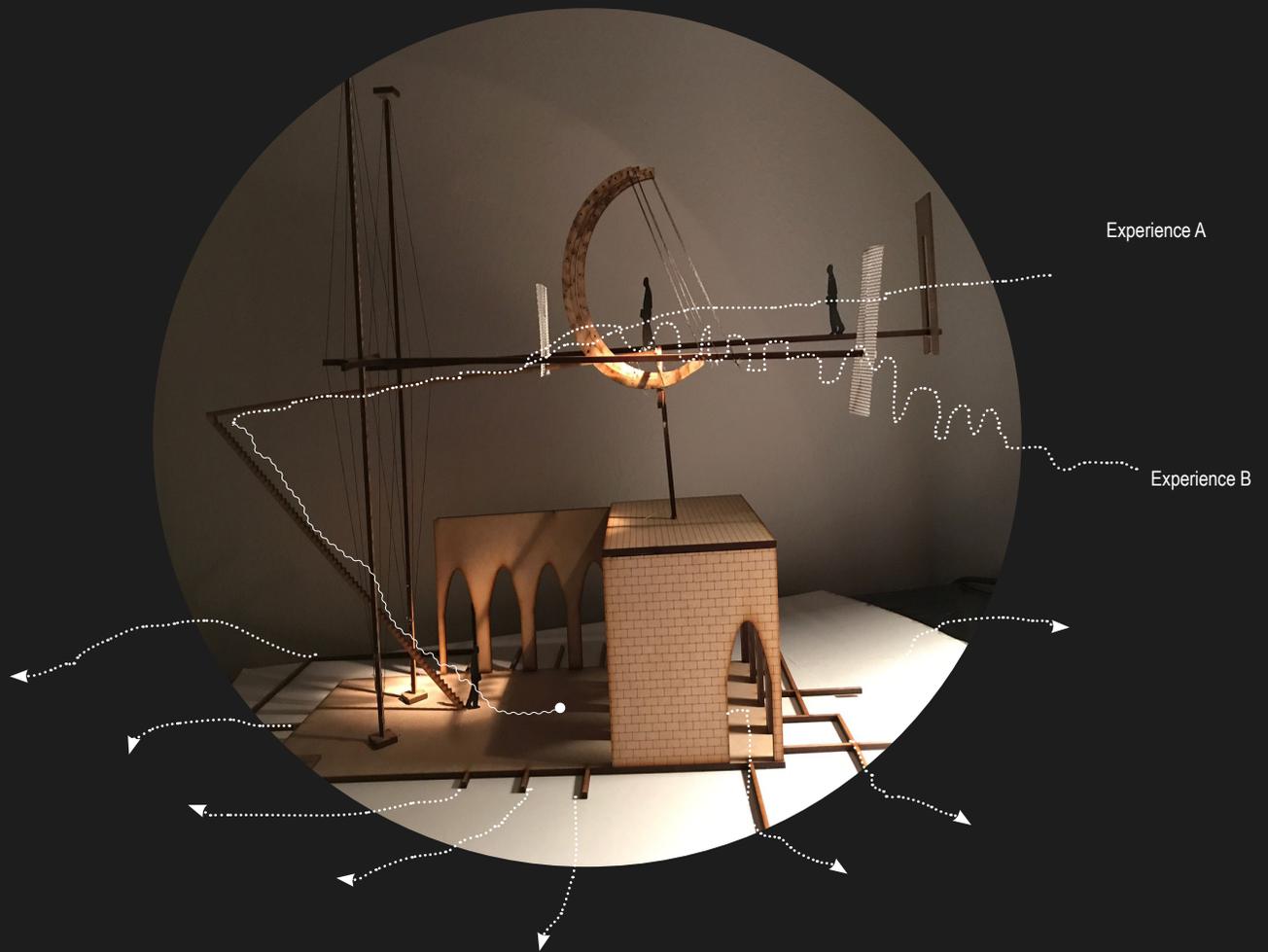


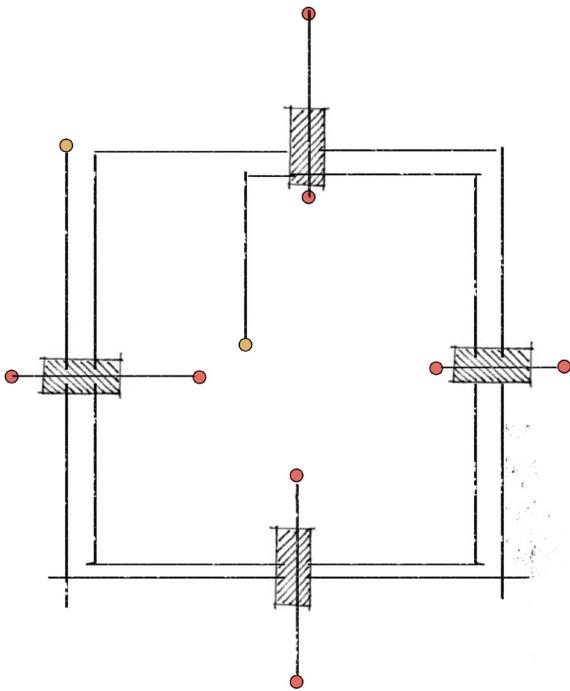
Figure 71:
Concept
Methodology

As this thesis argues, our senses enable us to imagine. We can therefore imagine spaces that we cannot see, and feelings that we cannot explain. All of these are what make the human body a complicated organism. The second our vision spots an object, our mind immediately reacts, making assumptions about the object's texture, structure and origin. This instantly connects us to our tactile sense and our ability to engage physically with an object. The body and the mind, therefore, work together to become fully aware of our own existence in space and in relation to what is around us. Those surfaces that surround us share co-dependent relationships, in which their effects and existence depend on the support from another.

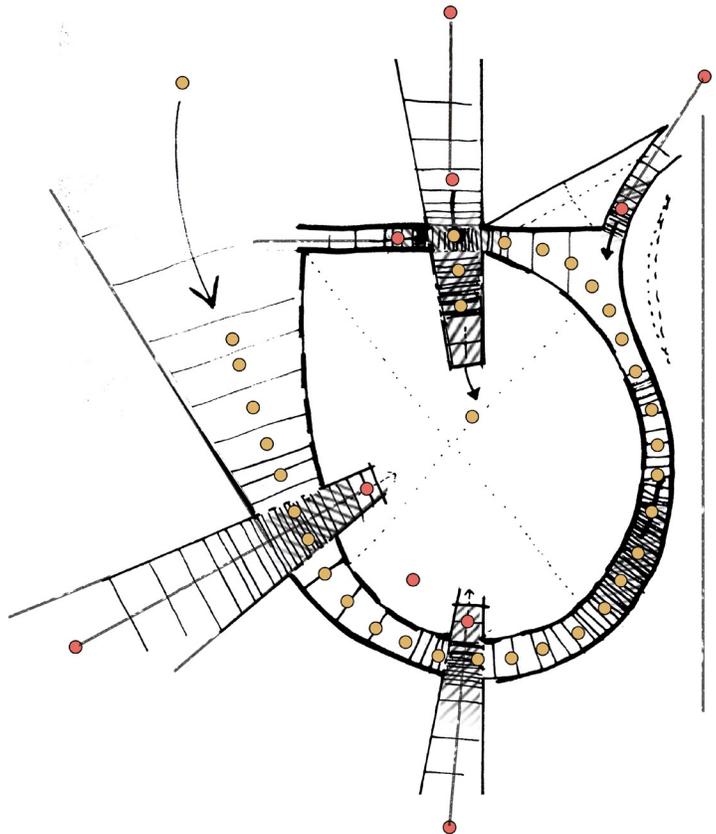
The Surface as Occupied Space

The architectural proposal in this thesis suggests a multi-layered public space that intrigues pedestrians and provides a useful open space for outdoor events. By applying the methodology uncovered by this thesis, the concepts of Continuity, Surprise and Action can be explored in the new proposal for the public square. In Figure 72 image B, the open space that will hold annual and daily events, is surrounded by a series of layered and interacting pathways. Although they are meant for circulation, they also function as Travel Spaces. They are spaces where the body moves from dark to light, open to enclosed, using the combination of the vertical and horizontal surface to do alter the body's senses.

(A)
Disruptive Surfaces Methodology



(B)
Design Concept



- Main Experience
- Secondary Experiences

Figure 72:
Design Concept
Diagrams

The yellow dots demonstrate the main journey, in which the pedestrian would experience the entire composition before merging with other pathways to enter the open space. The red dots demonstrate the moments of disruption, where the main experience is interrupted by secondary entrances, and the elements they bring along with them. These moments confront the person on the main pathway with changes in light, materiality and sense of direction.

The Layered Surface

By increasing the spatial sequence through techniques of multi directional layering, the design aims to make the architectural surface an active element in the pedestrian experience. It does so, by using a combination of layered surfaces, both vertically and horizontally. The new design promotes heightened perception, as it engages with the body in motion and repose. As these are the most engaging forms of bodily positioning, it allows for more detailed interaction between the human body and the surfaces that surround it.

This concept is explored through the creation of an exterior public square that contains various places of leisure, entertainment and business above and below grade. The new open space is surrounded by a series of circulation paths that gradually move pedestrians to the Path Network below grade. Multiple access points bring them down to meet the first level of The Path Network by a series of multiple ramps and stairways. Each one creates a travel space that gradually transforms the engagement of the pedestrian's senses, before they are merged into one point. This point brings pedestrians down into the open space, which meets the lowest level of The Path network. From there they can observe the entire composition all at once.



Figure 73:
Multi-directional Layering



Throughout the design, the vertical surfaces engage the senses visually, while the horizontal surface engages with them physically. This relationship creates depth in the overall sequence of spaces.



Figure 74:
Vertical and Horizontal
Surfaces

Movement Concept

In this design, the interface between one space and another challenges the notion of 'imagination'. Through layered and perforated surfaces, the pedestrian's gaze is temporarily and constantly obstructed, forcing them to use their imagination of what may lie ahead. This sparks feelings of intrigue. As they travel through the sequence of intermediate spaces users become most aware of their physical and mental presence. In all instances, the spatial volume begins as a light-filled and open atmosphere before it turns into one that becomes more confined and enclosed. The contrast between light and dark continues as pedestrians move along each of the paths. This overall effect is heightened by environmental factors that alters the contrast between spaces. The gradual shift from one space to another causes a mental disruption as the human body suddenly realizes they have entered a different physical and mental realm.



Overall, the pedestrian perceives the design as one continuous loop that functions as a multi-dimensional composition of surfaces. If the user starts on grade, they would first encounter the multi-layered trellis structure which obstructs view across the site and casts shadows into the surrounding spaces. From there they continue down a ramp that intersects with the secondary entrances at specific points. Next, they enter another space which prompts them with decisions on which path to take next. Finally, they may descend down into the open space where they can choose to shop in the arcade, enjoy the view from in the cafe, or continue on into the rest of the Path Network. Which ever travel space they choose, their journey is constantly disrupted by a new atmosphere and spatial character.

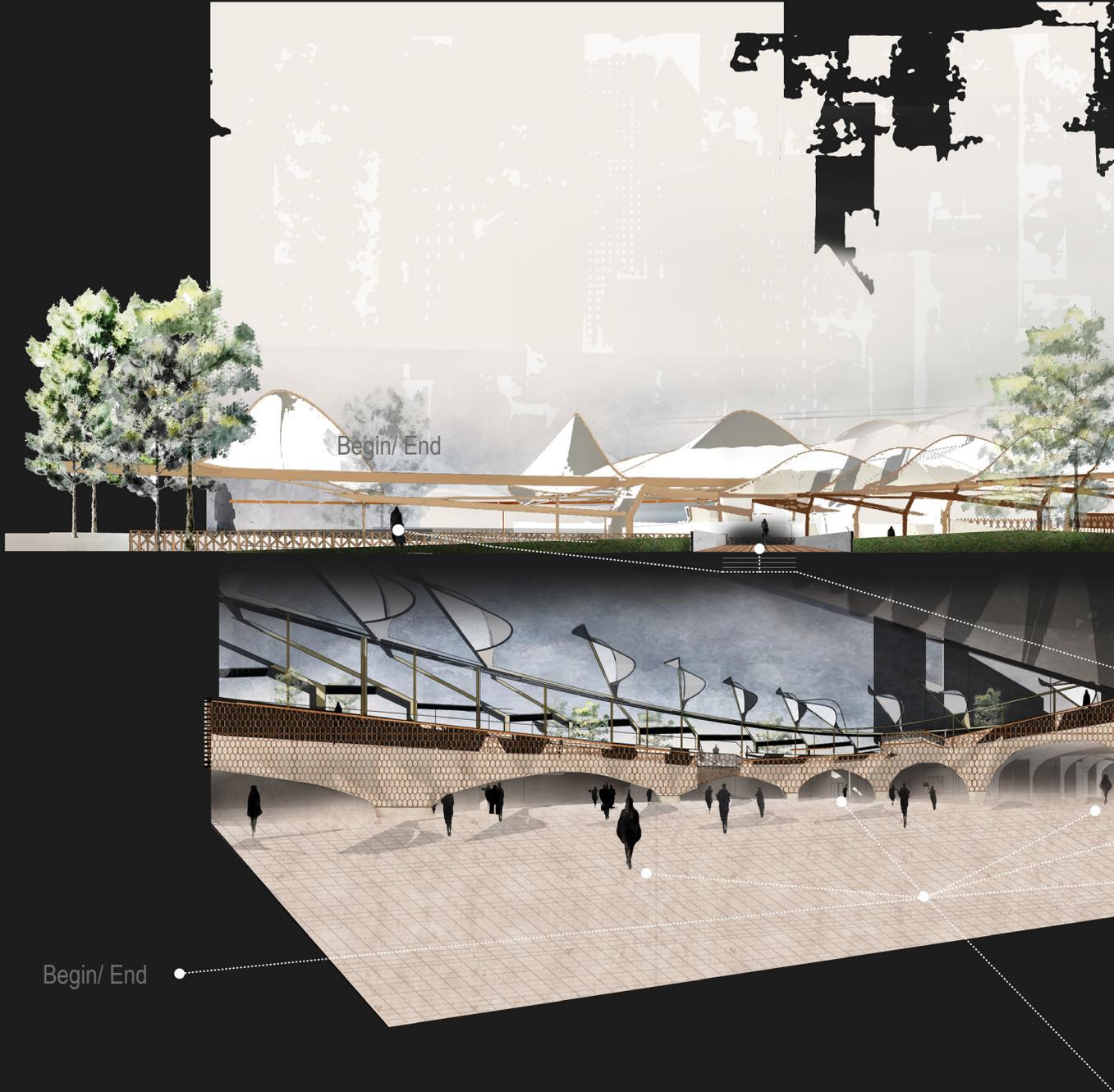
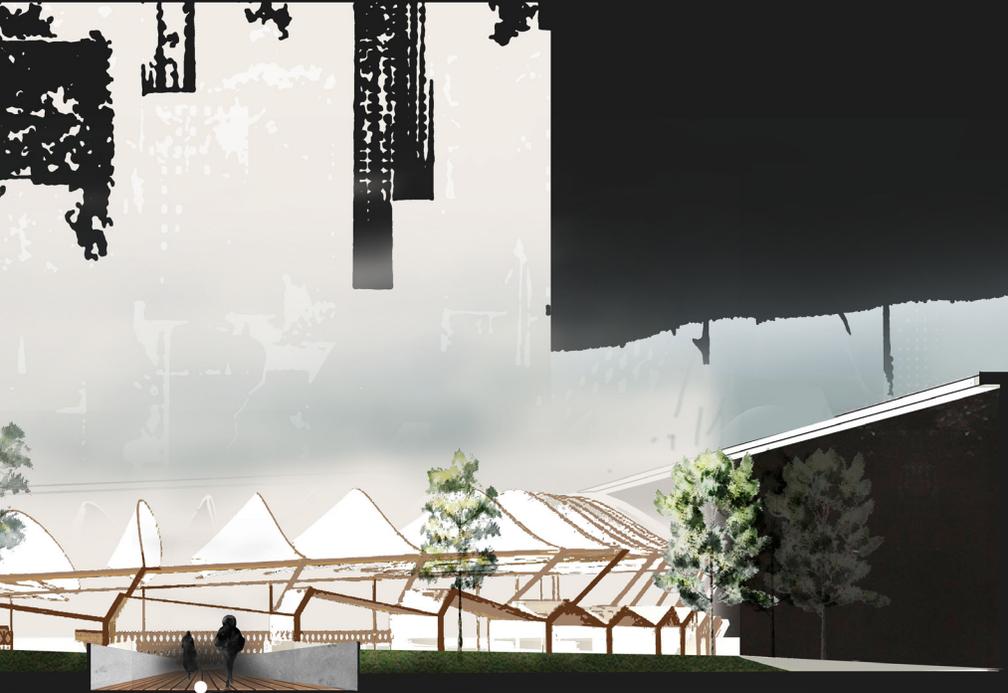


