



*In Search of Perspective:  
How We Understand Space Through Visual Horizons*

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In Search of Perspective:  
How We Understand Space  
Through Visual Horizons

This thesis is a study of perspective. Visual perspective invokes (thus creating) both understandings & misunderstandings of space through the use of depth. Depth in my opinion is perspective's ultimate aspiration; no great illustration or portrait of perspective can exist without an exuberant understanding of depth.

Depth in architecture therefore becomes... [1] how the design & comprehension of space creates a volumetric understanding and sense of scale, and [2] how architecture can portray an intellectual understanding of its configuration and construction. . . A sort of architectural reality (to its representation).

ABSTRACT

James L. Barker II

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01 abstract  
manifesto  
index

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"If the naturalism and graphic virtuosity of architectural portrayals are too great, if they lack "open patches" where our imagination and curiosity about the reality of the drawing can penetrate the image, the portrayal itself becomes the object of our desire, and our longing for the reality wanes because there is little or nothing in the representation that points to the intended reality beyond it. The portrayal no longer holds a promise. It refers only to itself."

Peter Zumthor, "Thinking Architecture", page 13.

"Finally, perspectival construction ignores the crucial circumstance that this retinal image - entirely apart from its subsequent psychological "interpretation" and even apart from the fact that eyes move - is a projection not on a flat but on a concave surface. Thus already on this lowest, still pre-psychological level of facts there is a fundamental discrepancy between "reality" and its construction."

Erwin Panofsky, "Perspective as Symbolic Form", page 31.

"For architecture, emptiness implies that a building should not be a slave to its program, twisting and turning to accommodate our every movement and wish - squirming to please, as it were. But rather should be formed according to inviolate principles of order, structure, shelter, the evolution of architecture itself. And accident... High Realism."

Michael Benedikt, "For an Architecture of Reality", page 52.

01 abstract manifesto index

pages iii-v

04 PROPOSAL IMAGERY

the [proposal] & [portrayal]

[ look into design of project, including drawings and images of buildings interior and exterior. detailed description of programmatic uses of building, and building function. look at conceptual sketches leading to project's development. images from thesis defense ]

pages 19 through 62

02 origin

architecture is [optical reality]

[ a look into the perspective and how we use it to shape our understanding of space ]

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03 place schema

[urban] v. [natural]

[ an introduction to the project location, and development of design idea. look into case studies used to develop project ]

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[vanishing] point

[ wrap up of project intention, and credit to contributing sources for project. a look into career of author ]

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[acknowledgements]

I would like to take this opportunity to acknowledge those who have effected me; and in turn have contributed to this project. First and foremost, my Lord and Savior Jesus Christ, for without his grace this project does not exist. My thesis committee, Paul, Jaan, and Marcia, thank you so much for pushing me day in and day out to produce the best product possible. My mother Kristy Burrus - as well as my other parents, grandparents, siblings, and family - for grooming me as a man, and supporting me throughout all of my endeavors. All of my colleagues and friends who have helped shape my architectural ideas inside and outside of this project - Matthew Granelli, Corey Dirutligiano, Danny Cao, George Makrinos, Carolin Kodisch, and many others - Thank You! A very special thank you to my professor and friend Tugce Akinci - thank for the endless amounts of critiques of my work. Your time with me was invaluable, I hope this project is something you are proud to have contributed to. Last but not least my beautiful bride and best friend, Mrs. Melanie Barker, your contribution to this project, and my life, could never be overstated. I will thank you with my heart & my love... forever...

God Bless!

[dedication]

This thesis book is dedicated to my late great-grandmother, Mrs. Katherine Terrell, a true architect - of our family's values, including my own. You are truly missed.

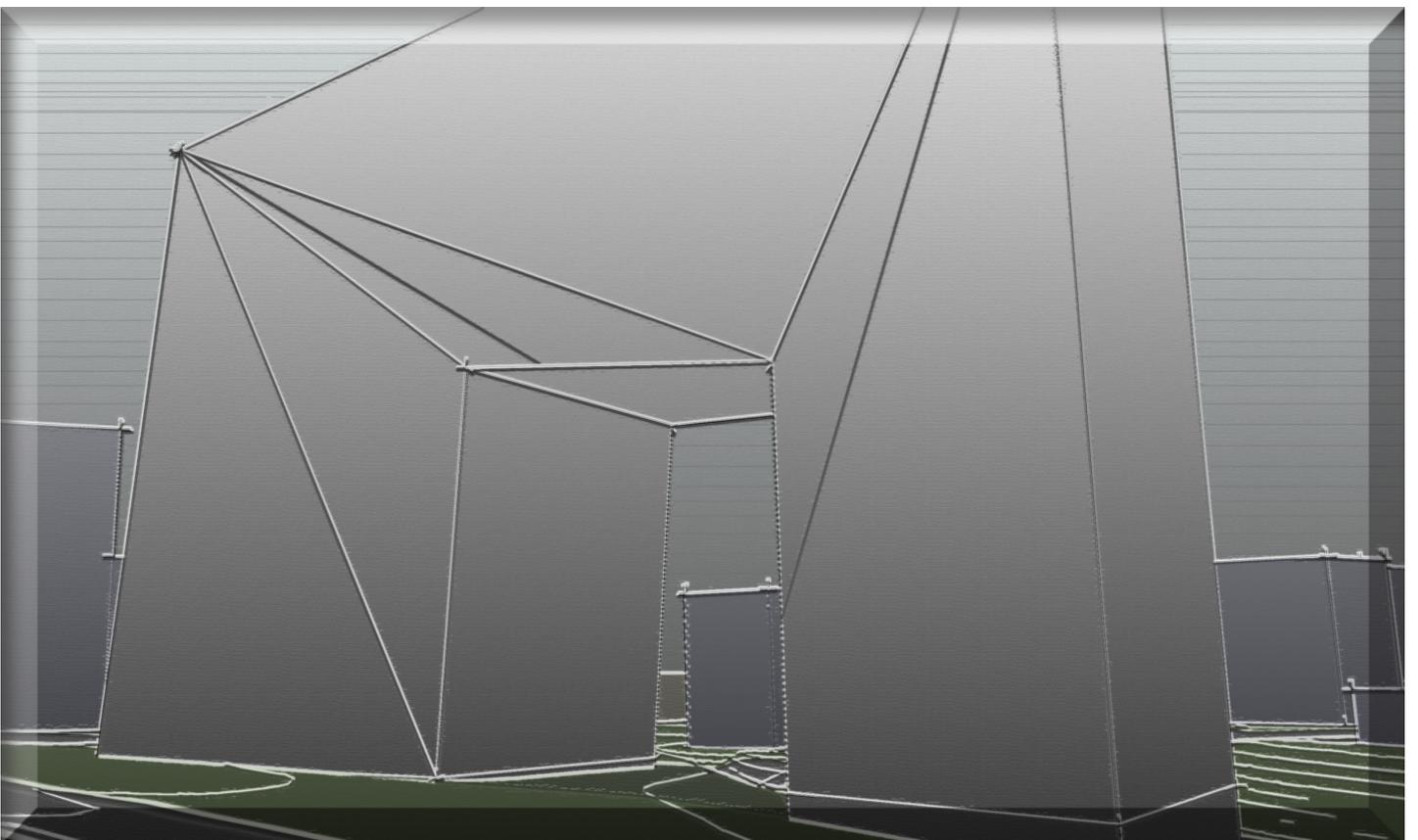
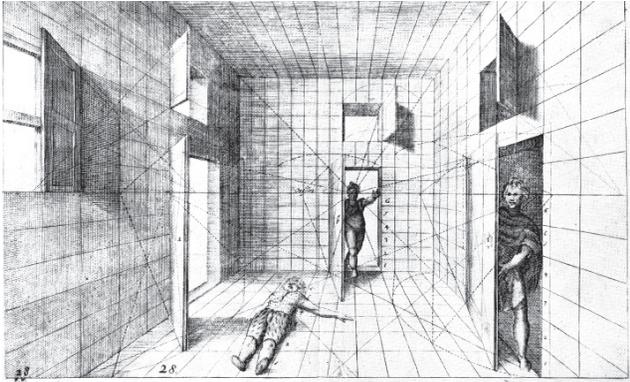


Figure 1: early sketch of building showing perspectival form

# 02 Architecture is [Optical Reality]

# 02 origin



JAN VREDEMAN DE VRIES, *Perspective* (Leiden, 1604–5), plate 28. Courtesy, the Bancroft Library, Berkeley, California.



*Whoever makes a DESIGN, without the Knowledge of PERSPECTIVE, will be hable to such. Unavoidable as are shown in this Frontispiece.*



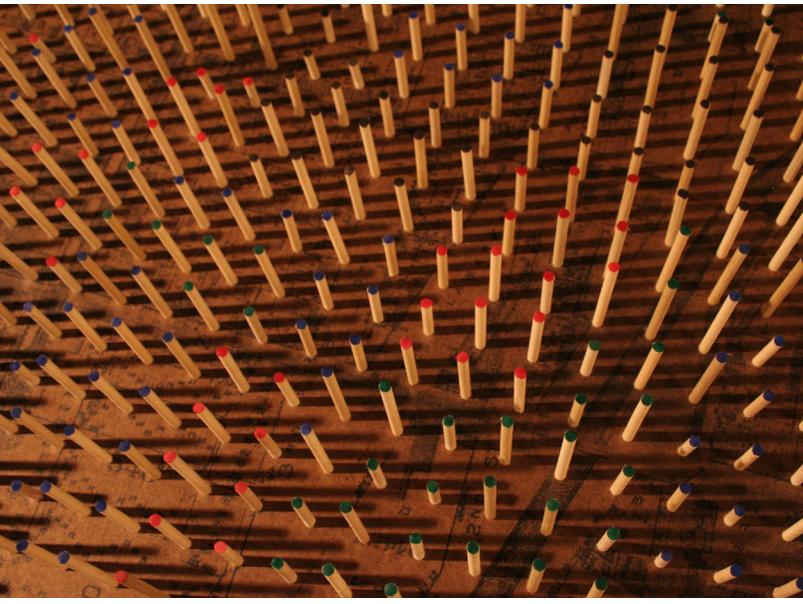
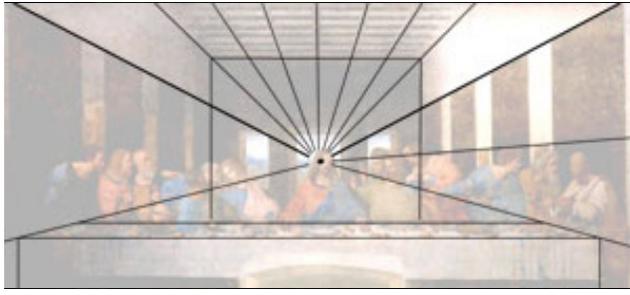
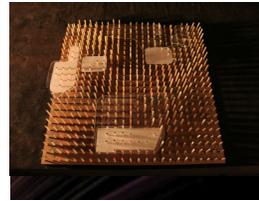
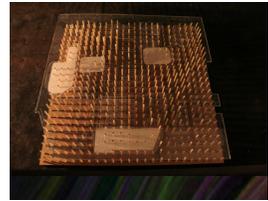
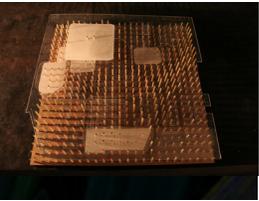
Linear Perspective is the art and science of describing three-dimensional volume and spatial relationships on a two-dimensional surface by means of lines which converge as they recede into the depth of a drawing.

The above study illustrates the visual construction of a perspective drawing. Interestingly enough this drawing also implants the human element, which is the drawings 'horizon' relative to man's eye level. Also imposed are diagonal lines connecting various points, suggesting an ambiguity of the understanding of perspective as it exists real-time in space. These items are very fluid, changing as often as our eyes do... The lower image is an attempt to depict how the horizon line defines our sense of scale, in this example, relative to the human figure.

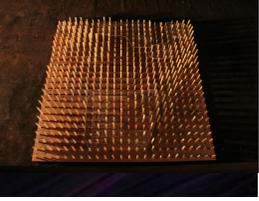
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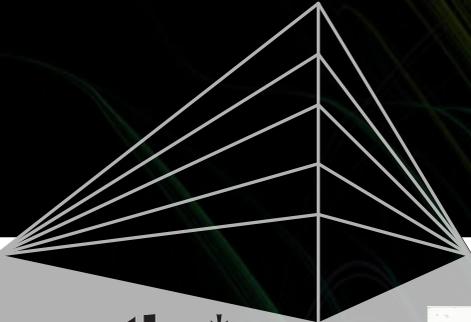
Psychological Crime?

Shown are perspectival images from a project titled "Library: Writings on the wall", designed and constructed by James L. Barker II and Matthew Granelli



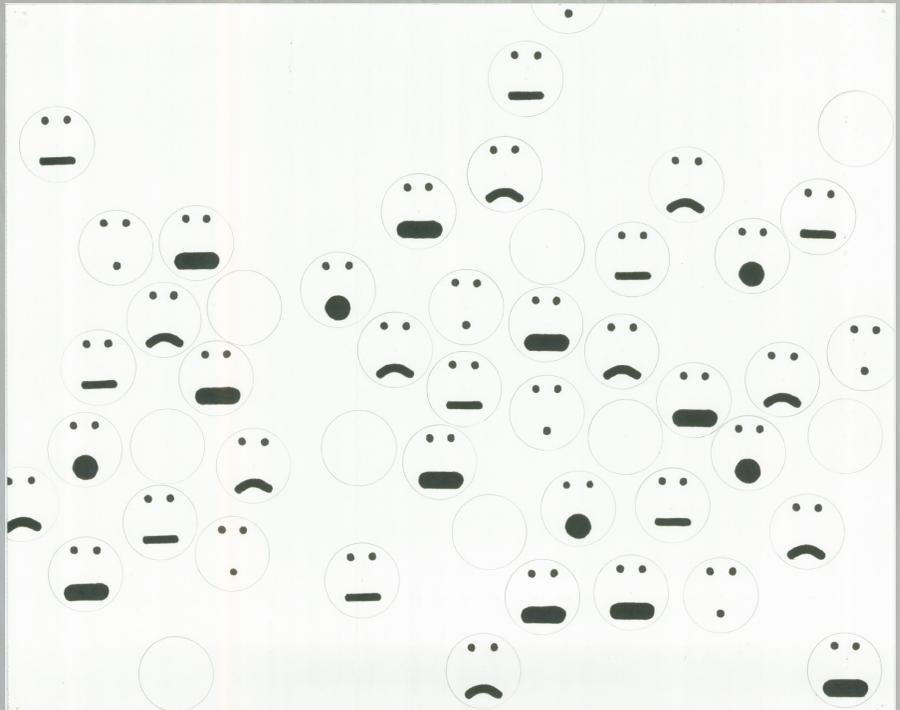
Attached to Reality





## Empathy\*

1. The intellectual identification with or vicarious experiencing of the feelings, thoughts, or attitudes of another.
2. The imaginative ascribing to an object, as a natural object or work of art, feelings or attitudes present in oneself.



The truth is all over your face

This is an idea about how icons (emoticons, feelings, building components, etc.) have very “real” components, but when they are juxtaposed with other icons of similar or different characteristics, they have varying effects. Because of the nature of these elements, these expressions have no choice but to offer natural responses by the viewer, just as they would if executed by ourselves. Our responses to such vary of course relative to the individual, but relate relative to the expression...this is our innate biological method of expression/communication....thus identifying with feelings, thoughts, or attitudes of another...hence the definition of Empathy...

Throughout this work, I am connecting the lines between how we view space & how we underspace it. The very method for which a wall is constructed should provoke a particular response from the viewer just as a facial expression would, as discussed above. Perspective drawings allow the viewer to virtually ‘enter’ and ‘inhabit’ a drawing/building, and identify particular feelings in response of. By using this perspectival sense, we feel empathy...we empathize within the representation.

How does the perspective complete the comprehension of three dimensional space? As sort of a critique of the plan, section, elevation, etc, I am exploring how the visual form (which is more closely aligned with how we understand space) can improve the way in which architecture is conceived, and therefore produced. Through this, I look at two aspects of the use of perspective in architectural designing: [ 1 ] What a perspective shows which can't quite be represented fully in any other form of media is depth. Depth produces a sense of scale, overall comprehension of the space, etc. [ 2 ] What depth can also translate is the degree for which the "thing" is understood...a sort of architectural reality. The building tells the story of its existence, and situation within its context.

## 02 origin

How do you define **VIEW ANGLES**???

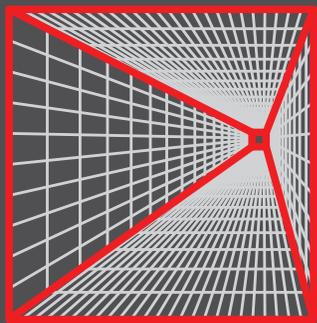
What is the nature of the **HORIZON LINE**???

**POINT OF VIEW**???

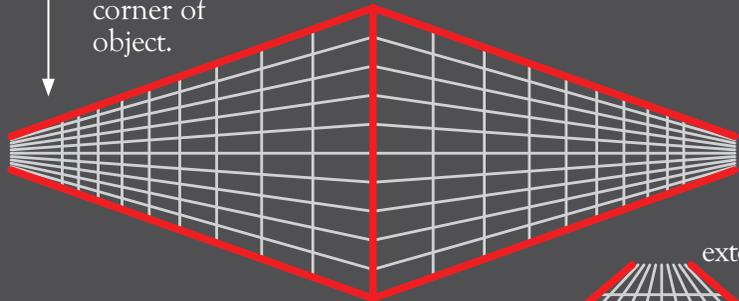
The following questions are essential to constructing and understanding architectural representations, particularly that of the perspective drawing.

What is a **VANISHING POINT**???

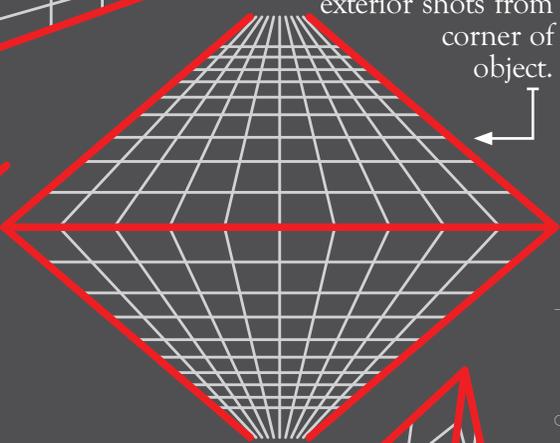
One-Point Perspective for interior shots from outside of frame.



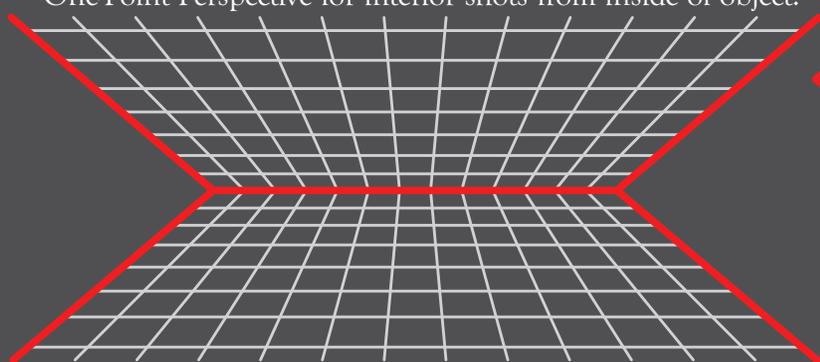
Two-Point Perspective for exterior shots from corner of object.



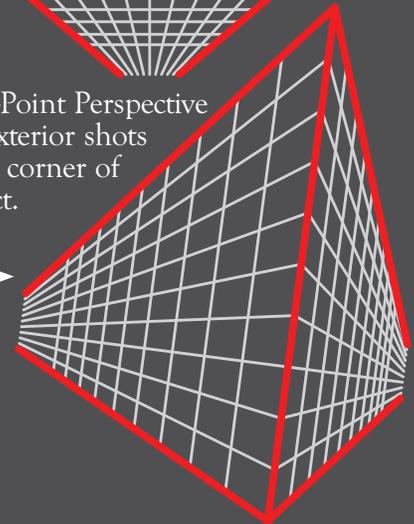
Two-Point Perspective for exterior shots from corner of object.



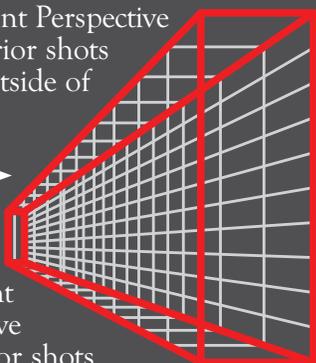
One-Point Perspective for interior shots from inside of object.



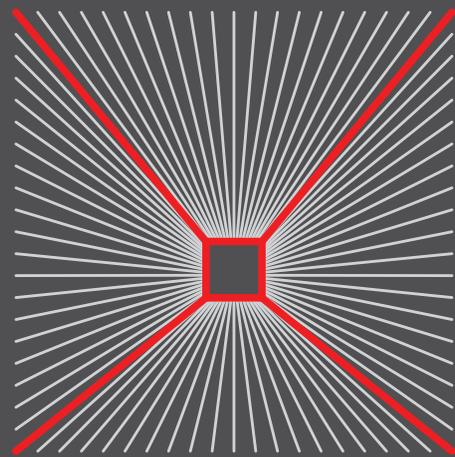
Two-Point Perspective for exterior shots from corner of object.



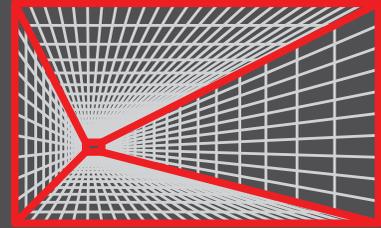
One-Point Perspective for exterior shots from outside of object.



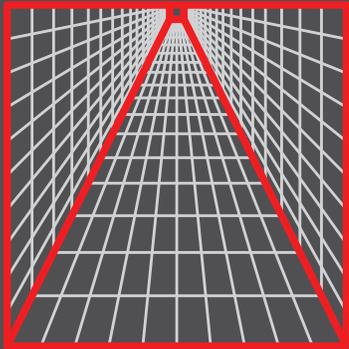
One-Point Perspective for interior shots from inside of object.



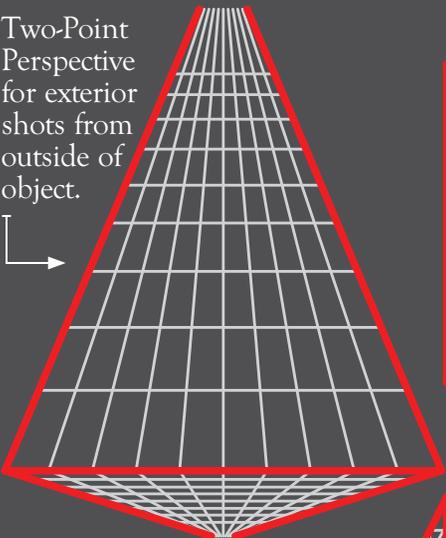
One-Point Perspective for interior shots from outside of frame.



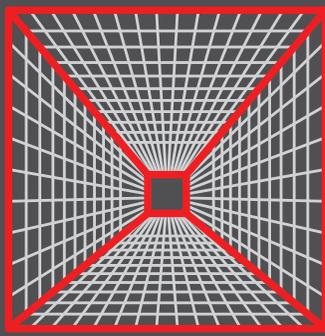
One-Point Perspective for interior shots from outside of frame.



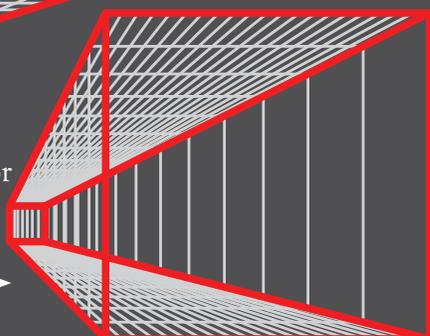
Two-Point Perspective for exterior shots from outside of object.



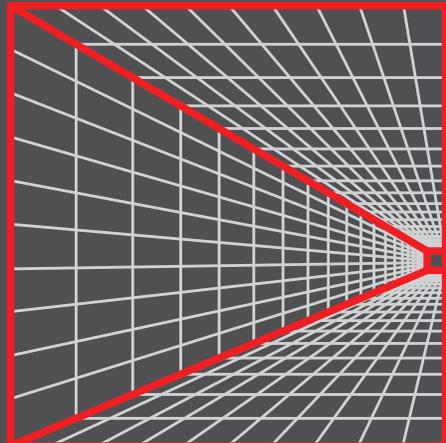
One-Point Perspective for interior shots from outside of frame.



One-Point Perspective for interior/exterior shots from outside of frame.



One-Point Perspective for interior shots from outside of frame.



One-Point Perspective for interior shots from outside of frame.

