CHRISTOPHER CONNOCK

M. ARCH I 3RD YEAR, *Status*

CHRISTOPHER CONNOCK

M. ARCH I 3RD YEAR, *Status*

GRADUATION PORTFOLIO

SPRING 2011, *Date*

SPRING 2011

ARCH 1111B: ADVANCED ARCHITECTURAL DESIGN
GREG LYNN, *Visting Professor*

ARCH 1227B: DRAWING PROJECTS
TURNER BROOKS, *Professor*

ARCH 2299B: INDEPENDENT STUDY
ED MITCHELL, MICHELLE ADDINGTON & BRENNAN BUCK, *Readers*

WINTER 2011

ARCH 1105A: ADVANCED ARCHITECTURAL DESIGN
ALEJANDRO ZAERA-POLO, *Visting Professor*

ARCH 1211A: DRAWING AND ARCHITECTURAL FORM
VICTOR AGRAN, *Professor*

SPRING 2010

ARCH 1022B: ARCHITECTURAL DESIGN
ANDREA KAHN, *Professor*

ARCH 1021A: ARCHITECTURAL DESIGN
MARK FOSTER GAGE, *Professor*

ARCH 1012B: ARCHITECTURAL DESIGN
JOEB MOORE, *Professor*

ARCH 1011A: ARCHITECTURAL DESIGN
BEN PELL, *Professor*

ARCH 2221B: ORNAMENT AND TECHNOLOGY
BEN PELL, *Professor*

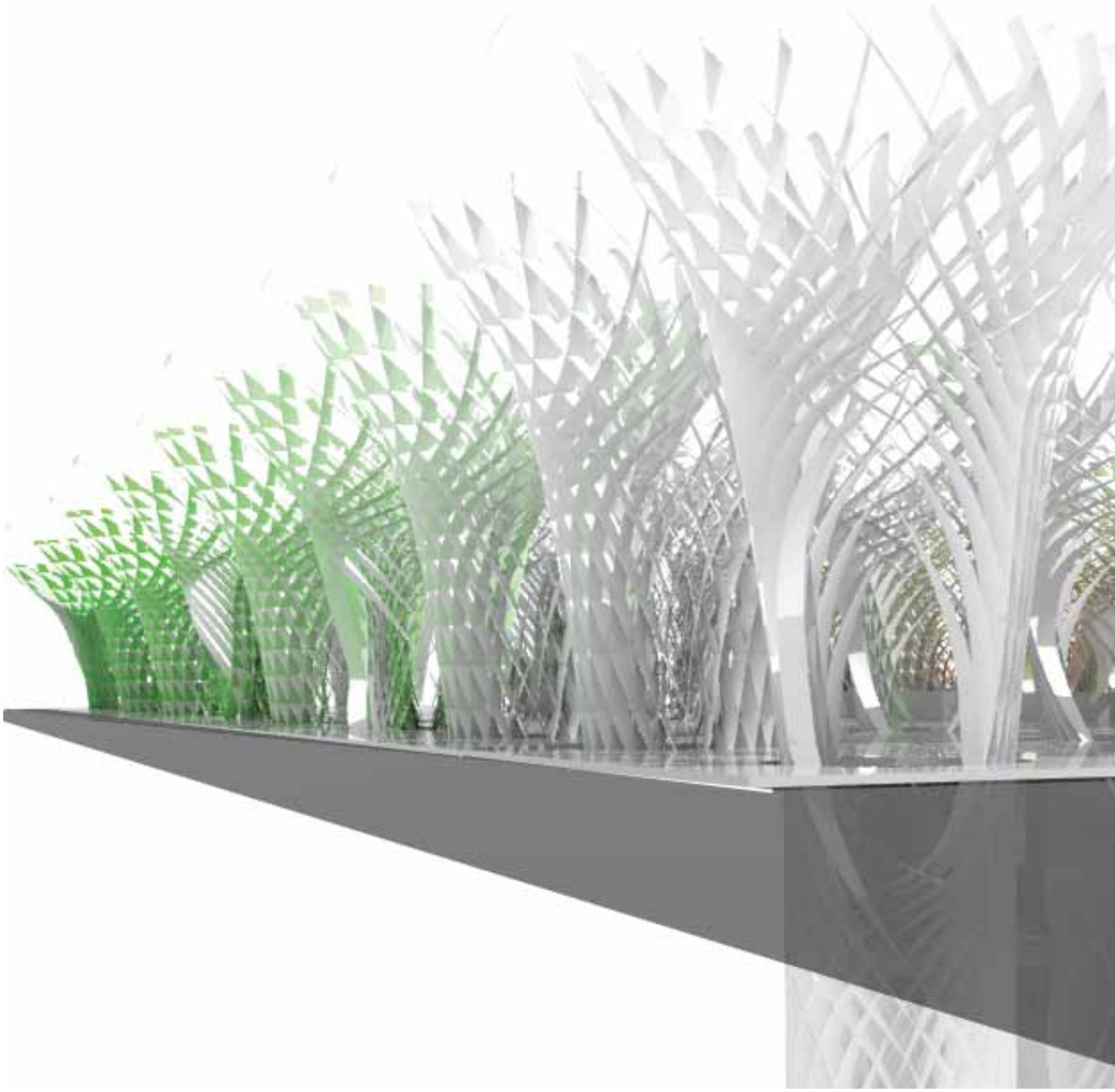
ARCH 1016B: FABRICATION AND ASSEMBLY
JOHN EBERHART & BRENNAN BUCK, *Professor*

ARCH 661B: MATERIALS AND MORPHOLOGY
KIMO GRIGGS, *Professor*

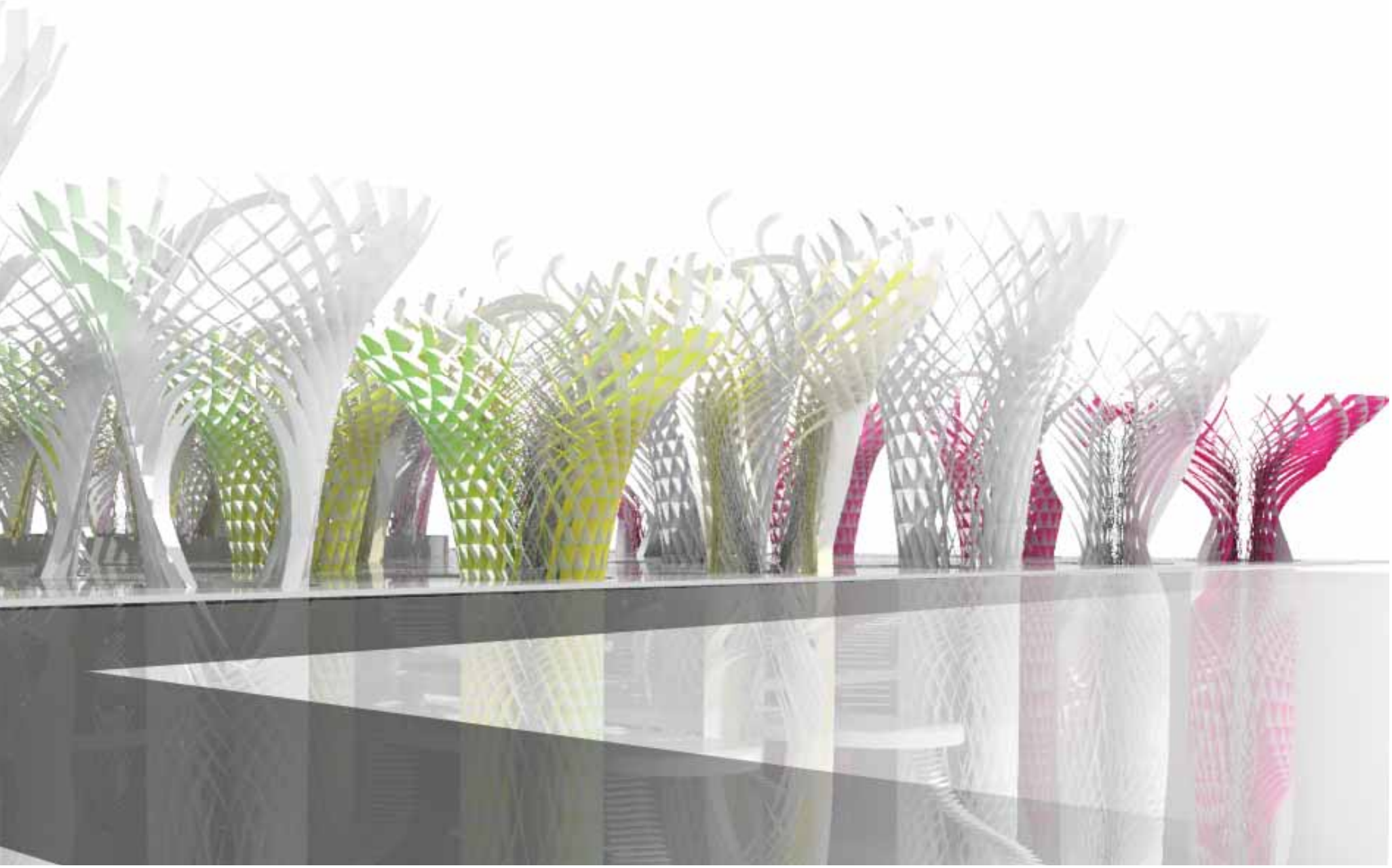
ARCH 1018A: FORMAL ANALYSIS
PETER EISENMAN, *Professor*

HYPOSTYLE HALL: (TOO) MANY COLUMNS

ARCH 1111B: ADVANCED ARCHITECTURAL DESIGN, *Studio*
GREG LYNN, *Professor*
TEN WEEKS IN 2011, *Length*

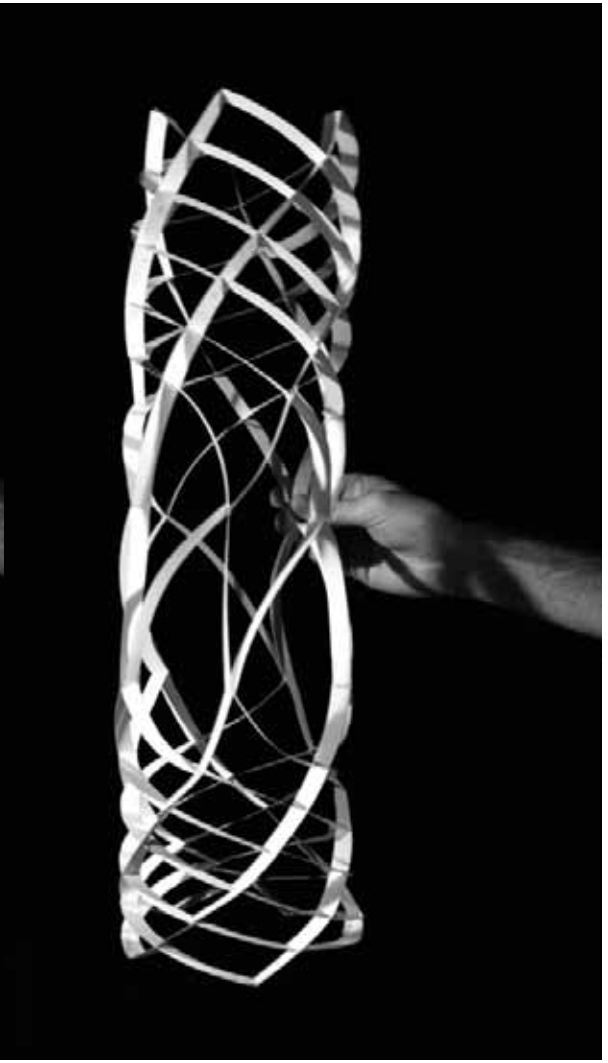


MID-TERM PERSPECTIVE FROM STREET
Each track and it's respective array of columns is color coded with a subtle desaturation occuring as the columns move away from the head of the train - inferring not only regional vs commuter track, but direction as well. Originally vertical and set on a strict grid - for the final, the columns eventually took on a character unique to the program they bounded.



WOVEN COLUMN, EQUAL & CONSISTENT CROSS GRAIN

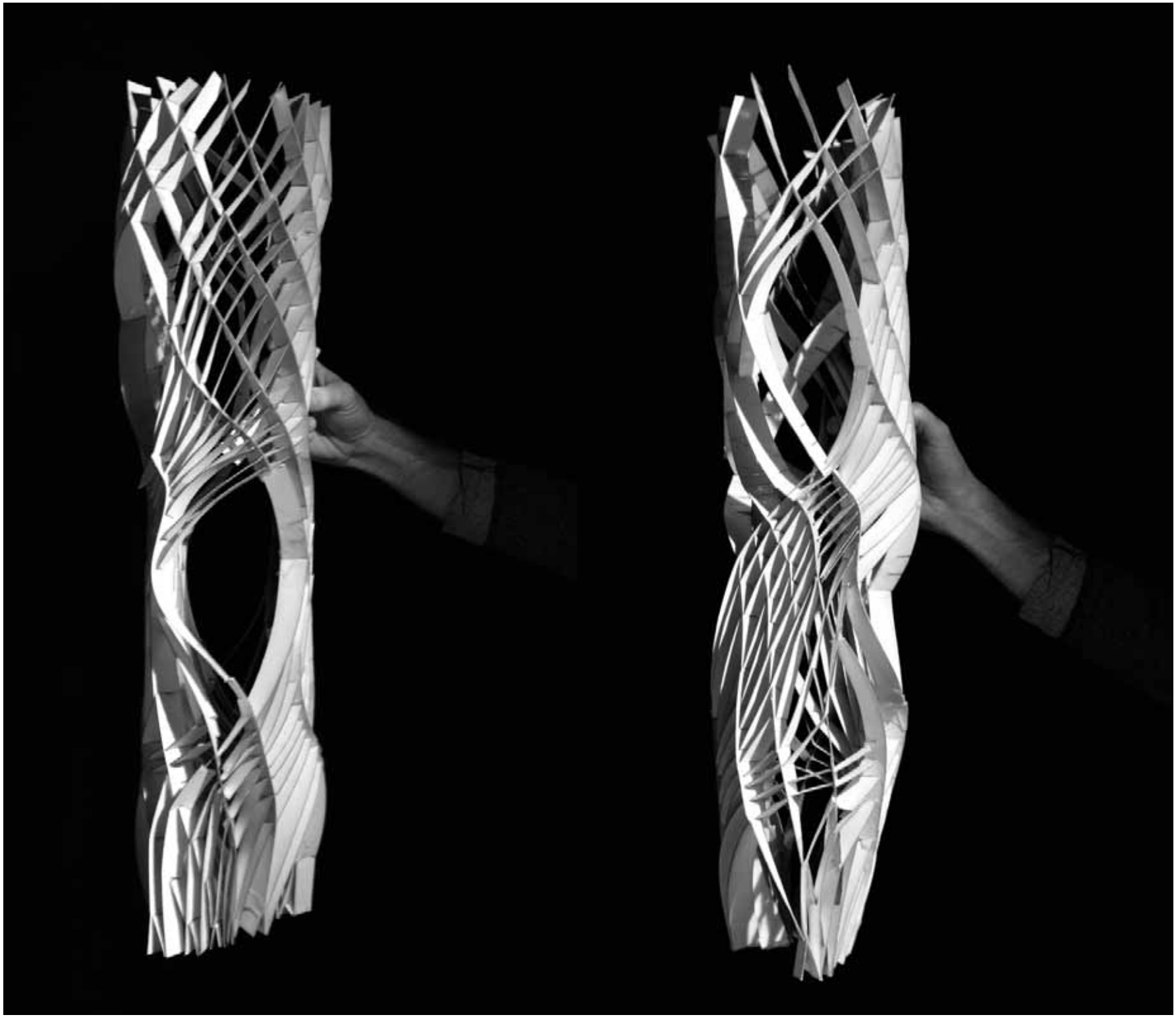
WOVEN COLUMN, UNEVEN CONSISTENT CROSS GRAIN

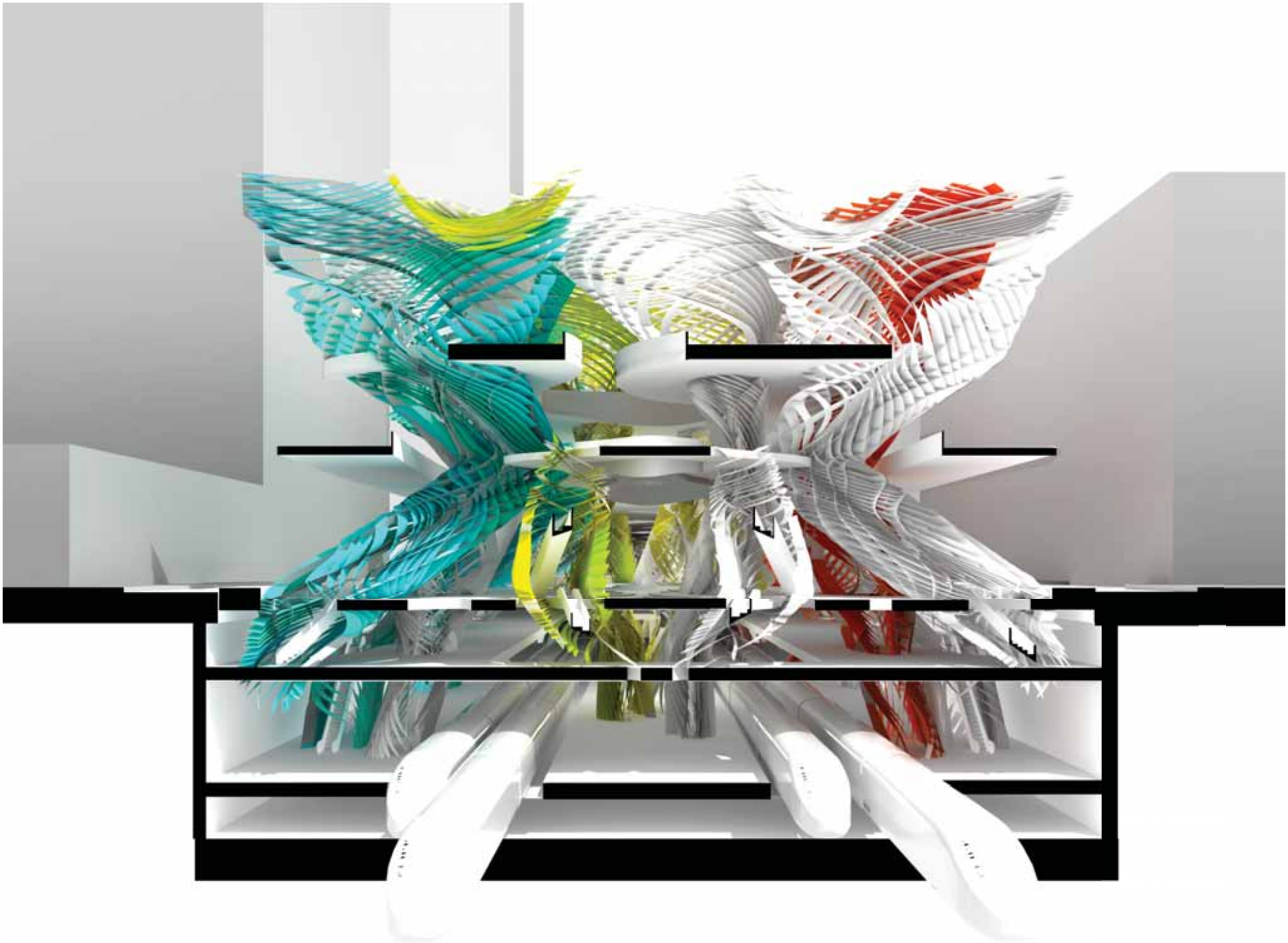


WOVEN COLUMN, UNEVEN RAMPING CROSS GRAIN

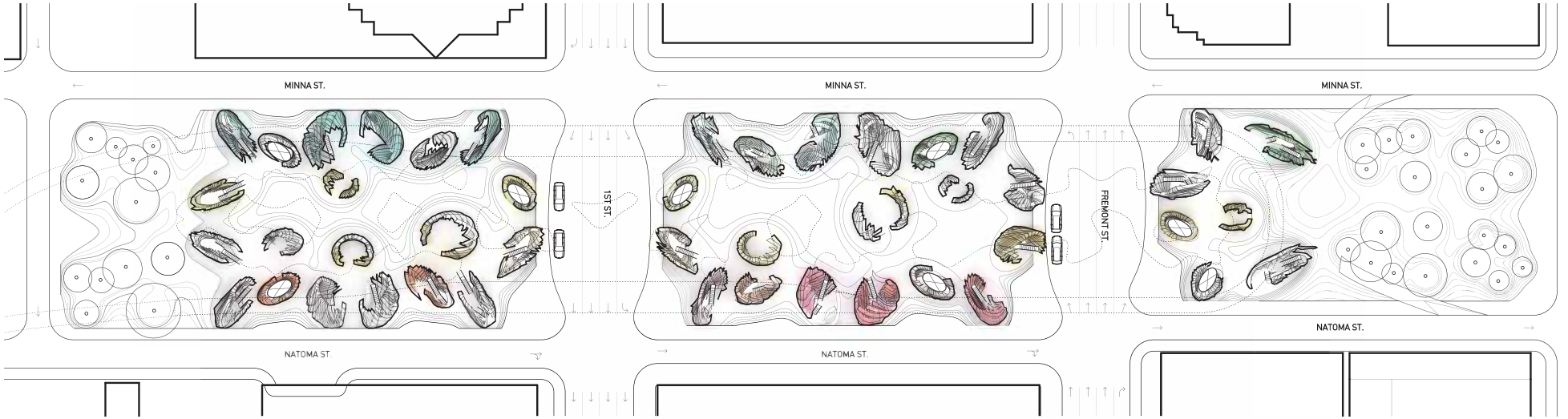
WOVEN COLUMN. UNEVEN AND RAMPING CROSS GRAIN
WITH PROGRAMMED APERTURES

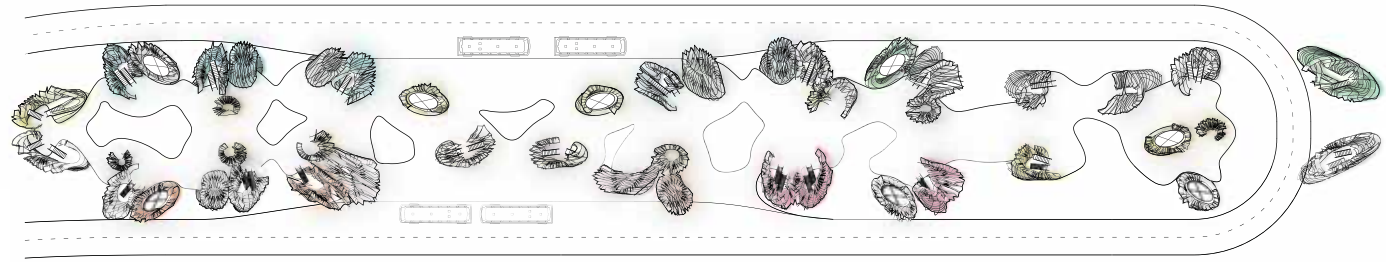
The project started with the mandate of creating a 'precise' model. Multiple variations on a traditional cross-woven column were explored with the intent of liberating the individual spiraling elements from a mere pattern (ex. diagrid) applied to a surface to autonomous formal elements by introducing uneven and inconsistent spiraling, dimples, inflection and openings.

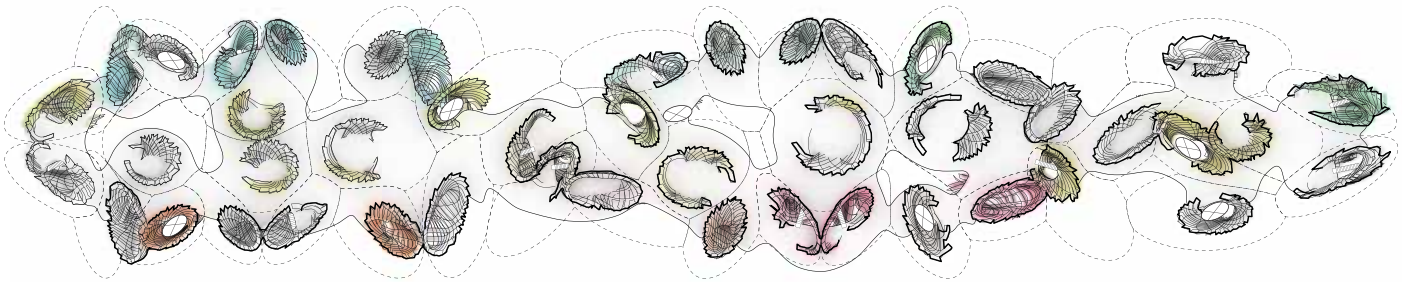




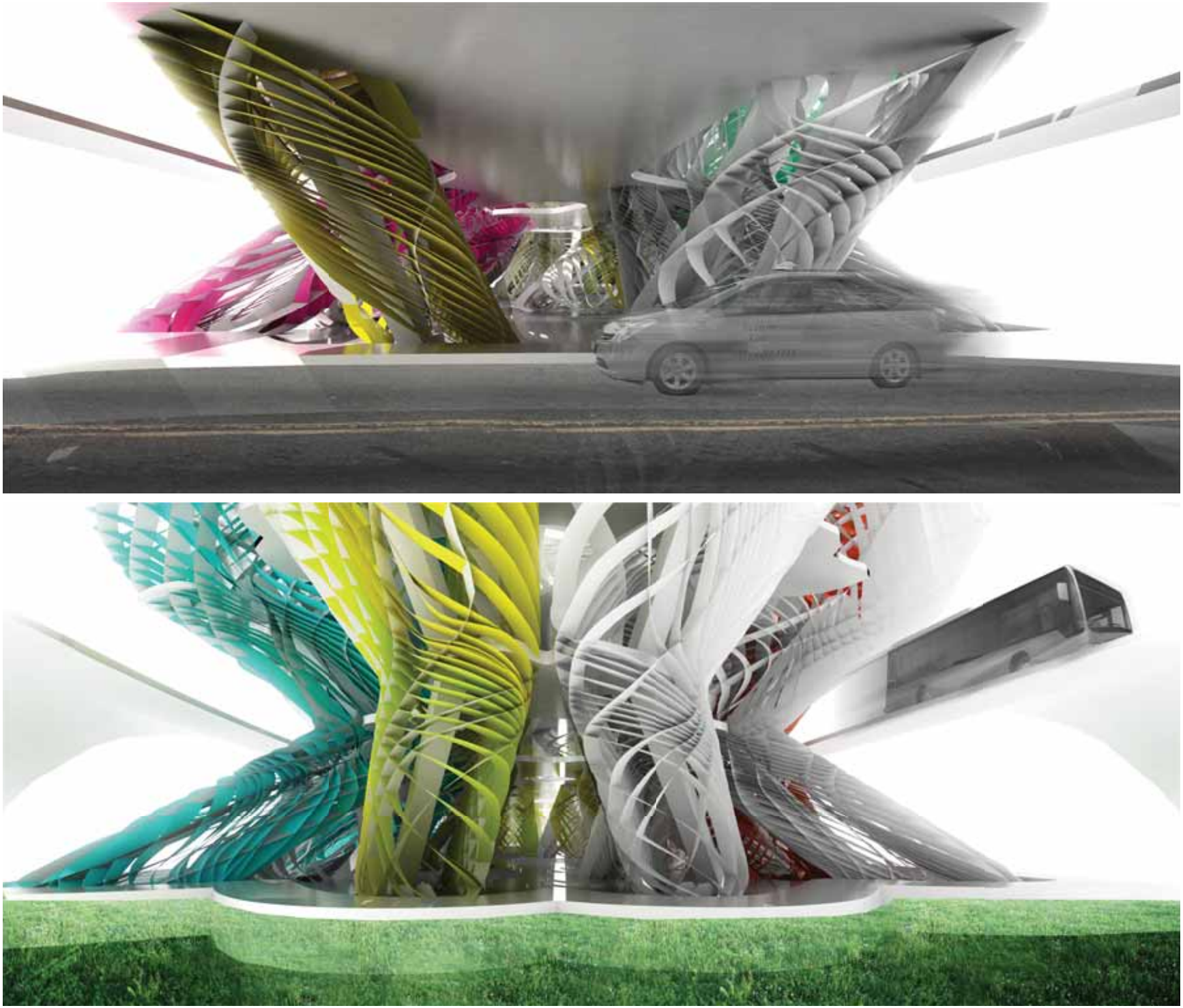
NORTH-SOUTH SECTIONAL PERSPECTIVE
Each track has an array of dedicated access/egress columns that are color coded by track and gradually desaturated as they move away from the head of the train.


MINNA ST.
MINNA ST.
MINNA ST.
1ST ST.
FREMONT ST.
NATOMA ST.
NATOMA ST.
NATOMA ST.

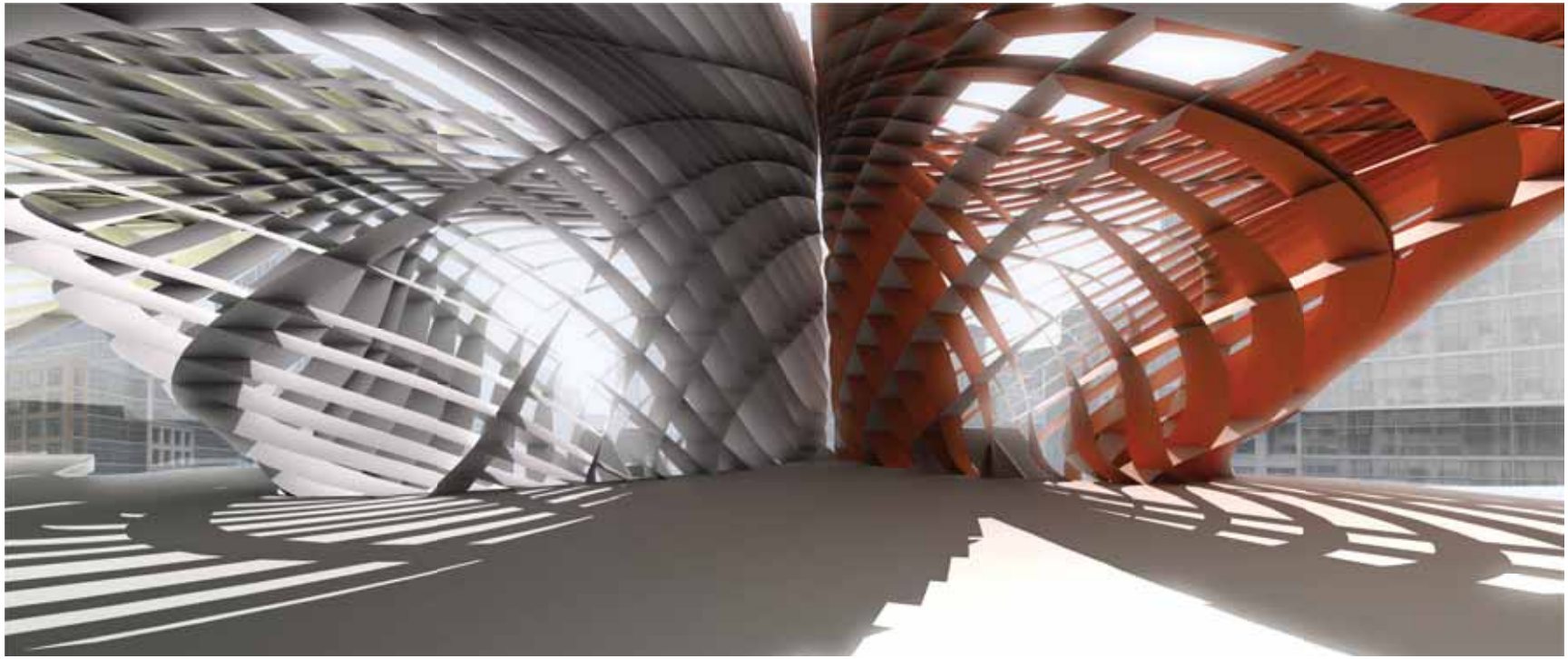


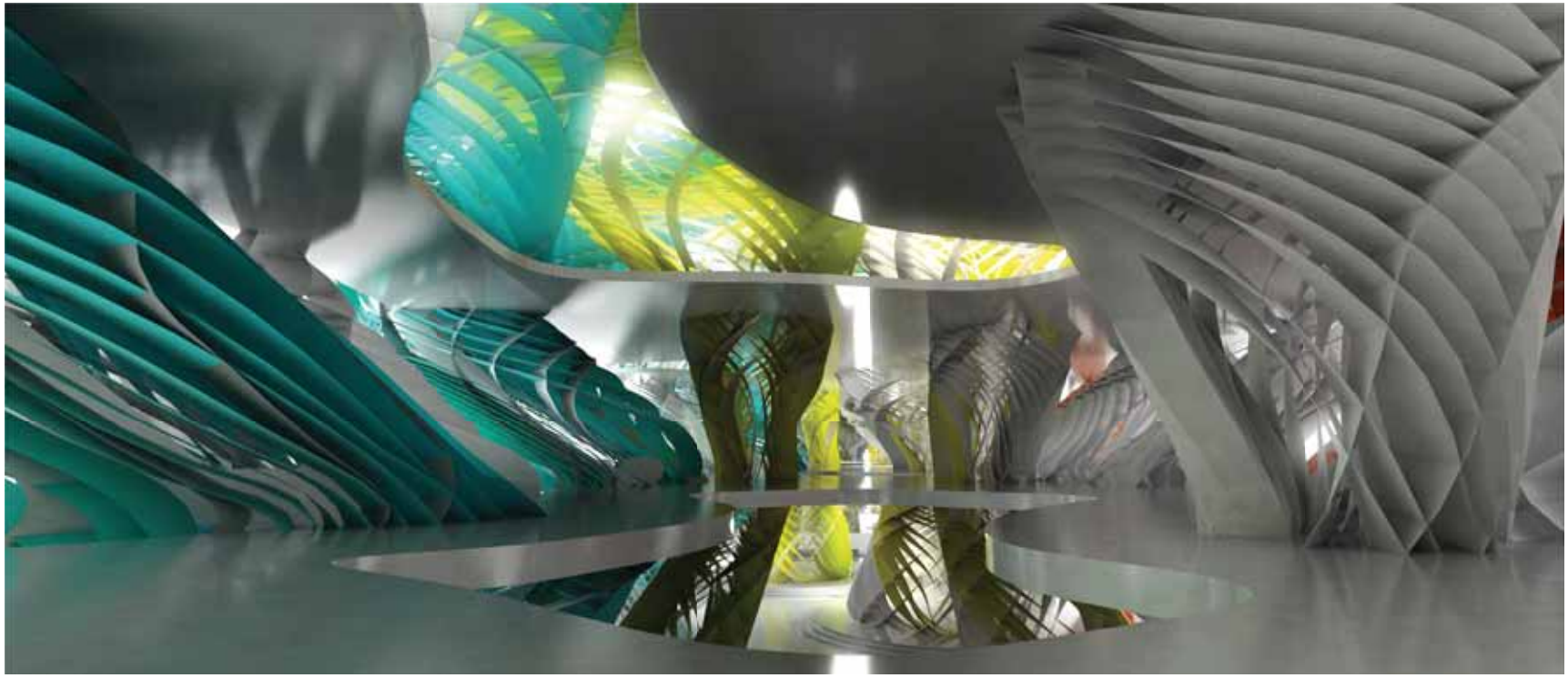


PLANS

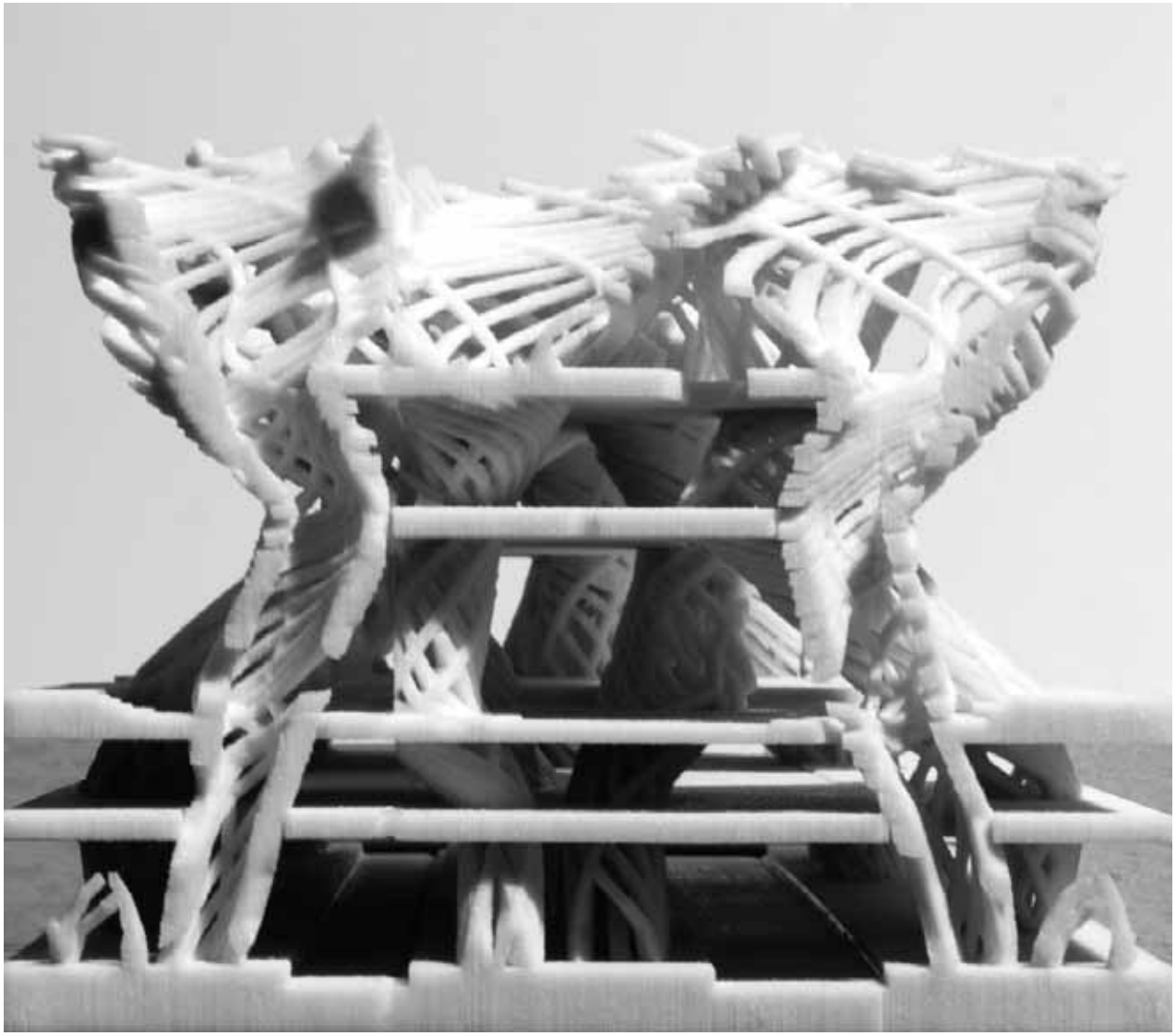


VIEW OF TAXI-DROP OFF, VIEW OF PARK-SIDE ENTRY



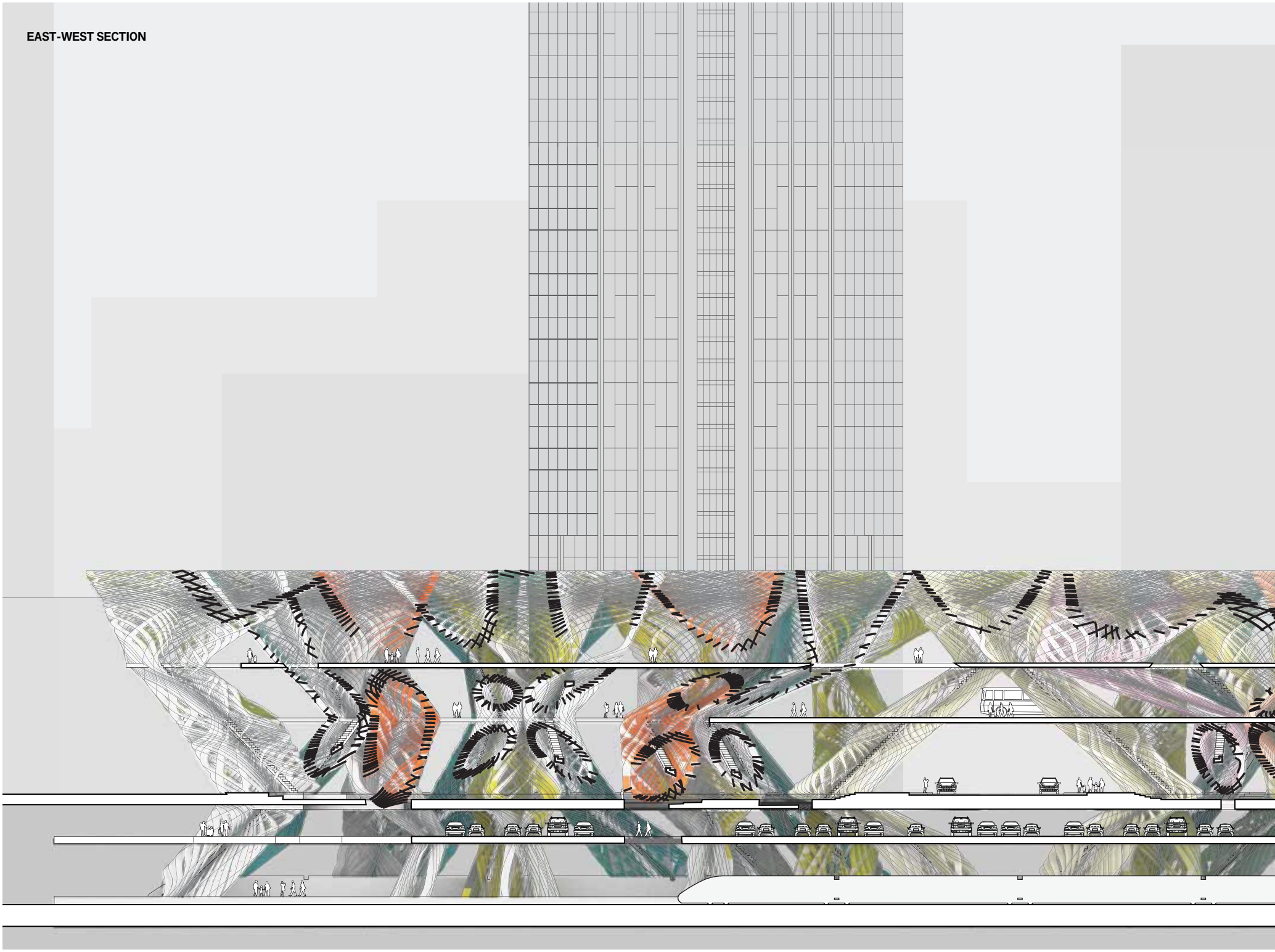


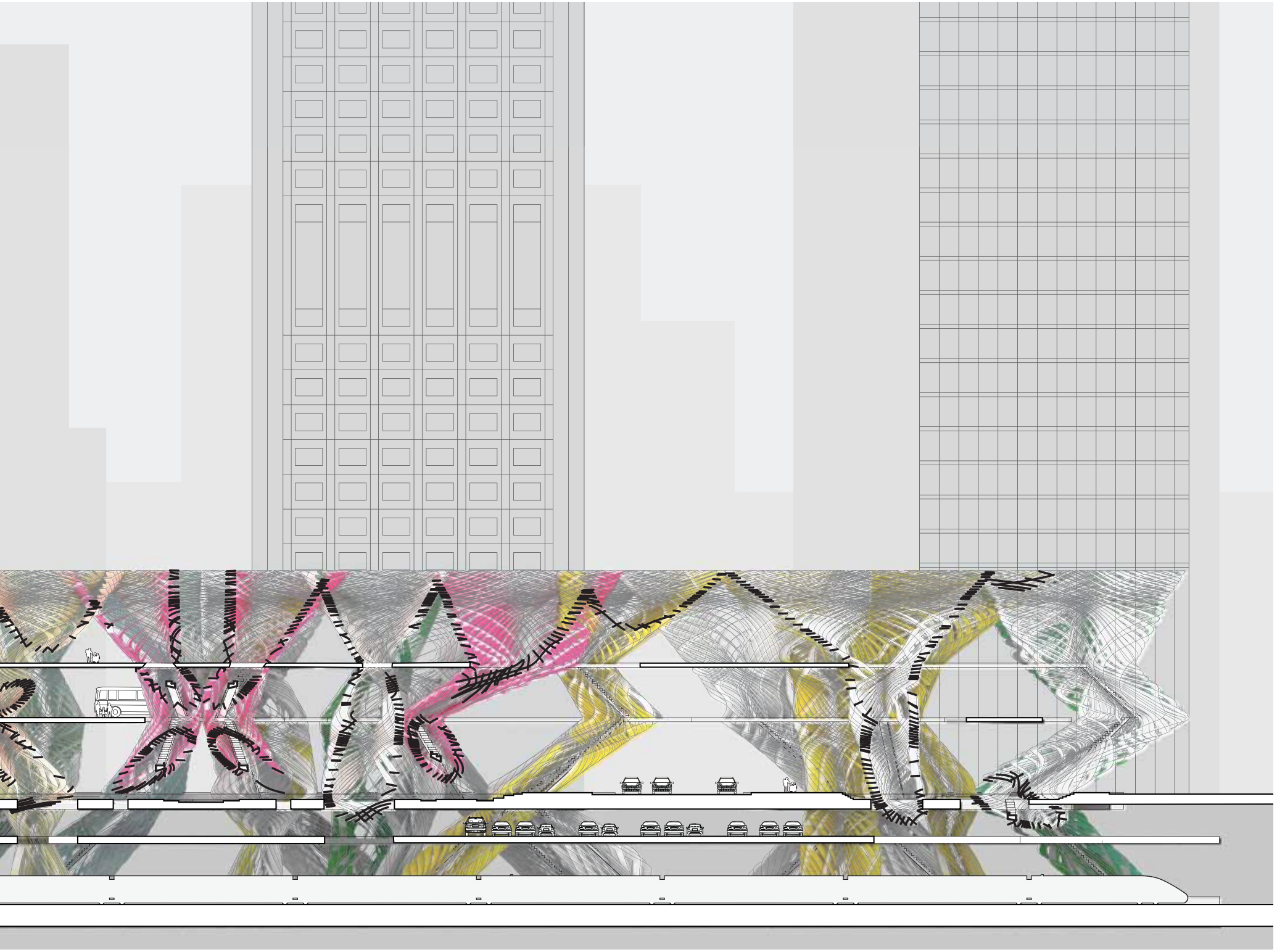
VIEW OF SISTERED COLUMNS AT ROOF, VIEW OF ‘LAGOON’ INTERIOR



MODEL, SECTIONAL CUT AWAY
When cut along the east-west axis of the site, the model reveals the block-based clustering as well as the sistering of groups of coloumns based on optimizing train and bus access/egree strategies.

EAST-WEST SECTION



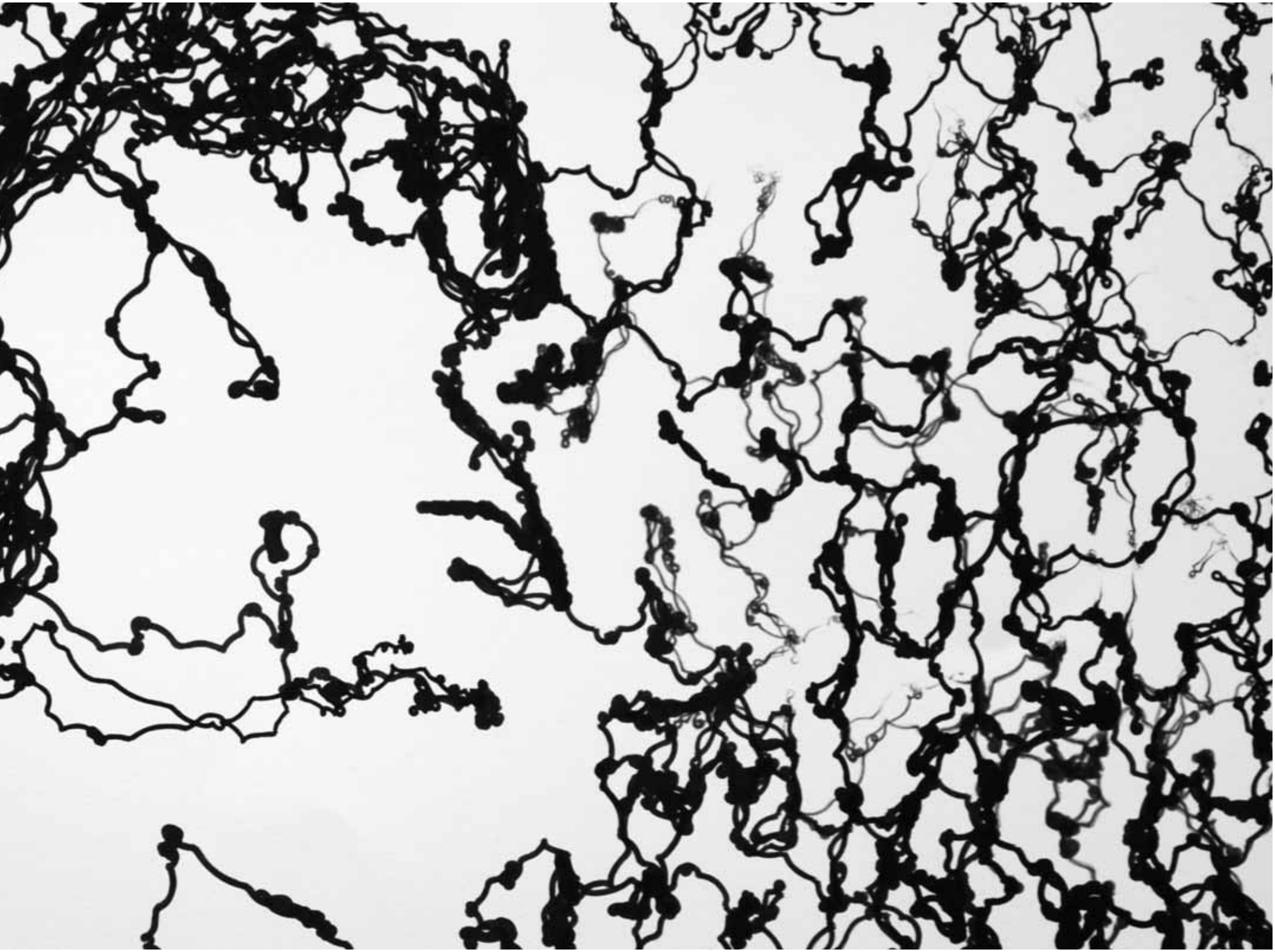


DIGITAL MARK MAKING

ARCH 1227B: DRAWING PROJECTS, *Seminar*
TURNER BROOKS, *Professor*
TEN WEEKS IN 2011, *Length*

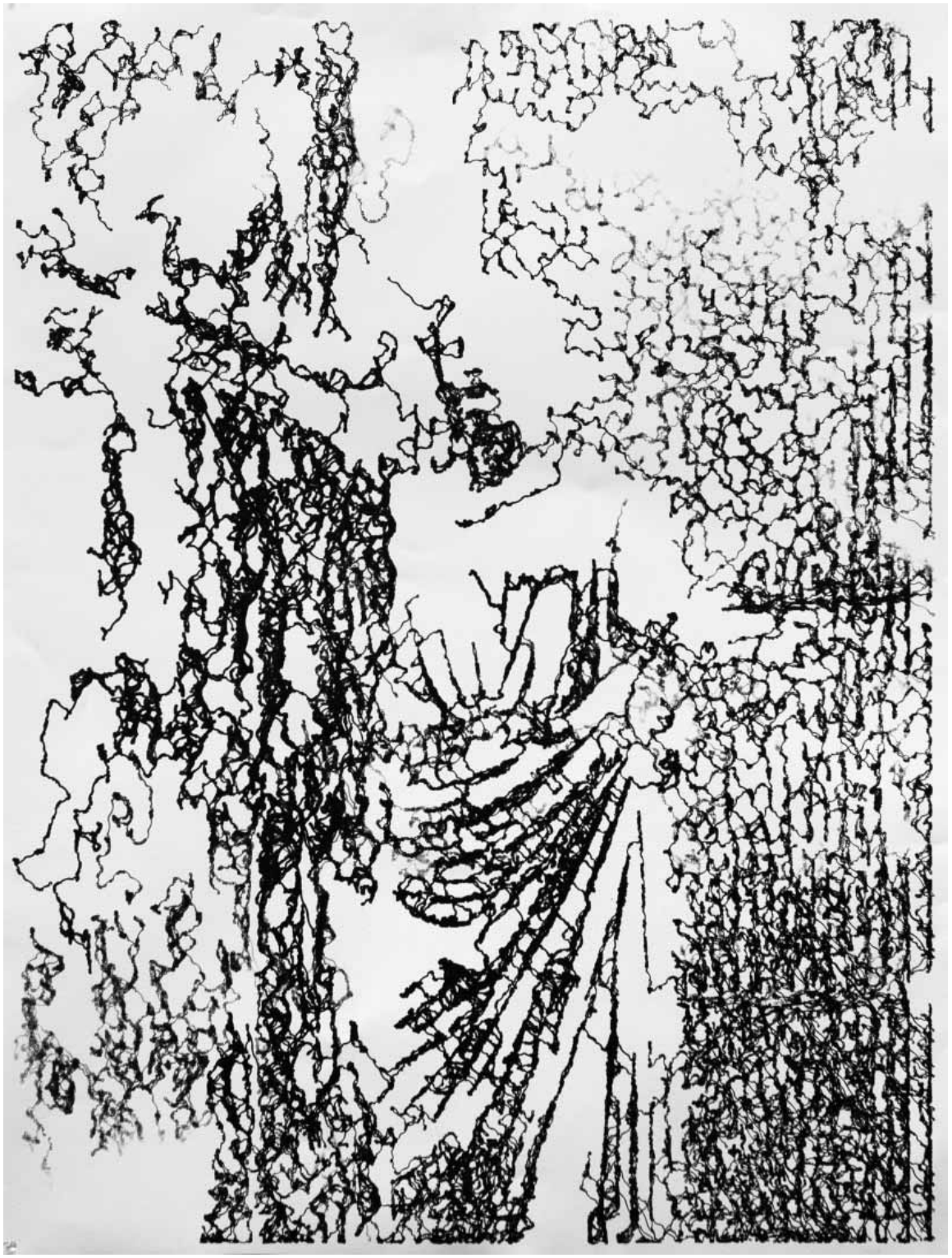
Digital Mark Making was an attempt
In traditional digital workflows, an architect models the object to be represented in the syntax provided by their chosen 3d program - offsets, extrusions, lofts, and sweeps. This geometrically accurate model is then thrown to a rendering program of their choosing - physically modeling the light to create a realistic image of the object previously modeled. This image is neatly arranged on a sheet and printed to an inkjet or laser with varying degrees of quality. The distance between the marks on the page and the artist is enormous and heavily mediated. Moverover, the mark itself, when made into a pixel, loses all character. I would like to explore methods to circumvent traditional digital modes of drawing to get closer and thus gain control over the actual end medium - that of the canvas.

Through Victor Agran's Drawing and Architectural Form I have studied the processes\tools developed by the masters of perspective - of pure spatial definition. Over the course of the semester I transitioned from pure hand drawing to a hybrid method that scripted the perspectival techniques of the masters through digital methods. The shifting weight of a drafted line and palimpsest of layers of construction lines were simulated and extended through computational means. I am now interested in taking this rigorous process and applying a new set of values/ judgements skewing toward the affect produced - the atmosphere of the drawing. Process is still important, but it will be judged by the power of the artifact created. I want to attempt to retain the immediacy of hand drawing with the amazing scope of computation. I would like to avoid a specific subject for the first few weeks and instead focus on the broad subject of light.
The first excercises would explore different methods to represent shading and light with a hybrid of hand and computer drawing. After these first few exercises I would then choose a specific subject that could provide a potent vehicle for further study of the mark making style that best dealt with modeling light

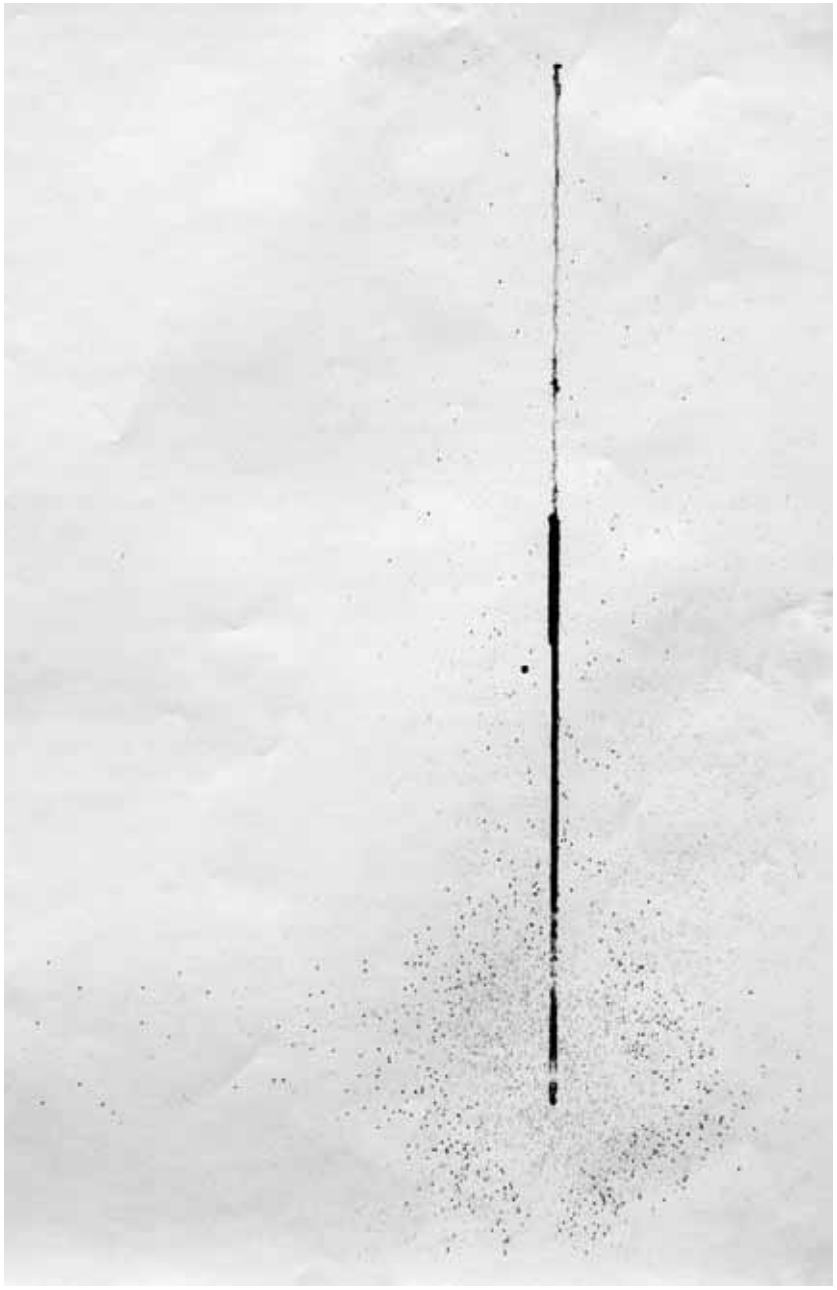


HAND DRAWN STUDY
After multiple experiments with a real-time drawing program coded in the Processing language, a series of hand drawn sketches were created. These sketches attempted to integrate the happy accidents of the digital coding process and exploit them more intuitively by hand.

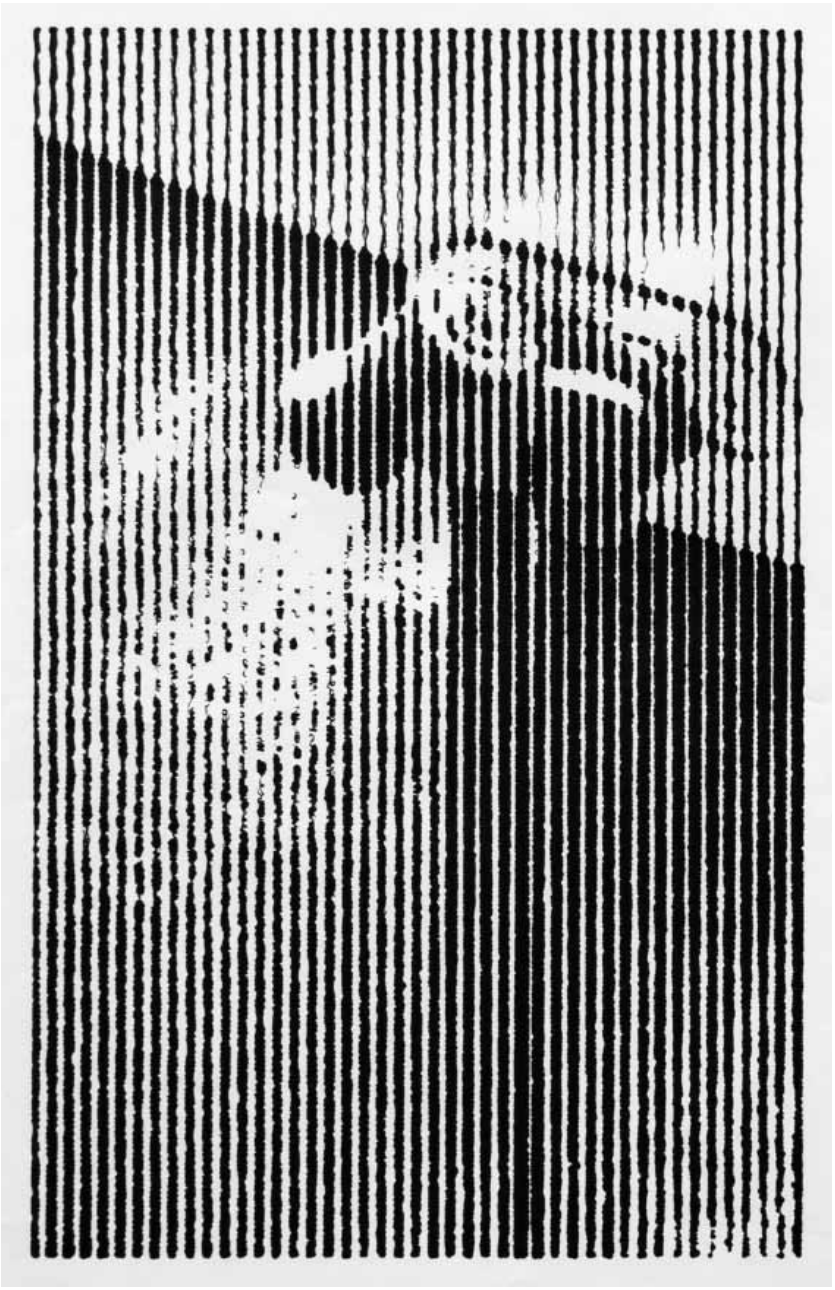
FINAL ASSIGNMENT, MINERVA 38” x 50”
The two final drawings attempted to merge the mutiple planes of the image into one - the coarse grain of the brush-hammered concrete folding into the finer lines of Minerva’s stone.



