

EDGES OF THE MIND

Reconstructing an Urban Pontos

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EDGES OF THE MIND

Reconstructing an Urban Pontos

A design thesis submitted to the Department of Architecture and Landscape Architecture of North Dakota State University by Kyle Pederson in partial fulfillment of the requirements for the degree of Master of Architecture.



Primary Thesis Advisor

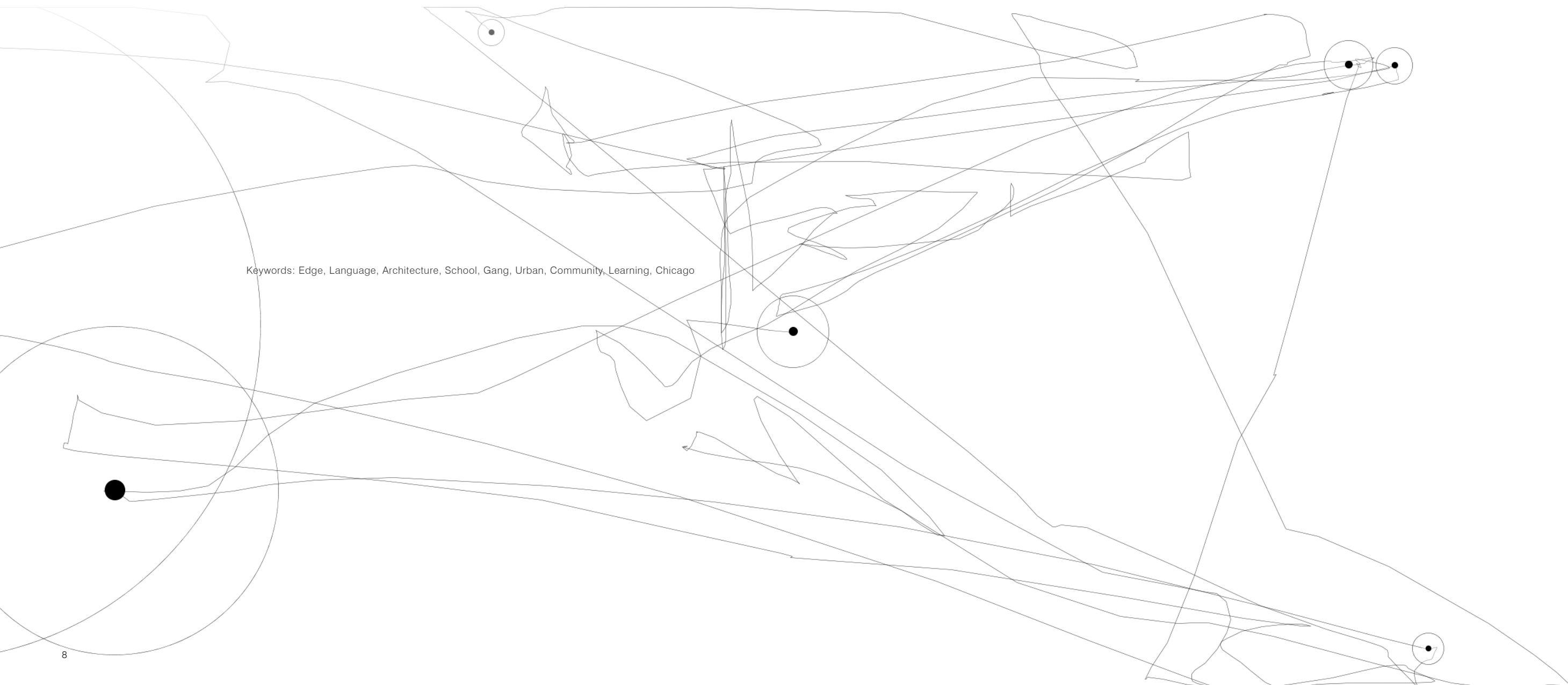


Thesis Committee Chair

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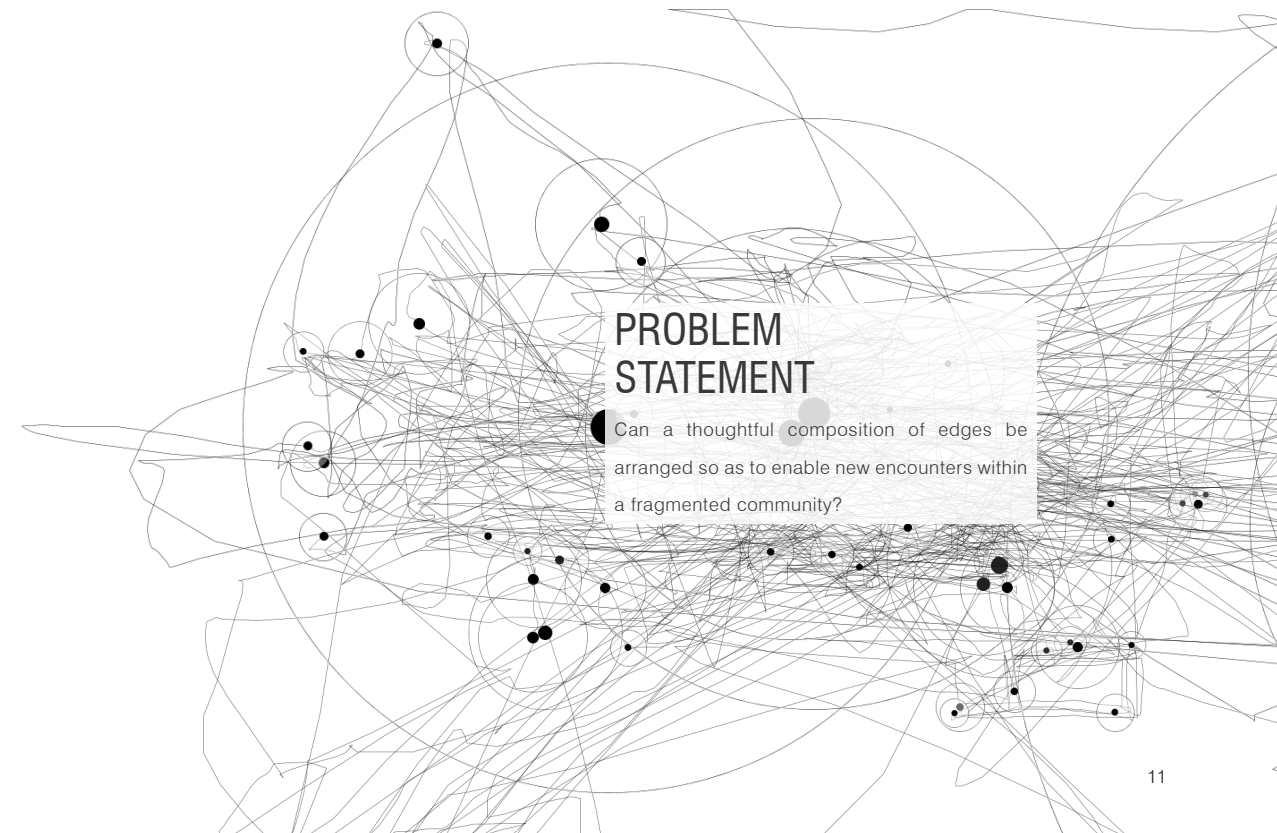
ABSTRACT

In Terms of Edges

Edge-world. The horizon of our lived reality, this material world within which we all exist, is one composed of edges and defined by them, an edge-world.

To consider the nature of a town, of a city, of any conceivable environmental context is to consider a network of edges and their inherent relationships. Defined by edges is any geometric shape conceivable, any figure and any form, all that is natural and all that is built. The crown of a mountain peak stands in contrast against the backdrop of the sky only due to its outermost edges by which it is bound. City blocks and urban communities, too, are granted definition by systems of streets, gridworks of edges. Rivers, highways, treetops, and skyscrapers may be understood in terms of edges.

The American city of Chicago, Illinois is a profoundly enunciated embodiment of these edge-world characteristics. Although many of Chicago's edges are benign in nature, those that define gang boundaries are the ones with which this thesis devotes its primary attention. Abruptly and effectively, these edges render the city a fragmentized entanglement of urban elements. The introduction of a 52,000 square foot school along one such urban edge seeks to enable new encounters in hopeful anticipation of a continued edge reconstruction throughout Chicago's urban edge-scape.



PROBLEM STATEMENT

Can a thoughtful composition of edges be arranged so as to enable new encounters within a fragmented community?

STATEMENT OF INTENT

STATEMENT OF INTENT

An Outline of Project Aspirations

Typology A small school

Claim Architecture and language may be understood as impactful expressions of edges which may be allowed to replace a malignant urban edge and offer a combined capacity to influence localized sociocultural conditions.

Actors This project considers a relationship between language and architecture. Physical architecture is an advocate of social encounters and, consequently, language. Architecture provides a setting for conversation. Likewise, language is the very source of architecture. Architecture is developed through varying forms of dialogue.

Actions Both architecture and language are examples of the edge. An edge is an intermediary agent that separates two entities while simultaneously serving as a moment of convergence between those entities. Architecture and language each follow this pattern in their own way and can be used to reconstruct an urban edge condition.

Object The urban condition with which this project deals is that of a gang edge. This edge defines two separate urban fabrics, two rival gang societies. A reconstruction of this edge may be facilitated through architecture and language which can make present the innate ability of an edge to conjoin as well as to separate.

Conclusion Architecture can take the place of this urban edge in an effort to promote social interactions and positive community activity in such a way as to foster a reconstruction of the edge. The Edge's impact on the community is commonly accepted as solely disruptive and singularly seclusive. The dual nature of the edge must be made present and fully realized. In this way, the edge becomes the delineated intersection along which the two communities converge. There is an overlooked healing power about the edge and it is to be embraced by this thesis.

Site Chicago, Illinois

Justification With over 50 schools closing over the next year combined with over 100 closings over the last ten years (all due to financial barriers) Chicago's public school system is in the spotlight of deep criticism. Chicago's "solution" of packing more kids into fewer "mega-schools" simply delays a second complication of overcrowding while additionally forcing children cross gang edges along routes to more distant, less effective schools. The system is deteriorating as city-wide attendance rates decline and test scores plummet. The issue is not that Chicago has too many schools to support financially; the issue is that Chicago has too many schools that are failing to perform adequately. The city is in dire need of a new form of school, one that is effective and can negate the adverse effects of Chicago's edges.

"Architecture is a social act and the material theater of human activity."

-Spiro Kostof



THESIS PROPOSAL

PROJECT NARRATIVE

An Outline of Project Aspirations

This project addresses the dramatic way in which edges influence human perception, and how they relate to architecture and human language.

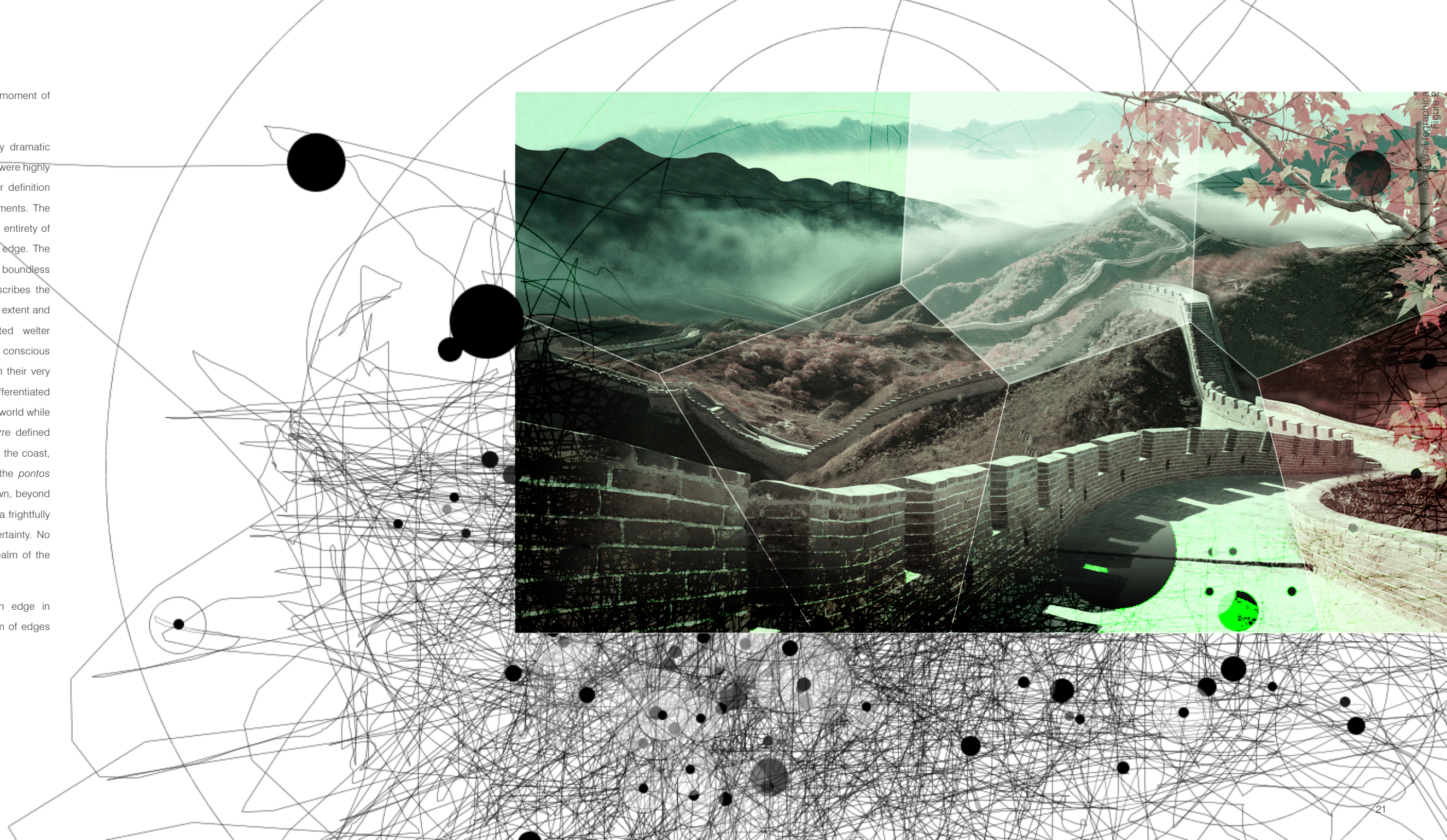
Often identified as agents of obstruction, edges present themselves in many forms both architectural and non architectural. The Great Wall of China is arguably the boldest manifestation of an architectural edge. However, to suppose that this edge merely an obstruction would be to overlook a significant aspect of its nature as an edge. In fact, to suppose that any edge is a barrier alone would be a gross misinterpretation of the essence of edge. A closer look into the nature of edges reveals a more comprehensive understanding of their capabilities.

Consider the corner of a table. The edge created by this corner does something very interesting. While it serves as the linear separation of two surfaces of the same solid, it also actively joins those two surfaces, it is the point at which they converge. Edward Casey writes, "edges conjoin and separate and they are at once linked and disjointed. They are factors of fusion as well as fission." This is the dual nature of the edge - the edge in its fullest sense. While the wall of China was constructed to separate the Chinese from the

Mongols, it immediately became the moment of convergence as well: an edge.

The ancient Greeks, too, lived a very dramatic relationship with the edge-world. They were highly aware of the power of edges to offer definition to our vision and to guide our movements. The *oceanos*, the ocean that encircled the entirety of their known world, was their ultimate edge. The Greeks described it as *to apieron* (the boundless or the edgeless). Edward Casey describes the *oceanos* as "radically indeterminate in extent and composition...a murky undifferentiated welter of elements." The Greeks were so conscious of this and so terrified by it that even their very language reflected their fear. They differentiated their relation to the safety of the edge-world while venturing into the *oceanos*. *Costagierre* defined their comfort zone - within eyesight of the coast, the edge of land. But to stray into the *pontos* was to slip into the boundless unknown, beyond view of the coast's edge. *Pontos* was a frightfully powerful word evoking fear and uncertainty. No one dared enter into the edgeless realm of the *pontos*.

Across the *oceanos* and across an edge in time (for what is time but a continuum of edges



as points where past and present meet), exists an urban augmentation of the edge-world: Chicago. Like all cities and all places, Chicago can be understood as a matrix of edges. The lake and the rivers define edges, neighborhoods and districts define edges, streets and buildings define edges. The most dramatic of Chicago's edges, though, are those that distinguish between gang territories, particularly today as the city faces its current edge in time.

Over the next one year, fifty of Chicago's schools will be permanently closed - the largest mass closing of schools in recorded history (Klein, 2013). We do not yet know what this will mean for the future of education or for the future of the students and that is the edge that Chicago currently faces. The problem, though, is this: where before students could walk to school without leaving their own neighborhood, their own *costagierre*, they now must venture into Chicago's *okeanos*, into the urban *pontos*, only to reach a more distant, less effective "mega-school" by means of a more treacherous route. The students now must literally cross the edges of the city - the edges of gang territories.

This is truly the unknown, the murky and undifferentiated realm, the *pontos*.

Yet with relation to this problem in Chicago, the misinterpretation of the edge again becomes evident. The gang edges are understood as boarders only, barriers to be avoided, formless remanifestations of the Great Wall. It must be recalled, though, that while Chicago's edges define separate surfaces of the city, they also serve as moments of convergence. This thesis seeks to recreate Chicago's invisible edges architecturally, thus drawing attention to the edge and making evident the duality of the edge. The architecture then becomes the edge. The intention is to transform the sharp edges of the city into those that arouse a curiosity as to what may lie beyond (like the edge of the cliff), a physical edge that acts as an urban oasis or safe haven. The design of a school as an edge can serve to bring people together, offer security, and generate positive social encounters thus deterring gang activity. Rather than forcing children to confront the urban *pontos*, the architecture is allowed to step in, serving as an edge of safety and security within a city where edges are so commonly viewed only as barriers.



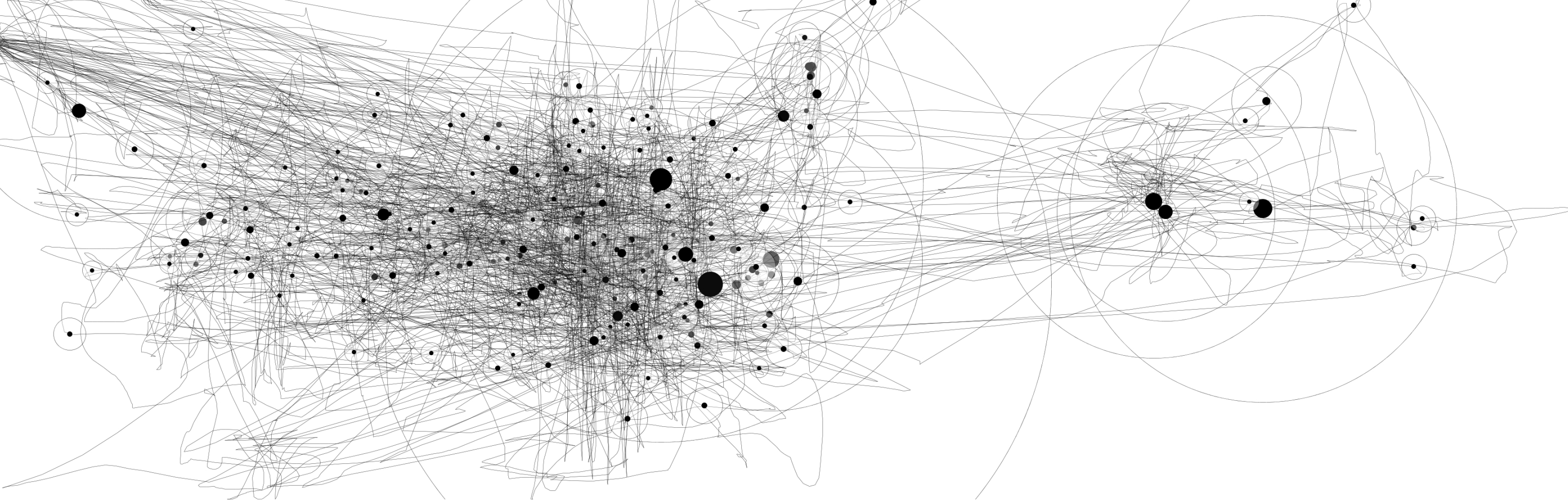
USER DESCRIPTION

Students Just as the *pontos* is the symbol of the edge where the known and unknown meet, we must recognize the significance of the edge between knowing and not knowing: the edge that is learning. Foremost, the embodiment of this architecture must consider the students whose education within its environment will impact the remainder of their lives. Both the safety of the students and the quality of the education will be affected by the architecture.

Teachers The architecture must also be recognized as a venue for teaching. The way in which the architecture addresses the needs of teachers to create an effective teaching environment will directly impact the success of the architecture as a school.

Staff The reach of this building extends beyond those on either side of the edge of learning as well. The office and administrative staff, the cooking staff, and the janitorial staff will require spaces of their own to be addressed in full as integrated components within the whole of the architecture.

Community It is immediately clear that the success of this project is largely tied to community involvement. It is quickly becoming much more than a school. Beyond those who use the school on a daily basis, there will be many potential users that become connected through social events and larger school functions. Sports, music, performances, and other school related community functions will need to be accounted for through the program of the school design.



PRIMARY ELEMENTS

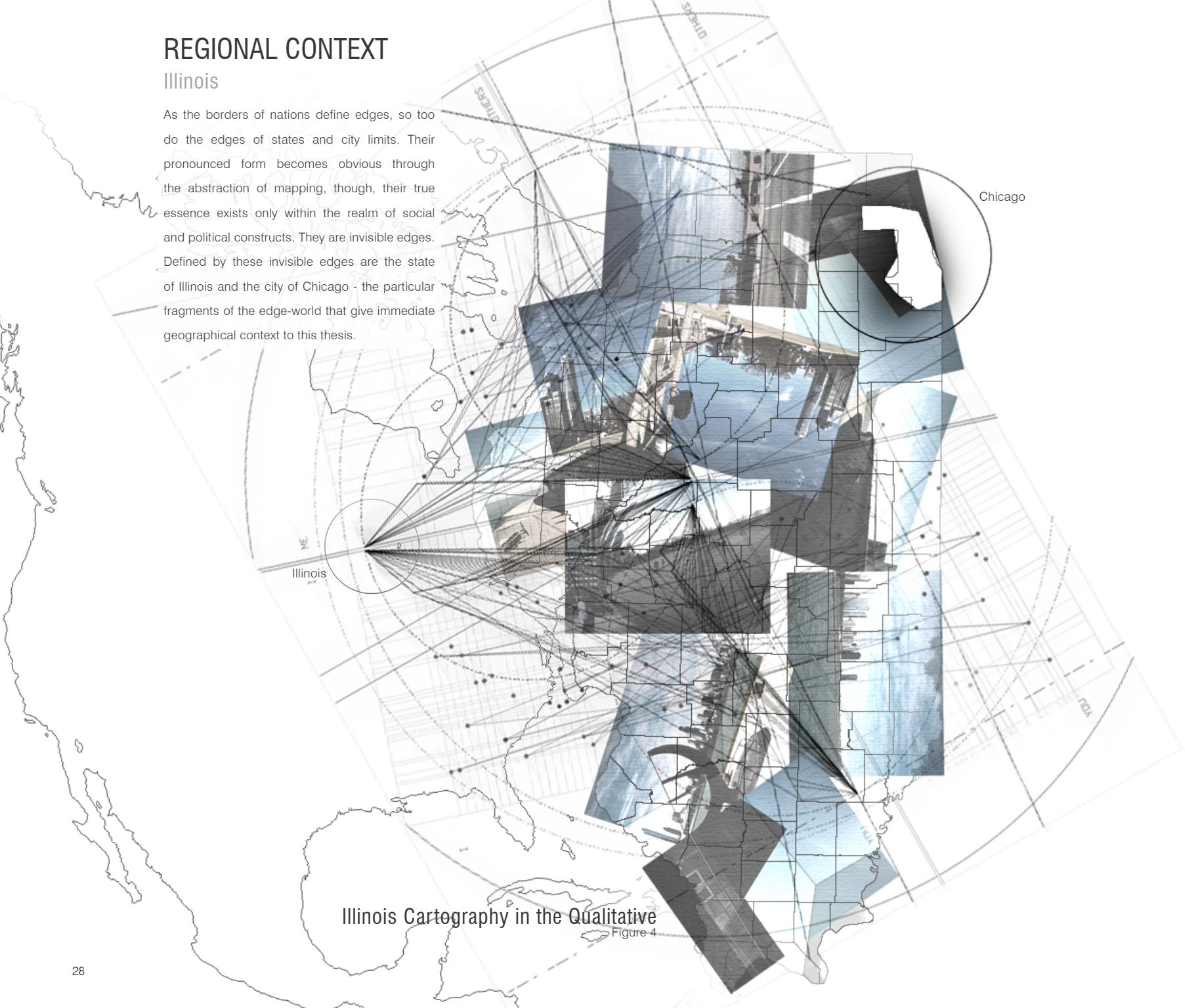
Major Programmatic Items

- Lobby and Entrance Condition
- Indoor Learning Environments
- Outdoor Public and Recreational Environments
- Indoor Recreational Facility
- Indoor Public Swimming Facility
- Multi-use Breakout Rooms
- Music Performance and Recital Hall
- Library
- Technology and Multimedia Center
- Dining and Gathering Center
- Auditorium Indoor Gathering Space
- Common Outdoor Gathering Space
- Health Office
- Administrative Offices
- Staff Lounge and Common Space
- Science Lab
- Restrooms
- Mechanical Spaces
- Janitorial Closets and Equipment Storage
- General Storage Accommodations

REGIONAL CONTEXT

Illinois

As the borders of nations define edges, so too do the edges of states and city limits. Their pronounced form becomes obvious through the abstraction of mapping, though, their true essence exists only within the realm of social and political constructs. They are invisible edges. Defined by these invisible edges are the state of Illinois and the city of Chicago - the particular fragments of the edge-world that give immediate geographical context to this thesis.



Illinois Cartography in the Qualitative
Figure 4



Transportation
Figure 5



Agriculture
Figure 6



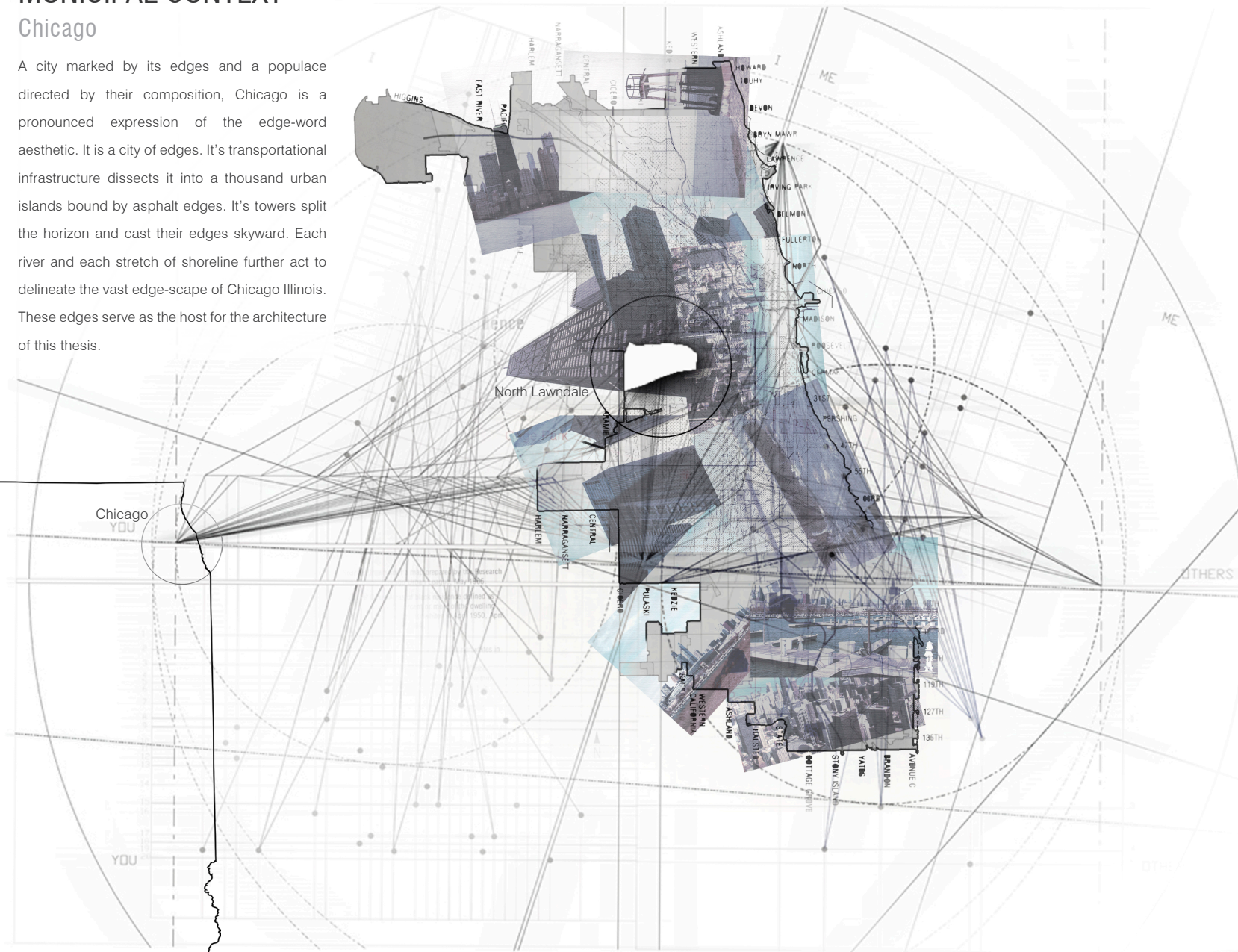
Industry
Figure 7



MUNICIPAL CONTEXT

Chicago

A city marked by its edges and a populace directed by their composition, Chicago is a pronounced expression of the edge-word aesthetic. It is a city of edges. It's transportational infrastructure dissects it into a thousand urban islands bound by asphalt edges. It's towers split the horizon and cast their edges skyward. Each river and each stretch of shoreline further act to delineate the vast edge-scape of Chicago Illinois. These edges serve as the host for the architecture of this thesis.



Chicago Cartography in the Qualitative
Figure 8



Lake Michigan
Figure 9



Skyline
Figure 10

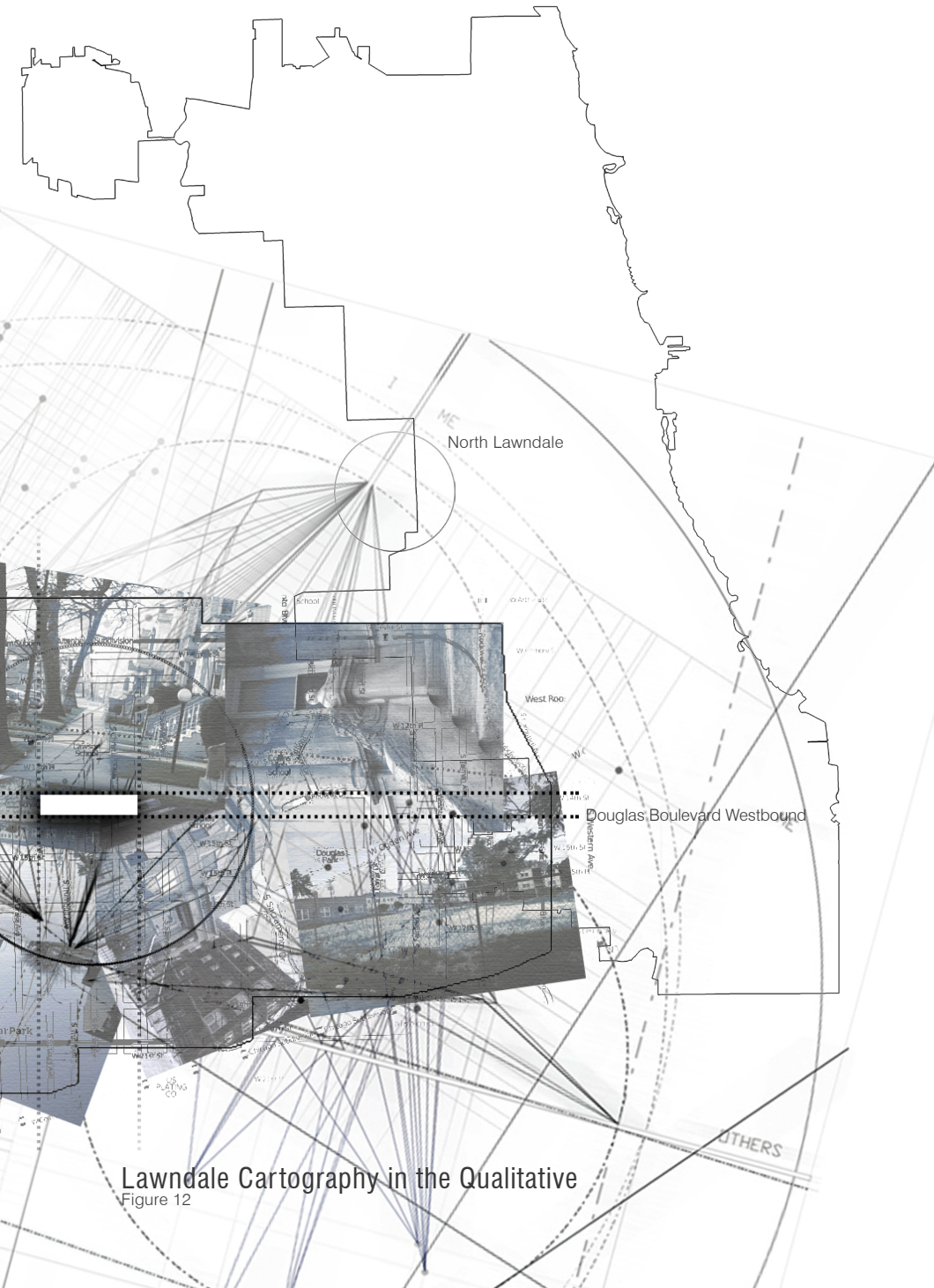


Public Space
Figure 11

IMMEDIATE CONTEXT

North Lawndale

Specifically, the North Lawndale community of Chicago serves as a resting place for the architectural development of this project. This area has been highly subject to Chicago's school closings with four of seven elementary schools being shut down within the confines of its own edges. North Lawndale is subject to a startling edge condition in which a gang edge severs the community through the middle. Opposing gang territories in confrontational juxtaposition. They meet along Douglas Boulevard. This edge will be a focal point of this thesis design.



Lawndale Cartography in the Qualitative
Figure 12



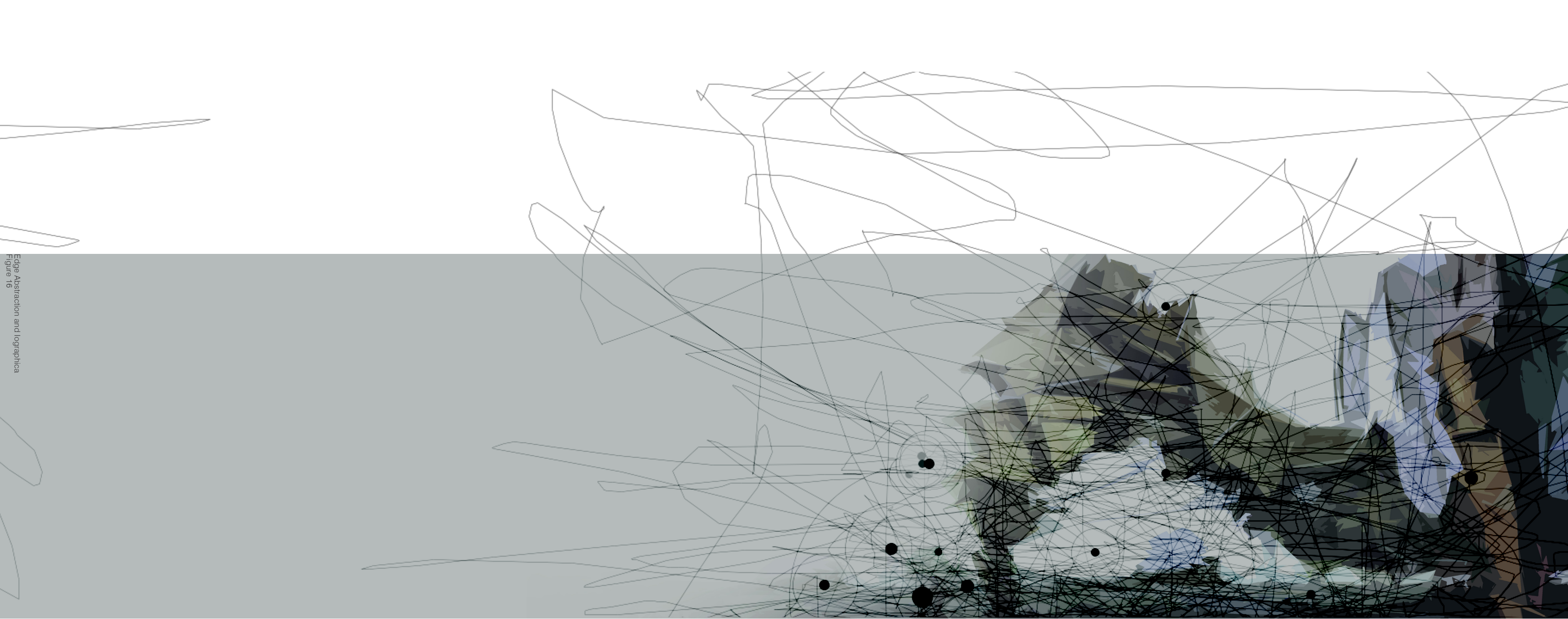
Graystone Architecture
Figure 13



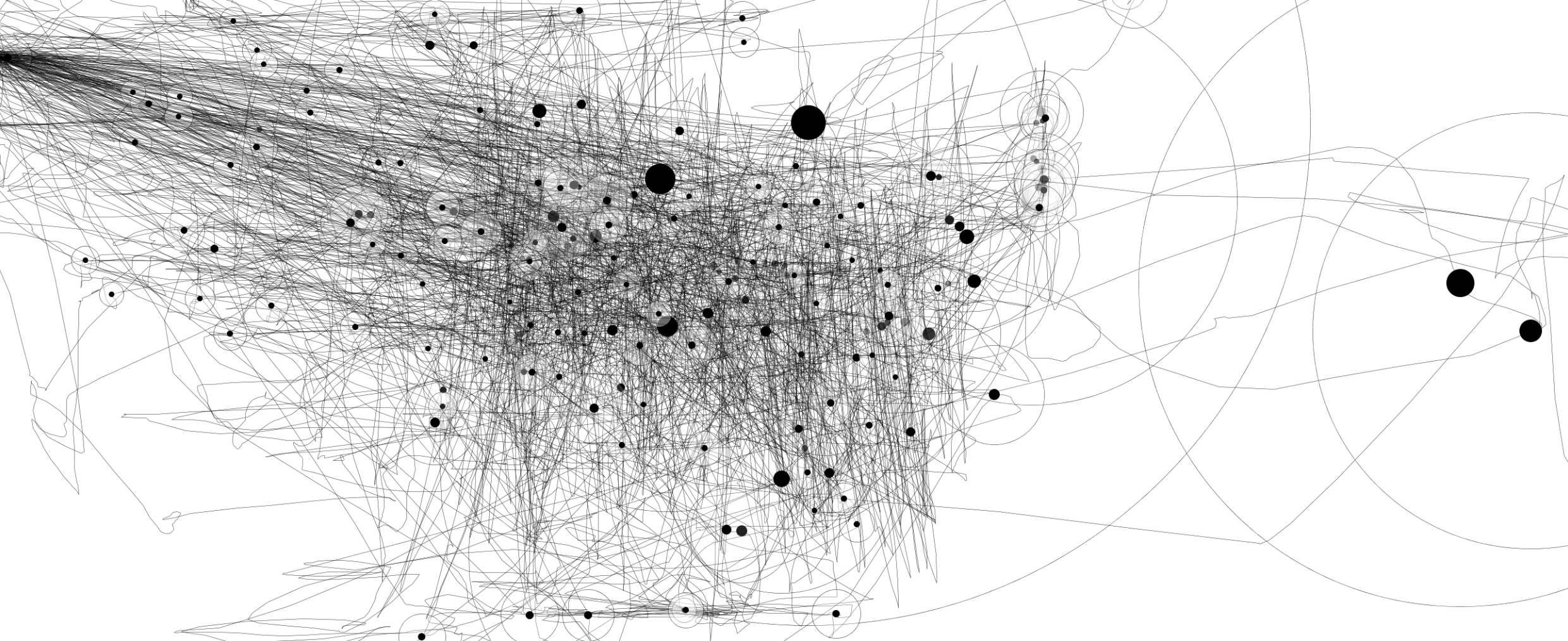
Building Abandonment
Figure 14



Gang Presence
Figure 15



Edge Abstraction and logographica
Figure 16



PROJECT EMPHASIS

Social Encounters

This thesis seeks to explore the relationship between architecture and language and their combined impact as edges on a social setting within the urban environment of Chicago. Through these explorations, the objective is to make evident the duality of these edges in an effort to unite separate urban communities through the design of a school. Through architecture, particular settings must be produced to serving to promote language, thus, enabling new encounters of social interaction.

1 An integral component of this project will be its ability to provide safety by architectural and non-architectural means.

2 Community promoting design will be key to the success of this project. It's ability to elegantly facilitate community and school functions will contribute to determining its effectiveness as a dualistic edge.

3 Learning in itself is a key form of edge within the context of this project. Without being an effective environment for learning, this project will lose all meaning.