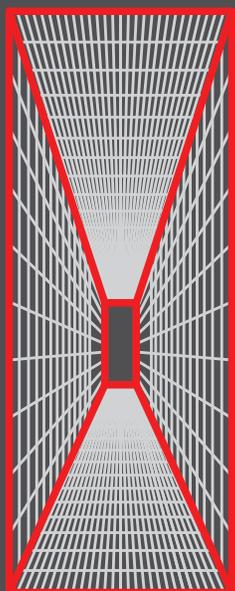


Figure 15. Computer drawing of various types of perspective drawings

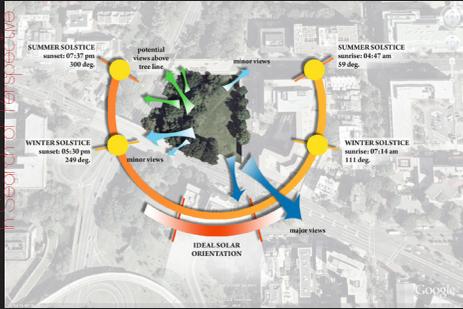
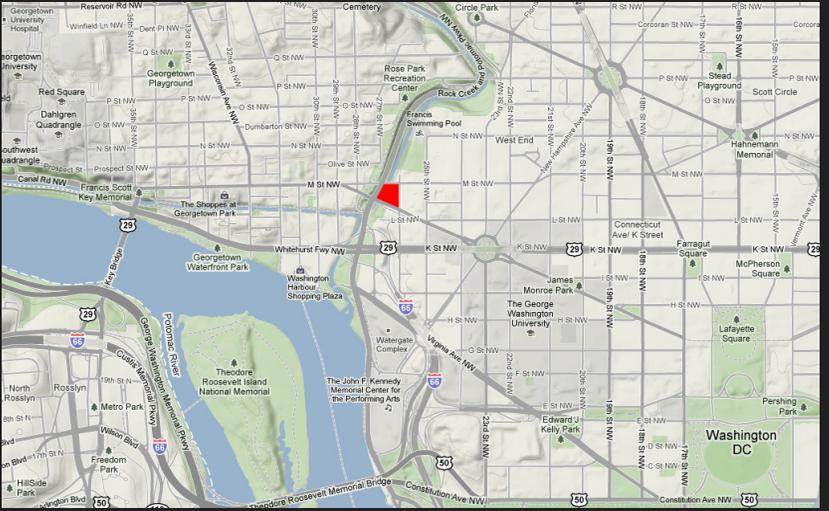
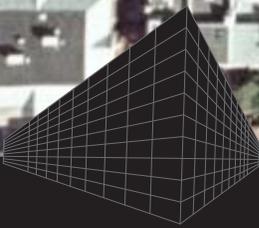
03  
[ Urban ] v. [ Natural ]

# Site

The location for this thesis project is at the intersection of 26th Street and Pennsylvania Avenue in Northwest Washington D.C.



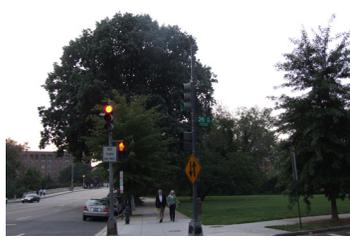
# Site Study

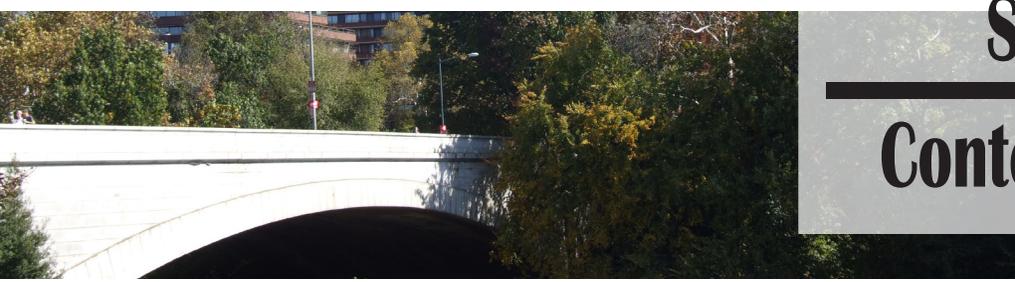


Solar Study of site, showing solar orientation throughout course of year, and ideal points of view from inside of the site outwards

Traffic study of site, showing vehicular and pedestrian modes of entry onto site (access points).

03 place schema





# Site Context

## .....SITE

Situated in a unique position in its urban context, this site is located on the intersection of 26th street and Pennsylvania Ave. This site proves critical in its role in aligning the topographical complexities of this geographical area with the clear organizational interests of the grid-like urban plan.

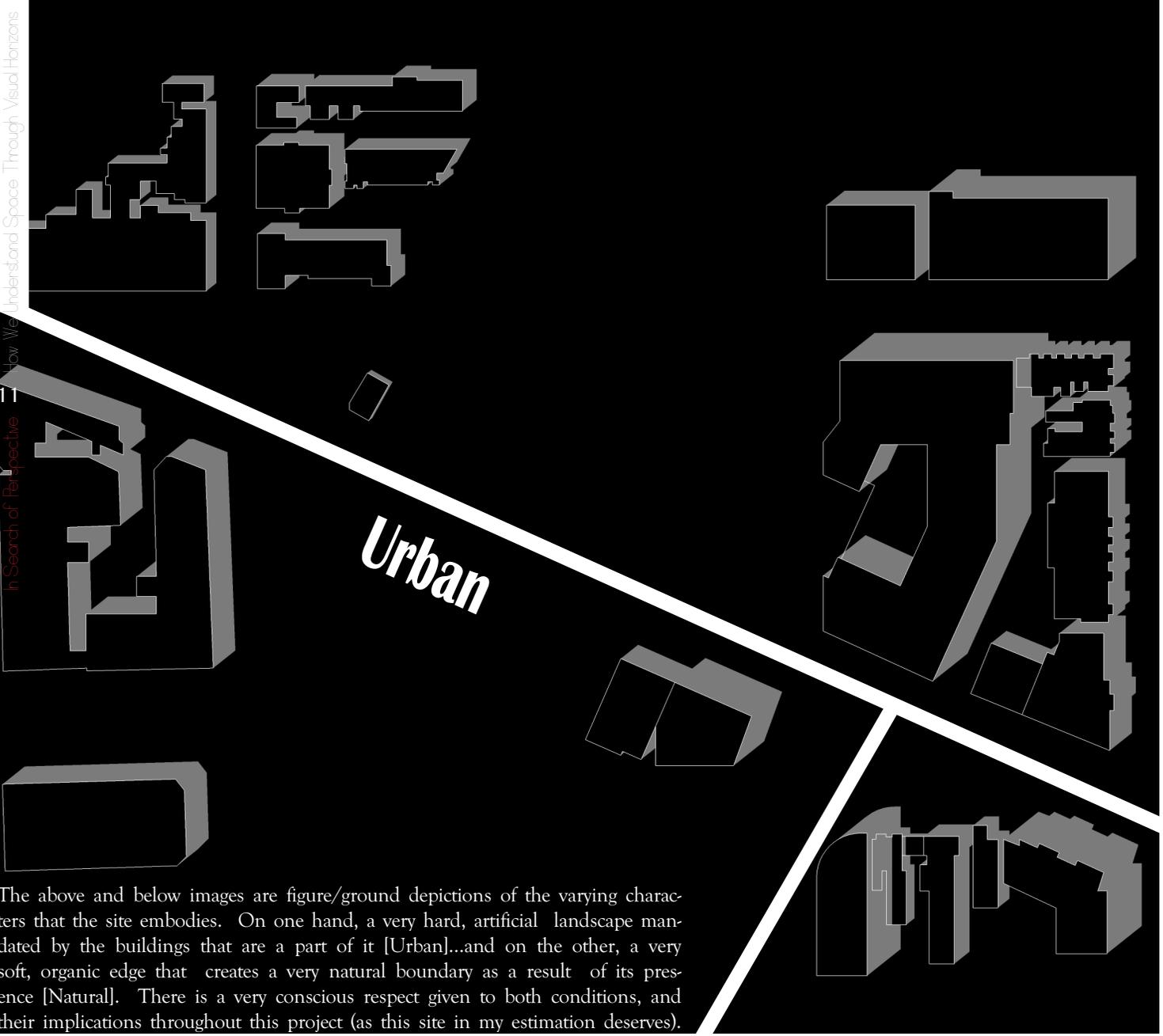
For an added level of complexity, the site is a trapezoidal wedge shape; severed along its middle by the likes of Rock Creek and the Potomac Parkway (which runs north and south along the body of water). An interesting dichotomy of varying urban conditions...an interesting opportunity to explore the fate of this location...as a reflection of one, or a hybrid of all.

In the 'front' of the site, there is a more typical D.C. landscape: a dense mixture of high rise buildings, with functions ranging from national embassies and commercial space to high rise residences. Along its 'back' however, is the well known Washington Georgetown area. This area consists of much smaller structures (2-4 stories), of which most are designated to retail or residential.





How We Understand Space Through Visual Horizons  
In Search of Perspective



The above and below images are figure/ground depictions of the varying characters that the site embodies. On one hand, a very hard, artificial landscape mandated by the buildings that are a part of it [Urban]...and on the other, a very soft, organic edge that creates a very natural boundary as a result of its presence [Natural]. There is a very conscious respect given to both conditions, and their implications throughout this project (as this site in my estimation deserves).





Figure 43 image looking into project site

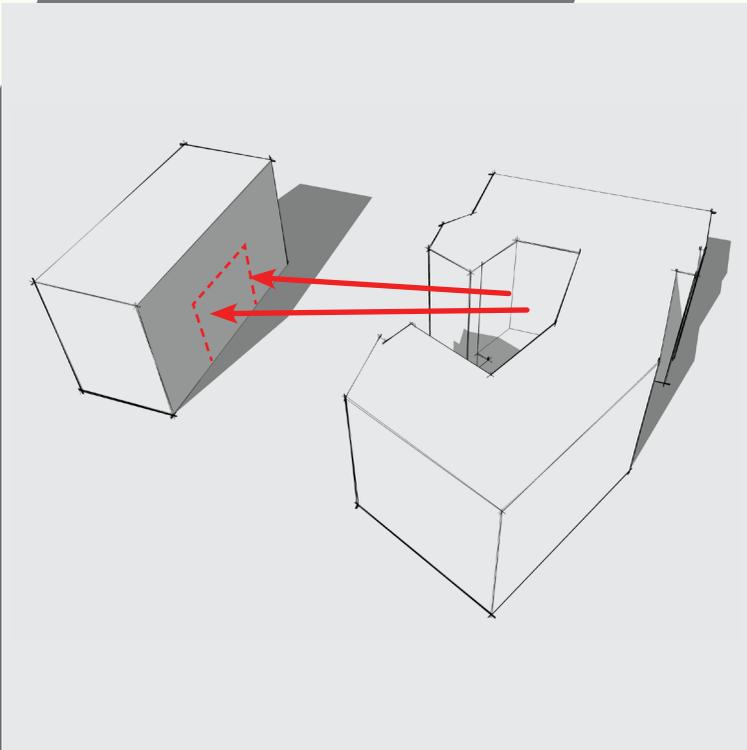
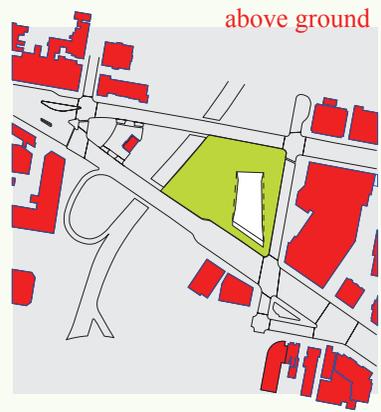
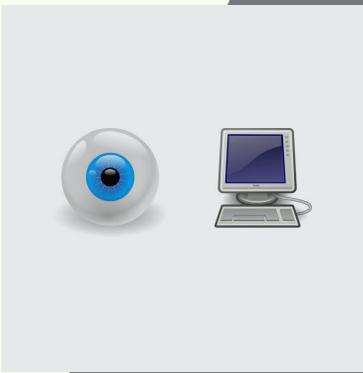


STIMULI... The following images are a series of images compiled throughout the duration of this thesis project. The images shown are a combination of both case studies, and personal photography, which both provided keen insight on the direction of the project. The desire throughout this project was to highlight perspective: ways in which the lens acknowledges perspective, and the ways our minds interpret it. Such a novel idea...such a complex operation.



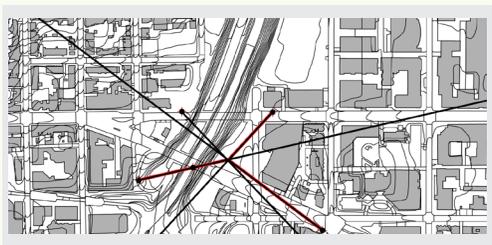
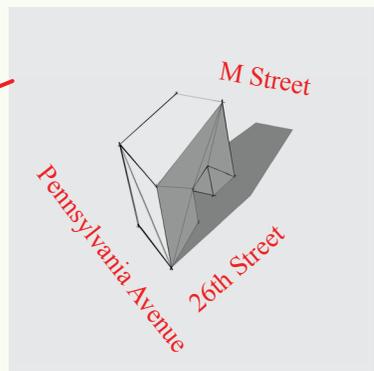
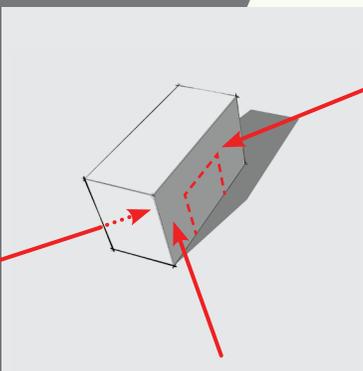
13  
How We Understand Space Through Visual Horizons  
In Search of Perspective



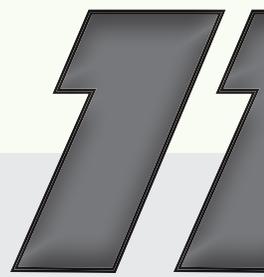


This site, at the eye of Georgetown in Washington DC (Pennsylvania Avenue and 26th Street NW) is rich with perspectival views from varying terrains. Responding to the language from its neighbors, this building dwells in the sky, leaving only its footprints mark in the earth.

The forces determined by the visible parameters within its situational context now become geometric factors into how this visual arts center takes shape. The result is a complex series of triangulated faces which are left over from the forces work to an ordinary rectangular volume.

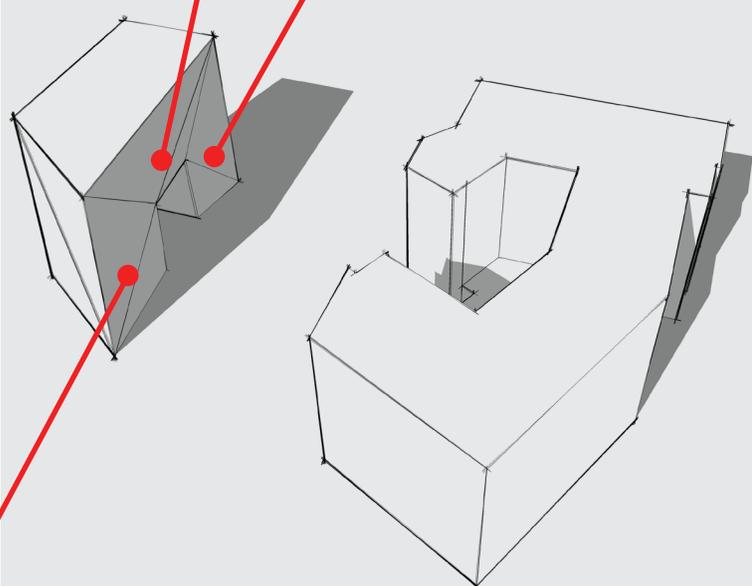


03 place schema



Theater  
(raised above ground)

Private  
(office/theater support/storage/etc)



Public  
(retail/lobby space/cafe/etc)

*“vistas” for transformation*  
identified as furthest approach points for visualizing the site, these lines (shown in red) indicate the forces for which the buildings transformation begins to take place

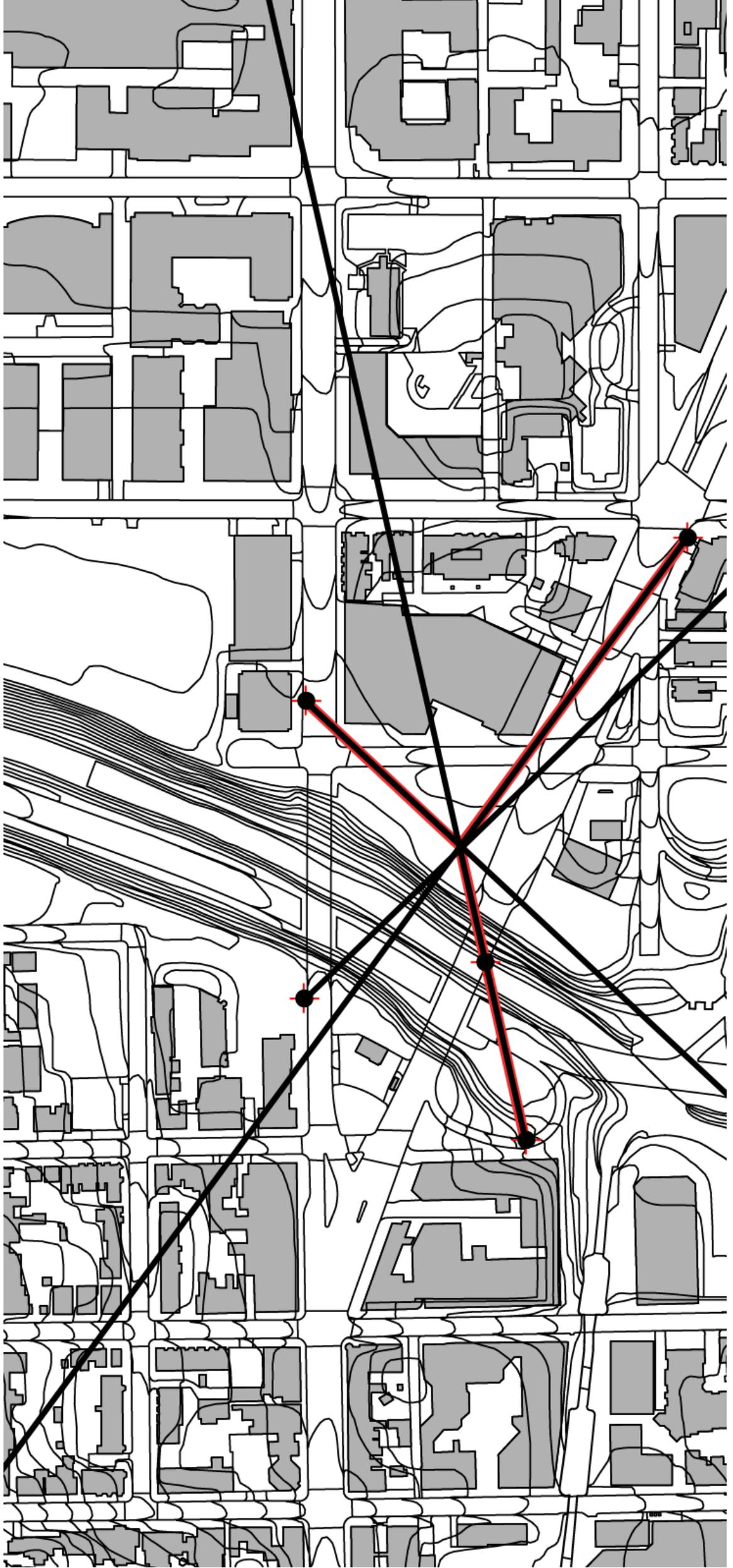
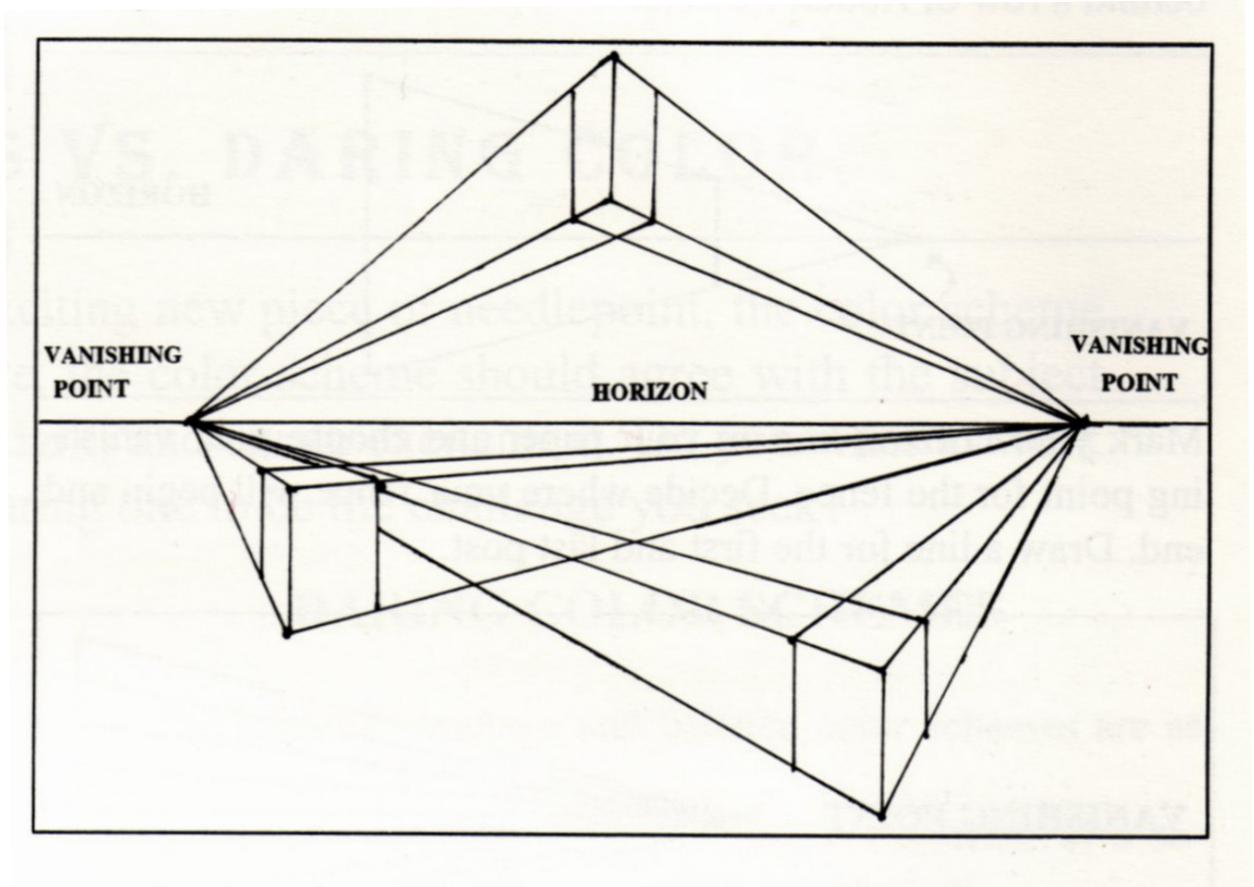
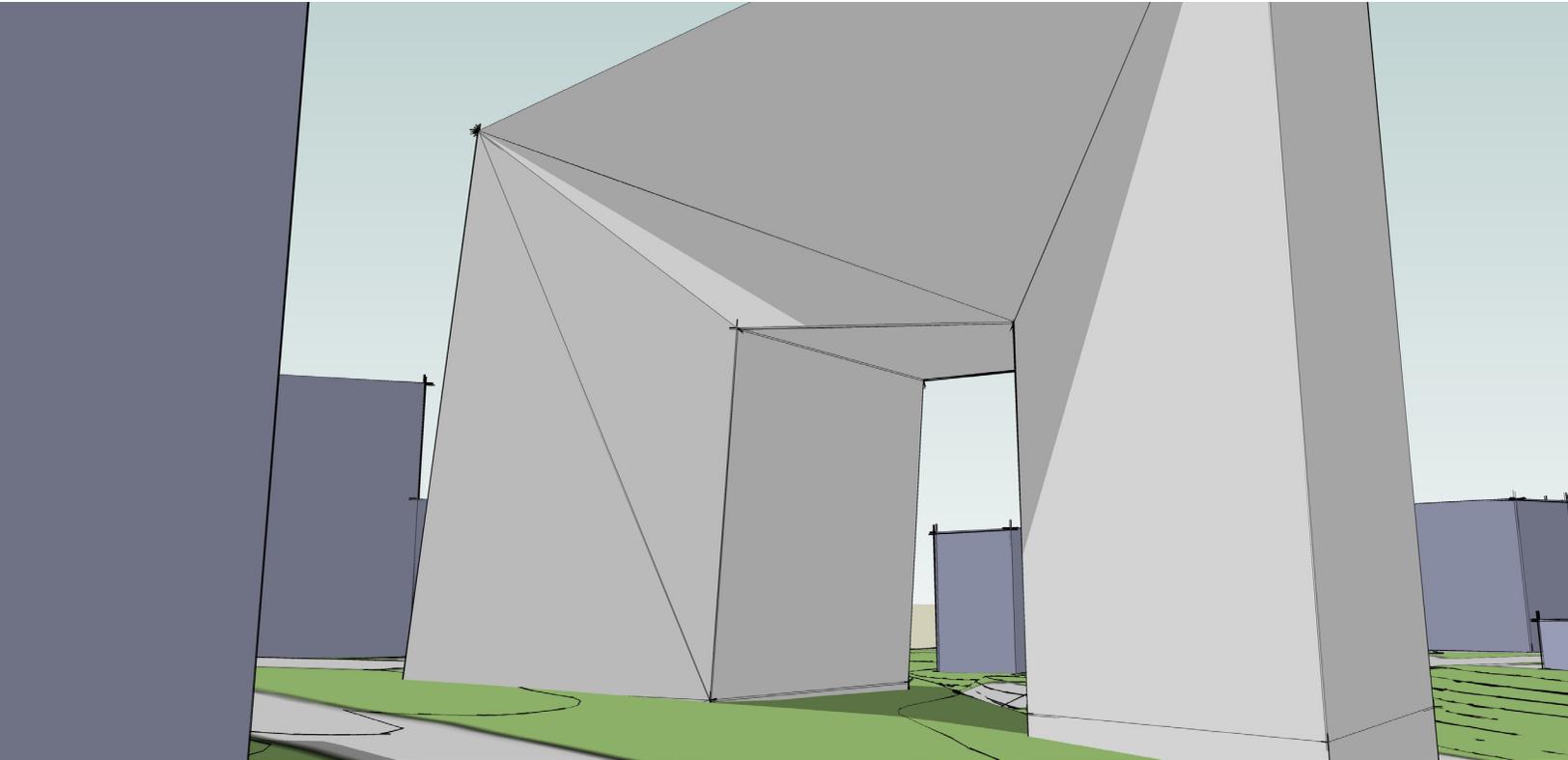


Figure 72 cad drawing of site

## *building with 'perspective'*

what if architecture was created with these similar design lines...how does that violate our pre-existing conceptualization of space???

