buffaloBooks is a series of publications that focuses on ideas and design. Published by the School of Architecture and Planning at the University at Buffalo, the State University of New York, the series explores these ideas through the documentation of significant lectures, events, and work; Contributes to the speculative investigation of design in architecture and planning; and makes this information accessible for students and those with an interest in architecture, planning and the construction of the physical environment.

ISBN: 978-0-9771057-8-6 $15.00
51500
9 780977 105786

SCHOOL OF ARCHITECTURE AND PLANNING
UNIVERSITY AT BUFFALO, THE STATE UNIVERSITY OF NEW YORK

INTERSIGHT UNIVERSITY AT BUFFALO SCHOOL OF ARCHITECTURE AND PLANNING

V12
.09

INTERSIGHT
V12.09

INTERSIGHT V12.09

Intersight V12.09 is organized into six chapters, each representing one of the six constituents of classical architecture from Vitruvius's *De architectura*: ordinatione (order), dispositione (disposition), eurythmia (shapeliness), symmetria (symmetry), décor (correctness), and distributione (distribution). The chapters provide a framework through which key aspects of the projects may be viewed and discussed.

This issue represents work completed at the University at Buffalo, State University of New York, School of Architecture and Planning in 2008.

INTERSIGHT

v12.09

buffaloBooks

Integrated Design
The design and construction of the new federal building in San Francisco, California
Morphosis, Arup and the US General Services Administration

Intersight v11.08
The annual journal of the School of Architecture and Planning, 2007
Editors: Michele Han and Clare Smith

Art and Use
Commemorates Tod Williams and Billie Tsien: The 2007 Martell Distinguished Visiting Critics

Intersight v10.07
The annual journal of the School of Architecture and Planning, 2006
Includes “Scenario Game” by Raoul Bunschoten and “Forms of Collective Light” by Sergio López-Piñeiro
Editors: Michele Han and Clare Smith

Integral House
Commemorates Shim Sutcliffe Architects: The 2006 Martell Distinguished Visiting Critic

Building Culture
Featuring the Druk White Lotus School: A Sustainable Model for Education + Design

Experiments in Porosity
Commemorates Steven Holl: The 2005 Martell Distinguished Visiting Critic

On Wright
Frank Lloyd Wright’s Darwin D. Martin House Visitors’ Center Competition
Includes proposals by ARO, Brian Healy, Schwartz/Silver, Office dA, and Toshiko Mori
Essays by Paul Goldberger and Kent Kleinman
Editors: Kent Kleinman and Eric Jackson-Forsberg

Intersight v9.06
The annual journal of the School of Architecture and Planning, 2005
Includes “Artifact” by Steven Holl Architects and “Body Bag” by James Cathcart
Editor: William C. Helm II

Intersight v8.05
The annual journal of the School of Architecture and Planning, 2004
Includes “Analogical Architecture” by Lebbeus Woods and “60 Seconds of Space” by Wolfgang Tschapeller
Editor: William C. Helm II

Materials, Fabrication + Performance
Commemorates the lecture given by Toshiko Mori, 2003

INTERSIGHT

V12.09

buffaloBOOKS
THE SCHOOL OF ARCHITECTURE AND PLANNING
UNIVERSITY AT BUFFALO
THE STATE UNIVERSITY OF NEW YORK
HAYES HALL
3435 MAIN STREET
BUFFALO, NEW YORK 14214 - 3087
www.ap.buffalo.edu

Typeset in Arial
Printed by Chakra Communications, Inc.

Additional copies and back issues are available at the above address or by visiting the Intersight website: www.ap.buffalo.edu/intersight

12 | First Edition
Cataloging-in-Publication Data
Intersight Volume 12 / Albert Chao, Jodi Pfister, editors
ISBN 978-0-9771057-8-6

ACKNOWLEDGMENTS

Intersight V12.09 is the result of a combined effort of many people. Invaluable assistance was provided by our advisory board to whom we owe sincere thanks for their input and guidance.

We also wish to thank Barbara Carlson, Ruth Bryant, William McDonnell and Cheryl O'Donnell for their continued administrative support and managerial guidance throughout the publication process and to Mary Jane Carroll, Adrian DeSilva, Bryan Hadley, Michele Han, Adam Levin and Tesia Walsky for contributing to the design and editing of the journal and Sonya Lee for providing images.

In addition, we are grateful to Michele Han and Clare Smith for sharing their knowledge and experience.

Intersight is made possible through the Fred Wallace Brunkow Fellowship, an endowment by Kathryn Brunkow Sample and Steven B. Sample, former President of the University at Buffalo, and through the generosity of Cannon Design. Thank you for your commitment to the education of architects and your continued support in making this publication possible.

Albert Chao
Jodi Pfister
2008-2009 Brunkow Fellows

in-ter [in-**tur**]
- *adj : (prefix)*
indicates:
1. Between or among or in the midst of; for example, *inter-collegiate, international.*
2. Mutually or together; for example, *interact, intermingle.*
Note that in Latin phrases used in English, the Latin preposition remains a separate word: inter alia.
[Middle English entre-, inter-, from Old French entre-, from Latin inter-, from inter.]
in borrowed Latin compounds, **in-ter**
indicates:
1. Between, among, as in inter-regnum.
2. Mutually, each other, as in *intersect.*
3. At intervals, as in *intermit.*
4. Preventively, destructively, as in *interdict, internecine.*

sight [(sahyt)]
- *noun*
indicates:
1. The ability to see.
2. The act or fact of seeing: *hoping for a sight of land; caught sight of a rare bird.*
3. Field of vision.
4. The foreseeable future; prospect: *no solution in sight.*
5. Mental perception or consideration: *We lost sight of the purpose of our visit.*
6. Something seen; a view.
7. Something worth seeing; a spectacle: *the sights of London.*
8. *Informal* Something unsightly: *Your hair is a sight.*
9. a. A device used to assist aim by guiding the eye, as on a firearm or surveying instrument. **b.** An aim or observation taken with such a device.
10. An opportunity to observe or inspect.
[Middle English, Old English sihth, gesigt, *eyesight, vision, something seen.*]

FOREWORD

This annual journal documents the work in the architecture and planning programs at UB's School of Architecture & Planning.

As its title suggests, it offers a series of glimpses between professional programs, between the design studio and lecture room, between seminars and workshops and between Hayes Hall, Crosby Hall, the campus and the city.

These glimpses highlight how our students plan, design and build, explore ideas and transform those ideas into different and inspiring realities.

Intersight is compiled, edited and designed by students and made possible by the generosity of friends. We are very grateful for their dedication and commitment to UB's School of Architecture and Planning and we hope that you find V12.09 a good read.

Brian Carter
Dean, School of Architecture and Planning

CONTENTS

Image provided by: Garrett Bascom

O R D I N A T I O N E

o r d e r

ADAM LEVIN

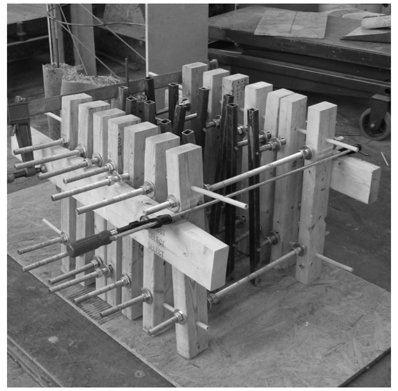
While the abstract nature of ordering makes any concise semantic parallels between a work of architecture and the institutions that it serves impossible, the intention of ordering often reflects deeper social imperatives. Thus the traditional role of the architect, as a professional who creates ordered systems, is placed at the center of a broader dialogue on society that bears both moral and ethical meanings.

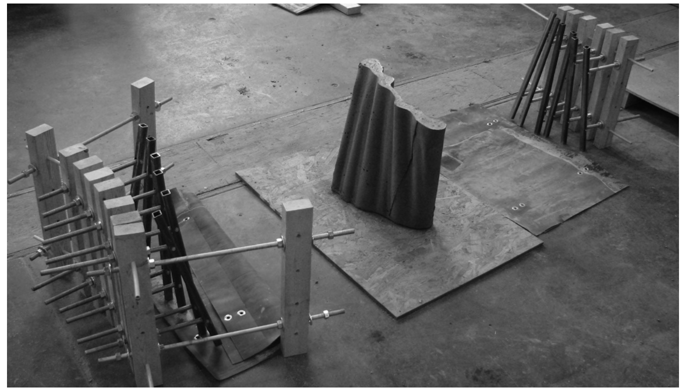
Architects from Vitruvius to Le Corbusier accepted the societal underpinnings of order and extended the role of the profession to include aspects of social engineering. However in the wake of World War II, architects began to critically engage the notion of order and the role of the architect as a master organizer. Late twentieth century and early twenty-first century projects and treatises reflect the on-going attempt of the architectural community to rethink order after the post-war era.

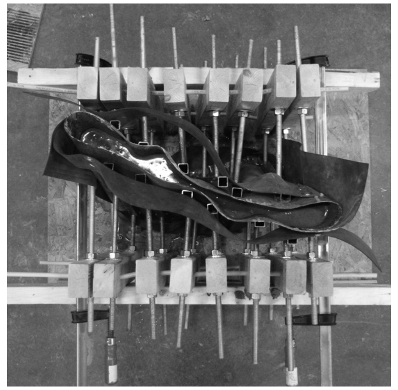
SPRING 2008
ARC 606
MATERIAL CULTURE

GREGORY HESS
ERNEST NG HIOK HOE

faculty
MEHRDAD HADIGHI
JOSE CHANG





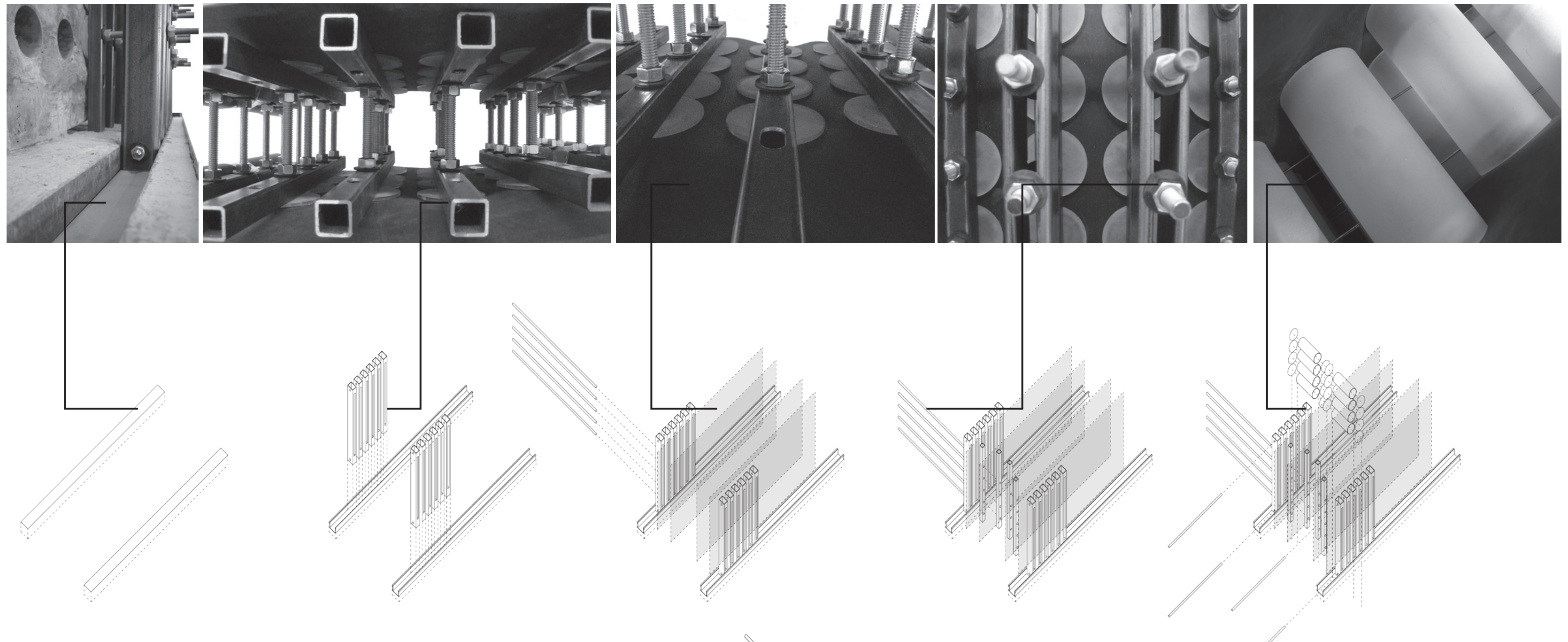


Initial liquid formwork system and resultant cast

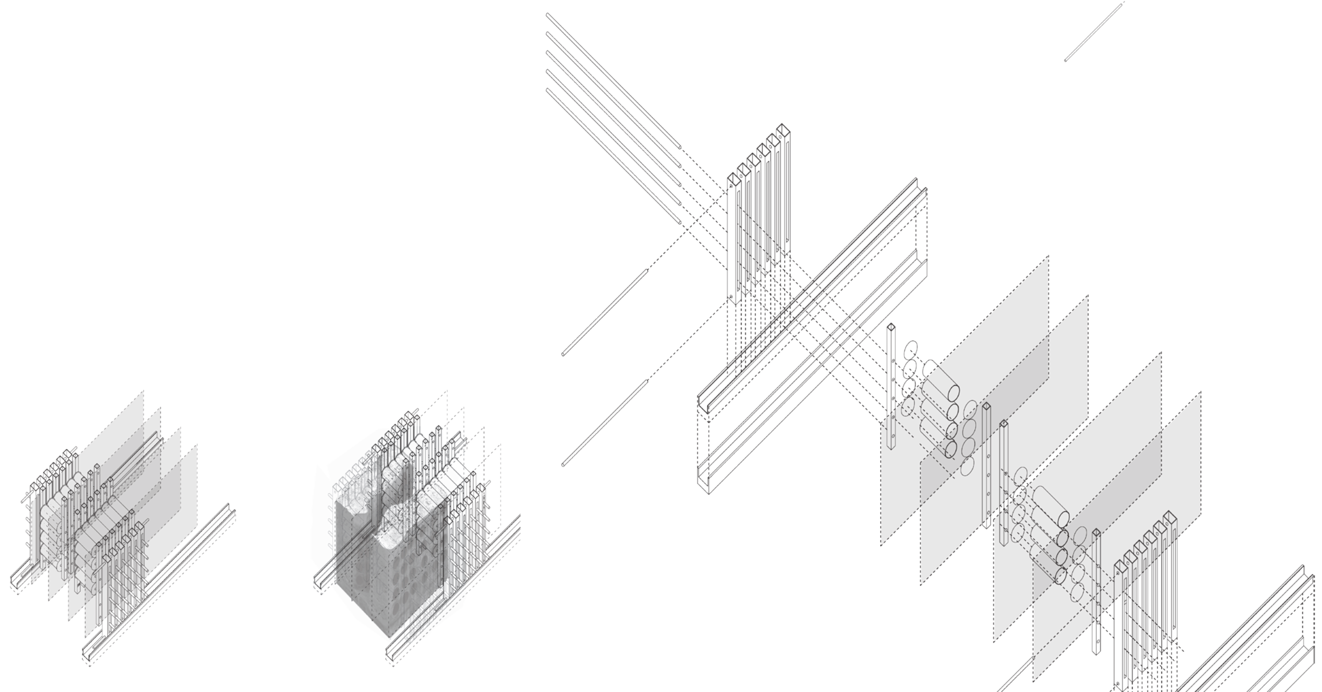
LIQUID FORMWORK

The development of a casting process establishes a dynamic relationship between form and formwork. The formwork in this study consists of adjustable vertical steel members, wood, pvc tubing, and EPDM roofing rubber that are manipulated and controlled to cast complex curves.

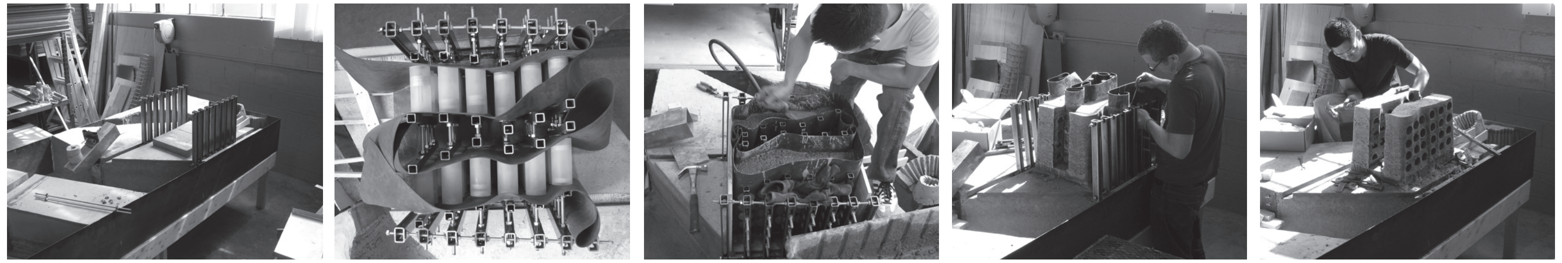
The cast form is inverted to create circulation space, dematerializing solid as void. The construction sequence and formwork are modified to the site located in the vicinity of the G.L.F. grain elevator on the Buffalo River. The program is an urban cemetery where the storage of bodies references the former function of the grain elevators. The linear design of the cemetery also reconnects the Buffalo River with the City Ship Canal. The urban cemetery reaches out from land to water as a concrete graveyard compatible with the ghosts of Buffalo's once prosperous grain industry.

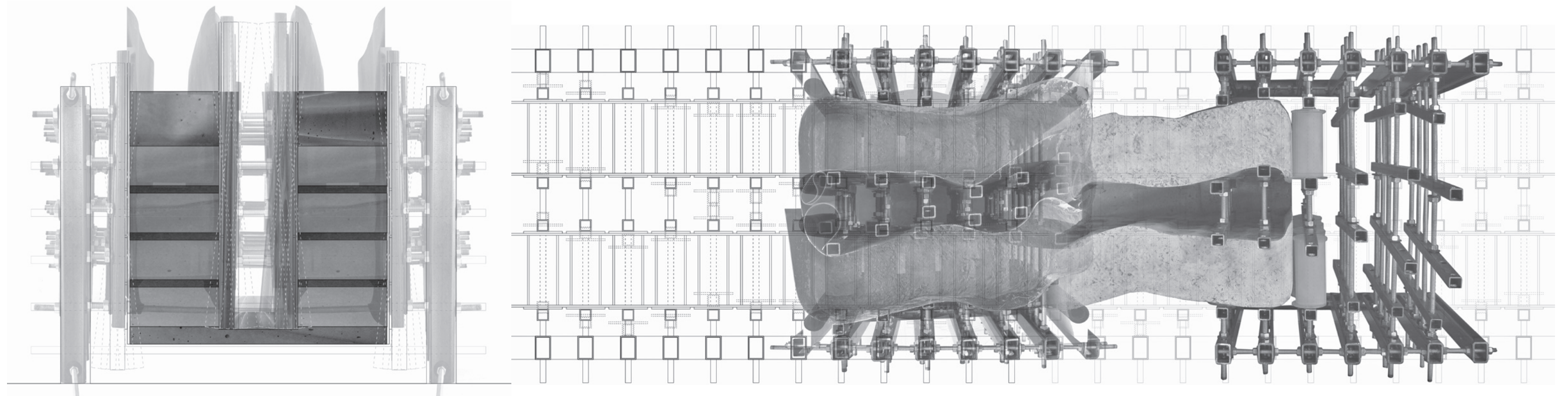


Formwork system details

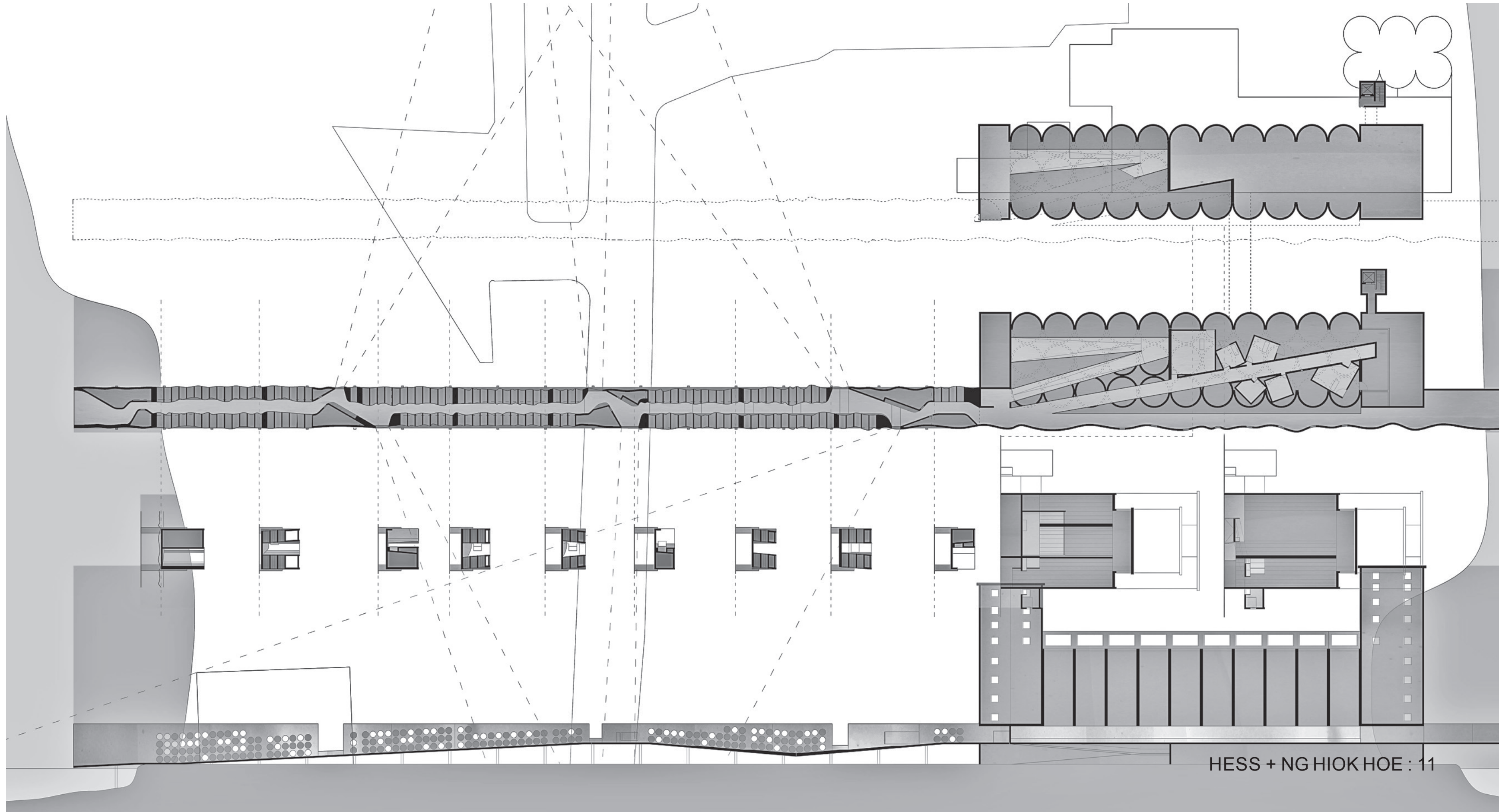


Formwork system construction sequence





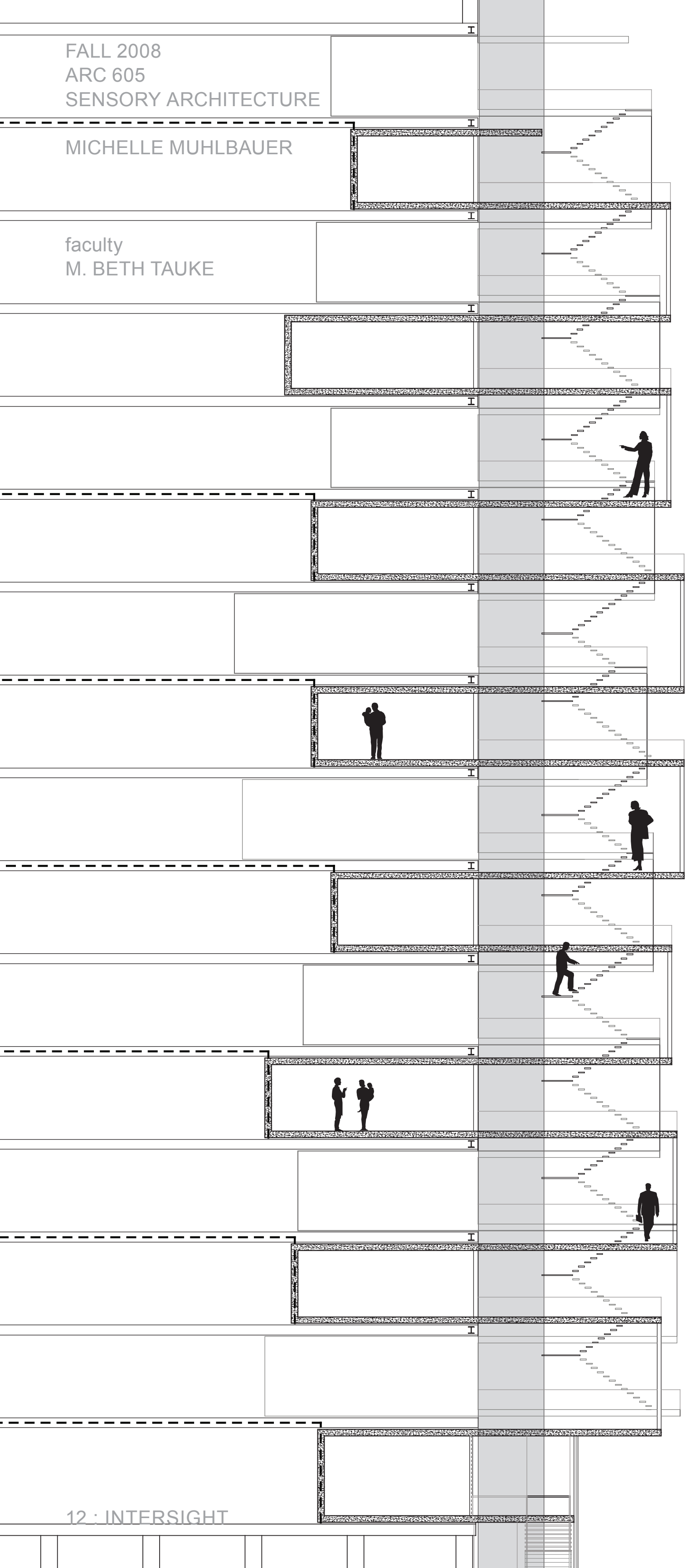
Above: Formwork system
Below: Plans, section, and elevation of proposed morgue/cemetery

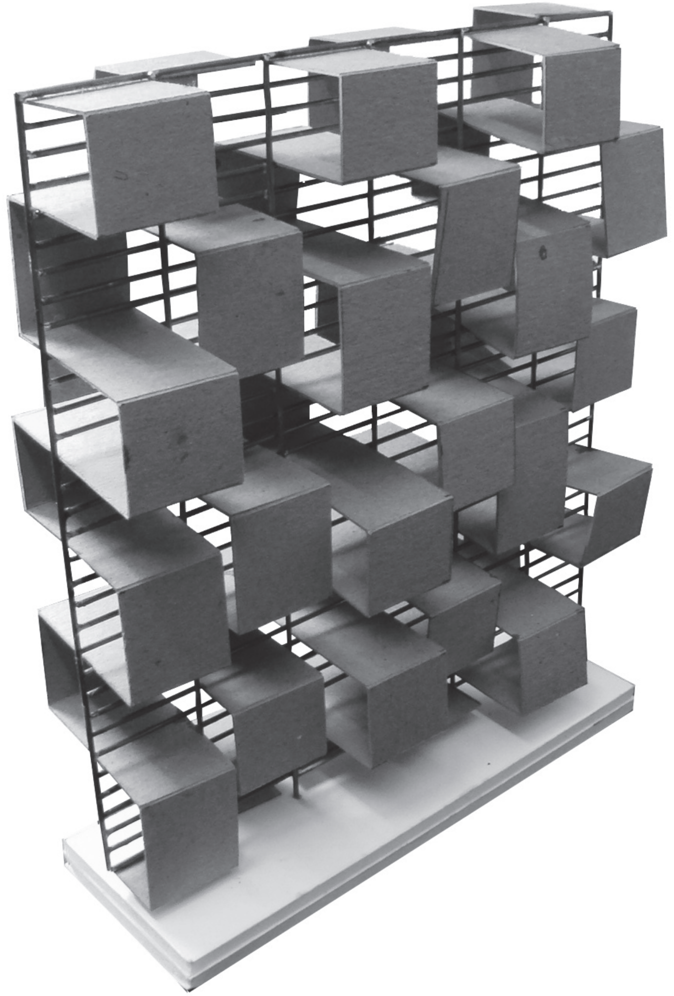


FALL 2008
ARC 605
SENSORY ARCHITECTURE

MICHELLE MUHLBAUER

faculty
M. BETH TAUKE



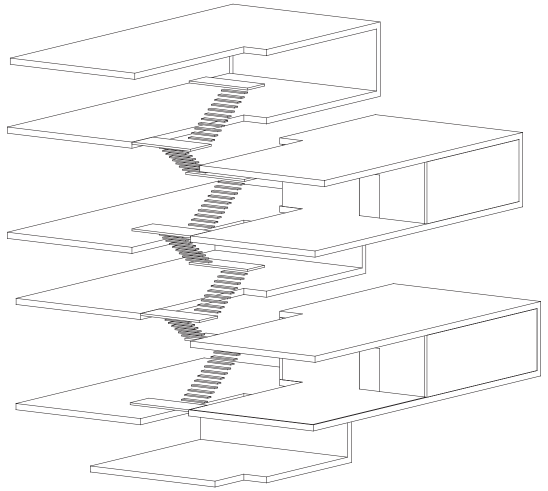


PARASITE

A prison separates “criminals” from the rest of society. This separation, which is both physical and social, is defined by the relationship between two parts: inside/outside, prisoner/guard, criminal/citizen, prison/society, penal/legal. Over time, these parts establish a parasitic relationship in which one benefits from the support of the other. The host in turn can be adversely affected.

The design of the prison aims to reflect and address the parasitic relationship between prisoner and society. The proposed prison ‘feeds’ off the host, the Jacob K. Javits Federal Building in New York City which houses several U.S. Law Enforcement Departments. The prison extends vertically from the Immigration Office which is located on the third floor. It is supported by the circulation and HVAC systems of the existing building.

JACOB K. JAVITS FEDERAL BUILDING



US Department of Homeland Security

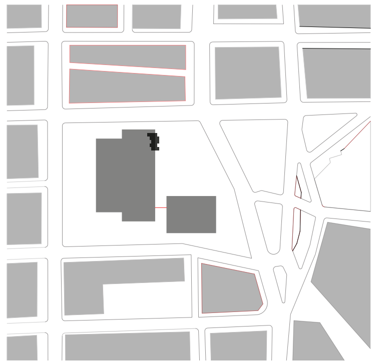
Federal Bureau of Investigation

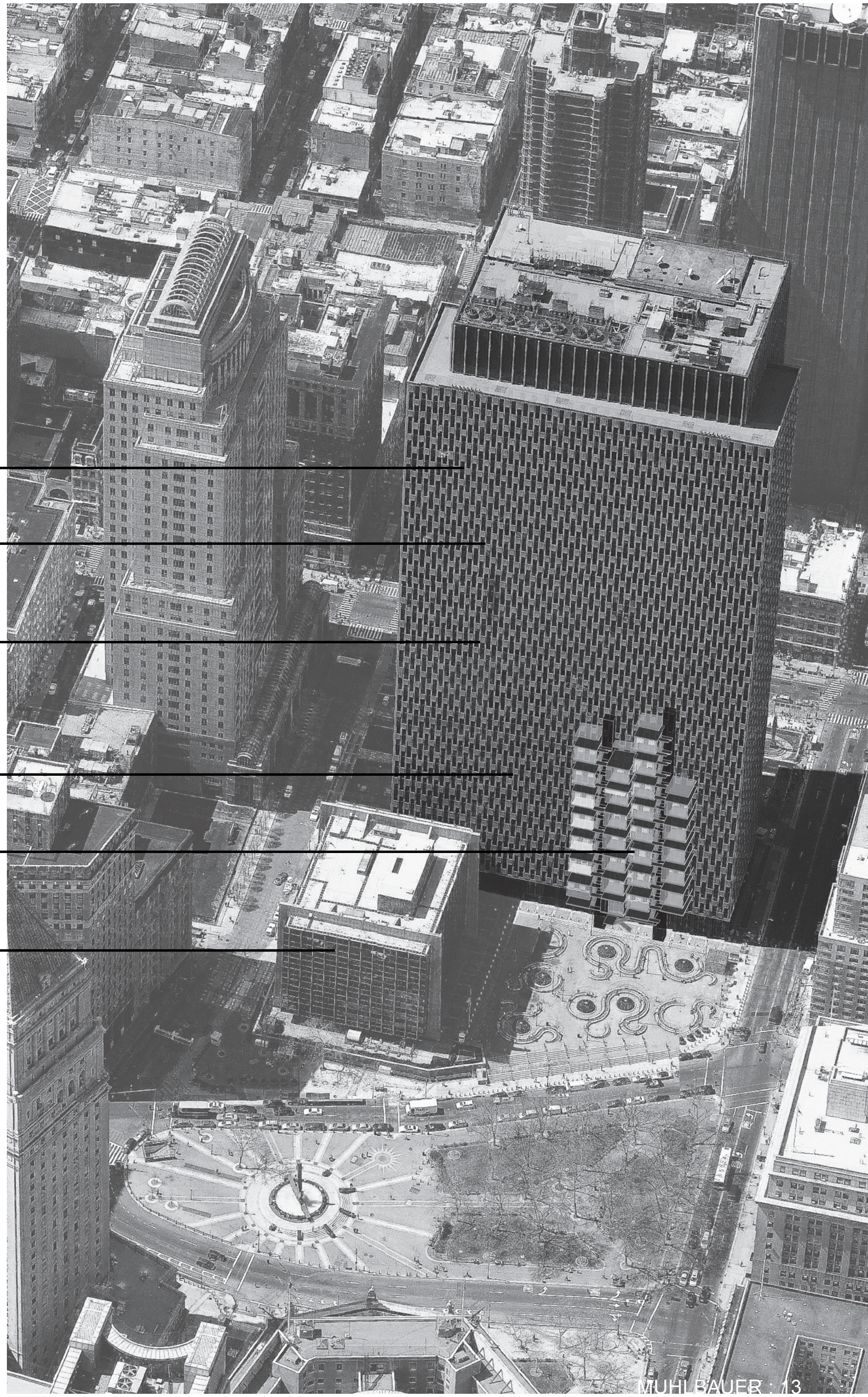
US Social Security Administration

US Bureau of Citizenship and Immigration Services

Proposed Immigration Prison

US Court of International Trade



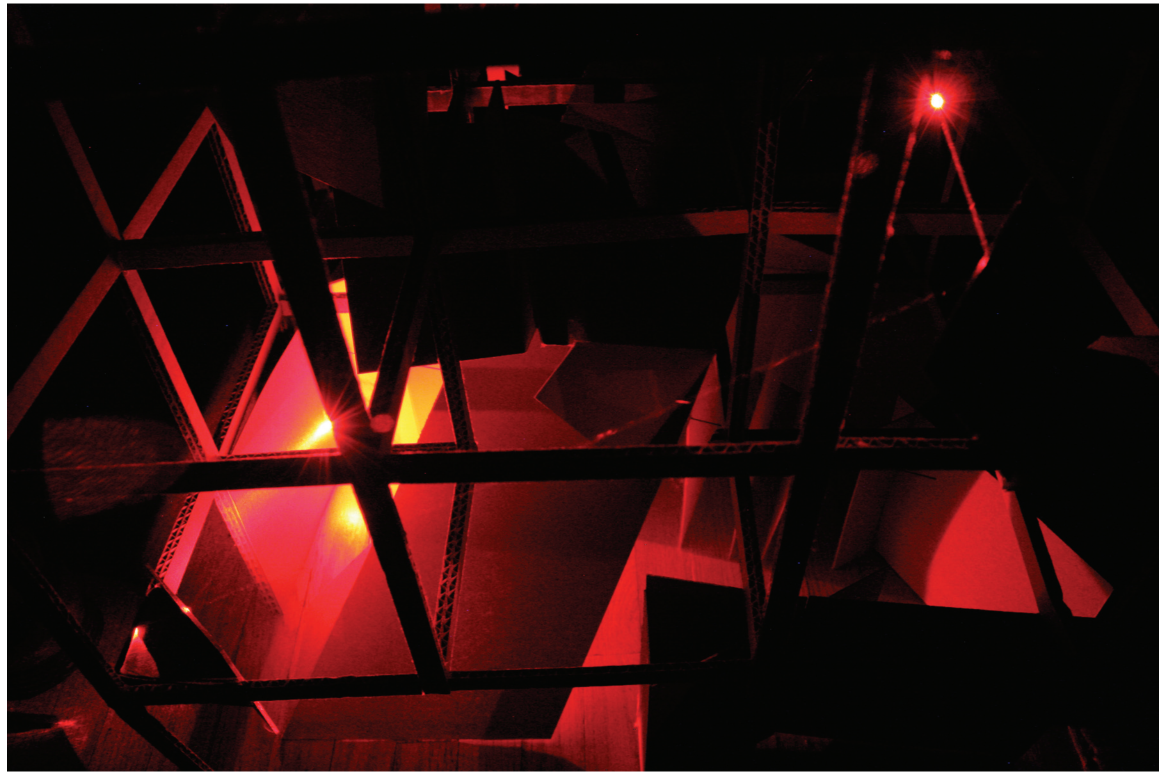


FALL 2008
ARC 101
DESIGN STUDIO 1

JOHN BRENNAN
JARED CLOOS
KRISTEN GABRIELE
BEN GIFALDI
JACOB LEE
OLGA LYUBEZHANIN
AARON SCHLESINGER
DUANE WARREN

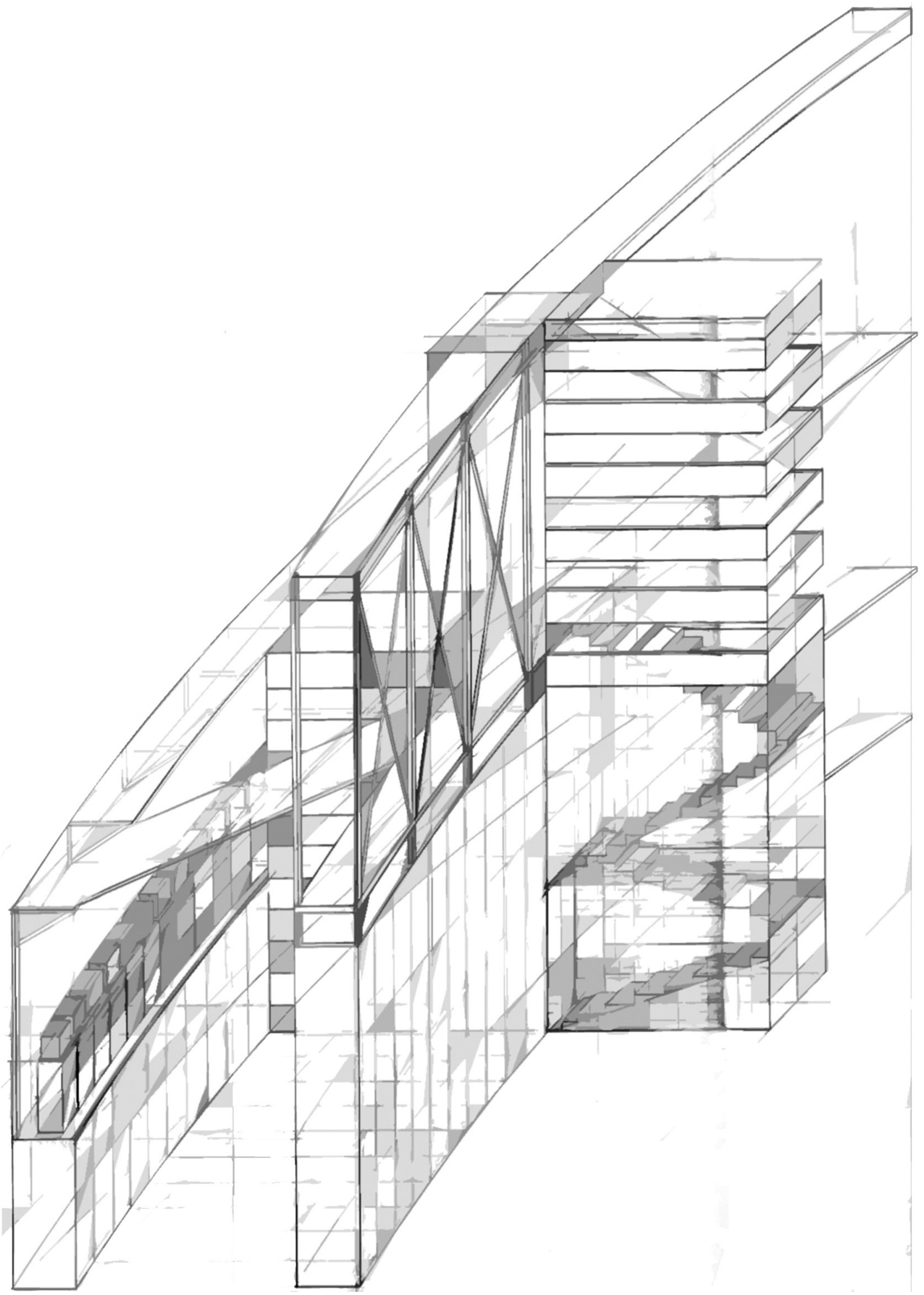
faculty
JOYCE HWANG
CHRIS ROMANO

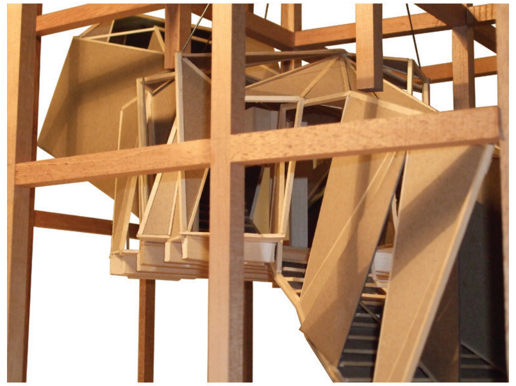
teaching assistants
MICHAEL-JOHN BAILIE
NATHANIEL CORNMAN
JOSHUA GARDNER
RAFAL GODLEWSKI
MICHELE HAN
ASHLEY LATONA
PAUL MURAWSKI
ERNEST NG
CLARE SMITH
DANIEL STRIPP


John Brennan

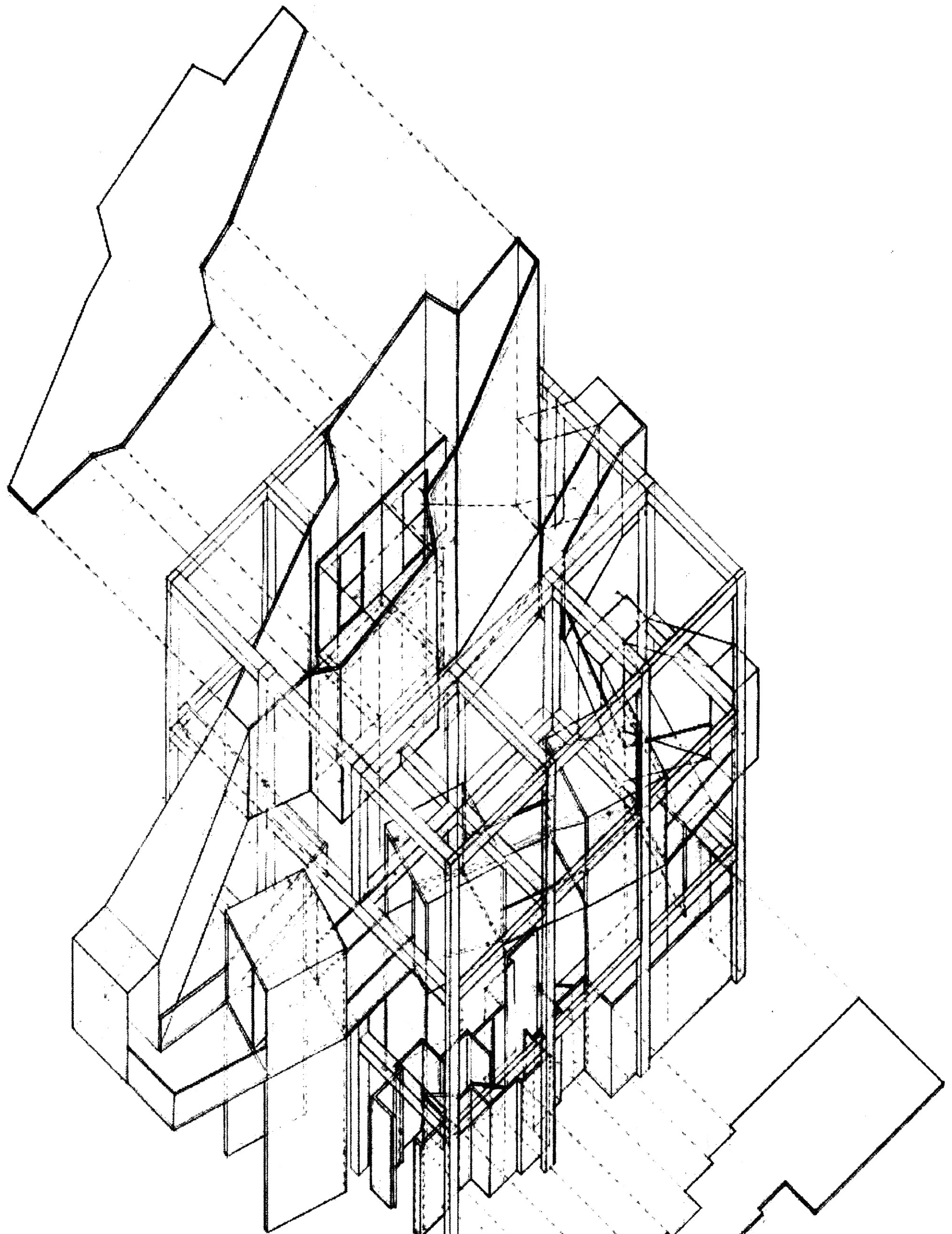
INHABITING A COLLECTION

The program, the display of three pieces of art, aims to explore issues of spatial perception, sequence, and subject-object relationships. In addition, the student takes on the role of both curator and designer. Fundamental questions related to the development of ideas include: How the acts of selecting and organizing works of art allow discovery, revelation and enhancement of potential connections? How does the design of a series of experiences intensify the spatial, visual and tactile relationships between works of art and the viewer? How does architecture activate space by enhancing the performative qualities of art, while also considering the art as both a collection and as individual works?


