ABSTRACT

Title of Document: NARROW SPACE : DESIGNING THE INTERSTITIAL

Siobhan Marie Steen

Master of Architecture, 2015

Directed By: Professor Garth Rockcastle, FAIA

School of Architecture

This thesis is an investigation of the formal and phenomenological characteristics of a specific spatial morphology: narrow, tall, long, habitable space which occurs between at least two other spaces whether connected or not. This investigation does not aim to address all types of interstitial space. The general form of the space is the constant; variables include size, scale, modulation, intended and unintended uses. The method of investigation will be the creation of a matrix of examples that allows

sorting by the various categories. It is expected that examining sorted categories will lead to a comprehensive and profound understanding of this spatial type. And that this, in turn, will prompt a program that will provide the basis for a demonstration of the range of uses of this spatial type. An investigation of the interstitial is intended to illuminate the author's affinity and intuitive use of this spatial form in her work and to generate a framework for the author from which to approach architecture, using interstitial space intentionally as the primary organization and driver of form in future explorations.

NARROW SPACE : DESIGNING THE INTERSTITIAL

By

Siobhan Marie Steen

Thesis submitted to the Faculty of the Graduate School of the

University of Maryland, College Park, in partial fulfillment

of the requirements for the degree of

Master of Architecture

2015

Advisory Committee:

Professor Garth Rockcastle, FAIA, Chair

Associate Professor, Program Director Brian Kelly, AIA

Professor Steven Hurtt,

Preface

"And isn't that the point of things - beautiful things - that they connect you to some larger beauty? Those first images that crack your heart wide open and you spend the rest of your life chasing, or trying to recapture, in one way or another?"

- Donna Tartt, "The Goldfinch"

Acknowledgements

Professor Garth Rockcastle, FAIA, Chair

Associate Professor, Program Director Brian Kelly, AIA

Professor Steven Hurtt

Javid Farazad

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Introduction

Origin of Interest

Recently, in the course of assembling my portfolio, I've come to the realization that all of my past academic projects focus on a specific spatial morphology which can be diagnosed in the parti; that of a narrow space between, dividing and connecting, two other more primary programmatic spaces.

Recurring images in architecture are powerful, they can tell us something about ourselves. When one looks closely at many architects' oeuvres we can see repetition and a favoring of certain images or spatial types. I believe there is a root to this fixation and that we can find it in the personal past of the architect. Interrogating this affinity and tendency in my own work and in examples of others' work will elucidate connections between past experiences and future architecture.

In my own work, and regarding this particular recurring spatial morphology, I wish to raise the creation of these spaces to a more rationally understood and intentional level. In order to know why and how we create, we must know what we create. This requires a deep and thorough understanding of the physical makeup of these spaces, the experiential, why and how they have been used historically, across cultures and in the current architectural dialogue.

The larger goal would be to explore the variety of ways this morphology might be used in the making of architecture in the future.

Overview of Process

The objective of this thesis is to understand interstitial space, the way it is made and the way it makes us feel. An investigation of the interstitial will generate a framework from which to approach architecture, using interstitial space as the primary organization and driver for a programmed space. There are many types of interstitial space and the definition varies across the literature and built form. This investigation does not aim to address all types of interstitial space. Instead, I will deal strictly with tall, narrow, inhabitable spaces which occur between at least two other spaces.

The method of study will be a matrix through which the physical and experiential characteristics of this spatial typology will be explored by collecting and categorizing as many examples as possible. The categories would be: Name (alley, hallway etc…), Characteristics (shaft, narrow, tall, slot), Architectural/space defining elements (walls, screens, trees), Program (religious, urban, service, support), Intentional and non-intentional uses (circulation, smoking, trash, hiding). Diagrams and a scale/proportion analysis will be included for each space along with photographs. The matrix will allow the sorting of selected examples by their characteristics with the view of finding patterns of use and form across differing scales and applications. This is expected to lead to a discovery of a program type and inspiration for a project.

Following the assembly of this matrix, I will analyze and synthesize the matrix to gain an understanding of the various morphologies of this spatial type.

Through a review of the literature and by conducting interviews, I hope to come to an understanding of how people experience this type of space and its phenomenological qualities.

Another route of investigation will be the creation of a series of watercolors, in the vein of Lauretta Vinciarelli, that explore the spatial character. It seems that one of the sources of attraction to this spatial type is its relation to human proportions. We find ourselves in these spaces because they mimic our physiological qualities: upright, forward-looking.

The architectural project will be an answer to the question: how can this space be used effectively and in what ways can this space be used to organized and drive a project? In reviewing past projects, it becomes clear that this spatial morphology is an obsession. I would ultimately like this investigation to forge a way for me to build this type of space intentionally and carefully.

Definitions of Interstitial Space

of, forming, or occupying interstices.

"the interstitial space"

Medical origins of the word interstitial:

Ecology

(of minute animals) living in the spaces between individual sand grains in the soil or aquatic sediments. "the interstitial fauna of marine sands"

adjective

1. pertaining to, situated in, or forming interstices.
2. Anatomy. situated between the cells of a structure or part:interstitial tissue.

noun

3. Crystallography. an imperfection in a crystal caused by the presence of an extra atom in an otherwise complete lattice. Compare vacancy (def 6).

interstitial

/ˌɪntəˈstɪʃəl/adjective

1. of or relating to an interstice or interstices
2. (physics) forming or occurring in an interstice, an interstitial atom
3. (chem) containing interstitial atoms or ions, an interstitial compound
4. (anatomy, zoology) occurring in the spaces between organs, tissues, etc interstitial cells
5. noun
6. (chem) an atom or ion situated in the interstices of a crystal lattice

Derived Forms

interstitially, adverb Word Origin and History for interstitial Expand

adj.1640s, from Latin interstitium (see interstice) + -al (1). Related: Interstitially.

interstitial in Medicine

interstitial in·ter·sti·tial (ĭn’tər-stĭsh’əl)

adj. Relating to or situated in the small, narrow spaces between tissues or parts of an organ.

Working Definition

This description of Interstitial Space, which is the topic of this thesis, is a working definition. Its assertions will be tested, assessed and modified through and by the design process.

Distinct Morphology: clear, simple, identifiable shape: narrow, taller than it is wide, and long

- Habitable
- Between at least two other spaces whether connected to them or not.
- Secondary when seen in context.
- Supportive, in that it makes the primary spaces more useful, organized, etc…
- Often not programmed or Net Assignable Space, simply circulation space that takes on greater importance and meaning than at first glance. Part of Allowable Gross Square Footage.
- Aspect of being hidden but being able to see the main action - spectator/spectacle
- both the ability to conceal and to exalt (megaron volume)
- Feeling of enclosure - protection on the flank

The general form of the space is the constant; variables include size, scale, modulation, intended and unintended uses.

Synonyms of Interstitial Space

residual

leftover

in-between

threshold

non-figural

secondary

tense

proximity of solids

void

ground

liminal

slot

yonic

Attributes of Interstitial Space

orientation

enclosure

clarity

directed views

slice of sky

axial

occupiable

circulation

Spatial Biography

Personal History

"There is ground for taking the house as a tool for analysis of the human soul."

- Gaston Bachelard, The Poetics of Space: (xxxvii)

Growing up, I was a military brat, my family moved every 2 to 4 years like clockwork. This means I've had more homes than most people and certainly no hometown to speak of. I have very vivid spatial memories of each house, even the small townhouse on base that we lived in from the time I was 1 until 3 years of age. I can draw you the two levels of floor plans.

When you constantly move, memory begins to be shaped by space. Events become strongly attached to place. In other words the space becomes the foreground because it is not a consistent background.

Always picking up and moving puts one in a state of being perpetually in between places. Perhaps one adapts and learns to get comfortable with that in-between space. Two specific examples of these spaces come to mind from my childhood.

The first is a pantry in my grandparent's house. Its shelves were well stocked, but somehow there was room to play. Particularly attractive, were the two ledges that you could climb up onto to get a view out the window over the trees. It felt like a private turret.

The other example was a second closet in my adolescent bedroom where I could hunker down, feeling enclosed and hidden, to write and daydream.

Proportion ratio - 1 : 3 : 2

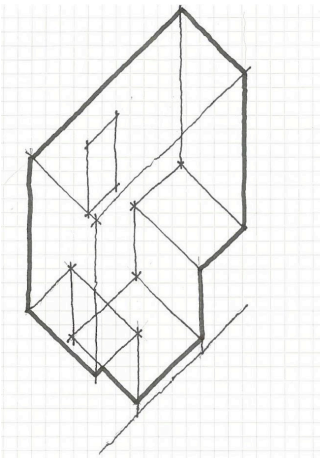


Figure 1 : Spatial Biography : Pantry

Proportion ratio - 1 : 3.5 : 3

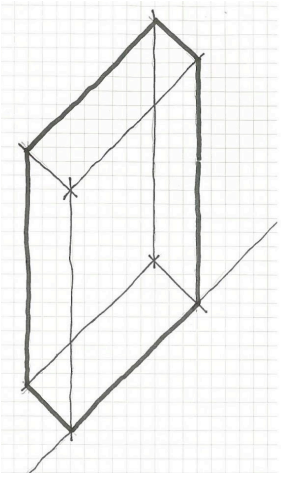


Figure 2 : Spatial Biography : Closet

The implications of the family home are well documented in Psychology, under a discipline called Place Attachment. In an article, Irene Cieraad, states the results of a controlled study on place attachment. She writes, “It was striking how memories of

past homes interacted with the students' future home fantasies…For example individuals who share memories of home are more likely to create the same projections of future homes." [1] I see no reason why if this holds true for individuals imagining and creating their own home environments, it could not be extrapolated to architects. Not only would this tendency to recreate our past show up in work on our own homes and homes in general, but can perhaps be applied to all architecture in the sense that all architecture is an extension of the home.

Perhaps we can find the connection between the homes of our past and the methods for creating space as architects in Christopher Alexander's *Pattern Language*. Two sections in particular stand out as continuations of each other: Pattern 203 Child Caves and 204 Secret Place. Alexander lets us understand that hiding both as a child and as an adult is important to our understanding of home. Having secrets and secreting objects away is critical to the success of a place as a home. "Wherever children play...make small 'caves' for them. Tuck these caves away in natural left over spaces, under stairs, under kitchen counters." (928-929)[2] He even touches on our focus, the residual.

As one ages out of being able to play in cupboards, we still harbor a need to hide, both our selves and our secrets. Alexander encourages this,

---

[1] Cieraad, Irene. "Homes From Home: Memories and Projections." *Home Cultures*. No. 1 (2010): 85-102.

[2] Alexander, Christopher. Pattern Language. New York: Oxford University Press. 1977 (928-929)

"Where can the need for concealment be expressed; the need to hide; the need for something precious to be lost, and then revealed? We believe that there is a need in people to live with a secret place in their homes: a place that is used in special ways, and revealed only at very special moments." (930)[3]

Children's caves invariably become secret places. The negative connotations of hiding or hiding something do not help our understanding of the importance of these spaces. These spaces give us enclosure, protection, a sense of looking out on the world. We can approve of these aspects while also acknowledging the limits to creating this kind of space.

Gaston Bachelard gives us one closing thought on the repercussions of memory and childhood home on future projections of home.

"If the child is unhappy, however, the house [he draws] bears traces of his distress...children who had suffered the cruelties of the German occupation during the last war. One child, who had been hidden in a closet every time there was an alert, continued to draw narrow, cold, closed houses long after those evil times were over. These are what Mme. Minkowska calls 'motionless' houses, house that have become motionless in their rigidity."[4]

Our experiences can lock us into a repeating cycle of recreating these conditions, both good and bad. It would be important to remember that as architect's what we

---

[3] Alexander, Christopher. Pattern Language. New York: Oxford University Press. 1977 (930)

[4] Bachelard, Gaston. The Poetics of Space. Boston: Beacon Press. 1958 (72)

draw and continue to draw becomes a self fulfilling prophesy. The space that we remember becomes a building that someone else may remember.

Past Projects

Rear Window : A Mixed-Use Apartment Building

This project is a large multi-use apartment complex sited at the intersection of Florida Ave and Connecticut Ave NW Washington, D.C. In order to redevelop the entire block [approx. 67,000 sq ft] with a 50% lot coverage, the concept was to break up the volume by inserting sectional voids. These became useful spaces accommodating MEP that serves loaded walls on each side of the void. Also functioning as a series of light wells, these spaces mimic the voyeuristic social conditions of narrow laundry decorated streets in Europe. By addressing the “rear window” quality inherent in urban dwelling, potential interactions are encouraged in these semi-public spaces.

This is a reinterpretation of the urban residual, alley or small street, brought inside the building and used functionally to house support services of the apartment units.

Figure 3 : Rear Window : Site Plan

Reclaiming the Alley : A Museum and Shelter

This project, located in Washington, D.C., is a museum for the photographer Cindy Sherman, which also functions as a shelter for battered and homeless women. The building strongly embodies Sherman's themes of identity, sexuality, and power. Placed at the intersection of 14th Street and Corcoran, the museum/shelter empowers women with job placement, support, and a creative outlet in the darkroom. A gallery for Sherman's work provides a forum for engaging with the historically impoverished 14th Street corridor. Through the process of iterative model making and watercolor studies, I explored the spatial qualities of veil-reveal to interpret the meaning of disguise in Sherman's work as she represents a multitude of women.

In this project, the issue of safety for women in urban spaces, particularly the urban interstitial, is addressed and reinvented as a space for healing.

Figure 4 : Reclaiming the Alley : Entry Perspective

Reviving Aalto : A Funeral Chapel

This project was a reimagining of Aalto's 1958 competition for the Lyngby, Denmark cemetery, crematorium and funeral chapel. His original plans, sections and perspectives were used to generate and reinterpret the meaning of a funeral chapel. Two chapels are situated within a walled complex overlooking the twin topographical bowls of the cemetery. My reinterpretation was to remove the service space between the two chapels to create a figural void framing a view of the landscape. Powerful axial connections are emphasized and the tense space between the chapels is rendered as a moment of clarity amidst the rituals of grief.

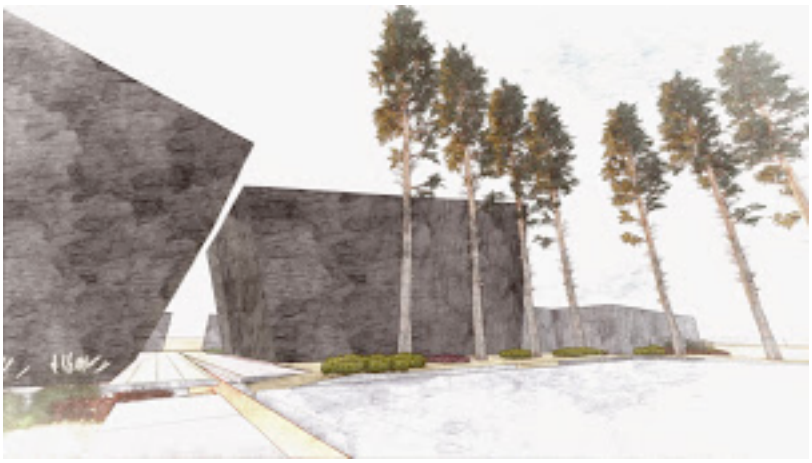


Figure 5 : Reviving Aalto : Courtyard Perspective

Above the Wall : A Border Crossing

This border crossing was conceived of as a single entity, two buildings mirrored across the wall to accommodate the function of land port for both countries. It

embodies identicality and symmetry inherent in the twin cities of Nogales, Arizona, USA and Nogales, Sonora, Mexico. As part of a maquiladora or free trade area the two cities of Nogales are divided only by a wall. 95% of the population in Nogales, Arizona identifies as Hispanic. Families, business and goods cross the border every day. In addition to the border crossing program, this proposal includes a nation-less zone between the two countries building on the economic power of the region. An International Business Collaborative, elevated above the break in the wall, would offer financial workshops, small business loans, software education, language classes and legal counseling to navigate business regulations on either side of the border. Providing more economic opportunities for both cities and celebrating the multi-directional currents, could potentially alleviate some of the other inequalities and issues that run deep along the border. A building for traversing the border, this proposal extends the wall and simultaneously breaks it at the point of crossing.

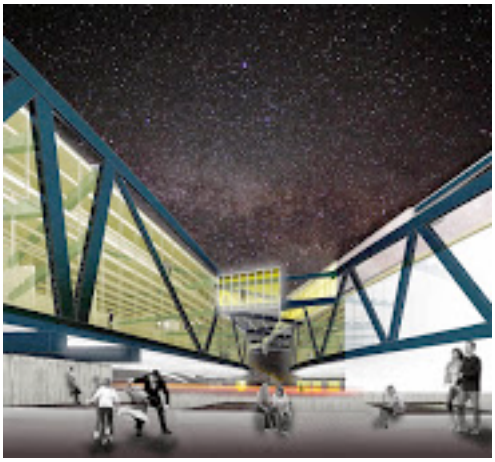


Figure 6 : Above the Wall : Border Perspective

Reflecting on Latent Images

Having found this pattern in my own work, I wanted to ask what does this mean? The four projects listed above have interstitial or slot space as the primary organizer of the program. A benefit of working with similar partis repeatedly is the opportunity to refine and improve upon the kernel of an idea. The obvious downside is twofold: what if instead of improving, the designer is stuck in the rut of this parti? And how can one parti be the correct answer for such a wide range of projects and programs? A critical point would be to map at what point does repetition become dependence. If one continues to solve the same problem over and over again, it will either encourage innovation and improvement or become a crutch that hinders the exploration of more and better solutions.

More research must be done into the psychological aspects of these latent images or archetypes. Particularly through the work of C.G. Jung and Mimi Lobell.

Recurring Spatial Morphologies and Latent Images in Architects' Work

Architects have often seen image or spatial patterns in their own work and many have discussed the origins of these images as memories of seminal spatial or graphic experiences.

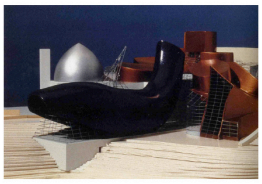
They can be manifest as the redundant use of certain spatial types or images or archetypes or metaphors. They can be ways of getting at something important or causing emotion in the audience. Fewer however have discussed self-consciously the reasoned examination and use of these repeating images.

I will examine here the work and writings on this latent image phenomenon by several key practitioners.

Frank Gehry


1984-86


1986


1989-95


1992


1997

Figure 7 : Frank Gehry : Fish Timeline

Frank Gehry's work has been cited as an example of significant influence by one specific image; that of the fish. Furthermore, his interviews suggest that this image may in fact have come directly from his past. He has said:

"When I was a kid I used to go to the market with my grandmother on Thursdays. We'd go to the Jewish market, we'd buy a live carp, we'd take it home to her house in Toronto, we'd put it in the bathtub and I would play with this goddamn fish for a day until the next day she'd kill it and make gefilte fish. I think maybe that has something to do with it."[5]

[5] "No, I'm an Architect" Frank Gehry and Peter Arnell: A Conversation. Frank Gehry: Buildings and Projects. Rizzoli, New York, NY. 1985. (p.XVII)

The outcome is an iconographic way of producing beauty, form and motion in architecture, as a response to the sterility of Modernism and pastiche of Post-Modernism. In an interview with Vanity Fair, Gehry asks, "If you have to go backward, why not go back 300 millions years before man, to fish?"[6]

Gehry explains that he continued to draw the fish until it became a symbol, "for a certain kind of perfection that I couldn't achieve with my buildings. Eventually whenever I'd draw something and couldn't finish the design, I'd draw the fish as a notation."[7] The fish at Fish Dance Restaurant in Kobe, Japan, was designed as a billboard, not an inhabitable space. "It is the most beautiful space of the restaurant, and one cannot enter it…the inevitable step was to inhabit the fish." The evolution from sculpture to inhabitable fish to abstraction of a school of fish took over ten years.[8]

Key Considerations

Thigmotaxis

The need for narrow interstitial spaces has been demonstrated through neuroscience as well as in the writings and observations of Christopher Alexander and Jane Jacobs. In their work *Cognitive Architecture: Designing for How We Respond to the Built Environment*, Ann Sussman and Justin B. Hollander explain the concept of

---

[6] http://www.vanityfair.com/culture/features/2010/08/architecture-survey-201008

[7] "No, I'm an Architect" Frank Gehry and Peter Arnell: A Conversation. Frank Gehry: Buildings and Projects. Rizzoli, New York, NY. 1985. (XVII)

[8] Frank Gehry, or the inhabitable fish http://www.eikongraphia.com/?p=937

thigmotaxis. They define thigmotaxis as the “wall hugging trait” or edge sensitivity. In other words, people like walking along the edges of space. As noted by Alexander ““‘The life of a public square forms naturally around its edge. if the edge fails, the space never becomes lively.’ (Alexander et al. 1977: 600) And again: ‘People gravitate naturally towards the edge of public spaces. They do not linger out in the open. ...a big space will be wasted unless there are trees, monuments, seats, fountains - a place where people can protect their backs, as easily as they can around the edge.’ (p.606)”

This is an evolutionarily developed way-finding and survival tactic that can be seen in most living organisms from 3.6 billion year old bacteria up to ourselves. This preference for edges is old but also a product of our physical make up, “humans are built, move, and where they tend to look….Because danger generally lurked on a horizontal plane for our ancestors, we have evolved eyes parallel with the ground the better to scan it. There is a natural tilt to the human head while walking of about 10 degrees to take in the path in front, which through the eons has persisted since it apparently kept us out of trouble (Gehl 2010: 39)” (18)

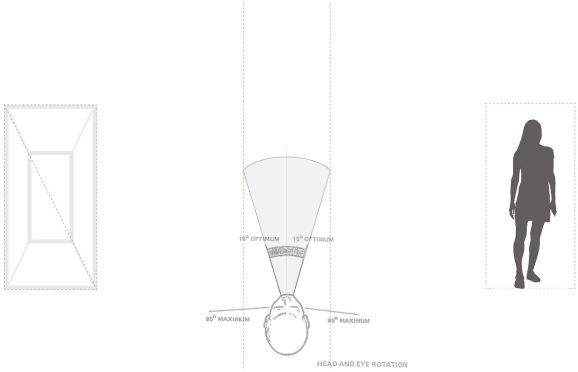
The more comfortable one becomes with a space, the more likely one is to venture into the middle. This behavior is instinctual and shows up even in our colloquialisms, “wall-flower”. “Governing our behavior from the unseen depths, thigmotaxis appears to be at work consistently as we move in our surroundings, although the metrics to consider and measure the trait in design do not yet seem to exist.” (20) This would seem to be a call for more investigation of this subject and its impact on design, as well as an invitation to experiment with ways of making architecture that address our

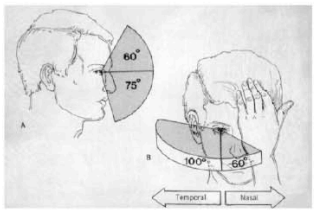
biological spatial preferences. By narrowing spaces, we can give greater immediate feelings of security to the users of our spaces through addressing their instinctual spatial preferences. The upshot of this primal instinct is that we prefer narrow spaces with continuous wall surfaces along which we can move

Interstitial spaces narrow our visual field making it easier to spot danger, provide protection on the flank and allow for the instinctual overrides of thigmotaxis on our movement patterns. This quiets the mind and gives a feeling of comfort in our physical environment. The proportions of tall narrow spaces are a reflection of our physical make-up; we are upright, forward looking. Narrow space corresponds to our physical capabilities and limitations and reflects an image of ourselves back to us. In narrow space the walls are hugging us.

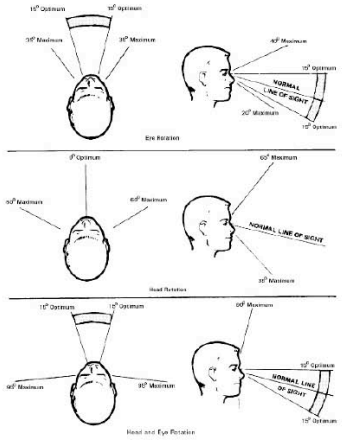
The importance of our perspective and experience on the reading, understanding and creating of this space, cannot be overstated. That the interstitial's proportions correspond to ours and our worldview is perhaps the most compelling yet little understood reason why these spaces are evocative. This would be an area for further research.

Figure 8 : Visual Field, Proportion and the Intersitial



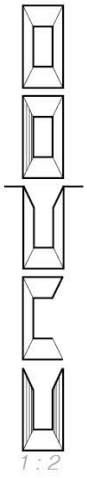


VISUAL FIELD
IMPACT ON INTERSTITIAL



135°
VERTICAL

200°
HORIZONTAL



1 : 2

Public Safety : Feminist and Psychological Critique

Urban space is notoriously violent, but particularly so for women. Crime often occurs in the in-between spaces of our cities and this would constitute a possible area of study regarding social issues. The project, Reclaiming the Alley, referenced above, begins to deal with the way these urban interstitial spaces are experienced by women.