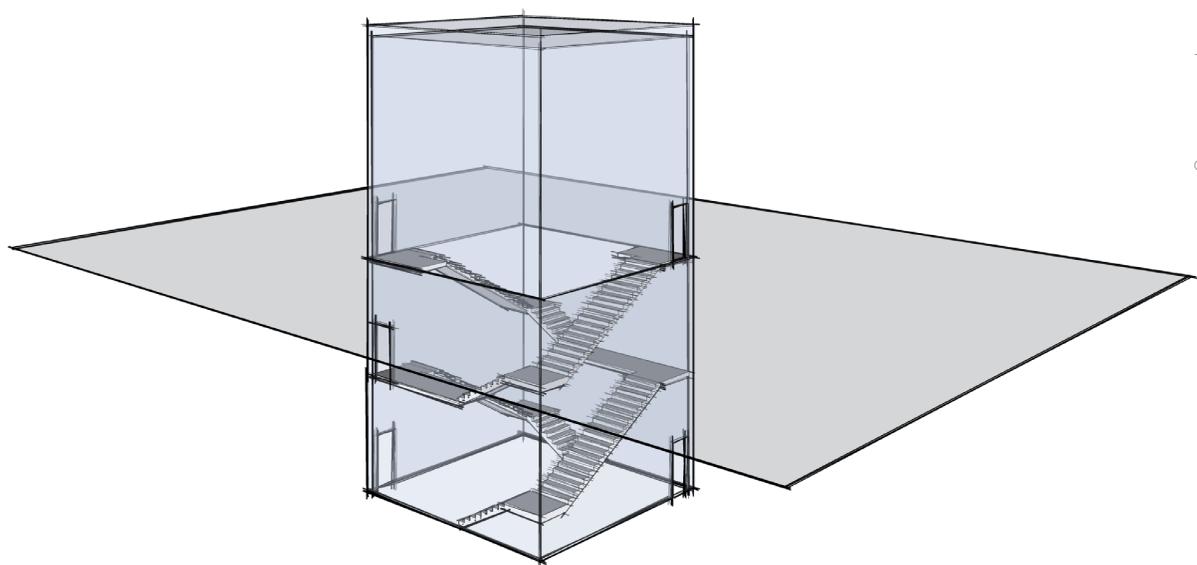




### *ultra opening*

with homage to its neighbors, this building graciously accepts an opening, both creating a grand plaza and maintaining green space (by minimizing its footprint) for residents to enjoy in the otherwise concrete urban area

Figure 74. model of project



### *insert object here*

the void thus created presents an opportunity for a figure, not to intrude...but rather to compliment. a Glass Box!!! Inserted in the outdoor plaza, this object marks the center of the plaza, while also accomodating access to the lower levels of the building, and underground parking.

this box also in its service role provides light to the lower levels

04  
the [Proposal]

in an abstract fashion, the following images highlight some of the building functions that are included in the proposed building. the proposed building is a visual arts center, designed to highlight each of the performing arts in a unique setting.



flexible retail space



café



parterre seating



business office

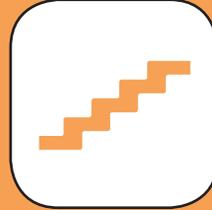


classrooms

roof terrace



stair-well



ticketing office

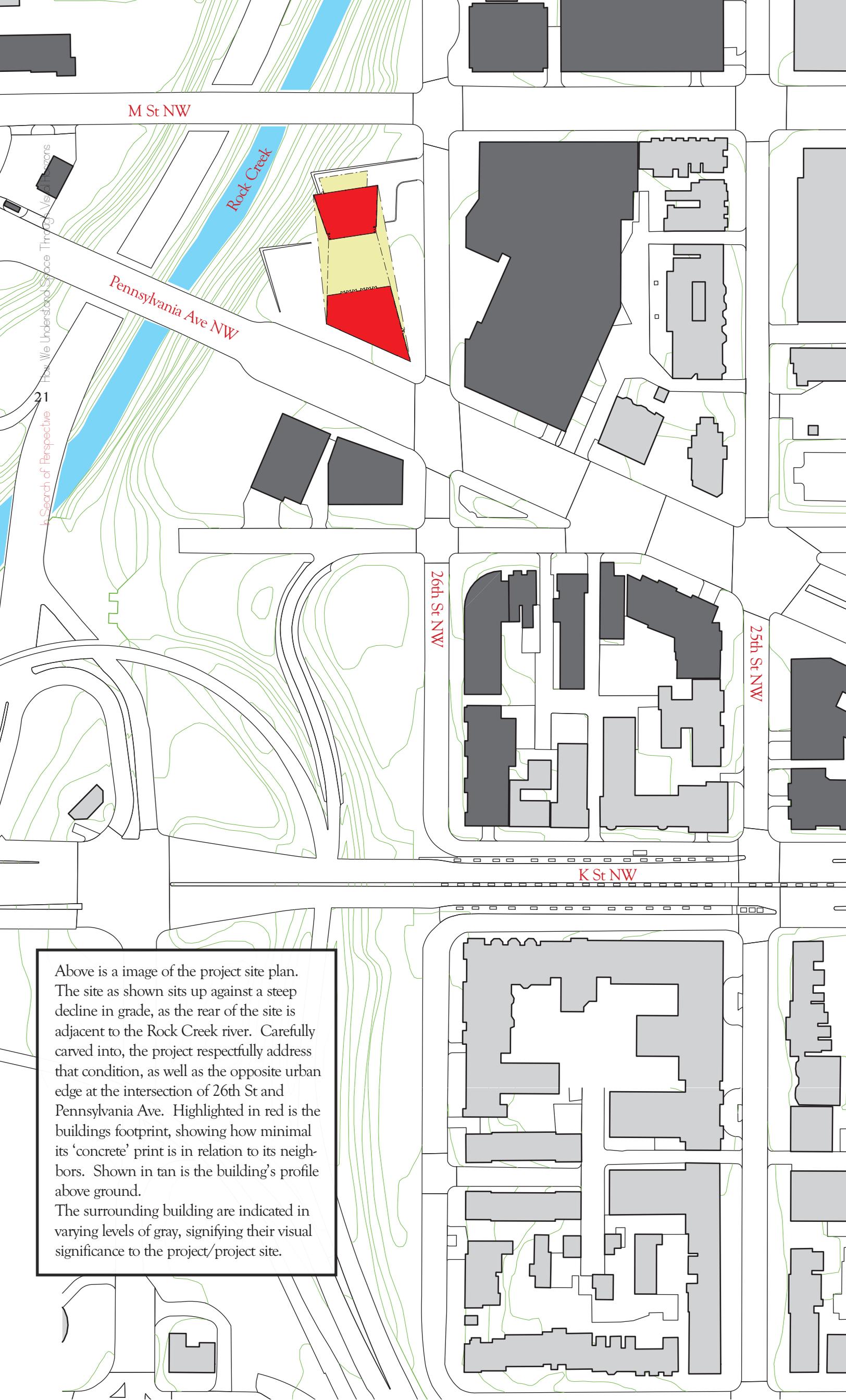


performance theater

Program:  
**Visual Arts Center**

- [ 1 ] Main Performance Theater
- [ 2 ] Parterre Seating
- [ 3 ] Performance Stage
- [ 4 ] (bottom)Stage
- [ 5 ] Stage Prep/Practice Room(s)
- [ 6 ] Main Theater Lobby
- [ 7 ] Main Theater Lobby Balcony
- [ 8 ] Theater
- [ 9 ] Theater Fly
- [ 10 ] Theater Storage
- [ 11 ] Seating Lounge
- [ 12 ] Viewing Corridors
- [ 13 ] Business Office
- [ 14 ] Faculty Offices
- [ 15 ] Conference Room
- [ 16 ] Ticketing Office
- [ 17 ] Cafe

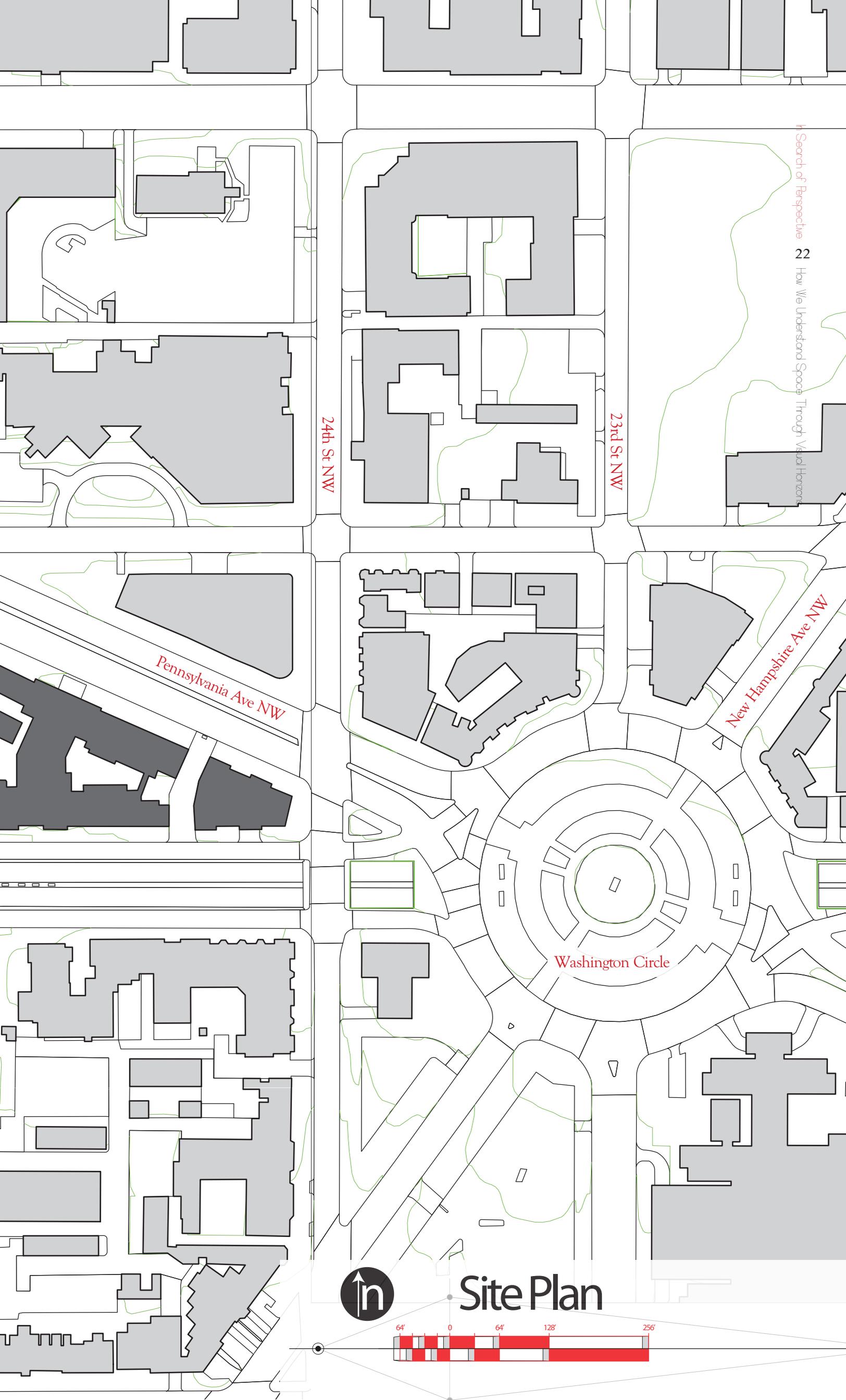
- Flexible Retail Space [ 18 ]
- General Lobby [ 19 ]
- Roof Terrace [ 20 ]
- Locker/Dressing Room [ 21 ]
- Classrooms [ 22 ]
- Meeting Room [ 23 ]
- Study [ 24 ]
- Stair-Well [ 25 ]
- Lighting Room [ 26 ]
- Balcony [ 27 ]
- Seating Area [ 28 ]
- Delivery/Storage Area [ 29 ]
- Underground Drop-off Area [ 30 ]
- Reserved Parking [ 31 ]
- Faculty & Staff Parking [ 32 ]
- General Parking [ 33 ]
- Storage [ 34 ]
- Mechanical [ 35 ]



In Search of Perspective How We Understand Space Through Visual Horizons

21

Above is a image of the project site plan. The site as shown sits up against a steep decline in grade, as the rear of the site is adjacent to the Rock Creek river. Carefully carved into, the project respectfully address that condition, as well as the opposite urban edge at the intersection of 26th St and Pennsylvania Ave. Highlighted in red is the buildings footprint, showing how minimal its 'concrete' print is in relation to its neighbors. Shown in tan is the building's profile above ground. The surrounding building are indicated in varying levels of gray, signifying their visual significance to the project/project site.



24th St NW

23rd St NW

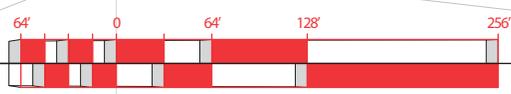
Pennsylvania Ave NW

New Hampshire Ave NW

Washington Circle



# Site Plan



The following images are detailed floor plans of the proposed Visual Arts Center, located at the aforementioned project site. Beginning at the lowest level is underground parking (the *Garage Level Plan*); the parking is designed intricately with the building's structure and exists on both east and west sides of the building (taking advantage of an infilled retaining wall that is created along the topography adjacent to Rock Creek). Supporting the structure of this building are large concrete columns (nicknamed "elephant's feet") that are positioned to accommodate the complexity of the building form. At the *Lower Level* exists a small black box theater, and seating lounge (envisioned as an open area public/meeting space). Introduced at this level are the linear corridors that run on both the east and west side of the building, and along the entire length of the building. These corridors are mainly designed outside of the "elephant's feet" and house the vertical circulation throughout the building. Also at this level is the beginning of the 'glass box'; an alternative method of transportation between this level and the Mezzanine Level, and a means of gaining natural light at even the lowest levels of public space. The next level is the *Mezzanine Level*: designed to accommodate the increased height of the black box theater and seating lounge, allows for access to the 3rd level of parking, and also house two medium sized classrooms, intended solely for public use. Access to opposite ends of building are achieved by small bridges, connecting the body of the building to its glass box in the center. The *Ground Floor Plan* signifies the first change in the plan, the opportunity for the building to break ground, and begin to pay homage to its urban and natural surroundings. Entry to the building on both its north and south ends are accessed from the plaza (the opening in the center of the building, created to both minimize its footprint, and respond to its surrounding conditions). The two ends of the project at this point are intentionally divided in their intended use: the north end being the more conventional is the private area, housing the private programmatic functions (including incoming/outgoing deliveries). The south end, indicated by its very inviting entrance, is the public end that functions (on this level) as a general lobby. Outside you experience the consequence of this unique building form; the building folds and turns above you, leaving one interested in the upcoming experience as he/she enters the building. Large concrete beams exist above you, showing the literal and figurative connection between the two ends as they connect above. You also experience remnants of the glass box, at this level a transparent figure in the center of the plaza created to offer a unique gathering/sitting area, and an interesting visual opportunity to peek into activity at the underground levels. Above, at the second through fourth levels (*Levels Two, Three, & Four*) are various programs supplementing that which exists on the latter levels. Again intentionally separated by degree of function (public vs. private) the following spaces (business office, conference room, faculty offices, locker/dressing room, etc.) exist on the north end, while the south end houses the more public functions (retail space, ticketing office, cafe, etc.). At *Level Five*, the two ends of the building are connected, resulting in a grand Performance Theater. The corridors described at the Lower Level re-appear, this time also functioning as small niches/seating areas and accepting marvelous views out onto the DC cityscape. The rear of the theater (stage) punches out of the building, creating the necessary stage area. Opposed to a conventional backstage area, the rear of this stage acts as a picture frame, glorifying the picturesque natural edge of the trees surrounding Rock Creek. As a result, the stage prep area exists below, included with a lift that provides access between the two levels. *Level Six* is a complement to the level below, created with an additional parterre seating area for balcony viewing onto the Main Performance Theater. This seating area is connected by a large 'bridge' running the length of the building; providing circulation where necessary and also views out and from below. The top and final level (the *Roof Level*) provides an open/outdoor terrace, which visitors can access to be able to experience Washington D.C. from one of its highest points and also to finalize the choreography, or story of this building's evolution and how its form is resulted at this level. This level acts as somewhat of a conclusion, showing viewers the result of its rather complex geometry, and program as it relates to this structure.