Figure 75:
Concept Section



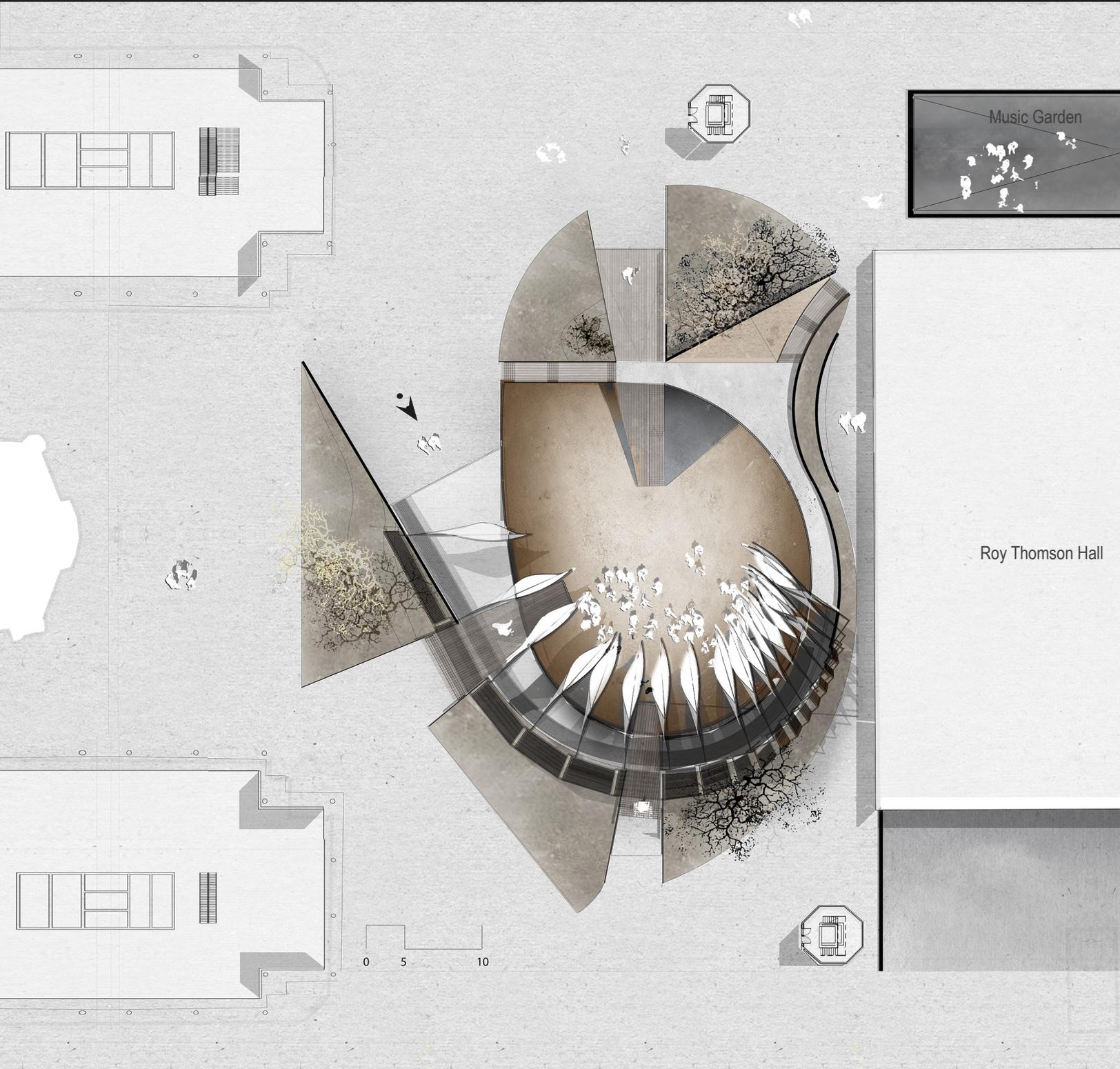
Begin/ End

The Surface in Sequence

Ground Level

Beginning the journey on grade, the pedestrian may choose to take any entrance they desire. All entry points to the open space lead directly from the surrounding streets which includes: King st from the north, Simcoe st from the east, Wellington st from the south and John st from the west. The main entrance however, leads from a more neutral position of the site. When using the main entrance, a ramp brings pedestrians through the design sequence, as they start to leave behind the busy urban realm and begin to encounter travel spaces that bombard the senses with a strengthened sense of materiality, texture and condensed light, during their elongated descend into the open space below. Each space contains its own distinct characteristic not normally encountered in the contemporary city. This results in a continuous loop of disruption in the user's urban encounters.

KING ST W



Music Garden

Roy Thomson Hall

Figure 76:
Grade Level



WELLINGTON ST W



The Approach

Upon approaching the site, the pedestrian becomes drawn to the design's park-like setting. The wood and fabric panel material palette immediately registers in their mind as a unique combination of surfaces in the urban realm. The semi-transparent nature of the fabric panels and the perforations in the wood structures creates a sense of mystery. What occurs on the other side of these surfaces remains partially hidden until the pedestrian gradually gets closer to the surfaces within the design.

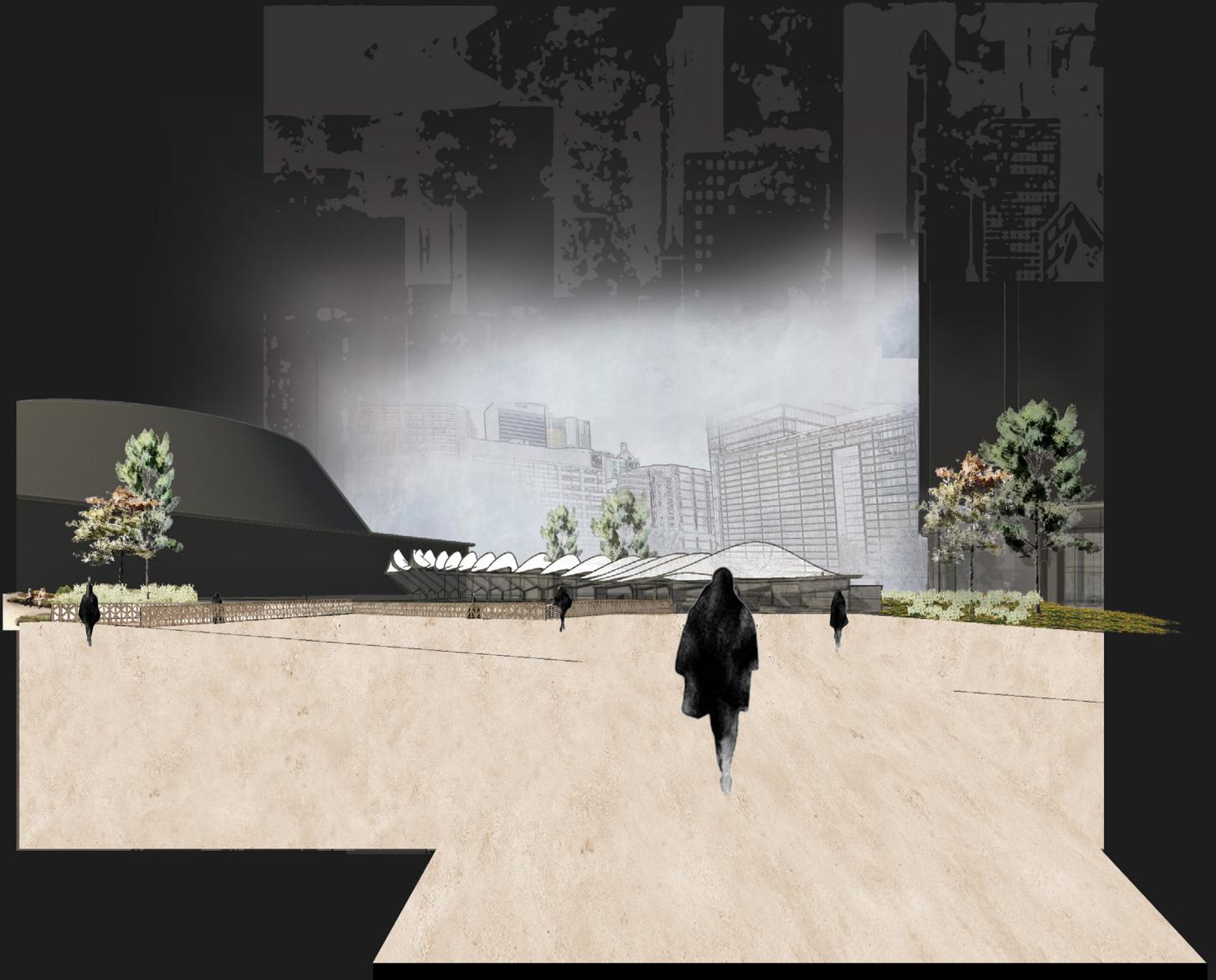


Figure 77:
Movement Sequence : The Approach

The Puncture

The main travel path is defined through a partially covered ramp. This ramp gradually brings pedestrians down to meet the first level of The Path Network. Two supporting entrances along the ramp lead from various directions on the site. Throughout this journey, a lattice wood structure and overhead fabric panels, that move according to the wind, surround the pedestrian. These elements work together to create a structure that naturally fits in with the park setting on grade, while visually connecting it to the space below. In addition to being visually pleasing, the structure creates multiple effects to provide the user with a heightened experience as they move from one point to another. The wood lattices are layered vertically and horizontally, creating a visual obstruction to the spaces on either side. Along with the fabric panels, the lattices work as a shading device, as they become denser towards the lower end of the ramp. This creates a dynamically shaped atmosphere that changes throughout the day, depending on various environmental conditions. As a result, the body becomes aware of temperature changes, engaging with their senses to their fullest potential.

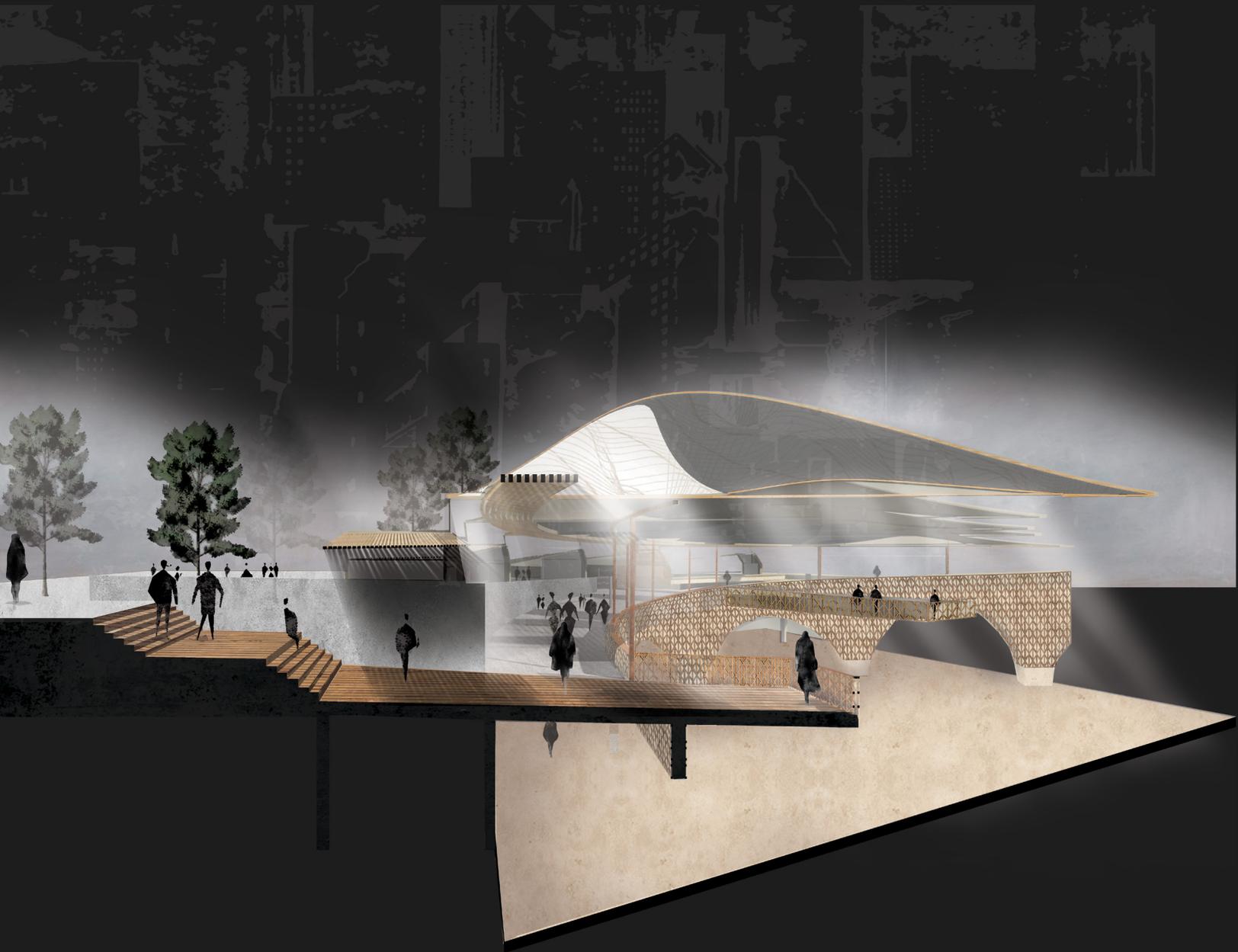


Figure 78:
Movement Sequence : The Puncture

Path Level A

Once users descend to the second level of the space, they arrive at the first level of the existing pedestrian path network. Here, the user is presented with opportunities to change direction, using the gradients of light to guide them. From behind angled and curved walls light, from the spaces beyond them, spills in and creates creating a heightened sense of positioning in relation to other spaces within the design. This experience would vary depending on the time of day, causing the users' mind and body to intimately interact with the spatial sequence in different ways on a daily basis.

MAY

KING ST W

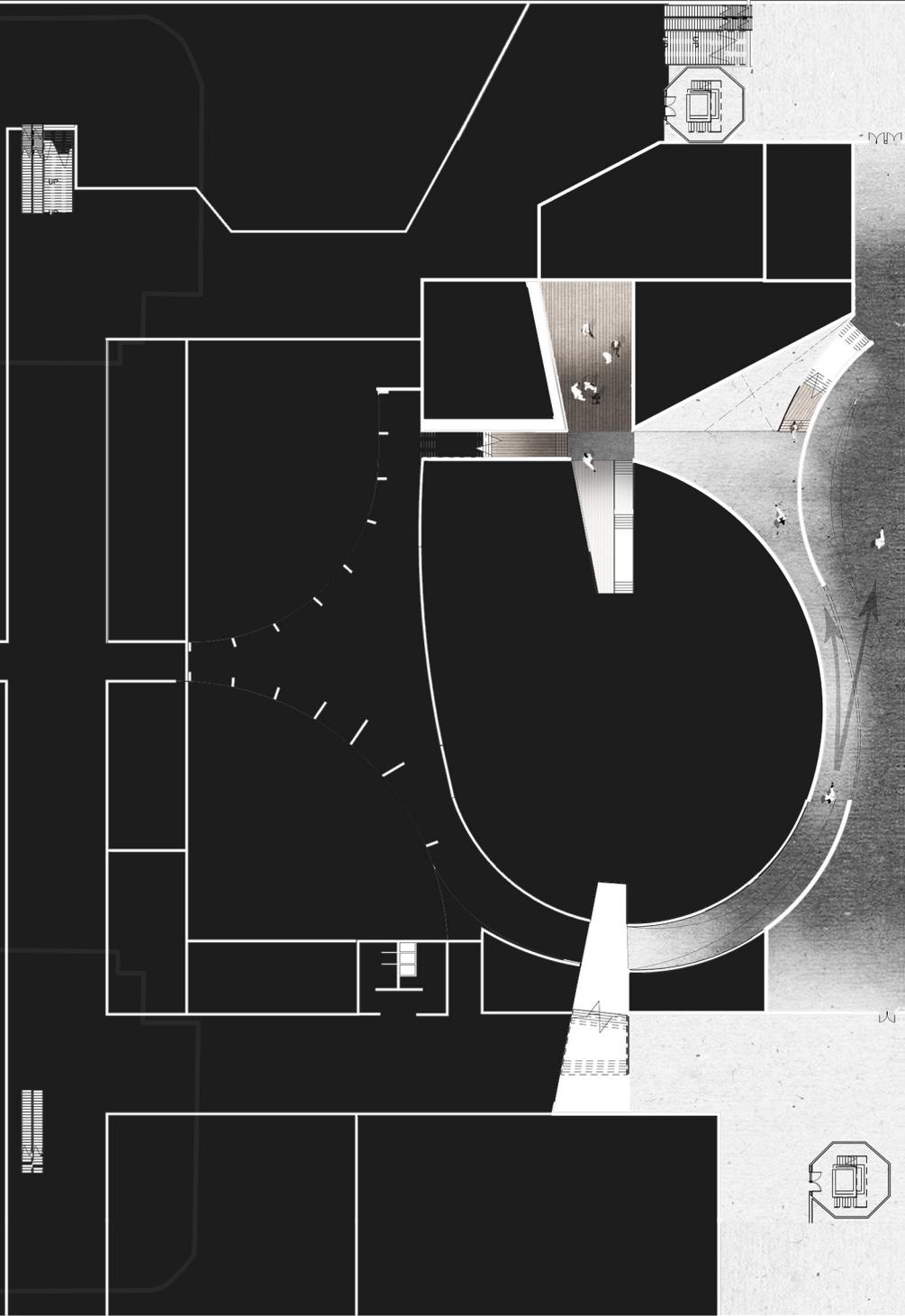


Figure 79:
Path Level A

0 5 10 20

WELLINGTON ST W



The Decision

As pedestrians continue along the path, they encounter other portals, leading to other spaces. Here the overhead surfaces disappear, and the vertical surfaces start to support the enclosed experience. The first encounter is with a perforated brick wall that divides the space into two zones, yet connects them visually. The wall not only supports the viewing deck above, but it also creates a contrast between spaces. This makes the surface a structural necessity, while also being an definer of atmospheric conditions. At this moment, the pedestrian must choose which direction to take, as they decide between the open or enclosed space. Depending on which space they choose, their final destination will lead to an entirely different experience. On one hand, one space leads to the rest of the first level of the underground path, while the other leads to the vibrant open space below. This contrast furthers the sense of intrigue and awareness as one continues walking along the main travel path.