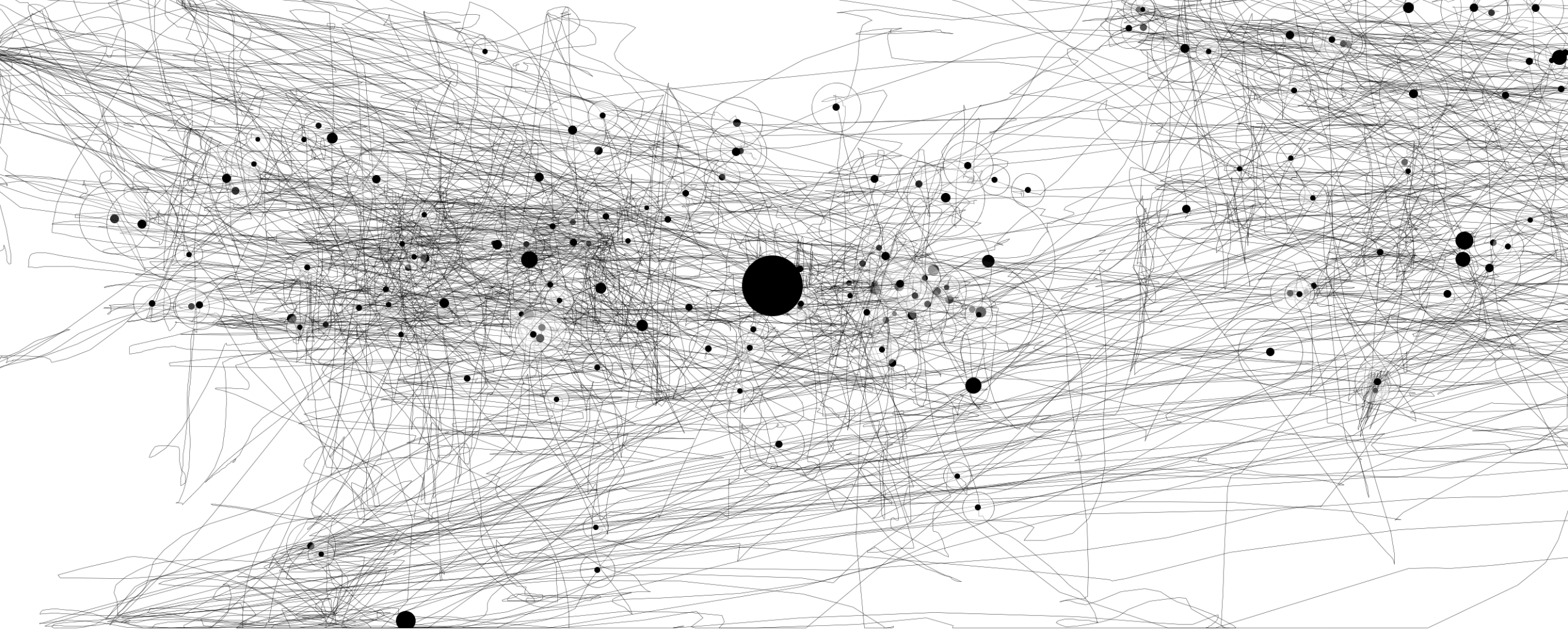
RESEARCH DIRECTION

Perspectives of the Edge

The development of an engaging and relevant theoretical basis for the project is a pivotal starting point. First, viewing gang boundaries as types of edges became a major influencing factor in the development of the project. This necessitated a deeper understanding of the edge from a variety of perspectives and from varying fields of focus. This process begins to give the project direction while refining its motives.

Following from this, it becomes evident that the project deals with disputes and conflicts between people. Subsequently, it is also about cooperation, interaction, and harmony to an equal extent. The project can be developed further by understanding motives as well as resolutions for such situations.

It cannot be forgotten that the design is one of a school. Case studies will inform the outcome of the design as an effective and innovative learning environment capable of promoting the goals and aspirations of its users. The process will move forward, however, only through continuous acute consideration of its edges.



METHODOLOGY

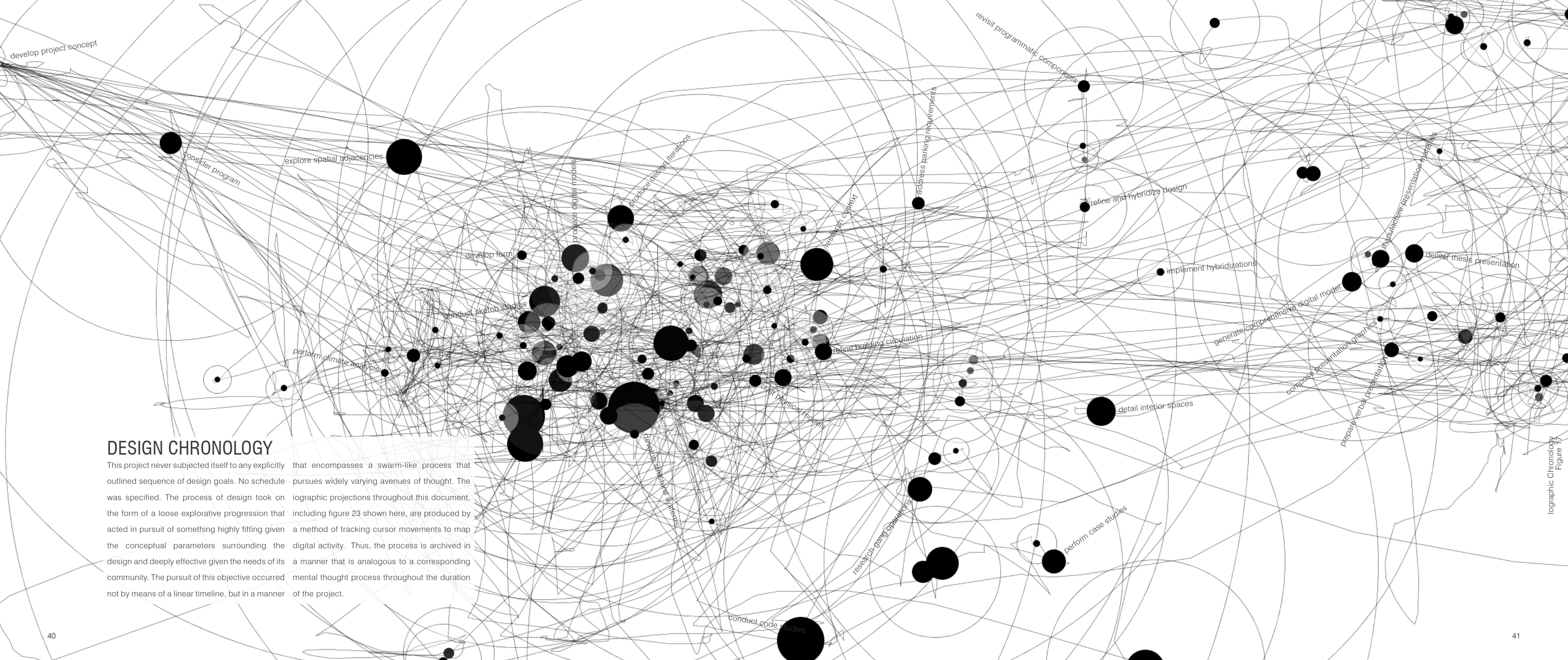
Concurrent Transformative

Concurrent transformative methodology effectively allows for a mixed-method approach appropriate for the diversified foci of this project while accounting for the necessity of both qualitative and quantitative data. Particular research emphasis will be placed on the areas of safety, community, learning, and interaction with their relationships to the project typology. The data gathered in these and other areas will be continually incorporated into the whole of the project throughout the design process allowing the research to influence the project while the project, in turn, influences the direction of the research. Any qualitative and quantitative findings discovered throughout the research process will be reflected in various written, graphic, and multimedia formats.

DOCUMENTATION

A Singular Process

Documentation for this project neither begins nor ends in any one particular manner. Information from varying sources and media of varying types are compiled simultaneously not as processes parallel to one another but as diversifications of a singular process. While research is conducted, notes are taken both digitally and manually. References are recorded. Thoughts and concepts are explored through journaling, sketching, digital design, and physical design, though, this list is by no means exhaustive. Photo documentation occurs in varying forms from site research to design process recording. No single process occurs in isolation from all other processes as they all influence one another. Ultimately, the output of all processes is assembled in one digital location (and backed up in a second) where it becomes immediately and conveniently available to view or duplicate. In the case of physical models and artifacts, only photographic documentation can be preserved digitally while the physical objects will be preserved in their current state as best as possible.

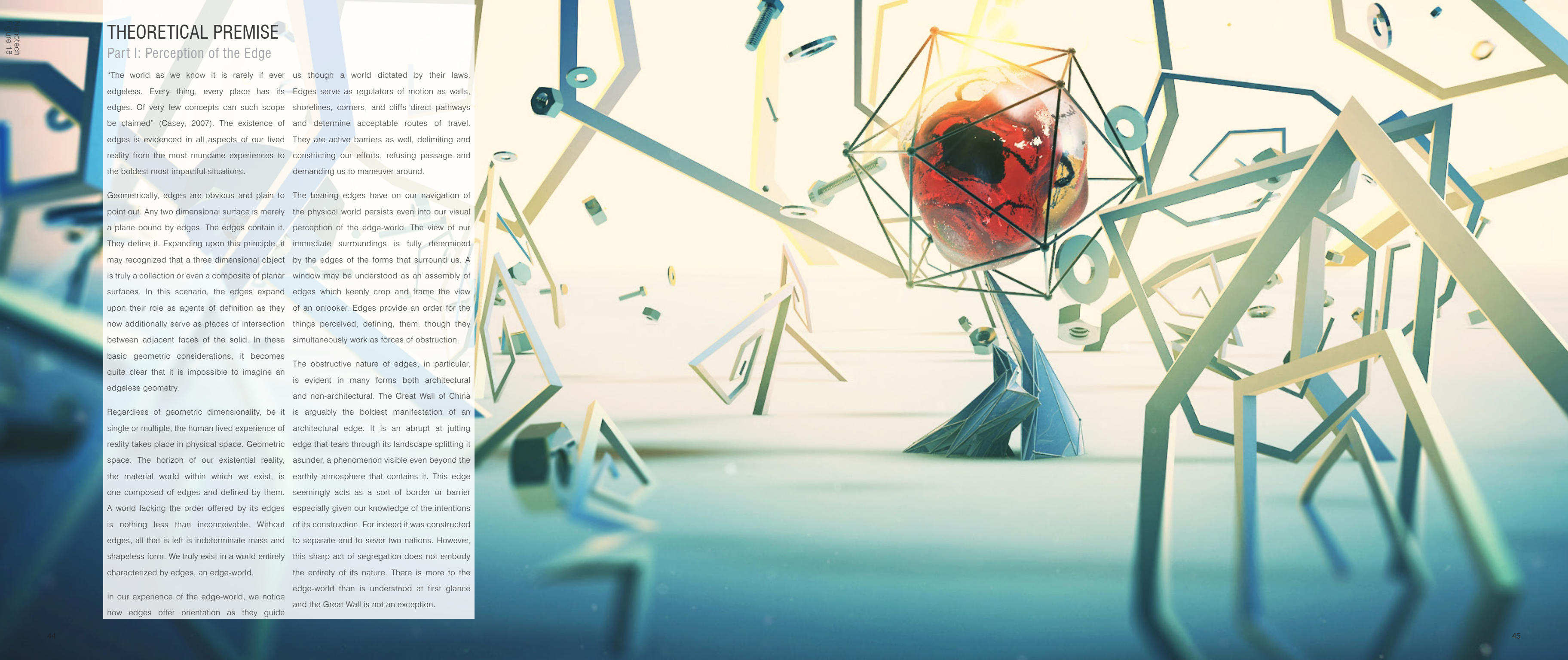


DESIGN CHRONOLOGY

This project never subjected itself to any explicitly outlined sequence of design goals. No schedule was specified. The process of design took on the form of a loose explorative progression that acted in pursuit of something highly fitting given the conceptual parameters surrounding the design and deeply effective given the needs of its community. The pursuit of this objective occurred not by means of a linear timeline, but in a manner

that encompasses a swarm-like process that pursues widely varying avenues of thought. The iographic projections throughout this document, including figure 23 shown here, are produced by a method of tracking cursor movements to map digital activity. Thus, the process is archived in a manner that is analogous to a corresponding mental thought process throughout the duration of the project.

PROGRAMMATIC ELEMENTS



THEORETICAL PREMISE

Part I: Perception of the Edge

"The world as we know it is rarely if ever edgeless. Every thing, every place has its edges. Of very few concepts can such scope be claimed" (Casey, 2007). The existence of edges is evidenced in all aspects of our lived reality from the most mundane experiences to the boldest most impactful situations.

Geometrically, edges are obvious and plain to point out. Any two dimensional surface is merely a plane bound by edges. The edges contain it. They define it. Expanding upon this principle, it may be recognized that a three dimensional object is truly a collection or even a composite of planar surfaces. In this scenario, the edges expand upon their role as agents of definition as they now additionally serve as places of intersection between adjacent faces of the solid. In these basic geometric considerations, it becomes quite clear that it is impossible to imagine an edgeless geometry.

Regardless of geometric dimensionality, be it single or multiple, the human lived experience of reality takes place in physical space. Geometric space. The horizon of our existential reality, the material world within which we exist, is one composed of edges and defined by them. A world lacking the order offered by its edges is nothing less than inconceivable. Without edges, all that is left is indeterminate mass and shapeless form. We truly exist in a world entirely characterized by edges, an edge-world.

In our experience of the edge-world, we notice how edges offer orientation as they guide

us through a world dictated by their laws. Edges serve as regulators of motion as walls, shorelines, corners, and cliffs direct pathways and determine acceptable routes of travel. They are active barriers as well, delimiting and constricting our efforts, refusing passage and demanding of us to maneuver around.

The bearing edges have on our navigation of the physical world persists even into our visual perception of the edge-world. The view of our immediate surroundings is fully determined by the edges of the forms that surround us. A window may be understood as an assembly of edges which keenly crop and frame the view of an onlooker. Edges provide an order for the things perceived, defining them, though they simultaneously work as forces of obstruction.

The obstructive nature of edges, in particular, is evident in many forms both architectural and non-architectural. The Great Wall of China is arguably the boldest manifestation of an architectural edge. It is an abrupt, jutting edge that tears through its landscape splitting it asunder, a phenomenon visible even beyond the earthly atmosphere that contains it. This edge seemingly acts as a sort of border or barrier especially given our knowledge of the intentions of its construction. For indeed it was constructed to separate and to sever two nations. However, this sharp act of segregation does not embody the entirety of its nature. There is more to the edge-world than is understood at first glance and the Great Wall is not an exception.

THEORETICAL PREMISE

Part II: Material and Mind

"At home, we careen from one room to another, not by walking but by looking or phantasing; when we travel, we project what lies beyond the horizon of today's ventures; indeed, whenever we wish to be located elsewhere without literally taking steps to get there, we get there instead by looking or imagining ahead" (Casey, 2007). What Casey describes here is, at its very core, the permeation of edges beyond our physical senses into our mental perception. With this understanding, it becomes possible to reconcile the coexistence of human cognition (including memory and imagination) and the edge-world.

While edges obstruct our movements and limit our vision, they also become subject to the perceptive consciousness directed by human beings. We may imagine what lies beyond an edge. We may perceive without physically experiencing. This imaginative perception offers a powerful sense of elegance to the edge for when this gesture of apprehension meets with a radical edge, the resulting phenomenon is that of intrigue and of curiosity.

This phenomenon is incredibly present in Edward Hopper's 1951 painting, *Rooms by the Sea*. Here, edges effectively define spaces and forms. As viewers, we are invited to imagine what may be hidden beyond the edge of a wall. The edges of doors and windows actively crop and frame our lines of sight while simultaneously separating and linking interior and exterior environments. Simply put, an edge has the power to evoke an anticipation of what lies

beyond, a curiosity of what it is that inhabits its hidden side. As edges become subject to the creativity of human consciousness, we become subject to the charm and captivation brought forth by a world of edges.

The particularly intriguing aspect of Hopper's painting is the edge articulated between the built environment and the natural environment. Hopper's doorway opens directly into a vast ocean, though he only allows a sliver of a view of this natural waterscape. However, through this perspective, an edge is evidenced in a surface known to be curved. Here, the horizon, or perhaps the ocean itself becomes an edge between the viewer and the unknown something (or perhaps nothing) that resides on the far side of the edge. Confronted with the apprehension of not knowing what it is that haunts its hidden side, it becomes all too natural - in fact, it is a full realization of what Edmund Husserl describes as "the natural attitude" - to desire to complete the incomplete or to furnish the perceptive blank.

The aforementioned phenomenon resurfaces; we engage our imaginations. We obsess over the prospect of the edge, the very idea of it. We are curious beings. Our imaginations automatically begin to compensate for the limitations of our perception. Our minds populate the unknown, venturing beyond each material edge before our bodies have a chance to catch up. It is a never ending game the imagination plays with its material surroundings.



Rooms by the Sea
Figure 19

THEORETICAL PREMISE

Part III: The Paradox of the Edge

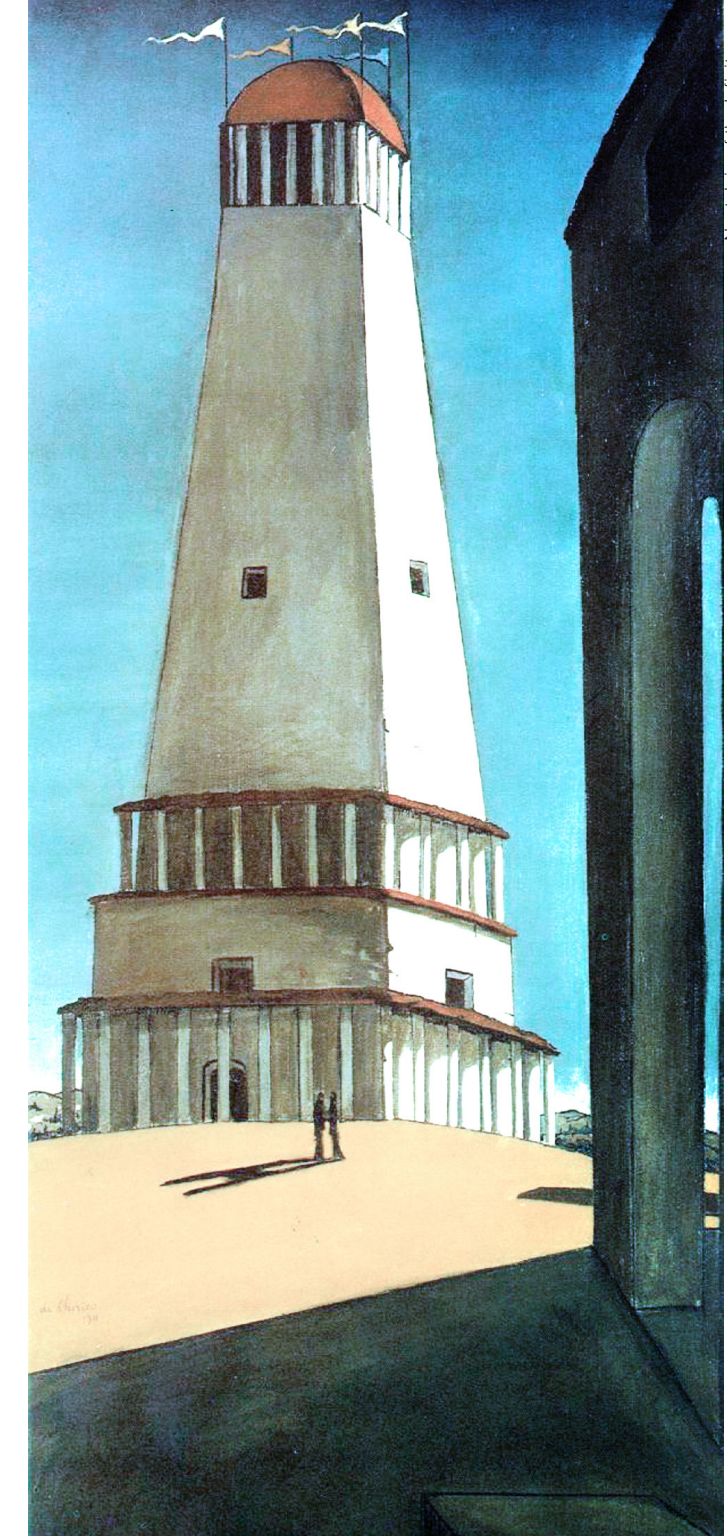
In each and every type of edge investigated thus far, from geometry to that of the ocean, a noteworthy paradox has lurked just beneath the surface of discussion. The simple geometric forms presented in *Nostalgia of the Infinite*, a painting by Giorgio de Chirico are bound by edges in their most rudimentary form. The simplicity makes the paradox plain. Two things are clear and it is their simultaneous clarity that is so paradoxical. First, the artwork appears as a composed medley of surfaces. Edges work their way between the surfaces distinguishing one from another, dividing them. This is clear. Though, this composition of surfaces is subject to a second phenomenon. Each individual surface meets its adjacent counterpart along an edge. In this sense, the edge is a delineated intersection. The edge unites the two surfaces.

Merleau-Ponty's concept of the nature of edges interprets this paradox. "Edges conjoin and they separate. They are at once linked and disjointed. They are factors of fusion as well as fission" (Casey, 2007). Just as this duality is illustrated in basic geometries, it is present, too, throughout the edge-world. While the Great Wall dictates what is in and what is out, who is attacking and who is defending, where one nation ends and another begins, it is also decidedly a moment of convergence between in and out, between one nation and the other. Even while it acts to separate to geographical and political entities, its very existence is an act of unification. As was the case with the edges of de Chirico's lighthouse, the edge of the Great Wall serves as a moment of convergence, a geometrical

"corner" conjoining two geographical surfaces and subsequently, two distinguished cultures. This is the full nature of the edge known as the Great Wall.

Following from this realization is a mental revisit of the prominent aspects of Hopper's *Rooms by the Sea*. While Hopper's dividing wall, or the walls present in any real space, actively separates two interior spaces on multiple levels, it concurrently links the two together. It does so naturally as it single-handedly makes possible the existence of an adjacency between the spaces. Though beyond its material presence, it makes possible an even more significant unifying act. When human consciousness interacts with this edge, the imaginative process returns with an ability to imagine into the adjacent space. The individual simultaneously populates both spaces, one physically, and one mentally. Hopper's horizon follows the same pattern.

While Merleau-Ponty's understanding of the edge applies to architectural elements, it may also be applied to a work of architecture as a whole. De Chirico's lighthouse illustrates this. The lighthouse imposes its edge-like presence upon the image separating foreground from background. In fact, little to nothing is known about the background as is the way with the hidden sides of edges. The lighthouse is the edge that beckons the viewer to imagine what may lay beyond and, perhaps, to wander into that unknown realm, the far side of the edge. Thus, architecture may, in itself, become an edge separating and linking knowns and unknowns.



Nostalgia of the Infinite
Figure 20

THEORETICAL PREMISE

Part IV: Encounters of the Unknown

The ancient Greeks were highly aware of the power of edges to offer definition to human perception and to guide our movements. They actually lived an incredibly dramatic relationship with the edge-world.

The *okeanos*, the great ocean that encircled the entirety of their known world was their ultimate edge. The *okeanos* is ominously referred to as "radically indeterminate in extent and composition...a murky undifferentiated welter of elements" (Casey, 2007).

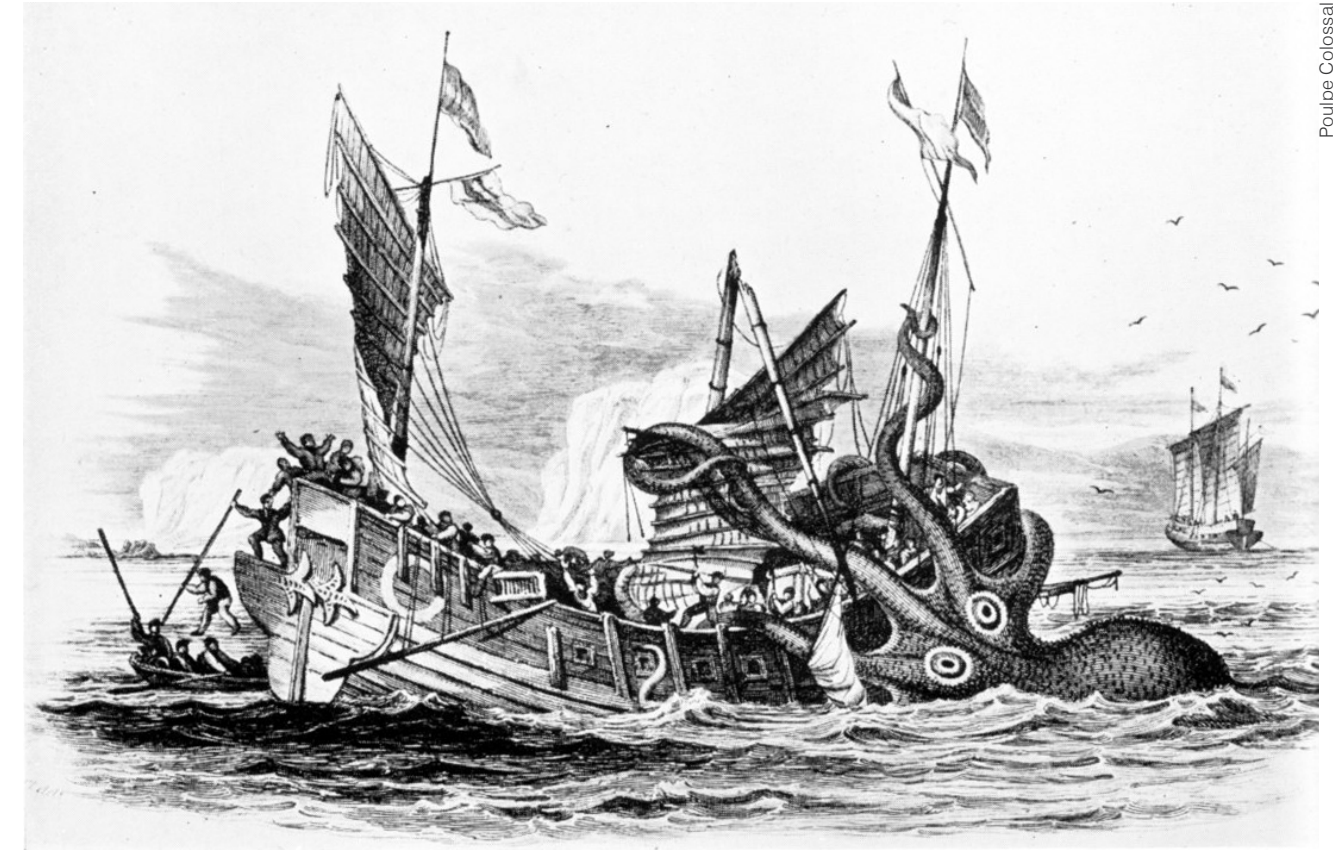
Their fear and respect for the *okeanos* permeated throughout the entirety of their culture as they even deified the encircling ocean (Bruxton, 2004). They extended a personification to the sea and offered prayers and offerings to the sea god, Okeanos.

The Greeks fear of the *okeanos* is conveyed even in their language. The Greek language actually differentiates their relation to the edge-world while venturing into the edgeless *okeanos*. Shoreline proximity was a delicately addressed matter. *Costagierre* was the word they used to define their comfort zone – within eyesight of the coast – the edge of land. To stray into the *pontos* was to slip into an indefinite unknown. *Pontos* was their word meaning beyond view of the coast's edge. Drastic precautions were taken so as not to deviate too far from land or allow it to drift out of eyesight. No one dared venture beyond the edge of the *costagierre* into the uncharted realm of the *pontos* were the edges that orient perception become absent. This held true in all forms of sea travel including not only ventures into the *okeanos*, but even voyages throughout the Mediterranean.

The *okeanos* draws its edgeless notoriety in the minds of the Ancient Greeks though first person experience of the *okeanos* itself, daring excursions into the unknown. Any such expedition inevitably took its first steps in confronting the Pillars of Hercules, the peeks framing the Strait of Gibraltar. Beyond the Pillars lay an extraordinary and perplexing vista almost beyond comprehension, for to continue on meant to welcome the encounter of the unknown.

Avienus, reporting on Himilco's trip into this uncharted world beyond the pillars and into the *pontos* says that "a dark fog enshrouds the air as if in a kind of cloak, and clouds hide the face of the deep always, and this veil remains throughout the whole of the darkened day" (Romm, 1994). Hanno the Navigator recounts his voyage claiming to have witnessed rivers of flame, mountains that catch fire in the night, phantom music, and wild hairy men. (Romm, 1994) What is evident through these fantastic reports is that once beyond the Pillars, the encounter is that of the eerie and the chilling - a glimpse into something so edgeless and indeterminate that only the human imagination can populate its barren openness. Without edges, we have only the imagination to take over as there is little room for perceptive experience.

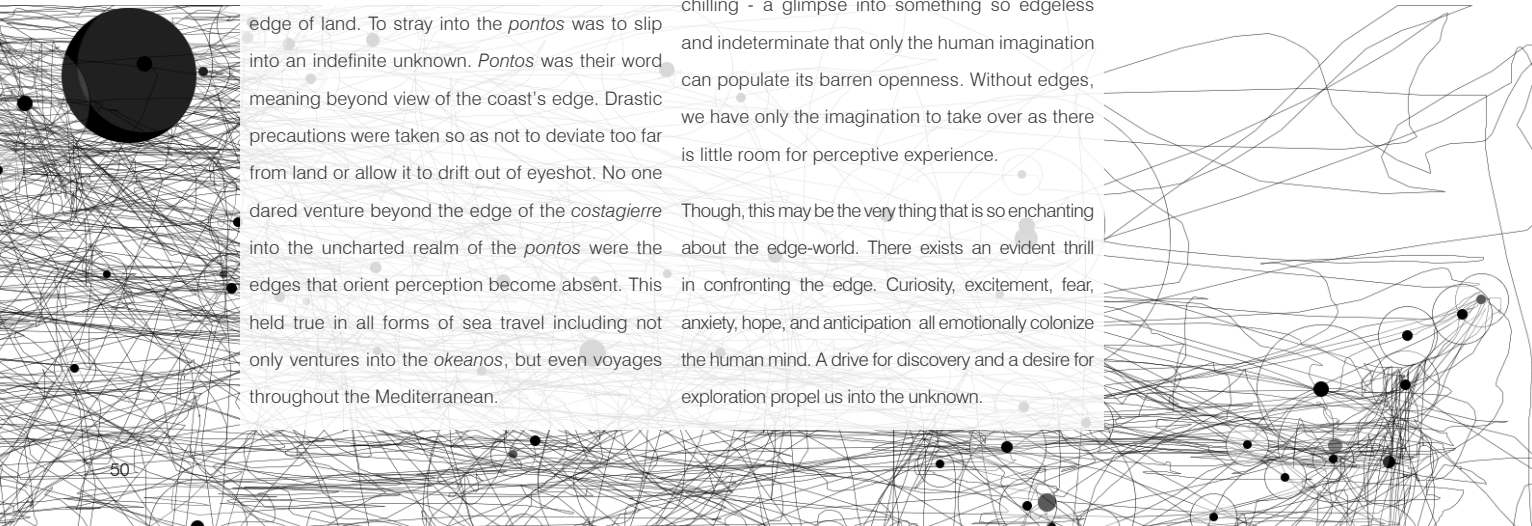
Though, this may be the very thing that is so enchanting about the edge-world. There exists an evident thrill in confronting the edge. Curiosity, excitement, fear, anxiety, hope, and anticipation all emotionally colonize the human mind. A drive for discovery and a desire for exploration propel us into the unknown.



Poulpe Colossal
Figure 21



Reconstruction of the World According to Hecateus
Figure 22



THEORETICAL PREMISE

Part V: Reconsidering the Edge

This ancient Greek relationship to the edge-world is a significant and dramatic consideration of the edge, but this idea can now be analyzed and expanded upon. When abstracted, it can be recognized that the concept of *okeanos* is reinterpretable as something synonymous with the idea of familiarity – which is simply the edge between the known and the unknown, a direct parallel of *costagierre* and *pontos*.

Given this understanding, we can expand this one step further and apply the same logic to our understanding of time – for this present moment in time is merely the edge where past and future converge or, in other words, where the known and the unknown meet. Time is a process of constant discovery as we continually discover the edge that is our present moment in time. This process of discovery may even be equated to the human act of learning. For what is learning but the process of encountering the edge between the known and unknown – essentially an intellectual *okeanos* or an edge of the mind.

To recap, an edge is identified as any formal or formless entity that serves the simultaneous roles of agent of separation and unifying force. In the most fundamental sense, this duality is present in all geometries from the edges of a cube to the edges of a dinner table. Edges actively exploit human curiosity. One of the most significant edges that dominated the ancient world was that of the *okeanos*, the edge between the known *costagierre* and the unknown *pontos*. Though even the edge of the wall in Hopper's painting involves a known and unknown side. In fact, these are the basic components of any edge for these are the things edges conjoin and separate, the known and unknown. This idea is rooted far deeper into our reality than mere physical experience. Time itself is a construction of these same components. So too are cognitive activities such as learning. The experience of edges occurs physically, temporally, and mentally. Conscious existence is the continual experience of these edges and the constant confrontation of the *pontos* of lived reality.



THEORETICAL PREMISE

Part VI: Urban Pontos

The trajectory of this logic begins to point this project concept toward a resting place in the present serving as a host for the development of an architecture. Many modern cities, in fact, may be regarded complex networks of man made edges.

Particularly distinguished among today's cities through its pronounced edges is Chicago, Illinois. It is truly an edgy matrix of the build environment. The lake and the rivers carving through the city's geography define edges throughout the urban framework. Neighborhoods, districts, streets, and buildings trace the figure of the city define edges that infiltrate the entirety of the cityscape.

However, the most dramatic of Chicago's edges, those that set it apart from many other modern cities, are those that define gang territories. These are edges that exist without material substance, without physical form. They are concealed within the minds of people (as are most political edges i.e. national borders, city limits, etc.). These invisible edges of Chicago are particularly significant today as the city faces its current edge in time.

Over the next one year, 50 of Chicago's schools will be permanently closed (Babwin, 2013). This is the largest mass closing of schools in the history of our nation (Kelleher, 2013). Two primary justifications are offered by the city in support of the closings. The initial reason is due to the current financial circumstances of the City of Chicago. Following from the recognition of this crisis, the decision was made to abandon those schools which had

the lowest performance standards both in terms of student success and cost effectiveness of the building. At any rate, we do not yet know what this will mean for the future of education in Chicago or for the future of the students and that is the edge in time that Chicago currently faces.

The problem with this becomes especially evident in the North Lawndale community of Chicago. There exists a very striking condition in North Lawndale in which a razor sharp edge between two rival gang territories severs the community through the middle along Douglas Boulevard ("Gangs and politicians," 2011).

Currently, the central North Lawndale vicinity encompasses a total of four elementary schools, two located on either side of the edge. With the immanent mass closing of schools throughout the city, North Lawndale will suffer the loss of three of these schools. (Babwin, 2013) This leaves one to absorb the entirety of the student body that is currently distributed among the four schools.

Consequently, where before a student could walk to school without leaving his own neighborhood, his own *costagierre*, he now must venture into Chicago's *okeanos*, into the urban *pontos* to reach a more distant, less effective mega-school by means of a more treacherous route. The students now must literally cross the edges of the city – the edges of gang territories. This is truly the unknown, the murky and undifferentiated realm described by Edward Casey, the *pontos*.



THEORETICAL PREMISE

Part VII: Intellectual Ventures

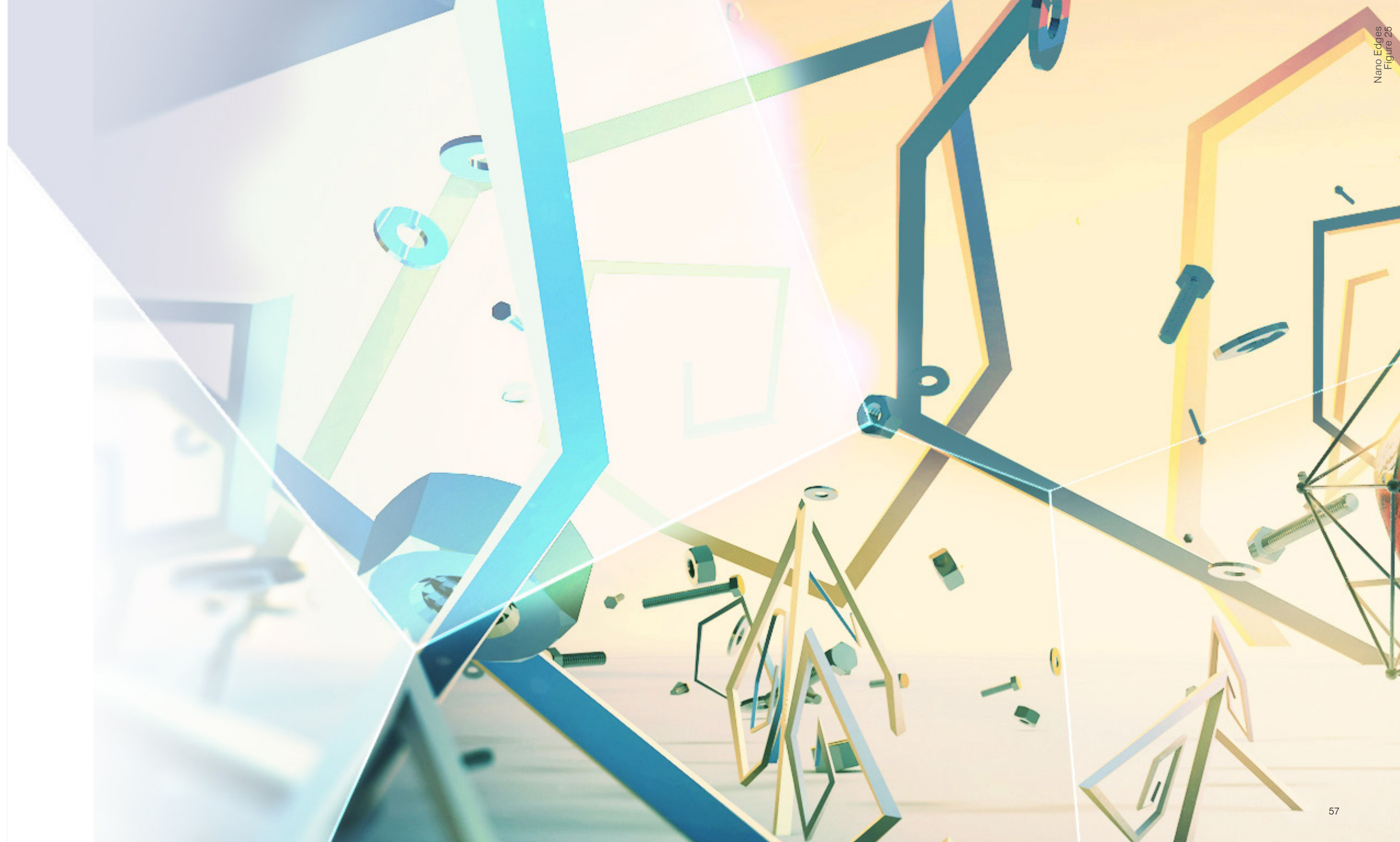
So, the aim is to reconstruct the invisible edge of North Lawndale architecturally into the form of a school. The architecture can take the place of the edge in such a way as to make present Merleau-Ponty's conception of the edge and its power to (in this case) unite separate surfaces of the city. This occurs by drawing students in from either side of the edge to the edge itself, the school. Here, in this safe haven, they are allowed to interact and together engage the intellectual *portos* of learning without being forced to leave the safety of their own urban *costagierre*.

Despite Chicago's supposed financial limitations, a reconsideration and revisitation of the city's educational construct is imperative on the most fundamental level. It is crucial that the system operate effectively. It is crucial for the future of the children that develop within this system. The future of any given place is a derivative of the future of the people in that place, the future of

its children. In crippling an educational system, a place risks crippling its very future.

A solution can be discovered in the development of a school constructed with a respect for the dynamics of the gang activities in the interest of safety, and in a manner that is sustainable in the full sense of the word. A creation that is environmentally sustainable, economically sustainable, and intellectually sustainable is the intended outcome. In this fashion, the architecture can impose a minimal lifetime financial impact while offering a maximal lifetime intellectual impact.

So, by reconstructing the city's gang boundaries, Chicago's invisible edges, into the material form of a new school, a safe and dynamic environment is born allowing students to engage in learning, truly encountering the edges of the mind through ventures into the intellectual *okeanos*.



SUMMARY OF THE THEORETICAL PREMISE

Architecture as an Edge

In essence, this project is an in-depth study of the dramatic way in which edges impact human perception, how they relate to architecture, and the implications they may have upon their social and cultural contexts.

Edges occur throughout the material reality as obstructive forces. This is evident in many forms both in architecture and in the non architectural world. It may be argued that a prime example of an edge is the Great Wall of China. The apparent nature of this edge seems to suggest that it carries out the role of a boundary or a barrier. This seems particularly true given our knowledge of the intentions of its construction. However, this thesis explores a far deeper understanding of edges than this simplified description permits. I will contend that this conception of the edge is merely a partial understanding of the edge.

A second understanding of the edge can be revealed in the workings of a brick layer. Here, edges are seen as unifying agents. They visually join surfaces of separate bricks together forming a singular brick wall. However, this too is an

incomplete understanding of the nature of edges.

In fact, the edge embodies both characteristics. It is an expression both of unity and division. This dual nature of the edge is evident in the edges of even the simplest geometric forms. Edward Casey describes this phenomenon saying, "edges conjoin and they separate. They are at once linked and disjointed. They are factors of fusion as well as fission" (Casey, 2007). And even if we reconsider the so-called obstructive Great Wall of China, we can realize that while it serves to separate nations, it is also clearly a moment of convergence between the nations. Likewise, while the mortar edges between bricks unify the masonry forms into a complete wall, they also distinguish between individual bricks. This is the dual nature of the edge – the edge in its fullest sense according to Merleau-Ponty.