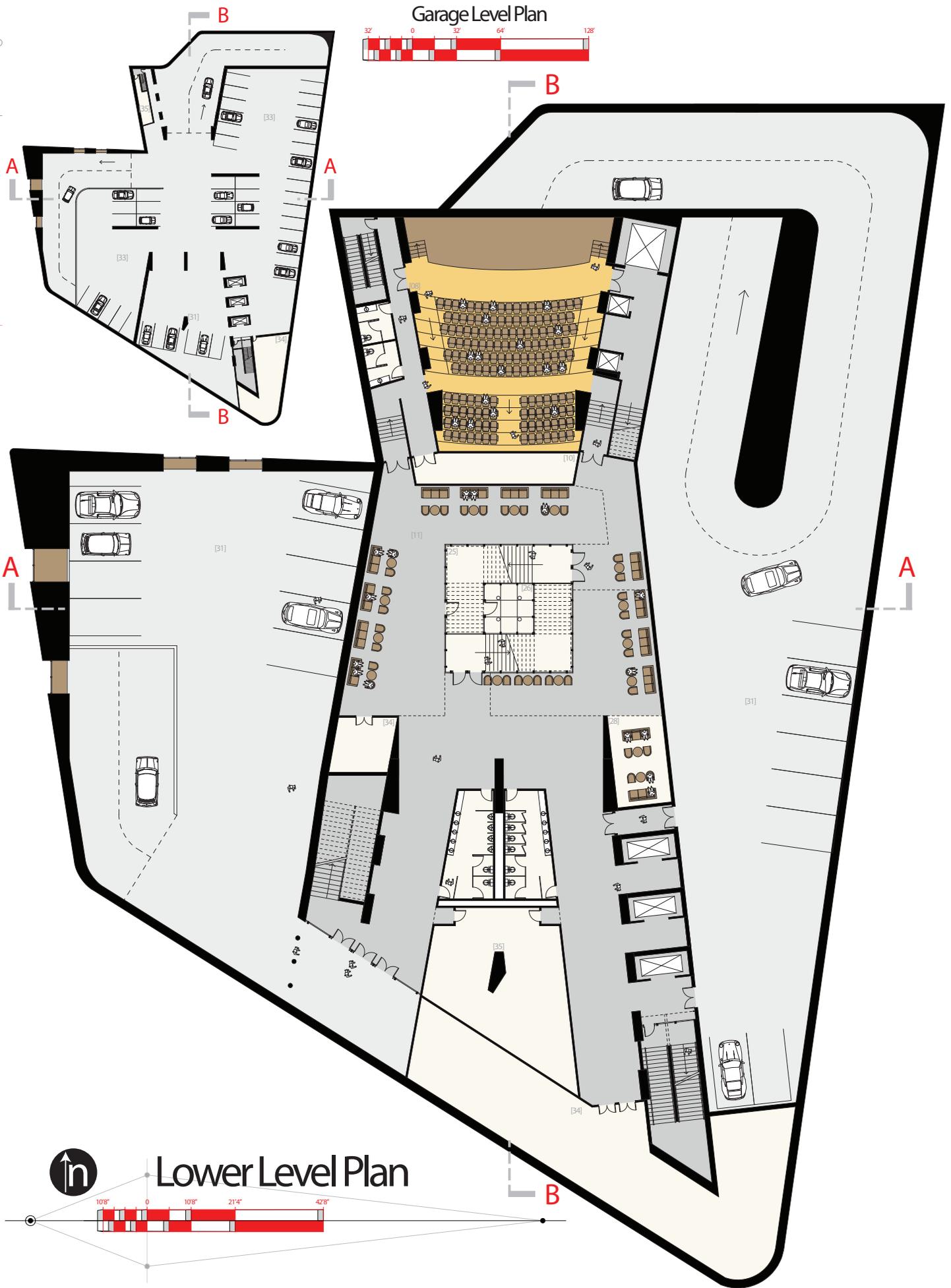


Figure 88. drawing of garage & lower level plan

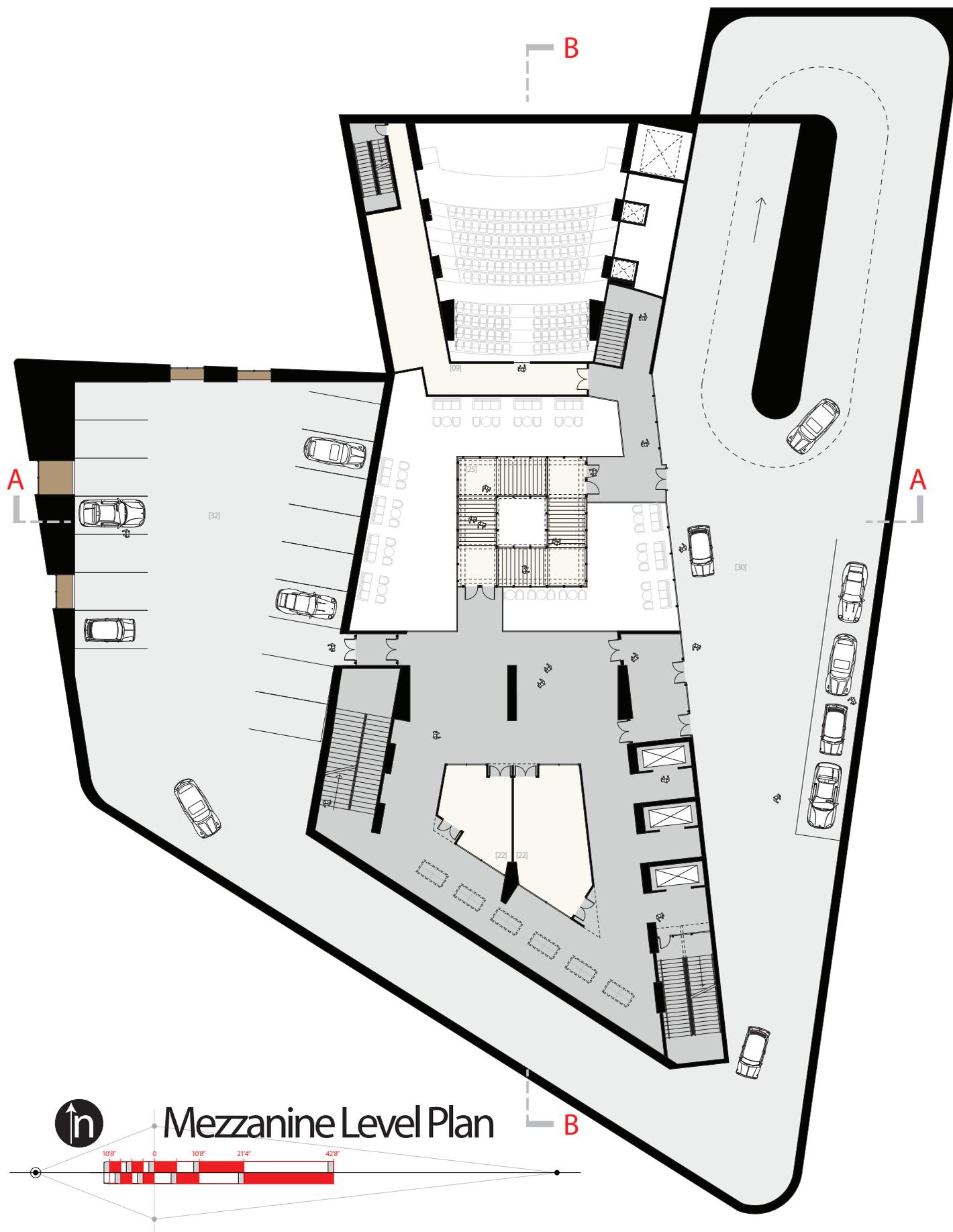
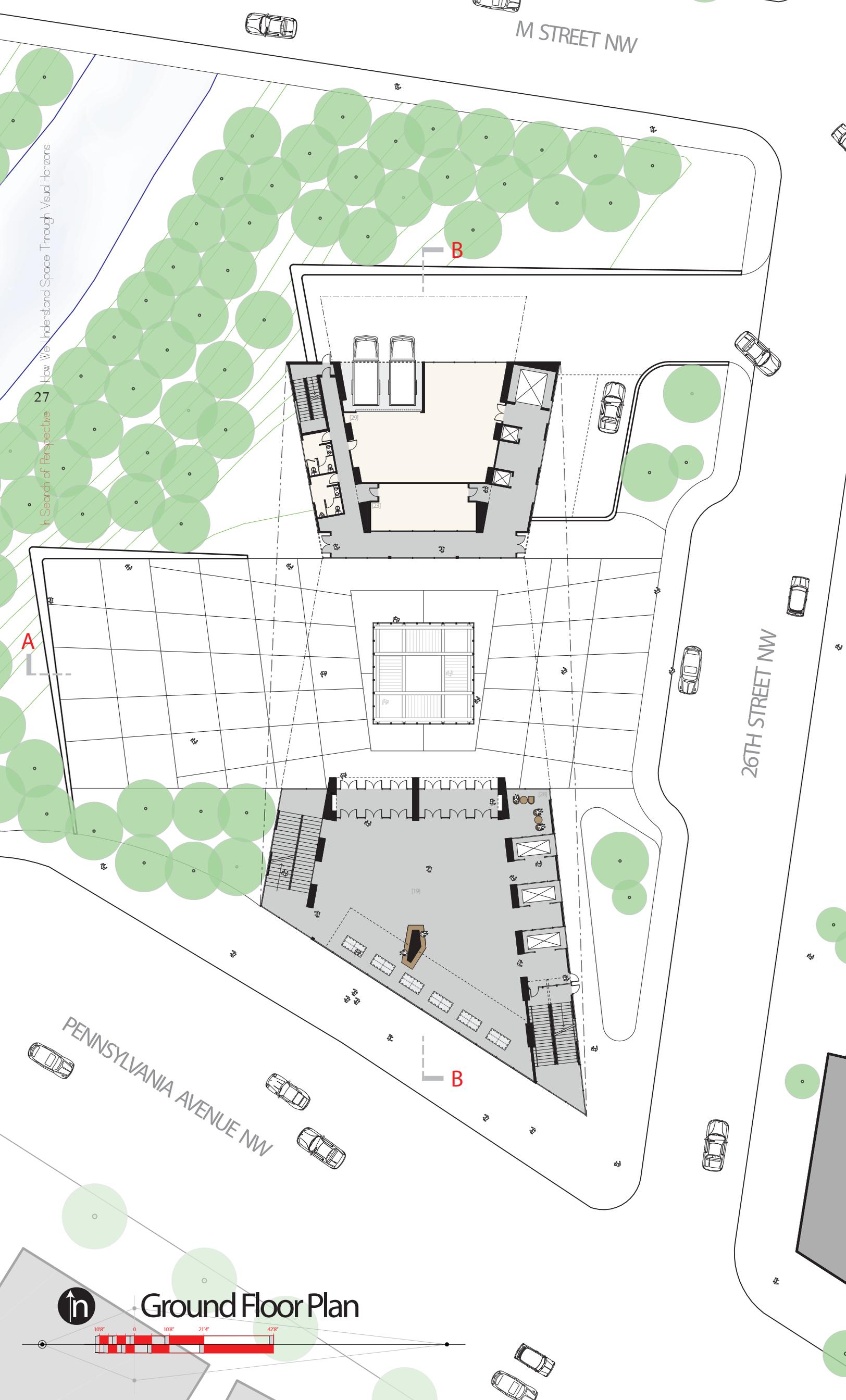
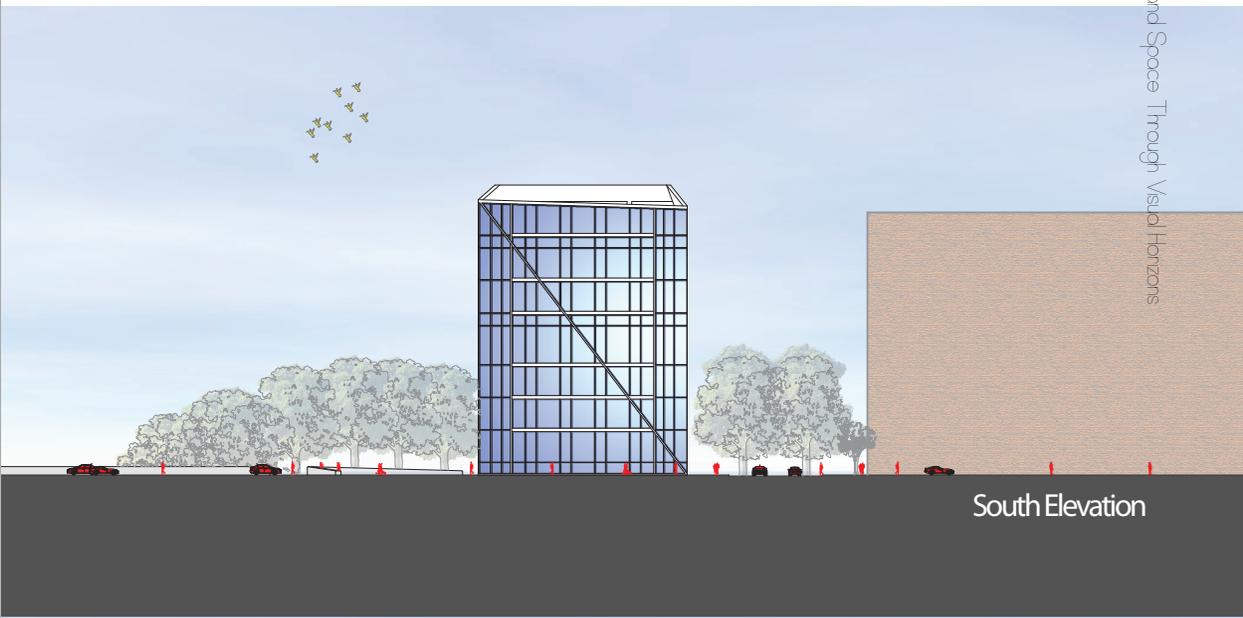
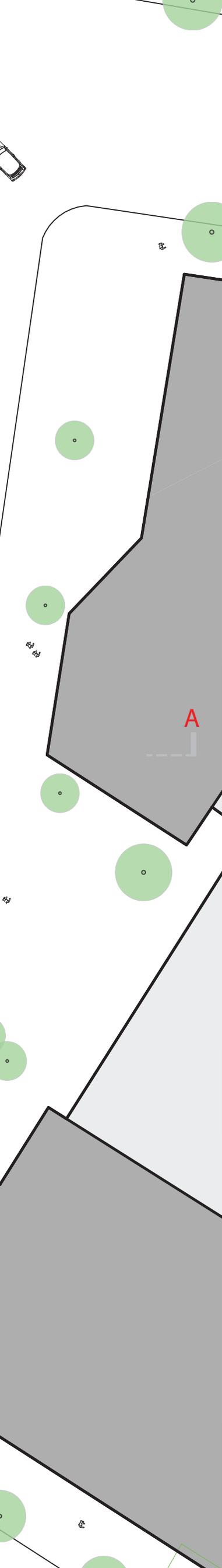