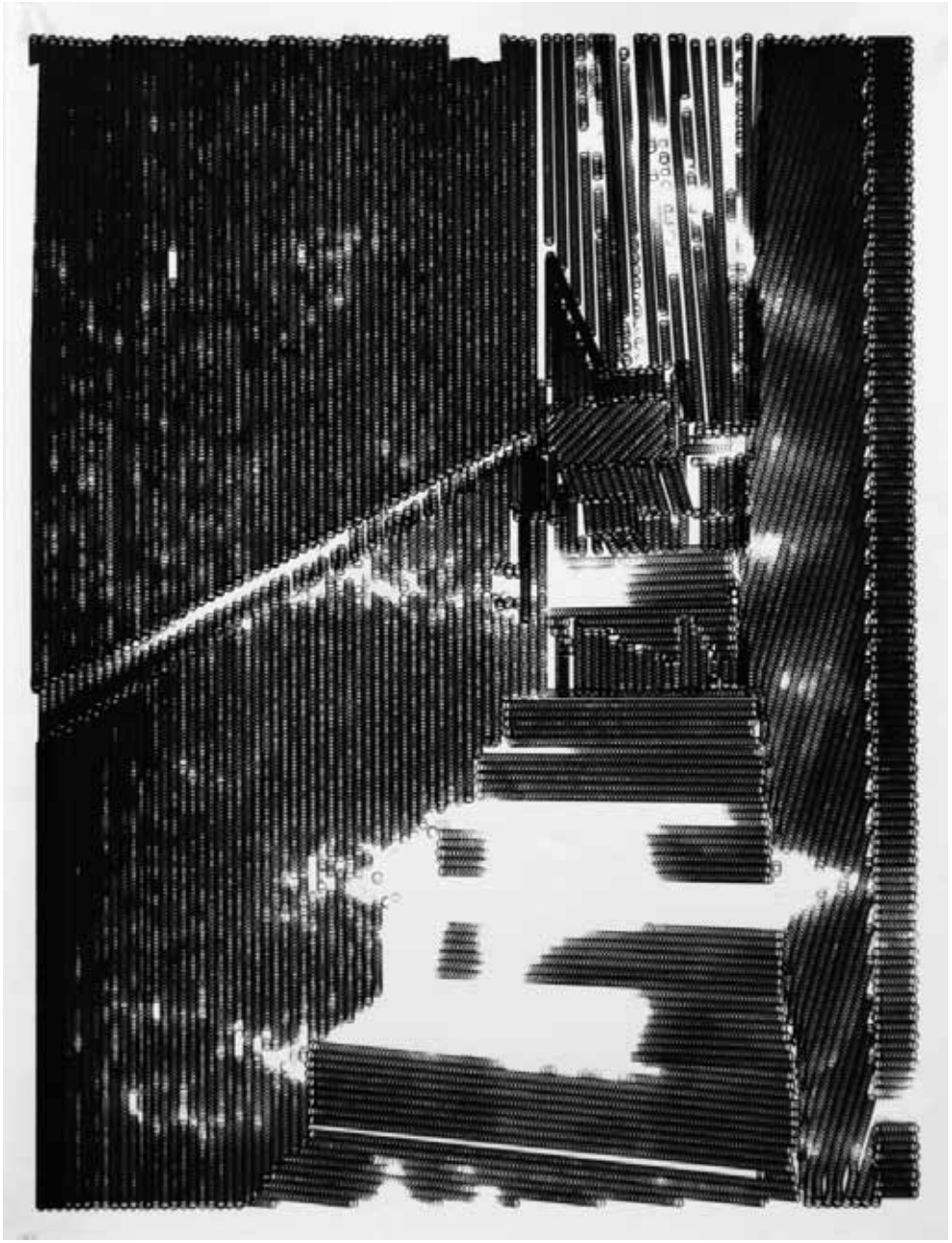
FINAL ASSIGNMENT, MINERVA 38” x 50”
Drawn with a combination of a digital pen and the 3-Axis mill, this is one of two final drawings produced for the class



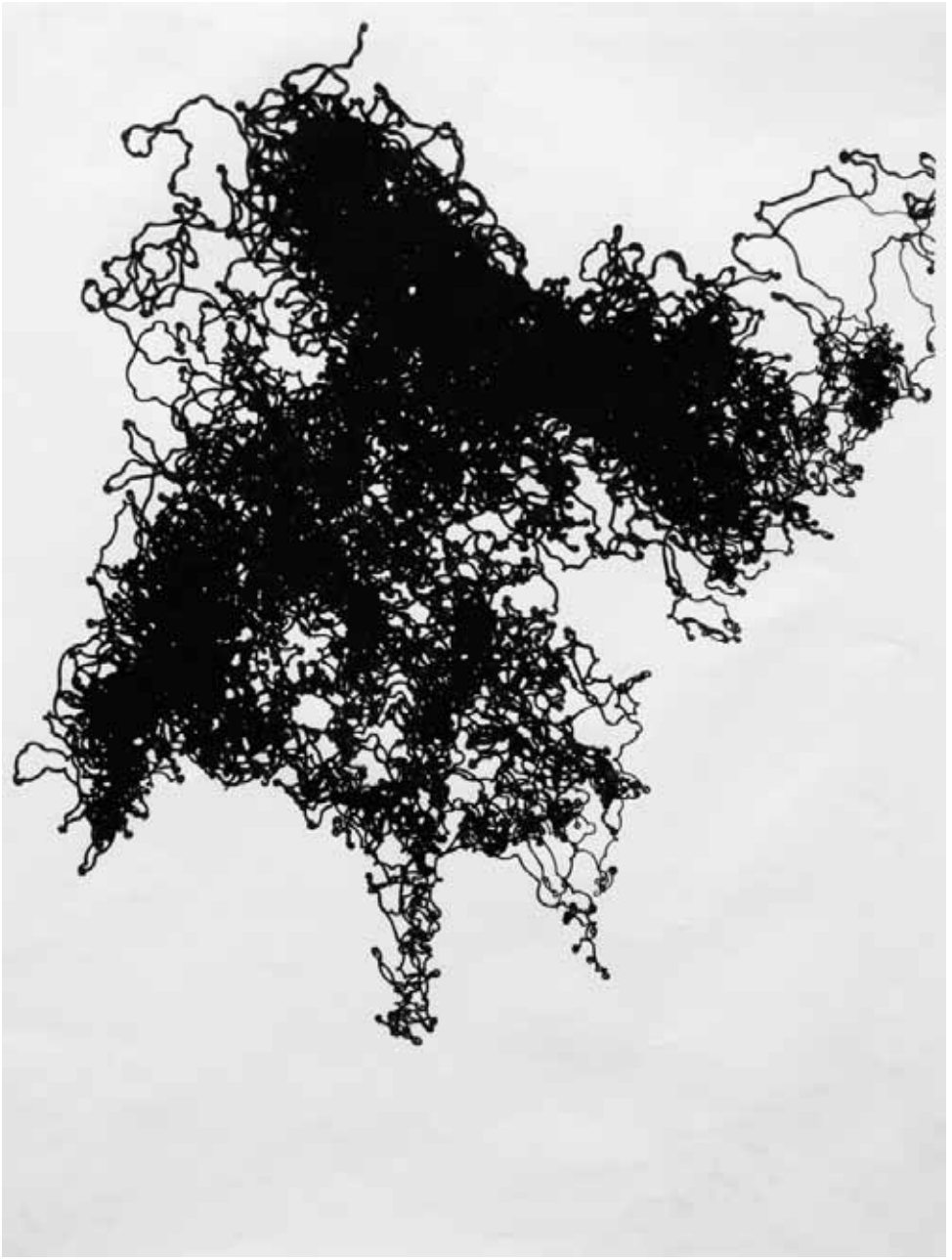
INITIAL MILL DRAWING
An accident turned into inspiration when the spindle rotation override failed and the marker attached to the mill spun at 6,000 rpm instead of 0 rpm - causing an explosion of ink.



VERTICAL HATCH SKETCHES
After initial tweaking, I began a process of created an initial hand sketch, translating this into a hatched line drawing and then collapsing or spacing the lines to create sharp patches of light and dark within the images. The rotation of the mill's spindle produced a mark that described the coarse nature of Hasting Hall's brush hammered concrete without being overtly representational.



ORIENTED HATCH SKETCHES
The hatch sketch technique was extended by subtle changes in the orientation of the hatch. The vertical lines of the brushed hammered concrete, the diagonals of the board-formed dividing wall and the alternating ribbing of the iconic orange carpet. The z-depth of the mill was was also subtly changed to transition between dark and light lines.



DIGITAL GESTURAL
The final portion of the class was devoted to attempting to break free of the orthogonal and static nature of the previous sketches. The translation from hand sketch to vector hatch was completely eliminated by coding my own drawing program that would allow me to sketch with the computer in real time. Through a series of trial and error prints character of mark was refined to create a meandering line that could create figure from a distance, but immerse the subject in a field of detail upon closer inspection.

ACTIVE, PASSIVE

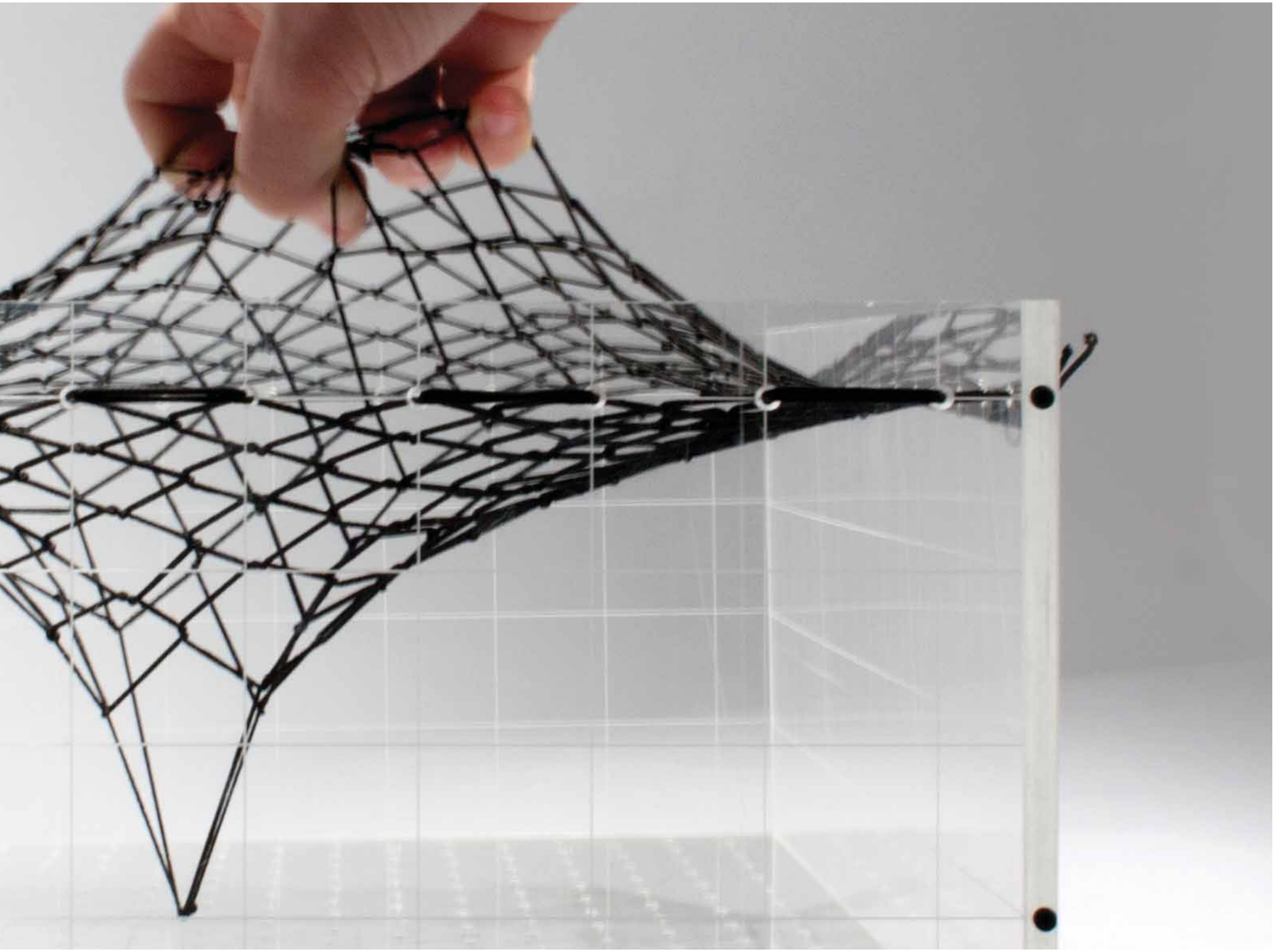
ARCH 2299B: INDEPENDENT STUDY, *Seminar*
ED MITCHELL, MICHELLE ADDINGTON & BRENNAN BUCK, *Readers*
TEN WEEKS IN 2011, *Length*

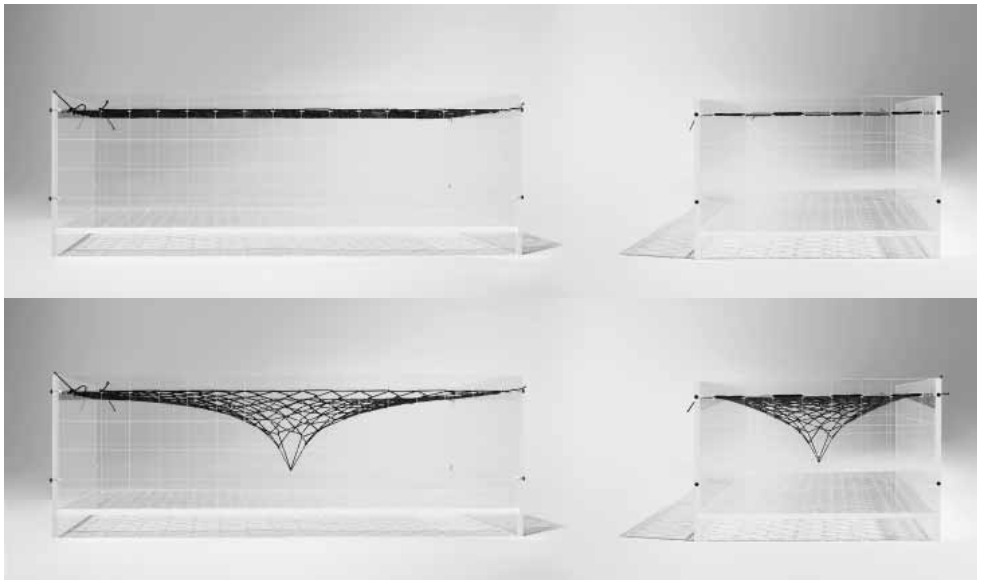
As the prevalence of digital technologies in architecture has increased, so to has the exploration of advanced geometries and structures. Simultaneously, there has been increased inquiry into the principles demonstrated by natural systems and their application to design. This strain of thinking has been highly influential and particularly productive in the fields of material science and industrial design, which employ techniques of multi-scalar analysis to organisms such as plants in order to deduce their bio-mechanical properties. This has lead to the creation of new materials with unprecedented strength to weight ratios and designs for automobile chassis with greater structural efficiency. In architecture however, there have been many attempts at exploiting biomimetic principles through digital means, but since the field of study has yet to be well defined the results have predominantly been limited to formal simulacra.

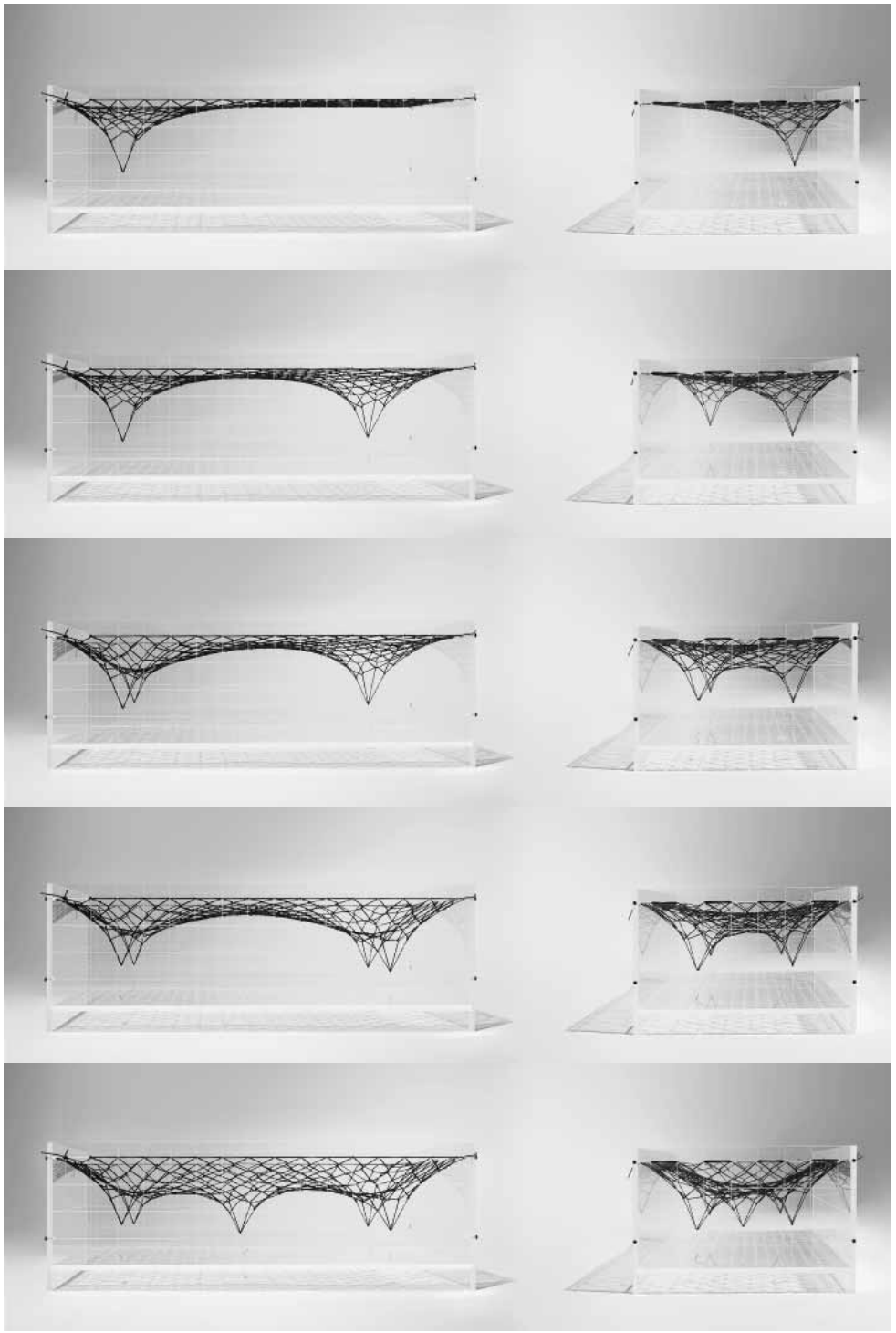
The ambition of this study is to develop a greater level of instrumentality for the methodology of biomimetic design that has begun to emerge within the discipline. The analysis of natural systems is used as a point of departure from which unique behaviors are culled and re-interpreted through material research. Potential systems for investigation include: plant morphologies, collective intelligence of groups and biological differentiation. We plan to explore these systems through a combination of digital and physical strategies in order to leverage mutually beneficial overlap. By liberating the design process from a traditional top-down, deterministic approach, a method can evolve that allows for the internal multiplicity of hierarchies with robust networks.

The research is structured into three phases:
1. Initial research on three potential natural systems
2. Material research based on a chosen natural system
3. Synthesis of both stages of research in the form of a built artifact such as a component-based assembly, or envelope.

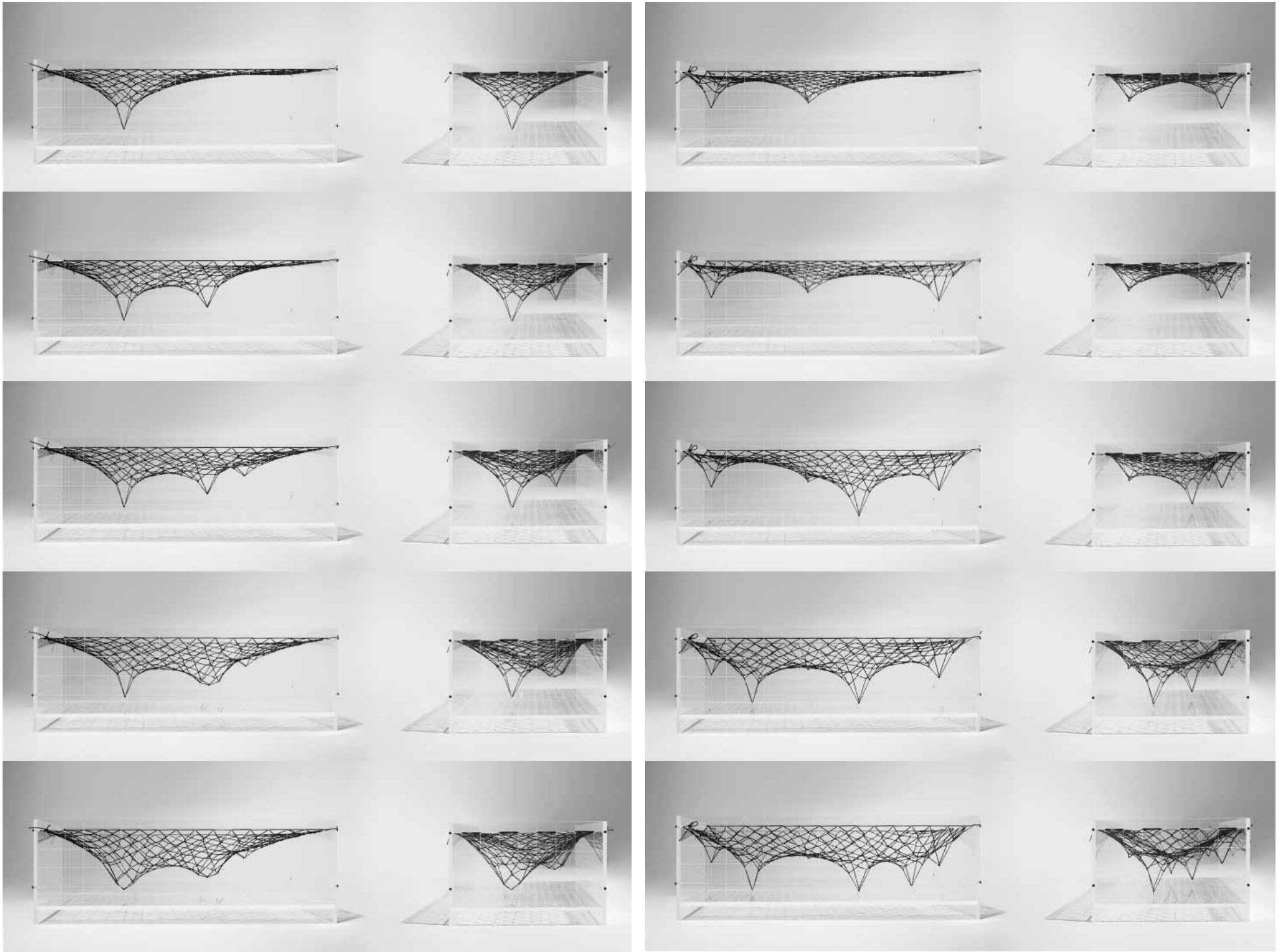
The ultimate goal of the research is to establish a new performative basis from which to think through architectural problems.

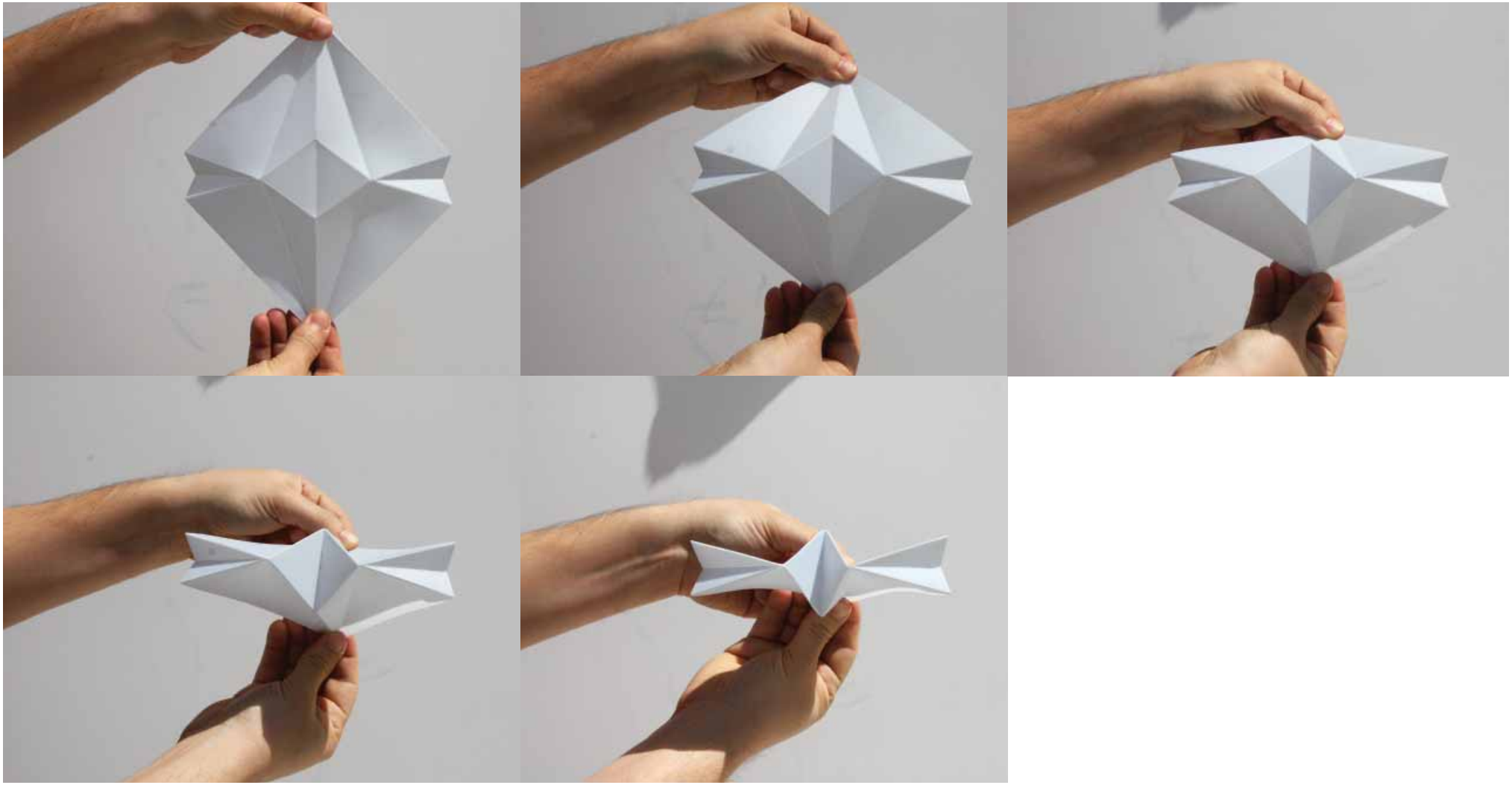






DIAGRID MESH DEFORMATIONS
A form finding study using a tensile diagrid mesh of elastic cords. The deformation of the grid and its implied surface are recorded from three views as vertices of the mesh are pulled towards the base.





COLLAPSIBLE ORIGAMI MODULE STUDIES

COLLAPSIBLE ORIGAMI MODULE A

COLLAPSIBLE ORIGAMI MODULE B

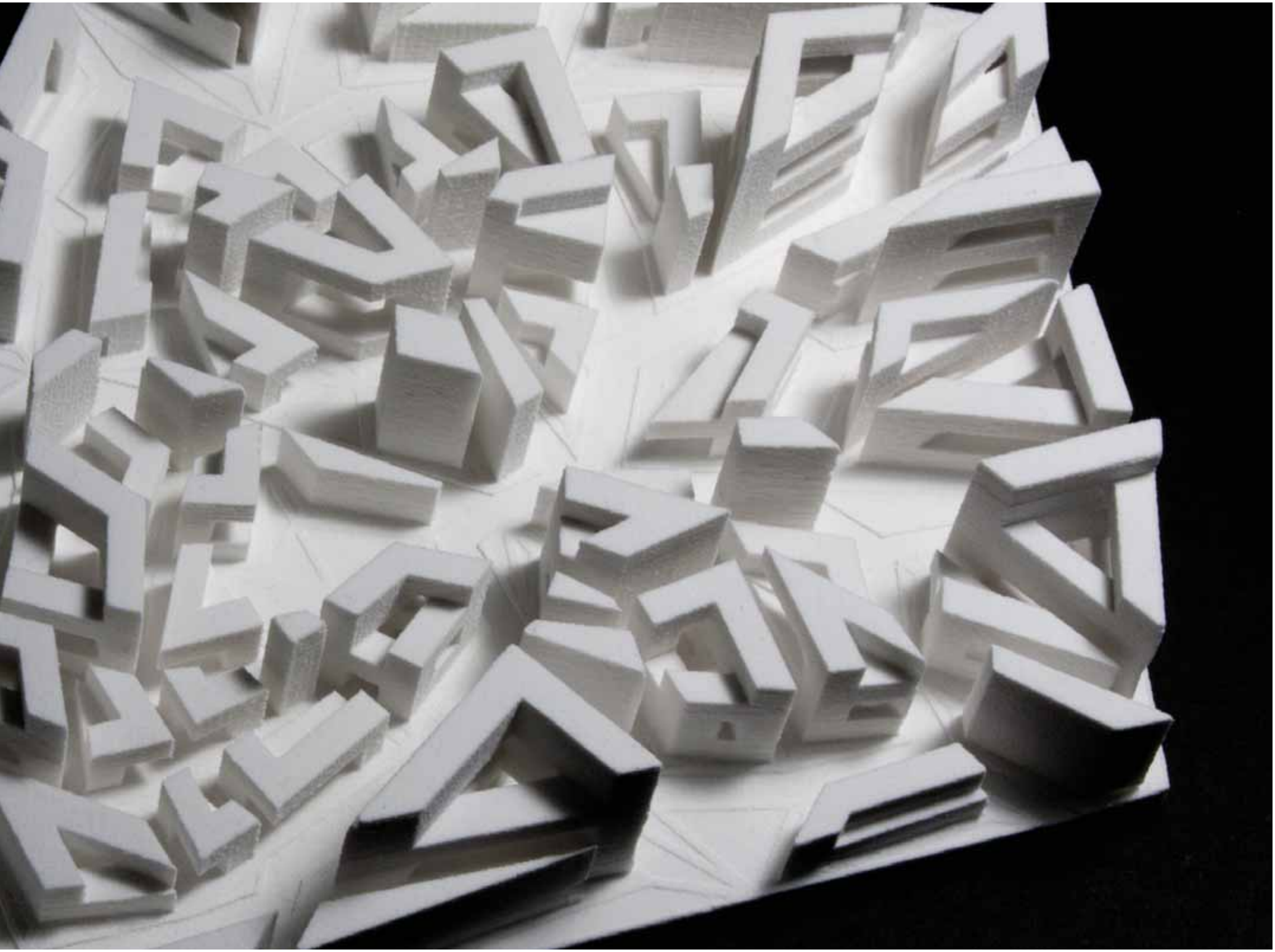
COLLAPSIBLE ORIGAMI MODULE C

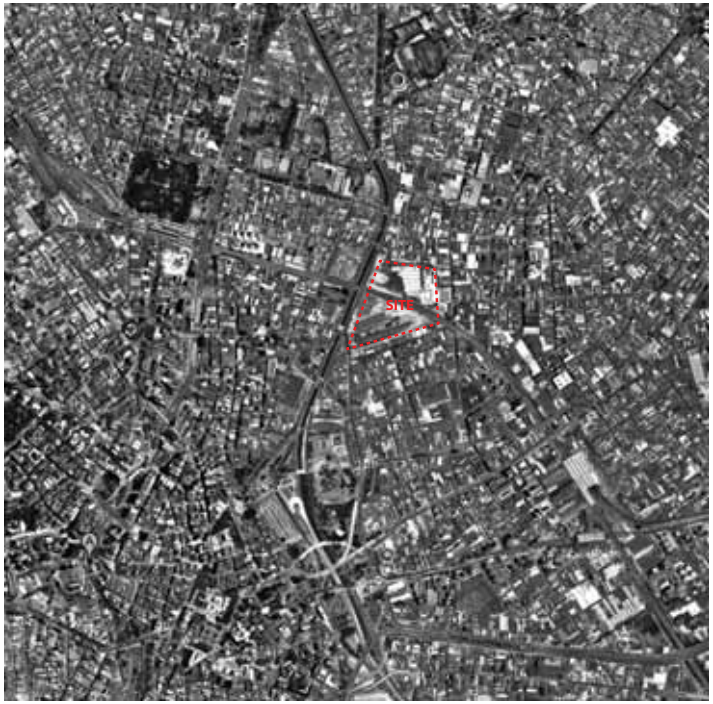
VALLEY FOLD

PEAK FOLD

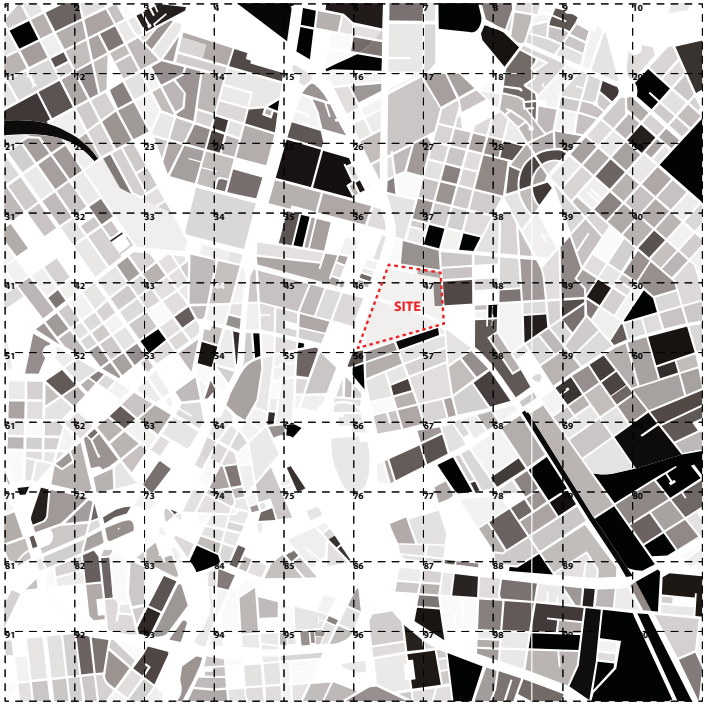
ECO-TECTONICS

ARCH 1105A: ADVANCED ARCHITECTURAL DESIGN, *Studio*
ALEJANDRO ZAERO-POLO, *Professor*
TEN WEEKS IN 2010, *Length*





AERIAL VIEW OF SITE CONTEXT



VARIED RELATIVE BLOCK SIZES SURROUNDING SAO PAULO
indicates an incredibly varied urban texture with light local clustering

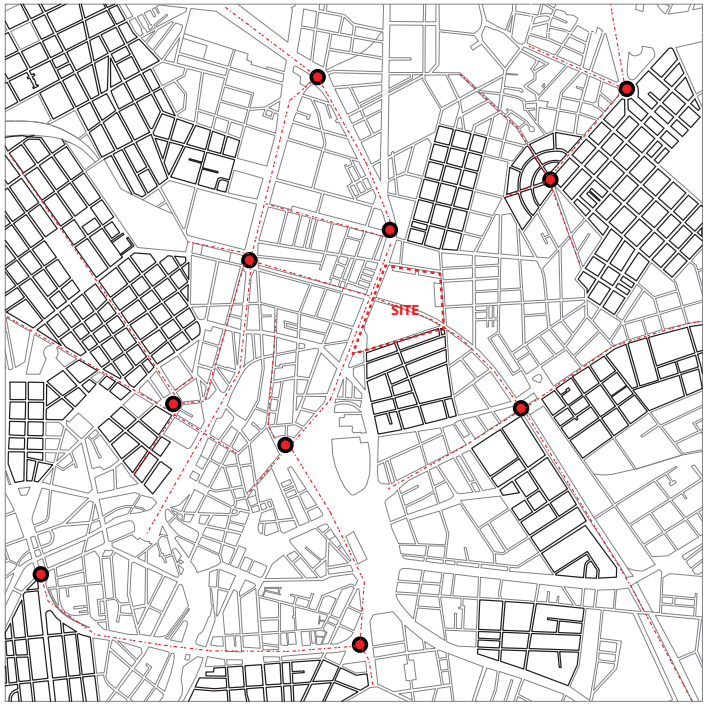
EXISTING CONDITIONS

MULTI-NODAL CITY WITH A VEHICLE-ORIENTED INFRASTRUCTURE

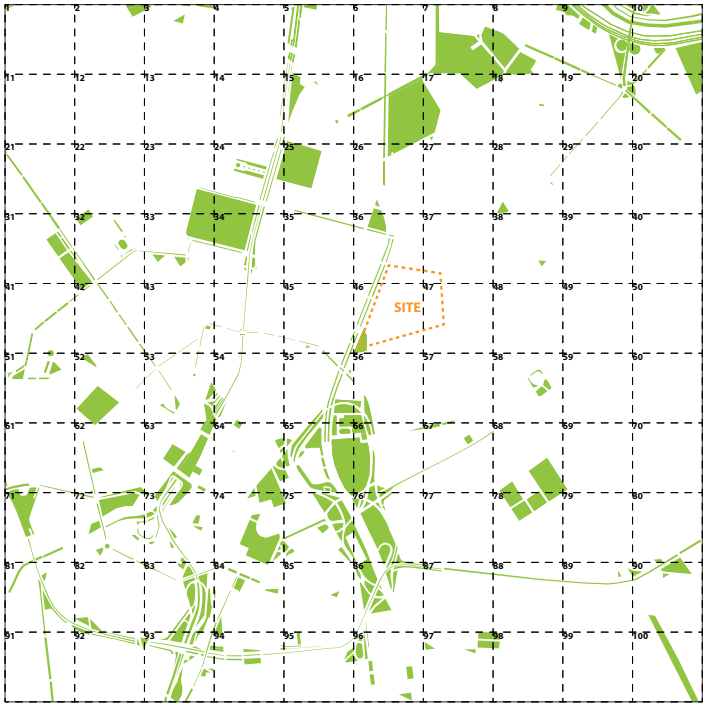
TRAFFIC CONGESTION
Lack of connection between nodes.
Overcrowded public transportation.
Lack of pedestrian favored urban elements.

SURFACE POLLUTION
Large area of asphalt surface -
Permeability & rainwater management

AIR POLLUTION
Carbon emission from cars.



IRREGULAR EXISTING URBAN GRAINS OR BLOCK ORIENTATION
over 8 unique grid orientations collide at the edges of the site



SPARSE EXISTING GREENWAYS
green areas are few and far between, but the site lies on the one existing corridor

DISSCONNECTED TRAFFIC NETWORKS
sao paulo relies heavily on vehicular traffic with public transportation connections rare

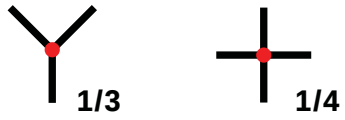
BRANCHING

INCREASE CONNECTIVITY BETWEEN NODES

Connectivity between nodes can be increased by **8.3%** compared to orthorganal grid.

To serve a two-dimensional city with one-dimensional transit method, the system has to be built on connections.

The degree of connectivity can be measured by number of intersections in a given area.



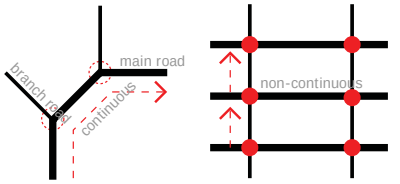
INCREASE TRAFFIC FLUIDITY

By creating a continuous network of "T-INTERSECTIONS" we are able to create a continuous arterial road without the interruptions of intersections.

TRAFFIC FLIUDITY is regained on the main road while

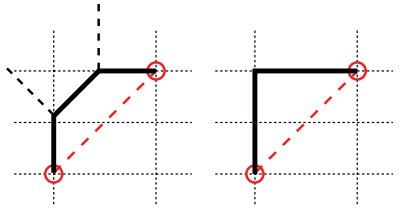
TRAFFIC CONTROL is exerted onto the branch road.

Carbon emission increases when car stop and restart at intersections. By decreasing the number of stops on the arterial roads, carbon emission will be cut down.



MINIMIZE THE DISTANCE BETWEEN ANY GIVEN 2 POINTS

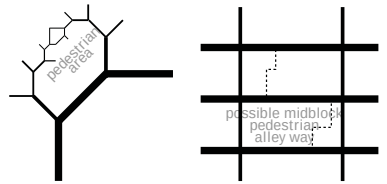
The shortest route between 2 points is the straight line that connects them. But the multiplication of points make it impossble connect every 2 points by a straight line. Reconsile it with a orthorganal grid only makes a right angle connection between them. The bigger the grid, the longer the route. A fractal strature is exactly an approximation of the straight line between the 2 points.

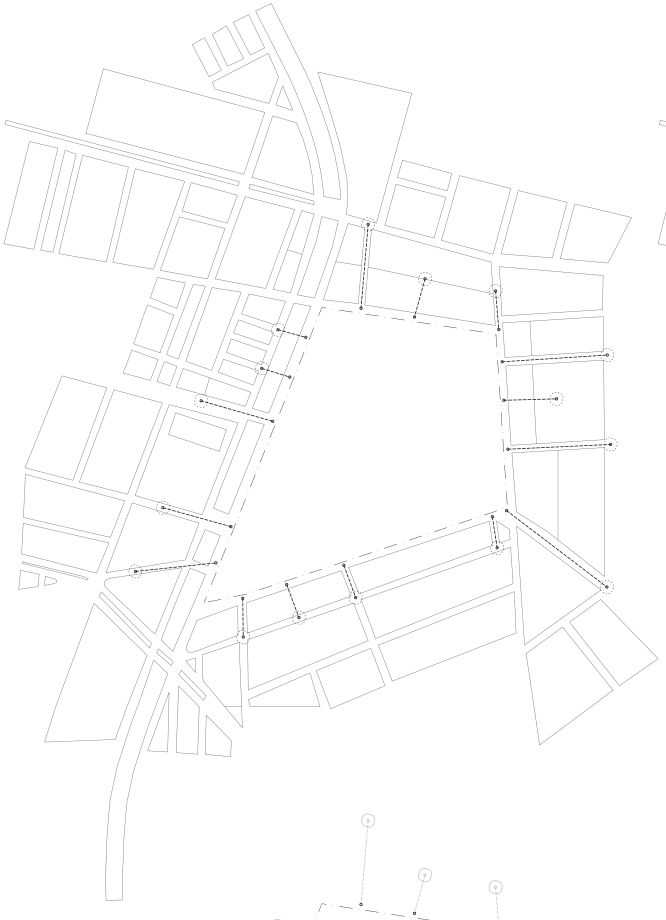


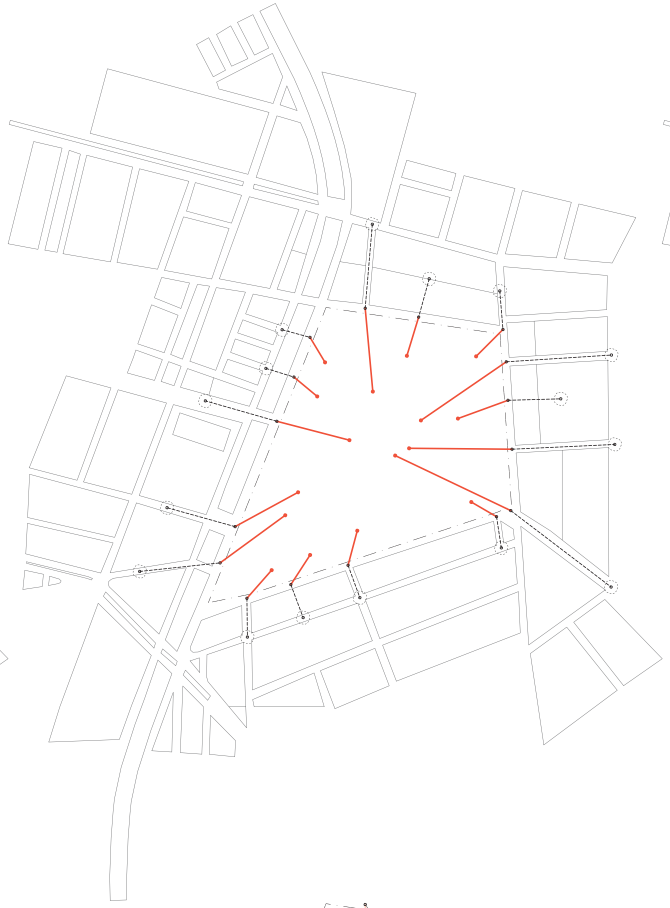
INCREASE PEDESTRIAN ACCESSIBILITY BETWEEN BLOCKS

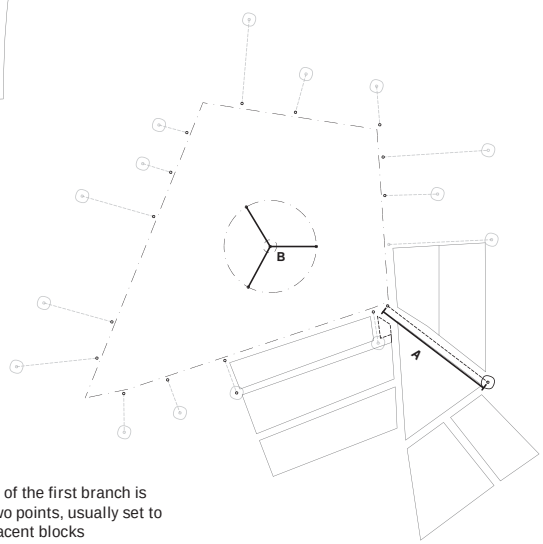
The DECAY MECHANISM of the branching system will result in a gradually smaller grid as it branches out further from the trunk (main arterial road).

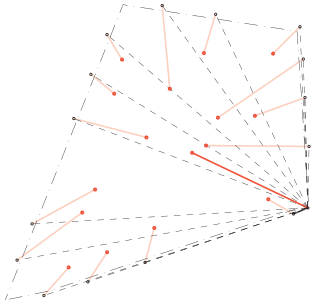
When the grid size drops below certain threshold, the area will become pedestrian only zone.

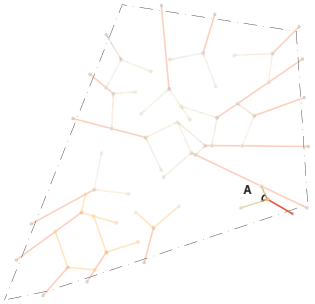












The initial length of the first branch is determined by two points, usually set to the length of adjacent blocks

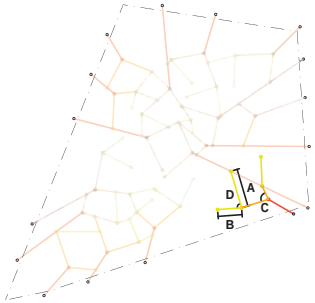
By basing the initial branch length on adjacent blocks, a unique form of contextualism occurs - predicated not by a foriegn grid, but generated by existing conditions.

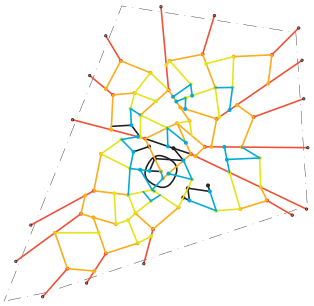
In addition to created a branch with two points of a line, a point and area circle method was also incoporated to allow for adding central branches.

This consistent averaging of vectors causes the concentric and leaf-like pattern

The angle of each branch is determined by averaging the vector of its starting point to that of all of nodes of a similar generation

The starting branch angle or 'A' determines how wide the first 2-by branching is. This value is then increased or decreased by the branching increment value.





Variation in subsequent branches is achieved through an increment value as well as random number bounded by turbulence.

Variation between branching angles assures that 3 point or 'T' intersections are encouraged.

The difference in length between 'A' and 'B' is achieved through turbulence.

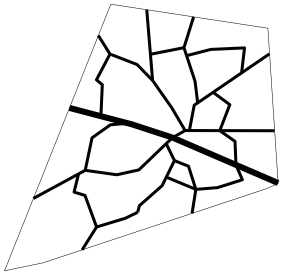
The change in angle between 'C' and 'D' is through the branching increment value.

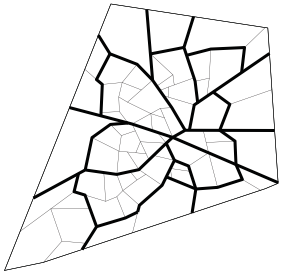
The minimum distance between intersections controls how closely nodes are allowed to branch before the are fused together.

A. MULTIPLE RINGS + CENTRAL BOULEVARD

benefits:
strong boudaries of community
clear road hierachy

disadvantages:
central boulevard appears foreign

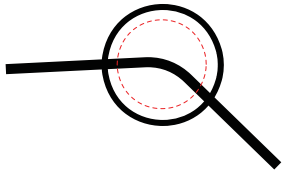


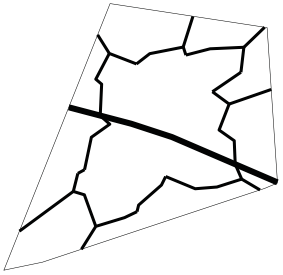


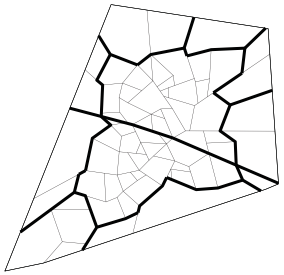
B. ONE RING + CENTRAL BOULEVARD

benefits:
strong devision of inside and outside of the ring

disadvantages:
central boulevard appears foreign



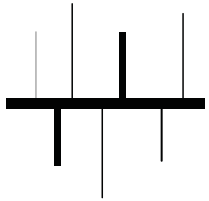


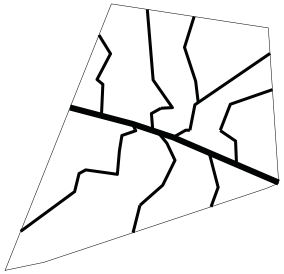


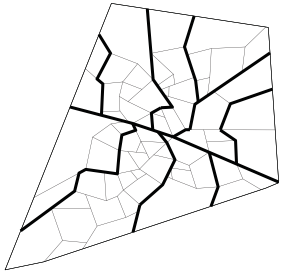
C. BRANCHING OUT FROM CENTRAL BOULEVARD

benefits:
strong central elements

disadvantages:
strong grain of direction
lack of lateral connection



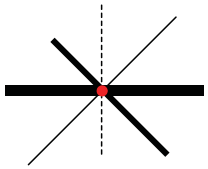


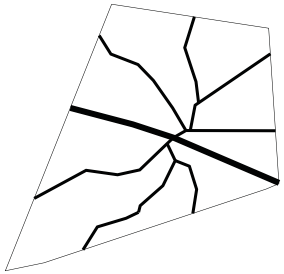


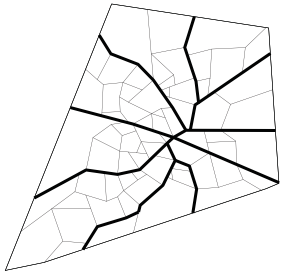
D. RADIATING OUT FROM CENTER POINT

benefits:
strong sense of center point

disadvantages:
lack of lateral connection
potential infrastructural problem at center

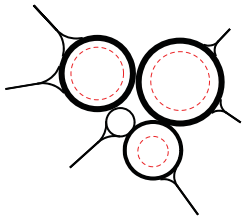


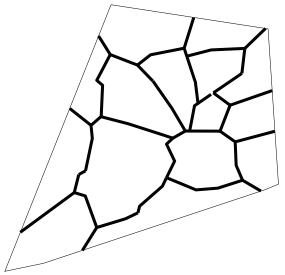


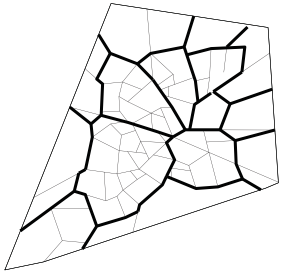


E. MUTIPLE RINGS

benefits:
strong boudaries of community
clear road hierachy

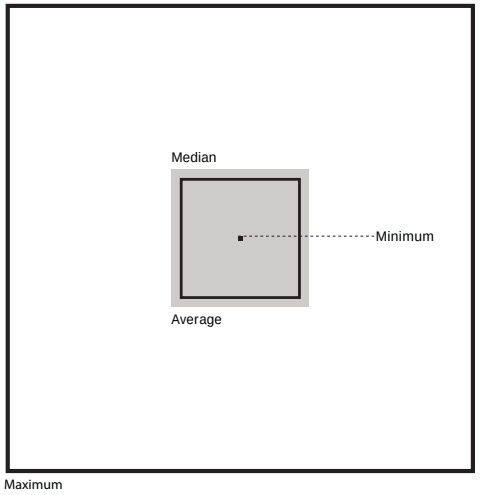




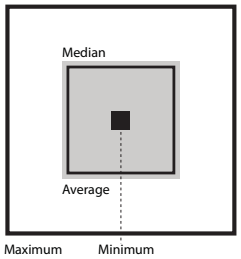


DETERMINE VEHICULAR SYSTEM

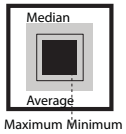
Vehicular System can be determined by observing the inherent pattern of the master plan. We finally chose the multi-pedal pattern as it follows strictly the bifurcation logic. There is no obvious aparent foreign boulevard element cutting across the site.



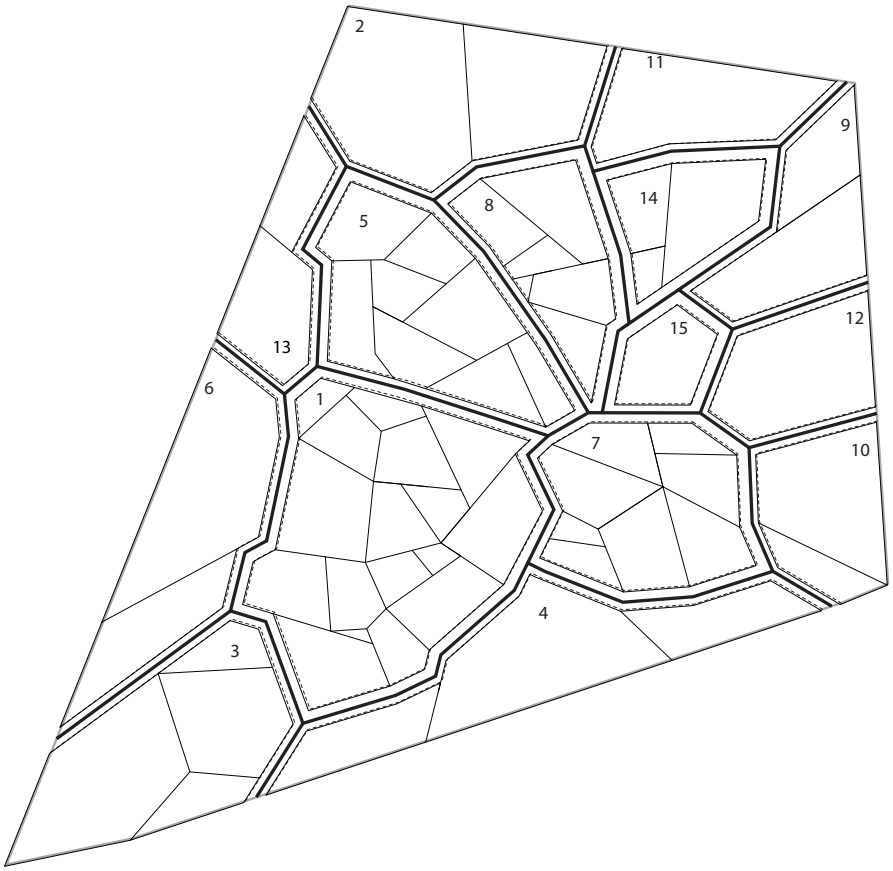
AREA CALCULATION
Sao Paulo I 25 km2 Sample



AREA CALCULATION
Sao Paulo I 2.25 km2 Sample



AREA CALCULATION
Sao Paulo I 2.25 km2 Sample

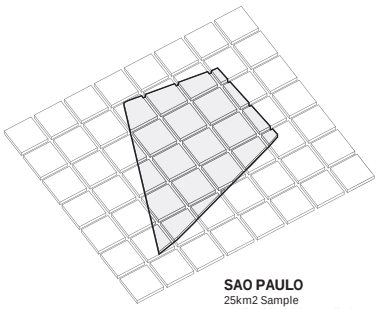


FULL

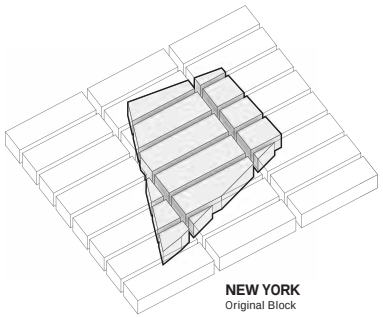
1	FULL PEDAL area 22,909 m2 building number 16	**2**	HALF PEDAL area 13,464 m2 building number 2	**3**	HALF PEDAL area 13,441 m2 building number 4	**4**	HALF PEDAL area 12,660 m2 building number 3	**5**	FULL PEDAL area 12,464 m2 building number 8	**14**	FULL PEDAL area 5,123 m2 building number 3	**15**	FULL PEDAL area 2,592 m2 building number 1		

HALF

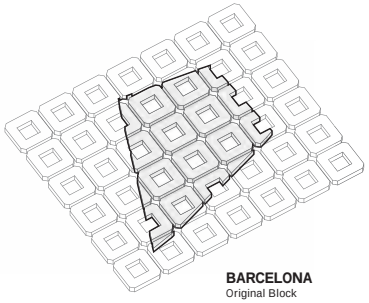
6	HALF PEDAL area 11,698 m2 building number 2	**7**	FULL PEDAL area 10,733 m2 building number 8	**8**	FULL PEDAL area 7,101 m2 building number 5	**9**	HALF PEDAL area 6,781 m2 building number 2	**10**	HALF PEDAL area 6,656 m2 building number 2	**11**	HALF PEDAL area 6,260 m2 building number 1	**12**	HALF PEDAL area 6,089 m2 building number 1	**13**	Half PEDAL area 5,296 m2 building number 2



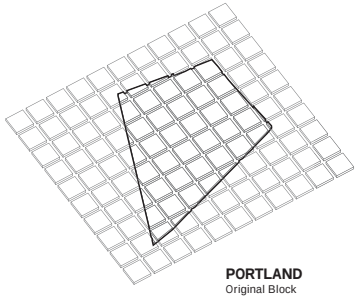
SAO PAULO
25km2 Sample
Median block size applied as grid



NEW YORK
Original Block

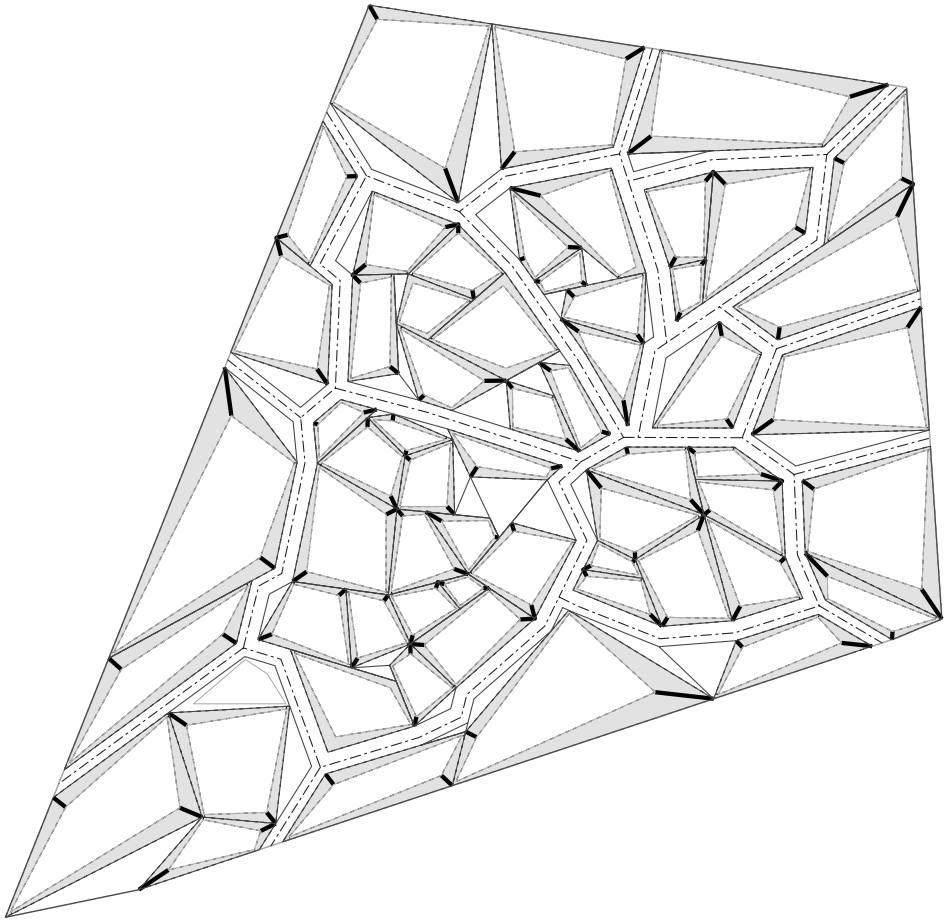


BARCELONA
Original Block

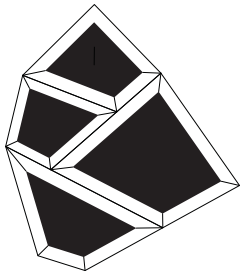


PORTLAND
Original Block

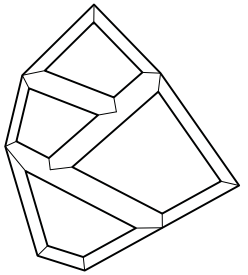
SAO PAULO
Proposed Block



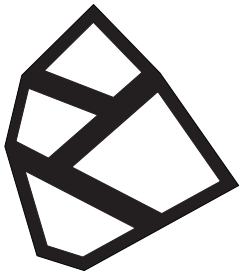
EDGE CONDITION
Optimum site plan pinch direction result



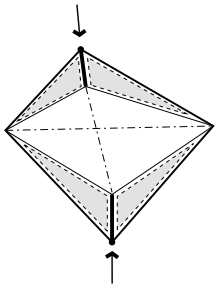
SELF SHADING
Buildings start to cluster to provide self shading



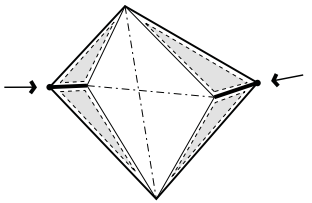
EDGE CONDITION
Pinch creates fiction on the non-parallel edge condition



INTERSTITIAL SPACE
Interstitial spaces are created as a result of fiction of geometries



PINCHING DIRECTION NO. 1



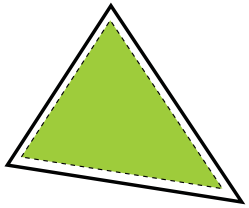
PINCHING DIRECTION NO. 2

PINCH

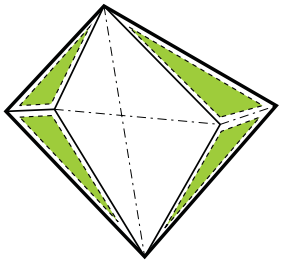
Pinching is used to create a slightly off center pattern which amplifies the fiction between the actual building volume and street.
The result is reached as a optimum condition for providing self-shading.