Ben Gifaldi

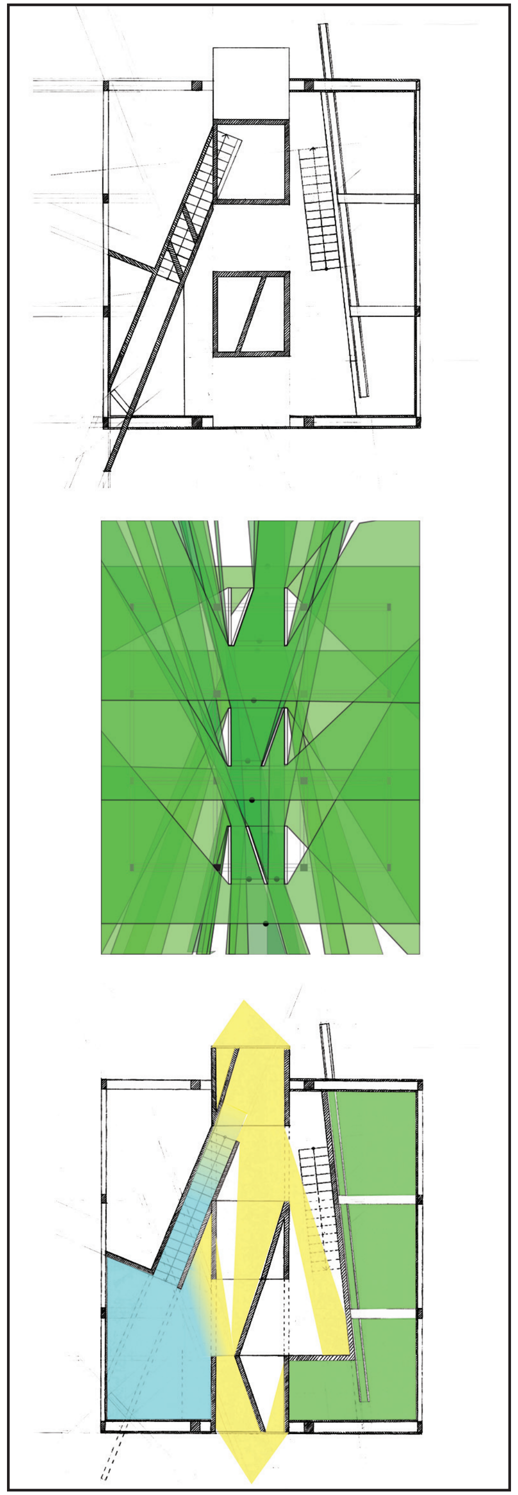



Aaron Schlesinger

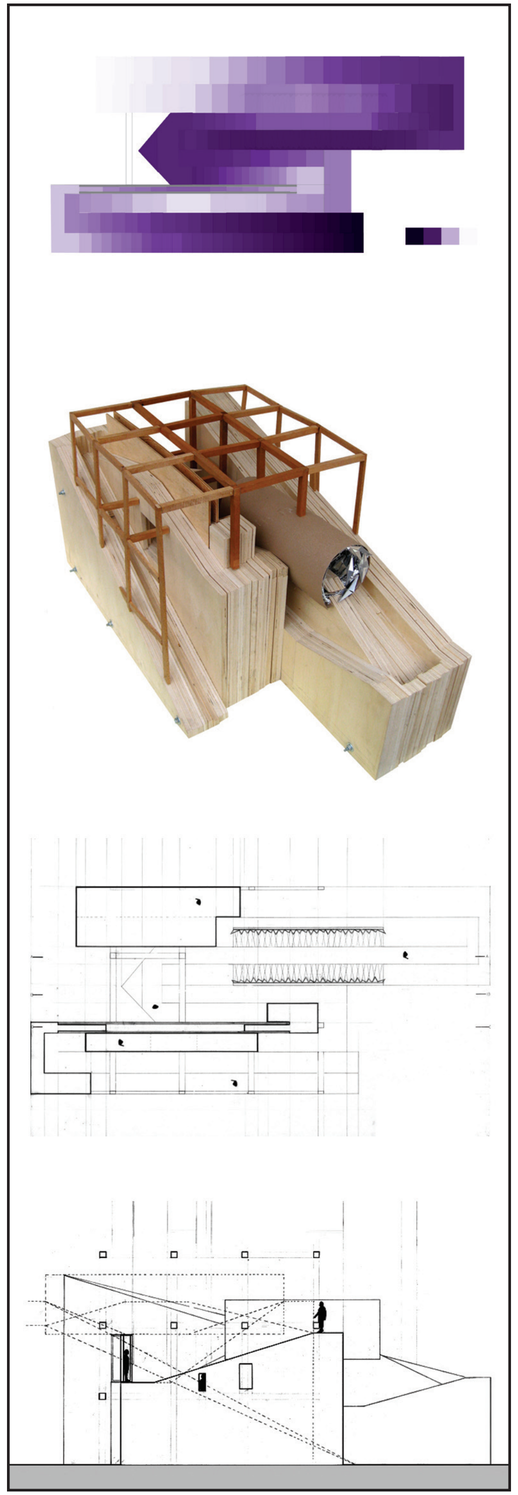


Kristen Gabriele

Jacob Lee



Jared Cloos



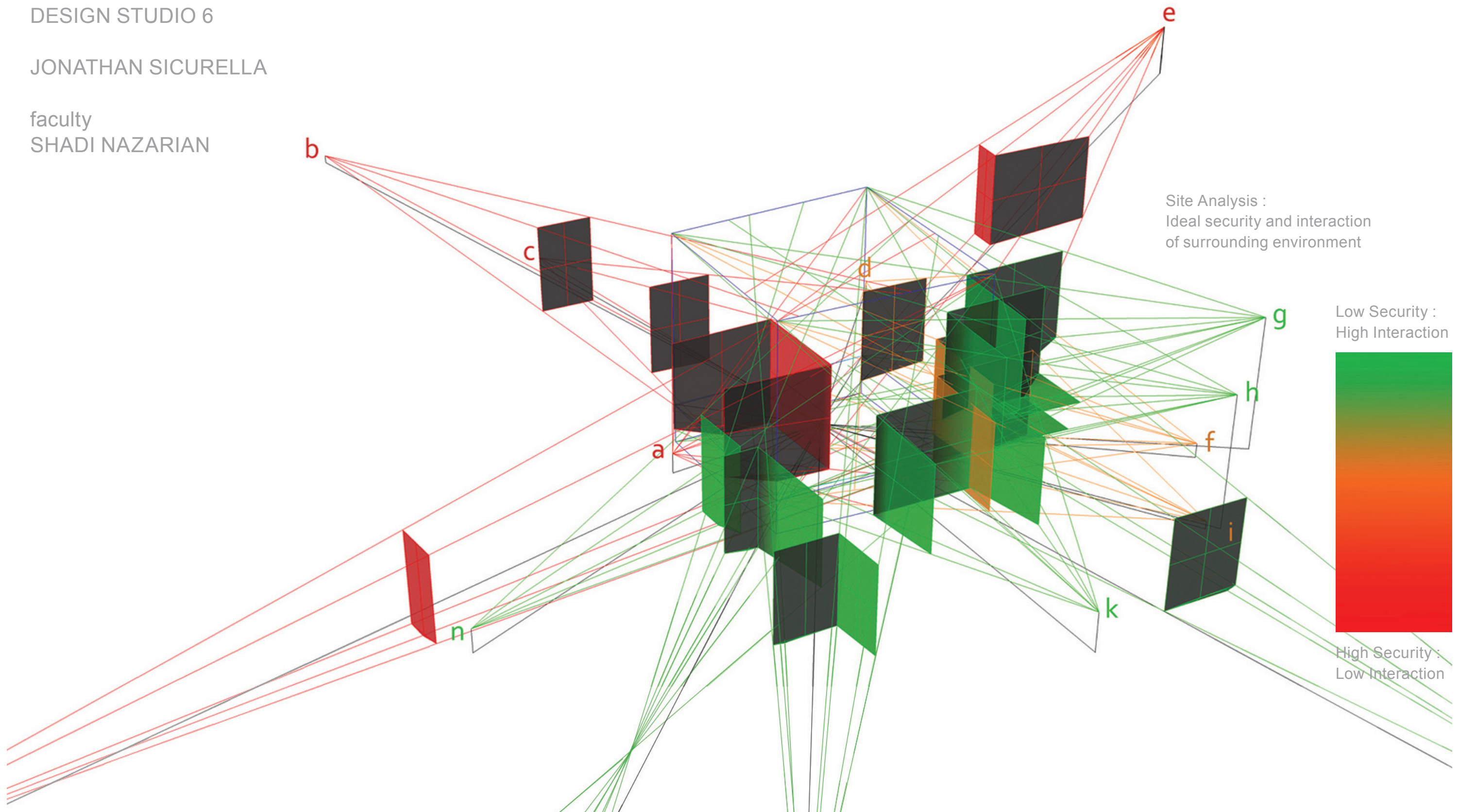
Olga Lyubezhanin

Duane Warren

SPRING 2008
ARC 302
DESIGN STUDIO 6

JONATHAN SICURELLA

faculty
SHADI NAZARIAN

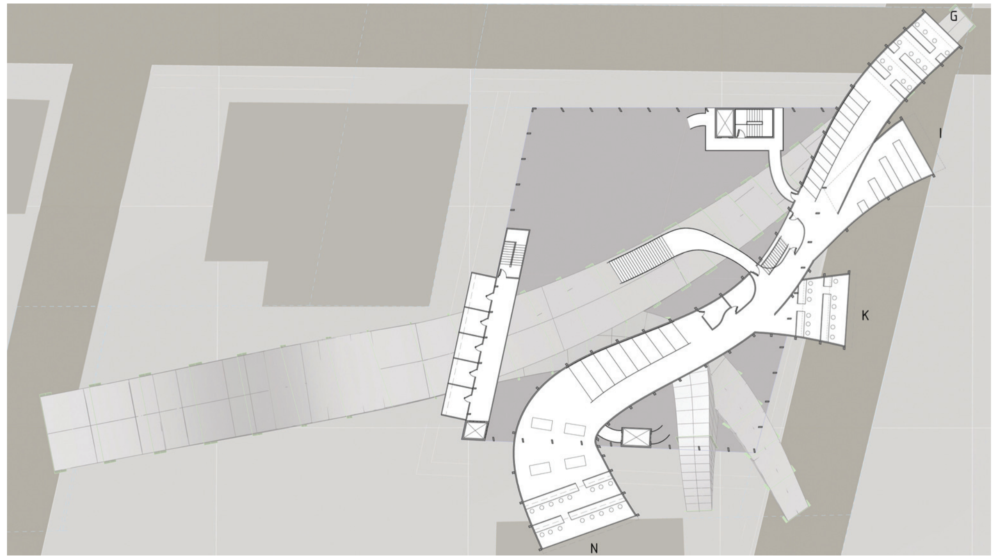


Hauptman-Woodward Research Institute

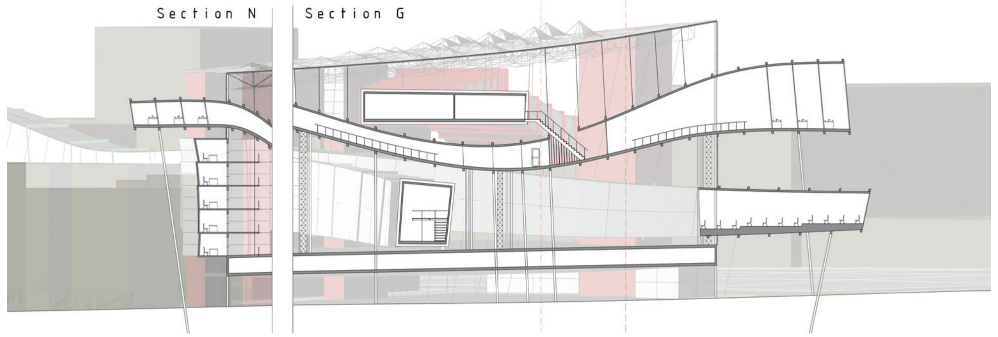
PROGRESS + PROCREATION

The Hauptman-Woodward Research Institute in Buffalo defines the facade as a line of security, interaction and natural lighting to x-ray diffraction in the science of structural genomics. This system of organization projects the daily routes of characters in relation to the social environment of Buffalo's downtown medical campus. A collision of information is created from the site analysis. This organization locates "frames" that connect to each other and forms three programmatic bodies that are guided by an ideal interior social order. These seemingly floating forms contain and control circulation between public and private spaces. These forms are held by a permeable secondary structure and extend beyond the original site boundaries into the larger environment.

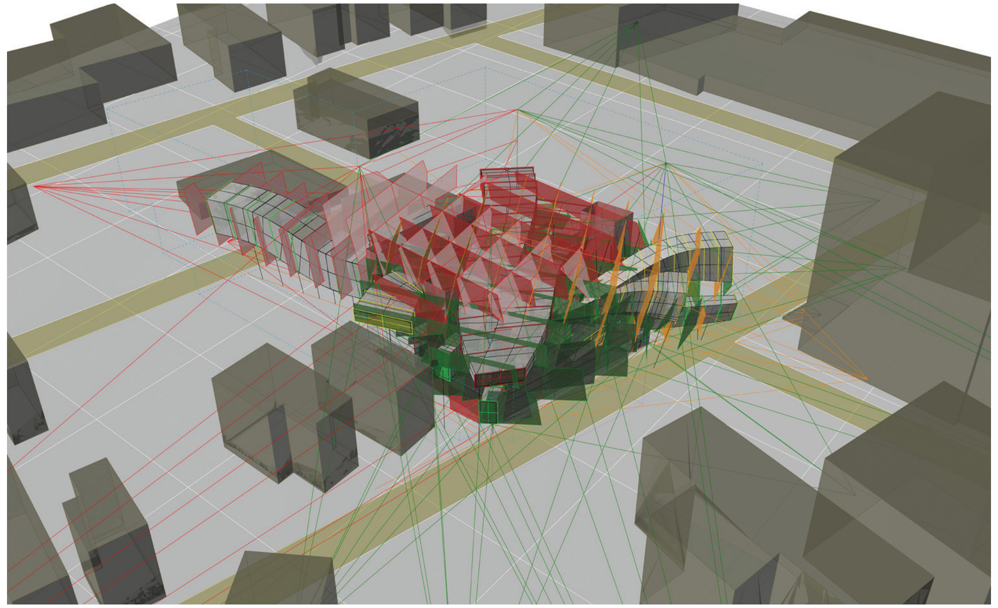
A new laboratory program demands a self-sufficient workspace that is frequently isolated from its surrounding environment. This juxtaposition of program and site creates tension. The arrangement of frames and margins for different programs provides a careful balance between security and public interaction. The space is bounded yet free and functions as a "stage" for genomic studies.



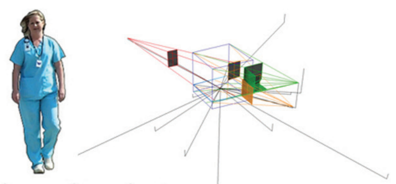
Dry Lab Plan : Middle program body



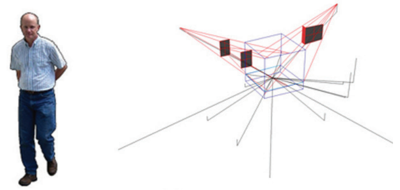
Dry Lab Section : Middle program body



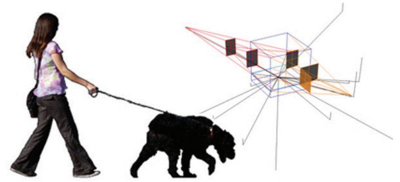
Conception : The origin of an architectural work



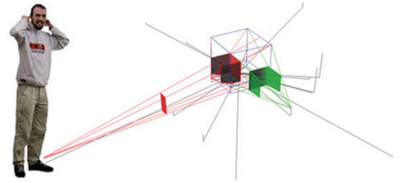
the doctor



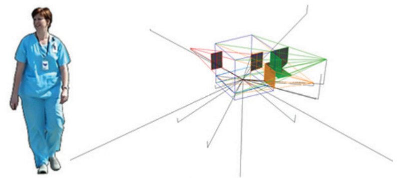
the employee at "e"



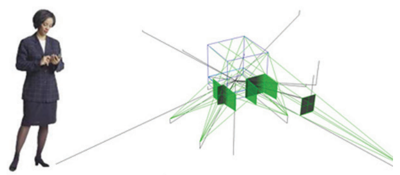
the pedestrian



the student-intern



the nurse



the employee

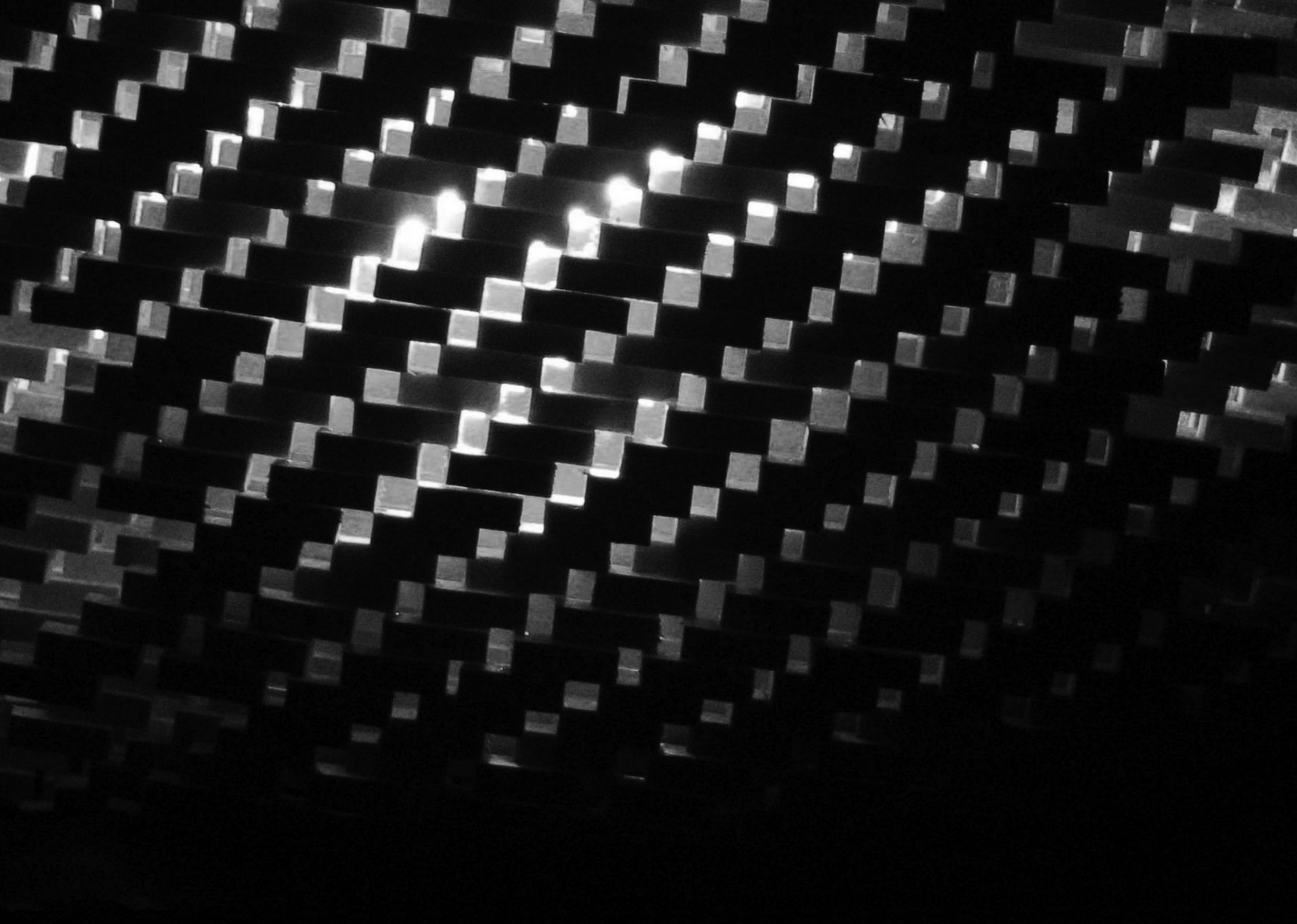


Image provided by: Nicole Lee

DISPOSITIONE disposition

ADAM LEVIN

Disposition is the pervading relationship between parts. Consequently, it is instrumental in determining symmetry, species and order.

While the disposition of parts is integral to establishing both symmetry and harmony, it need not result in either. Rhizomatic, fractal and algorithmic designs are highly invested in part-to-part relationships. However, they rarely result in either harmonic or symmetrical compositions. As a result, for many contemporary designers, a dispositional approach represents a radical alternative to traditional ordering principles.

However, the mathematical determination of "morphogenetic" design can result in rigorously defined models that have little relation or relevance to the needs of users. Thus, these designs could be recognized as abstractions derived from computational systems which are indifferent to either program or to personal experience.

Despite these limitations, there is much to be learned from focusing on the disposition of parts instead of a rigidly defined whole. There is a flexibility in this methodology that allows the designer to focus more on personal or programmatic needs rather than on the arbitrary and aesthetically derived mandates of symmetry and harmony, or even of morphogenetic design. Thus a focus on disposition allows the architect the freedom to prioritize the functional ethic of Modernism over the formal mandates of aesthetics.

SPRING 2008
ARC 608
PROPAGATIVE URBANISM

RAFAL GODLEWSKI

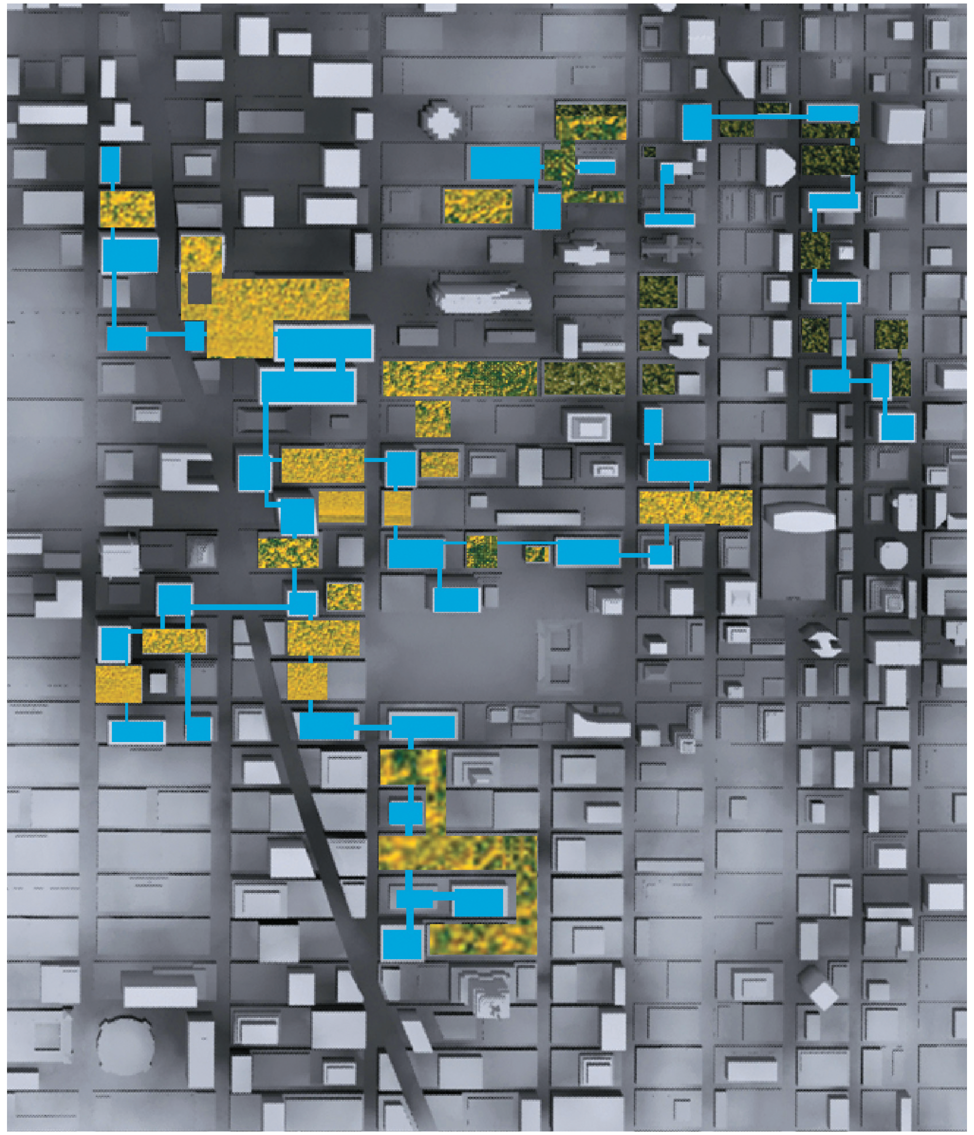
faculty
MARK SHEPARD

URBAN FARMING

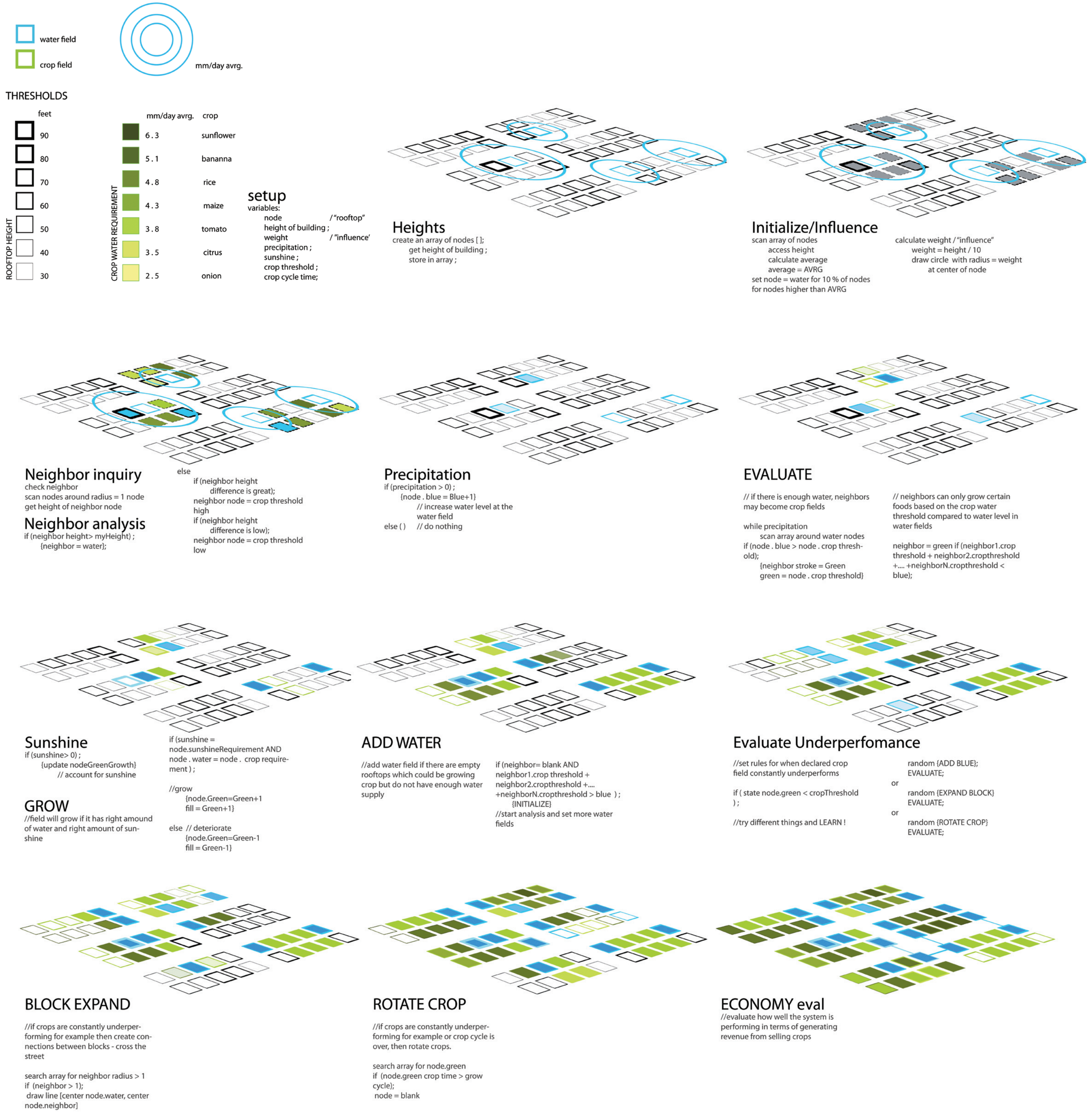
Urban Farming is a project that re-imagines the urban rooftop landscape of New York City as a network of water collectors and crop growing fields. This project focuses on increasing awareness of water as a resource, creating communities that raise food and forming a continually shifting landscape in the city.

The design of Urban Farming is inspired by a study of neural networks. Through a system of backward error propagation, neural networks create connections between data which are not easily referenced to one another. The physical connections between the water and crop fields are analogous to the connections between the cells of data in a neural network. Flow is generated and shifted in relation to the landscape and environmental factors that include heights of buildings, precipitation, sunshine and crop cycles.

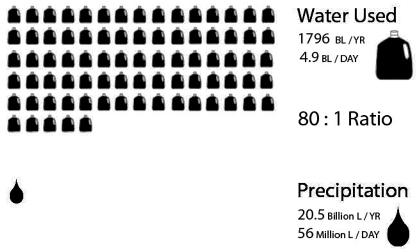
An algorithm continually re-adjusts the Urban Farm network (crop rotation period). It is a management system that integrates existing infrastructure, owners, users, participants, the city, ecological agencies, grocery stores and consumers. New social spaces are therefore generated by the new gardens that are elevated above the busy streets of New York City.

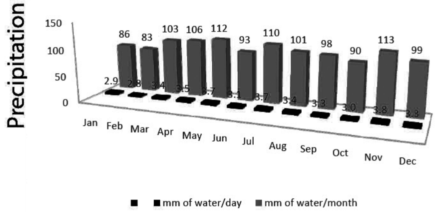


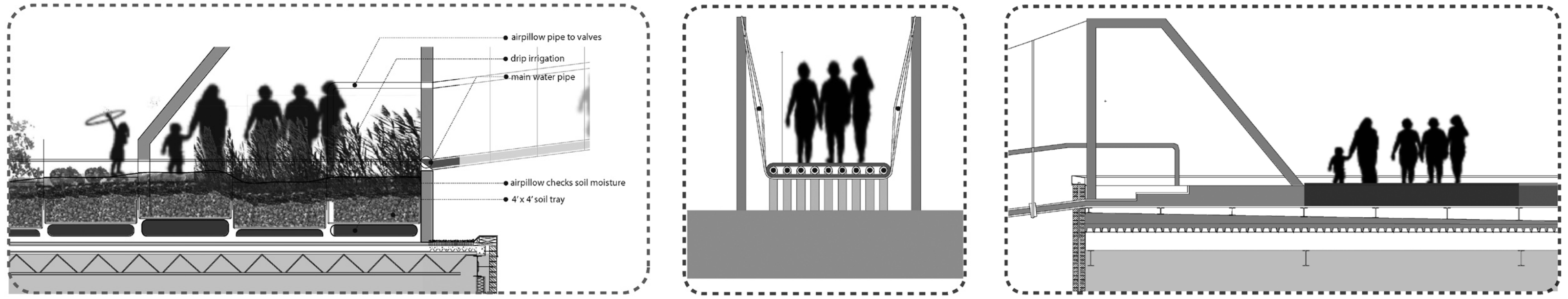
Propogation Algorhythm

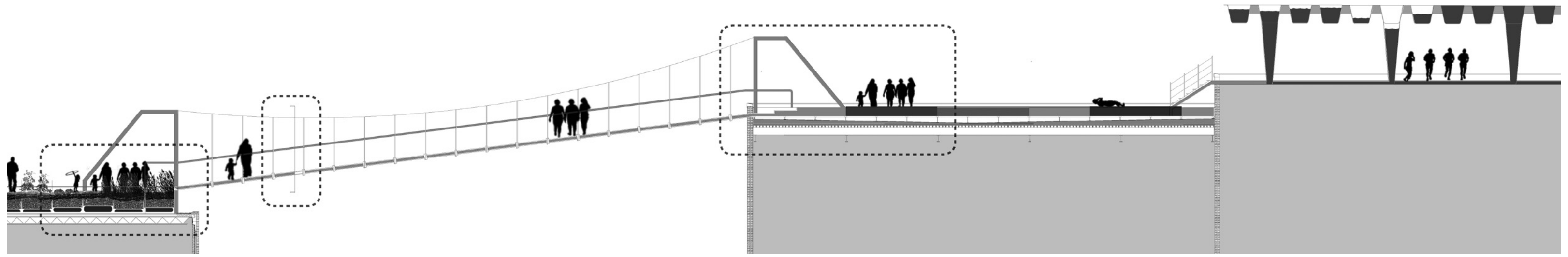


Water in New York City









SPRING 2008
ARC 403
DESIGN STUDIO 7

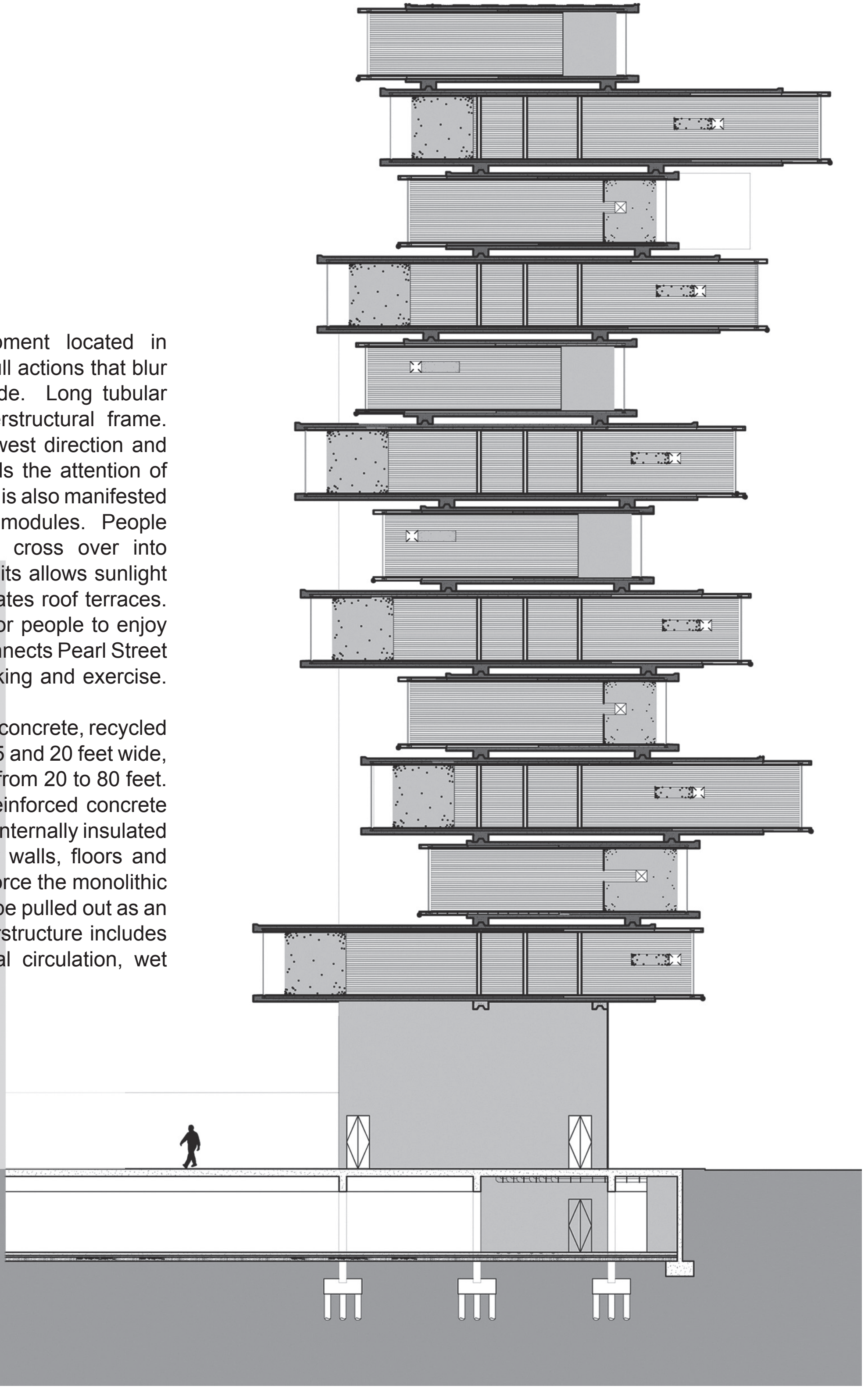
KIM ANH TRAN

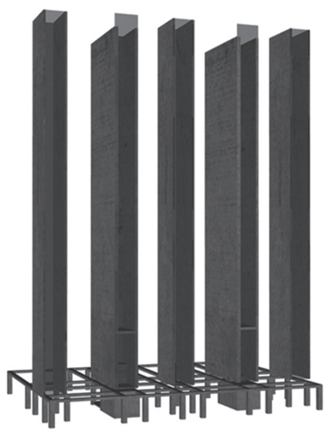
faculty
ANNETTE LECUYER

PUSH / PULL

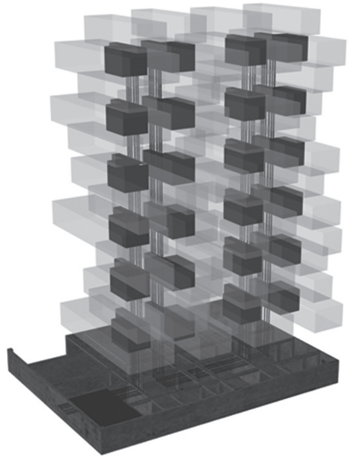
This mixed-use urban housing development located in downtown Buffalo is based on push and pull actions that blur the boundaries between inside and outside. Long tubular building modules are carried by a superstructural frame. These are pushed and pulled in an east-west direction and are determined by what attracts and repels the attention of different people. The push and pull concept is also manifested in the overlap of space between adjacent modules. People interact with their neighbors when they cross over into another module. The disposition of the units allows sunlight to penetrate into the building and also creates roof terraces. The ground level is designed as a place for people to enjoy the outdoors. An open public space that connects Pearl Street to Franklin and Erie Streets promotes walking and exercise.

The tubular units are constructed of precast concrete, recycled wood and glass. There are two modules, 15 and 20 feet wide, which are prefabricated and vary in length from 20 to 80 feet. Each tube unit consists of two layers: a reinforced concrete outer tube and a wood lining. The units are internally insulated exposing the concrete externally. Interior walls, floors and ceilings are lined with wood panels to reinforce the monolithic character of the tube. The wood lining can be pulled out as an extension of the concrete tube. The superstructure includes five cores which incorporate main vertical circulation, wet services and structural walls.