Figure 89. drawing of mezzanine level plan

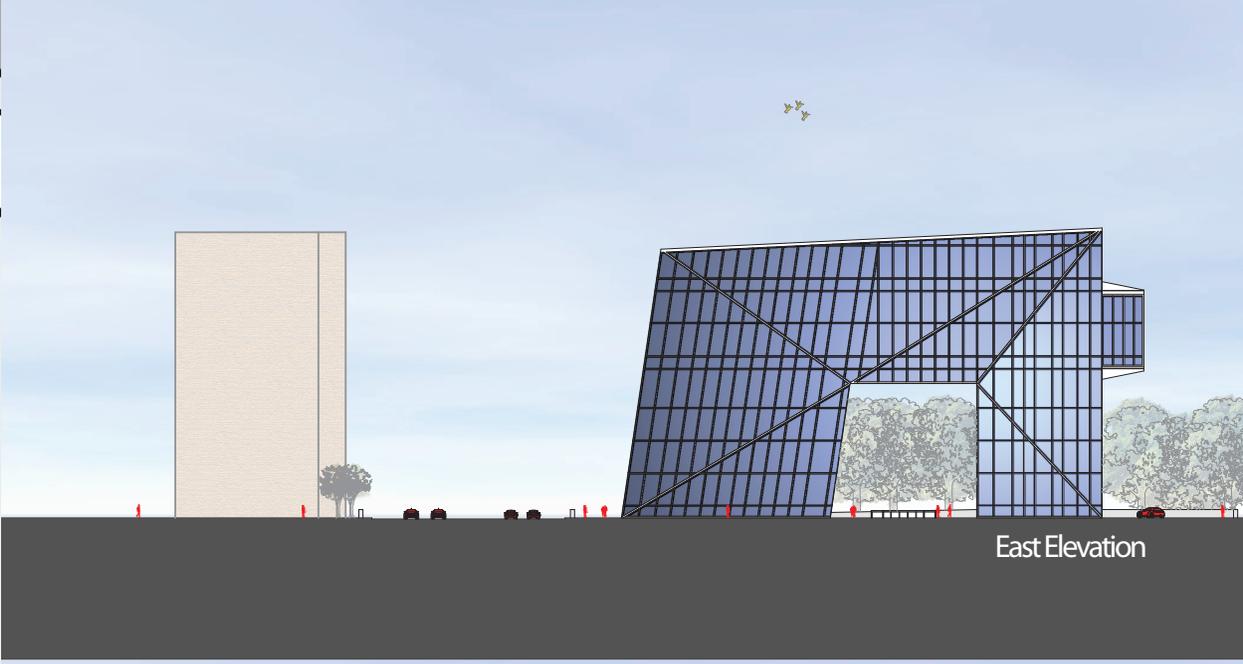


Ground Floor Plan

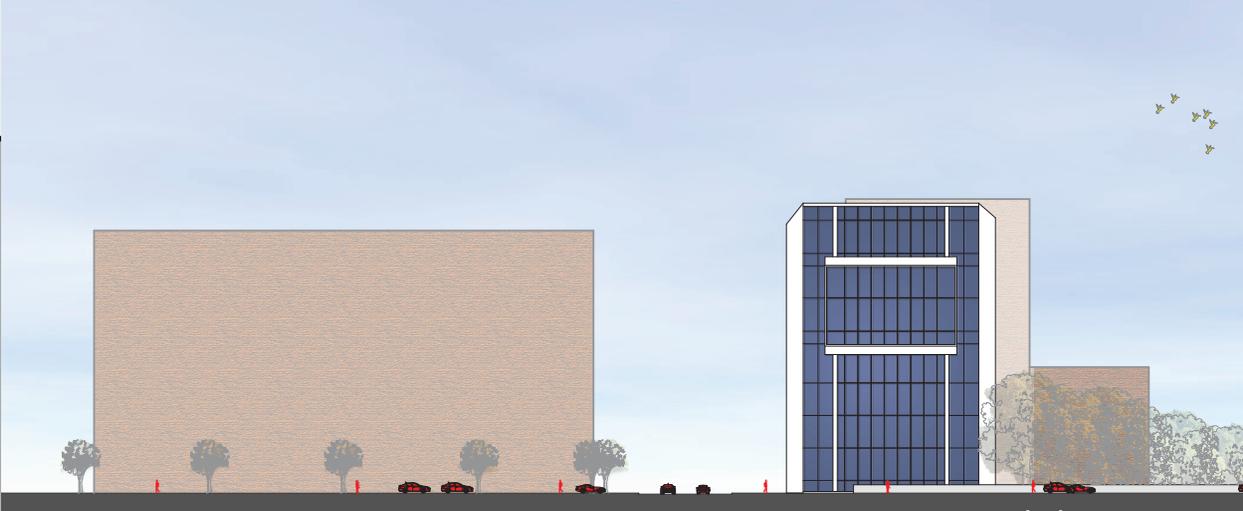




South Elevation

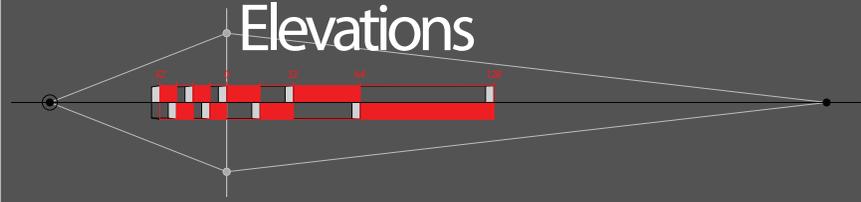


East Elevation



North Elevation

Elevations



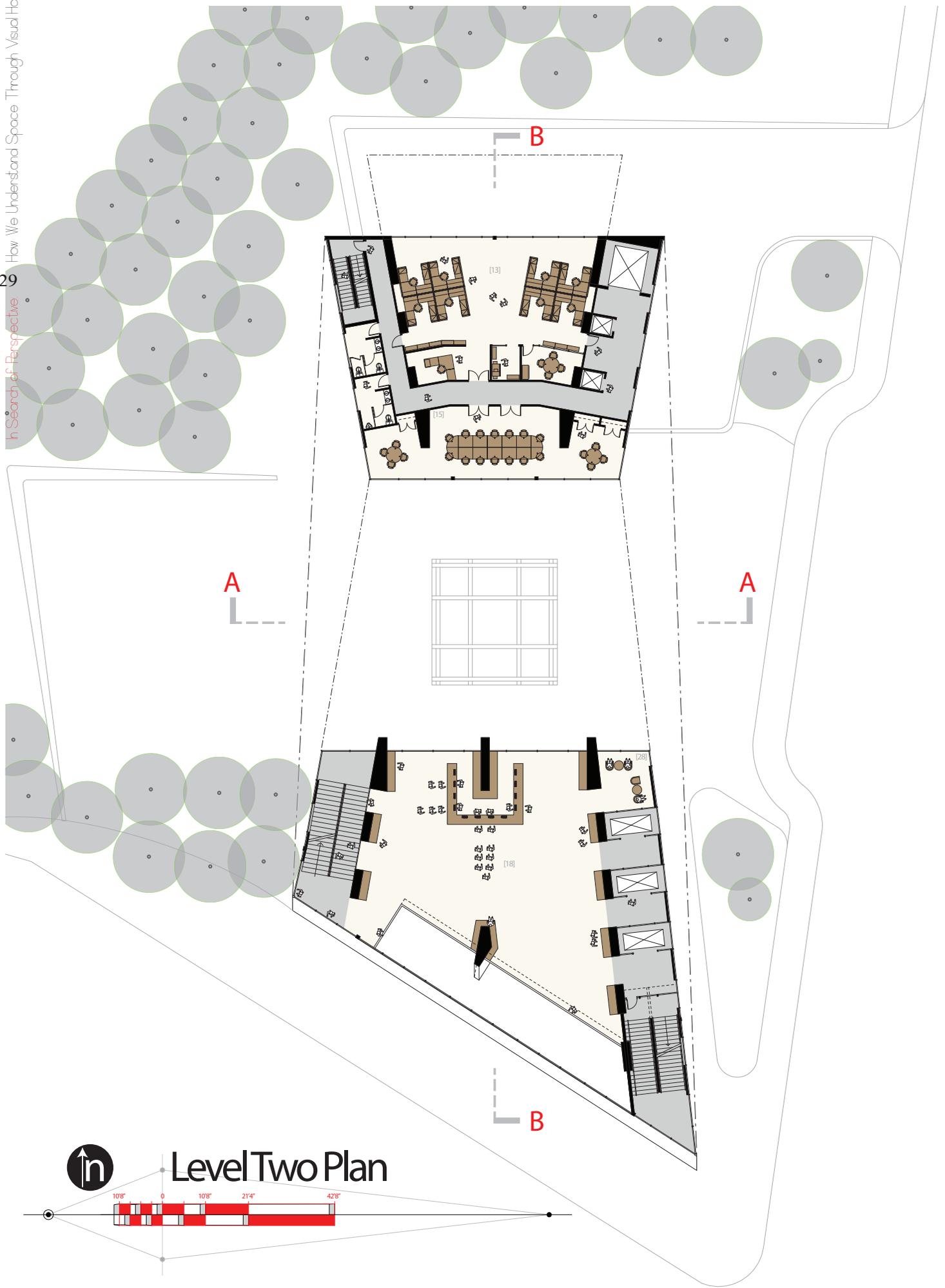


Figure 92. drawing of level two plan

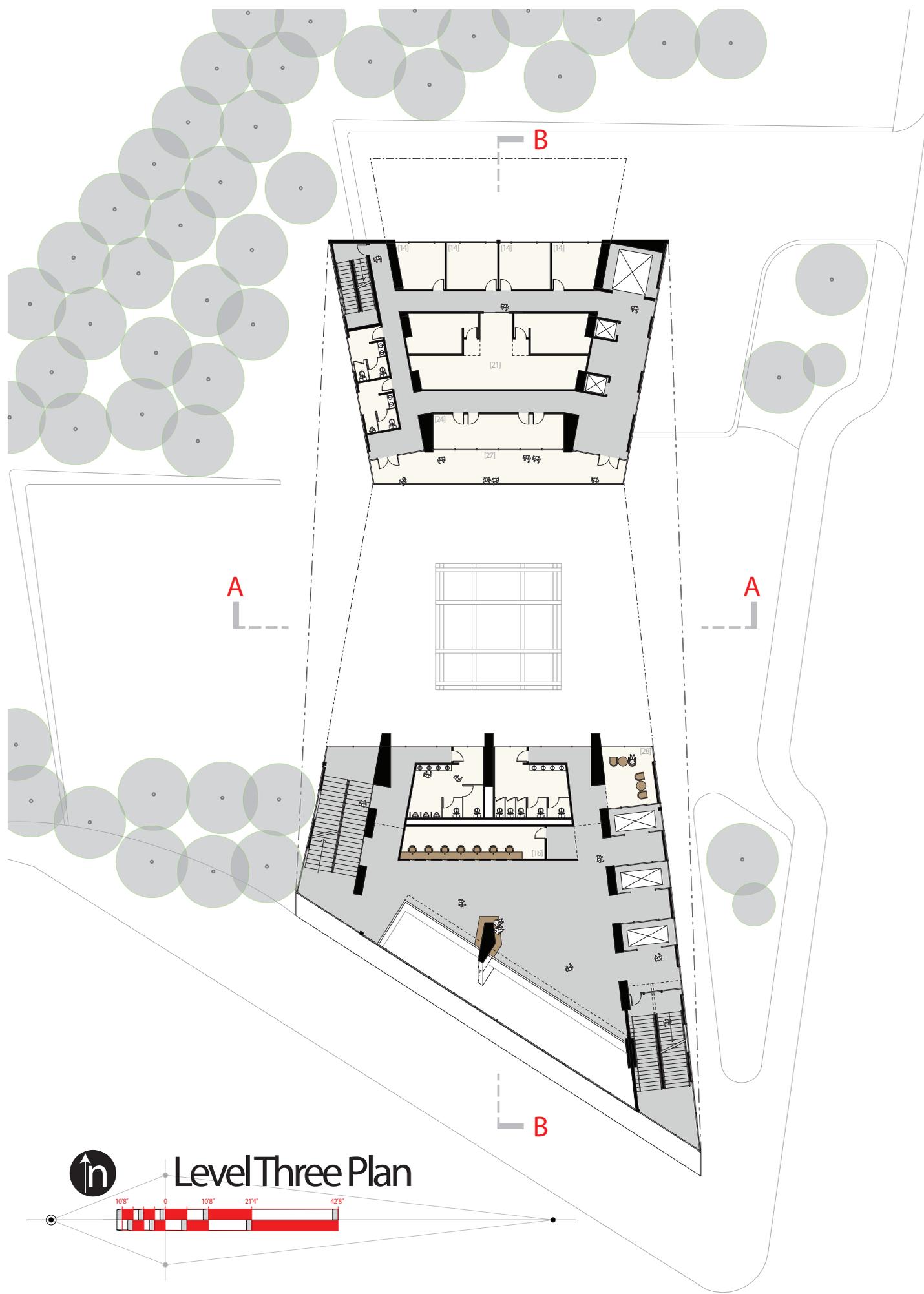


Figure 93. drawing of level three plan

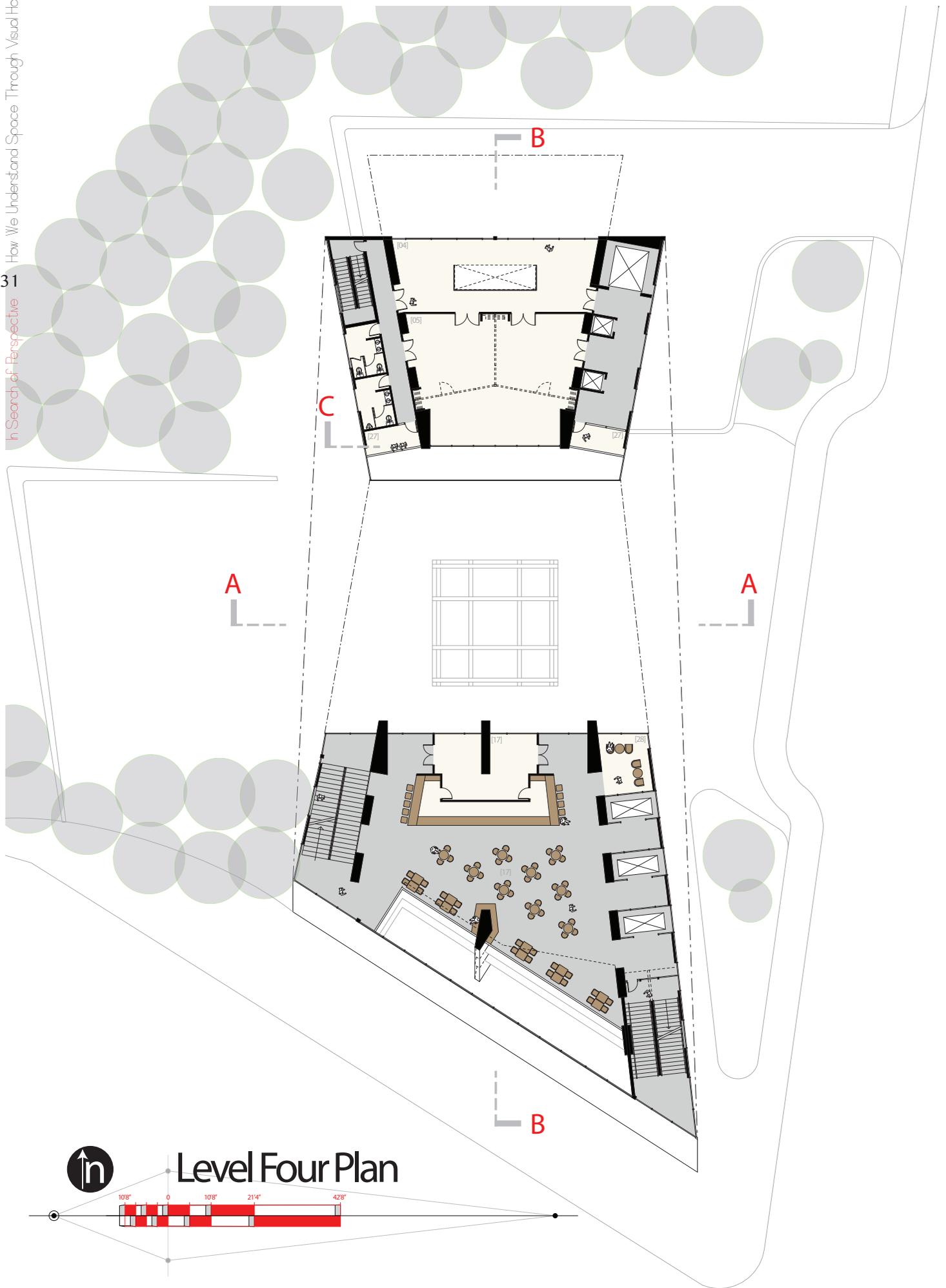
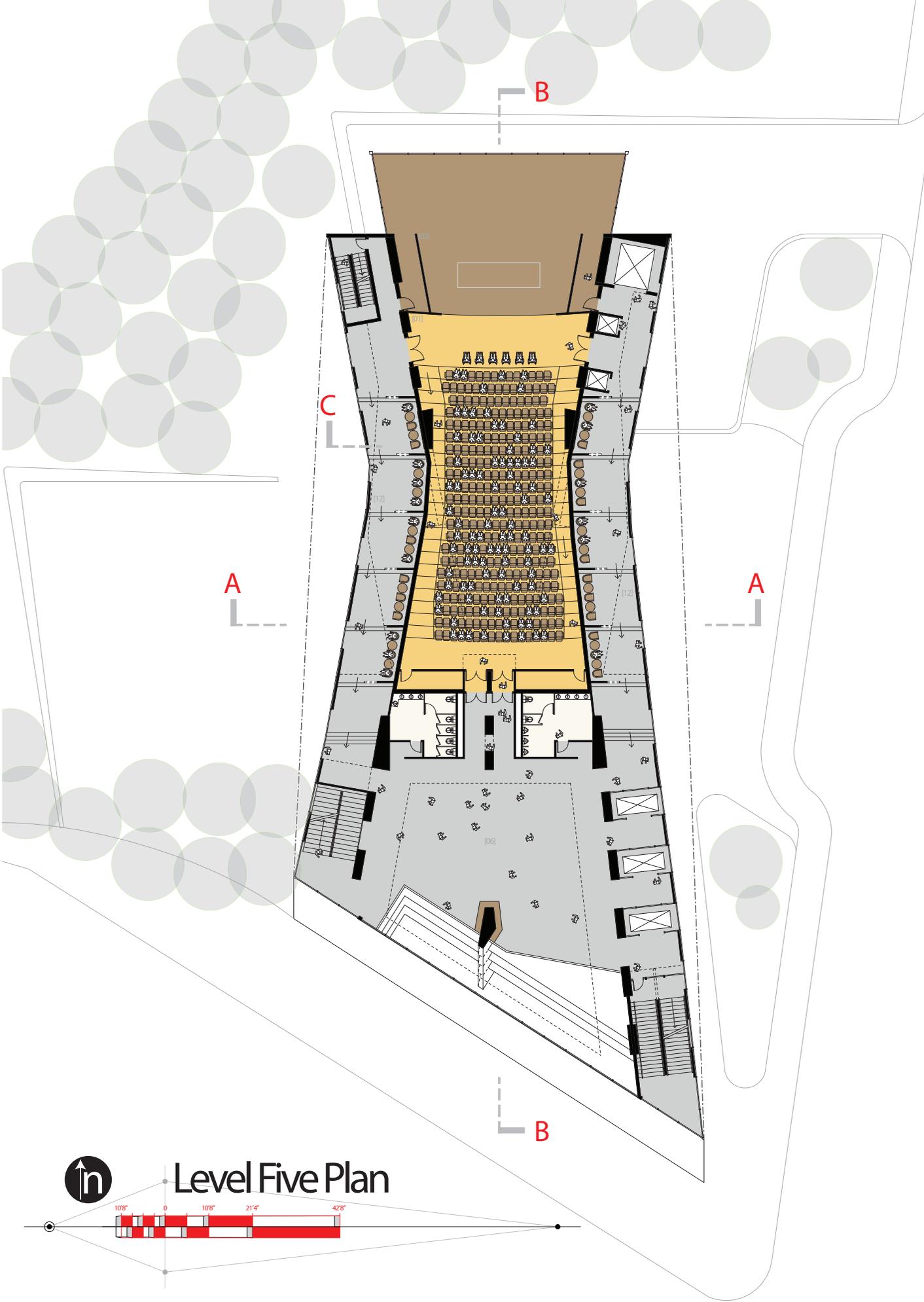


Figure 94. drawing of level four plan



Level Five Plan



Figure 95 drawing of level five plan

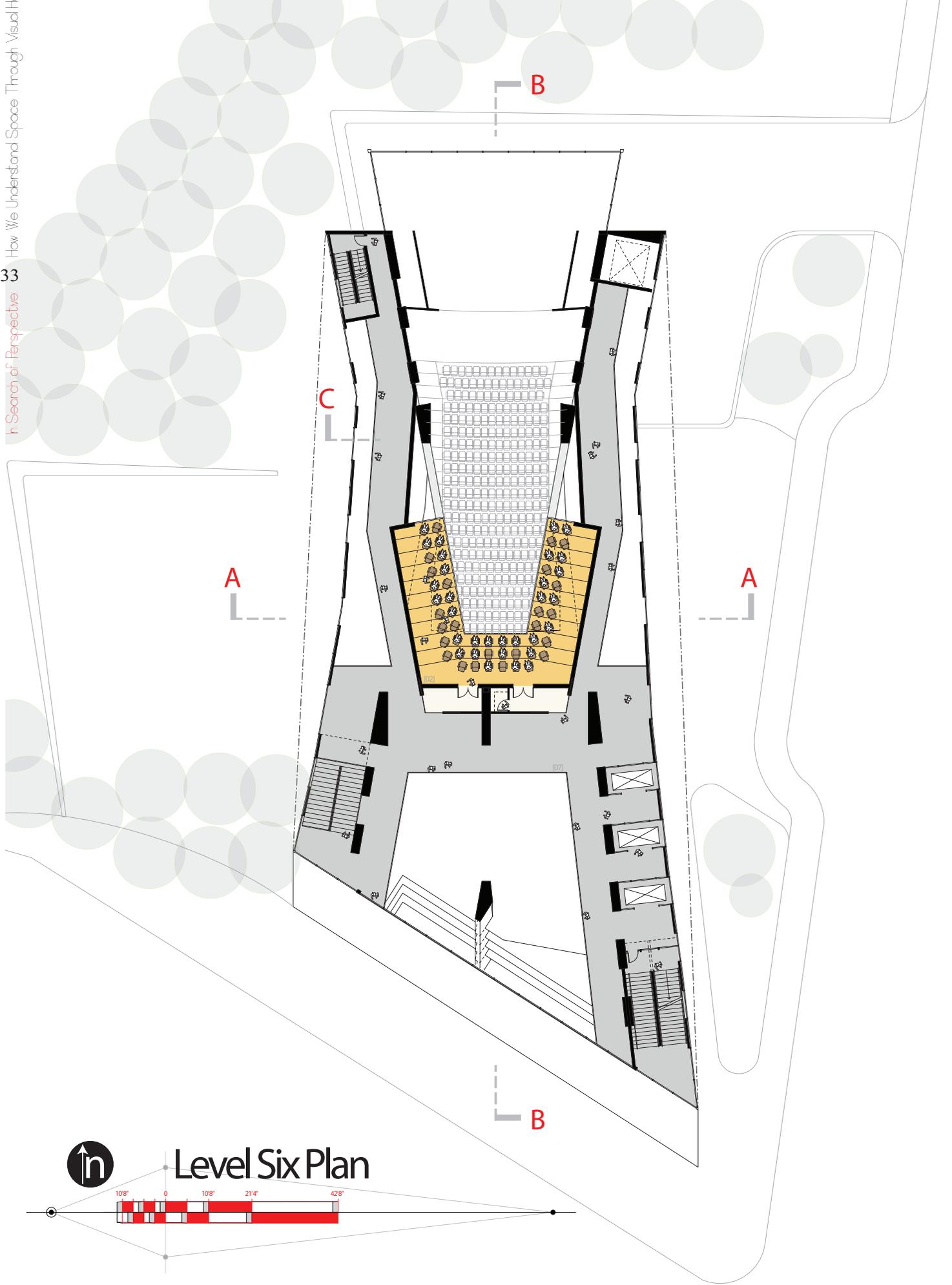


Figure 96. drawing of level six plan

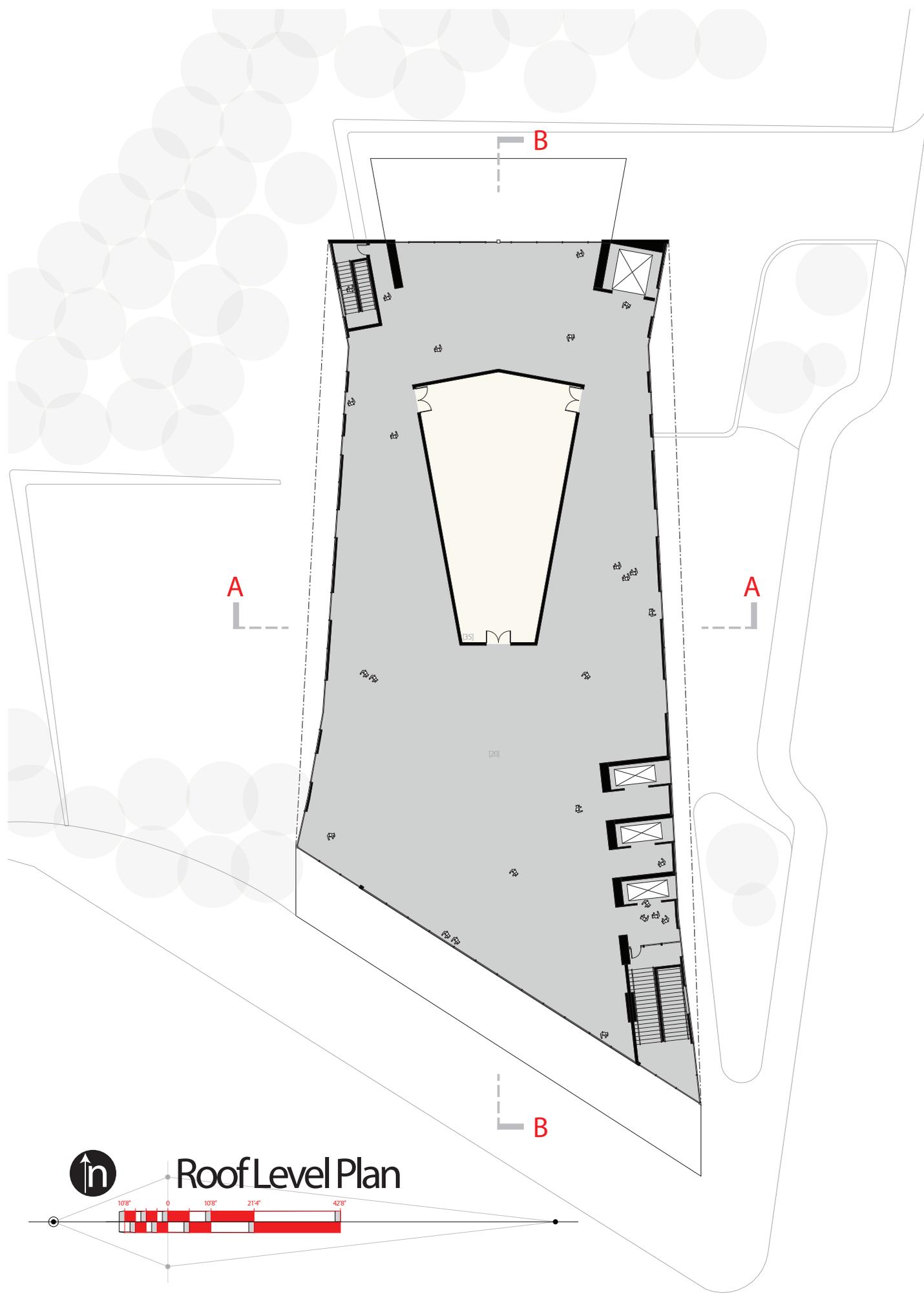


Figure 97: drawing of roof level plan

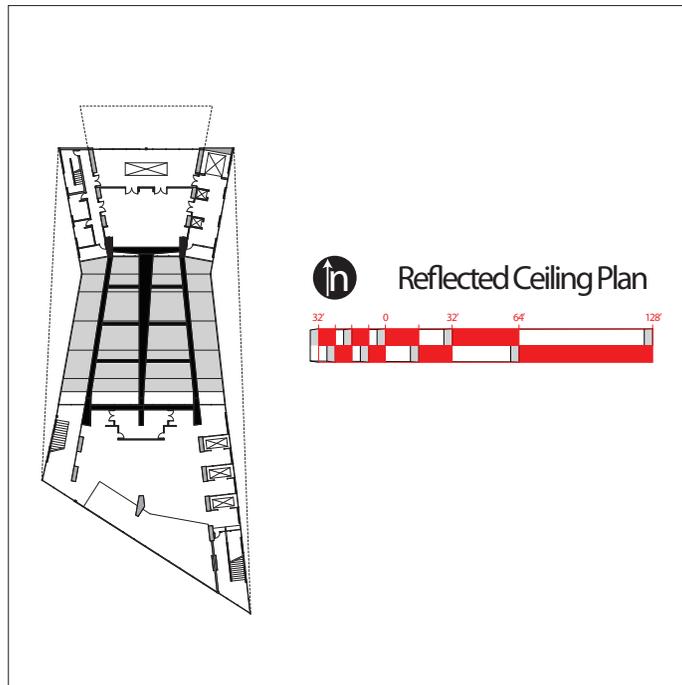
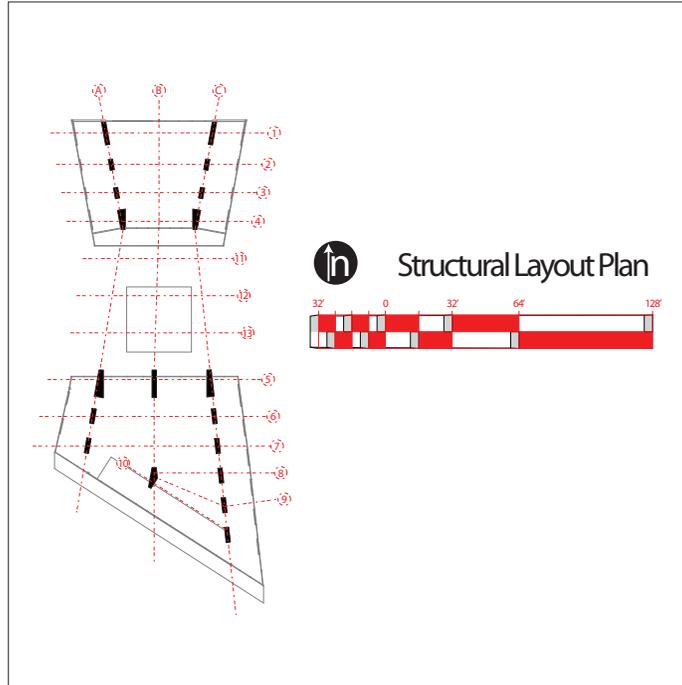


Figure 98. drawing of structural layout & reflected ceiling plan

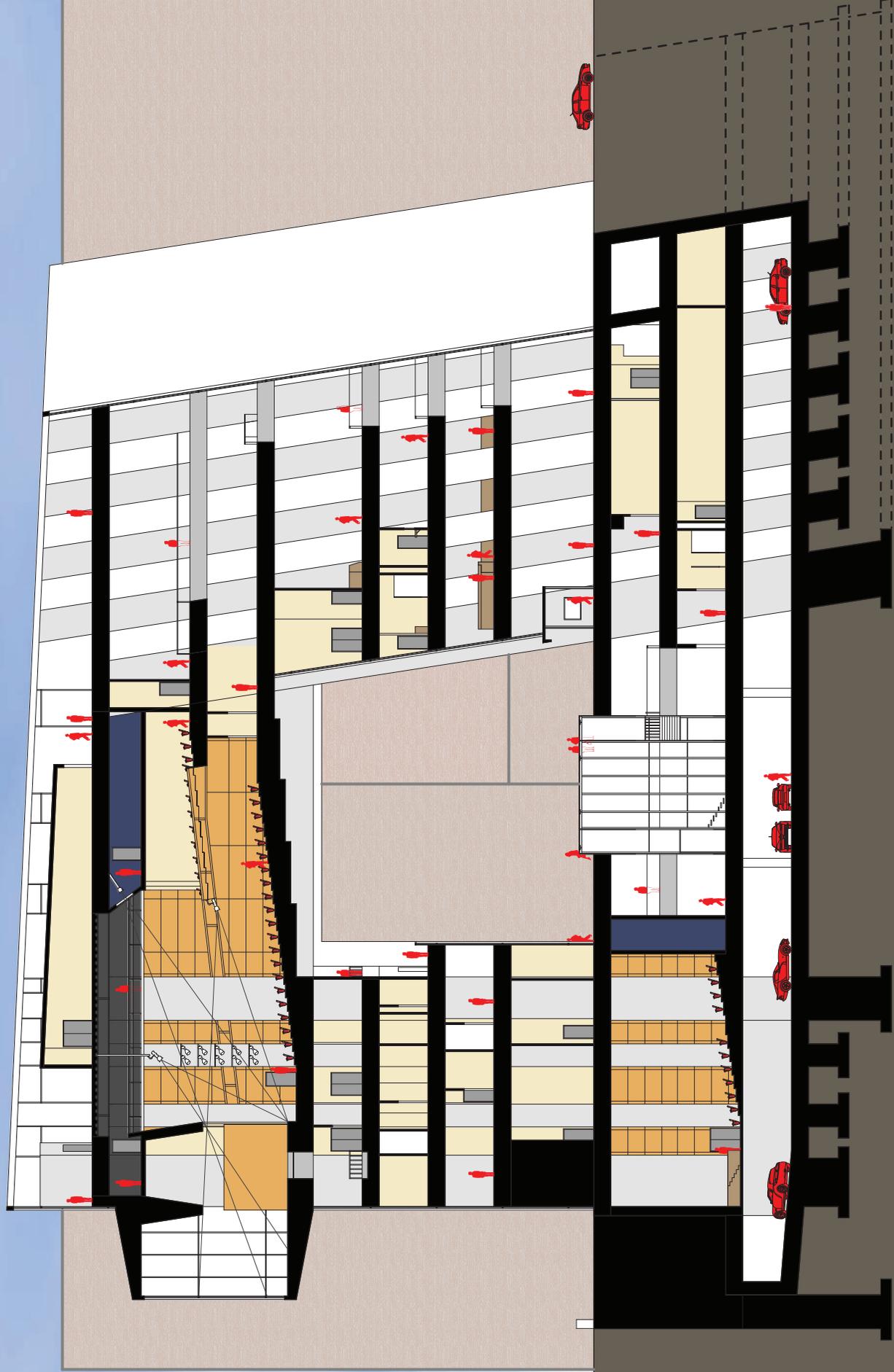




Section A-A

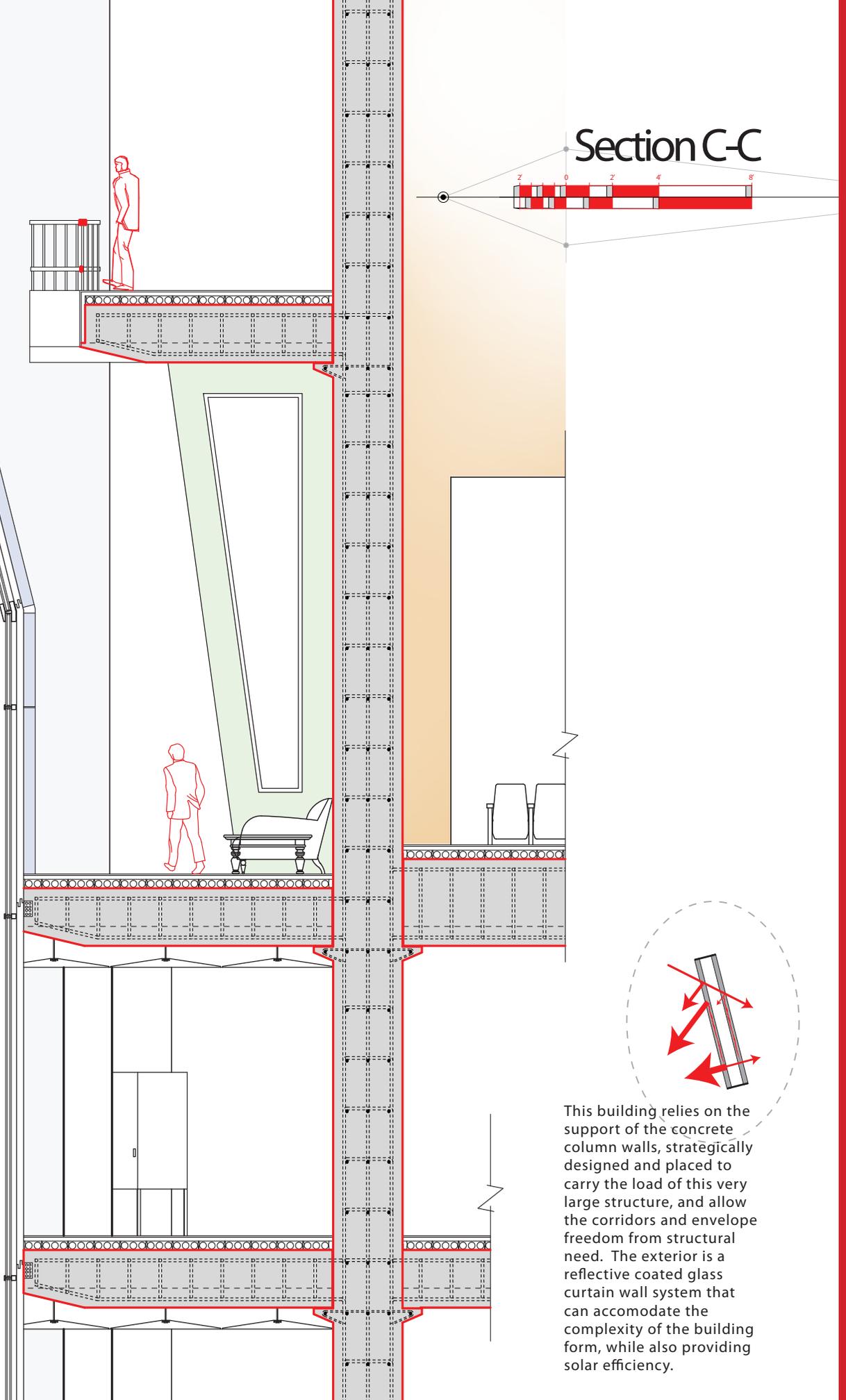


- 118'-0" Roof Terrace
- 106'-6" Theater Fly Space
- 95'-0" Level Six
- 79'-2" Level Five
- 70'-0" Theater Floor
- 54'-6" Level Four
- 39'-0" Level Three
- 23'-6" Level Two
- 0'-0" Ground Floor
- 15'-6" Mezzanine Level
- 31'-0" Lower Level
- 46'-6" Garage Level



# Section B-B



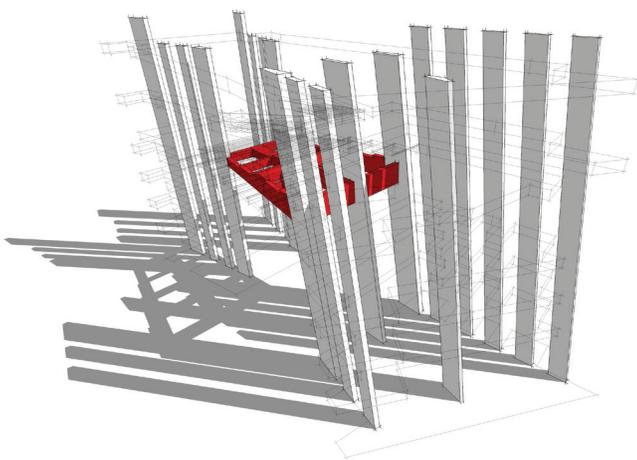
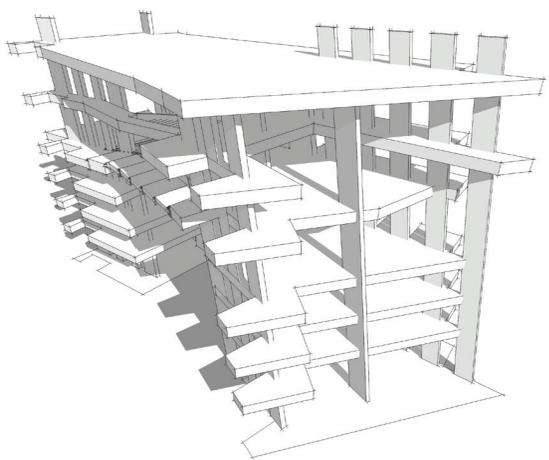
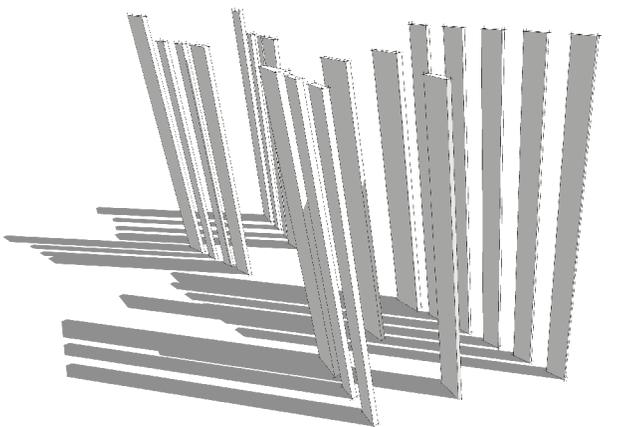


Section C-C

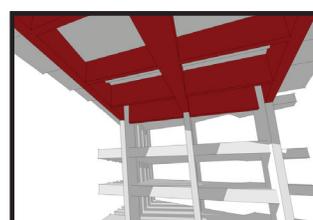
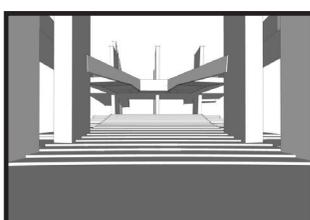
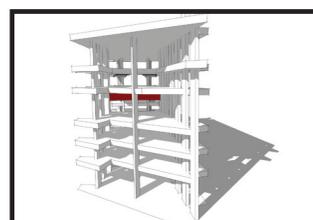
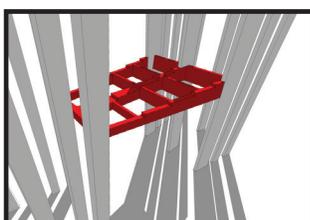
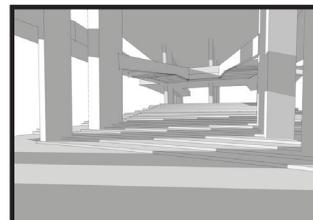
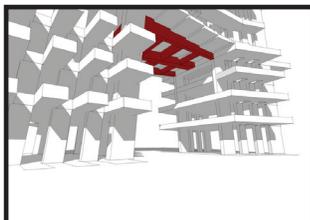
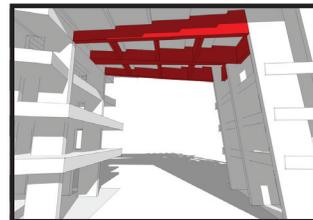
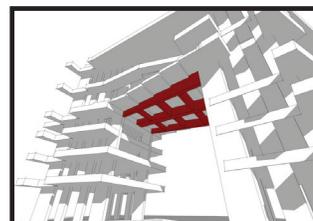
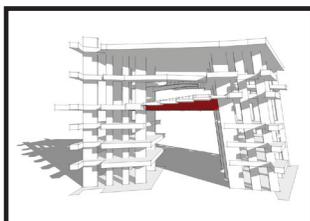
This building relies on the support of the concrete column walls, strategically designed and placed to carry the load of this very large structure, and allow the corridors and envelope freedom from structural need. The exterior is a reflective coated glass curtain wall system that can accommodate the complexity of the building form, while also providing solar efficiency.