GREEN

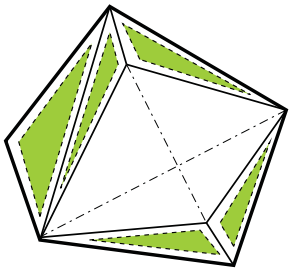
Following the garden city idea, green is implemented into the pinching mechanism. Green area served as filter for rain water runoff during flood seasons in Sao Paulo.
The pinch size is calculated to satisfy the need for urban filter.
The average percentage of green density is 32%.



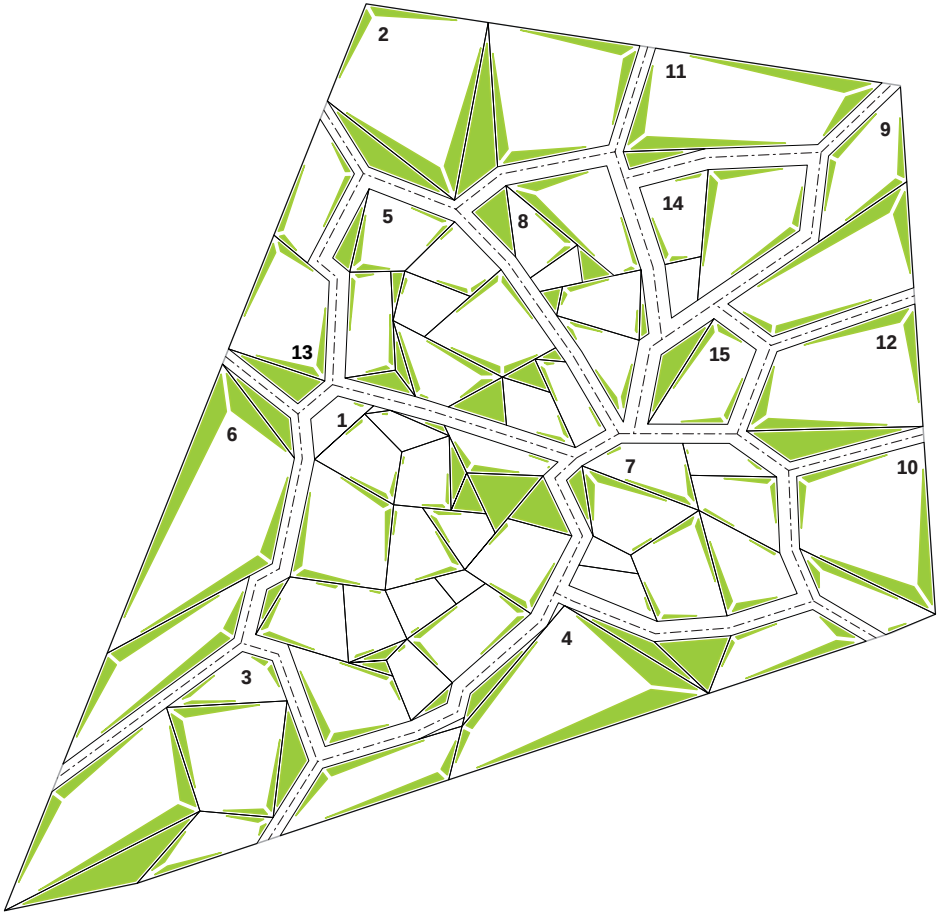
3 FACETS



4 FACETS

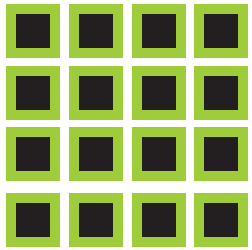


5 FACETS



GREEN CONNECTION
Generated from triangular blocks and pinch edges

INTENSIVE

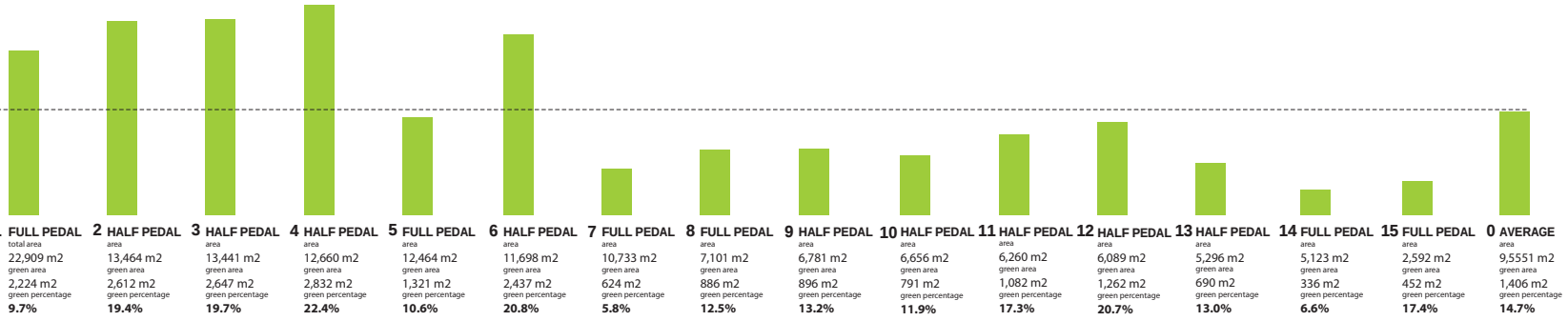


EXTENSIVE

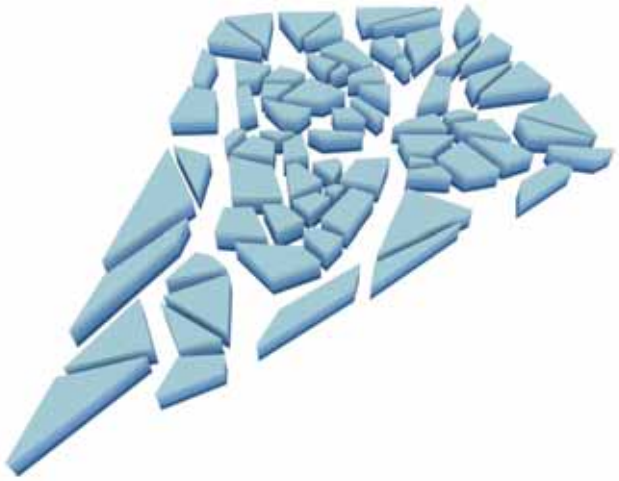
GREEN AREA CALCULATION

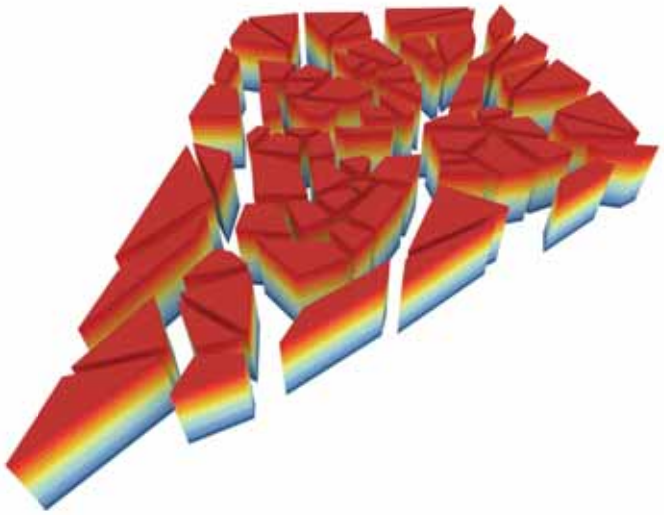
TOTAL AREA
9,551 m2
BUILDING AREA
5,719 m2
BUILDING PERCENTAGE
59.9%
GREEN AREA
1,406 m2
GREEN PERCENTAGE
14.7%

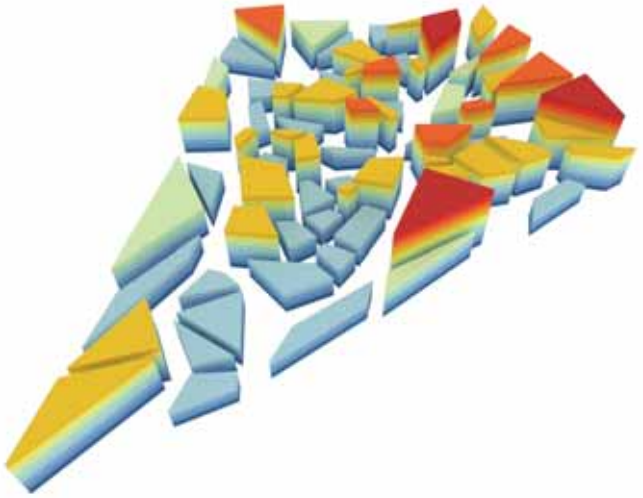
CIRCULATION AREA
2,462 m2
CIRCULATION PERCENTAGE
25.4%



	1 FULL PEDAL	2 HALF PEDAL	3 HALF PEDAL	4 HALF PEDAL	5 FULL PEDAL	6 HALF PEDAL	7 FULL PEDAL	8 FULL PEDAL	9 HALF PEDAL	10 HALF PEDAL	11 HALF PEDAL	12 HALF PEDAL	13 HALF PEDAL	14 FULL PEDAL	15 FULL PEDAL	0 AVERAGE
area	total area	area	area	area	area	area	area	area	area	area	area	area	area	area	area	area
	22,909 m2	13,464 m2	13,441 m2	12,660 m2	12,464 m2	11,698 m2	10,733 m2	7,101 m2	6,781 m2	6,656 m2	6,260 m2	6,089 m2	5,296 m2	5,123 m2	2,592 m2	9,5551 m2
green area	green area	green area	green area	green area	green area	green area	green area	green area	green area	green area	green area	green area	green area	green area	green area	green area
	2,224 m2	2,612 m2	2,647 m2	2,832 m2	1,321 m2	2,437 m2	624 m2	886 m2	896 m2	791 m2	1,082 m2	1,262 m2	690 m2	336 m2	452 m2	1,406 m2
green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage	green percentage
	9.7%	**19.4%**	**19.7%**	**22.4%**	**10.6%**	**20.8%**	**5.8%**	**12.5%**	**13.2%**	**11.9%**	**17.3%**	**20.7%**	**13.0%**	**6.6%**	**17.4%**	**14.7%**







LOW
Green Radiation
235838561 wh/m2

Building Radiation
389747238 wh/m2

Total Radiation
624985853 wh/m2

HIGH
Green Radiation
11427506 wh/m2

Building Radiation
313153764 wh/m2

Total Radiation
424581327 wh/m2

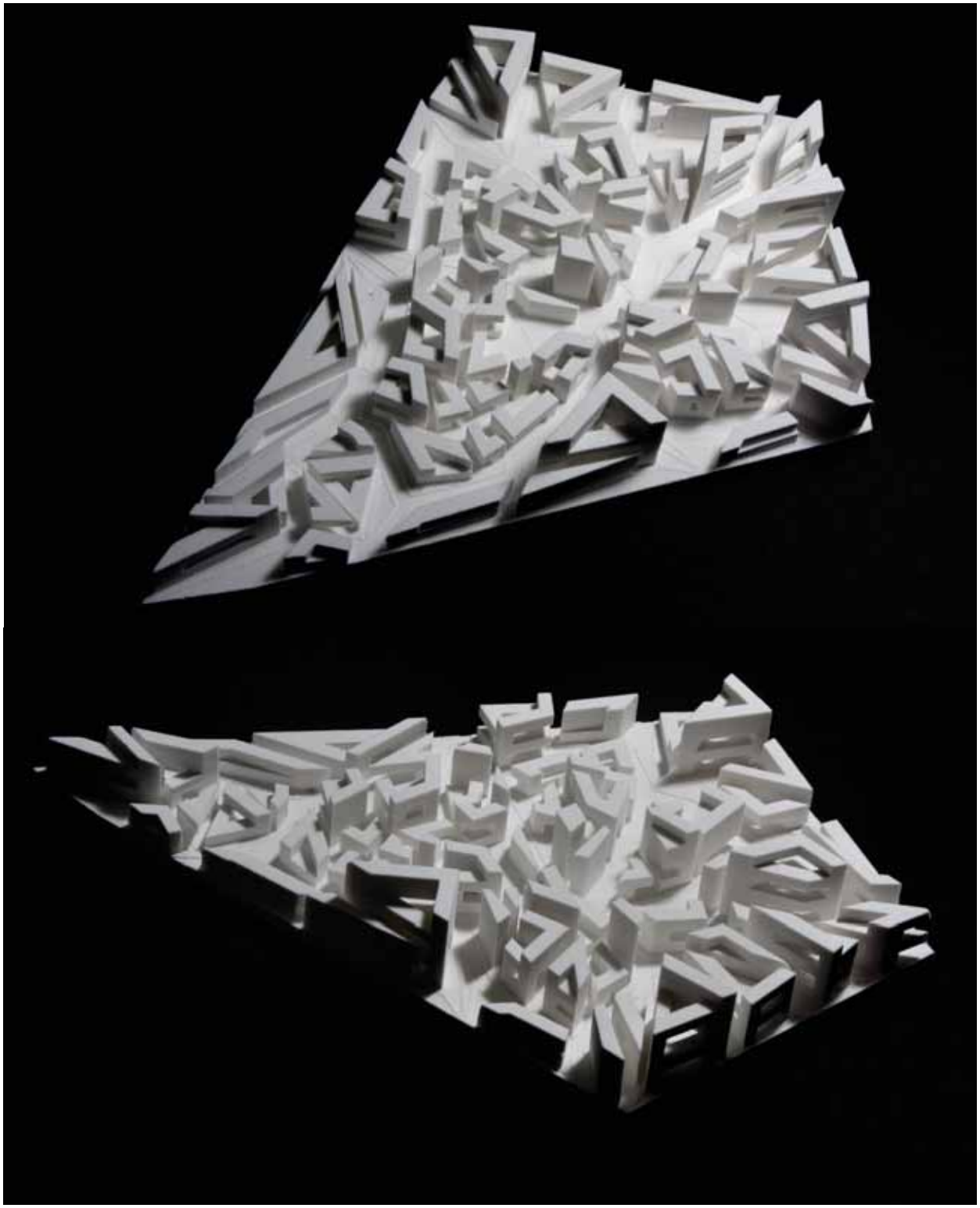
OPTIMUM
Green Radiation
205196974 wh/m2

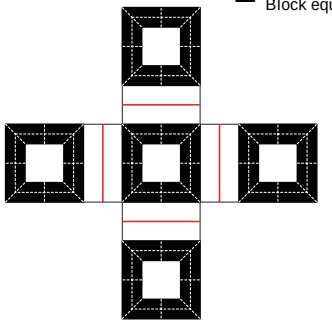
Building Radiation
362680633 wh/m2

Total Radiation
567877630 wh/m2

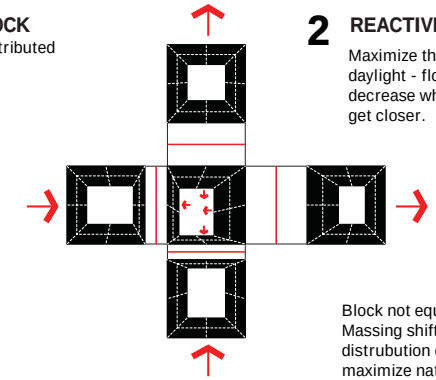
HEIGHT IS TESTED IN GALAPAGOS TO FIND THE OPTIMUM HEIGHT COMBINATION OF BUILDINGS AND BLOCKS.

SITE MODEL WITH OPTIMIZED BUILDING HEIGHTS AND UNIVERSAL FLOORPLATE (OFFSET)





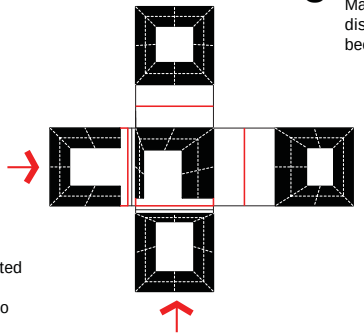
1 GENERIC BLOCK
Block equally distributed



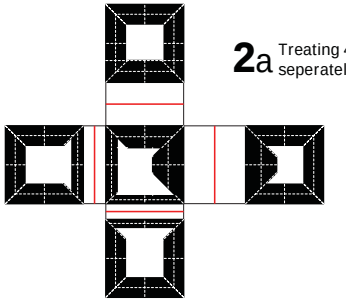
2 REACTIVE BLOCK
Maximize the natural daylight - floor depth decrease when blocks get closer.

Block not equally distributed
Massing shifts with the distrubution of the block to maximize natural light

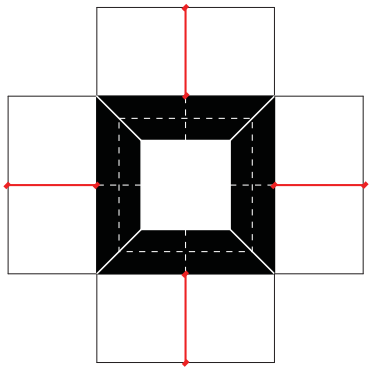
Treating 4 edges as connected



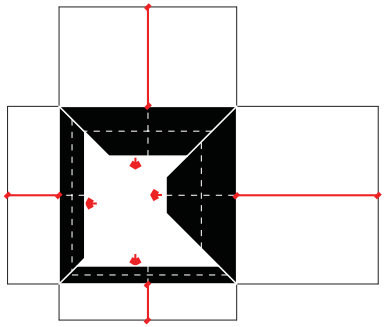
3 DECAY SYSTEM
Massing shifts when the distance of the blocks become too small



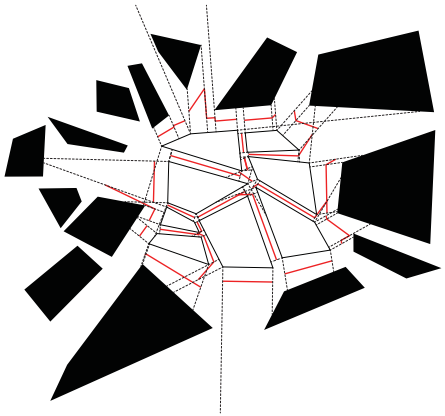
2a Treating 4 edges seperately



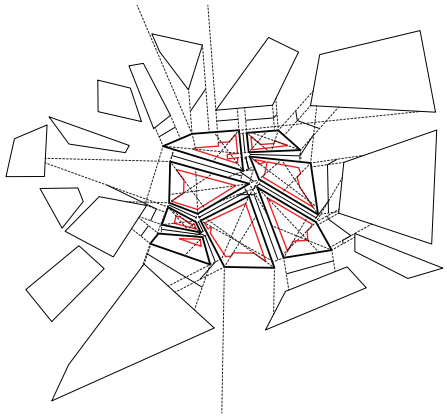
Uniform floor depth



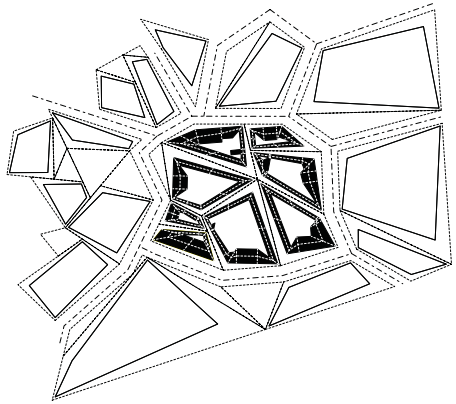
Floor depth change proportionally to the int



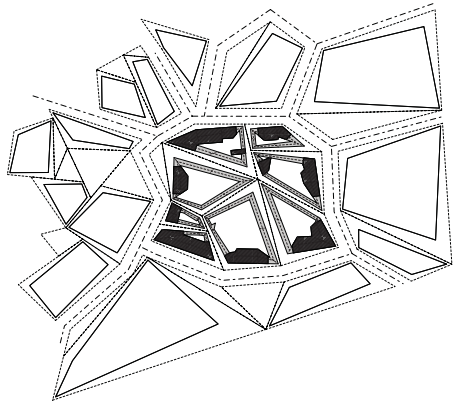
Middle line between blocks
-One scenario of determine the offset coefficient



Offset reflecting inter-block distance

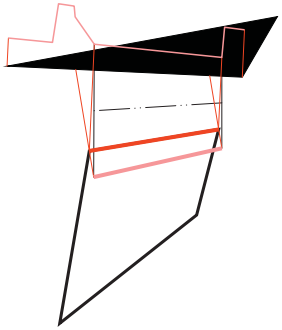


Potential building footprint of one floor

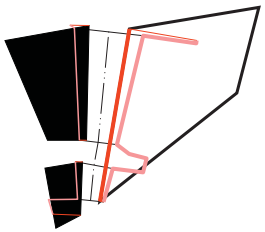


Occupiable enclosed space (width > 5m)

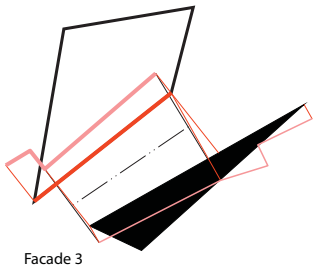
STILL FROM DYNAMIC EDGE GENERATION SCRIPT
the edges of each block are subdivided and perpendicular lines are extended to neighboring buildings - the length of the extended line is then used to determine the offset for the block



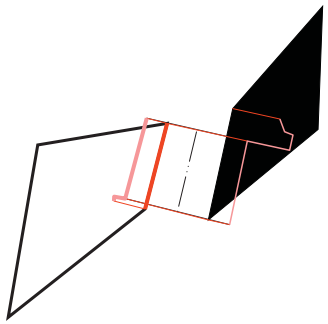
Facade 1



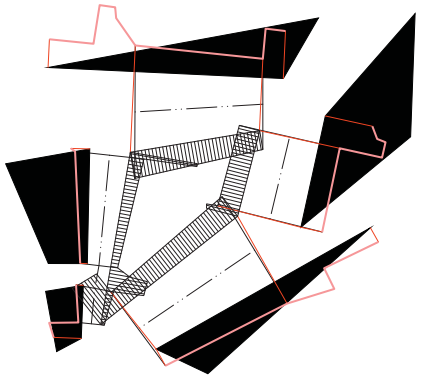
Facade 2



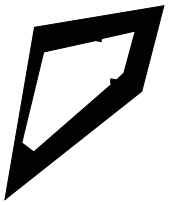
Facade 3



Facade 4



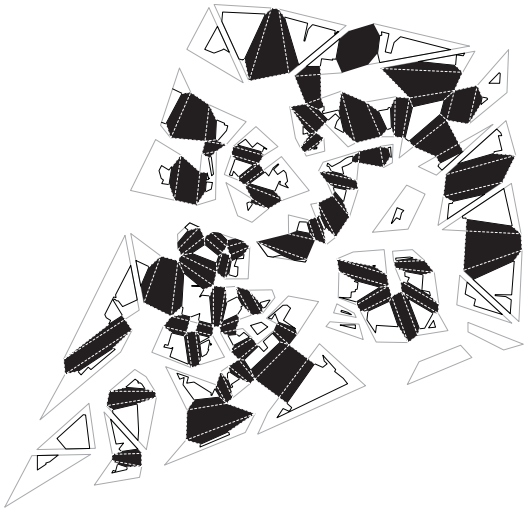
Internal Courtyad Created

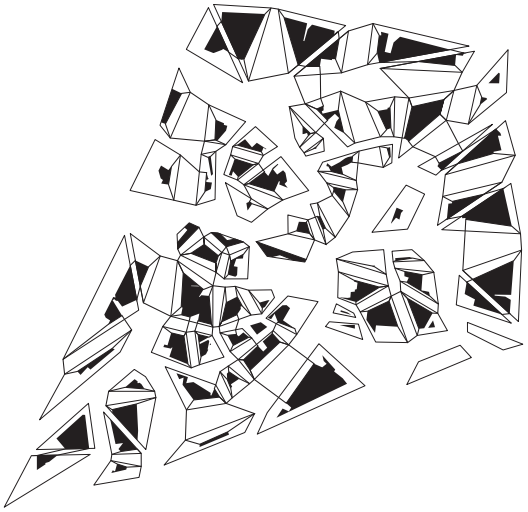


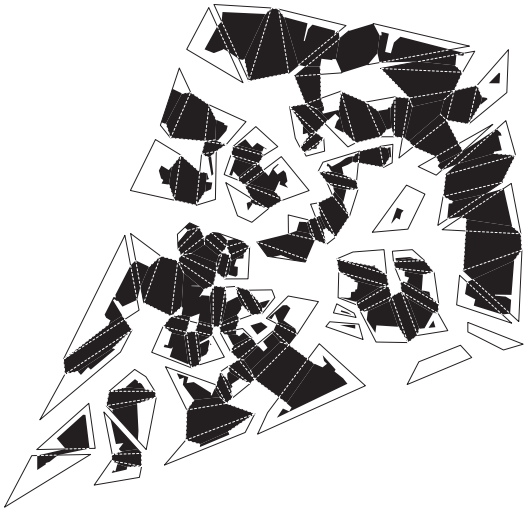
Figure

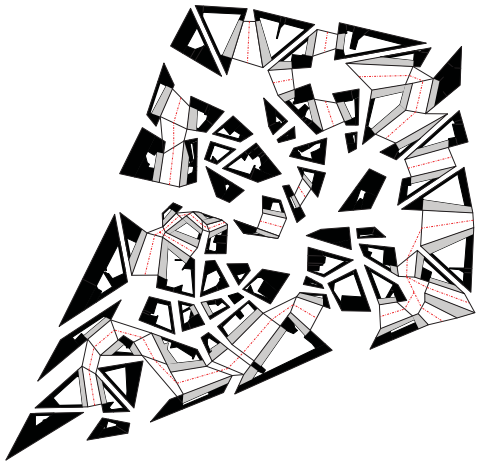
SELF-SIMILAR CLUSTERING
the process of edge subdivision and projection produces local similarity that eventually dissapates due to the irregular street layout.

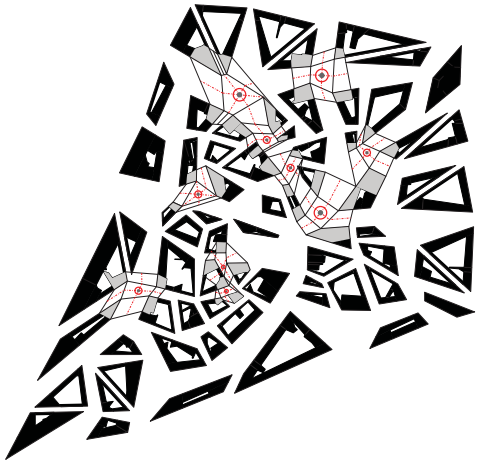
this aids in the creation of neighborhoods and connective commerical street frontages - form-based zoning.

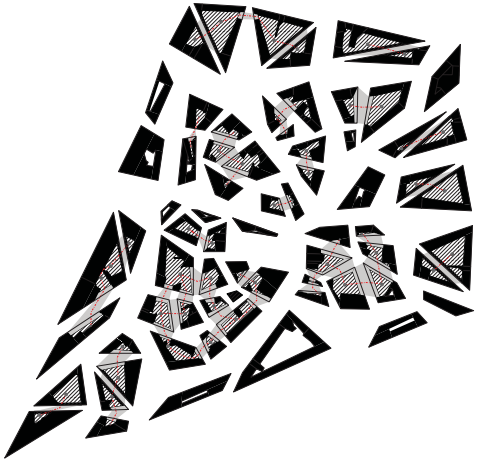


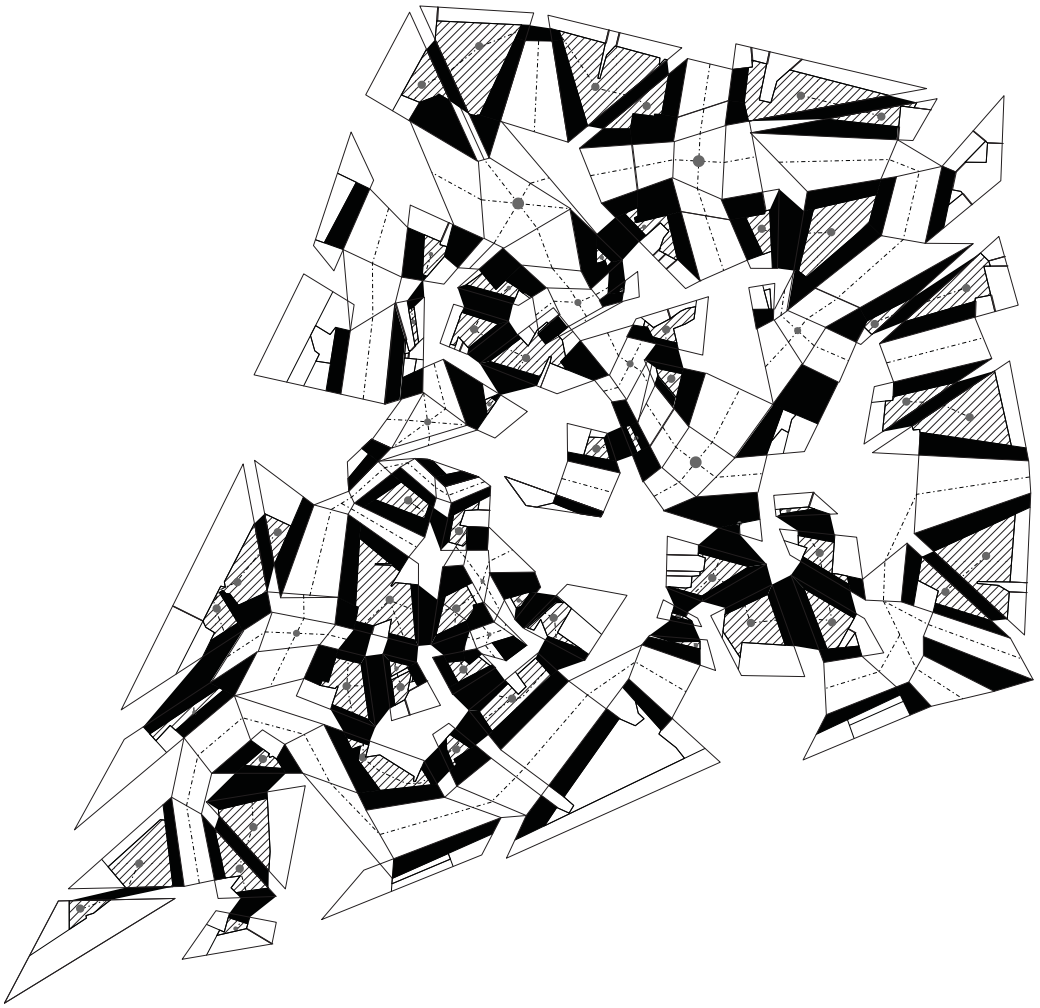










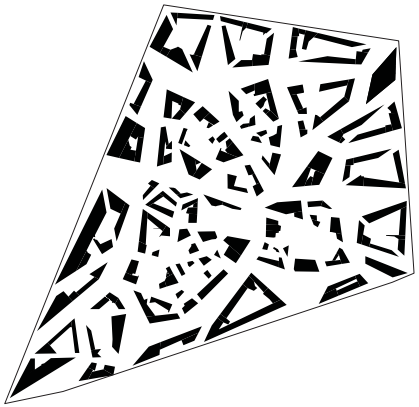


EDGE
Similarity

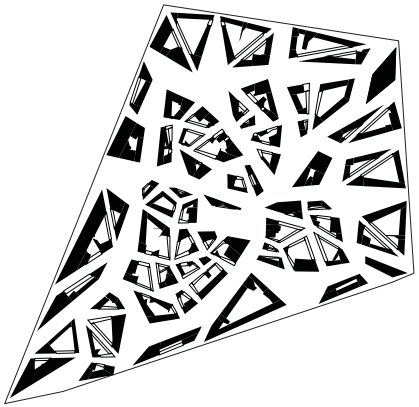
CORNER
Variety

INTERNAL COURTYARD
Connection

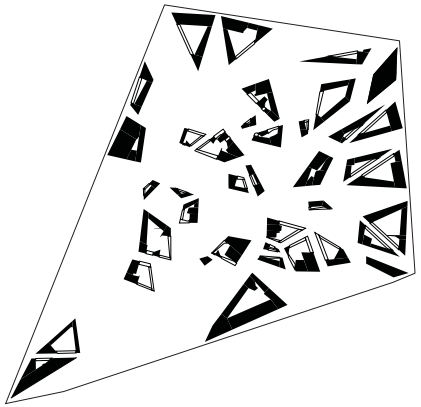
VIEW FROM THE NORTH-WEST



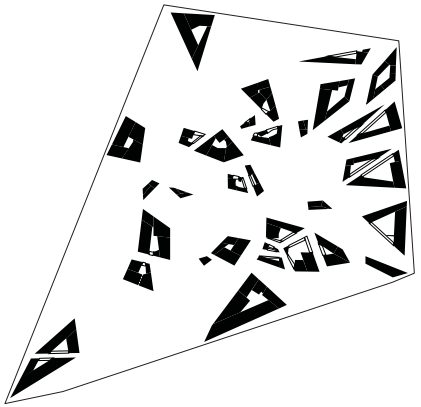
Level 1



Level 2-4



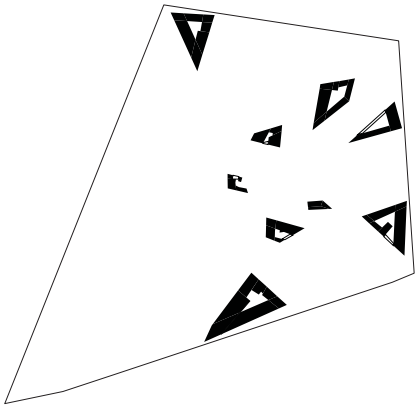
Level 5-6



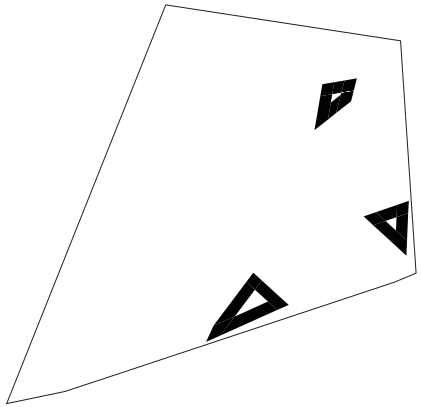
Level 7-8

PLANAR SECTION CUTS THROUGH TYPICAL FLOOR HEIGHTS

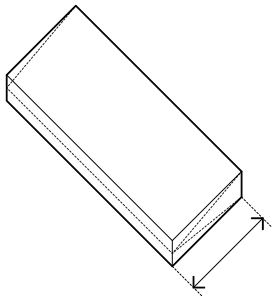
VIEW FROM THE SOUTH-EAST



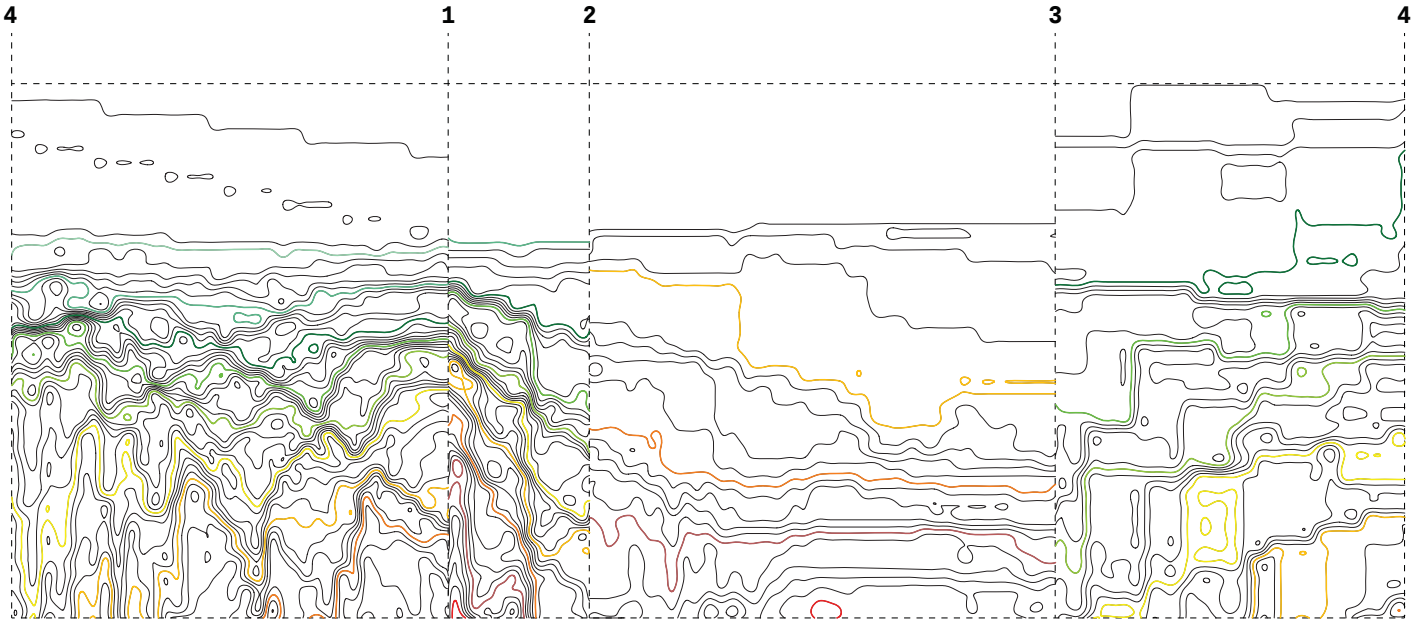
Level 9-10

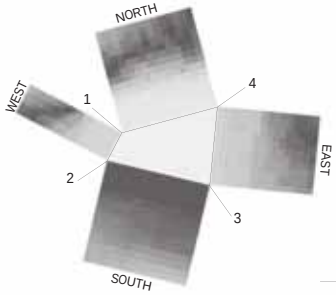


Level 11-12

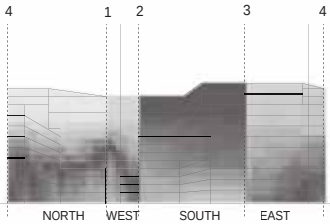


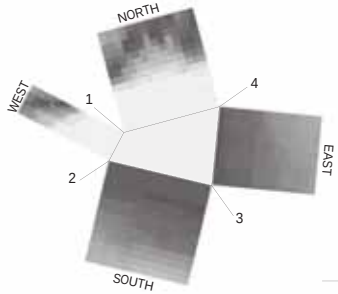
DEPTH
louver depth map built from the envelope's incident radiation levels



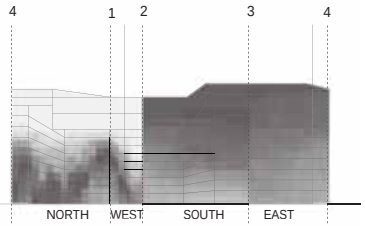


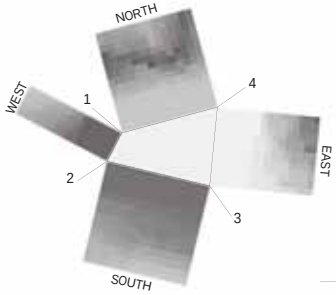
Solar Radiation
ALL YEAR



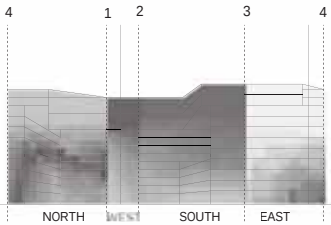


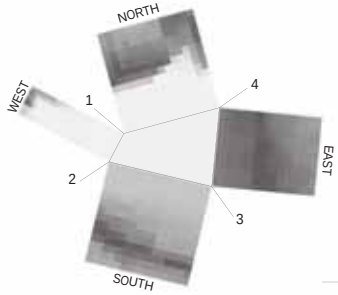
Solar Radiation
NOON



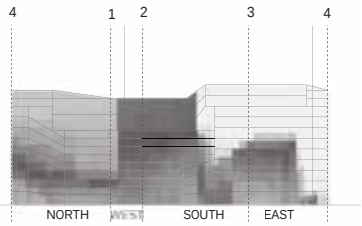


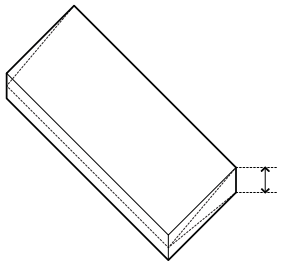
Solar Radiation
MORNING





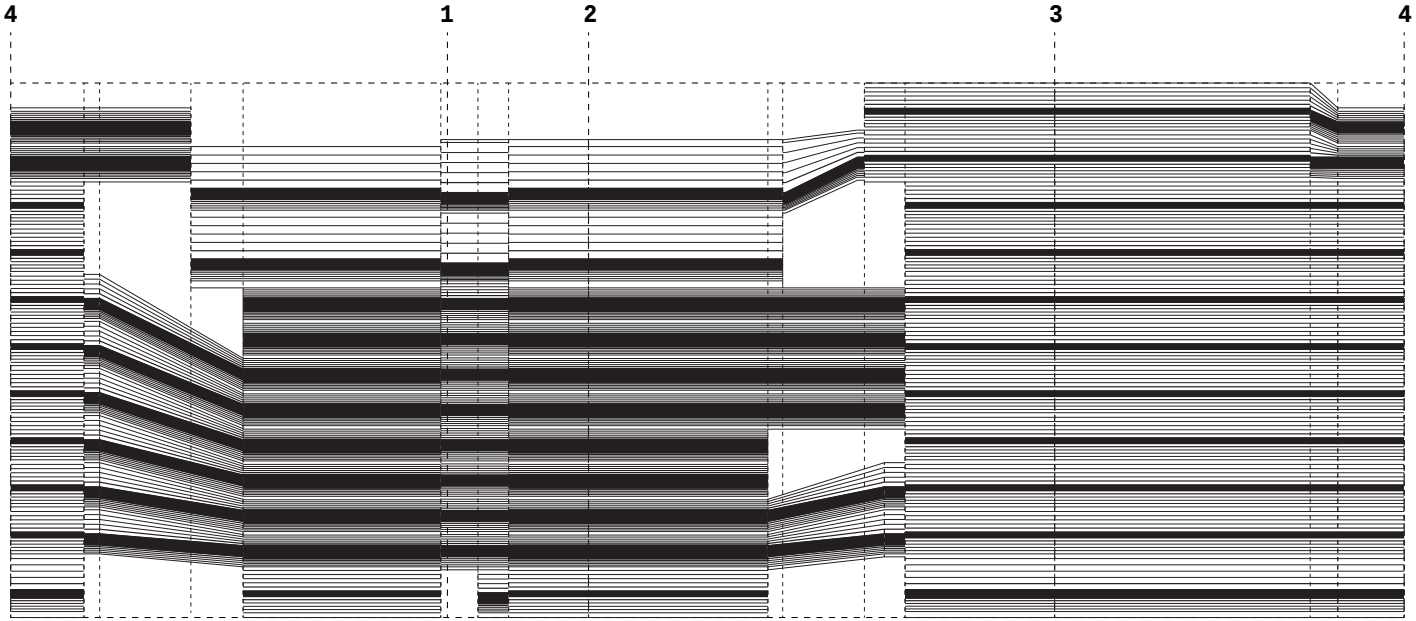
Solar Radiation
AFTERNOON

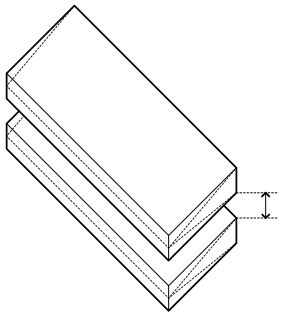




THICKNESS
louver thickness map created from typical range of viewing area along facade.

thickness and depth maps work together to eliminate glare and maintain exterior views.

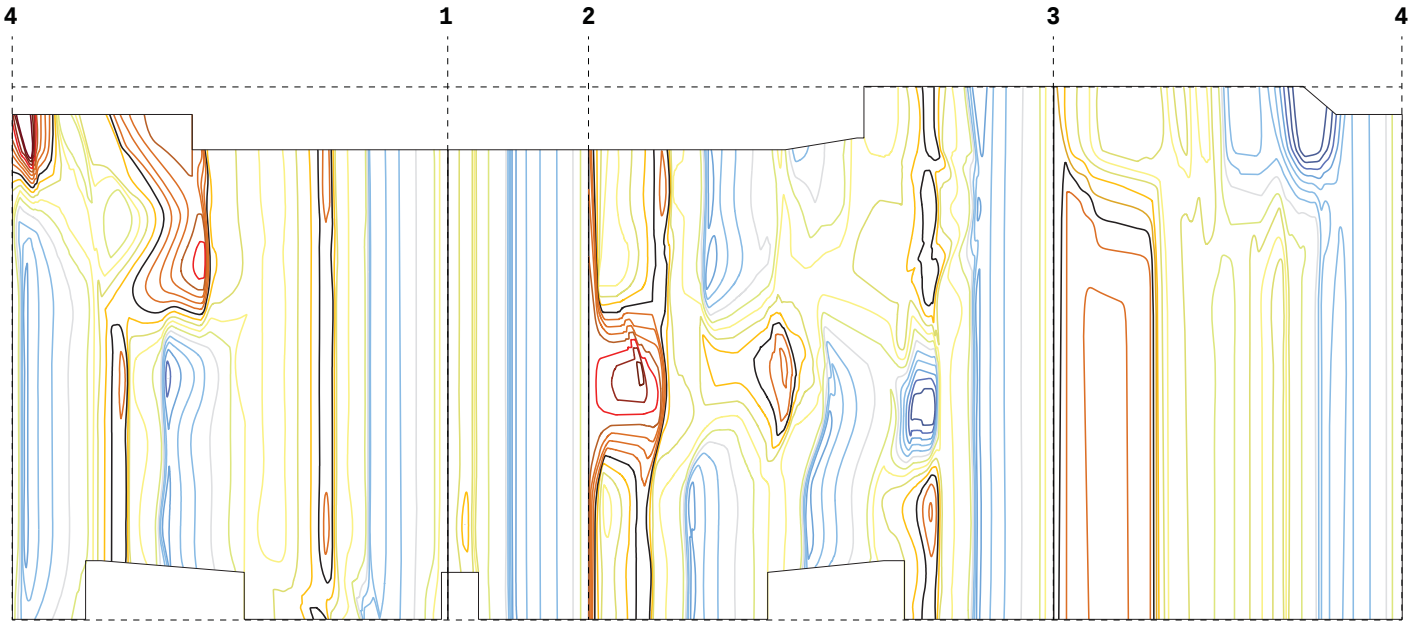




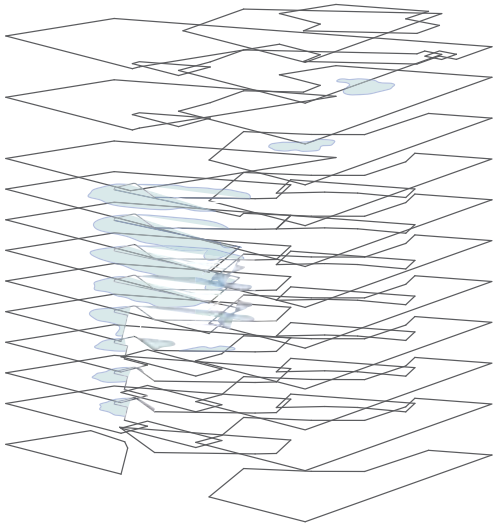
DENSITY

the density of louvers on the facade is determined by a series of daylighting zones mapped to the surface of the envelope.

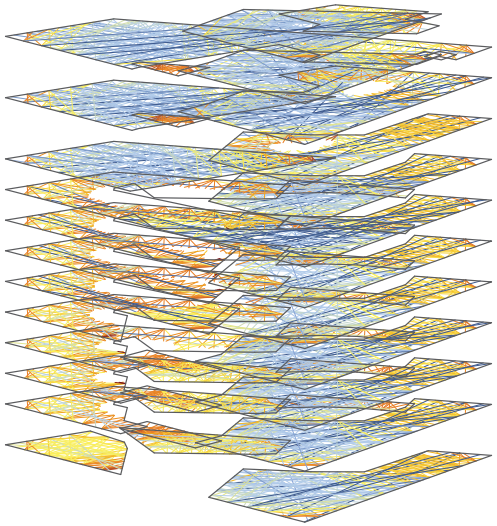
the average floor depth at any given point on the facade determines the amount of daylight necessary to penetrate the entire floorplate.



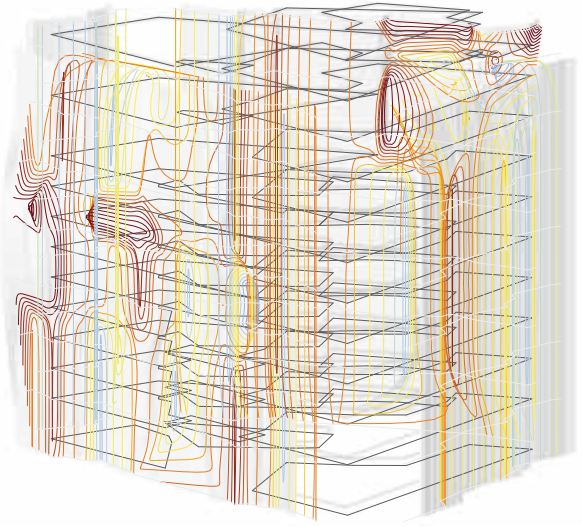
DAYLIGHTING ZONES MAPPED TO UN-ROLLED ENVELOPE



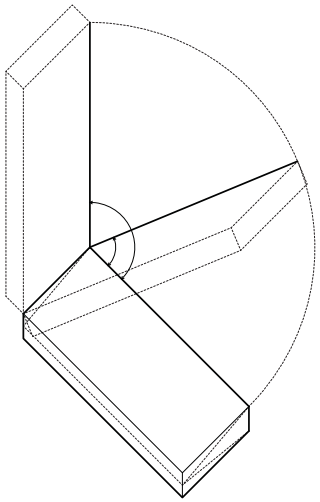
RAYS PROJECTED INWARDS TO DETERMINE DAYLIGHTING ZONE OFFSET



RAYS PROJECTED INWARDS TO DETERMINE DAYLIGHTING ZONE SURFACE OFFSET



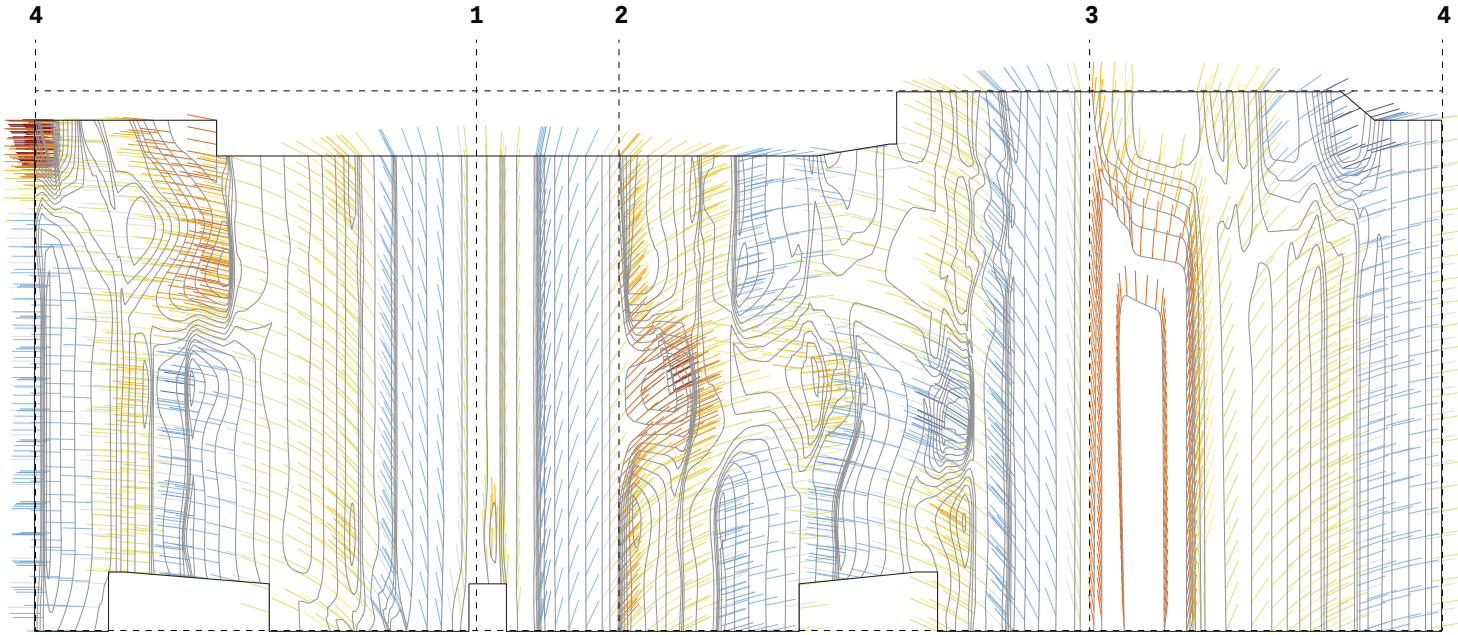
ZONE TOPOGRAPHY CREATED BY CUTTING VERTICAL SECTIONS THROUGH THE OFFSET SURFACE



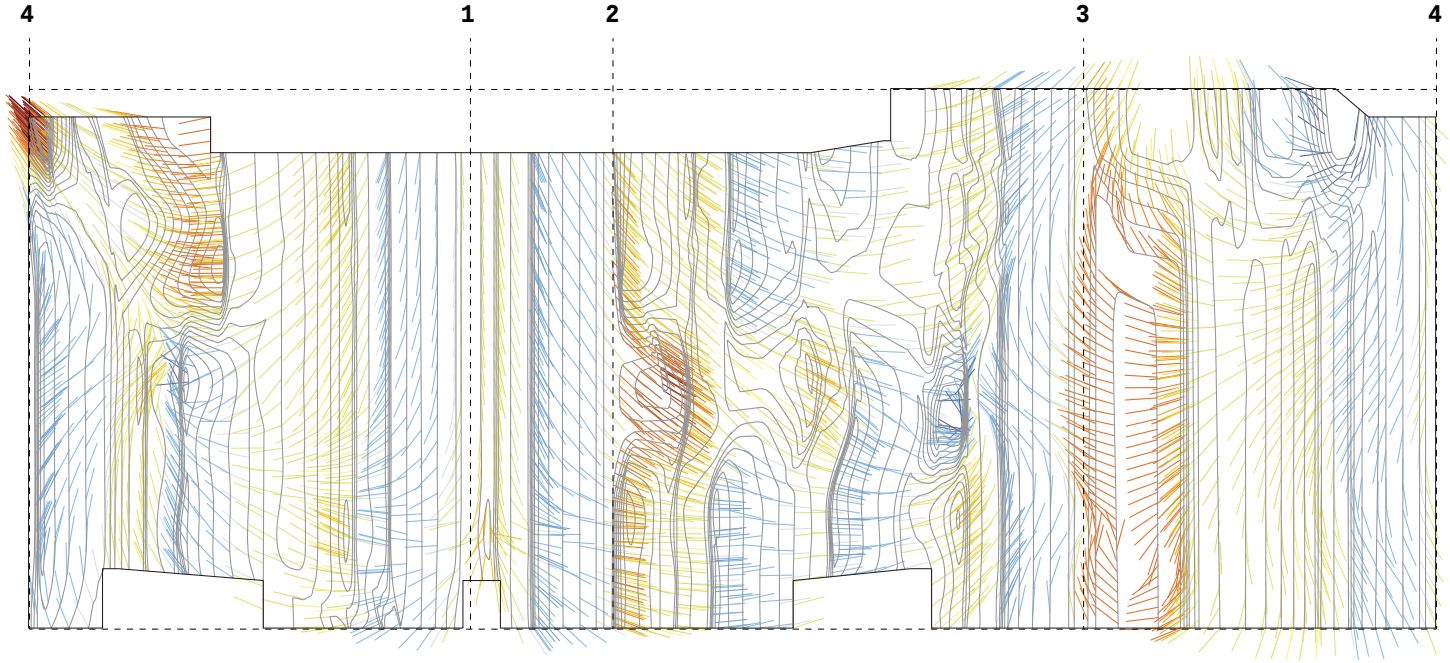
ORIENTATION

louvers transition from vertical on the north/south facades to horizontal on the east/west.