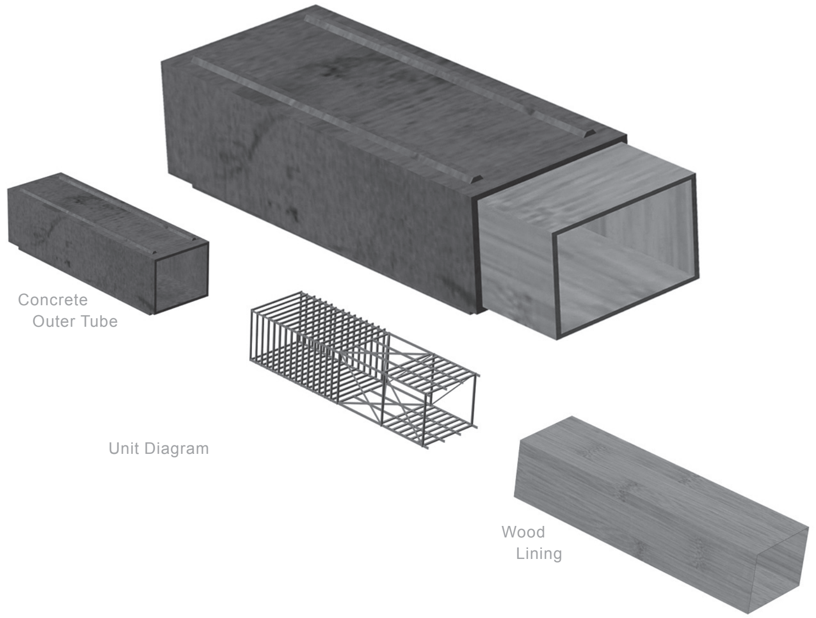


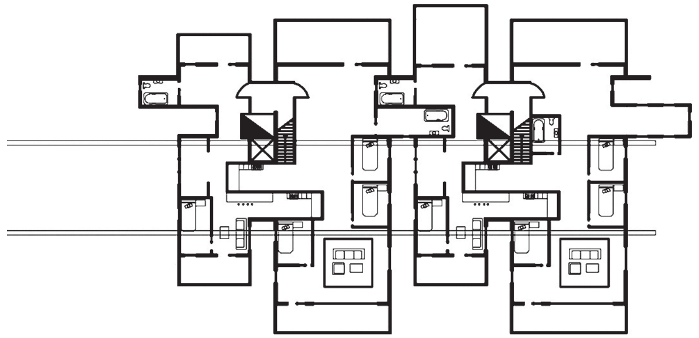


Structural Diagram



Wet Services Diagram





SPRING 2008
ARC 202
DESIGN STUDIO 4

CHIWING WESLEY LAM

faculty
SERGIO LÓPEZ-PIÑEIRO

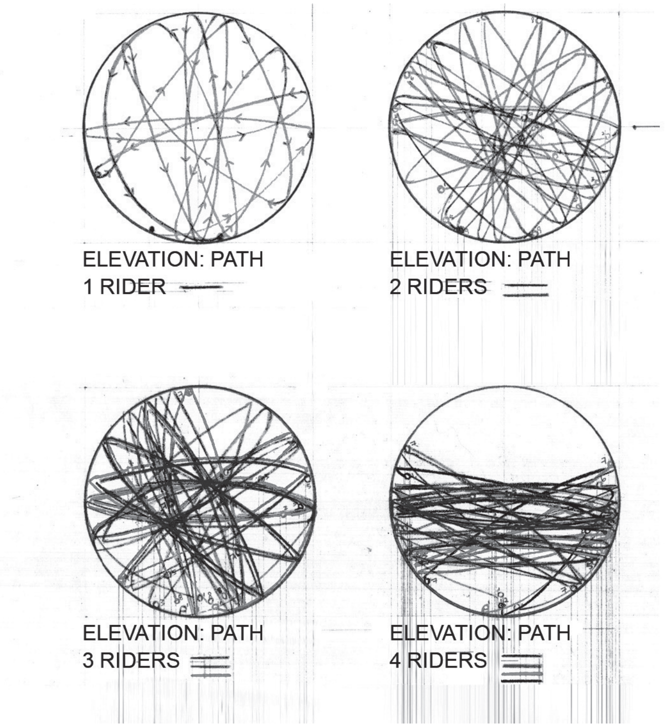
Sphere Drawing

INTERACTIVE DISTORTION

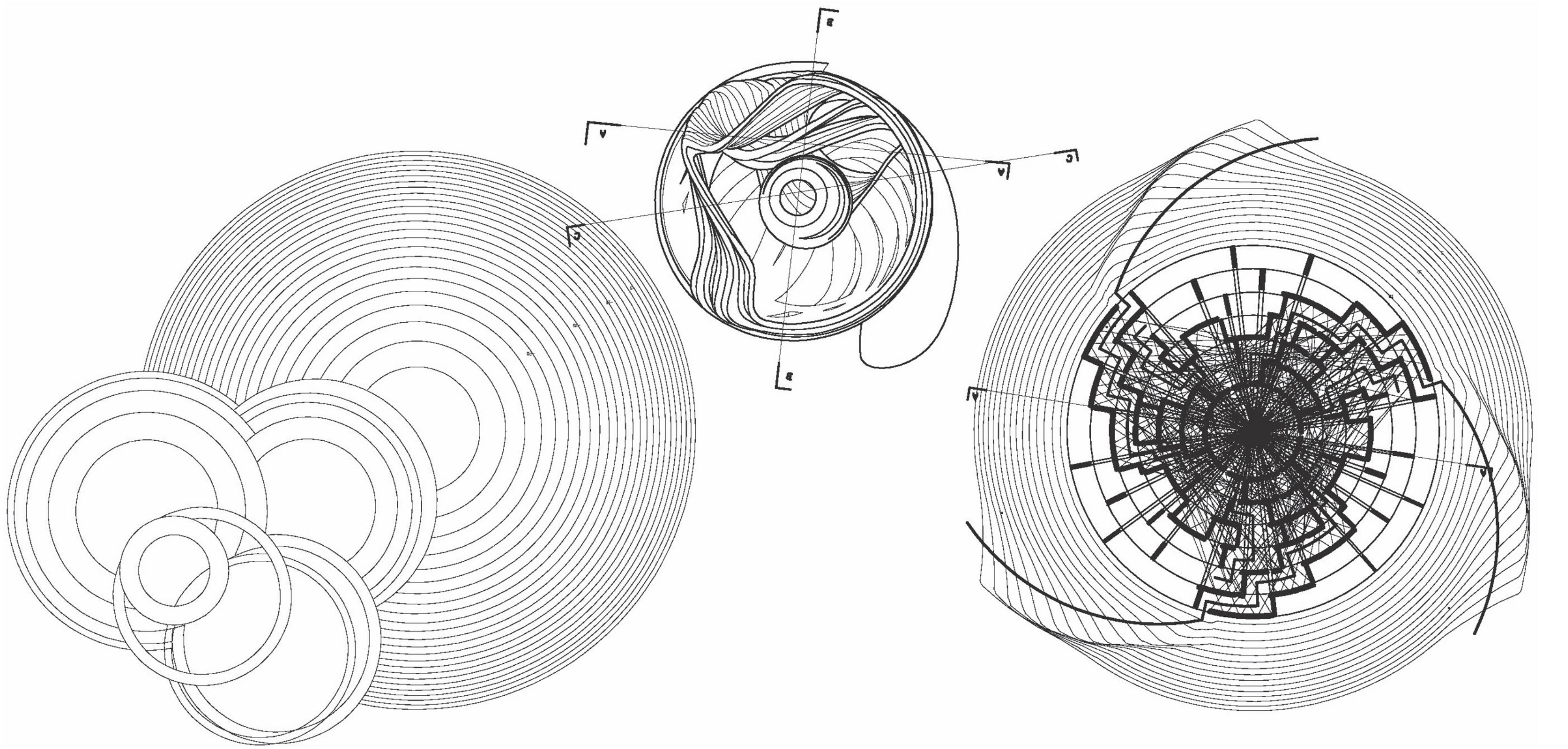
A sphere is a homogenous, impenetrable geometry that contains a singular space. Spaces of different qualities emerge by distorting the sphere's homogeneity. The sphere is divided into circular rings to permit internal distortion. These rings are either layered over each other at different angles or are pushed in and out to deform the shape of the sphere. Through these operations, the project develops distortions of spatial qualities, circulation, light and vision.

The first sphere is a temple. Temple parishioners are guided through the corridors by following reflected light sources. The pathway only allows one person at a time to proceed into the temple. Light, circulation and vision lines are skewed along the approach. The light source gradually becomes stronger as the visitor approaches the sacred space. Other light sources are filtered through the layers of rings and help direct the parishioner into the temple.

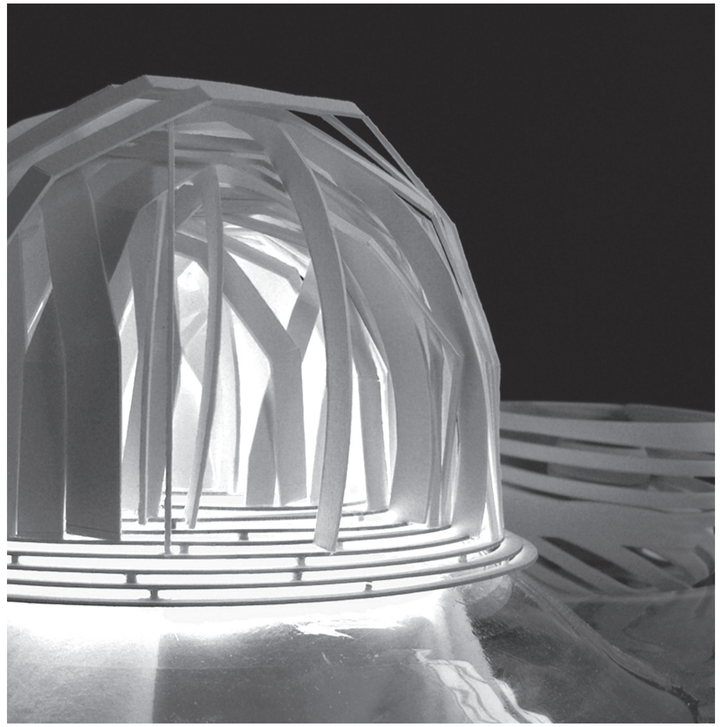
The second sphere is a resort that includes a pool, disco and cinema. Both these spaces and the circulation are established by pushing in or pulling out the rings of the sphere. A visitor enters and circulates through a spiral core. A pool located on the top of the resort receives direct sunlight. The light filters through the water and into the disco through an oculus. The cinema receives light distorted by both the pool and disco and is enhanced through the use of artificial lighting.



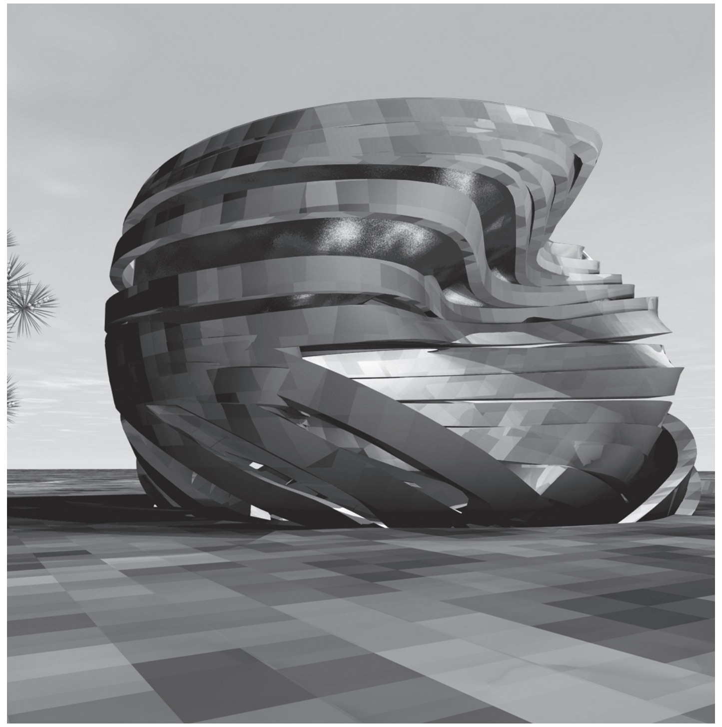
Precedent Study: Sphere of Death Motorcycle Riders



Site Plan



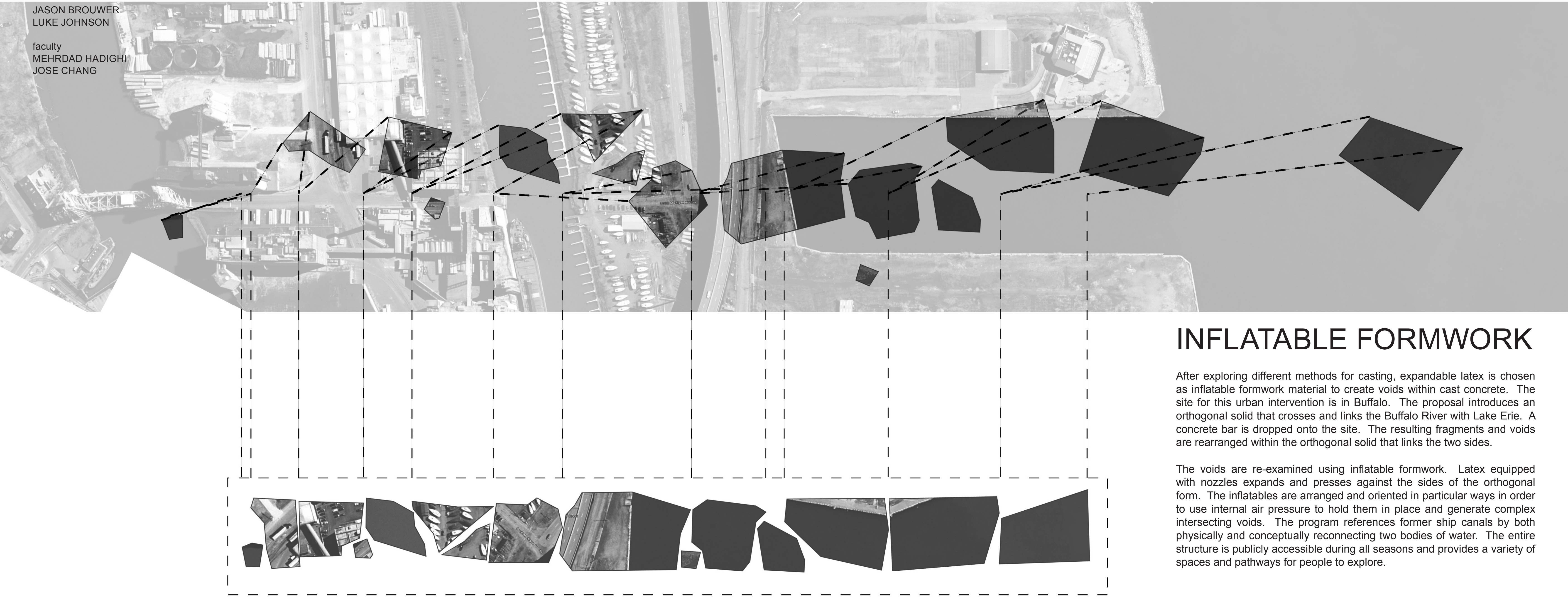
First Sphere: Temple



Second Sphere: Resort

JASON BROUWER
LUKE JOHNSON

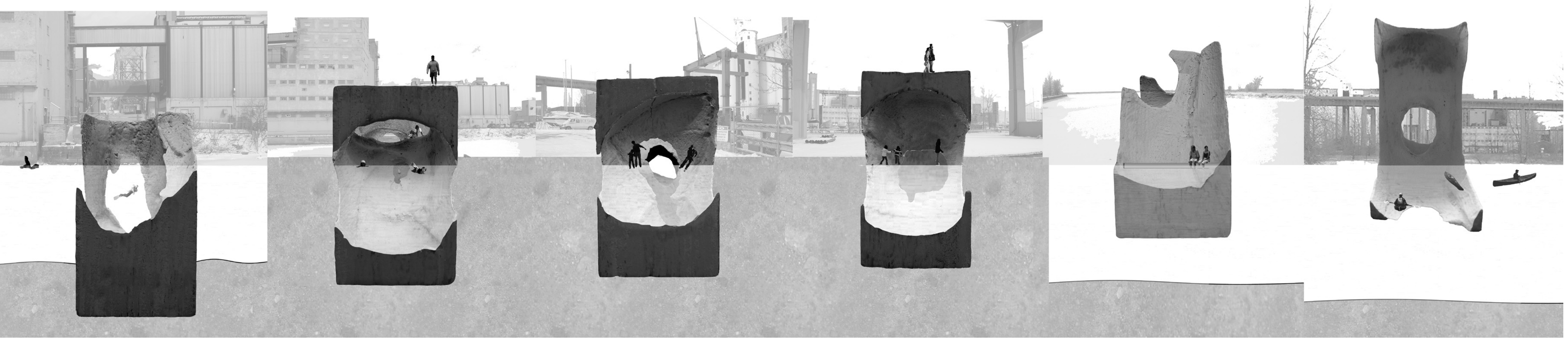
faculty
MEHRDAD HADIGHI
JOSE CHANG



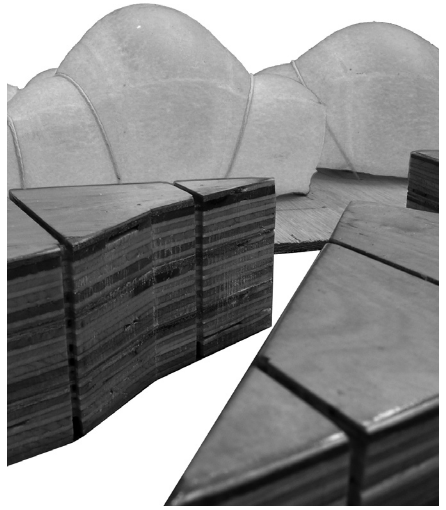
INFLATABLE FORMWORK

After exploring different methods for casting, expandable latex is chosen as inflatable formwork material to create voids within cast concrete. The site for this urban intervention is in Buffalo. The proposal introduces an orthogonal solid that crosses and links the Buffalo River with Lake Erie. A concrete bar is dropped onto the site. The resulting fragments and voids are rearranged within the orthogonal solid that links the two sides.

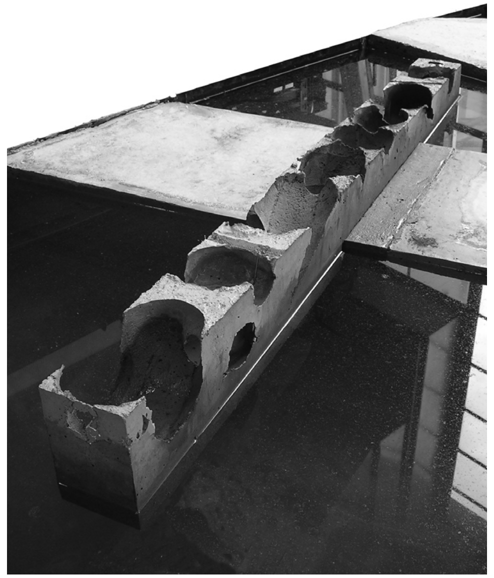
The voids are re-examined using inflatable formwork. Latex equipped with nozzles expands and presses against the sides of the orthogonal form. The inflatables are arranged and oriented in particular ways in order to use internal air pressure to hold them in place and generate complex intersecting voids. The program references former ship canals by both physically and conceptually reconnecting two bodies of water. The entire structure is publicly accessible during all seasons and provides a variety of spaces and pathways for people to explore.



Detailed sections

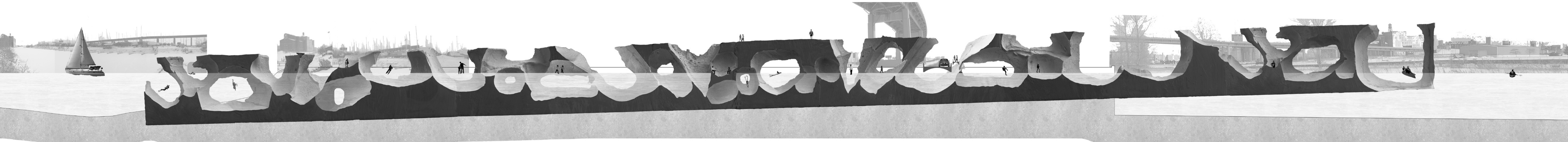


Inflatable latex



Voids generated by the inflatable formwork

Plan showing the orthogonal form as a link between Buffalo River and Lake Erie

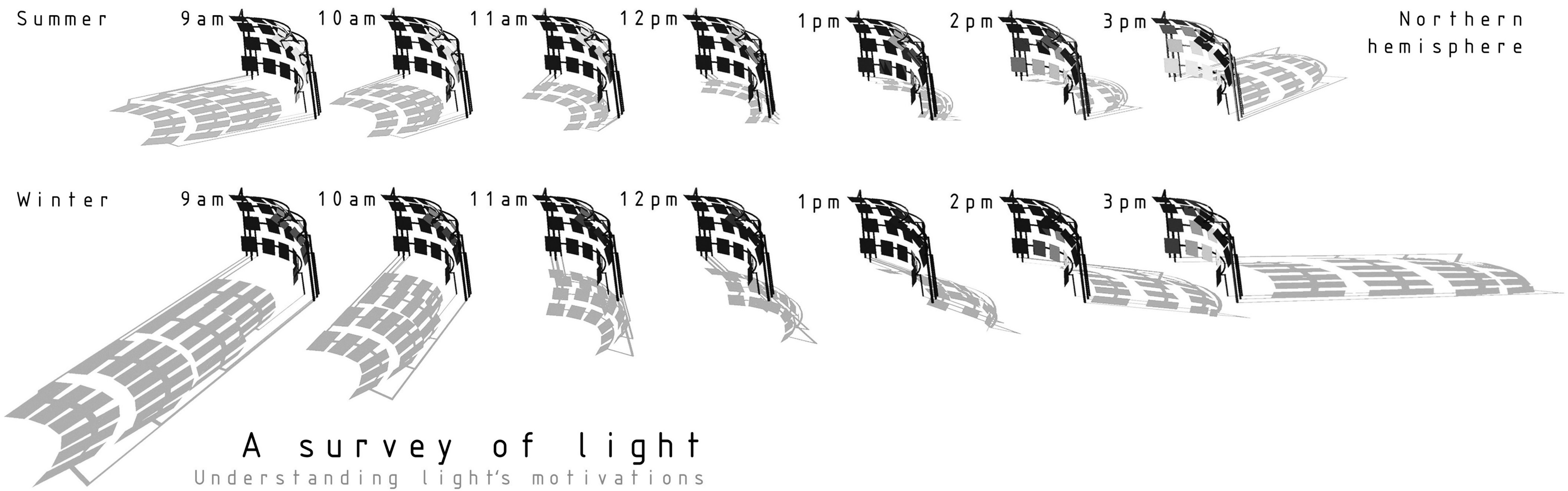


Plan showing the orthogonal form as a link between Buffalo River and Lake Erie

FALL 2008
PD 450
ENVIRONMENTAL DESIGN WORKSHOP 3

ADRIAN SOLECKI

faculty
ADAM SOKOL



A survey of light

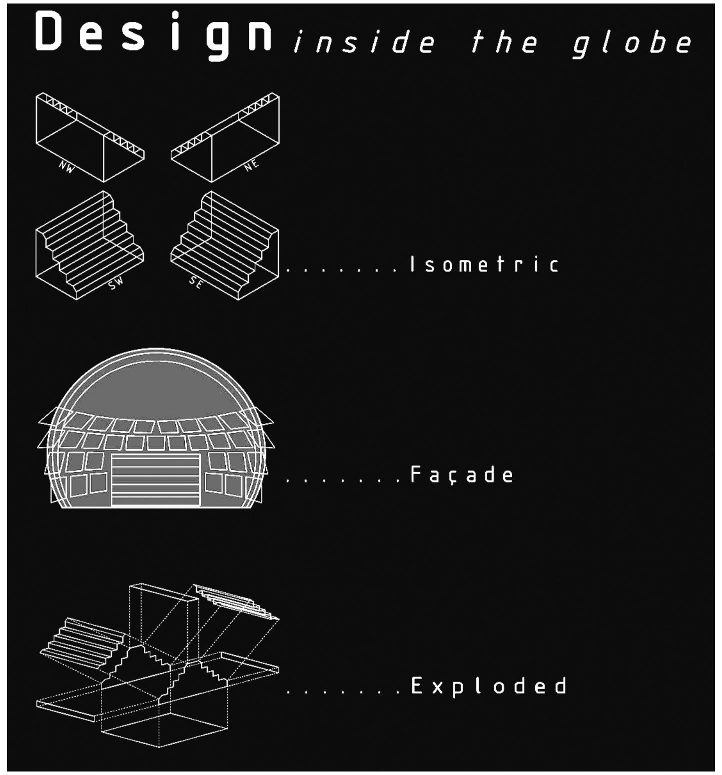
Understanding light's motivations

LIGHT POLLUTION

This proposal uses superfluous light energy from highway street lights and car headlights to grow organic food. With the current energy crisis, the search for alternative methods of producing food also seeks to reduce the overall impact on the environment.

This design strategically places mirrors to capture and redirect excess light to enclosed globe structures in which ample light stimulates plant growth. The globes are open at night and closed during the day. High pressure compact sodium bulbs provide the correct spectrum of light needed for plants to thrive.

A light survey illustrates the behavior of lights which can be controlled by using angles of incidence and reflection. Light can then be altered to reflect and shine where needed.



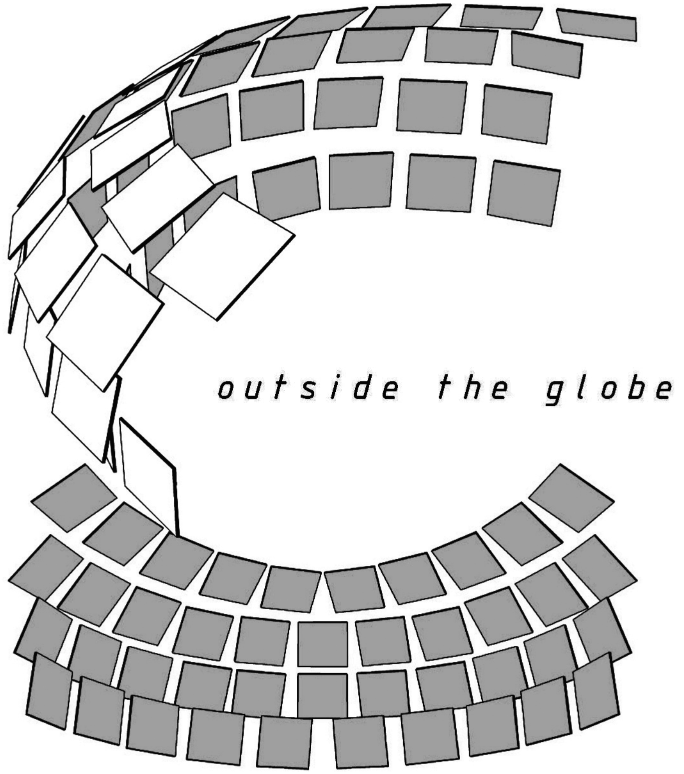



Image provided by: Nicholas Bruscia

EURHYTHMIA shapeliness

ADAM LEVIN

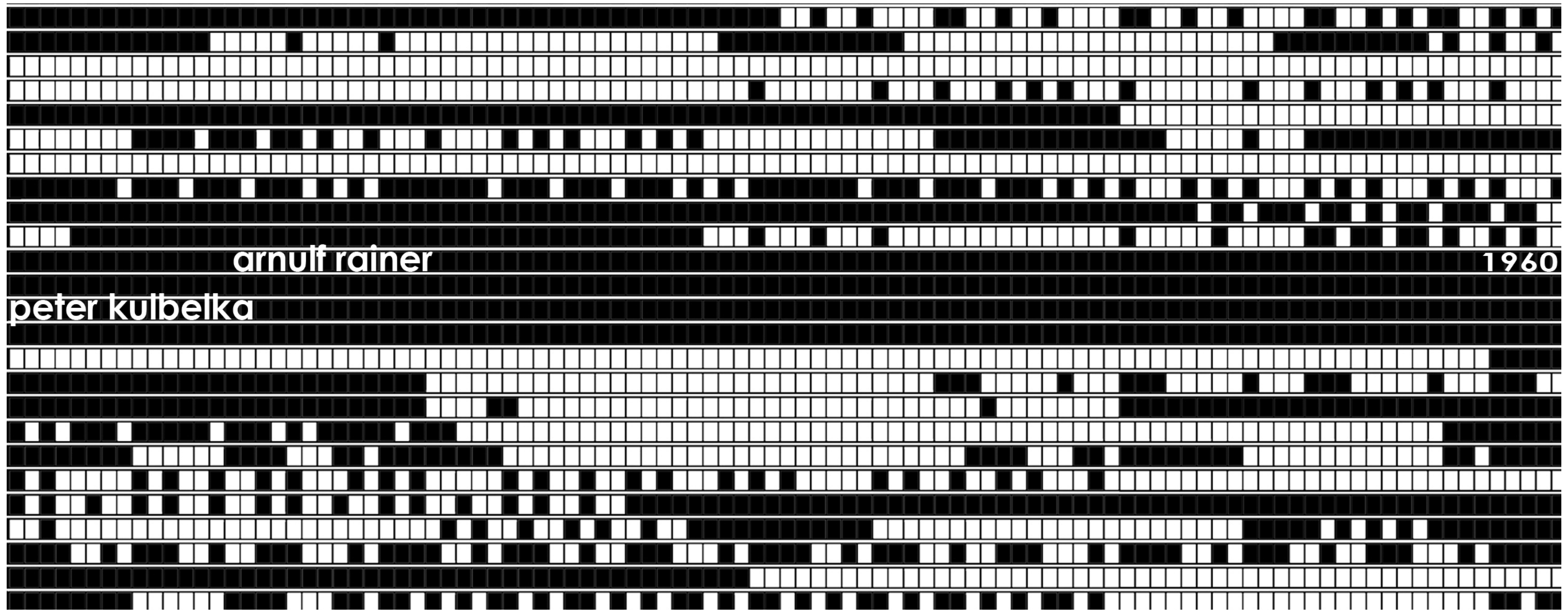
The classical interpretation of this word refers to what is seen, or the external form of things. As it appears in Vitruvius, eurhythmia represents a key component of “venustas,” or the beauty of a work of architecture. This beauty is thought to stem from the harmonious disposition of parts within a structure closely aligned with the classical notion of music. In the fourth century BC, the Greek mathematician and philosopher Pythagoras described a system of intervals based on the ratios of 3:2 and 2:1 which make up the musical system of perfect fifths and octaves that comprise the chromatic scale. Classical and Renaissance architects used these proportions to create the aesthetic “harmony” described in both Vitruvius’s original “Ten Books” and in Alberti’s later treatise of the same name.

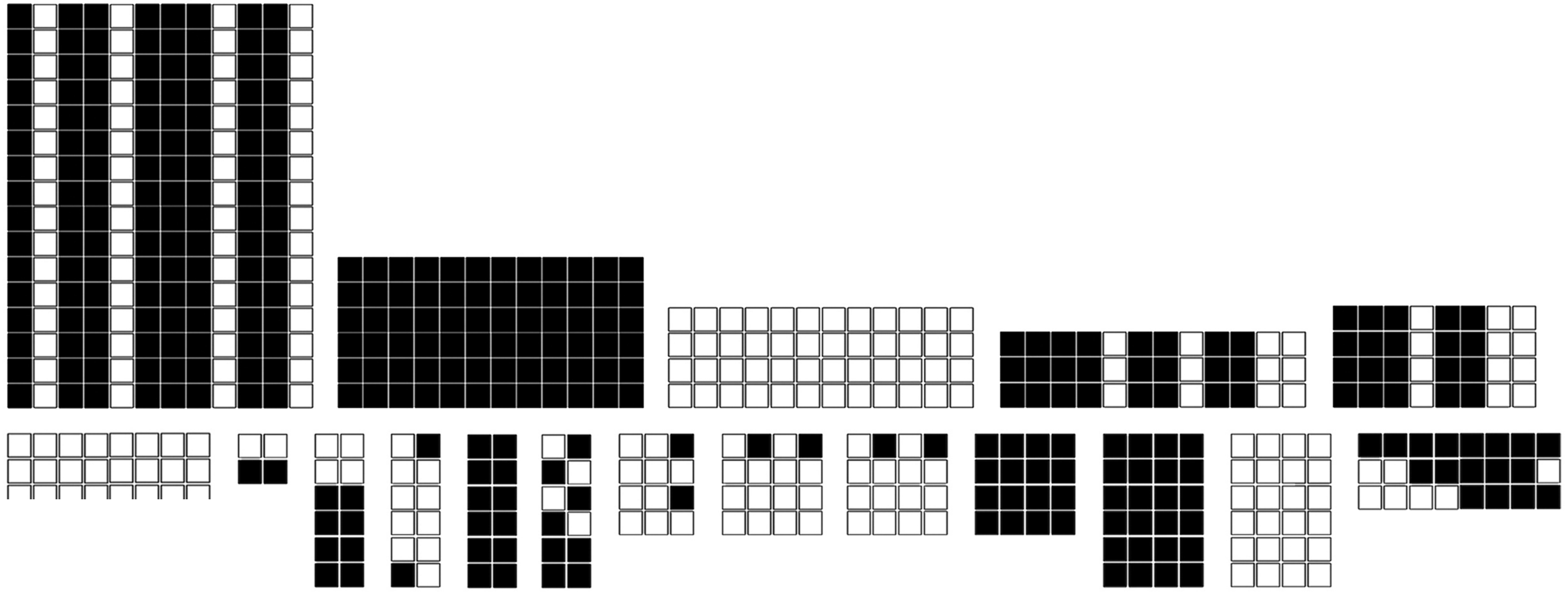
In the early Modernist Period, many artists, architects and composers began to question the foundations of traditional composition including established notions of “harmony.” There was an attempt, in the words of Schoenberg, to “expand tonality.” It became the artist’s obligation to discover new aesthetic means to match the new conditions of life for people. Many architects also sought to discover new “harmonies.” Perhaps the most successful attempt to do this was Le Corbusier’s “Modular.” However, the limited adoption of Le Corbusier’s system may reflect the depth of conditioning resulting from thousands of years of tradition. This does not invalidate the possibility that original compositions based on alternative systems may one day take their place next to traditional ones. Current research into fractal and algorithmic-based design is one way in which contemporary architects are continuing this development.

FALL 2008
ARC 605
MATERIAL PRACTICES

LINFAN LIU

faculty
MEHRDAD HADIGHI
JOSE CHANG





-5" LAYER : WALKING
Height change : 10"
Underground vs. above ground ratio 1:1
Combination unit : 8*8 /12 squares

-10" LAYER : SITTING AND WANDERING
Height change : 20"
Underground vs. above ground ratio 2:1
Combination unit : 8*8 /9 squares

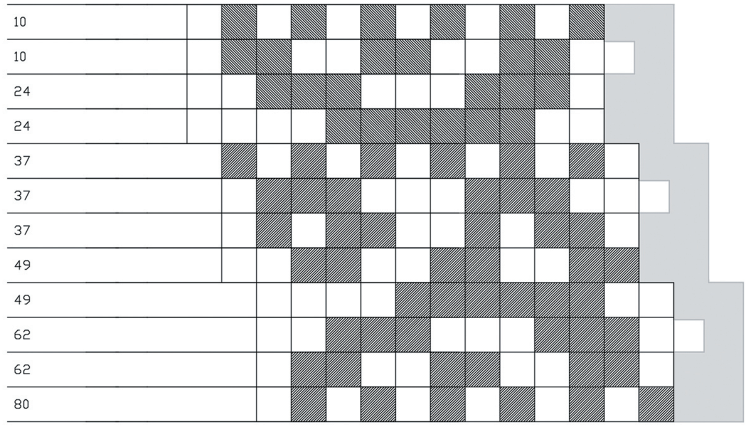
-15" LAYER : PLAYING
Height change : 30"
Underground vs. above ground ratio 3:1
Combination unit : 8*8 /8 squares

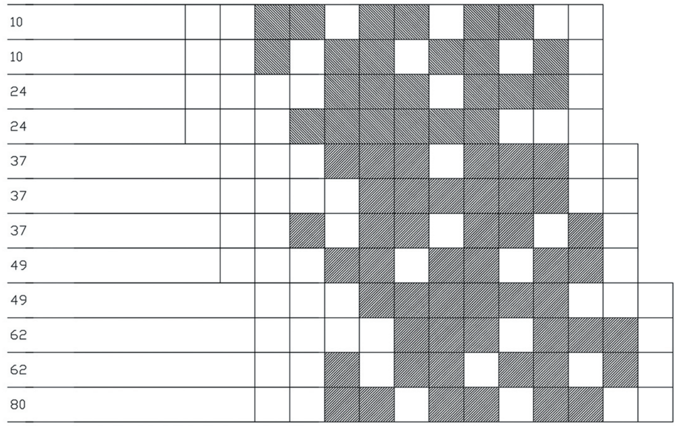
MODULAR CITY

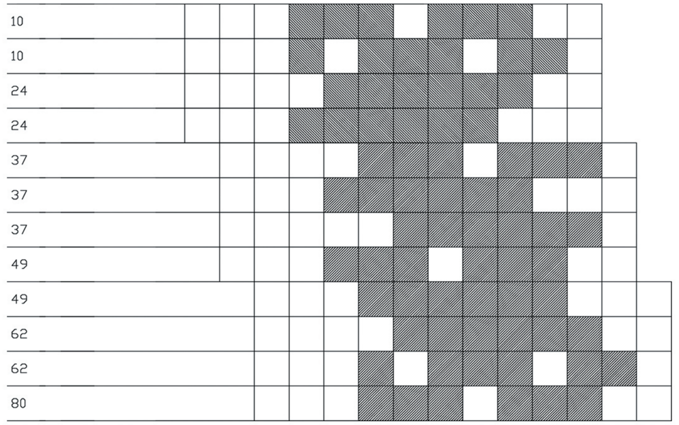
A system for modulating light qualities is developed from an analysis of Peter Kubelka's film "Arnulf Rainer." The abstraction of film components is linked to an urban development concept and becomes the basis for a modular city. Frames (either black or white) and sound (noise or silence) make up the film components. This concept is applied to an analysis of a contemporary urban texture. After breaking down the whole construction into smaller pieces, the modules are recombined in a series of aggregations.

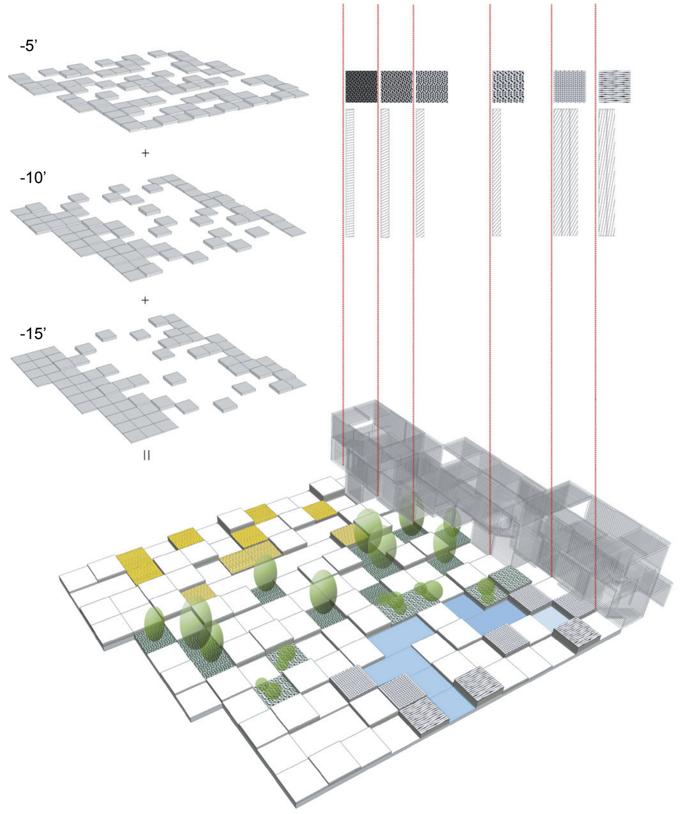
A small community center in Buffalo, New York adopts this methodology. The design applies the rationale of the module and the combination principle. The aggregated modules reconstruct the community center as well as the urban texture.

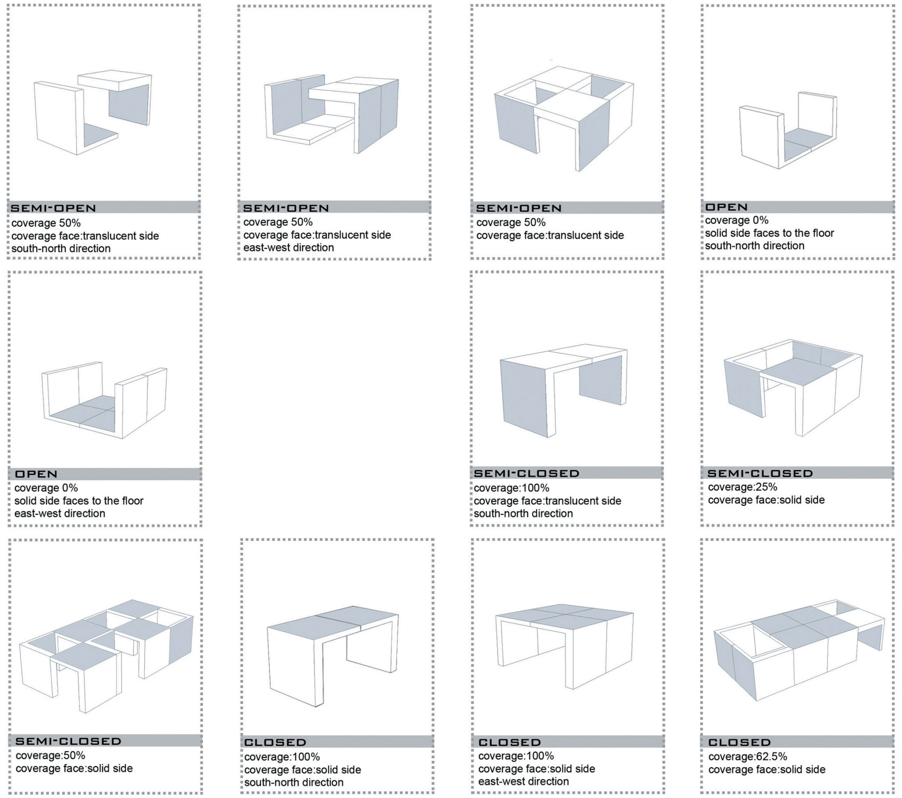
Landscape layers and combinations

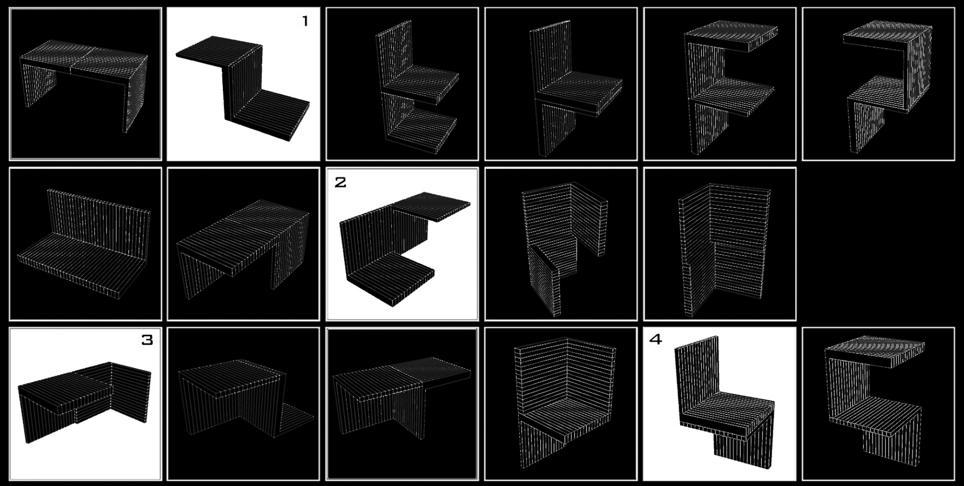




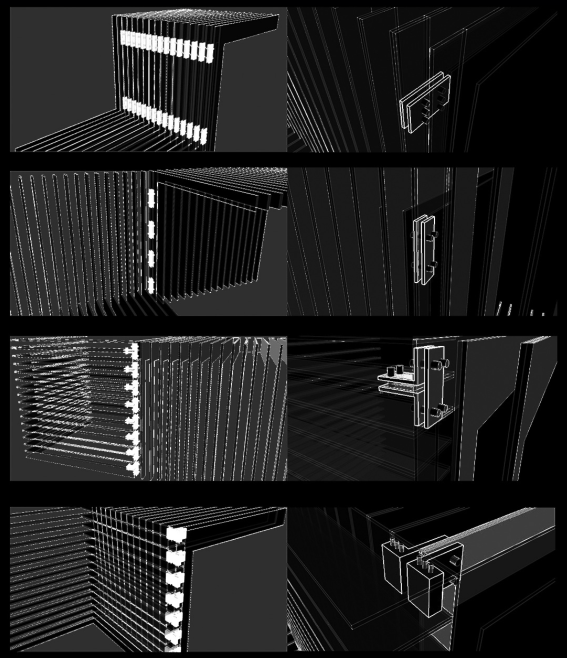


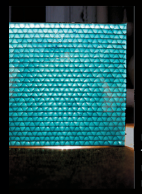




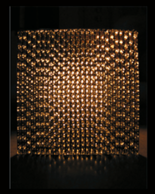


Connection combinations

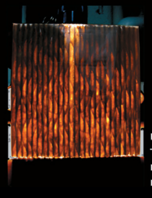




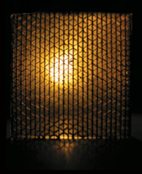
FULL COVERAGE
TRANSLUCENT
LOW LIGHT TRANSMISSION
HIGH REFLECTION



HALF COVERAGE
TRANSPARENT
HIGH LIGHT TRANSMISSION
LOW REFLECTION

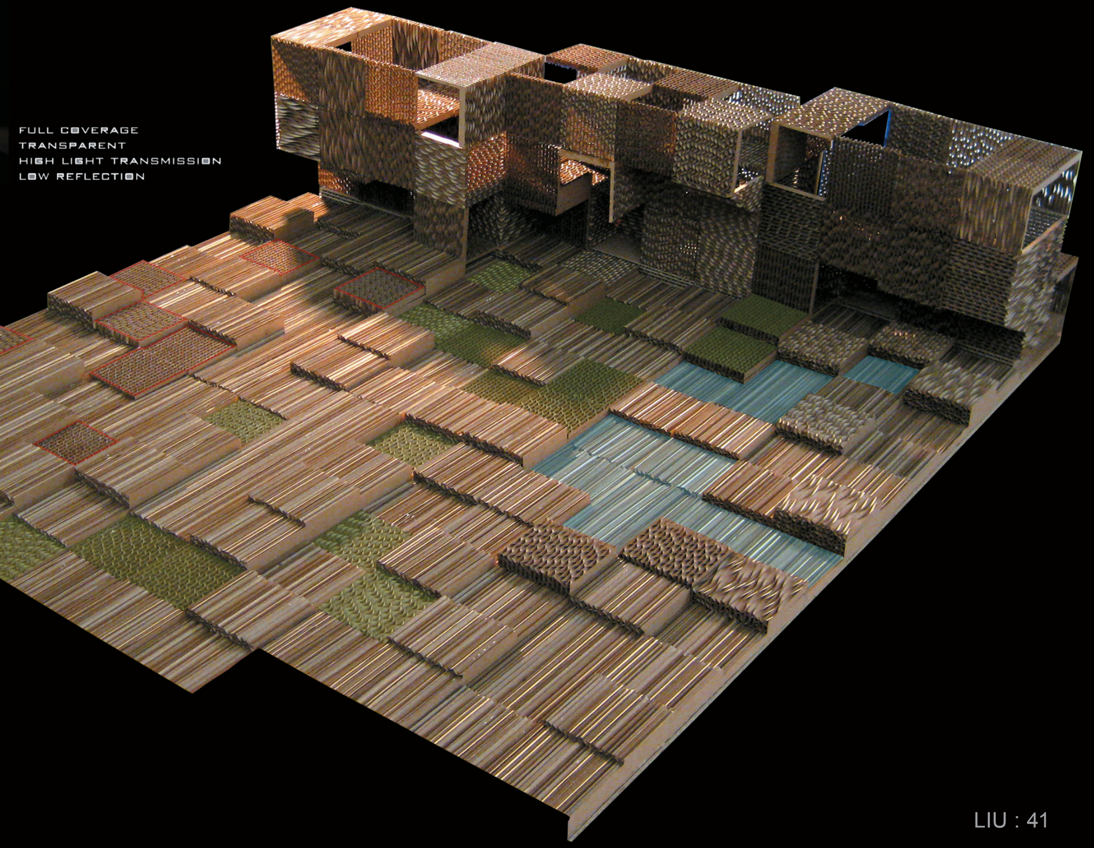


HALF COVERAGE
TRANSLUSCENT
LOW LIGHT TRANSMISSION
HIGH REFLECTION



FULL COVERAGE
TRANSPARENT
HIGH LIGHT TRANSMISSION
LOW REFLECTION

Experiments with cardboard as a building material



SEMESTER 2008
ARC 699
ARCHITECTURE THESIS

NICHOLAS BRUSCIA

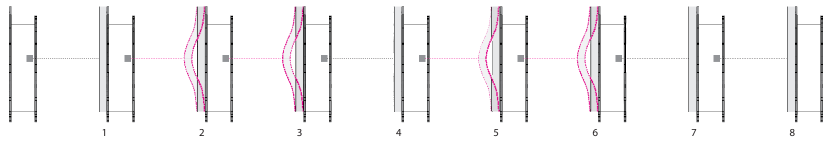
faculty
OMAR KHAN
MARK SHEPARD
MARC BÖHLEN

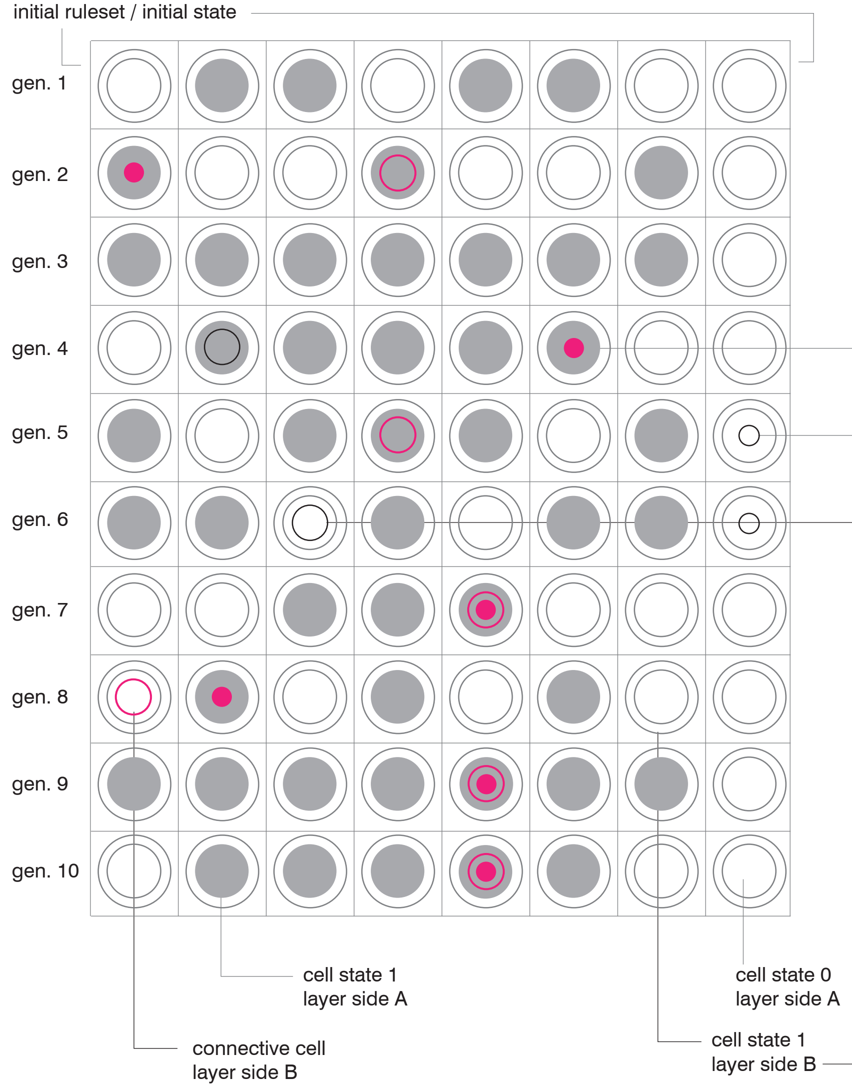
ALLOTROPIC SYSTEMS
THERMO-SENSITIVE RECONFIGURABLE MOLDS

Allotropy in the natural world occurs with variation in the arrangement of atoms of a specific element. Different structural arrangements make distinct materials, for example the element carbon produces both diamond and graphite. The structural configuration of these materials is dependent on pressure and heat. Variation is a catalyst for material formation.