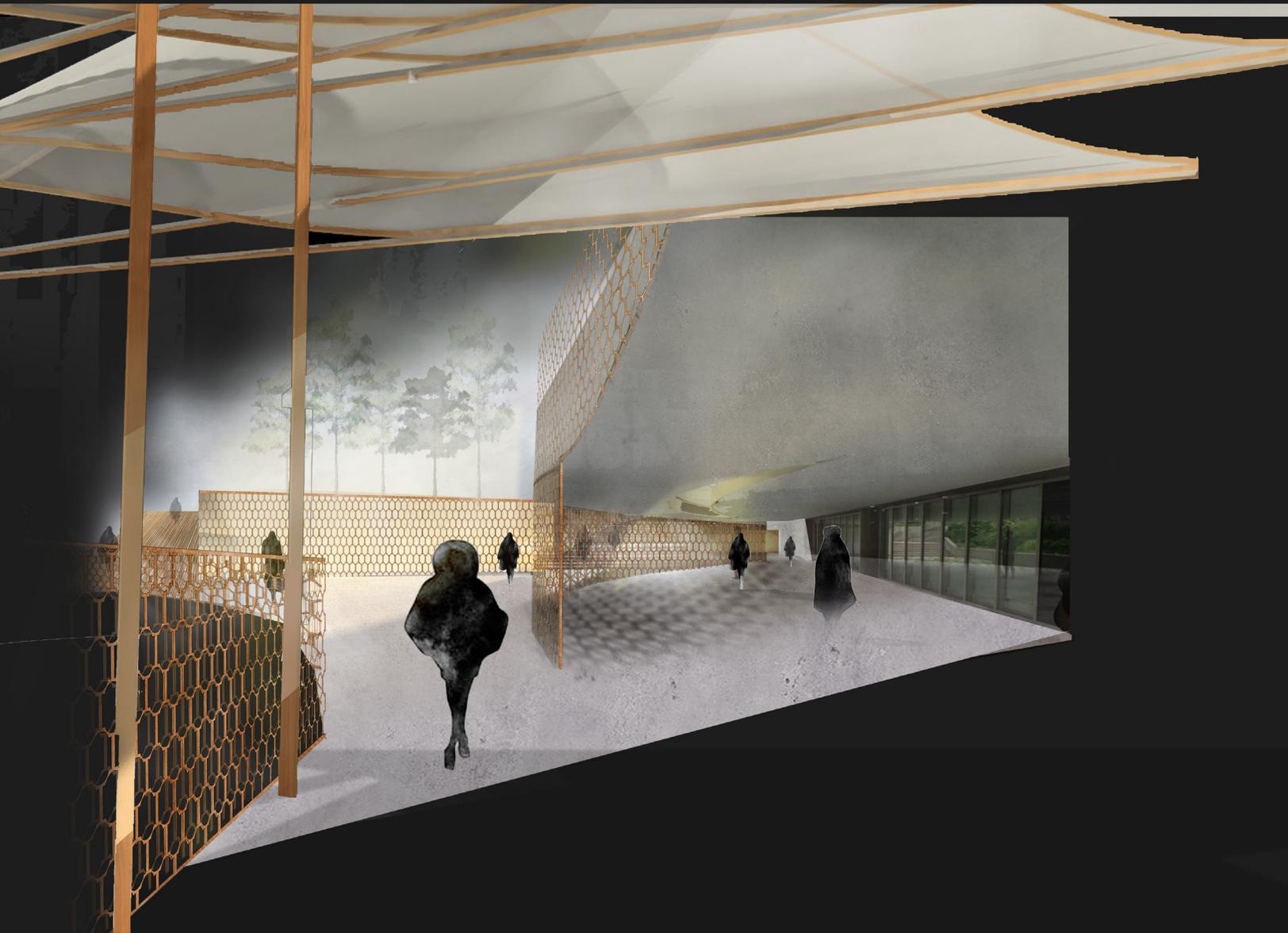


Figure 80:
Movement Sequence: The Decision

The Transition

The last point along the travel path confronts pedestrians with another decision. Here they can choose to exit the main travel path using the entrances and exits there, or they can descend directly into the open space below, continuing their journey. This space meets the lowest level of The Path Network which contains pre-existing and reconfigured retail shops as well as a newly proposed food court area that overlooks the open space. Within this inscribed space, the pedestrian becomes part of the entire sequence all at once. Their gaze is connected to every part of the travel path either directly or partially, enabling them to acknowledge where they began their journey and where they will head next. This orients the pedestrian instantly and gives them another perspective of those spaces previously encountered as they now look upon them from the 'outside'. An archway with a textured wood lattice pattern extends along this level, surrounding the space with porosity, shadows and darkened corridors that lead to the interior of The Path Network. This creates yet another spatial condition that is 'in-between' two spaces. This activates the open public space, making it a key area for public activity, yet an intimate place for sensorial engagement. In this semi-sheltered place, performances can take place, individuals can sit and relax or pop-up markets can spread out in the middle of the space. Either way, the space's flexible nature and disruptive techniques are designed for enjoyment by all.



Figure 81:
Movement Sequence: The Transition

Path Level B

At the lower-most level of the space, users follow a ramp and stair arriving at the grand open space. Their bodies directly face a stage area that is designated for performances. The space is open to above, and is surrounded by a smooth finished concrete floor that spills into the surrounding arcade through a series of archways. This provides a visual aesthetic that is not normally encountered throughout the city. These elements also give users a more intimate public experience, as they shop, sit and relax at the cafe, or as they walk through the open space. An angled portion of the floor forms a natural water puddle on rainy days, providing users with an experience of nature's elements below grade.



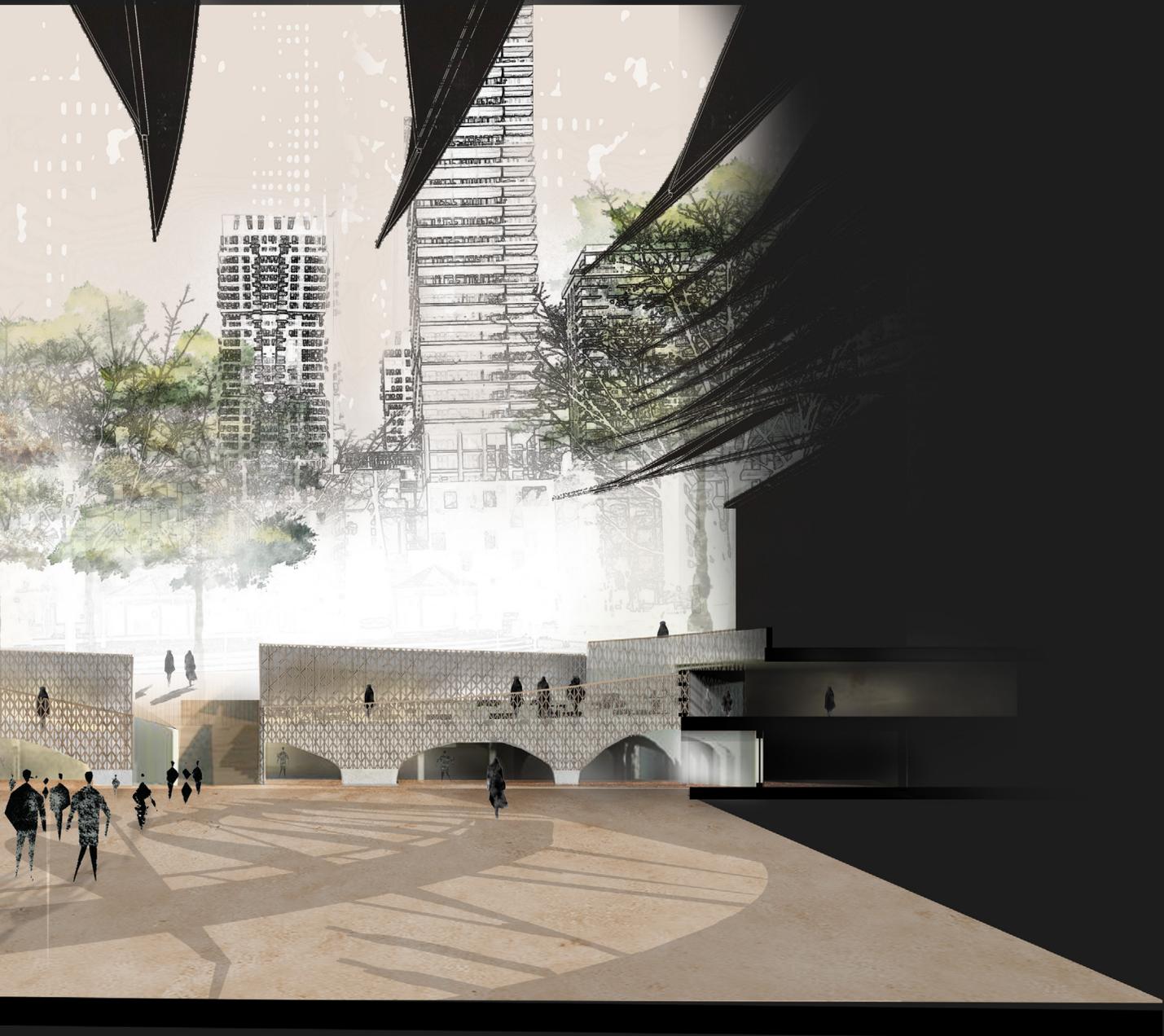
Figure 82:
Path Level B





Figure 83:
Design Section

On this level, pedestrians intimately connect with the whole material composition, all at once. They are now able to reflect and look back at where they once were and where they will head to next.



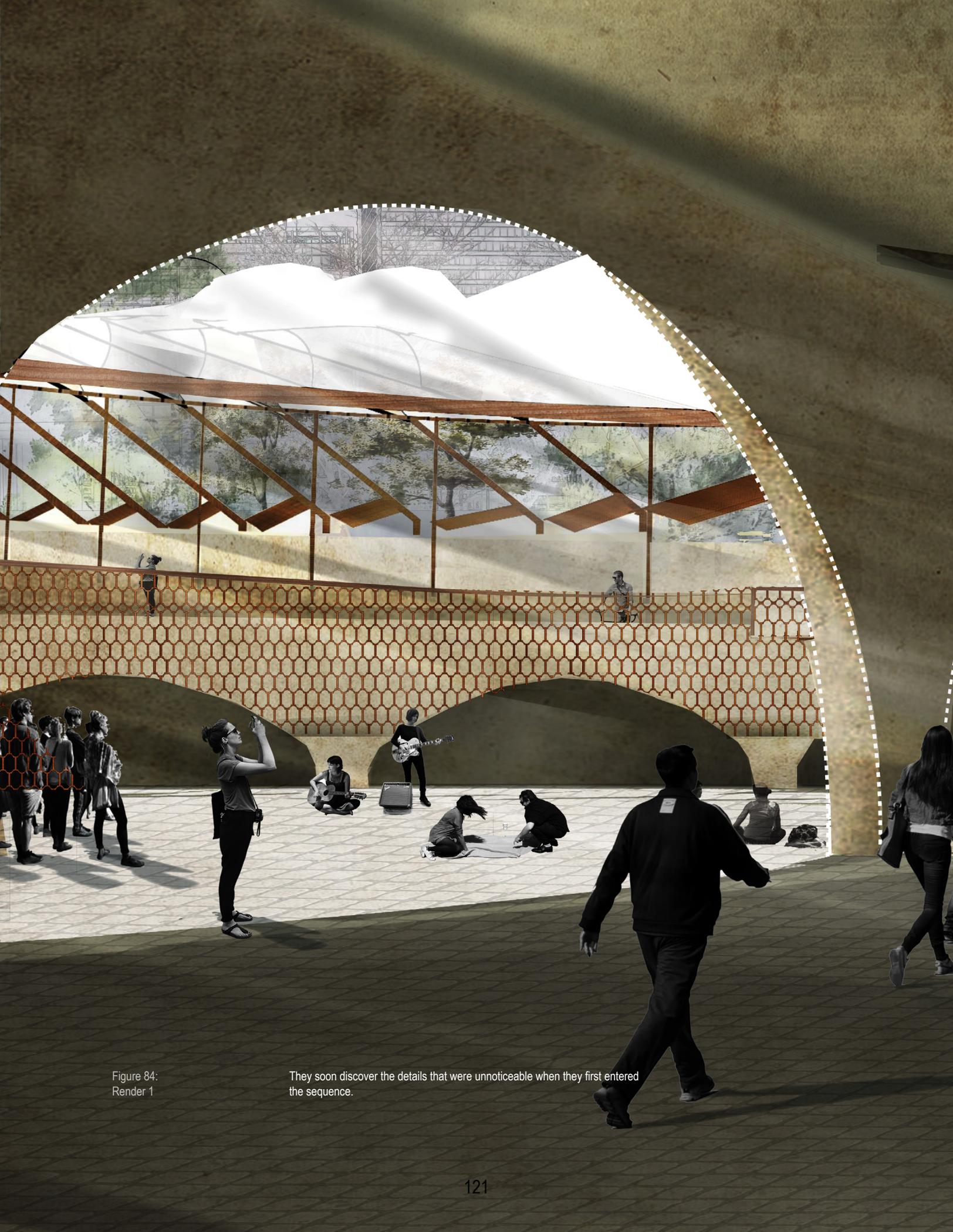


Figure 84:
Render 1

They soon discover the details that were unnoticeable when they first entered the sequence.





Figure 85:
Render 2

They begin to understand how their bodily position plays a large role in controlling their experience of space and the surfaces that surround it.

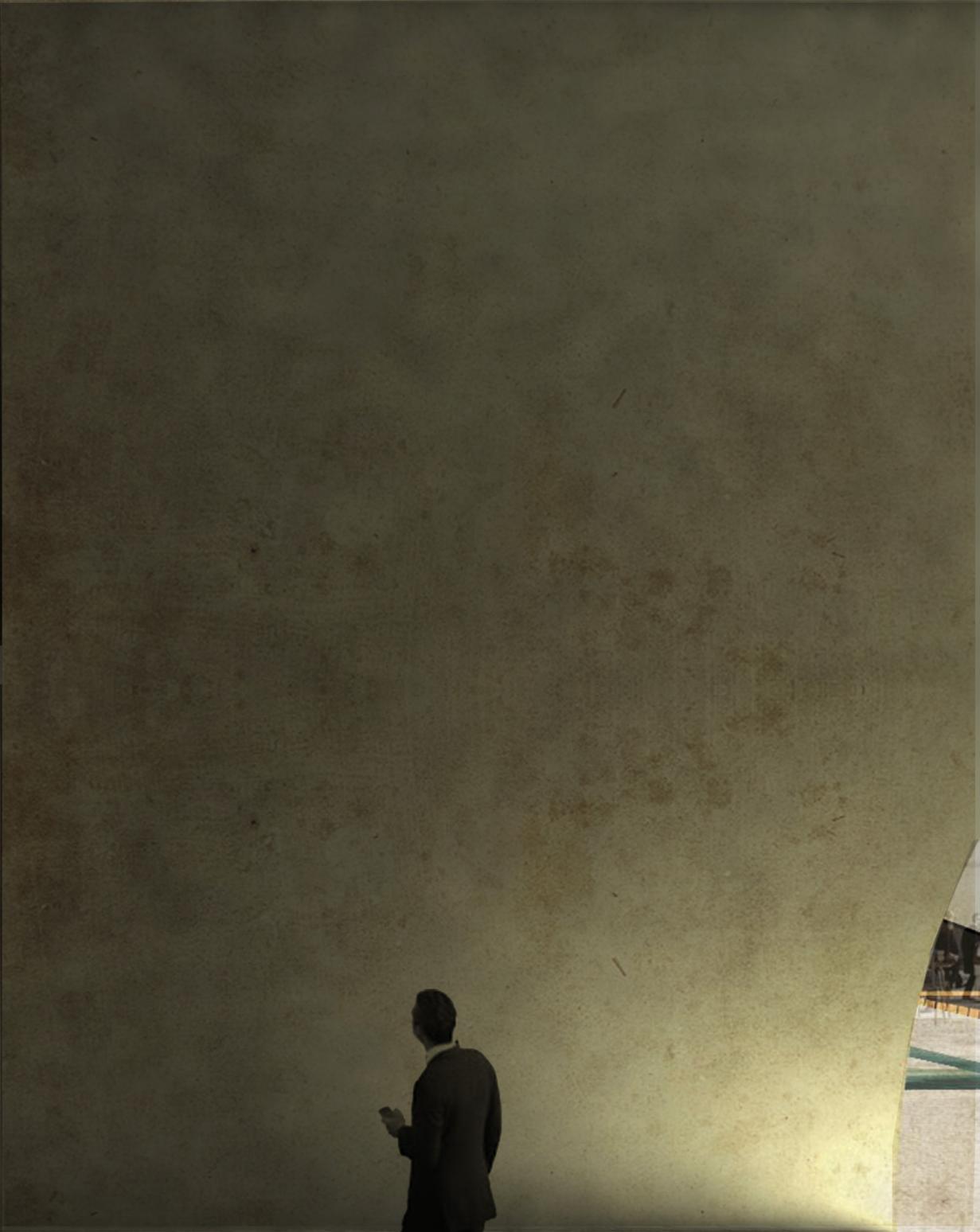




Figure 86:
Render 3

They begin to feel connected to other pedestrians and become aware of their actions in space.



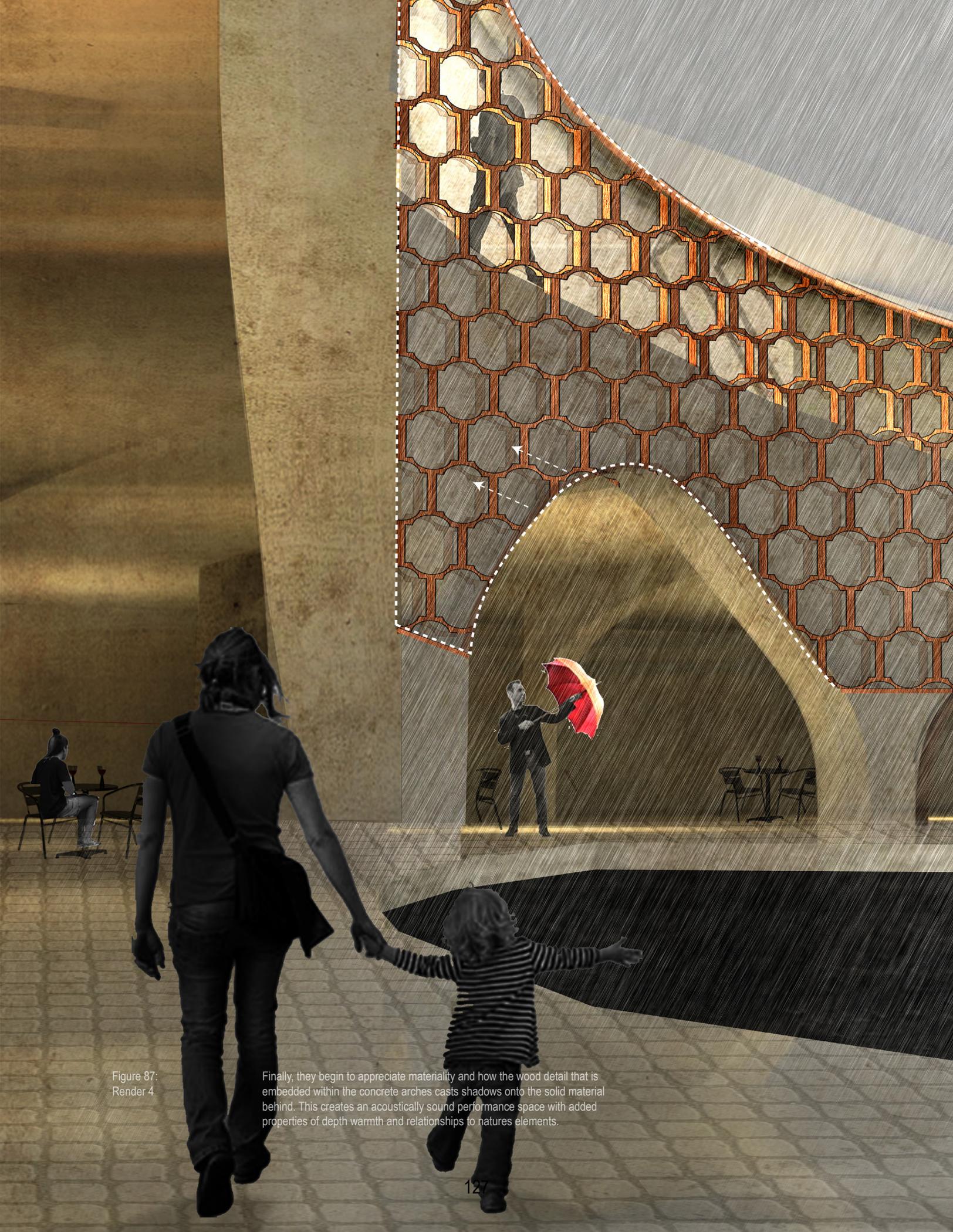


Figure 87:
Render 4

Finally, they begin to appreciate materiality and how the wood detail that is embedded within the concrete arches casts shadows onto the solid material behind. This creates an acoustically sound performance space with added properties of depth warmth and relationships to nature's elements.