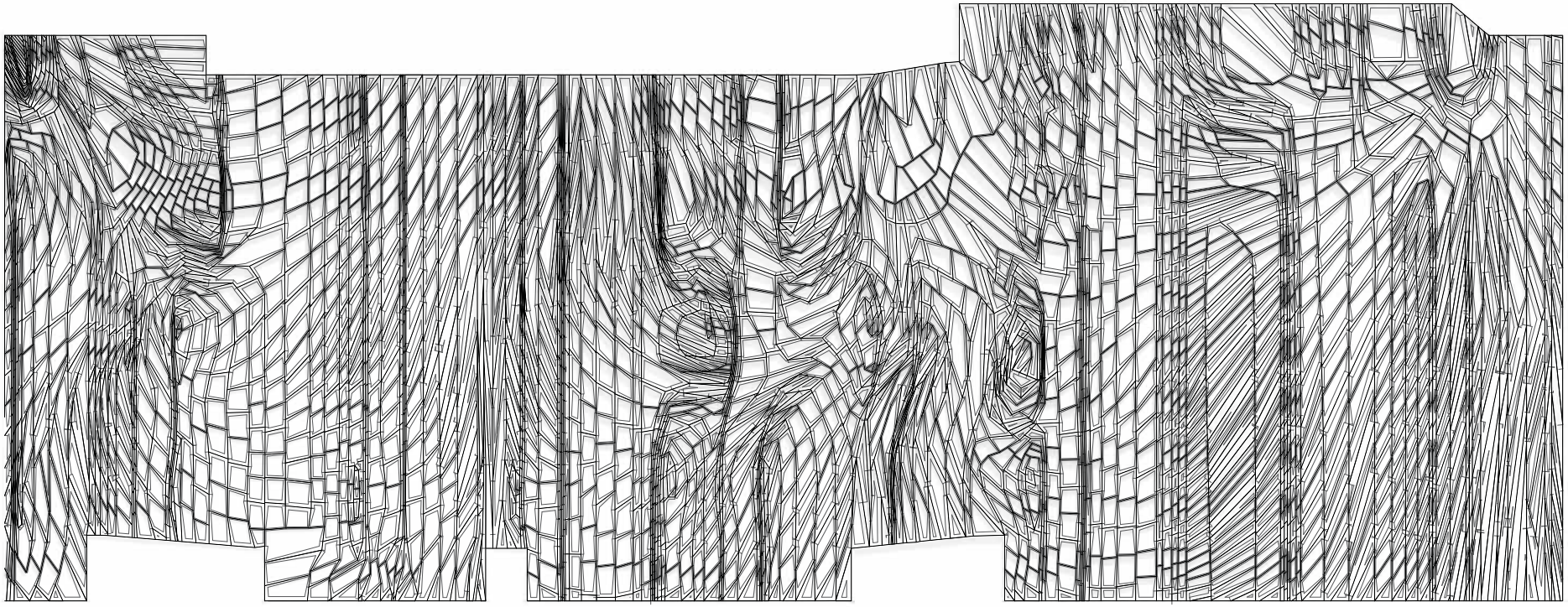
this approach is then extended to multiple points of intensity, creating friction between dueling attractors instead of a linear n/s to e/w gradient



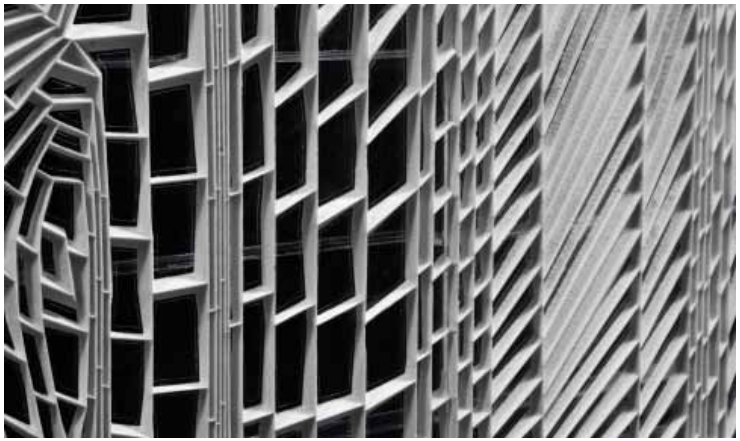
TRANSITION FROM NORTH/SOUTH TO EAST/WEST



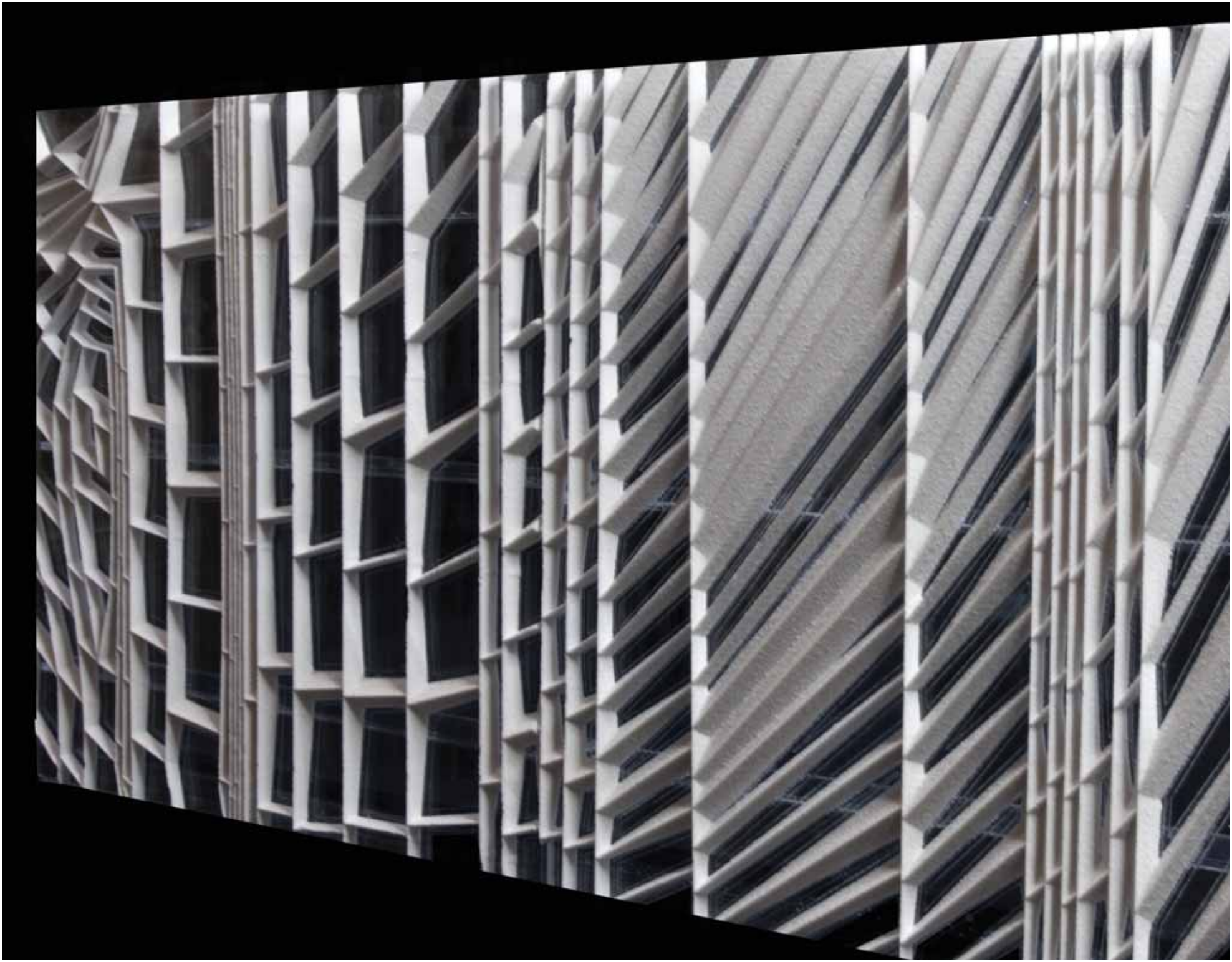
WEIGHTED TRANSITION TO MULTIPLE POINTS OF HIGH RADIATION AT CARDINAL DIRECTIONS

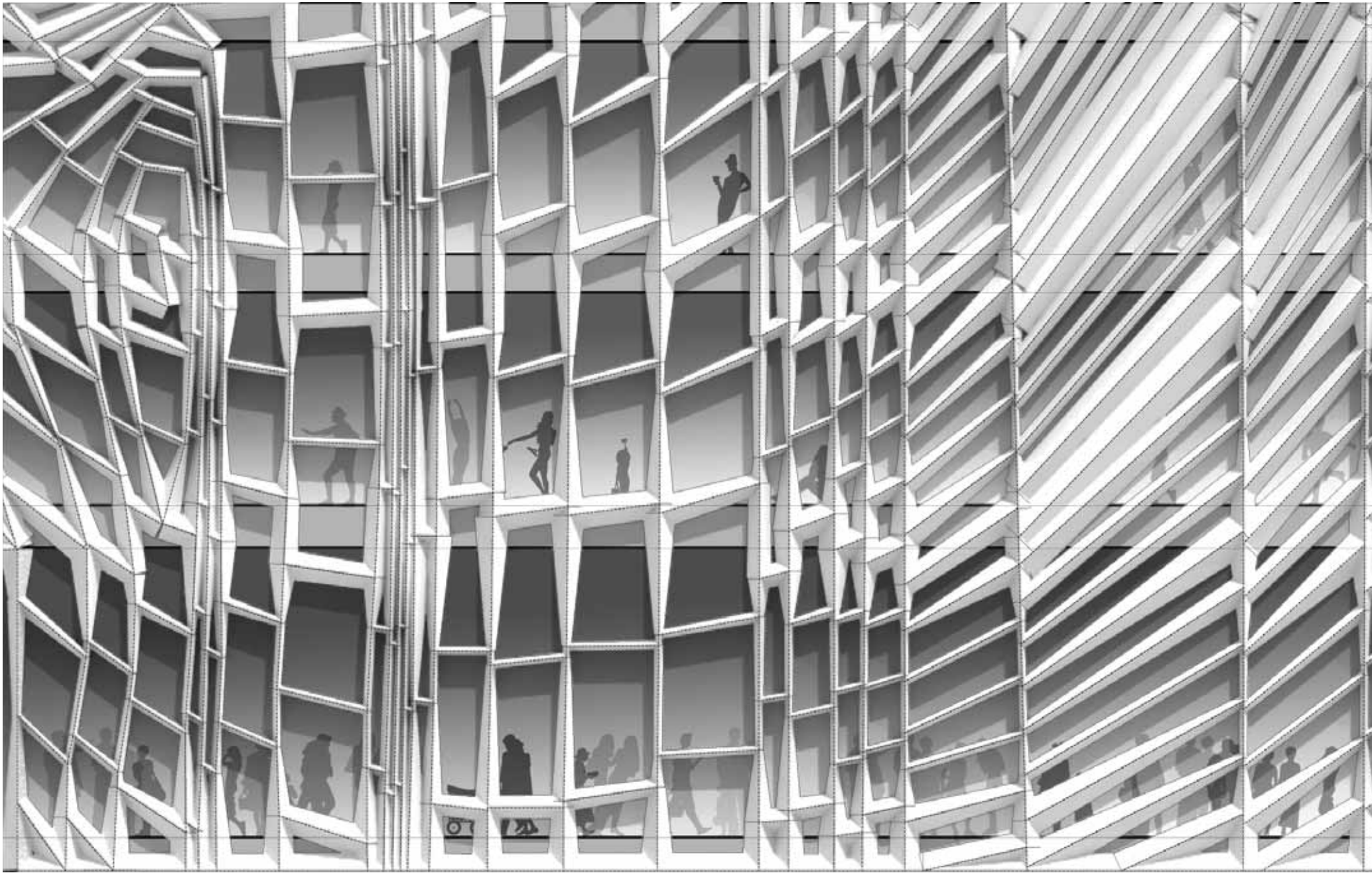


UN-ROLLED ENVELOPE

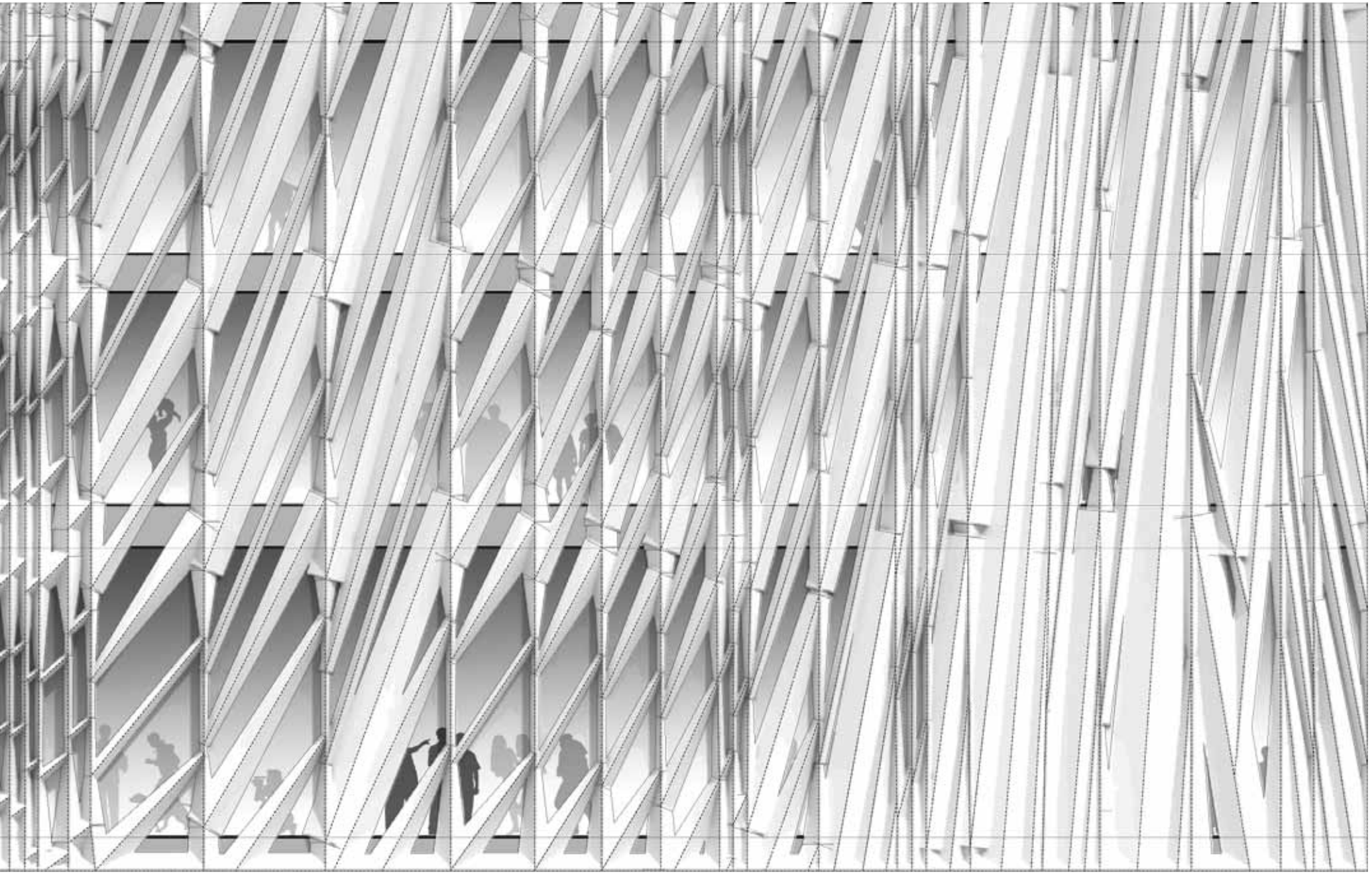


DETAIL



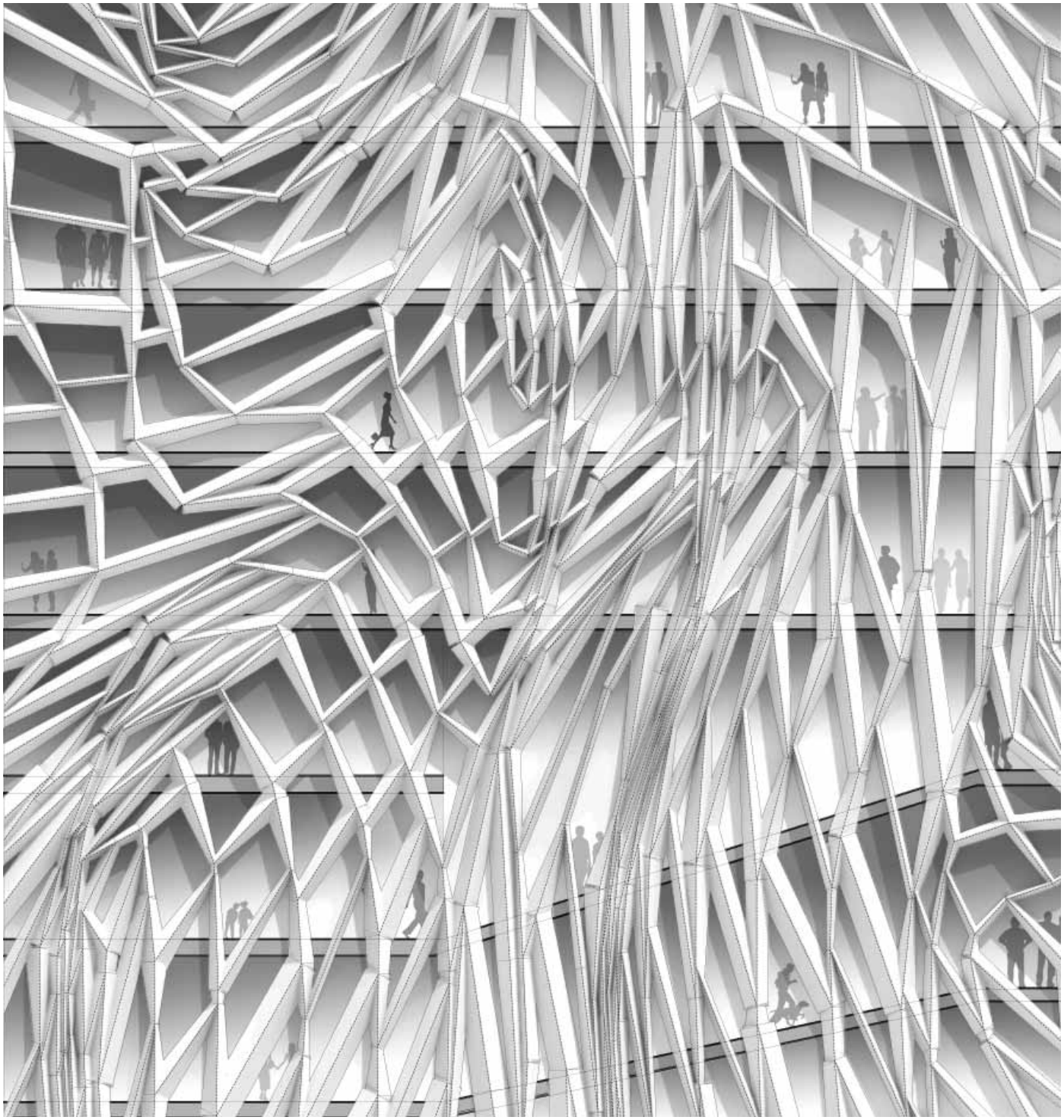


SOUTH



SOUTHEAST

EAST



VIEWING HEIGHT

FLOORPLATE

VIEWING HEIGHT

FLOORPLATE

VIEWING HEIGHT

FLOORPLATE

VIEWING HEIGHT

FLOORPLATE

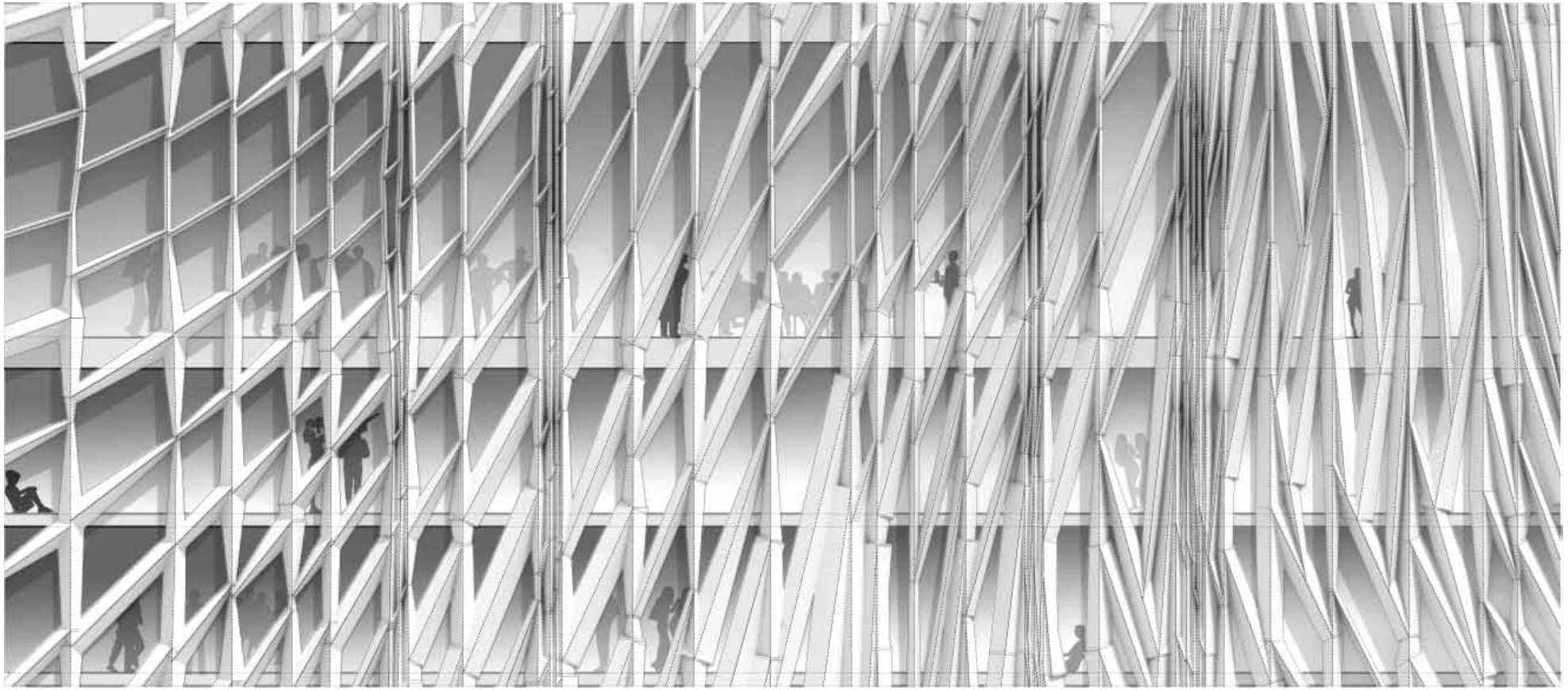
VIEWING HEIGHT

FLOORPLATE

VIEWING HEIGHT

FLOORPLATE

SHALLOW — DEEP — SHALLOW — DEEP — SHALLOW



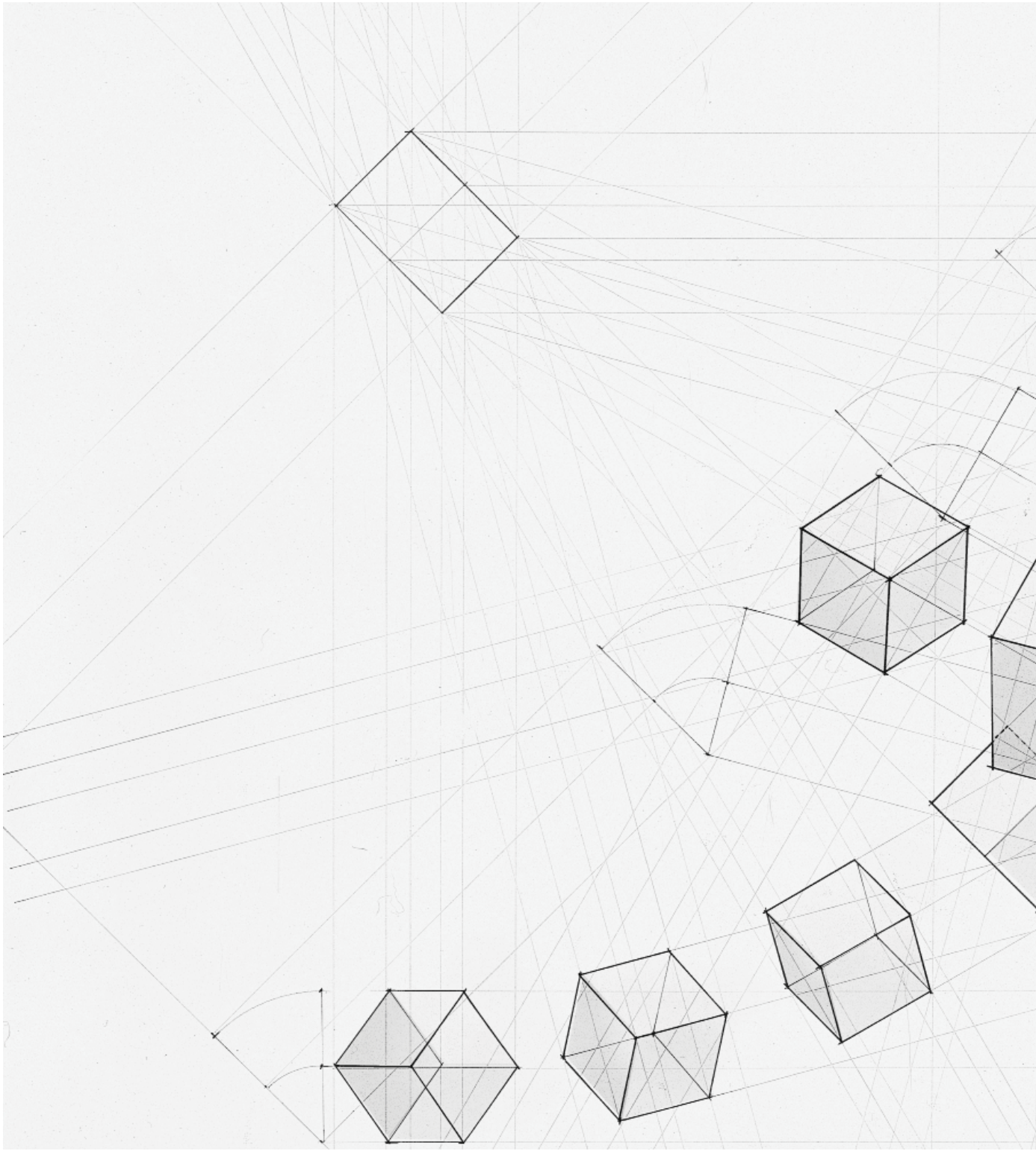
NORTH — — — — — — — — — — — — **NORTHWEST** — — — — — — — — — — **WEST** — —

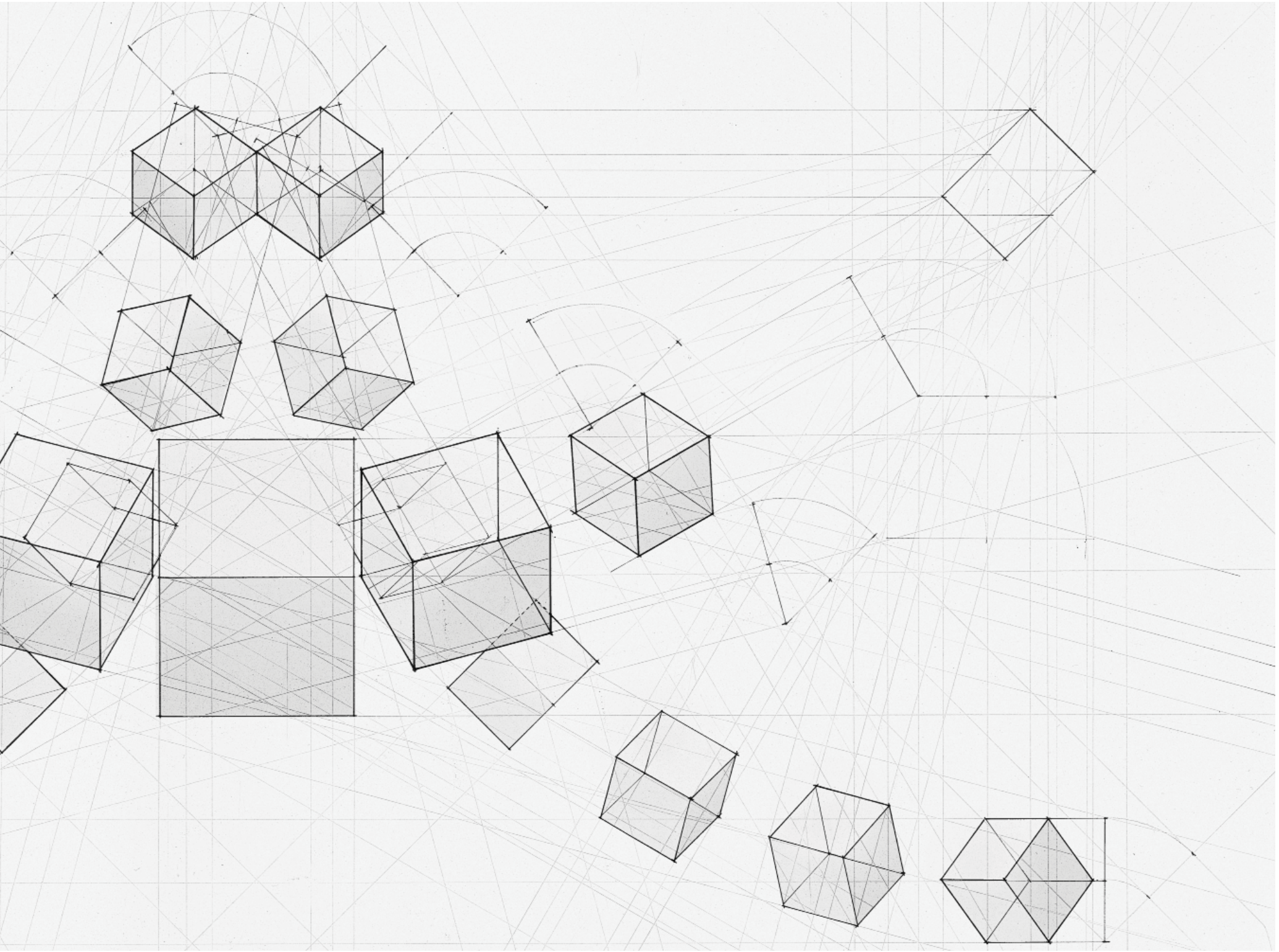
FRICTION THROUGH VARIABLES
Changes in floor depth, solar orientation, contextual shading and viewing height combine to create a complex yet legible flow (pattern) through the envelope

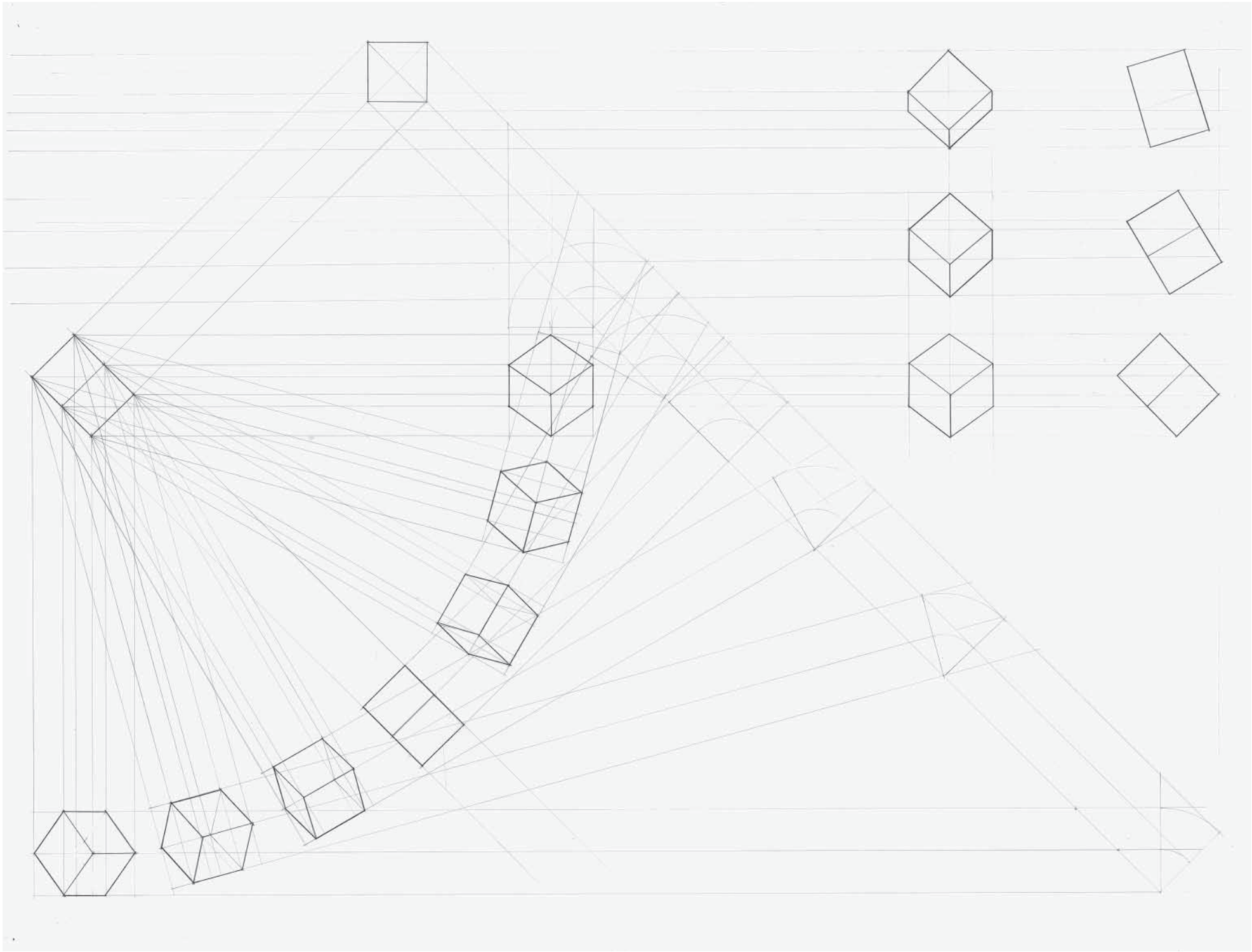
PROJECTIONS

ARCH 1211A: DRAWING AND ARCHITECTURAL FORM, *Seminar*
VICTOR AGRAN, *Professor*
TEN WEEKS IN 2010, *Length*

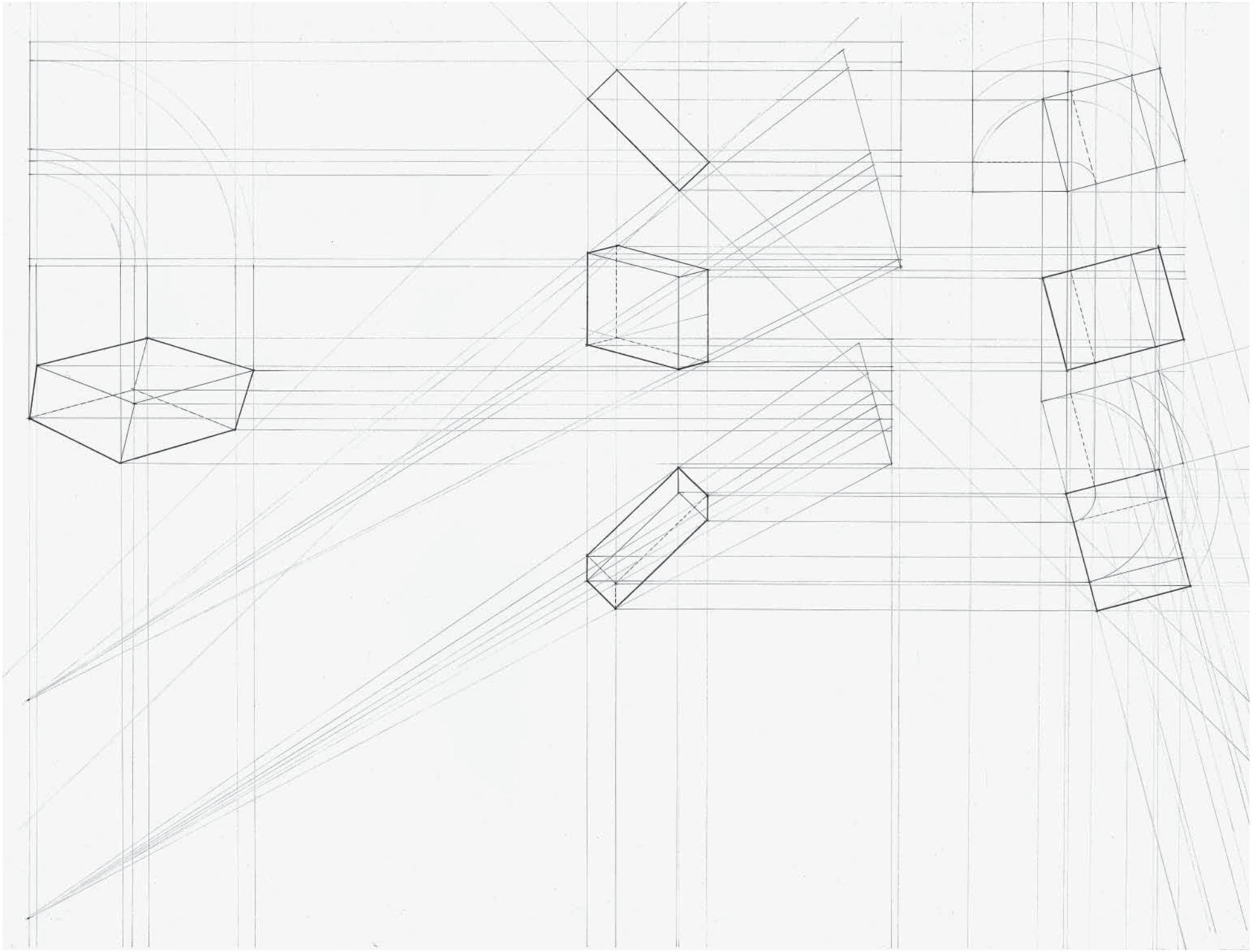
Drawing and architectural examined the historical and theoretical development of descriptive geometry and perspective through the practice of rigorous constructed drawings. The methods and concepts studied served as a foundation for the development of drawings that interrogate the relationship between a drawing's production, conceptual objectives and final composition.



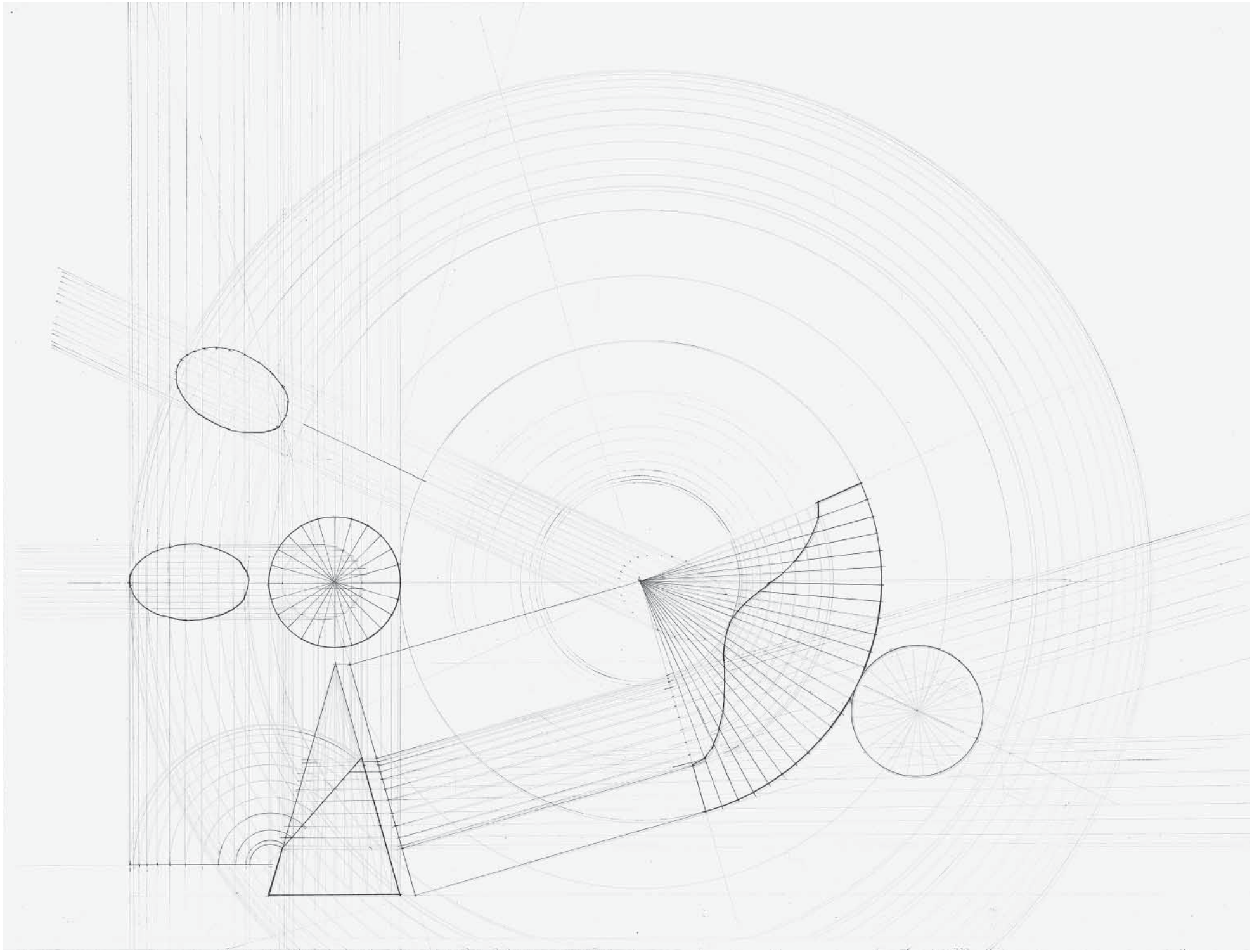




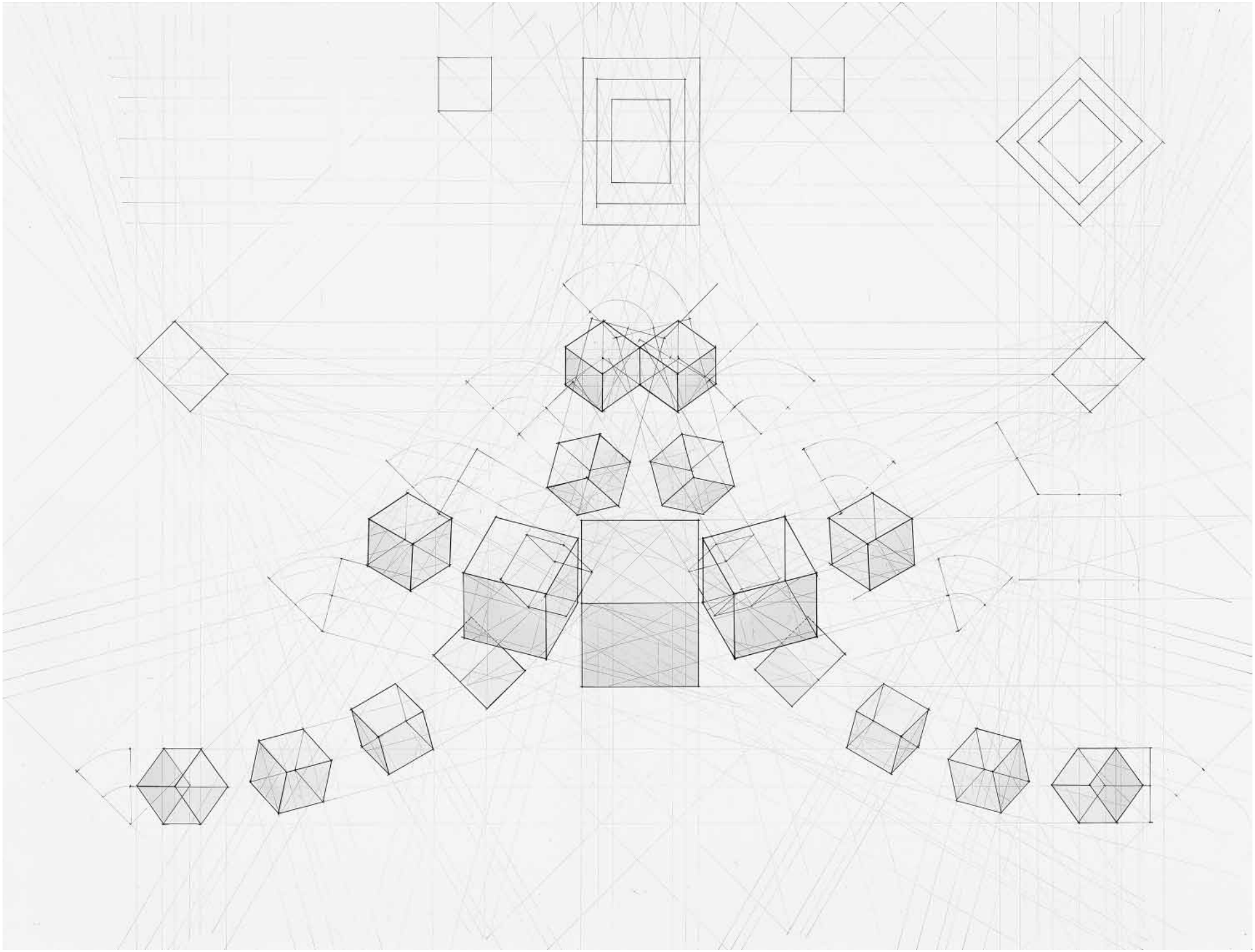
ASSIGNMENT 1, ISO / DIMETRIC / TRIMETRIC PROJECTIONS



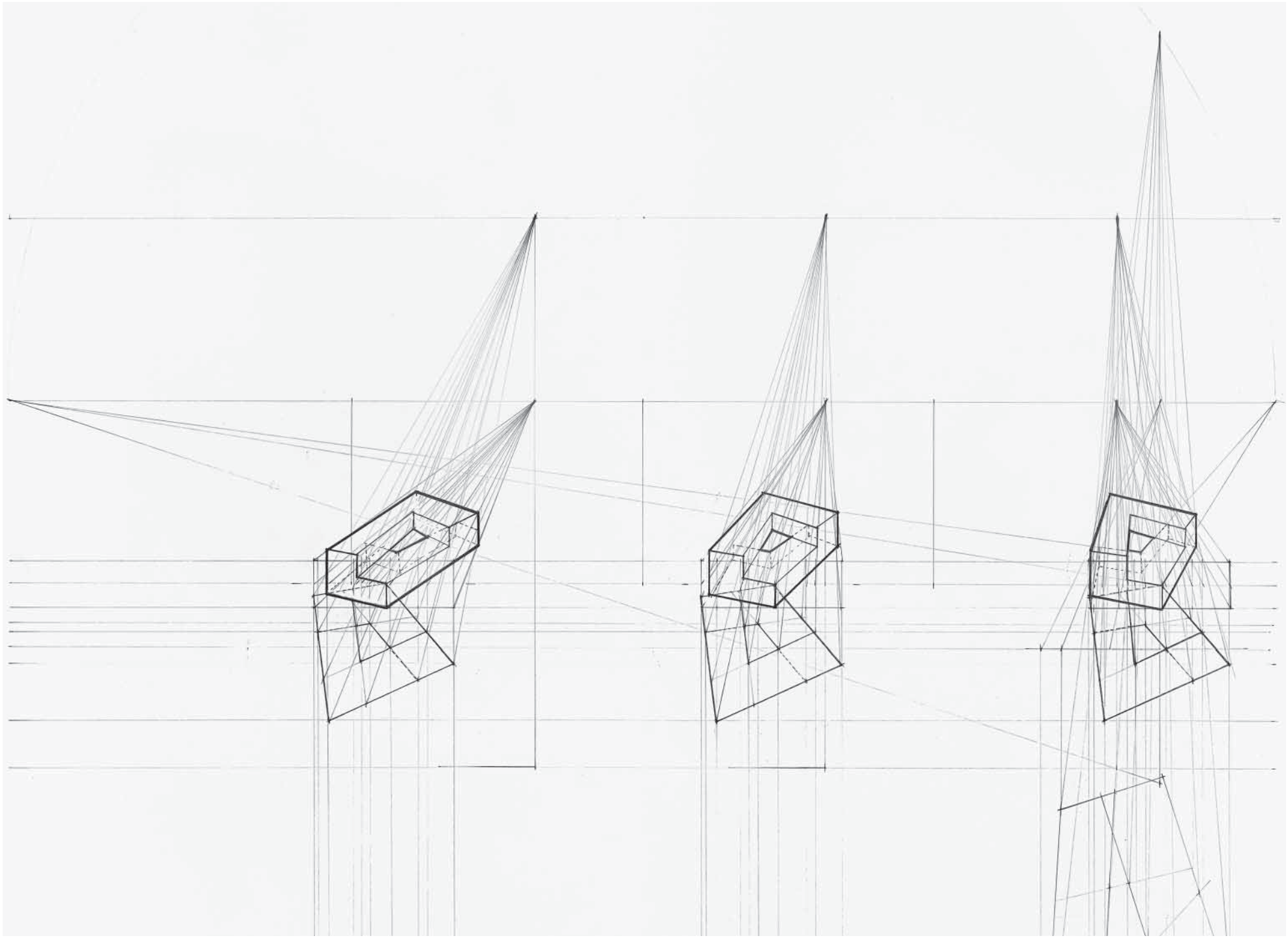
ASSIGNMENT 3, PARALLEL PROJECTION / DEVELOPMENT OF A SOLID



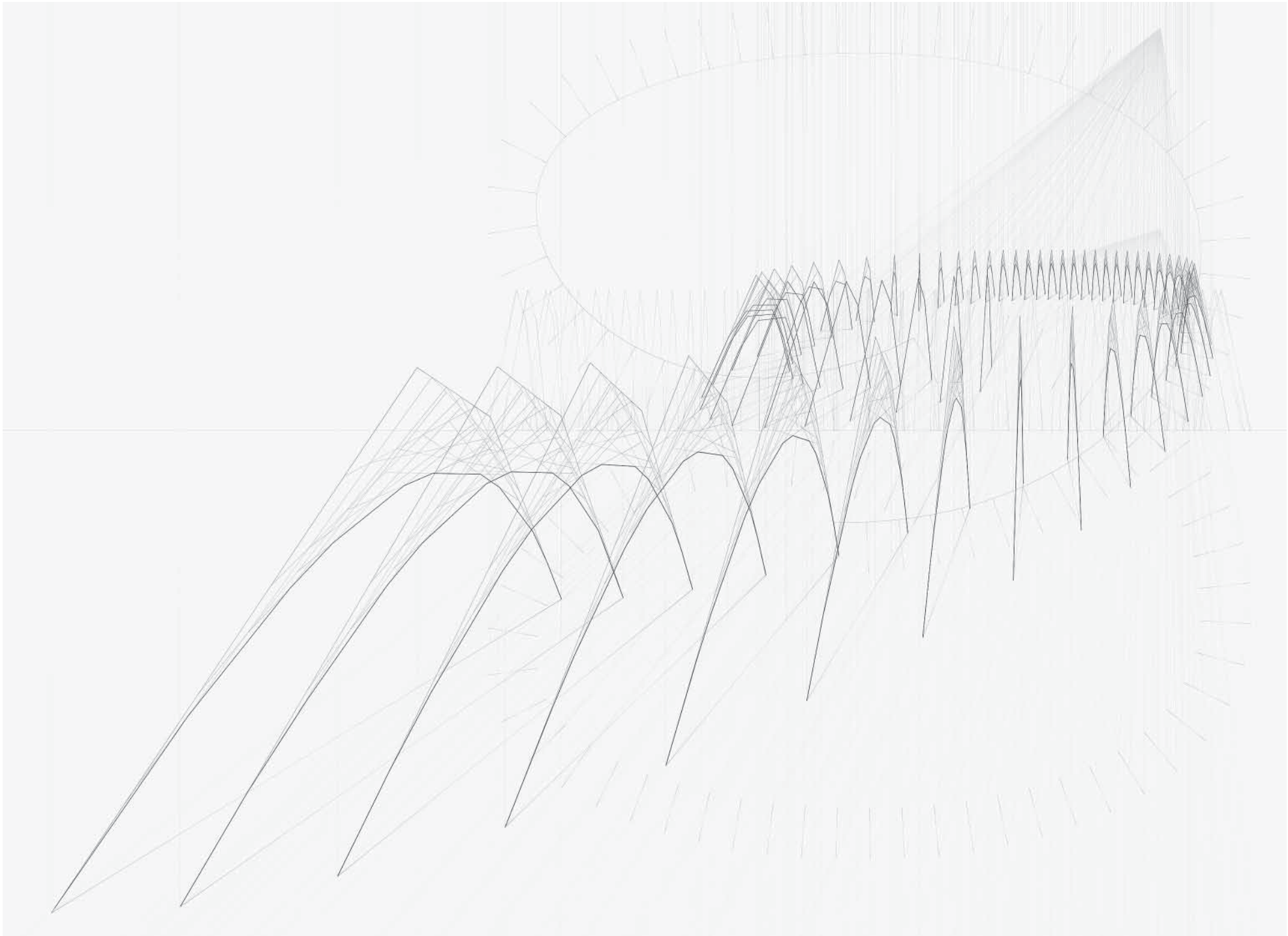
ASSIGNMENT 2, CONES / ELLIPSES / UNROLLED SURFACES



ASSIGNMENT 4, DESARGUES / PIERO DELLA FRANCESCA

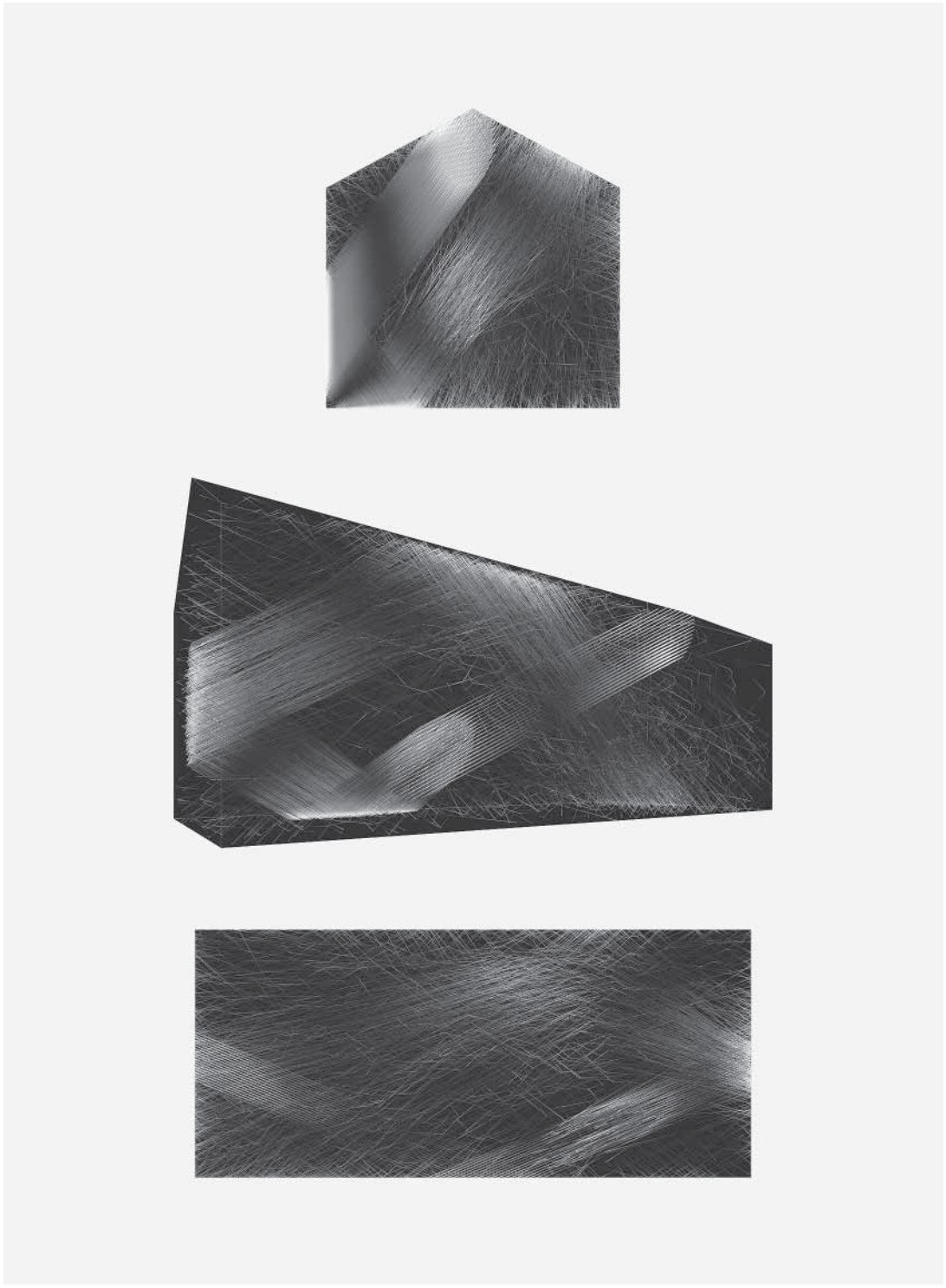


ASSIGNMENT 7, BROOK TAYLOR PROJECTIONS
serial rotation through the taylor method.

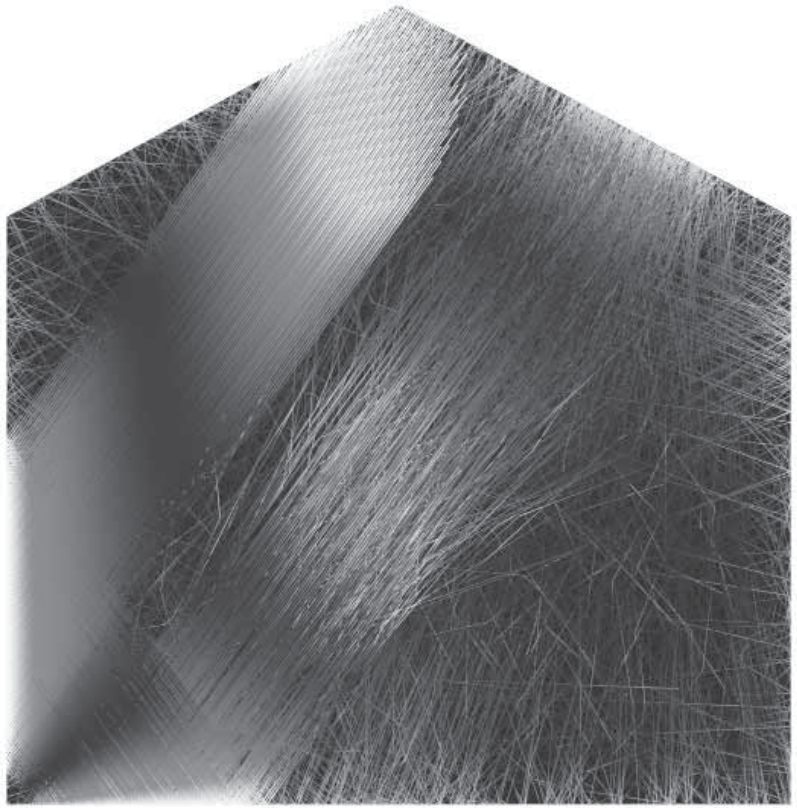


ASSIGNMENT 8, BEZIER EXPLORATIONS

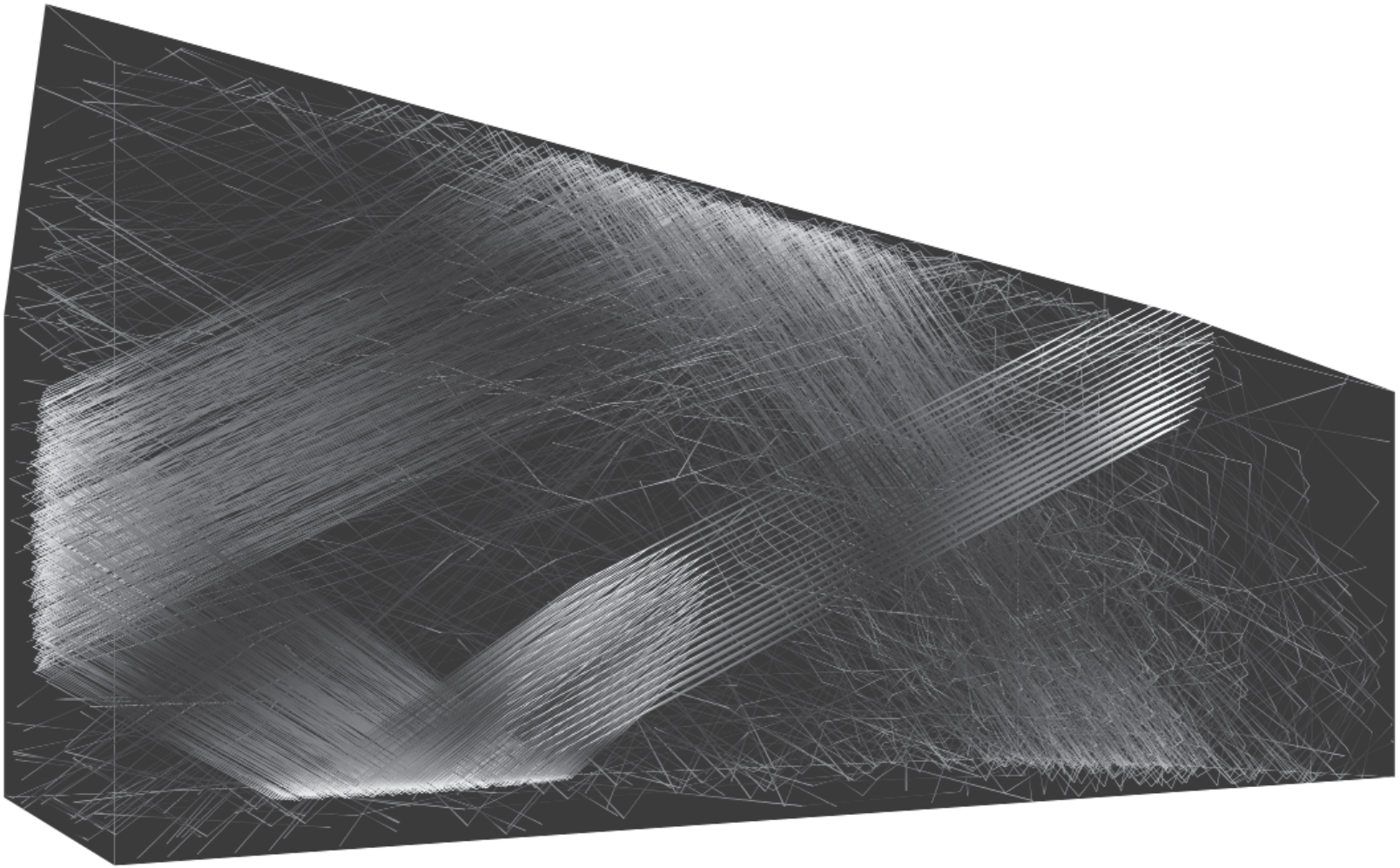
the bezier curve - a curve derived through recursive subdivision - was explored on micro and macro scales. multiple bezier curves were arrayed along a bezier curve datum and projected using the taylor method. more important than the technical gymnastics - this assignment focused on defining space through drawing. the array could wrap around on itself and actually contain space - moreover - the curve breaks the picture plane and creates a more engaging composition.