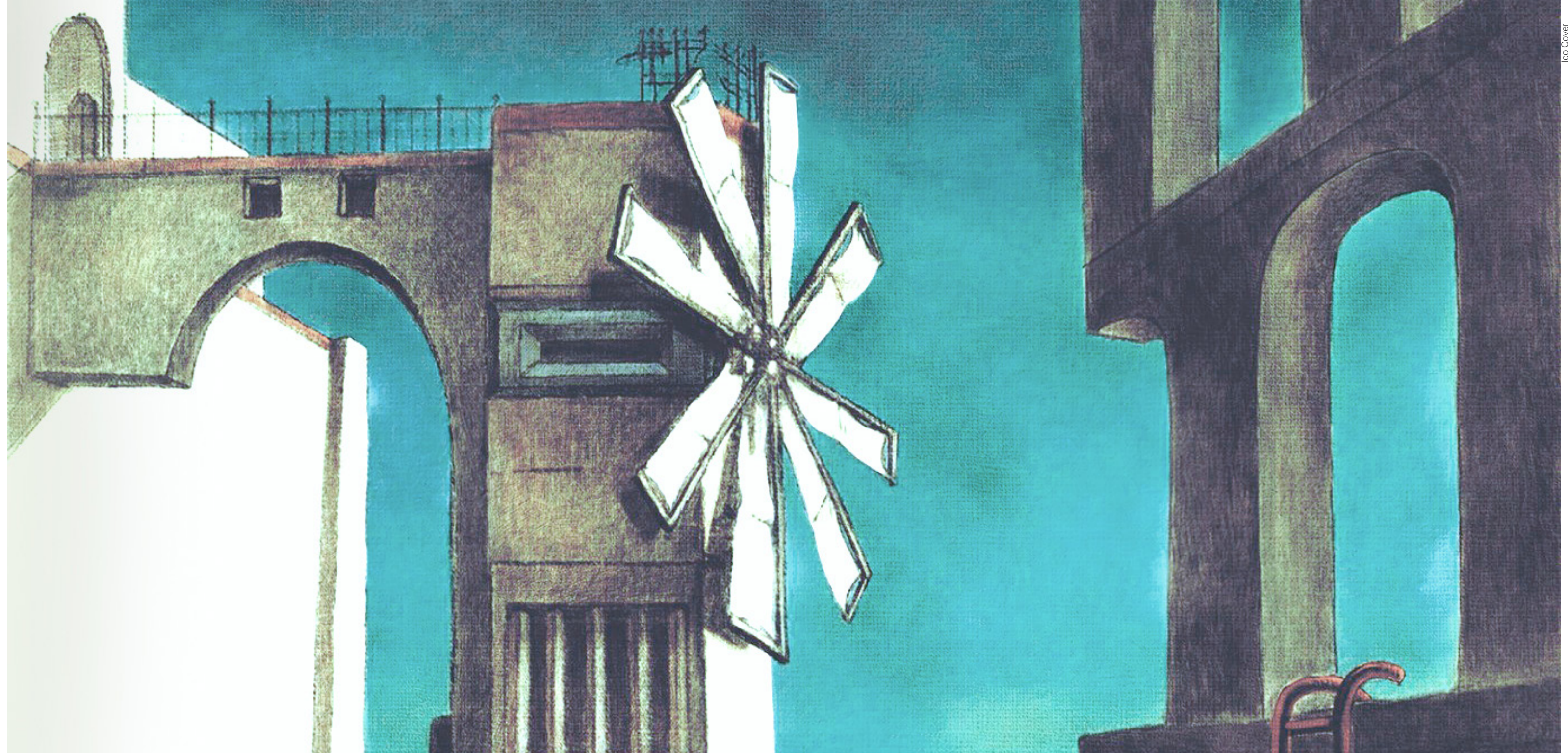
The ancient Greeks were highly aware of the power of edges to provide definition for vision and to direct movements. In fact, they lived a very dramatic relationship with "the edge-world" (Casey, 2007). The *okeanos*, the colossal ocean that encircled the entirety of their known

world, was the greatest edge that confronted them. The *okeanos* is forebodingly described as something "radically indeterminate in extent and composition...a murky undifferentiated welter of elements" (Casey, 2007, p. 154). The fear that the ancient Greeks held for the *okeanos* is conveyed even in their common language. They differentiated their relation to the edge-world while venturing into the edgelessness of sea travel. *Costagierre* was their word defining their comfort zone, meaning within eyesight of the coast or the edge of land. To wander into the *pontos* was to slip into the boundless unknown. *Pontos* translates as "beyond view of the coast's edge." No one dared venture beyond the edge of the *costagierre* into the unknown domain of the *pontos* were the edges that orient their perception become absent.

However, if the Greek relationship to the edge-world is removed from its context, it may be applied to a broad range of alternative scenarios. When reapplied, it can be seen that the concept of *okeanos* may be interpreted as something interchangeable with the idea of familiarity – which is simply the edge between the known and

the unknown (*costagierre* and *pontos*). Given this understanding, the idea may be expanded one step further and applied to the concept of time itself; even this present moment can be regarded as simply the edge where past and future converge (the known and the unknown). Time is a process of constant discovery as we continually discover the edge that is our present moment in time. This process of discovery may even be equated to the act of learning. For what is learning but the process of engaging the edge between known and unknown, essentially an intellectual *okeanos* or an edge of the mind. The trajectory of this logic begins to point this project concept toward a fitting typology.

Considering the implications of an intellectual *okeanos*, it becomes more than reasonable that the typology of a school would be an appropriate architectural solution to the project concept. Specifically, this project takes the form of a small school that explores the problem statement: can a thoughtful composition of edges be arranged so as to enable new encounters within a fragmented community?



HISTORICAL CONTEXT

Edges and Origins

"Once upon a time, so Vitruvius tells us, men lived like animals, taking shelter in woods and caves, and foraging in the fields. One day, in a certain place where the trees were densely crowded, stormy winds caused the branches to rub together, kindling a fire. The people fled in terror, but as the flames subsided they came back and – discovering the advantage of its warmth – threw logs onto the fire to preserve it. They then brought other people, through gestures showing them the benefits of the fire. Although each person at first spoke in his or her own voice, they gradually fixed words as they came across them in their daily routines. Over time, they began to speak in sentences and to hold conversations. In this way the discovery of fire held the origins of deliberative assembly and a life in common." (Chang, 2011)

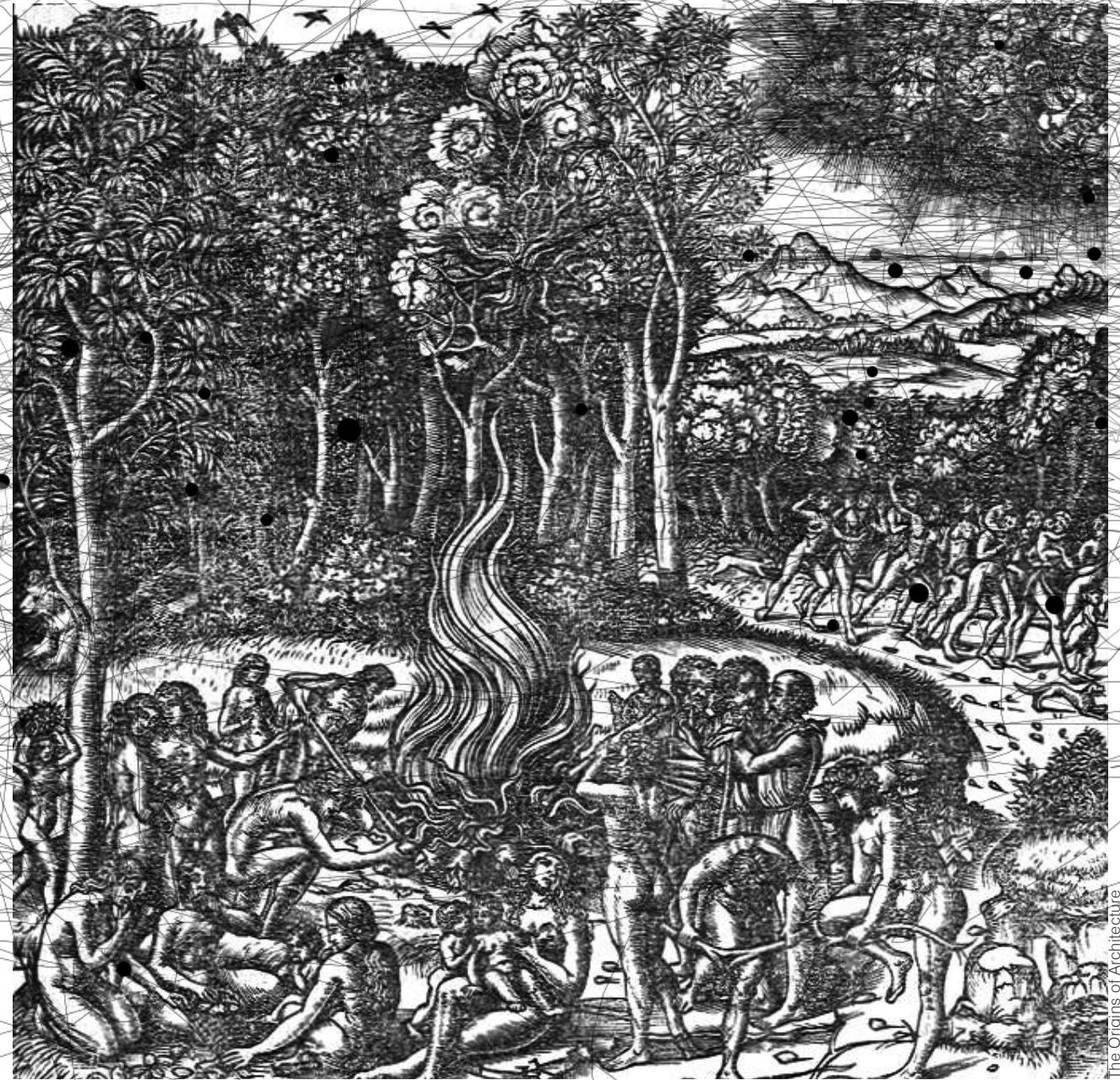
This ancient chronicle of prehistory recounts the most fundamental discovery in the development of humankind. Fire. The unprecedented experiential intensity of this newly uncovered elemental reaction (fire) embodied a power of transformation capable of altering humanity permanently. The occurrence of this phenomenon was fueled by fire's seductive ability to gather and assemble. It's compelling warmth and energetic glow effectively brought a race of individuals together as a single community. Public space was born.

Through the discovery of fire and, consequently, public space, the two primary building blocks of civilization emerged. Language and architecture came into being. As the fire gathered the

people, a space became manifest that naturally promoted communication among those gathered. Communication developed into language. Gathering space developed into architecture. Through the fire, language and architecture were realized. Together, they define civilized humanity.

Originating from a common historical source, language and architecture have paralleled one another from the beginning. Each is a modifier of the other. As the architecture provides a space for language to occur, language provides meaning for the architecture, for without language, without meaning, the architecture could serve little purpose. Merleau-Ponty describes language as "a machine for transporting the 'I' into the other person's perspective" (Merleau-Ponty, 2013). Through the construction of these interpersonal bridges of language, a second act of construction was made possible: that of architecture. Both constructions are decidedly social acts.

Having generated an understanding of the origins of these primal, social acts, it is now possible to begin considering the dynamics of their relationship in an effort to contextualize them within a historical continuum that extends beyond the present. It is recognizable that these social acts have, manifest within them, actively edge-like characteristics in the Merleau-Ponty understanding of the concept. The language and the architecture are each expressions of unity and separation. Just as the space from which I write is comprised of edges, so too is the very object of my writing. As I engage in the act of transporting



The Origins of Architecture
Figure 27

the 'I' of my perspective into the 'you' of the your perspective as a recipient of my language, an edge begins to reveal itself in the form writing. In this way, the architecture of my mind is transferred into the mind of the reader (the conjunctive nature of the edge). Though, the writing itself is the very thing that differentiates between reader and writer, for it only exists through a participation of both distinguishable roles. Without a separation between reader and writer, the written word is nothing (the separative nature of the edge). Thus, we can identify written language as its own form of edge.

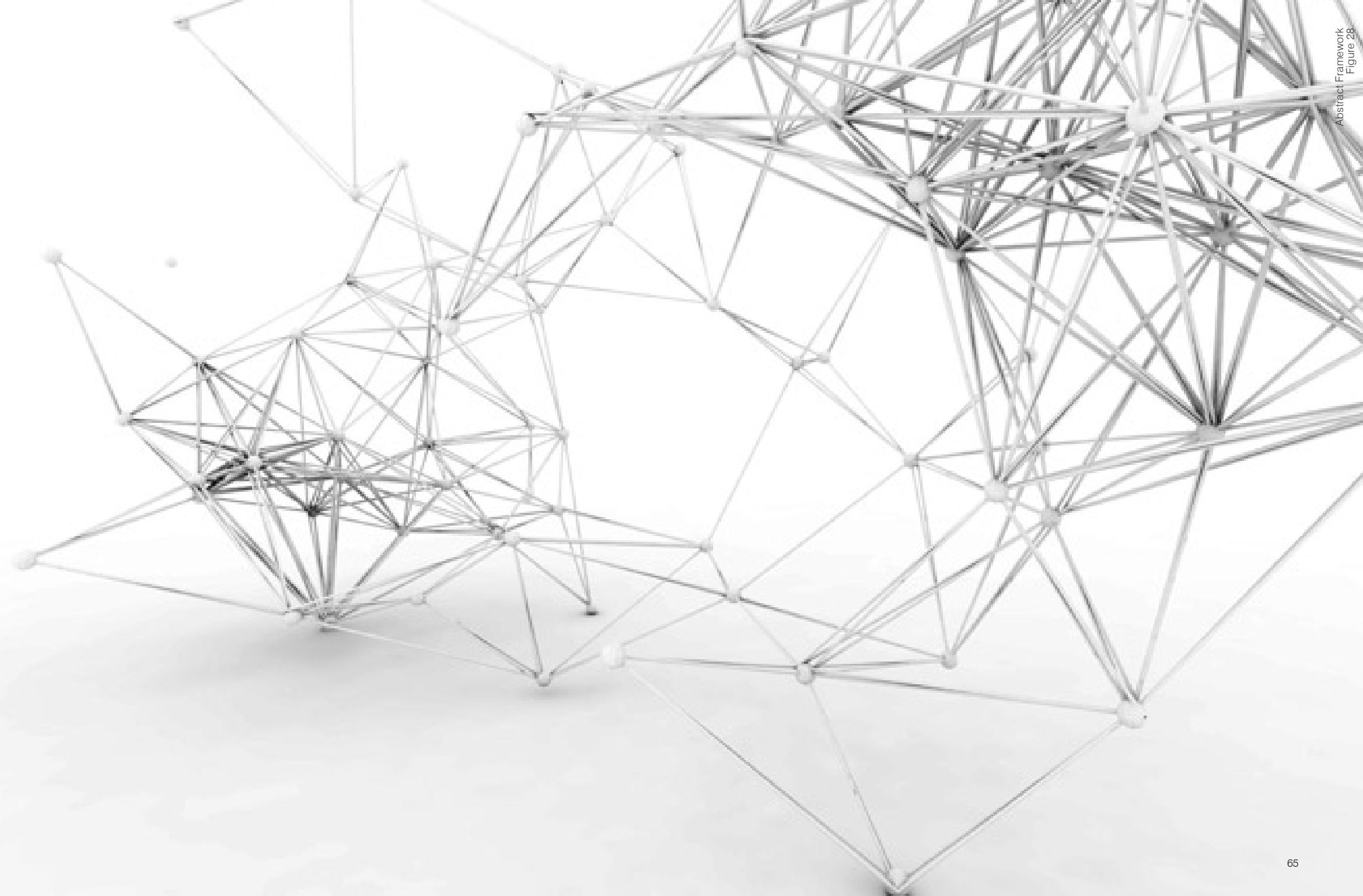
In the same way, spoken language too is an edge – one perceptible aurally rather than visually. Consider a dialog between two individuals. The spoken word populates the space between the people and assumes the role of edge. With Merleau-Ponty's machine at work in verbal display of spoken architecture and expressive edges of exchange, the separate perspectives of the 'I' and the 'you' discover a moment of convergence. As a part of our human nature, we speak. Therefore, edges are formed.

The edges that are formed, though, are only made possible through the ability of language to carry meaning. Without meaning, language would be no more capable of uniting separate minds than is the sound of crashing thunder or the rev of an engine. No edges could occur. But since language has bonded itself permanently with meaning, it can be used to confer the architecture of one mind to another, we become the architects of speech

and writing simply because we are social human creatures.

Interestingly, the physical architecture of the built environment works through a reversal of the same idea. When we consider the relationship between the internal self with the external world, we can recognize that our perception is the edge that exists between the architecture of our minds and the architecture of the physical reality within which we exist. As is the case with language, the edge only finds a bearing on our lived experience when given a context of meaning. Alberto Perez-Gomez describes architecture as "the embodiment of meaning." He continues, "we realize that the architect has indeed become a 'writer'...a narrator of events disclosing 'fictional' modes of dwelling by deconstructing and twisting the language of technology, both in his construction and through his words" (Perez-Gomez, 1994). There exists an architecture of language and a language of architecture. Both are dependent upon meaning. Both are experiential manifestations of edges that define an inter-subjective reality.

The reciprocal entities of language and architecture, reflections of one another, have become the new fire of a developed humanity. As the fire described by Vitruvius was perhaps the first significant edge between people, the first true social act, now architecture and language have become materialized reincarnations of this original social act. They are truly edges, vessels of correspondence uniting the architecture of minds and the language of spaces in such a way as to transfer meaning between and among internal and external realities.



Abstract Framework
Figure 28

HISTORICAL CONTEXT

Evolution of an Urban Environment

Just as edges can be understood as the linear continuum of time that aligns itself with the development of humankind, any particular place may be understood within an historical context of edges. This chronology of place examines the place of North Lawndale, a Chicago community and the urban setting for the architecture of this thesis.

North Lawndale resides in what is currently a part of Chicago's West Side. The community came into being as an urban development only two years prior to the Great Chicago Fire of 1871 (Krist, 2013). The urban region took off shortly thereafter as working class groups began to populate the area and operate its plants and factories. By the turn of the century, North Lawndale matured into an elite community predominately comprised of Chicago's most successful Bohemians and Czechs (Krist, 2013). North Lawndale developed into one of Chicago's most renowned communities in a very short period of time and held its prestige through much of Chicago's lifetime.

By the early 1950's, however, an abrupt period of transformation began to resculpt the foundation of the community. Before the end of the decade, a barrage of corrupt and ruthless real estate marketing operations effectively evacuated the community's wealthy inhabitants, while replacing them almost entirely with less fortunate African Americans from Chicago's south side who could then be unjustly taxed and fined at a significantly higher rate.

Resulting from the abrupt transformation in demographics, thousands of jobs were lost, the micro-economy crumbled and property values tumbled as homes and lawns ceased to be maintained (Lowenstein, 2010). After the fifties had violently pulled North Lawndale under, it eventually resurfaced as nothing more than a slum, a desolate, crippled semblance of its former self. Order was dictated by gangs.

There was a time in Chicago's past in which street gangs actually served as a positive force within the community working together to influence local government. They often motivated community benefitting events and took action to transform the community into a place of opportunity. Today, however, no such benevolent characteristics exist among the streets of North Lawndale.

Over time, the gang structure deteriorated into subdivided drug empires and malicious forces of anarchy and oppression. By the late 1990's, the roamers of the streets all but lost their structure as a whole. Where once there was established an unshakable hierarchy of command from gang to gang capable of high level urban warfare tactics and structured like multi billion dollar business enterprises (which they were), now true disarray fell into place as respect for authority within gangs was lost. The chain of command was broken. The gangs split and fractured many times over until all that was left (and all that remains today) are violent street bands that certainly continue to pose a threat to common safety but no longer maintain a status as any large-scale underground street societies.



As the chronicle of this urban history arrives upon the present, North Lawndale discovers its identity a passionately hopeful community. Though, still one whose rocky past still haunts the face of its present state.

The architecture here is a visual testimony to these hard times as it reveals an abuse like no other. Abandoned buildings and vacant lots mark the community. Many structures that remain habitable are only barely so, as they continue to suffer from the same lack of care and maintenance that

resulted from the events of the 1950's.

However, the hopeful determination and pride in the North Lawndale community is equally present in the hearts of the people that live there and is evidenced in the homes that have been restored to their original state and by a few entirely new structures that have come into being within the community recently. Despite the continued adversity and unwelcome gang presence, there is a clear longing to rediscover the success of North Lawndale's earlier years.





A NARRATIVE OF SITE PERSONALITY

Qualitative Components of an Urban Community

A narrative recount of a place so historically significant as the North Lawndale community in Chicago must begin with the unfolding of its history. The present state of any community is a result of the transpiration of events from its birth as an inhabited place. Those events influence the present and will continue to have their leverage in the development of circumstances as time progresses.

From the pride of accomplishment and success, to the pain of loss and corruption, each memory of North Lawndale's past is projected onto the physical image of the community and the lives of those who live there.

The residue of time and the evidence of its milestones are incredibly present from the site that is to host the architecture of this thesis. The extended median of Douglas Boulevard that splits through the center of North Lawndale is fronted by tributes to its past in the form of architecture.

Many buildings seem to suggest a regality of long-past success in their bold stone materiality, although all pride is lost by their landscape as the unruly tangles of untamed nature creep into their cores. Some though, maintain their poise even through the struggles of time, standing proudly among their less fortunate

architectural counterparts saddened, though, by the circumstances of their comrades. An abundance of abandonment plagues the Boulevard. Many structures appear long deserted, left with no intentions of disposal; only weathering and neglect inhabit them now. Intermittent sunlight slowly fades their facades. Winds commonly following the boulevard pay no heed to their existence.

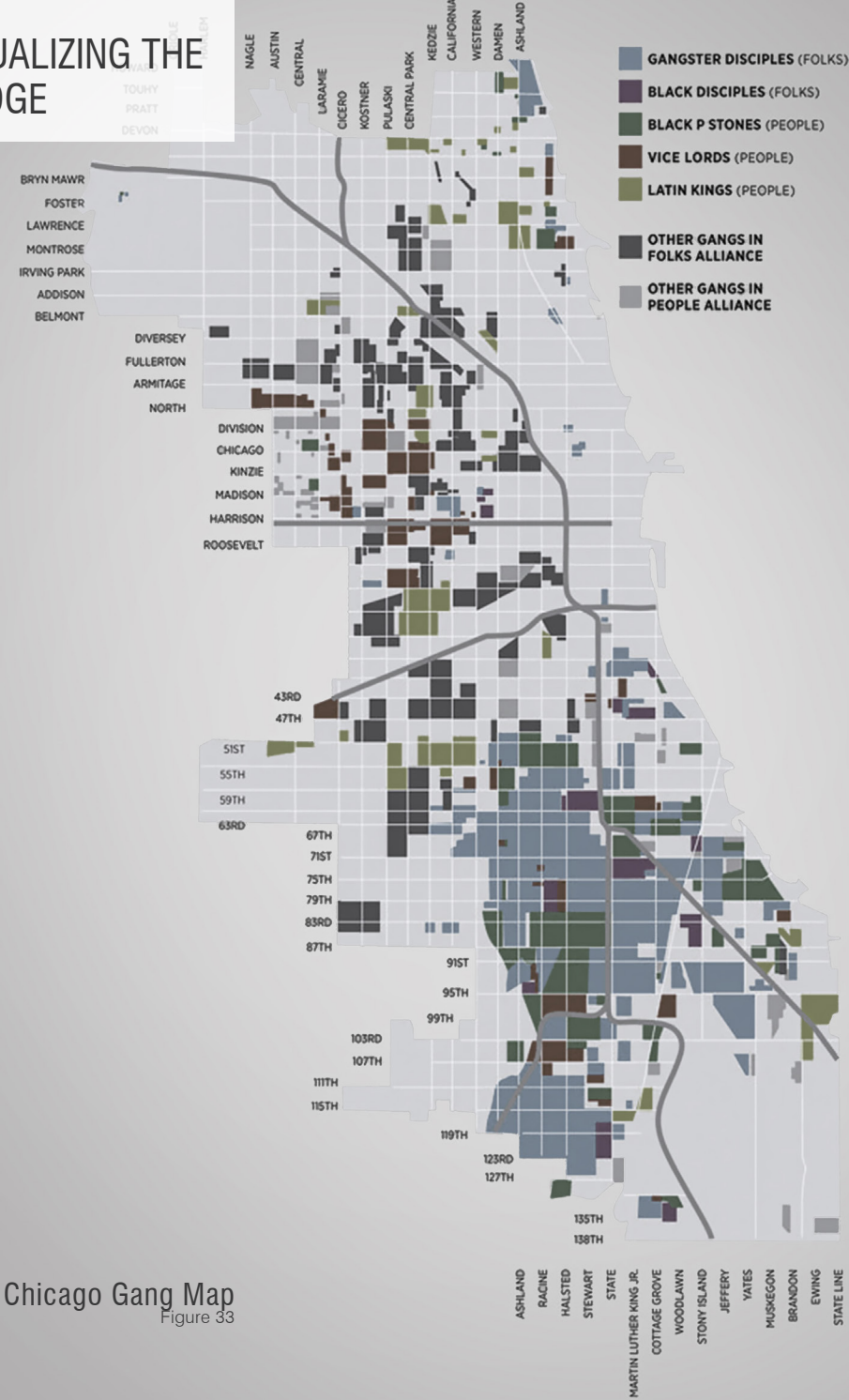
However, a subtle stir of revival seems to have found its way to this weary heart of North Lawndale. Few, yet noticeable, new buildings have emerged along this aortic Boulevard. The timidity of their physical appearance seems to imply a fear of suffering the same neglect that their neighbors have undergone, though their very existence much more strongly evokes a hint of hope.

The endurance and perseverance of hope and pride in the North Lawndale community offers it a sense of simple beauty not articulated in its physical appearance. Despite the hardships and continued affliction of gang violence, there is a desire for the community to rediscover the prosperity of its youth. A tangible realization of this desire is fully merited not only by the vibrance and prosperity of its distant past but also by the steadfast hopefulness of those that



logographic Site Photo
Figure 32

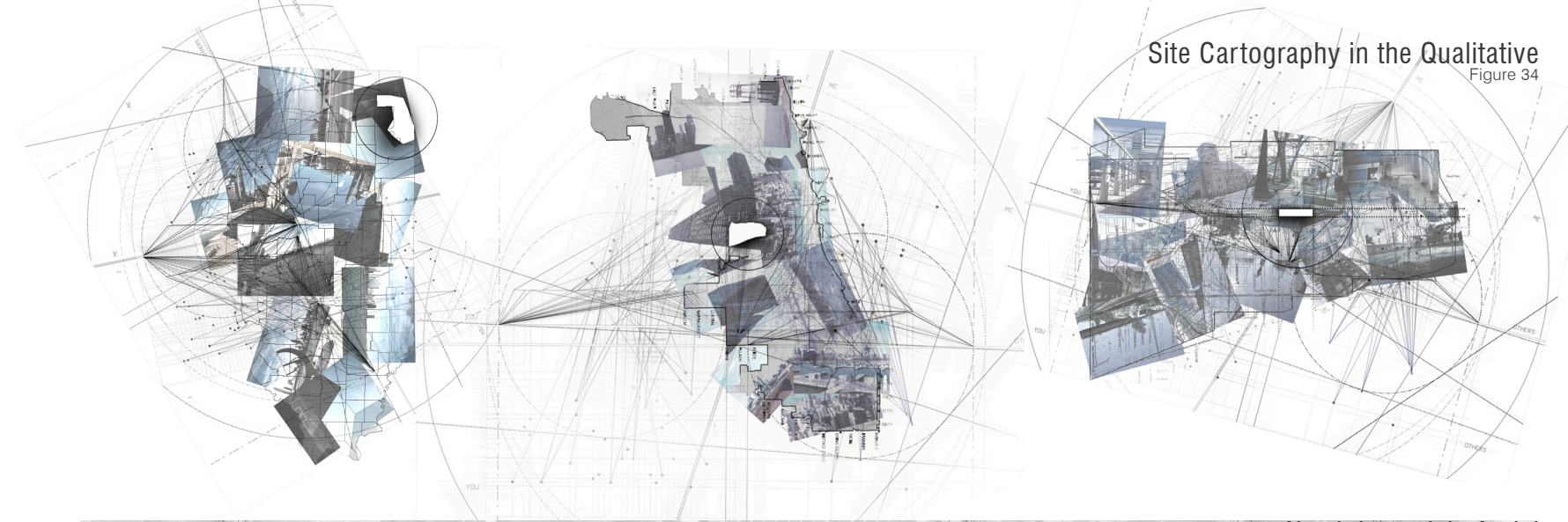
CONTEXTUALIZING THE URBAN EDGE



Chicago Gang Map
Figure 33

Site Cartography in the Qualitative

Figure 34



North Lawndale Aerial

Figure 35



NORTH LAWDALE'S EDGE CONDITION

This aerial image depicts the scene of North Lawndale's edge condition. Four lanes of Douglas Boulevard traffic and a 100 foot green median divide North Lawndale's Vice Lords from its Gangster Disciples. This edge that so definitively severs its community in two is the specific site for this thesis.





Photogrid 1



Photogrid 4



Photogrid 2



Photogrid 5



Photogrid 3



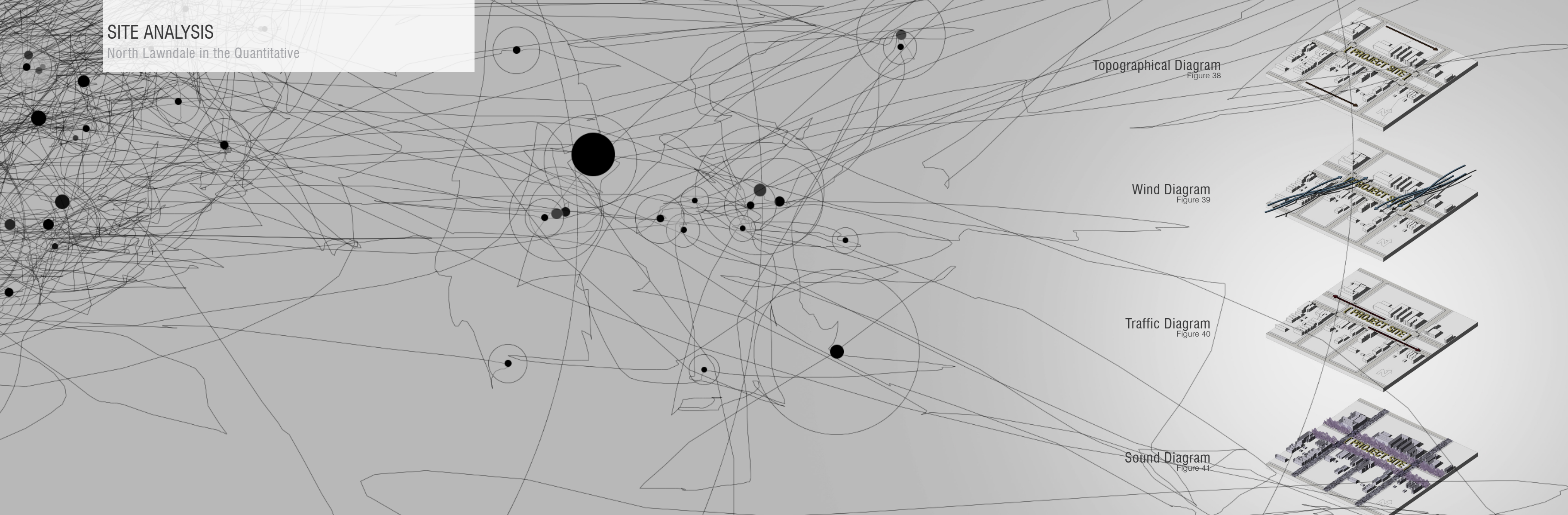
Photogrid 6

Photogrid of Site Characteristics

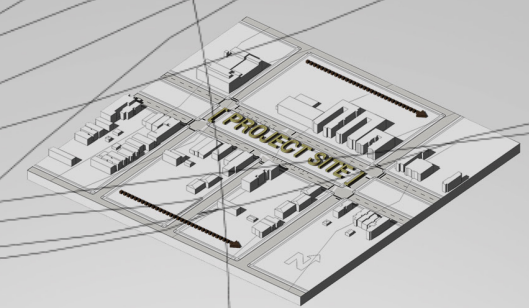
Figure 37

SITE ANALYSIS

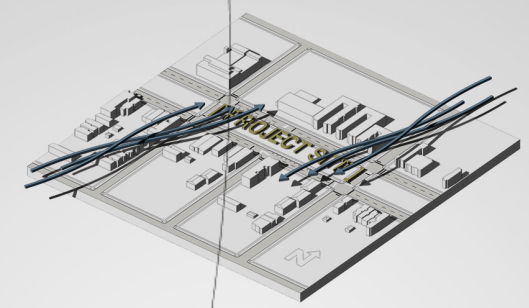
North Lawndale in the Quantitative



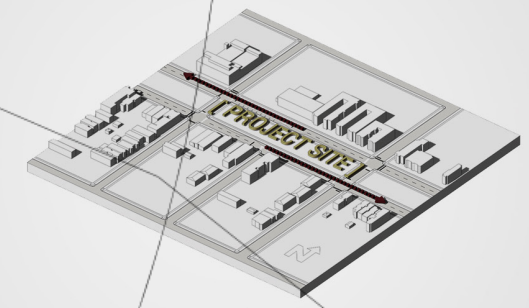
Topographical Diagram
Figure 38



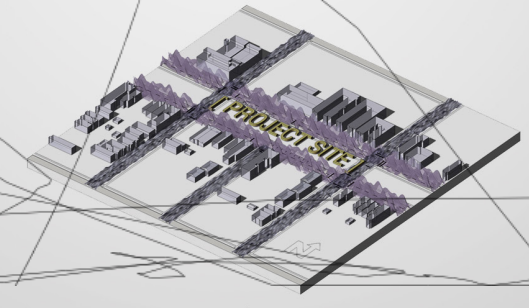
Wind Diagram
Figure 39



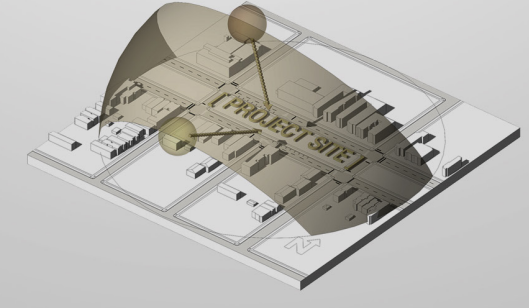
Traffic Diagram
Figure 40



Sound Diagram
Figure 41



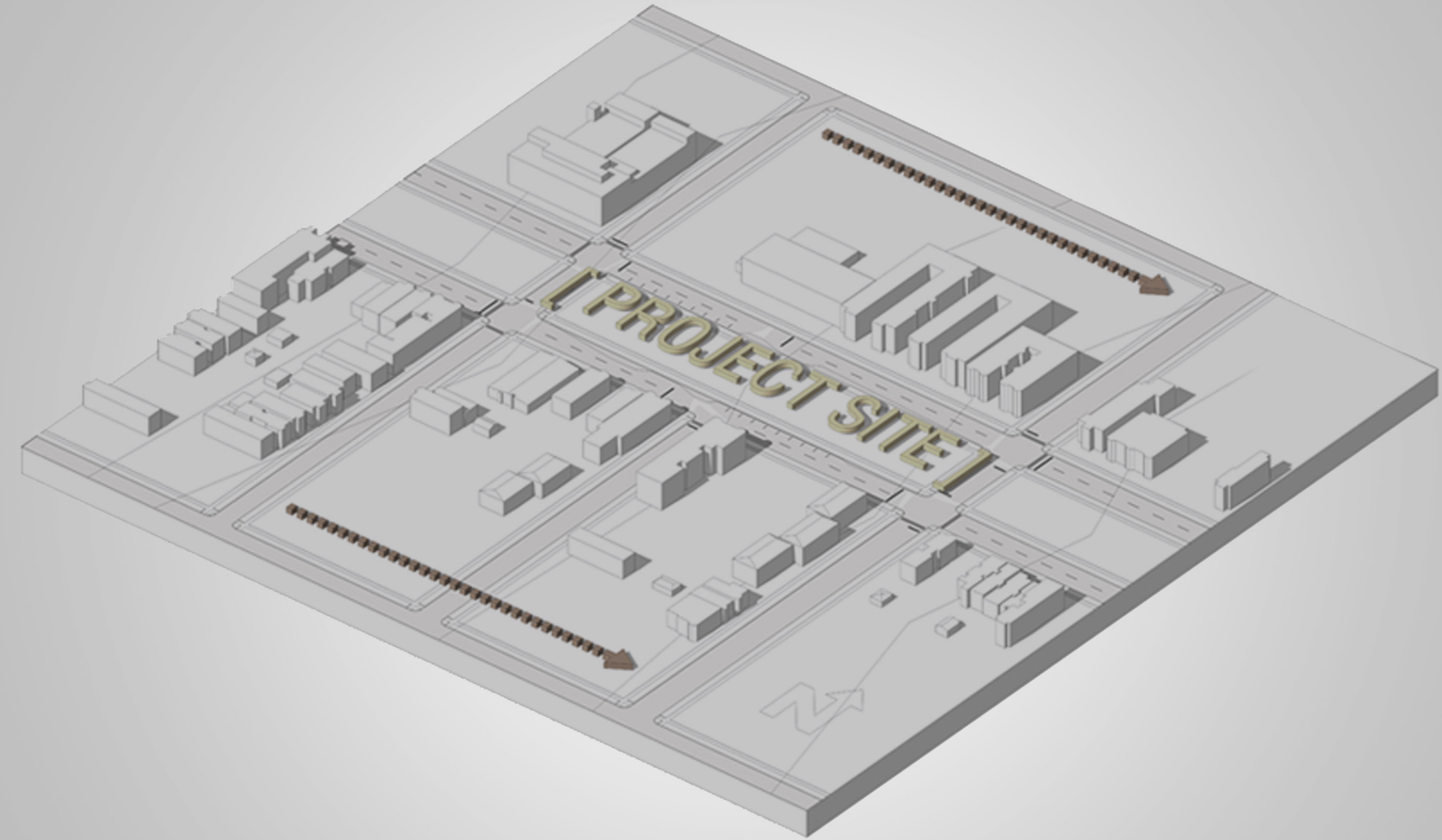
Sun Diagram
Figure 42



SITE ANALYSIS

Topography

The topographical characteristics of the central region of North Lawndale can be described as consistent and predictable. Very subtle variance occurs. In general, the land slopes slightly downward to the East. Overall, the area is quite level.

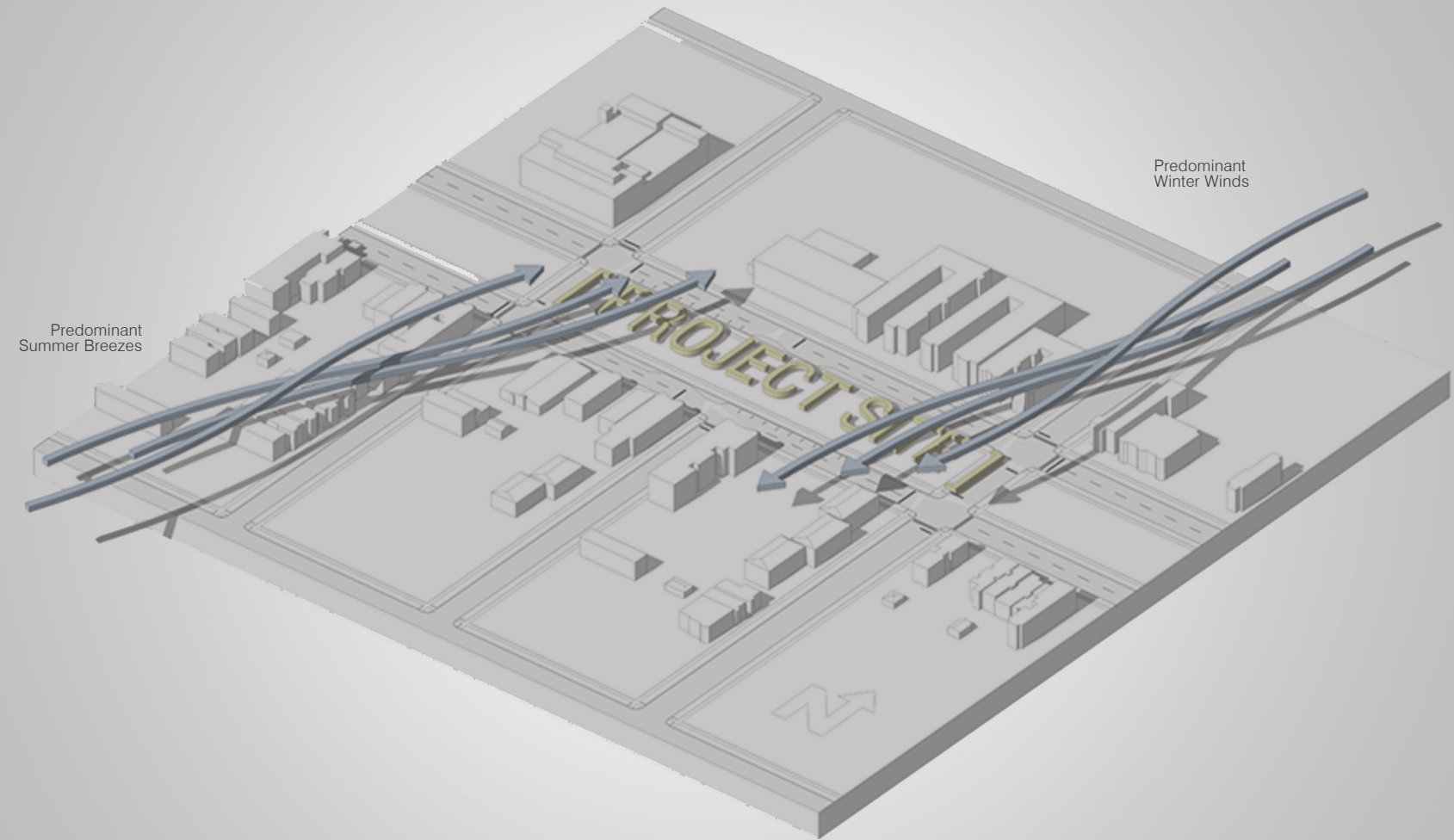


Topographical Diagram
Figure 38

SITE ANALYSIS

Wind

The microclimate throughout North Lawndale offers reasonably predictable wind conditions. Comparatively, this is a windier location than many U.S. Cities. Significant winds throughout the colder months of the year come from the North. Occasionally, these wind patterns also follow Douglas Boulevard moving Westward. Throughout the warmer months, North Lawndale receives prevailing breezes coming from the South. Eastward breezes also grace the area with their cooling effects on occasion in the summertime.

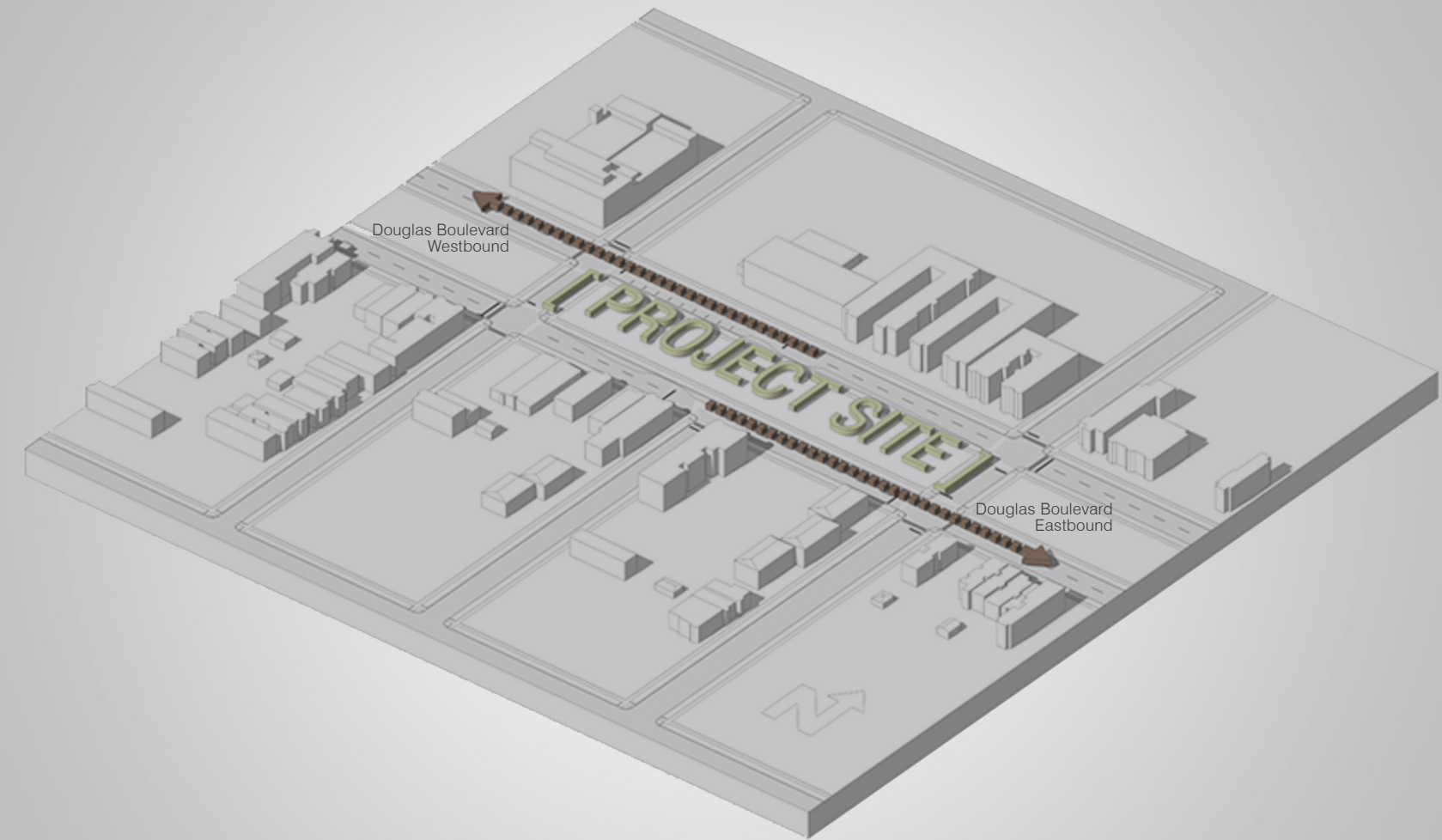


Wind Diagram
Figure 39

SITE ANALYSIS

Traffic

The flow of traffic is an important consideration specifically for this site. It is important to note that the project site rests between the lanes of Douglas Boulevard, directly along North Lawndale's urban edge condition. Douglas boulevard is comprised of two eastbound lanes, two westbound lanes, each bordered by two parallel parking lanes, and, finally, an extended median. The median is 100 feet in width and currently consists of under used green space. This will serve as the host for the architecture of this thesis project.