In discussing this issue, it can be helpful to start with the most extreme example of fear of urban spaces, agoraphobia, and then walk that back to the average woman's experience of urban space. "Agoraphobia is most commonly defined as the fear of open spaces; or, more literally, the fear of the marketplace."[9]
While we will not discuss the causes and ramifications here, it is well documented that agoraphobia's, "connection to women is beyond dispute: around 85 percent of agoraphobes in this country (United States) today are women."[10]

The first question in response to this disorder is summarized perfectly by Meyer:

"Are the buildings and urban spaces just empty husks to which represent pathologic behavior attaches itself? Are they, in other words, simply neutral signifiers? Or is there some underlying reason that leads victims of agoraphobia to cast their scenarios of fear and foreboding in architectural terms?" (151)

Whatever the means of transference, we can all understand that emotions can be provoked by our surroundings. Several scholars have noted this, "According to Sitte, only small-scale, enclosed squares took account of what he liked to call "our natural craving for protection from the flank."[11] Freud also emphasized the emotional importance of walls in studying this disorder." [12]

---

[9] Meyer, Ester da Costa. La Donna e Mobile: Agoraphobia, Women and Urban Space. (141)
[10] Meyer, Ester da Costa. La Donna e Mobile: Agoraphobia, Women and Urban Space. (141)
[11] Meyer, Ester da Costa. La Donna e Mobile: Agoraphobia, Women and Urban Space. (143)
[12] Meyer, Ester da Costa. La Donna e Mobile: Agoraphobia, Women and Urban Space. (145)

Another implication for our study of this spatial morphology would be agoraphobia's connection to images and the reproductive understanding of a woman's body. Most agoraphobes associate going outside their home with the act of giving birth, and this trend is steady across both female and male agoraphobes. They associate crossing the threshold with parturition.[13] Meyer links this to the possibility of perceiving the home as female as well as associating feelings of safety with the home. She states, "after all, everyone's first environment is a woman."[14]

Lastly, we can take some of the lessons this disorder provides and see their application in the everyday experiences of women. "Time, not just space, is also a constituent element of agoraphobia; at night, in most large cities, all women are agoraphobic." (153) Women often do not feel that safe movement through the city is a possibility for them. Lauretta Vinciarelli gives us a personal example, "As for myself, I have never felt more secure than in those streets where women sit outside, talking and working, firmly in control of their own surroundings."[15]

Given these considerations, would it really be wise to design spaces that have these implications for women? Perhaps keeping these issues in mind, we can move forward with designing the interstitial that takes into account the evocative formal aspects as well as being sensitive to the lived experiences of everyone.

---

[13] Meyer, Ester da Costa. La Donna e Mobile: Agoraphobia, Women and Urban Space. (152)

[14] Meyer, Ester da Costa. La Donna e Mobile: Agoraphobia, Women and Urban Space. (152)

[15] Vinciarelli, Lauretta. "Women Internet" vs. the "Space of Tyranny" : Reply to Ester da Costa Meyer. (160)

Chapter 2: Precedent Matrix

Matrix as Investigative Tool

What is the Matrix

The Matrix of interstitial spaces currently includes 60 examples, all of which have been methodically documented and abstracted. These examples were chosen from the memory of the author with suggestions from others familiar with the topic. More examples can be added as the focus narrows in on specific spaces.

Why a matrix?

The matrix is like a cloud; there will be examples that are at the heart of the issue and it will include examples at the blurry edge. As we sort the matrix based on different categories, we may begin to see the boundaries more clearly and which examples “fall-off” the spectrum as a particular variable is taken into account.

The advantage of this approach is that the matrix itself will act like a test. When a new space is added and compared to its fellow examples, we will graphically see if it falls within the boundaries of the cloud.

What I hope to learn

This catalogue of examples of the interstitial will be a resource for creating the interstitial. If a deeper understanding of the components that constitute this spatial type can be gained from the matrix, then it will have been a success. Ideally, something specifically useful to designing these spaces in the future will emerge through analysis.

Cataloging Precedents

Method

As stated above, examples were chosen by the author and at the suggestion of the committee and others. The inclusion was based on the initial criteria of a tall, narrow, long, habitable space which occurs between at least two other spaces, whether connected or not. Reliance on intuition was also accepted as an adequate reason for study.

Once selected, each example was assigned a photo that best represented the character of the space. This photo was used along with personal memory, Google maps and, if available architectural drawings to fill in the set of variables.

Variables

The variables were selected by the author as a way to break down the components that make up these spaces. Variables were selected based on their spatial impact, both tectonically and experientially. As examples were added to the matrix, more variables became apparent and were added to differentiate and categorize spaces.

The variables included in the matrix are:

1. Location – Address, Street and City or general region
2. Name – The What (stairwell, alley, loggia, hallway, etc…)
3. Architectonics – Formal elements that create, bound or hold the space. Examples include wall, columns, roof, stair, etc… The ground plane is assumed.

4. Use – Intended or original use of the space
5. Unintended Use – How have people appropriated the space in unintended ways that differ from its intended use.
6. Dimensions – Estimated size of the space, width : height : length
7. Proportions – Estimated proportions of the space, width : height : length
8. Circulation Pattern – When occupied what are the possible circulation patterns? Along the axis of the linear space, cross-axis, both or other: T-shaped, U-turn, spiraling upwards, etc…
9. Closed/Open – Roofed or open to the sky
10. Terminated/Non-terminated – Is the axis of the space terminated by an object or a wall? Does the end open to a view?
11. Indoor/Outdoor – Conditioned space vs. Unconditioned space
12. Made/Residual/Intervention
13. Made: Intentionally created for a specific purpose/use
14. Residual: left-over between two other made and primary spaces
15. Intervention: adding something onto an existing residual or made space, inserting or modifying
16. Adjectives – based on from survey, see addendum 2 for full survey

Guidance in selecting the variables comes from Christian Norberg-Schultz in a passage from Genus-Loci.

"The basic kinds of structural similarity ought to be described in terms of our categories 'space' and 'character'. Natural and man-made space are structurally similar as regards directions and boundaries. In both, the distinction between up and down is valid, as well as the concepts of extension and enclosure. The boundaries of both kinds of space are moreover to be defined in terms of 'floor', 'wall', and 'ceiling'. Natural and man-made space may thus represent each other reciprocally." (169)

This speaks to the architectonic taxonomy used in the matrix as well as ideas on enclosure, orientation and directionality. Interstitial space is a perfect medium through which to explore the architectural and phenomenological conditions of these ideas. Additionally, in it's vertical and upright orientation, interstitial space does mirror nature and the body. One particular poignant phrase that Norberg-Schultz uses is "cosmic orientation".[16] I believe we can see this most clearly in interstitial examples that are open to the sky.

Assembling Data and Visualizations

The next step was to record via diagramming and 3D modeling in Sketchup the spatial conditions of the examples. A series of repeating diagrams were created which indicate: relationships of spaces across the interstitial, indoor/outdoor and circulation. The diagrams that apply to the example are highlighted; more than one diagram in each series can apply to a given example.

---

[16] Norberg-Schultz, Christian. Genus-Loci: Towards a Phenomenology of Architecture. (172)

Diagrams

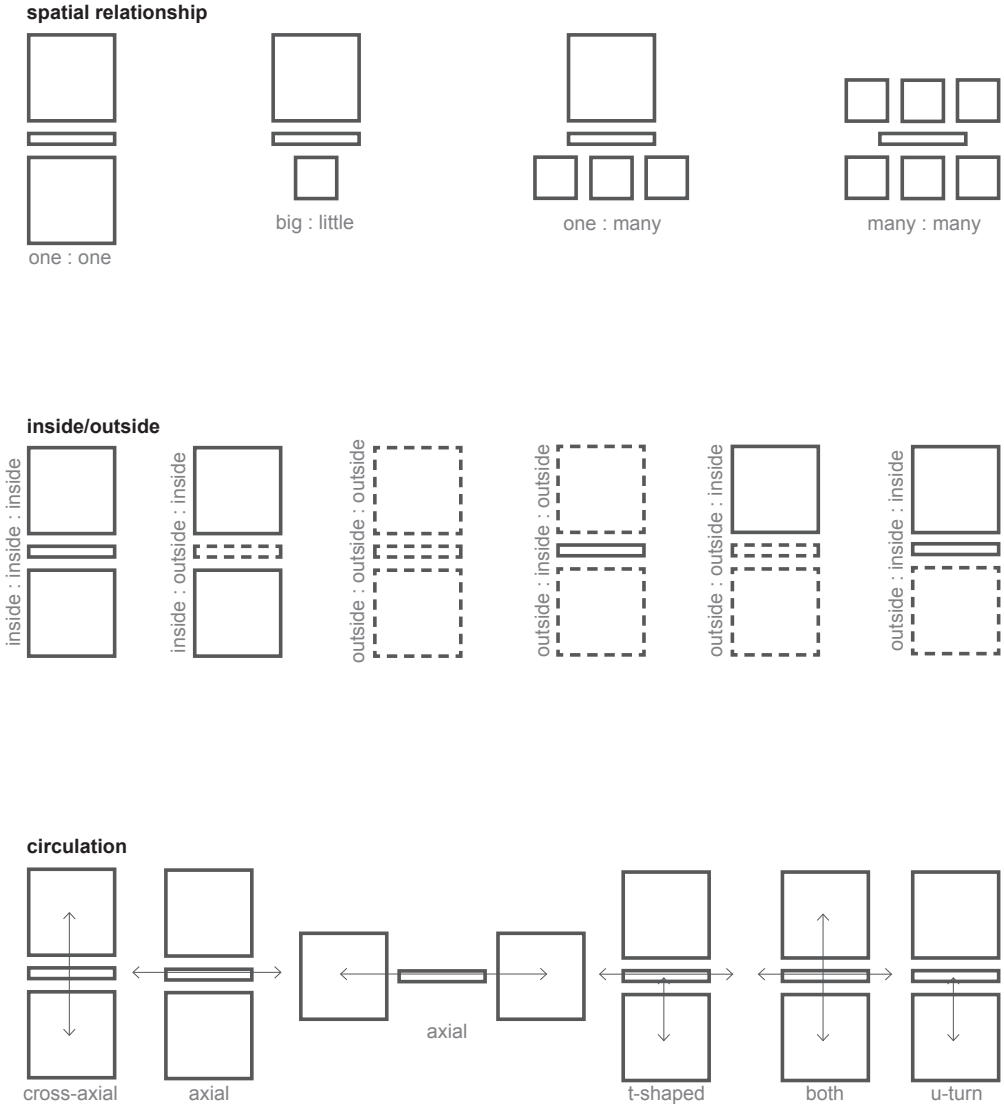


Figure 9 : Diagrams to Facilitate Categorization

3-D Modeling

Each space was then modeled in Sketchup using the previously determined dimensions. A human figure (5’-6”) is shown within each space in order to illustrate scale.

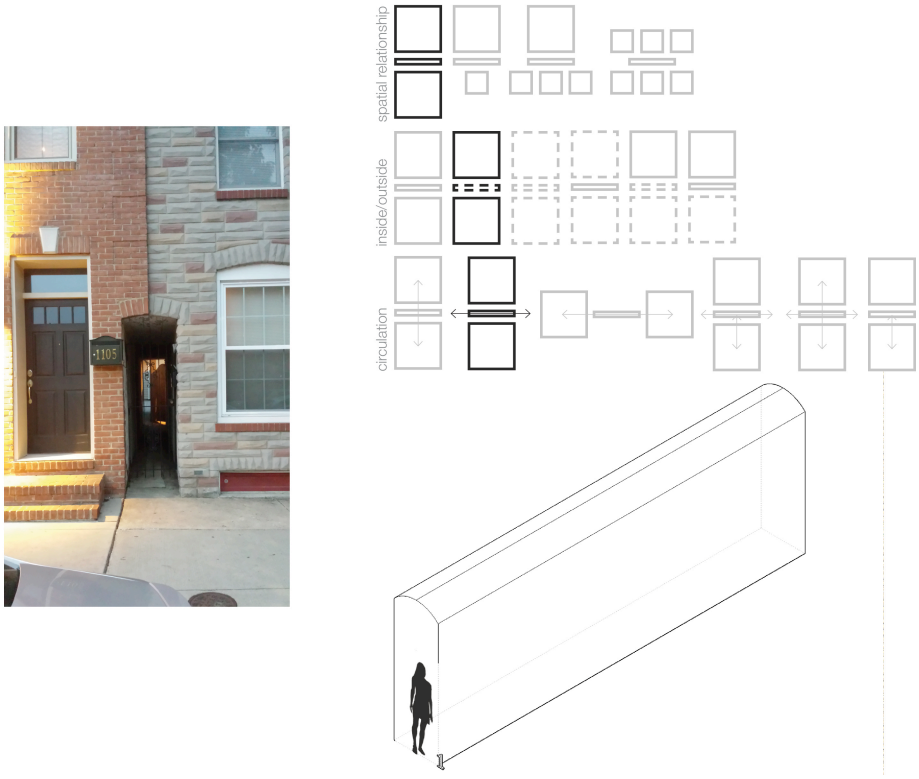


Figure 10 : Matrix Graphic

This is an isometric view of all 60 spaces modeled in Sketchup depicting the vast array of scales and proportional relationships.

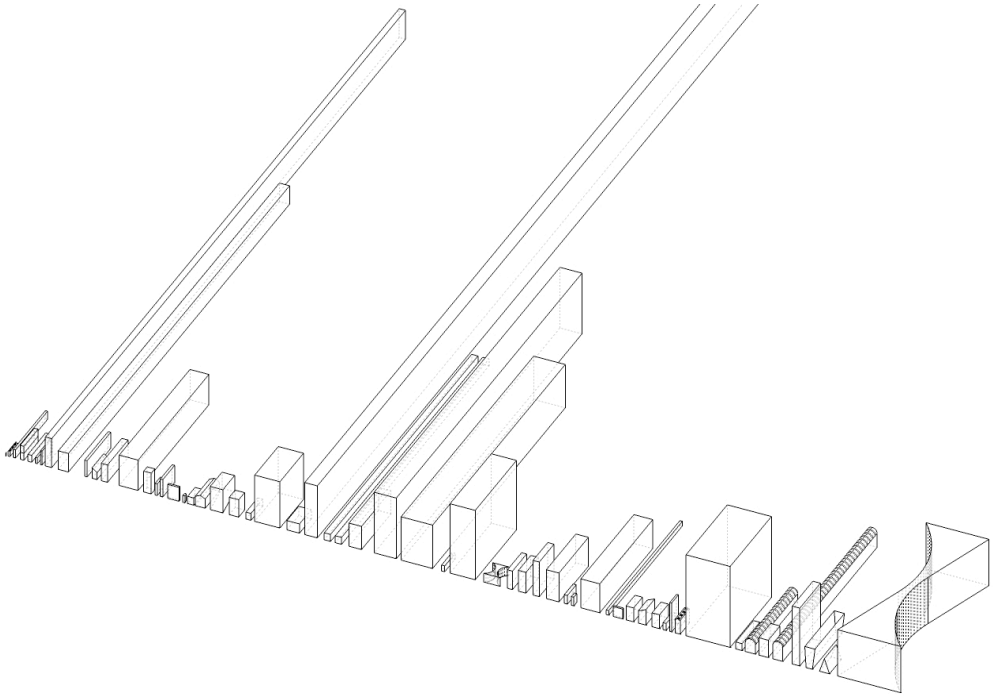


Figure 11 : Isometric of All 60 Matrix Space Examples

This is an isometric view of all 60 spaces modeled in Sketchup depicting the vast array of scales and proportional relationships.

Qualitative Data

Importance of the Experiential

While the matrix is largely comprised of factual or observable data, the driving force of this investigation is the author's emotional response and connection to this spatial morphology.

If one plans on making these types of spaces, it follows that the reaction that they provoke should be of interest to the architect.

Therefore, the experiential qualities and emotional response to this space had to be documented in some way. By surveying a range of people and allowing them to describe their own feelings about these spaces, we can see if there are any general trends and if the author's affinity is matched.

As everyone comes to these spaces with their own lense and experiences, we do not expect any particular outcomes beside a random distribution. There may be some slight coincidence in positive or negative feeling, however, as a result of letting the surveyee's choose their own adjectives rather than a multiple choice format, we expect a wide range of responses with little overlap.

Survey Method

The survey was conducted to accumulate words which are used to describe the interstitial. This is by no means a scientific study. It is an attempt at collecting qualitative data.

1. Distribute a chart with numbers in one column and blank spaces to the right.
2. Have the participants flip through a slideshow of photos of the matrix examples coordinated numerically.
3. Request that participants treat this exercise as a word to space association similar to a word to word association.
4. Have them write down the first several words that come to mind when they see a photo of a space.

5. Compile the responses into the matrix and then subsequently into a word cloud.

Survey Results

The full list of adjectives and their associating with each example can be found in the matrix appendix.

Figure 12 : Word Cloud of Survey Adjectives

Positive :	Negative :
Warm	Small
Open	Dirty
Relaxed	Lost
Excited	Claustrophobic
Adventurous	Old
Cozy	Squished
Comfortable	Sad
Nostalgic	Overwhelmed
Free	Uncomfortable
Calm	Cramped
Fun	Trapped
Peaceful	Confused
Bright	Tight

Conclusions

From the above we can see several words were repeated often in describing the spaces presented or feelings they provoked. There is a fair balance between the frequency of words with positive or negative connotations. This finding might prompt an investigation into which examples had positive or negative trends associated with them and the composition and attributes of those spaces.

Analysis

Sorting by Variables

This will entail determining key variables which identify this spatial type. As those are identified, sorting by those variables will show groupings of “like” spaces.

Seeing Patterns

Statistical Definitions

1. The mean is the usual average
2. The median is the middle value
3. The mode is the number that is repeated more often than any other

Word Clouds are useful to see the magnitude of frequency of one word relative to a group of words. They have some drawbacks however, in that these differences of size are not quantifiable. The following word clouds allow us to see general frequency trends in the matrix variables: name, architectonics, use, unintended use and adjectives.

Figure 13 : Word Cloud of Name Variable

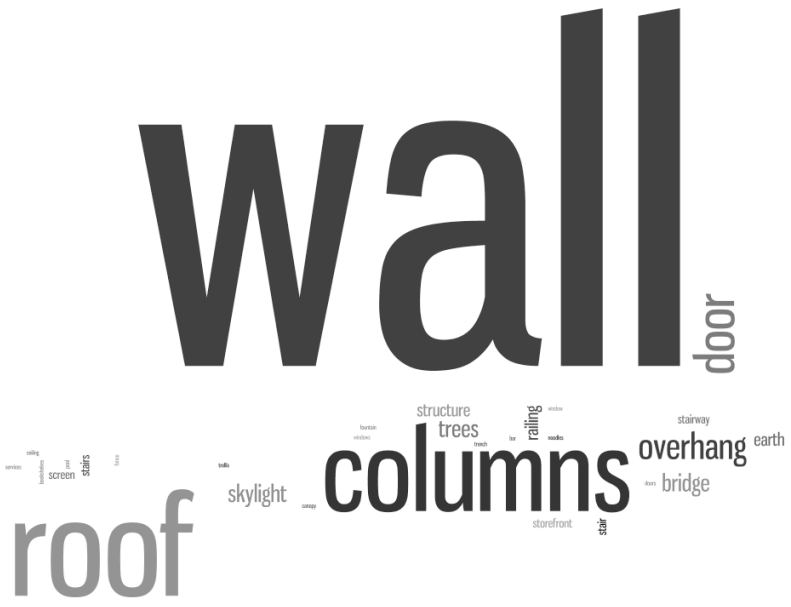


Figure 14 : Word Cloud of Architectonics Variable

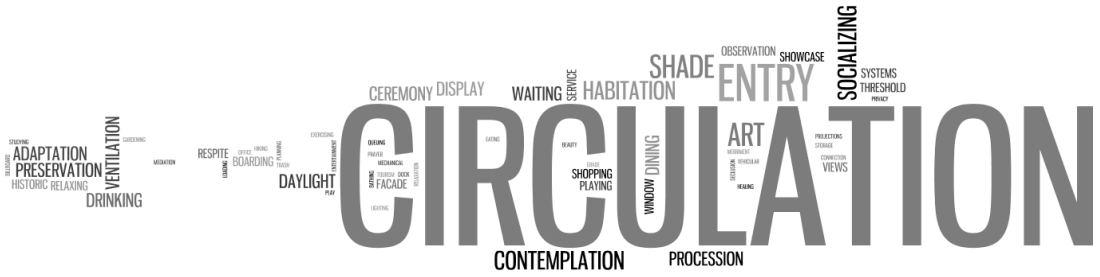


Figure 15 : Word Cloud of Use Variable

Figure 16 : Word Cloud of Unintended Use Variable

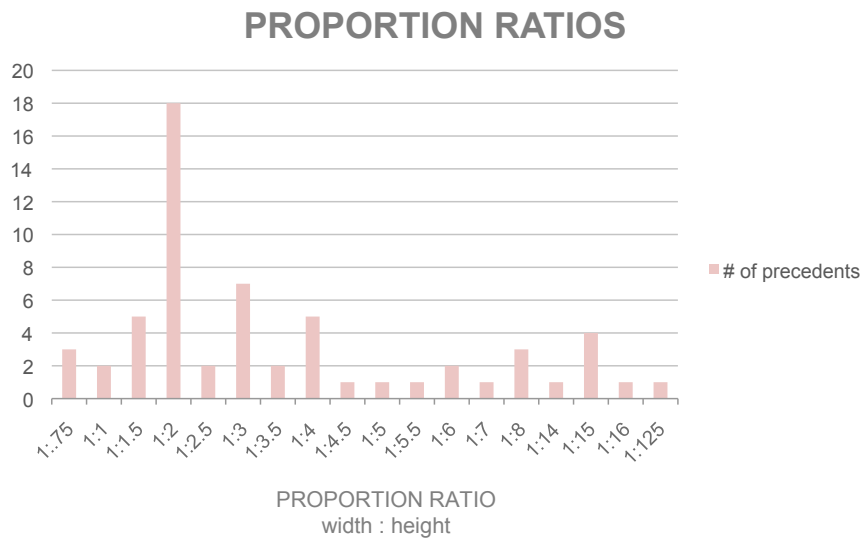
Width : Height Proportions

a) Mean - 1 : 3.25

b) Median - 1 : 2

c) Mode - 1 : 2 (19)

Table 1 : Proportion Ratios



Length Proportions

- Mean -
- Median - 6
- Mode - 1 : 6 (8)

Percentages for binary variables:

Terminated 60% Non-Terminated 40%

Indoor 32% Outdoor 62% Both 6%

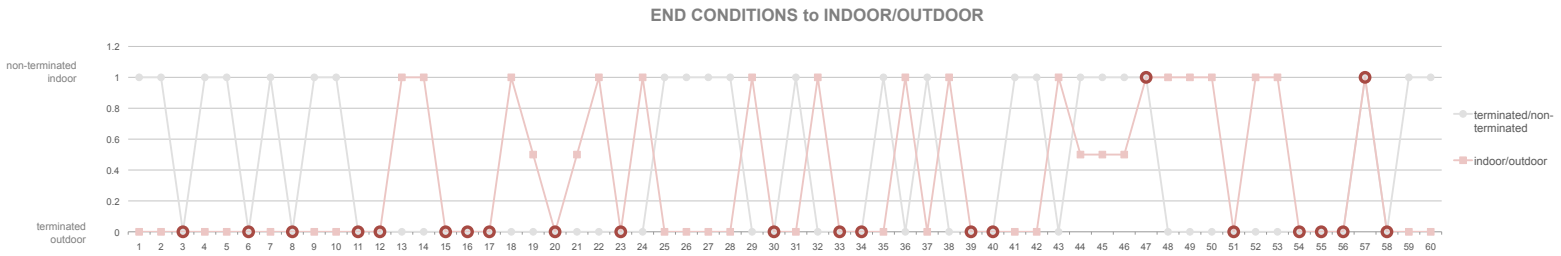
Axial Circulation 45% Cross-Axial 5% Both 38% Other 12%

Open 68% Closed 32%

Finding Correlation

In order to analyze the data, variable correlation had to be determined The process will be to graph different variables against each other in order to find correlation between them. For example:

Table 2 : Comparison : End Condition to Indoor/Outdoor



Plotting this information shows correlation of the end conditions of these spaces, whether terminated or non-terminated, with an indoor or outdoor condition. We can see that non-terminated spaces do not tend to be indoor, only 2 precedents are non-terminated and indoor. However, terminated spaces do tend to be outdoor, 20 precedents are both terminated and outdoor. 21 precedents are non-terminated and outdoor. 17 precedents are terminated and indoor. Therefore, the most likely combinations of these two binary variables in order of frequency:

Non-terminated and outdoor = 21

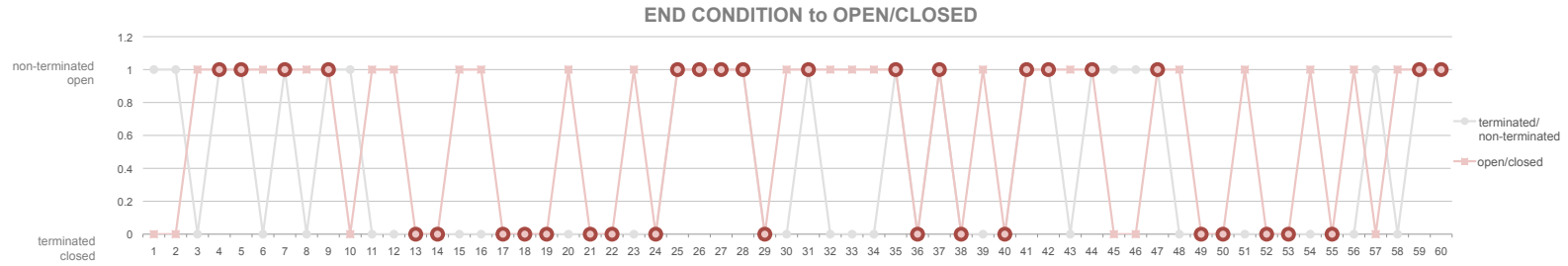
Terminated and outdoor = 20

Terminated and indoor = 17

Non-terminated and indoor = 2

The least frequent combination of non-terminated and indoor makes particular sense as it would be difficult to have an unobstructed end condition in a conditioned space, the option for this would be a clear view window at the end.