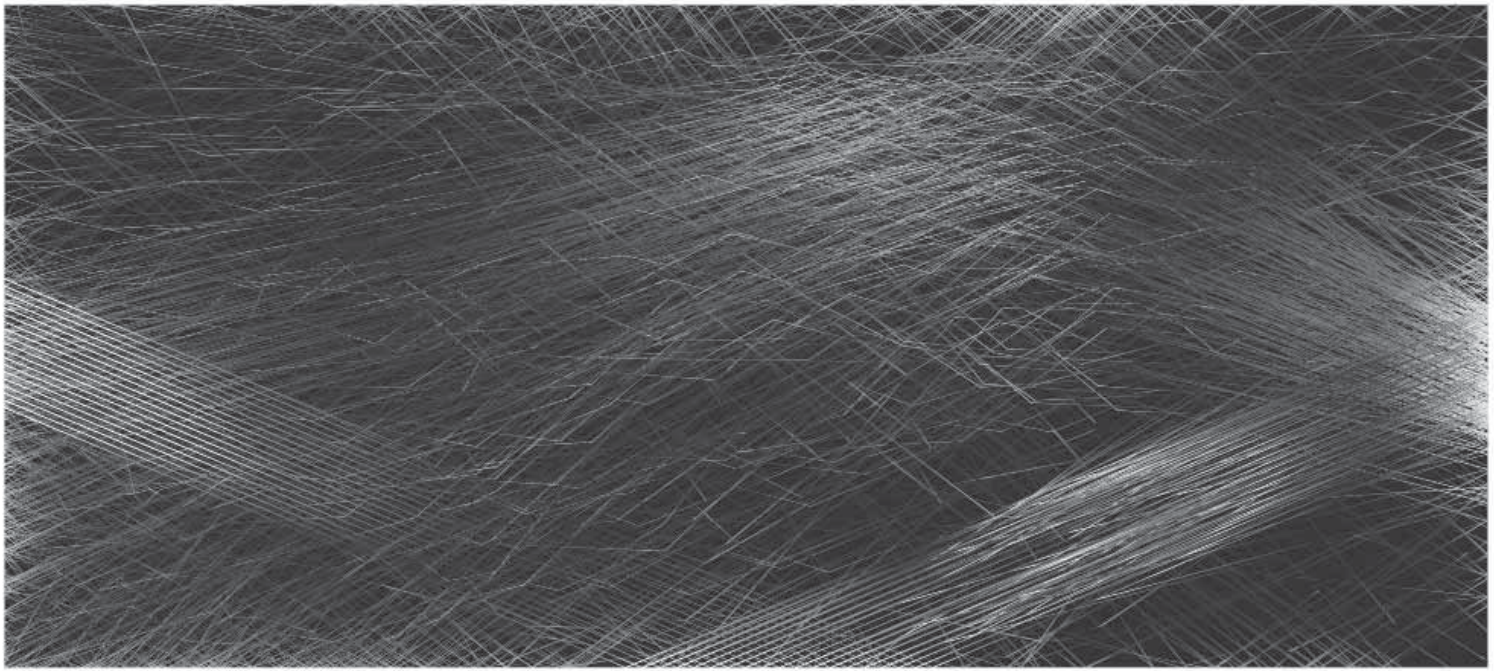
FINAL ASSIGNMENT, INTERPRETATION OF GORDON MATTA-CLARK'S 'DAY'S END: PIER 52'



FINAL ASSIGNMENT, ELEVATION VIEW OF LIGHT MOVING THROUGH TYPE-FORM
With each bounce the light becomes weaker and transitions from specular to diffuse



FINAL ASSIGNMENT, TAYLOR METHOD DERIVED PERSPECTIVE VIEW OF LIGHT MOVING THROUGH TYPE-FORM
Traditional drawing techniques often lost in computer drafted method were incorporated and perverted through computational means. The lines change thickness and value at the end points much like a drafted line. The weight at each end of the line is skewed to imply direction as well.



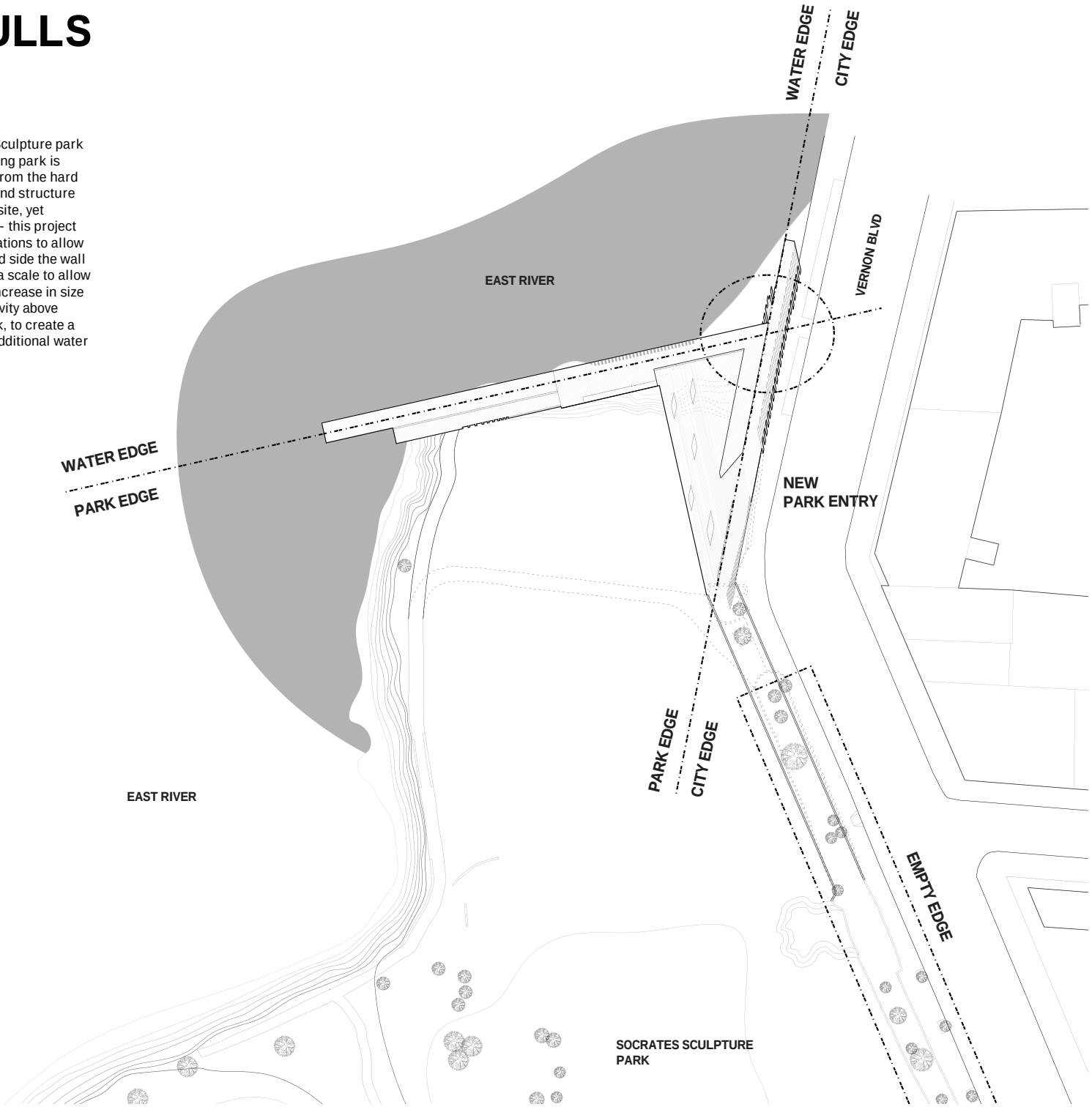
FINAL ASSIGNMENT, PLAN VIEW OF LIGHT MOVING THROUGH TYPE-FORM

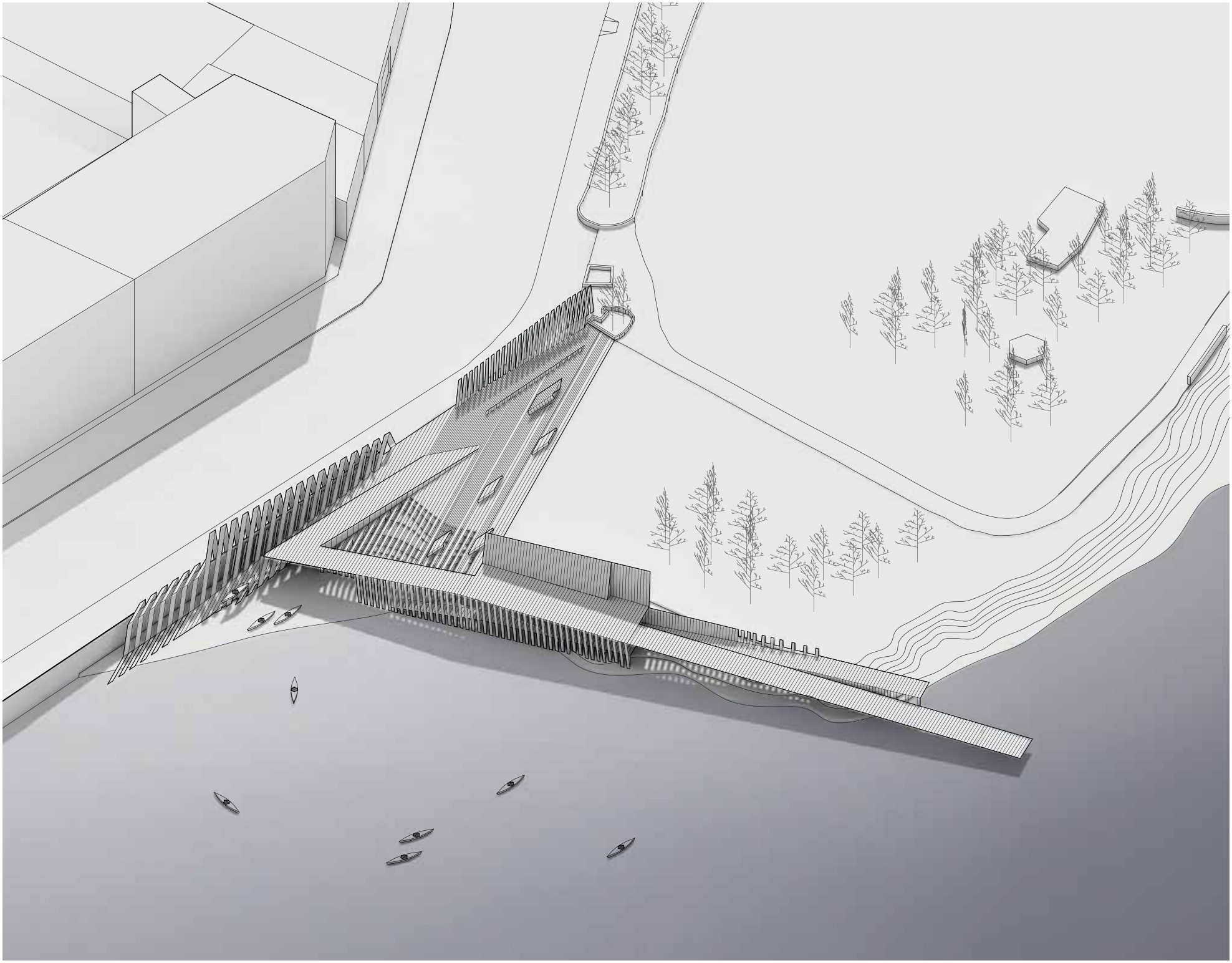
The plan view shows the balance/imbalance of legibility and texture (chaos?) I was attempting to achieve through a combination of traditional and contemporary means. By playing with Shape, Line and View one can achieve a piece with the rigor of a constructed drawing and the opportunity for multiple rich interpretations (meaning?) as well.

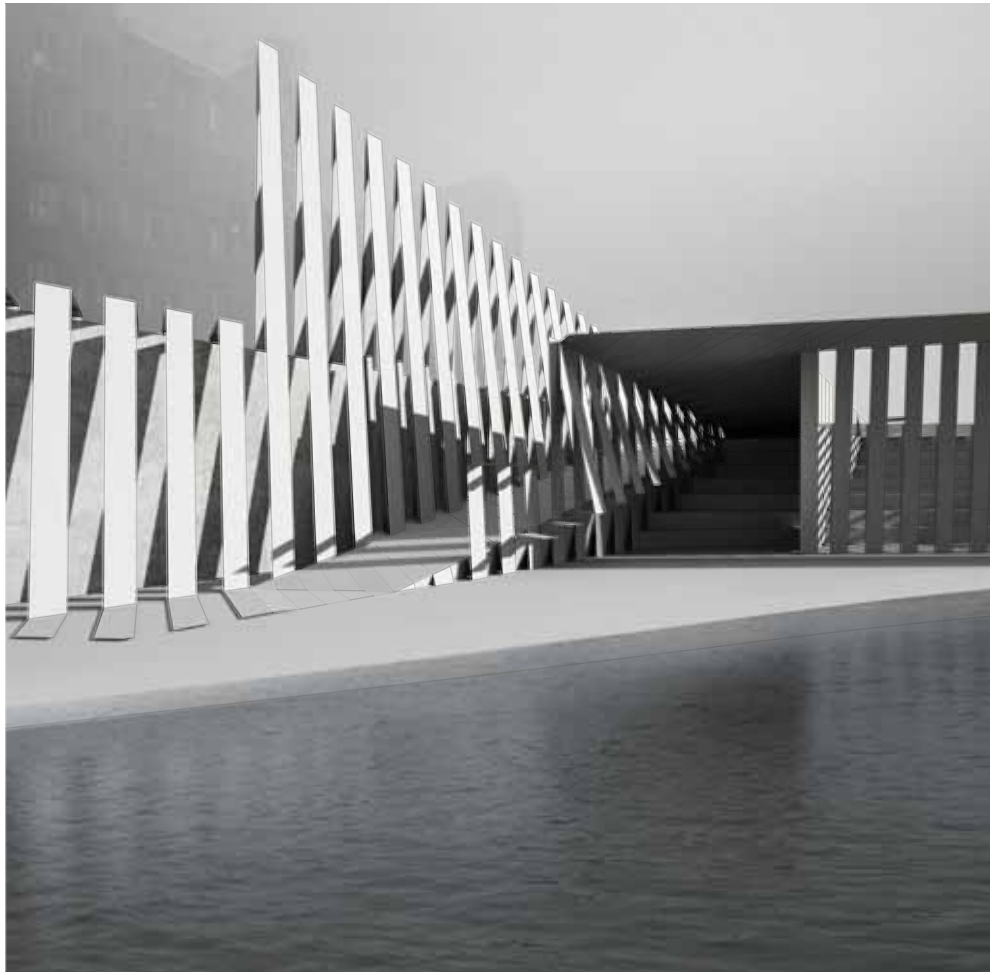
SKINS AND SKULLS

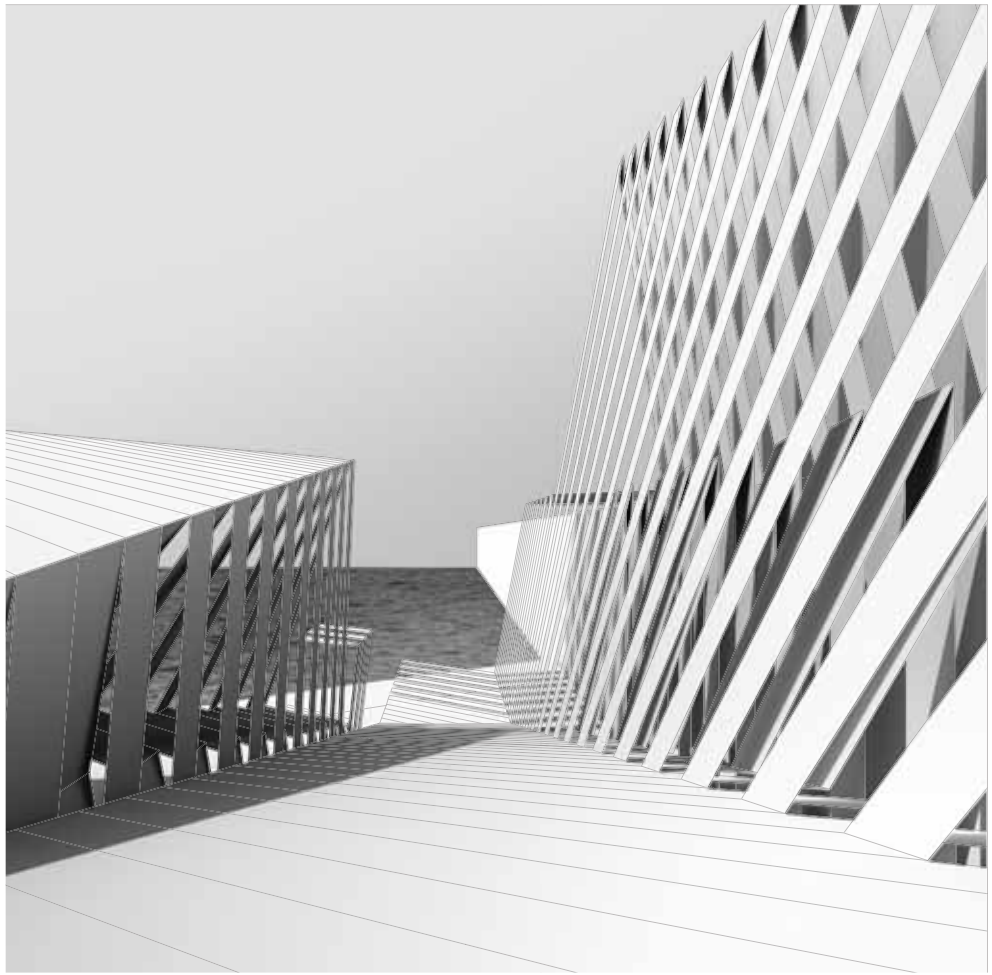
ARCH 1011A: ARCHITECTURAL DESIGN, *Studio*
BEN PELL, *Professor*
THREE WEEKS IN 2008, *Length*

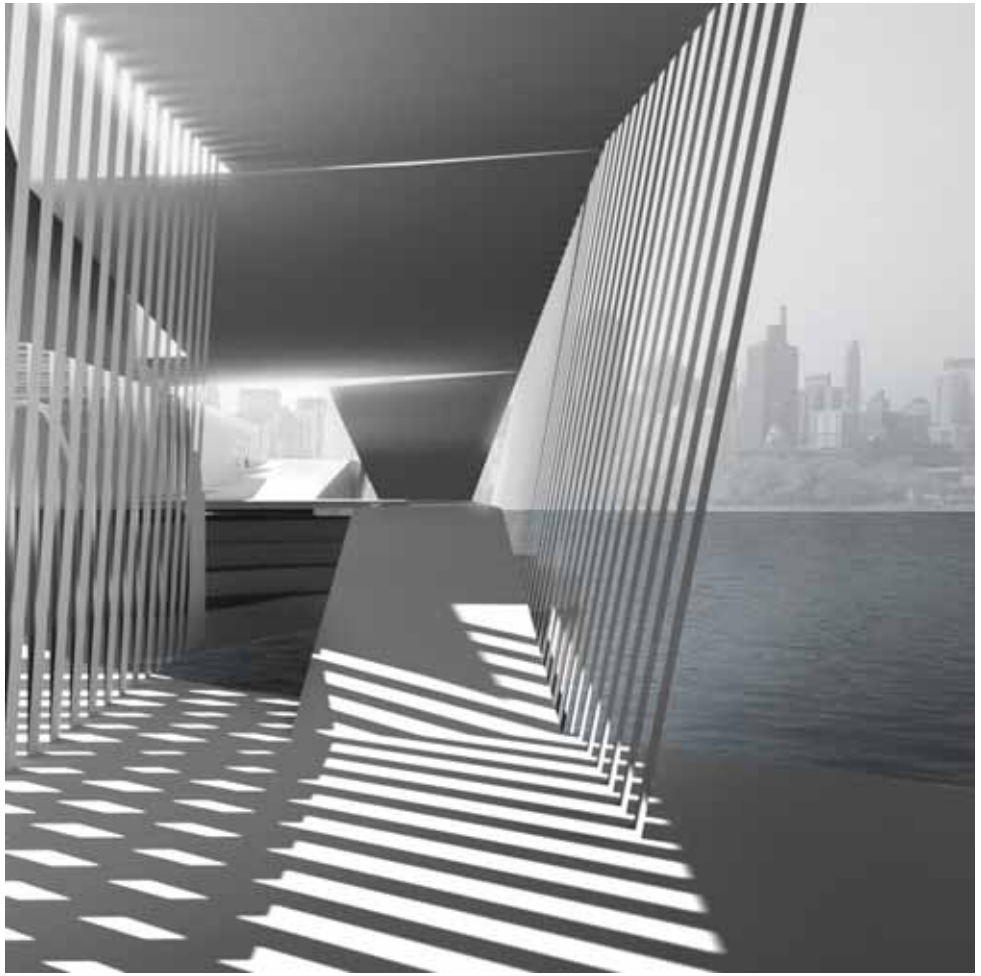
Skins and Skulls extends the range of the Socrates Sculpture park by occupying the previously 'empty edge.' The existing park is walled off with and additional row of planting offset from the hard wall - creating a large contrast between landscape and structure - usable and off-limit space. To further activate the site, yet keep the large expanses of open space on the water - this project modulates the edge through a series of folding operations to allow for program to invade and benefit from it. At the road side the wall aligns with the axis of traffic, folding and opening at a scale to allow for bike storage. Along the water's edge, the folds increase in size to accept larger kayak storage and advertise the activity above the flood wall. This attitude continues along the park, to create a solid wall for cinema screenings and a low pier for additional water access.

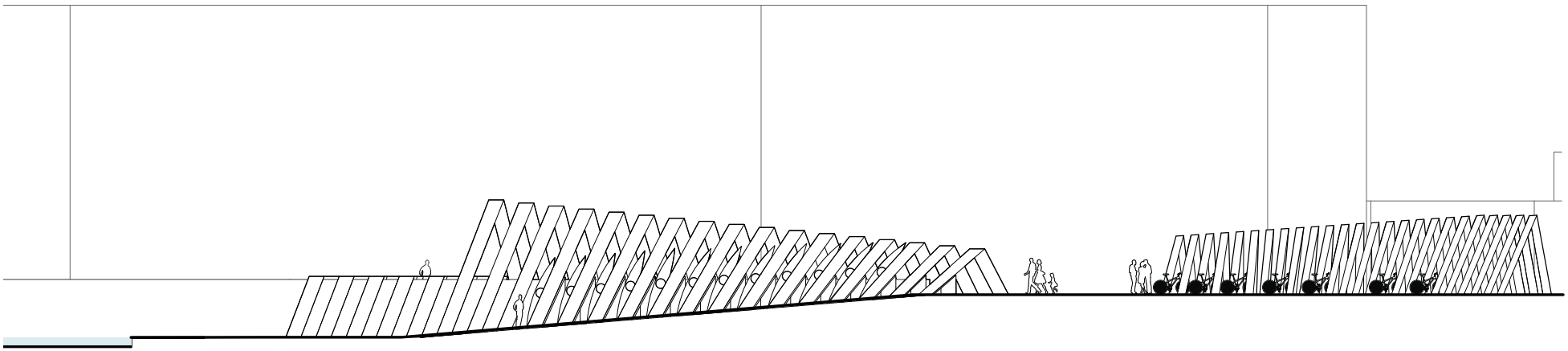












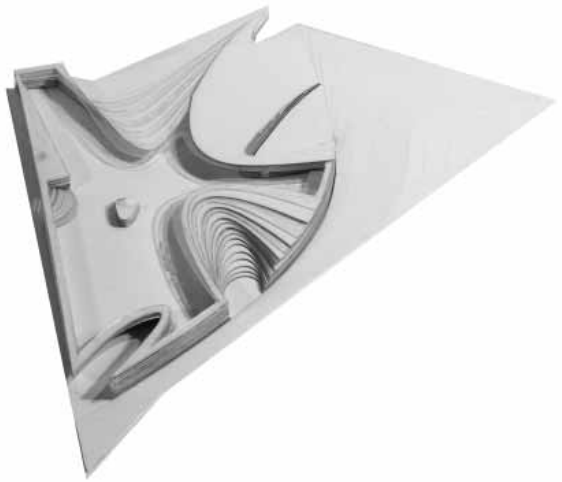
MUSEUM PARK

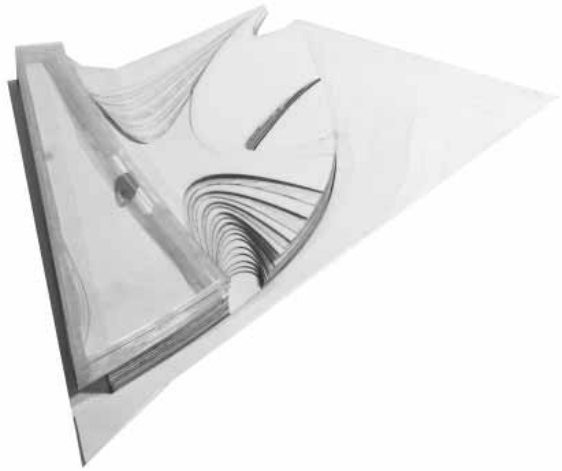
ARCH 1011A: ARCHITECTURAL DESIGN, *Studio*
BEN PELL, *Professor*
FOUR WEEKS IN 2008, *Length*

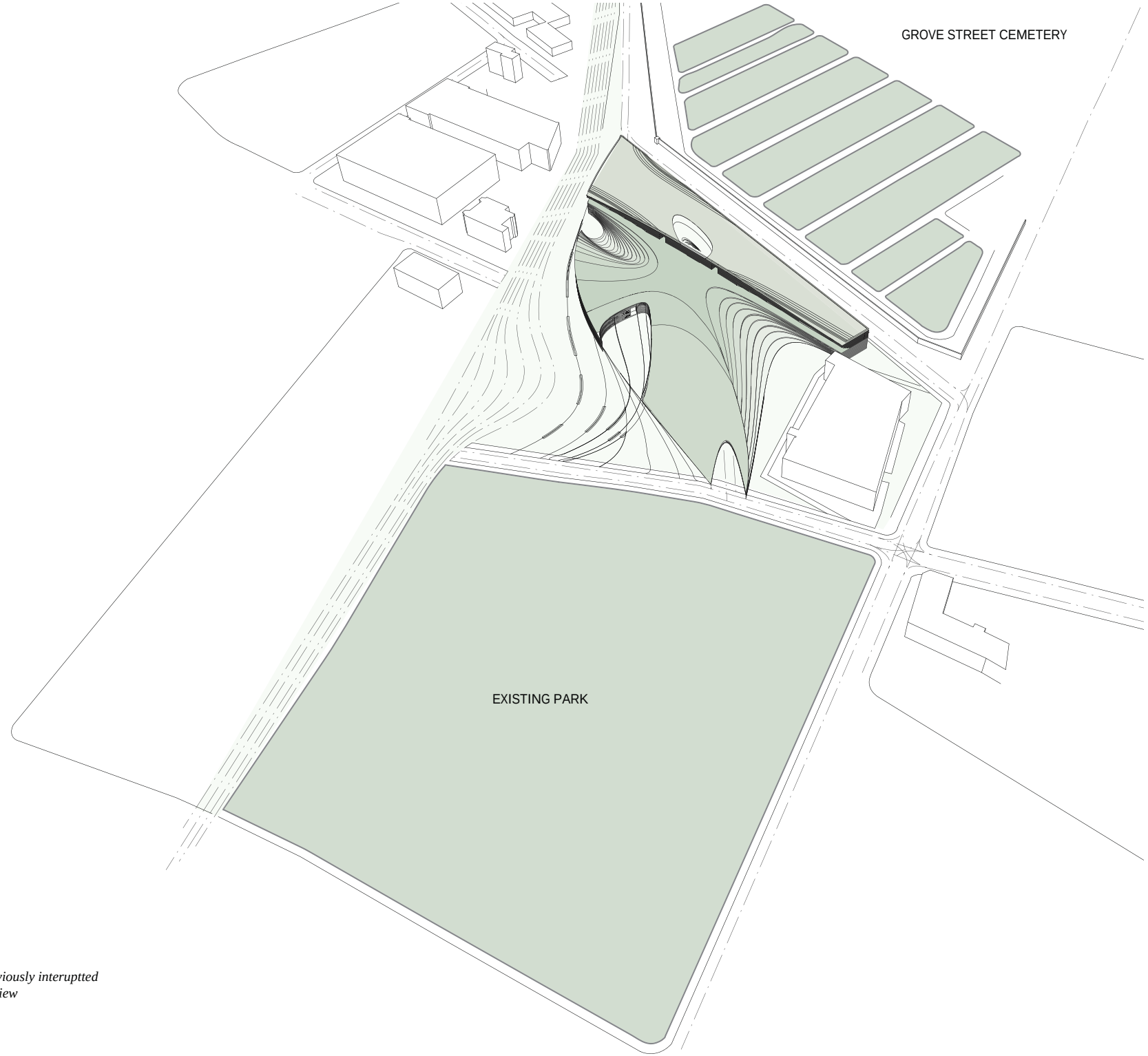
The Museum Park is located at the north edge of Yale, cut off from campus proper by the super block of the Grove Street Cemetery. This separation is made worse by the large wall bounding the cemetery and fronting the site. The greenway and streets flow along and around the super block of the site, making it essentially an eddy - where multiple flows separate and converge afterwards.

The Museum Park bridges the divide visually by sloping up to the height of the cemetery wall to provide visual connection to the rest of the campus. The flows of the greenway and cross axis traffic then push and pull the initial slope up to create a series of pockets within the artificial hill.

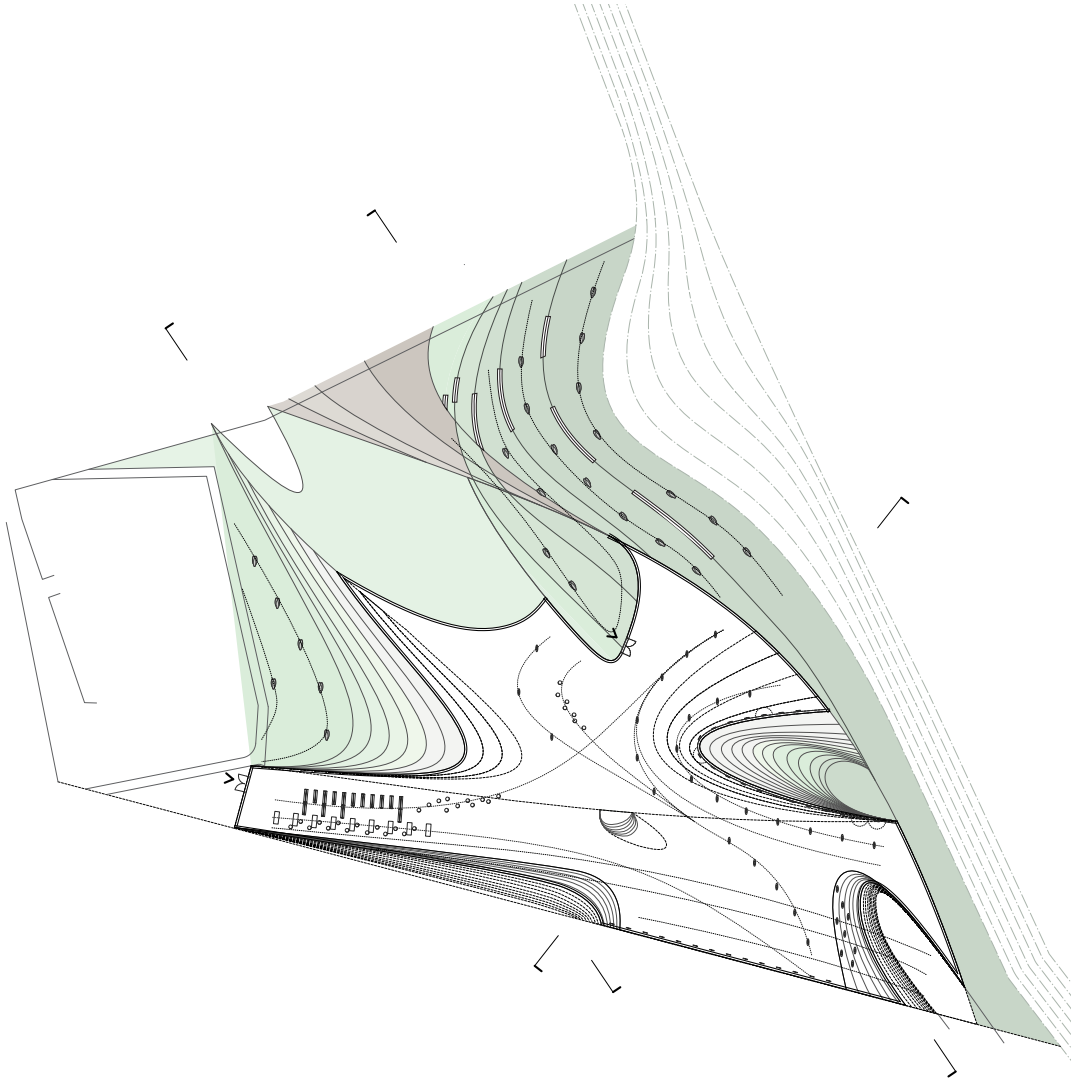
The language of the artificial hill eroded by adjacent flows - the eddy in the stream - is continued on the interior as display benches slope out to the visitor - responding to interior and exeterior conditions.

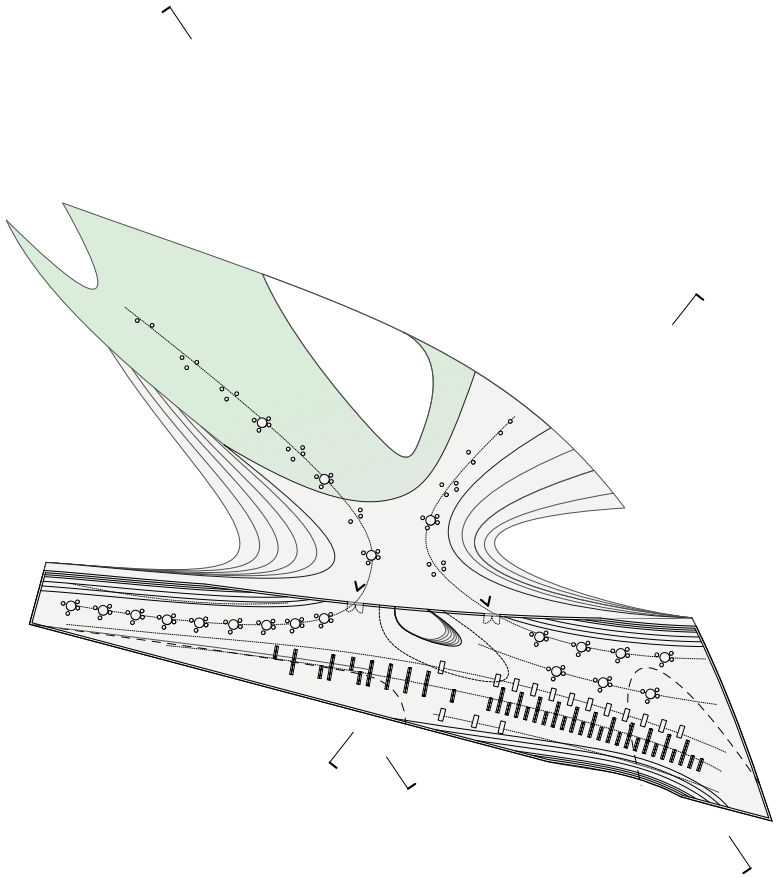


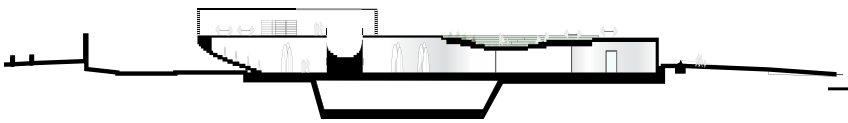


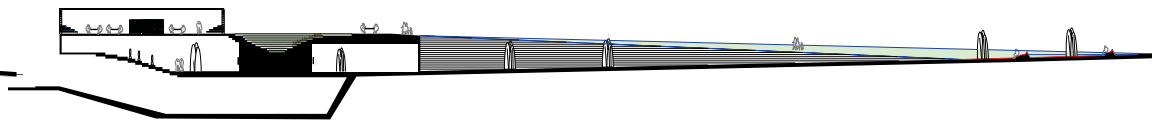


GREEN LINK,
Site insertion continues green belt previously interuptted by cemeterey wall by ramping up for view









F.A.R. FOR B.A.M.

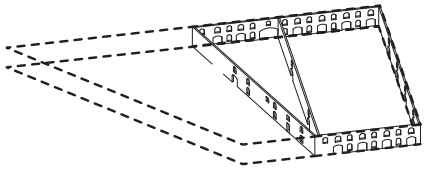
ARCH 1011A: ARCHITECTURAL DESIGN, *Studio*
BEN PELL, *Professor*
FIVE WEEKS IN 2008, *Length*

The tobacco warehouse is a cultural artifact, but more importantly it is an inherently theatrical space. A bounded site that frames views, a bohemian (or greek?) lack of roof, and a sharp scale shift as it is dwarfed by its neighbors, combine with a wide open green space fronted by east river to create a natural B.A.M that is already closely guarded by the locals.

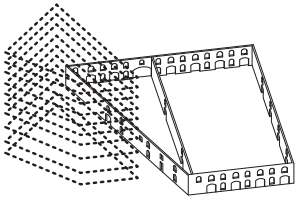
F.A.R. for B.A.M proposes to take a developer based approach and flip it on its head - the typical F.A.R. bonuses for public plazas or recesses in highrises - could be used to 'gift' the warehouse's floorplate to the community in return for a mandate to develop higher than the site might have previously logically dictated beside it.

With this newfound height, I reorient B.A.M.'s major theatrical gathering spaces back out to the multiple layers of view and natural/makeshift theatrical spaces below. A reciprocity between interior and exterior theatrical space develops - giving relationship based on distance from the openings.

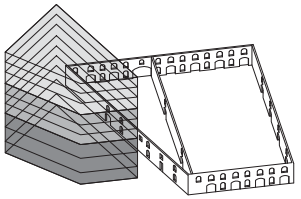
The height given to the building by the community allows it to function as an abstract cultural billboard/icon for an emerging brooklyn neighborhood. Creating a symbol unique to brooklyn is especially important in an area dominated by shared icons, symbolizing connection to manhattan - not independence from it.



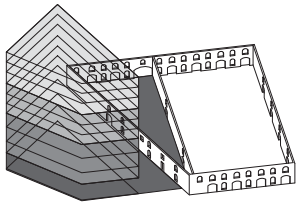
MAXIMUM LOW-RISE DEVELOPMENT



MINIMUM FOOTPRINT CREATED BY OFFSETTING SITE BOUNDARIES _ REMAINING FLOORPLATE ARRAYED UPWARDS

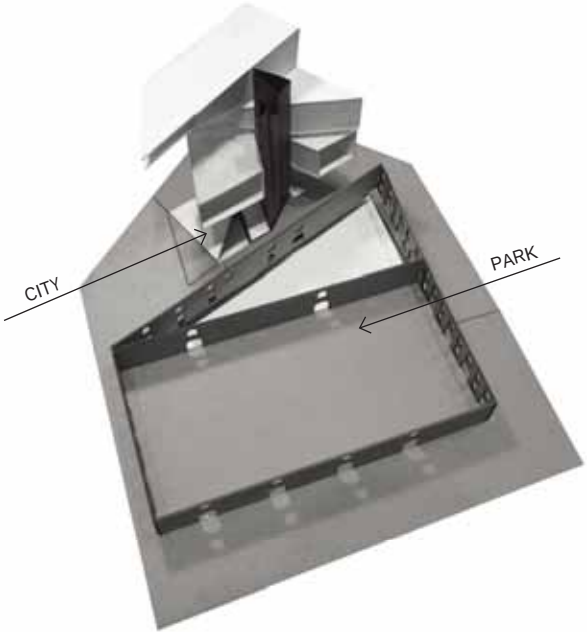


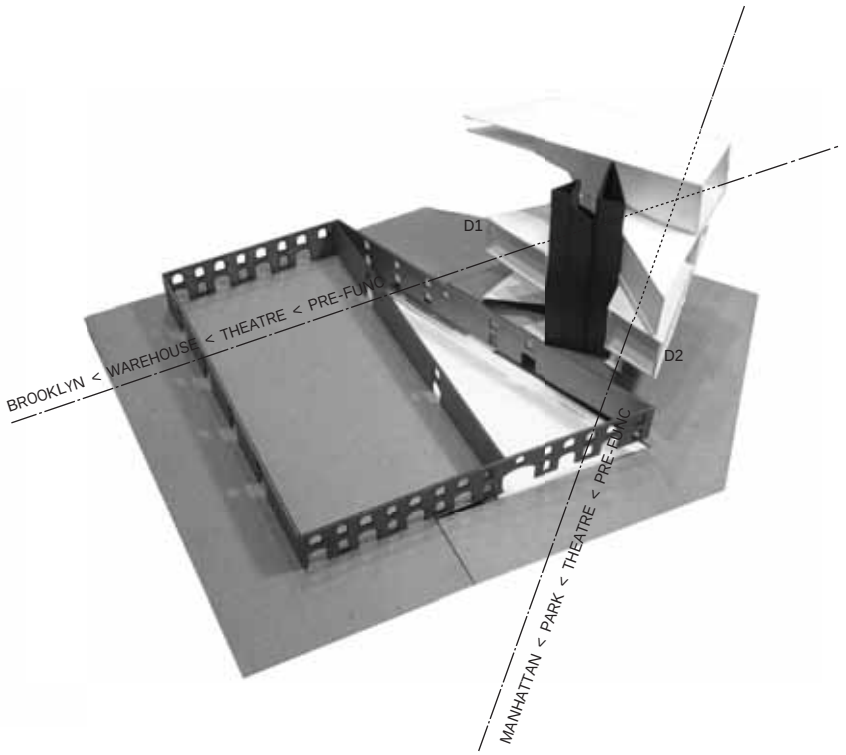
STACKING OF PROGRAM

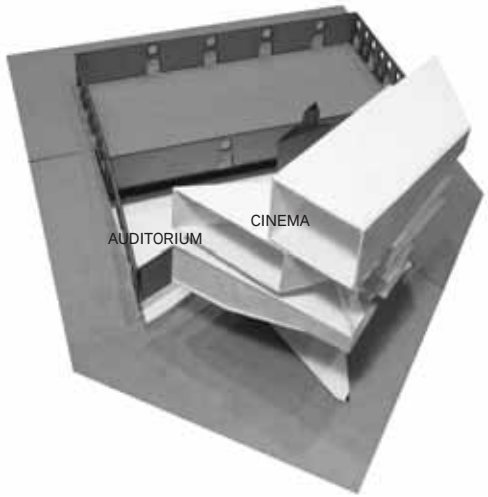


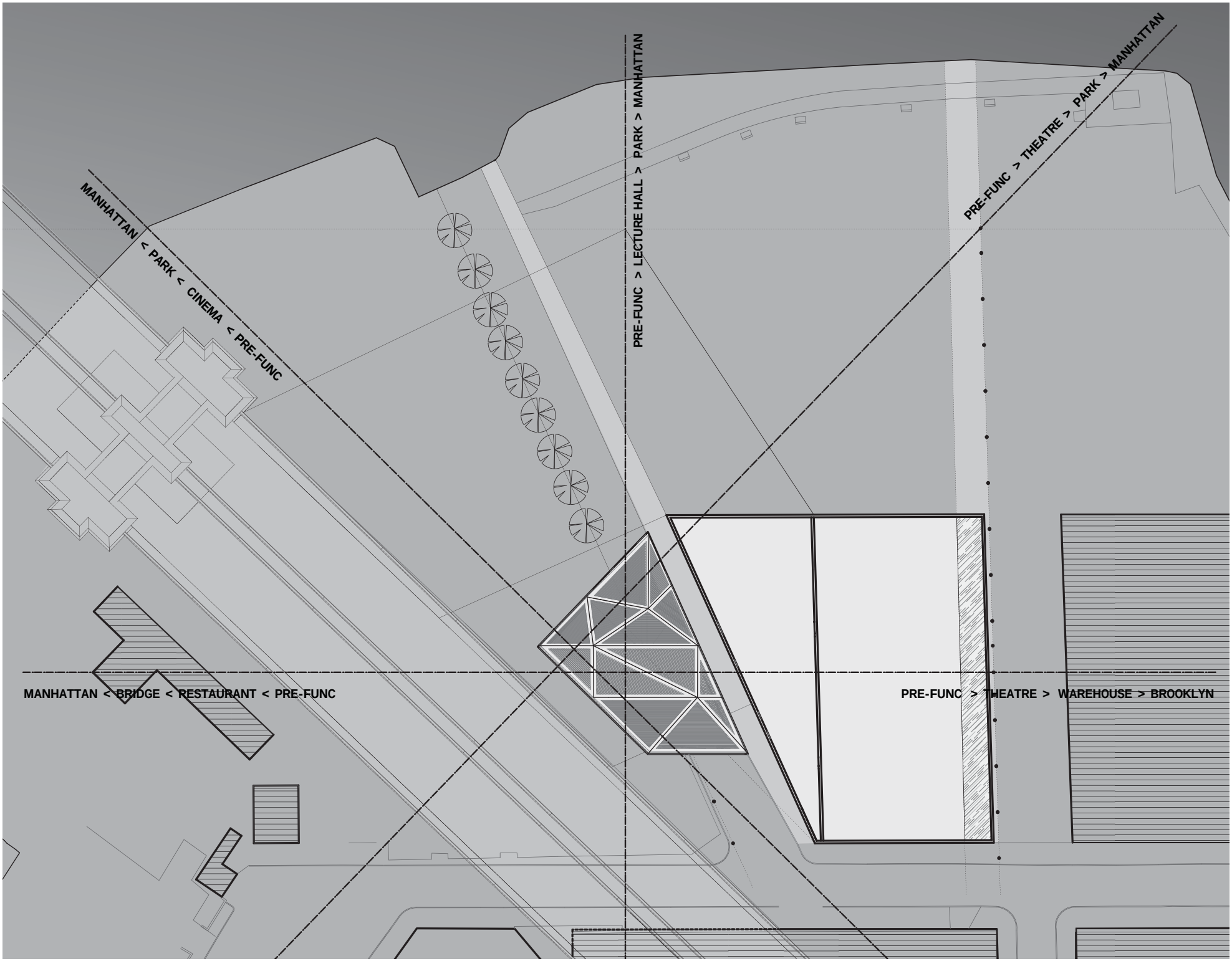
CONNECT TO SITE BY ADDING PARK CONNECTION BENEATH EXISTING WAREHOUSE

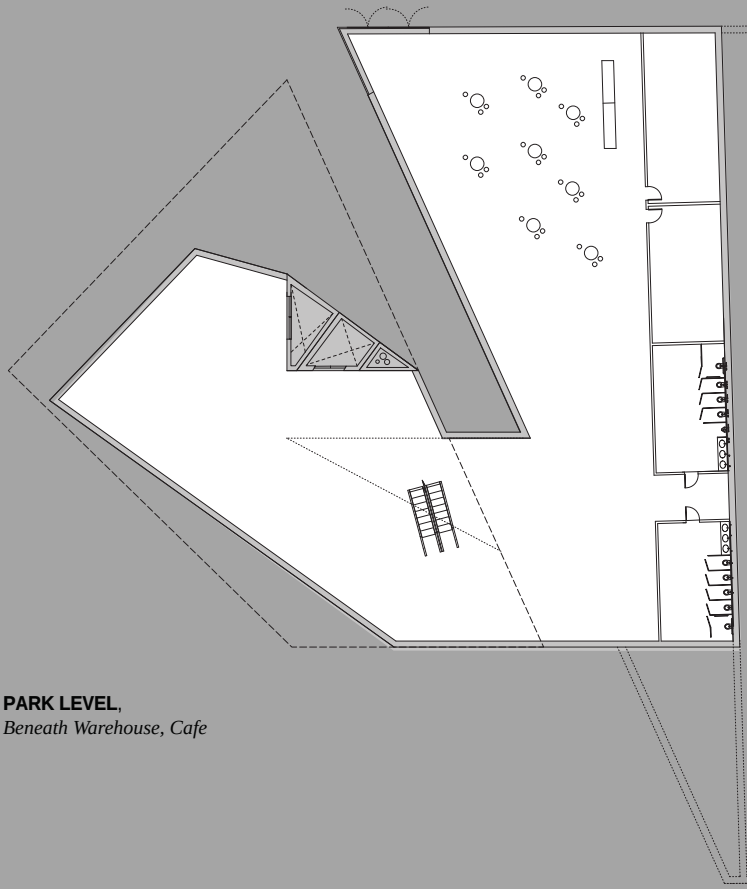
ORIENT PROGRAM TO MICRO AND MACRO THEATRICAL VIEWS



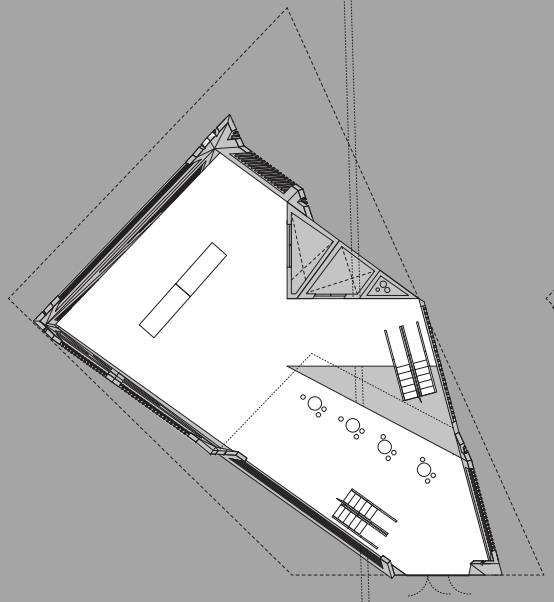




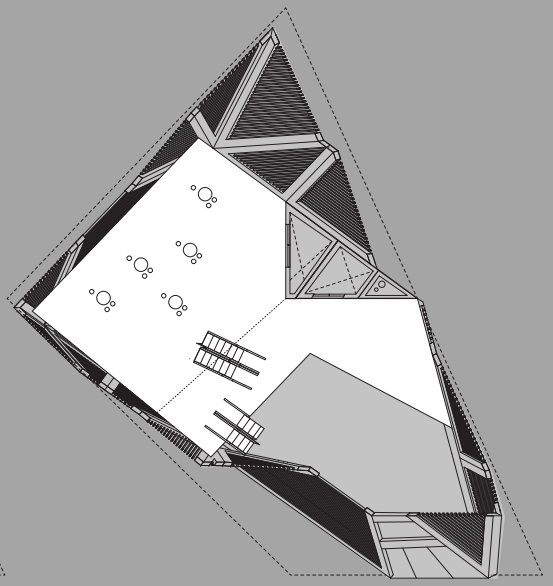

MANHATTAN < PARK < CINEMA < PRE-FUNC
PRE-FUNC > LECTURE HALL > PARK > MANHATTAN
PRE-FUNC > THEATRE > PARK > MANHATTAN
MANHATTAN < BRIDGE < RESTAURANT < PRE-FUNC
PRE-FUNC > THEATRE > WAREHOUSE > BROOKLYN