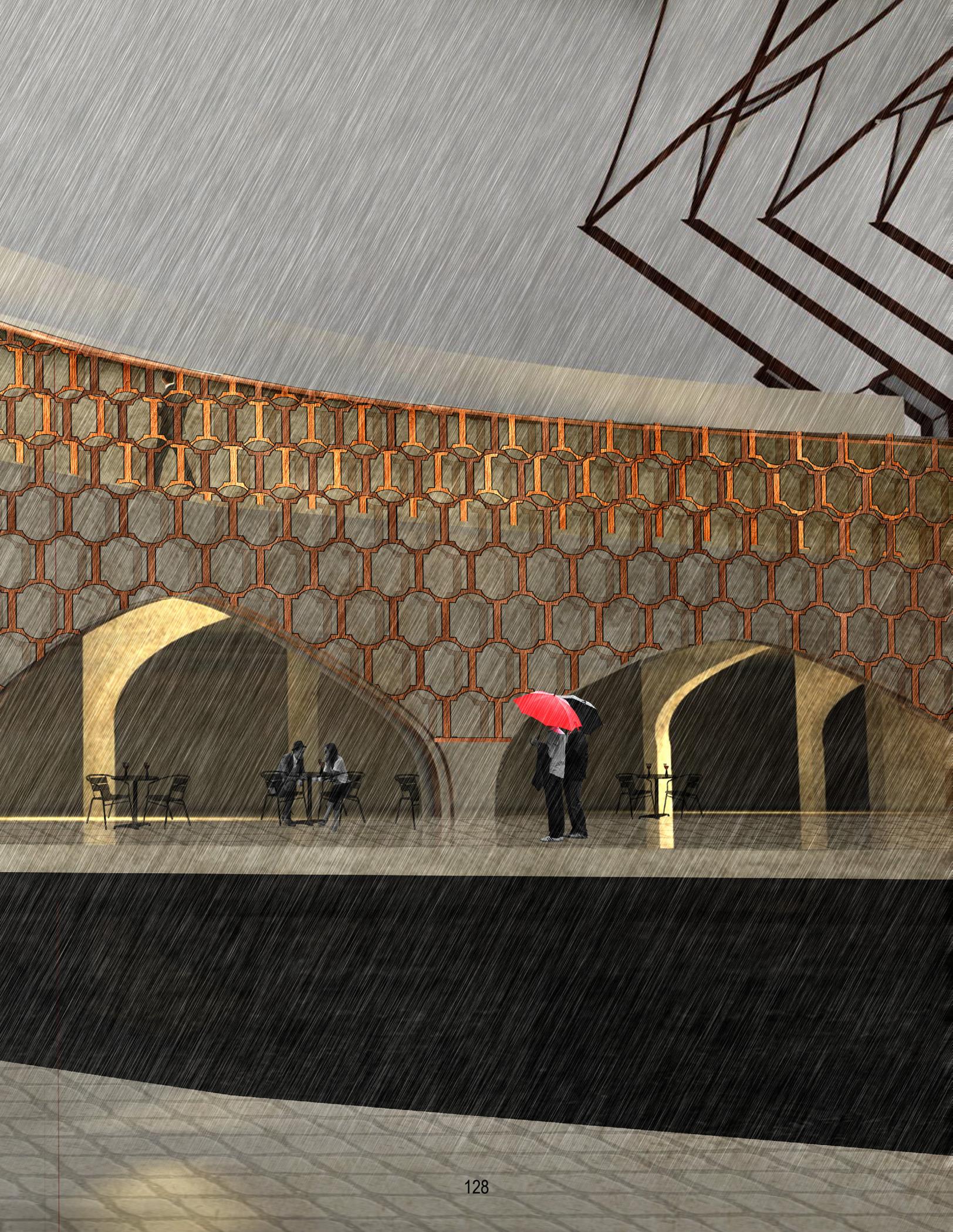




Figure 88:
Model Photograph 1
Detail Model

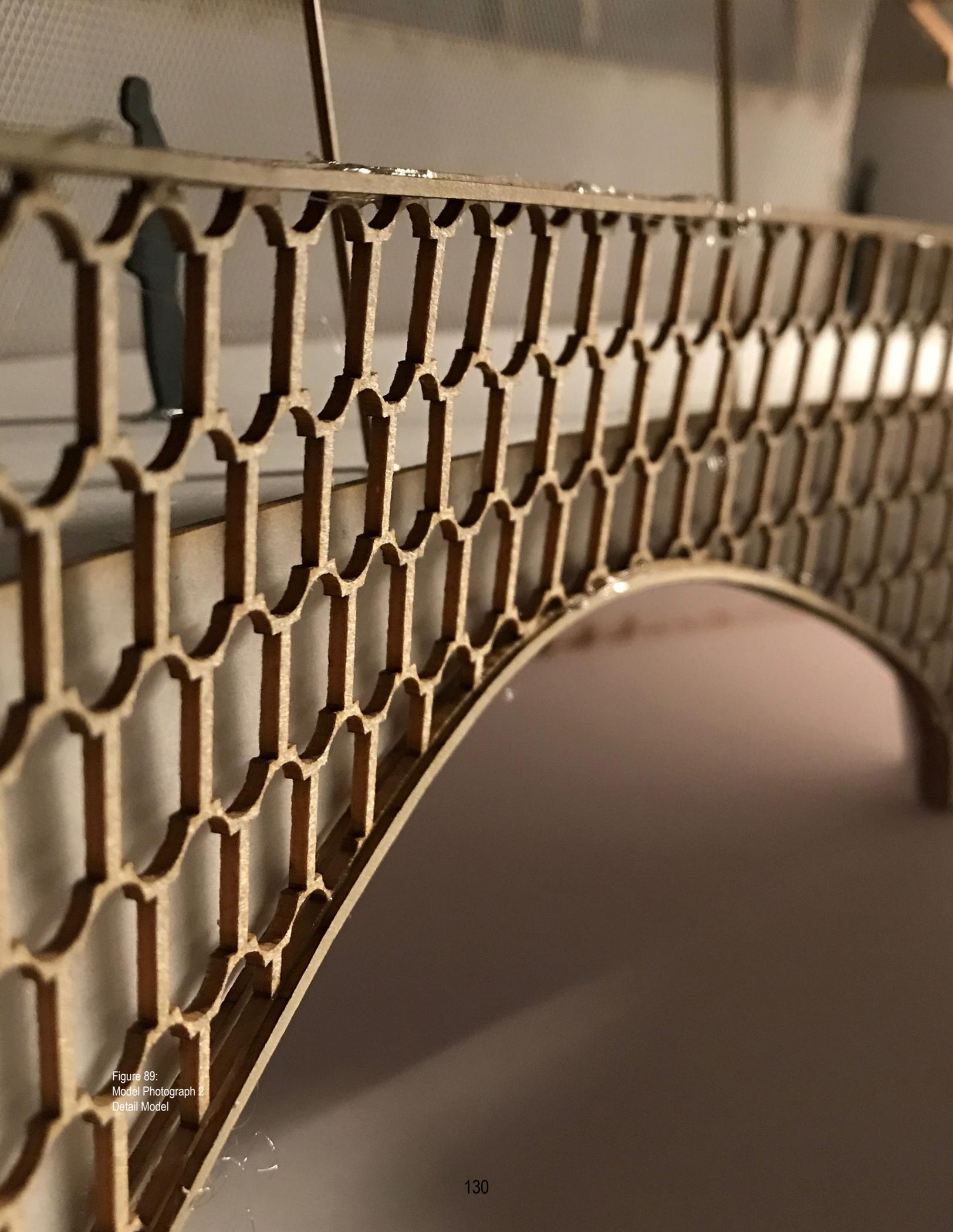


Figure 89:
Model Photograph 2
Detail Model



Figure 90:
Model Photograph 3
Detail Model

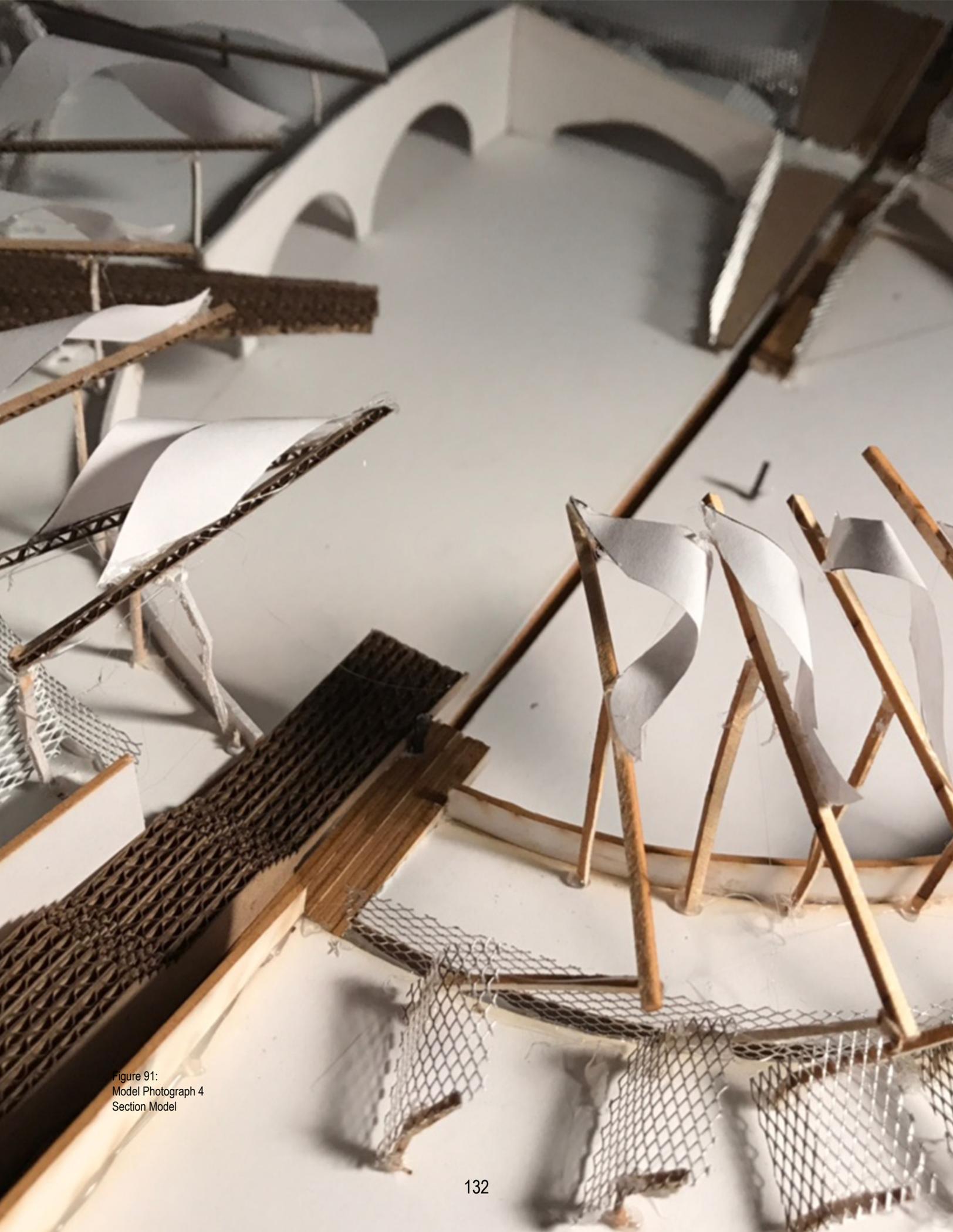


Figure 91:
Model Photograph 4
Section Model

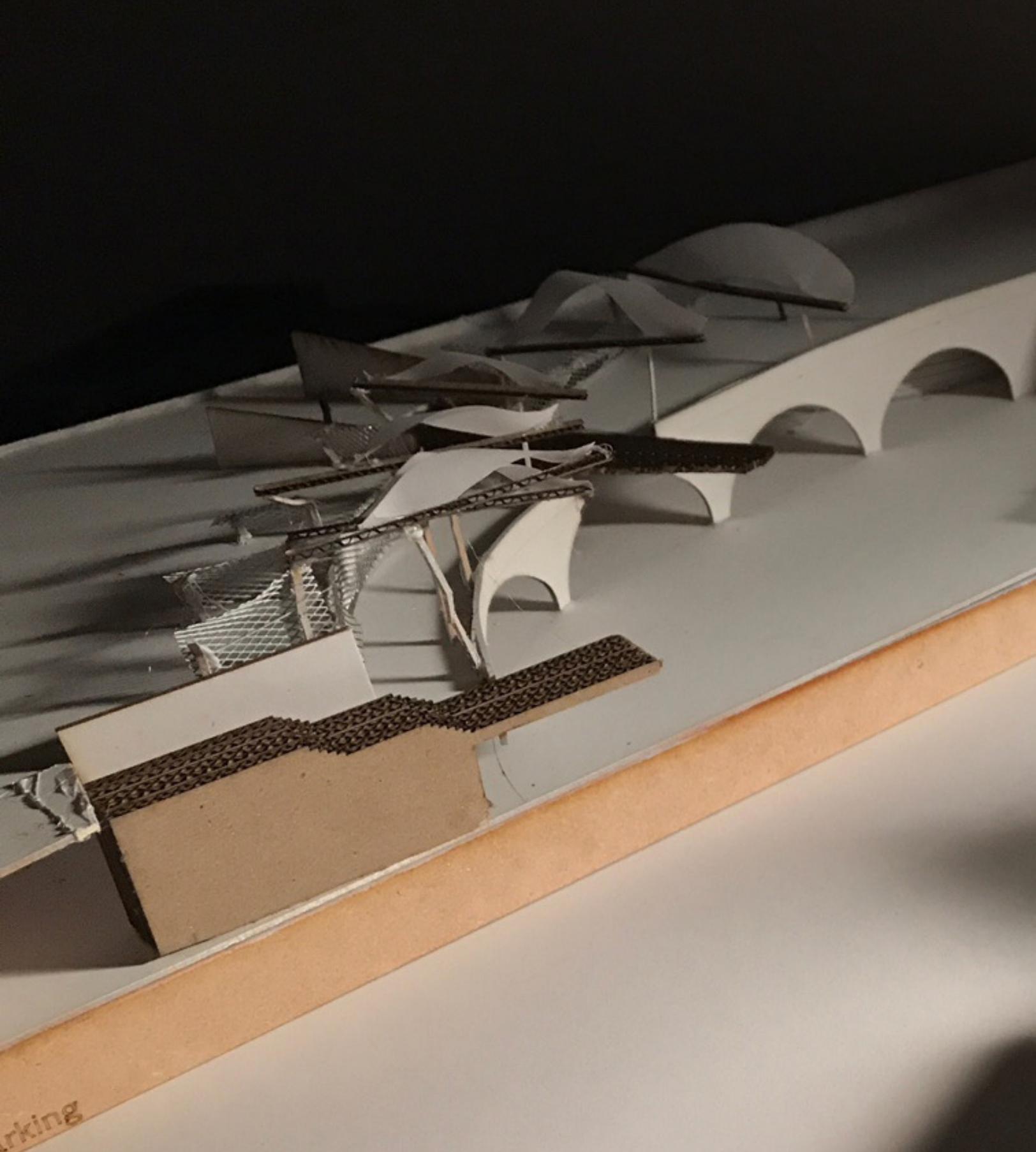


Figure 92:
Model Photograph 5
Section Model





Figure 93:
Model Photograph 6
Detail Model

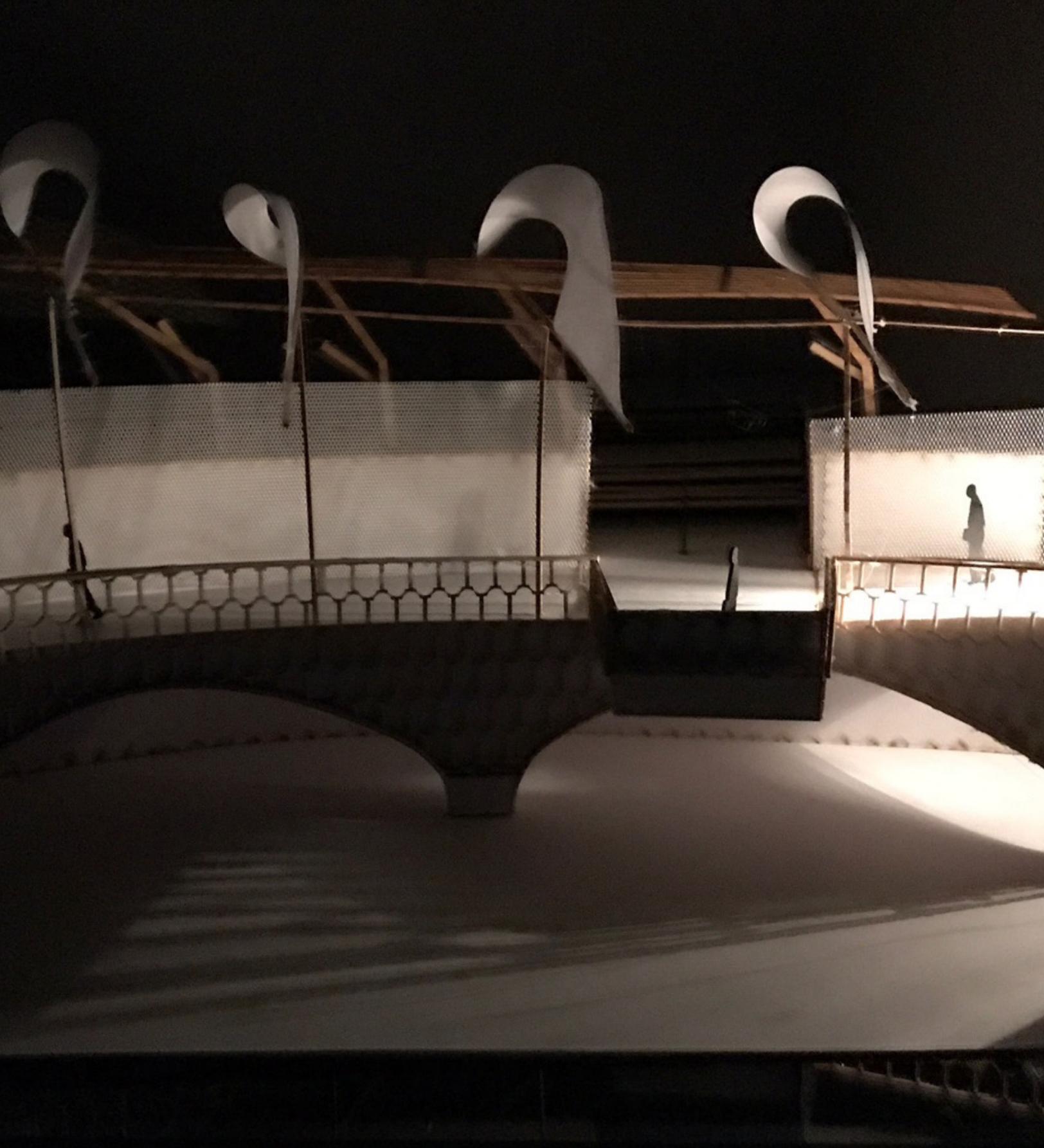


Figure 94:
Model Photograph 7
Detail Model

7

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Design Development

•

Design Development

All in all, the enjoyment of public space stems from the composition of surrounding surfaces and their ability to intrigue our senses. Throughout this design, the surfaces that define the open performance space and its multi-dimensional travel paths, animate the site, creating a dynamically articulated space of physical and visual intensities. The images to follow demonstrate another possible design approach, in which the arcade is defined through a series of columns, rather than arches that surround the open space. This demonstrates the flexibility of the design sequence, and shows the impact of one form or spatial division (the arches) versus another (the columns). although the overall sequence of the design remains the same, each option for the surrounding surface generates a different atmosphere in the space. This shows that simple gestures or manipulations in the architectural surface can drastically affect the feeling that is felt in a public space. This is why it is crucial to ensure the flexible design that can please society as a collective whole and not just one individual at a time.

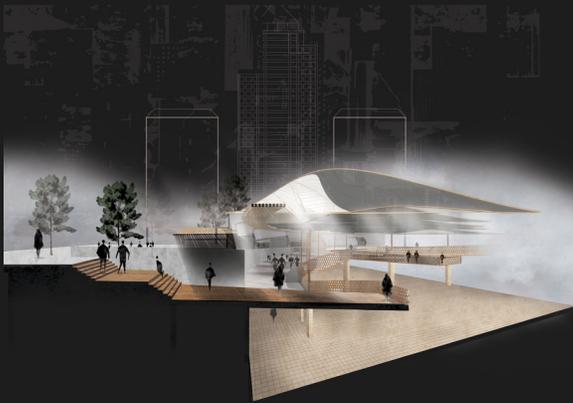
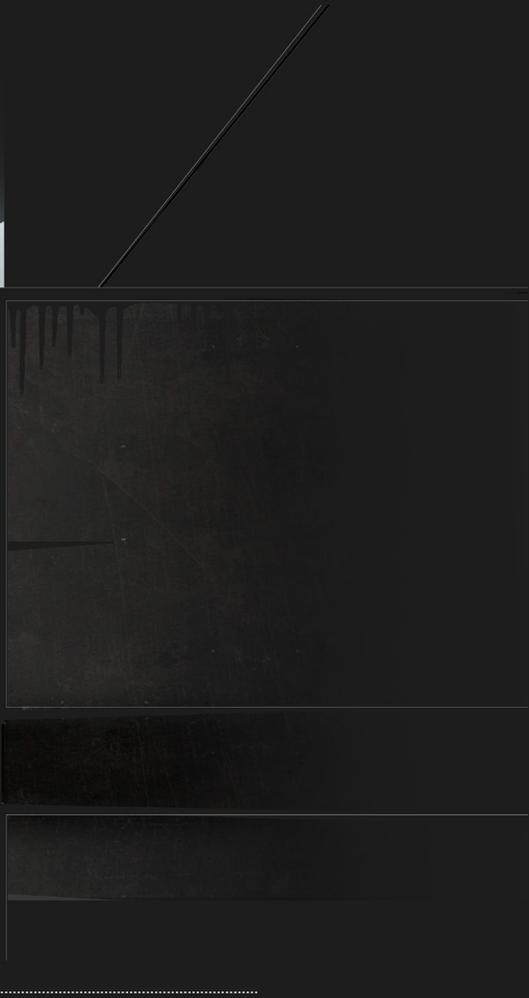
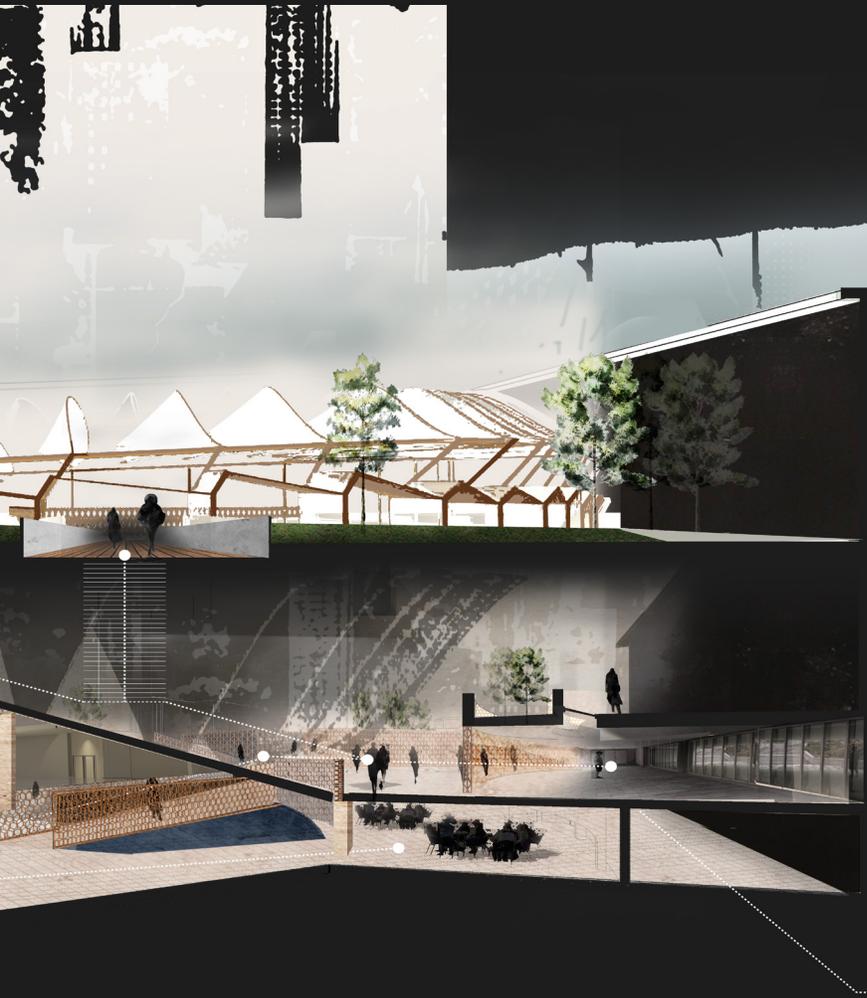