Table 3 : Comparison : End Condition to Open/Closed



Plotting this information shows correlation of the end conditions of these spaces, whether terminated or non-terminated, with an open or closed roof condition. We can see that non-terminated spaces are often open, 17 precedents are non-terminated and open. An equal amount of precedents are terminated and closed, 17. Only 6 precedents are non-terminated and closed. 20 precedents are terminated and open. Therefore, the most likely combinations of these two binary variables in order of frequency:

Terminated and open = 20

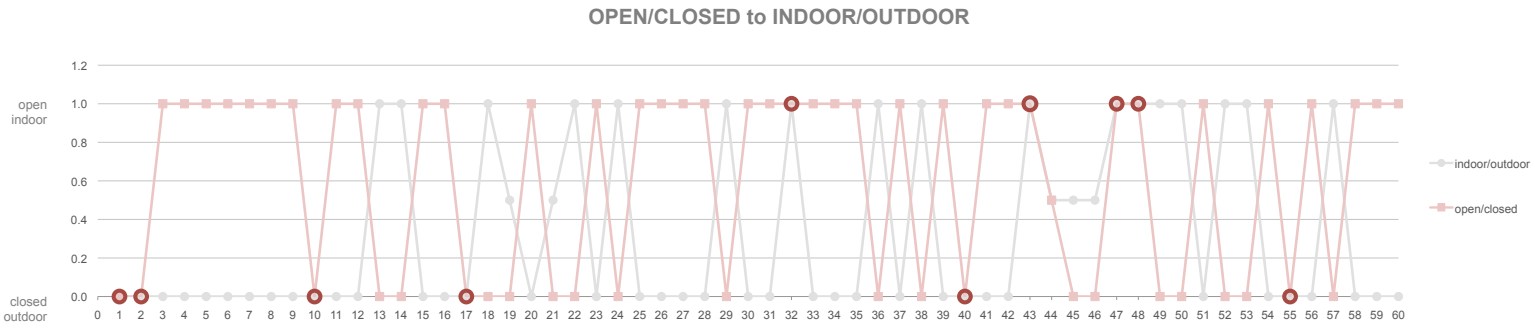
Terminated and closed = 17

Non-terminated and open = 17

Non-terminated and closed = 6

These two variables don't seem to have a particular correlation relationship other than terminated are often open and non-terminated are not often closed.

Table 4 : Comparison : Indoor/Outdoor to Open/Closed



Comparison: End Condition (Terminated) against Proportion Ratio

Plotting this information shows correlation of indoor or outdoor spaces to an open or closed roof condition. We can see that open spaces are often outdoor, 32 precedents are open and outdoor. Therefore it follows that a majority of closed spaces would be indoor, 17. Out of 60, 5 precedents are both closed and outdoor. And even fewer precedents, 4, are open and indoor. Therefore, the most likely combinations of these two binary variables in order of frequency:

Open and outdoor = 32

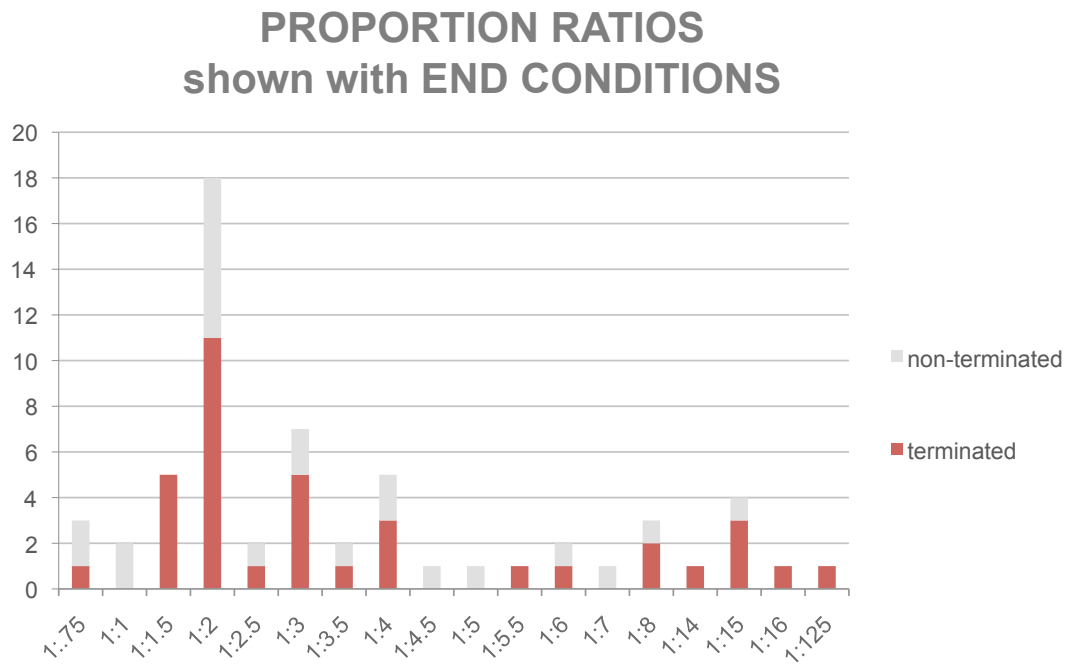
Closed and indoor = 17

Closed and outdoor = 5

Open and indoor = 4

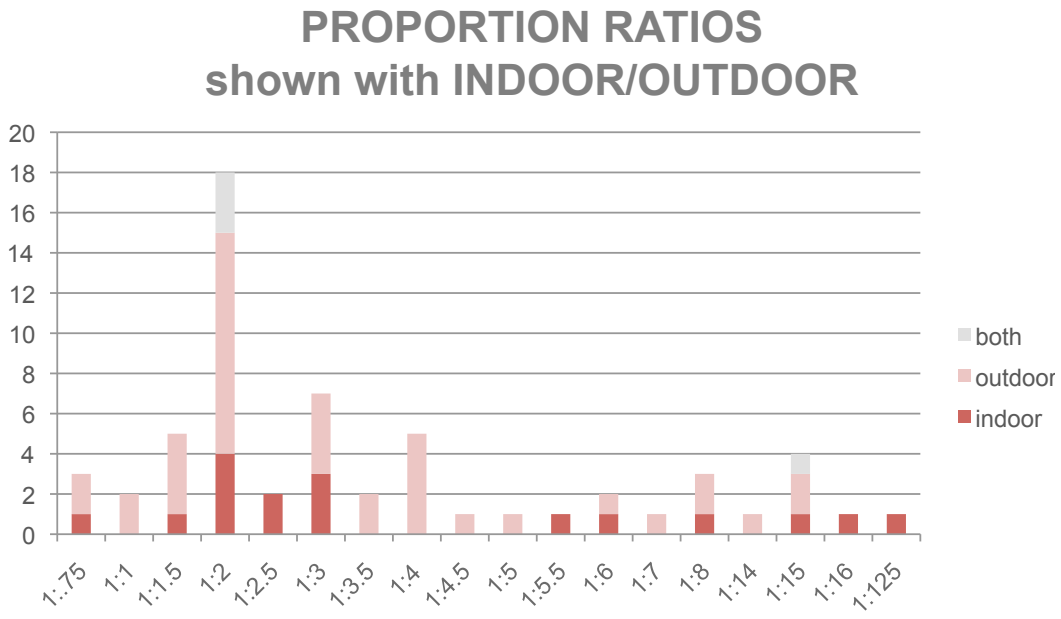
There is an obvious and direct relationship here between open (no roof) and outdoor spaces and closed (with a roof) and indoor spaces.

Table 5 : Proportion Ratio Shown with End Conditions



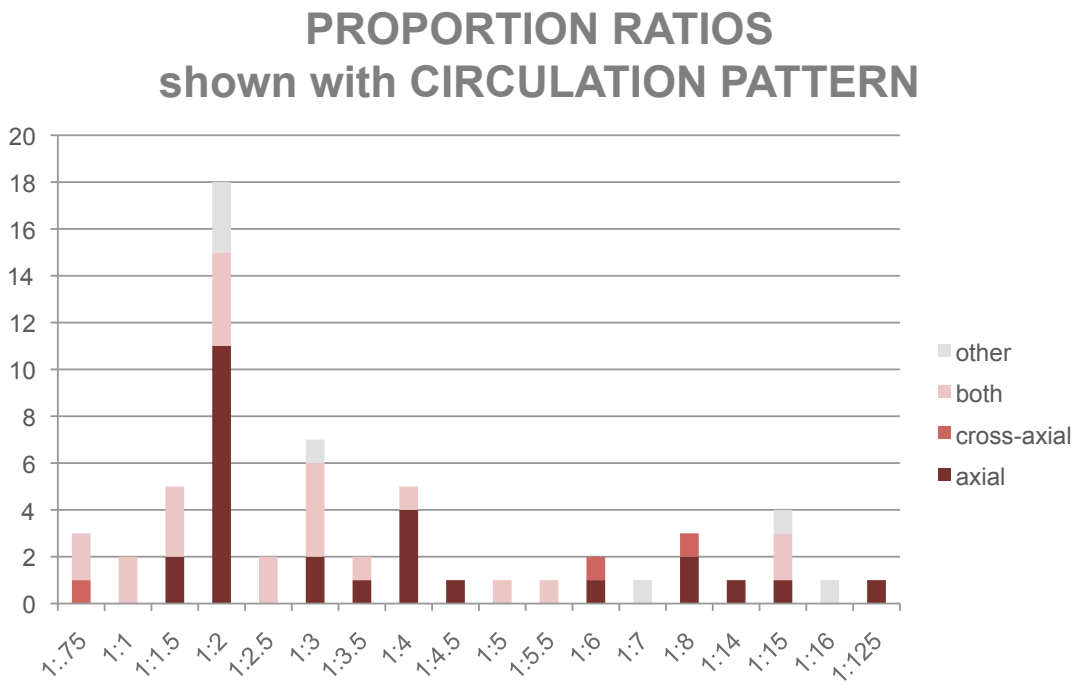
The data here suggests that if we extrapolate off of the 1 : 2 proportion ratio, which has the most precedents, that we would probably find a fairly similar pattern of 40% non-terminated to 60% terminated as we add more examples that fit each proportion ratio.

Table 6 : Proportion Ratio Shown with Indoor/Outdoor



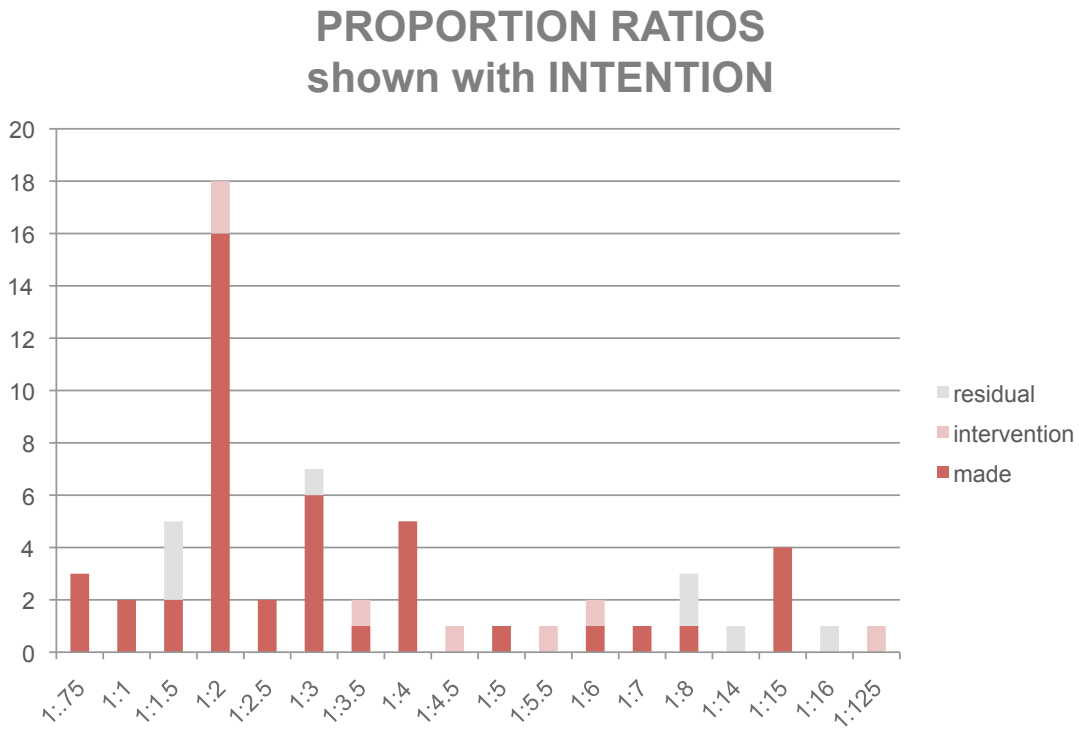
The data here shows that the majority of these spaces are outdoor.

Table 7 : Proportion Ratio Shown with Circulation Pattern



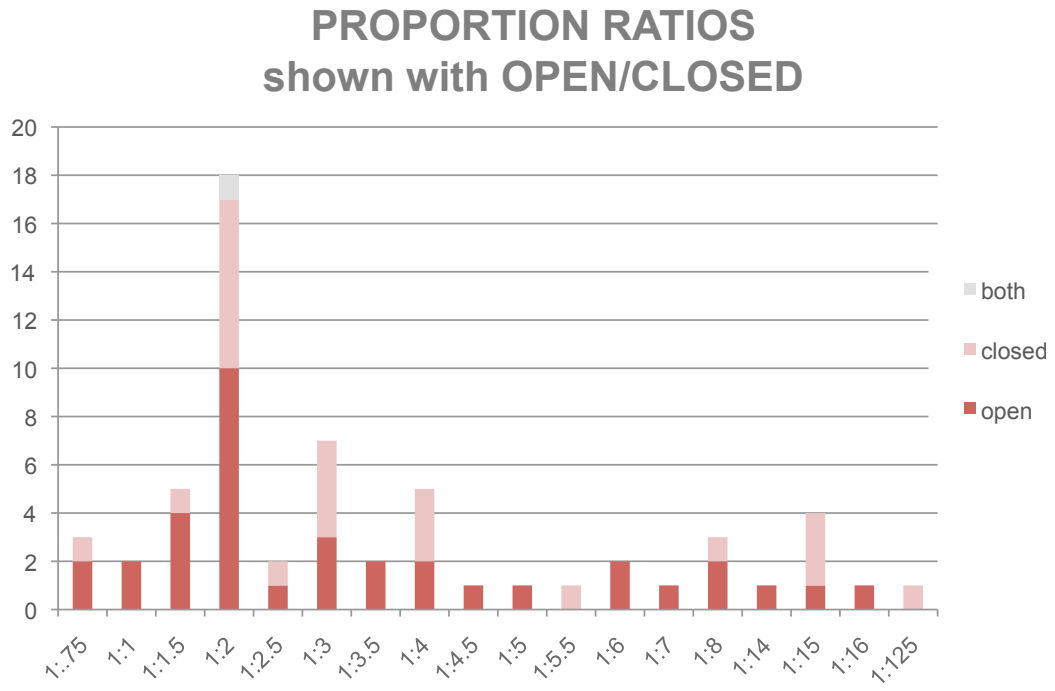
The data here shows that across all proportion ratios, circulation tends to be axial or both axial and cross-axial. One could imagine with more examples that as the ratio increased the likelihood of strictly axial circulation would increase. However, that does not currently seem to be the case.

Table 7 : Proportion Ratios Shown with Made/Residual/Intervention



Most spaces that were collected were intentionally made as interstitial. This goes against our original assumption that most of these spaces would prove to be residual.

Table 8 : Proportion Ratios Shown with Open/Closed



There is an almost even split in open and closed examples, leading us to understand that the roof condition may not be as important to the reading of this spatial morphology as the vertical planes are.

Seminal Examples

The groups of “like” spaces have been distilled into types or seminal examples. Specific architectonic combinations have risen to the top through aggregation. These principals have been used to imagine an idealized type for each group.

Through categorization of the examples, by their architectonics, we can see 5 loose types which an example will fall into. These types are: hall, loggia, slot, overhang and alleé. They are separated by their vertical definition and the presence or lack of a roof plane.

Hall: two walls and a roof

Loggia: colonnade, wall and a roof

Slot: two walls, no roof

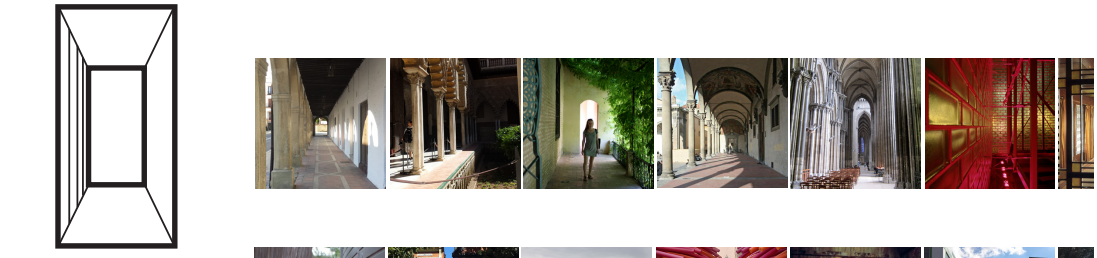
Overhang: one wall and a roof

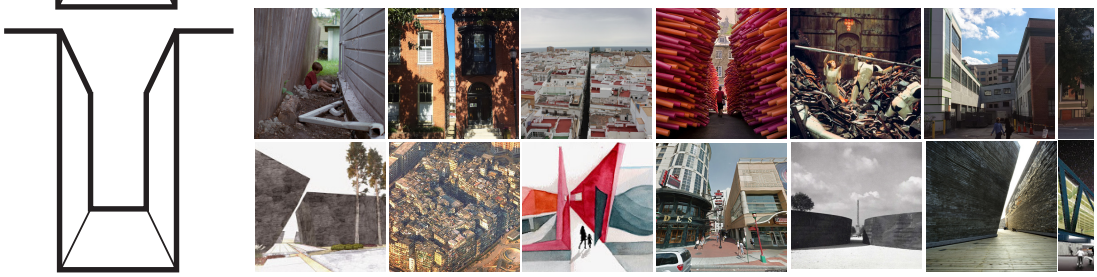
Alleé: two colonnades, no roof

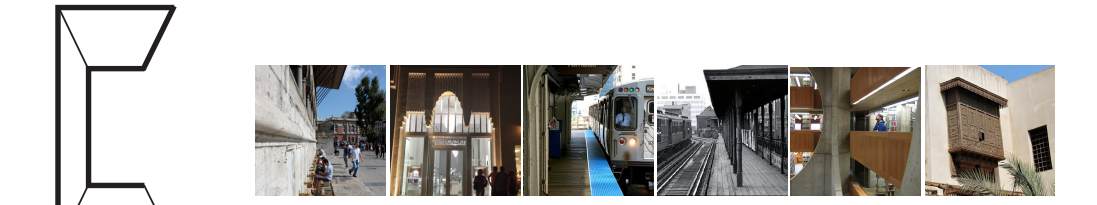
The slot and alleé are most similar as they include that powerful slice of sky. This gives the impression, even when terminated, of a certain infinity. We can relate this back to Norberg-Schultz's "cosmic orientation" that was referenced above.

The loggia and the overhang area also similar, the loggia minimally or maximally defines its colonnade edge depending on the modulation of columns. With the overhang, there is an implied edge denoted by the extents of the roof.

The hall is the most basic and most clear example type. While there is less depth or spatial layering read into the experience, the impression is just as strong as in the other types.







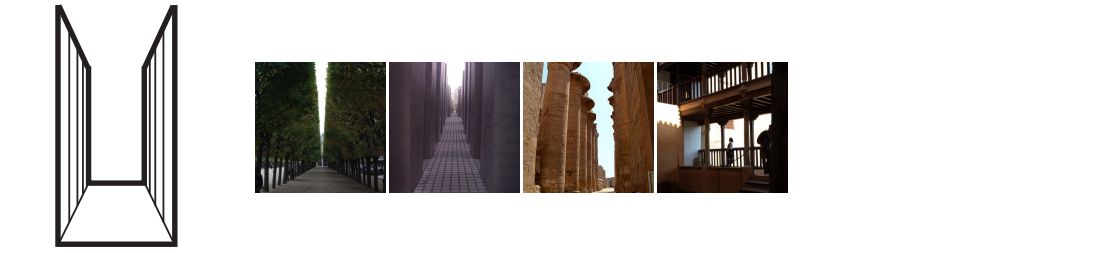


Figure 17 : Types

Conclusions

About the process

The process of collecting examples, diagramming, modeling and inputting variable data into the matrix is tedious. However, my assumption that by doing this we would start to see patterns arise was certainly correct and therefore, made the process worth it.

Conclusions from the Data

There were a few trends in the data that were surprising. The first of them to emerge was that the 1:2 width to height proportion ratio was the most common among the examples. I thought we were going to see a higher ratio differential as the mode. The most common length was 6 times the width, which makes for a quite long and narrow space, as we originally assumed these would prove to be.

In recording the made/residual/intervention variable, we found that the Made interstitial space was the most common. This was not expected as most connotations of the residual, give the impression of just that, whatever was left over, not an intentional attempt at space making. Since most of these spaces were made, we have hope of making them well as well.

Although we assumed axial movement was important, the examples were most likely to have axial and cross-axial. Leading to the conclusion that maybe it is the orientation of the space that is important in the reading not the circulation. Perhaps axial circulation is a secondary factor that bumps the space up in experiential quality, not just being a factor that kicks it into or out of the cloud.

Terminated was the most common end condition, and Outdoor was the most common. These are both probably factors that are constrained naturally:
terminated – most spaces don't have the ability or site to have infinite views, particularly in the city.
Outdoor – interstitial spaces that are outdoor are more easily recognizable and photographable.

Both of these are a bias in the data and while they can tell us some things about how the spaces are made, should not be given too much weight in relation to the other variables that are more impactful.

The seminal examples that have been derived from the data are a good place to start when imagining the kinds of spaces that can be created within this morphology. All the the examples and data collected from them will be a great resource moving forward with the design component of this thesis. One can see this collection and the future collection of specific precedents as a toolbox for the design process.

Watercolor Studies

As a model for exploring spatial characteristics without the specificity of place, we look to Lauretta Vincarelli's Not Architecture, But Evidence that It Exists[17]. These studies take the types derived from study and apply light, color and mood.

---

[17] Vinciarelli, Lauretta. Not Architecture but Evidence That It Exists. Cambridge, Mass: Harvard Graduate School of Design, 1998.