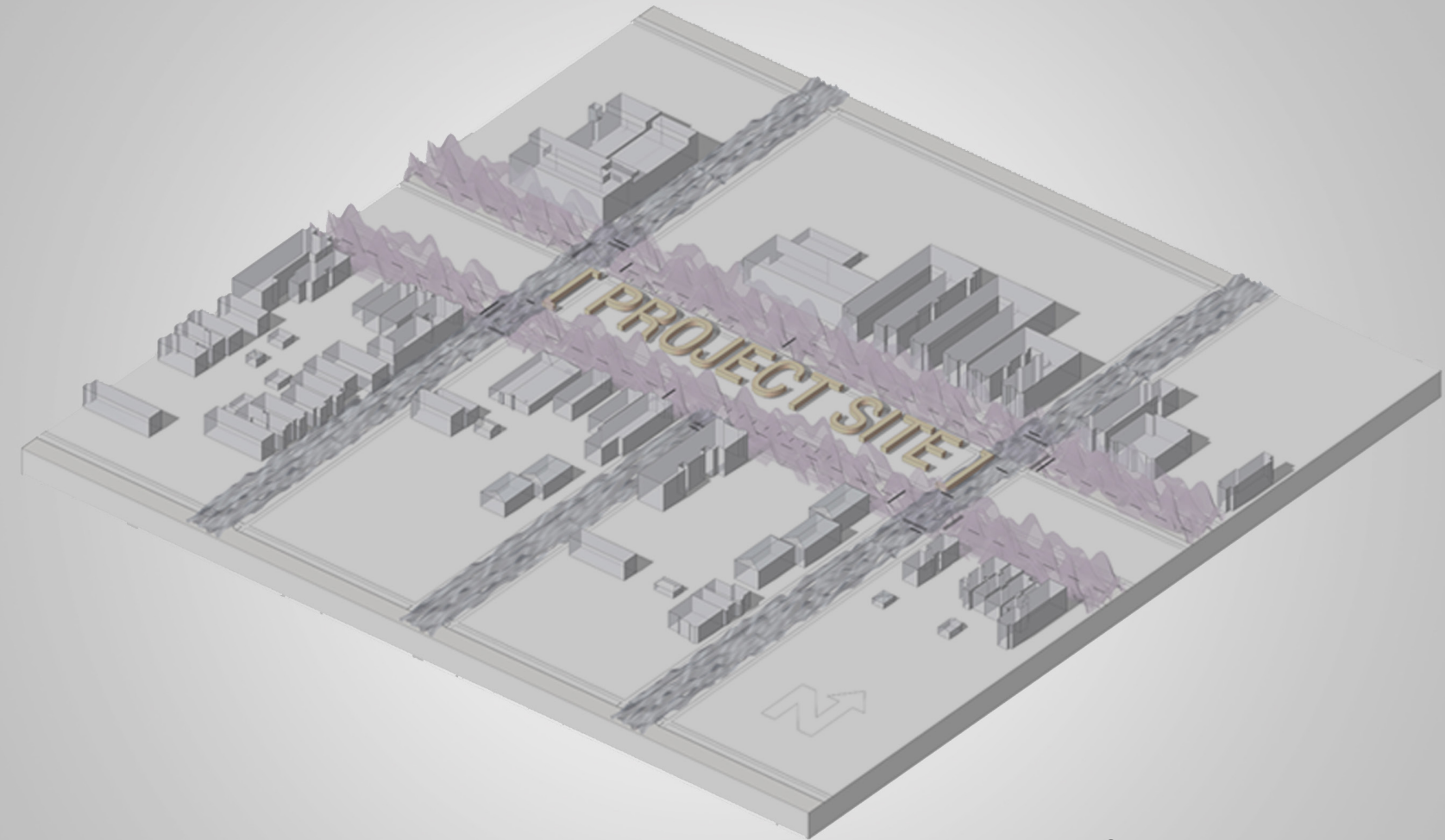


Traffic Diagram
Figure 40

SITE ANALYSIS

Sound

Major sources of noise to be addressed by this project primarily emanate from the four lanes of Douglas Boulevard traffic. Levels of sound generated by this source typically fluctuate in the neighborhood of 70dB. These levels decline noticeably during the nighttime. Intermittent noise is also generated by the less heavily traversed streets in the neighborhood. Buildings surrounding the site are predominantly residential buildings and have little impact on the site in terms of noise.

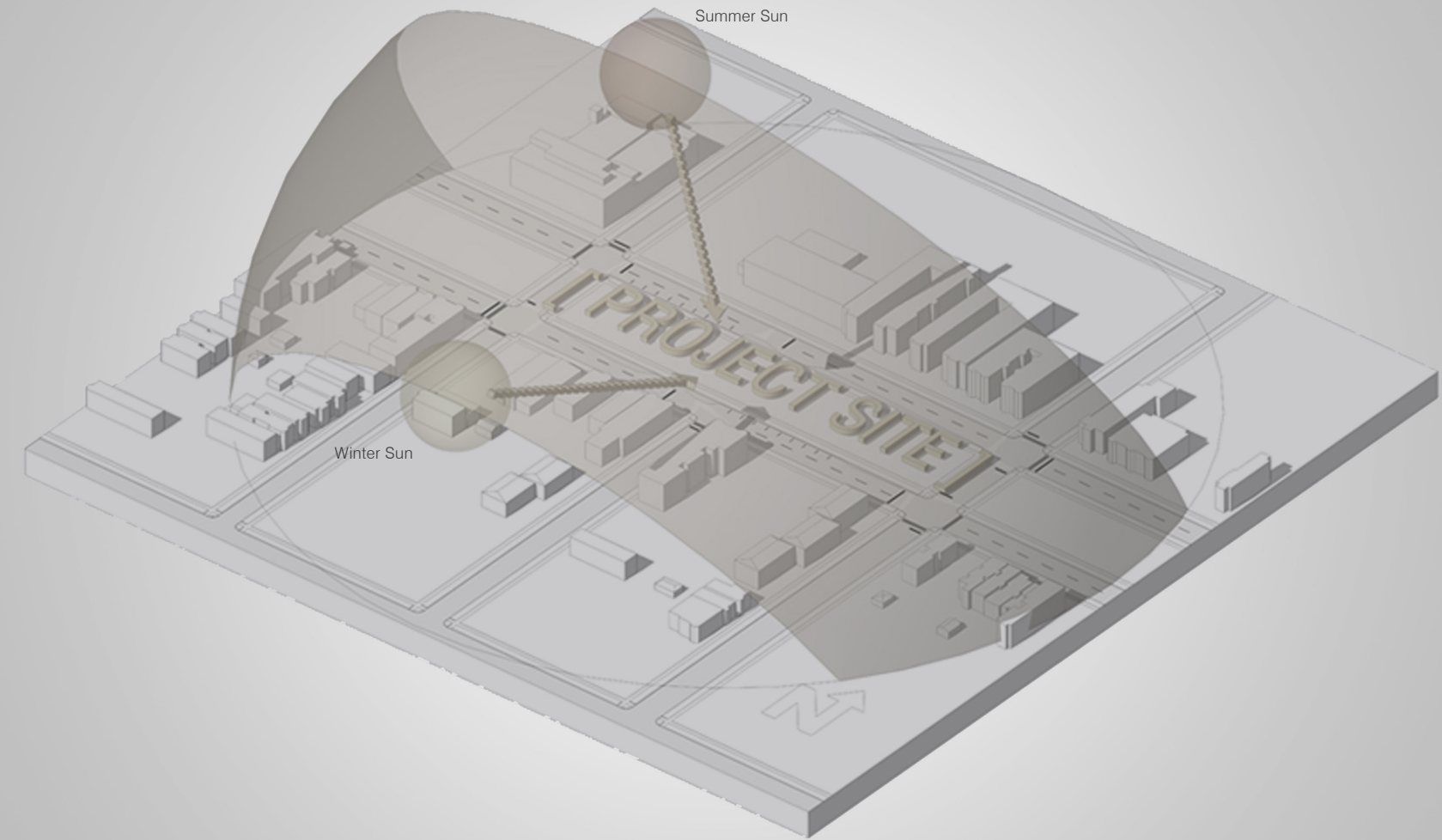


Sound Diagram
Figure 41

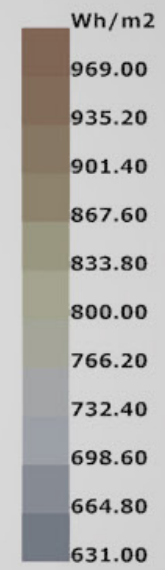
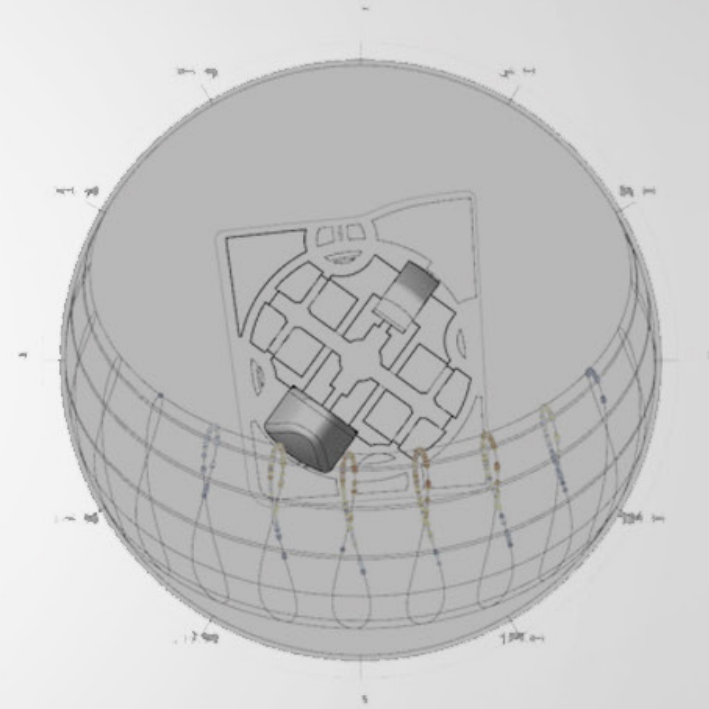
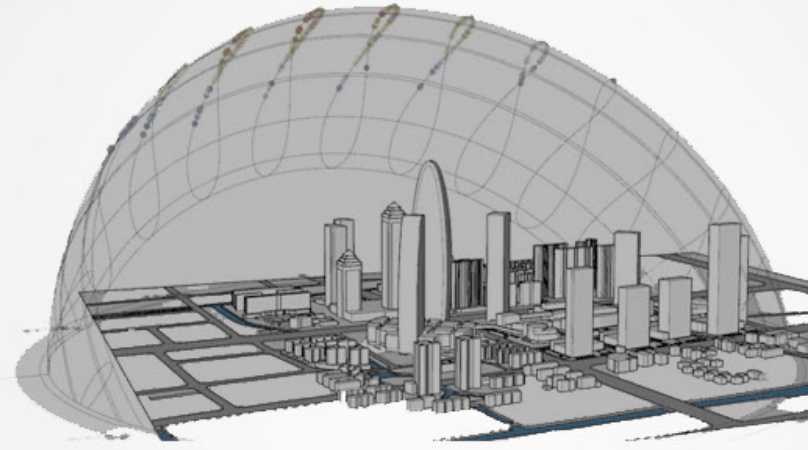
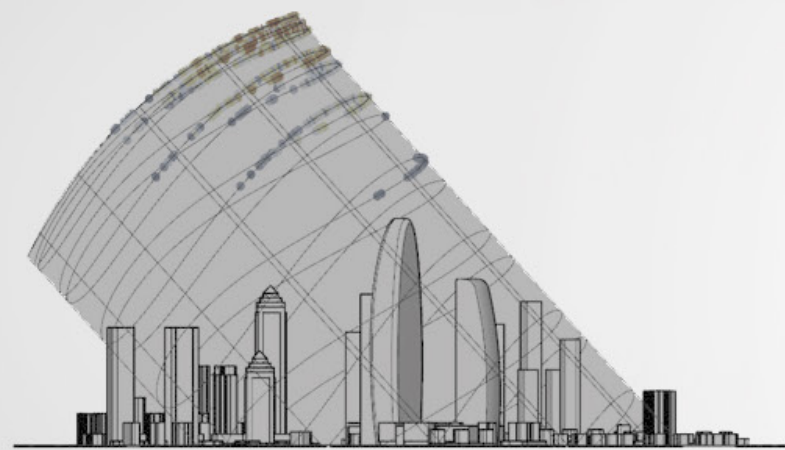
SITE ANALYSIS

Sun

Chicago experience significantly higher levels of cloud cover compared to other U.S. Cities making it less than ideal for generating solar energy. However, small amounts of solar energy may still be generated to the advantage of the architecture. Solar gain remains a significant consideration for the project as well as the potential daylighting of interior spaces. Sun angles range from a December elevation of 24.69 degrees to a June elevation of 71.52 degrees.



Sun Diagram
Figure 42



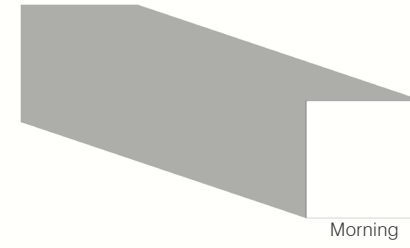
Solar Path
Figure 43

SHADOW ANALYSIS



Shade and Shadow
Figure 44

March

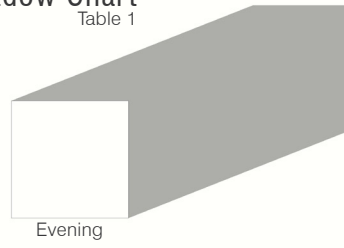


Morning



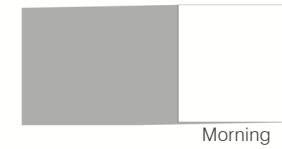
Afternoon

Shadow Chart Table 1



Evening

June



Morning

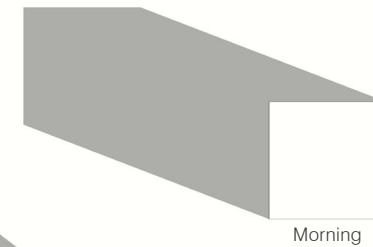


Afternoon



Evening

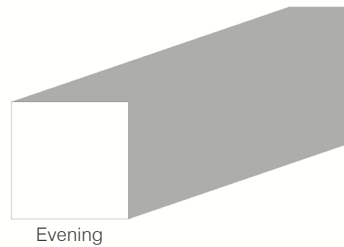
September



Morning

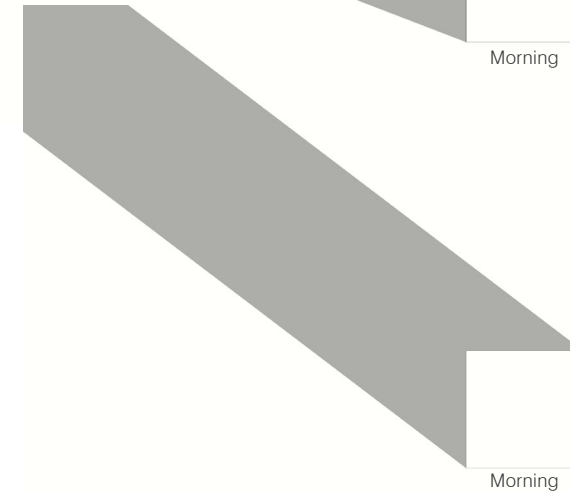


Afternoon



Evening

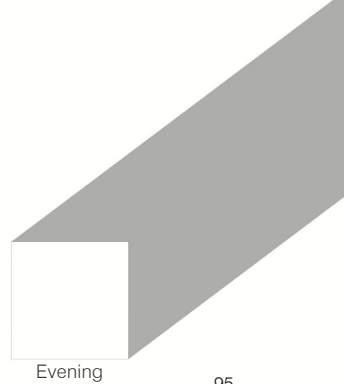
December



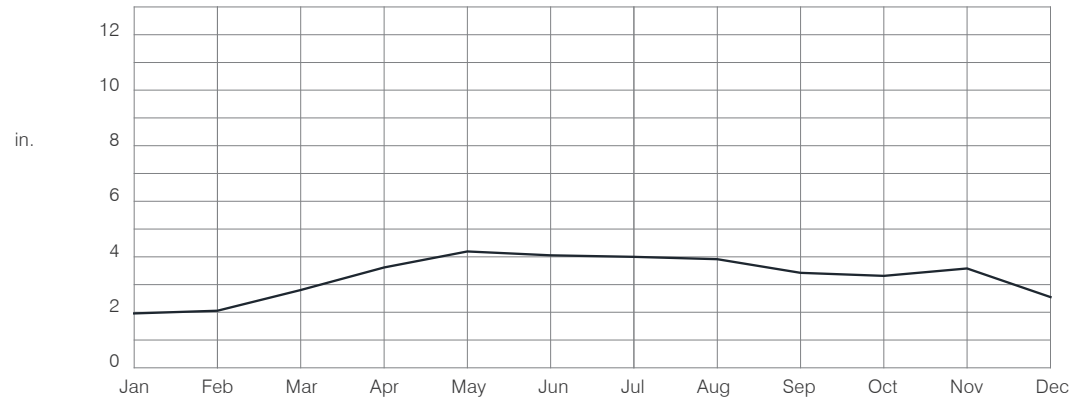
Morning



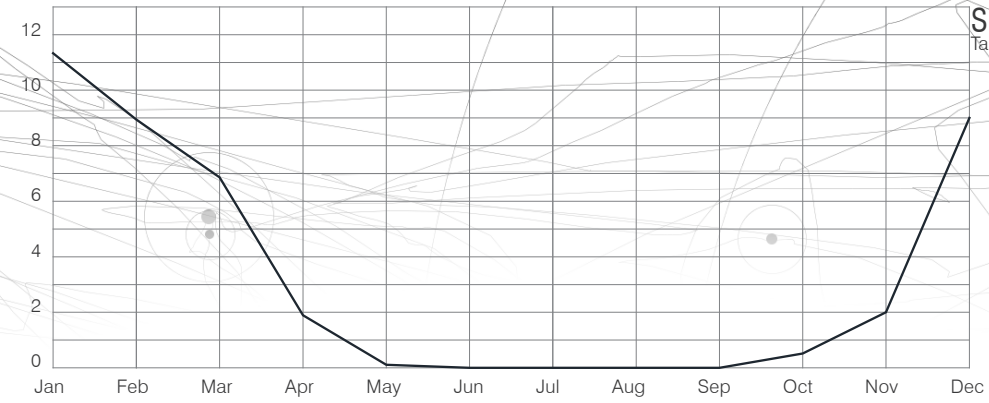
Afternoon



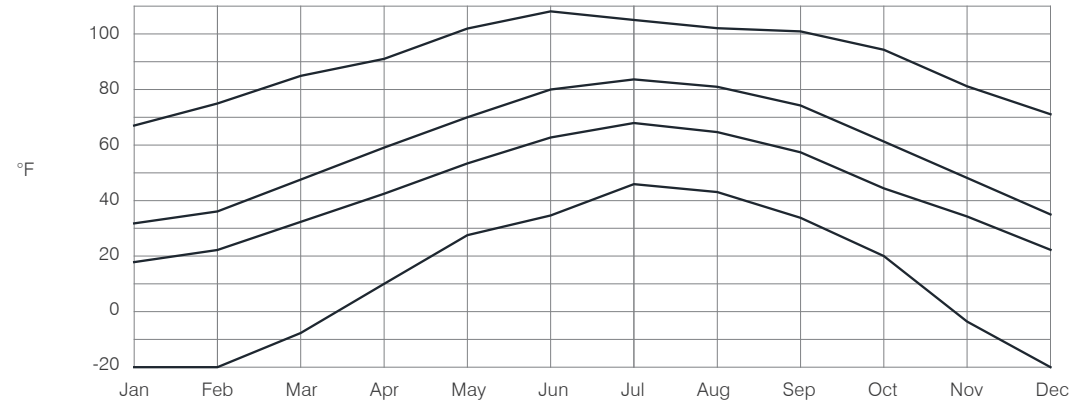
Evening



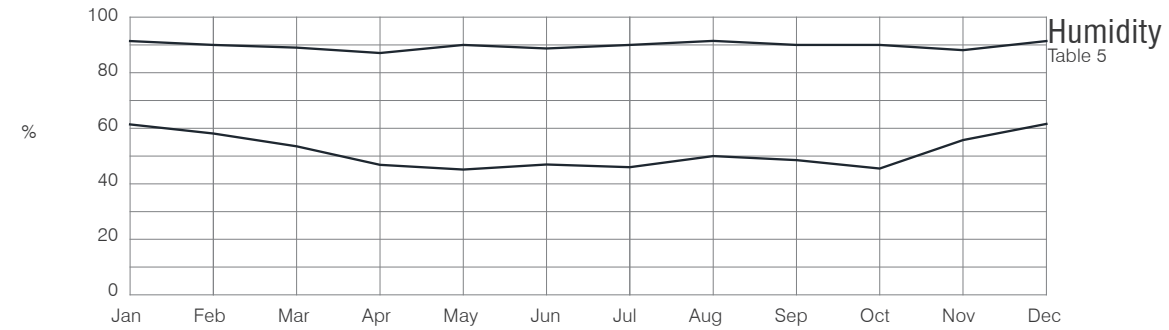
Precipitation
Table 2



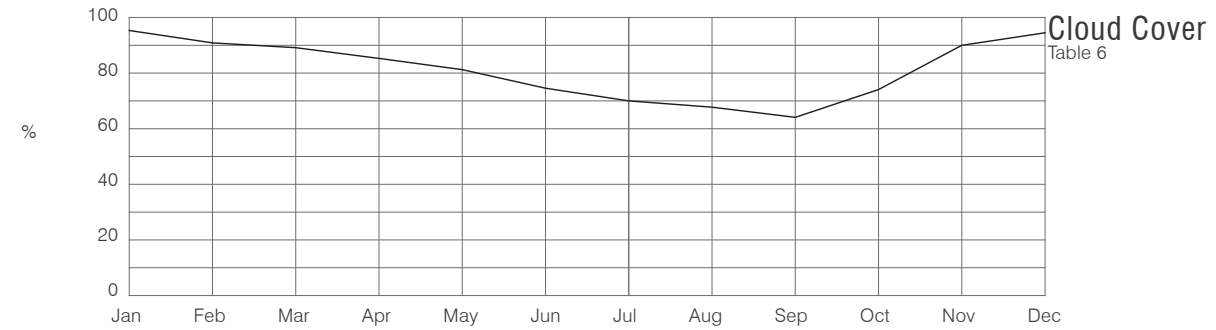
Snowfall
Table 4



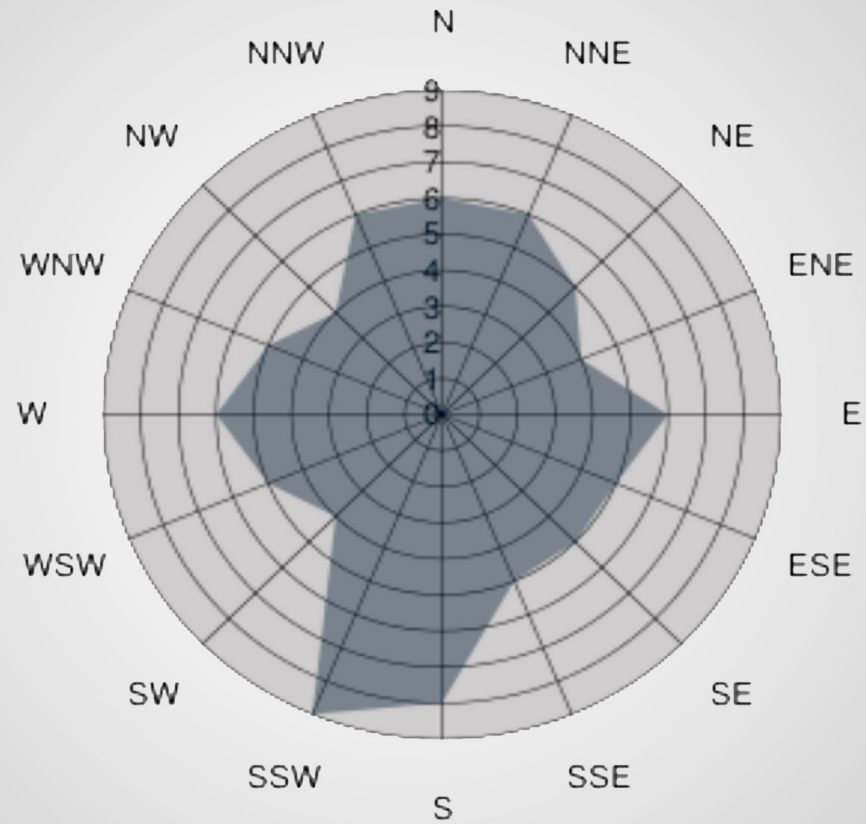
Temperature
Table 3



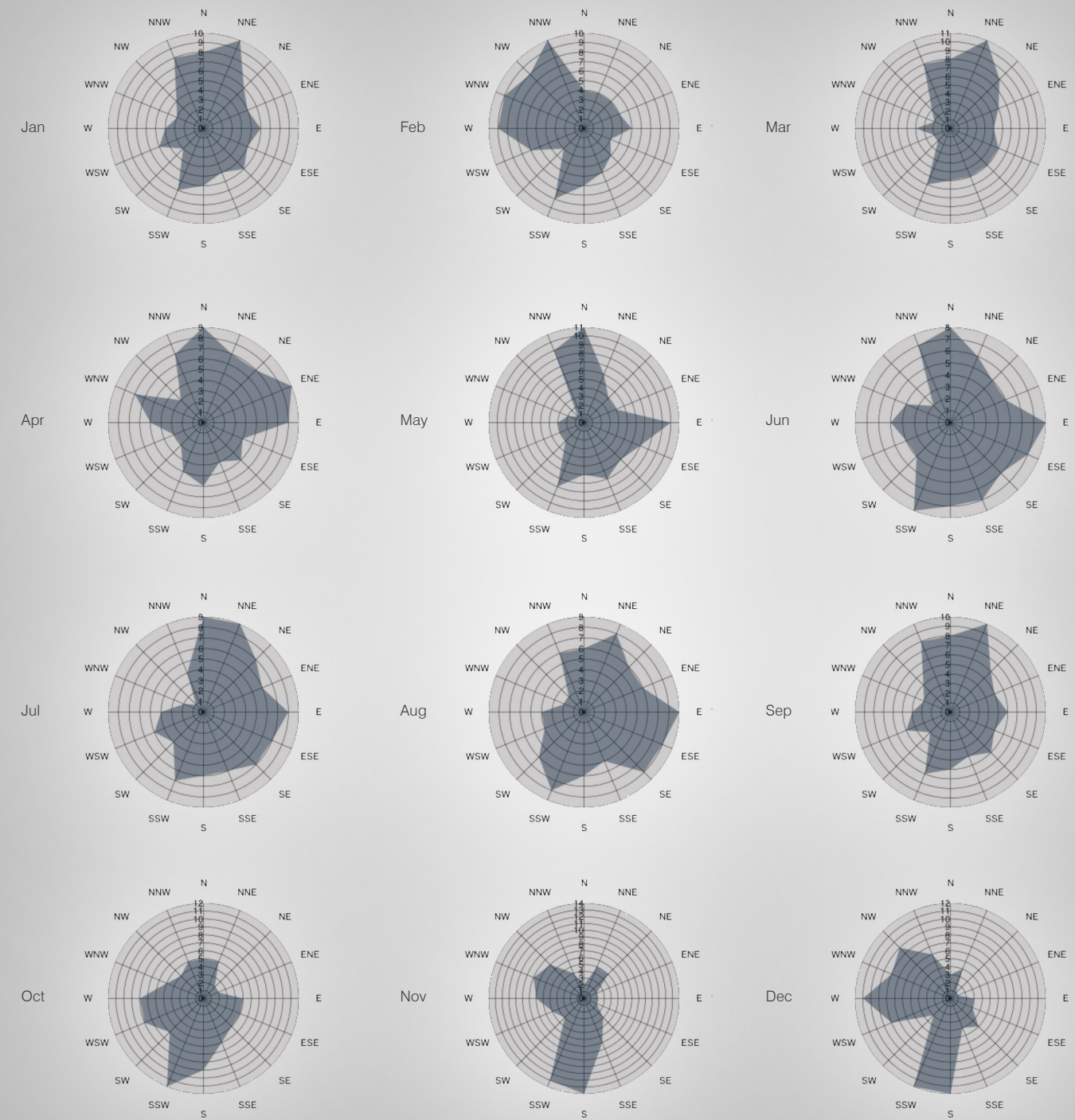
Humidity
Table 5



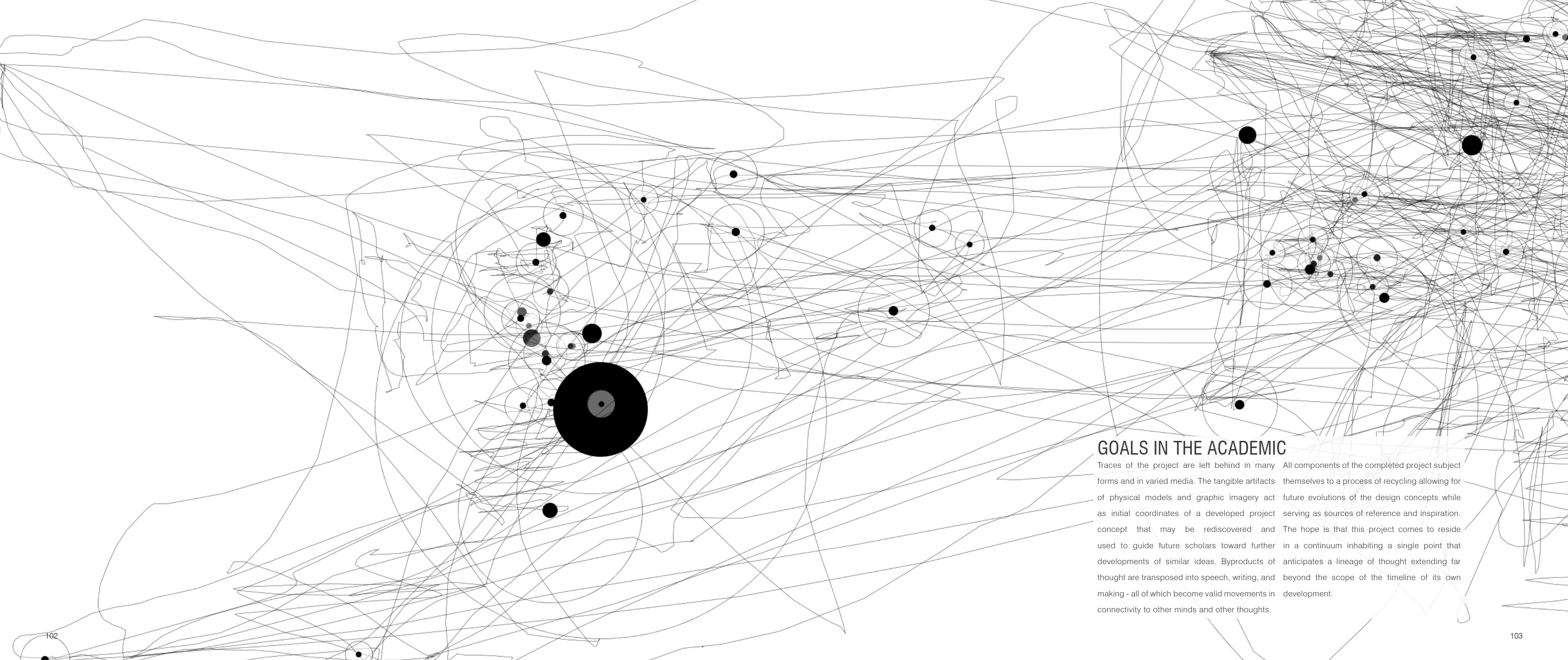
Cloud Cover
Table 6



Annual Wind Distribution
Table 7



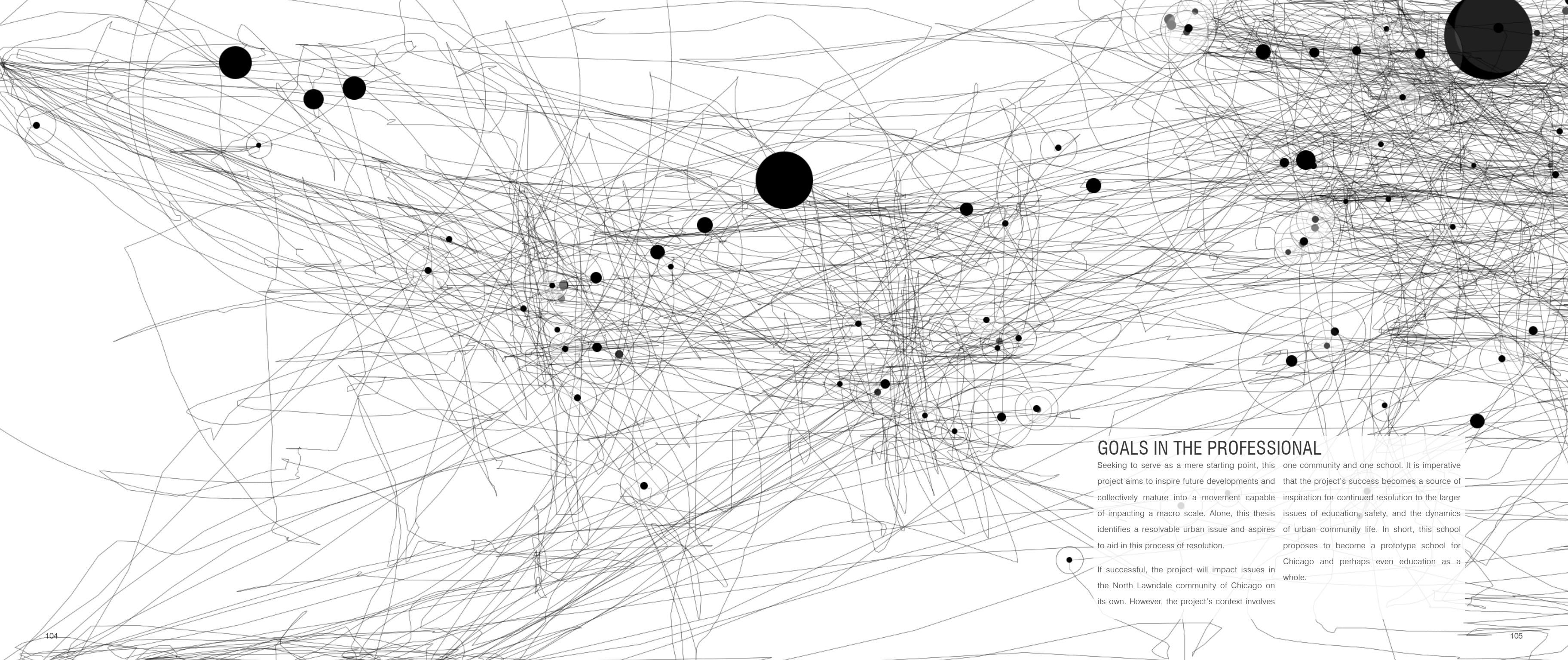
Monthly Wind Distribution
Table 8



GOALS IN THE ACADEMIC

Traces of the project are left behind in many forms and in varied media. The tangible artifacts of physical models and graphic imagery act as initial coordinates of a developed project concept that may be rediscovered and used to guide future scholars toward further developments of similar ideas. Byproducts of thought are transposed into speech, writing, and making - all of which become valid movements in connectivity to other minds and other thoughts.

All components of the completed project subject themselves to a process of recycling allowing for future evolutions of the design concepts while serving as sources of reference and inspiration. The hope is that this project comes to reside in a continuum inhabiting a single point that anticipates a lineage of thought extending far beyond the scope of the timeline of its own development.

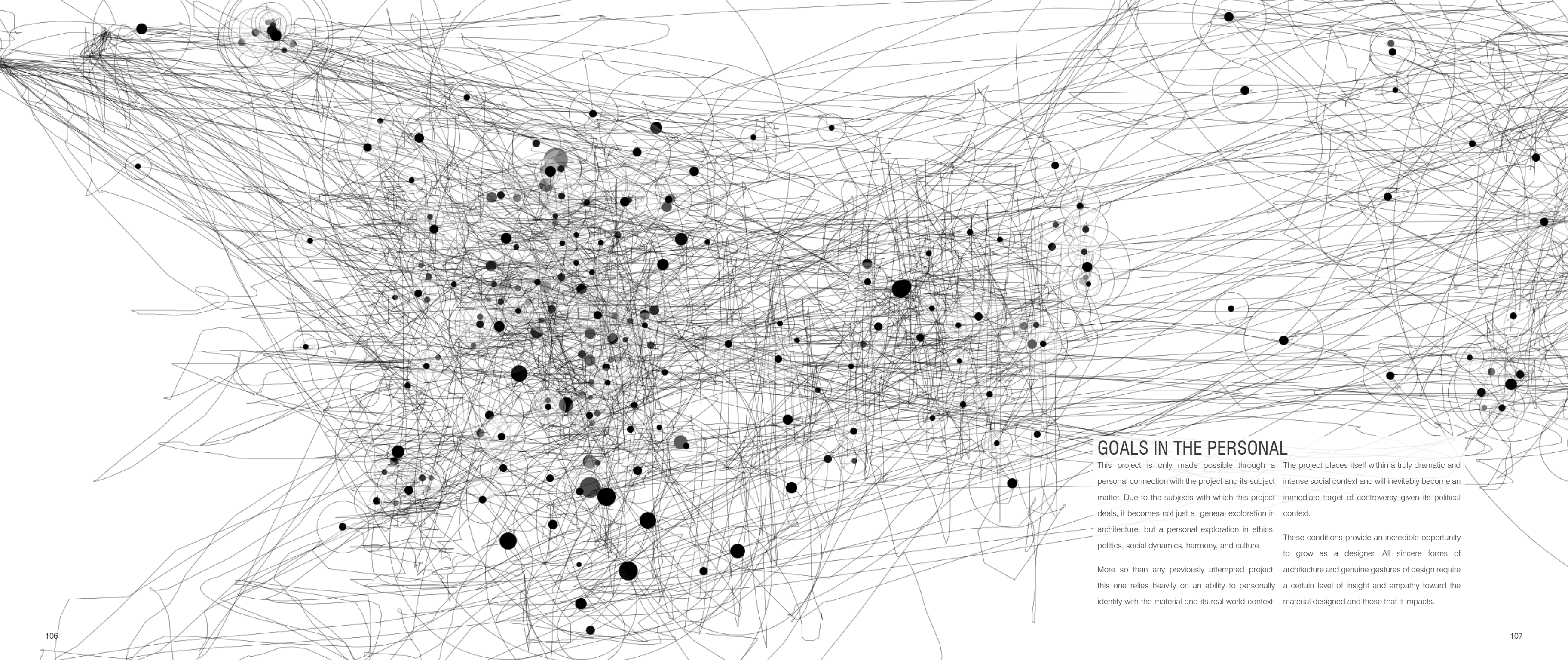


GOALS IN THE PROFESSIONAL

Seeking to serve as a mere starting point, this project aims to inspire future developments and collectively mature into a movement capable of impacting a macro scale. Alone, this thesis identifies a resolvable urban issue and aspires to aid in this process of resolution.

If successful, the project will impact issues in the North Lawndale community of Chicago on its own. However, the project's context involves

one community and one school. It is imperative that the project's success becomes a source of inspiration for continued resolution to the larger issues of education, safety, and the dynamics of urban community life. In short, this school proposes to become a prototype school for Chicago and perhaps even education as a whole.



GOALS IN THE PERSONAL

This project is only made possible through a personal connection with the project and its subject matter. Due to the subjects with which this project deals, it becomes not just a general exploration in architecture, but a personal exploration in ethics, politics, social dynamics, harmony, and culture.

More so than any previously attempted project, this one relies heavily on an ability to personally identify with the material and its real world context.

The project places itself within a truly dramatic and intense social context and will inevitably become an immediate target of controversy given its political context.

These conditions provide an incredible opportunity to grow as a designer. All sincere forms of architecture and genuine gestures of design require a certain level of insight and empathy toward the material designed and those that it impacts.

TYPOLOGICAL RESEARCH



DALIAN SCHOOL

Dalian, China

The Dalian School in Dalian, China is an elementary school and was constructed in 2010. It is scaled generously to fit nine classroom spaces inspired by the most successful kindergarten designs originating from North America. The architecture is set apart from most other cases within its typology through its formal elegance which specifically serves to categorize certain regions of knowledge by visually pronouncing distinguished spaces in the architectural form. This arrangement allows for a sort of navigation that caters to the young mind while allowing for effective and practical integration of separate spaces while keeping intact significant spatial adjacencies.