1



2

Figure 95:
Design Development Movement Sequence



3

4

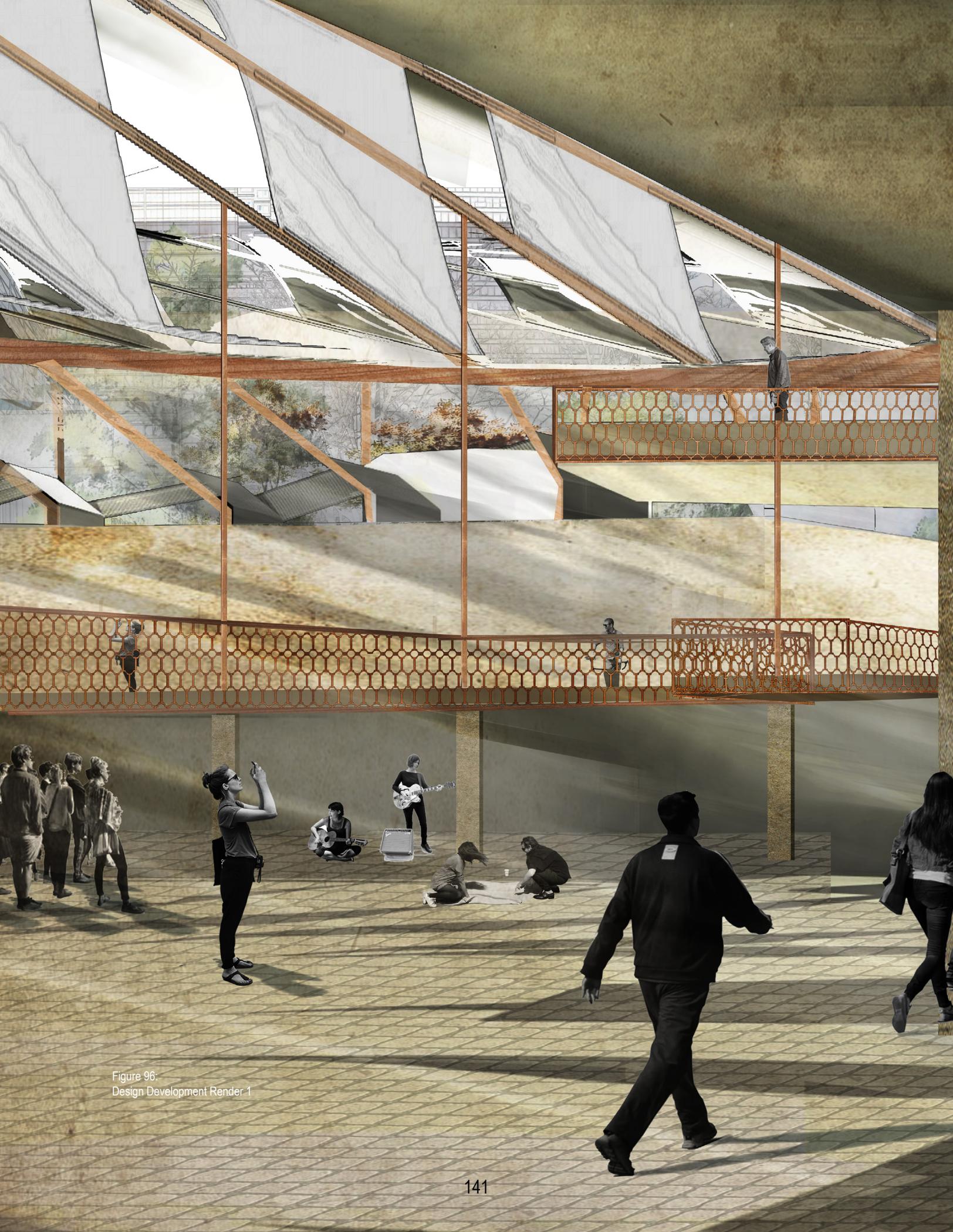


Figure 96:
Design Development Render 1





Figure 97:
Design Development Render 2

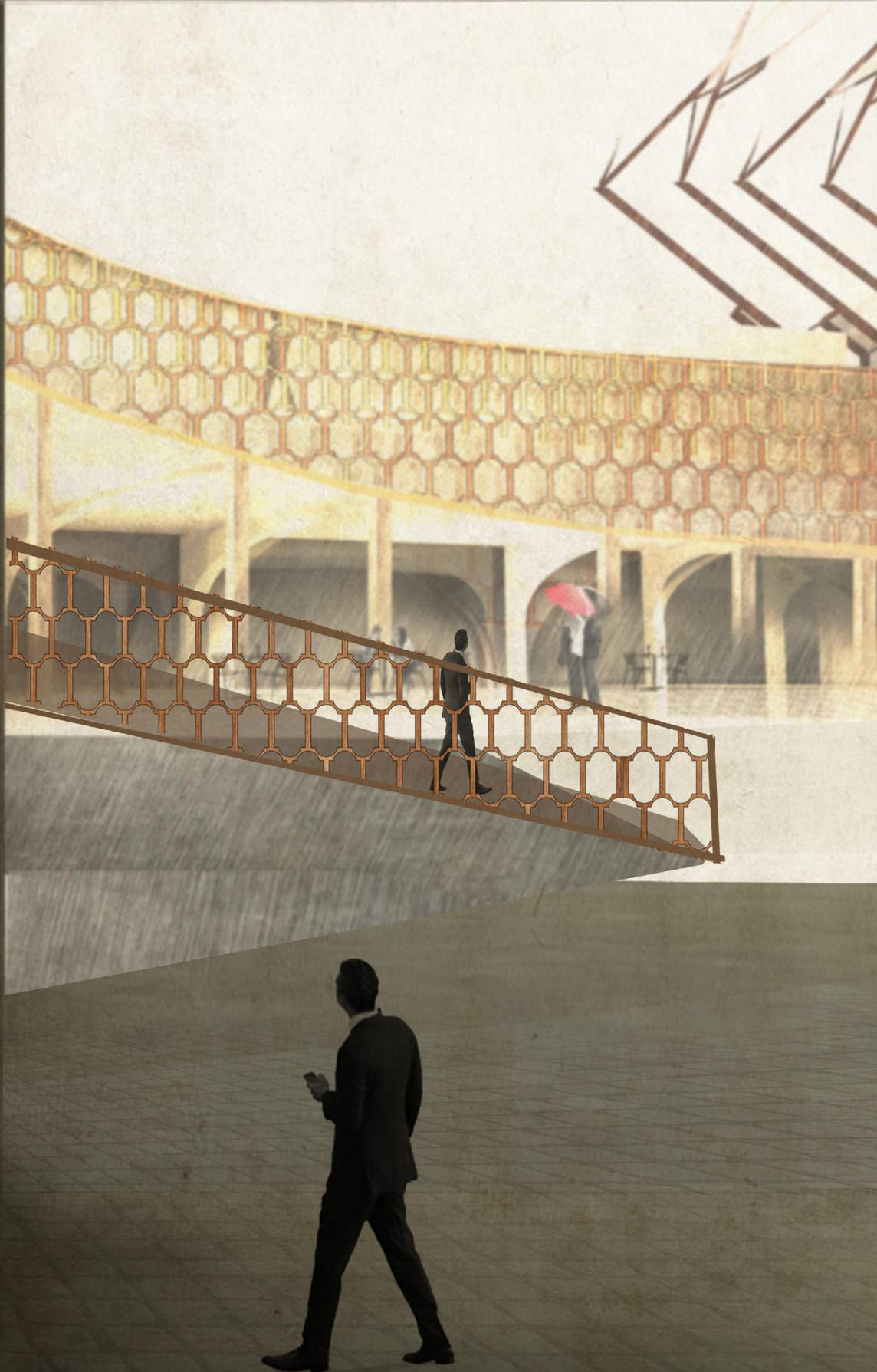




Figure 98:
Design Development Render 3



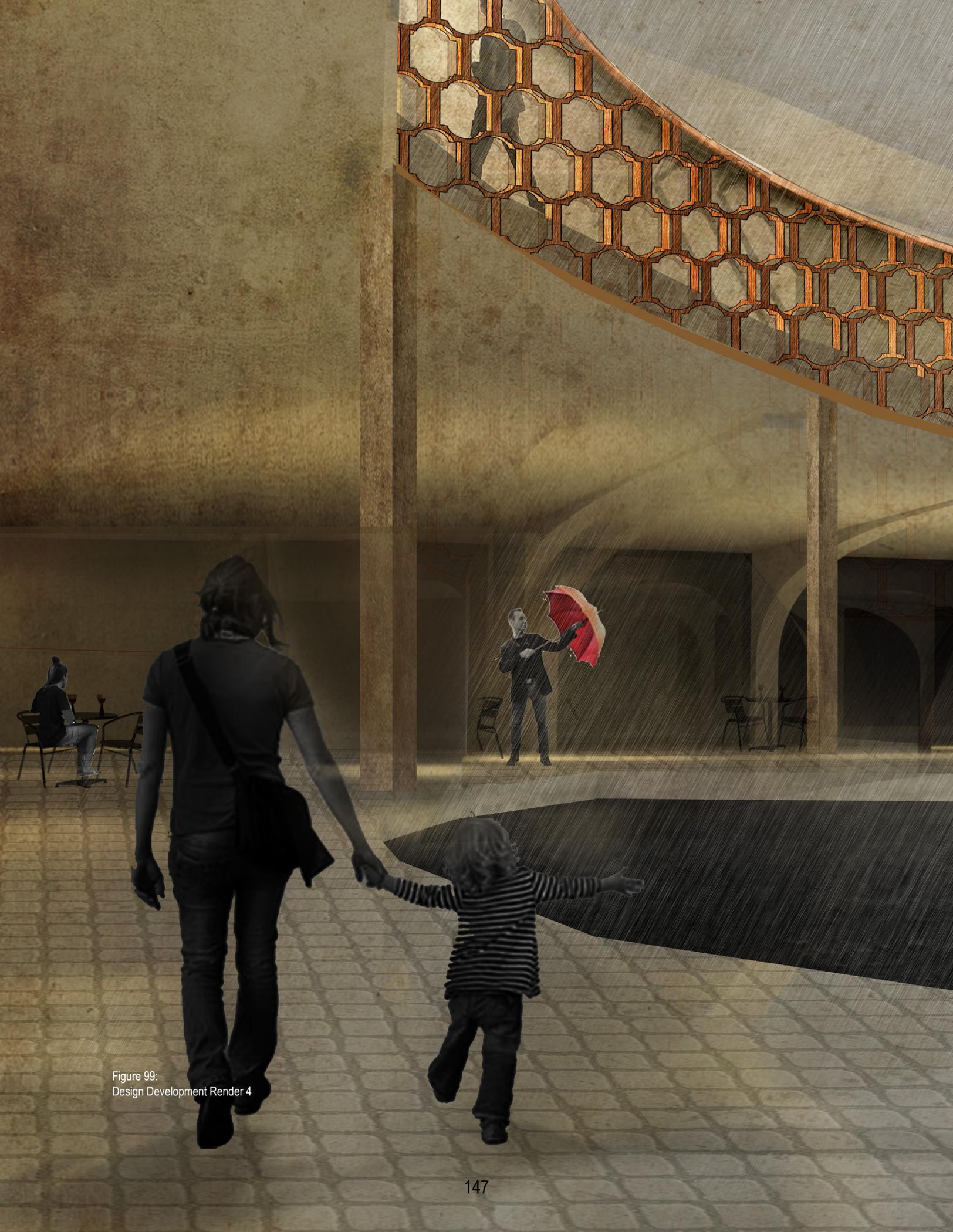
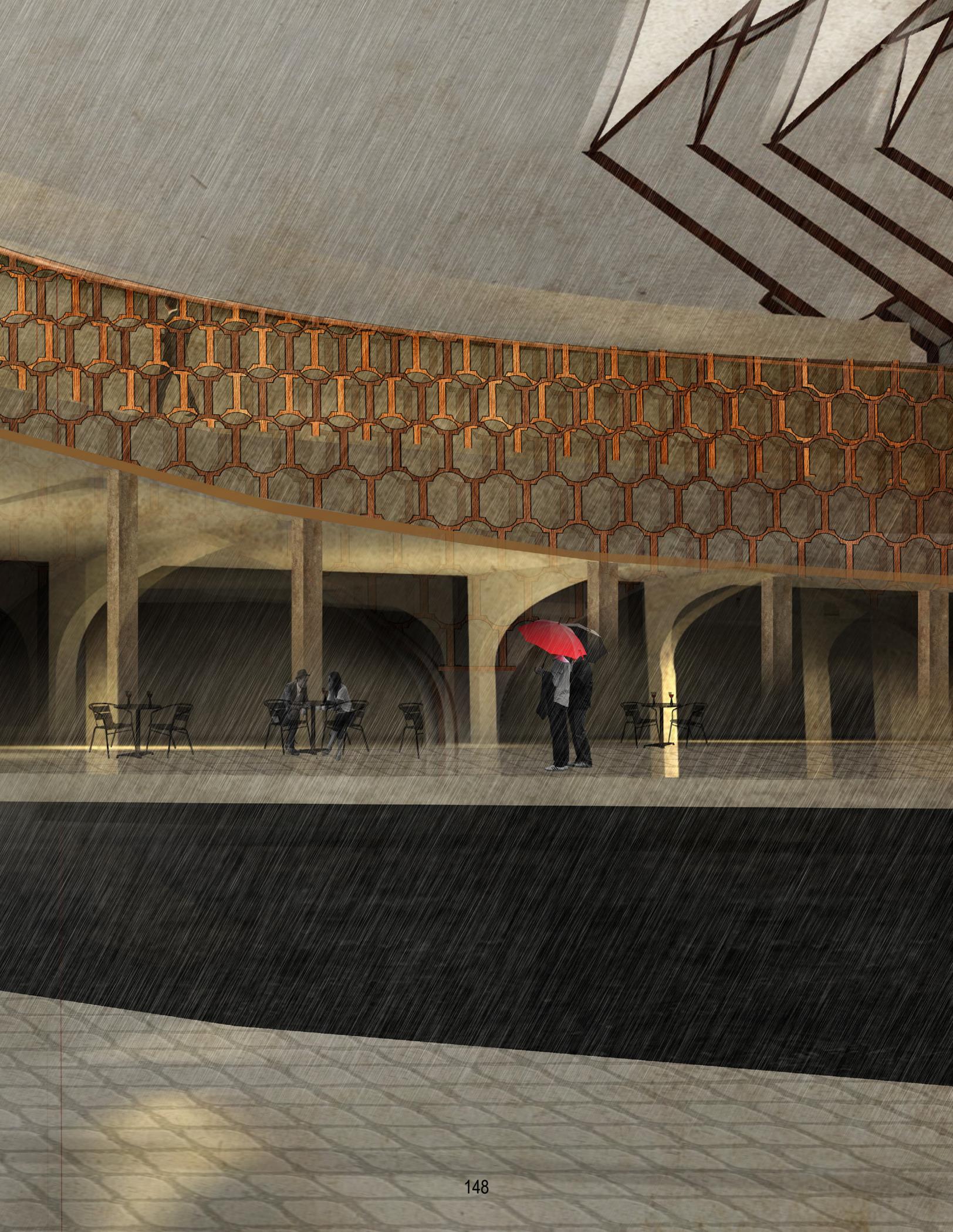


Figure 99:
Design Development Render 4



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Appendix A

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Toronto's Old City Hall



Toronto's New City Hall

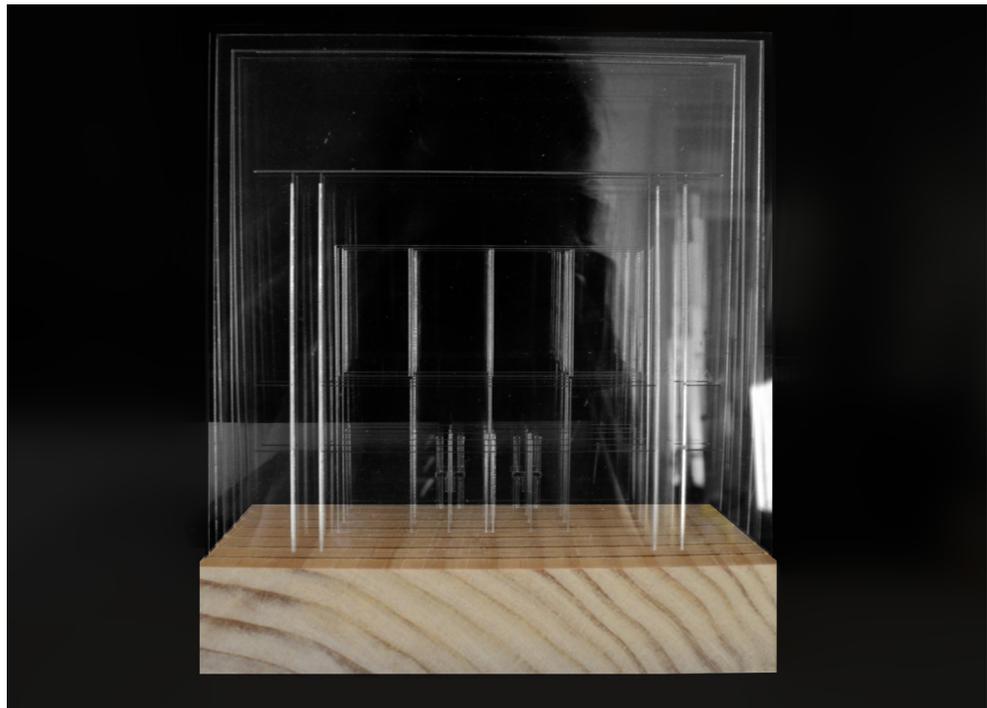


Figure A:
Traditional vs
Modern Facade

The above physical models explored the difference between the contemporary and the traditional facade. Each model broke down the facade into layers, according to the order in which we interpret architectural elements, both visually and physically. The traditional facade contains multiple layers, as our mind naturally views the arcade in multiple dimensions. This allows us to become more immersed in the experience. The contemporary or modern facade, however, uses a more two dimensional application. This is due to the visually static nature of the curtain wall, and its inability to create interesting shadows and dimension, when applied in this way. It also lacks the amount of detail that traditional facades use, and that create interesting shadows.



Figure: B
The Grid as an
Ordering System