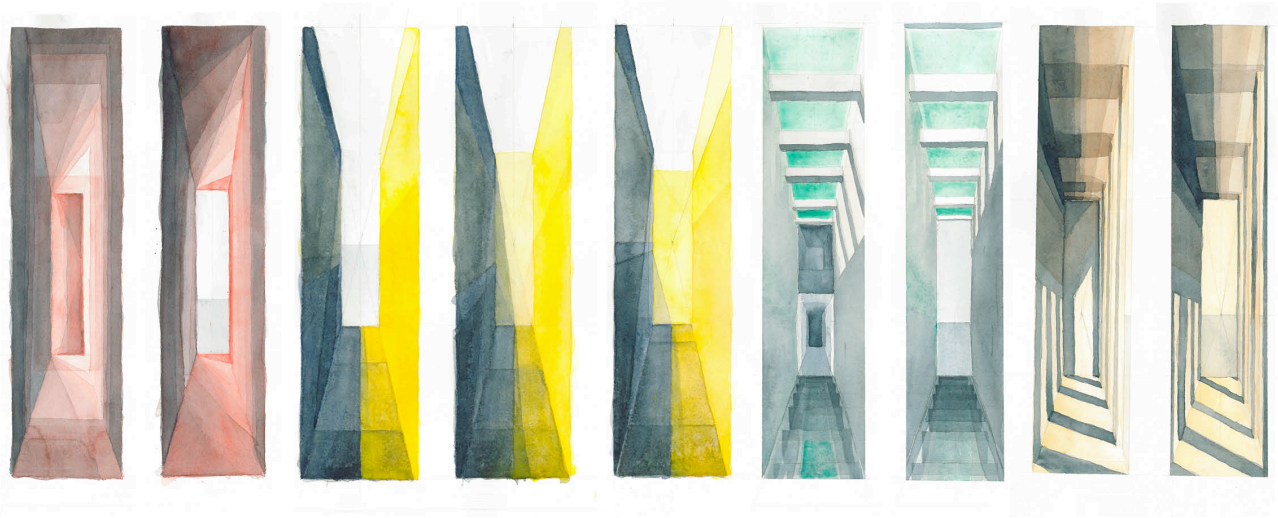


Figure 18 : Watercolor Studies

We can also see the examples as an continuum and extrapolate the possibilities that lie between the examples. These idealized spaces are explorations of a deeper and more intuitive understanding of the phenomenological properties of interstitial space.

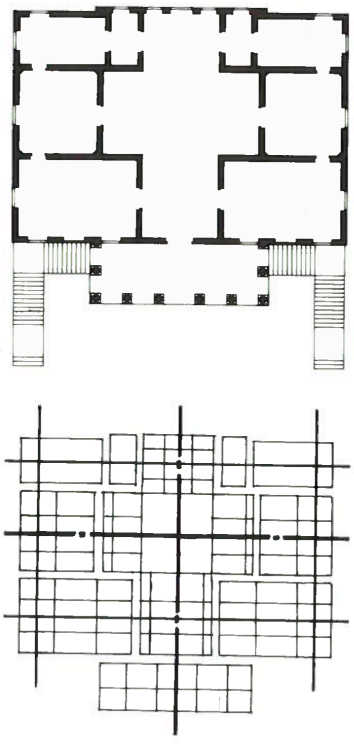
Chapter 3: Theory to Building

Historical Uses of Interstitial

Trace Evolution

As another reference, I would like to continue this investigation with a survey of the use of interstitial space across history and cultures. Key practitioners will be placed in chronological order and shown with their plans to illustrate if they used interstitial space an how. We can also deduce philosophical ideals from these plans based on the treatment and attitude towards the interstitial.

Andrea Palladio



19
Villa Foscari (*La Malcontenta*), plan, Palladio, c. 1550

20
Geometric scheme of Villa Foscari

Figure 19 : Villa Foscari : from Michael Dennis, The Court and Garden

(1508-1580)

Palladio's use of interstitial space is always in service of symmetry. Any interstitial occurs to mitigate the expression of the interior on the façade in a symmetrical way. As Michael Dennis describes:

"While the central space is related directly on the façade by the portico or loggia, the windows in the solid side portions of the façade align with the doors of the secondary rooms, which are themselves arranged in series, or enfilade. These axial relationships then produce a secondary grid of slots, or zones of space, which unites the rooms and relates them to the exterior."[18]

This is one way to use interstitial space effectively and to thoughtfully include these types of spaces into the plan.

Poché and the Hotel Particular

The masonry load bearing structural system employed in the Beaux-Arts period, meant that the reading of the poché in plan gave one a direct understanding of the spaces' volumetric qualities; "that is, a large space could be assumed to have a higher ceiling, and its wider span (and greater load) would require larger supports. Thus the volumetric aspects of the design could be read from the two-dimensional abstraction of the plan."[19] The masonry wall is a driving factor of this architecture and as such becomes one of the instigators of interstitial space in the French Hotel Particular.

---

[18] Dennis, Michael. The Court and Garden. (19)

[19] Dennis, Michael. The Court and Garden. (Introduction 4)

The second factor for the appearance of interstitial in this architecture is the use of idealized geometry in plan. Primary spaces were determined to be platonic shapes and as such had to be reconciled to the irregularities of reality, particularly the urban condition.

Figure 20 : Place Vendome : from Michael Dennis

Figure 21 : Hotel Crozat : from Michael Dennis

This example shows how the urban form of Place Vendome, in the shape of a chamfered square, impacts the continuous poché of the buildings. Into one corner

the Hotel Crozat is fitted snugly. It contains a horseshoe shaped courtyard that is out of register with the axis of the square. This misalignment is corrected by a circular vestibule which reorients you along a new axis. Between the three idealized primary spaces, chamfered square, horseshoe and circle, arise many spaces that are secondary and interstitial to these main bodies. These small interstitial spaces are the direct result of the masonry load bearing structure combined with the insistence on pure geometries. They carry the full expression of interstitial in that they are secondary but carefully made.

Lastly, in combination with the two above factors, interstitial space was driven in this architecture by the gradient of public to private and the social and cultural rituals that attended that transition. This created a hierarchy of residual or poché. We can see that the Hotels created a continuous street facade which was the residual of the primary urban spaces of street and square, “thus, the complex interstitial urban tissue formed by the various houses may be seen as a kind of habitable poché, an infinitely variable fabric, which is the residue of formal discontinuity.” [20] Next comes the more private internal courtyards which are primary to the building, and in descending order public spaces as primary to the private, and anti-rooms and service as beneath that.

“This system of hierarchical levels of poché and designed discontinuity not only allows the identity and closure of each of the spaces, sometimes down to the smallest of dressing rooms, but also wastes very little space with literal poché, or thick walls, to resolve awkward joints….The leftover area created by the shape of the

[20] Dennis, Michael. The Court and Garden. (47)

court and the shapes of the rooms is filled with service stairs and private passages between suites of rooms. Thus, a third level of *poché* may be observed-that of space between rooms, which accommodates closets, fireplaces, niches, and servants' passages (degagements). This is an architecture of residue."[21]

This is a complex and highly articulated architecture in which the use of interstitial becomes a spring board for creativity within the usage of load bearing masonry.

Le Corbusier

Villa Savoye

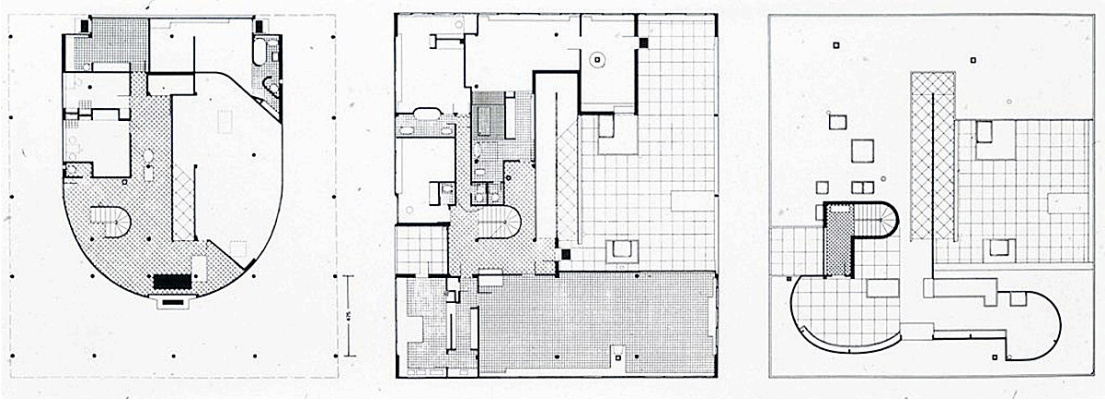


Figure 22 : Villa Savoye : Floor Plans

http://purehistory.org/wp-content/uploads/2013/11/t0108nw9yr6oe7ah.jpg

And it is the inverse of the Villa Savoye, where the tautness and regularity of the perimeter control the disposition of the plan.

[21] Dennis, Michael. The Court and Garden. (91-95)

“Le Corbusier literally inverted interior space and gave new imagery and meaning to old principles. If the traditional plan can be seen as concave voids carved out of a solid, the new plans may be seen as convex solids inserted into a space. In the old plan, the spaces were figural and solids served as ground. Both plans utilized the concept of poche, but in the traditional plan the poche is that which is left over after the spaces are particularized; in Le Corbusier's plan it is the poche itself that is particularized-the space only defined, not enclosed. (192)

Mies Van De Rohe

Farnsworth House

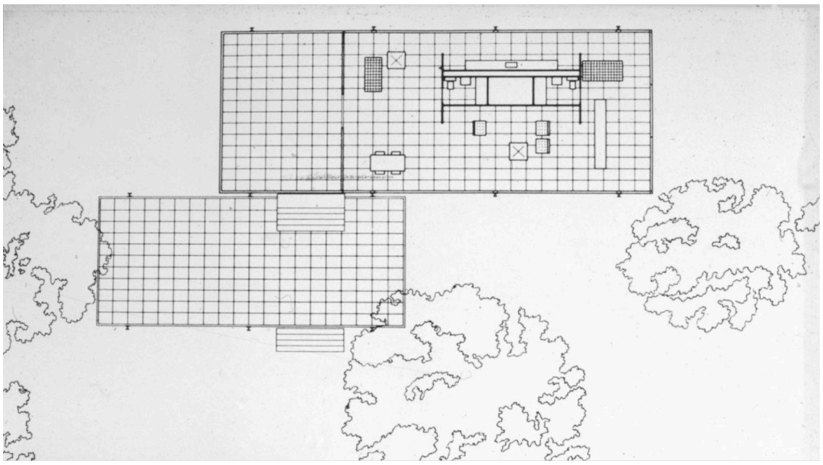


Figure 23 : Farnsworth House : Plan

https://classconnection.s3.amazonaws.com/419/flashcards/1260419/png/farnsworth_21336515962781.png

This is an instance in history where the interstitial was done away with. There is nothing to hide in this glass box and little enclosure or compression.

Louis Kahn

Salk Institute

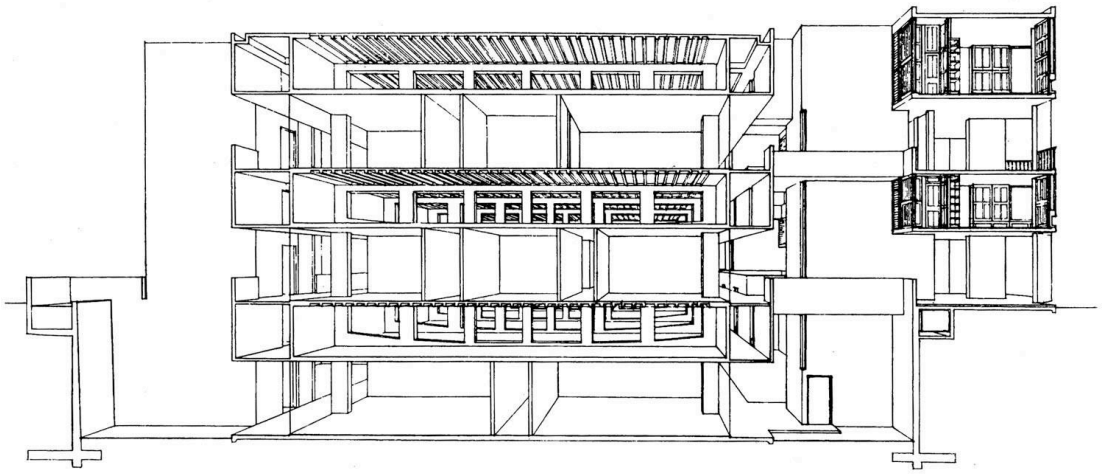


Figure 24 : Salk Institute : Section through the Interstitial

https://classconnection.s3.amazonaws.com/618/flashcards/1220618/jpg/-0161338796187394.jpg

Kahn may have been the first to coin the term “interstitial space” as he designed a biology lab and research center. The word originates in the medical field and refers to the Interstitial compartment: (also called extravascular compartment or tissue space) is the space that surrounds the cells of a given tissue. It is filled with interstitial fluid. Interstitial refers to a "small opening or space between objects". Together with the vascular space, the interstitial space comprises the extracellular space.

Between each floor of programmed laboratory space was an unoccupied floor to house mechanical and plumbing. Kahn wrote “I do not like ducts; I do not like pipes. I hate them really thoroughly, but because I hate them so thoroughly I feel they have

to be given their place. If I just hated them and took no care, I think they would invade the building and completely destroy it." Louis I. Kahn, *Not for the Fainthearted*, 1971

Interstitial space was investigated and utilized by Louis Kahn as a way to control the mechanical systems at the Salk Institute. This resulted in the creation of blind floors between each functioning laboratory floor for the housing of systems in a way that removed them from the occupiable space, thus clarifying the architectural expression, as well as making them easily accessible for maintenance and replacement. Using the interstitial was his way of addressing this problem and at the same time allowing for servicing and replacement as MEP technology advanced.

Despite its importance to the architectural understanding of interstitial, this type of space is not quite in line with our interests. It does not have vertical orientation nor is it occupiable.

Peter Zumthor

Kuntshaus Bregenz

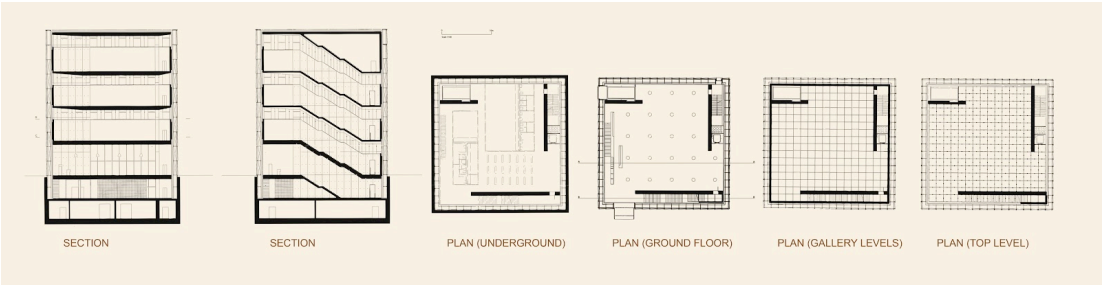


Figure 25 : Kuntzhaus Bregenz : Set of Drawings

http://anne-catherinemulhern.blogspot.com/p/case-study-peter-zumthor-kunsthaus.html

This is an example of the interstitial being used on the perimeter of the primary space.

Vals Therme

Figure 26 : Vals Therme : Plan

http://ideasgn.com/wp-content/uploads/2013/04/Therme-Vals-Switzerland-by-Peter-Zumthor-006.jpg

This is an example of a close to 50-50 split of interstitial to primary spaces. Additionally, it is the secondary spaces that are particularized and the primary and interstitial (tertiary) are left free.

Wang Shu

Ningbo History Museum

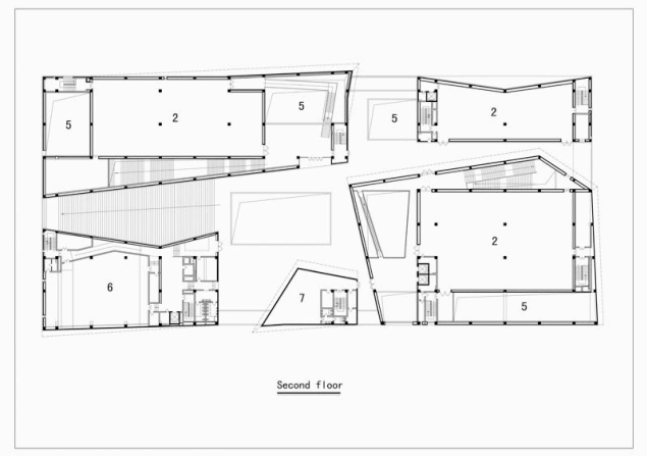


Figure 27 : Ningbo History Museum : Second Floor Plan

http://sbd2050.org/upload/project/23/l_7747_Second_floor_.jpg

"Ningbo Historic Museum / Wang Shu, Amateur Architecture Studio" 22 Feb 2009. ArchDaily. Accessed 12 Dec 2014. <http://www.archdaily.com/?p=14623>

This is an example of the interstitial used to replicate the historical forms of the hutong or small alleys between traditional Chinese courtyard housing at a monumental and civic scale.

Design Lessons from Historical Precedents

Symmetry

Register Façade to interior

Hierarchy of poche: Public : private

Masonry bearing walls

Idealized geometry of primary spaces

Particularize residual within free plan of primary spaces

Primacy of frame

Nothing to hide = no interstitial

Connection between interior and exterior

Use interstitial for services like MEP, with space for upgrades

Clarify architecture

Horizontal non-occupiable

Overload of interstitial

Few primary spaces

Narrowing views

Symbolism

Neglected Morphology

Connotations

The words used to describe the interstitial often have negative connotations: “wasted space”, make your plan “less ambiguous” or “more pure”, “left-over”. They betray our neglect and disregard for this morphology.

Modern aversion

With the triumph of the structural frame, the intimate relationship of solid to void-the prized *beau poche*-became meaningless, and was of course scorned by modernists.

If frame is primary, there is less need for mitigating bearing wall conditions or idealized geometries to other idealized geometries.

Necessity

Interstitial space is necessary:

For creating figural space

For relating to human proportions

Sense of enclosure

Rich spatial experience

Give clarity (as described above by Koolhaas)

Of movement

Axiality is important

Intentionality

Taking an Intuitive Process to Task

Why do I keep using the interstitial as an organizing device in my work? As we have seen it may be a result of latent images. Perhaps there is also an intuitive need for an ordering device, which the subconscious is using the latent image for.

In any case, this intuition should be interrogated in order to determine its efficacy.

Creating the Accidental

Residual: exactly what it sounds like, the unintended or left-over spaces that were not given much thought. How is it even possible to recreate the complexity of a spatial type which is largely accidental.

Are we trying to magnify the qualities that make it interstitial?

Context and use affect the value of the interstitial.

Evaluation

Is it a good thing to continue to return to the same images and patterns of creation?

Intentional Use of the Interstitial

Design Strategies

Using Negative Examples

Another use for the matrix could be a smaller collection of examples of what not to do, interstitial spaces that do not work, be it because of proportion, lack of definition, poor use, or whatever else.

This would be another tool for guiding the intentional creation of the interstitial forward.

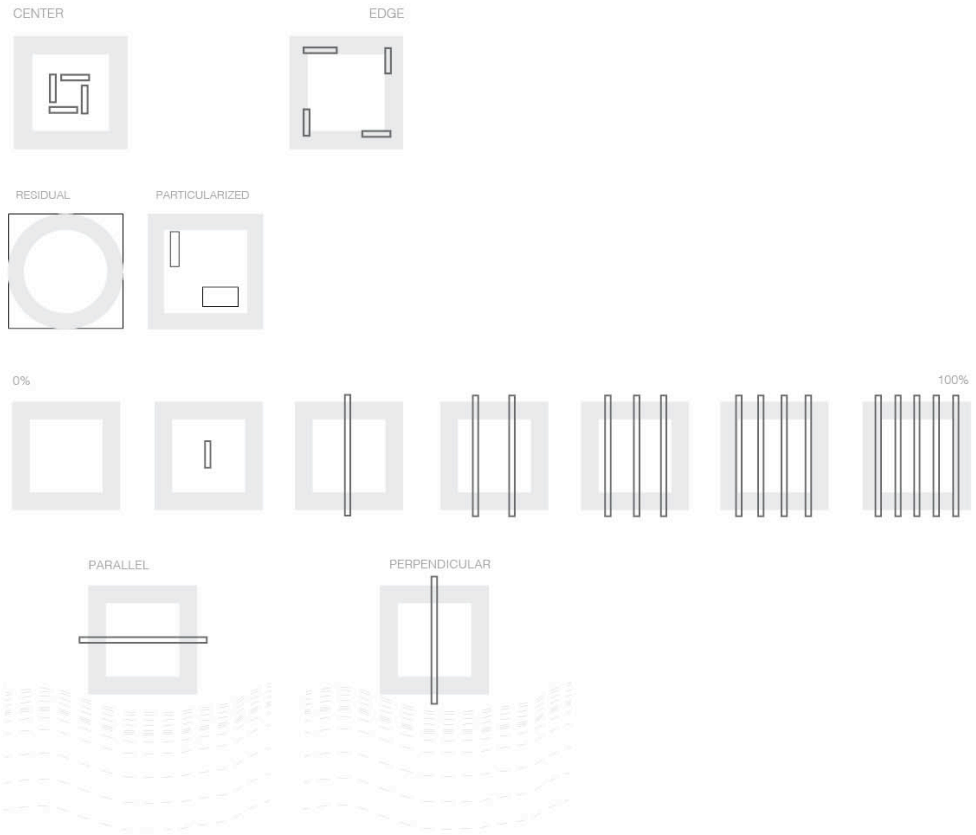
Reversing Figural / Void Reading

Gradient of Interstitial

When using interstitial as an organizing principle, we can understand its implementation along a gradient from 0% interstitial space in the architecture to the architecture being 100% interstitial space.

As my argument has been that 0% is bad, I must still qualify that 100% is probably no good either. Part of this exploration into creating the interstitial intentionally, will be to determine an appropriate percentage of use. One might imagine that it is necessary to have a significant percentage of figural space in order to maintain the

reading of interstitial as between two spaces. What happens when the interstitial is the same size as the spaces it is in between?



Center / Edge

Parallel / Perpendicular

Residual / Particularized

New Possibilities

The interstitial is primarily seen as static. It is axial, bounded and often terminated. However, we can see the possibilities for this morphology in examples like the #60, the Border Crossing station. In this example, although the interstitial is an in-between space, its edge conditions are warped. (See also #34, Richard Serra's Clara Clara)

These examples begin to illustrate a way forward for interstitial space as a dynamic morphology.

Importance of the Interstitial

In reviewing the literature and the modes of employing the interstitial in practice, I believe we can draw some important conclusions about this spatial morphologies importance and necessity to architectural expression. It is essential to our wellbeing to have places that are hidden and for hiding as pointed out by Alexander. It is essential to the creation of cohesive primary functional spaces to have secondary or even tertiary slot spaces that allow those to be formalized both within the urban context and our reading/ way-finding within buildings. It is essential to architectural phenomenology for its ability to provide the opportunity for architects to create powerful spatial experiences.

My goal is not necessarily to change the forms or functions of these spaces, rather to create them in a more aware and focused way.

Chapter 4: Designing the Interstitial

Program

Considerations

The program for this thesis came late because the research indicated that uses were varied and not central to the investigation of interstitial space. As a spatial typology, the interstitial is applicable to almost any conceivable program. It is also applicable at almost any conceivable scale. Both these flexibilities are born out by the matrices' varied examples.

Once the abstraction and cataloguing of interstitial spaces was well underway, it became clear that a program would need to be functionally dense in order to exploit all of the interstitial's possibilities. Another consideration for program selection would be one that allows investigation of the interstitial at multiple scales within the architecture and the site. Additionally, the program would need to hold symbolic significance for the deployment of the interstitial.

"If the intentions of the League of Nations are sincere, then it cannot possibly cram such a novel social organization into the straitjacket of traditional architecture. No pillared reception rooms for weary monarchs but hygienic workrooms for the busy representatives of their people. No back corridors for backstairs diplomacy but open glazed rooms for public negotiation of honest men." H. Meyer (134, modern architecture Frampton)

Program

An Embassy building type is a Washington, DC typology, as they occur nowhere else in the United States. The program has multiple functions and constraints including the consulate services, public event spaces, security, office space and even residences. Embassies typically range from 40,000 – 200,000 sf in size.

Because documentation of these buildings is often top secret, finding detailed plans and square footages for program analysis was difficult. However, I was able to obtain construction documents for one precedent. This was used to conduct a preliminary program analysis.

Precedent Program Analysis

SOUTH AFRICAN EMBASSY
PROGRAM ANALYSIS

My finding was that the rough program break down was 40% office space, 30% support space and 20% public space. 22,200sf, 17,100sf and 11,100sf respectively on four floors, plus a basement for a total of 57,000sf. Parking is included in the

basement but the residence has been removed and relocated to make room for updated security and technology functions.

Hypothetical Program

This thesis explores the intentional application and exploitation of the interstitial possibilities on built form through the mission and program of an international women's embassy.

This building will house the newly launched No Ceilings initiative, a collaboration between the Bill and Melinda Gates Foundation and the Clinton Foundation. It will serve as an Ambassador for Women internationally by hosting co-working space for various non-profits working on women's rights around the globe, such as Half the Sky, Women for Afghan Women, Equality Now, and the Center for Reproductive Rights. It will also be a place for women leaders, thinkers and creators to meet and exchange ideas and strategies for a better world.

It also hosts a co-working space for like-minded non-profits to collaborate under one roof and further a common ideal. It is a gathering place for world leaders, a forum for discussion and action, a venue for expression and demonstration and a mission that advocates for the full participation and embrace of the feminine through diplomatic, legal, economic and creative means.

Collaborative solutions are better for everyone, and by addressing and creating the interstitial, this building and mission will question conventional boundaries. Making

this space enables this building to hold opportunities that confer benefits for everyone involved.