Figure 101. photoshop drawing of section C-C

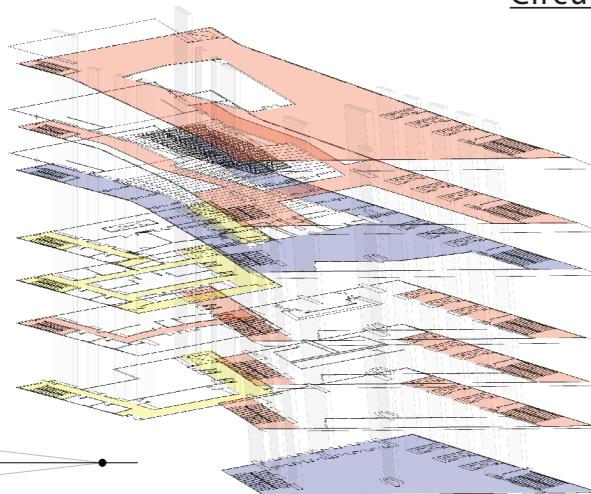
### Structural Layers



### Images



### Circulation



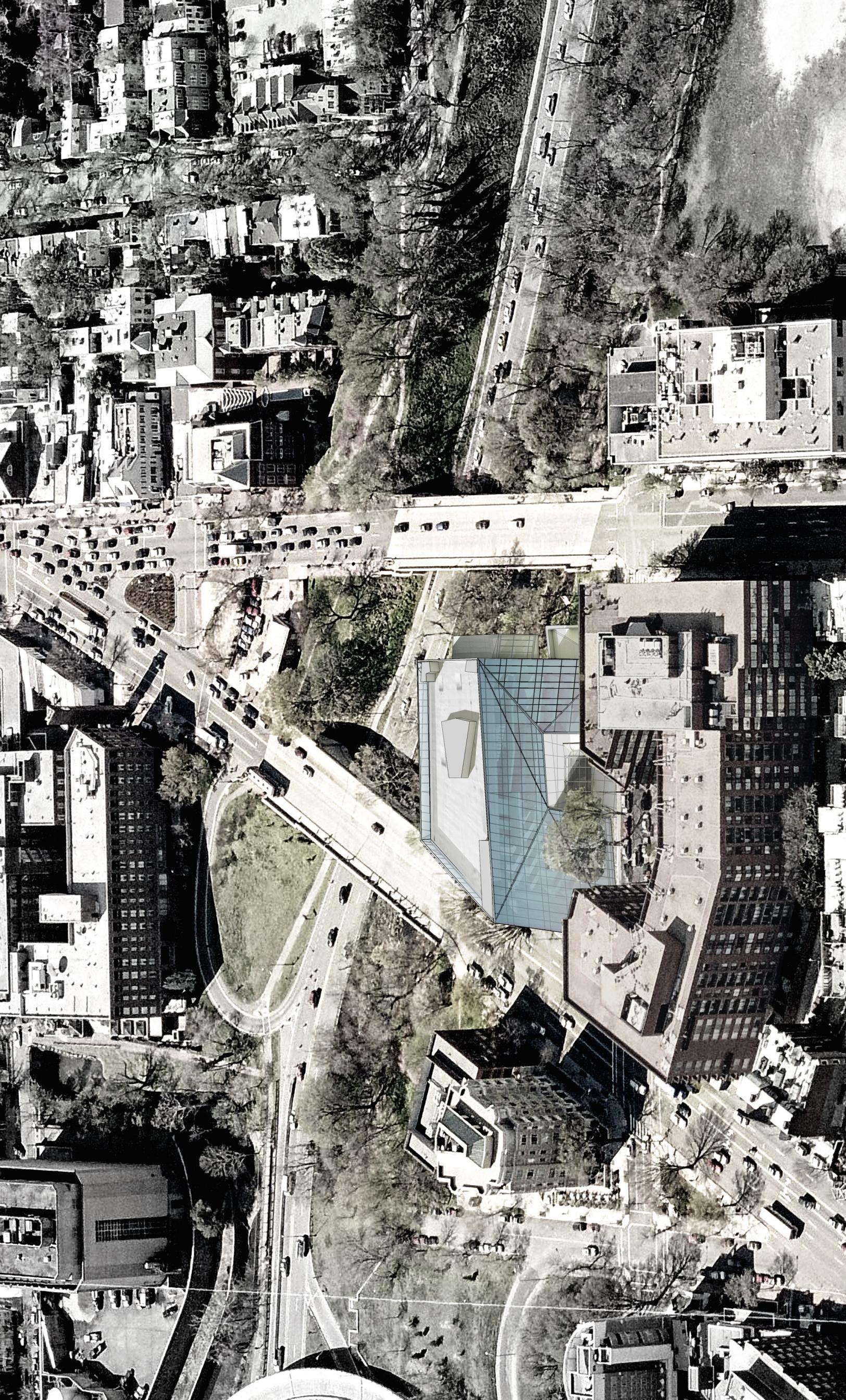
07  
06  
**05**  
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03  
02  
**01**

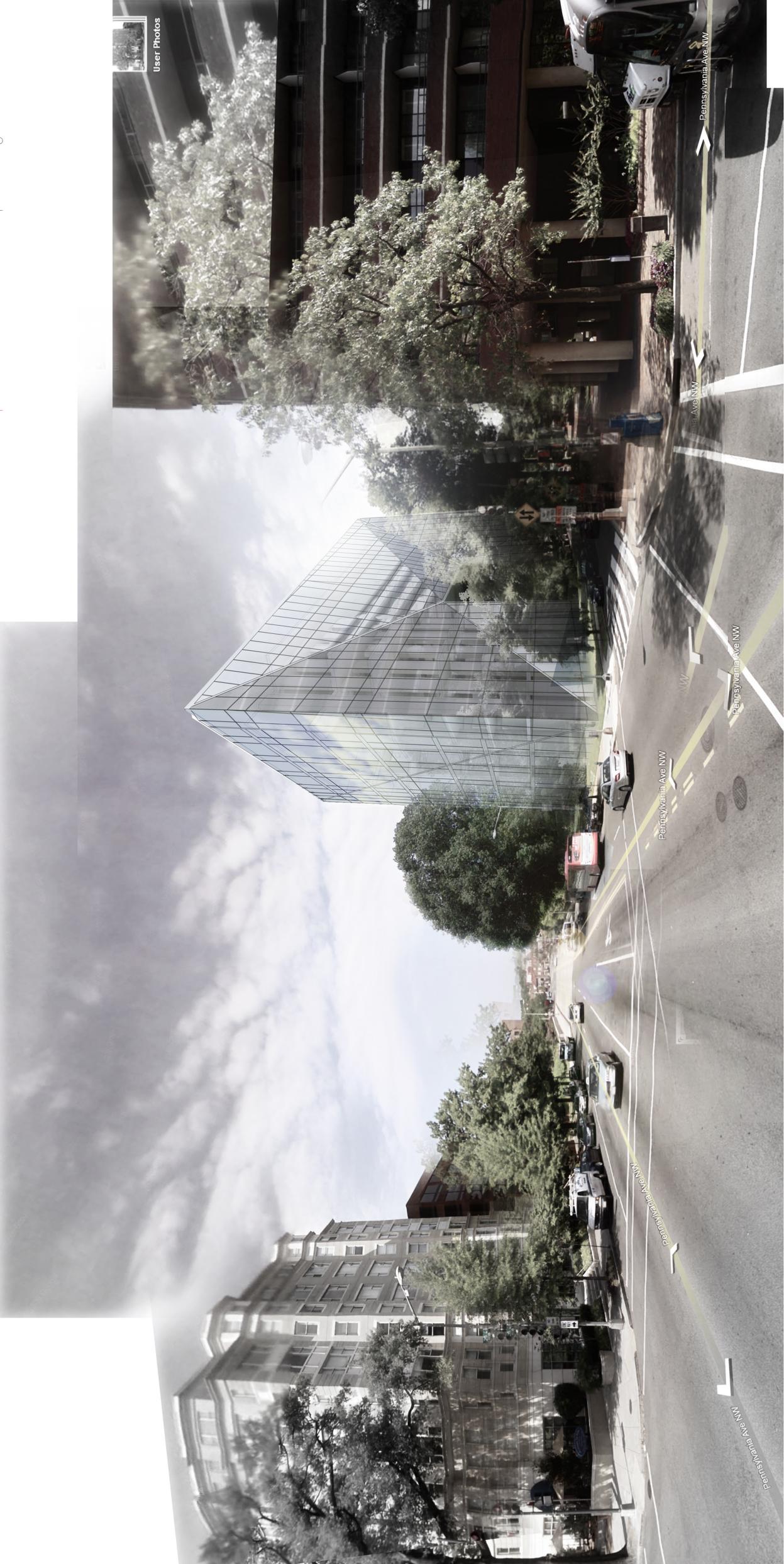
### Diagrams

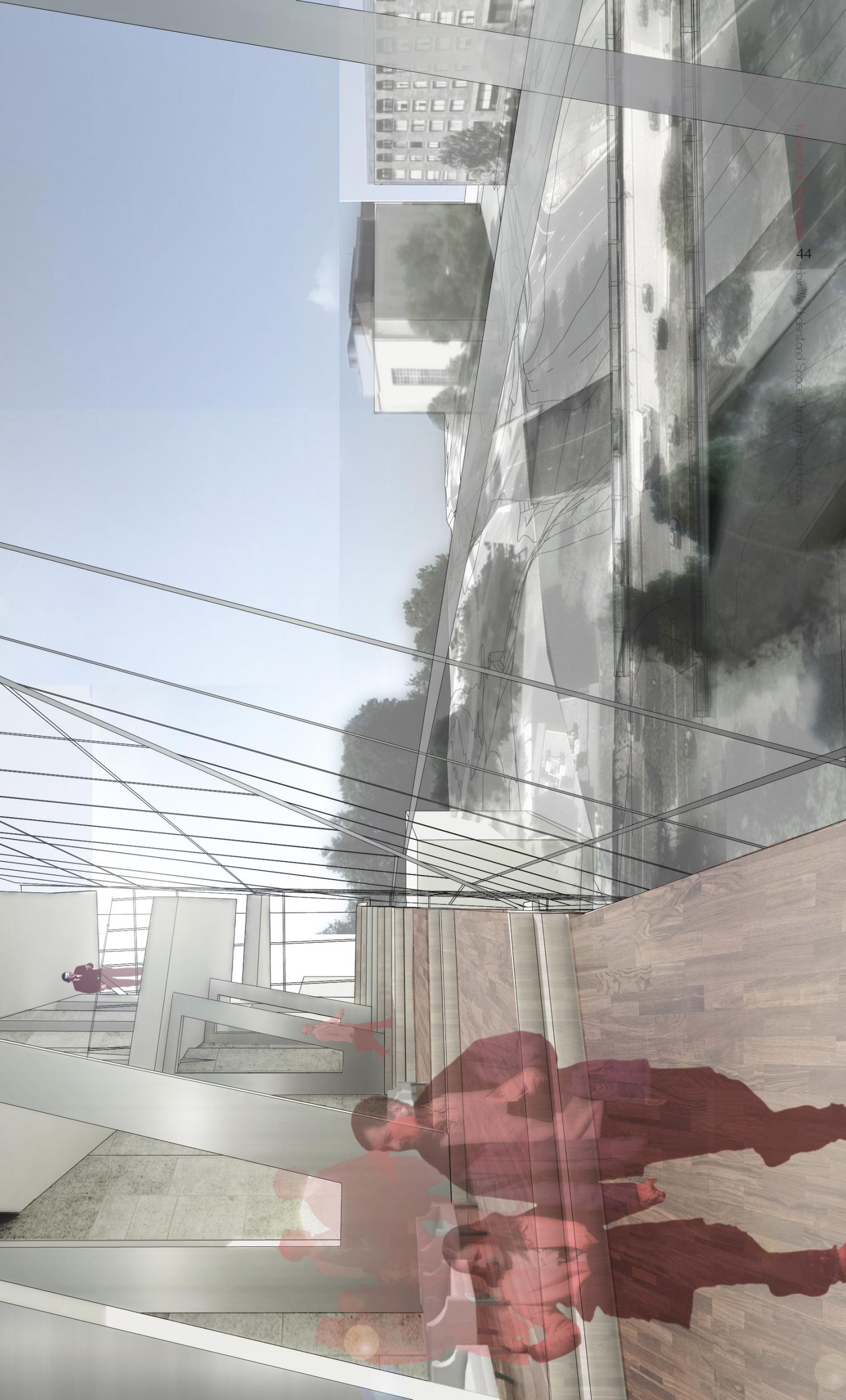
Figure 102. diagrams of structure & circulation

# 04

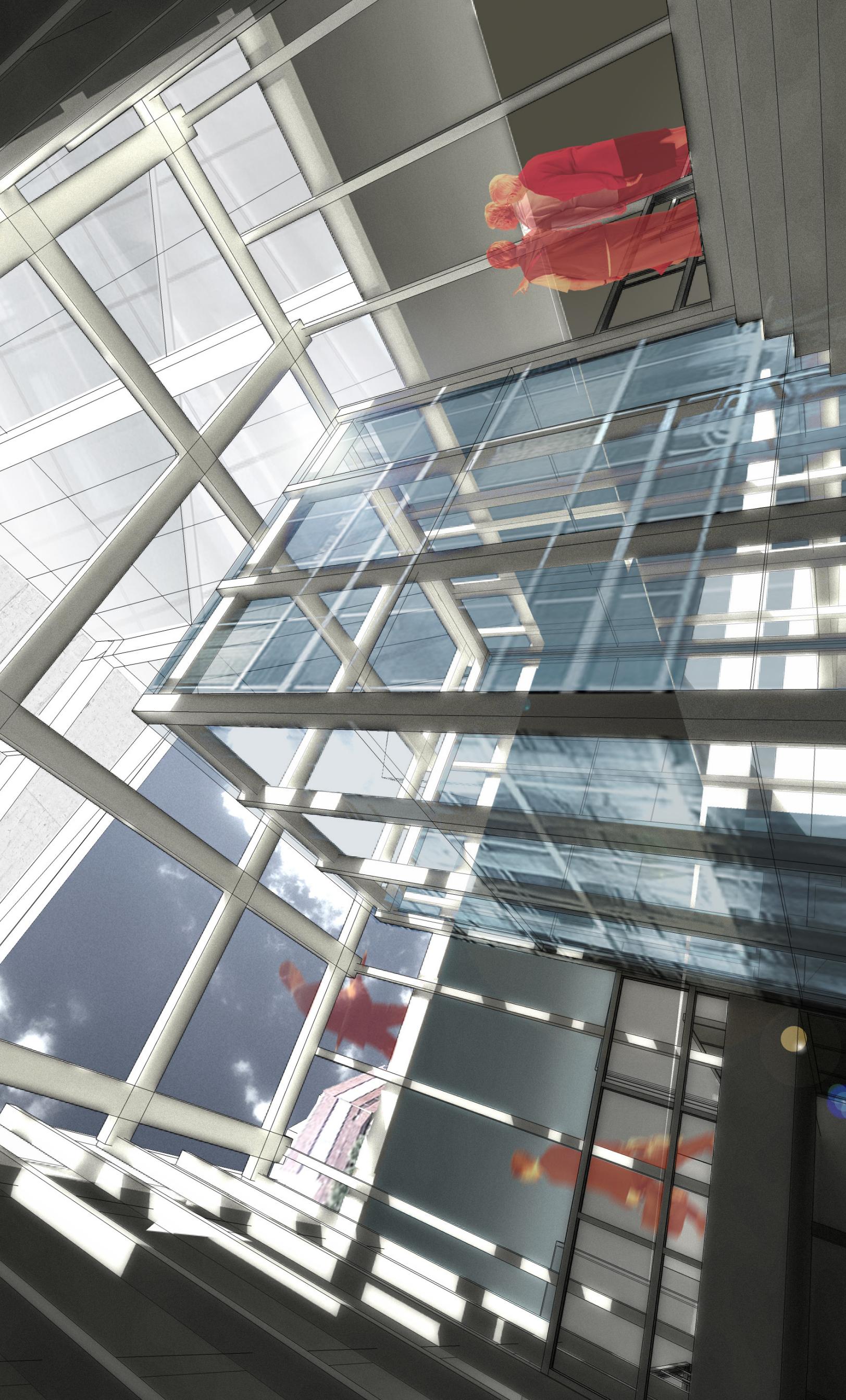
[Portrayal]

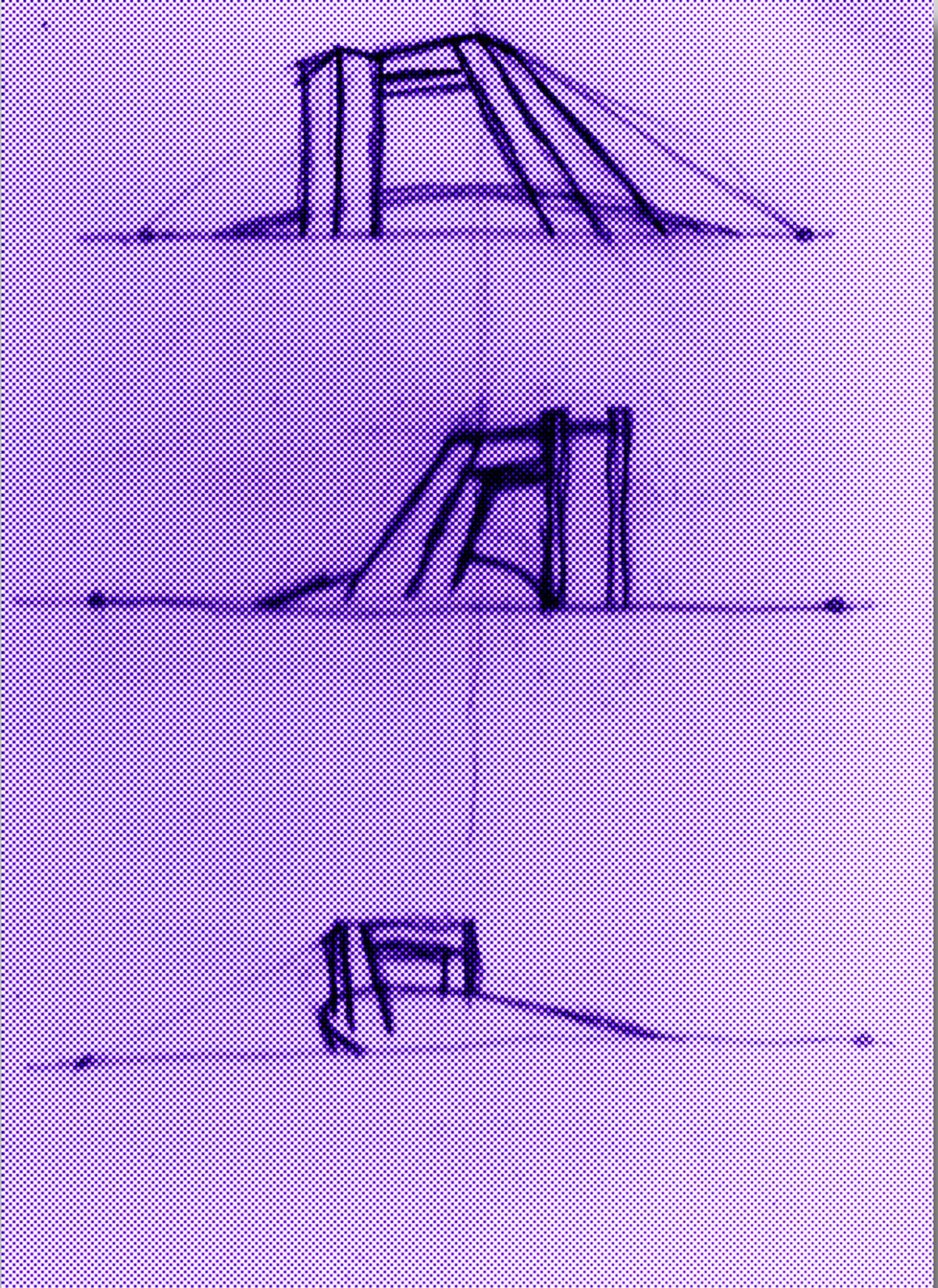












## *twisted tower*

a twisting tower that comes out of a raised landscape connected to a regular tower by a skywalk.

## *pinched tower*

a tower that grows from a lower plaza and is pinched in middle, separating private and public spaces through its design.