The grid has been around for many decades and has become one of the leading styles used for efficiency and production in basically everything that humans do. This is evident in the arrangement of spaces, the layouts of magazines, fashion pieces and even the production of sheet music.

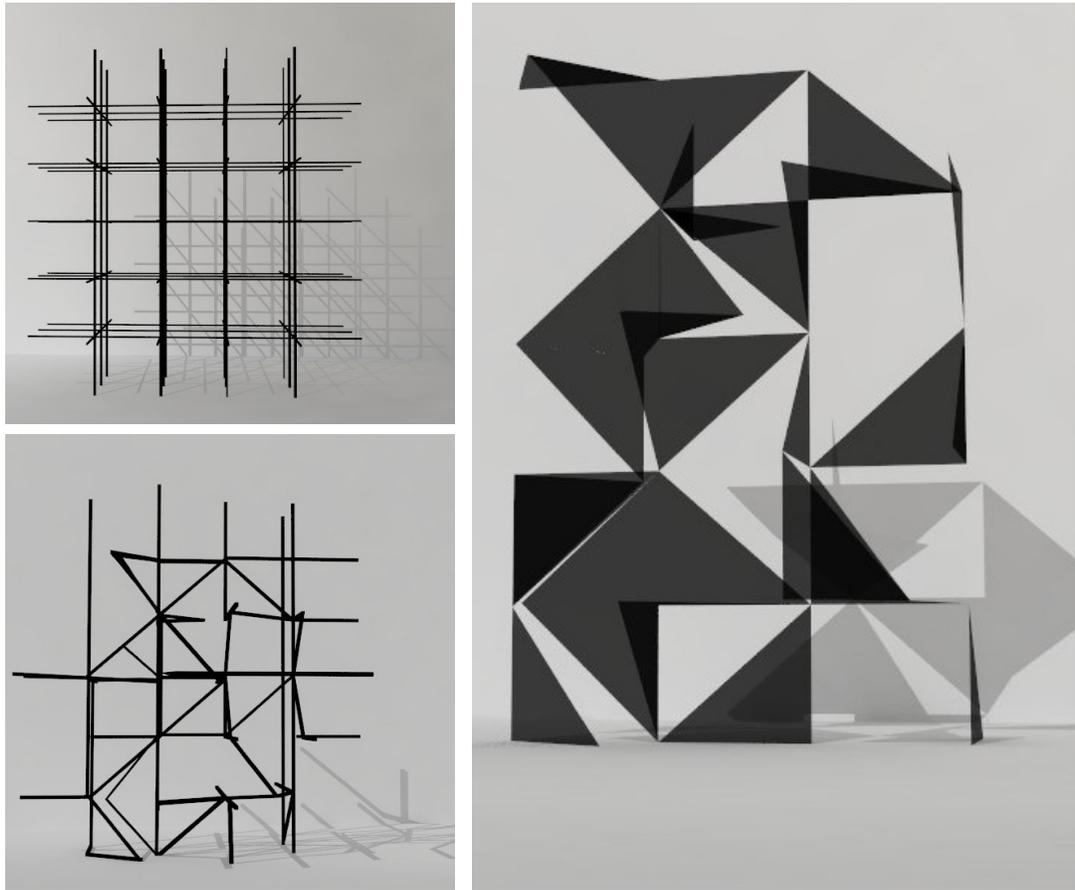
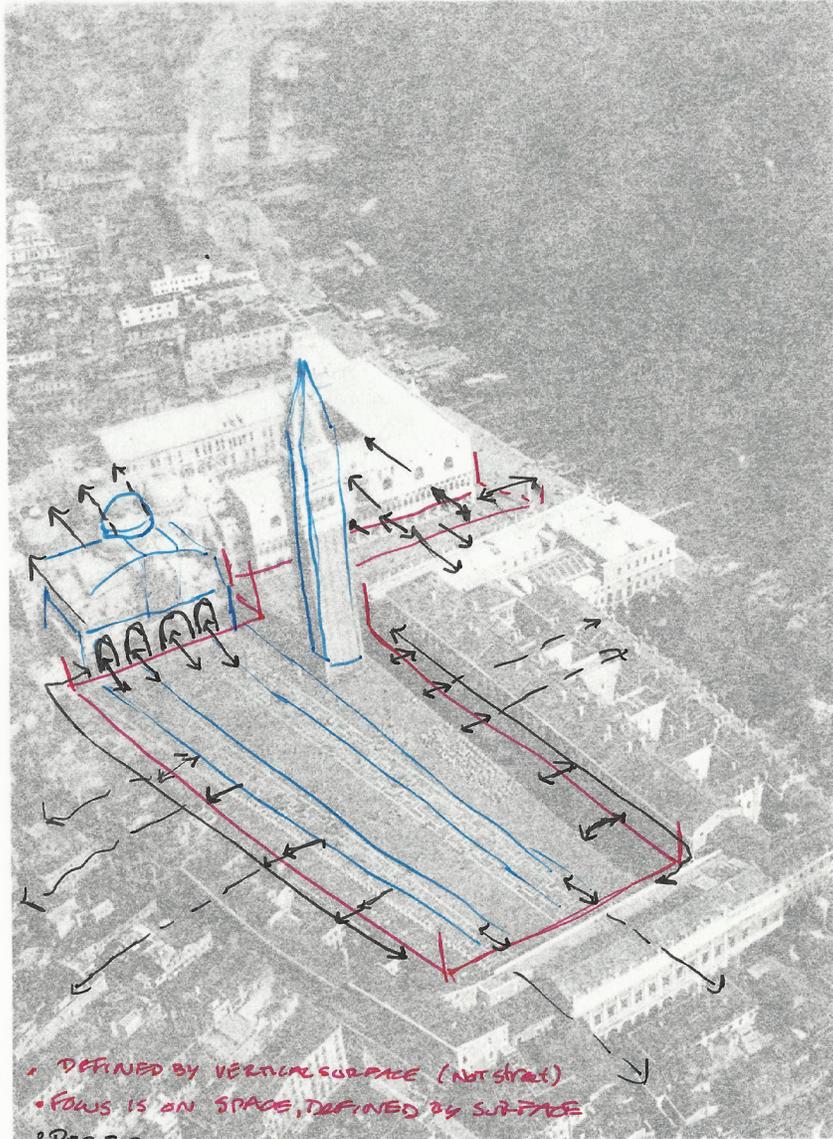


Figure: C
Pure Complexity
Models

These models are an attempt to show the ability for a complex geometry to be formed out of a gridded ordering system. Within the system, there are a variety of hidden possibilities that may occur, and it is up to the designer to establish the manner in which they are conceived. Here I chose to create a complex design formed of balanced triangles that were developed out of the turning and twisting of each module within the grid. The modification of the structure enabled an unconventional cluster of triangles to create a surface that now conveys multiple meanings and functions.

PIAZZA SAN MARCO



- DEFINED BY VERTICAL SURFACE (NOT SPACE)
- FOCUS IS ON SPACE, DEFINED BY SURFACE
- PERFORATIONS (CONNECT TO NETWORK / EVOKES MYSTERY / ENDSATION
- SPACE / PLACE IS DEFINED BY MONUMENT & THE UNORDINARY SURFACE

Figure D:
San Marco
Analysis

This diagram analyzes the movement patterns within and into Piazza San Marco

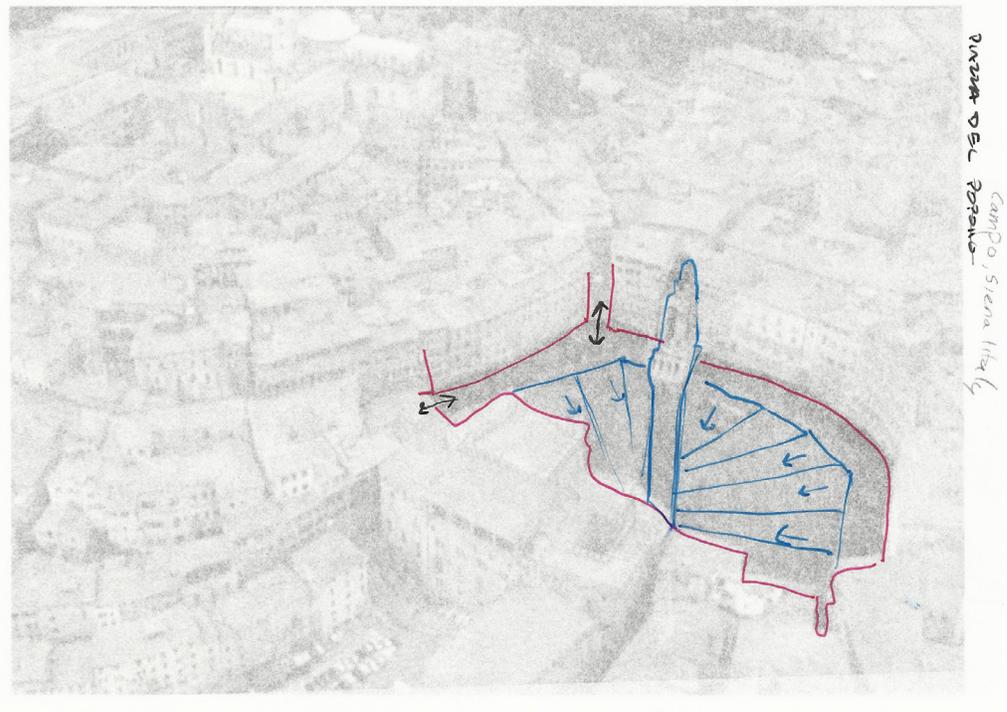


Figure E
Piazza Del
Campo Analysis

This diagram explores the intent of the modified surface of the ground. The surface is angled towards the focal point of the square in order to choreograph and stage a specific experience for the public. It also creates a unique experience for the body that is not felt anywhere else in the city.