Mission of International Women's Embassy

This is an interesting moment in our understanding of gender, we are neither stuck in some dark repressive past nor have we arrived at a bright egalitarian future
Rather we have come to understand where we stand, and certainly the LGBTQ movement has informed our ideas about gender; that perhaps there is space between the gender polarities. This institution celebrates the feminine potential in everyone.

The feminine is caring, collaborative, creative, and contains multitudes.
These are universal ideas about womanhood that represent all women and yet may not be personified in any one woman. We make no assumptions or requirements of what the feminine must be. Rather we "hold space" for others. Giving them room to define themselves and to thrive.

The International Women's Embassy realizes the opportunities of the interstitial by questioning conventional urban boundaries. The interstitial is used to add symbolic and functional elements to the typical embassy and cause consideration for the individual. Through its use, this building affords communal benefits to the institution, its occupants, and neighbors.

This institution would be a necessary addition to the world stage and hold rich symbolism for the exploration of the interstitial in architecture.

International Women's Embassy by the Numbers

Offices	20,000 sf
Auditorium (130 seats)	1500 sf
Council Chamber	1500sf
Café	1500sf
Library	1000sf
Public Event Spaces	4000sf
Outdoor Space Alley Roof Terrace Elevator Balconies Office Balconies	5,060sf 2500sf 1800sf 600sf 160sf
Residences (4)	1100sf each
Support Space	30,000sf
Total	50,000sf

Site

Considerations

The primary criteria for selection depended on synthesizing conclusions from the matrix. One consideration was to understand if the site itself must be interstitial, i.e. an urban infill project, within a gorge, etc… For this reason, interventions into the interstitial space are included in the matrix. Or does interstitial space, simply within the architecture, have to drive the project, as examples of my past work show? Does the project occupy the interstitial or organize the interstitial?

Once the program of embassy was selected, this drove the site choice. In Washington, DC many embassies are located along Rock Creek Park for the obvious advantages of views to the landscape and some remove from the city. Many others however are situated in DC's old mansions, which are historic homes on urban sites that have been converted more or less successfully into office space. I chose to move in the latter direction with the hope that an infill site would, by constraining the site limits, prove more encouraging of the interstitial's development.

Washington, DC

As a uniquely DC typology, once the embassy program was selected the first choice is Embassy Row along Massachusetts Avenue, so I reviewed several sites in that location. It was important that the site contain DNA of the interstitial. This is a landmark building that represents a women's mission on Massachusetts Ave. This is an interesting place for this mission, in the halls of power in Washington DC, women make up only 20% of our representatives.

1724 Massachusetts Avenue, NW

Historically, Embassy Row was a series of detached mansions with side yards and carriage drives-through from street to alley. Based on Sanborn maps we can see the historic development of this stretch of Massachusetts Avenue over time.

Figure 26 : Massachusetts Avenue Sanborn Maps

One item of note that is not show on these maps is the 1977 demolition of the three historic row homes that were demolished to assemble the current lot on which the building we propose to demolish was built. (Washington conservation League)

Figure 27 : Massachusetts Avenue Street Elevation

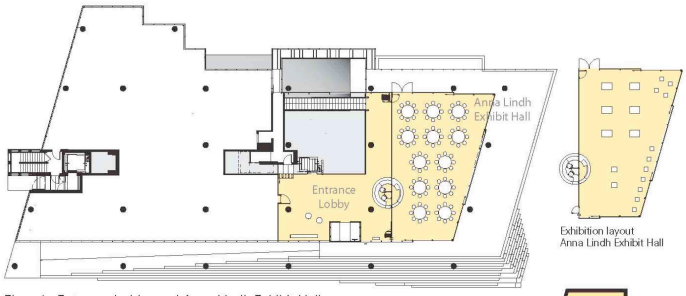
Thus, the site has existing interstitial spaces, both purposeful and residual, both neglected and exalted that reflects the purpose of this thesis. The interstitial is present in the DNA of the 1700 block of Massachusetts Avenue, NW, Washington, DC.

Precedents

House of Sweden

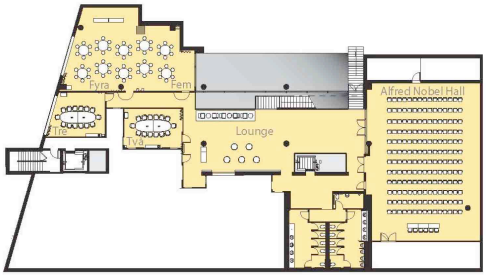
Occupies 40,000sf of a larger 70,000sf, six story office building at a site in Georgetown on the Potomac river.

Figure 28 : House of Sweden : Site Plan



Exhibition layout
Anna Lindh Exhibit Hall

Floor 1 Entrance Lobby and Anna Lindh Exhibit Hall



Conference layout
Fyra + Fem

Banquet layout
Alfred Nobel Hall

Floor 2 Event Center and Alfred Nobel Hall

Meeting capacities

Conference hall	Dimension (ft.)	Size (sq. ft.)	(sq. m.)	Ht. (ft.)	Capacities Banquet seated	Reception	Theater	Conference	Classroom
Anna Lindh Exhibit Hall	32x57	1840	171	10'-0"	100 pers	100 pers	100 pers	-	-
Alfred Nobel Hall	44x61	2670	248	9'-0"	180 pers	180 pers	180 pers	140 pers	120 pers
Två	22x15	340	32	8'-5"	-	-	-	14 pers	-
Tre	21x17	350	33	9'-0"	-	-	-	14 pers	-
Fyra	27x33	870	81	9'-0"	40 pers	50 pers	-	34 pers	28 pers
Fem	21x25	475	44	9'-0"	-	-	-	16 pers	16 pers
Fyra + Fem	48x33	1340	125	9'-0"	60 pers	80 pers	74 pers	50 pers	50 pers
Lounge	65x20	1300	130	9'-0"	60 pers	100 pers	-	-	-

HOUSE OF SWEDEN

House of Sweden, 2900 K Street NW, Washington DC 20007
+1 202 536 1500
info@houseofsweden.com
www.houseofsweden.com
House of Sweden is a registered trademark owned and managed by the Swedish state through the National Property Board Sweden

NATIONAL PROPERTY BOARD SWEDEN

Figure 29 : House of Sweden : Event Space Floor Plans

Because the House of Sweden has an option to host events, they have floor plans on their website for those looking to rent the venue.

Finnish Embassy

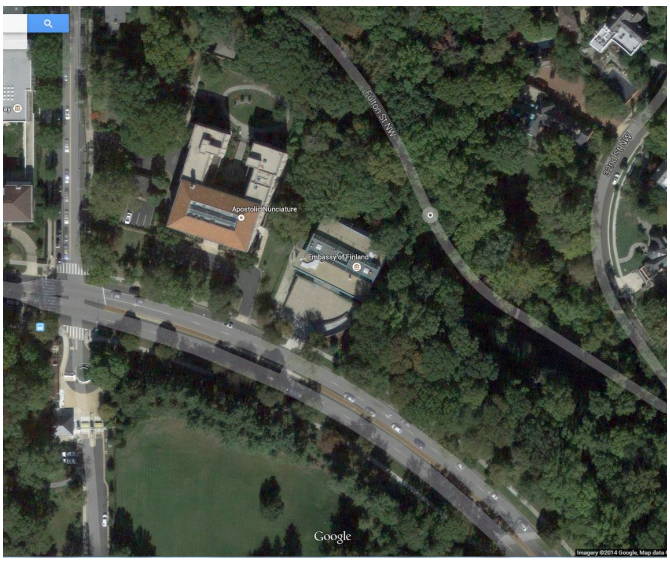


Figure 30 : Finnish Embassy : Site Plan

Figure 31 : Finnish Embassy : Floor Plan

South African Embassy

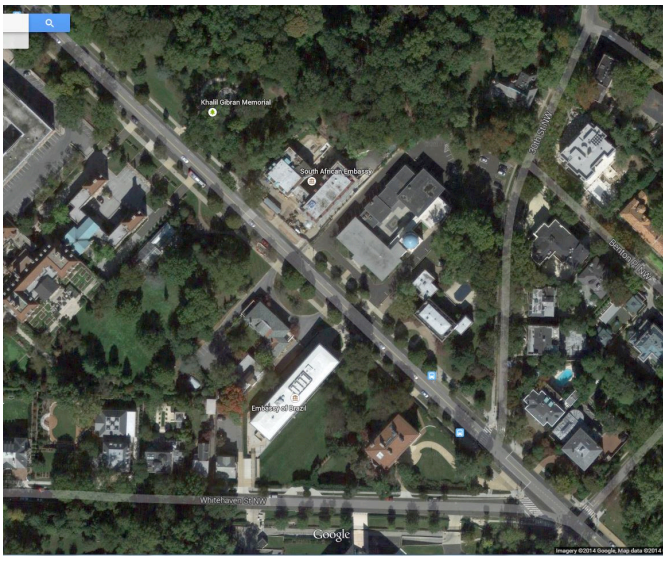


Figure 32 : South African Embassy : Site Plan

Figure 33 : South African Embassy : View from Street

This project in particular is relevant, as the two buildings shown above were existing with an interstitial space between them. In a recent renovation, that space was filled with an atrium and security center.

The American Folk Art Museum

In terms of a working with a narrow infill site, core placement and minimum dimensions.

The Barnes Foundation

In terms of creating sunken courtyards, auditorium, and grand megaron volume.

Schematic Design

Partis

An exercise of ideating many partis was undertaken with a group of colleagues based on the use of the interstitial as a focus. From about fifteen parti diagrams collectively generated, I distilled five basic partis. These were:

Building as Island

Sidedness Mass

Centered Interstice

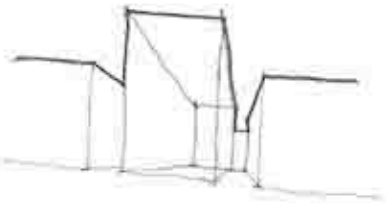
Interstice with Courtyard

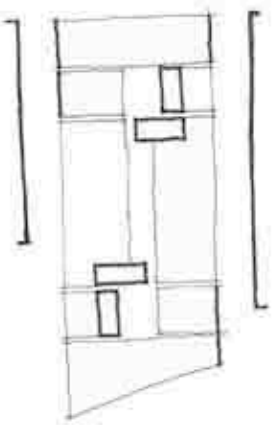
Terminated Interstice

I took these partis and diagramed 5 schemes for each parti to create a range of possible solutions to any design problem and to gain intimate familiarity with the major program components through drawing. From those twenty-five schemes I chose three to develop further.

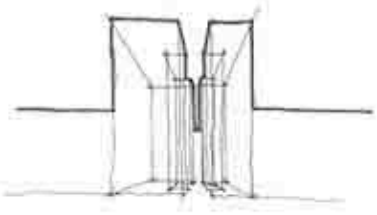
These schemes were:

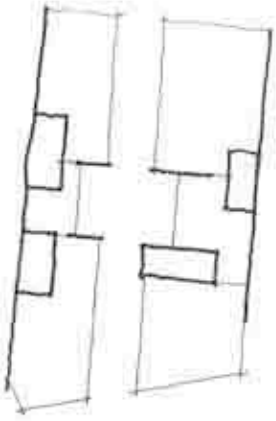
Building as Island



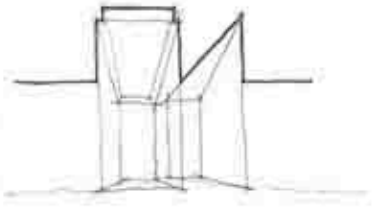


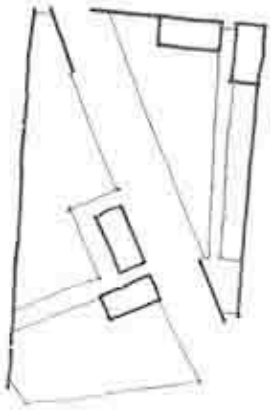
Centered Courtyard





Diagonal Interstice





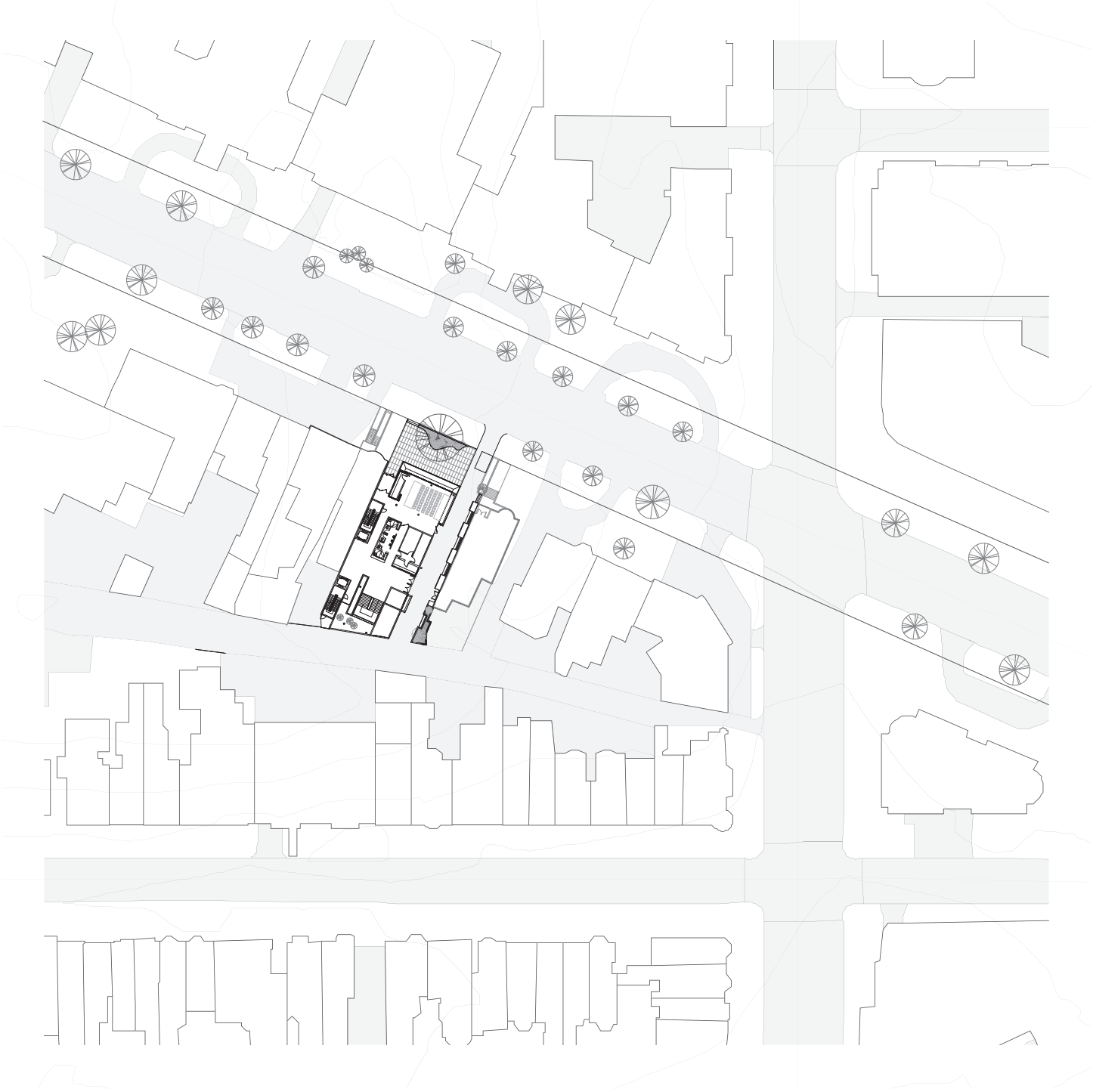
These schemes resulted in a development of building as island. However, the critique was that two exterior interstices would significantly cut into the square footage required to accommodate the program. Therefore, one was left exterior and the other was brought inside as internal circulation and view corridor. The goal was to create two differentiated interstitial spaces that would still read as primary in the spatial field of the building.

Design Development

The challenge of designing this building was a process of moving from the abstraction of interstitial space, to strategically deploying it at many scales to detailing it subtleties.

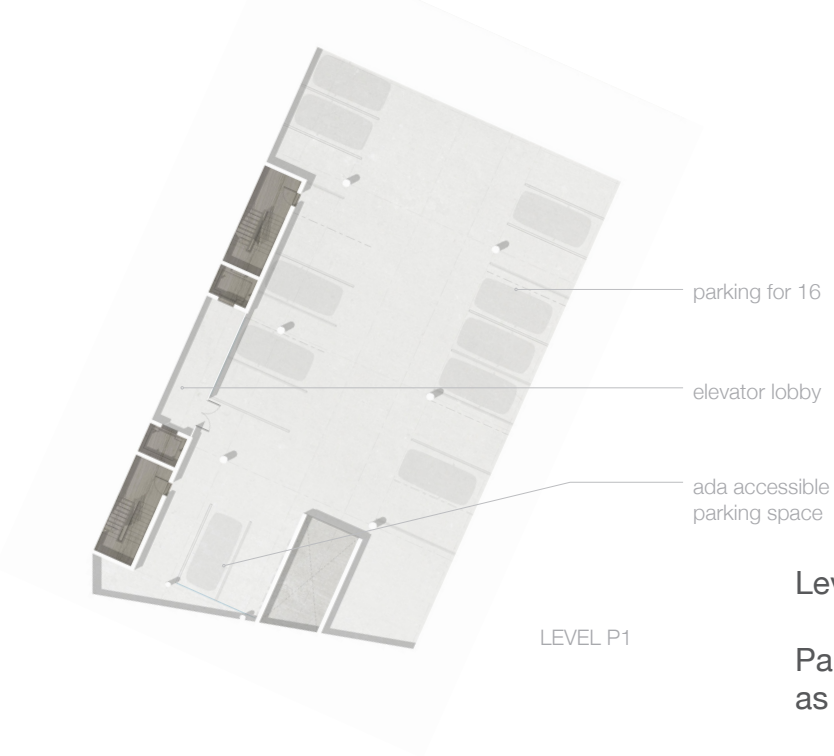
Site Plan

Plans



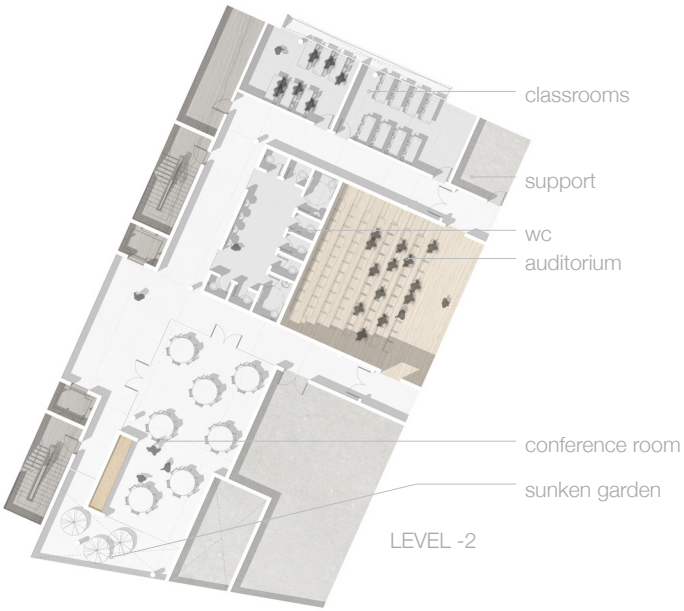
Site Plan

1724 Massachusetts Avenue, NW
Washington, DC



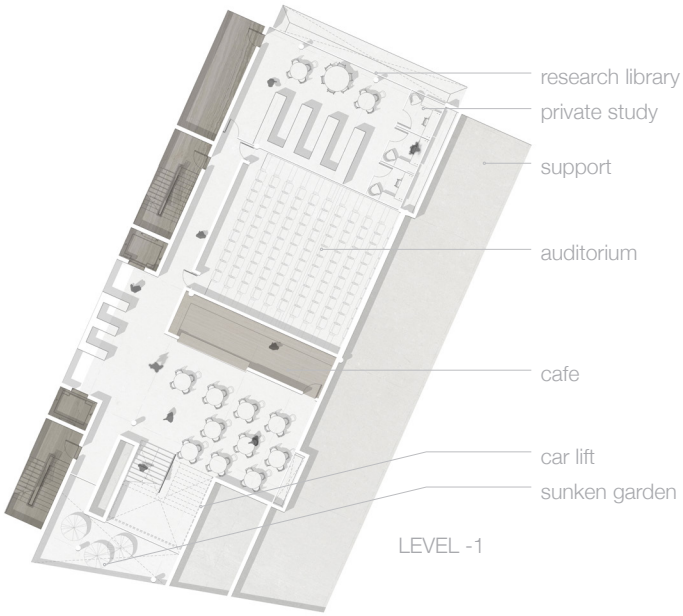
Level P1 Plan

Parking for 16 cars, this floor is repeatable downwards as necessary.



Level -2 Plan

Classrooms, conference space, support spaces, auditorium and water closets. Sunken garden at rear of building.



Level -1 Plan

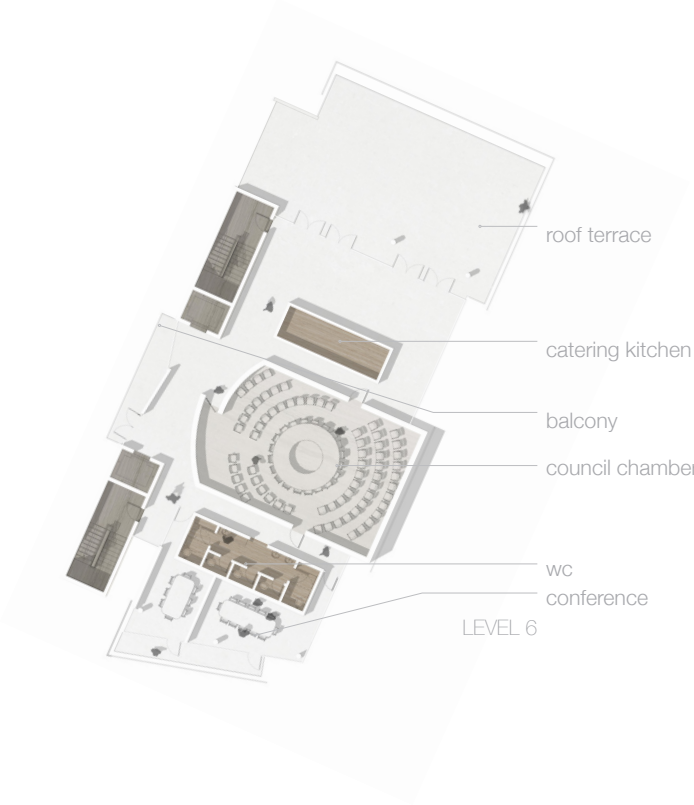
Library, cafe and auditorium space.

Level 1 Plan

Secure entry from the street and a side entry for drop of by vehicle. Multi-purpose, media enabled public space, water closets and support space.

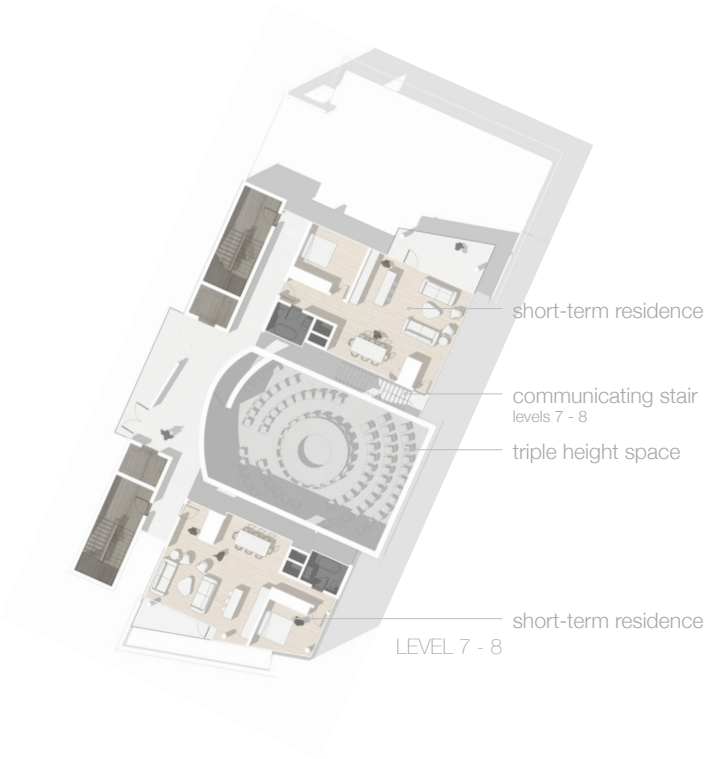
Level 2-5 Plan

Open office plan including, conversation huddles, focus pods, meeting rooms, a re-configurable community table, media bars, kitchenette, copy, personal cubbies and water closets. Access to roof deck on adjacent building to north-west.