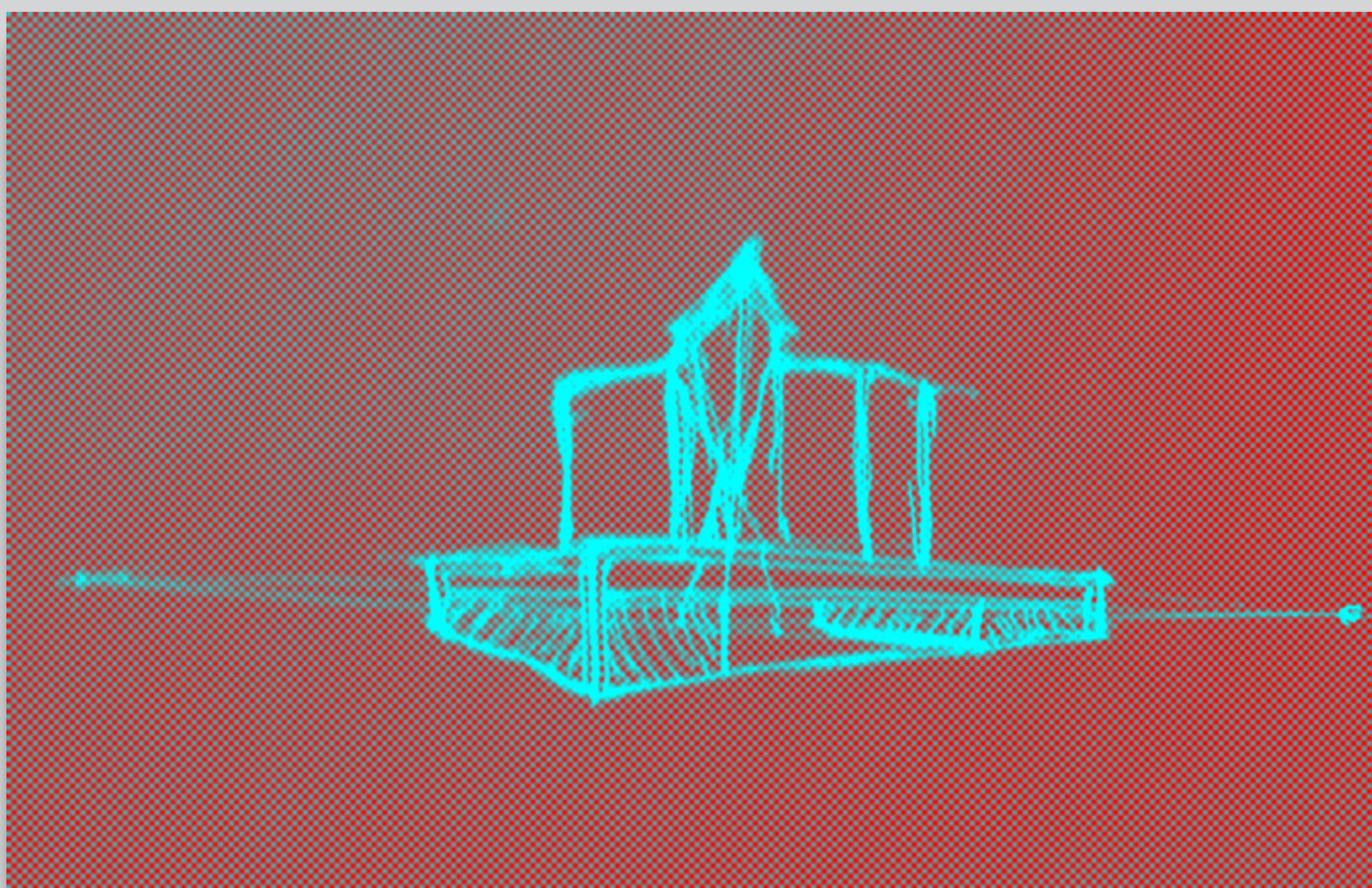


Figure 109 sketch of project work

## connections

several varying ideas about the possibilities for connecting the skin of the building to the structural frame.

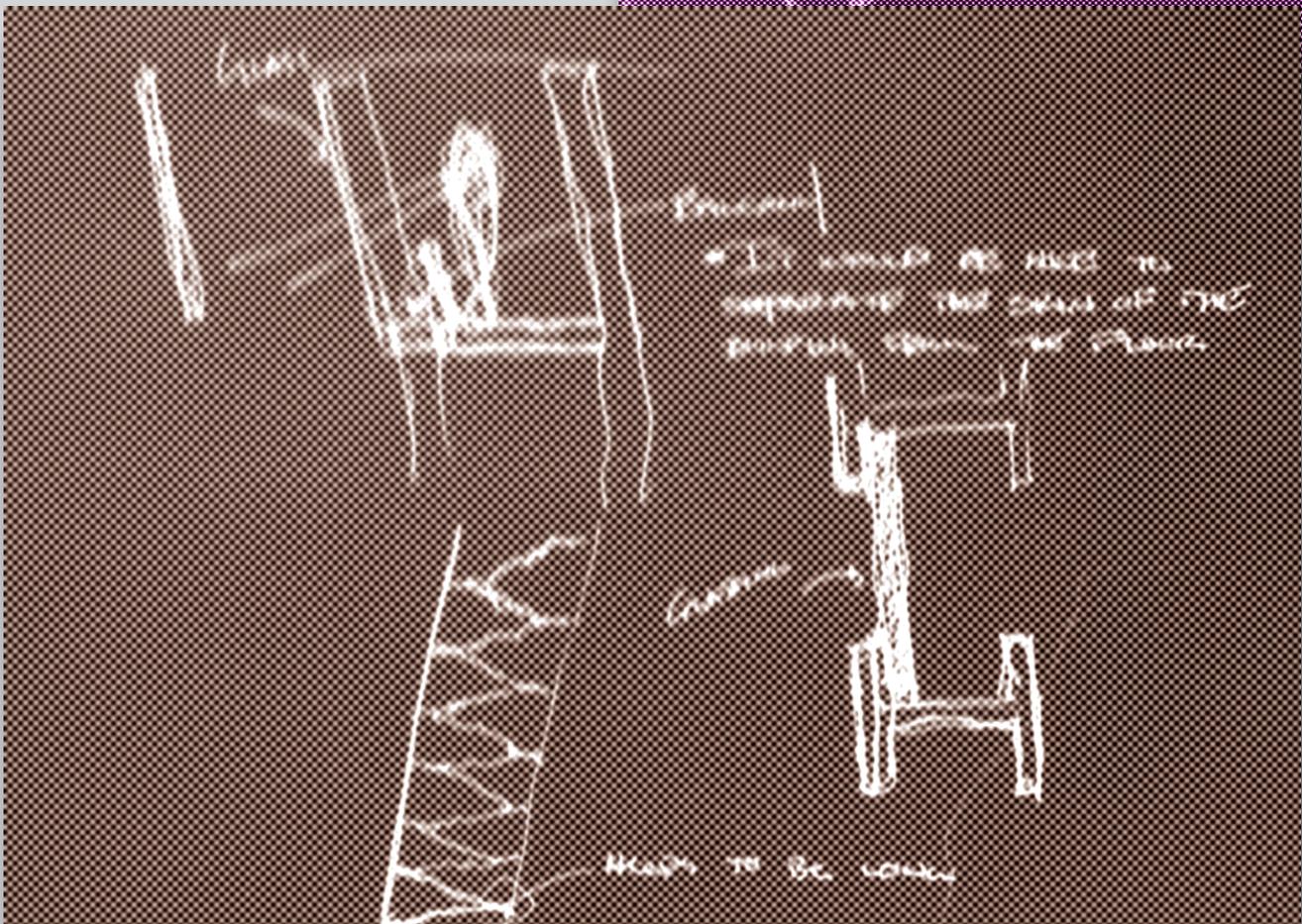
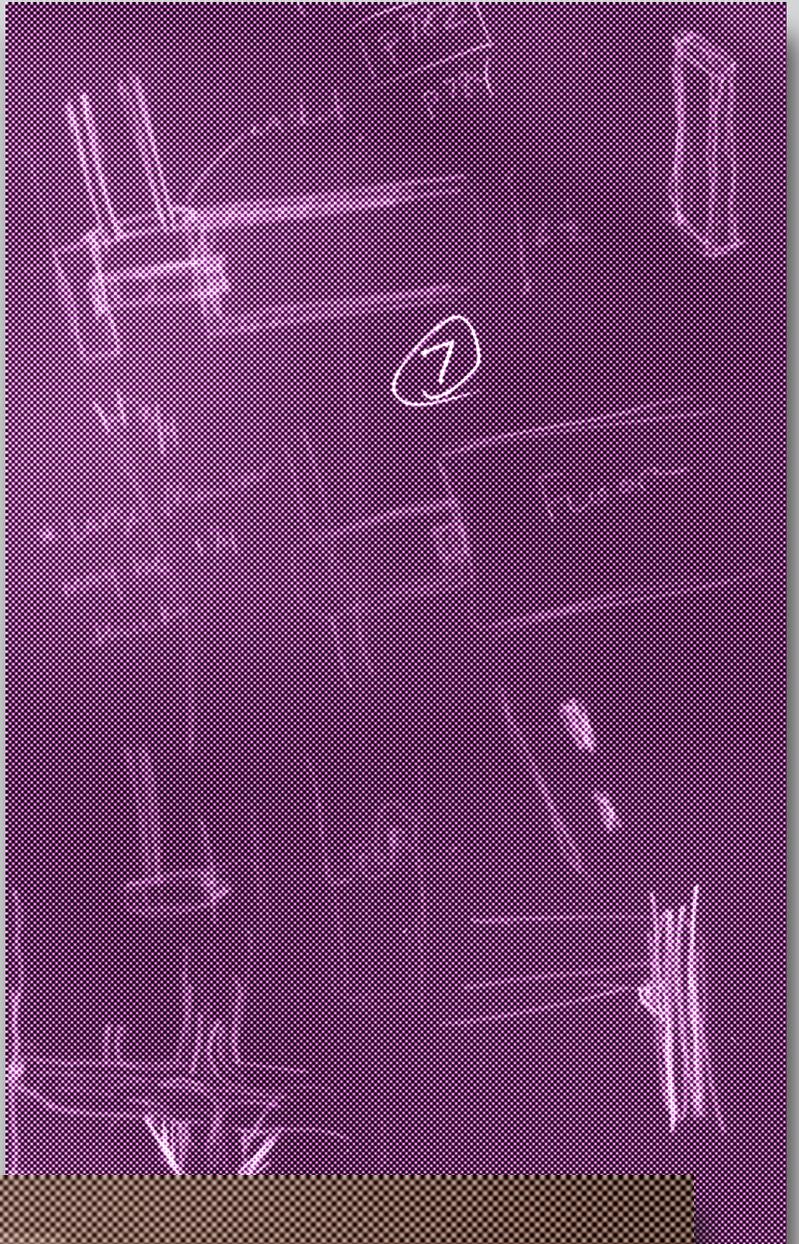
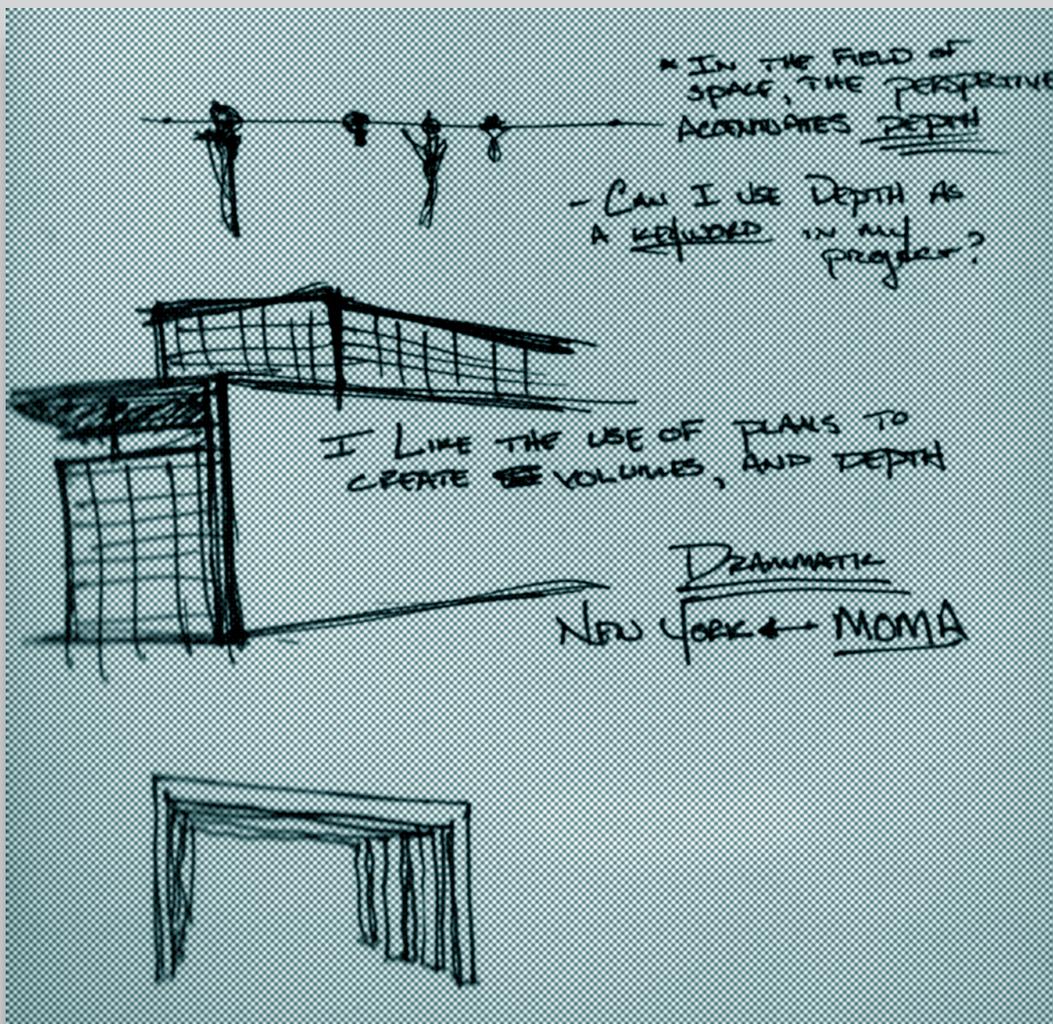


Figure 110. sketches of project work

04 PROPOSAL  
IMAGERY



*line, plane, cube*

an investigation into how lines can become more, creating space and depth.

## *sit, see, hear*

a study of how to orient seating layouts for performance theater spaces.

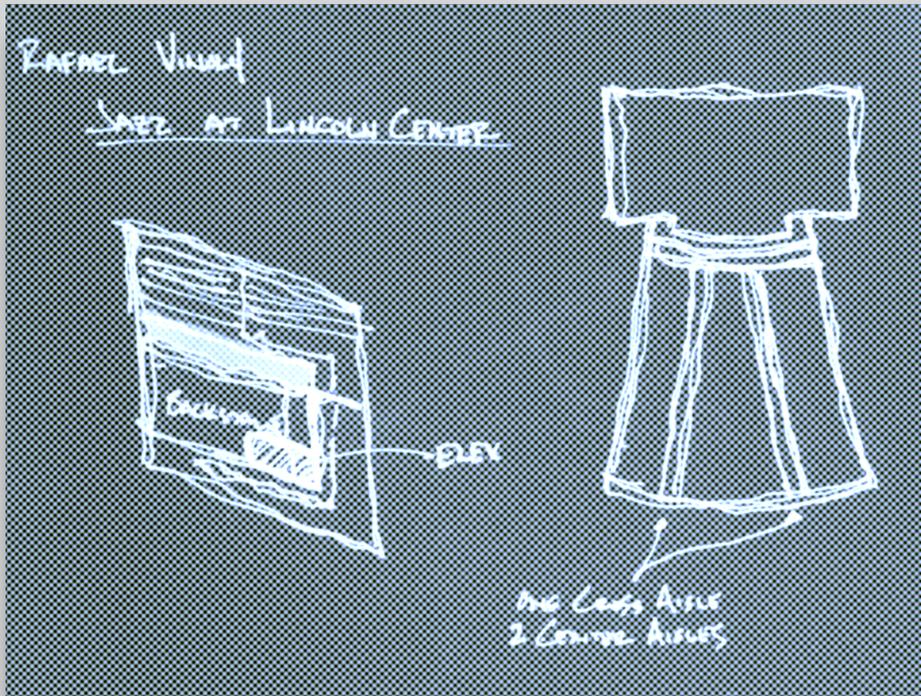
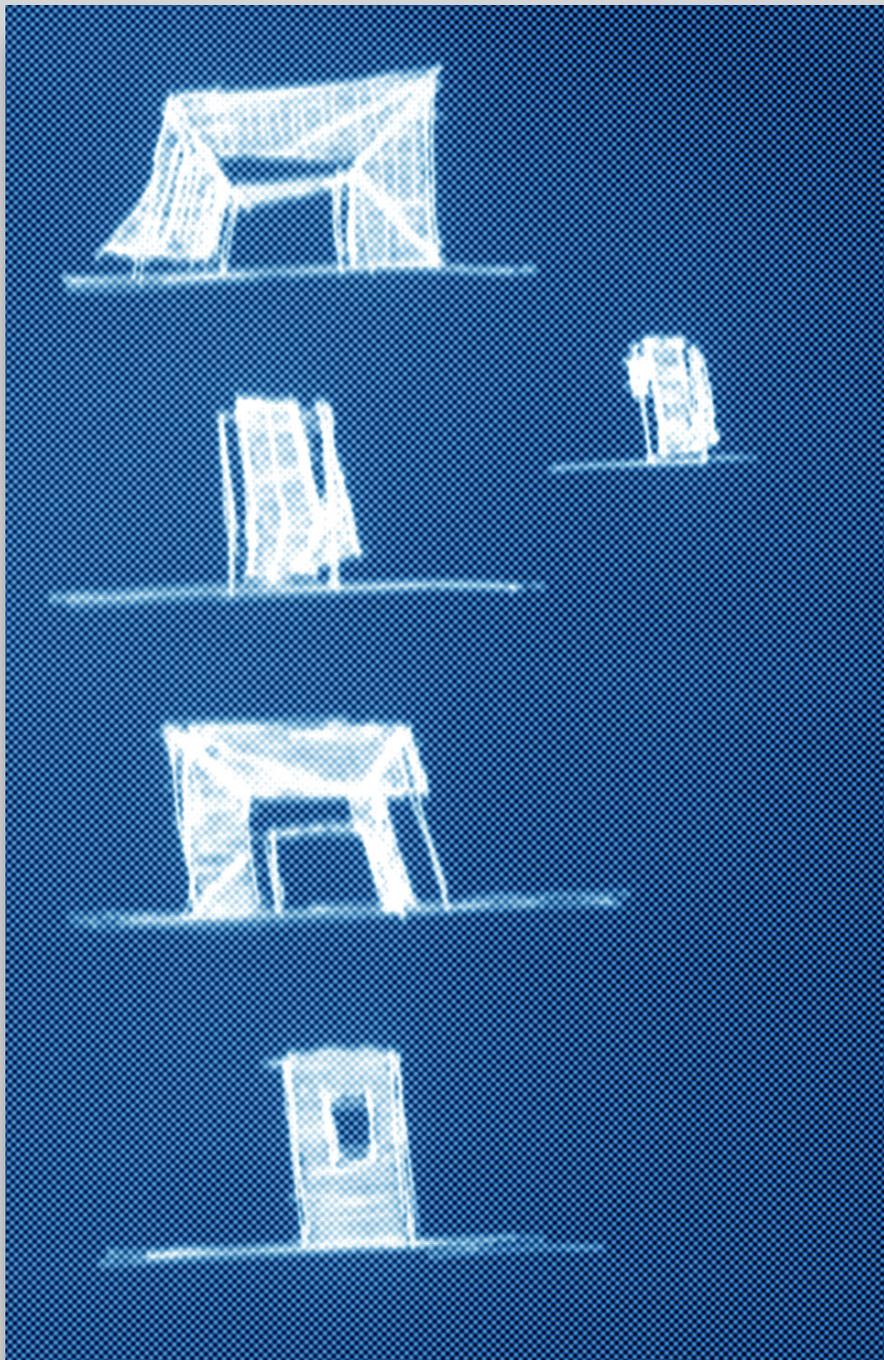


Figure 112 sketches of project work



### *in and out*

explorations of how to program the buildings functions, and how to skin the building to address daylighting.

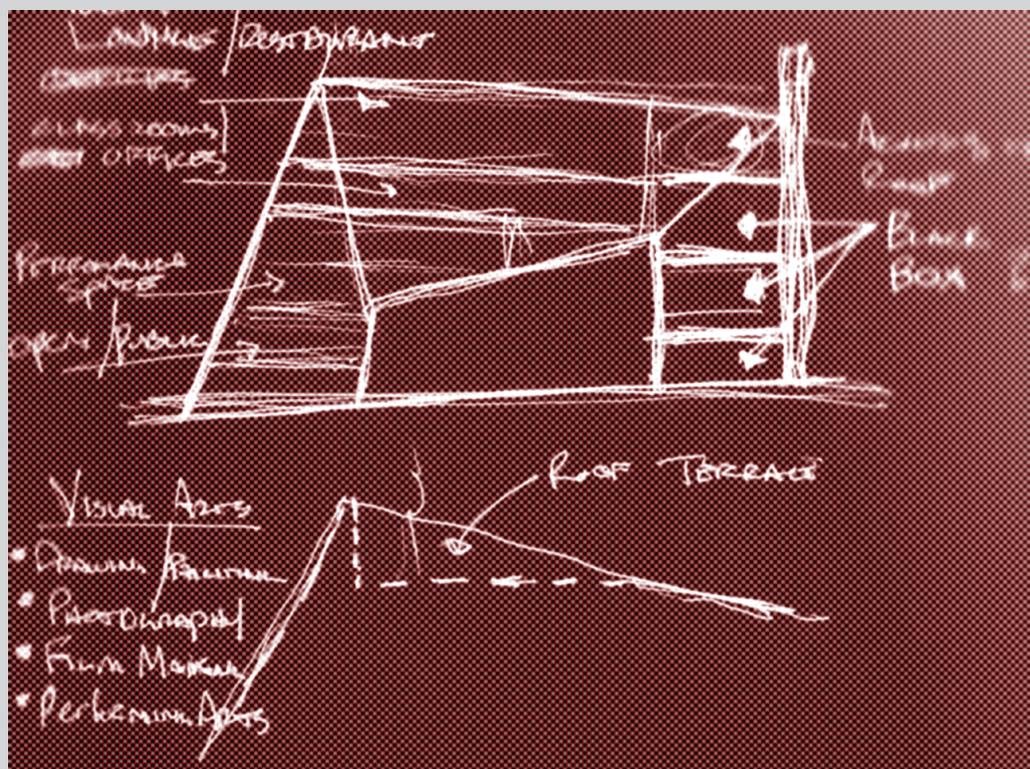


Figure 113 sketches of project work

## *elephants feet*

study of how this building could be structured,  
and held up by large feet in building.

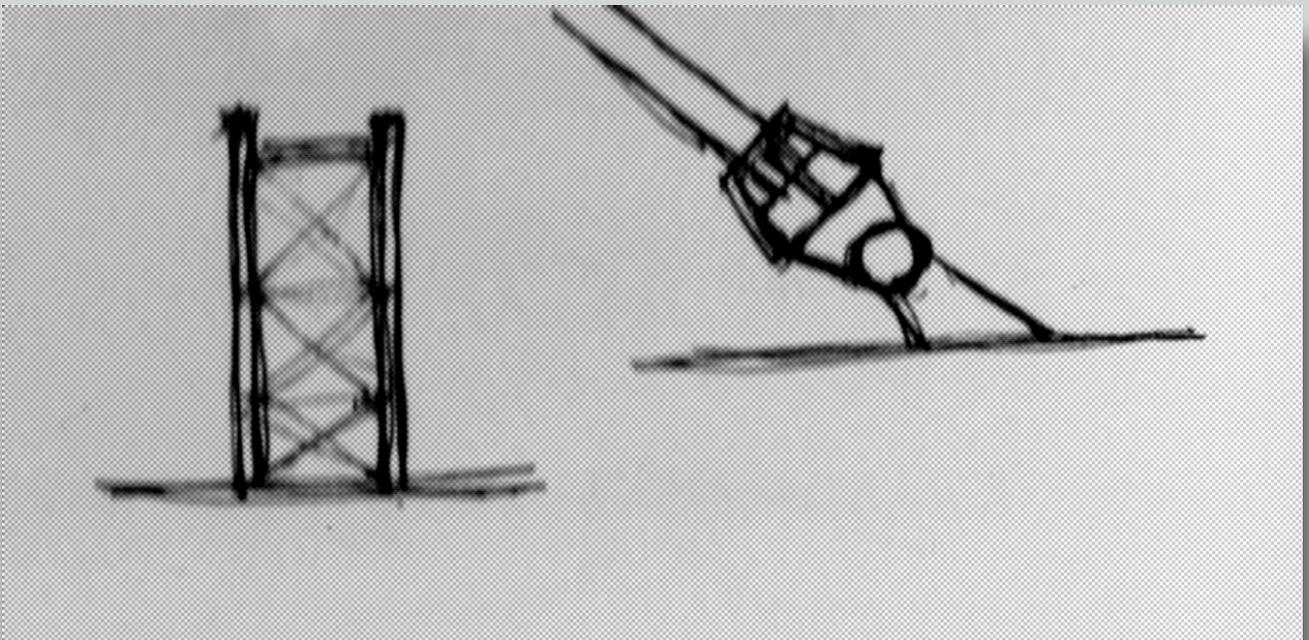
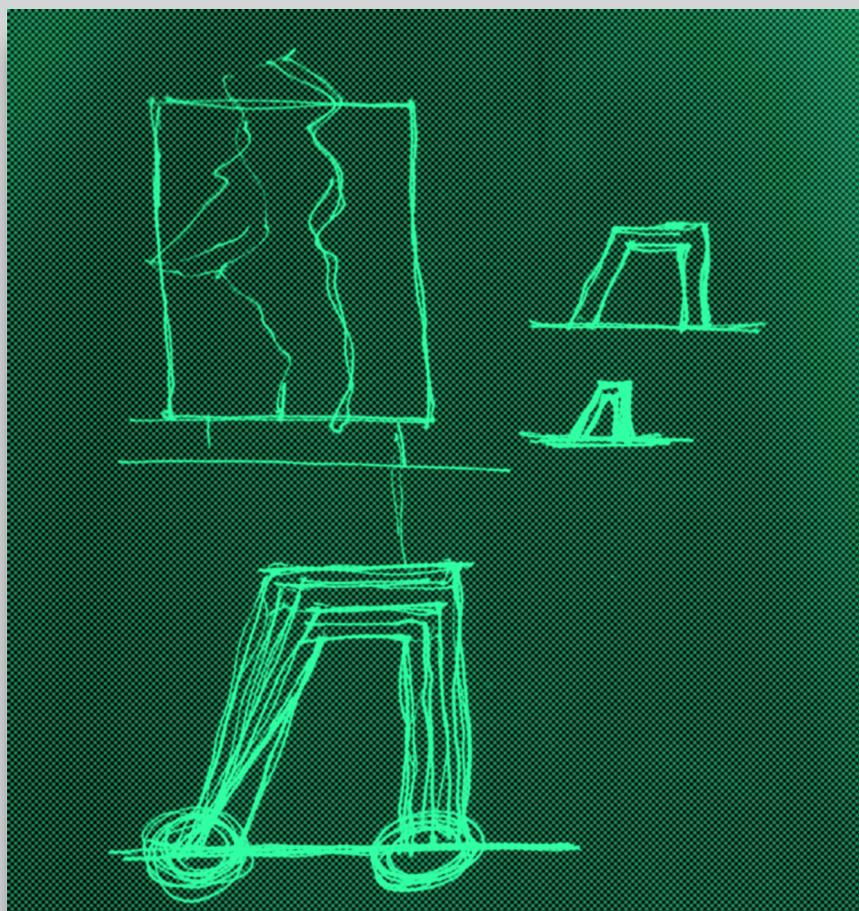


Figure 114: sketches of project work



*opposites attract*

an attempt to understand how this building wants to unite an angled and straight tower into one unified structure.