A thermo-sensitive reconfigurable mold (RCM-T) proposes a way to utilize the generative possibilities of algorithmic scripting within physical computing. The heat sensitive mold feeds the chemical heat gain from the curing process of poured material directly into a generative algorithm. This contextual data alters the morphology of the mold and hence the cast unit. One mold can produce several unique casts, each specific to the event of their making. The part-to-whole relationship of the resulting structures is allotropic: the shaping of individual elements allows the overall network to take on a variety of configurations. Such a system proposes a process that makes moldable materials, like plastics, more responsive to the contingencies of their own making. As a network, parts are not conceived of in isolation but rather as a dynamically constructed feedback system of the entire assembly.

This work reconsiders computation in architecture through embedded circuitry and robotic technology and provides an opportunity to move away from screen based virtual reality and into augmented physical environments. Embedded computation has the ability to act directly on full scale prototypes and to create a dialogue between digital algorithms and analog constructions. Current rapid prototyping technologies offer a level of precision that is important in realizing complex forms at different scales. However, these technologies are often used to produce representational models and do not address more performative properties of materials. In contrast, algorithmic parametric modeling offers more dynamic control over form generation by utilizing inputs from actual material properties to produce architectural form and structure.

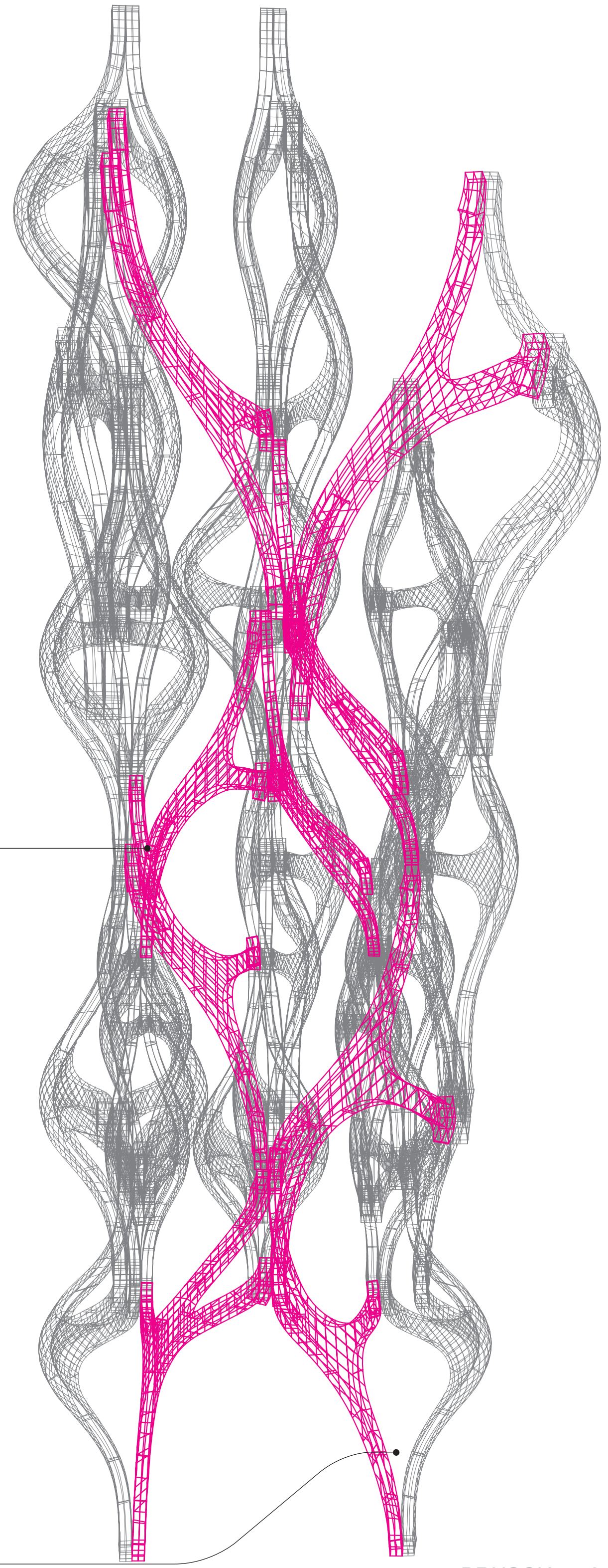




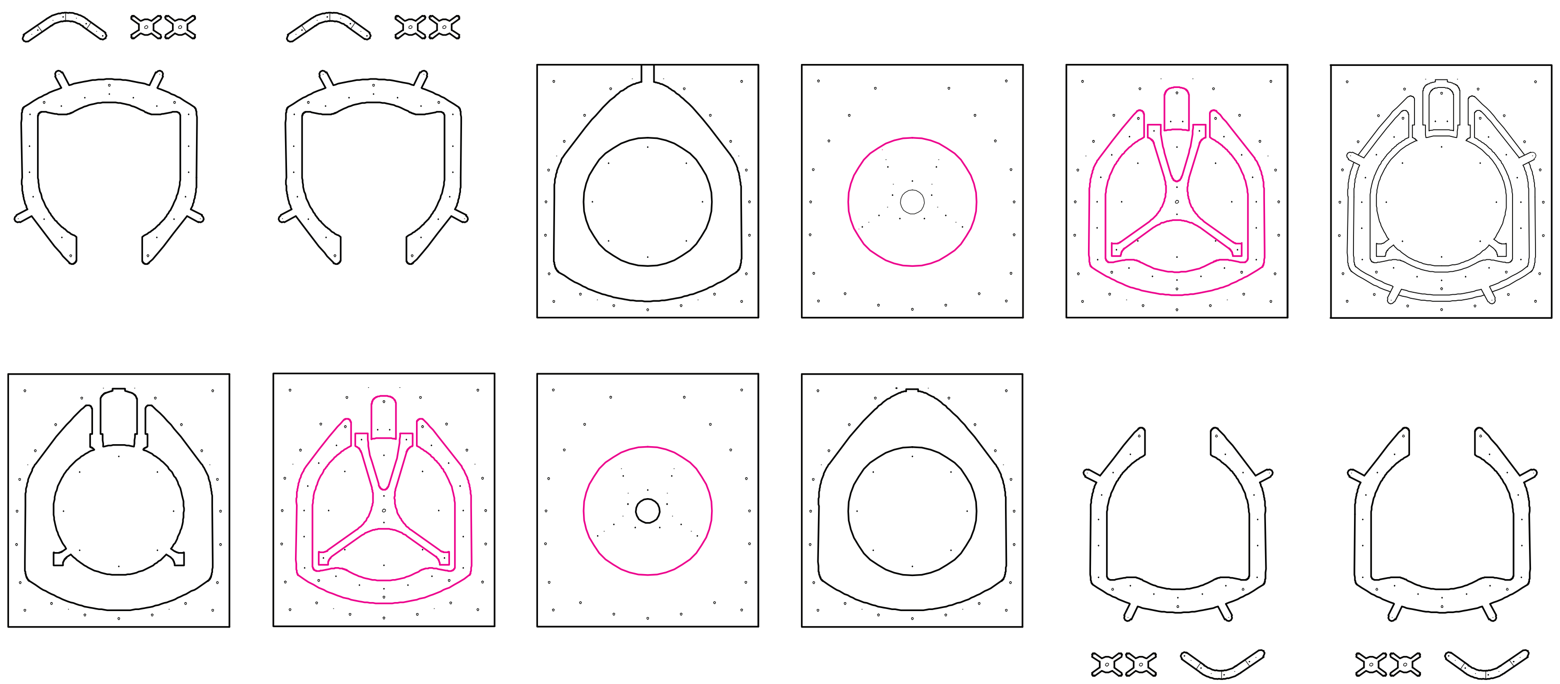
Allotropic Structure Development - Cellular Automata
Sequence showing the unit organization of ten layers within an allotropic system. Each layer is double sided allowing for increased structural integrity and layer connection / propagation.

Ten generations of unit pours result in 80 possible active cells. The rule set determines the initial sequence of pours. The next nine generations of cells bear the results of that rule set. Ten generations amount to one layer in the built system. The process is then repeated resulting in new structural layers.

Unit Types 1 and 2 (4 Connection Nodes)
Models studying possible unit configurations.

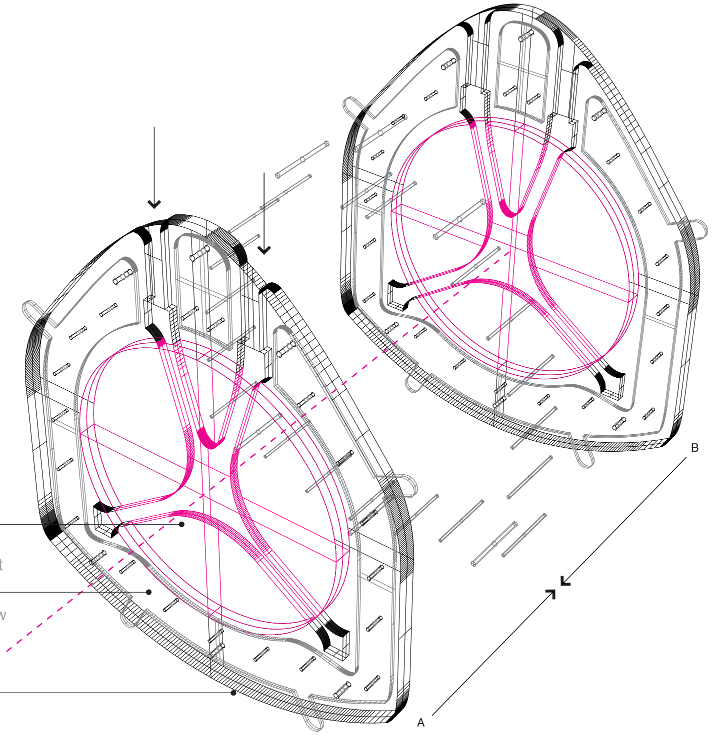


Reconfigurable mold



Thermo-sensitive Mold Prototype

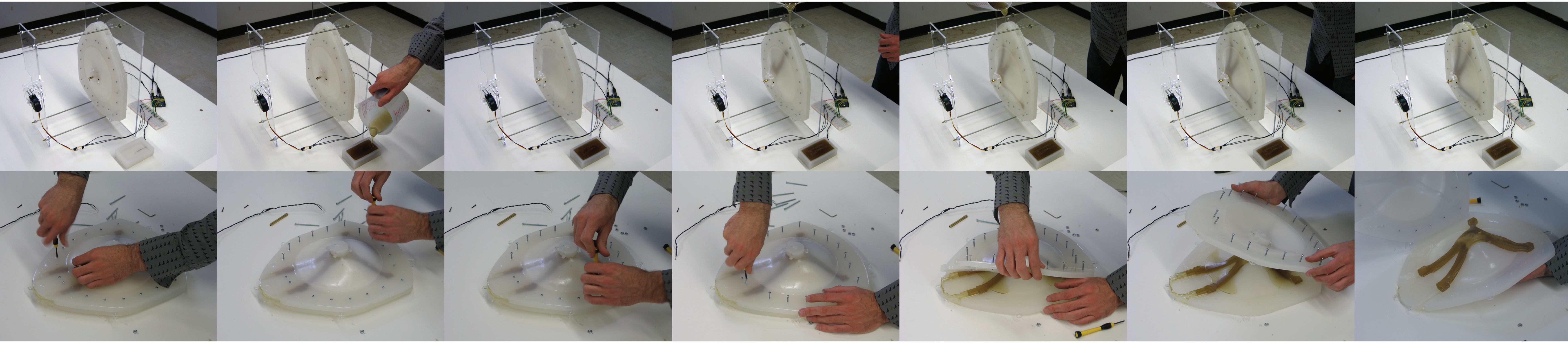
A stretchable silicone rubber center is fused to a structural silicone rubber outer piece that secures the mold. The flexible inner piece is actuated depending on the heat gain of the cast material. The heat gain is gathered via embedded temperature sensors within the silicone center, and fed into a generative algorithm coded into a microcontroller.



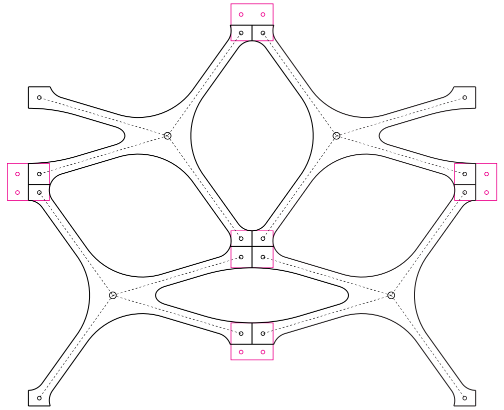
Silicone rubber inner mold
Shore hardness: 10
Super elastic actuated and stretched from the center point

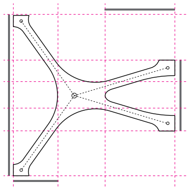
Acrylic layer
Connections embedded within the outer mold shells allow for a water tight connection between mold layers

Silicone rubber outer mold
shore hardness: 20
static housing of tapped acrylic layer connections



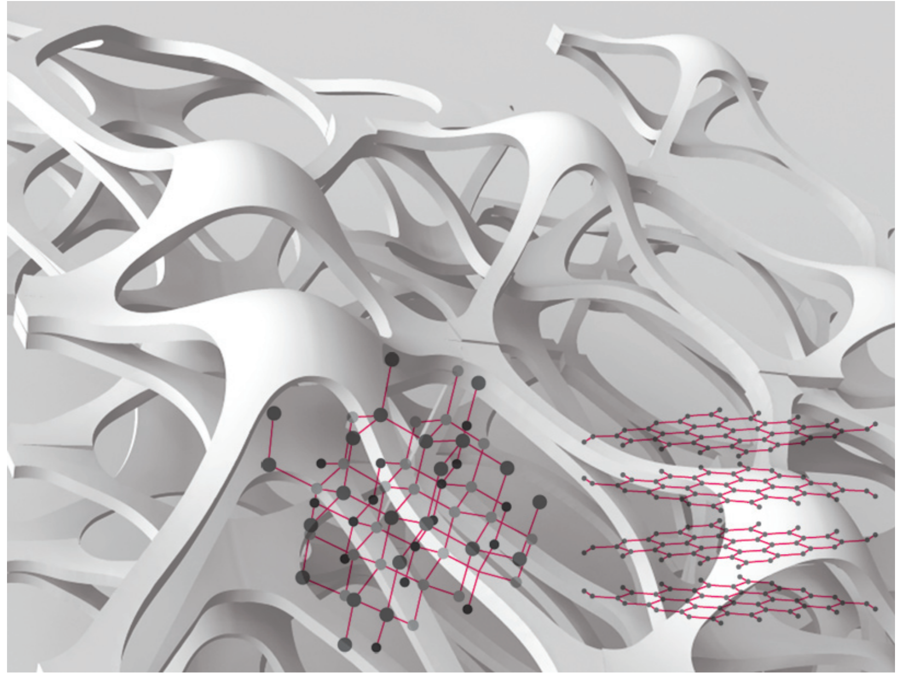
Aggregations of reconfigurable molds

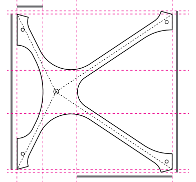




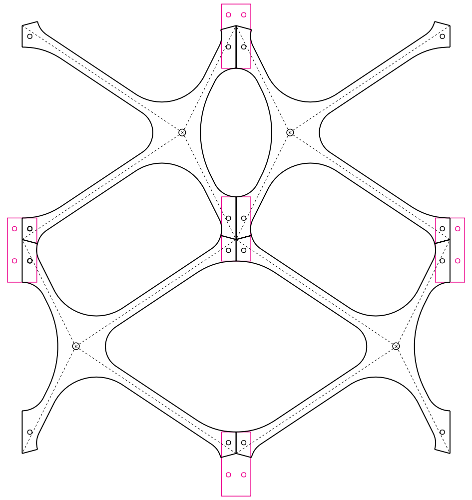
Unit type I

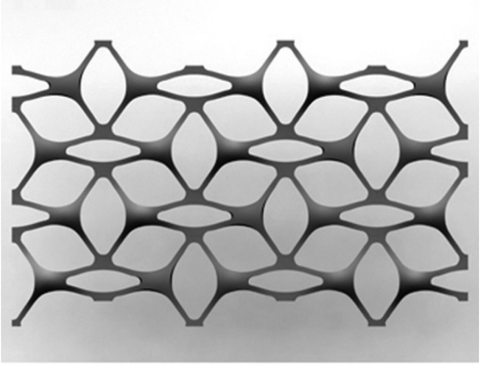
Layer propagation study / stereolithography

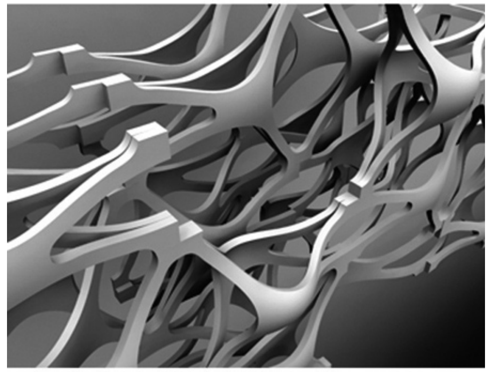


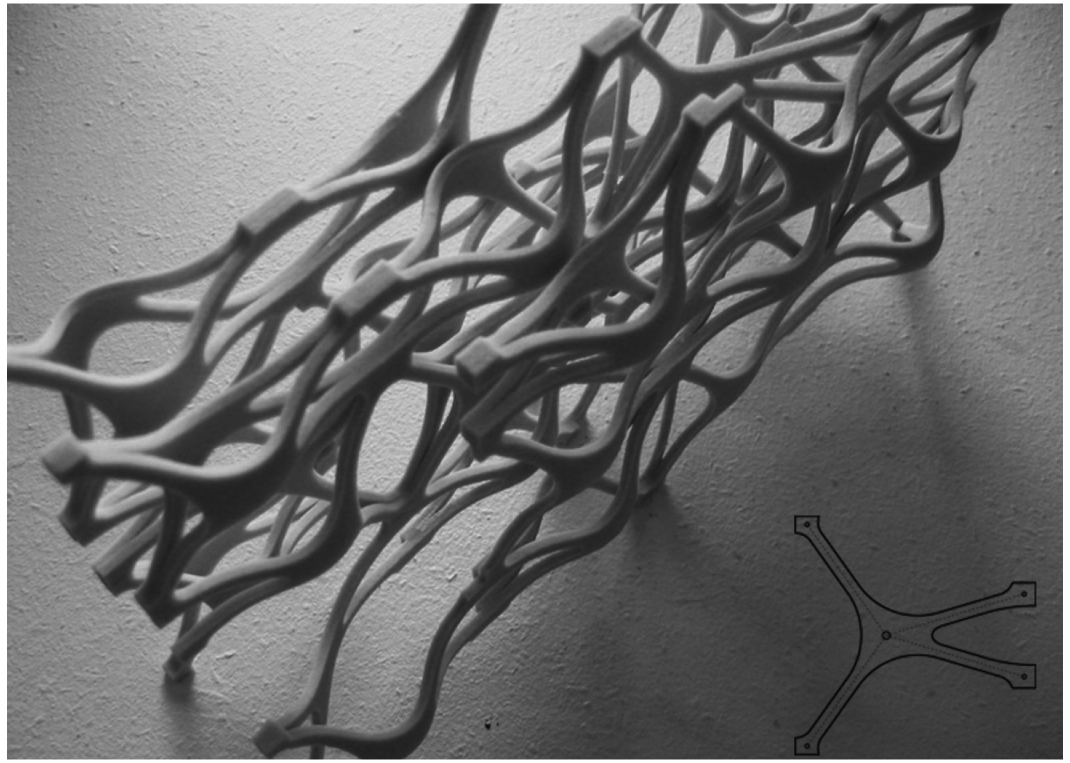


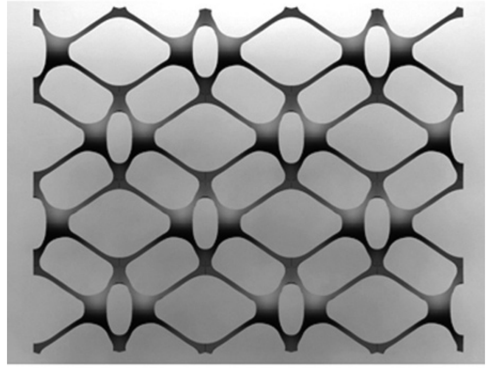
Unit type II

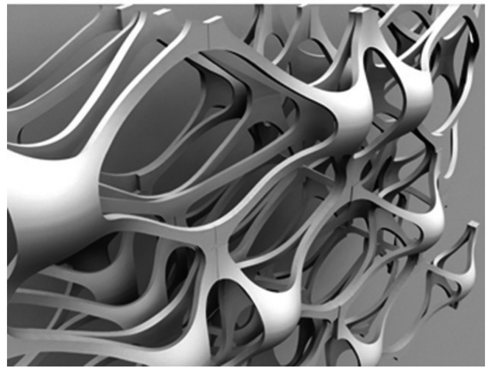


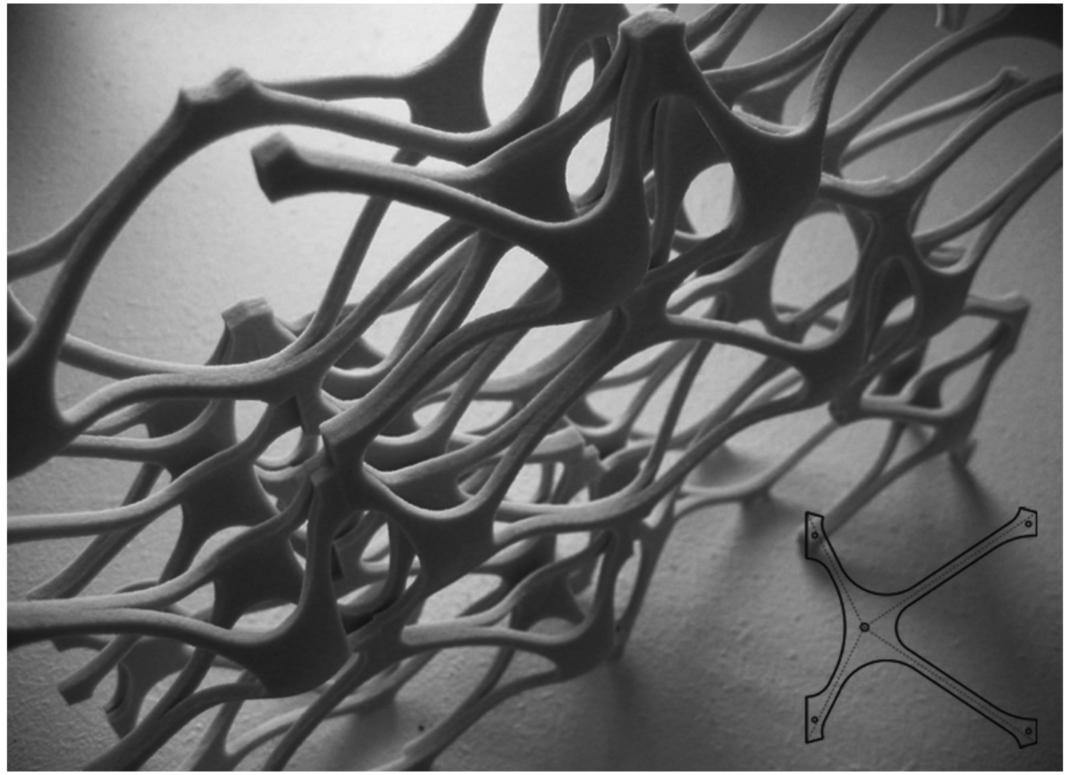








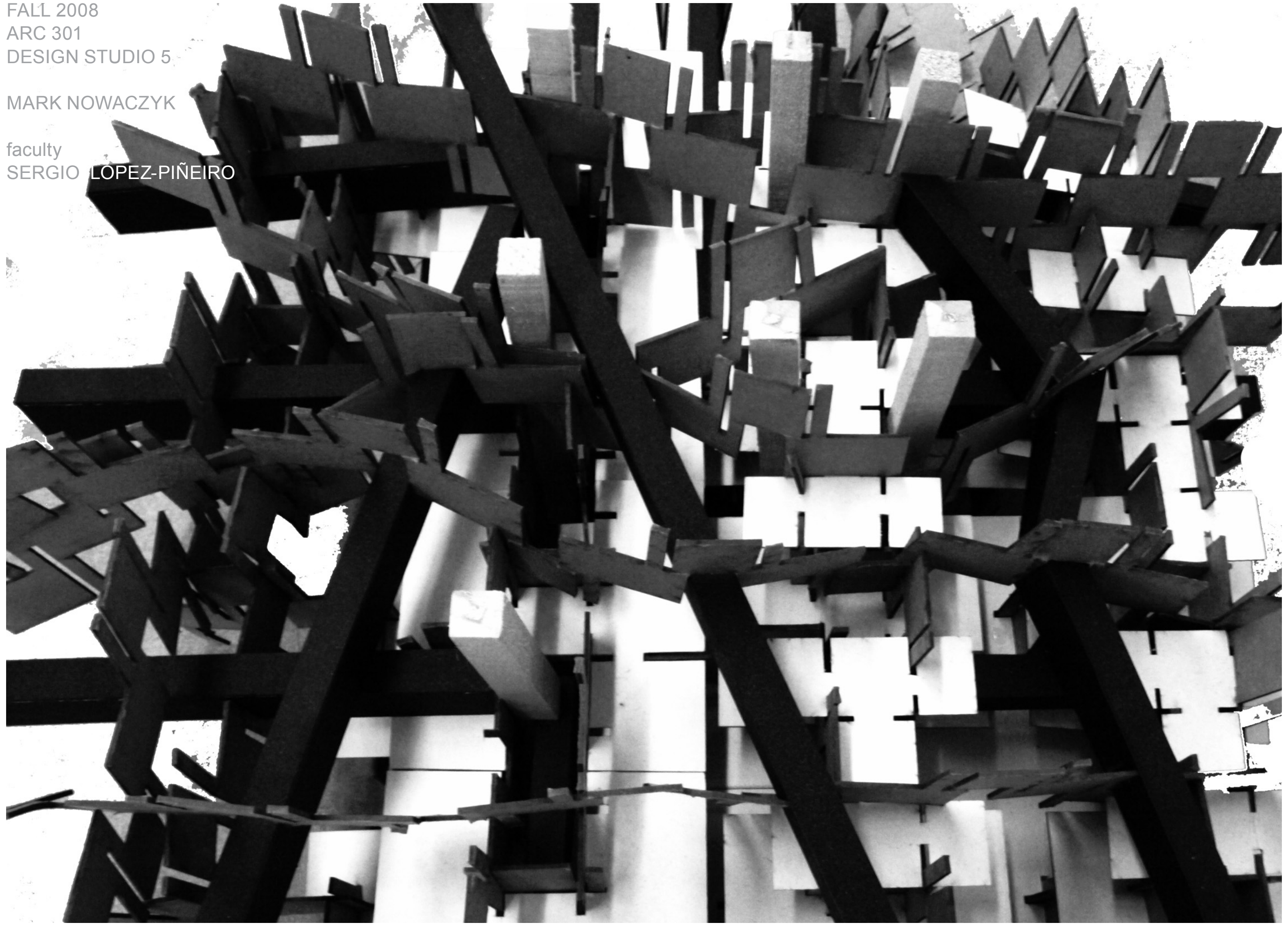




FALL 2008
ARC 301
DESIGN STUDIO 5

MARK NOWACZYK

faculty
SERGIO LÓPEZ-PIÑEIRO



SPATIAL EQUALITY

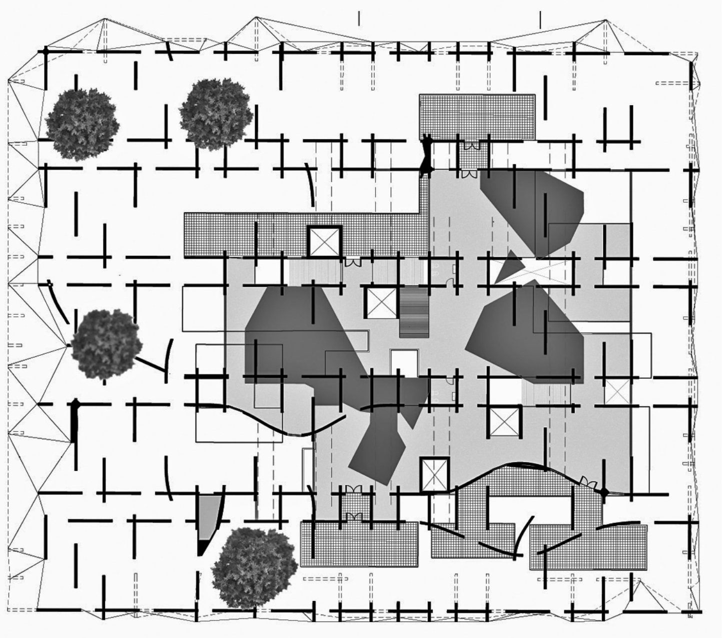
When analyzing the cultural history of the aquarium and aviary, one must be critical of the notion of caging animals. Upon designing such a facility in a context of animal exploitation, it is only responsible to stage a relationship between man and animal that brings more equality. Several design issues are addressed in this project, such as utilizing a modulated system to create form, deforming a pattern to control environmental and spatial conditions, and organizing multiple programs within a single construct.

An analysis responding to a cultural and social context establishes the project guidelines. The design serves as a shared inhabitable environment allotting equal space to birds, fish and humans. Each species is granted privacy, a public domain and the main necessities for survival (humans-ground, fish-water, birds-air). The building does not promote a spectacle, but rather stages an equal inhabitance. Environmental systems are derived from the manipulated construct by analyzing the connectivity of the successive layers. The creation of different environmental conditions through this analysis allows for each species to be accomodated within one organization. The aviary, an open volume of air, surrounds the inner core where fish live in large volumes of water and humans congregate on floor plates. The result is a democratic structure where humans, fish and birds dwell in equality.

First Floor Aquarium Sketch

First Floor Aquarium Rendering

Ground Floor Plan



Second Floor Plan

Section

SPRING 2008
ARC 202
DESIGN STUDIO 4

DANIEL LEONE

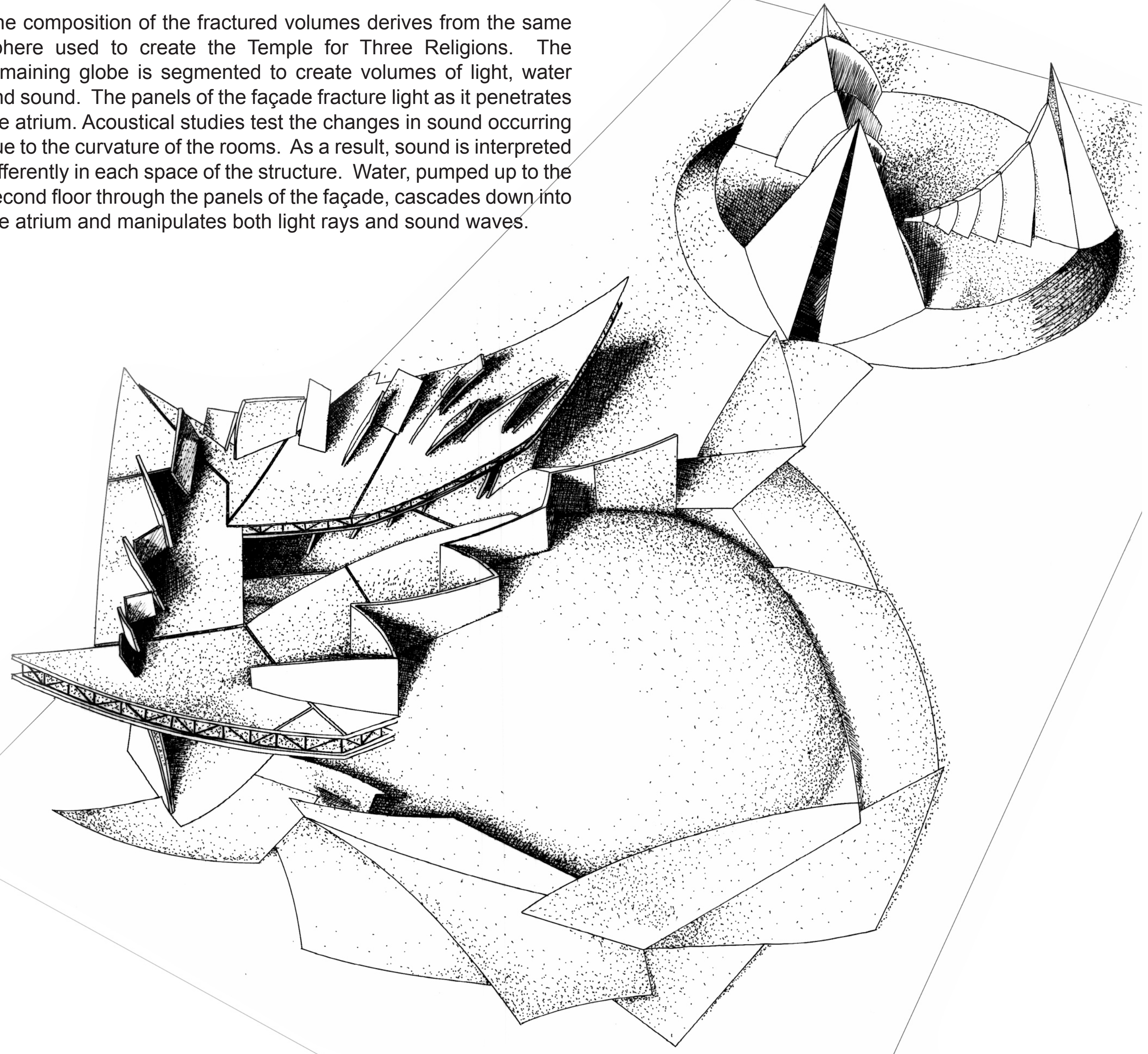
faculty
MILENKO IVANOVIC

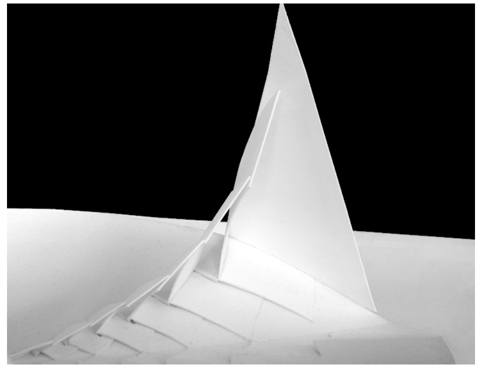
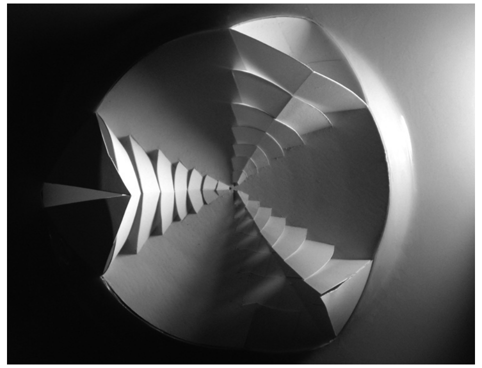
FRACTIONED SPHERE

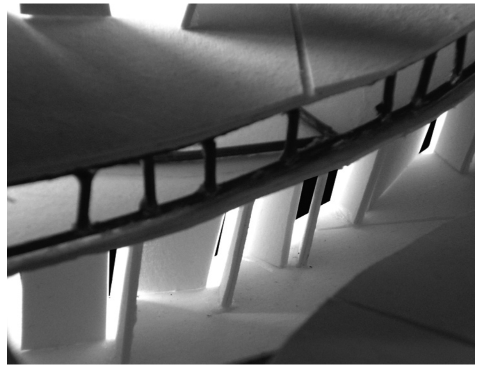
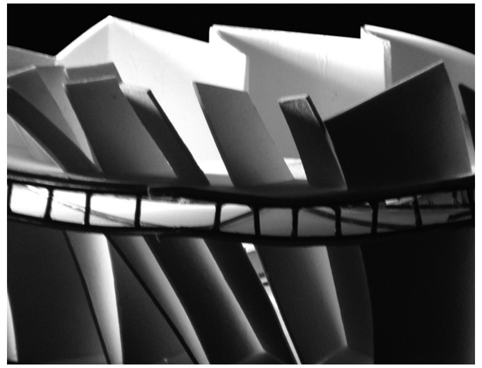
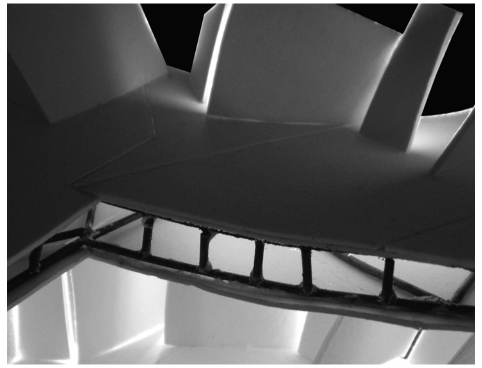
The fractioned sphere composes a series of structures within a single sphere. The physical and metaphysical properties of a sphere are taken into account and produce a single fractured sphere distributed across the site.

In the Temple for Three Religions, the symbolic significance of the perfect sphere is reinforced by three equal spaces generated by a tectonic movement of fractured segments. A small portion of the sphere enables parishioners to understand the orb in its entirety without viewing it formally. This speaks to the faith of certain religions where the father figure is interpreted but not seen.

The composition of the fractured volumes derives from the same sphere used to create the Temple for Three Religions. The remaining globe is segmented to create volumes of light, water and sound. The panels of the façade fracture light as it penetrates the atrium. Acoustical studies test the changes in sound occurring due to the curvature of the rooms. As a result, sound is interpreted differently in each space of the structure. Water, pumped up to the second floor through the panels of the façade, cascades down into the atrium and manipulates both light rays and sound waves.