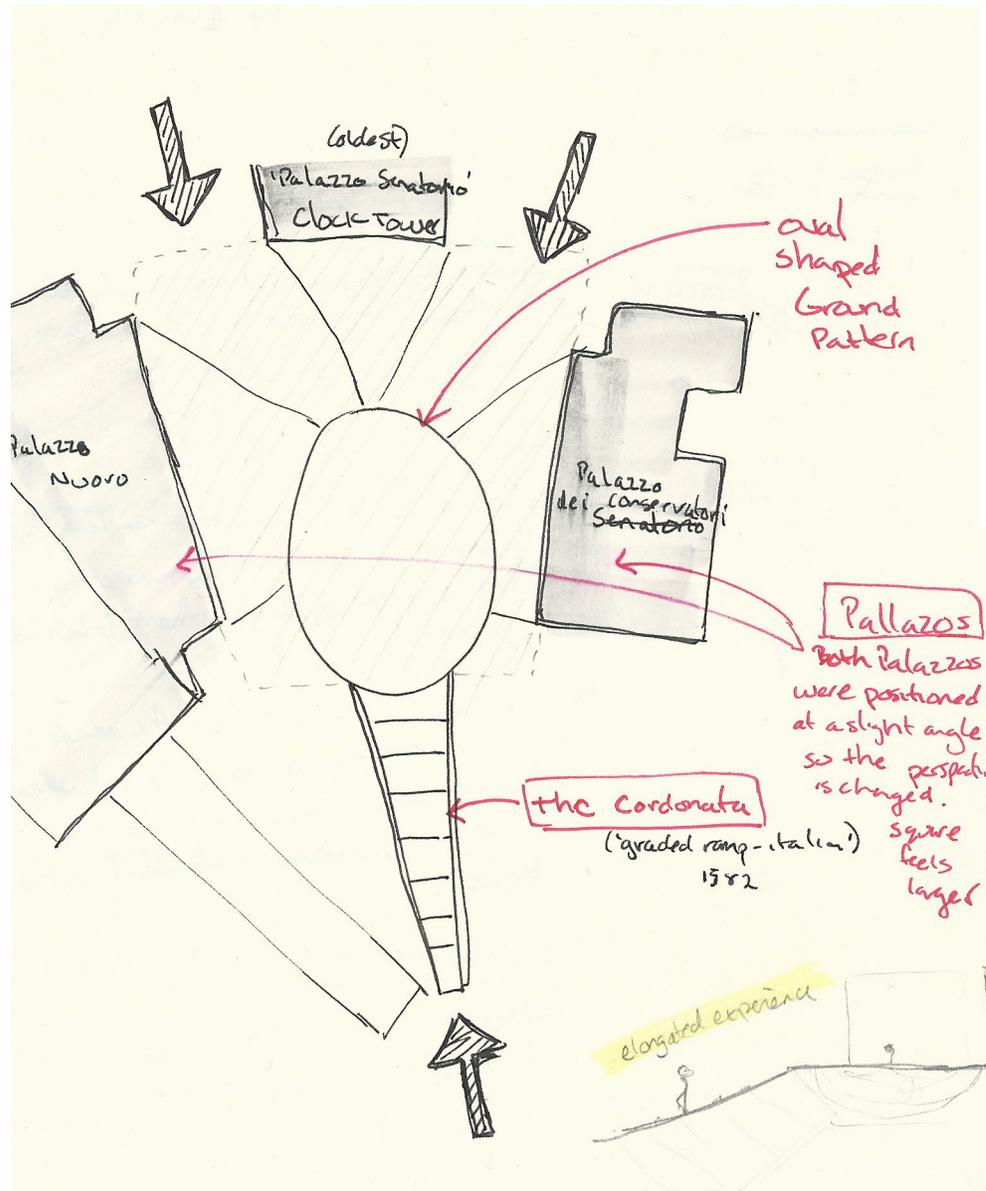


Figure F:
Piazza Del
Campidoglio,

This diagram analyzes the movement patterns within the square. It notices the experiential effects of the staircase that brings people into the square in an elongated fashion. This elevates the importance of the act of "entering" the square.



Figure G:
Gestalt Theory
Concept

This drawing demonstrates the ideas embedded in Gestalt Theory. It shows how our minds are able to uncover a "whole" image, even when the image is fractured into "parts". This is the power of the human mind to use its perception to uncover meaning.

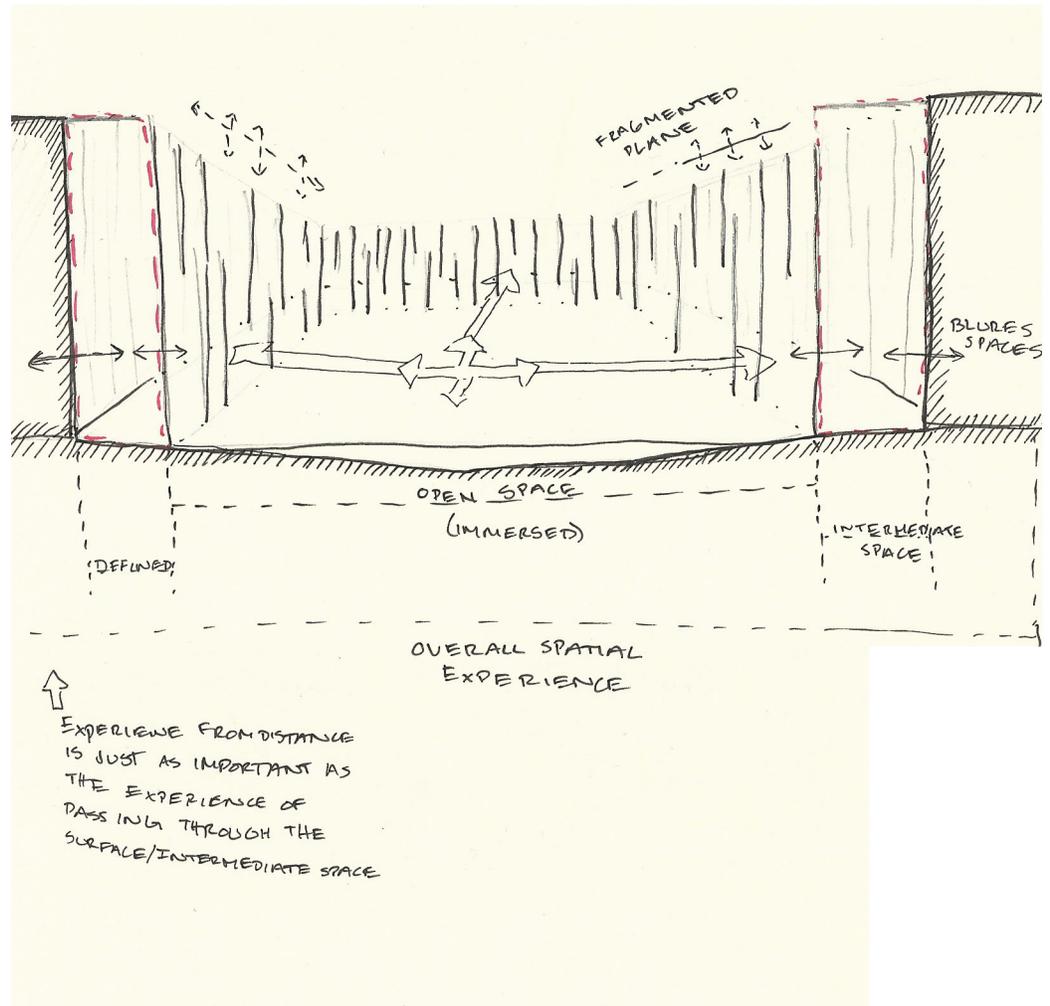


Figure H:
Concept for
Immersed open
space

This diagram compiles the principles learned from analyzing the arcade and its relation to open space. This acts as a conceptual sketch for creating an immersive environment that is created from fracturing the surface and creating openings that enable views and light to pass through the surface. Creates an engaging experiences between the open and enclosed space, as well as the human and the surface.

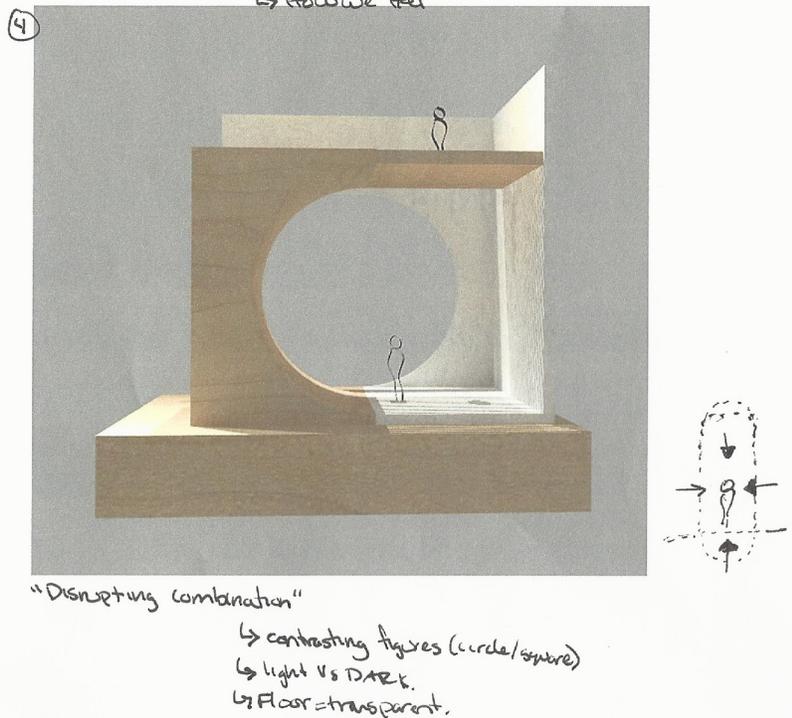
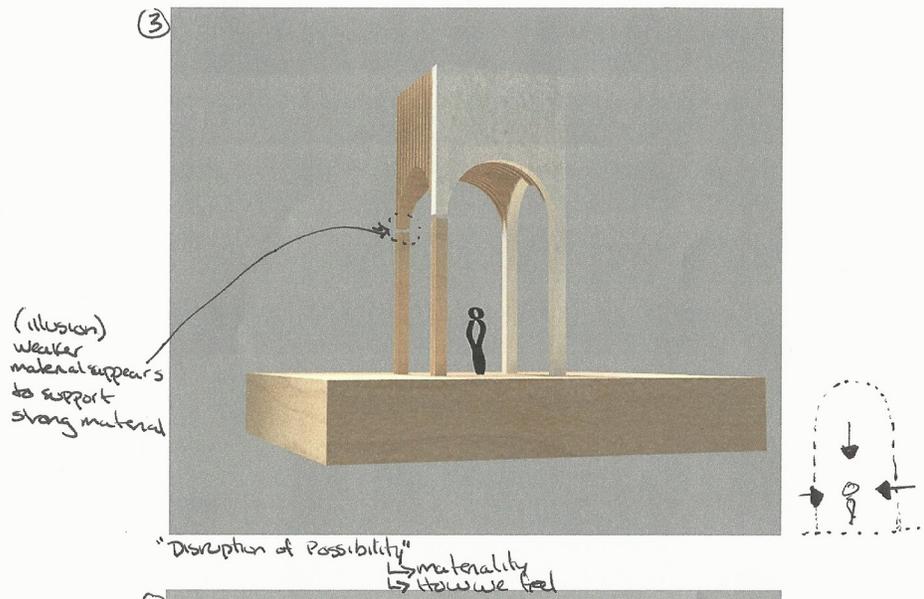


Figure I:
Arch Experimental
Models

The above models were an attempt to explore material effects as the surface surrounds the body. In this case, I used an example of the human body and a variation of an archway. These models demonstrate how the use of contrasting materials and elements can alter ones experience by creating moments that are ambiguous. This impacts our emotions and our senses in a more intimate and immersive way.



Figure J:
Light and Shadow
Experiment

The paper models shown above explored the effects of light and shadow when a surface or material is modified. There are a variety of methods available for creating dynamic visual effects, however these are just a few of the options. These models applied techniques of folding, ruling, and triangulating, as an attempt to understand the effects of modified surfaces.

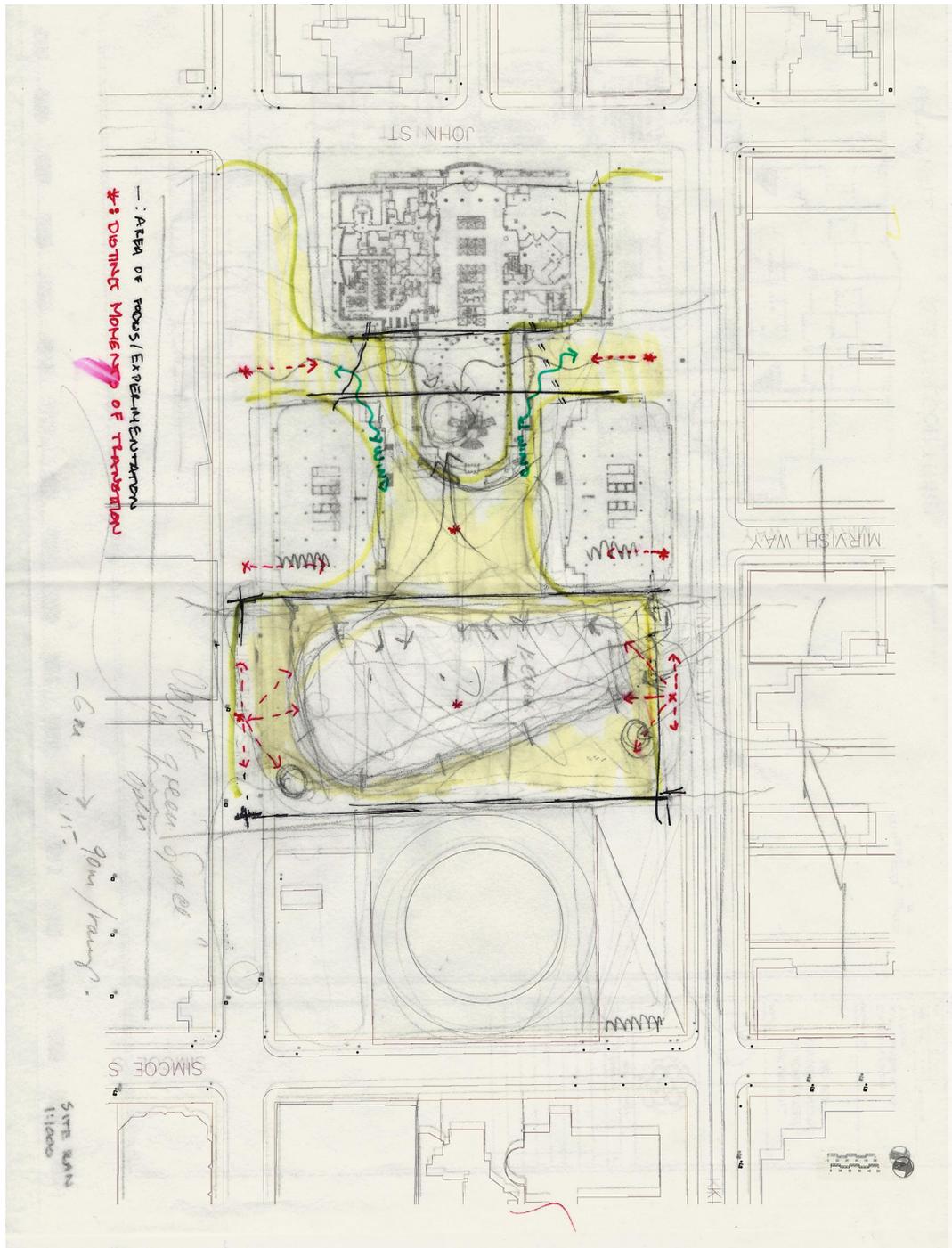


Figure K:
Site Analysis
Sketch

This diagram was one of the first site analysis sketches. It demonstrates the relationship between the available open horizontal surface and the surface of buildings on the site. It also shows wind patterns and specific moments of entry onto the current site.

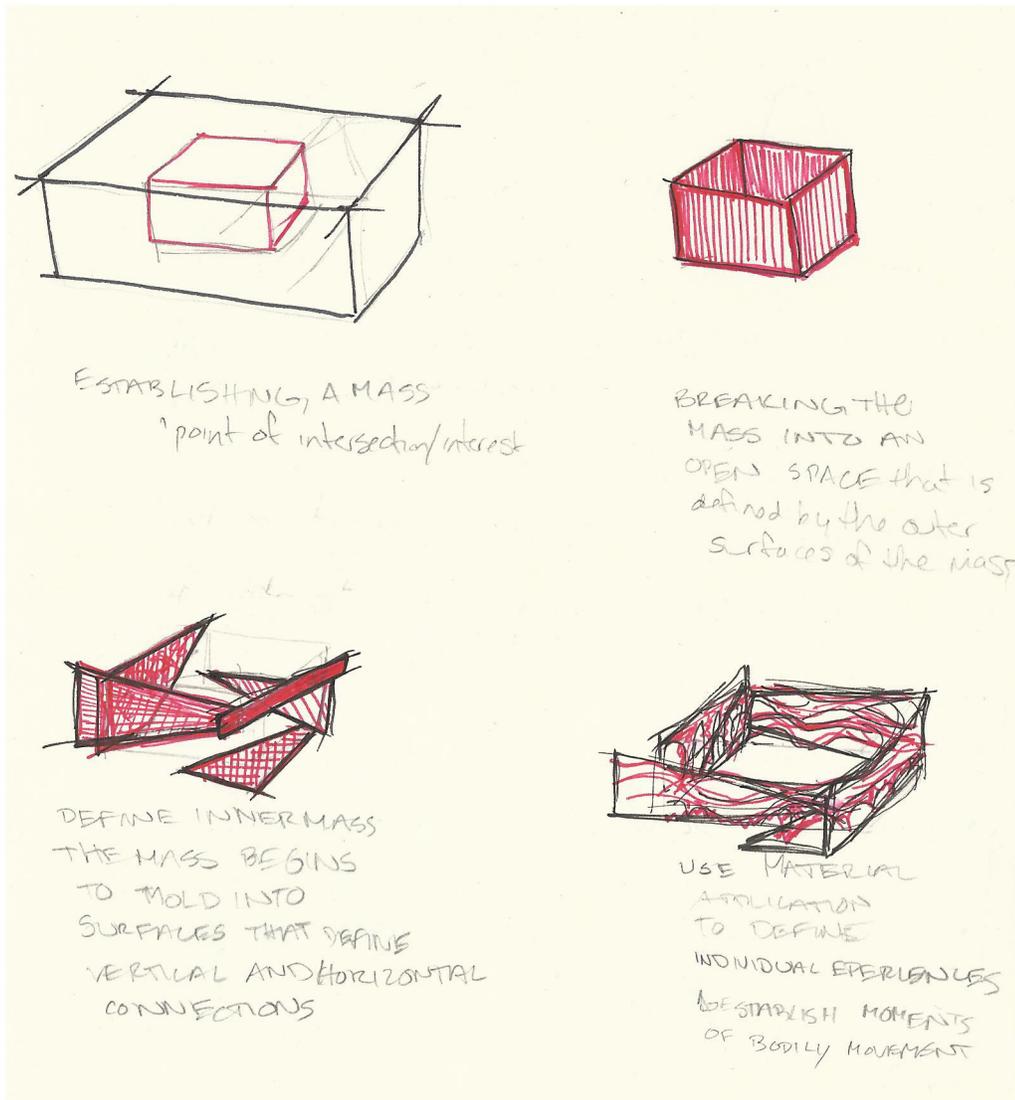


Figure L:
Formal and Conceptual Sketches

This series of sketches breaks down the formal concept for the thesis proposal. It first establishes an space on the site. It then breaks the mass into surfaces the define an open space. The surfaces then begin to take the shape of movement within the site, both vertical and horizontal movement of the pedestrian. The last sketch shows the surfaces being fractured, using specific material and formal applications. Each surface intentionally creates a different experience that is unique from the others.