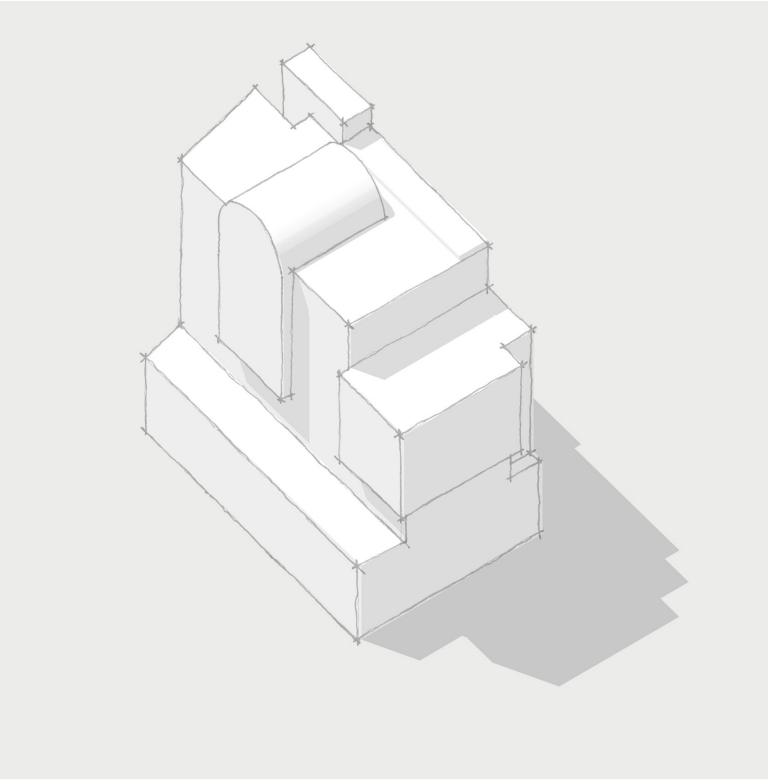
Level 6 Plan

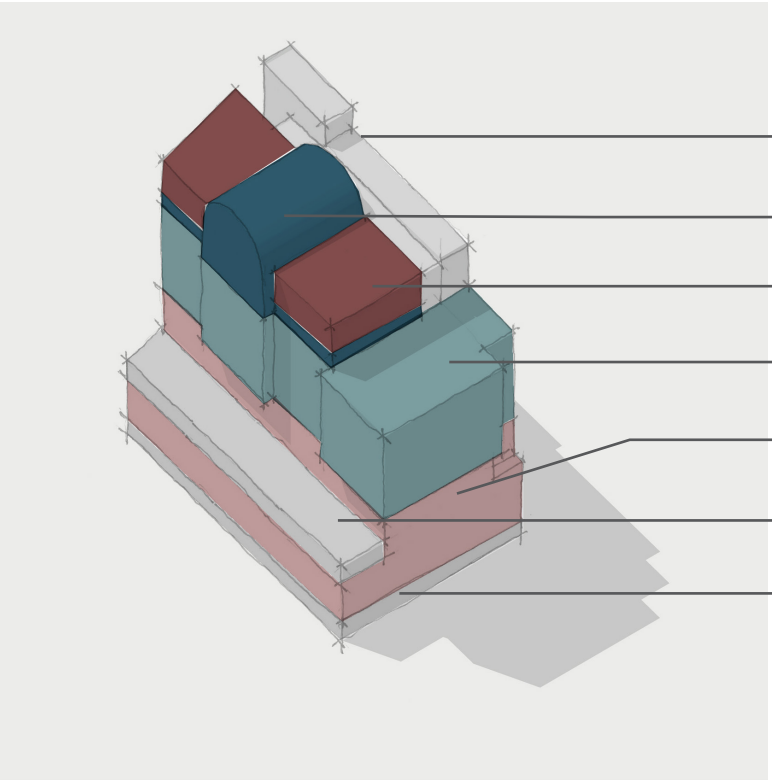
Council Chamber, conference rooms, water closets, catering kitchen, reception space and roof terrace.



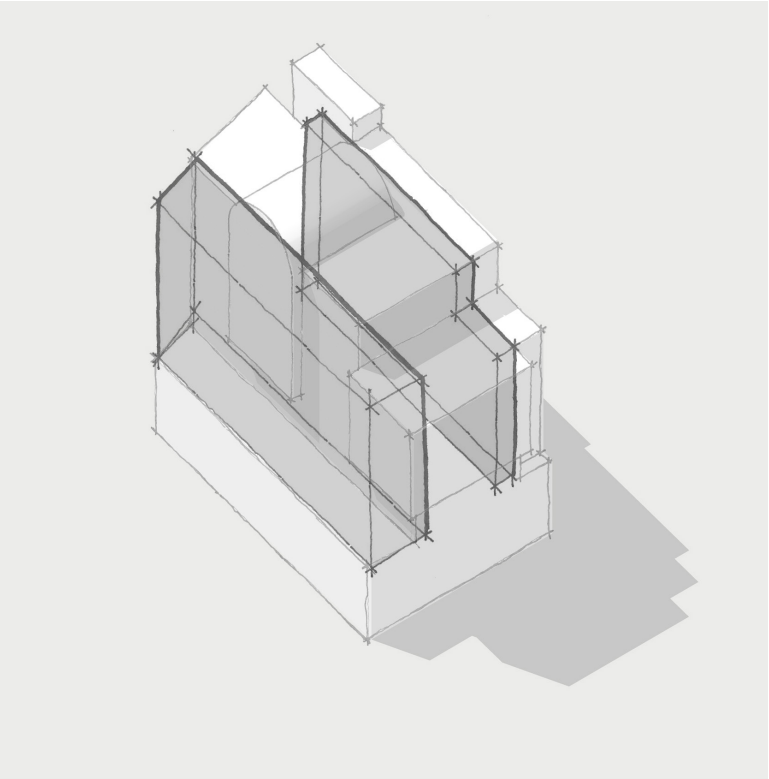
Level 7-8 Plan

Triple height Council Chamber space is hugged by a pair of light slots. Short term residential quarters on either side. One unit connects to the one above it via a communicating staircase within the light slot.



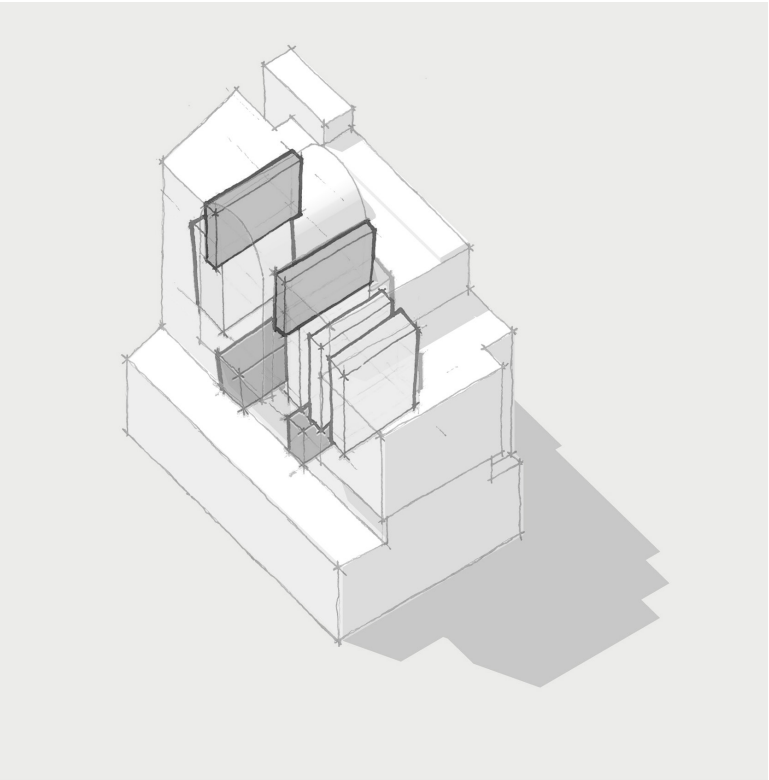


Program Axonometric Diagram

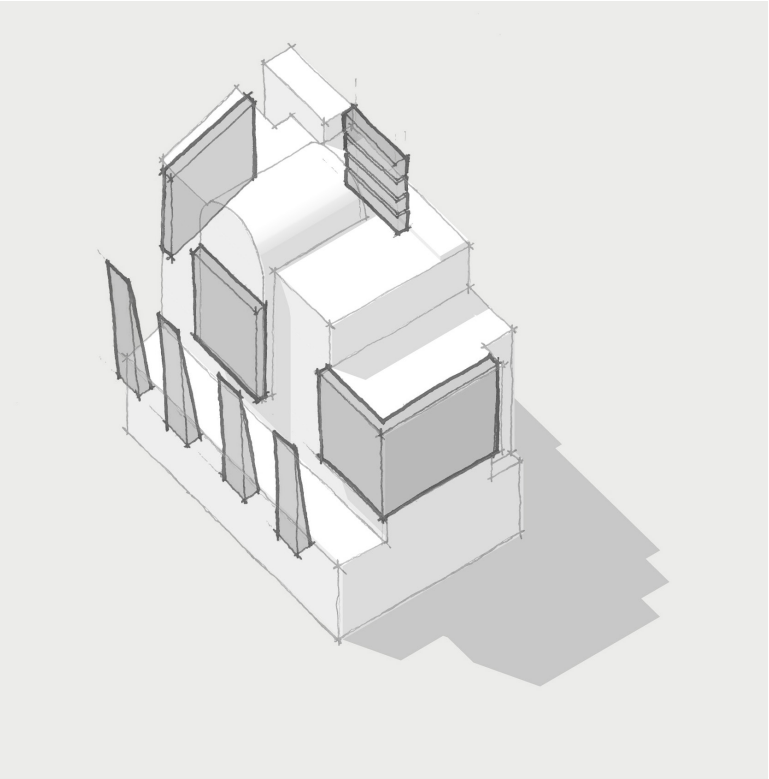


Interstitial Space
Axonometric Diagram

Primary Interstitial Space

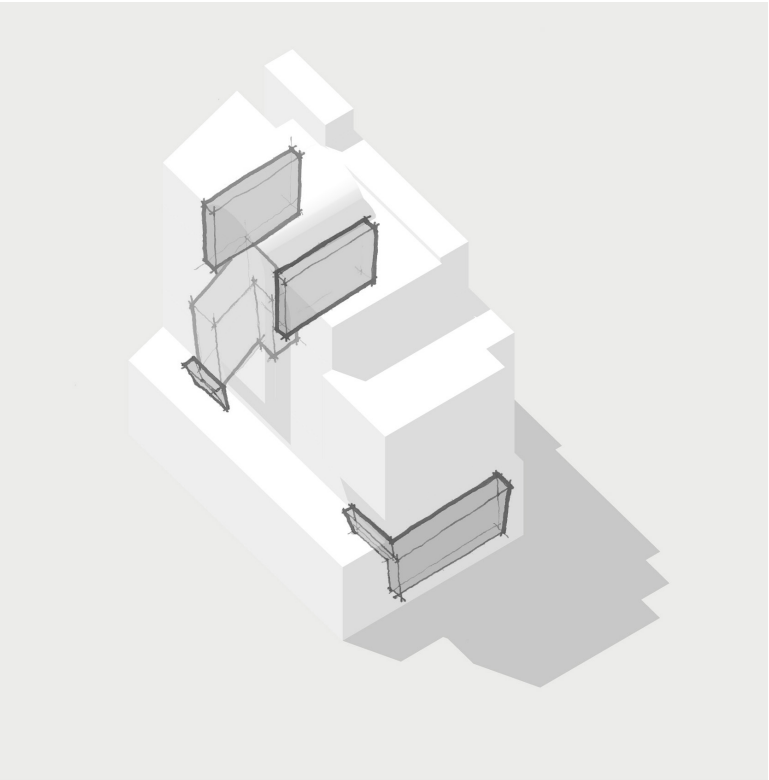


Interstitial Space
Axonometric Diagram
Secondary Interstitial Space



Interstitial Space
Axonometric Diagram

Teritiary Interstitial Space



Interstitial Space
Axonometric Diagram

Light Slots or Unoccupiable Intersitital

Distribution of Program

The program of an embassy can be broken down into three major components: public, office and support as demonstrated through the program analysis. This building is comprised of the above and has several additional components that contribute to its function as an international women's embassy. Main public spaces are at the base of the building, the office space makes up the body and the ceremonial council chamber and attending functions are placed at the crown of the building.

Demonstration of the Interstitial

This series of axonometric diagrams locates the interstitial spaces within the massing of the building. Interstitial space as discussed in this paper can be read as alternatively figure or void depending on the context and hierarchy of spaces. These diagrams show the layers of interstitial space across scales and locations in the building.

Communal Benefits of the Interstitial

The interstitial is used in this building to negotiate and question boundaries as well as to confer communal benefits. It is deployed at several scales throughout the building to cause or afford threshold, interaction, privacy and ceremony. The building asserts, that by using the interstitial consciously, we can get more out of these primary spaces.

This institution questions the urban condition and conventional property lines. It affords the opportunity to negotiate with the neighbors. On the northwest side, a purchase of air rights would supply our institution with fenestration above thirty feet on the western exposure, a roof deck on the neighbors structure and balconies at floors 5-8. The benefits of this arrangement for the neighboring property owner would include monetary compensation for their air-rights over a historic structure that they likely cannot make additions to per the Historic Commission and the inability of the current structure to bear additional load. They would also gain access to the roof deck and the opportunity to reserve any of the public spaces for events.

On the southeast side, a drive-through has been created by not building to the party wall. The benefits of this move for our institution includes greater percentage of exterior perimeter and therefore access to light and air, secure drive through access for the delivery of dignitaries as well as outdoor, semi-private space. The benefits conferred on the neighbor by this drive-through also include drive access which they currently do not have, access to the semi-private outdoor space and the ability to have day lighting on their south-west facing exposure. The exposed party wall gets treated with a fire-rated wall and green wall assembly.

Other examples of the interstitial within the building and the benefits it produces:

The building's public forecourt, the interstice between the street and the building, is a threshold and forum for public expression.

Figure 34 : Longitudinal Building Section Through Massachusetts Avenue

A slot space provides sheltered and secure entry for the everyday occupant.

Figure 35 : Rendering Entry

An enlarged elevator lobby provides differentiation, episodic and individualized experiences at each office floor.

The particularized residual in an open plan becomes areas for support spaces, security, restrooms.

A consistently located narrow, long view corridor provides orientation within and without the building. It emphasizes the spatial configuration and organization of the building as well as making connection to the outside.

Figure 36 : Rendering View Corridor

The alley or drive through provides secure drop-off for dignitaries and outdoor semi-private space for office workers to lunch and events to spill out of the other public spaces.

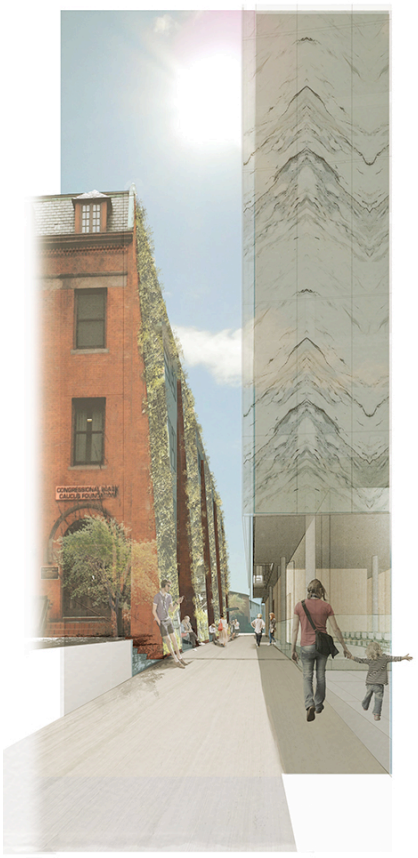


Figure 37 : Rendering Alley

The interstice created by pushing and pulling bays out along the southeast façade, brings in daylight along edges of the building.

Balconies also occur along the buildings' edges, these interstitial moments provide privacy and respite within the open office plan.

Façade

There were several competing considerations when addressing the façade for an International Women's Embassy. As a landmark building it needs an identifiable and perhaps symbolic face, one that addresses the city and expresses the meaning of

the building. The massing of the building had provided a blank, almost square canvas for the façade that appeared to be floating.

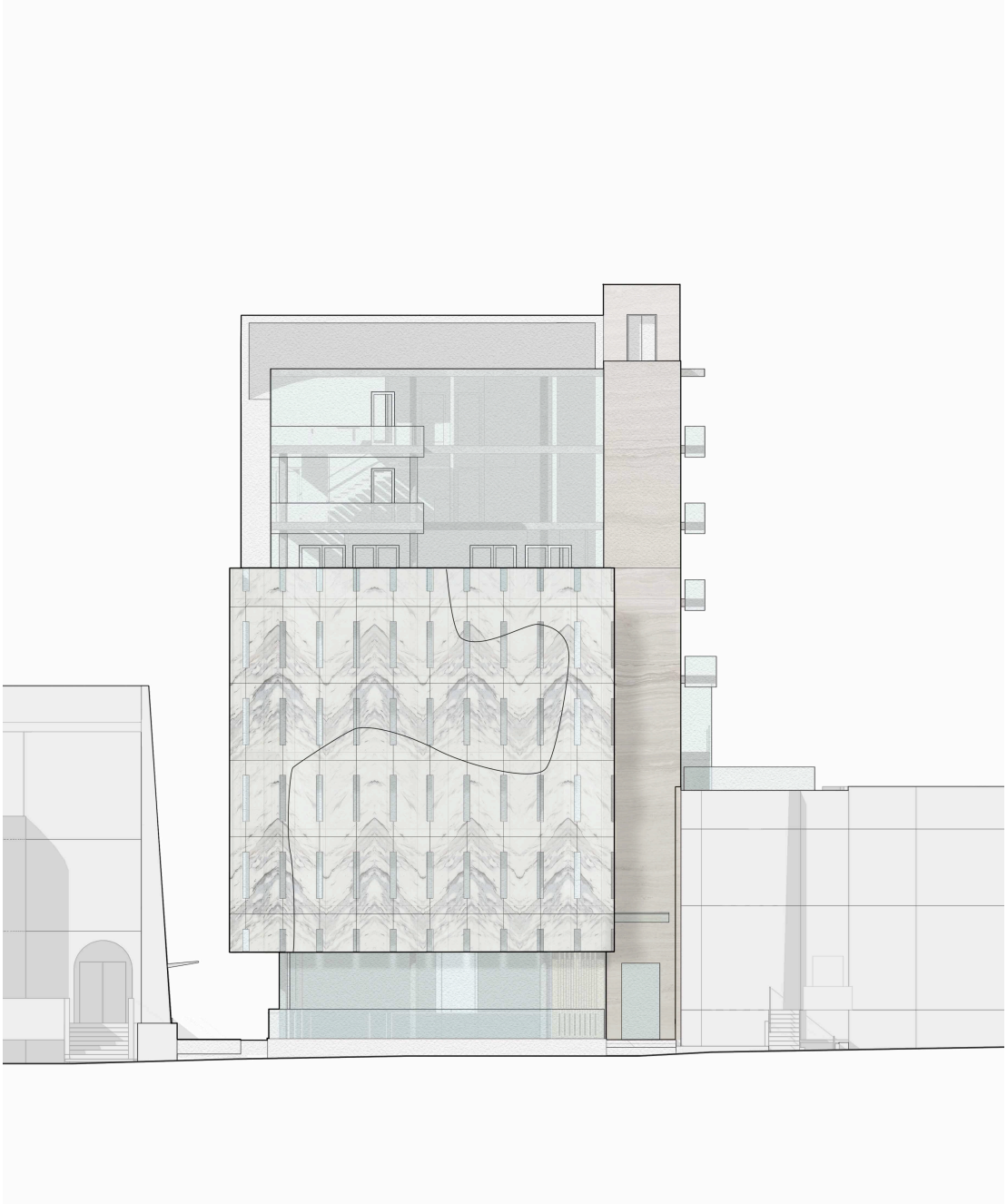


Figure 38 : North Elevation

Figure 39 : Villa Turque, Chaux de Fond by Le Corbusier

“Profile and contour are the touchstone of the Architect.” [22]

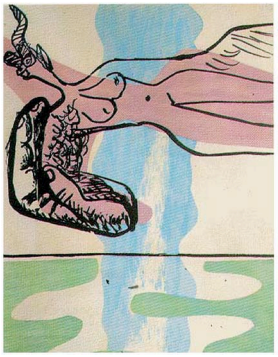


Figure 40 : le Corbusier, Painting from Poem of the Right Angle

Inspiration was found in the works and writings of le Corbusier. An iterative process of façade pattern making attempted to combine the blank face introduced by the massing with the contour of an iconic image.

The façade took cues from Le Corbusier’s Villa Chaux-de-Fonds as well as his work with iconography. A large blank plane is adorned with only a single curving line that represents the chin, neck and shoulder of a woman. This façade holds potential for future exploration. It attempts to convey multiple readings across it by being both glass and stone, blank and ornamented. At night, light would glow through the

---

[22] Le Corbusier, *Towards a New Architecture*

translucent panels and during the day openings in the panels would allow views, while light came through the panels.

Figure 41 : Night Rendering, View from Street

More study would be useful in order to layer on functional and performative qualities into this façade, particularly with regard to solar effects.

Conclusion

Comments by the reviewers

Are these just glorified circulation spaces?

Manipulation of the vertical and horizontal planes can add or subtract the place-ness

Reversal of figure ground readings

Why is this space feminine?

How to create this tension, tension is one of the architect's tools

Do we always like this space, would we chose it instead of wide open spaces?

How can this space dominate in section more? Setting the interstitial up, and the rest of the program actually has to work around it.

Think about how these spaces really affect people, walking through narrow tunnel on the way to a shrine; the mental state it puts you in.

Could this thesis result not in a building? Could the architecture have been of the void?

A lot of the discussion revolved around trying to unpack the term "interstitial" which the author still asserts is probably an inadequate term. Our architectural vocabulary has yet to find a term that describes this space in the way that neuroscience has found a way to study and describe thigmotaxis. In this way we need to find a term that holds the same array of mean and simultaneously specificity of a word like *axis mundi*. In terms of pioneering the study of how these spaces affect us, neuroscience is leading the way, now the design field needs to catch up.

Final Thoughts

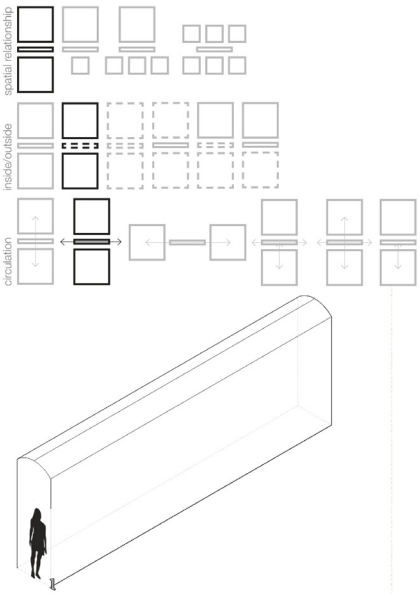
In summary, the interstitial encourages interactions that make a building good. Throughout the design process, I've learned ways of securing space, bringing in daylight, creating threshold, and allows areas for contemplation.

This building and mission were useful for the exploration and practical application of the interstitial and its symbolism. Instinctually and intellectually, our human perspective is central to the making of interstitial space. We experience awe and quiet, interaction and grandeur, solitude and excitement. The evocative nature of these spaces is the imperative for architects to attend to the interstitial. When we make these spaces well, the benefits are compounded. This philosophy has enriched my personal design methodology.