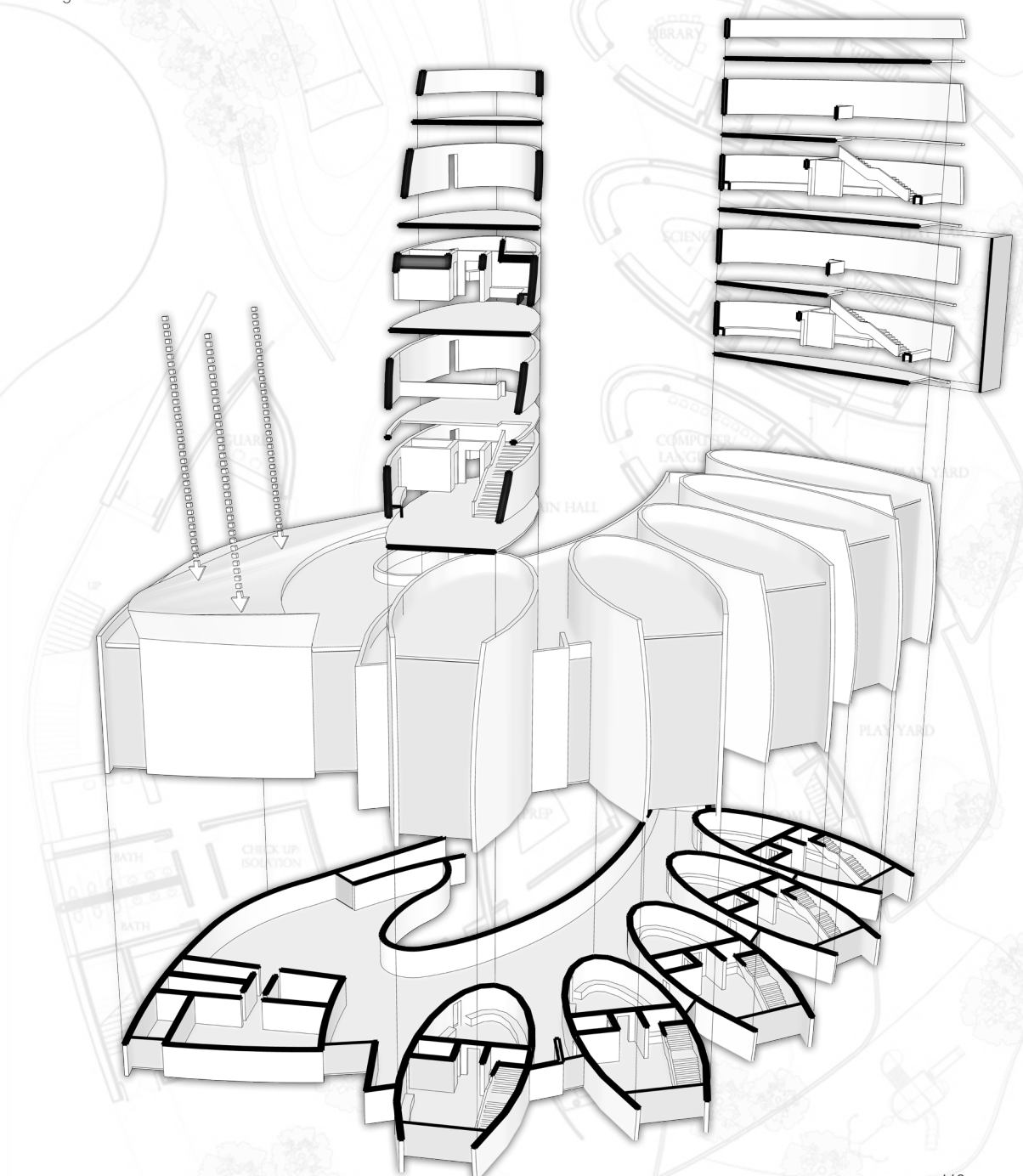
An extensive building program of the Dalian School includes nine elaborate and comprehensive classroom suites complete with sleeping lofts, baths, a kitchen, and a dining room. Additional spaces include a media center, a science lab, a library, a flexible use space, a ballet room, a music

studio performance space, a small auditorium, teacher and parent lounges, administrative spaces, a roof terrace, small playgrounds for each class, and two full size playgrounds with integrated bike paths.

The typology of school, though, is what relates this case study to following studies as this area of exploration will have the most relevant impact of the design of a new elementary school within the context of this thesis project. It is unique, however, both in its evident innovation of classroom design and in its sophisticated program.

The project situates itself on its particular site by taking inspiration from flowering seed pods and reapplying the concept to a real architectural space. The flowering plant is reimagined in such a way as to curve with the contours of the site. Furthermore, the classroom pods align with a trace of the site's sun path in such a way as to take advantage of both the daylight and the solar heat gain

Dalian Diagram
Figure 46



that it offers. Daylighting and quality of natural light become a focal point in the design as these play a primal role especially in spaces of learning.

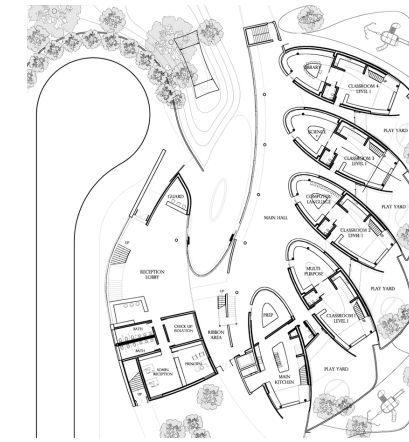
The curving, bow-like concrete form that serves as an architectural backbone shelters the learning spaces from harsher winds and unwelcome climate conditions. On the interior side of this protective wall is a distinct channel of interior circulation. The learning pods, along with all other auxiliary spaces, branch off from this artery taking and take on forms of their own within the architecture. Each encompasses its own individual function.

Dalian School does not necessarily subject itself to the sort of intense social or political complexities that this thesis vigorously engages itself with. Though, it plays a significant role in cultural integration as it seeks to welcome and enhance bonds among individuals of diverse and dynamic backgrounds. It is an expression

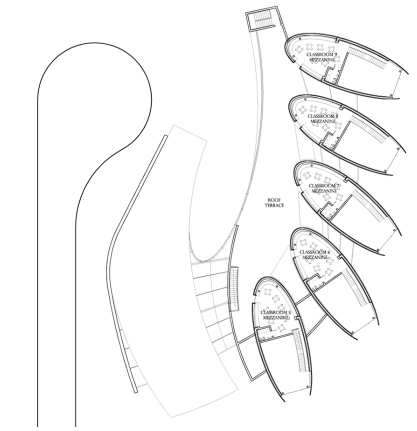
of unity just as every educational environment should be.

This is the primary design component that this thesis takes away from the examination the Dalian School. Students must find a unity in the spaces of the North Lawndale school design and in each other. Also, as the design takes inspiration from its surroundings, it integrates itself powerfully not only in its physical site, but in the community that it serves. So too must the architecture of this thesis as it is of great significance that the architecture becomes a piece of pride that the community can claim as their own in order to have the full impact that it is capable of. The elaborate program, while in some ways is slightly overplayed, may actually serve to promote the goal of community connectivity. Social events involving music, theater, athletics, and simple playfulness are capable of creating a harmony and unity that stretches far beyond the reach of physical architecture.

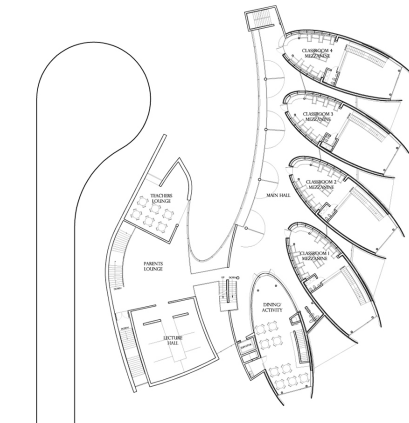
First Floor



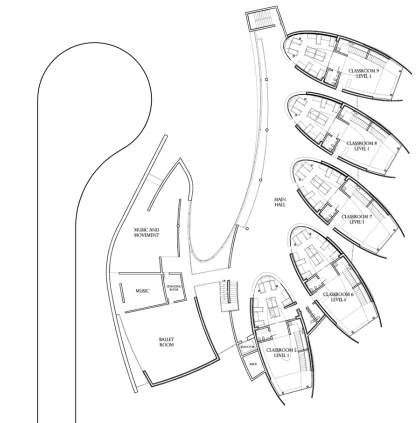
Second Floor



Third Floor



Fourth Floor



Dalian Drawings
Figure 47



DURANES ELEMENTARY

Albuquerque, New Mexico

Developed by Baker Architecture and Design, the Duranes Elementary School of Albuquerque, New Mexico completed its constructions in late 2008. The 10,000 square foot school involves a program containing typical educational spaces ranging from classrooms to a gymnasium and cafeteria. It is an example of an effective school design with a much more conservative building program than the previous case study.

This Albuquerque endeavor in educational design specifically focuses on interior environmental quality and sustainable building design.

The project likely posed some interesting design challenges to those that pushed its development forward especially in its conceptual design phase. The area in square footage of its site is quite limiting. Compact interior design became crucial.

The finished design for the Duranes Elementary

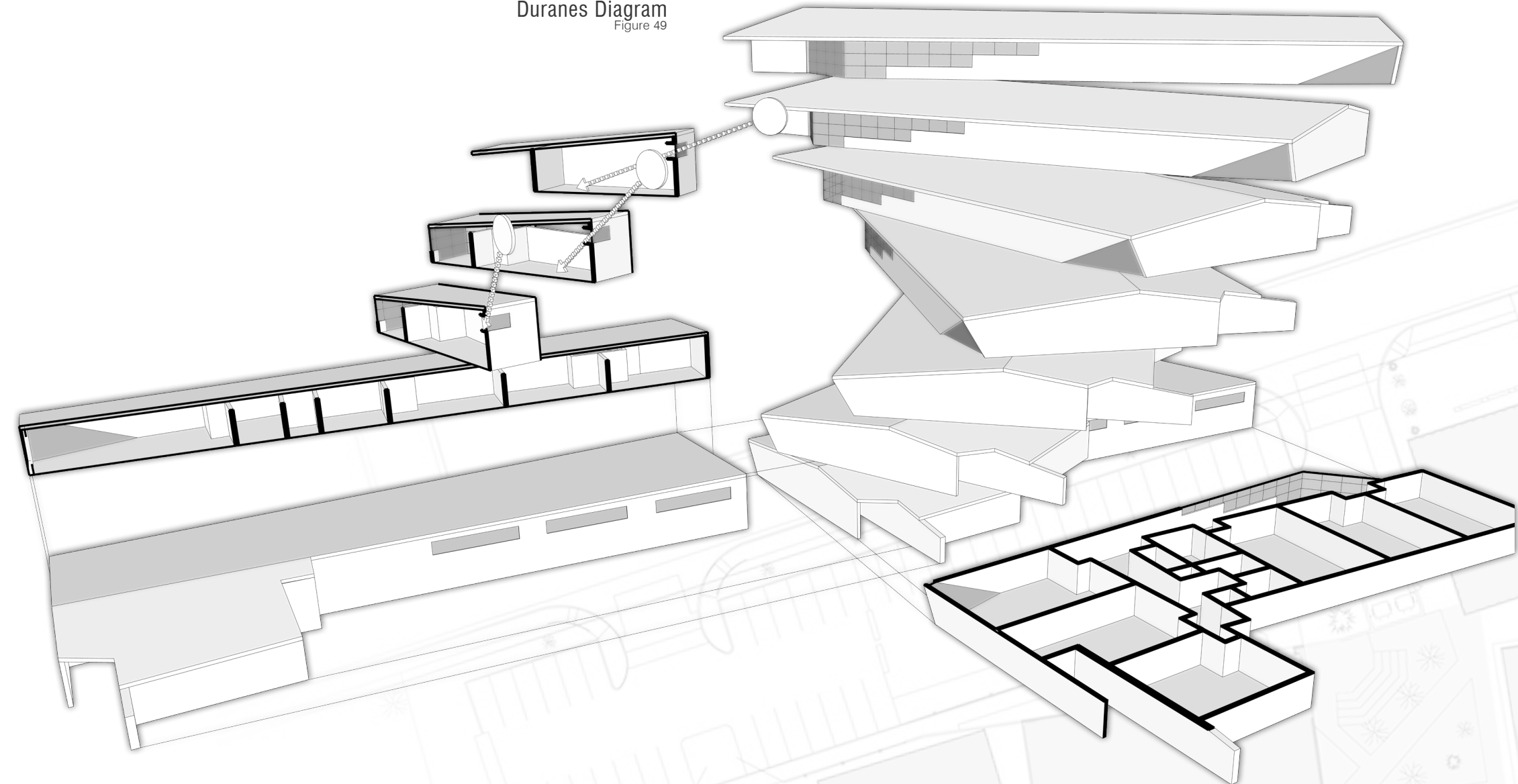
aligned itself with existing routes of pedestrian circulation so as not to disturb existing trends of motion, but rather to enhance them. A tapering roof pitch elegantly terminates along a low-profiled northerly elevation allowing for solar access to a heavily traversed pedestrian route that parallels the building.

The inclusion of thoughtful design in terms of stainability becomes evident immediately through an examination of the composition and arrangement of interior spaces throughout the school.

Natural daylighting is allowed to penetrate far into each classroom space in a manner that is incredibly effective. Attention was certainly granted to the way in which light enters a space as interior spaces demonstrate a focus on both comfortable illumination and glare reduction.

Steel baffled, recessed, south facing clerestories are integrated throughout the

Duranes Diagram
Figure 49

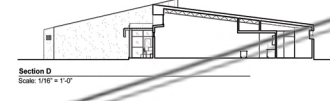
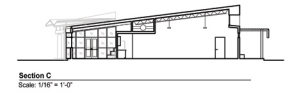
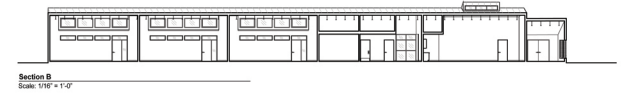
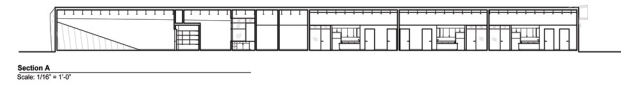
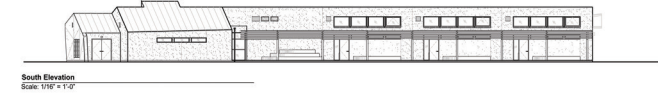
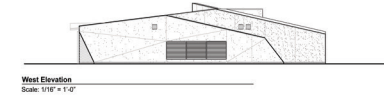
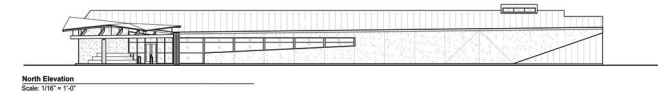


school design and effectively act as passive, sustainable building components. The clerestories promote direct solar gain and useful daylighting throughout the colder months of the year. During the warmer months, the same openings deter the adverse effects of the sun. The interior spaces are sheltered from its heat while indirect daylight remains a continual enhancer of the quality of interior spaces throughout.

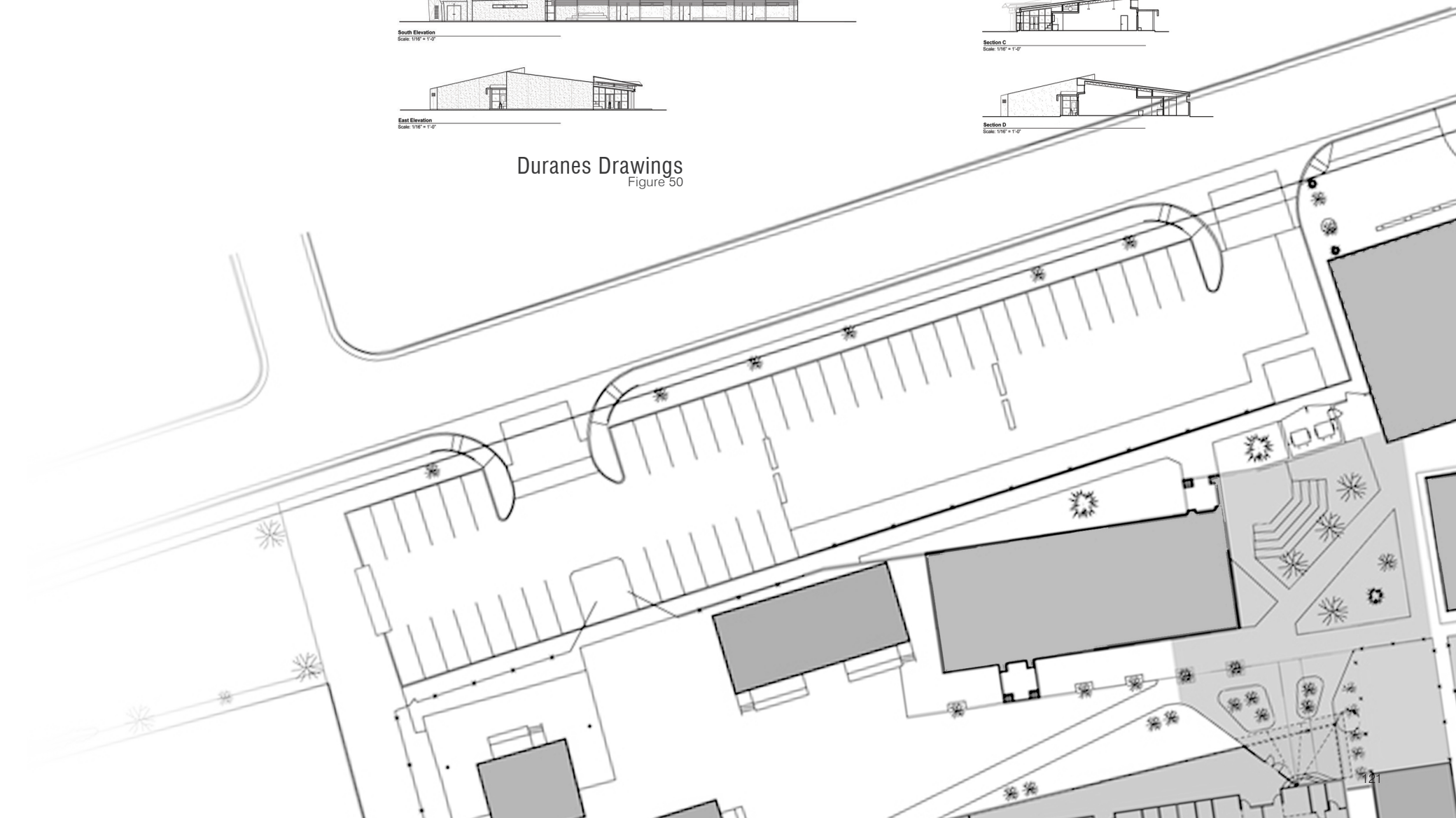
Many, if not, all of these environmental considerations will greatly impact the design of a new school for Chicago. This thesis must take into consideration sustainable building

practices not just simply out of a sense of building ethics or a desire to positively impact our global environmental circumstances, but also as a consideration of the economical situation of Chicago to which this project will be subject.

A cost effective design is the only feasible option as the development of this project progresses. A building that adapts to its surroundings and effectively works with nature throughout the functioning of its lifetime has a smaller impact on its financial context as well as its environmental context. By these means, the project can reach a highly cost effective status.



Duranes Drawings
Figure 50





UNO ACADEMY

Chicago, Illinois

One of the latest school designs within Chicago, Illinois is the UNO Academy school. It's 63,000 square foot design houses all necessary building components of an elementary school created for the Gage Park community of Chicago's South Side. The community conditions surrounding this project will be quite comparative to those addressed in this thesis.

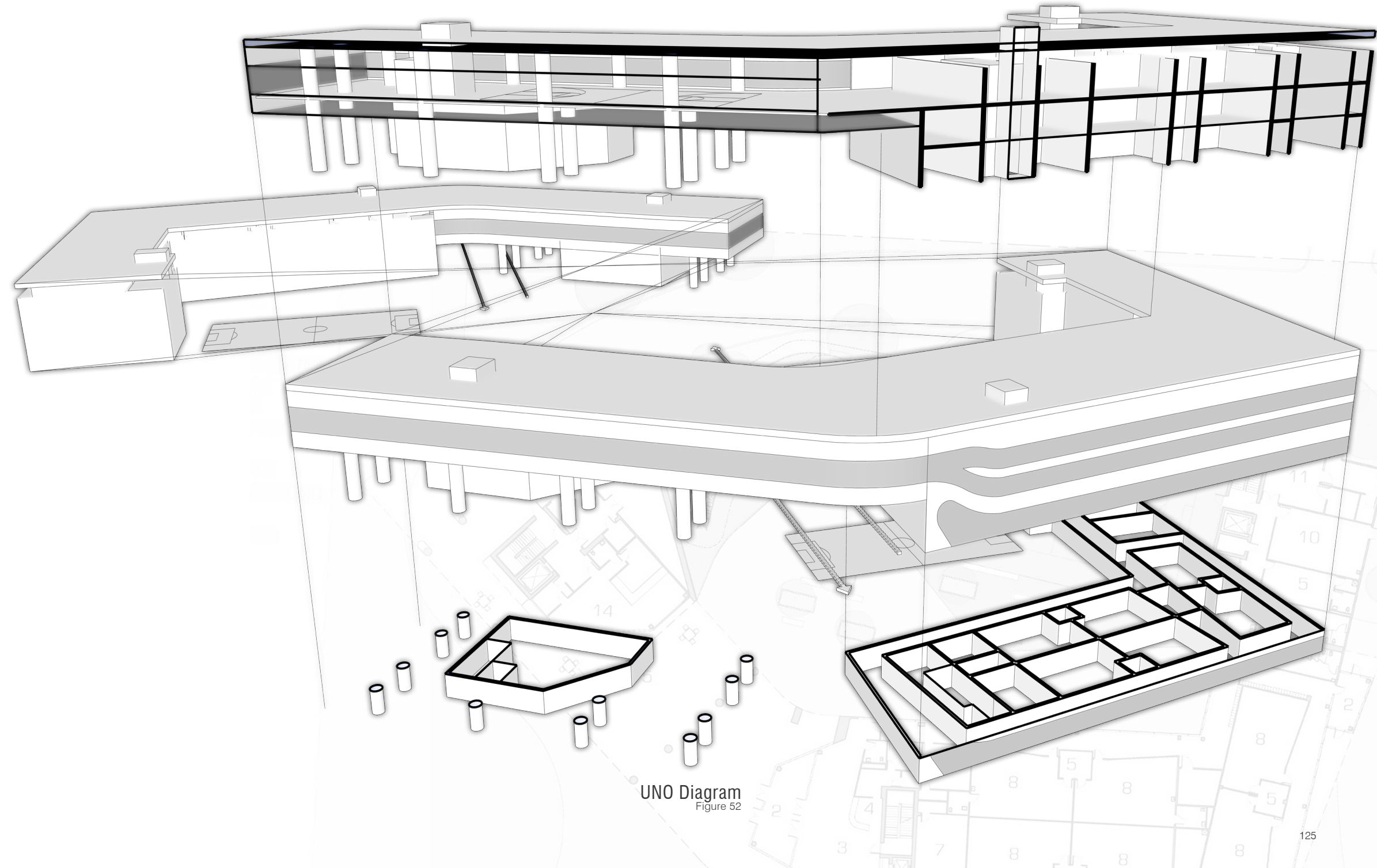
The scale of the building and the programmatic scope of UNO Academy will be very similar as well.

The school serves a student body just short of 600 students. However, it simultaneously claims to serve the entirety of the Gage Park neighborhood as community functions and social gatherings have been a focus in the program of the school and its development. It aims to engage its surrounding neighborhood not only through the education of its young students, but also through community outreach and soccer in particular. In fact, the layout of the school was intentionally arranged in such a way

as to place students continually in contact with the complementary environments of the interior learning spaces and the exterior community environment so as to incorporate a sense of social identity. Views from circulation spaces are projected towards the Chicago skyline in an effort to point the students toward their potential aspirations.

Being that this building project is situated within the city of Chicago, in many ways it may bear the most weight as far as design influence on this thesis project. This school deals with nearly all of the same social and political complexities that the thesis is immersed in. UNO Academy, just as is the case with the thesis, is not at all free from the impact of gang activities and gang violence. Such factors became major influences in design decisions.

Sustainable design played a significant secondary role in the development of UNO Academy. Environmental considerations of sun, wind, and light were addressed in a manner



UNO Diagram
Figure 52

completely relevant to this thesis project which is to be located only a few miles away. In fact, the UNO Academy involved a breadth of environmental considerations deep enough to furnish it with a LEED Silver design certification.

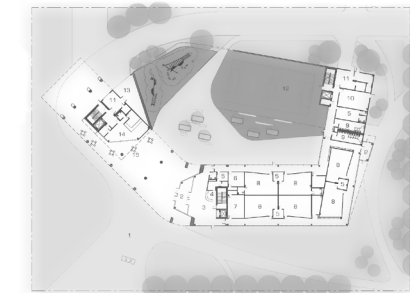
The influence of this building of the thesis project will likely be quite significant. It is tangible evidence that at least a small part of Chicago is expressing a passionate desire to push the expansion of education forward despite the city's decision the commission this mass closure of public schools. Earnestly needed new schools are continuing to be constructed and this is evidenced by the success of UNO Academy.

Perhaps even more importantly, UNO Academy

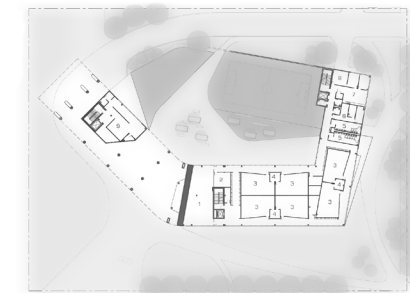
puts a major focus on community connectivity. Without a thorough consideration of this topic, the thesis will quickly become a total failure. Social dynamics may be the most influential factor in the design of this thesis.

A final inspiration offered by UNO Academy is its emphasis on sustainable design. This is beneficial to the community on a number of levels. Reduction of life cycle costs through cost effective local materials with markedly high life spans and easy replaceability was likely the most significant factor that will potentially influence the thesis design.

A new school for Chicago must take these design components into consideration in order to achieve the necessary level of success.



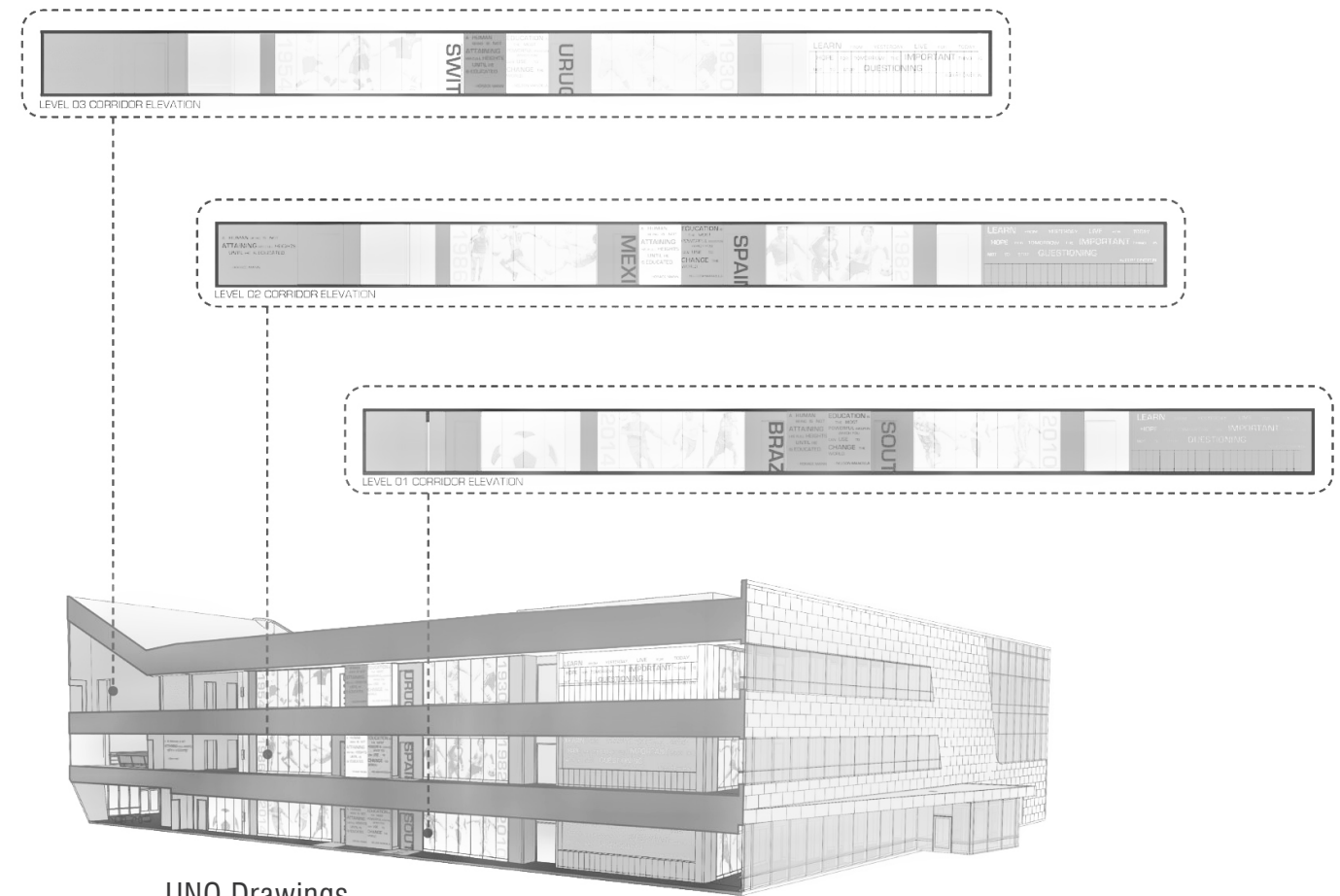
Ground Level Plan



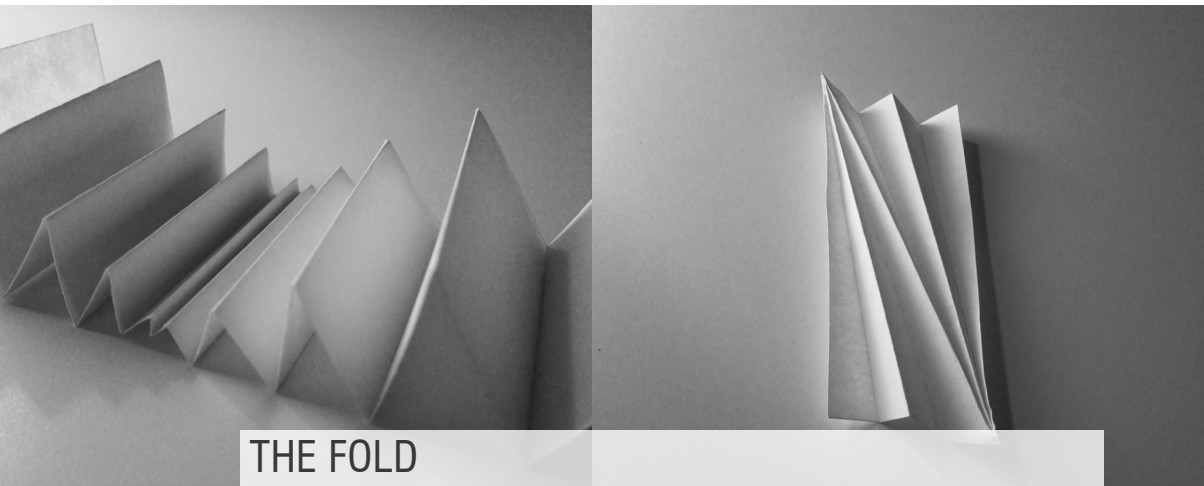
Second Level Plan



Third Level Plan

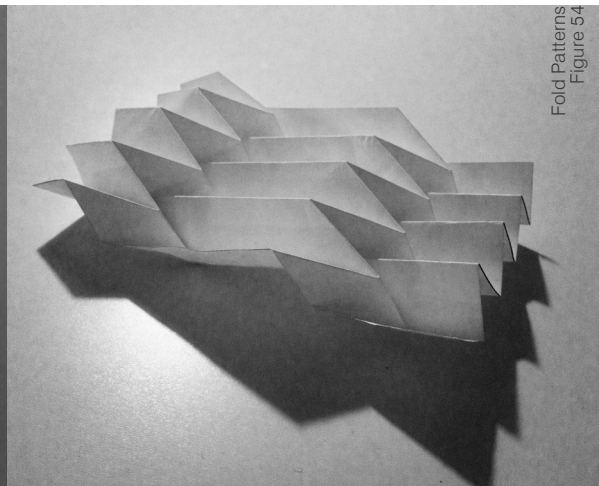
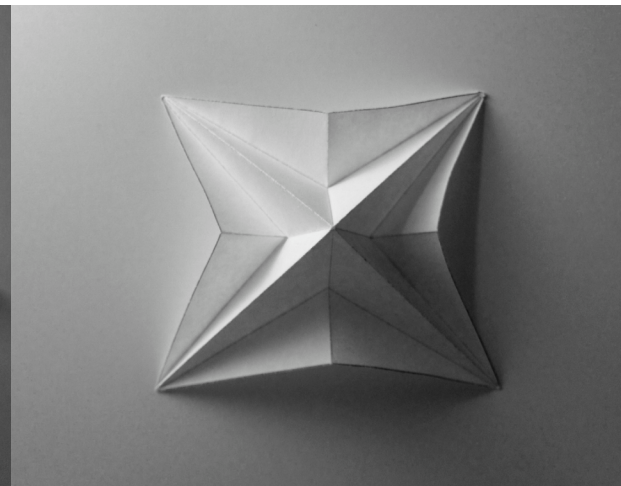
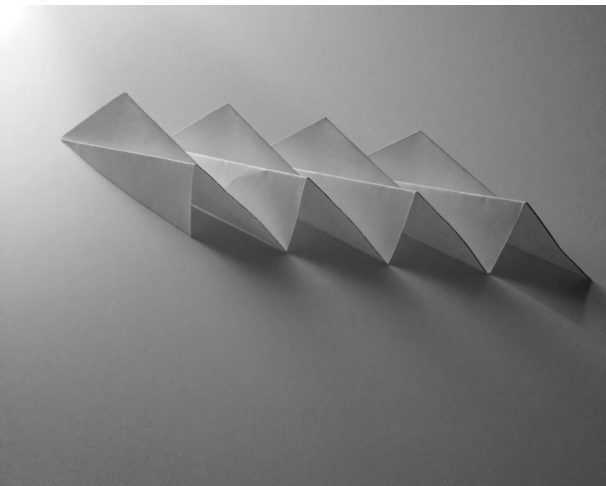
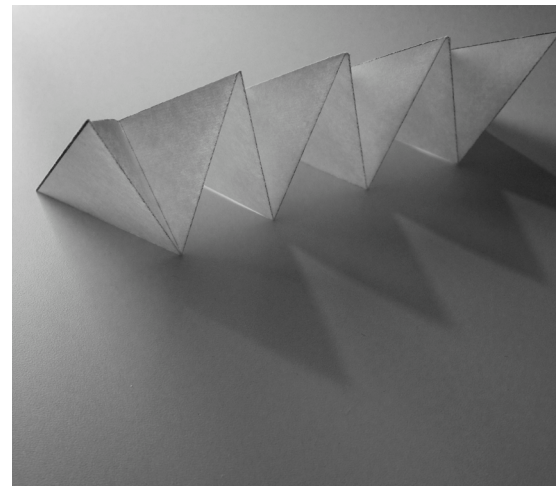


DESIGN EVOLUTION

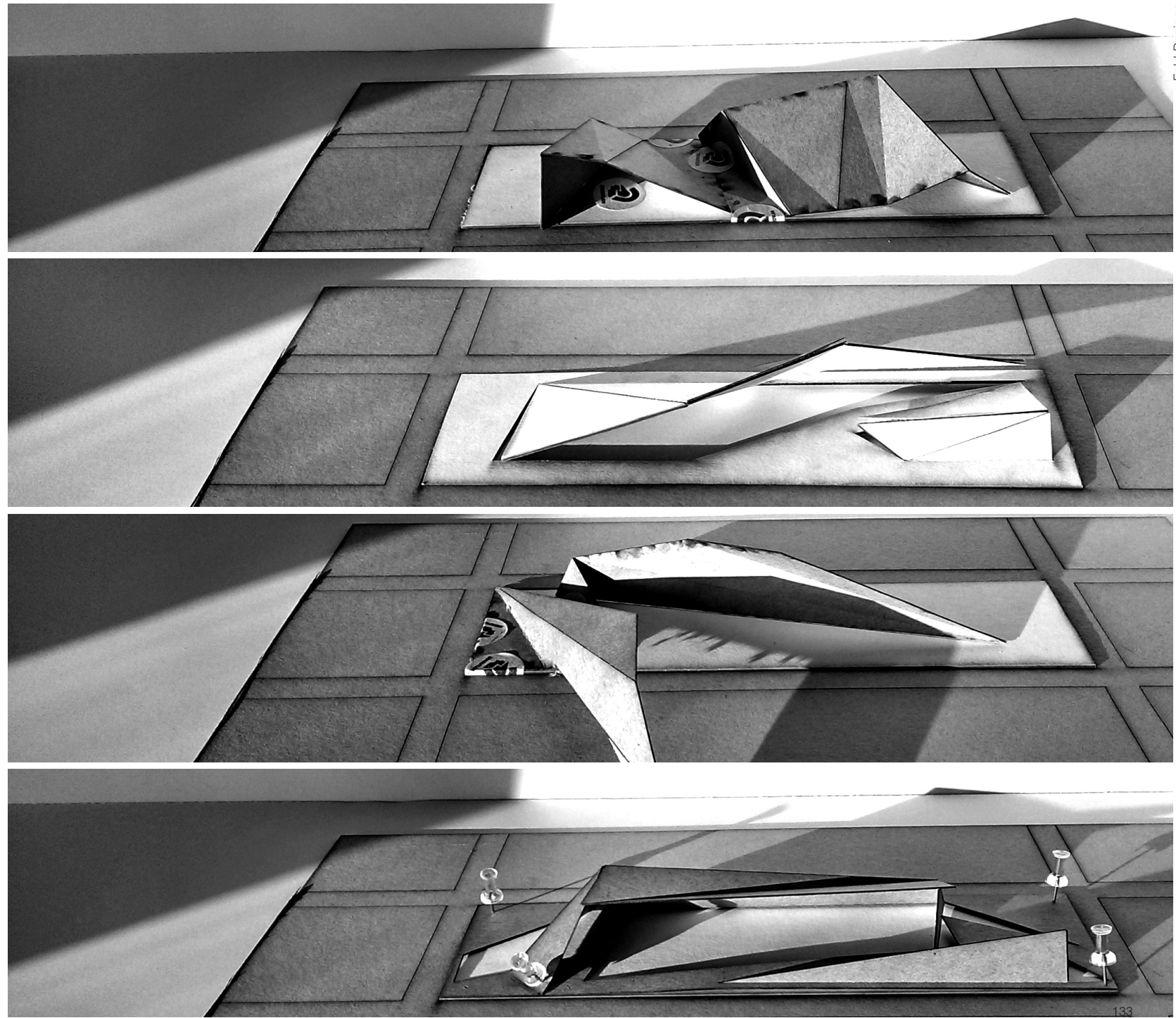
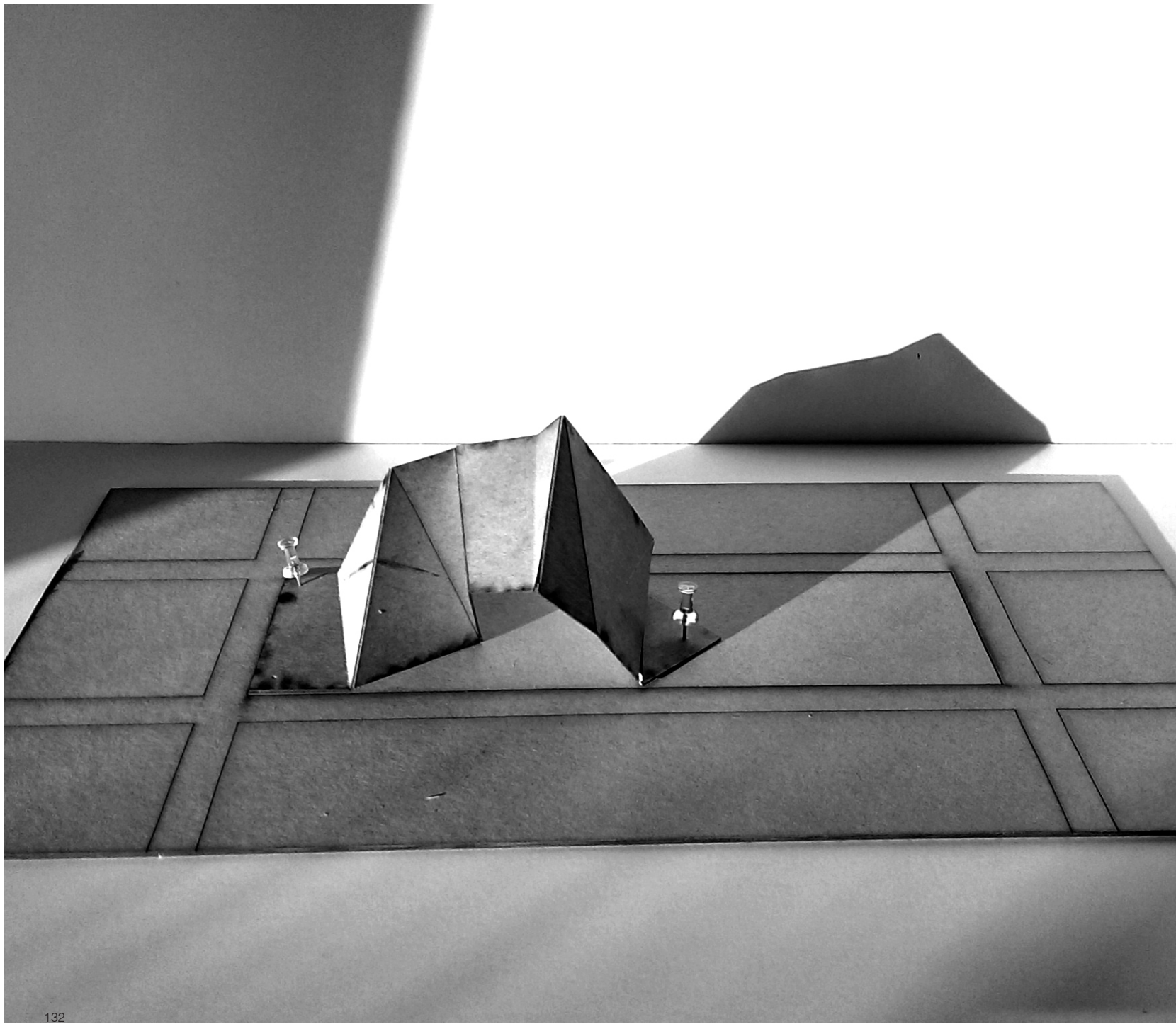


THE FOLD

This is where the project concept translates into architecture. This thesis is the development of an architectural composition of edges and interaction. In essence, it is about the relationship between language and architecture. It explores the thesis statement: Can a thoughtful composition of edges be arranged so as to enable new encounters within a fragmented community? I began to pursue this goal through a process that first identifies the most basic form of edge: the fold. Sequences of folding and refolding began to inspire architectural design. Various fold patterns began to emerge in a process that anticipated architectural form. The arrangement of edges that would be the architecture of this thesis began to take shape.