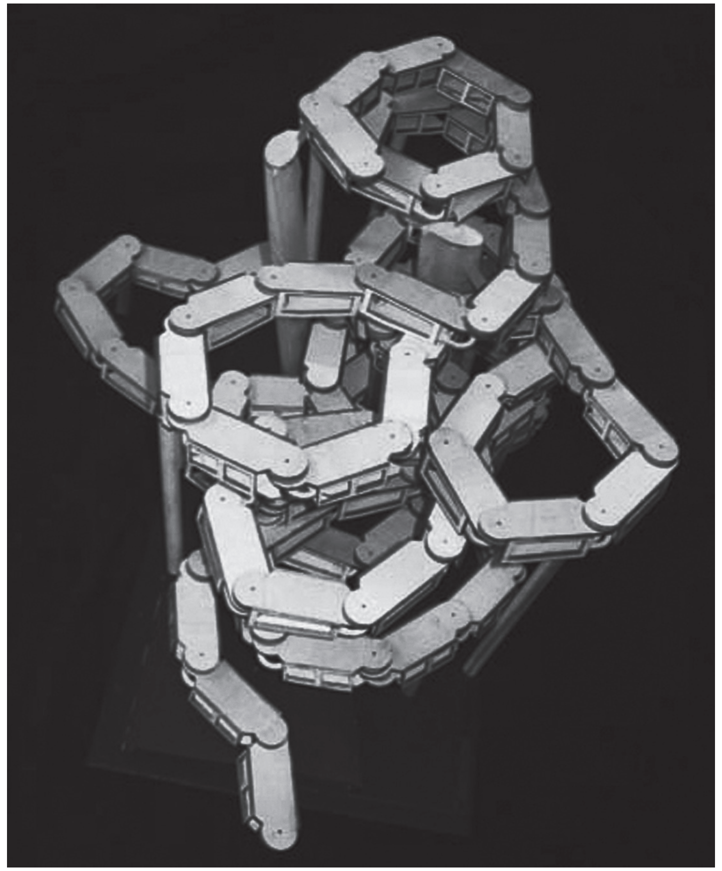






SPRING 2008
ARC 504
UPPER LEVEL DESIGN STUDIO 4

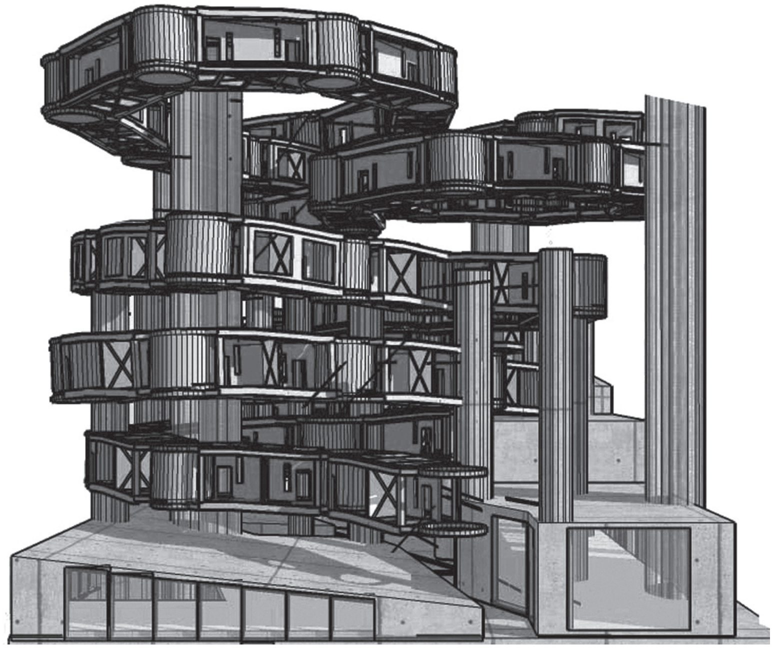
STEPHANIE DEUTSCH

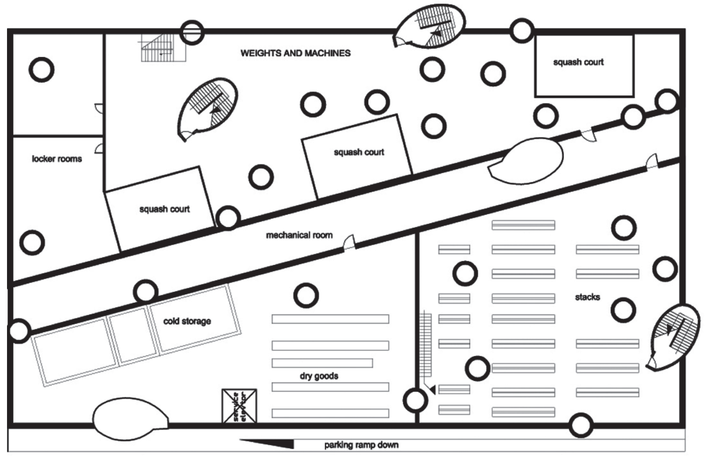
faculty
ANNETTE LECUYER
ADAM SOKOL



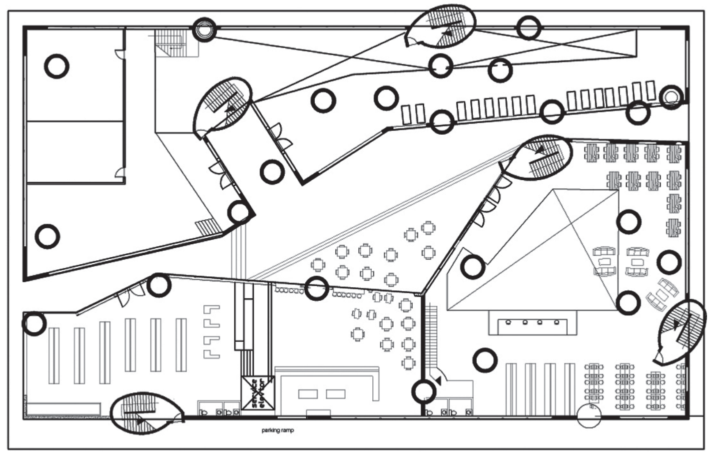
CHAIN

Inspired by a bicycle chain, this scheme develops population density without mass in order to provide housing for 200 university students. The site is split into two systems of construction which house different programs. Public space acts as a neutral ground while student living spaces hover above. Winding and stacking of overhead units, which are supported by columns that pierce through the public program, results in an unusual landscape that draws people into a new pedestrian street that crosses the site. The elevated rooms provide individuals with a quiet inspiring space to sleep, rest and think while other needs such as studying, eating and exercising take place in the public grounds at the base of the building.

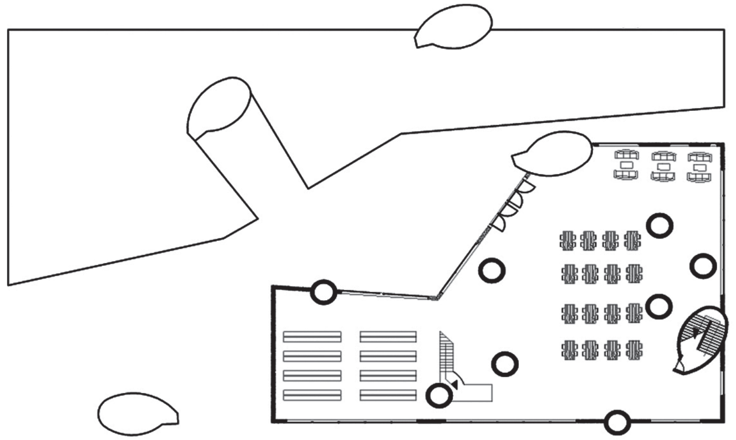




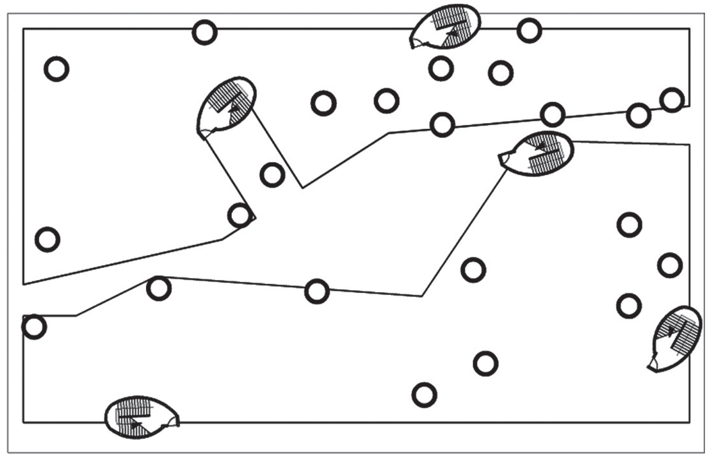
UNDERGROUND



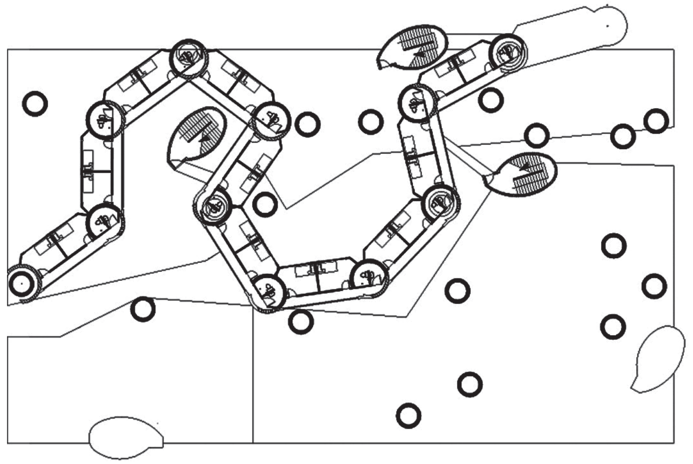
GROUND PLAN



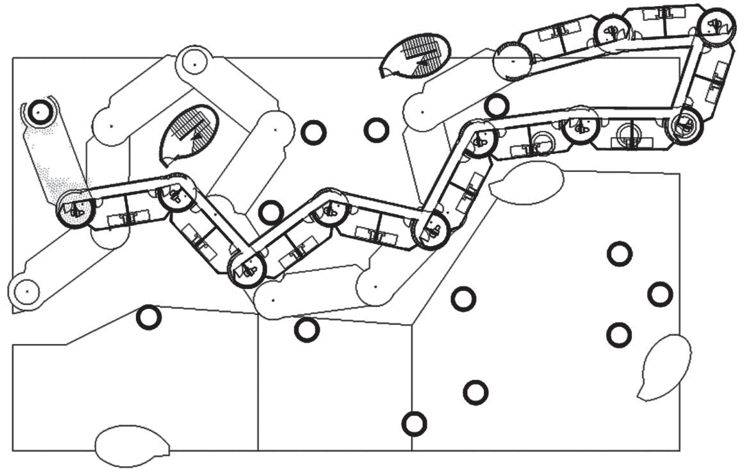
2ND AND 3RD FLOOR LIBRARY



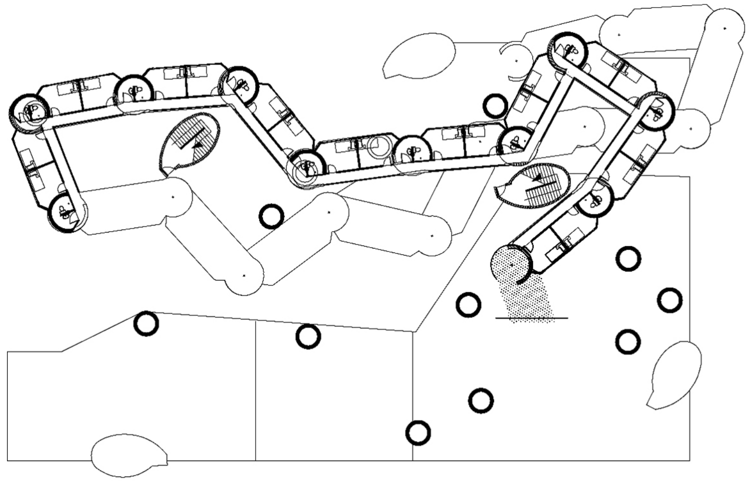
COLUMN PLAN



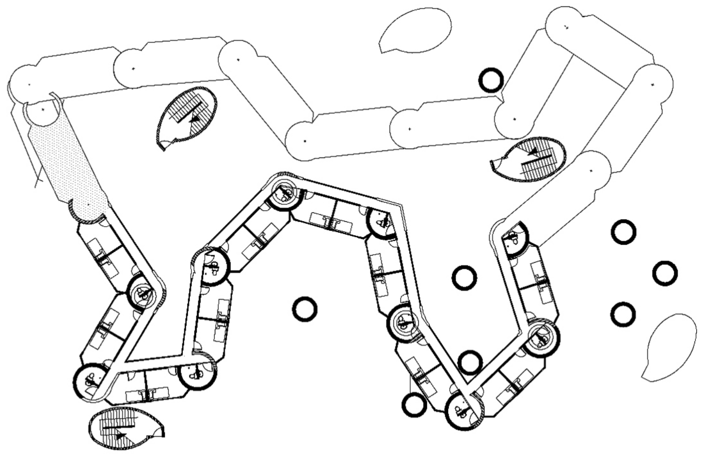
+17' (LEVEL ZERO)



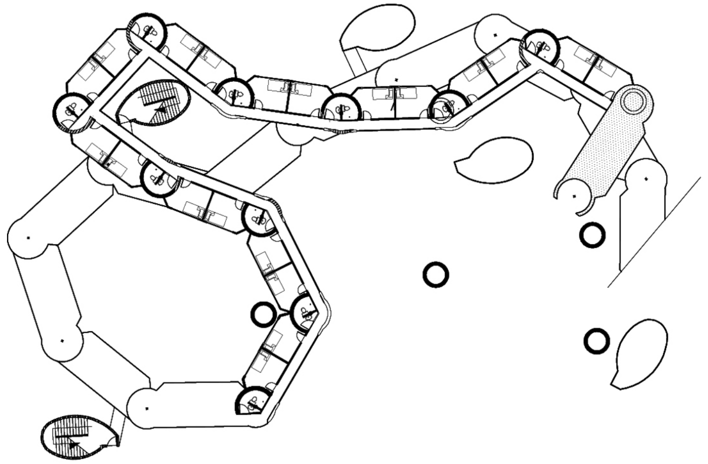
+27'



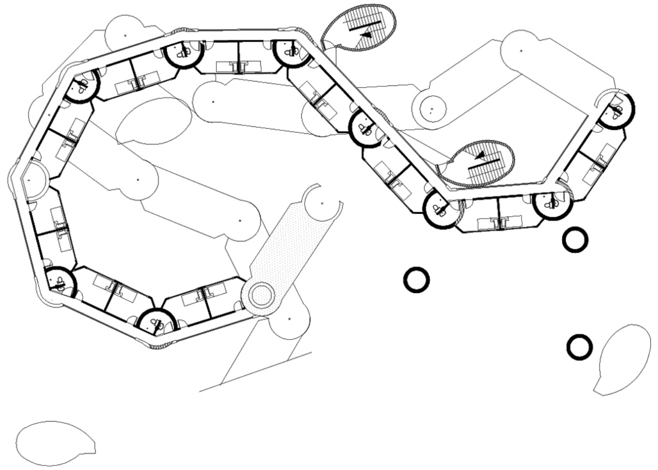
+37'



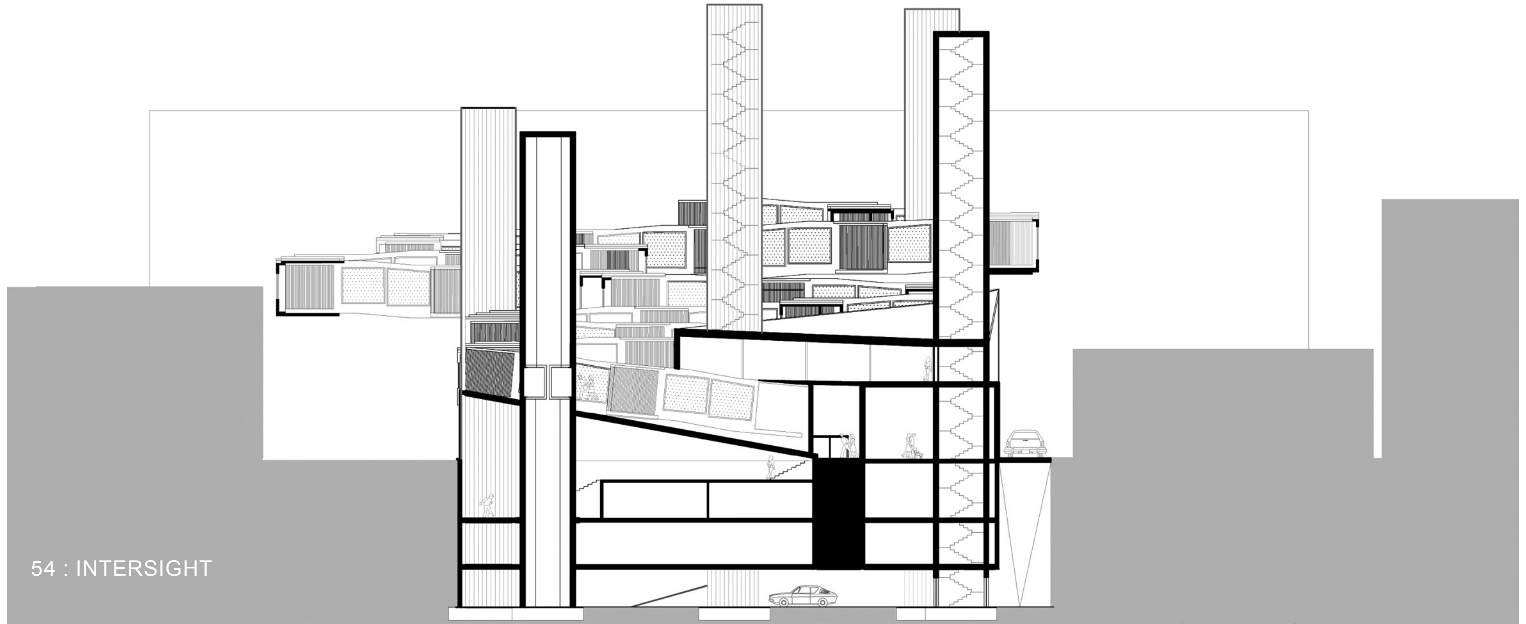
+47'

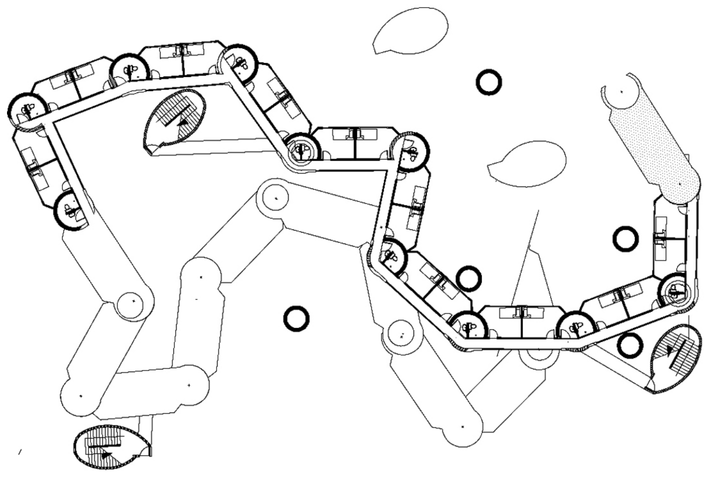


+77'

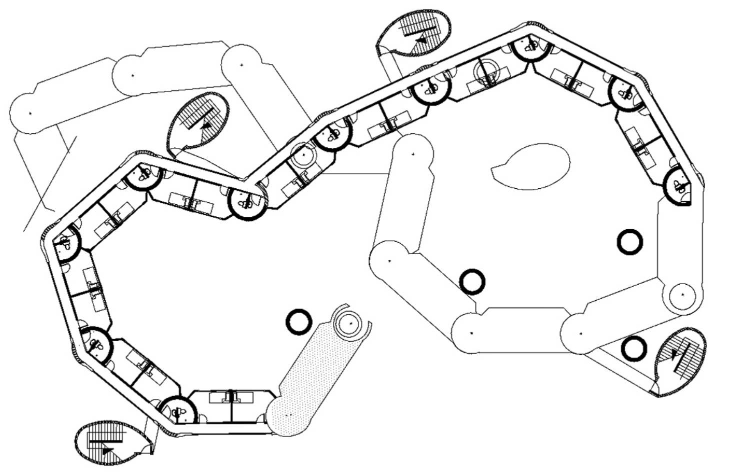


+88'

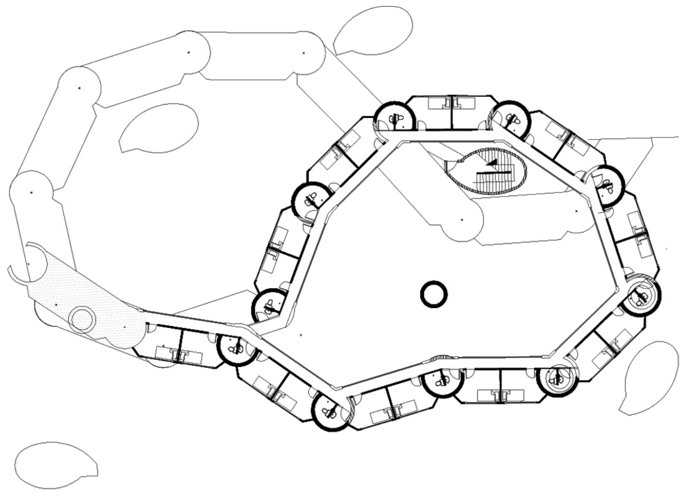




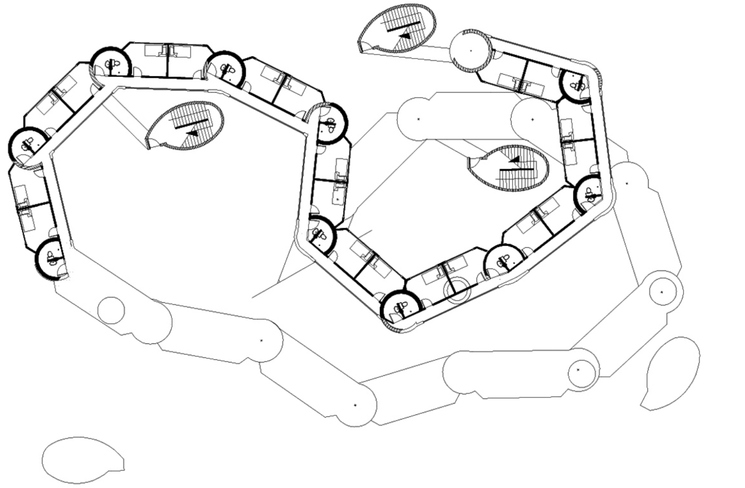
+57'



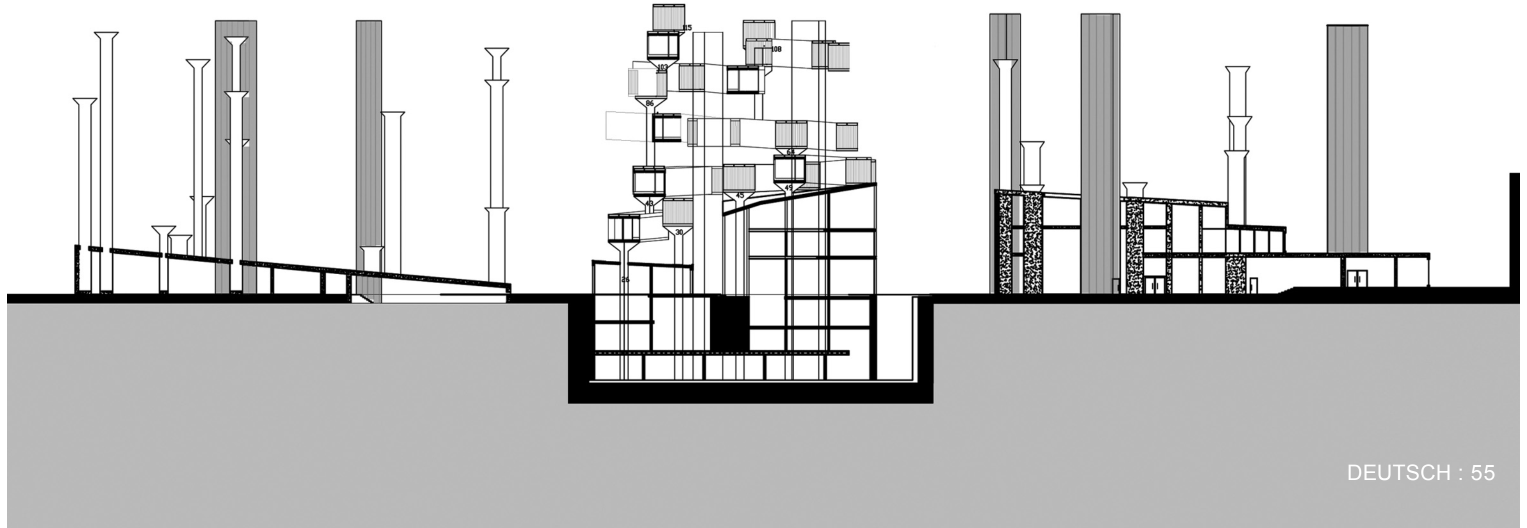
+67'



+98'



+108'



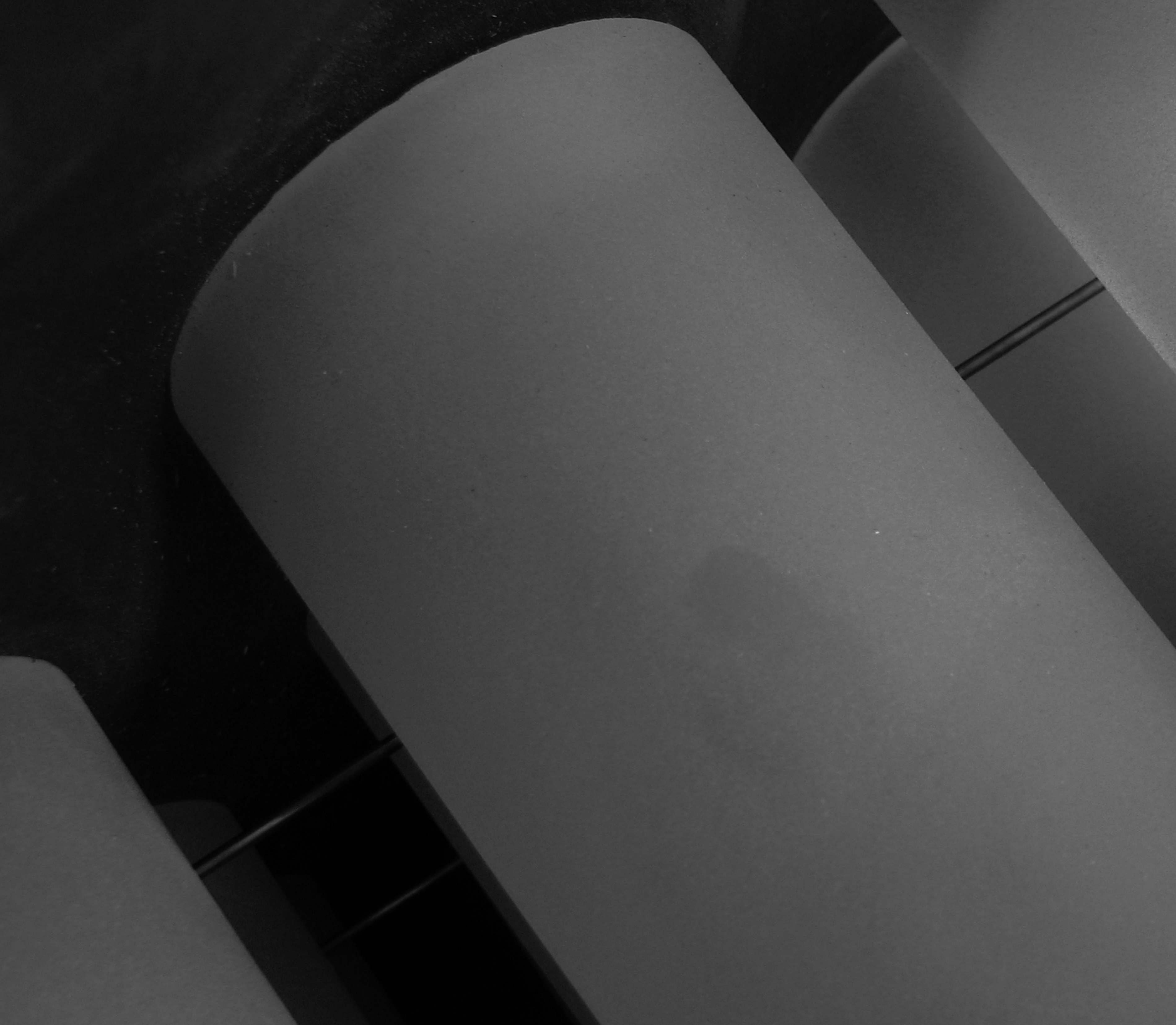


Image provided by: Gregory Hess + Ernest Ng Hiok Hoe

S Y M M E T R I A s y m m e t r y

ADAM LEVIN

Derived from the Greek, “summetria,” symmetry originally denoted a concordance of parts. While this is still its primary meaning, symmetry can also signify proportion, identity and equivalence. As such, it defines a system of ordering that emphasizes not only the relationship between the parts of an object and the whole, but also that between the whole and itself.

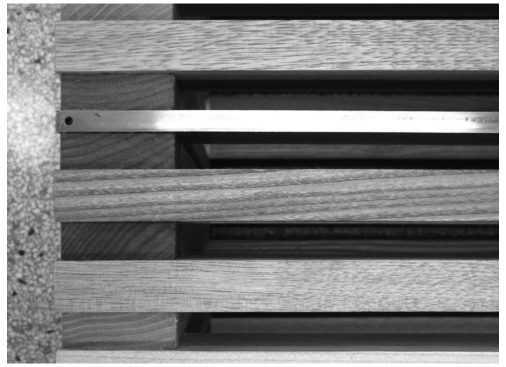
In architecture, the presence of symmetry is often considered a sign of balance and stability that can function both formally and metaphorically. In contrast, asymmetrical compositions are often imbued with a sense of agitation, dynamism, instability and flux. These effects can be read symbolically either as a reflection of prevailing social conditions, or in terms of the architect’s reaction to these conditions as a prescription for transcending or correcting them.

Symmetrical structures can also be dynamic, as in many Gothic cathedrals. Thus despite the tendency of twentieth and twenty-first century architects to disparage symmetry as retrograde, there is no inherent benefit to be gained in architectural structures by developing an asymmetrical composition beyond the aesthetic or programmatic intentions of the architect.

FALL 2008
ARC 599
INDEPENDENT STUDY

MICHAEL-JOHN BAILIE
ERNEST NG HIOK HOE
DANIEL STRIPP

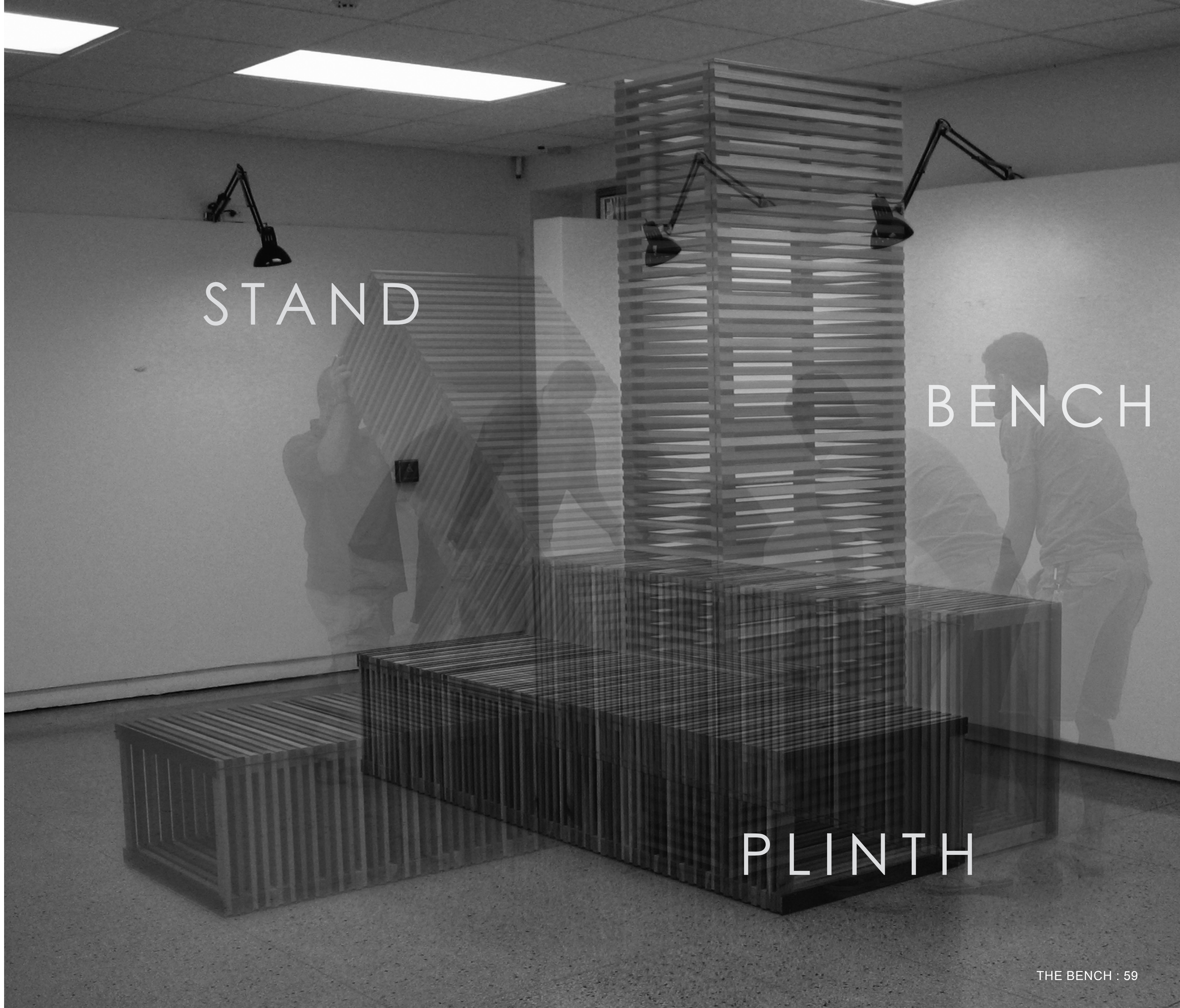
faculty
ANNETTE LECUYER




THE BENCH

Inspired by the work of Peter Zumthor's "*Topography of Terror*," an unfinished project in Berlin, Germany, the design and fabrication of the bench explores this unrealized scheme in a different context and scale. The structure is a system of repetitive wooden components that are stitched and clamped with steel sections. The resulting system produces a rigid structure held together with only 16 countersunk screws. The fabrication process aspires to be a highly precise operation with minimum customization and woodworking skills.

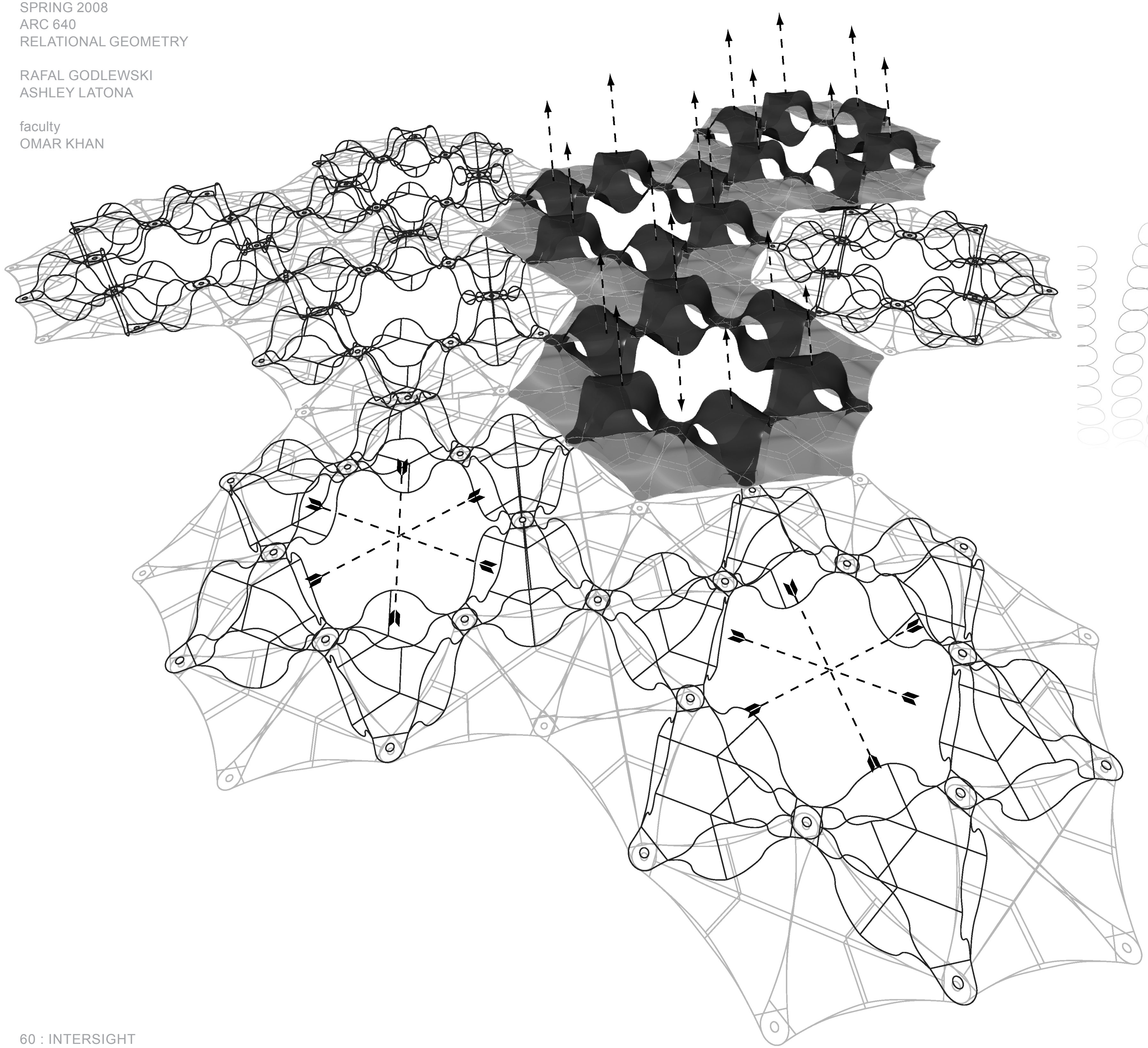
Designed as a permanent installation for the lobby of Hayes Hall in the School of Architecture and Planning at University at Buffalo, the bench is versatile and can be repositioned horizontally as a plinth for models or vertically as a stand for pin-ups.

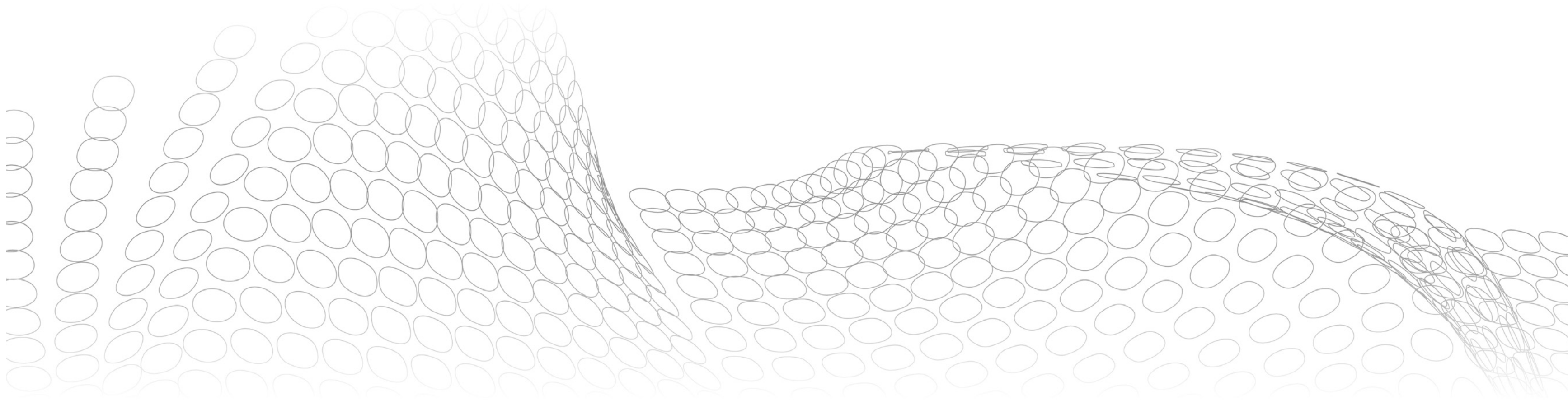


SPRING 2008
ARC 640
RELATIONAL GEOMETRY

RAFAL GODLEWSKI
ASHLEY LATONA

faculty
OMAR KHAN



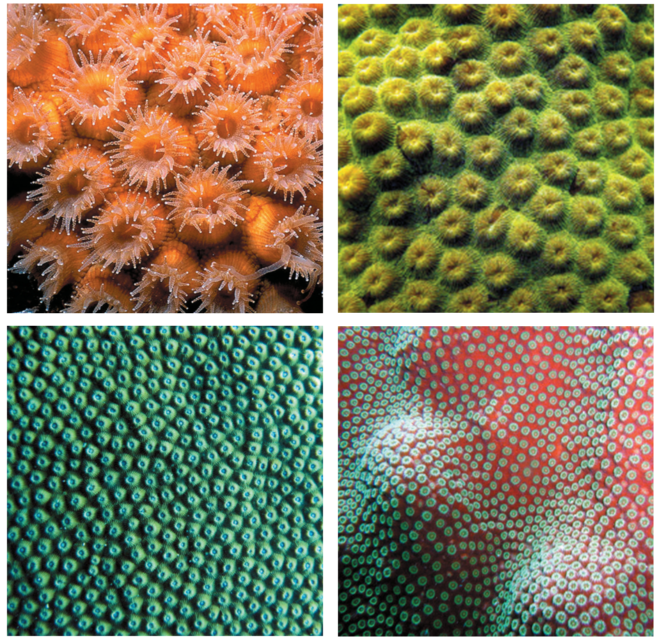


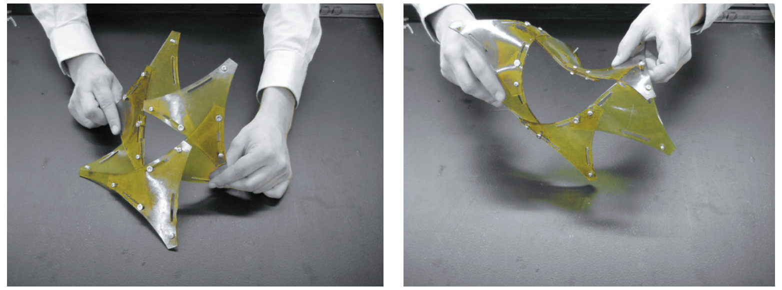
POLYPSURFACE

PolypSurface is the study of relational geometries found in coral. The investigation includes the ways in which polyps open and close, the methods of how they are arrayed, and the relationship between the individual and the collective.

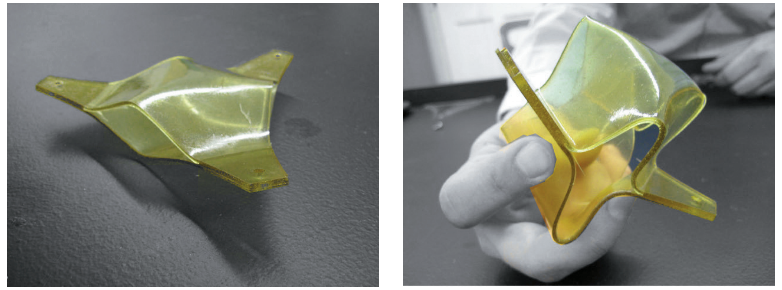
The initial study begins with pinned planar individual units that affect the surface when they shift and continues with the development of a flexible unit. Polyurethane rubber is used as a material that could be flexible and adaptive. As a collective, the resulting surface undulates and flexes as each unit affects the other by either pushing or pulling.

The performance of the PolypSurface is applied to mediate air and light. Certain units are conceived of as air containers with simple analog sensors; these units expand or contract when exposed to sunlight or heat. The PolypSurface therefore continually shifts and moves with this form of feedback system.