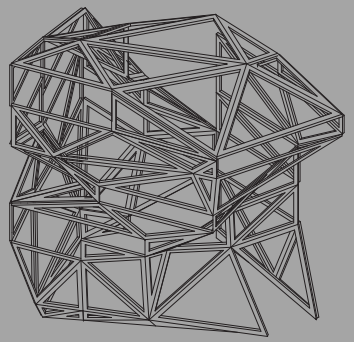
PARK LEVEL,
Beneath Warehouse, Cafe

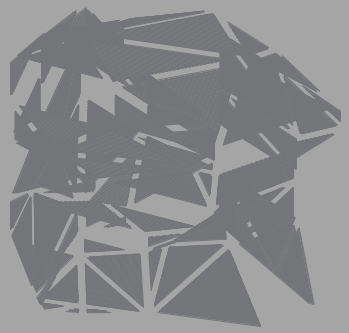


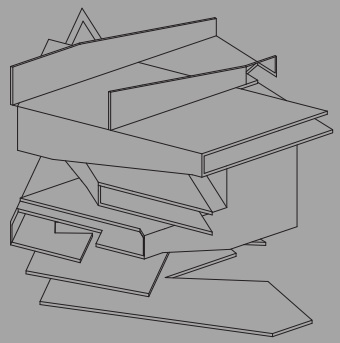
GROUND FLOOR,
City Access

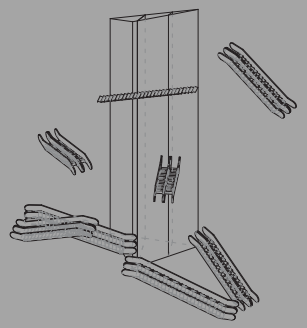


FIRST FLOOR,
Ticketing

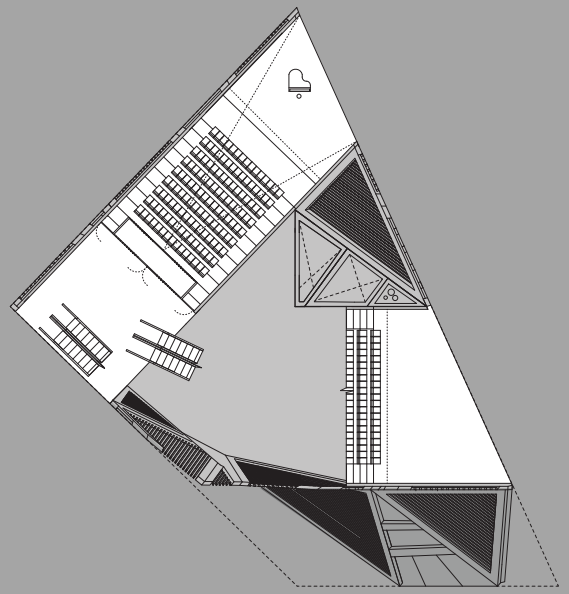




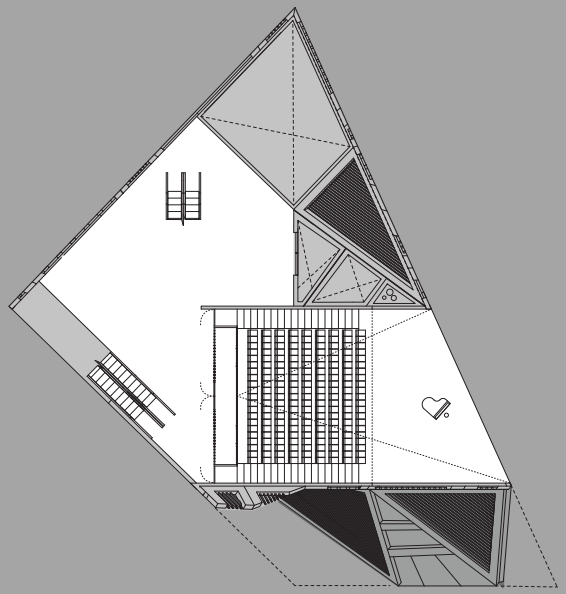




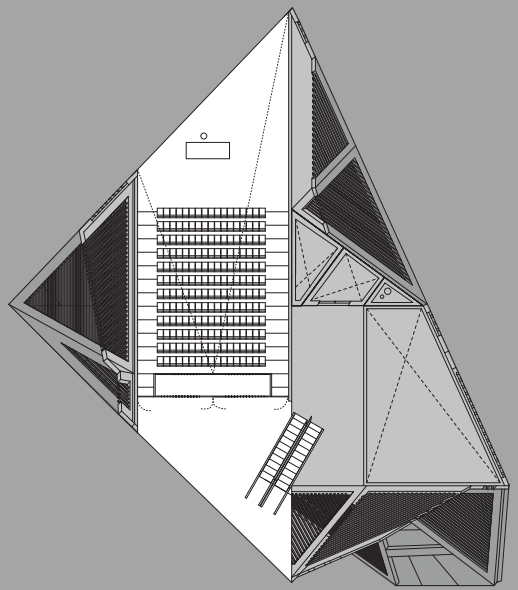
ASSEMBLY,
Frame, Fill, Volume, Core



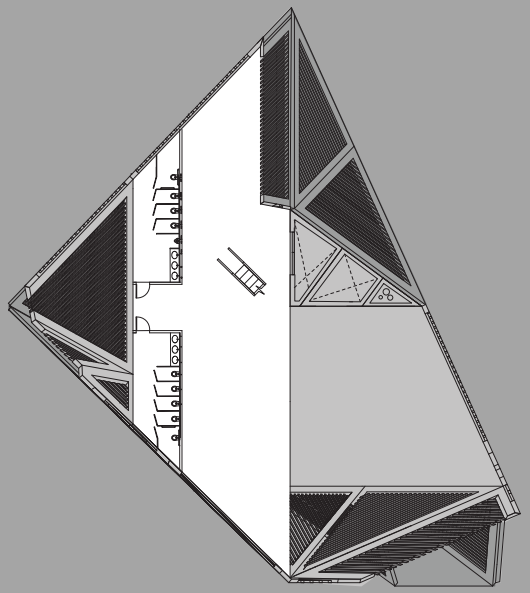
SECOND FLOOR,
Auditorium



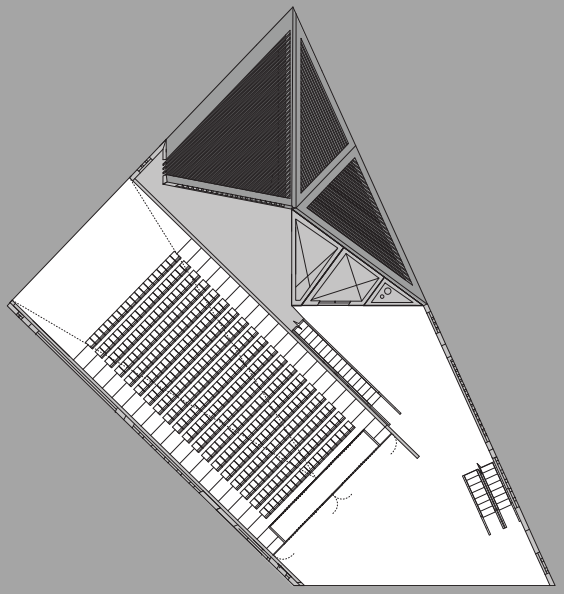
THIRD FLOOR,
Concert Hall



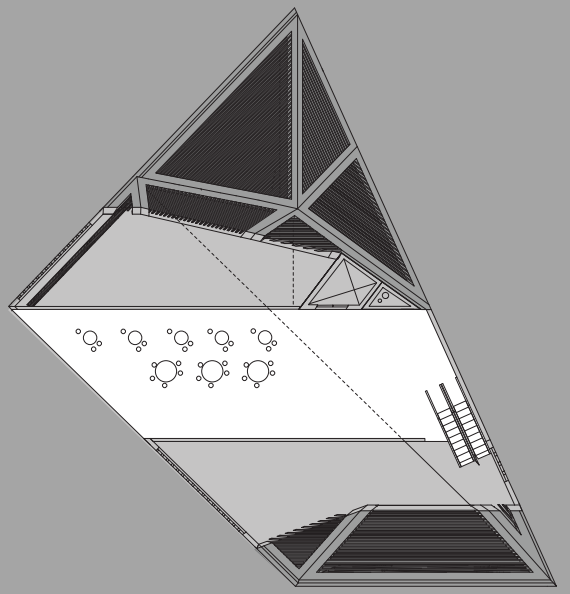
FOURTH FLOOR,



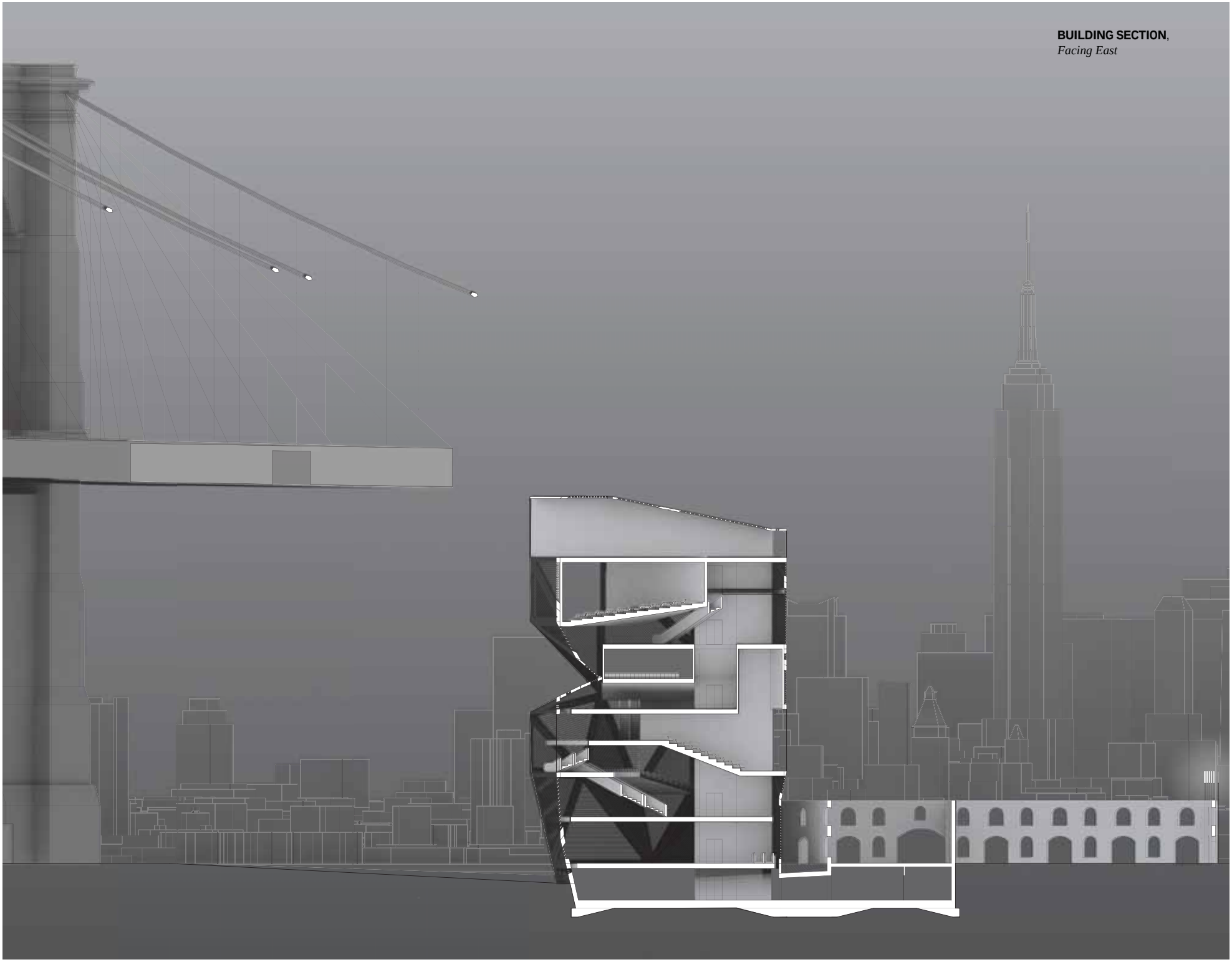
FIFTH FLOOR,
Restroom, Additional Lobby



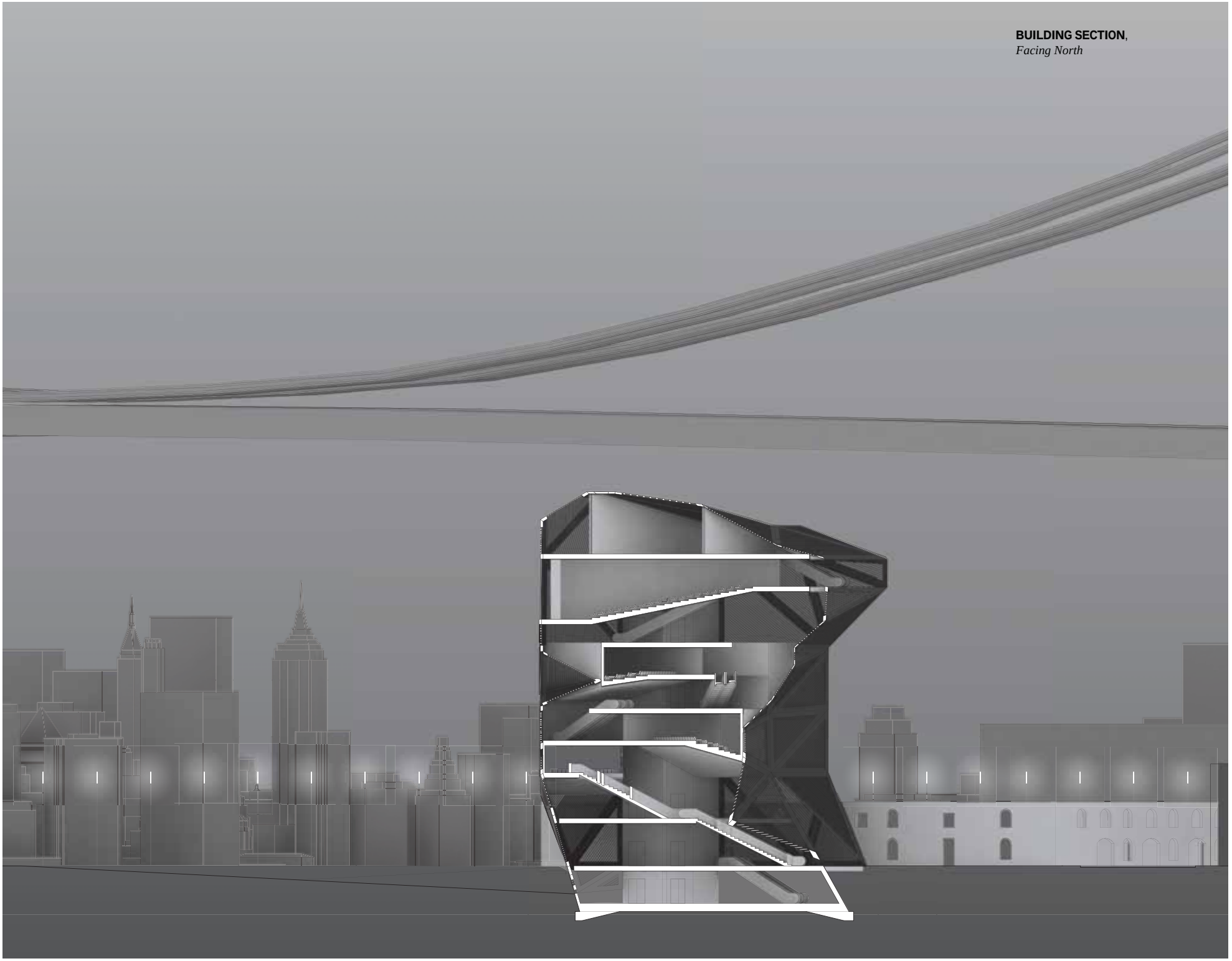
SIXTH FLOOR,
Cinema



SEVENTH FLOOR,
Restaurant

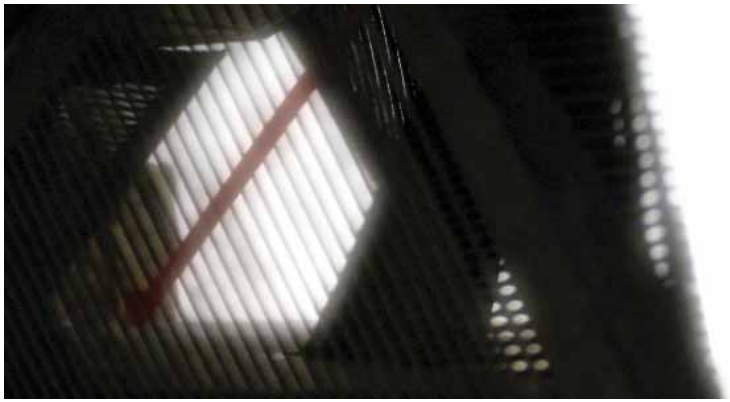


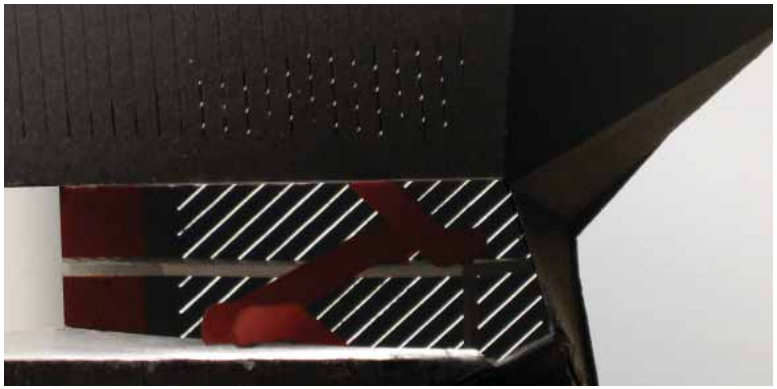
BUILDING SECTION,
Facing East

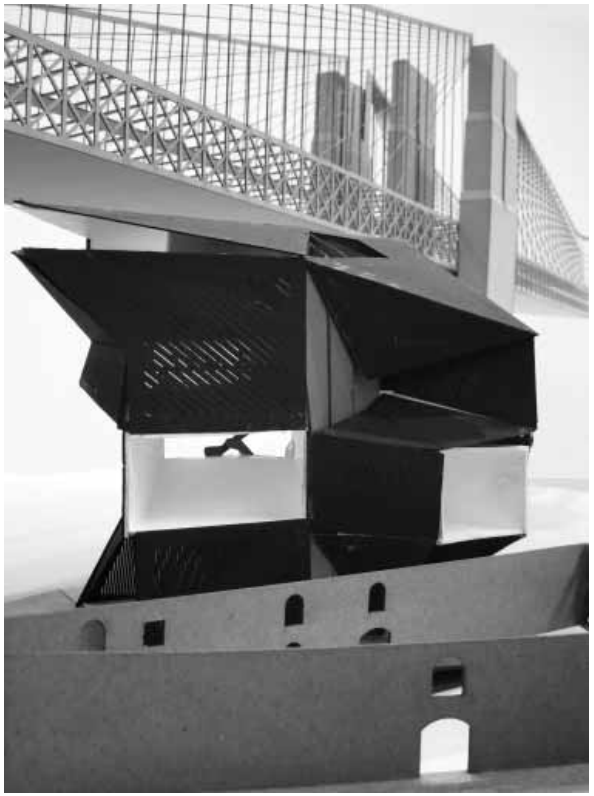


BUILDING SECTION,
Facing North

BUILDING SECTION,
Facing North







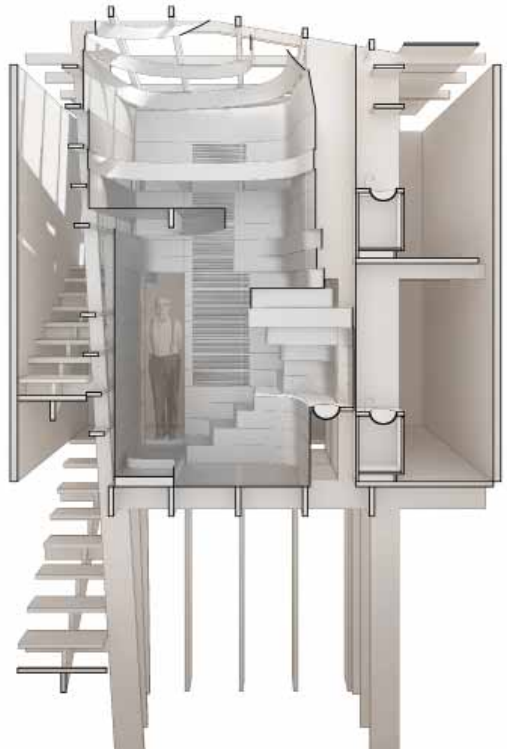
MODEL DETAILS OF VERTICAL CIRCULATION

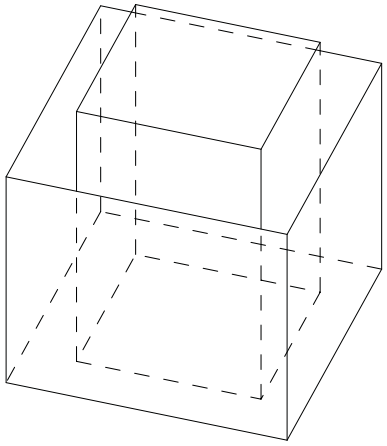
PERSPECTIVES ILLUSTRATING 'EXTENSTION' OF THEATRE INTO WAREHOUSE

CO-HABITATION

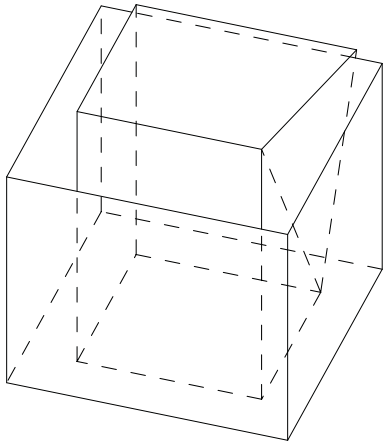
ARCH 1012B: ARCHITECTURAL DESIGN, *Studio*
JOEB MOORE, *Professor*
THREE WEEKS IN 2009, *Length*

The Co-Habition project brings together two divergent personalities - the yoga instructor (online) and light sensitive bibliophile - by playing to each other's surprisingly mutual sensibilities. The yoga instructor, young and nimble, occupies a vertical center space skewed back over the entry to catch as much light as possible. The light sensitive bilbiophile safely resides in the dim edges of the cube, but this offset does not mean that he is in any way subservient to the centered yoga space - the bookshelves that line the edges of the cube lay out the armature for the flowing felt curves of the yoga instructor. The gridded, indexical and modular shelving and services of the bibliophile pushes back and forth with the free flowing, continuous curves of the yoga instructor. Each series of back and forth adds meaning to the next - the felt raps the bookshelfs of the bibliophile to infer hieachry or suprise in an otherwise predictable system, but the three dimensional grid of the bilbiophile implies a meter on the otherwise unconstrained curves of the yoga instructor.

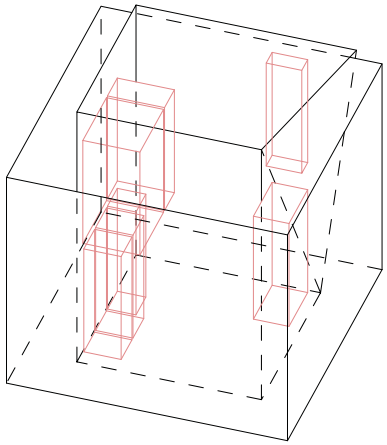




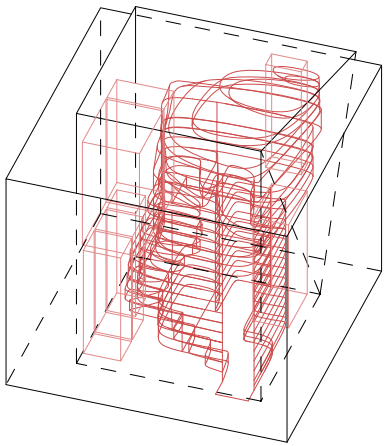
OFFSET YOGA SPACE FROM SHADOW FILLED EDGES



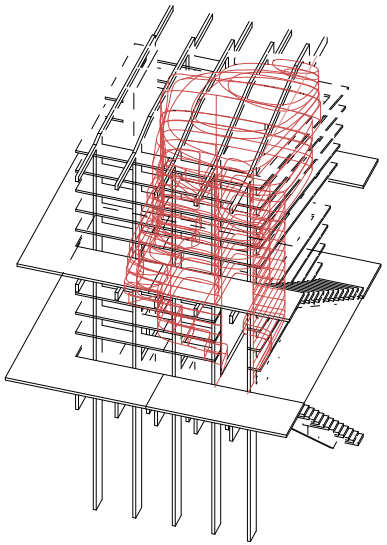
SKEW YOGA MASS TO CATCH EVENING LIGHT AND TAKE ADVANTAGE OF 'LOST' SPACE ABOVE STAIR

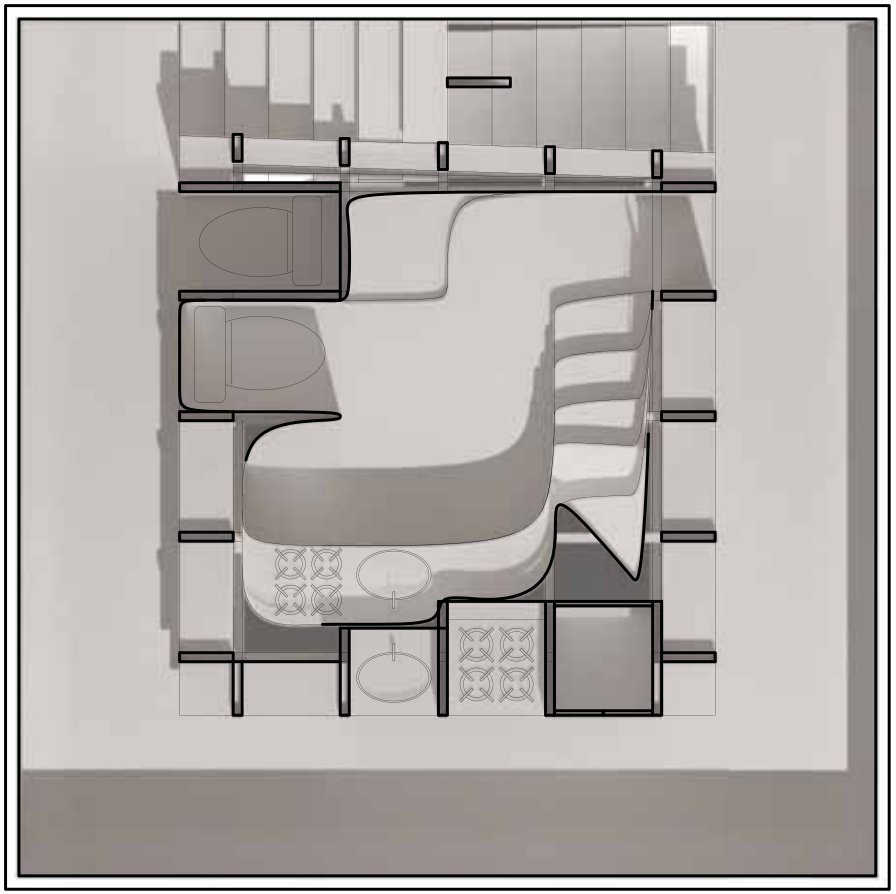


INSERT UTILITIES OF BIBLIOPHILE INTO YGOA SPACE

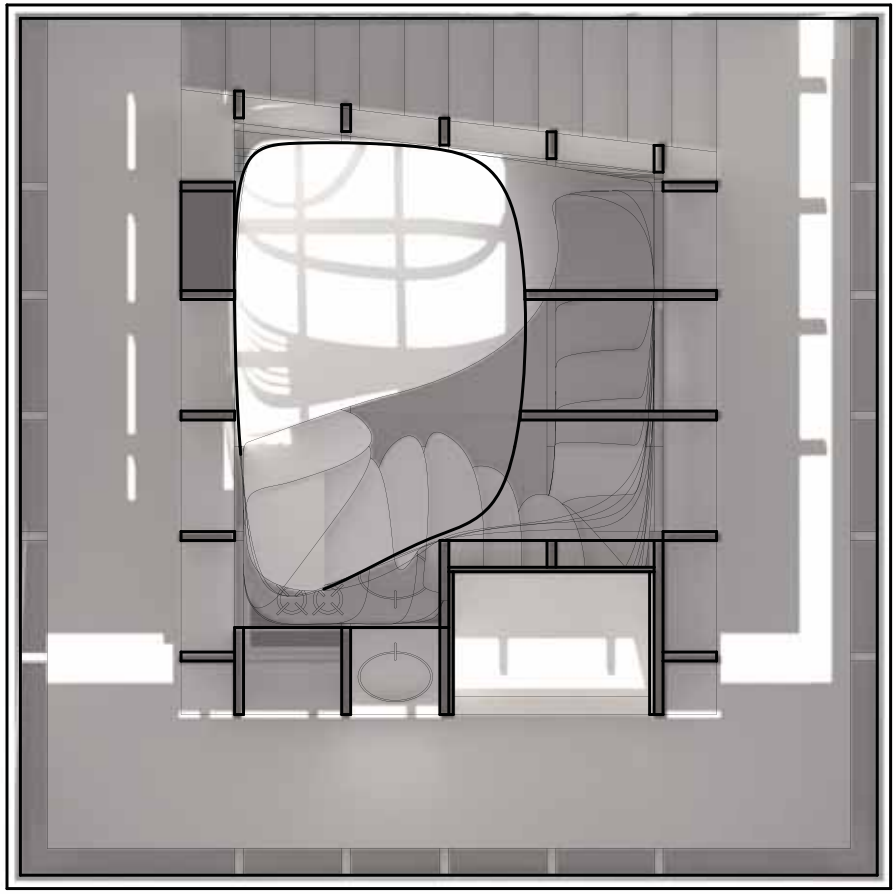


YOGA SPACE SKIN IS CREATED FROM LEFTOVER SPACE - BEZIER CURVES ERASE HARD EDGES AND BLEND SPACE VERTICALLY, HORIZONTALLY

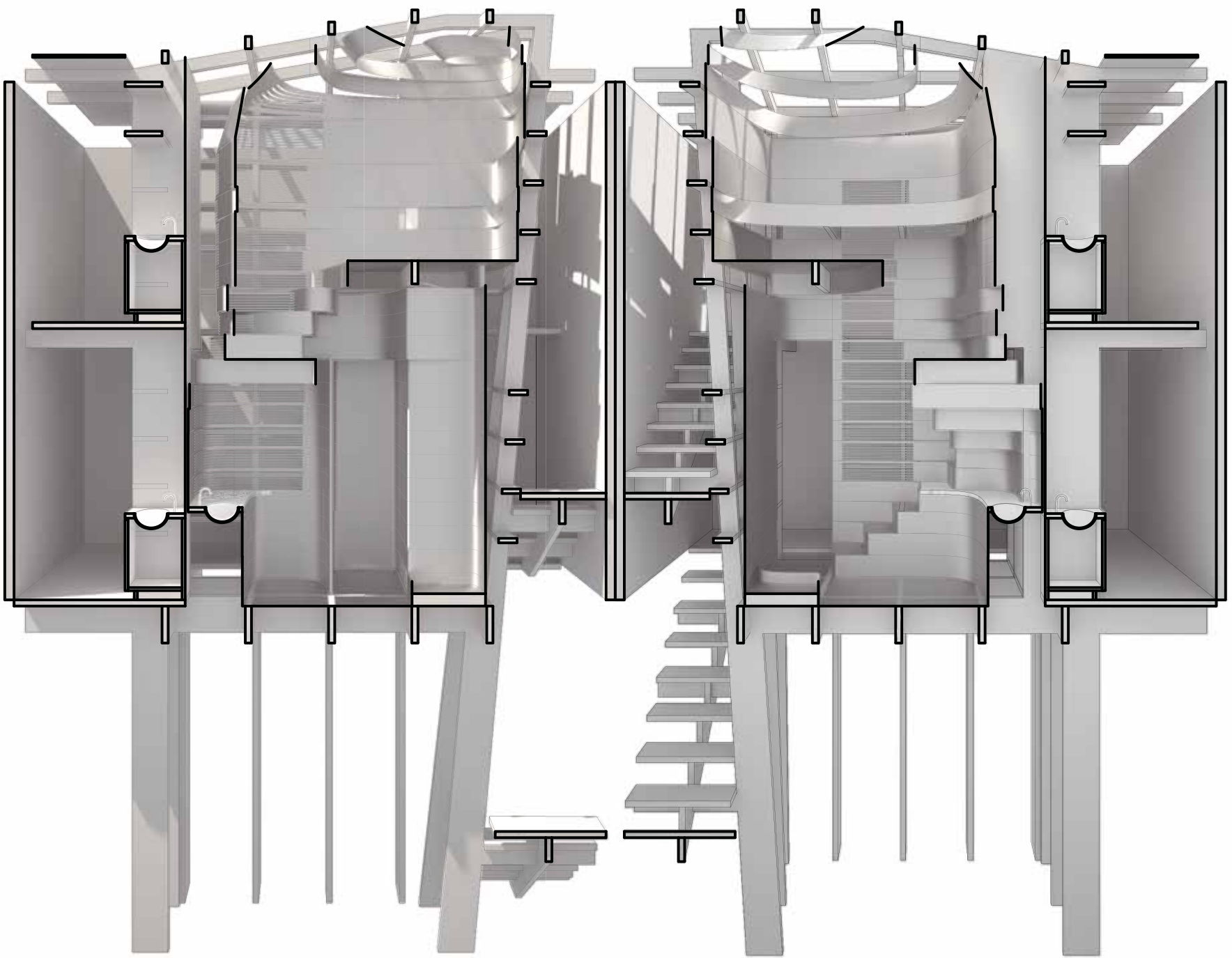




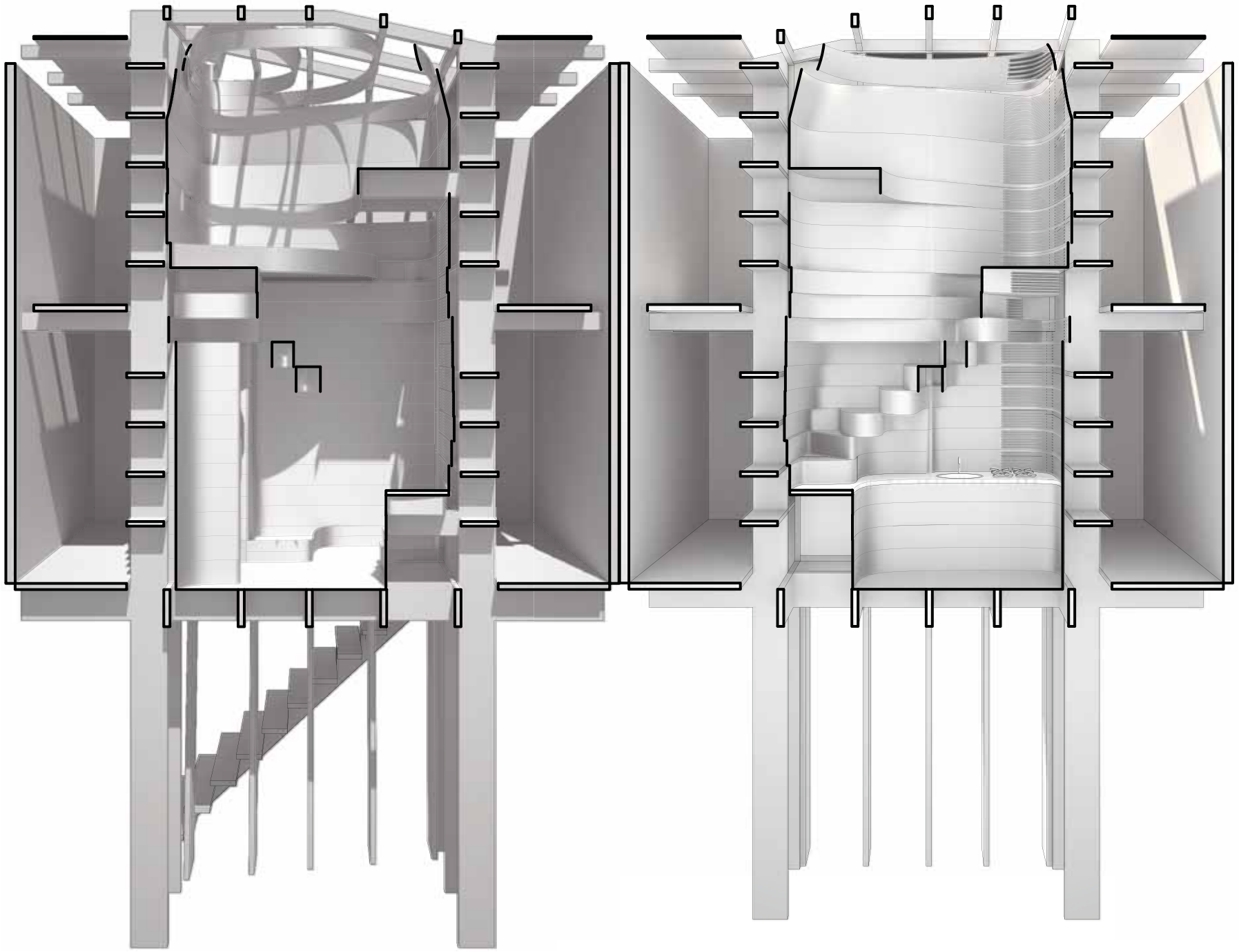
FIRST FLOOR,
The yoga instructor's utilities are at ground level, while the bilbliophile occupies the shelf filled periphery



SECOND FLOOR,
A bright white yoga studio is placed in the center, while the bilbliophile again occupies the shelf filled periphery



SPLAYED SECTION PERSPECTIVES,
The white ribbon lining the yoga studio take the scale of the stair - the essential element in the vertical drive to the light filled studio above



REPLICATION

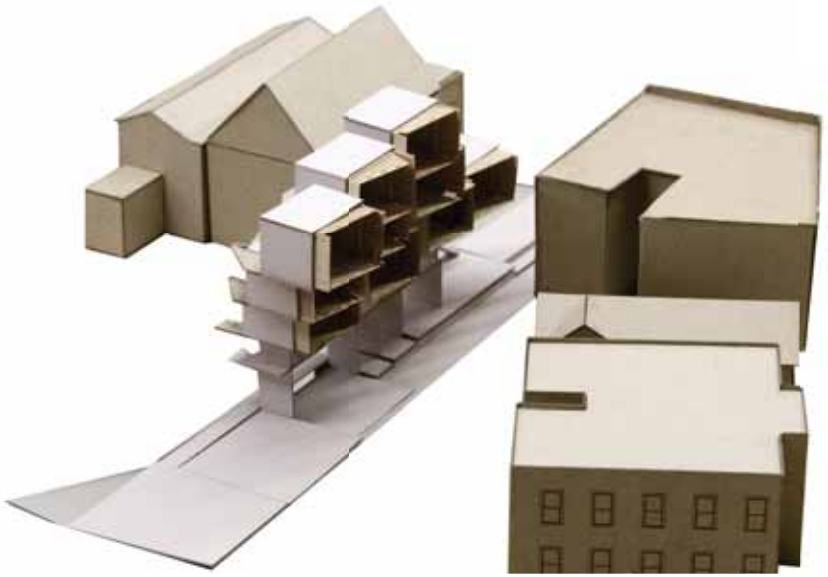
ARCH 1012B: ARCHITECTURAL DESIGN, *Studio*
JOEB MOORE, *Professor*
FIVE WEEKS IN 2009, *Length*

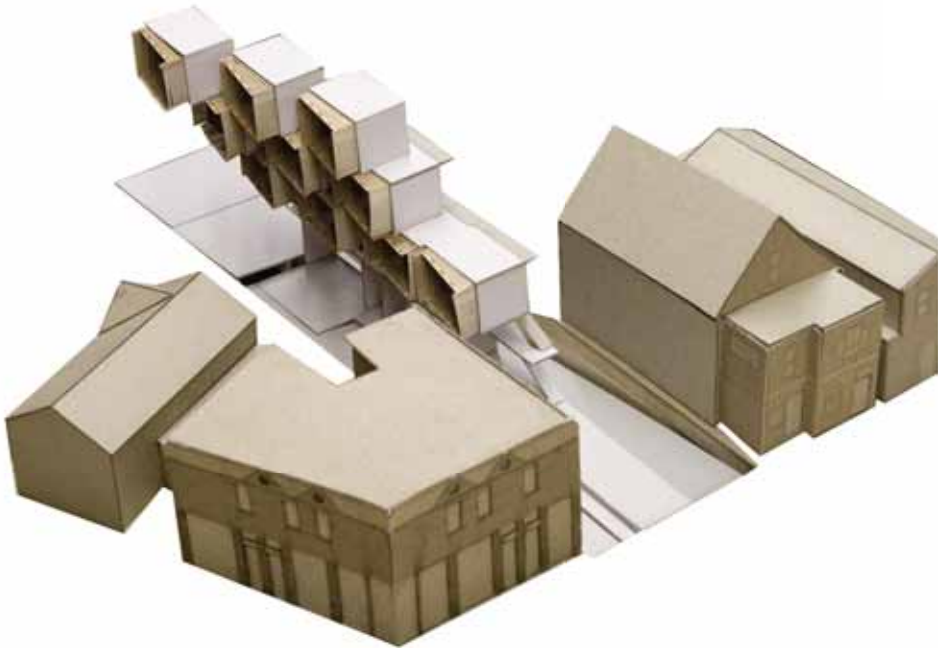
The goal of RSA (replication, separtation, activation) is to exploit the peculiarities of the program, site, and greater context without exploiting the occupants.

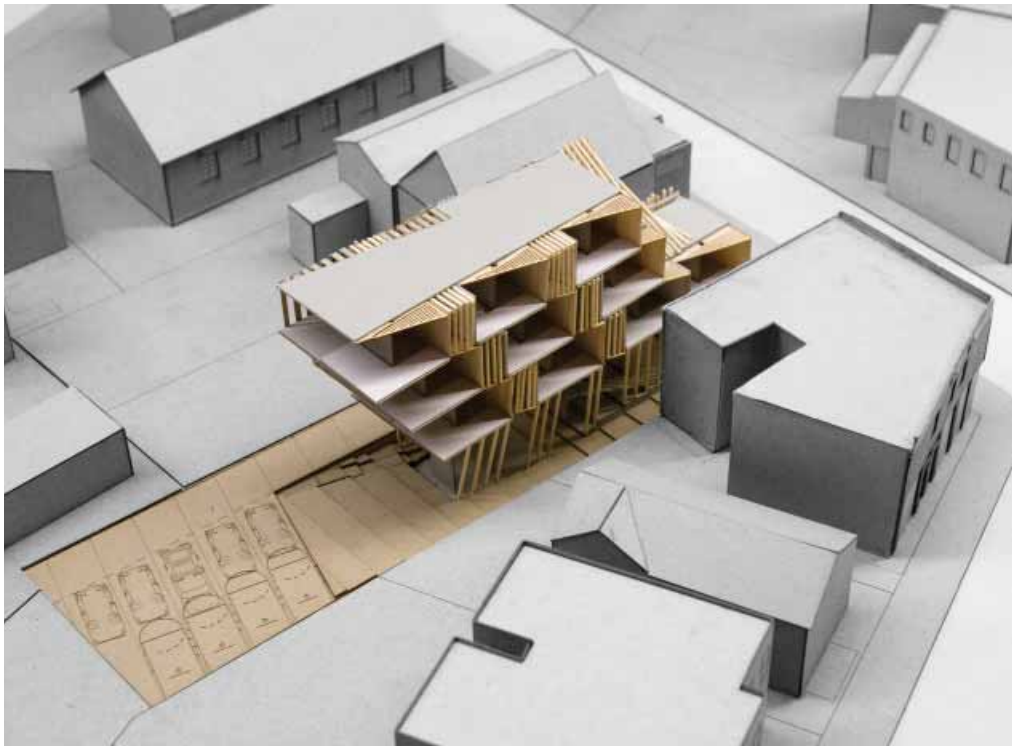
The traditional approach of 'efficient' mass community spaces - long linear hallways of similar program - is reversed for a theory of productive separation and recombination.

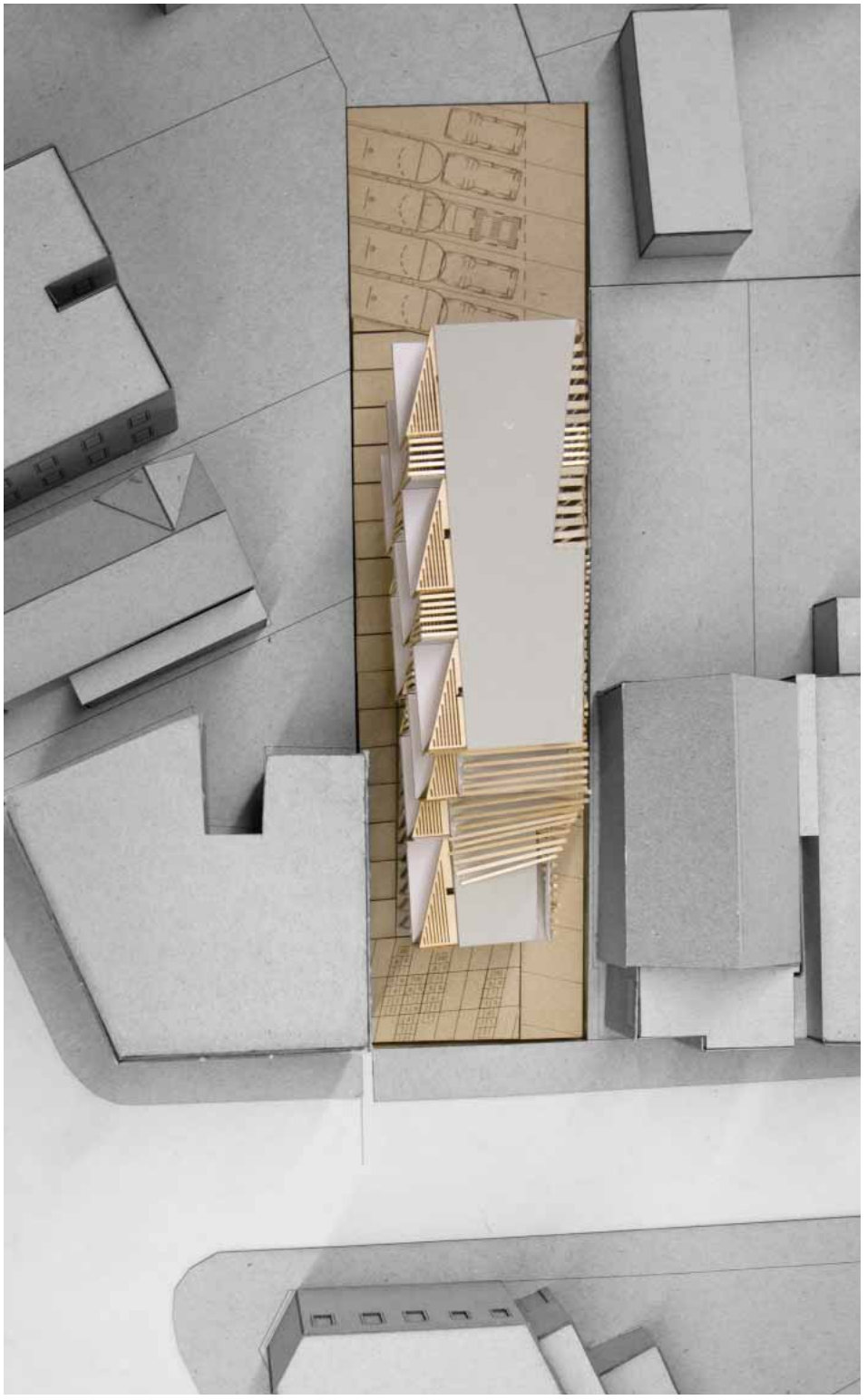
This productive separation allows for the autonomy of occupants necessary for their successful rehabilitation/reintegration as individuals into society while attempting to balance the need for a sense community in and out of the SRO.

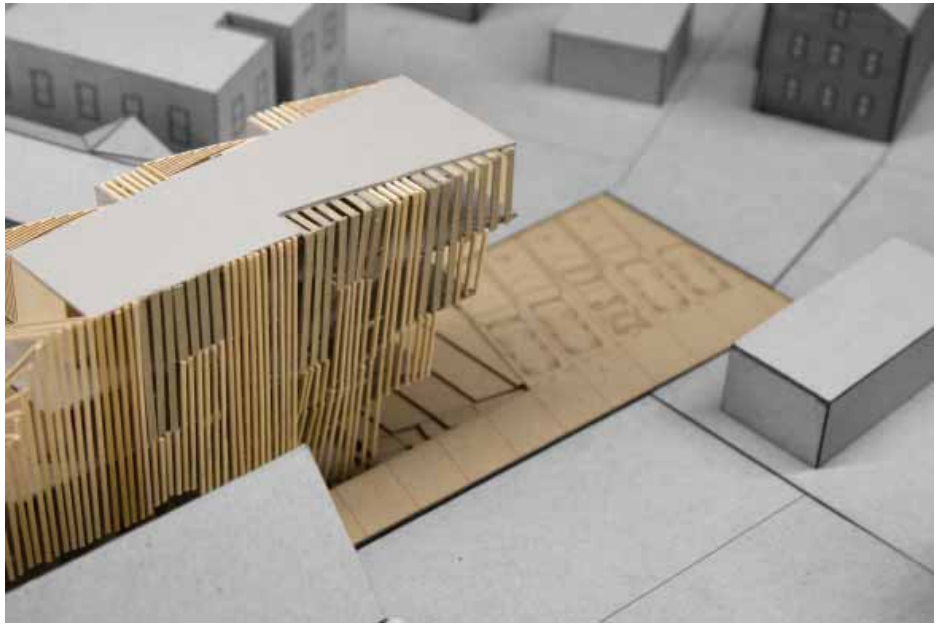
The programmatic needs of the SRO provide many possibilities for exploration/repudiation of residential troupes. When walls and roof become a singular envelope, not autonomous elements of enclosure - new effects emerge.











INDIVIDUAL BUILDING PROJECT

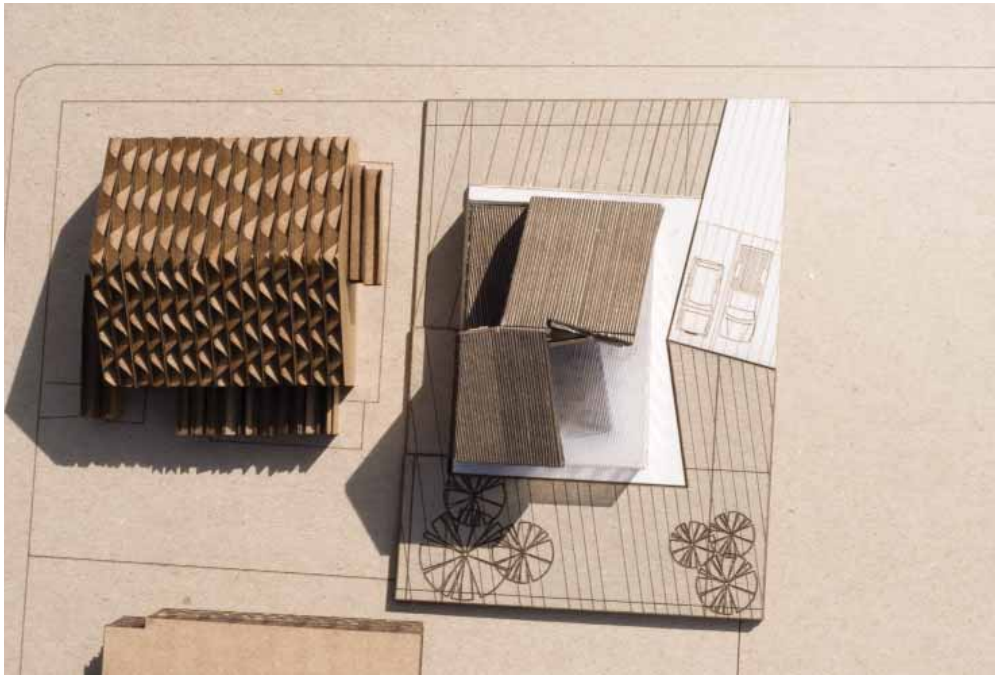
ARCH 1012B: ARCHITECTURAL DESIGN, *Studio*
JOEB MOORE, *Professor*
THREE DAYS IN 2009, *Length*

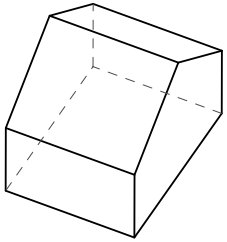
The porch is too often treated as applique - tacked on to the front and back of buildings without questioning the environmental or social value of its default placement. The previous Building Project's use of the porch or patio only reveals it status as architectual afterthought. The porch can benefit from mutation - from extension spatially and temporally. New England porches are a sad lot - much of their lifespans relegated to occasional use due to the harsh winters. Extending the porch into the building allows for climactic protection while bridging macro-micro spheres as a social catalyst.

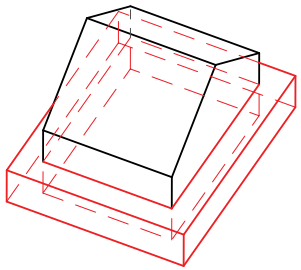
The YSOA Building Project has two social dillemmas:
1. the distrust of the ivory tower - the house must deal with the stigma of the 'other' due to its experimental and charitable/reforming role while simultaneously integrating into a neighborhood admit a well publisized construction that fills the neighborhood with people of a much different socio-economic status, reaffirming its otherness.
2. the intermixing of owner and tenant - sharing of space.

The porch provides a common ground for macro and micro social change - for repose and communication between the city and inhabitants of the building.

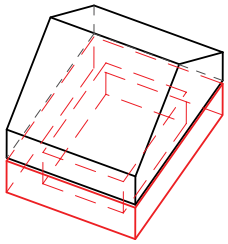
Architecturally, the porch is an extended threshold and when traditional definitions are broken down - it can become an incredibly performative element. A dual skinned porch allows it to not only provide a spatial threshold, but for the building to breathe - regulating heat gain and air flow.



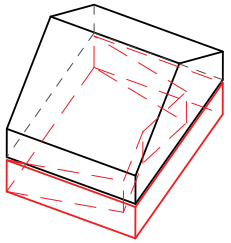




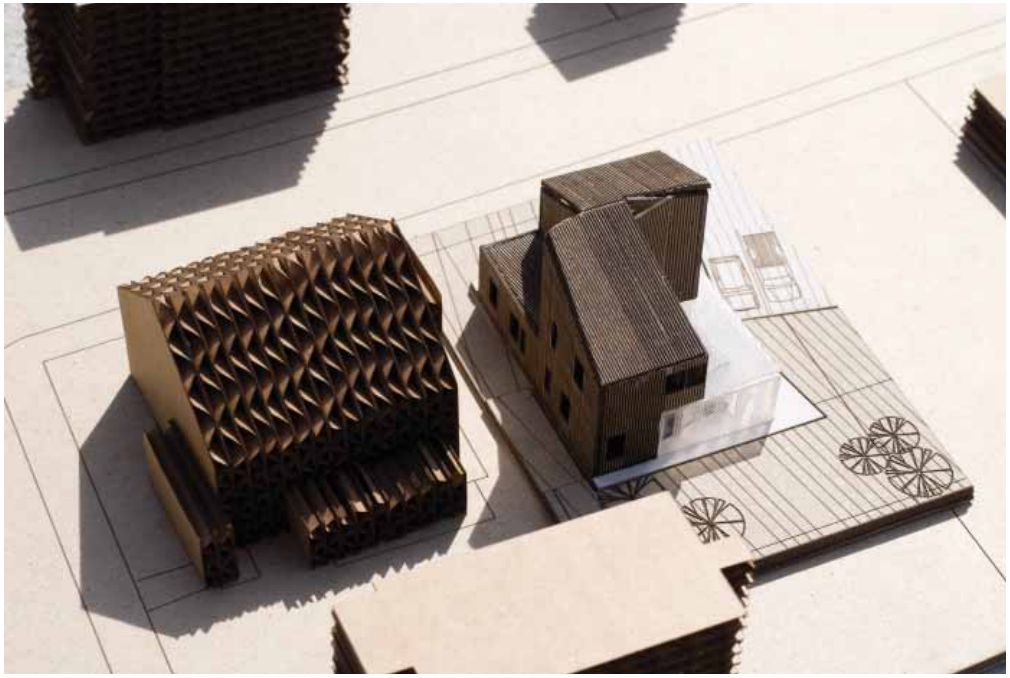
PORCH PULLED AROUND EXTERIOR OF GABLE FORM

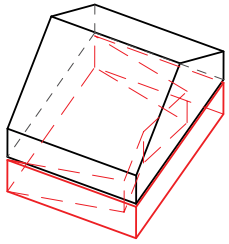


PORCH PUSHED IN TO GABLE FORM TO PROTECT FROM ELEMENTS - EXTEND PORCH TEMPORALLY

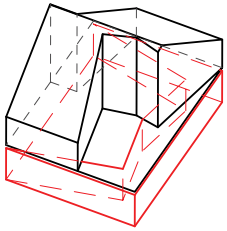


ELIMINATE UNECESSARY OR LOW PERFORMING PORCH FACES - SKEW PORCH TO REFLECT THE IMPORTANCE OF SIDE ENTRY FOR OWNER (ADA)

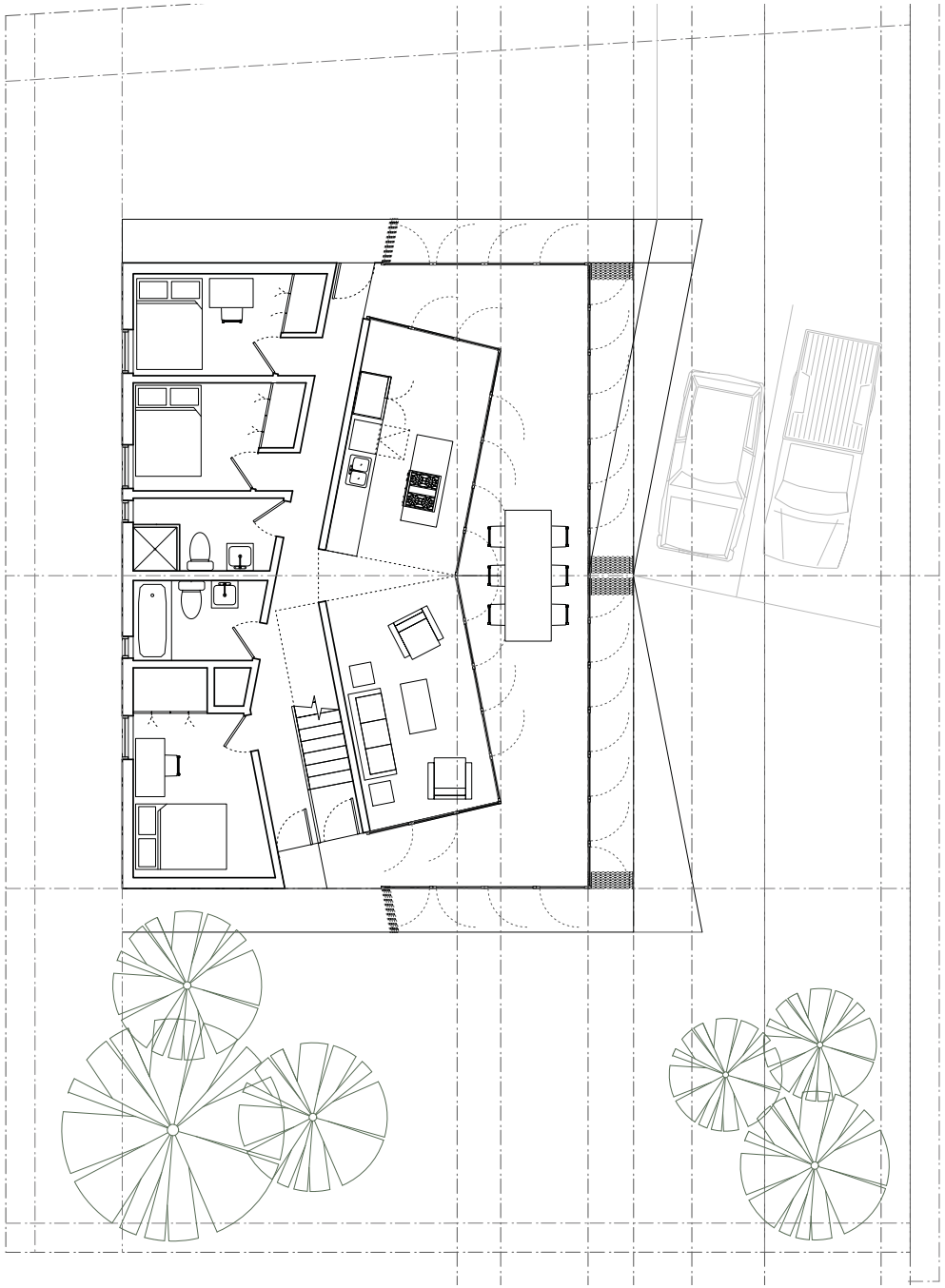


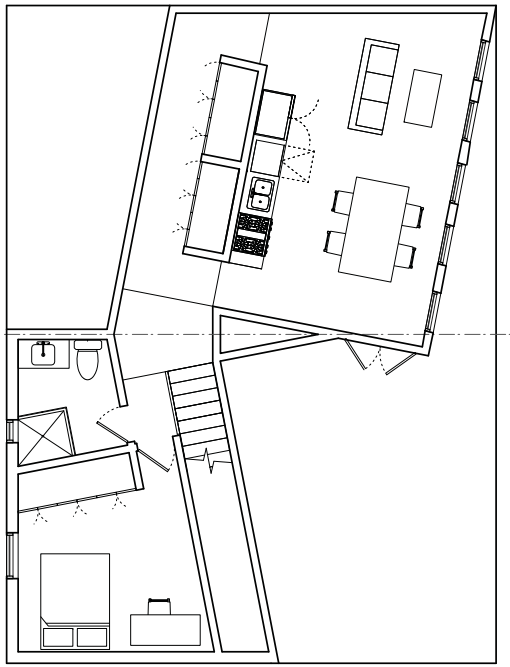


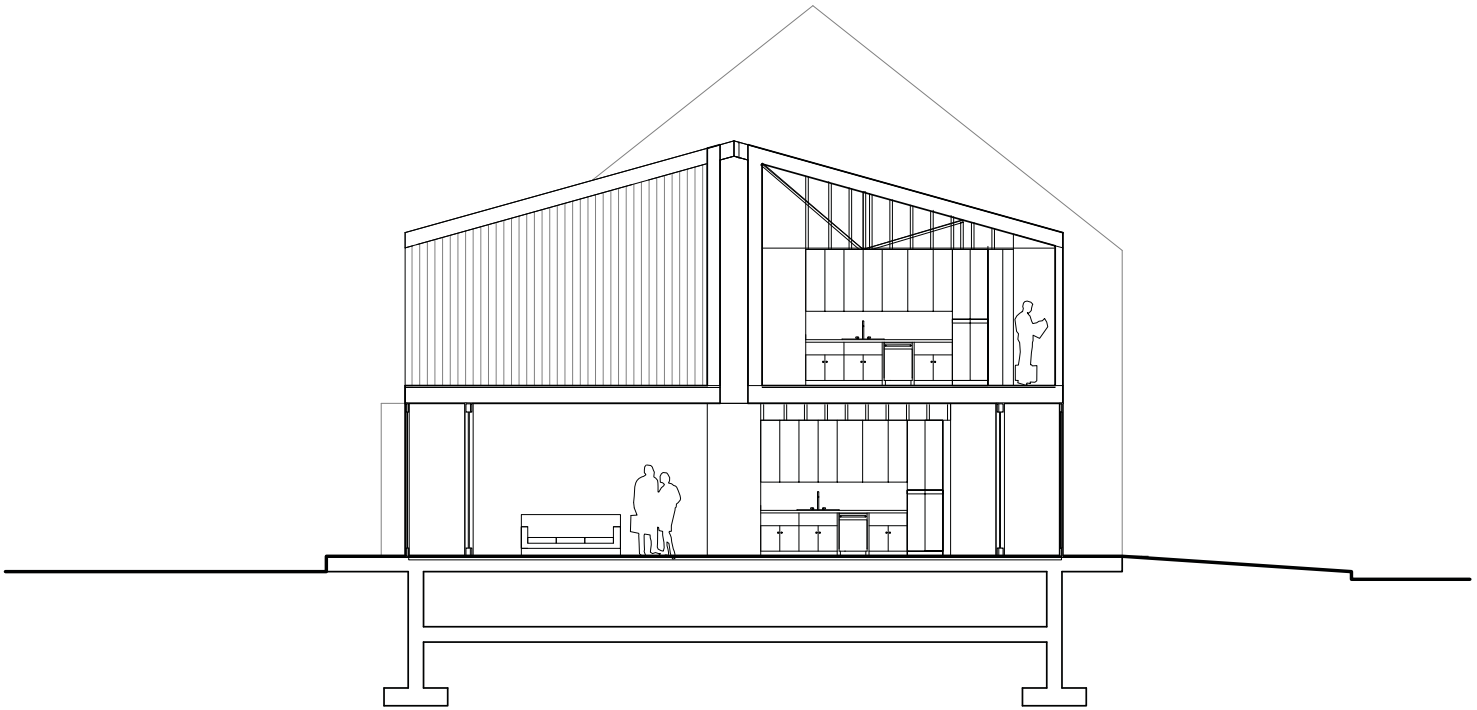
MAKE INTERIOR PORCH WALL AS POROUS AS EXTERIOR PORCH WALL - SKEWED PORCH CREATES SHARED CENTRAL SPACE

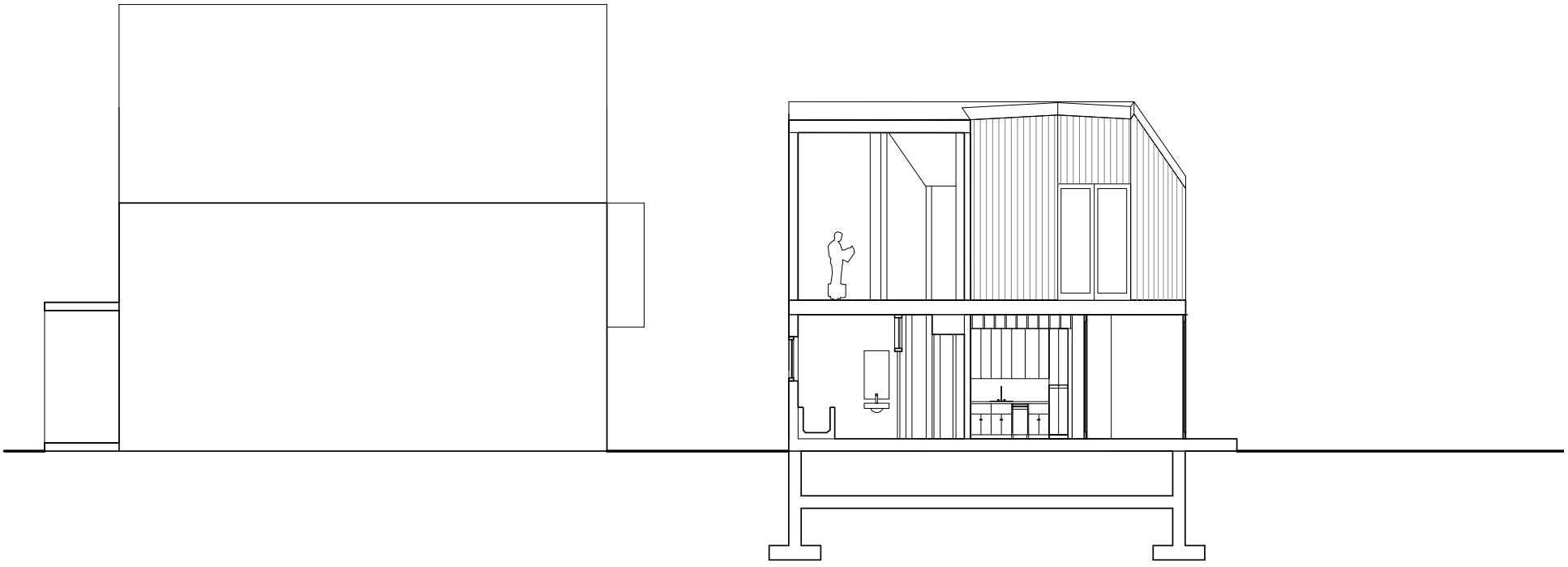


CUT OUT UNCESSARY GABLE FORM MASS



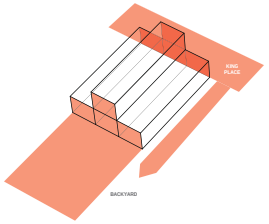




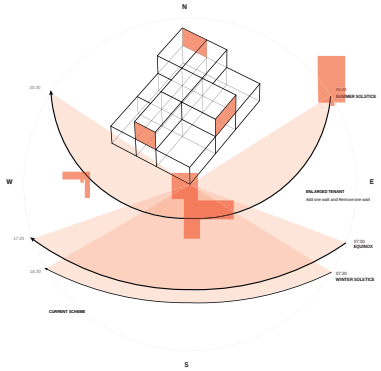


BUILDING PROJECT, GROUP ‘C’

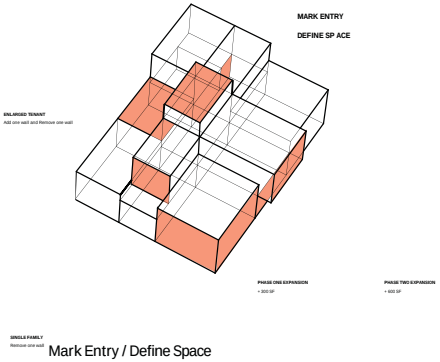
ARCH 1012B: ARCHITECTURAL DESIGN, *Studio*
JOEB MOORE, *Professor*
FIVE WEEKS IN 2009, *Length*



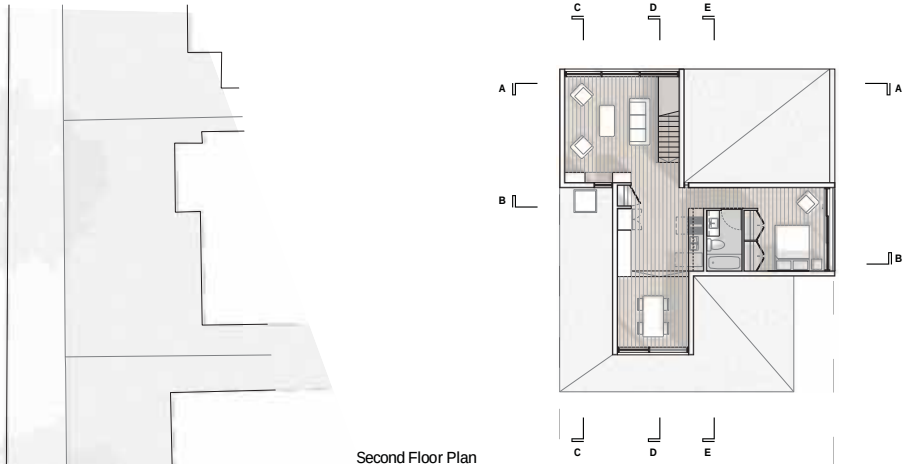
Front and Rear Access
through / around House



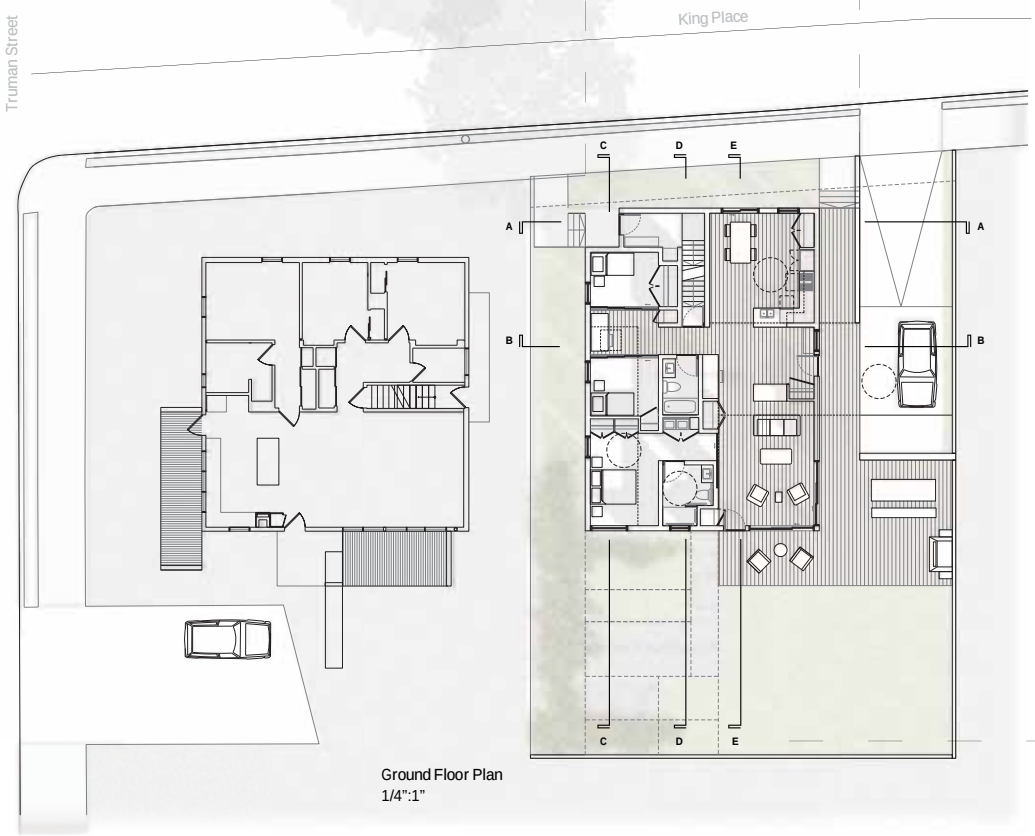
Solar Orientation
in relation to Main Living Areas