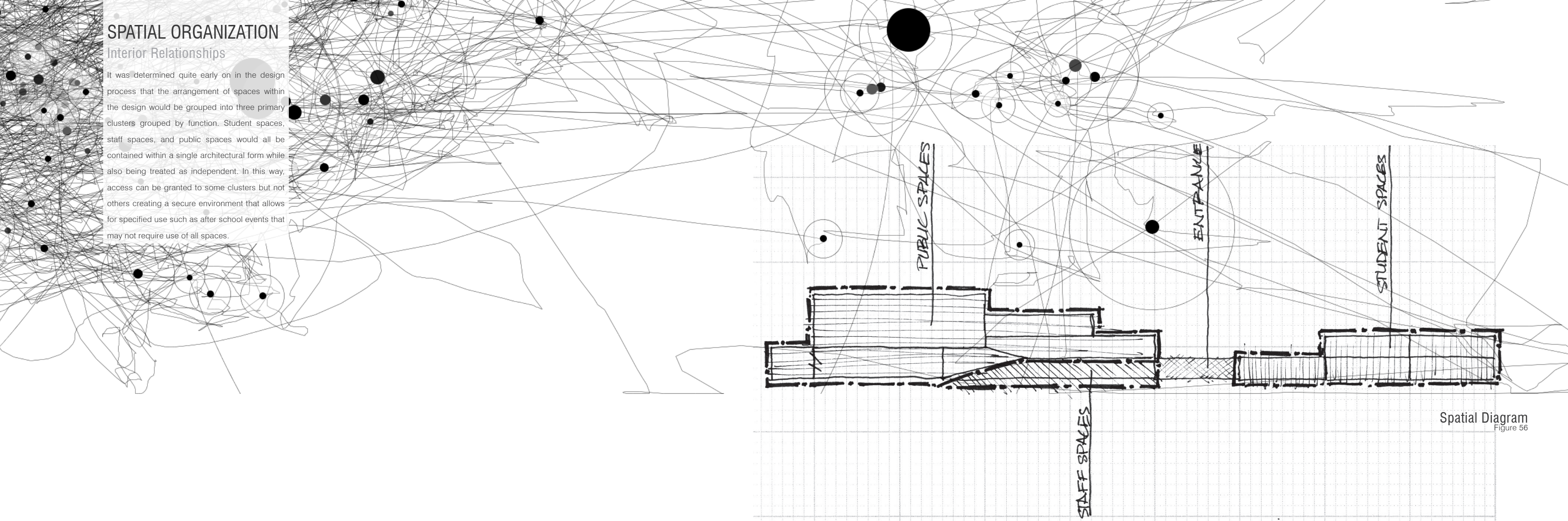
Fold Patterns
Figure 54



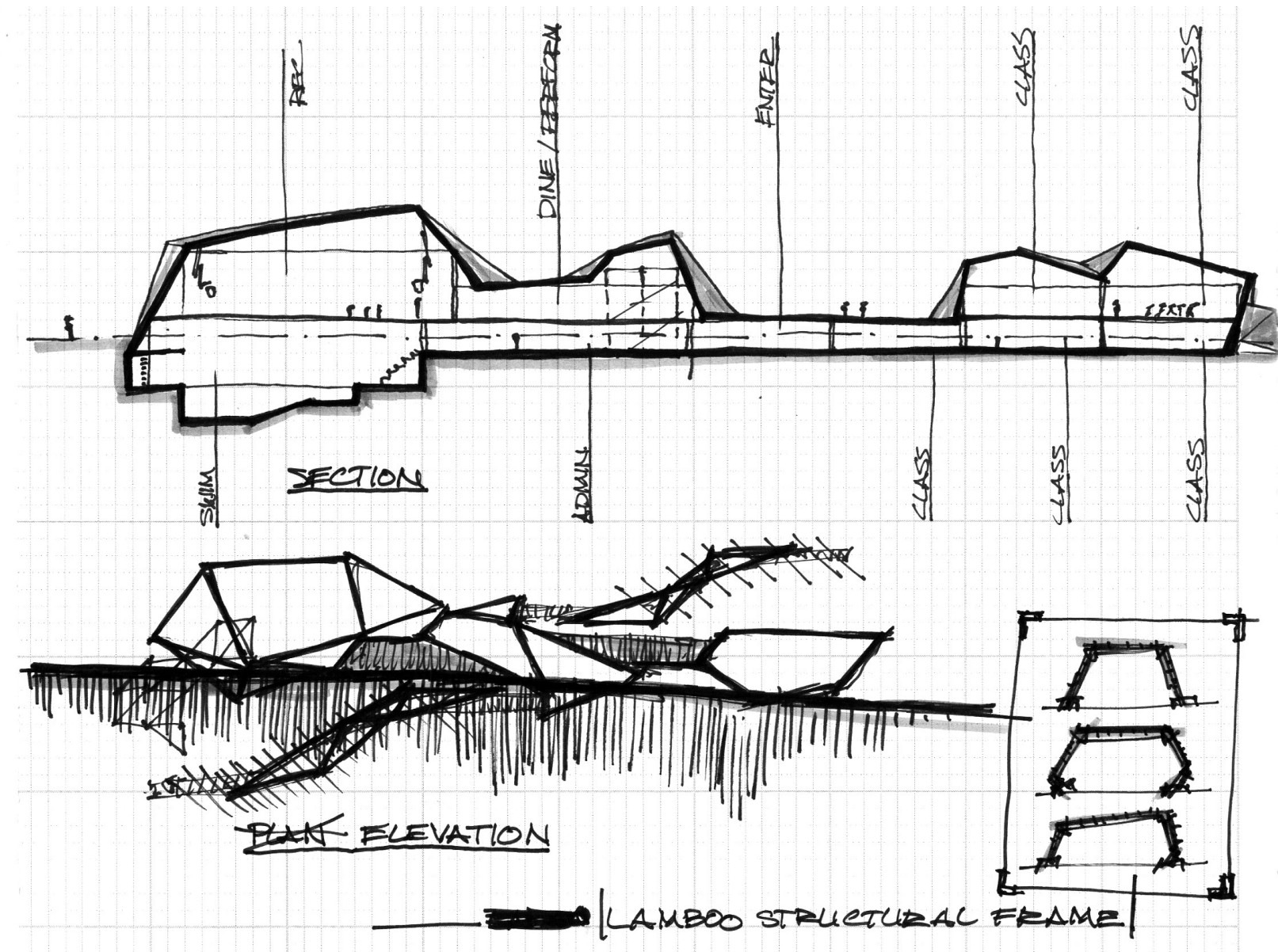
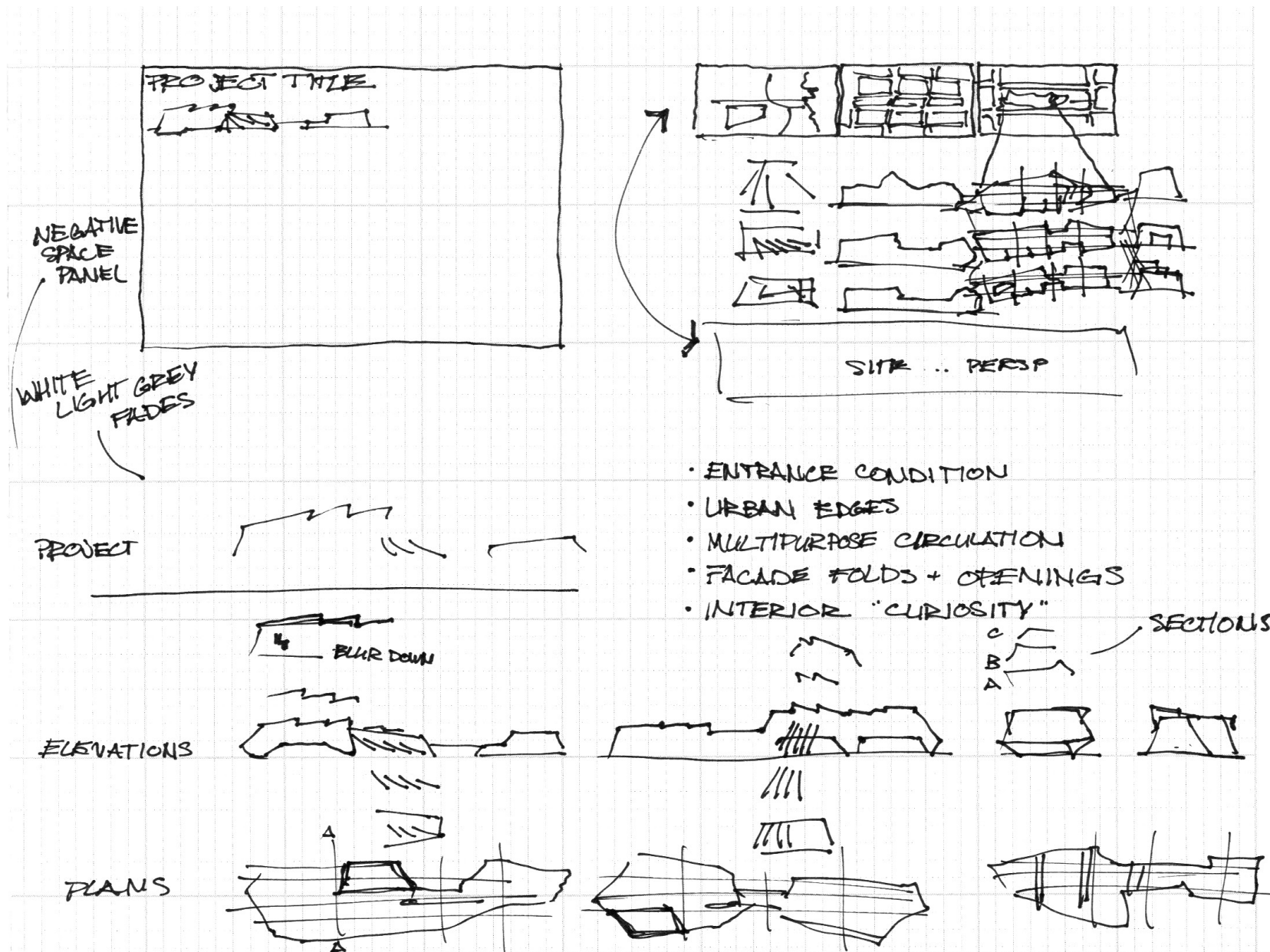
SPATIAL ORGANIZATION

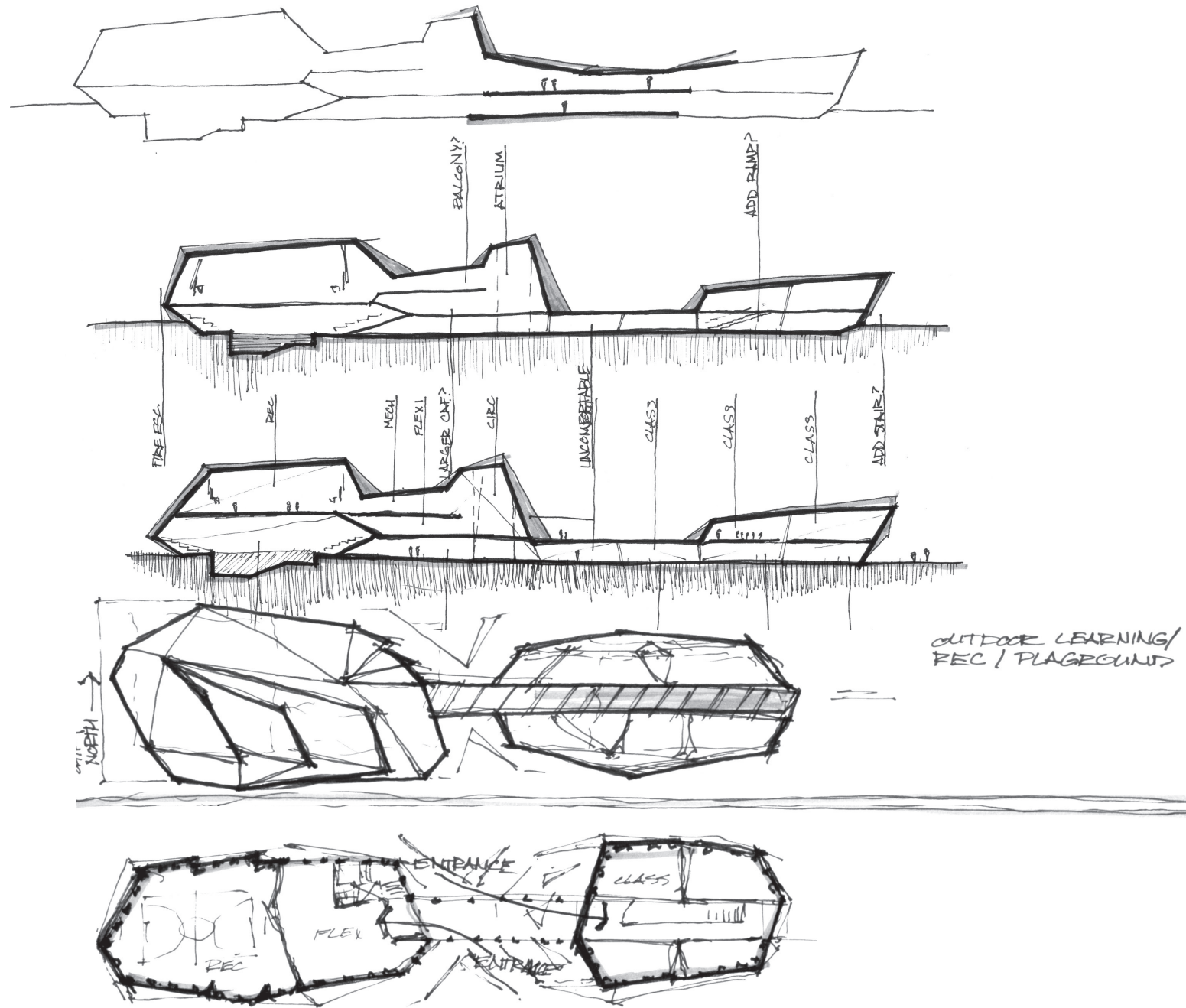
Interior Relationships

It was determined quite early on in the design process that the arrangement of spaces within the design would be grouped into three primary clusters grouped by function. Student spaces, staff spaces, and public spaces would all be contained within a single architectural form while also being treated as independent. In this way, access can be granted to some clusters but not others creating a secure environment that allows for specified use such as after school events that may not require use of all spaces.



Spatial Diagram
Figure 56





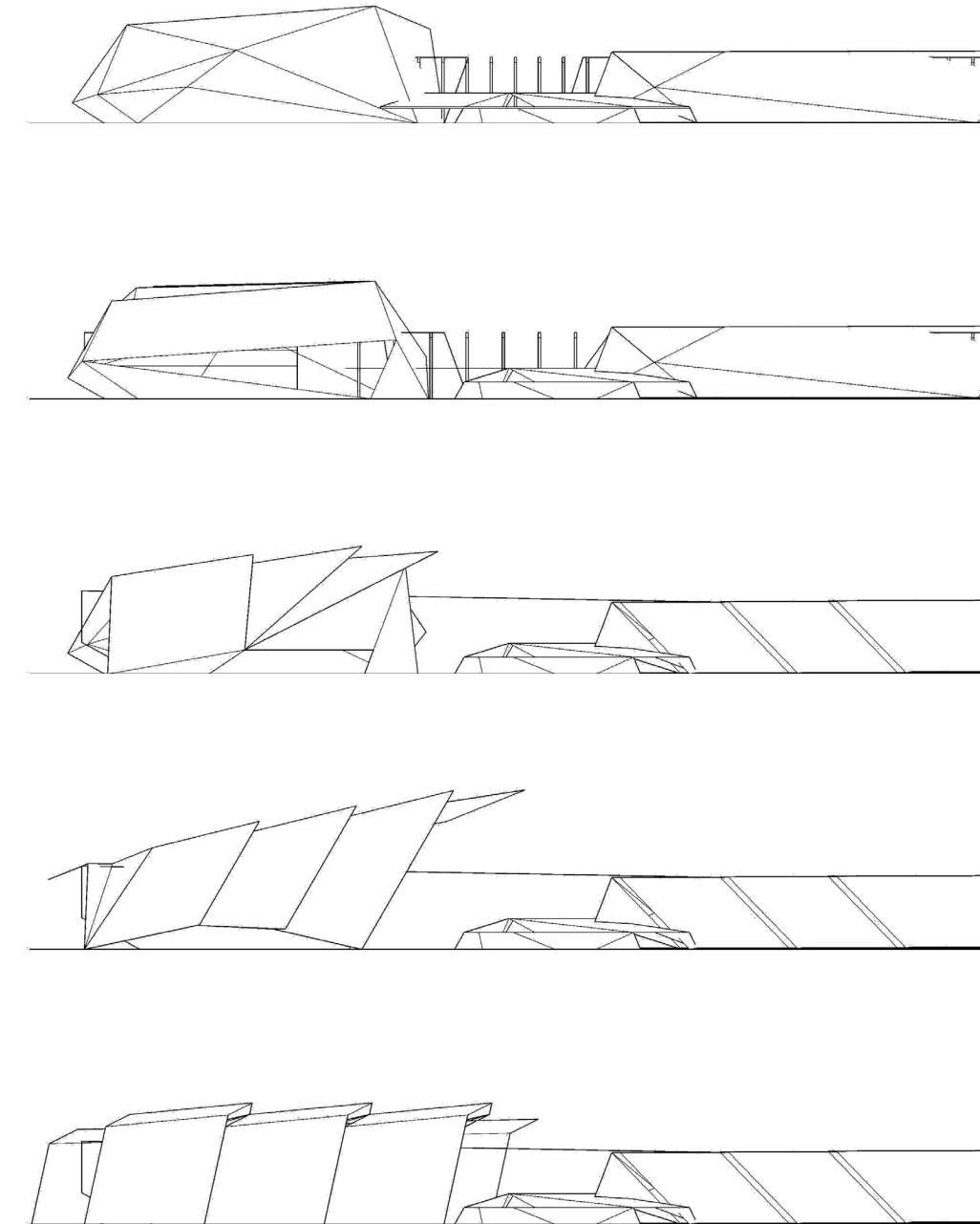
Manual Set 1
Figure 58

DIALOGUES OF DESIGN

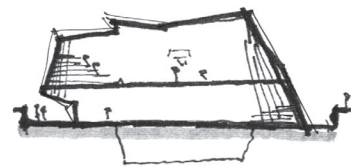
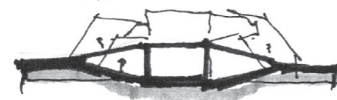
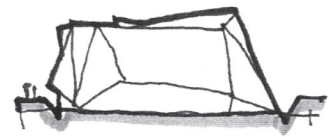
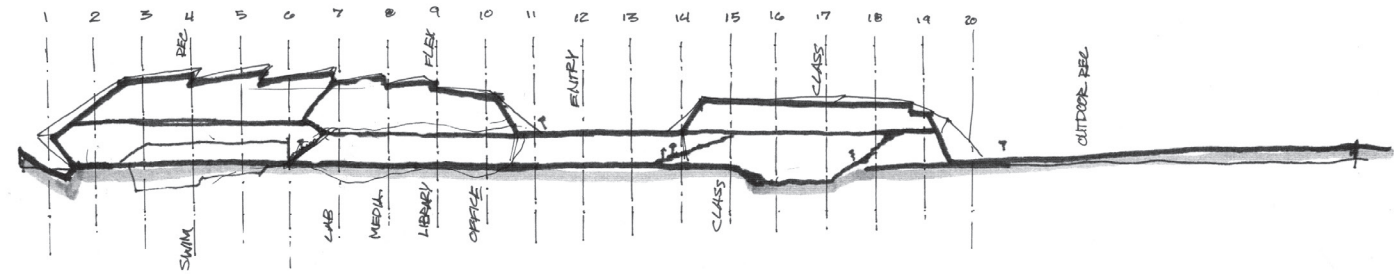
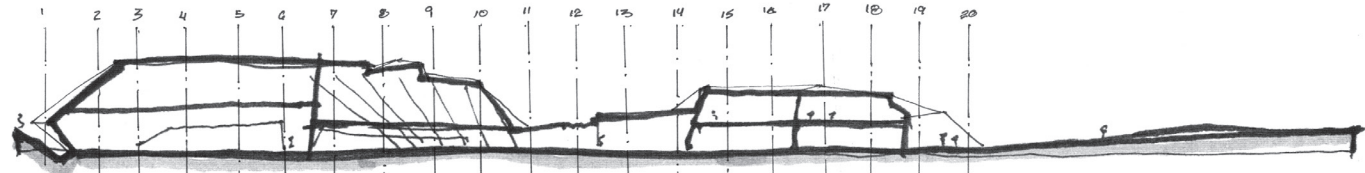
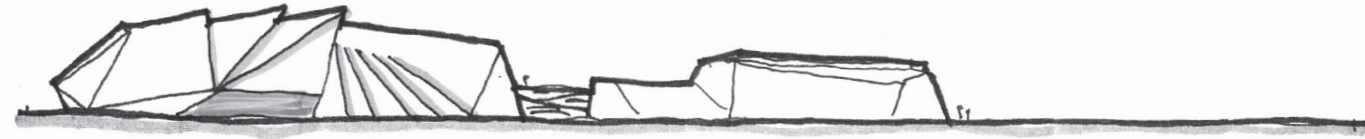
A language of Drawing

Being a focal point of this thesis was a deep consideration of the relationship between architecture and language, I began to think of the process of design in these terms. Translation, interpretation, and reinterpretation between and among mediums of design became the main theme throughout creative process. The acts of translation, interpretation, and reinterpretation were embodied through a language of drawing. To draw is to speak. Drawing was understood as a language since meaning inevitably attaches itself to each thing drawn. Thus, the process of design took the form of a dialogue of thought that served to unify a digital process with a manual process, in effect, synthesizing their fortes.

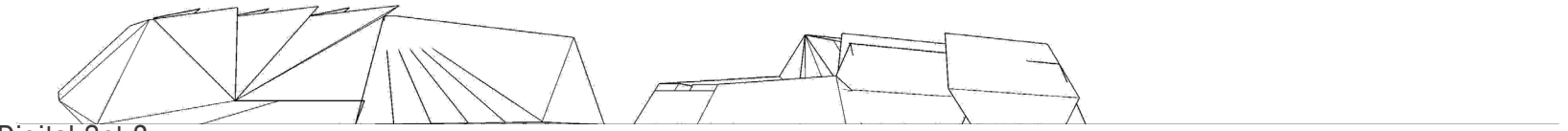
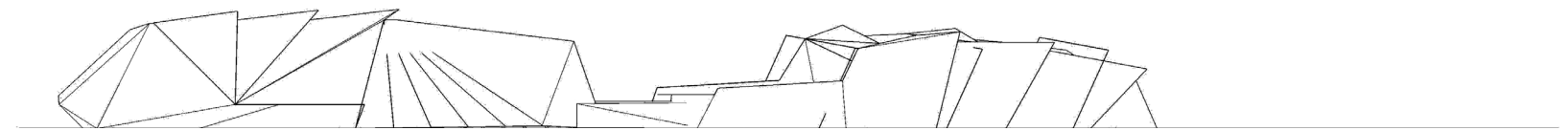
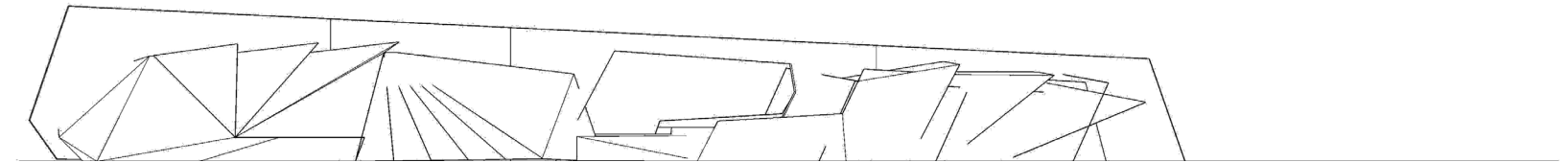
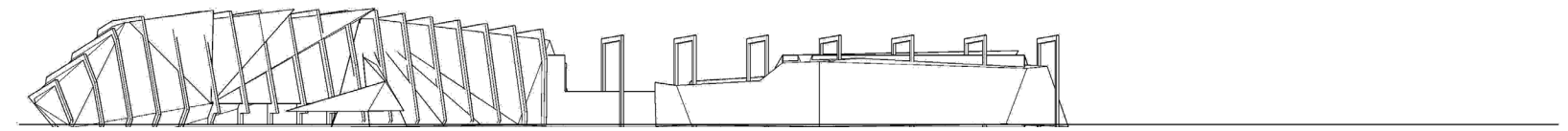
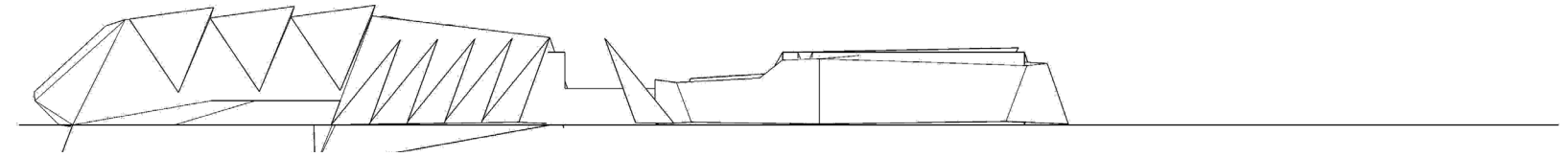
Specifically, the process began with a digitally articulated course of thought (in the form of a SketchUp drawing) which was then interpreted through a manual process of drawing. The manual course of thought acknowledged the digital course through an act of tracing and then offered its response by drawing lines of its own. The result was then reinterpreted by the digital course, a digital response was given and the dialogue continued so on and so forth. The current state of the project is the result of a conversation between digital and manual mediums. The designed project is only made possible through an application of the edge of language upon the architectural process of design. In this way, a dialogue of design enabled a continued exploration of the relationship between language and architecture throughout the design process.



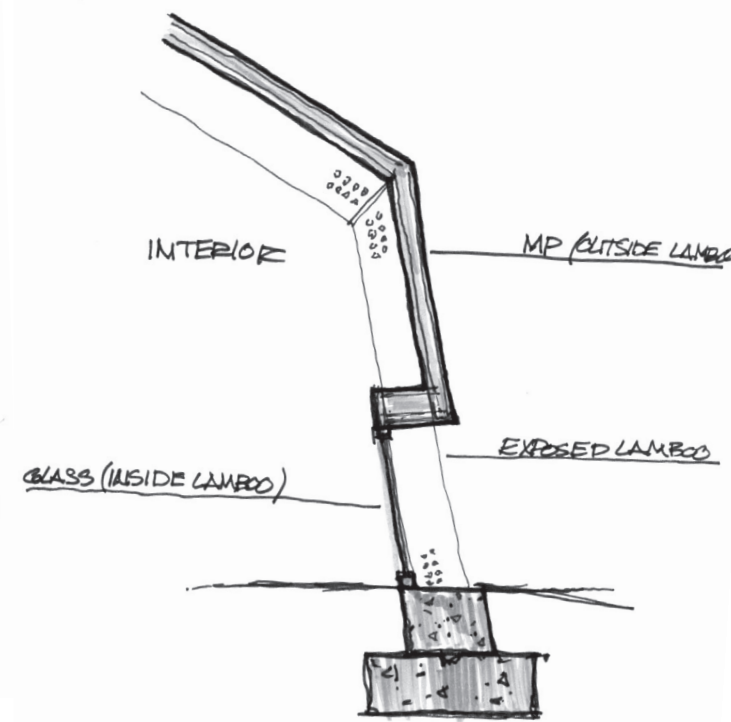
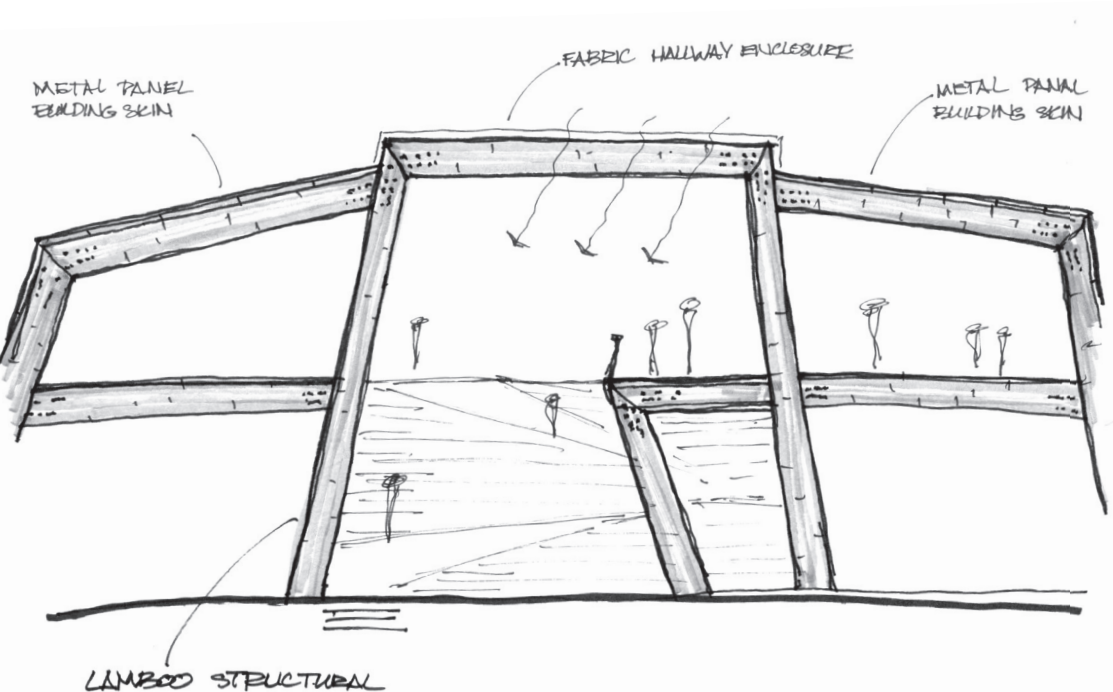
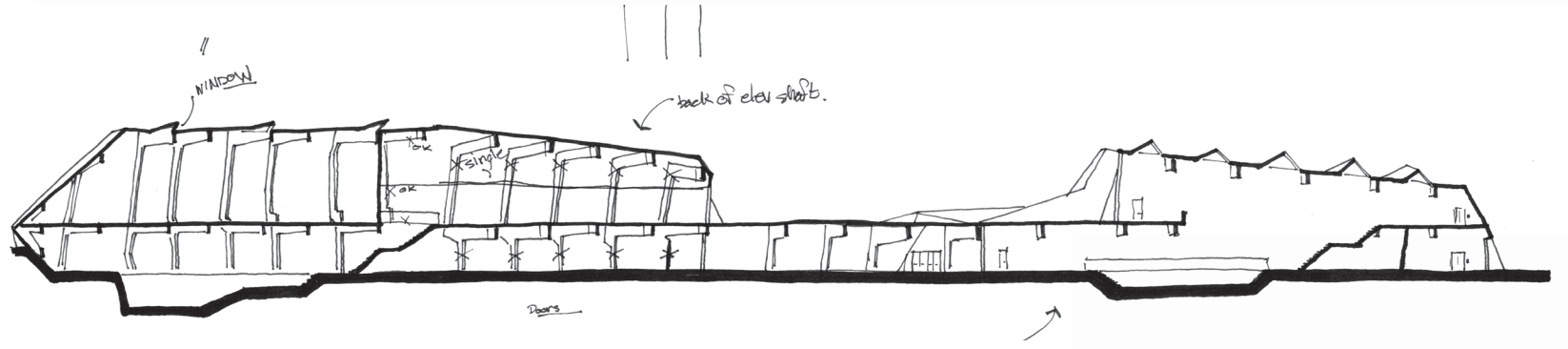
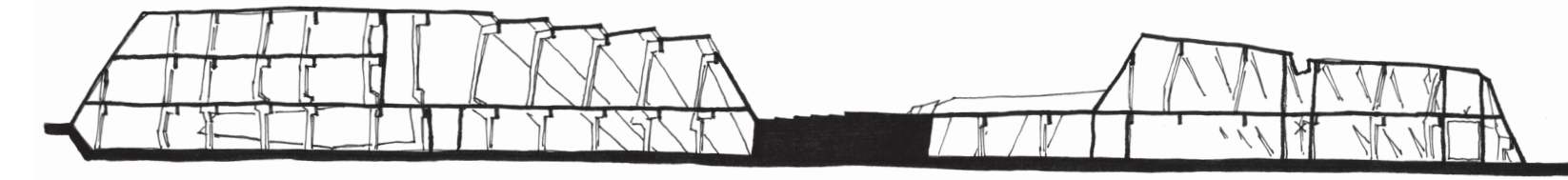
Digital Set 1
Figure 59



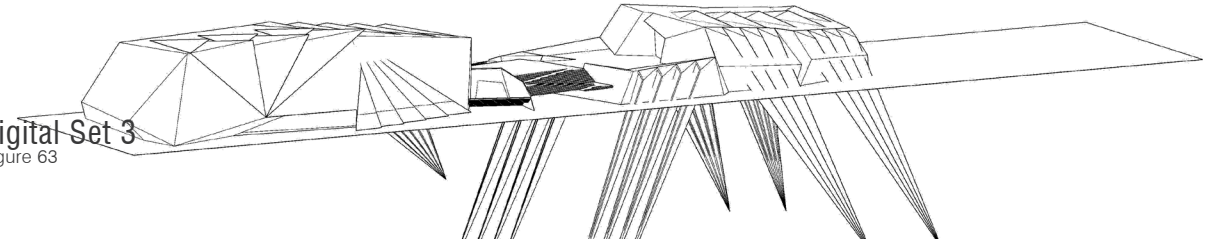
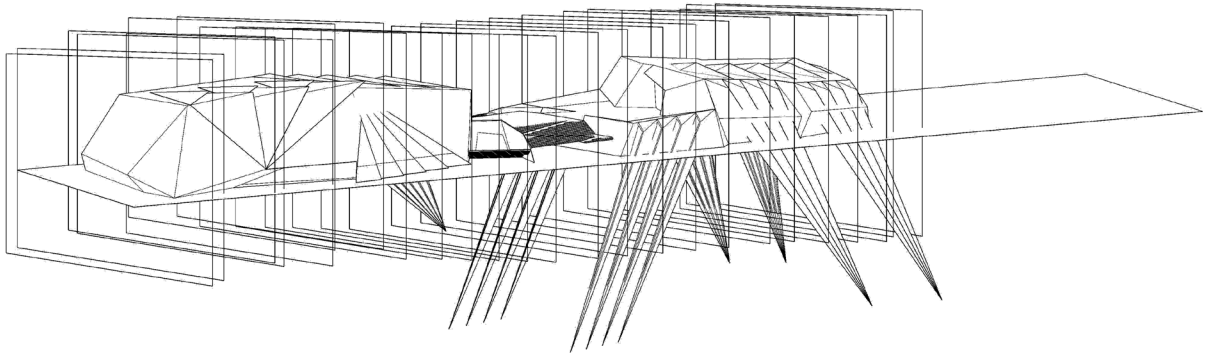
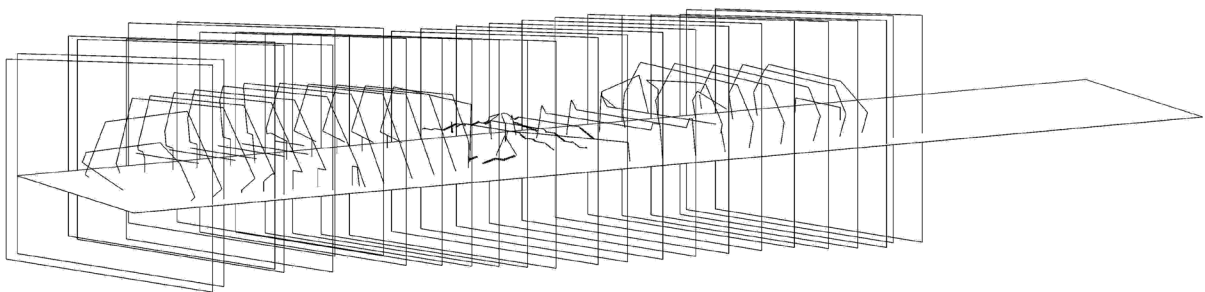
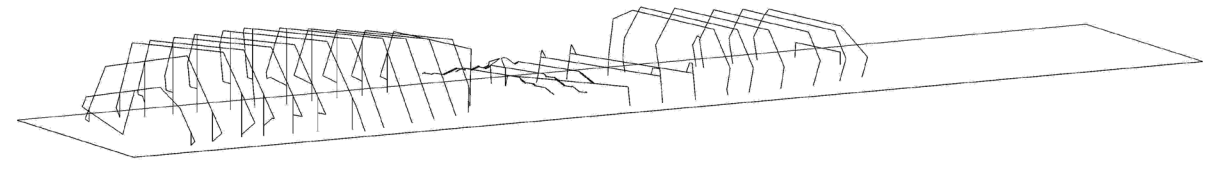
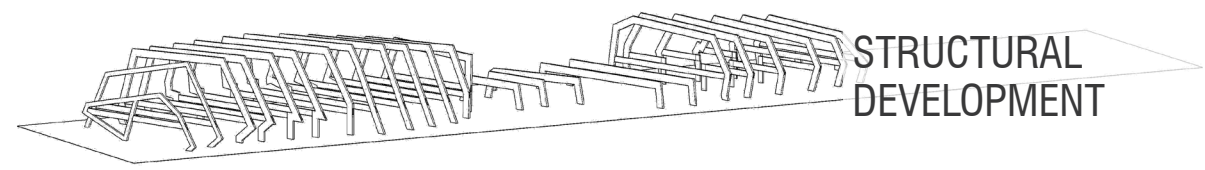
Manual Set 2
Figure 60



Digital Set 2
Figure 61



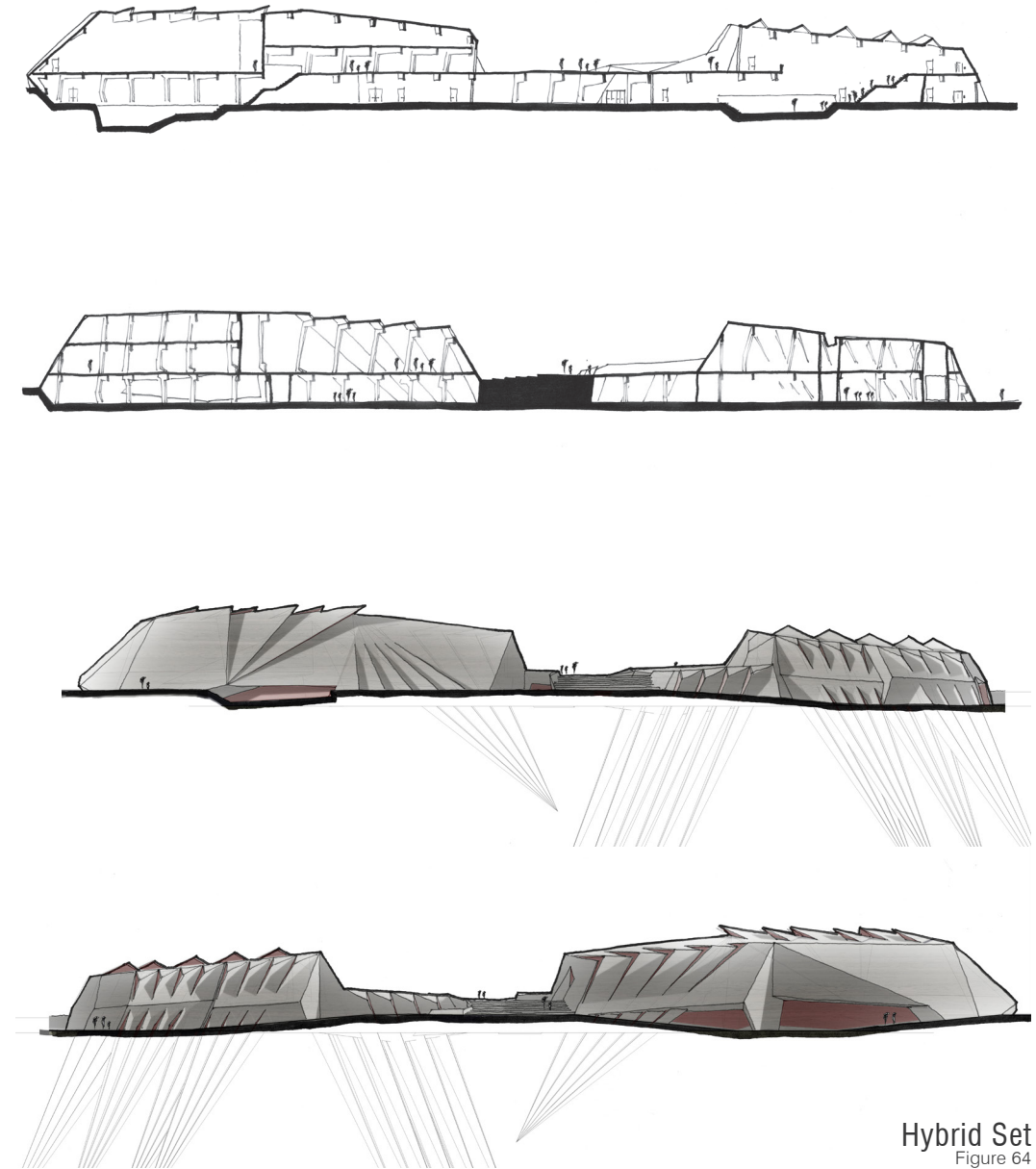
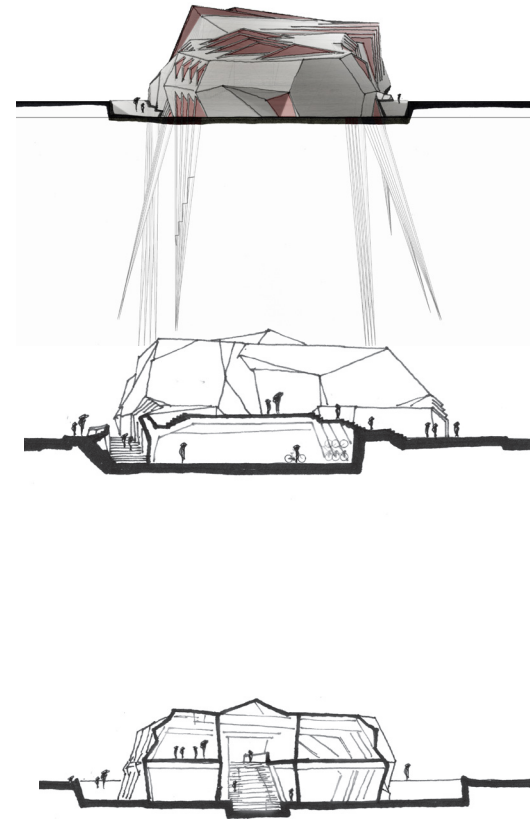
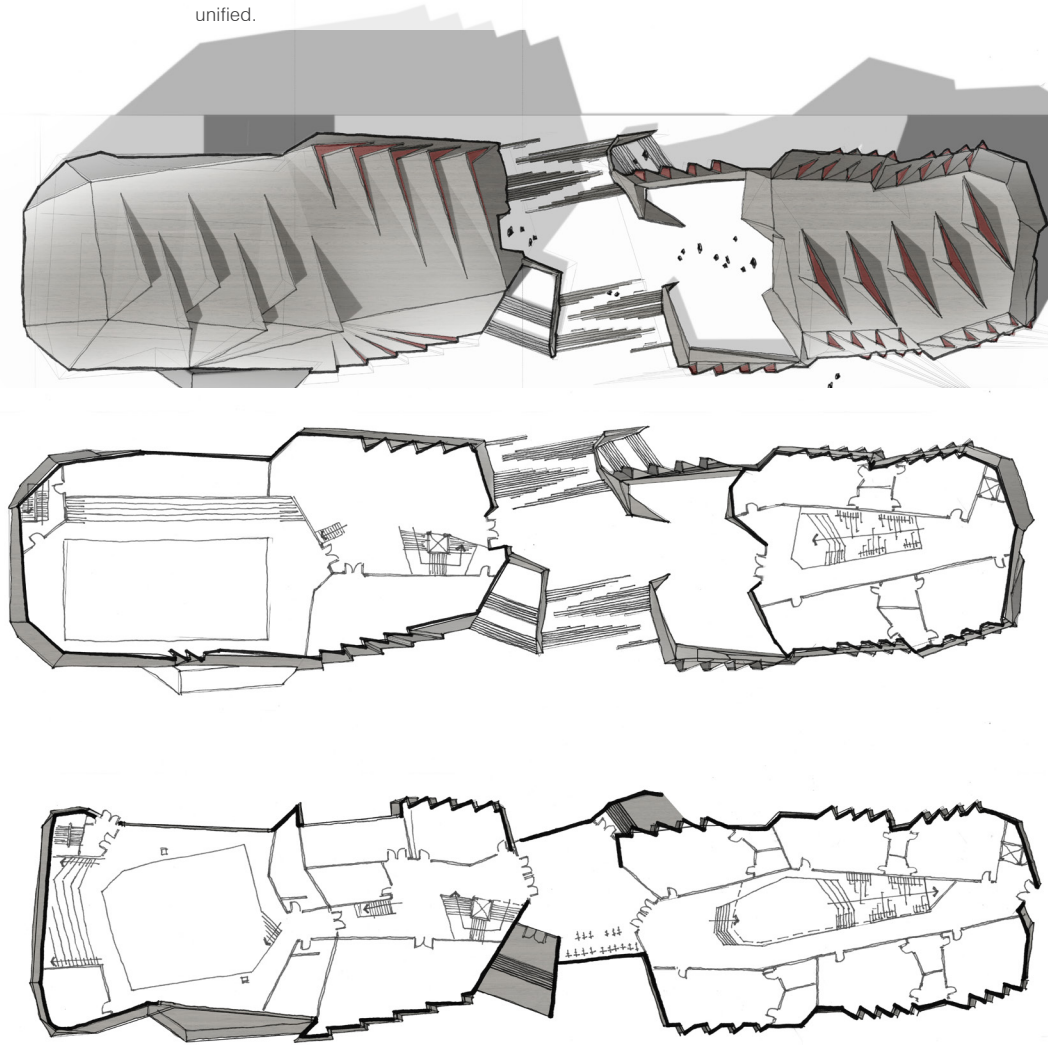
Manual Set 3
Figure 62



Digital Set 3
Figure 63

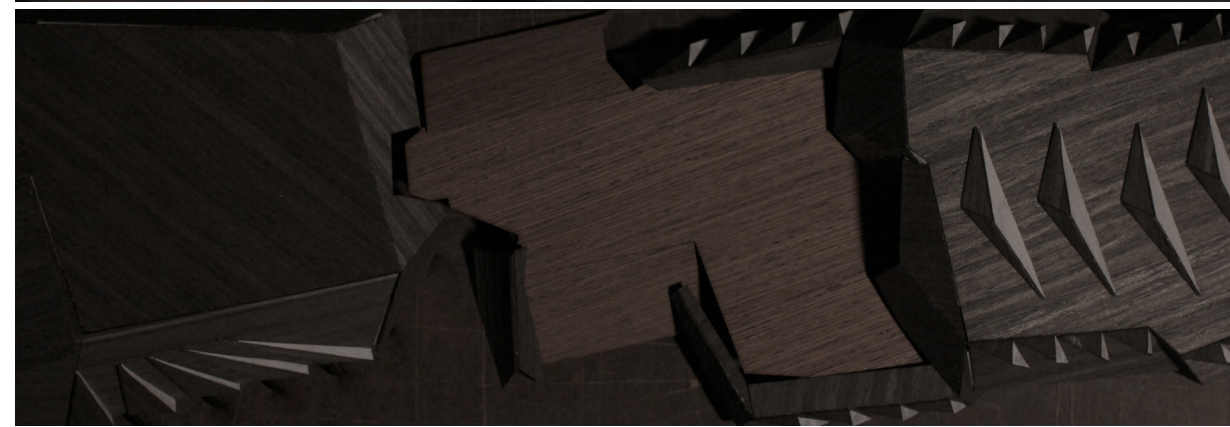
LINGUISTIC HYBRIDIZATION

At this stage in the process, the two languages of design began to directly converge into hybridized images. The output was a set of drawings that were composed of layers of information originating from both the digital and manual courses of thought. Here the dialogue became unified.