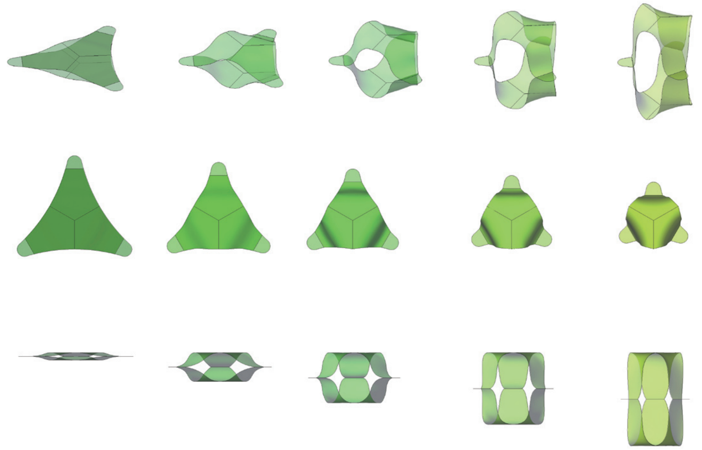


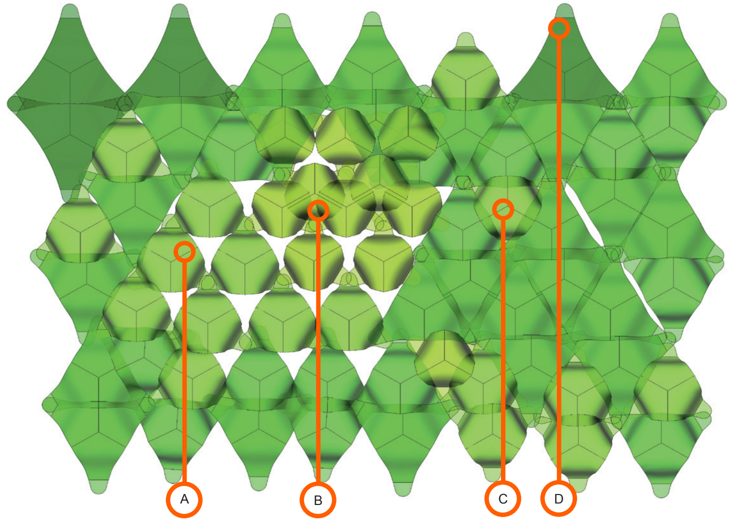


Pinned units that can both shift and flex

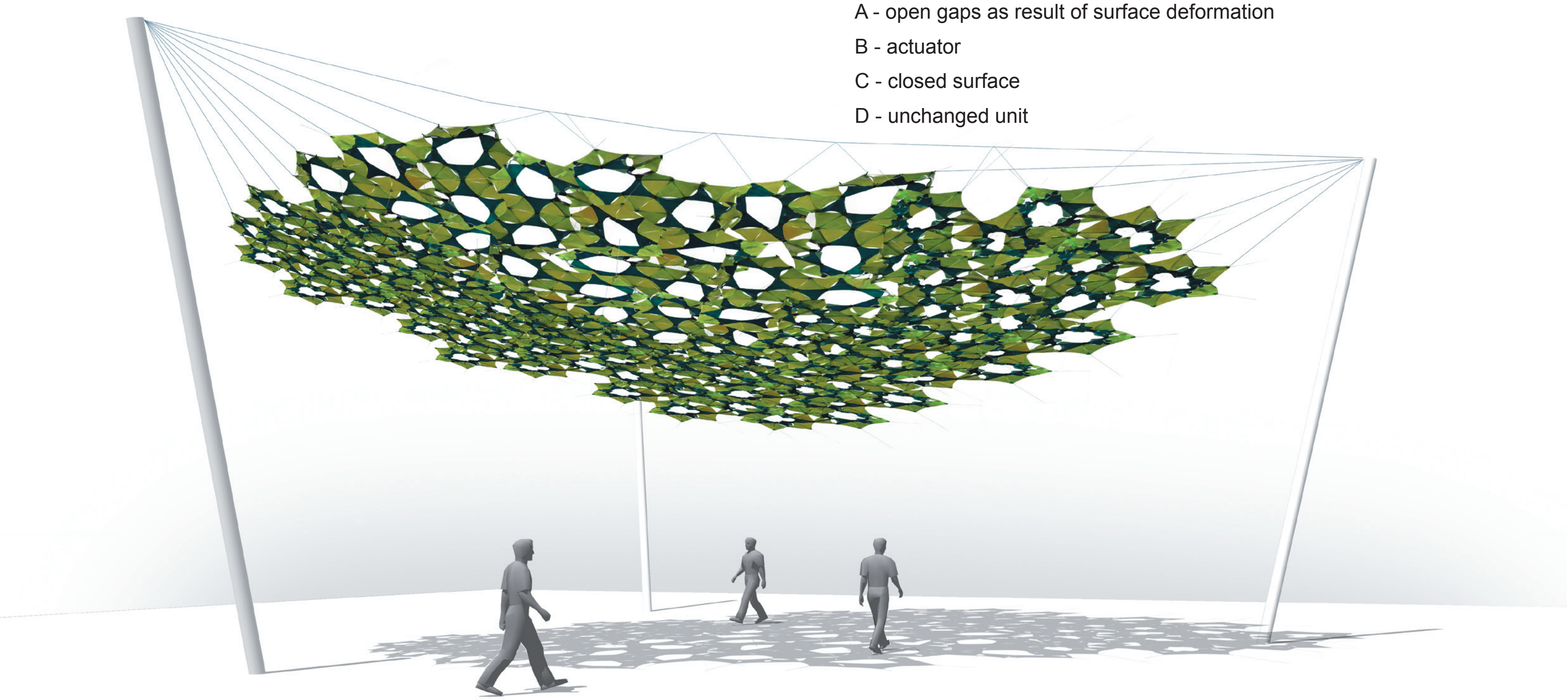


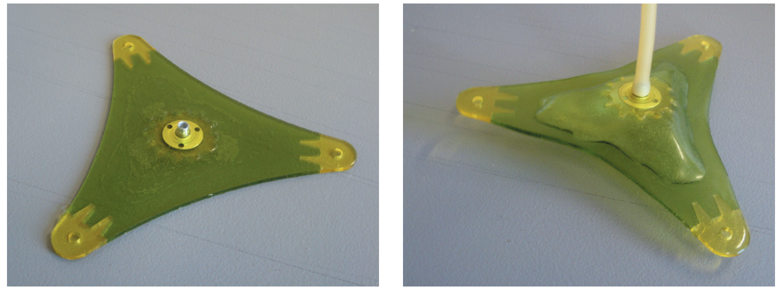
A unit collapses with pressure



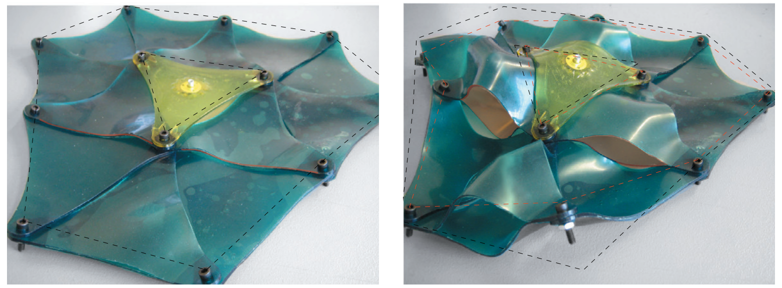


A - open gaps as result of surface deformation
B - actuator
C - closed surface
D - unchanged unit

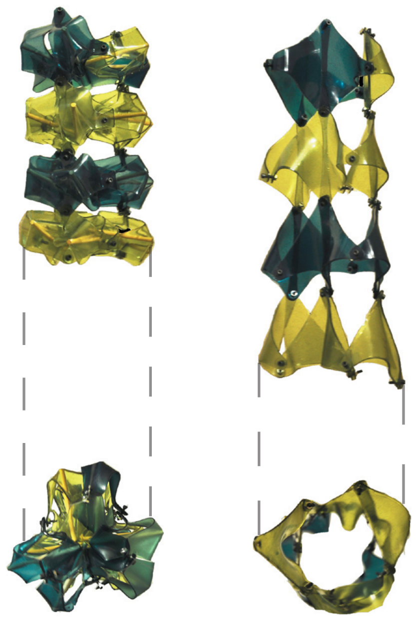




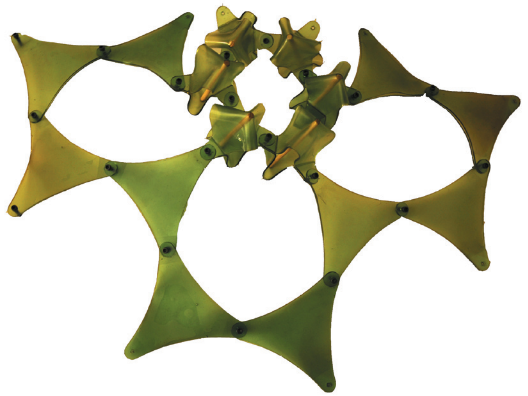
A unit designed as an air container

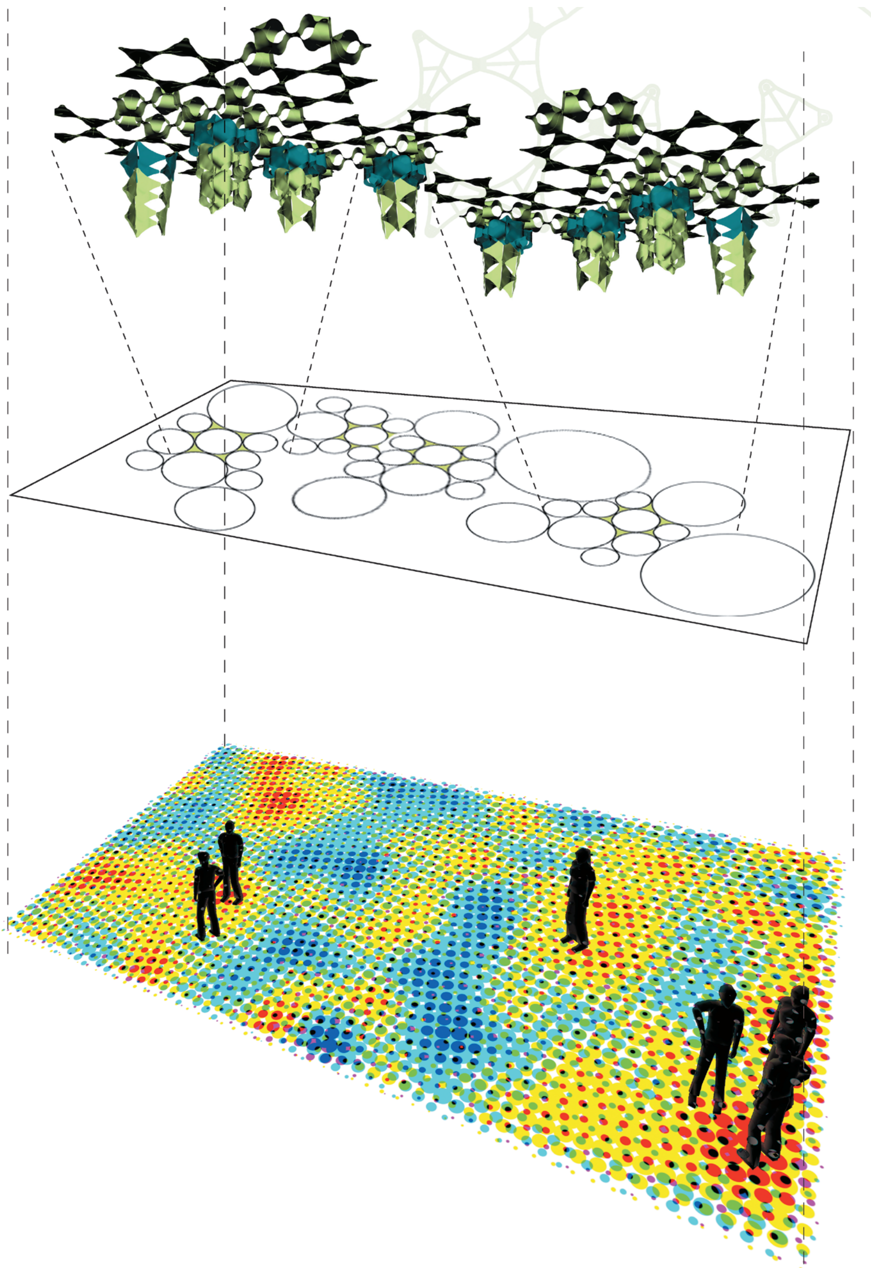


Aggregation of different units resulting in a responsive surface



Units retract to limit air and light

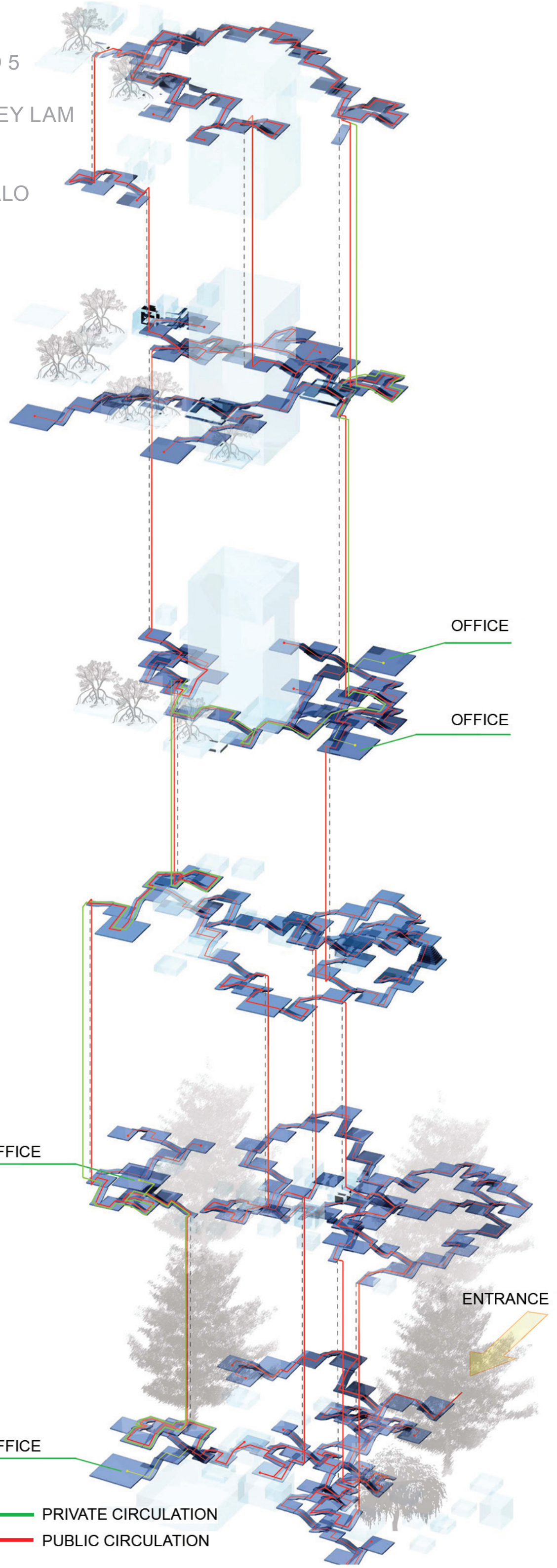


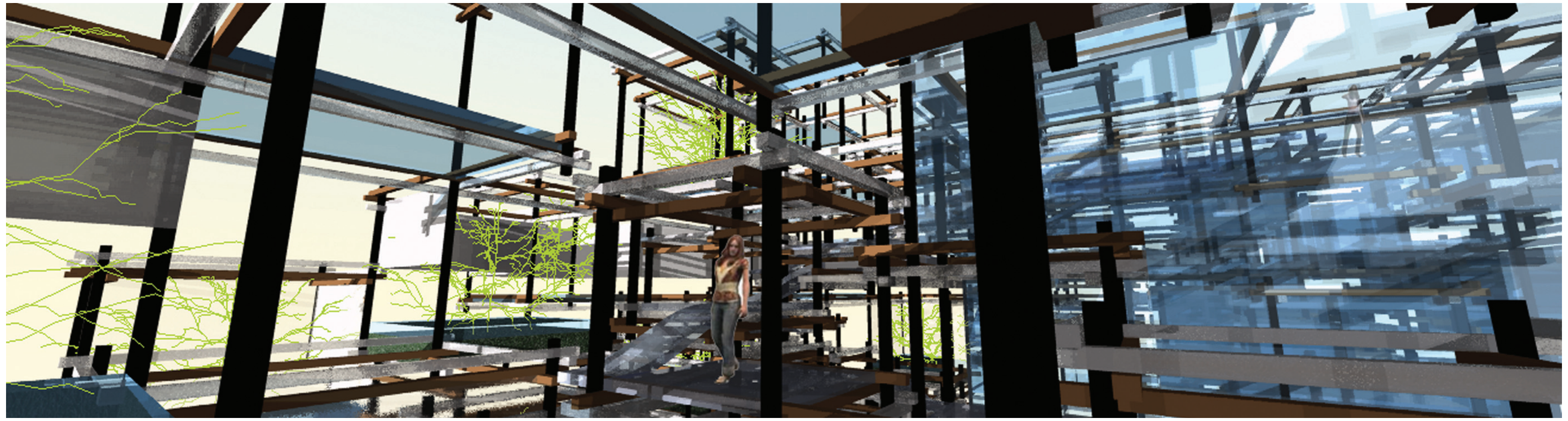


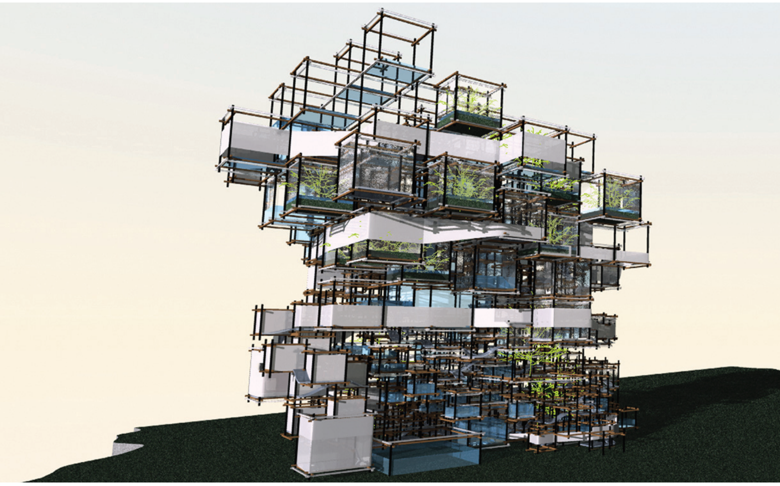
FALL 2008
ARC 301
DESIGN STUDIO 5

CHIWING WESLEY LAM

faculty
LAURA GAROFALO





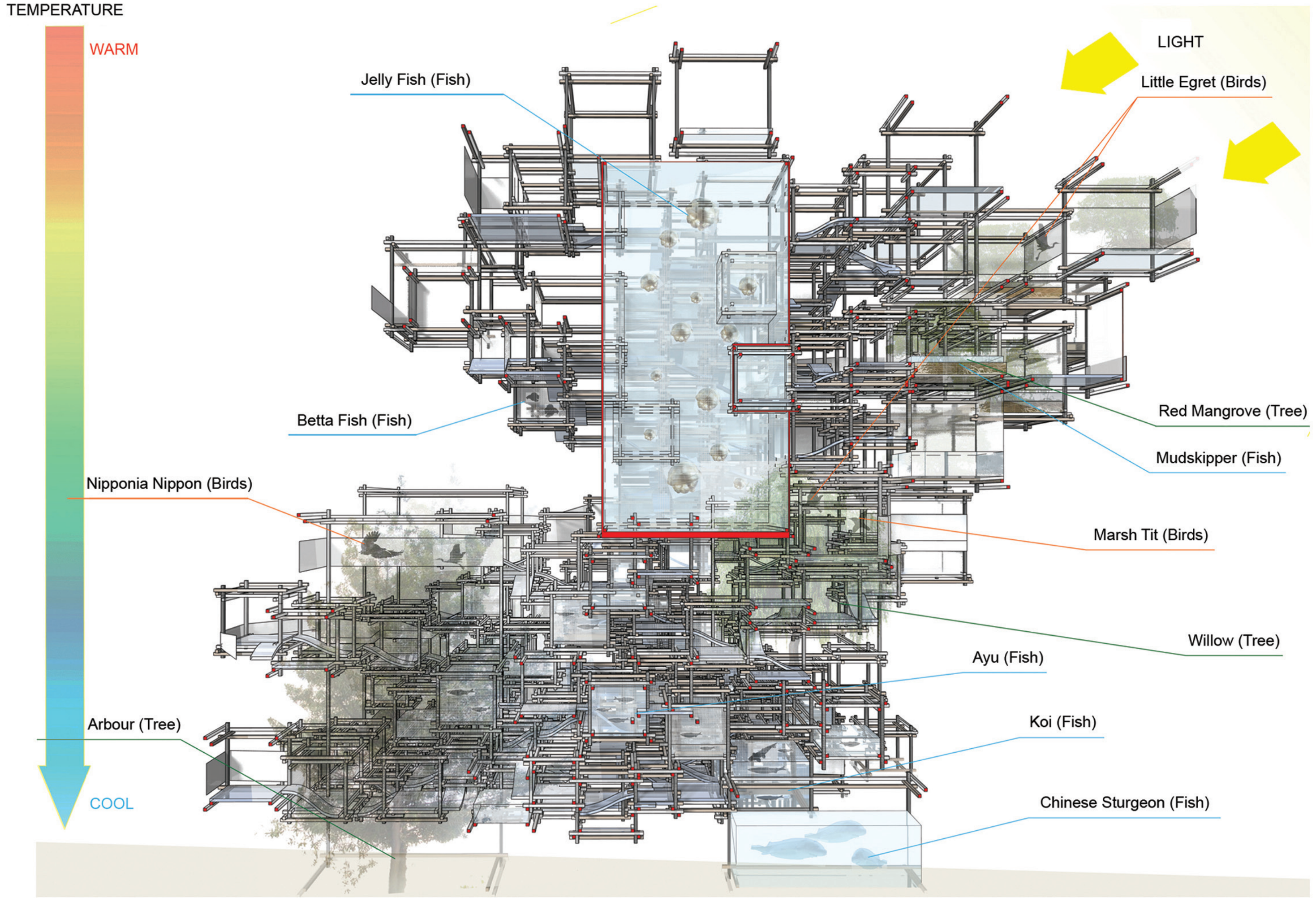


ORGANIC PATTERN

The study of interrelated building components provides inspiration for a design containing multiple repetitive elements. The elements are modified to achieve an alternative spatial relationship and environmental control. Another study of textiles stimulates the construction of a three-dimensional structure emerging from a two-dimensional pattern. This three-dimensional structure contains the capability to expand and extend into infinity.

To imply the variation of multiple systems, the pattern is modified to accommodate artificial and natural light; water containment and flow; air circulation and ventilation; and spatial sizes and connections. The pattern is then rearranged to create an aquarium and aviary while using the multiple environmental elements within the building. Breaks in the regularity of expansion occur, allowing for growth according to programming needs.

The project focuses on each unit of the system. An assortment of scaled units is placed together to provide different spatial environments. The change of scale provides an opportunity for unique spaces to interconnect. To control water and air temperature, warm spaces are placed on upper floor levels of the building facing to the southwest. The warm water flows down and is cooled by natural air away from the sunlight. When the cool water reaches the lower areas, environments are created for fish and plant life. Visitors can walk alongside trees, sit with the birds or walk alongside the fish, thus establishing a connection through circulation paths.



Sectional Environmental Relationship

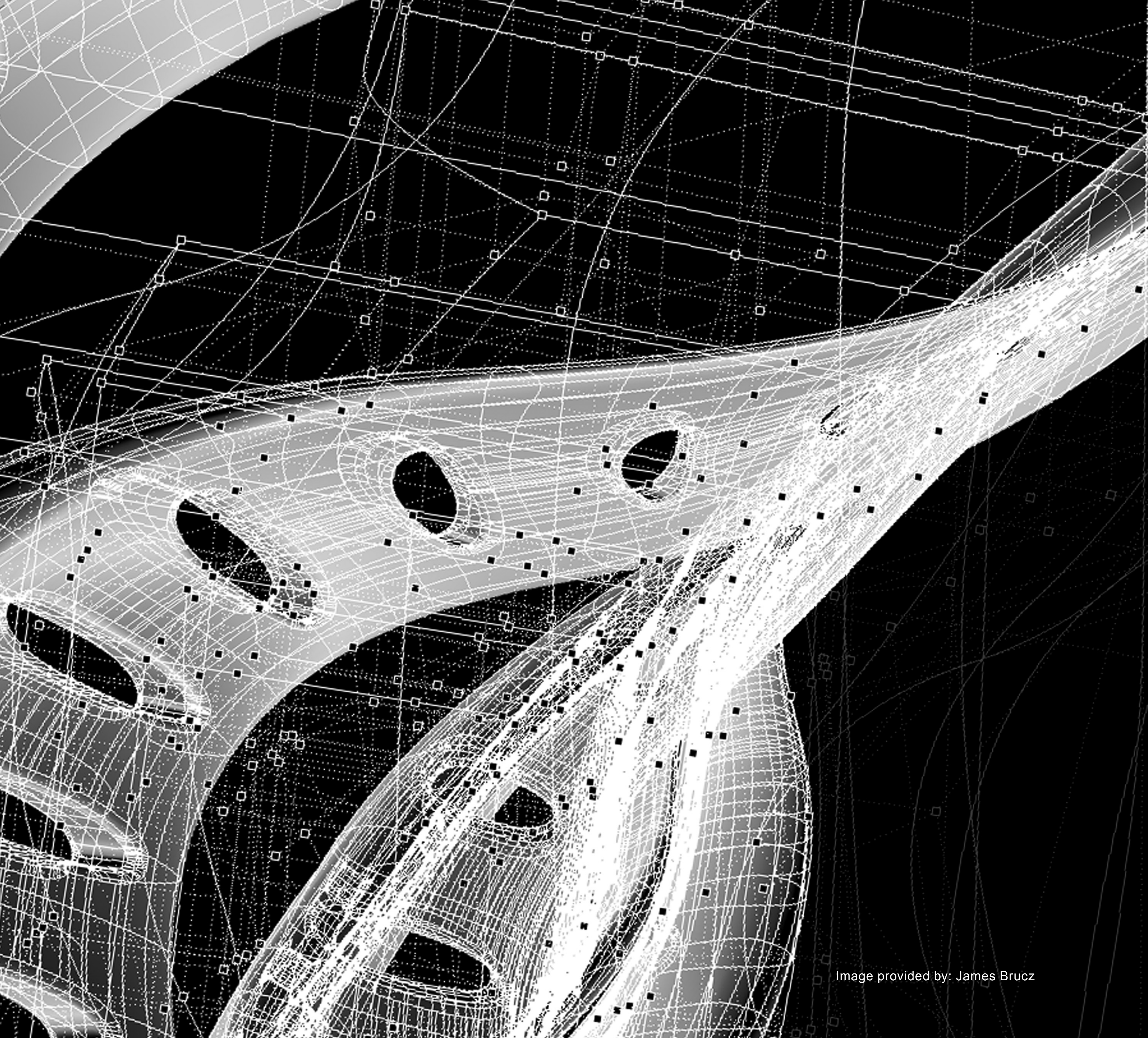


Image provided by: James Brucz

D É C O R correctness

ADAM LEVIN

Architects have traditionally dealt with the consideration of décor in three distinct ways.

The semantic approach focuses on the appropriation of architectural precedents in order to inform the underlying message which a structure is designed to convey. Thus, early American architects, like Thomas Jefferson and William Strickland, used the architecture of ancient Greece and of the Roman Republic to create an architecture that expressed the democratic ideals of the new nation. While their appropriation was not slavish, there was an insistence on the proper application of Greek and Roman standards in order for the meaning behind their work to be readily legible.

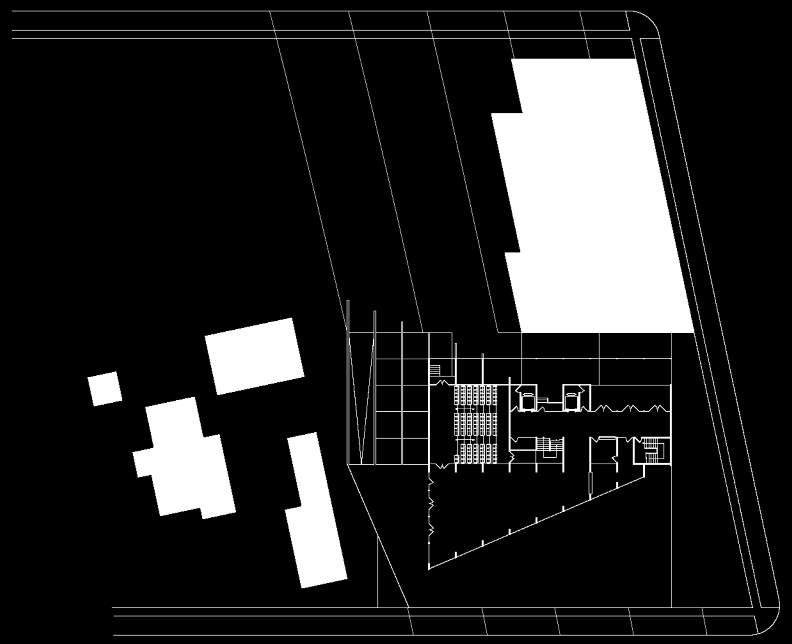
In contrast to the semantic approach, a syntactic methodology emphasizes structure over meaning. An early example of syntactical studies in décor is Viollet-le-Duc's "*Lectures on Architecture*," from 1858 and 1872. The work analyzes Gothic precedents in terms of structure, and proposes ways in which contemporary architects can combine traditional structural approaches with new materials to develop original works of architecture.

A third response to tradition, typology, can be seen as a synthesis of the other two. This approach focuses on the legibility of a building's function in the absence of any precise semantic reading. Work in this field stretches as far back as Jean-Nicolas-Louis Durand's "*Precis*," from 1802 – 1805. In addition, mid-century Modernist architects, including Aldo Rossi, have exhaustively researched the role of typology in architecture.

SPRING 2008
ARC 302
DESIGN STUDIO 6

JOSEPH PIWOWARSKI

faculty
OMAR KHAN

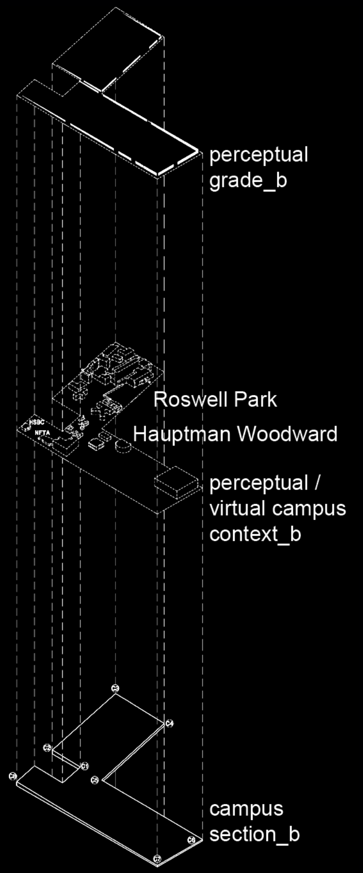


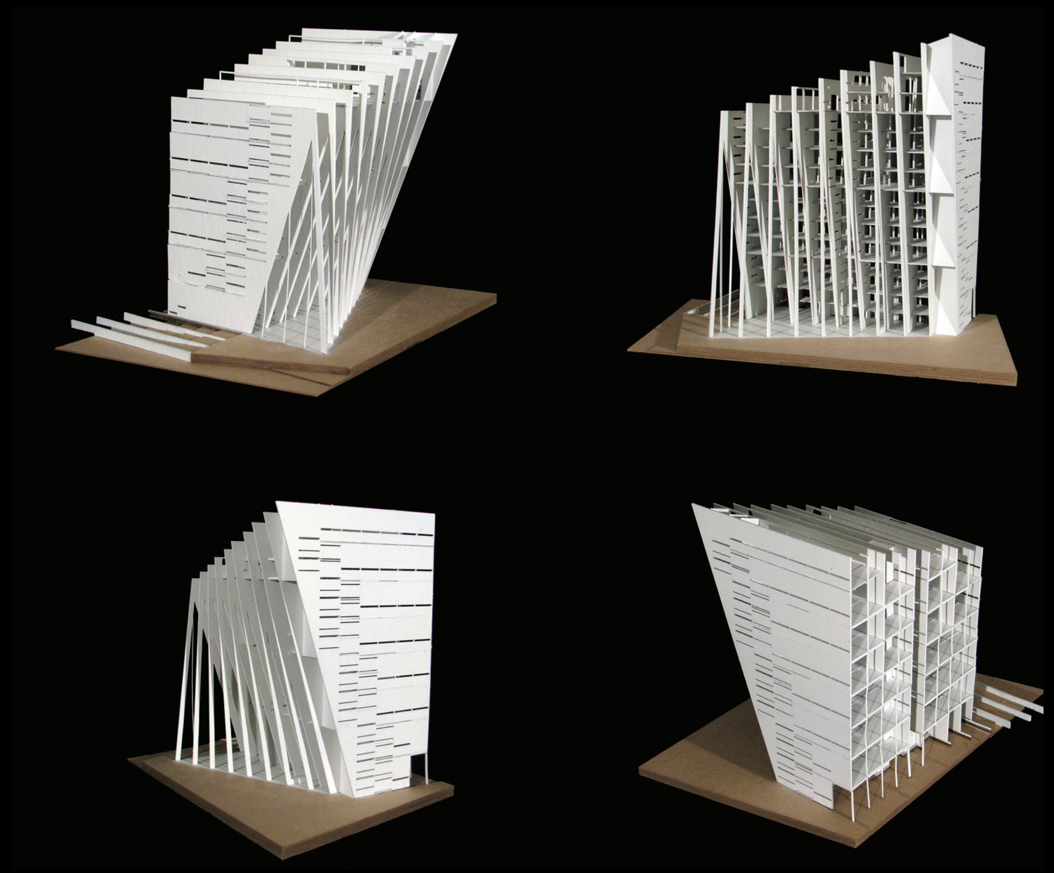
SHIFTING INDEXES

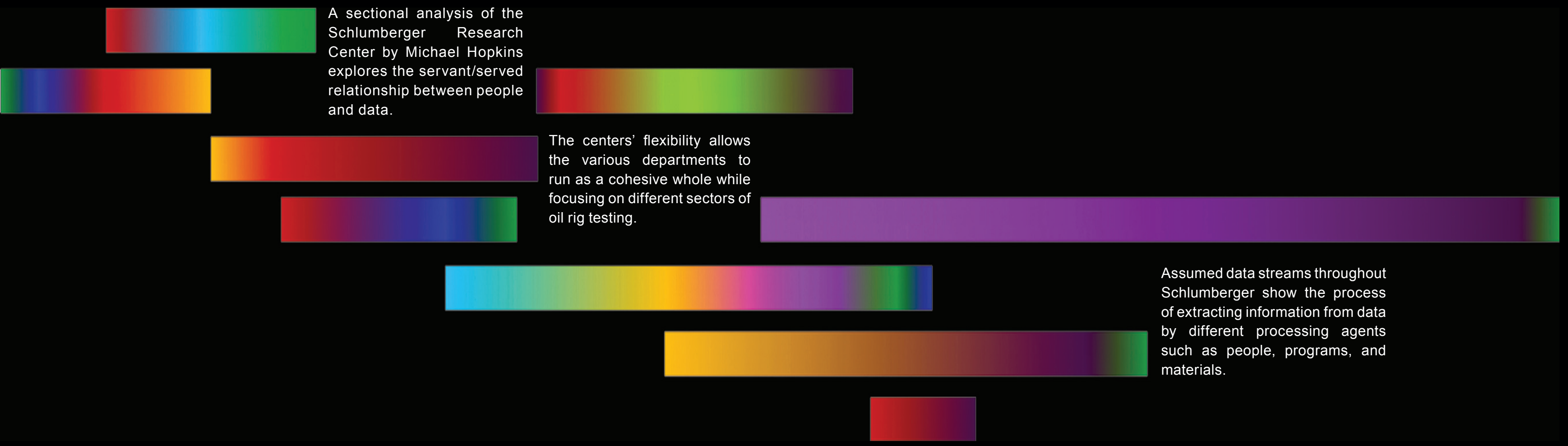
Following an initial analysis of the Buffalo-Niagara Medical Campus (BNMC) located in the heart of the city of Buffalo, a relationship emerges between virtual and perceptual elements of the building. A design proposal introduces a series of vertical planes representing the existing virtual elements of the building. By introducing a horizon line to the vertical planes, a new environment of sequenced spaces is created.

The buildings' lobby is designed to direct patrons to the main entrance located on the south facade by locating the most public activities at the corner of High Street and Ellicott Street. The building creates a series of shifting horizontal planes arranged on a twelve foot module organizing the program of the genomics laboratory. The sloped roof, which faces south, is designed to be lightweight so as not to confine the activities within. Ten structural fins of pre-cast concrete provide a framework for the laboratory. A modular floor plan extends towards Ellicott Street and defines the extent of the laboratory spaces.

A series of columns influences specific directional movement throughout the campus. These columns create framed views for campus visitors. In addition, the site begins to relate to the shifting indexes creating a perceptual horizon.



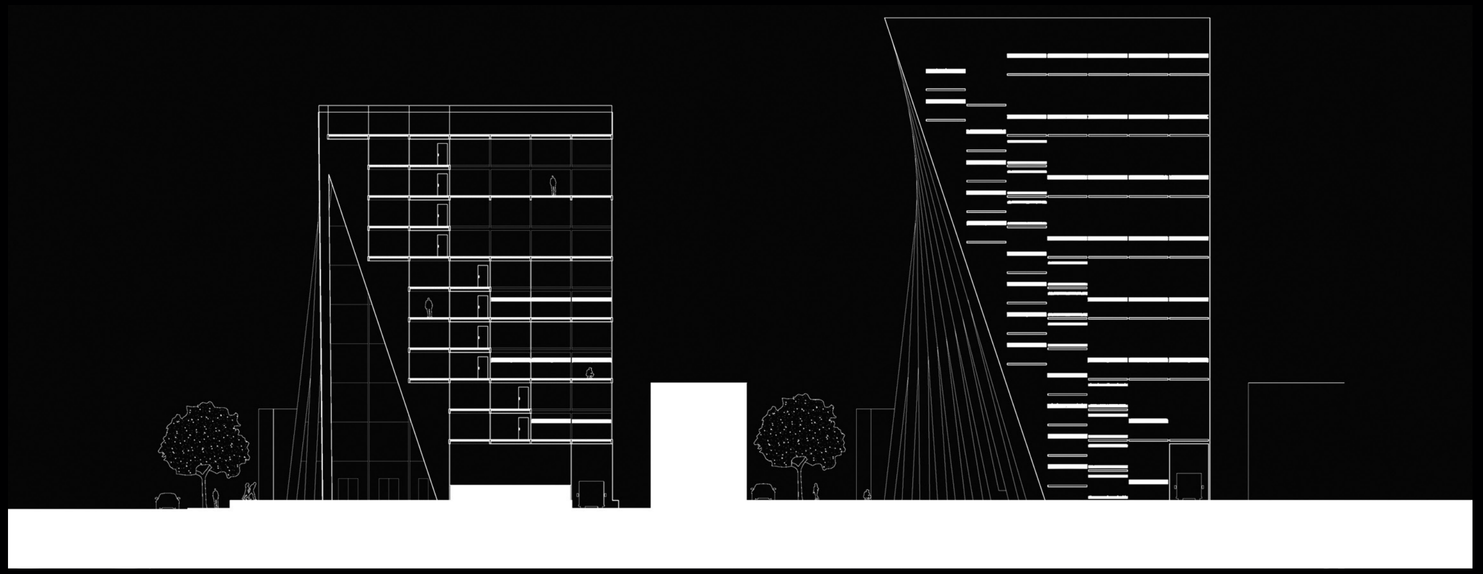




A sectional analysis of the Schlumberger Research Center by Michael Hopkins explores the servant/served relationship between people and data.

The centers' flexibility allows the various departments to run as a cohesive whole while focusing on different sectors of oil rig testing.

Assumed data streams throughout Schlumberger show the process of extracting information from data by different processing agents such as people, programs, and materials.



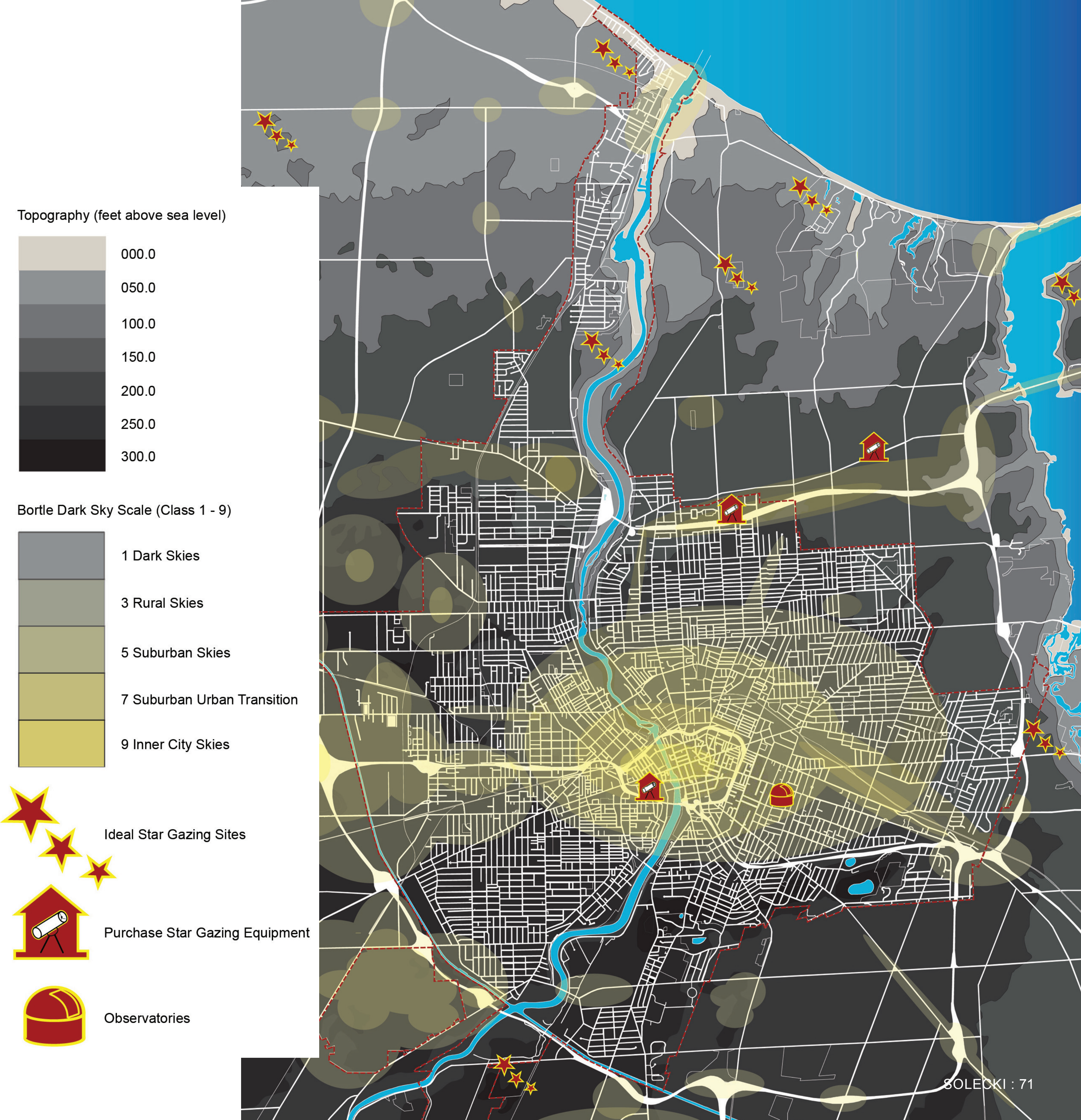
FALL 2008
PD 450
ENVIRONMENTAL DESIGN WORKSHOP 3

ADRIAN SOLECKI

faculty
ADAM SOKOL

UNIVERSE OBSERVATION GUIDE
FOR AMATEUR ASTRONOMERS

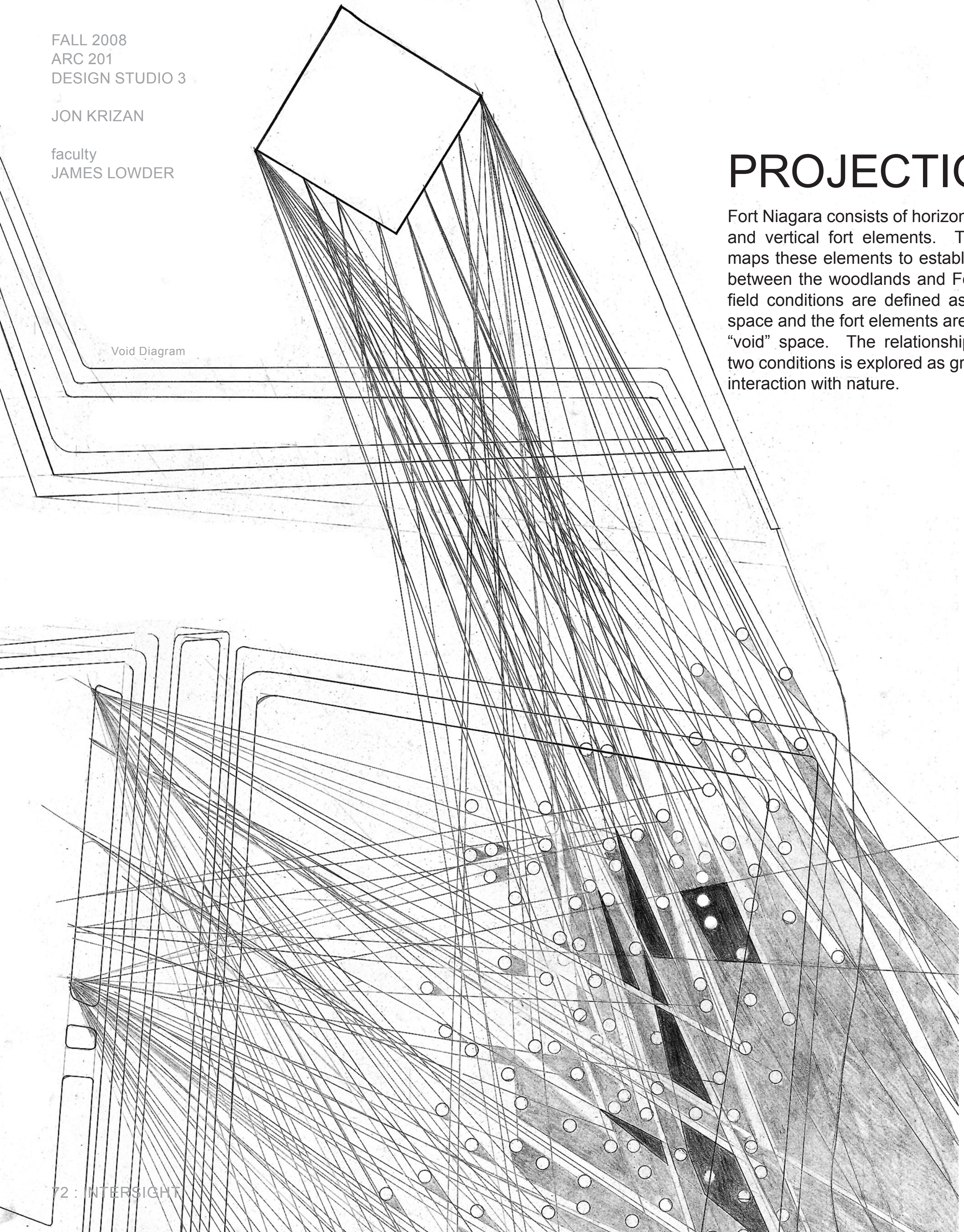
This observation guide for amateur astronomers of Rochester, New York is designed to generate a map of all the ideal places to use telescopes. The best viewing conditions for "backyard astronomy" are high and dark places. Using topography and data displaying areas with excess city light, a map of Rochester is produced that pinpoints ideal places to set up and view the night sky with a telescope. This map may be used to escape from the light pollution of the city and highways in order to have a more significant and exciting experience when viewing galaxies and nebulas with high powered telescopes.