Appendices

Appendix 1

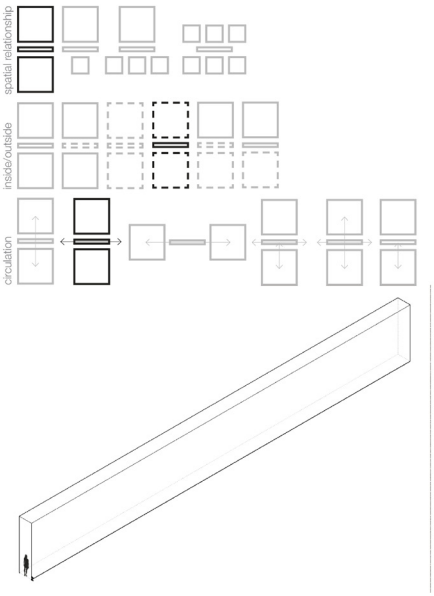
Matrix of Precedents



Baltimore, MD
easement
wall, wall, roof
circulation

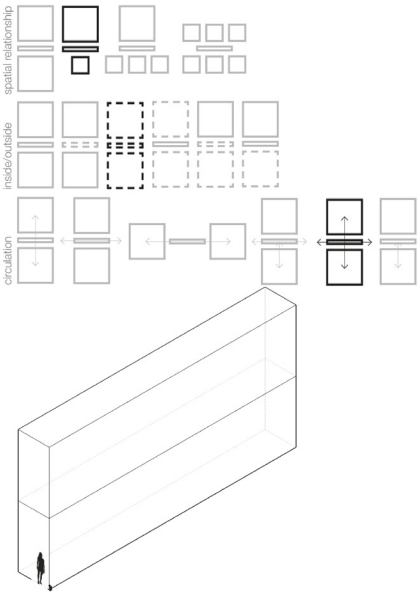
2.5 :7.5 :22
1 : 3 : 8.5
axial
closed
non-terminated
outdoor
left-over
hobbit, cozy, disjointed, mysterious, inviting, cramped

1



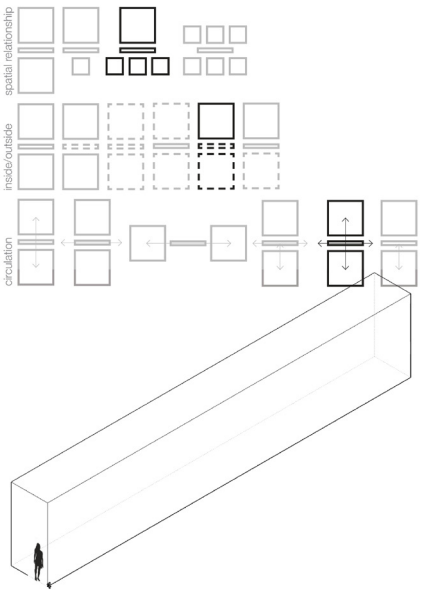
Granada, Spain
art installation
wall, wall, roof
art
drug use, shelter
3 :12 :93
1 : 4 : 31
axial
closed
non-terminated
made / intervention
cramped, anxious, grimy, unsafe, trapped, dirty, stuck

2



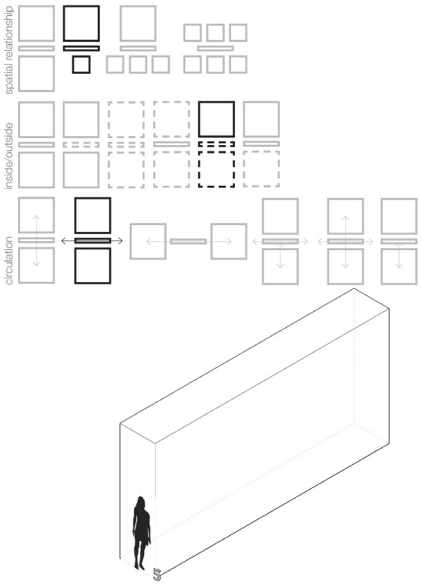
Granada, Spain
breezeway
columns, columns, roof
circulation
picture taking, tourism
6 :24 :48
1 : 4 : 8
axial, cross-axial
open
terminated
outdoor
made
open, peaceful, medieval, enlightened, free, fresh

3



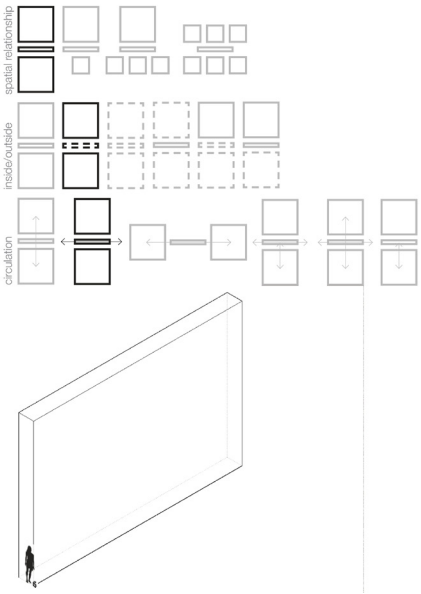
Ronda, Spain
colonade
columns, wall, roof
shade, circulation
vending
6 :12 :120
1 : 2 : 10
axial, cross-axial
open
non-terminated
outdoor
made
cosmopolitan, erudite, classical, cool

4



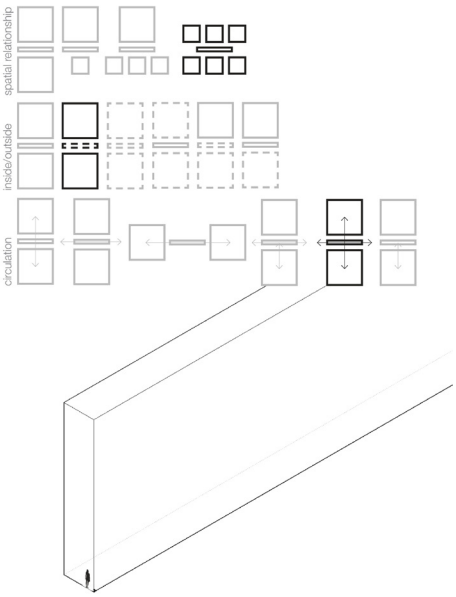
Boyhood movie
easement, sideyard
fence, wall, overhang
circulation, service
play, dumping
3 :10 :20
1 : 3.5 : 6.5
axial
open
non-terminated
outdoor
left-over
nostalgic, lonesome, sad, playful, protected, safe, hidden, hidden

5



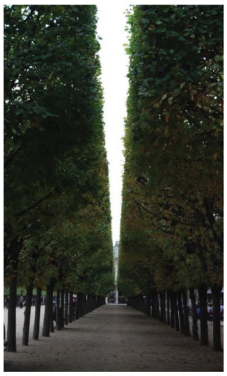
Frederick, MD
easement
wall, wall
circulation
view, drainage
2.5 :35 :30
1 : 14 : 12
left-over
cheerful, warm, separation of church and state, confused, indecisive, special

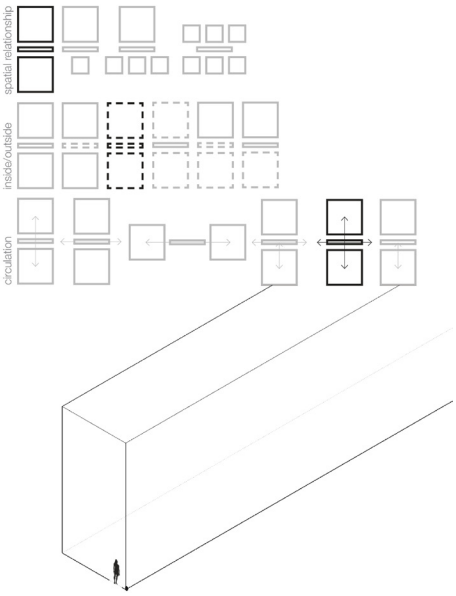
6



Calle Sacramento, Cadiz, Spain street
wall, wall
circulation
social, vending, laundry
10 : 50 : 1200
1 : 5 : 120
axial, cross-axial
open
non-terminated
outdoor
made
drab, covetousness, overwhelmed, lost

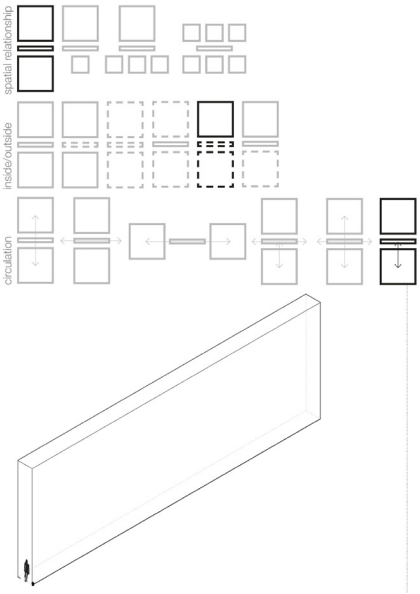
7





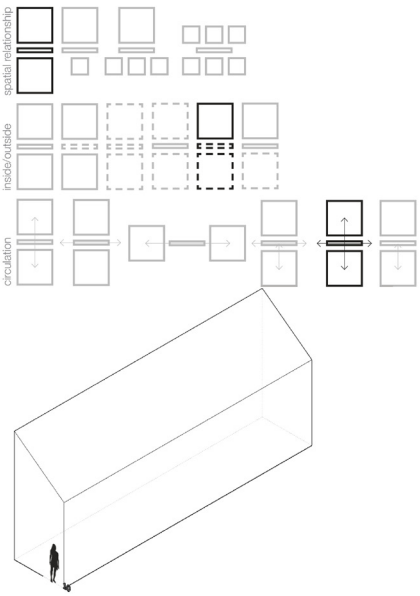
Jardin des Tuileries, Paris, France
allee, promenade
trees, trees
circulation
16 :32 :740
1 : 2 : 46
axial, cross-axial
open
terminated
outdoor
made
elegant, open, enlightened, tired, hungry, ordered

8



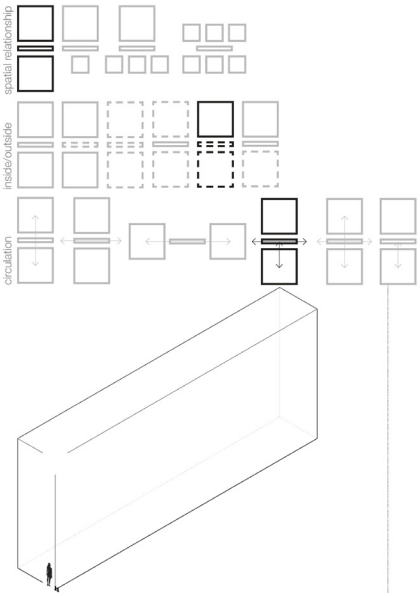
Yeni Cami, Istanbul, Turkey
ablution
wall, overhang, trench
bathing
meditation, social
4 :28 :80
1 : 7 : 20
cross-axial, u-turn
open
non-terminated
outdoor
made
peaceful, irritated, dirty, hot, thirsty, dirty

9



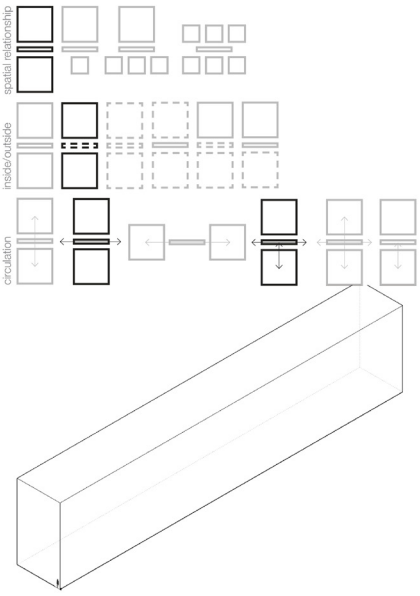
Alcazar, Sevilla, Spain
trellis
wall, trellis, railing, canopy
shade, circulation, beauty
observation, respite
12 :18 :60
1 : 1.5 : 5
t-shaped
closed non-terminated
outdoor
made
ensconced, verdant, covered, calm, protected

10



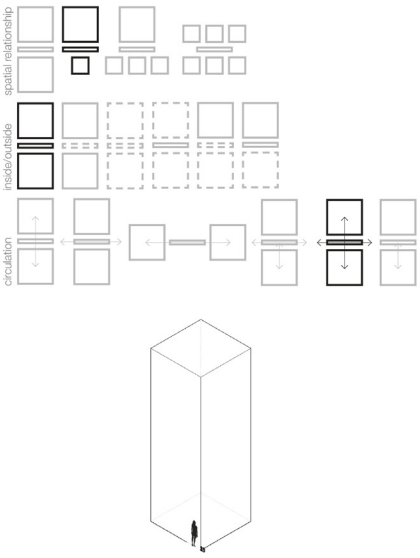
Alcazar, Sevilla, Spain
colonade
wall, columns, roof
shade, respite, circulation, ceremony
tourism
12 :36 :84
1 : 3 : 7
axial, cross-axial
open
terminated
outdoor
made
sunny, exotic, sheltered, tranquil, calm

11



W Street, NW, Washington, DC
loading dock, alley
wall, wall, bridge
service, loading dock
dumping, litter, smoking
30 :50 :255
1 : 1.75 : 8.5
axial, cross-axial
open
terminated
outdoor
residual
gray, blah, appreciative, confused, linked

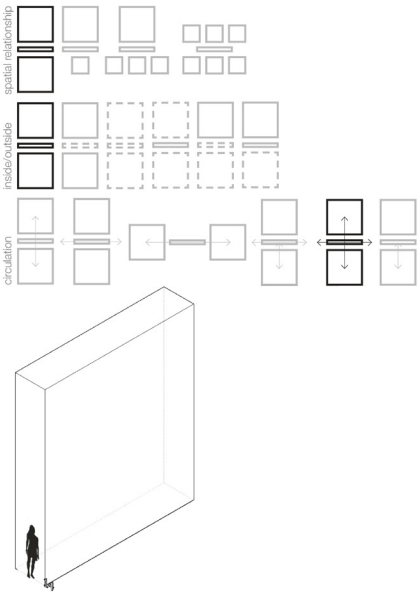
12



31st Street, NW, Georgetown,
Washington, DC
stairwell, lobby
wall, wall, roof, door, stair
circulation, entry

12 :36 :12
1 : 3 : 1
spiral
closed
terminated
indoor
intervention
happy, pretty, disengaged, efficient

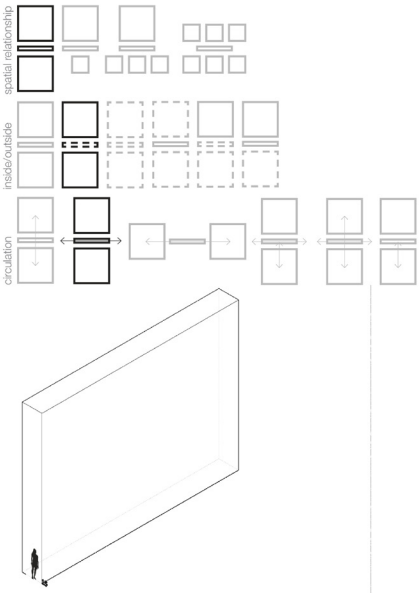
13



Jefferson Street, NW, Georgetown,
Washington, DC
wall, wall, roof, door
connection

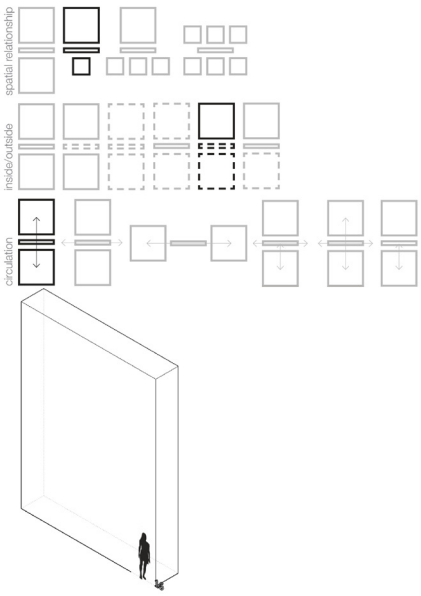
3.5 :20 :17.5
1 : 5.5 : 5
axial, cross-axial
closed
terminated
indoor
intervention
pretty, thoughtful, squeezed, confined,
stuck

14



Frederick, MD
easement
wall, wall, door
circulation
lightwell
4 :30 :40
1 : 8 : 10
axial
open
terminated
outdoor
interstitial
fun, bright, childlike, secluded

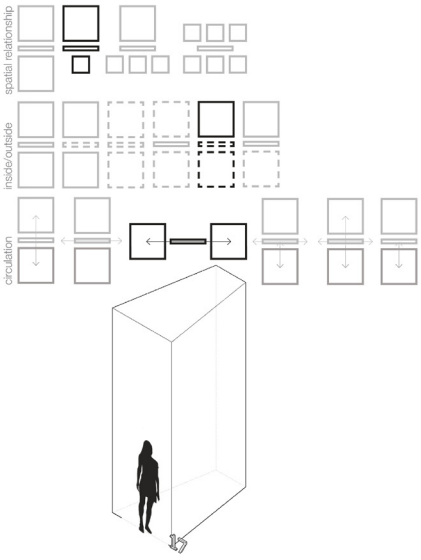
15



Lincoln Road, Miami, FL
threshold
wall, overhang, storefront, door
entry, showcase, window shopping,
historic preservation

3 :24 :18
1 : 8 : 6
cross-axial
open
terminated
outdoor
residual
eager, exciting, voyeuristic, fancy,
sparkling, bright

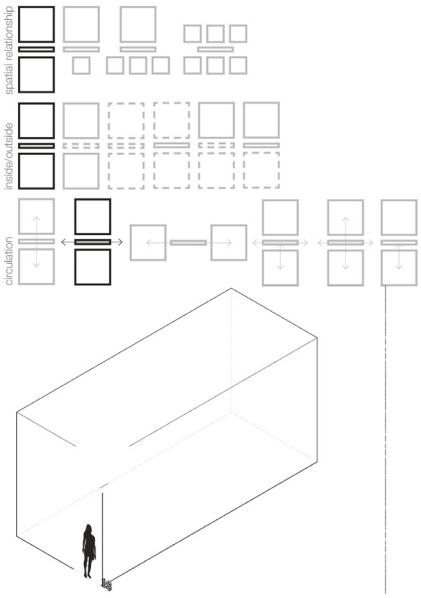
16



Lincoln Road, Miami, FL
threshold
wall, overhang, storefront, door
entry, showcase, window shopping,
historic preservation

4 :24 :6
1 : 4 : 1.5
axial
closed terminated
outdoor
made
excited, proscribed, comfortable

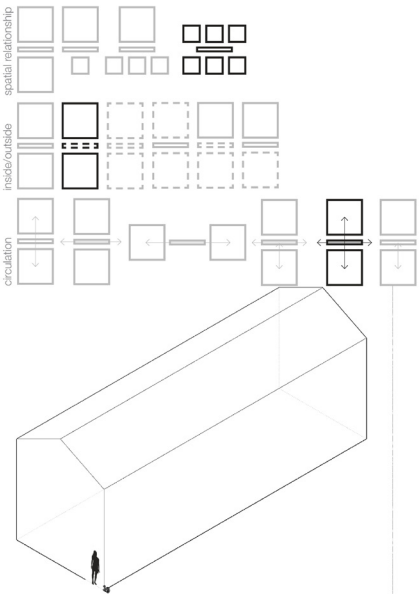
17



Boundary Stone, DC
bar
wall, wall, door, bar
drinking, dining, merriment

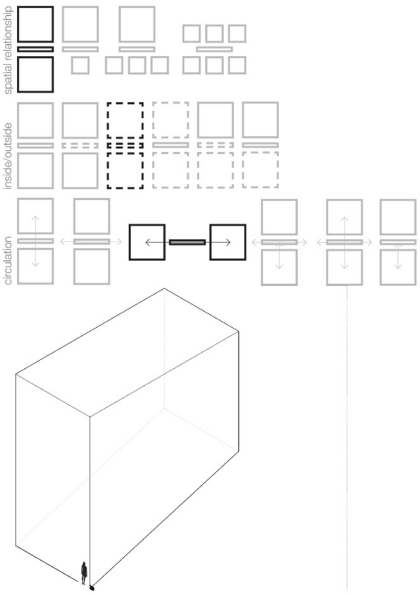
10 :15 :25
1 : 1.25 : 2.5
axial
closed
terminated
indoor
intervention
comfortable, at ease, thirsty, comfortable,
relaxed, warm

18



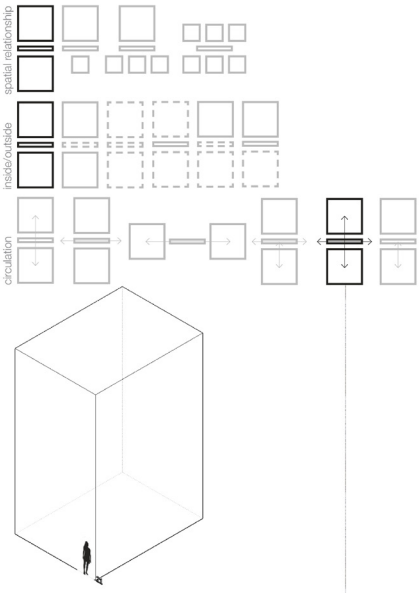
El Rey, DC
bar
columns, columns, roof, skylight
dining, drinking
bar fights
16 :24 :48
1 : 1.5 : 3
axial, cross-axial
closed
terminated
indoor / outdoor
made
fun, lively, agitated, tired, stimulated

19



Spanish Steps, Kalorama, DC
stair
trees, trees, stairway
circulation, grade mediation
exercise, sitting, socializing, urination
20 :40 :40
1 : 2 : 2
axial
open
terminated
outdoor
made
procession, peaceful, youthful, free

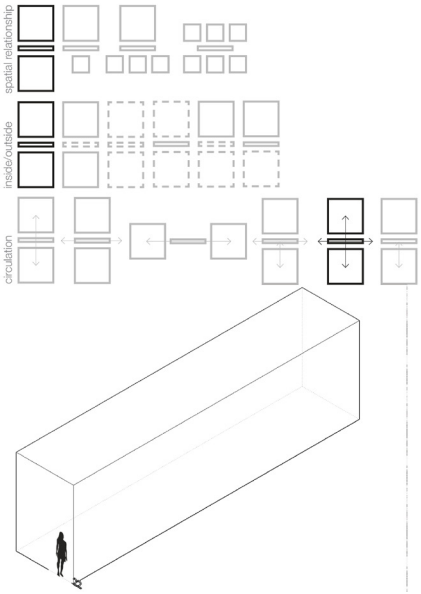
20



Maison La Roche-Jeanneret
vestibule
wall, wall, door, window
entry, circulation, views

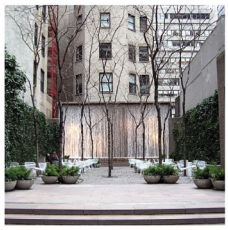
16 :32 :24
1 : 2 : 1.5
axial, t-shaped
closed
terminated
indoor / outdoor
made
fancy, intrigued, reflective, elite, fancy, private

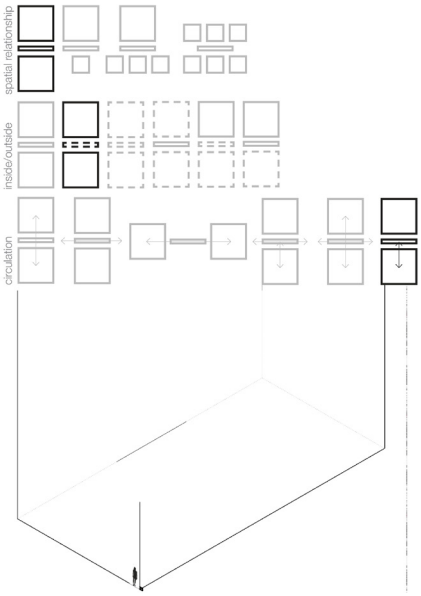
21



12 Grimmauld Place, Harry Potter dining room
wall, wall, roof
dining, drinking, socializing, storage
plotting, planning
10 :15 :60
1 : 1.5 : 6
axial, cross-axial
closed
terminated
indoor
made
warm, cozy, happy, expectant, welcomed, relaxed, humble

22

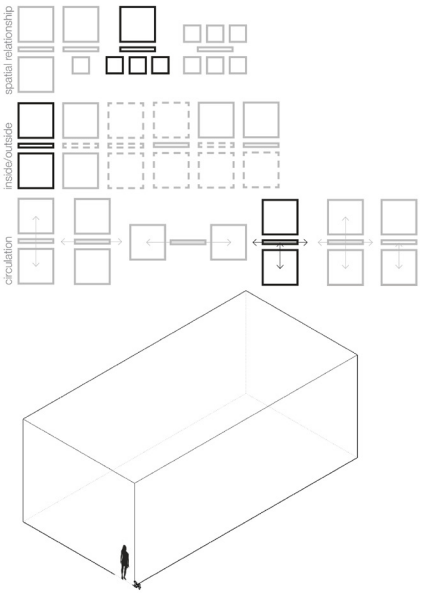




Paley Park, NYC
park
wall, wall, stairs
relaxation, seclusion, socializing

40 :80 :120
1 : 2 : 4
axial
open
terminated
outdoor
intervention
airy, but claustrophobic, chilled, open

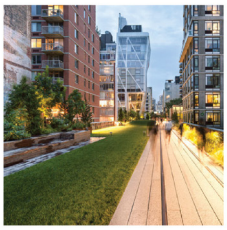
23

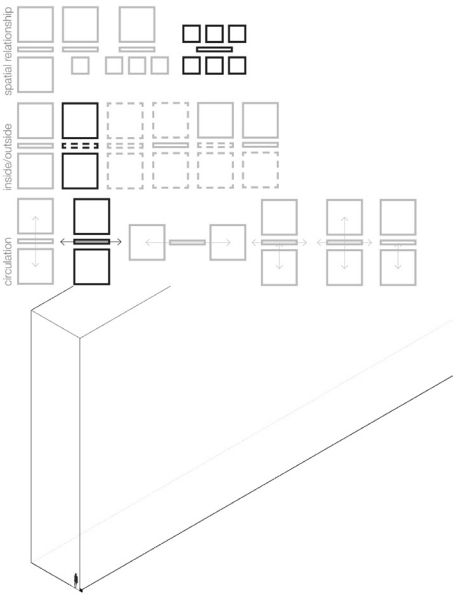


Kunsthalle, Berlin by Platoon Cultural Development
hall
wall, wall, stairs, roof
eating, socializing, planning