Hybrid Set
Figure 64

EXPLORING THE
THIRD DIMENSION

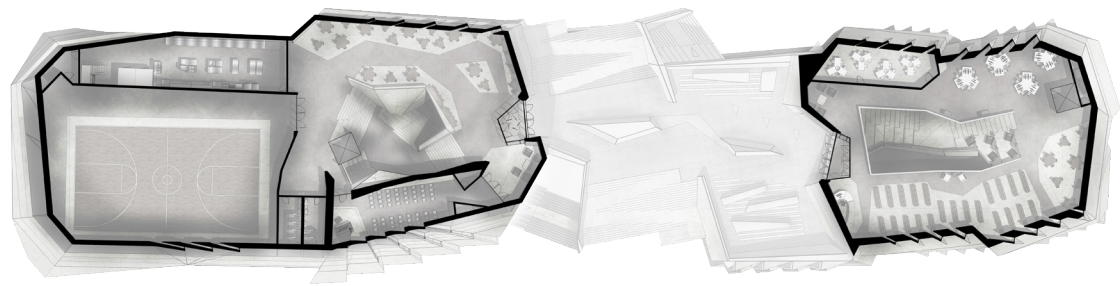


Models of Form
Figure 65



Model Aerial
Figure 66

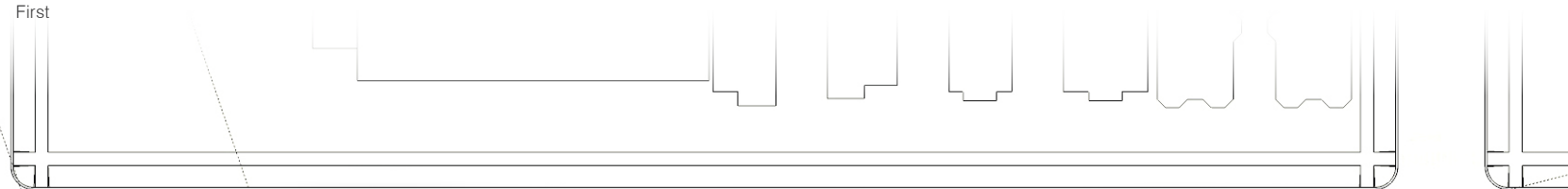
RECONSTRUCTING AN URBAN PONTOS



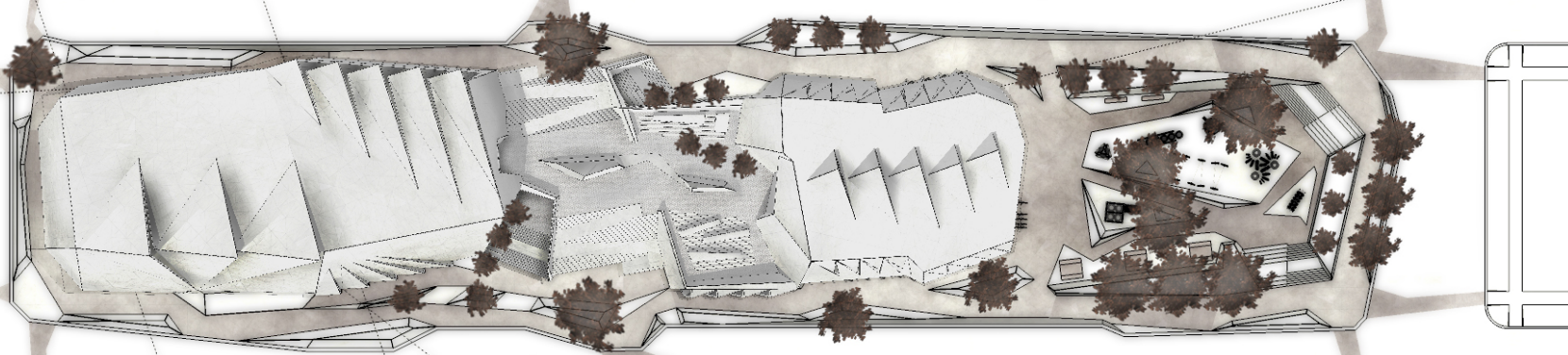
Second



First



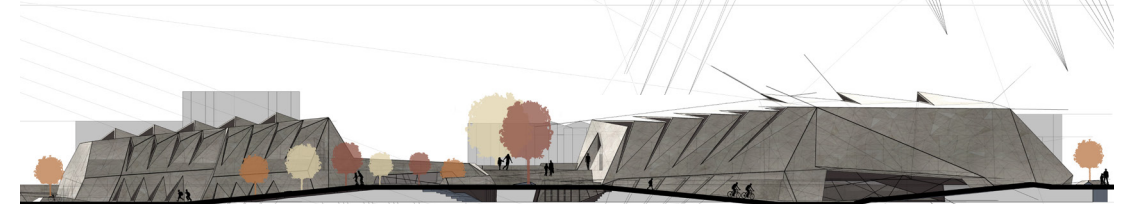
Site



Plans
Figure 67



South



North



East

West

Elevations
Figure 68

ANTICIPATING ENCOUNTERS

The process of folding, translating, and conversations and relationships. It is about hybridizing eventually reached a conclusion promoting a convergence of perspectives within in the form of the final design of this thesis. a social context. So, a key emphasis was placed on creating settings for public interaction. I seek to create spaces but rather to anticipate thought about the design in terms of folding encounters. Architectural experiences were encounters. The various activities carried out in created that cannot possibly be gauged different spaces required different fold patterns. subjectively in terms of any aesthetic quality. Primarily, the folded forms were folded openings Rather, they must be understood through an – windows permitting light in and allowing views inter-subjective perspective since it is about out.

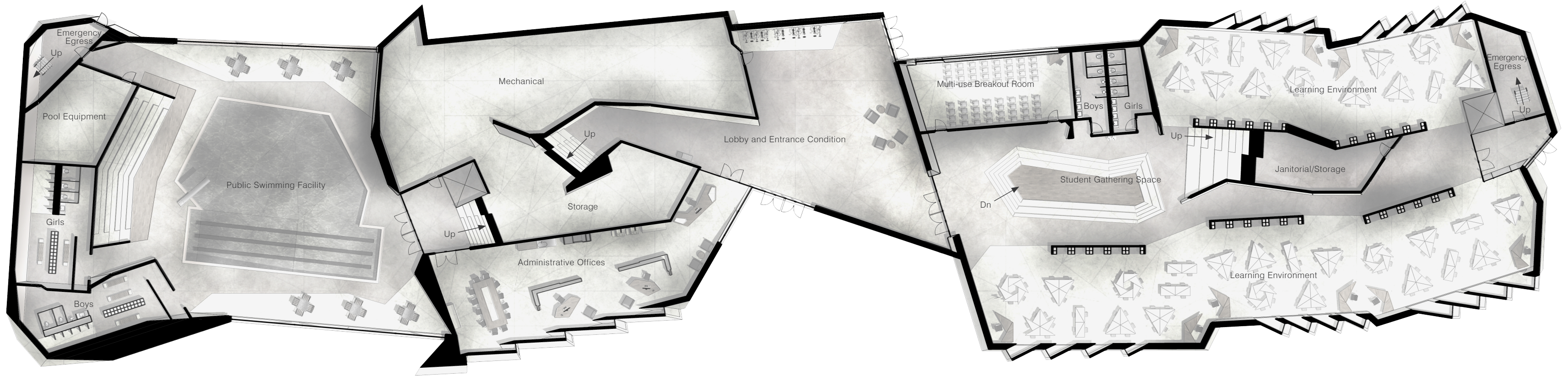
FIRST FLOOR

The first floor of the design rests half a level below grade. Being that the architecture was treated specifically as a composition of edges, it was important to be mindful that nothing necessitated it to conform to the parameters dictated by its flat site.

The architecture emphasizes an interruption of the ground plane throughout the design. To enter the first floor, one must descent half a level.

This lower level ultimately serves as a setting for student and faculty activities. Primary learning areas and administrative offices are located here.

The public swimming facility is also located on this level, however, it is treated as separate from the student and faculty areas and accessible through different entry patterns. It is a part of the public spatial cluster.



First Floor Plan
Figure 69

SECOND FLOOR

While the first floor of the lies half a level below grade, the upper level is situated equidistantly above grade. The relationship of the two floors to the ground surface provides an elaborate and engaging split entry format that defines multiple layers of space throughout the entrance progression.

A roof plaza resting above the lower entrance space separates an upper east wing from its western counterpart. The whole of the west wing is considered

the cluster of student spaces. Its upper portion shown here is made up of secondary student spaces.

Although the west wing is easily accessible from the student spaces and used by students throughout the day, it is predominantly comprised public spaces. Dining, performance, recreational, and swimming spaces make up the public cluster and are all interconnected (primary access to the swimming area is via the central staircase).



ROOF

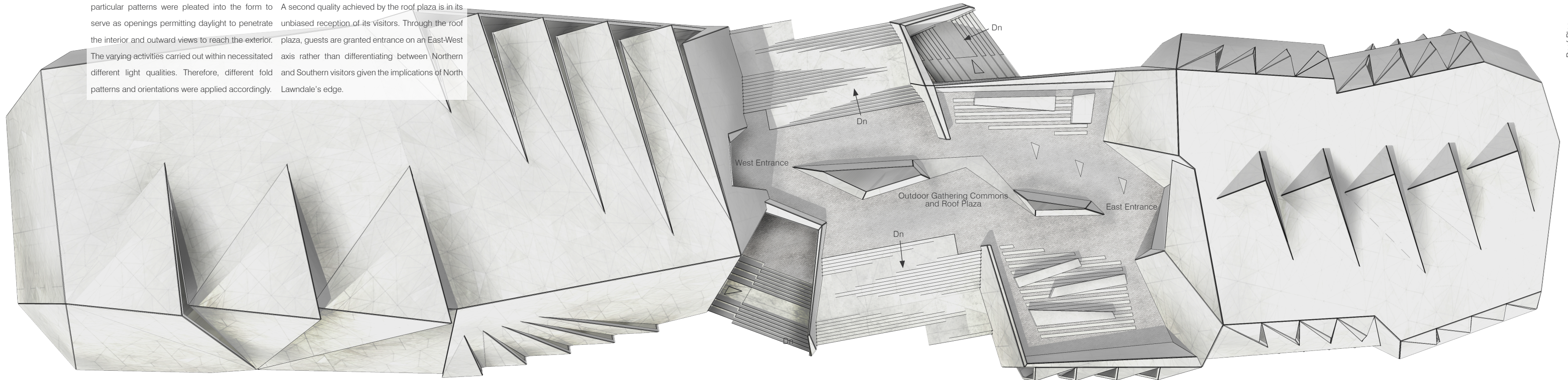
What this image depicts is more accurately described as a continuation of the facade than as a roof. The whole of the building enclosure is best understood as a singular homogenous entity.

Fold patterns inspired by studies in paper folding make up its angular geometries. Repetitions of particular patterns were pleated into the form to serve as openings permitting daylight to penetrate the interior and outward views to reach the exterior.

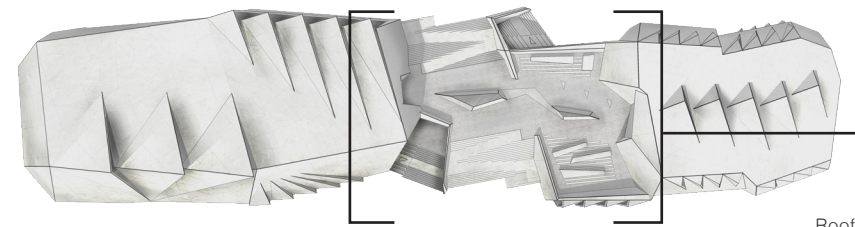
The varying activities carried out within necessitated different light qualities. Therefore, different fold patterns and orientations were applied accordingly.

A roof plaza makes up the final and most significant component of the roof design. It prevents the building as a whole from becoming a barrier between the two sides of the urban edge and allows it to serve as a social bridge. Public space is brought to the heart of the edge rather than a wall-like mass.

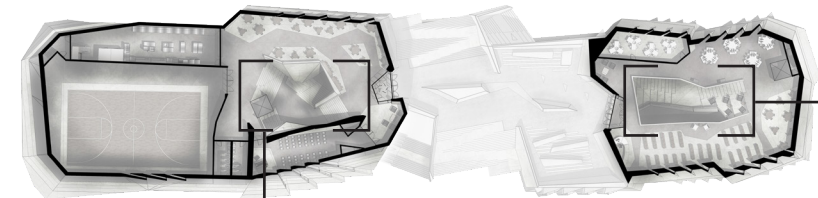
A second quality achieved by the roof plaza is in its unbiased reception of its visitors. Through the roof plaza, guests are granted entrance on an East-West axis rather than differentiating between Northern and Southern visitors given the implications of North Lawndale's edge.



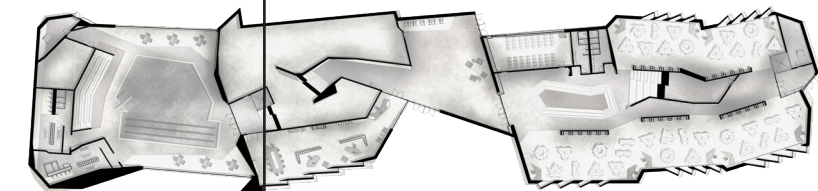
Roof Plan
Figure 71



Roof

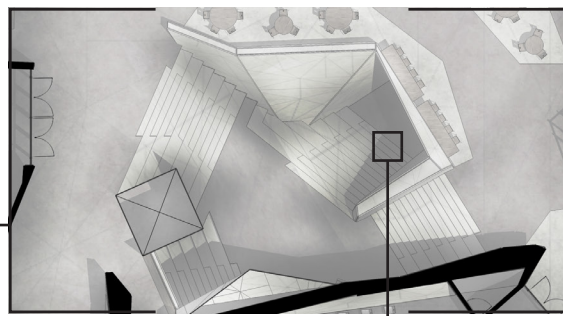


Second

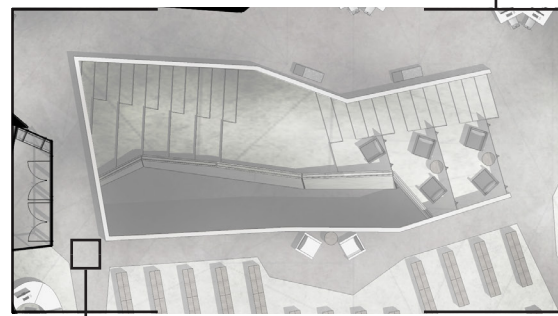


Dining Stair

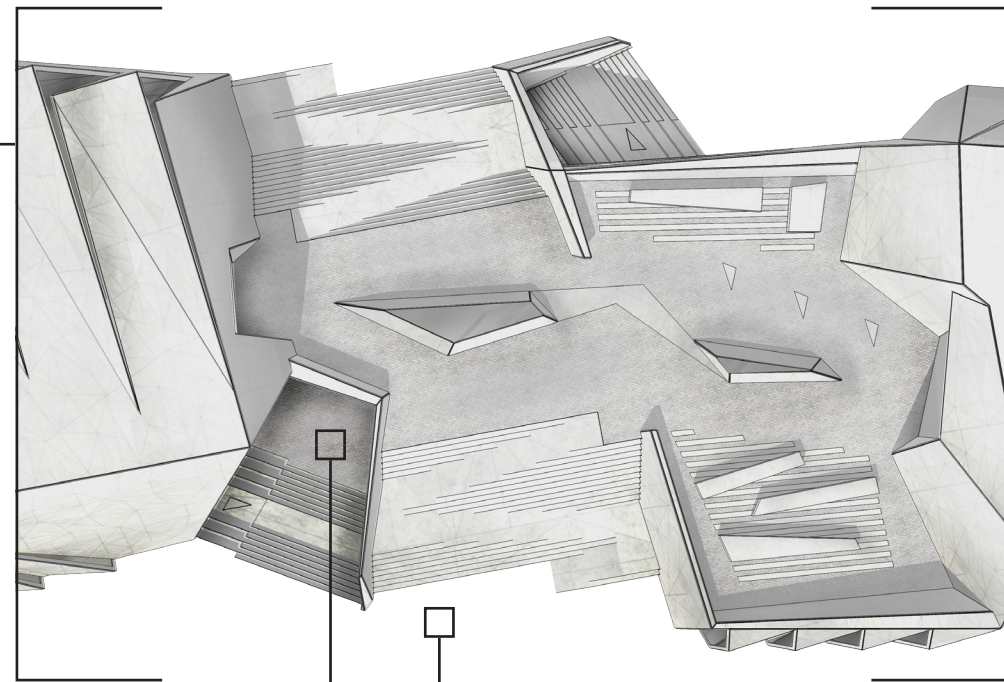
First



Library Stair



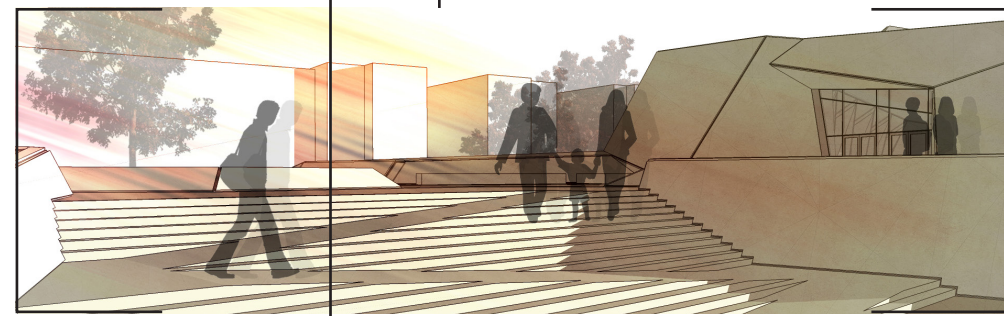
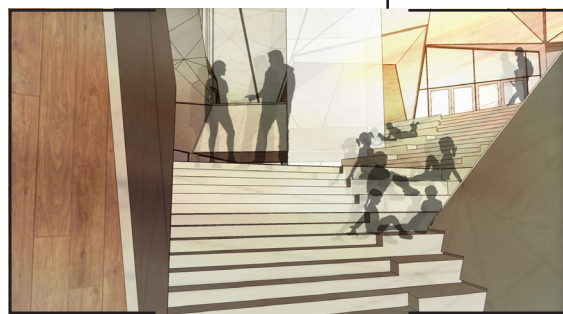
Roof Terrace

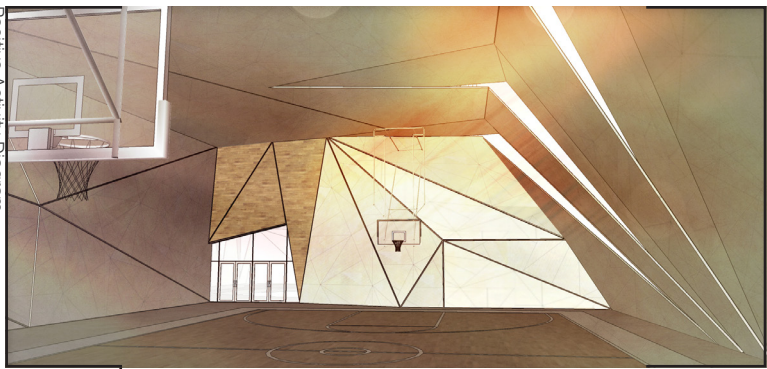


SOCIAL VENUES

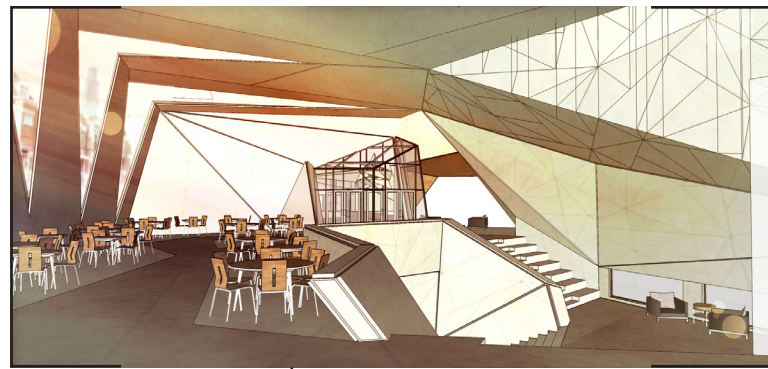
Hallways, staircases, and other exclusively transitional spaces were treated as horizontal and vertical social venues. Being typically transitional in nature, these spaces are essentially the edges between rooms with particular functions. In the same way that a geometric edge may be the transitional element between one surface and another, a hallway may be understood as the

edge between one classroom and another; a staircase is the edge between the first floor and the second. It was significant to develop these transitional edges into highly habitable environments for conversations and social encounters to thrive just as the building as a whole seeks to bring these same characteristics into the larger North Lawndale edge.

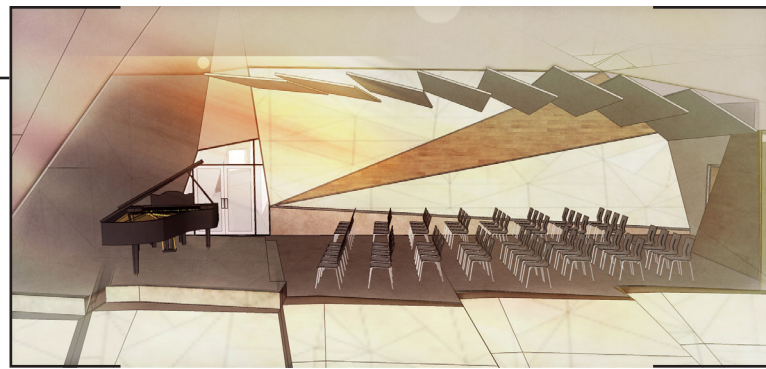




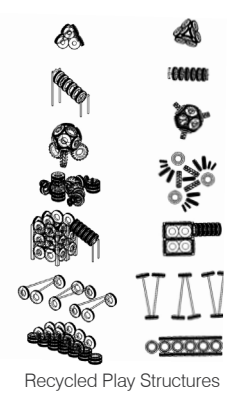
Recreation



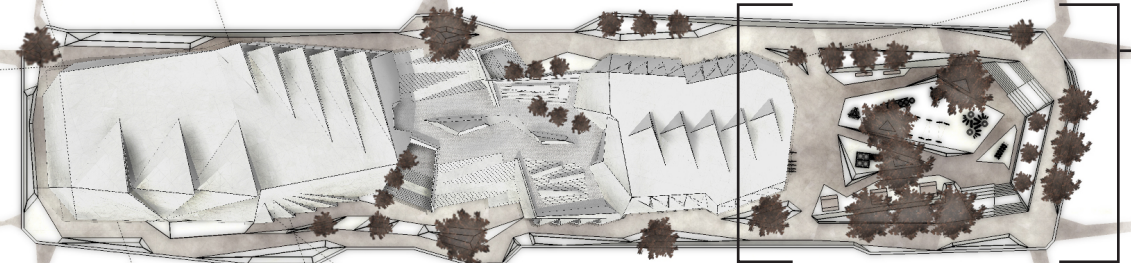
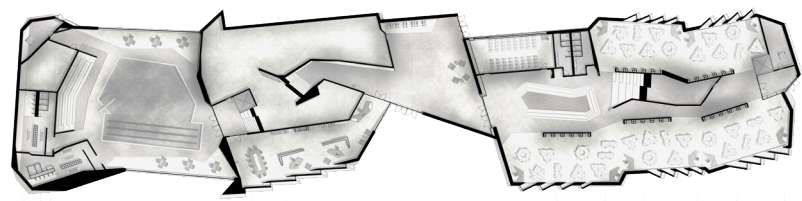
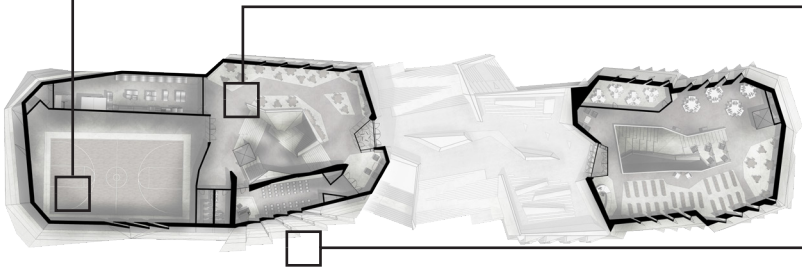
Dining



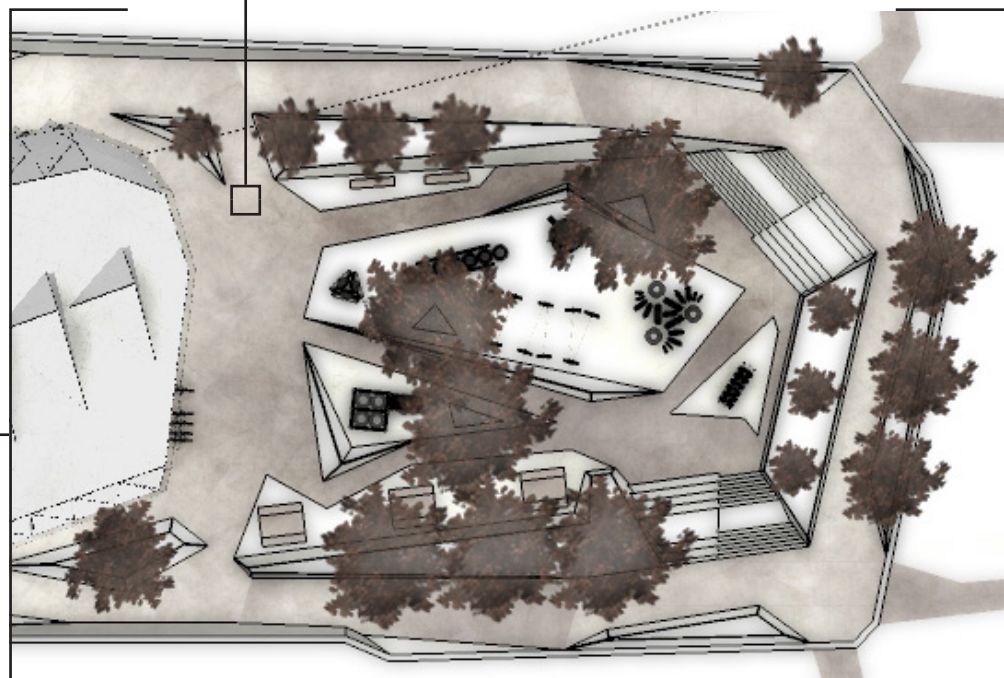
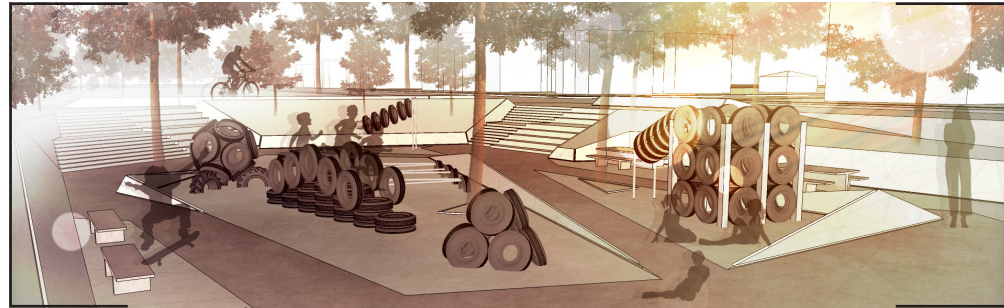
Recital



Recycled Play Structures



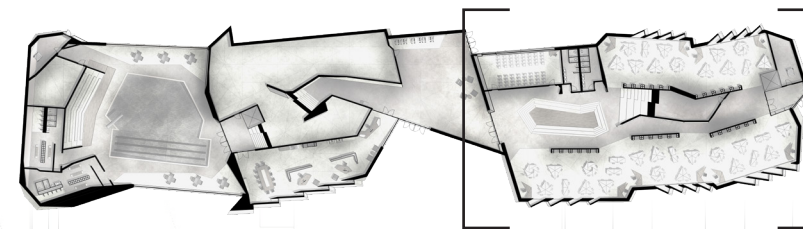
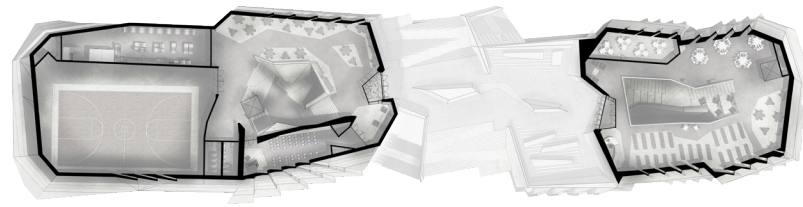
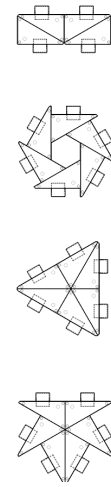
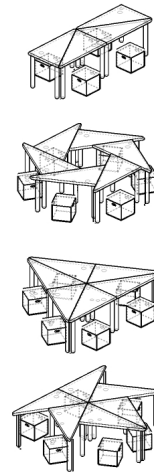
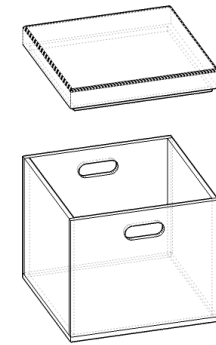
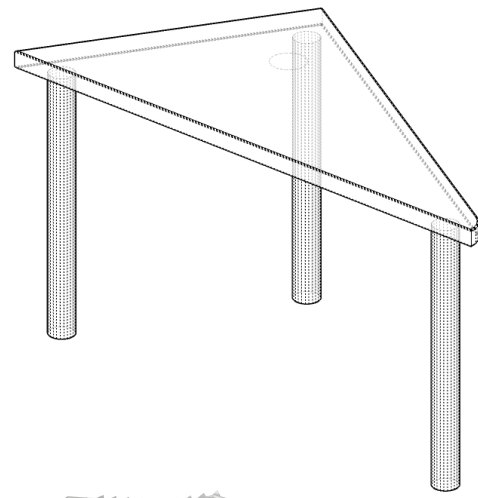
Playground



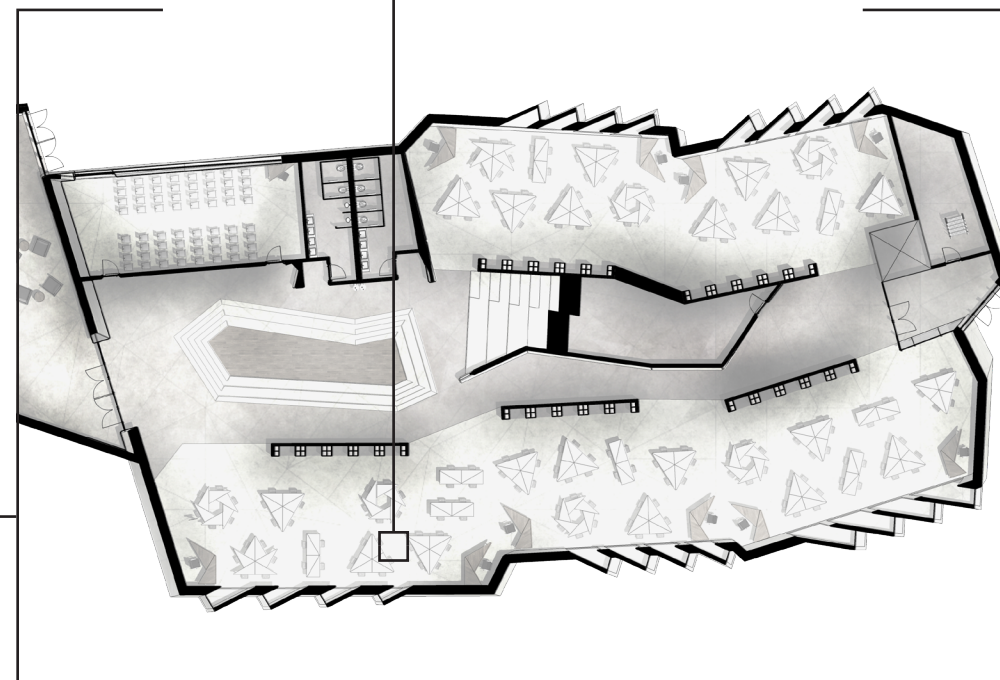
POSITIVE ACTIVITY

Of course, this project quickly became more than just a school. It was a place that needed to emphasize community involvement in order to succeed. For this reason, the program involved many functions intended to be used after school hours and beyond the typical school year. The playground is intended to be a public park. The recreational space as well can be used by the community. An indoor public swimming pool is also included. The music room doubles as a small performance and recital space. The cafeteria can be used for larger events and gatherings. In general, the idea is to bring positive community activity to this urban edge condition in North Lawndale.

Collaborative desk designs
can be customized by
small student groups



Learning

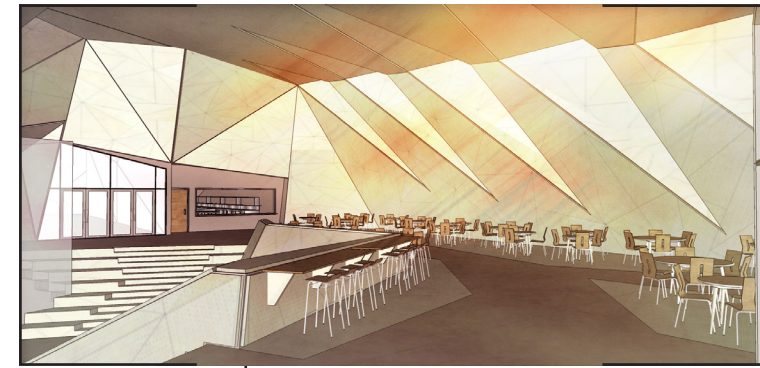
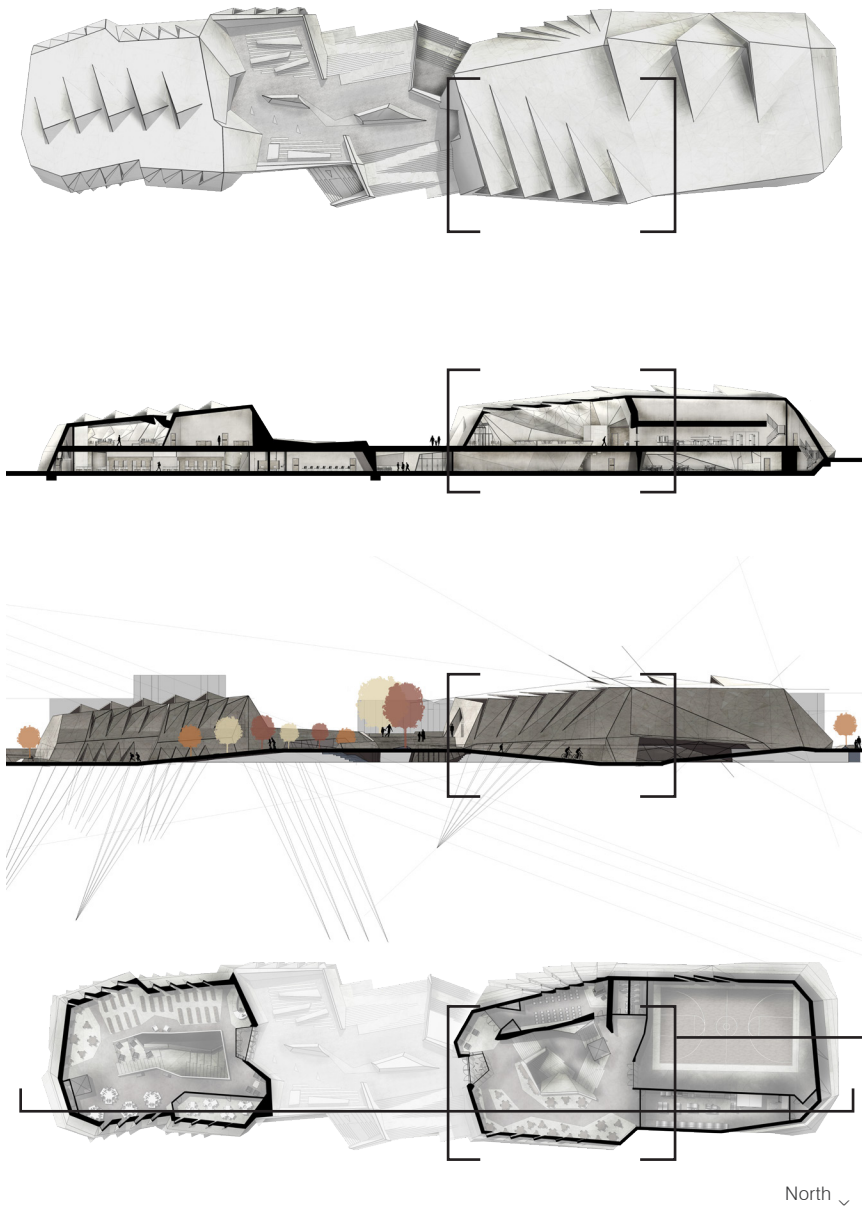


CLASSROOM CONVERGENCE

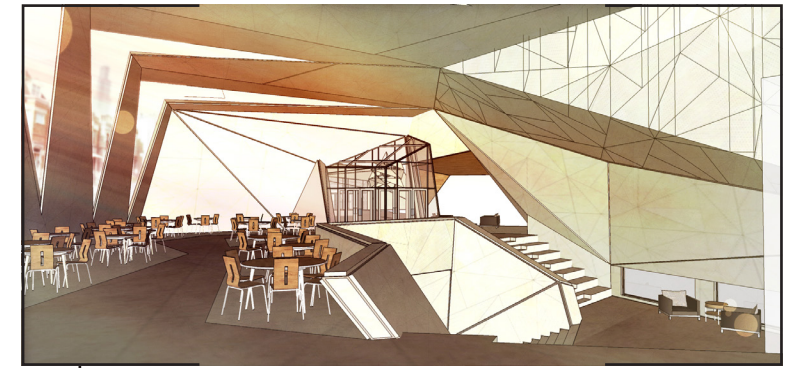
Classroom settings were designed more with a "one-room-schoolhouse" format than with today's traditional school layout with segregated classrooms. In this design, multiple teachers with multiple classes are allowed to occupy the same space similar to the way an architectural studio is often organized. This promotes an intermingling between age groups and classes making possible conversations that would otherwise be absent.