FALL 2008
ARC 201
DESIGN STUDIO 3

JON KRIZAN

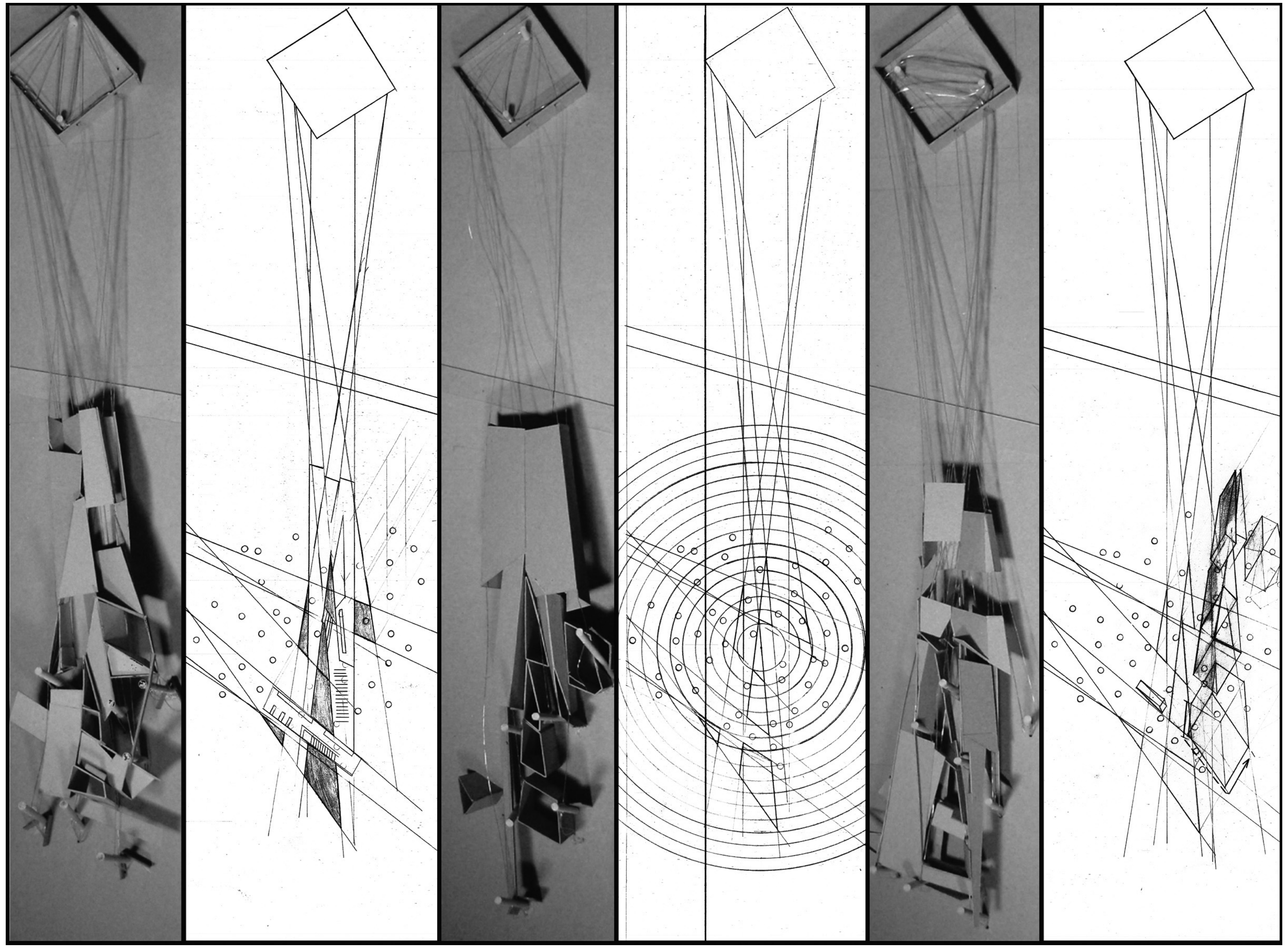
faculty
JAMES LOWDER

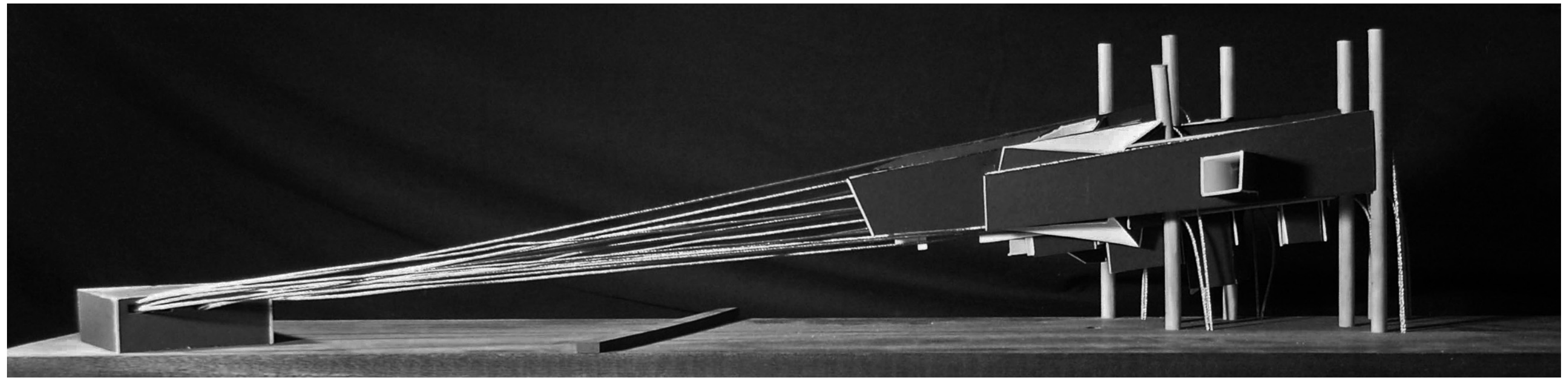


Void Diagram

PROJECTION

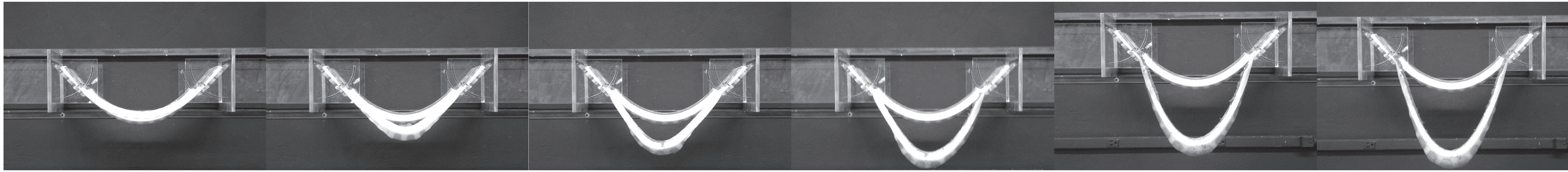
Fort Niagara consists of horizontal field elements and vertical fort elements. The field diagram maps these elements to establish a relationship between the woodlands and Fort Niagara. The field conditions are defined as dynamic “open” space and the fort elements are defined as static “void” space. The relationship between these two conditions is explored as gradients of human interaction with nature.





JAMES BRUCZ

faculty
MEHRDAD HADIGHI
OMAR KHAN

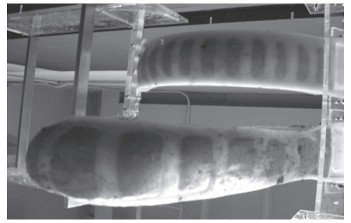


ELASTIC CATENARIES

Mongrelization, hybridization, coexistence, transfusion - the term “mixture” functions at various levels of analysis. The mixture of types, species or genres with different characteristics leads to new hybrids. This thesis investigates new potential relationships between these types of materials with contrasting elements.

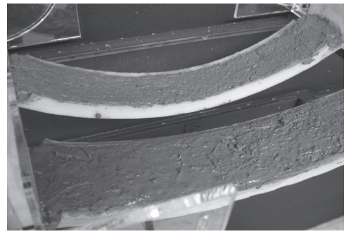
Elastic Catenaries explores the use of soft rubber reconfigurable molds (RCM-C) in the production of self-similar concrete casts. The elasticity of the molds synthesizes different performative effects, including structure, light transmission and formal expression. In the casting process, the generated form is the result of the relationship between the weight of concrete and the size, orientation and elasticity of the RCM-C. Structural forms (geometries) including catenaries, parabolas, and other conic sections are in direct response to both material properties (weight) and gravity (nature).

The full scale RCM-C and its resultant concrete components display a hybrid relationship comparable to that of a parent and child. Sibling phenotypic similarities are the results of inheritance and are passed down to successive generation. Each subsequent cast is also informed by manipulations in the mold and environmental conditions. Different shifts in these factors generate unique and idiosyncratic possibilities. The mutability of both concrete and rubber is exploited to yield considerable formal variety, yet a level of control in the production process allows for a certain degree of precision in the concrete casts.

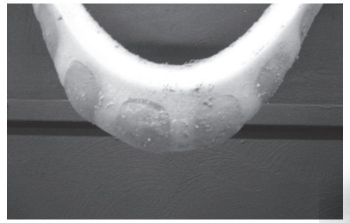


Parameters:

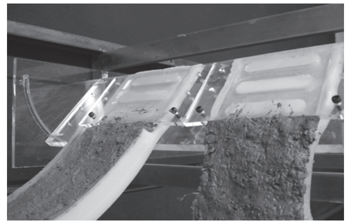
type of rubber = eco-flex 00-30 silicone | length = 12” | depth = 3/4” | width = 4” |
thickness = 1/16” | humidity = 62% | outside temperature = 37.0oF |
inside temperature = 70.5oF | amount of concrete = .001922cubic yards |
amount of water = 2.75 cups | amount of fiber reinforcement = .5 cups |
cast march 16, 2008, 5:00pm | demold march 16, 2008, 8:00pm |
astrological sign = pisces | amount of sodium chloride = .20 cups |
angles = 20o / 20o | cloudiness = partly cloudy |



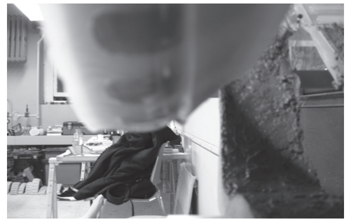
type of rubber = vyta-flex 10 eurethane | length = 12” | depth = 1/2” | width = 4” |
thickness = 1/16” | humidity = 66% | outside temperature = 36.1oF |
inside temperature = 69.2oF | amount of concrete = .001880 cubic yards |
amount of water = 2.5 cups | amount of fiber reinforcement = .5 cups |
cast march 5, 2008, 2:34pm | demold march 5, 2008, 4:32pm |
astrological sign = pisces | amount of sodium chloride = .25 cups |
angles = 90o / 90o | cloudiness = partly cloudy |



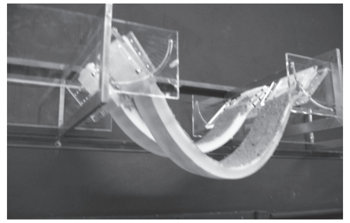
type of rubber = eco-flex 00-30 silicone | length = 12” | depth = 1/2” | width = 4” |
thickness = 1/32” | humidity = 70% | outside temperature = 38.4oF |
inside temperature = 74.0oF | amount of concrete = .001945 cubic yards |
amount of water = 3.0 cups | amount of fiber reinforcement = .5 cups |
cast march 12, 2008, 11:30am | demold march 14, 2008, 10:08am |
astrological sign = pisces | amount of sodium chloride = .20 cups |
angles = 40o / 40o | cloudiness = clear |



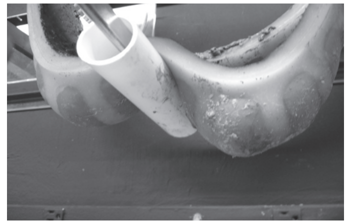
type of rubber = eco-flex 00-30 silicone | length = 12” | depth = 3/4” | width = 4” |
thickness = 1/16” | humidity = 63% | outside temperature = 37.8oF |
inside temperature = 68.9oF | amount of concrete = .001900 cubic yards |
amount of water = 2.5 cups | amount of fiber reinforcement = .5 cups |
cast march 16, 2008, 10:56pm | demold march 16, 2008, 2:29am |
astrological sign = pisces | amount of sodium chloride = .20 cups |
angles = 40o / 40o | cloudiness = partly cloudy |



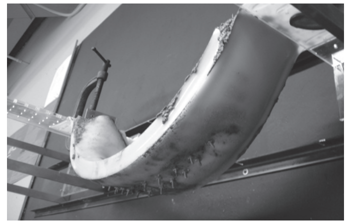
type of rubber = eco-flex 00-30 silicone | length = 12” | depth = 1/2” | width = 4” |
thickness = 1/32” / 1/8” | humidity = 76% | outside temperature = 35.0oF |
inside temperature = 69.9oF | amount of concrete = .001859 cubic yards |
amount of water = 2.5 cups | amount of fiber reinforcement = .5 cups |
cast march 6, 2008, 6:11pm | demold march 6, 2008, 8:00pm |
astrological sign = pisces | amount of sodium chloride = .20 cups |
angles = 75o / 75o | cloudiness = partly cloudy |



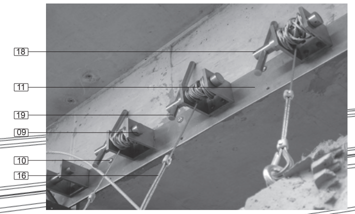
type of rubber = eco-flex 00-30 silicone | length = 12” | depth = 1/2” | width = 4” |
thickness = 1/8” | humidity = 70% | outside temperature = 33.8oF |
inside temperature = 68.0oF | amount of concrete = .001857 cubic yards |
amount of water = 2.5 cups | amount of fiber reinforcement = .5 cups |
cast march 2, 2008, 2:24pm | demold march 2, 2008, 8:02pm |
astrological sign = pisces | amount of sodium chloride = .20 cups |
angles = 45o / 45o | cloudiness = partly cloudy |

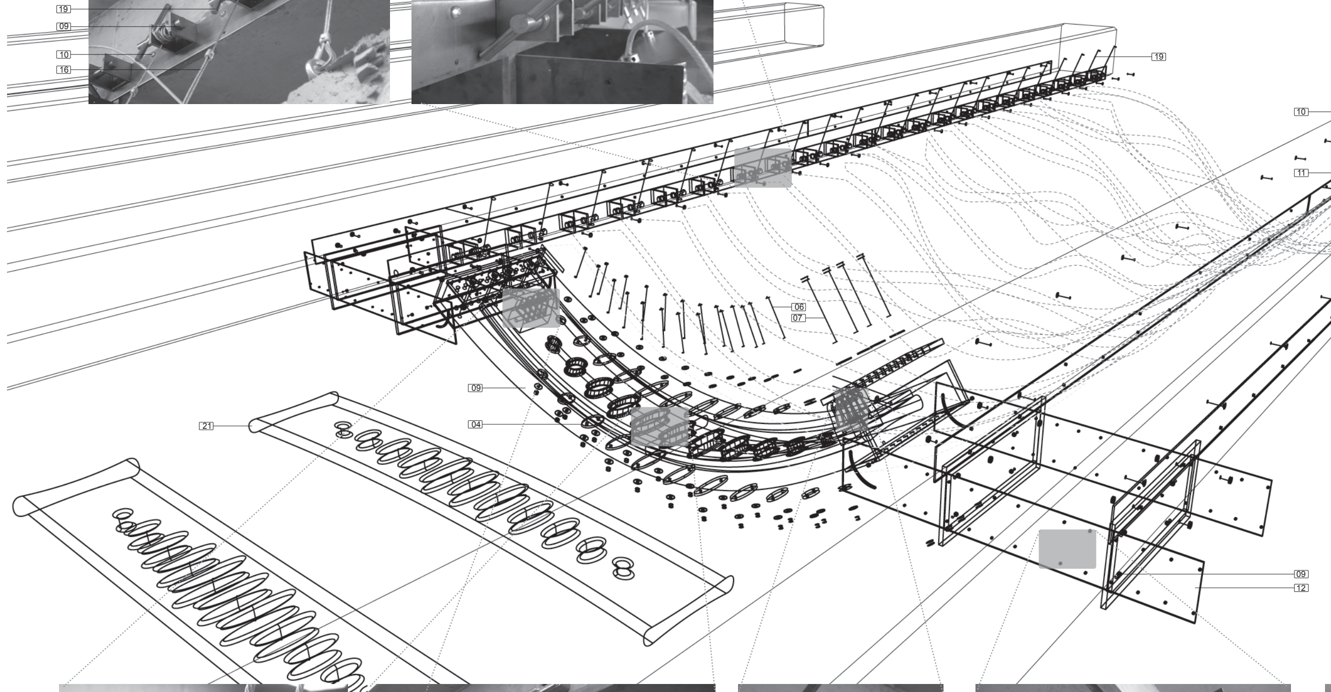


type of rubber = eco-flex 00-30 silicone | length = 12” | depth = 1/2” | width = 4” |
thickness = 1/32” | humidity = 63% | outside temperature = 32.1oF |
inside temperature = 66.4oF | amount of concrete = .001945 cubic yards |
amount of water = 3.0 cups | amount of fiber reinforcement = .75 cups |
cast march 22, 2008, 1:44pm | demold march 23, 2008, 12:31pm |
astrological sign = aries | amount of sodium chloride = .50 cups |
angles = 45o / 45o | cloudiness = cloudy |



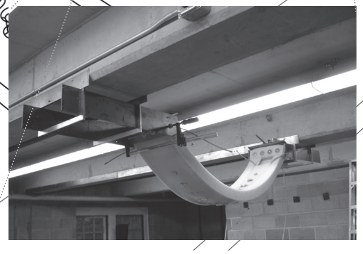
type of rubber = vyta-flex 10 eurethane | length = 24” | depth = 1-1/2” | width = 6” |
thickness = 1/8” | humidity = 75% | outside temperature = 45.2oF |
inside temperature = 69.2oF | amount of concrete = .007422 cubic yards |
amount of water = 7.75 cups | amount of fiber reinforcement = 2 cups |
cast april 3, 2008, 9:14pm | demold april 3, 2008, 4:30am |
astrological sign = aries | amount of sodium chloride = 1 cups |
angles = 5o / 5o | cloudiness = clear |

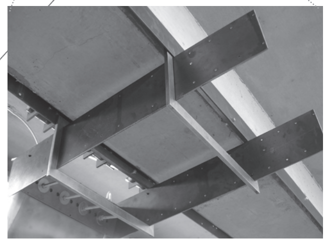


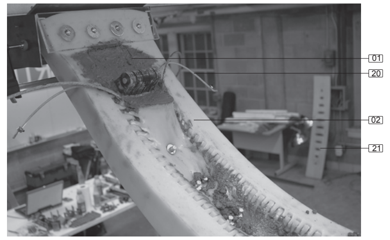


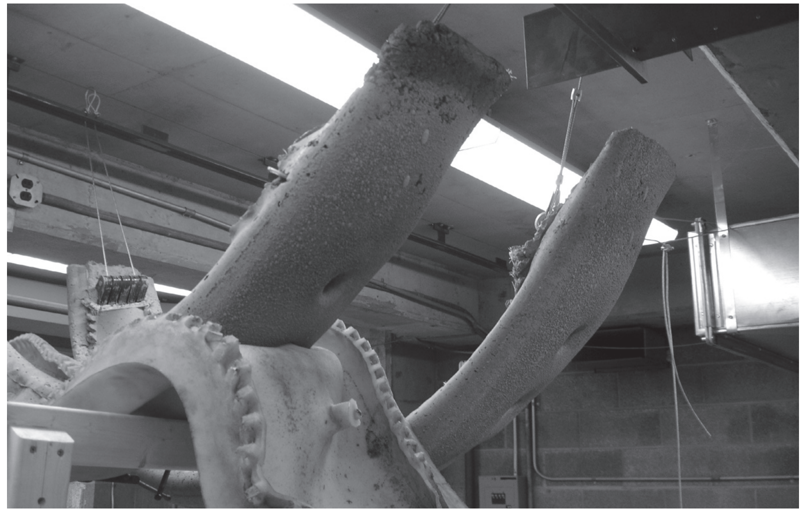
RCM-C

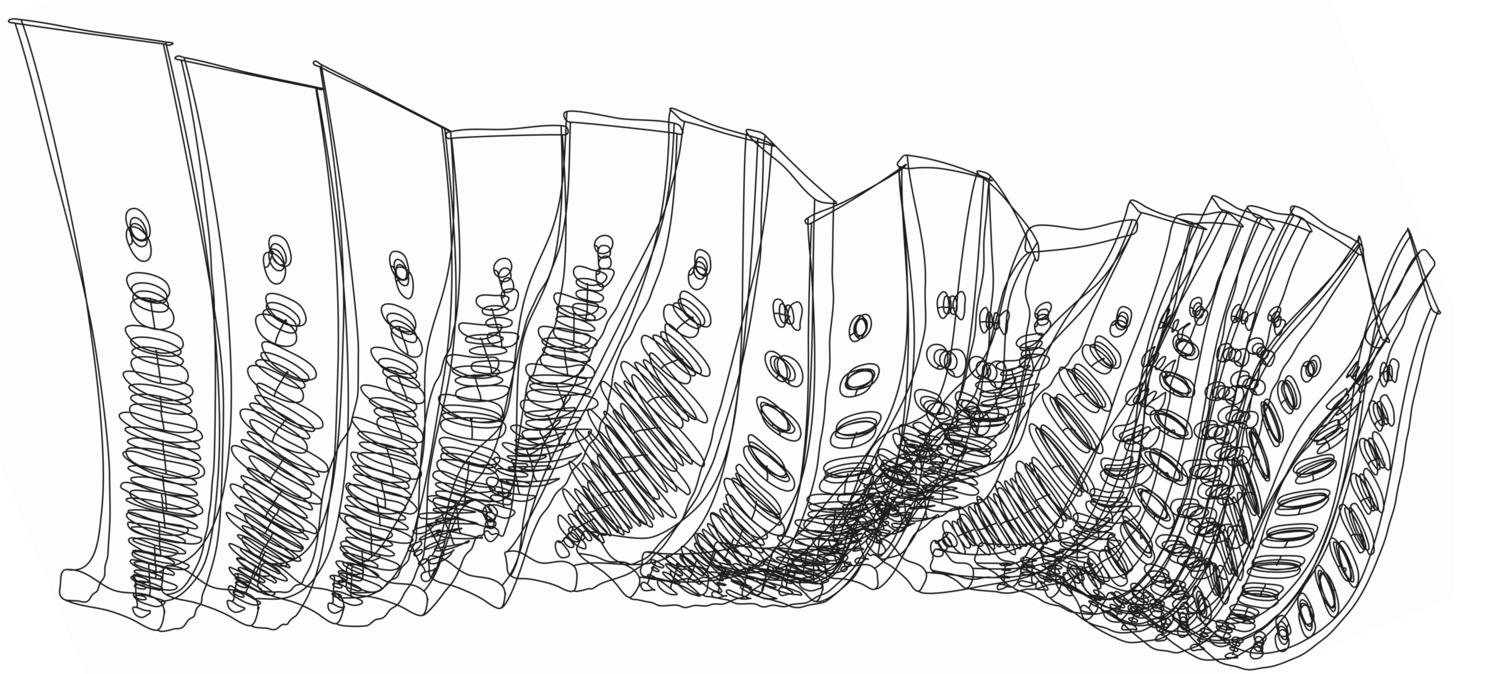
01	120lbs 5000psi fiber reinforced concrete
02	10 gallons Vyta-Flex 10 liquid rubber
03	350mL PMC-790 liquid rubber
-	
04	1/4” thick acrylic washers
05	1/2” x 12” x 4” acrylic
06	4-40 x 4” stainless steel bolt + nut + washer
07	4-40 x 6” stainless steel bolt + nut + washer
08	1/4-20 x 1-1/2” stainless steel bolt + thumb nut
09	6-32 x 1/2” carbide steel bolt
10	1/4” x 1-1/2” stainless steel anchor
11	1/8” x 3” x 8’ steel flat
12	1/8” x 5” x 3’ steel flat
13	1/4” x 4” x 12” steel flat
14	1/4” x 2” x 2” steel flat

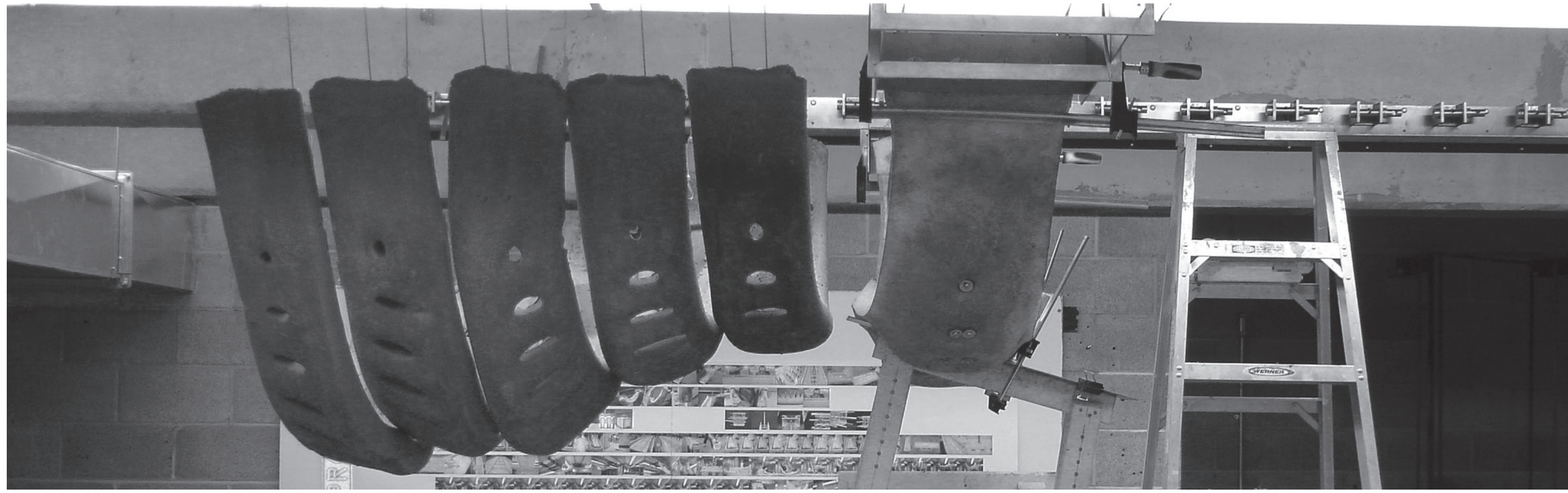












Series of concrete forms generated from RCM-C

Image provided by: Nicole Lee

DISTRIBUTIONE distribution

ADAM LEVIN

Distributione deals with the practice of architecture as it relates to resources and economy. Contemporary global economic and environmental pressures are making this aspect of practice a pressing concern for the profession and a significant point of departure from past architectural production. In addition, there is a growing need for low cost, high quality dwellings and increasing insistence on enhanced environmental performance.

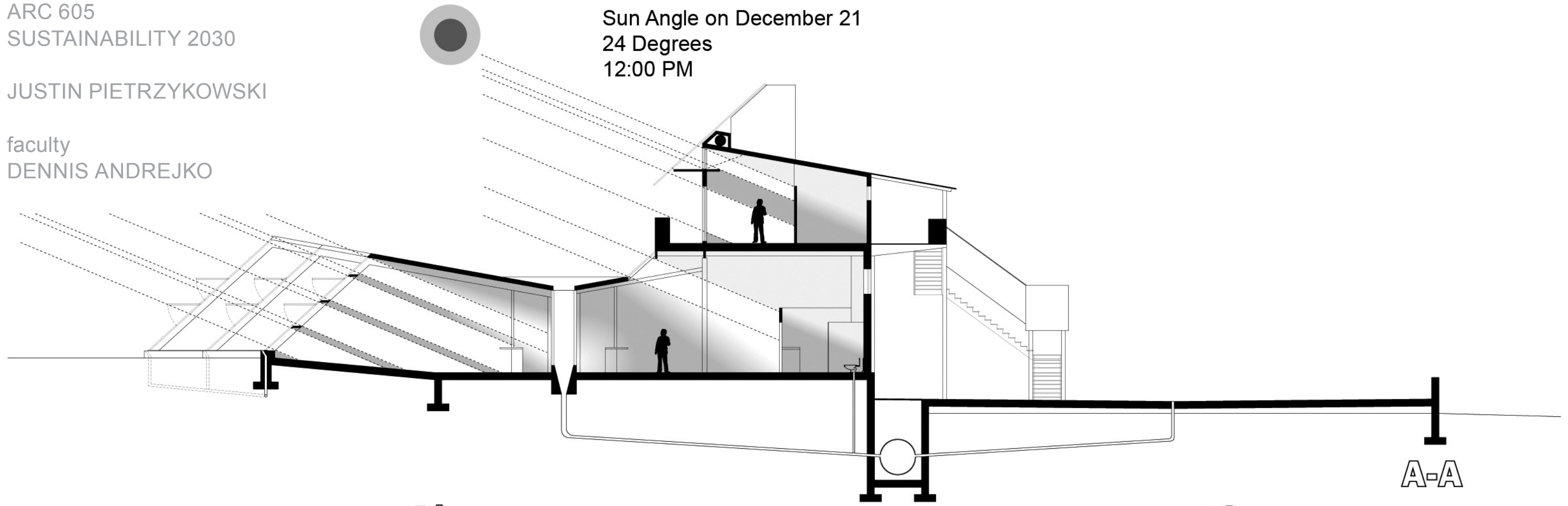
The Weissenhof Siedlung experiment, held in Stuttgart, Germany in 1927 and directed by Ludwig Mies Van der Rohe, can be considered an early example of how architects have explored new building materials and methods to provide high quality housing at low cost. Like many of the experiments that followed, including research into modular and prefabricated building systems, few of the structures exhibited actually embraced an economic imperative.

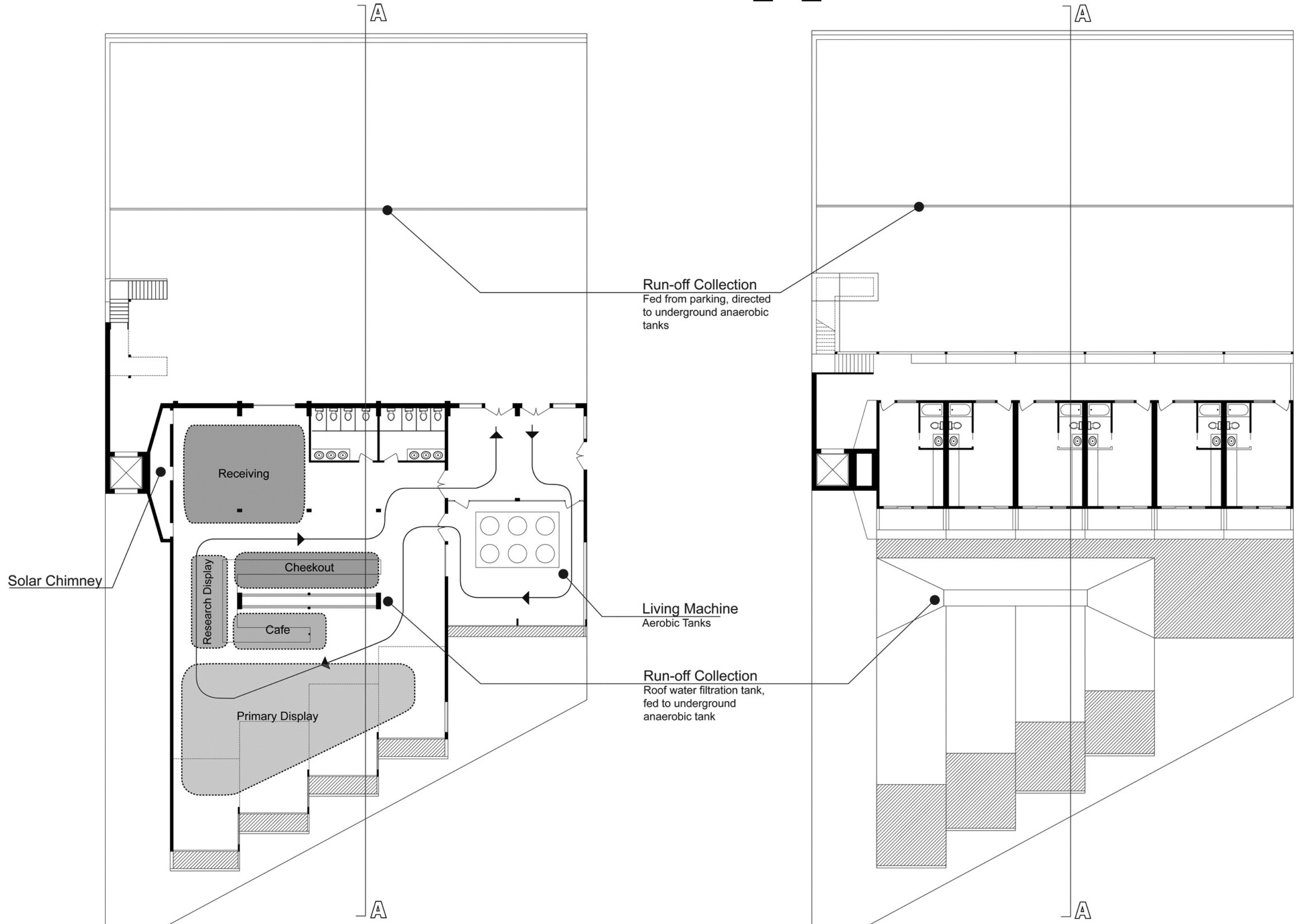
Today, architects are preoccupied with sustainable design and increasingly focused on the origin of materials, their embodied energy and lifetime performance, and on new design methods for reducing the impact of the built environment on local and global ecologies. However, the challenge facing contemporary architects is to integrate the two aspects of distributione into a single design approach that keeps costs low and environmental performance high. Despite some early attempts at tackling this question, including, most notably, Buckminster Fuller's Dymaxion House, little significant progress has been made on this front, leaving the next generation of architects to address pressing sustainable and economic needs of today.

FALL 2008
ARC 605
SUSTAINABILITY 2030

JUSTIN PIETRZYKOWSKI

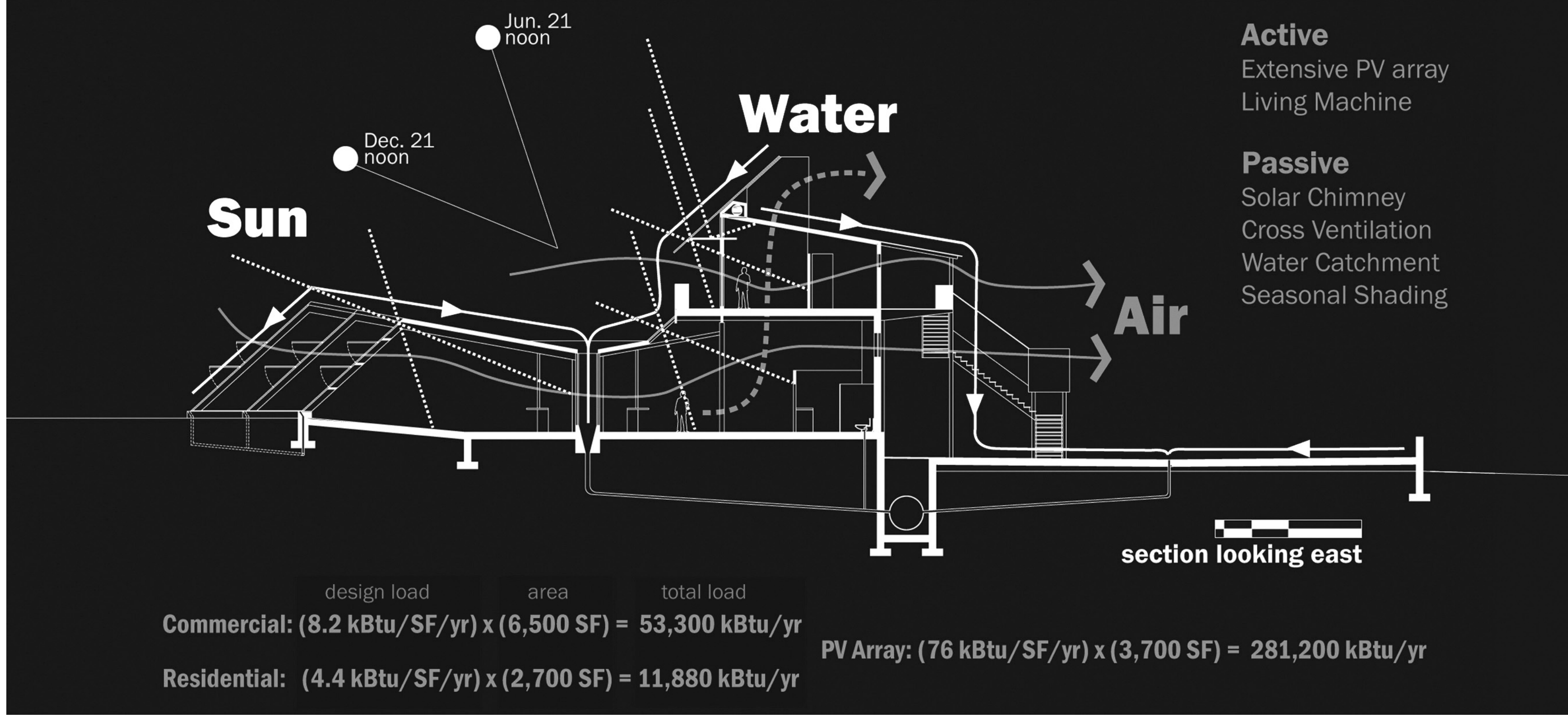
faculty
DENNIS ANDREJKO





Commercial Floor Plan

Private Floor Plan

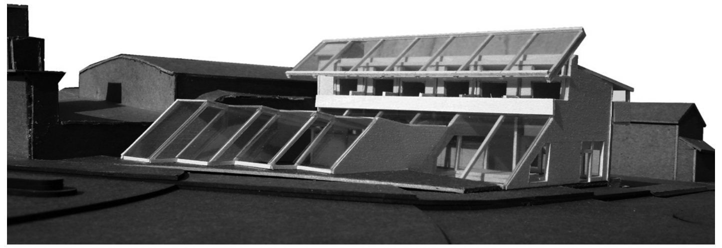


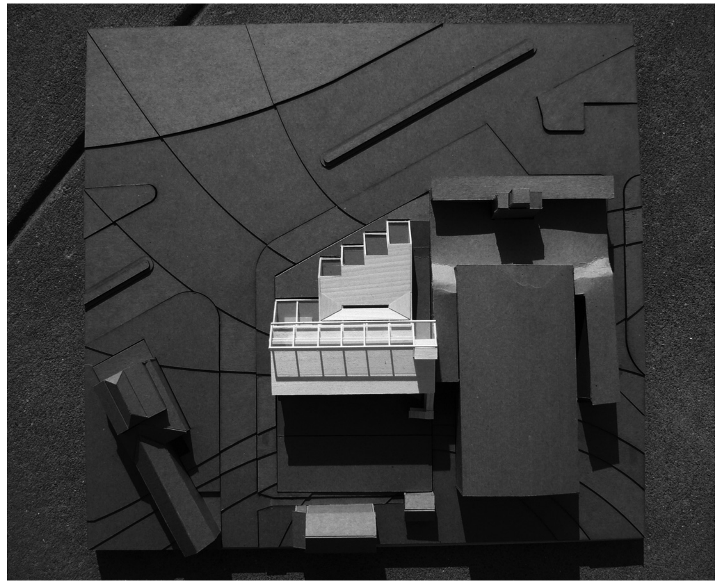
GRO-GREENS

A Sustainable Showcase
The utilization of natural elements becomes the primary design force in creating a completely sustainable building. The sun provides energy and convective ventilation through passive and active features; water run-off is reclaimed, purified and reused on site; wind provides cross ventilation for the commercial space and six efficiency dwellings above.

Quantifying Carbon Neutrality
Through an analysis of current energy usage and target values for the future, the total available site energy produced by the sun is utilized by the integration of photovoltaic technology. Maximizing solar production also minimizes the energy costs.