20 :
1 : 0.8 : 2
axial, cross-axial
closed
terminated
indoor
made
industrial, not cozy, uncomfortable, disoriented, energized, happy, loud

24

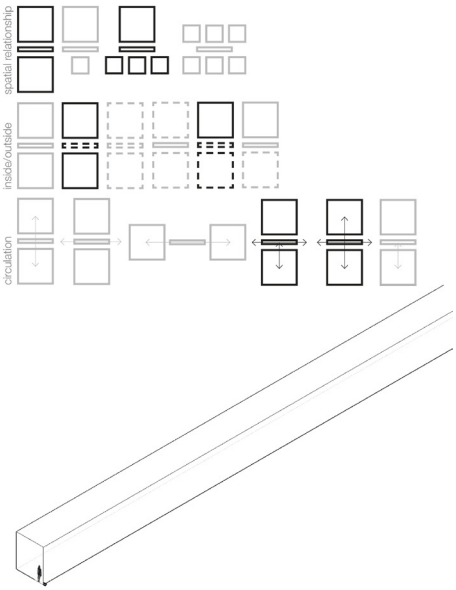




Highline, NYC
park
wall, wall
playing, relaxing, exercising, socializing, entertainment

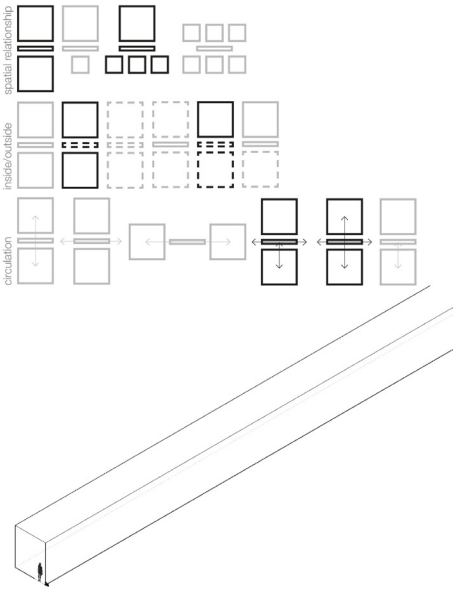
20 :90 :7656
1 : 4.5 : 383
axial
open
non-terminated
outdoor
intervention
urban, excited, relaxed, tranquil, relaxed

25



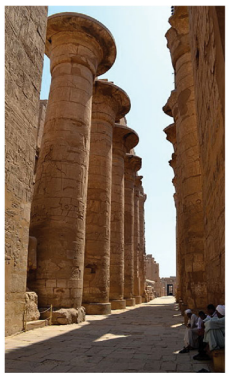
Subway Platform, the L, Chicago
subway platform
columns, overhang
waiting, boarding
smoking, socializing
10 :10 :500
1 : 1 : 50
axial, cross-axial
open
non-terminated
outdoor
made
dull, waiting, alert, rushed, unsettled, busy

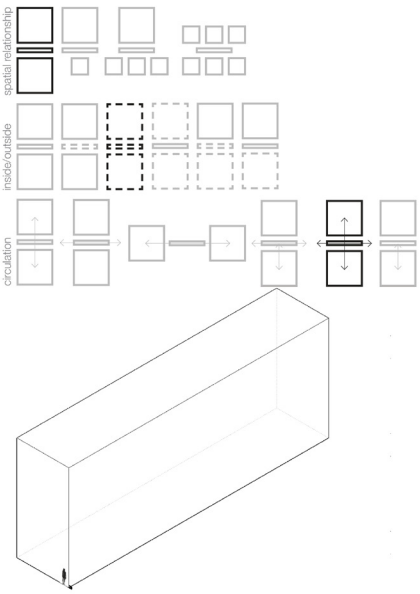
26



Subway Platform, Brooklyn, NYC
subway platform
columns, overhang
waiting, boarding
smoking, socializing
10 :10 :500
1 : 1 : 50
axial, cross-axial
open
non-terminated
outdoor
made
old, retro, nostalgic, removed, unstable, old

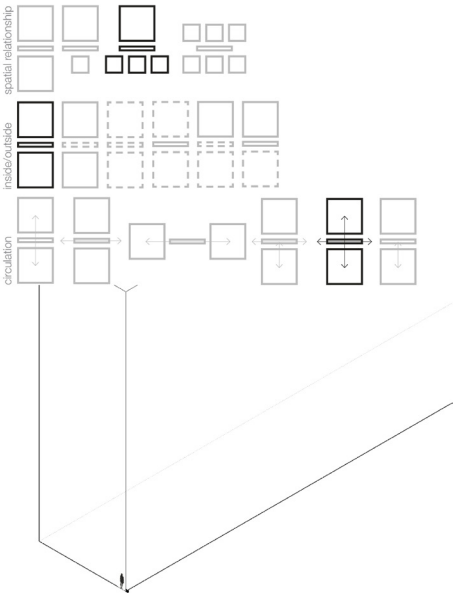
27





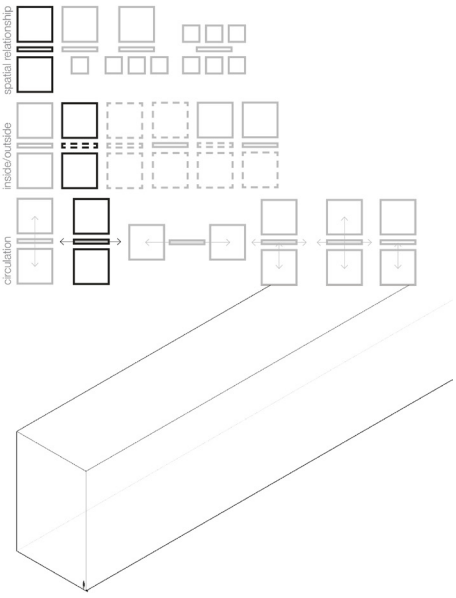
Great Hypostyle Hall, Karnak, Egypt
aisle
columns, columns
ceremony, procession, circulation
tourism
20 :60 :200
1 : 3: 10
axial, cross-axial
open
non-terminated
outdoor
made
excited, gravitas, inspired, awestruck, hot

28



Rouen Cathedral, Rouen, France
side aisle
aisle
wall, columns, roof
circulation, ceremony, procession,
observation, prayer, contemplation
tourism
20 :60 :360
1 : 3 : 18
axial, cross-axial
closed
terminated
indoor
made
regal, miniscule, impressed, enlightened,
small

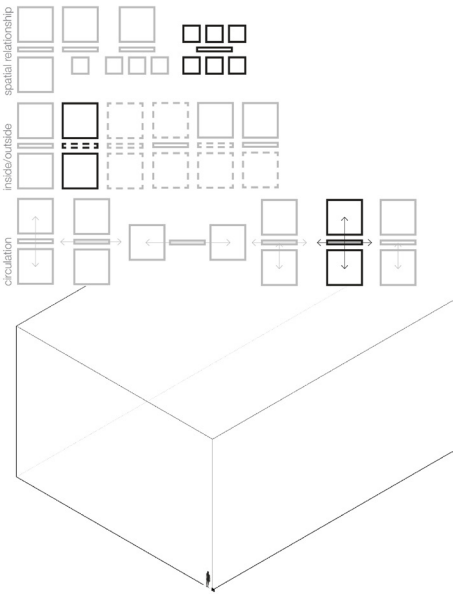
29



Uffizi, Florence, Italy
columns, columns
circulation, tourism

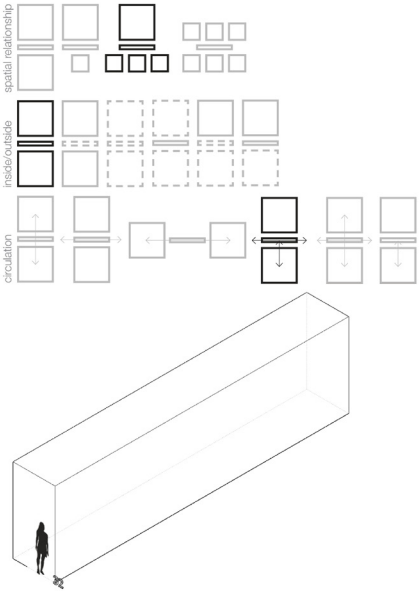
40 :60 :2,400
1 : 1.5 : 9
axial
open
terminated
outdoor
residual
graceful, hungry, excited, insignificant

30



Salk Institute, La Jolla, California
wall, wall
circulation, contemplation
skateboarding
75 :50 :300
1 : 0.75 : 4
axial, cross-axial
open
non-terminated
outdoor
made
sad, lonely, apocryphal, sterile, fascinated, scared, dreamy

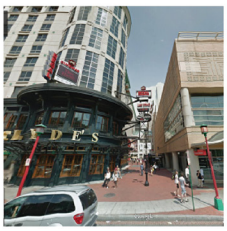
31

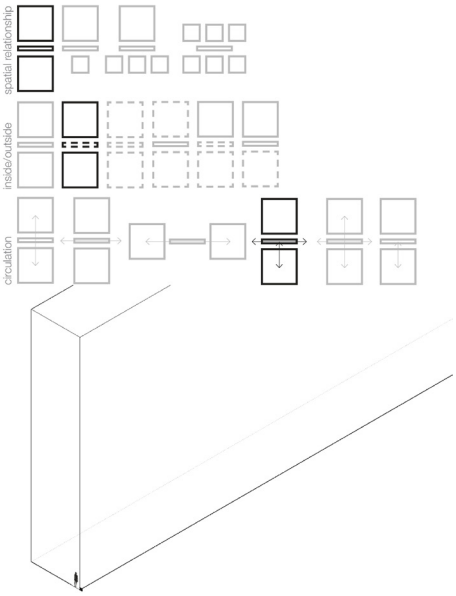


Exeter Library, Reading, Pennsylvania
library
bookshelves, railing, ceiling
circulation, studying, observation

5 :10 :35
1 : 2 : 7
axial
open
terminated
indoor
made
claustrophobic, blinded, stressed

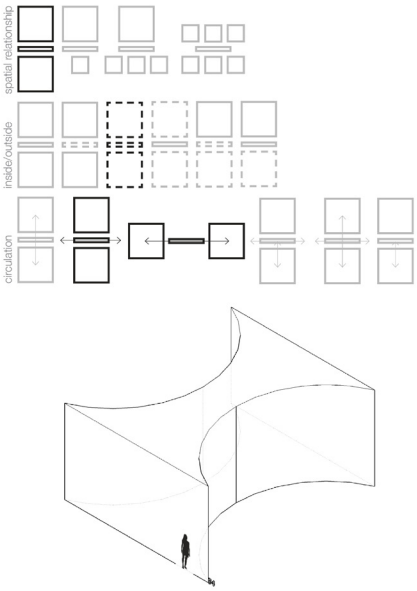
32





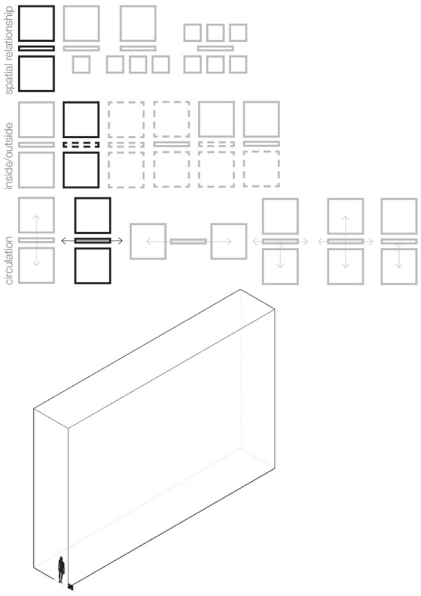
Gallery Place Way, Chinatown, DC
wall, wall
circulation, queuing
smoking
20 :60 :80
1 : 3 : 4
axial, cross-axial
open
terminated
outdoor
made
fun, expectant, commoditized, trapped, crowded

33



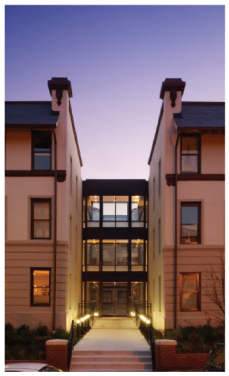
Richard Serra, Clara-Clara, Paris, 1983
art installation
wall, wall
art, circulation
play, climbing, parcour, tourism
6 :12 :24
1 : 2 : 4
axial
open
terminated
outdoor
made
serious, reflective, powerful, thin

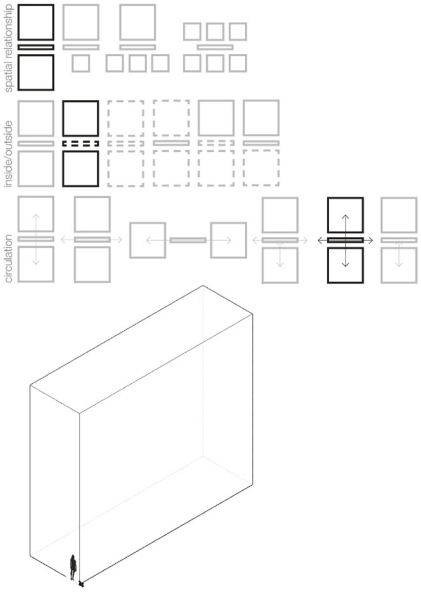
34



Ningbo History Museum, Ningbo, China
walkway
wall, wall
circulation
15 :60 :90
1 : 4 : 6
axial
open
non-terminated
outdoor
made
anxious, thoughtful, calm, overwhelmed

35

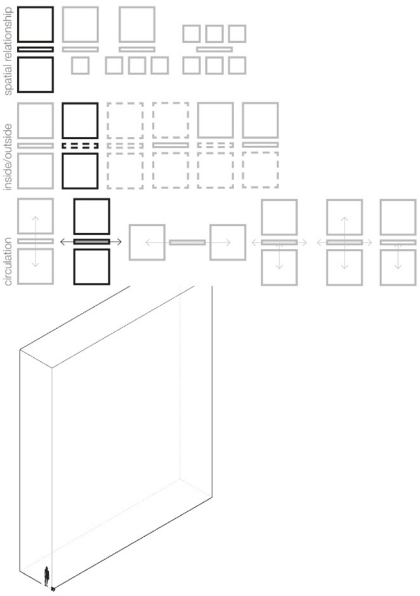




Bonstra Haresign Stairwell, 1840 - 1846
Vernon Street, NW, Washington, DC
stairwell
wall, wall, door, stairway
entry, circulation

16 :32 :56
1 : 2 : 3.5
axial, spiral
closed
terminated
indoor
intervention
elegant, luminous, contented, studious, welcomed

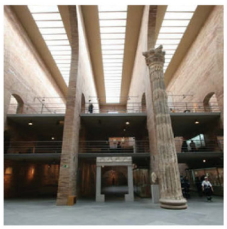
36

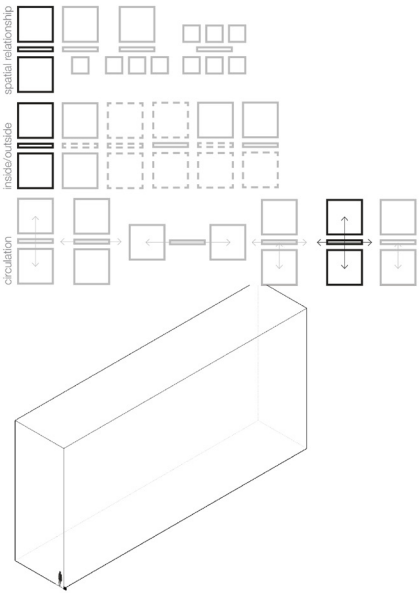


Delirous Frites, Quebec, Canada by Les Astronautes, 72 Rue Saint Paul, Qu bec, QC G1K, Canada
alley, art installation
wall, wall, pool noodles
art, play

10 :60 :50
1 : 6 : 5
axial
open
non-terminated
outdoor
intervention
fun, exuberant, dutch, playful, joyous, child-like

37

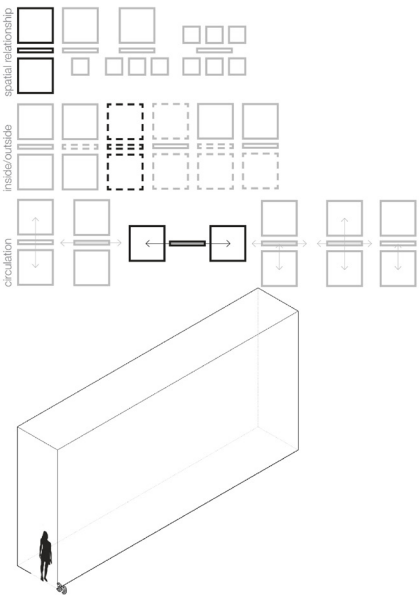




Museo Arte de Romano, Merida, Spain
gallery
wall, wall, roof, skylight
art display, circulation

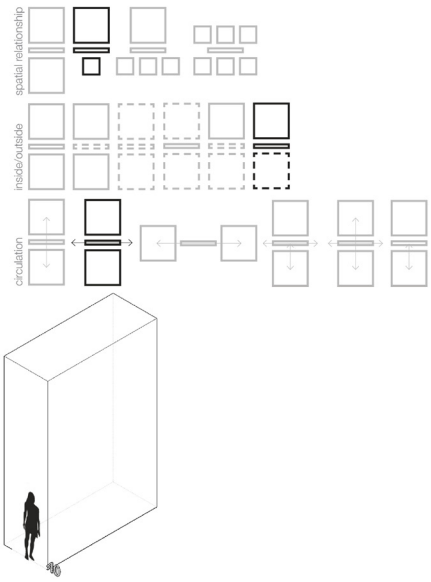
20 :50 :100
1 : 2.5 : 5
axial, cross-axial
closed
terminated
indoor
made
monumental, small, dwarfed, unihibited, confused, lost, lost

38



Mercer Island Residence, by Olson Kundig Architects
entry bridge
bridge, wall, wall, door
entry, threshold
10 :15 :80
1 : 1.5 : 8
axial
open
terminated
outdoor
made
uncomfortable, designed, warm, nervous

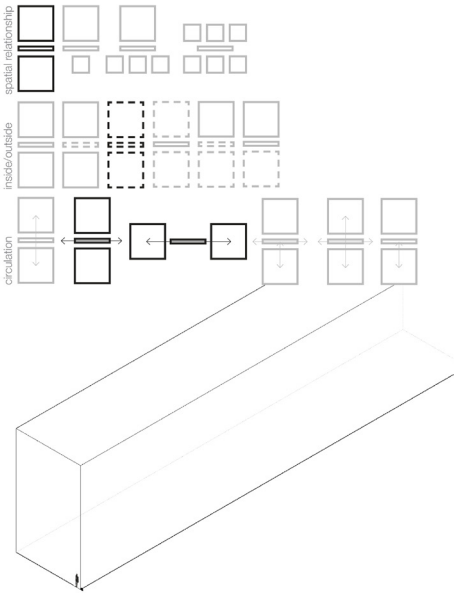
39



The Pierre, by Olson Kundig Architects
entry
earth, wall, roof
entry, threshold

5 :20 :20
1 : 4 : 4
axial
closed
terminated
outdoor
made
primordial, bleak, civilized, protected safe, sheltered

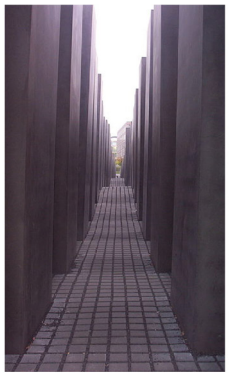
40

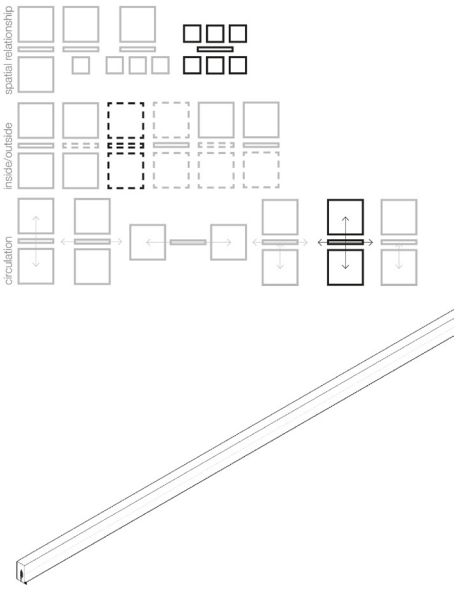


Micheal Heizer, Double Negative, Mormon Mesa, Clark County, NV
art installation
earth, earth
art, contemplation, hiking

30 :60 :180
1 : 2 : 6
axial
open
non-terminated
outdoor
made
adventurous, parched, hot, dirty, thirsty, inconsequential

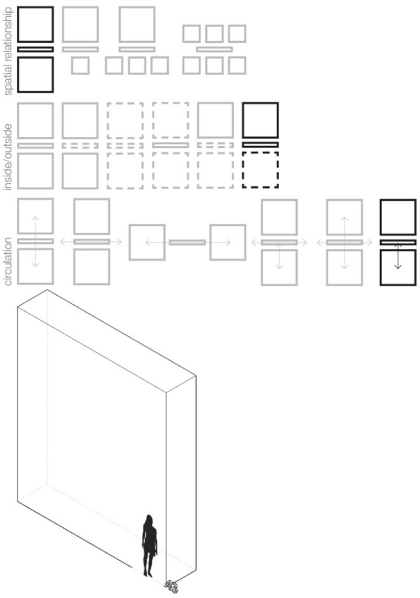
41





Holocaust Memorial, Berlin
memorial
columns, columns
contemplation
tourism
4 :8 :250
1 : 2 : 63
axial, cross axial
open
non-terminated
outdoor
made
alone, alien, lost, disoriented

42



The House of Suhaymi in Cairo, Egypt
Mashrabiya
screen, roof
ventilation, privacy
observation
3 :18 :15
1 : 6 : 5
cross-axial
open
terminated
indoor
made
exotic, cool, shady, patterned

Appendix 2

Survey Handout

This survey is similar to a word association exercise, except with photos of spaces as prompts. Please take a look at the attached photos, they are in numbered order. Write down one or more words that you associate with each space. The words should refer more to how you might feel in the space and less to the physical qualities of the space. What would it be like to be in that space? How would it make you feel? The more descriptive and precise you can be with your words the better. For example:

Good - a physical descriptor might be: tight

Better - a feeling this might induce could be: uncomfortable

Best - a more descriptive word might be: claustrophobic

The spaces may induce any range of feelings, no descriptor is too positive or negative, too “safe” or “off-the-wall”. Please be as candid and descriptive as possible. This should be done quickly, 15 minutes is a good time frame to set. It is fine to leave blanks.

1	
2	
3	

4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	

28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	

40	
41	
42	

Bibliography

| Agrest, Diana, Patricia Conway, and Leslie Weisman. *The Sex of Architecture*. New York: Harry N. Abrams, 1996.

| Alexander, Christopher. The Nature of Order : An Essay on the Art of Building and the Nature of the Universe, Book One : The Phenomenon of Life. Berkeley: The Center for Environmental Structure, 2002.

| Bachelard, Gaston, and M. Jolas. *The Poetics of Space*. Boston: Beacon, 1994.

| Corbusier, Le, and Frederick Etchells. Towards a New Architecture. London: Architectural, 1946.

| Dennis, Michael. *Court & Garden: From the French Hotel to the City of Modern Architecture*. Boston; The Massachusetts Institute of Technology, 1986.

| Eliade, Mircea. *The Sacred and the Profane; the Nature of Religion*. New York: Harcourt, Brace, 1959.

| Goldsworthy, Andy. *Andy Goldsworthy: A Collaboration with Nature*. New York: H.N. Abrams, 1990.

| Koolhaas, Rem. Junkspace. October 100 spring 2002 pp. 175-190

| Norberg-Schulz, Christian. *Genius Loci: Towards a Phenomenology of Architecture*. New York: Rizzoli, 1980.

| Sussman, Ann, and Justin B. Hollander. Cognitive Architecture: Designing for How We Respond to the Built Environment. 1st ed. : Routledge, 2014.

| Vinciarelli, Lauretta*. Not Architecture but Evidence That It Exists*. Cambridge, Mass: Harvard Graduate School of Design, 1998.

| Tanizaki, Junichiro. *In Praise of Shadows*. First ed. N.p.: Lette's Island, 1977.