CURIOSITY

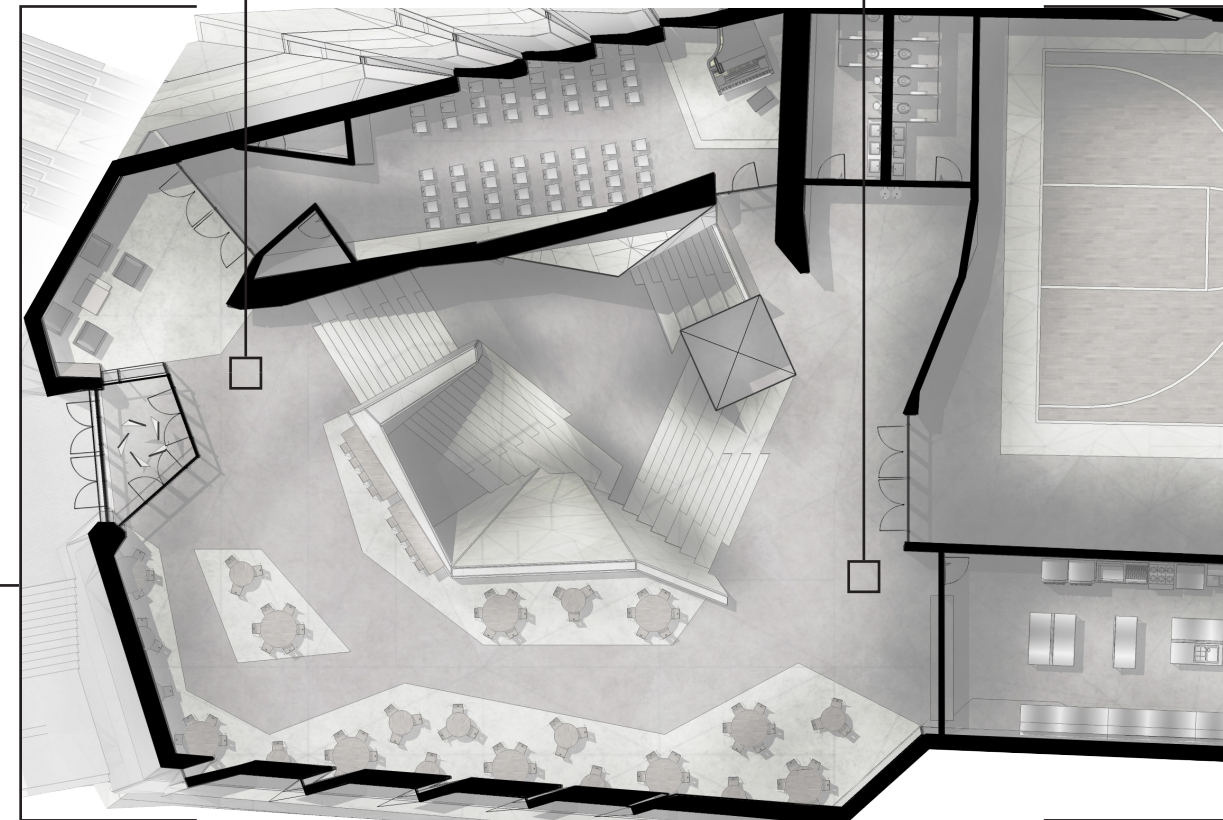
As discussed previously, edges have an interesting ability to tap in to our sense of curiosity. Being that I chose to really examine the potential of this architecture in terms of its edges rather than as typical building components, I was able to hone in on this aspect of the edge. Rather than punching windows directly into walls, I “folded” them into the form of the building. Their angular nature allows them to work in ways different than a typical window. Light is admitted in, but a view to the exterior is only possible from particular vantage points. This allows for a process of discovery throughout the spaces and grants a sense of anticipation rather than allowing the unrestricted access to outward views made possible by a traditional window. The folded vistas compel the inhabitants of the architecture to explore its edges.



Dining Perspective From Entrance



Dining Perspective From Interior



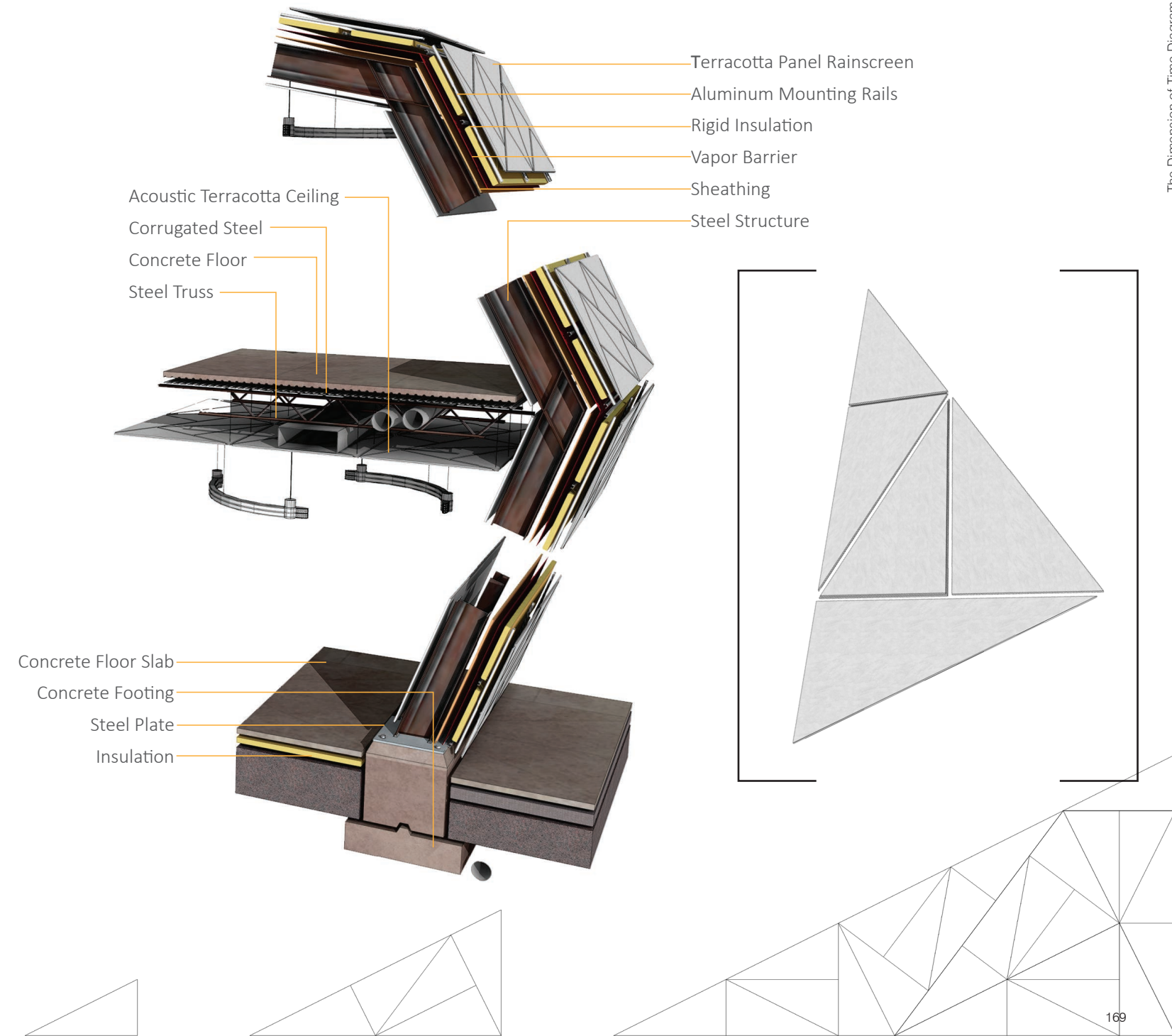
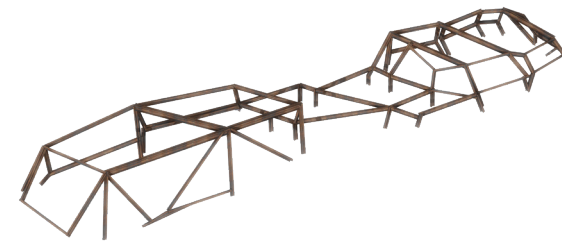
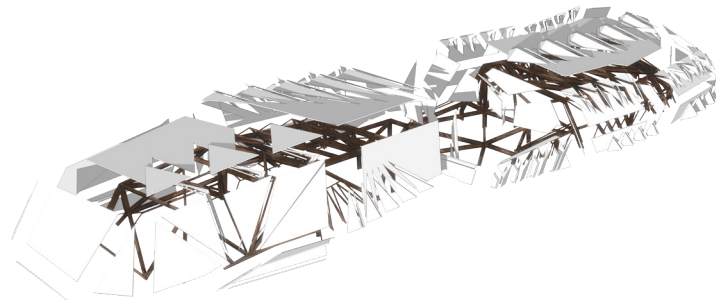
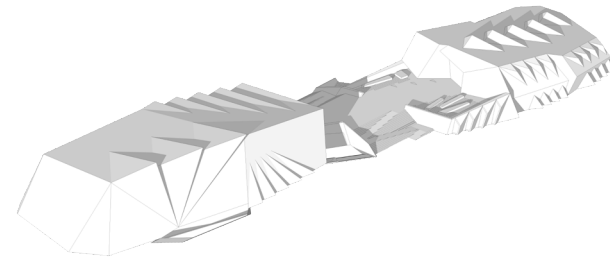
THE DIMENSION OF TIME

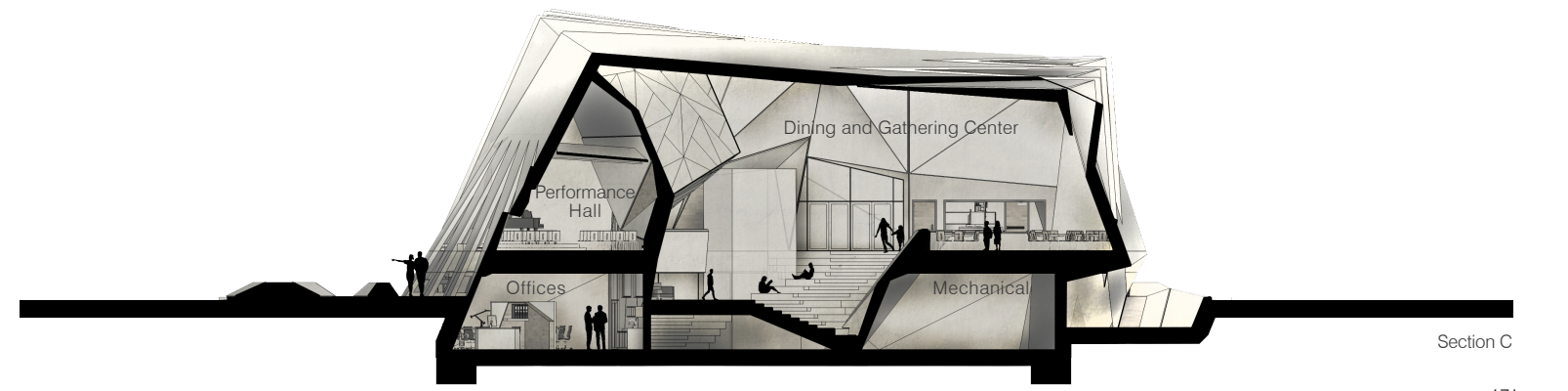
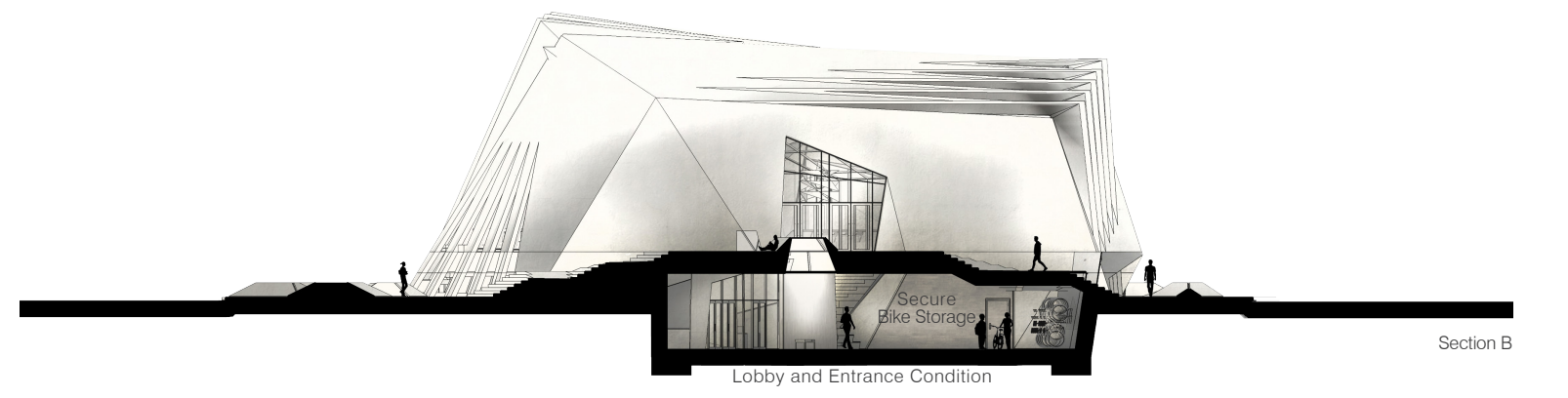
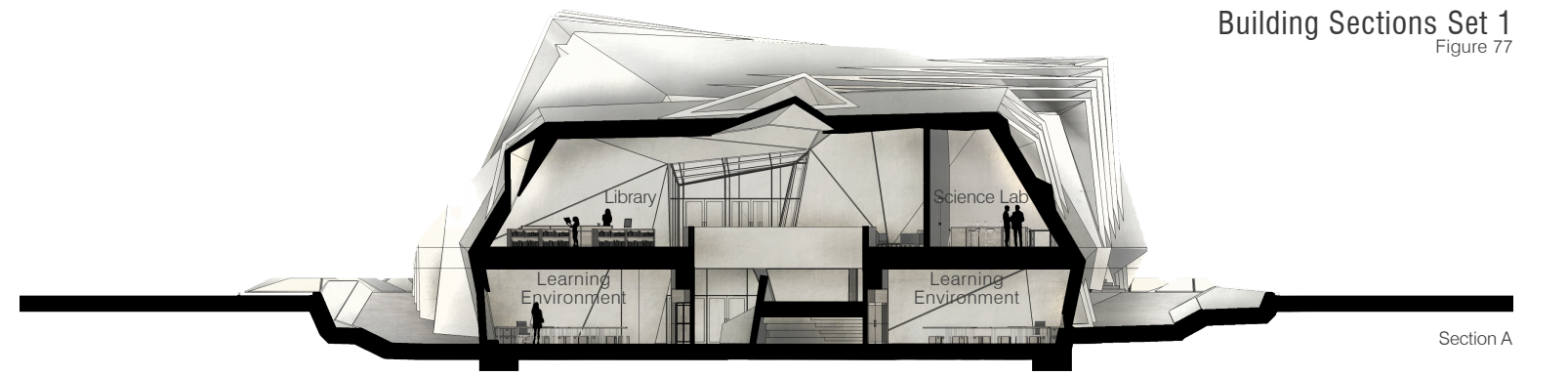
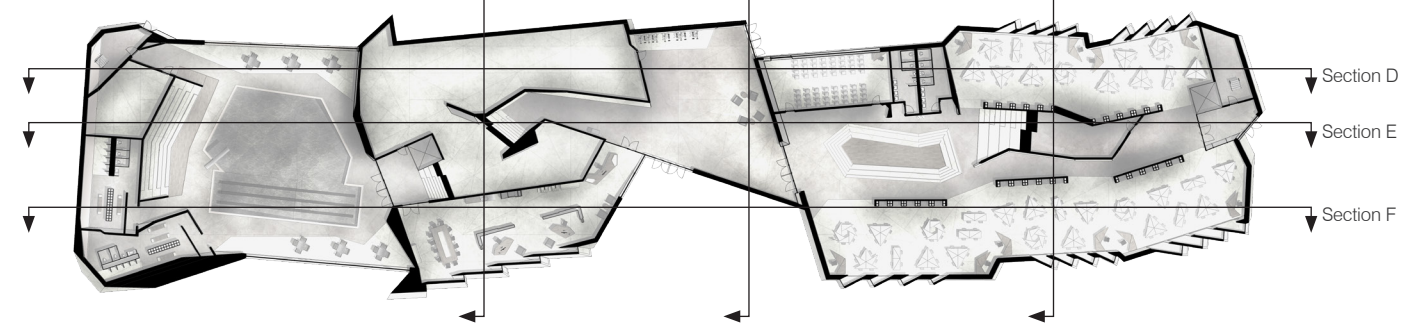
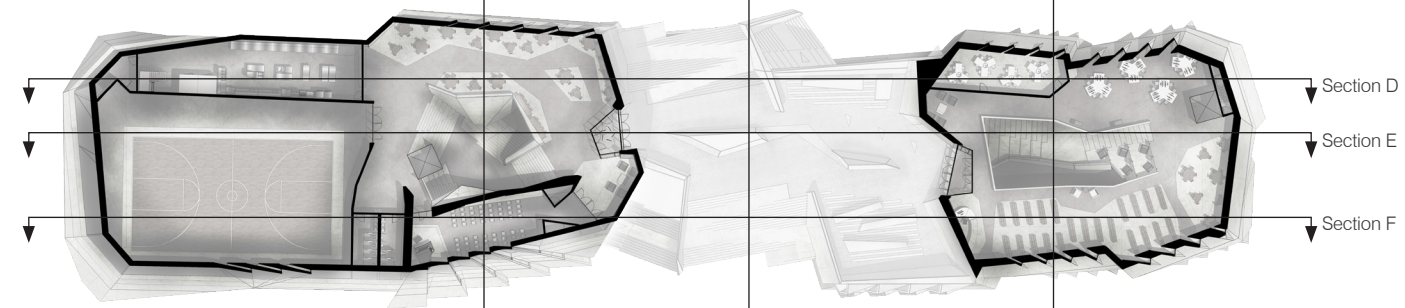
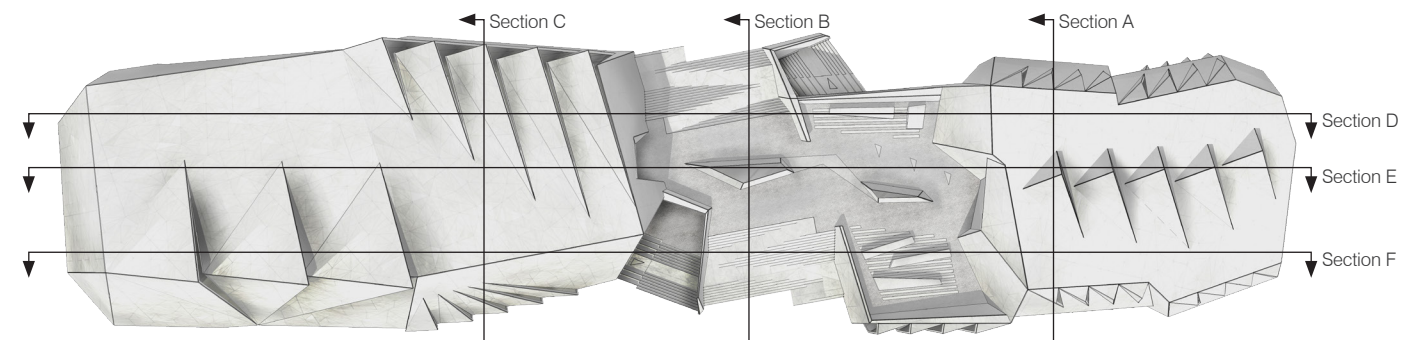
Finally, it was important to consider the dimension of time and its implications on the architecture. This was done in two ways. First, it was designed to last. If the impact architecture has is multiplied by time, then the longevity of the architecture is crucial.

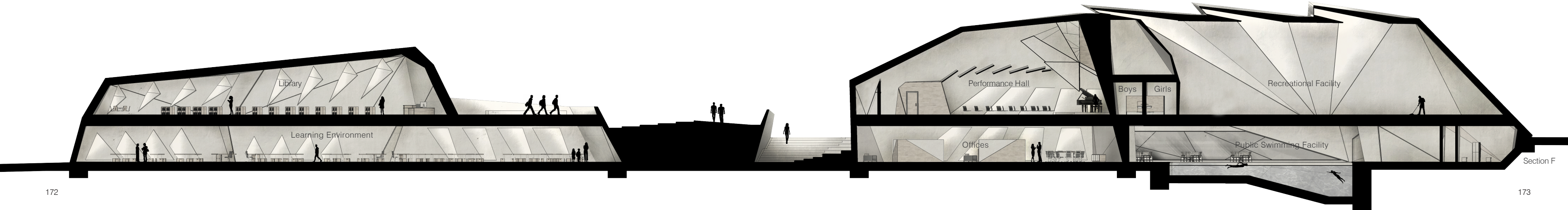
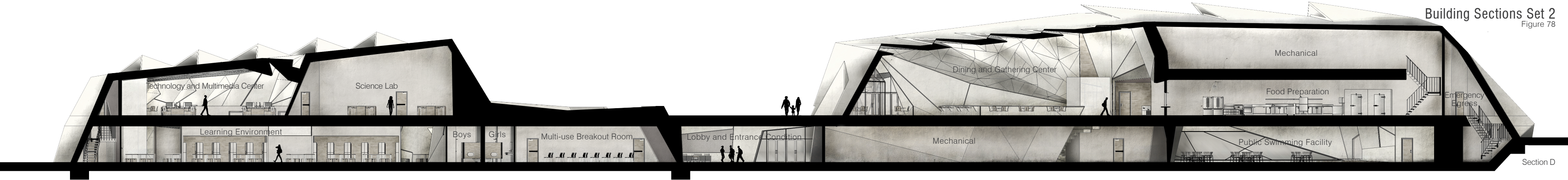
The primary structure is comprised of recycled steel wide-flanges. This gives the design a sound and durable structure as well as a sustainable use of material. The cladding is entirely terracotta. It is a terracotta rain screen system which protects the building from the elements while allowing the building skin to breathe. This prevents mold infiltration and allows for an incredibly long lifespan of the material. The individual terracotta panels are repeated triangular forms arranged in a pinwheel pattern so as to be repeated infinitely (just as a rectangular brick form can be repeated infinitely). They are hung by aluminum rails over the rigid insulation and spaced apart to allow for airflow and constant evaporation.

The second way this project addresses time is through the natural acknowledgment of time by building materials. A problem with early terracotta paneling systems was that they tended to collect airborne grit between their cracks which allowed unwanted vegetation to begin to grow. Weather-sealing technology can now prevent this effect for aesthetic reasons. Though, within the scope of this project, I have elected to embrace this reaction and allow the edges of the architecture to literally thrive.

The transformation and growth of the architectural edges can parallel the transformation of the community and North Lawndale's edge. The same effect is allowed throughout the walking surfaces. The roof terrace is made up of recycled brick harvested from surrounding abandoned buildings as they are torn down by the city. This is one way that the architecture integrates the history of its context and infuses it into a process of transformation. Time was a significant consideration.



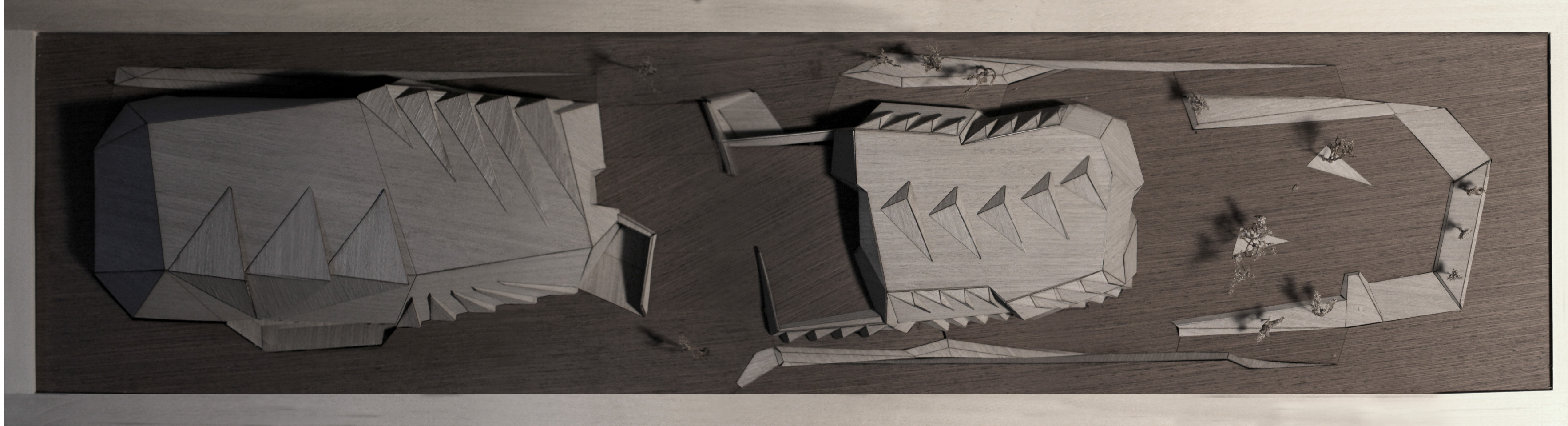




AN OPTIMISTIC COMPOSITION

Through a process of folding, designing, and communicating, and creating, I have assembled this architecture of edges as a cohesive conclusion. This design does not pretend to be capable of transforming a community or resolving gang conflict. But it does hope to enable encounters that were previously impossible. This design is a result of the pursuit of that hope; it is an optimistic composition of edges.

Edges of the Mind
Figure 79

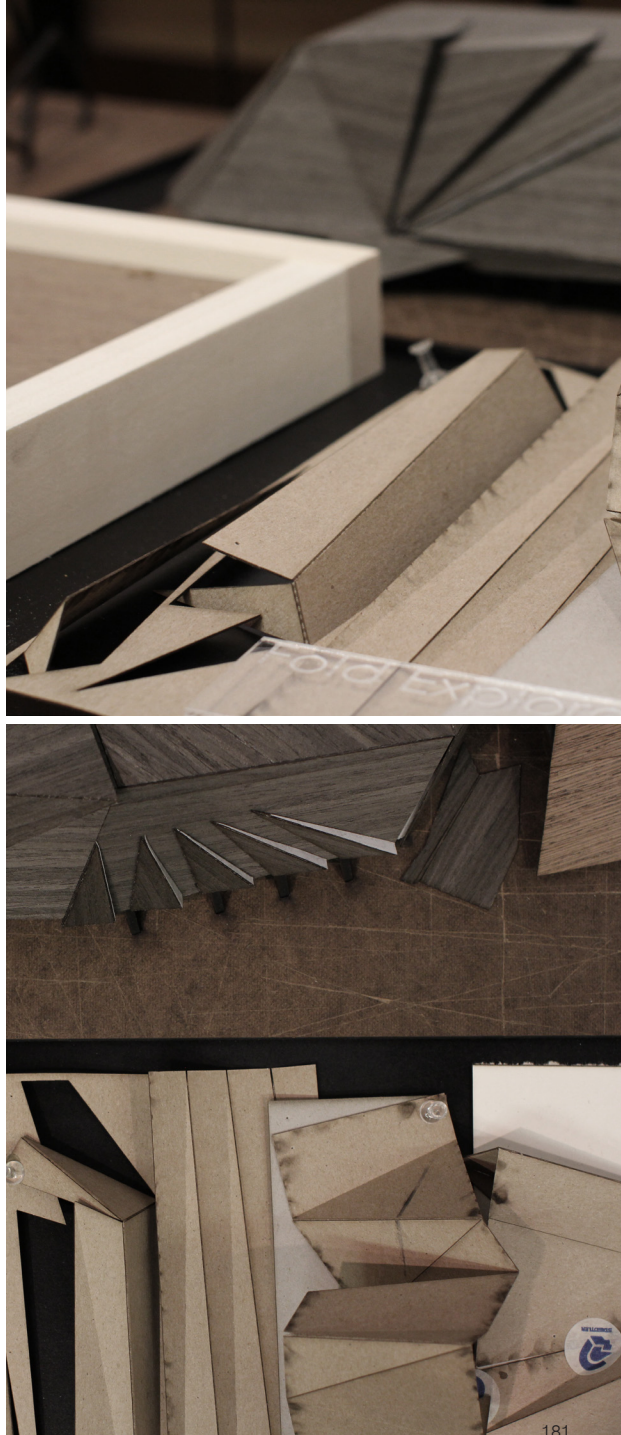
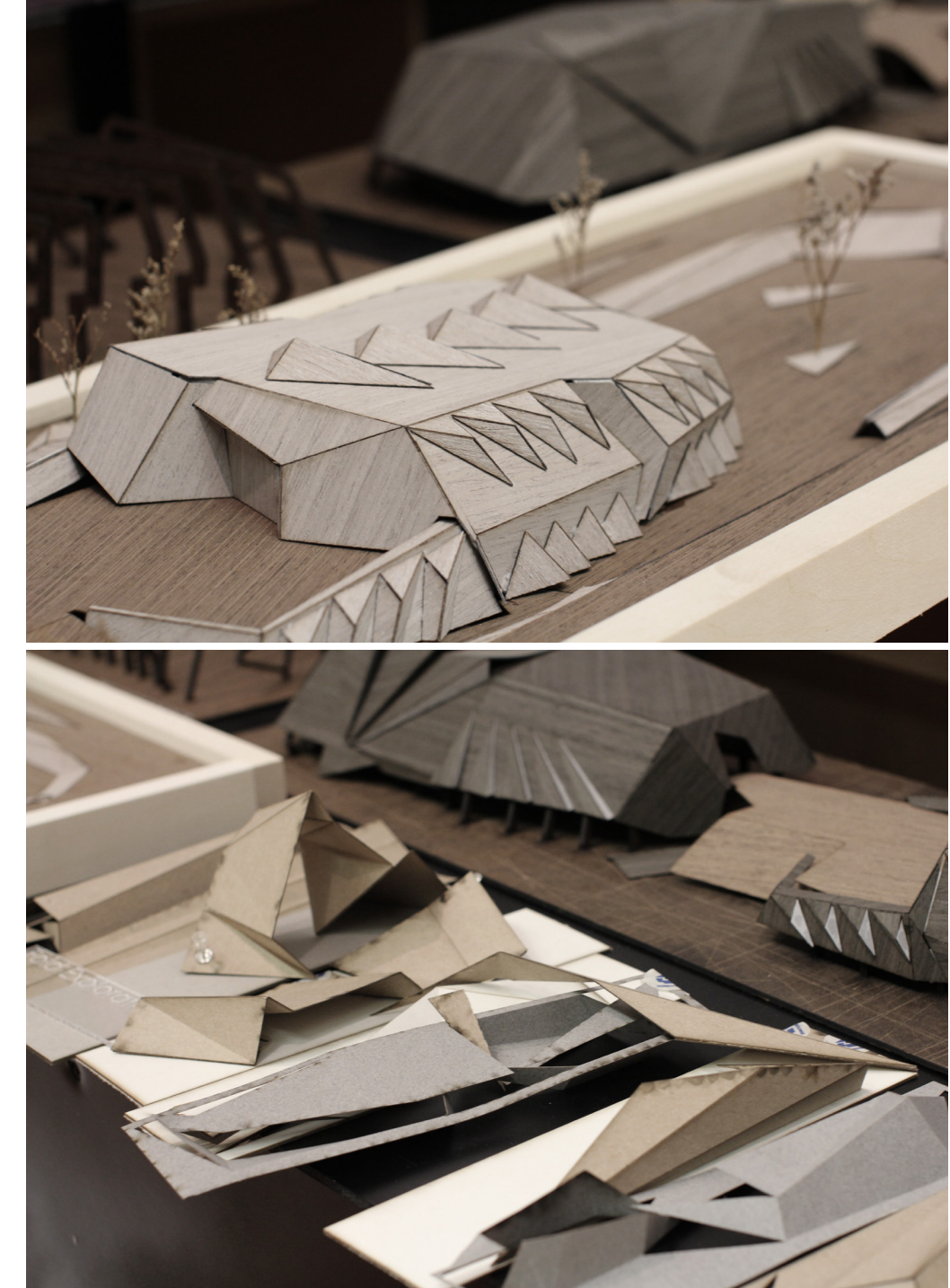
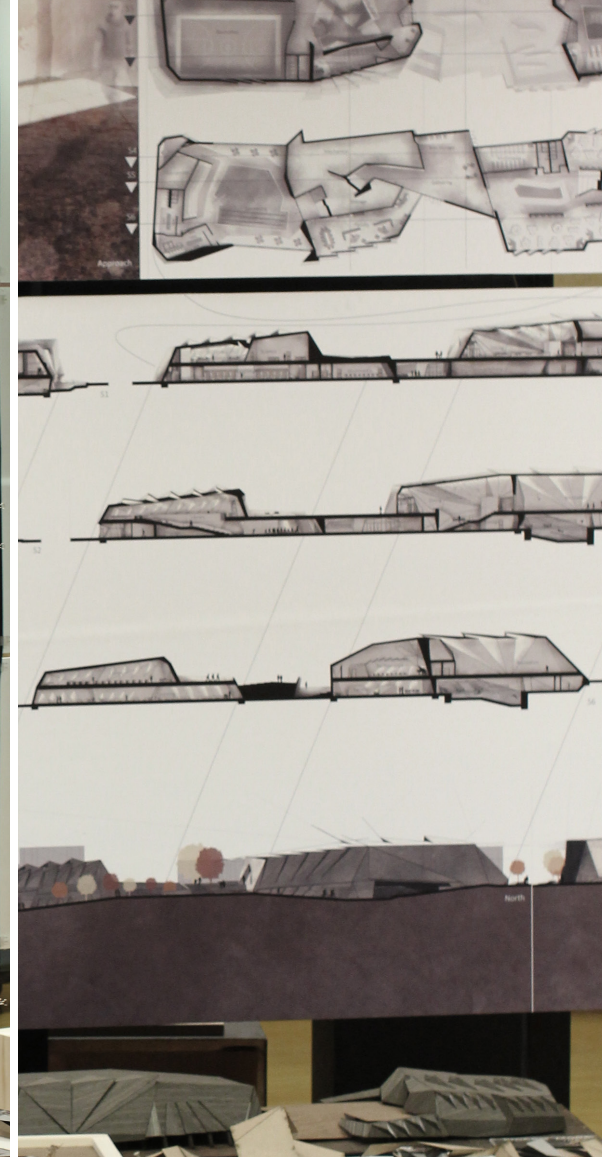
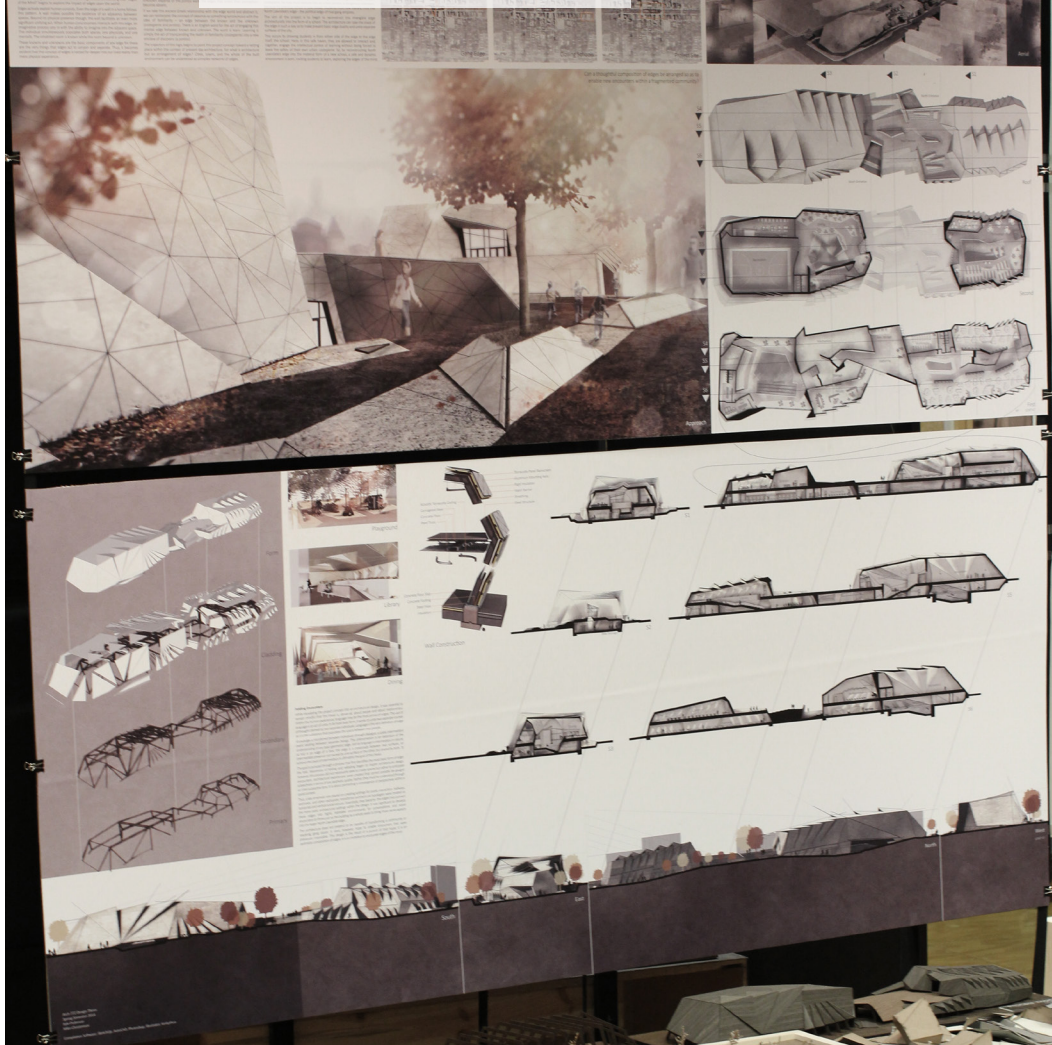


Site Model
Figure 80



Model Details
Figure 81

EDGES OF THE MIND THESIS EXHIBITION DISPLAY



Exhibition Photos Figure 82

EDGES OF THE MIND
Reconstructing an Urban Pontos



PREVIOUS STUDIO EXPERIENCE

Past experience in previous design studios has anticipated the design of this thesis in many ways. An architectural skill set applicable to this project design was all but entirely established within the context of these studio settings. Immeasurable gratification is fully deserved by these studio instructors who have actively pushed my professional development over the years. Much thanks, as well, is earned by my friends and fellow designers of the North Dakota State University Masters of Architecture class of 2014 who have not only challenged me to succeed but also come to my aid at times of struggle. Thank you all.

Instructor Joan Vorderbruggen **Fall Studio 2010**
Portfolio - Tea House, Boat House

A Place for Tea
Figure 83



Instructor Joan Vorderbruggen **Spring Studio 2011**
Portfolio - Birdhouse, Montessori School, Dwelling

Unconventional Dwelling
Figure 84



Instructor Mike Christenson **Fall Studio 2011**
Portfolio - Archaeology of the Given, Extrapolation in the Material Field, Extension in the Material Field, Trace and Intersection

Extrapolation in the Material Field
Figure 85



Instructor Rhet Fiskness **Spring Studio 2012**
Portfolio - Presidential Library, BWBR Competition, Visual Arts School

Constructed Frame
Figure 86



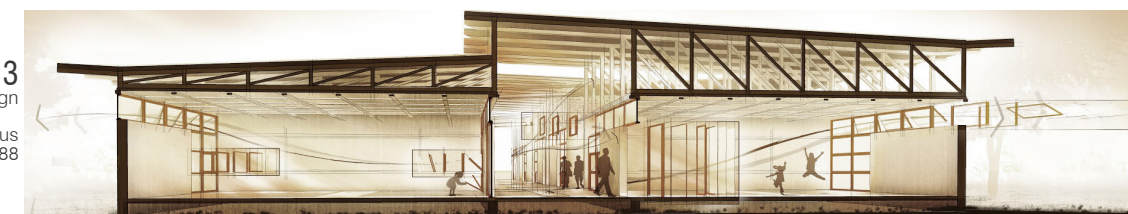
Instructor Cindy Urness **Fall Studio 2012**
Portfolio - High Rise, DLR Competition

Vertical Community
Figure 87



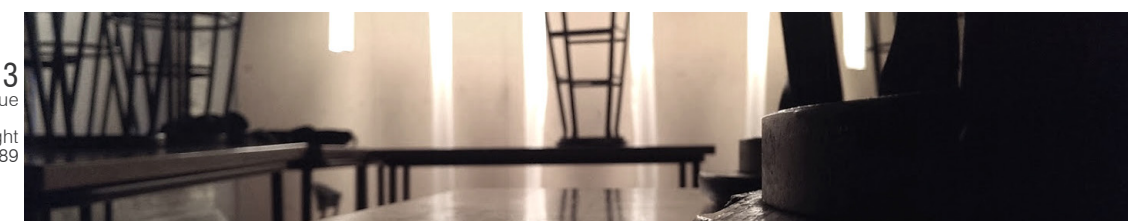
Instructor Don Faulkner **Spring Studio 2013**
Portfolio - Ghana Campus, Marvin Windows Competition, Urban Design

Jema Campus
Figure 88



Instructor Stephen Wischer **Fall Studio 2013**
Portfolio - Architecture in the Oblique

The Architecture of Light
Figure 89



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Portrait at Mill City Ruins
Figure 90, Above