Mark Entry / Define Space



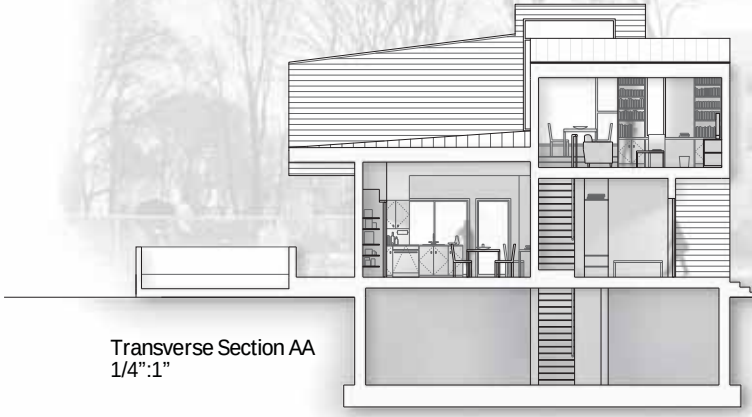
Second Floor Plan
1/4”:1”



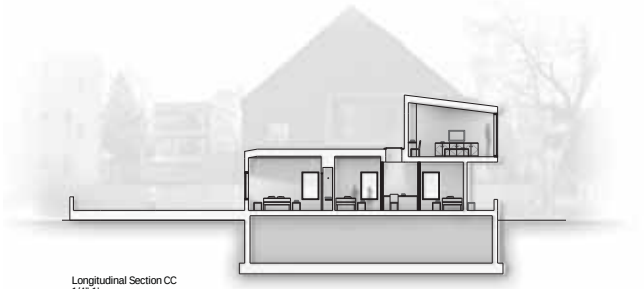
Ground Floor Plan
1/4”:1”

View from Backyard
Facing Owner's Living Room

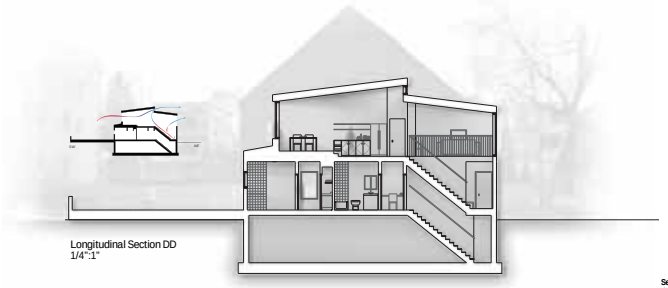
Northwest / Front Elevation
Facing Street
1/4":1"



Transverse Section AA
1/4":1"



Longitudinal Section CC
1/4":1'



Longitudinal Section DD
1/4":1"

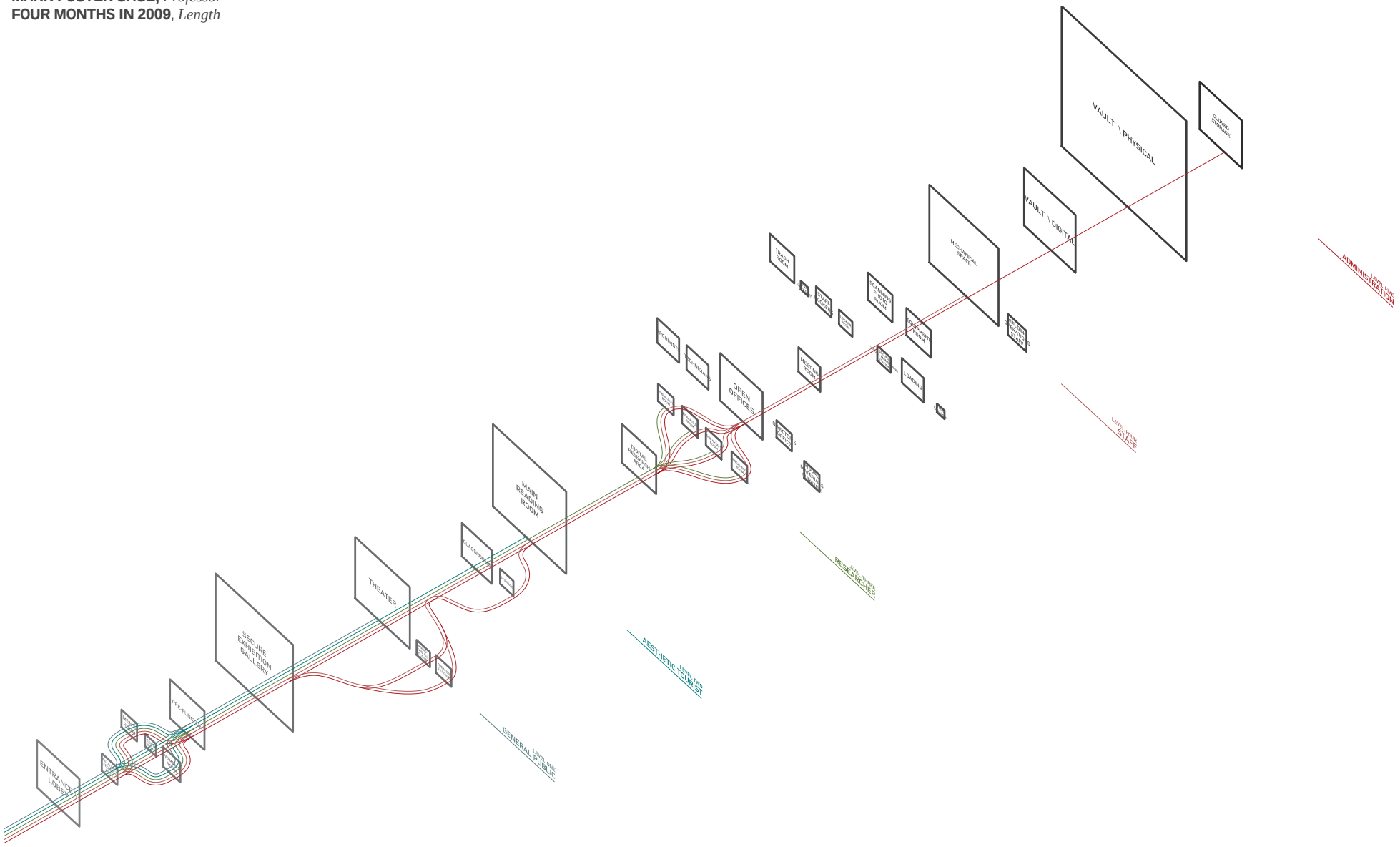
Second Floor / Tenant Unit
View of Dining Area from Stair

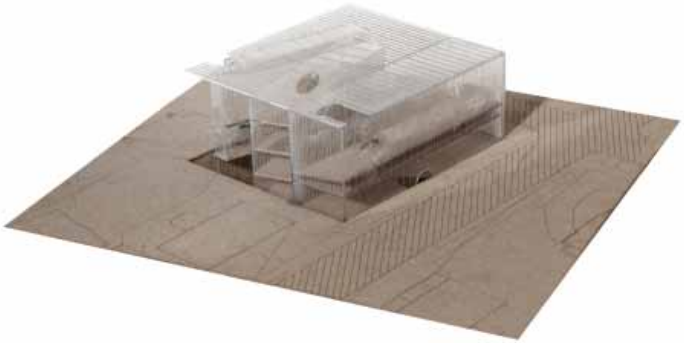
East Elevation
Facing Driveway
1/4":1'

Southeast / Rear Elevation
1/4":1"

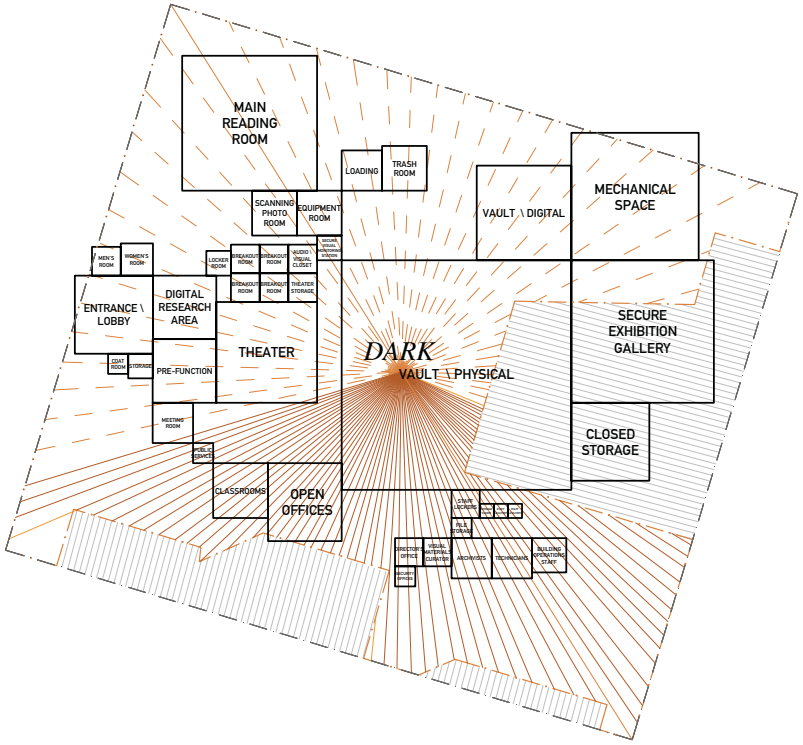
EXQUISITE COLLECTION

ARCH 1021A: COMPREHENSIVE BUILDING STUDIO, *Studio*
MARK FOSTER GAGE, *Professor*
FOUR MONTHS IN 2009, *Length*

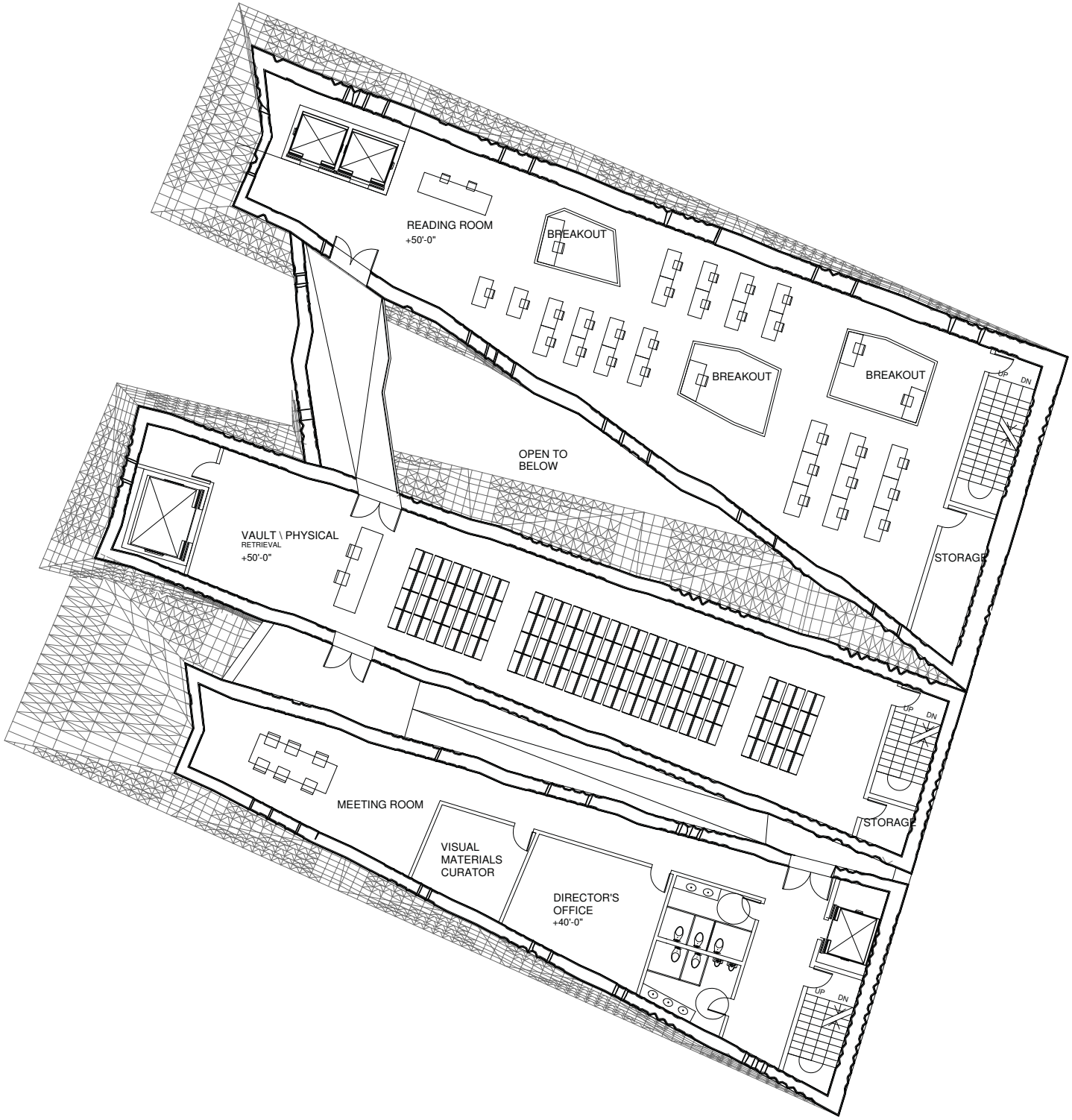


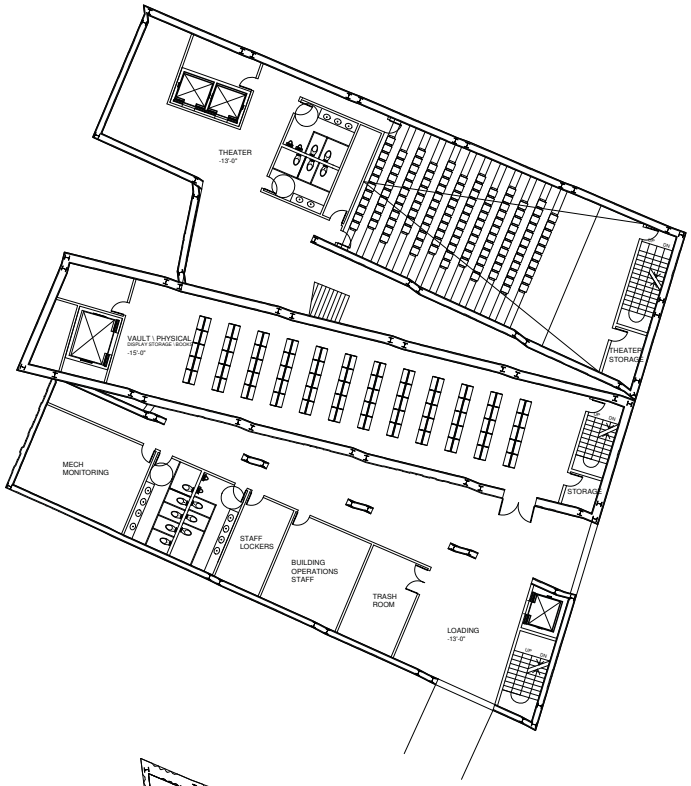


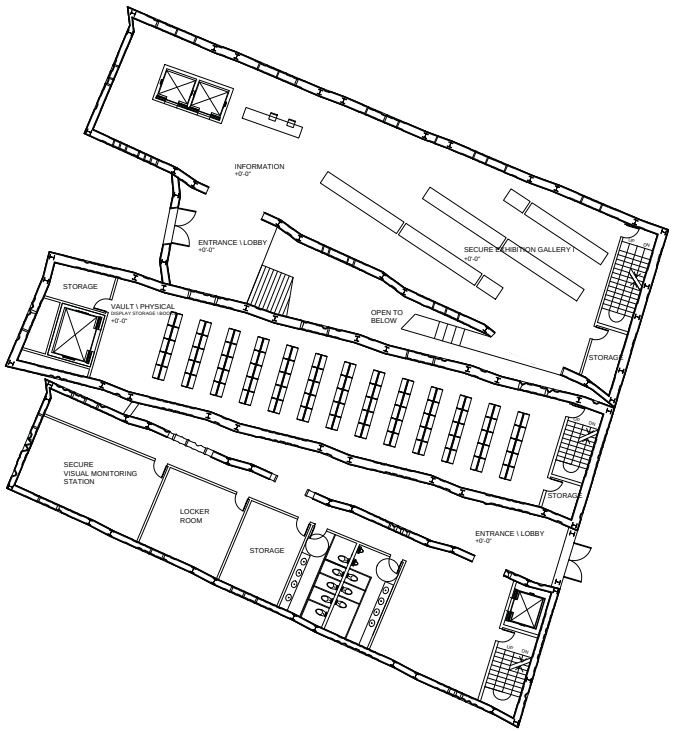
DIFFUSE LIGHT

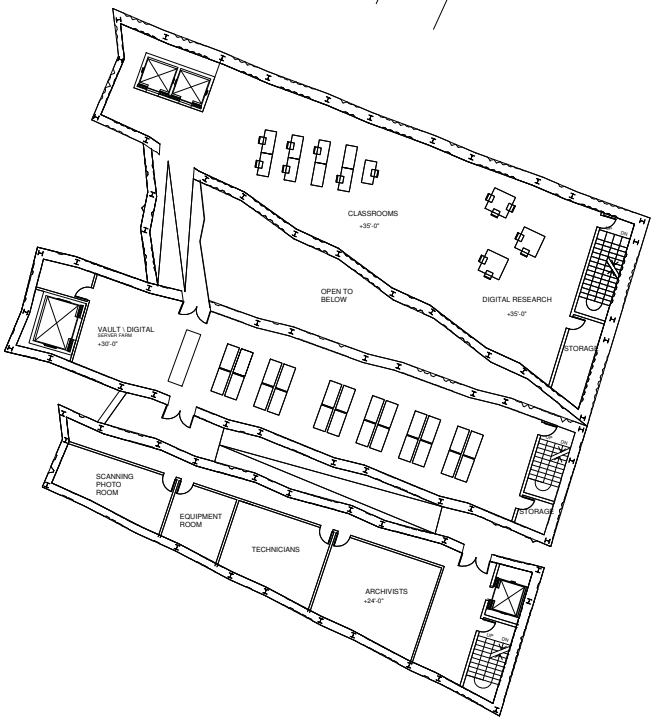


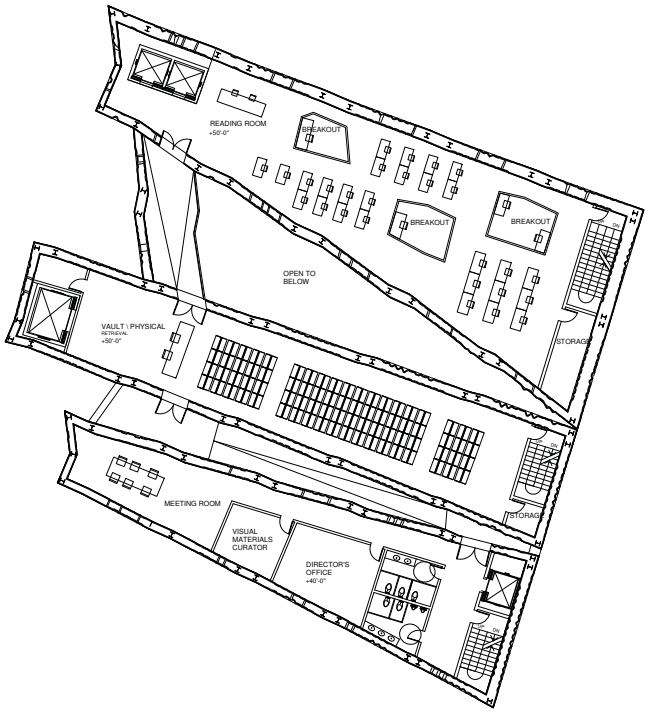
DIRECT LIGHT

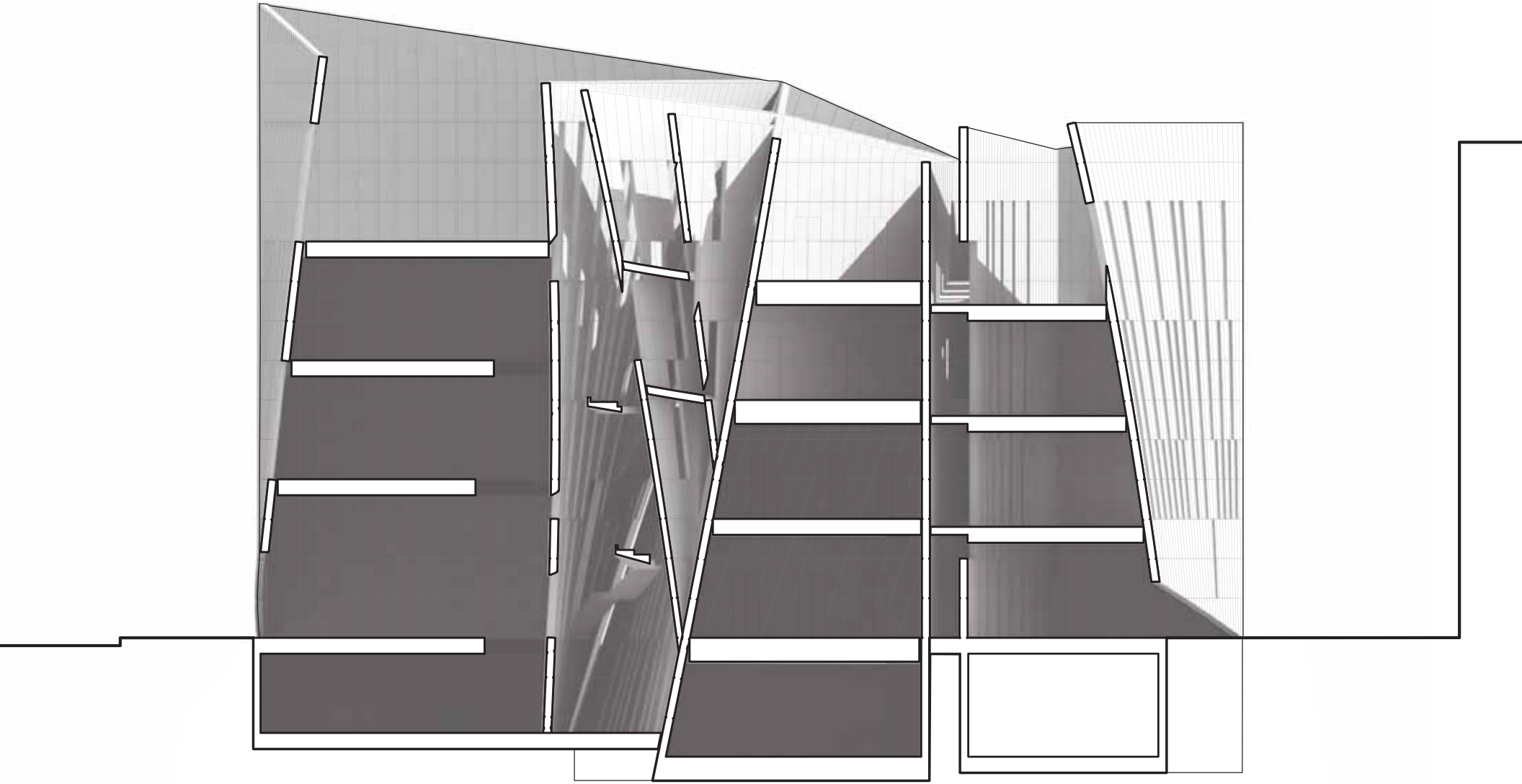

READING ROOM
+50'-0"
BREAKOUT
BREAKOUT
BREAKOUT
UP
DN
OPEN TO
BELOW
VAULT \ PHYSICAL
RETRIEVAL
+50'-0"
STORAGE
UP
DN
MEETING ROOM
STORAGE
VISUAL
MATERIALS
CURATOR
DIRECTOR'S
OFFICE
+40'-0"
UP
DN

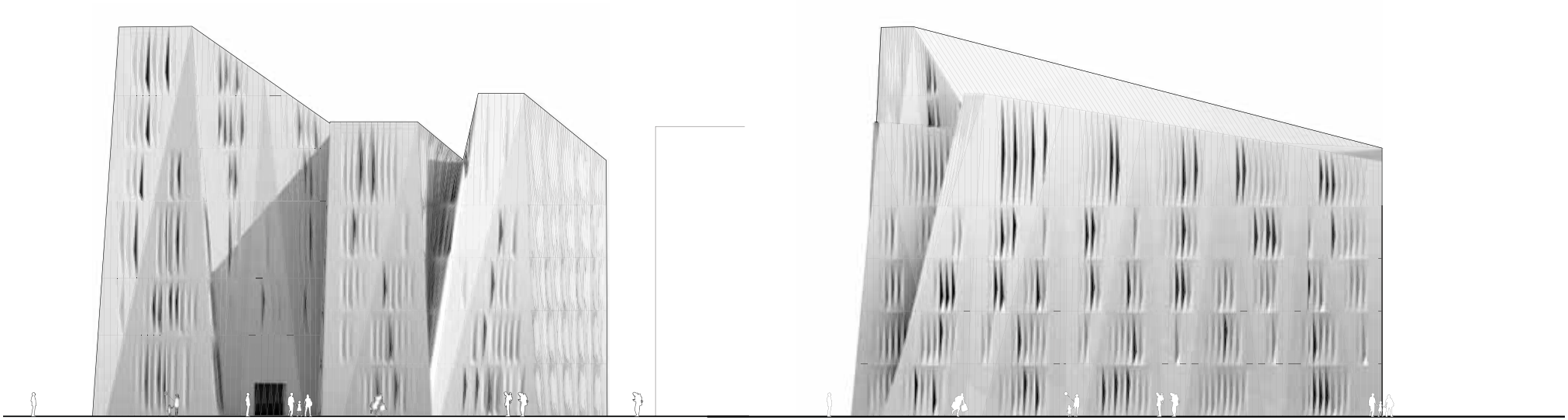

THEATER
-13'-0"
VAULT \ PHYSICAL
DISPLAY STORAGE \ BOOKS
-15'-0"
THEATER STORAGE
MECH MONITORING
STORAGE
STAFF LOCKERS
BUILDING OPERATIONS STAFF
TRASH ROOM
LOADING
-13'-0"

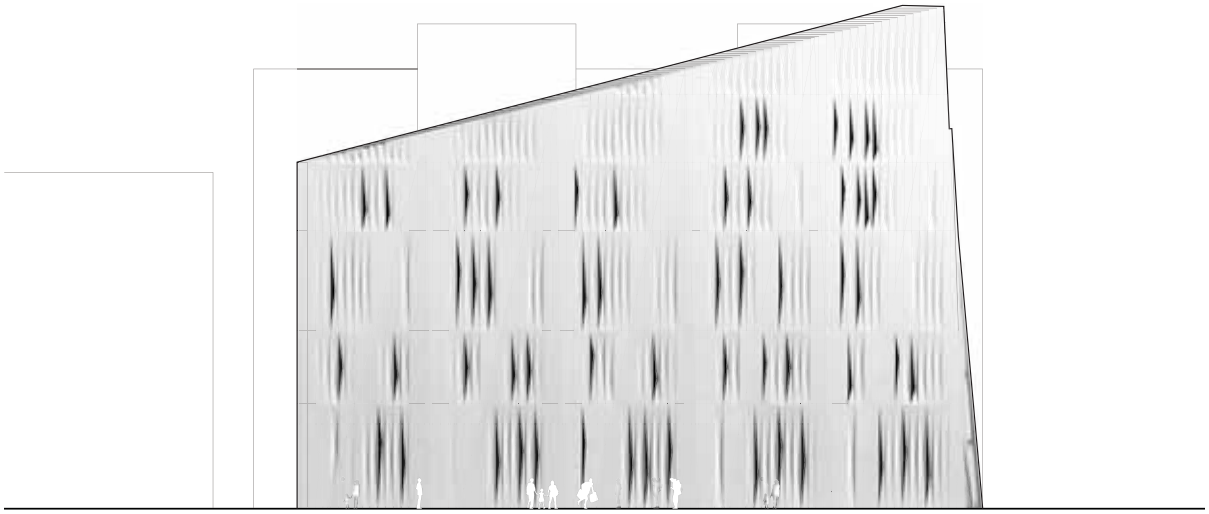

INFORMATION
+0'-0"
ENTRANCE \ LOBBY
+0'-0"
SECURE EXHIBITION GALLERY I
+0'-0"
STORAGE
VAULT \ PHYSICAL
DISPLAY STORAGE \ BOOKS
+0'-0"
OPEN TO BELOW
STORAGE
SECURE VISUAL MONITORING STATION
LOCKER ROOM
STORAGE
STORAGE
ENTRANCE \ LOBBY
+0'-0"

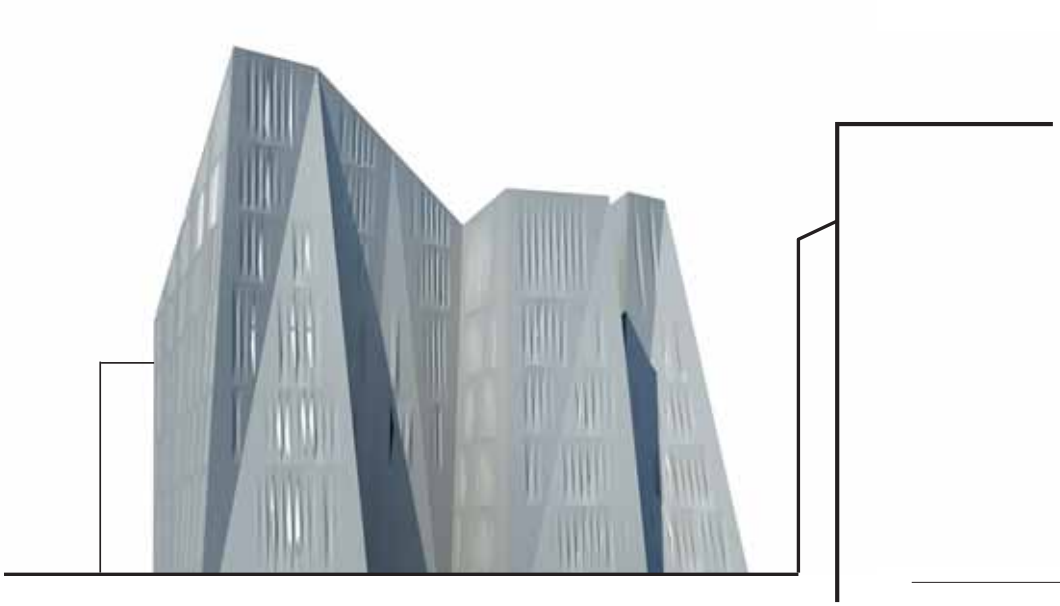

CLASSROOMS
+35'-0"
OPEN TO BELOW
DIGITAL RESEARCH
+35'-0"
VAULT \ DIGITAL
SERVER FARM
+30'-0"
STORAGE
SCANNING PHOTO ROOM
EQUIPMENT ROOM
TECHNICIANS
ARCHIVISTS
+24'-0"
STORAGE

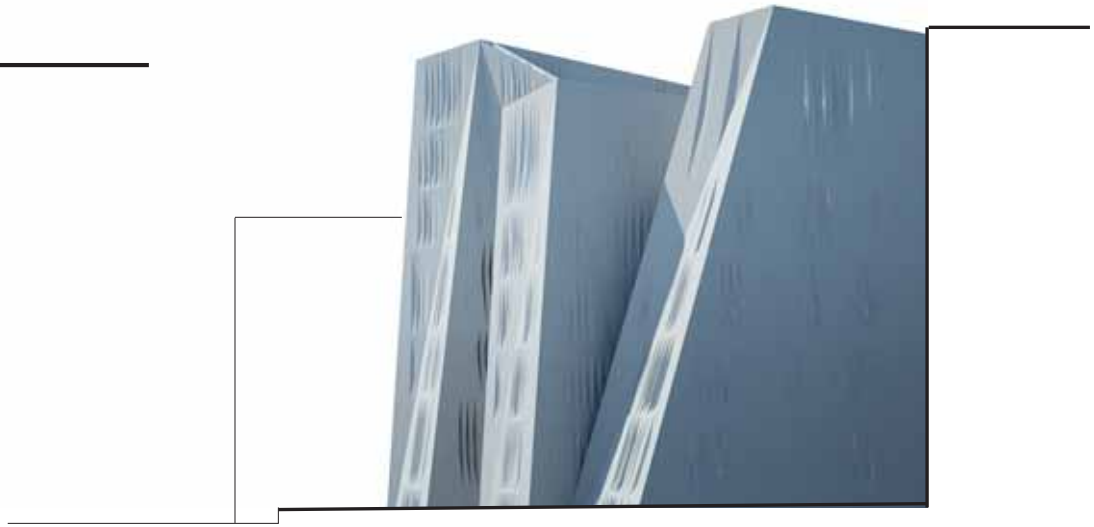

READING ROOM
+50'-0"
BREAKOUT
BREAKOUT
BREAKOUT
OPEN TO BELOW
VAULT \ PHYSICAL
RETRIEVAL
+50'-0"
STORAGE
MEETING ROOM
VISUAL MATERIALS CURATOR
DIRECTOR'S OFFICE
+40'-0"
STORAGE











REPURPOSED

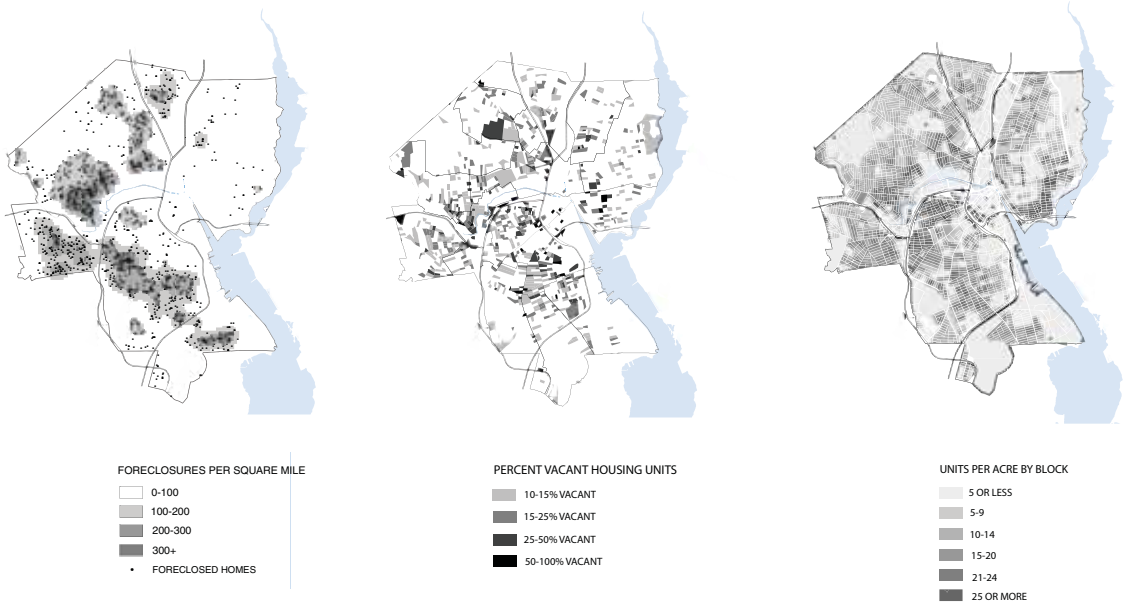
ARCH 1022B: ARCHITECTURAL DESIGN, *Studio*
ANDREA KAHN, *Professor*
MARK GETTYS, *Partner*
TEN WEEKS IN 2010, *Length*

'Repurposed' retools/reinvisions the existing highway structure to catalyze / strengthen existing networks of users and uses and produce new kinds of public space in Providence.

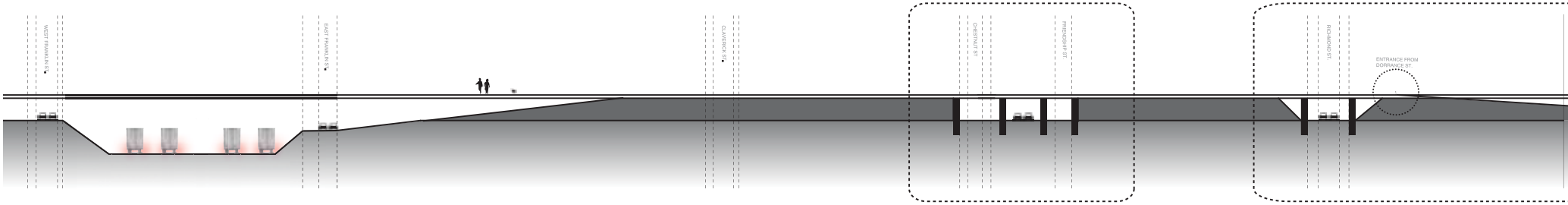
The plan first generates interest for future growth by connecting two public stakeholders, RH DOT and RI PR to create low cost, low impact initial redevelopment that provides a varied and flexible open space network, to contrast the tightly programmed hardscape of Downcity. The 'soft' program site such as parking lots within flood plane allows for cheap and quick redevelopment within the flood plane. We can then use a minimal amount of capital to create a web of development through this network of soft program with key interventions of hard development. Secondly, once interest has been established + urban connectivity strengthened, larger scale built development can take place.

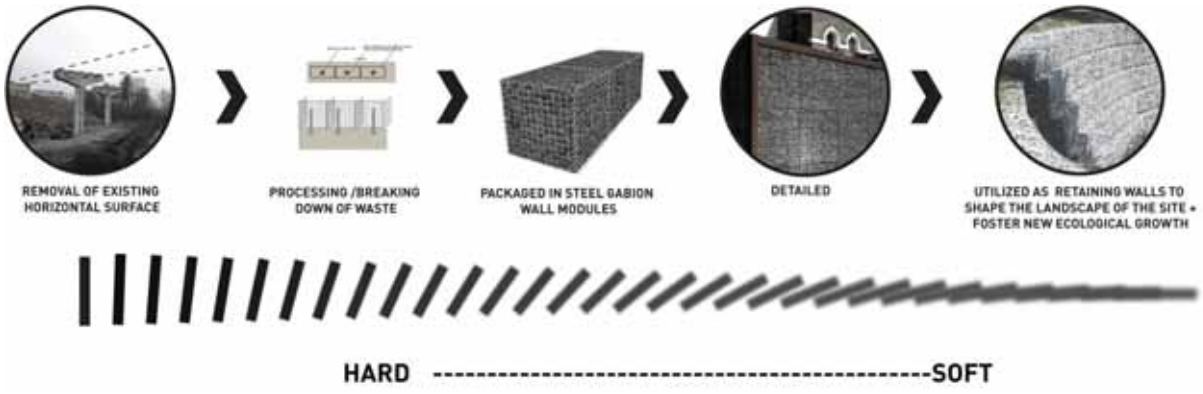
We retooled existing landscape structures defined by the berms that allow for development within the flood plane and the 195 slab with its vertical infrastructure that allows for connection between these berms on the local level and across 95 and the river on a city wide level, respectively. At these existing landscape structures, we have identified multiple stakeholders with multiple segregated networks that could be beneficially merged with one another and the new elevated corridor created by 195 infrastructure to connect various destinations around the city. With the networks ready to support a new density of activity, key development can occur at the intersection of the transit/ institutional/cultural networks to spur residual development.

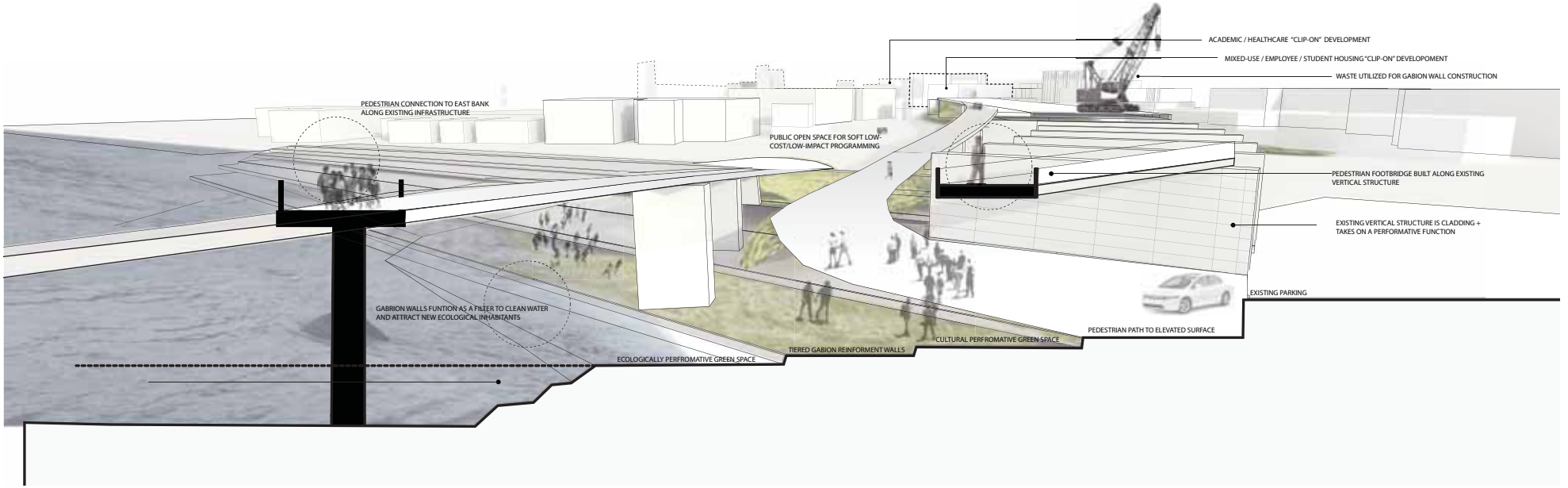
We focused on two intensive moments of the master plan: one, involving a engagement with the shared waterfront activity and the other involving the engagement of a shared urban plaza...

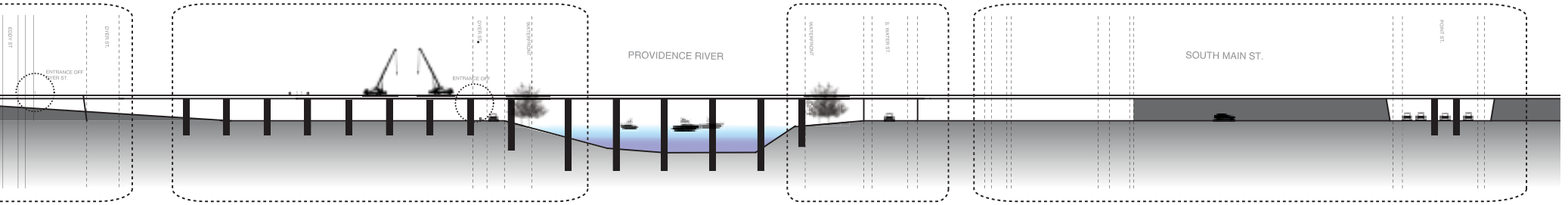


EXISTING SOFT SITES,
Parking




REMOVAL OF EXISTING HORIZONTAL SURFACE
PROCESSING /BREAKING DOWN OF WASTE
PACKAGED IN STEEL GABION WALL MODULES
DETAILED
UTILIZED AS RETAINING WALLS TO SHAPE THE LANDSCAPE OF THE SITE + FOSTER NEW ECOLOGICAL GROWTH
HARD ----------SOFT


ACADEMIC / HEALTHCARE "CLIP-ON" DEVELOPMENT
MIXED-USE / EMPLOYEE / STUDENT HOUSING "CLIP-ON" DEVELOPOMENT
WASTE UTILIZED FOR GABION WALL CONSTRUCTION
PEDESTRIAN CONNECTION TO EAST BANK ALONG EXISTING INFRASTRUCTURE
PUBLIC OPEN SPACE FOR SOFT LOW-COST/LOW-IMPACT PROGRAMMING
PEDESTRIAN FOOTBRIDGE BUILT ALONG EXISTING VERTICAL STRUCTURE
EXISTING VERTICAL STRUCTURE IS CLADDING + TAKES ON A PERFORMATIVE FUNCTION
EXISTING PARKING
GABRION WALLS FUNTION AS A FILTER TO CLEAN WATER AND ATTRACT NEW ECOLOGICAL INHABITANTS
PEDESTRIAN PATH TO ELEVATED SURFACE
CULTURAL PERFROMATIVE GREEN SPACE
TIERED GABION REINFORMENT WALLS
ECOLOGICALLY PERFROMATIVE GREEN SPACE


EDDY ST
CRANE ST
ENTRANCE OFF
CRANE ST
WATERFRONT
PROVIDENCE RIVER
WATERFRONT
S. WATER ST
SOUTH MAIN ST.
POINT ST

ACTIVITY ZONES / CORRIDORS,
perpendicular to 195 connection

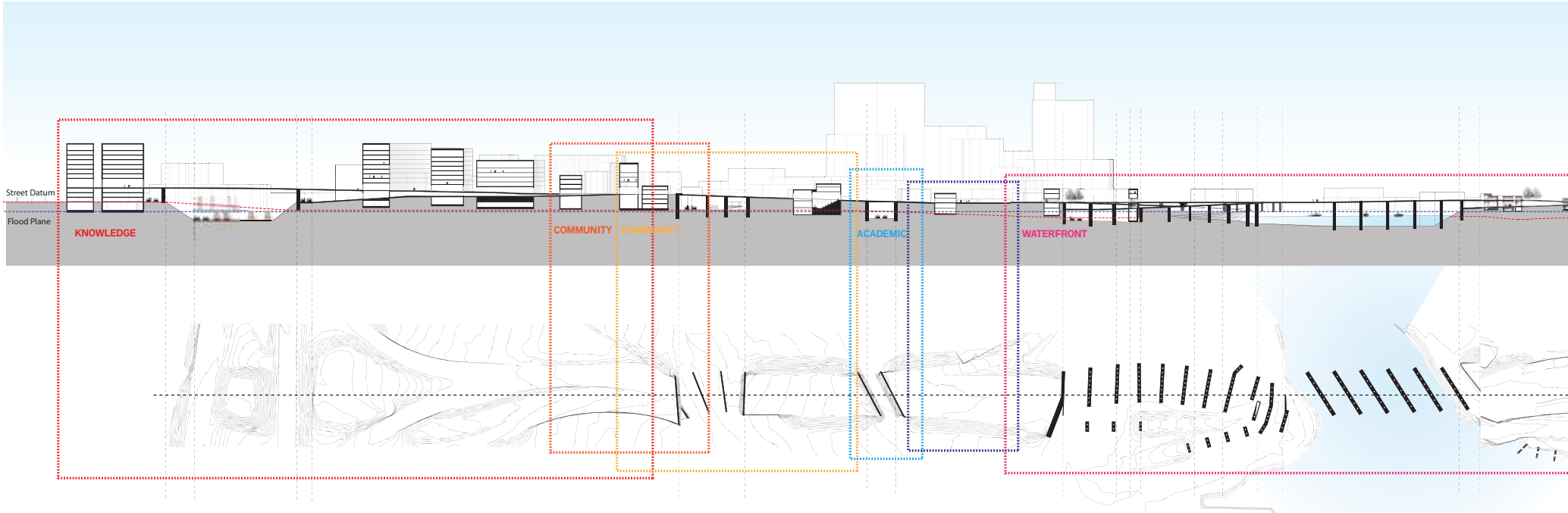
KNOWLEDGE-BASED ACTIVITY

CULTURAL / SOCIAL ACTIVITY

COMMUNITY ACTIVITY

ACADEMIC ACTIVITY

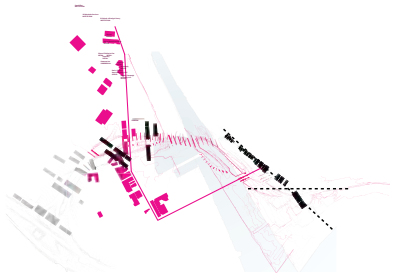
BUSINESS / RETAIL ACTIVITY



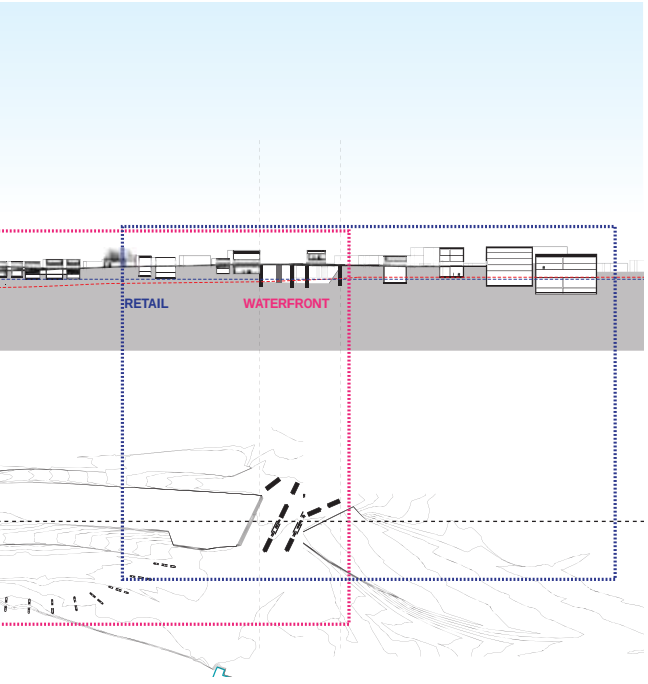
EXISTING HARDSCAPE,
195 Connection

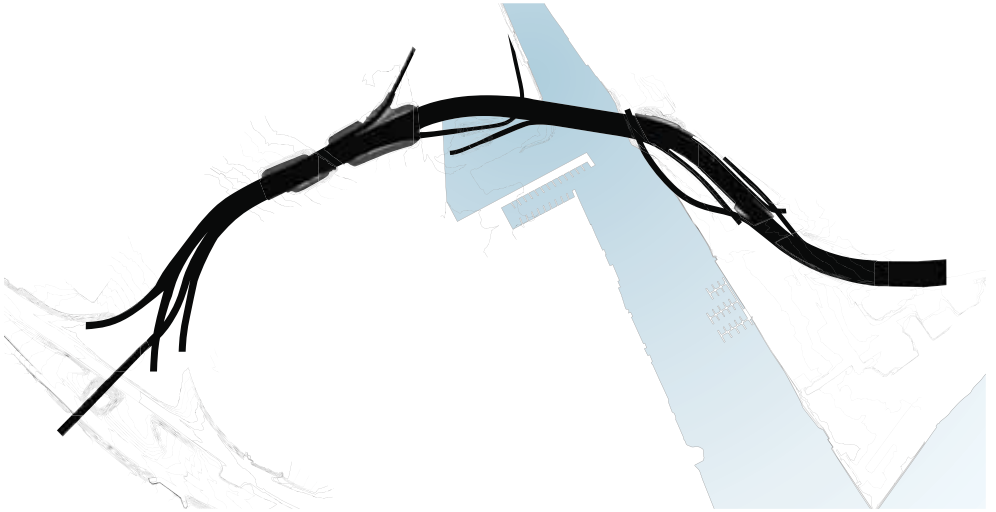
ERODED HARDSCAPE CONNECTS TO EXISTING LANDSCAPE,
195 Connection + Berms

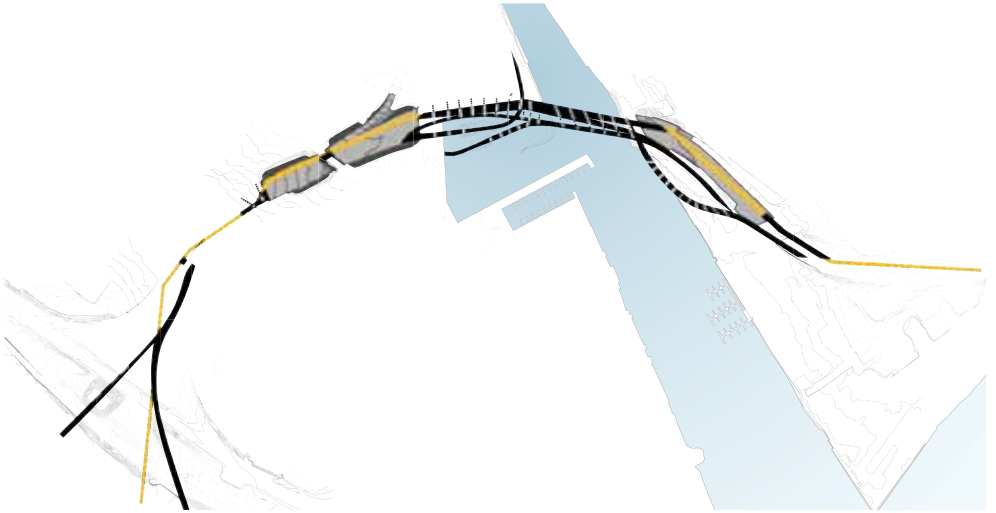
URBAN CORRIDORS REINFORCED AT MOMENTS OF INTENSITY,
195 Connection + Berms + Tangents

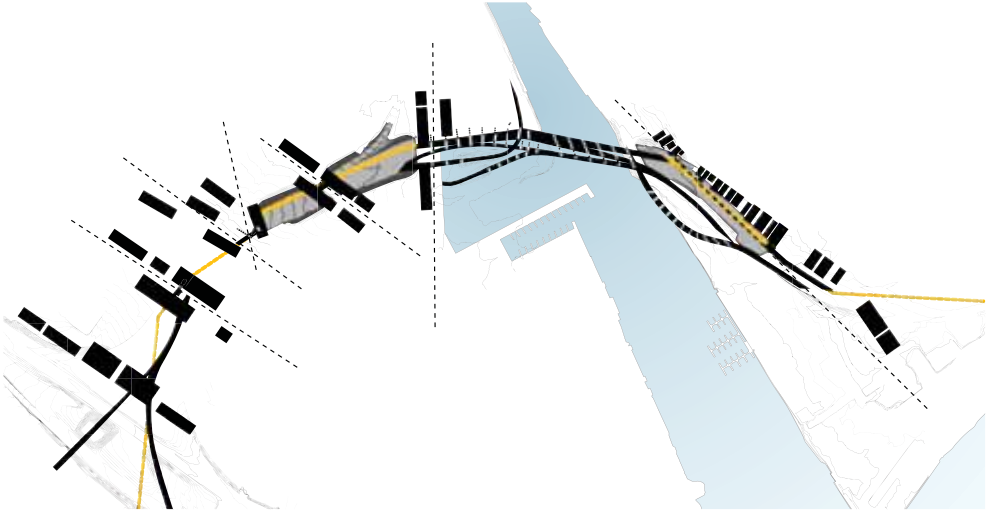


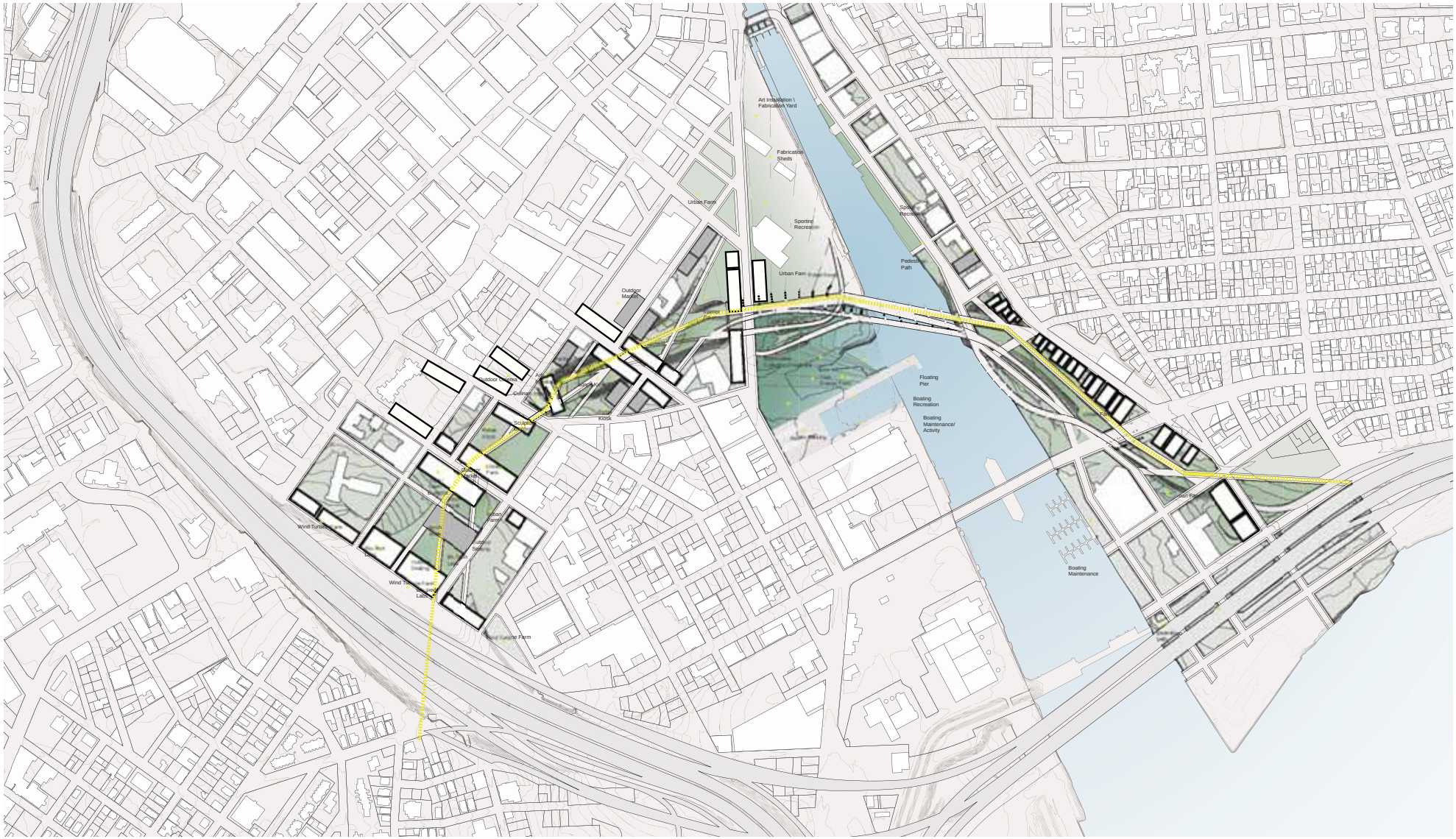
WATERFRONT ACTIVITY



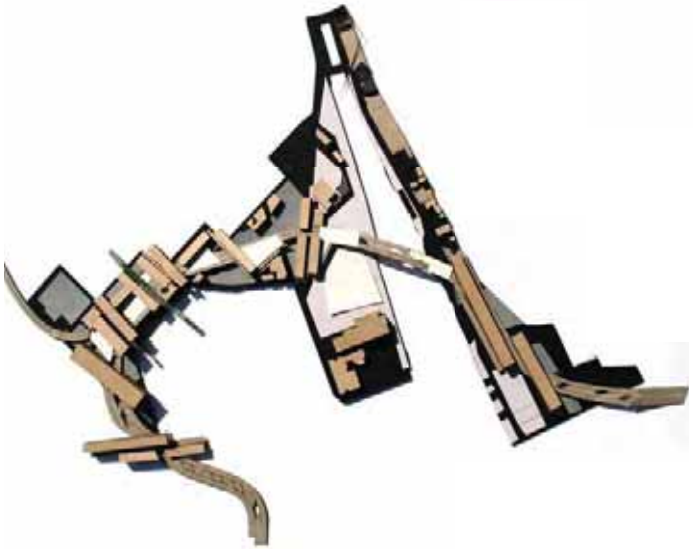






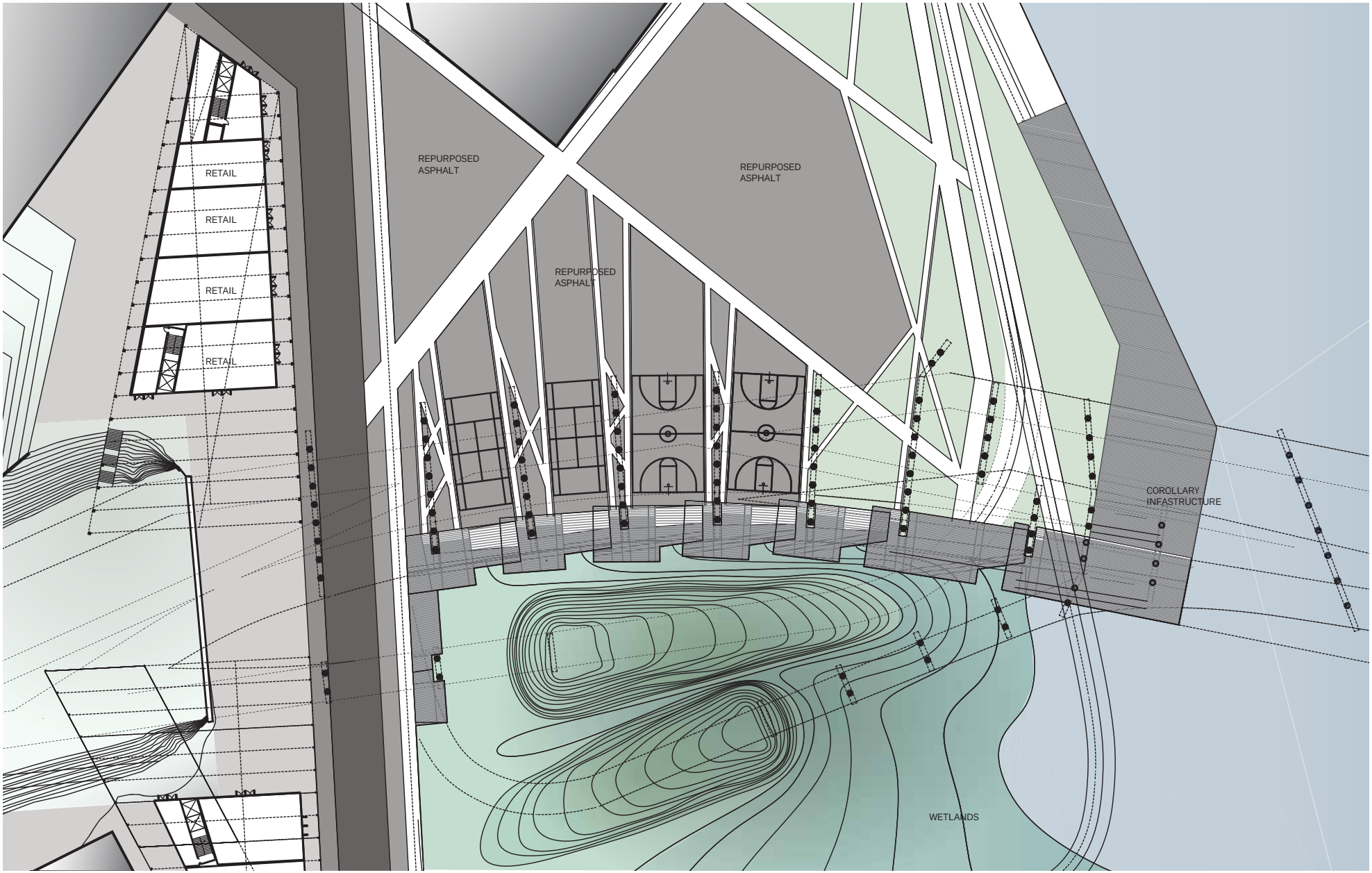


SITE PLAN,
Christopher (Water) + Mark (Inland)