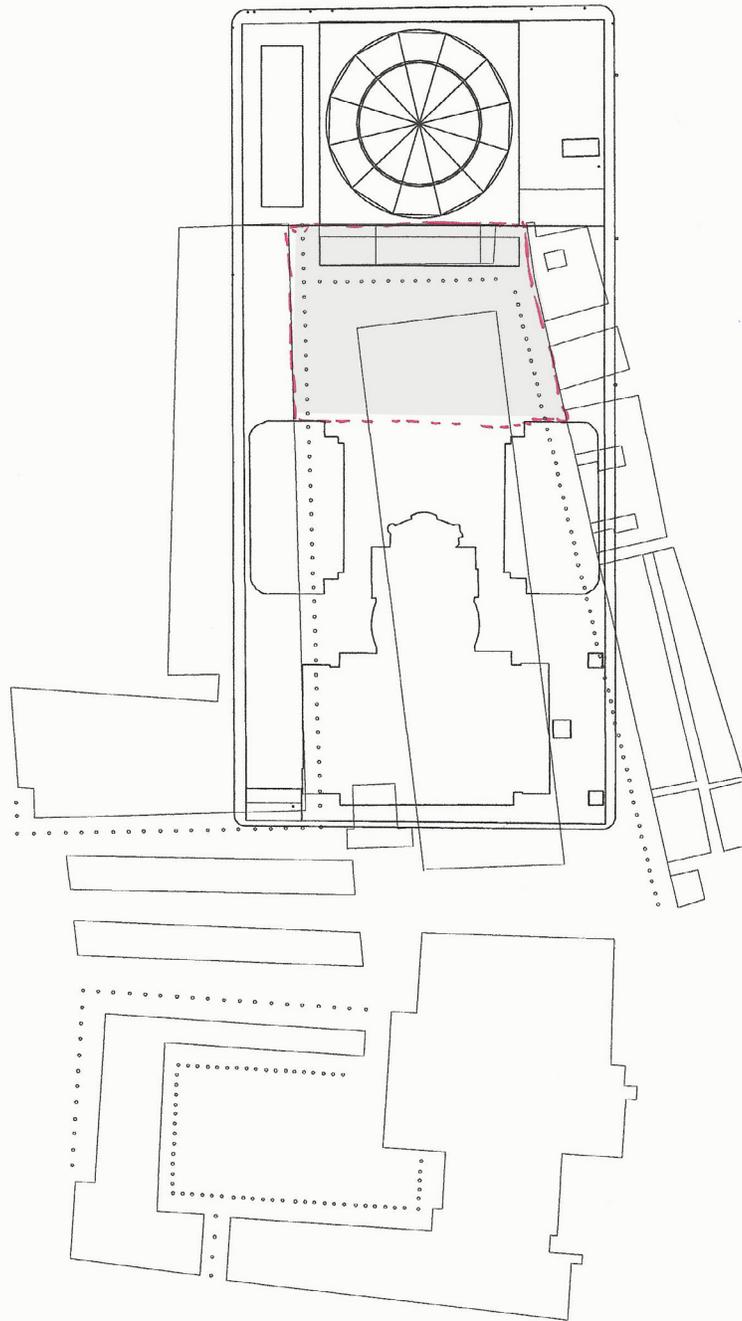


Figure M:
Superimposed
Proportions

The diagram above was an exploration of traditional proportions compared to the David Pecaut site. Within the proposed open space, I overlaid a portion of Piazza San Marco's plan on top. This enabled me to mimic the scale of the traditional arcade directly within the contemporary world. Thus, it provided me with a successful precedent for rhythm and scale on the site.

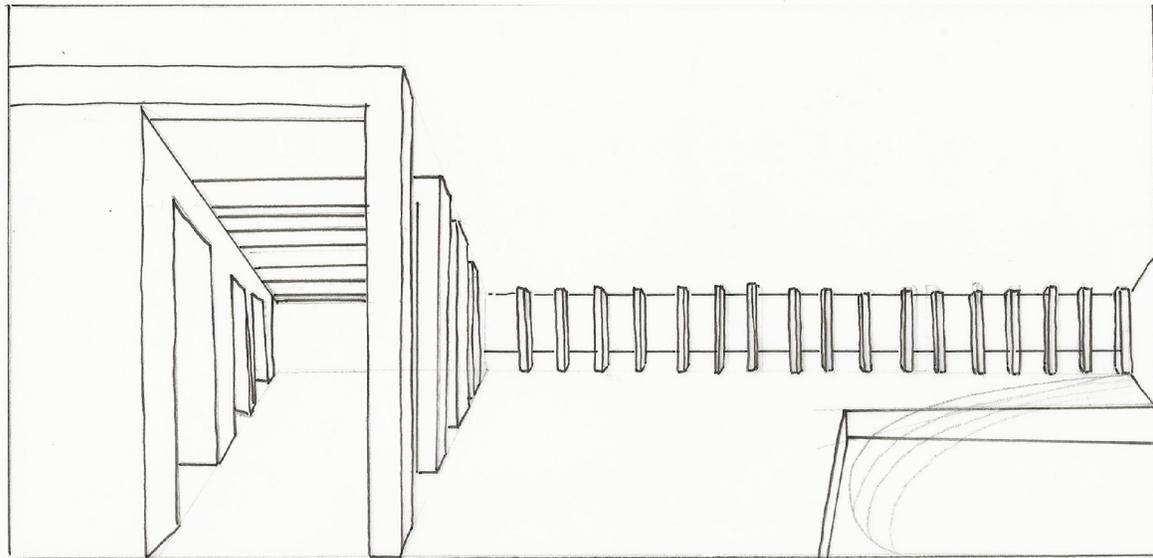
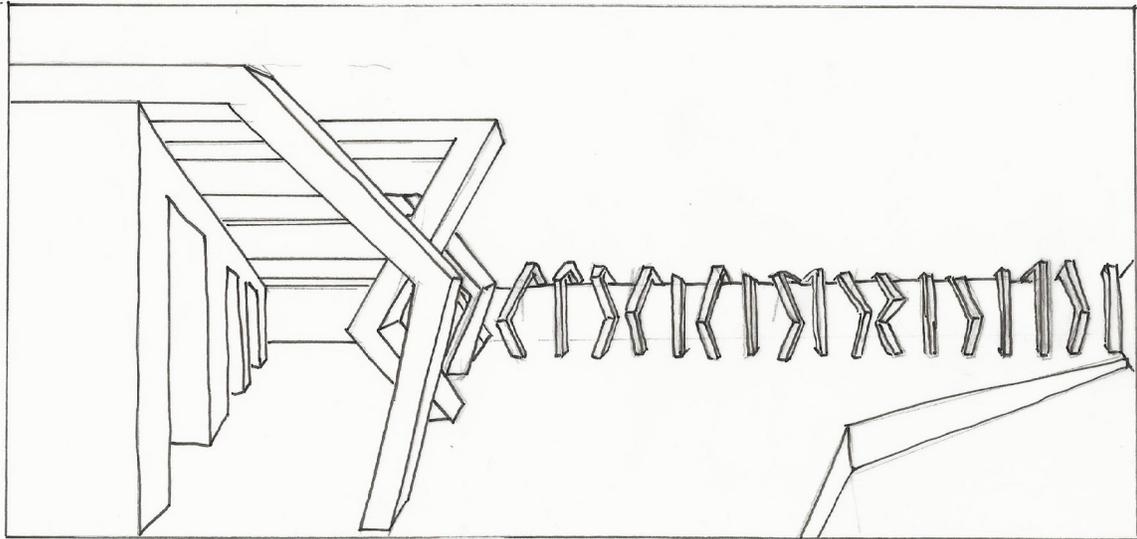


Figure N:
Contemporary
Arcade
Exploration

These sketches were an attempt to create a contemporary version of the arcade or arch. Both diagrams use the proportions that were superimposed onto the site. This exploration allowed me to get a sense of the feeling that one would get while in the open space and also within the arcade.



Figure O:
Experiential
Concept

This watercolor sketch is an initial attempt to explore the experiences of the travel paths and the arcade in relation to the open space. Here, I was playing with ideas of fracturing the vertical surface in order to create perforations and shared views between spaces.

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Bibliography

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9.1 Works Considered.

- Economides, A. (2004, November). *Toronto's New City Hall and Nathan Phillips Square: Design Process, Product and Legacy*. Retrieved from <https://www.canadianarchitect.com/features/1003730157/>.
- Allen, S. (2004). *Landscape infrastructures*. Retrieved from <http://www.area-arch.it/en/landscape-infrastructures/>
- Aoki, Jun quoted in Brownell, B. (2011). *Recoding Materiality, in Matter in a Floating World*. New York, NY: Princeton Architectural Press New York.
- Benjamin, W. (1936). *The Work of Art in the Age of Mechanical Reproduction*. Franz Kafka.
- Betsky, A. (2009) *Nothing but flowers: Against public space*. In Stadler, M. (2009). *Where we live now: An annotated reader*.
- Blum, A. (2003). *The Imaginative Structure of the City*. Quebec: McGill-Queen's University Press.
- Bloomer, K. (2000). *The Nature of Ornament*. WW. Norton and Company.
- Brownell, B. (2012). *Material Strategies*. New York, NY: Princeton Architects Press.
- Boullée, E.L. (1976). *Architecture, Essay on Art*. Academy Editions.
- Conrads, U. (1971). *Programs and Manifestoes on 20th-century Architecture*. Cambridge: MIT Press.
- City of Toronto: Planning and Development Department. (1984). *City Planning - Your City - Living In Toronto, City of Toronto*. Retrieved from http://www1.toronto.ca/city_of_toronto/city_planning/urban_design/files/pdf/fort_york_district_plan.pdf.
- Crowhurst, L. (2004). *Genius of European Cities*. Retrieved from <http://www.livablecities.org/node/271>
- Design Report. (2012). *The Walkable City*. Retrieved from https://www1.toronto.ca/city_of_toronto/toronto_public_health/healthy_public_policy/hphe/files/pdf/walkable_city.pdf
- Dolan, T. (2012). *Live Work Planning and Design*. New Jersey: John Wiley & Sons in *Finding the Flow State in the Age of Distraction*. Surly Muse. Retrieved from <http://surlymuse.com/finding-the-flow-state-in-the-age-of-distraction/>.
- Fenlon, I. (2009). *Piazza San Marco*. Cambridge, Massachusetts: Harvard University Press.
- Frampton, K. (1994). *Towards an Urban Landscape*, Columbia Documents no.4.
- Gehl, J. (2013). *Cities for People*. Island Press.

- Gell, A. (2003). *The Architectural Review*.
- Gilbert, Richard. Metro Politan Hall. Mathers & Haldenby Incorporated.
- Gombrich, E.H. (1979). *The Sense of Order: A Study in the Psychology of Decorative Art*. Cornell University Press.
- Gully, R. (2009). *Cognition and process vs design artifact in fashion design pedagogy*. Swinburne University of Technology.
- Hassan, R. (2011). *The Age of Distraction : Reading, Writing, and Politics in a High-Speed Networked Economy*.
- Henrik R. (2004). *Ornaments of the Metropolis: Siegfried Kracauer and Modern Urban Culture*. London: MIT Press.
- Hoberman. C. (2006) Transformation in Architecture and Design in Kronenburg, R, and F. Klassen. *Transportable environments 3*. London: Taylor & Francis.
- Hoffman, S. and Moussavi, F. (2006). *The Function of Ornament*. Harvard University.
- Itten, J. (1970). *The Elements of Color*. John Wiley & Sons.
- Jencks, C.(1973). *Le Corbusier and the Tragic View of Architecture*. Cambridge: Harvard University Press.
- Johnson, A. (2013). *City Over Suburbs*. Retrieved from <http://toronto.ctvnews.ca/city-over-suburbs-downtown-toronto-s-population-growth-triples-with-younger-influx-1.1124631>.
- Krier, R. (1979). *Urban Space*. London, England: Academy Editions.
- Leatherbarrow, D. and Mostafavi, M. (2002). *Surface Architecture*. Cambridge, Massachusetts: Massachusetts Institute of Technology.
- Lehrer, U. *Reurbanization in Toronto: Condominium boom and social housing revitalization*. Retrieved from https://www.researchgate.net/profile/Ute_Lehrer/publication/261631438_Reurbanization_in_Toronto_Condominium_boom_and_social_housing_revitalization/links/5457e9100cf2cf516482216f.pdf?origin=publication_list
- Liquori, E. (2011) *The Close Relationship Between Gestalt Principles and Design*. Instant Shift. Retrieved from <http://www.instantshift.com/2011/09/19/the-close-relationship-between-gestalt-principles-and-design/>.
- L'Heureux, E. (2014) *Deep Veils*. Singapore: ORO Editions.

- Kilbride, Kenise Murphy. *Immigrant Integration: Research Implications for Future Policy*. Vol. 1. Toronto: Canadian Scholar's Press, 2014.
- Klinger, K. and Kolarevic, B. (2008). *Manufacturing Material Effects: Rethinking Design and Making in Architecture*. British Library Cataloguing in Publication Data.
- Koestler, A. (1967). *The Ghost In The Machine*. Mackmilan, New York.
- Krier, R. (1983). *Elements of Architecture*. London: Architectural Design AD Publications Ltd.
- Krier, R. (1979). *Urban Space*, New York, NY: Rizzoli International Publications Inc.
- Kuma, K. (2011). *Matter in the Floating World*.
- Leatherborrow, D. (1993). *Surface Architecture*. London, England: The MIT Press.
- Mallgrave, F. (2005). *Architectural Theory*. Malden, MA: Blackwell.
- Mayne, T. (2011). *Combinatory Urbanism: The complex behavior of collective form*. Culver City: Stray Dog Café.
- Meikle, J. (1995). *American Plastic: A Cultural History*. New Brunswick, Ontario: Rutgers University Press.
- Merleau-Ponty, M. (2004). *The World of Perception*. London: Routledge.
- Merleau-Ponty, M. (1992). *Phenomenology of Perception*. London: Routledge.
- Mosley, J. (2013). *Architecture of Transgression*. London, England: Architectural Design.
- Murray, S. (2013). *Translucent Building Skins: Material Innovations in Modern and Contemporary Architecture*. London: Routledge.
- Oxford Dictionary. (2017). Oxford University Press. Retrieved from: <https://en.oxforddictionaries.com/definition/aura>
- Pallasmaa, J. (1986). *The Geometry of Feeling: A Look at the Phenomenology of Architecture*. Skala: Nordic Journal of Architecture and Art.
- Pallasmaa, J. (2012). *The Eyes of the Skin*. Chinchester, West Sussex: John Wiley & Sons.
- Di Pamla, V. (2009). *Intimate Metropolis*. Abingdon, Oxon: Routledge.
- Payne, A. (2012). *From Ornament to Object: Geneologies of Architectural Modernism*. Yale University Press.

- Pell, B. (2010). *The Articulate Surface: Ornament and Technology in Contemporary*. 1st ed. Vol. 1. Birkhäuser Architecture.
- Phillips, T. (2003). *Ornament on Trial. The Architectural Review*,
- Quinn, B. (2003). *The Fashion of Architecture*. New York: Berg.
- Raaij, M.V.(2014). *Building As Ornament*. Rotterdam: Nai010 Publishers.
- Richards, J. (2002). *Facadism*. Rutledge.
- Schutz, H.(2011). *Romanesque Architecture and Its Artistry in Central Europe*,Cambridge Scholars Publishing.
- Seamon, D (2000). *A Way of Seeing People and Place: Phenomenology in Environment-Behaviour Research, in Theoretical Perspectives in Environment-Behavior Research*.
- Seamon, D. (1980). *Body-Subject, Time-Space Routines, and Place-Balletsin Buttimer, in The Human Experience of Space and Place*. London, England: Croom Helm.
- Sitte, C. (1965). *Ciy Planning According to Artistic Principles*. New York: Random House.
- Small, A. (2009). *Delight, The Function of Ornament: An Exploration of its Relevance*. The Netherlands.
- Solomon, M. (1985). *The Psychology of Fashion*. Library of Congress Cataolging in Publication Data.
- Tschumi, B. (1976). *Advertisement for Architecture (transgression)*.
- Tschumi, B. (1996). *Architecture and Disjunction*. London, England: The MIT Press.
- Tschumi, B. (2014). *Architecture: Concept & Notation*. Centre Pompidou,Paris.
- Trilling, J. (2002). *Ornament: A Modern Perspective*. Library of Congress Cataloging-in-Piblication Data.
- Turner, V. (1988).*The Anthropology of Performance*. New York: Performing Arts Journal Publications.
- Venturi, R. (2004).*Architecture as Signs and Systems: For a Manerist Time*. Cambridge: Harvard University Press.
- Venturi, R. and Brown D. and Zenour, S. (1977). *Learning From Las Vegas: Symbolism of Architectural Form*. Cambridge: MIT Press.
- Venturi, R. and Scully, V. (1966). *Complexity and Contradiction in Architecture*. NYC: Museum of Modern Art.

Vyzoviti, S. (2009). *Super Surfaces: Folding as a method of generating forms in architecture, products of fashion*. California: Gingo Press.

Weiner, R.P. (2000). *Creativity and Beyond: Cultures, Values, and Change*. Albany: State University New York Press.