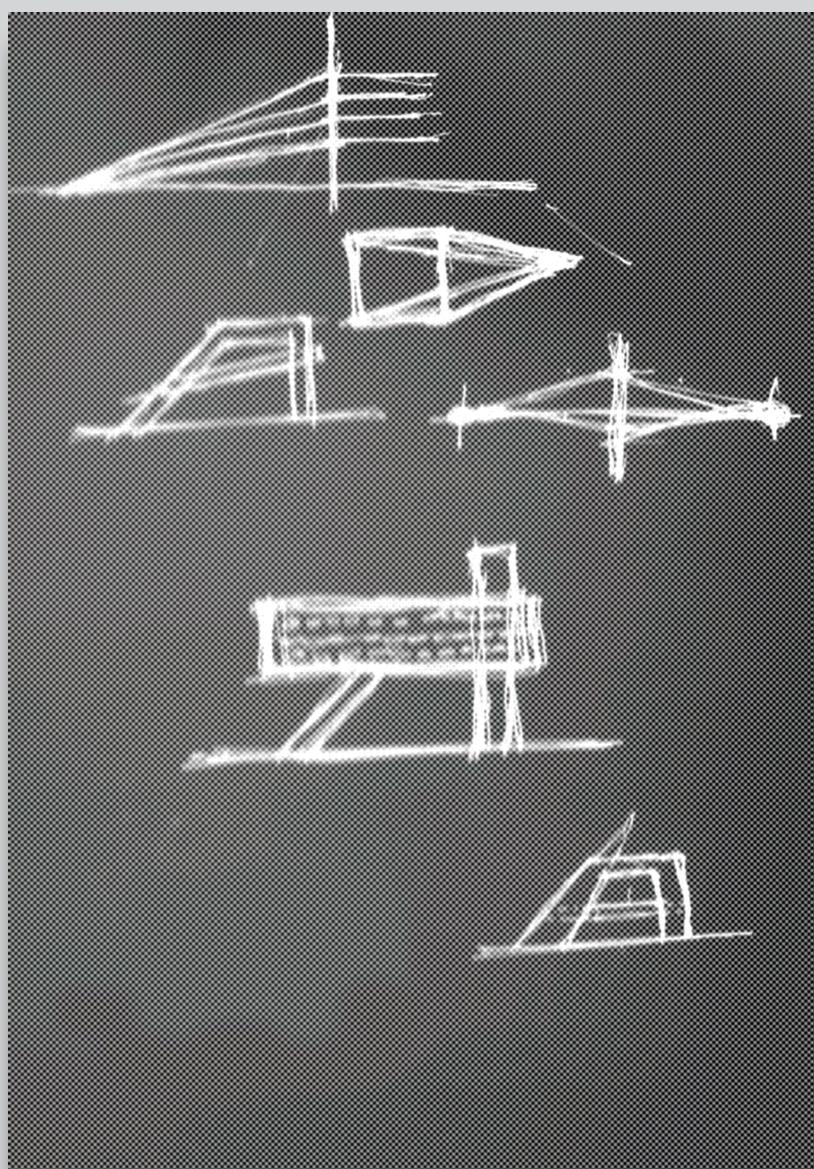


Figure 115. sketches of project work

## *inside the lines*

trying to understand how the building circulation is going to work properly alongside the length of the building.

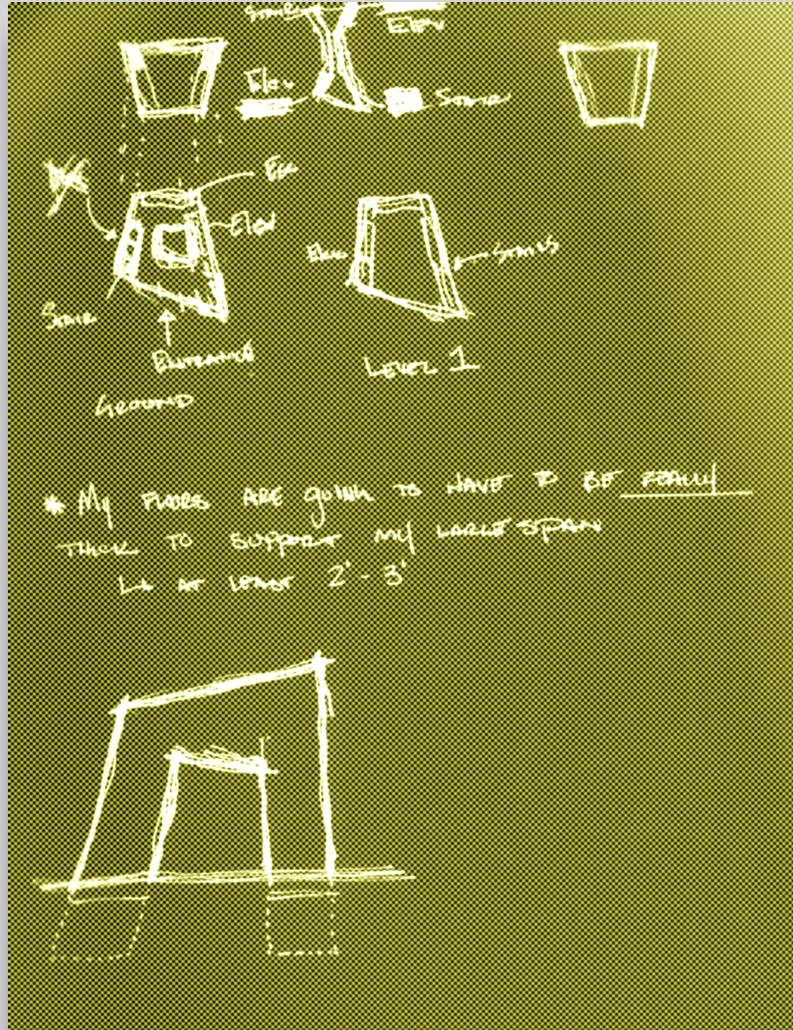
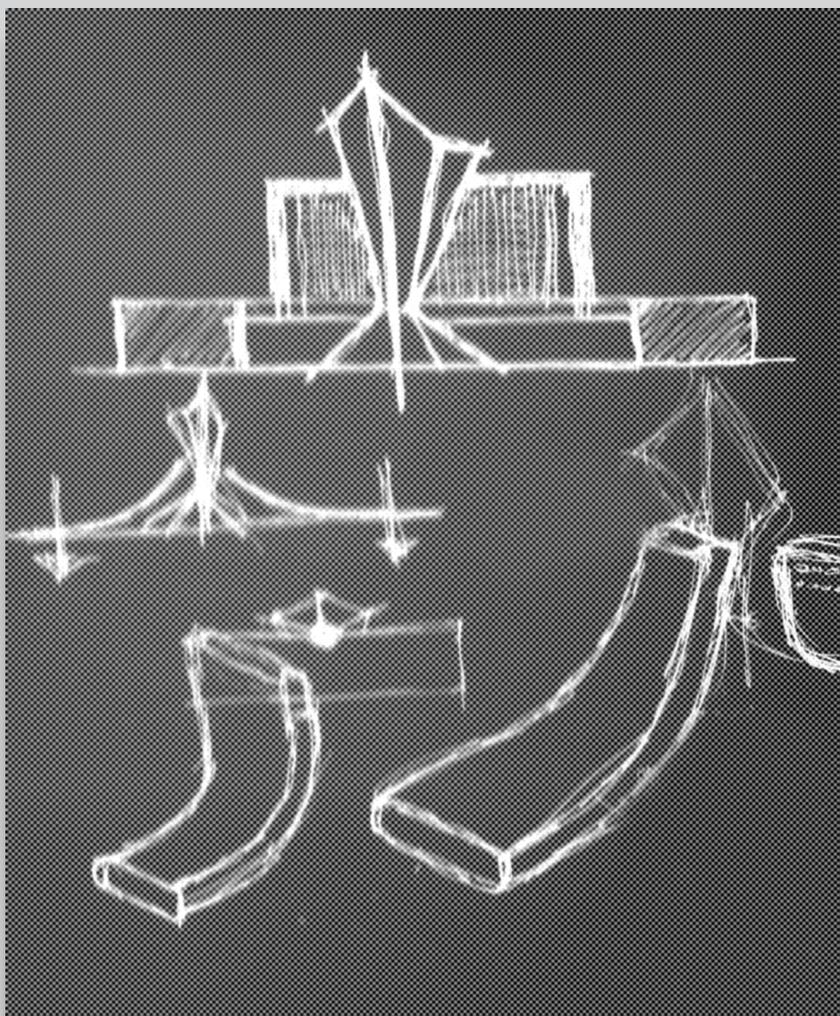


Figure 116. sketches of project work



### *doodle form*

a look at several different building forms for the design of the project.

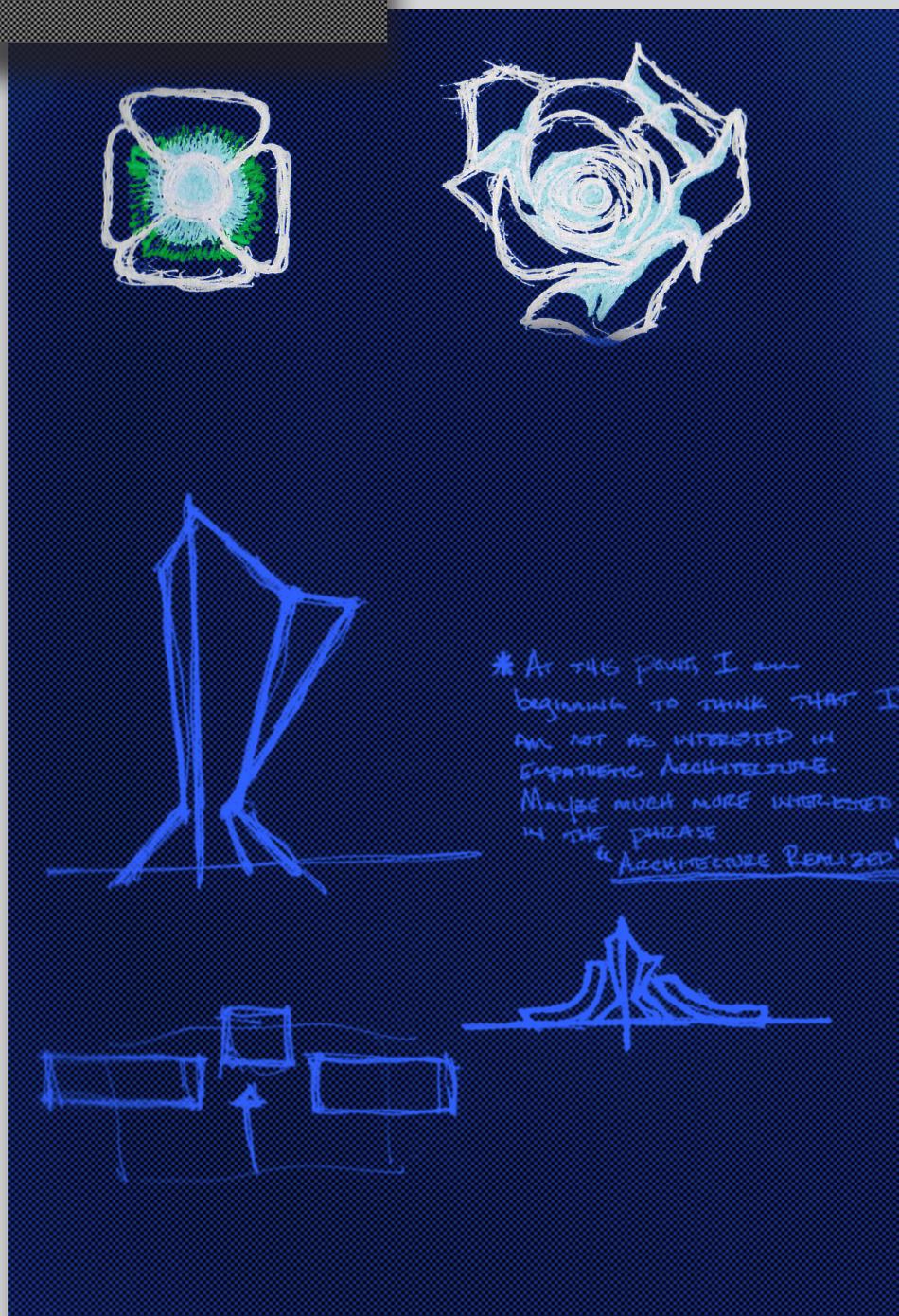
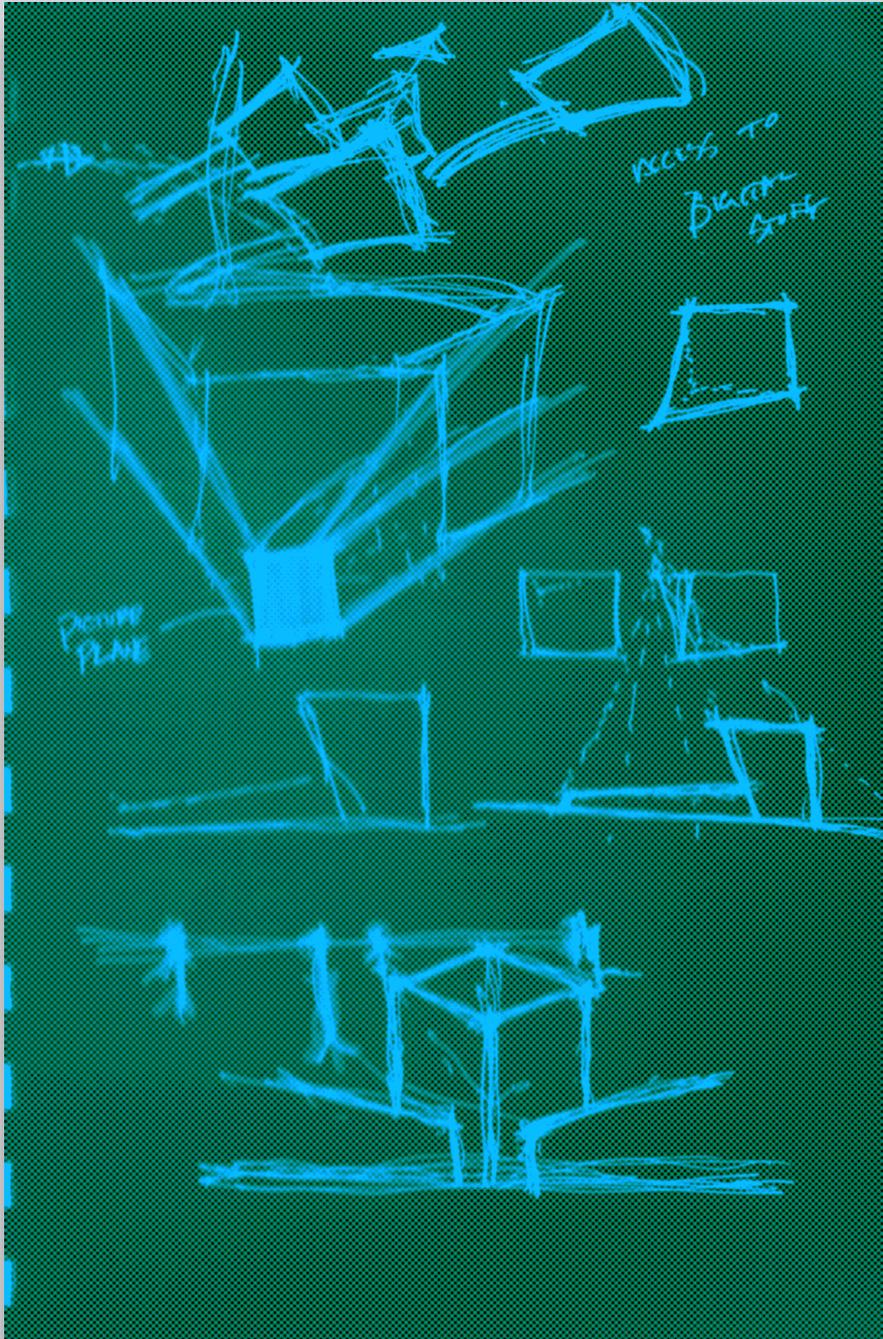


Figure 117: sketches of project work

## picture plane

how will this building look from a picture vista?  
will this create a perspective? what about a  
perspective in plan or section?



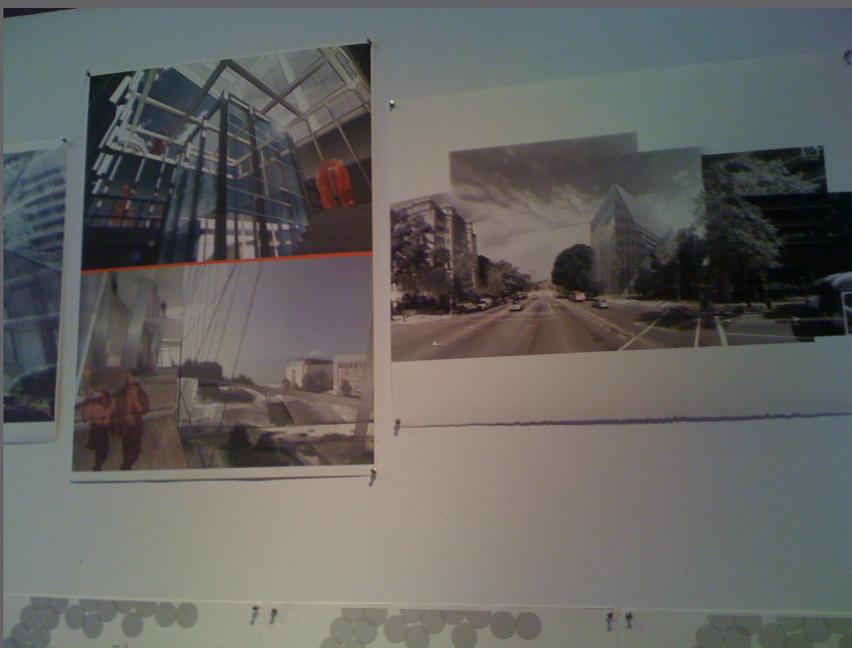


Figures 119-123 photograph from defense





Figures 127-130 photograph from defense



Figures 131-133. photograph from defense

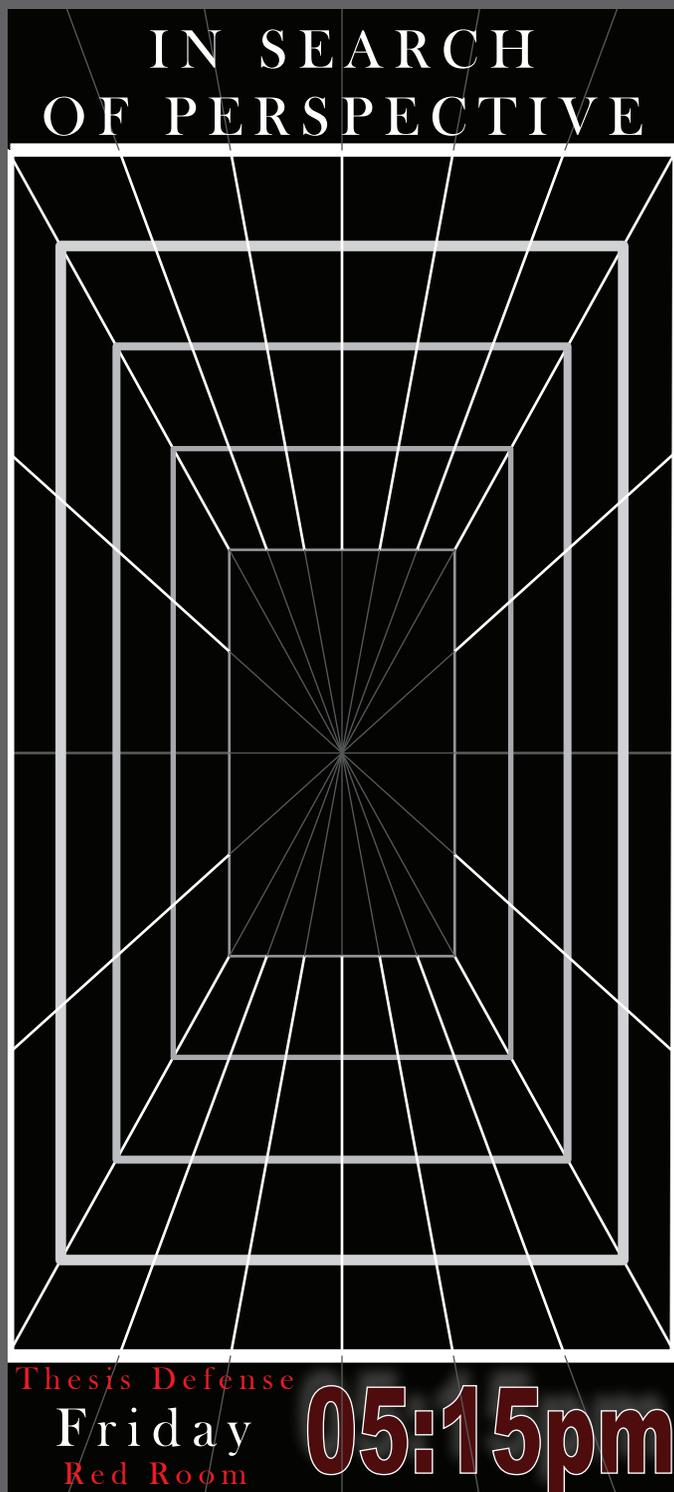
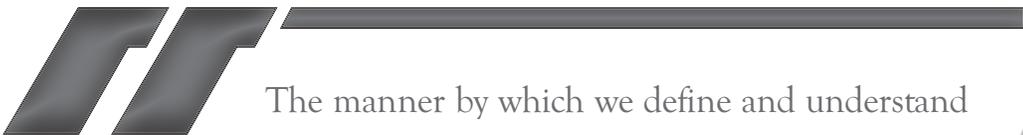


Figure 134: image of defense flyer

# 05

## [Vanishing] point



The manner by which we define and understand space is a rather complex phenomena. Innately conceived, subconsciously interpreted; we indulge in a world defined by its geographical boundaries with little ambiguity about what it is we experience.



Therefore architecture should not be defined only by the laws by which it stands, or restricted by the way that we translate our interpretation of the three dimensional space onto two dimensional documentation. The way in which we experience is fluid, changing each time we alter our position within it. From this “**perspective**” we embrace an architecture that can not only respond to our functional demands and physical limitations, but also illustrate an unique scenario for which its space is demonstrated. Doing so in a manner that stimulates our thinking about the space that we are experiencing is my goal, one that I hope to have achieved through this work. Unquestionable comprehension of the way in which this object exists in space, yet constant reminding of the subjective repositioning of space relative to the specific moment we experience only at that glance...**a play between what is intuitively understood and the reality that actually exists.**





*In Search of Perspective:  
How We Understand Space Through Visual Horizons*

## Works Cited:

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Panofsky, Erwin. *Perspective as Symbolic Form*. New York: Zone Books, 1991. Print

Zumthor, Peter. *Thinking Architecture*. Boston: Birkhauser, 2006. Print

Definition of "Empathy". Dictionary.com. Web. 21 Oct. 2008

[figure 14, pp.3]

## [image works]

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The Collaborative Inc. *Architectural Professional I*, 2006-2007

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