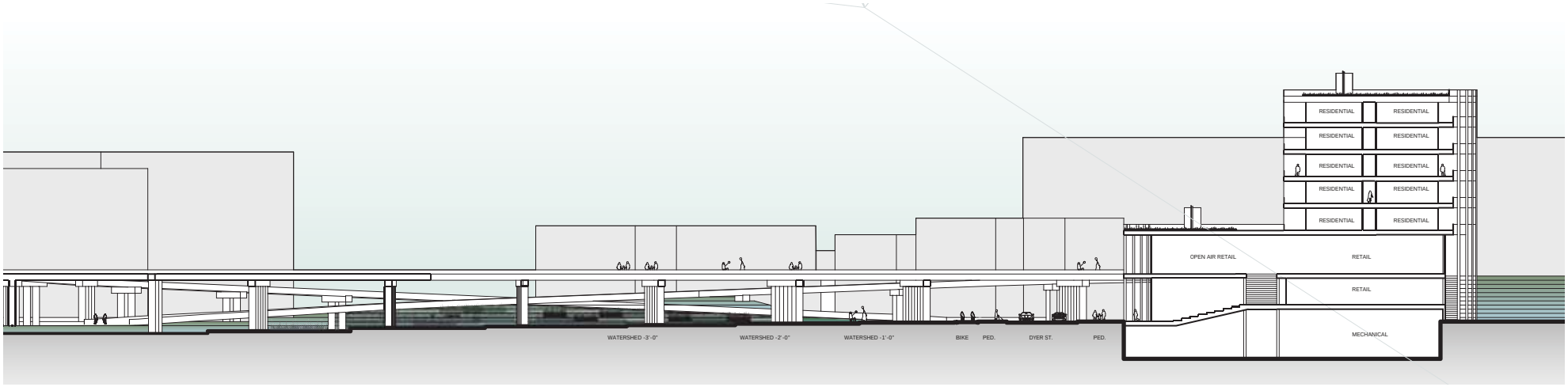
STUDY MODEL ITERATIONS OF 195 SPLINE SUBDIVISION,
progressing from linear/radial scheme to a varied 'activity' based scheme

SECTIONAL MODEL THROUGH BUSINESS CORRIDOR,
berms of 195 connector are used for sectional connections

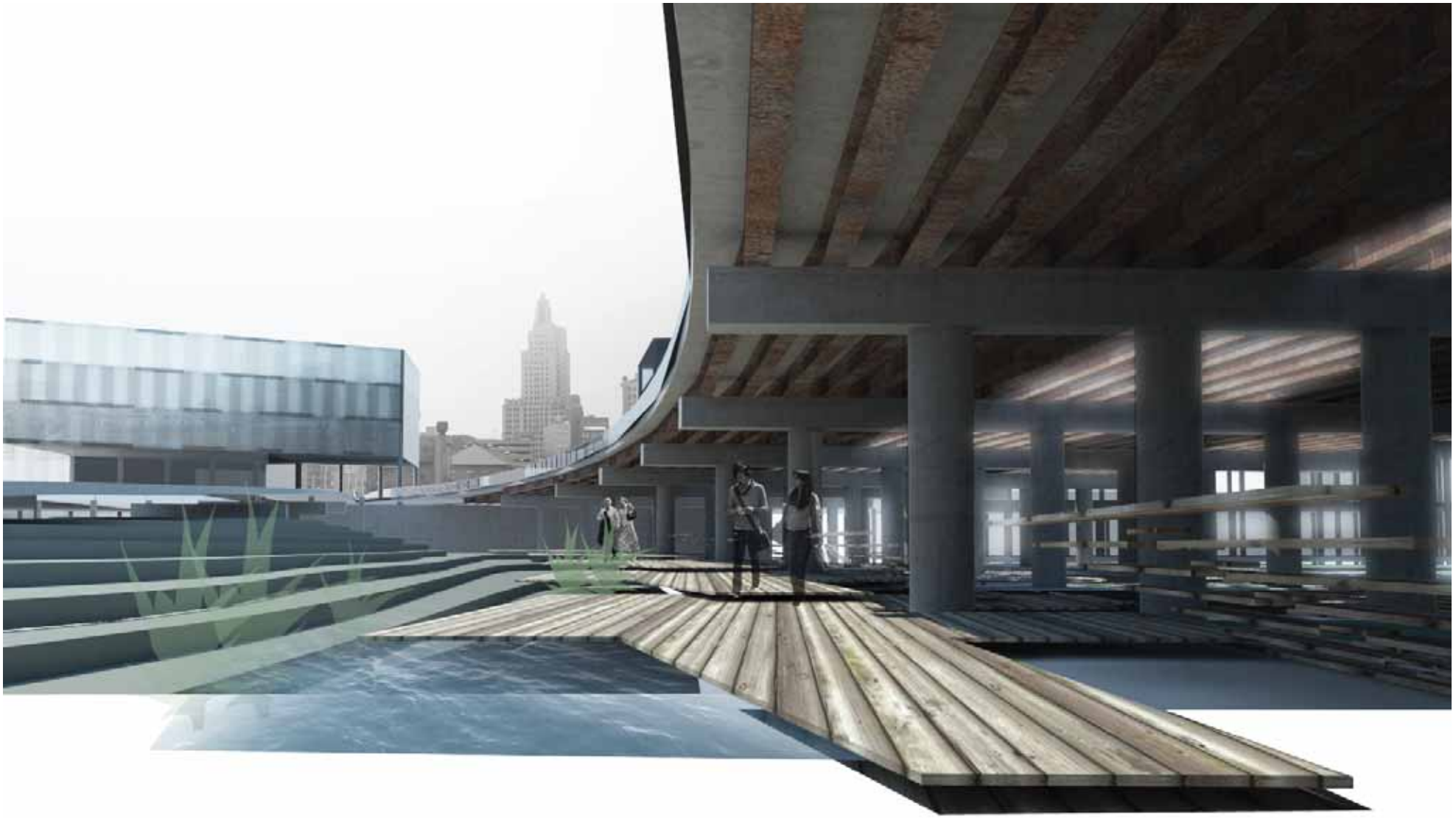


WATERFRONT PLAN,
195 transformed from barrier to active threshold at watershed / boardwalk / park

EXISTING SOFT SITES,
parking reprogrammed for recreation and commerce



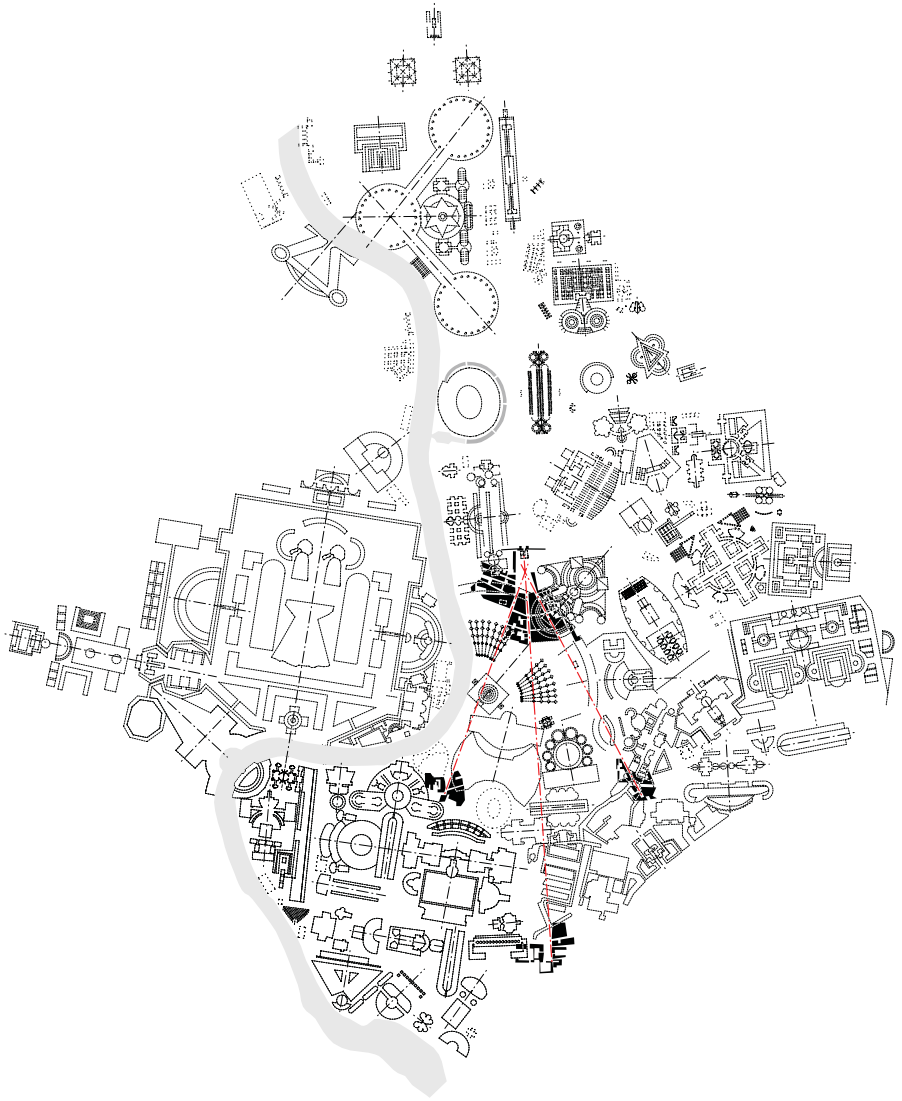
WATERFRONT SECTION,
195 transformed from barrier to active threshold at watershed / boardwalk / park

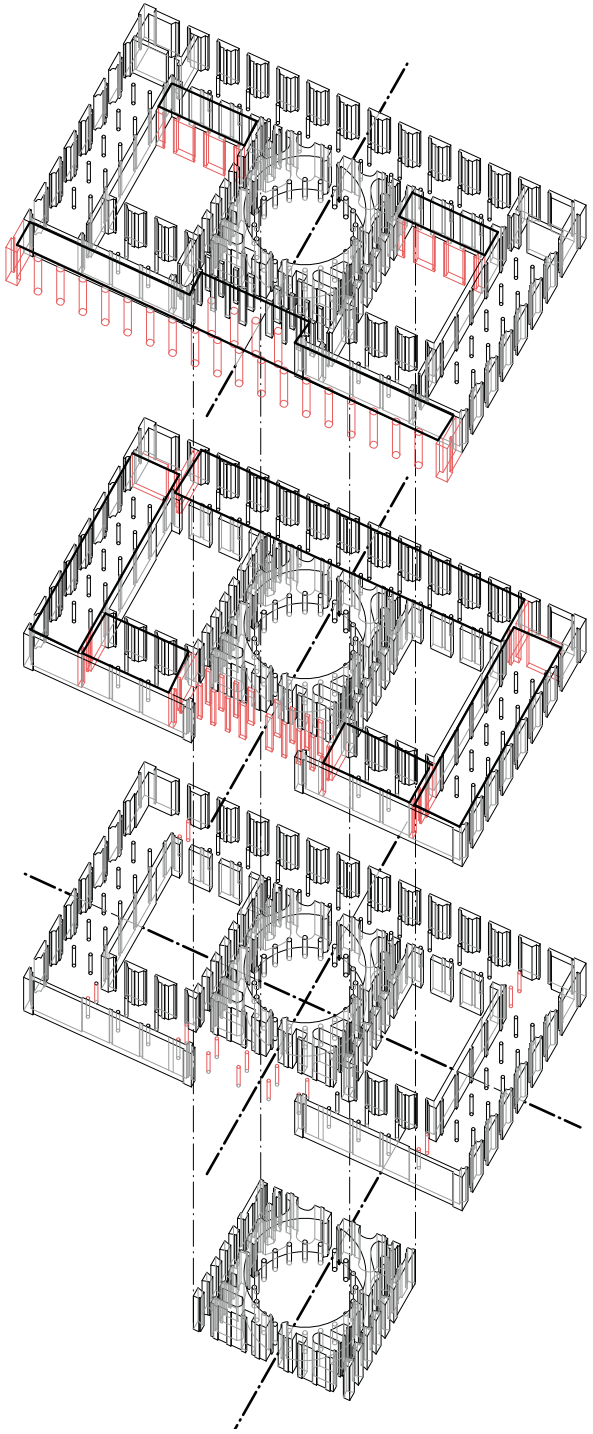


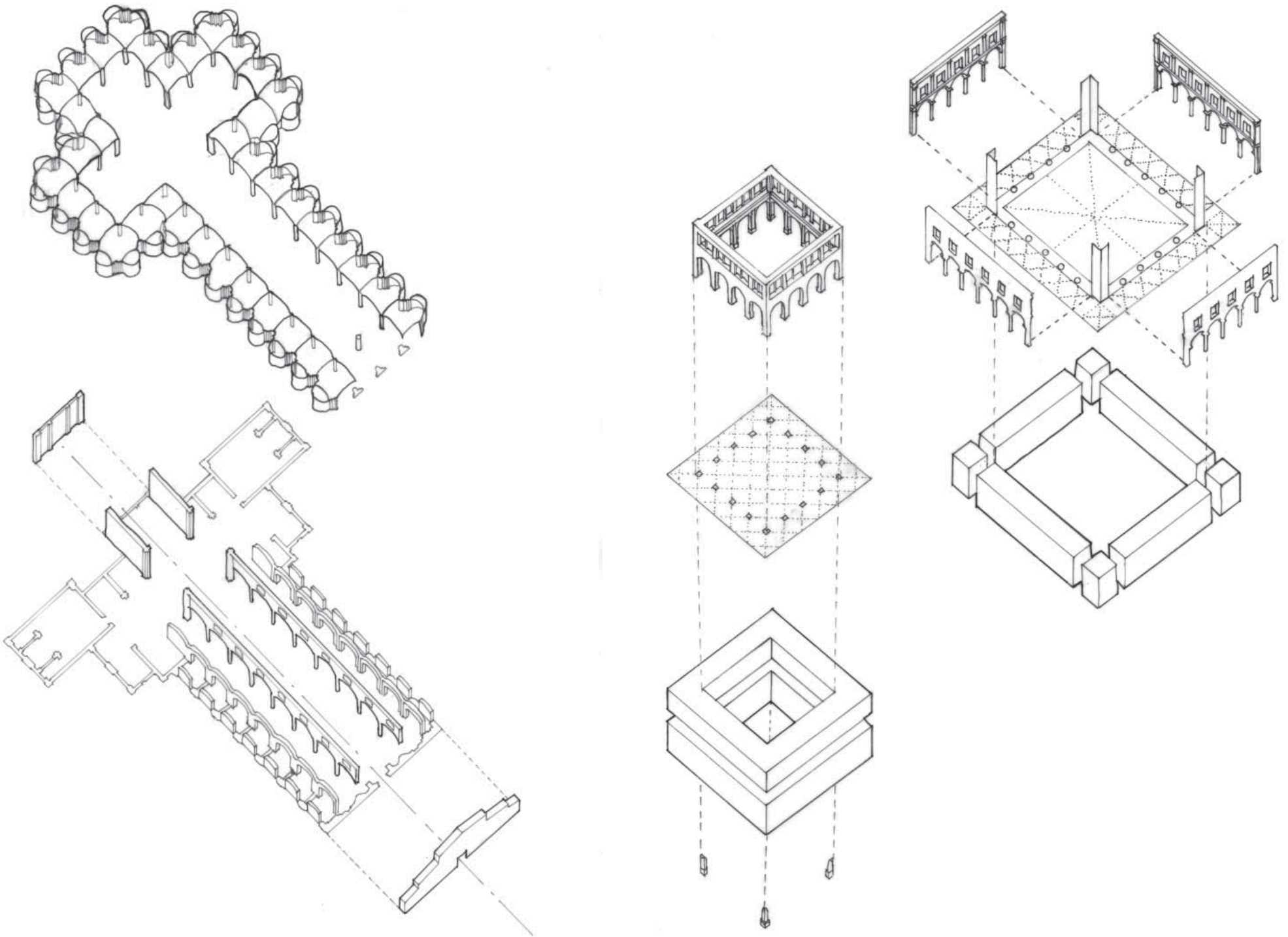
SITE PLAN,
View of Wetland (left) Boardwalk (center) Park (right) threshold

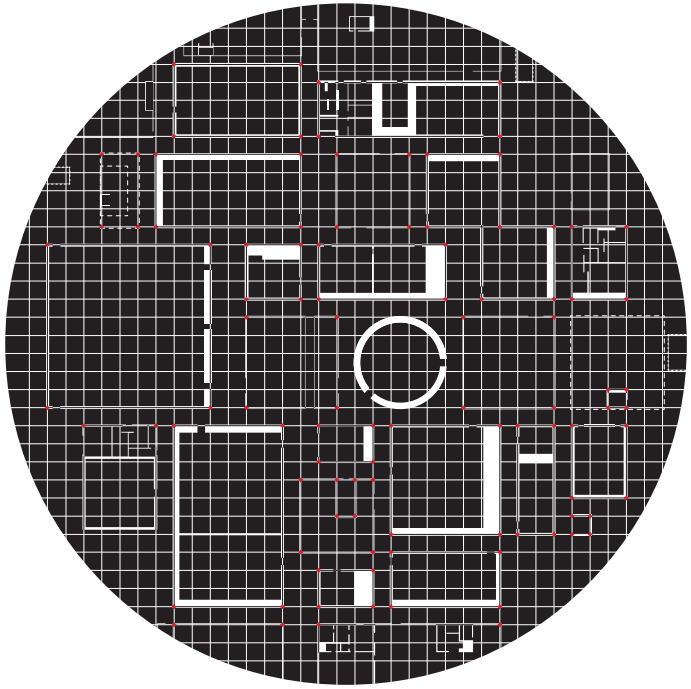
FORMAL ANALYSIS

ARCH 1018A: FORMAL ANALYSIS, *Seminar*
PETER EISENMAN, *Professor*
TWELVE WEEKS IN 2009, *Length*





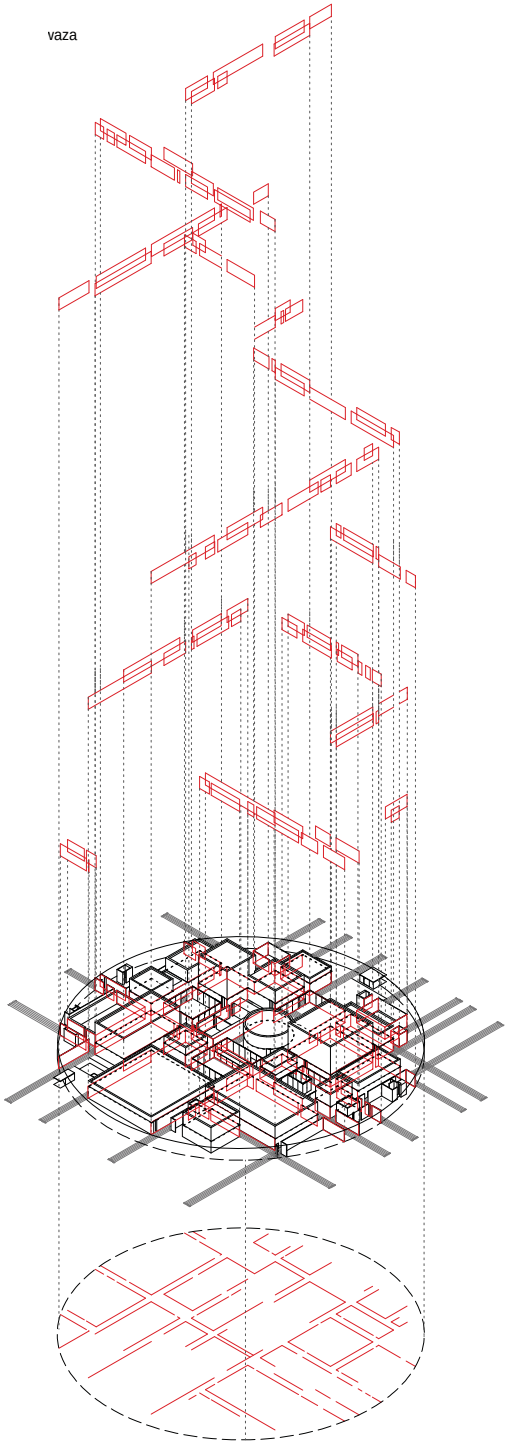


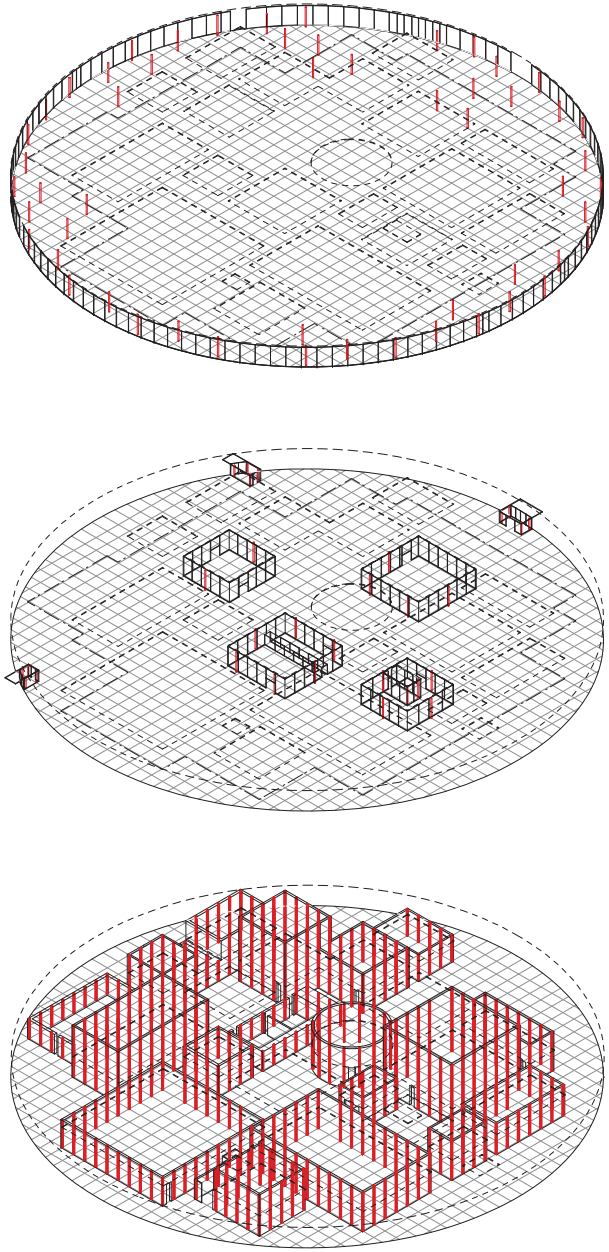


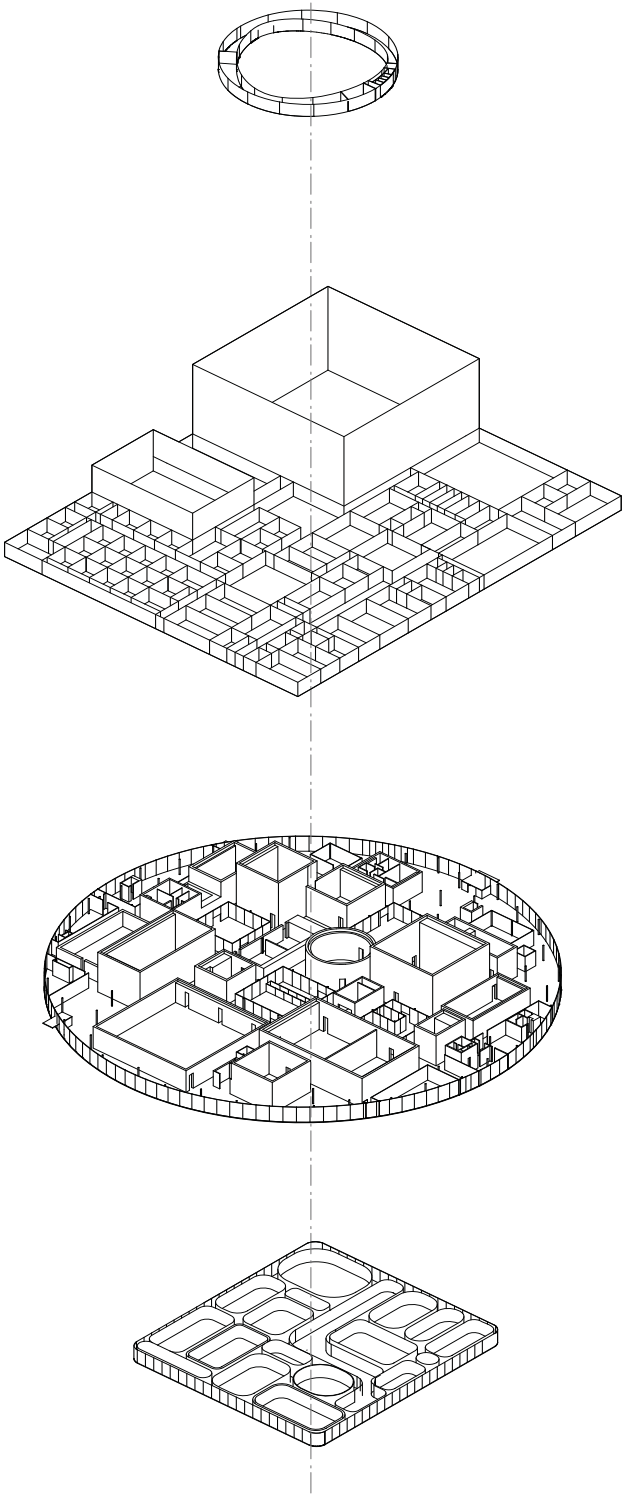
The 21st Century Museum of Contemporary Art is positioned directly in the center of Kanazawa, Japan. The site is immediately flanked by a set of public buildings containing varied program in all four cardinal directions. SANAA's reaction to the brief was to create a circular building with multiple entries and a non-hierarchical interior program that shifted based the demands of the museum. The museum becomes a recursive reformation of the city surrounding it. The multiple and formally different entries, varied and seemingly jumbled volumes and spare diagrammatic nature of the work may lead some to believe that SANAA shares only an aesthetic connection to the western canon.

I would argue that while it may be less obvious than their contemporaries, there are definite modernist formal themes - themes that span across SANAA's body of work and place them firmly as architects of a late period. Problems arise when critics such as Ito attempt to elevate SANAA above a mere reinterpretation of modernist troupes. A truly non-hierarchical process driven by numerous micro scale iterations would create architecture much less formally coherent than that of SANAA. The 21st Century Museum of Contemporary Art maintains a clear part to whole relationship on site, macro and micro
building scales that are the result of an over arching formal vision, not an architecture totally driven by
diagram and iteration.

vaza

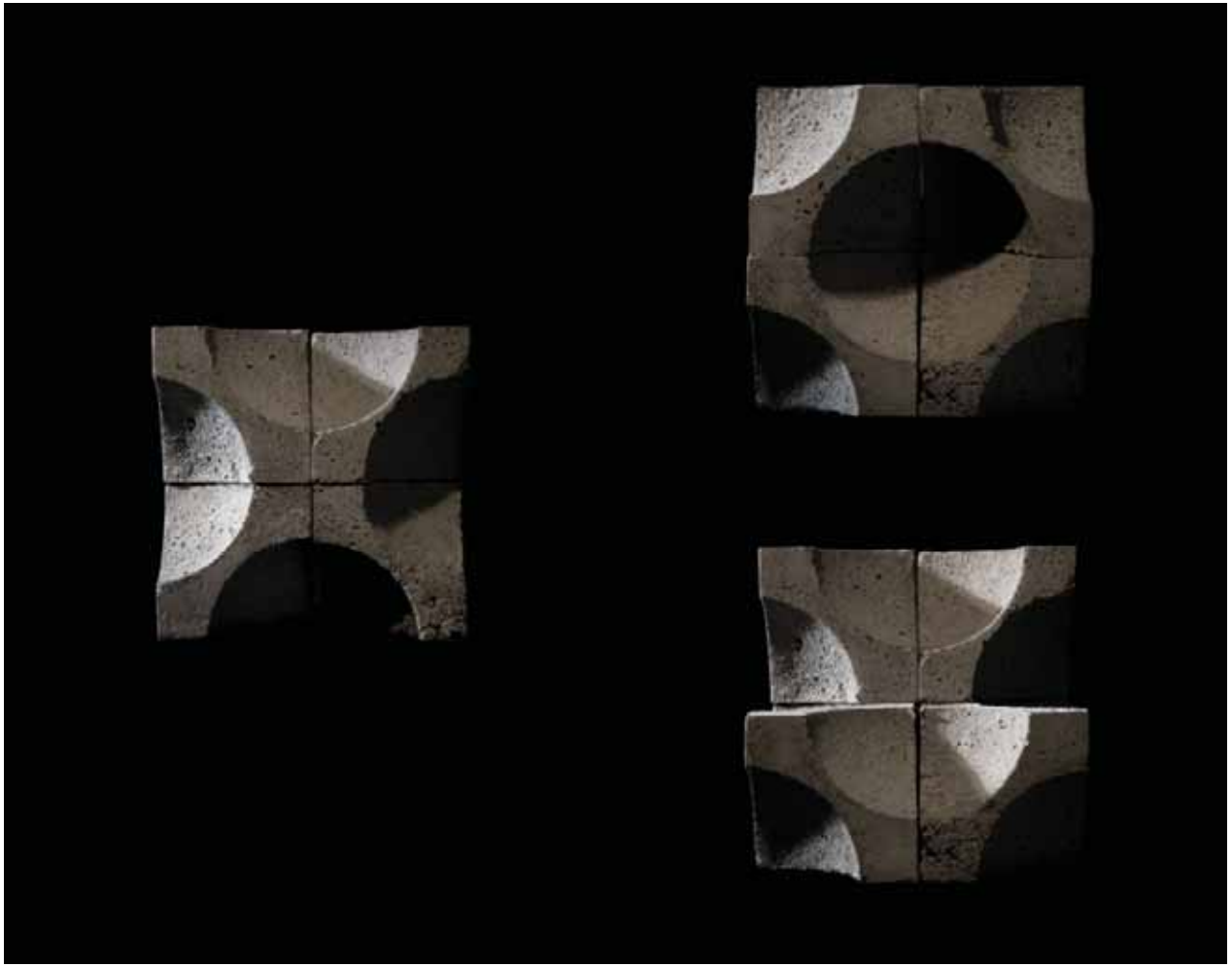




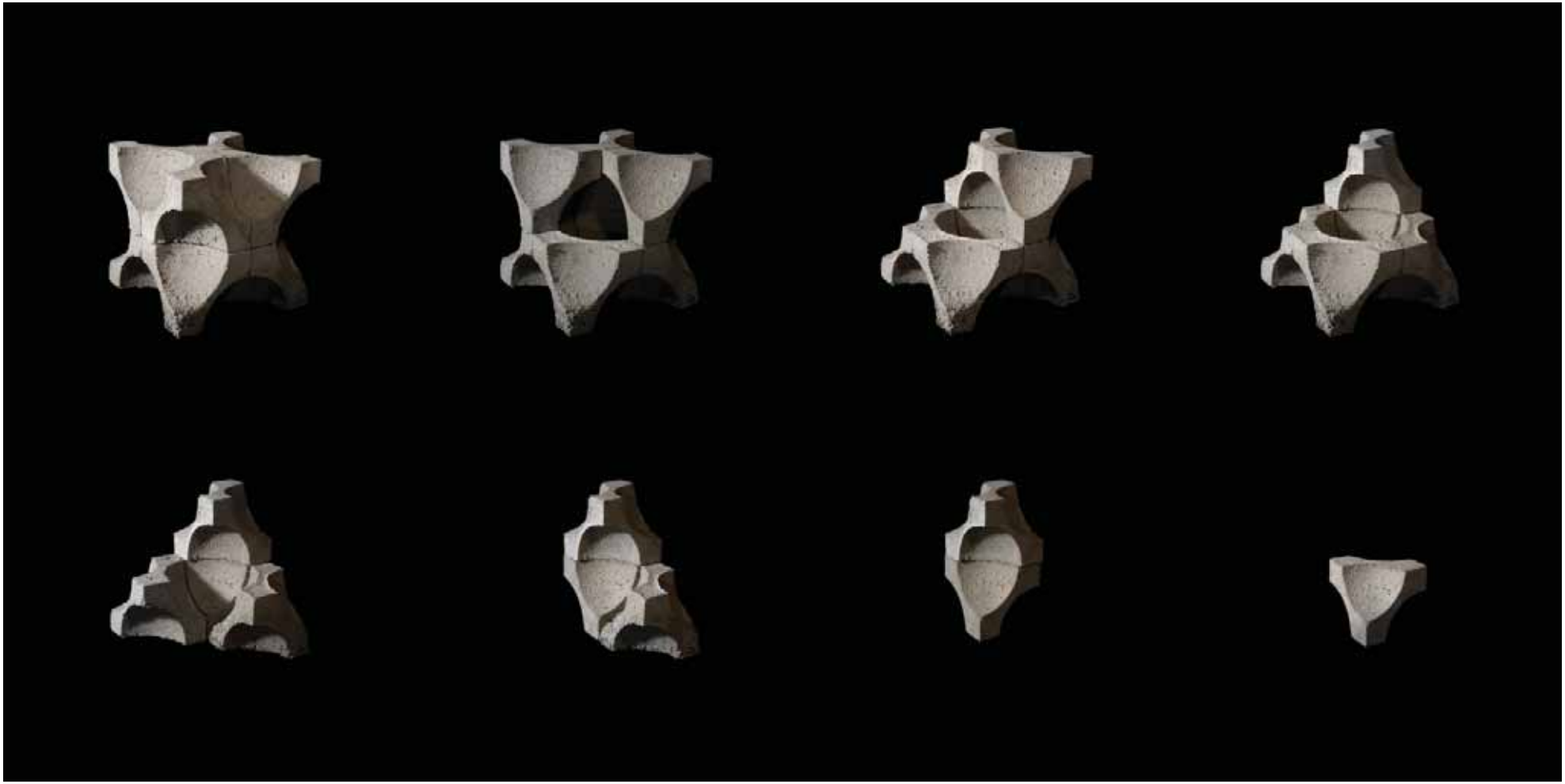


MATERIALS AND MORPHOLOGY

ARCH 661B: MATERIALS AND MORPHOLOGY, *Studio*
KIMO GRIGGS, *Professor*
TWELVE WEEKS IN 2009, *Length*



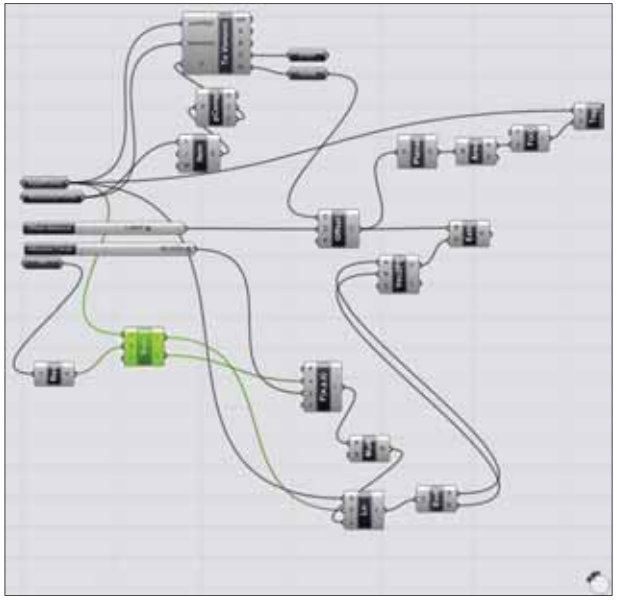
MODULAR CONCRETE CASTING, *with Daria Zolotareva*



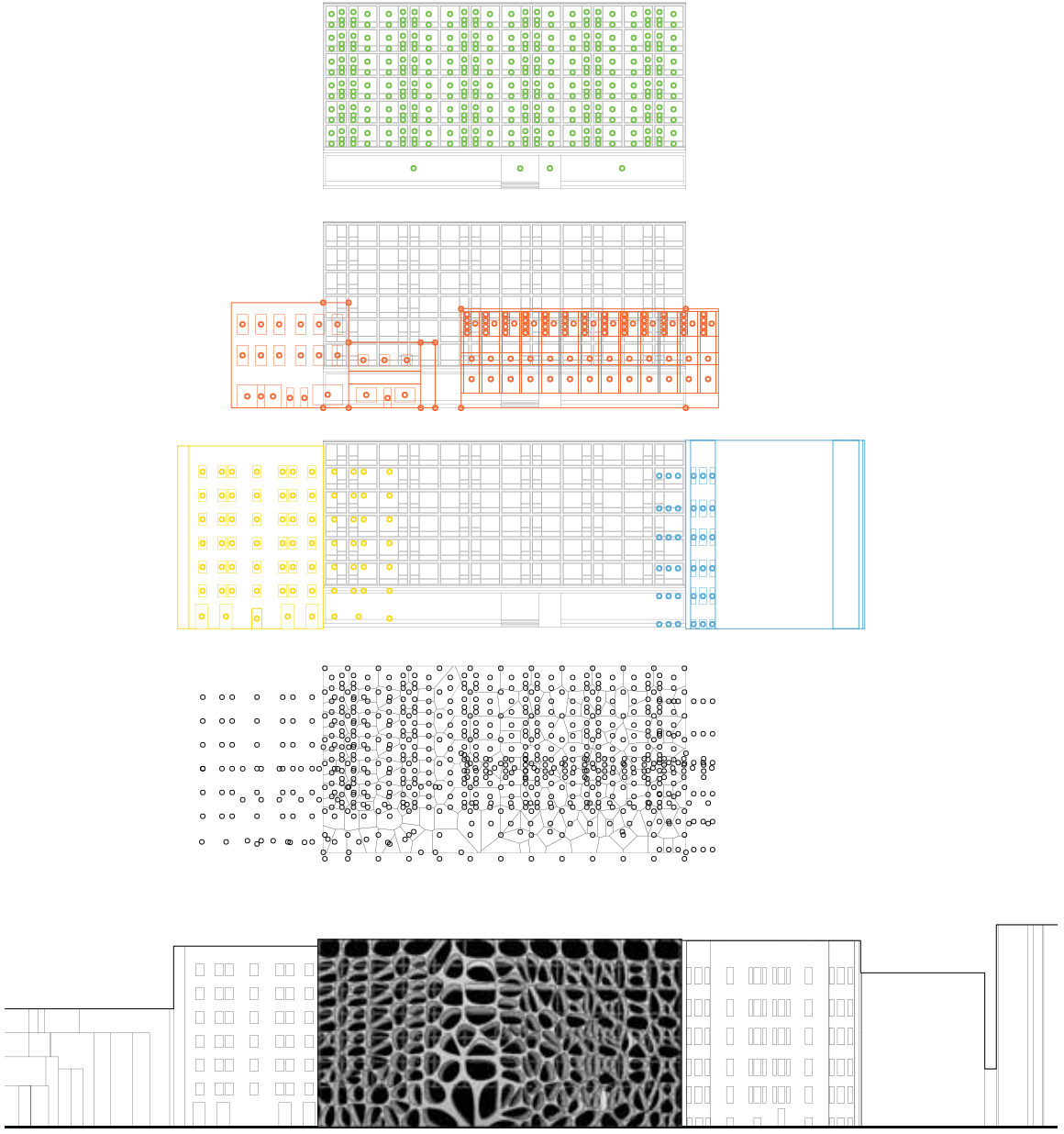
POINTS.

ARCH 1016B: FABRICATION AND ASSEMBLY, *Seminar*
JOHN EBERHART & BRENNAN BUCK, *Professor*
BRIAN BUTTERFIELD, *Partner*
SIX WEEKS IN 2009, *Length*

Points. is an exploration of emerging modeling and visualization paradigms within the field of architecture as well as a commentary on contextual-ism. Faced with re-imagining the facade of the Study, a new boutique hotel adjacent to the Yale School of Architecture, with contemporary tools - a monstrous contextualism was created through sampling a series of points that mapped the fenestration of all surrounding buildings. The points were then combined into a point cloud and mapped via a Voronoi diagram, now a well known troupe within architecture schools, using VB.Net and Grasshopper. The openings created by this two dimensional diagram were then extruded at angles dependent on their relation to the sampled context - creating a subtle gradient along the facade - becoming more opaque from the center out and creating a muscular and monstrous, yet referential facade...

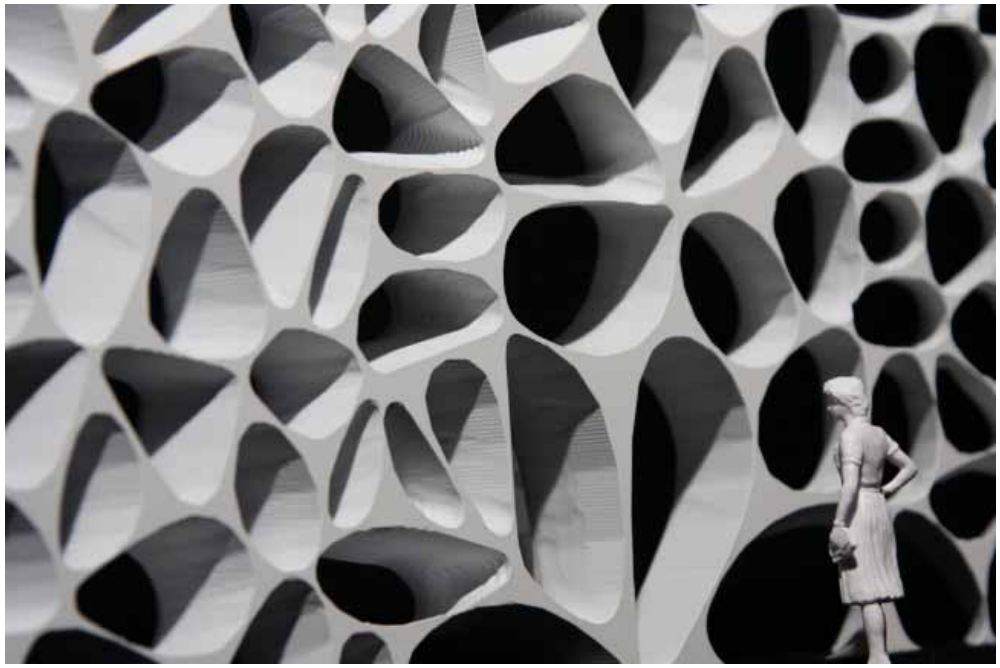


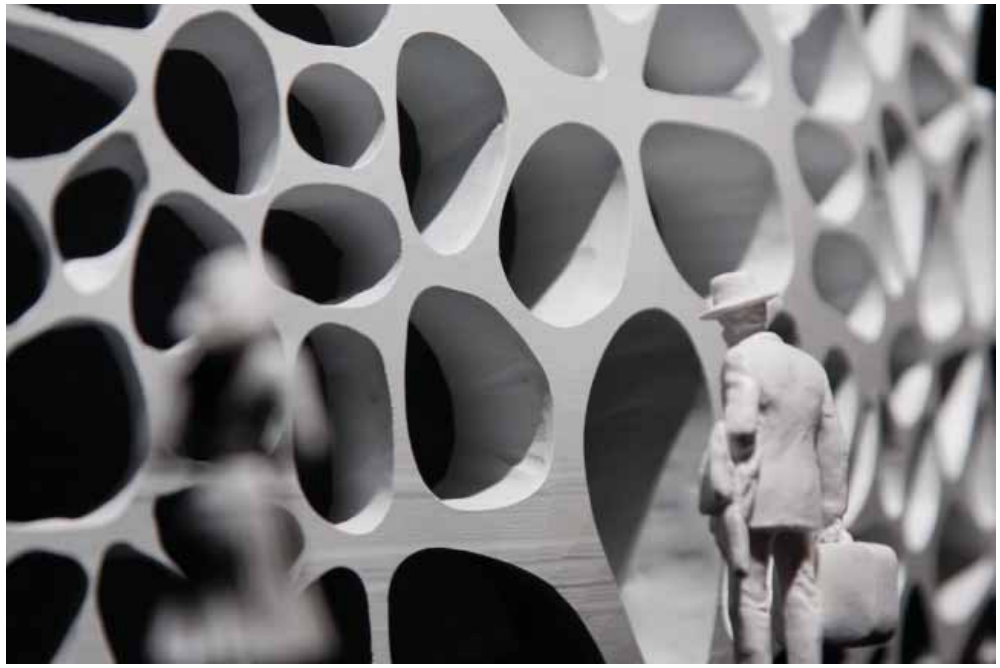
GRASSHOPPER SCRIPT TO CREATE ATTRACTORS FOR CONTEXT POINTS AND CURVED VORONOI SHAPES



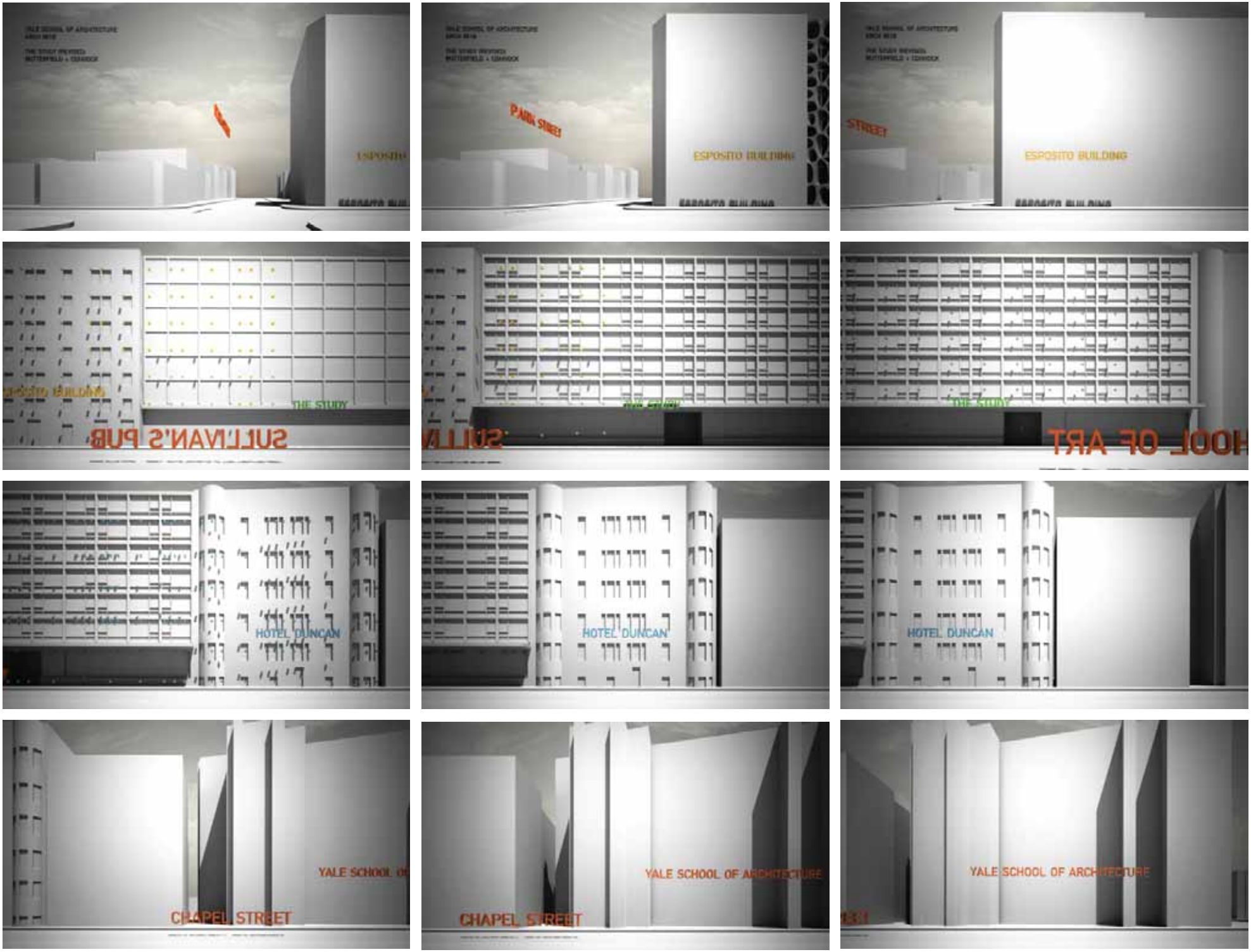
'CONTEXTUAL' POINT MAPPING

FLIP MILLED SECTION OF OVERALL FACADE

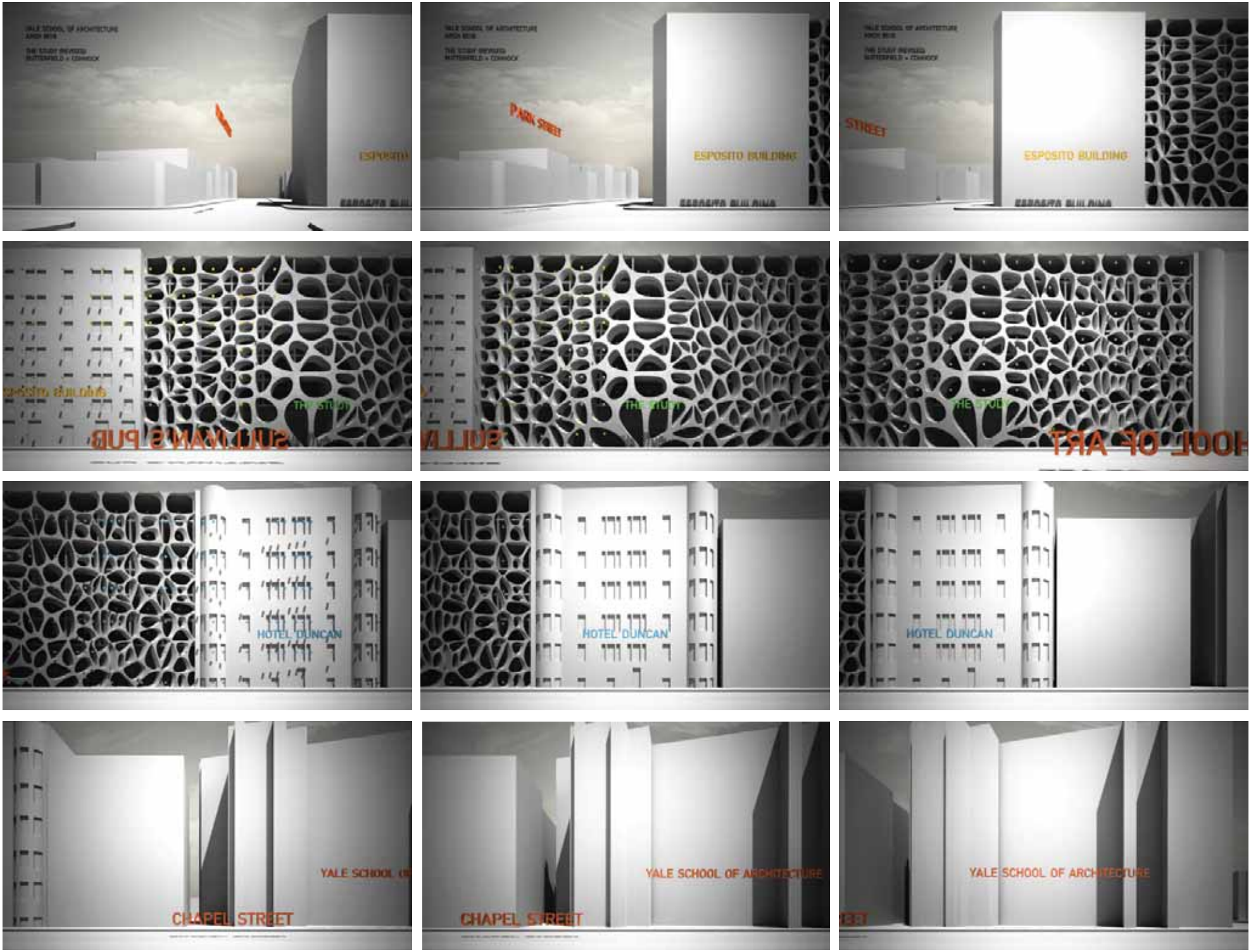




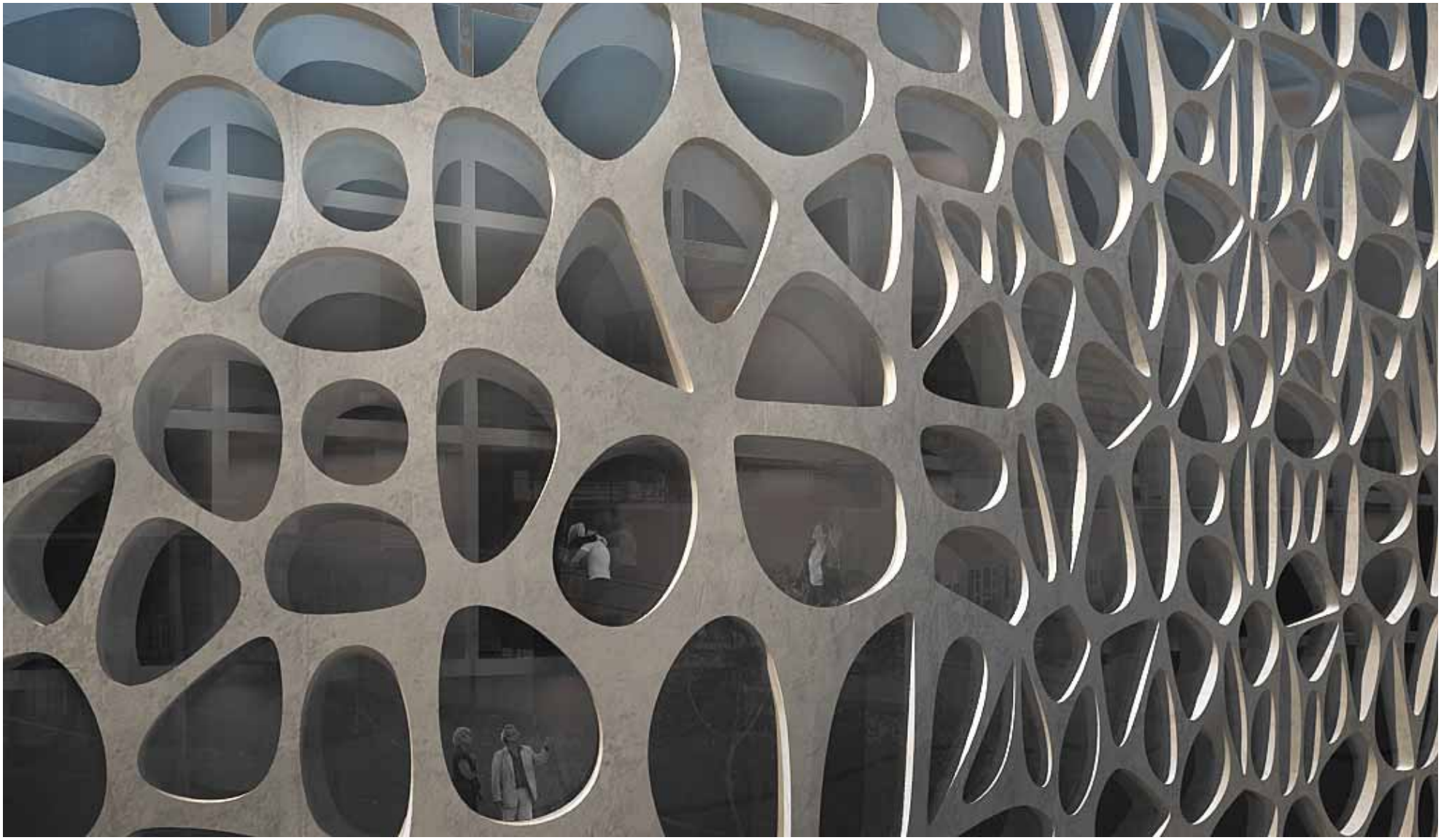
MODEL PHOTO WITH SCALE FIGURES



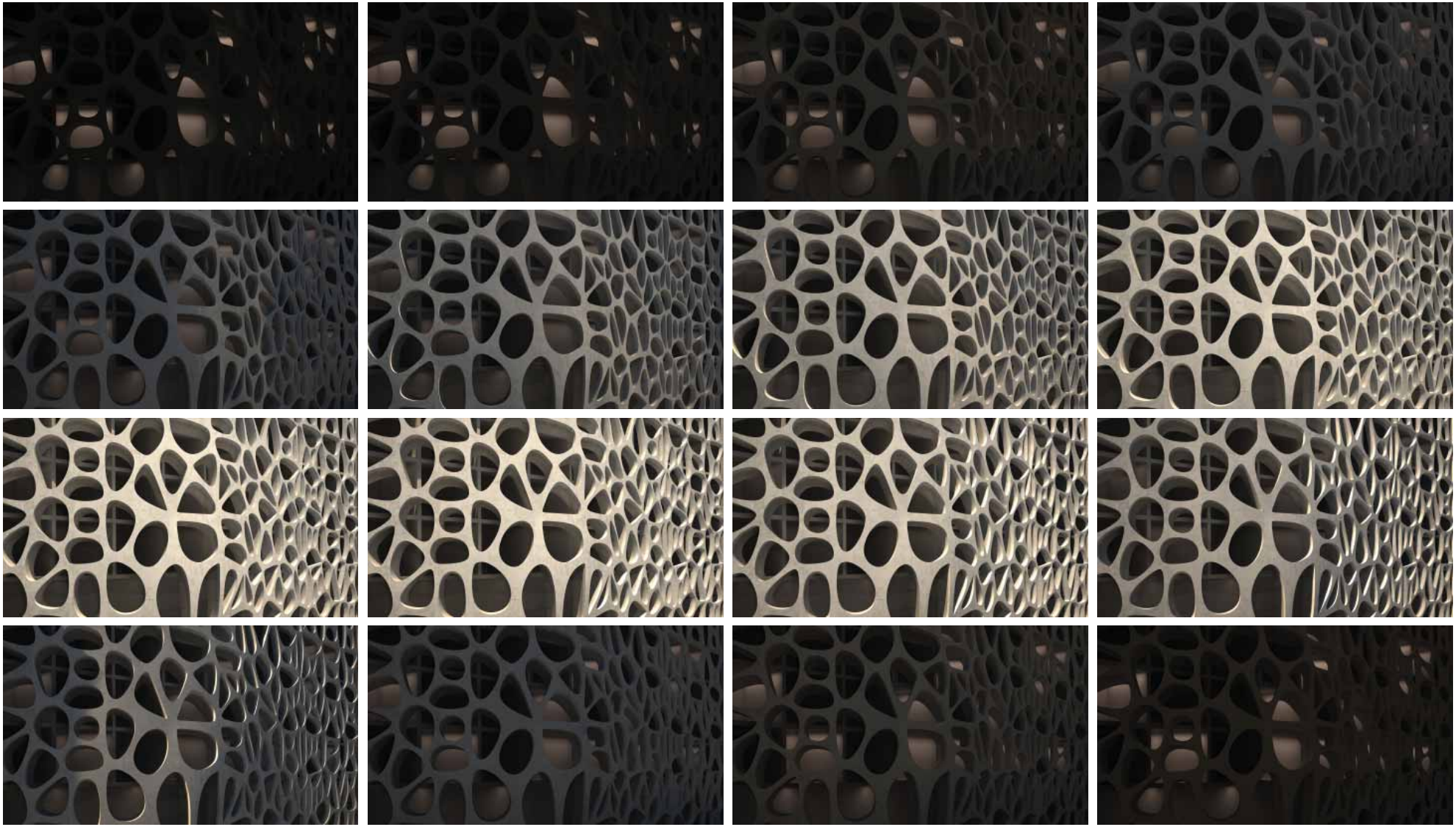
EXISTING CONTEXT ANIMATION STILLS



MONSTROUS 'CONTEXTUAL' ADDITION ANIMATION STILLS



NIGHT \ DAY \ NIGHT ANIMATION STILLS



INTRICACY & LEGIBILITY

ARCH 2221B: ORNAMENT AND TECHNOLOGY, *Seminar*
BEN PELL, *Professor*
JULIANNE AUGUST-SCHMIDT, *Partner*
SIX WEEKS IN 2010, *Length*

The aim of this project was to create an object that straddles the line between intricacy and legibility. The patterns of lace and parterre create an interesting duality that maintains legibility while enabling great amounts of complexity. The work of Ryan McGinness and Simon Periton takes this notion a step further by inscribing known figures within a more complex assembly. Contemporary installations such as those by the Very Many attempt similar intricacy, but lack the depth of earlier examples due to perhaps what Lynn would term 'machinistic' limits of technique. Instead of an amorphous Blob Wall or (perhaps unnecessarily) complex assembly, we favor inscribed figures within figures such as those evident in the stereogram, the work of Ball Nogues or Lynn's water animal toy sculptures. The blurring of part and whole, the continuous visual back and forth between larger and smaller figure is what we attempted to create in our... chandelier. We favored this object because of the implications of its increased faciality when compared to a screen, the freedom its hanging nature allows and the fact that it occupies instead of partitions space.

Charles Jenyk's evolutionary tree diagram provided a starting point - a source of creative friction and fiction - enabling us to create a narrative through manipulating the iconic forms of Jenyk's -isms. Canonical buildings from the diagram were arrayed and mapping around concentric circles - harkening back to traditional chandelier medallions and through careful creation and realignment of axis - a new reading of an old diagram.