Energy Requirements:
Commercial:
(8.2 kBtu/SF/yr) x (6,500 SF) = 53,300 kBtu/yr
Residential:
(4.4 kBtu/SF/yr) x (2,700 SF) =
11,880 kBtu/yr
Total: 65,180 kBtu/yr

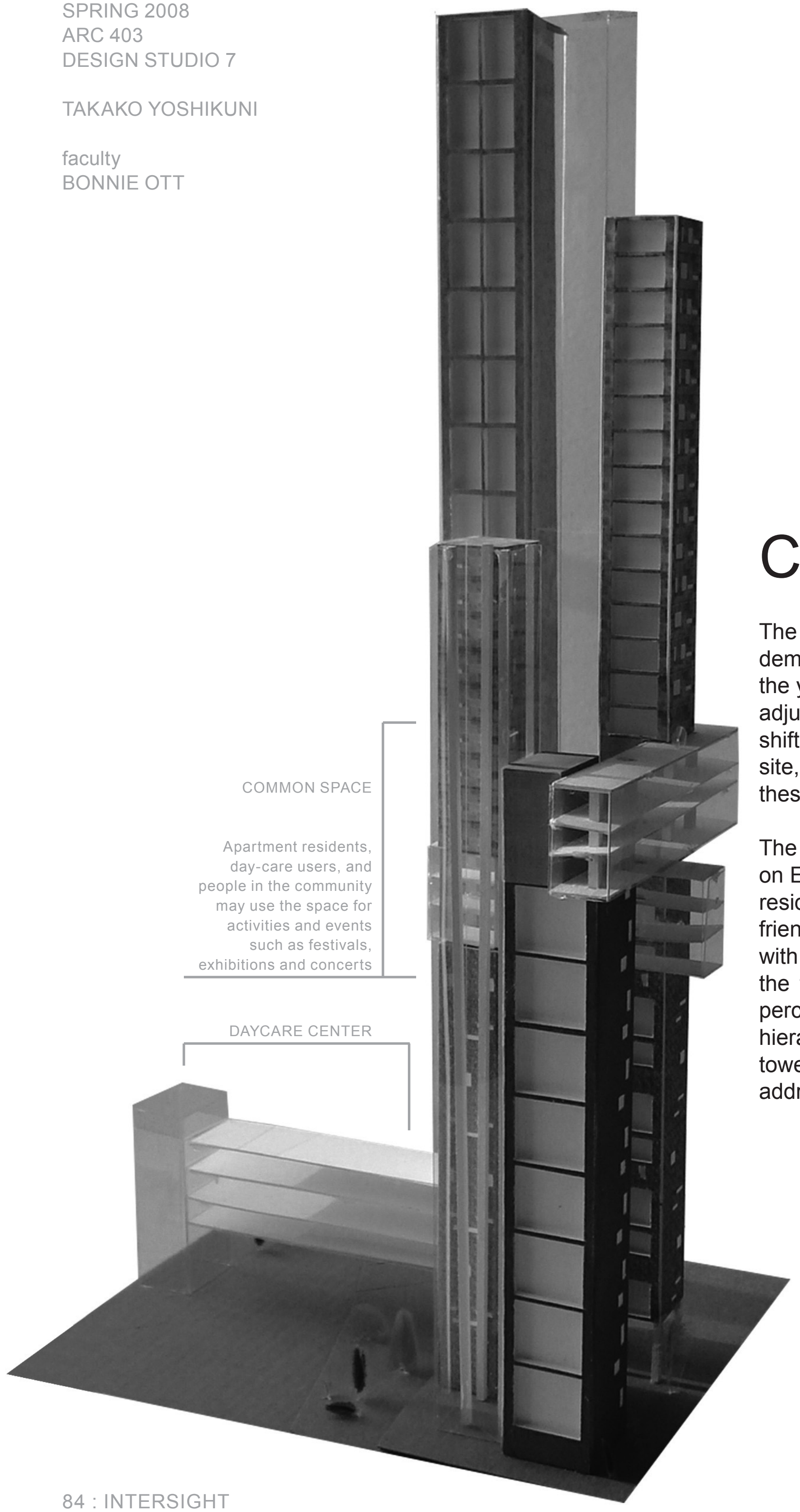




SPRING 2008
ARC 403
DESIGN STUDIO 7

TAKAKO YOSHIKUNI

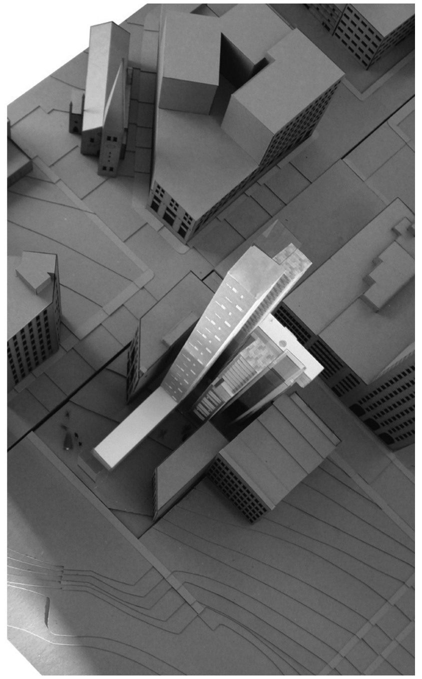
faculty
BONNIE OTT

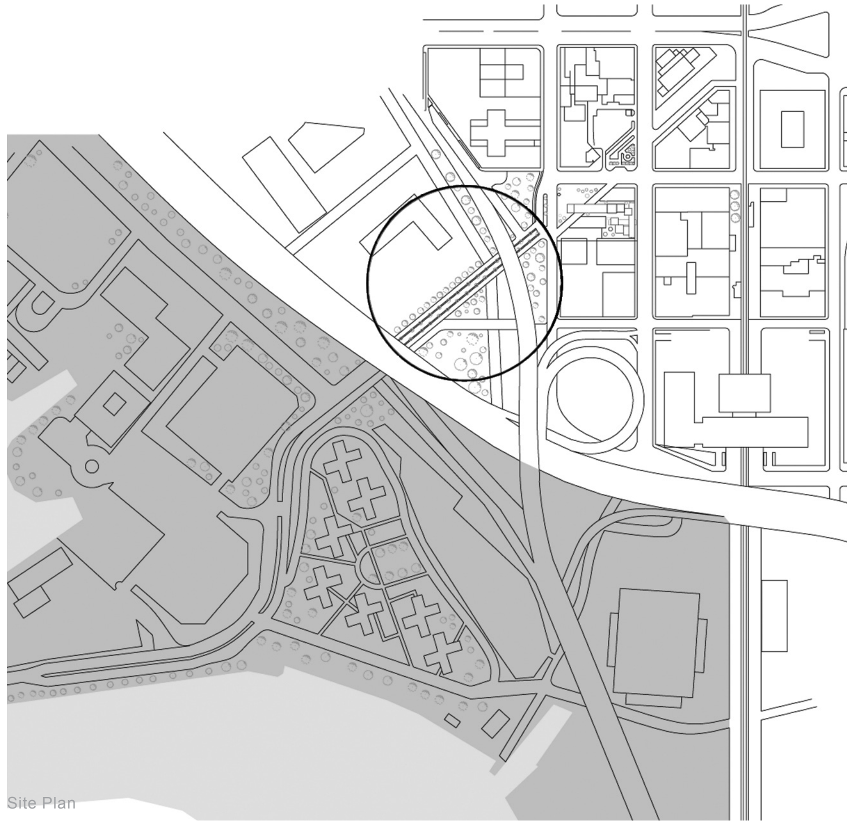


CITY JUNCTURE

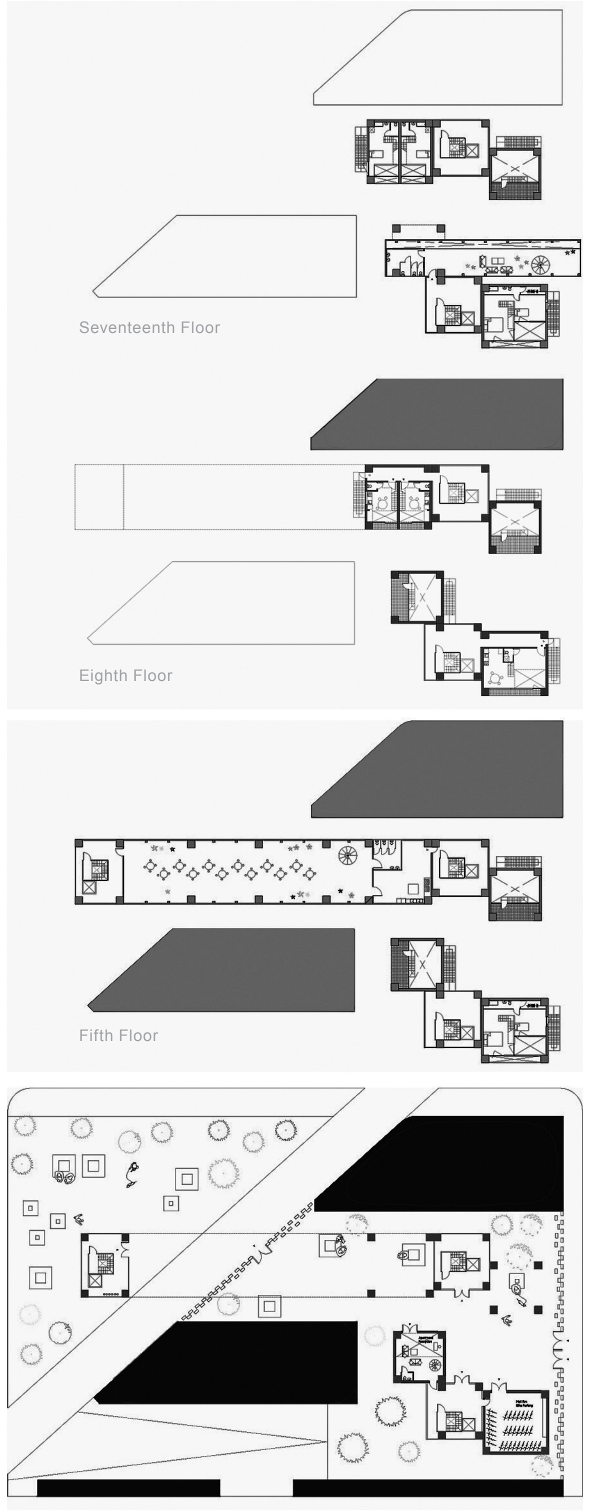
The population in Buffalo, New York is comprised of an aging demographic. In addition, the city's population has decreased over the years. Downtown Buffalo and the nearby waterfront area have adjusted to several changes in the region's economy, gradually shifting from industrial to social and residential uses. The building site, which is close to Buffalo's central business district, reflects these historical and social concerns.

The proposed apartment complex and daycare center are located on Erie Street. The daycare center targets downtown workers and residents. A renovated boulevard provides a pedestrian and bike friendly road. The building integrates vertical apartment towers with a horizontal daycare center and common space, which link the towers and resist lateral loads. The organization of units is perceived through the façade materials which reflect a social hierarchy. Smaller apartment units occupy higher levels of the towers, while larger family units are designed on lower levels to address health, safety and welfare concerns.





Site Plan



SPRING 2008
ARC 102
DESIGN STUDIO 2

faculty
FRANK FANTAUZZI
CHRIS ROMANO

teaching assistants
NATHAN ALOIS
GABRIELLA D'ANGELO
RAFAL GODLEWSKI
LUKE JOHNSON
ASHLEY LATONA
ERNEST NG HIOK HOE
CHARLES OGEEN
SCOTT RHODEHAMEL

Laminate Truss Team Members:
DANIEL DABROSKI
JOHN JONES
ELIZABETH SALEH
JONATHAN STAFFORD
JUSTIN TINGUE
JOSEPH WOOD

LIFT

This project was devised to launch the human body into space and offer students the opportunity to explore many facets of the human body including form, weight, strength and balance. All designs incorporate a structural armature or harness that suspends one or more group members in mid-air. The raised body is completely inactive during the lift process and is required to be hoisted a minimum of six feet off the ground for a minimum duration of one minute. All group members are incorporated into the assembly process.

The armature is an independent structure that is not attached to any trees, buildings or any other project. The armature is constructed of 2 x 4 lumber and an unlimited length of rope. Fasteners of any type may be utilized. Other materials may be incorporated but only as a mediator or buffer between the body and the rope. Students become familiar with the essential roles that program and site play in the design process while developing an understanding of construction and structural systems and their inherent potential.

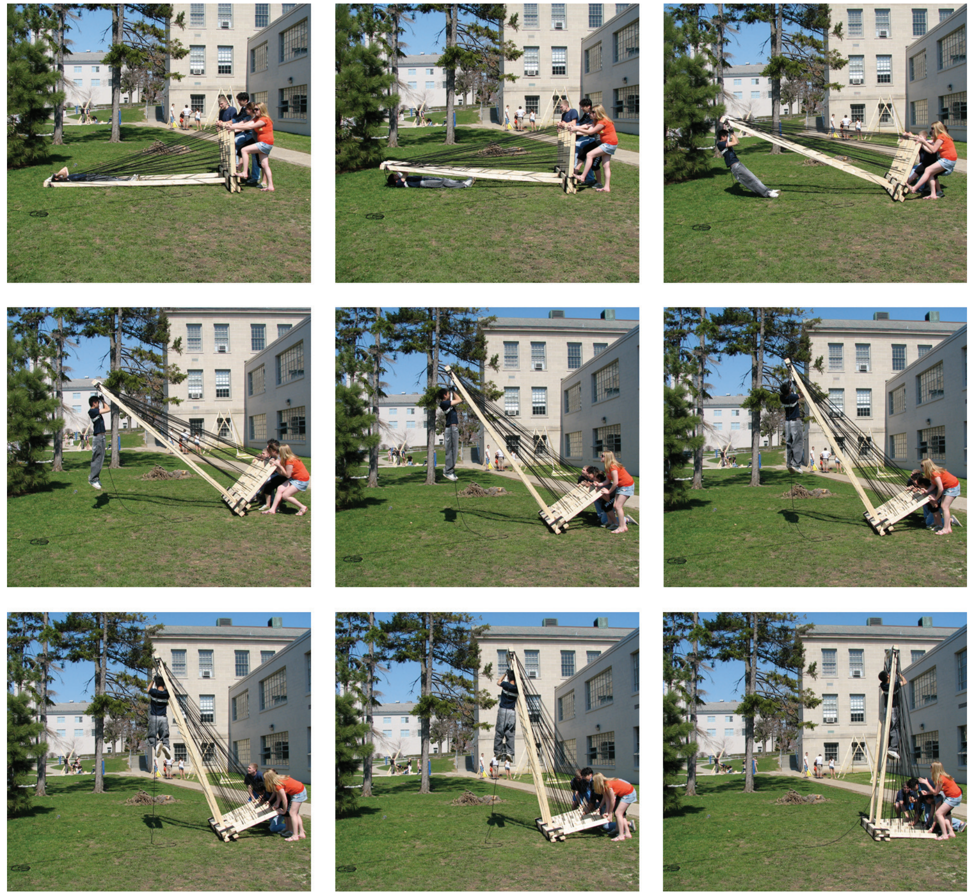
Flower Team Members:
COREY BECK
IAN CALABRESE
MELISSA CORTRIGHT
SHOSHANA LEVINE
RICHARD VANCUREN

Walker Lift Detail

X-Raise Team Members:
SCOTT ARCHAMBAULT
CHRISTOPHER BRANDT
JASON CAMPBELL
THERESA D'ANDREA
LISA FONG
MICHAEL LEMPERT

TriFector Team Members:
CHRISTOPHER DAUBERT
DANIEL FREW
DUSTIN HSU
MARGARET SCAGLIONE
MARK SPAETH
DUSTIN WELCH
BING WU

Wheel Team Members:
JESSICA FRASER
IAN KAPLAN
STEVEN MARTINEZ
COLIN MCCARVILLE
SONJA SCUTARO
MIKAILA WATERS



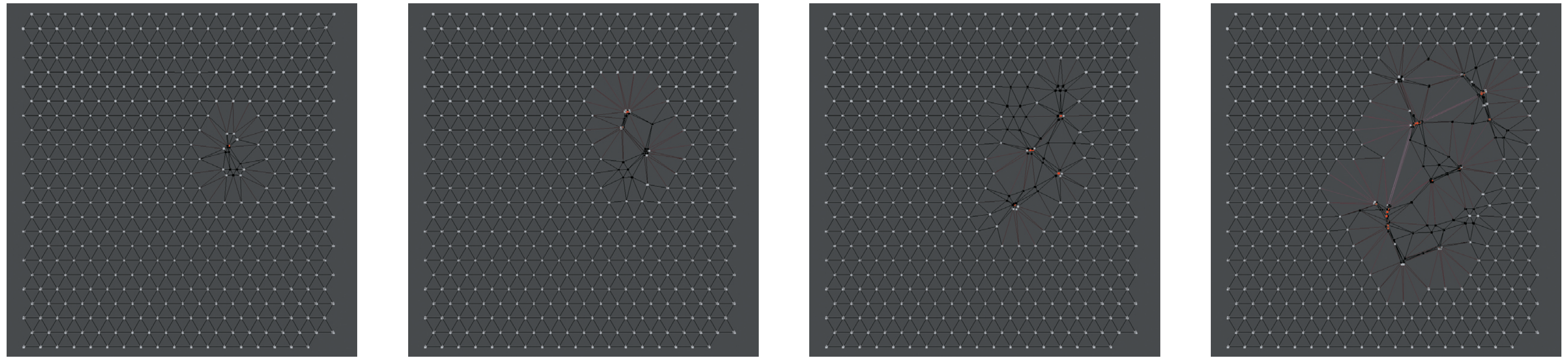
Raked-Up Team Members:
KATIE CHEVALIER
STEPHEN OLSON
CRAIG STOHL
KEVIN YAM
DANIELLE ZIMMERMANN

Walker Team Members:
STACY BRISBANE
TODD CAMPBELL
ANTHONY DIPASQUALE
FRANK FUTIA
SAMANTHA NEAL
SHANE REIDY

SPRING 2008
ARC 608
PROPAGATIVE URBANISM

KIRK MILLER

faculty
MARK SHEPARD



SHAKESPEARE IN THE PARK[ING SPOT]

Shakespeare in the Park[ing Spot] is an interactive venue that brings Shakespeare to the Manhattan public by launching a viral theater.

Each privately-funded season is managed by Shakespeare in Central Park which establishes a propagative network that oversees and determines the frequency of each act and scene. While this public theater organization is responsible for defining the goals of the network, it is the propagative network itself which ultimately defines the goals of the actors, or users.

Users choosing to opt in to the network become part of a local acting troupe in service to the Shakespeare in Central Park organization. Users are only aware of the character or role they play and do not have control of the location or time of the performance. Users, by giving over control of the production to the propagative network, become resources.

currently playing: a midsummer night's dream

act II, scene II

actors

lysander, beloved of hermia
hermia, beloved of lysander
helena, in love with demetrius
demetrius, in love with hermia but then falls in love with helena later on
egeus, father of hermia, wants to force hermia to wed demetrius
theseus, duke of athens, good friends of egeus
hippolyta, queen of the amazons and betrothed to theseus
philostrate, master of the revels for theseus

the acting troupe (otherwise known as the mechanicals):

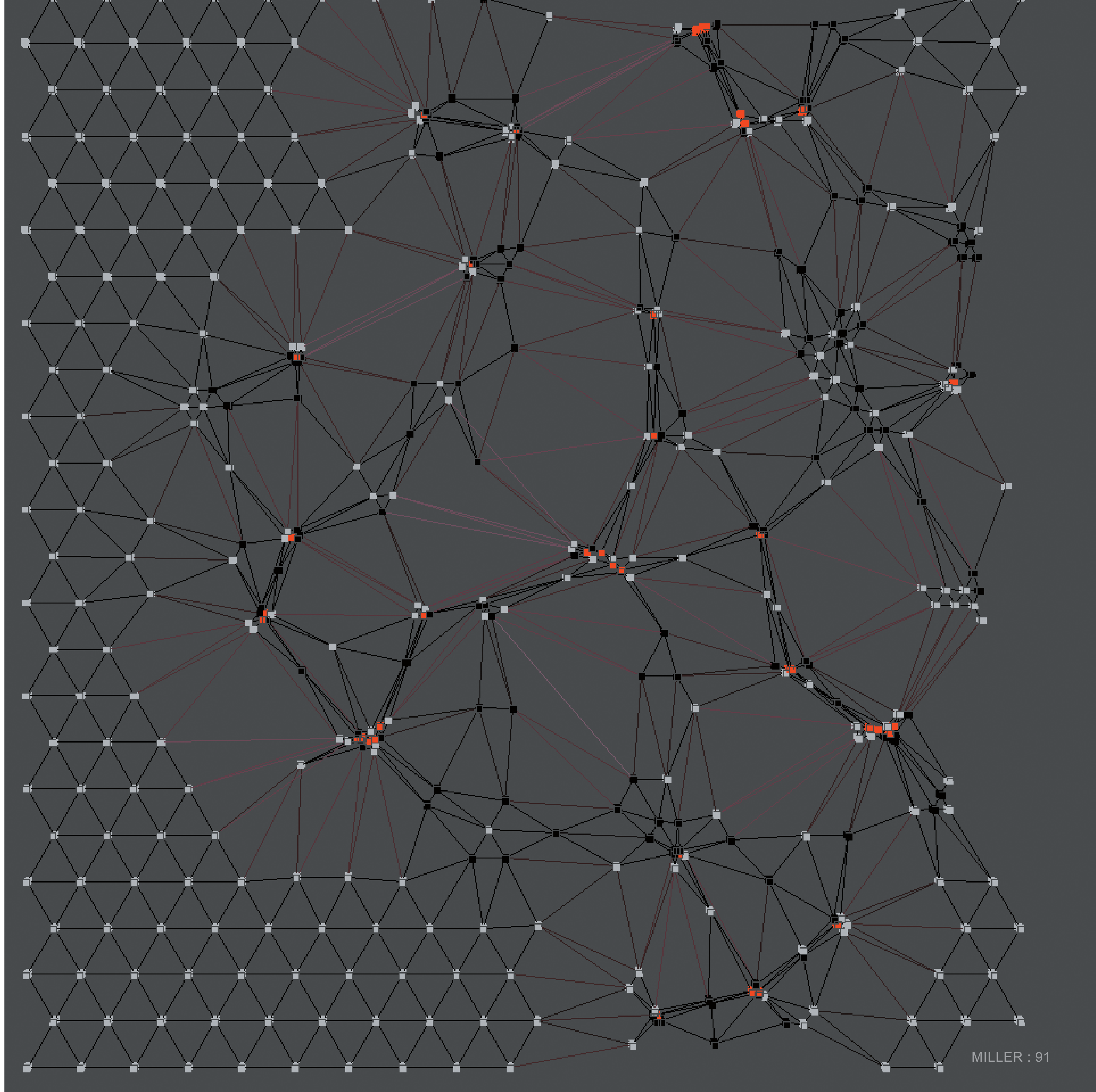
peter quince, carpenter, who leads the troupe
nick bottom, weaver who plays pyramus
francis flute, the bellows-mender who plays thisbe
robin starveling (moonshine), the tailor who plays moonshine
tom snout, the tinker who plays the wall
snug, the joiner who plays the lion

the supernatural characters:

puck, a.k.a. hobgoblin or robin goodfellow; a faun, servant to oberon
oberon, king of fairies
titania, queen of fairies

titania's fairy servants (her "train"):

first fairy
peaseblossom, fairy
cobweb, fairy
moth (sometimes rendered as 'mote' fairy
mustardseed, fairy



Model of propogative viral system using processing program

1 unused **parking spot** (site) becomes available

2 governing **muni meter** recognizes available site, communicates availability to network

3 site logged with **network**

4 network agent queries **availability** of local resources

5 network agent examines **composition** of queried resources

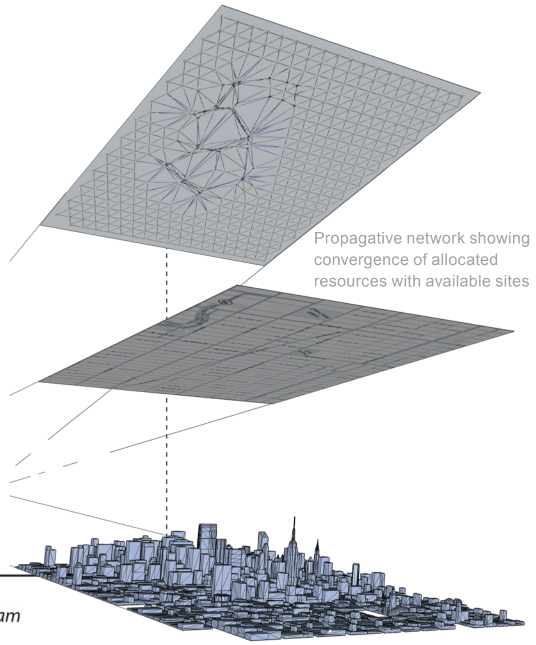
6 network agent determines **location** of suitable resources

7 viral agent broadcasts to available users the location of site, act, and scene information

8 users proceed to the site, each carrying their **module**

9 once at the site, users unpack their modules and begin the assembly process

10 once the modules are assembled, the particular **scene** can be acted out



Propagative network showing convergence of allocated resources with available sites

Perspective of Manhattan showing field condition

1 individual users, or resources, function as *specialized units of code* that the propagative model directs to infect a particular node with a chosen program; in this case, act II, scene II from shakespeare's *midsummer's night dream*

2 each user, through mobile communication, chooses to opt into the propagative network and becomes a resource for the viral agent

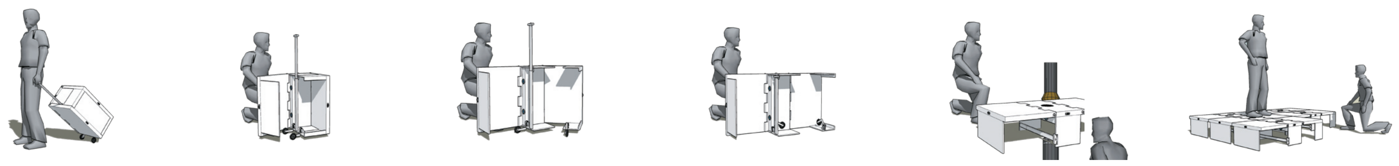
3 users define the parameters of their operation by indicating to the network what module they can provide, during what times they are available

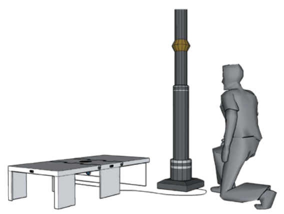
4 users go about their daily routines until notified via text/sms/e-mail message that a nearby parking spot (site) has been selected to host a given program

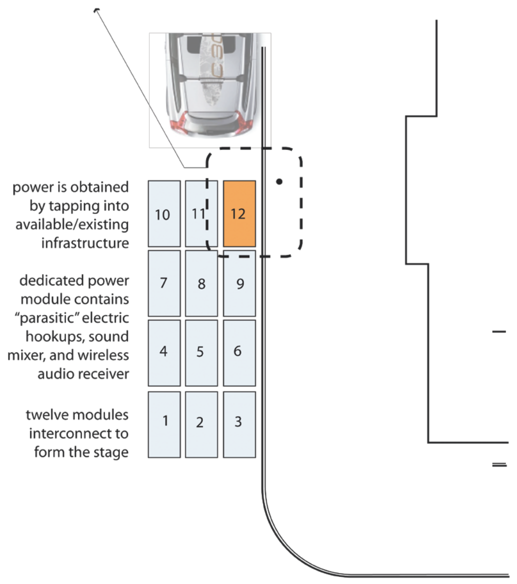
5 users converge on selected site, assemble the modules, and perform the scene

6 upon completion of the scene the program is disassembled, each user re-packs their module, and the parking spot is returned to its intended use

7 as users' interest change, transferring their roles to audience members who express interest is possible







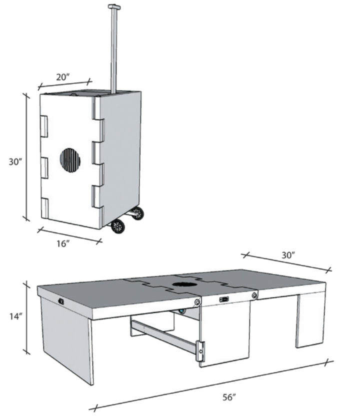
1 module is a man-portable device that can reasonably negotiate the urban environment while being delivered to a selected site (node) by a wide range of users.

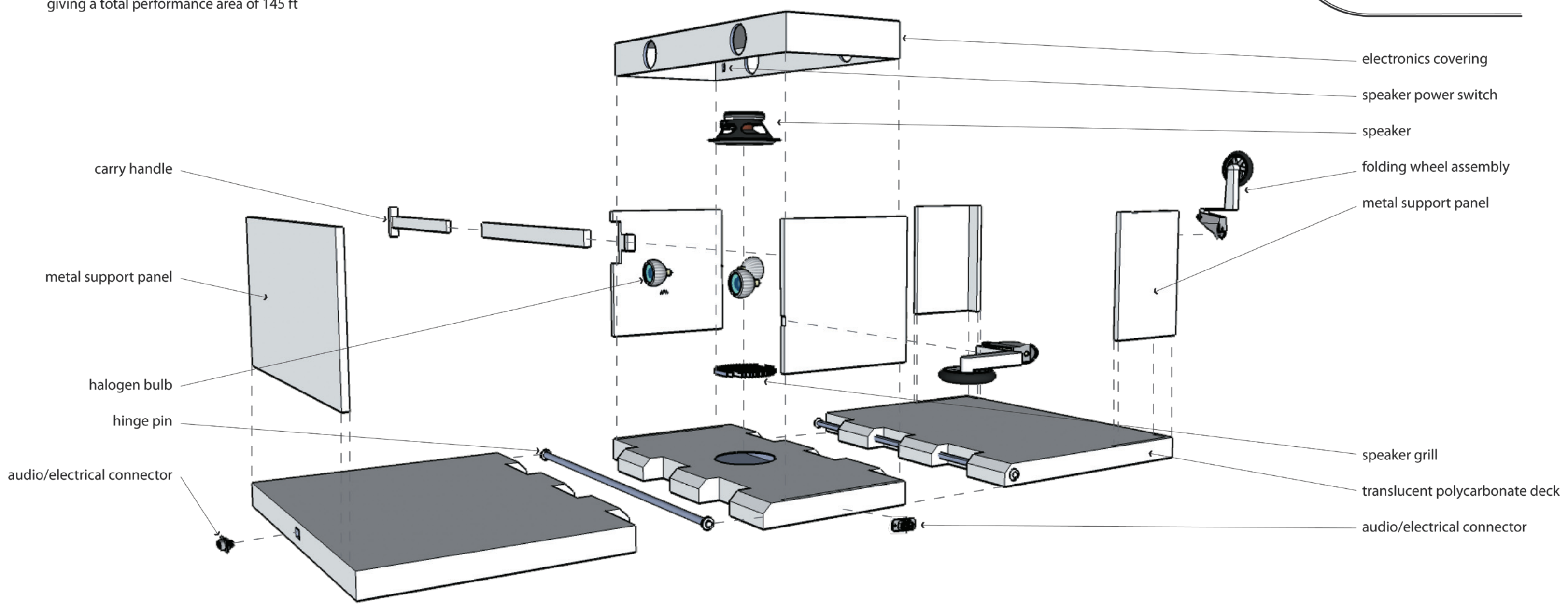
2 module is both structure and container:
- each module contributes a 30" x 56" stage segment to the site
- an interior volume of three cubic feet provides minimal storage for the actor's costume and props

2 module integrates within the shell structure the necessary equipment to construct the stage. integrated components include:
- lighting
- sound equipment
- power requirements
- tools necessary to assemble module
- etc...

3 module's shell serves as the stage structure

4 twelve modules are needed to complete a standard parking spot stage giving a total performance area of 145 ft





FALL 2008
ARC 605
SENSORY ARCHITECTURE

SCOTT VIETRI

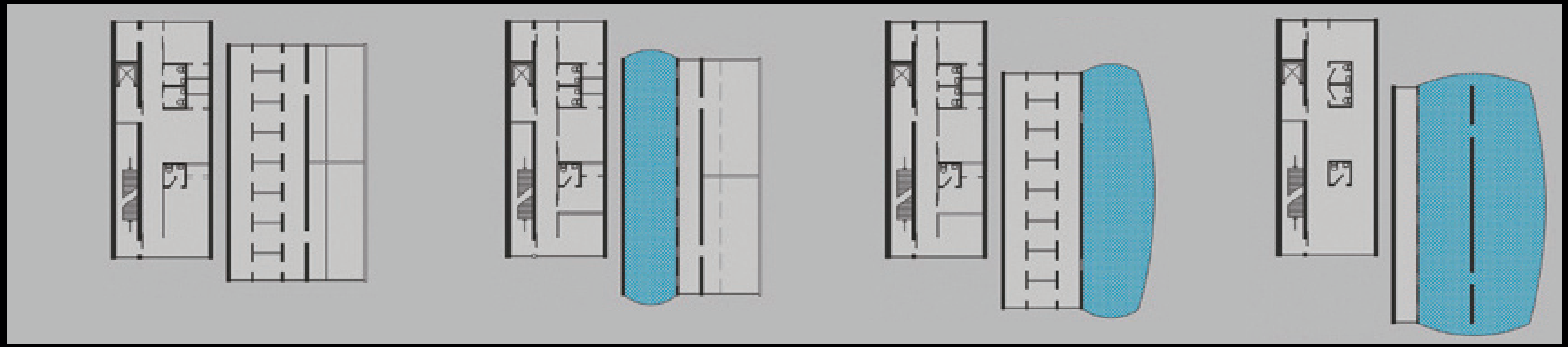
faculty
M. BETH TAUKE

IMPRISONED

Philosophy: All human beings are the prisoners of other people's decisions. In the United States, approximately 56% of all incarcerated people are locked up for "drug related crimes."

Proposal: This project seeks to address these issues and devise two design proposals. The first proposal outlines a design for a space that is inaccessible to all people. The second attempts to impact an area both physically and theoretically so as to change American drug polices.

The first design proposal is a rehabilitation clinic. The second is an inaccessible area that functions as a "performance art – structure." As the prison population increases and decreases, the inaccessible space expands and contracts.

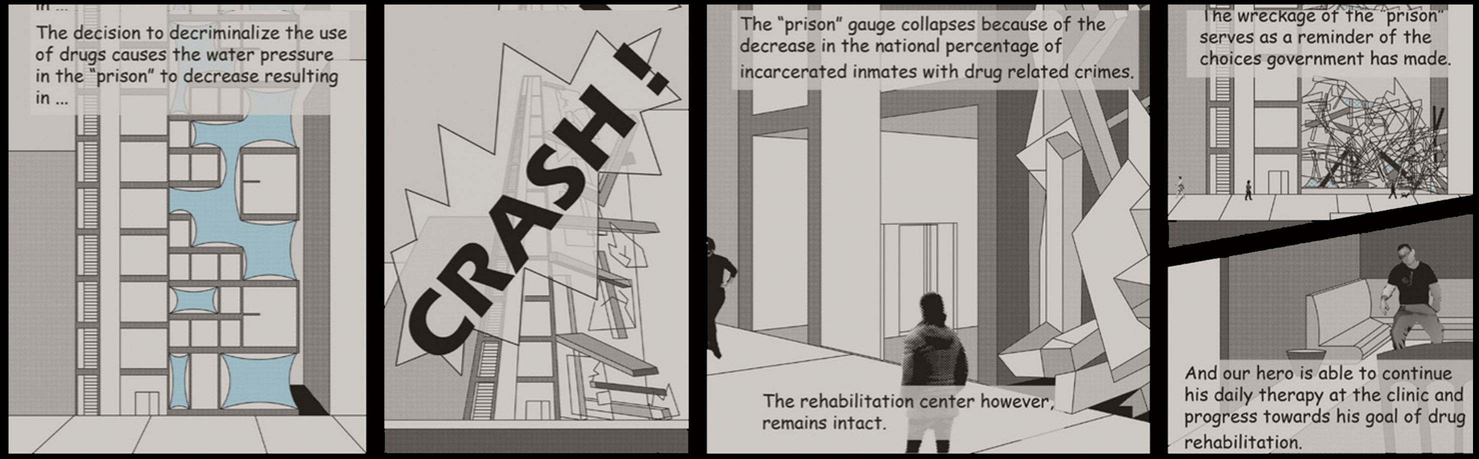


Now it's time to choose what happens to the "prison" and our hero!

If the government decides to decriminalize the use of drugs, see option A.

If the government creates harsher punishments for drug-users, see option B.

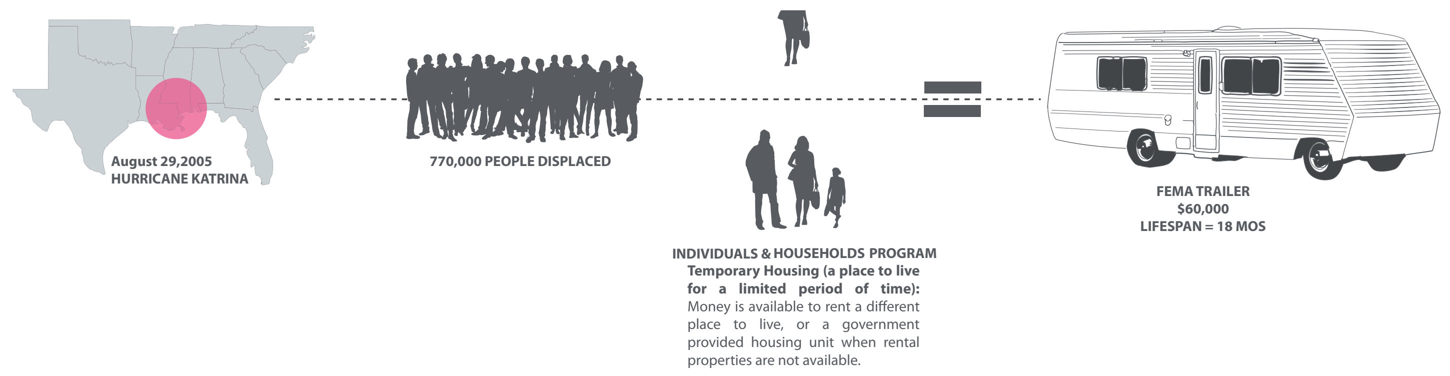
Option A

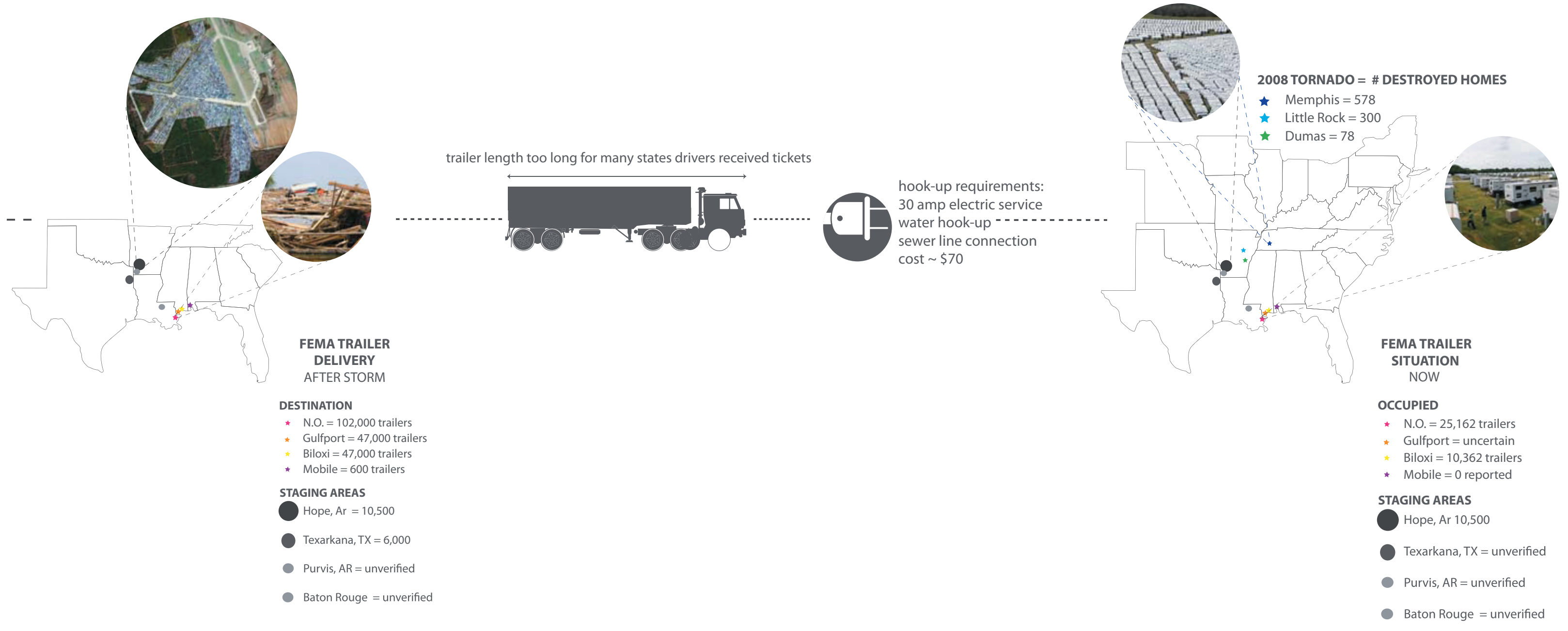


Option B

KATHY PETRINEC

faculty
ANNETTE LECUYER
JOYCE HWANG





DESTROYED HISTORIES - RESTORED AUTHENTICITIES

The Lower 9th Ward in New Orleans, Louisiana, is a prime location for investigating the relationship between site and infrastructure. Currently, 40 foot walls and 25 foot diameter pipes mitigate and control water flow around housing developments. This infrastructure-site relationship is tenuous because it relies on the predictability of nature and fails to accommodate natural disasters. Therefore, instead of adopting current strategies of abandoning and rebuilding in the wake of the disaster, an integrated approach to water containment could establish a more permanent response to natural disasters and flooding.

Since the beginning of settlement in New Orleans, water has both impeded and stimulated growth. The historical response has been to treat water as an intruder and as something to keep out. With technological advances, construction materials for levees have shifted from earth and timber ramparts to concrete and steel. Regardless of the material or form, these constructions are prone to failure due to the force of water. The Mississippi River drains water from approximately 31 states and includes water from Lake Pontchartrain. Storm surges often rush up through Lake Borgne and into its bayous. Containing these torrents seems an impossible feat. Investigating new CONTAINMENT and MEDIATION strategies provides an interesting foundation to re-envision the infrastructure of the Lower 9th Ward.

CASE STUDIES :

INDIAN STEPPED WELLS
Stepped wells are dug deep in the ground to store water collected from the countryside during monsoon season. They also serve as social spaces for individuals to escape the extreme heat during dry seasons. The “courtyard,” the space above the water in stepped wells, is a moisture-saturated layer that slows and even negates evaporation. These wells provide shading, cooling and reserves of potable water. Stepped wells can be a model to imagine a new infrastructure for water containment in New Orleans and to mediate water levels at different times of the year.

NORTH SEA OIL RIGS
These large structures are adapted to house workers and machinery when drilling for oil in the ocean. Oil platforms can be attached to the ocean floor or be floating. Oil rigs are among the largest moveable man made structures in the world. There are many types, but semi-submersible platforms offer the most possibilities for mediating between land and water. This concept has vast potential for use in a region such as New Orleans.

RESPONSE: Address Permanence -- Infrastructure as Site

The Lower 9th Ward, pre-Katrina, was home to 14,000 people and consisted of a variety of programs including housing, schools, churches, police stations, medical facilities, gas stations, grocery stores and public parks. This project seeks to provide these amenities so that they function in unison with water fluctuation. A pattern for redesign was established using the following categories: Housing, Services and Recreation.

HOUSING
Densifying the distribution of housing while maintaining cultural norms (square footage of dwellings, use of cross ventilation, front porches and individual yards) is accomplished by stacking housing units, affording each resident access at street level for daily travels and also a “safe zone” which facilitates evacuation to higher ground if water levels begin to rise. The design of the housing is adapted from stepped wells allowing inhabitation at different flood stages.

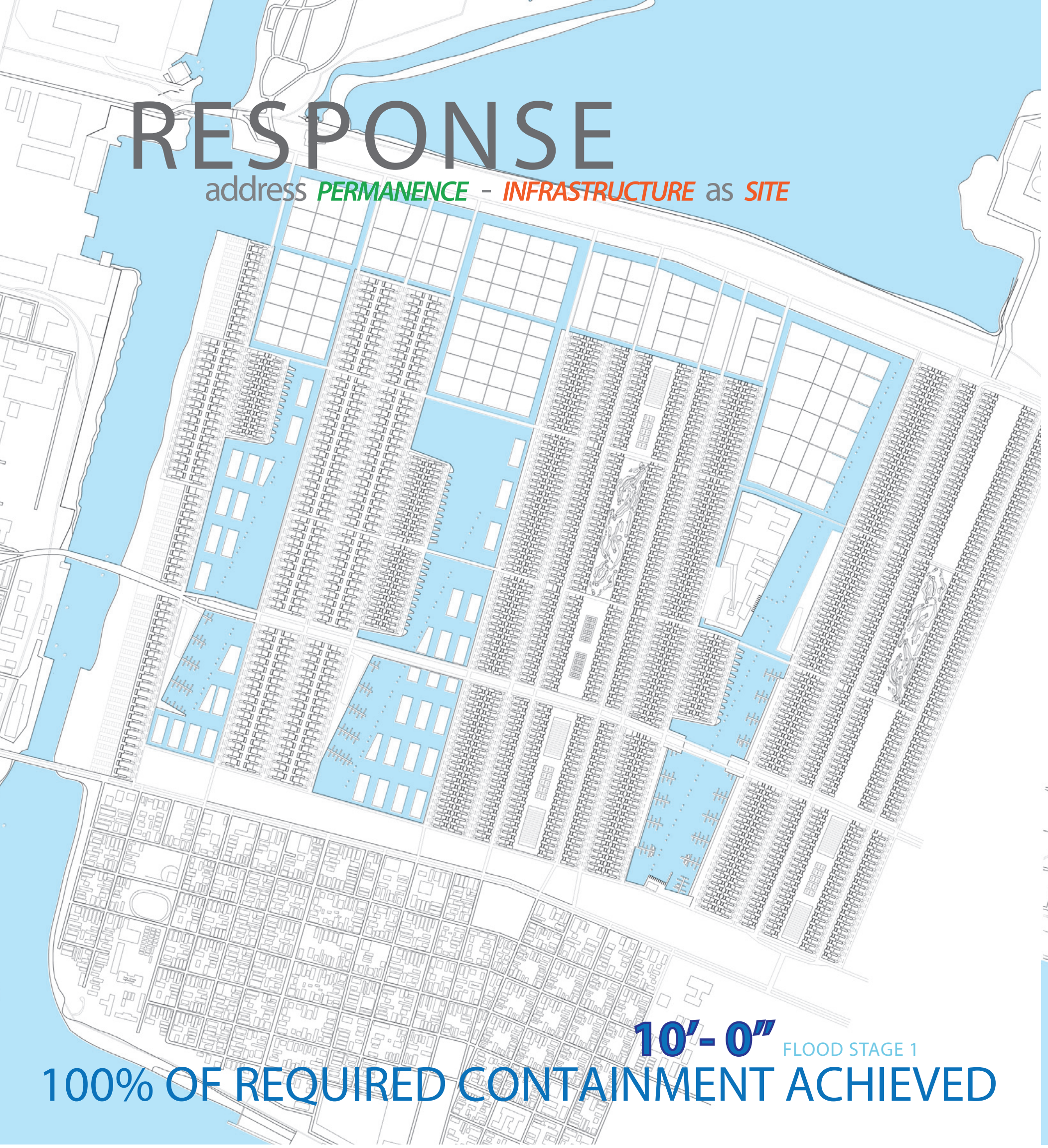
SERVICES
New proposed canals follow original plantation lot lines and will maintain the existing Industrial Canal depth of 36 feet. Floating service islands are distributed to accommodate public services including schools, police stations, fire stations, medical facilities and private businesses.

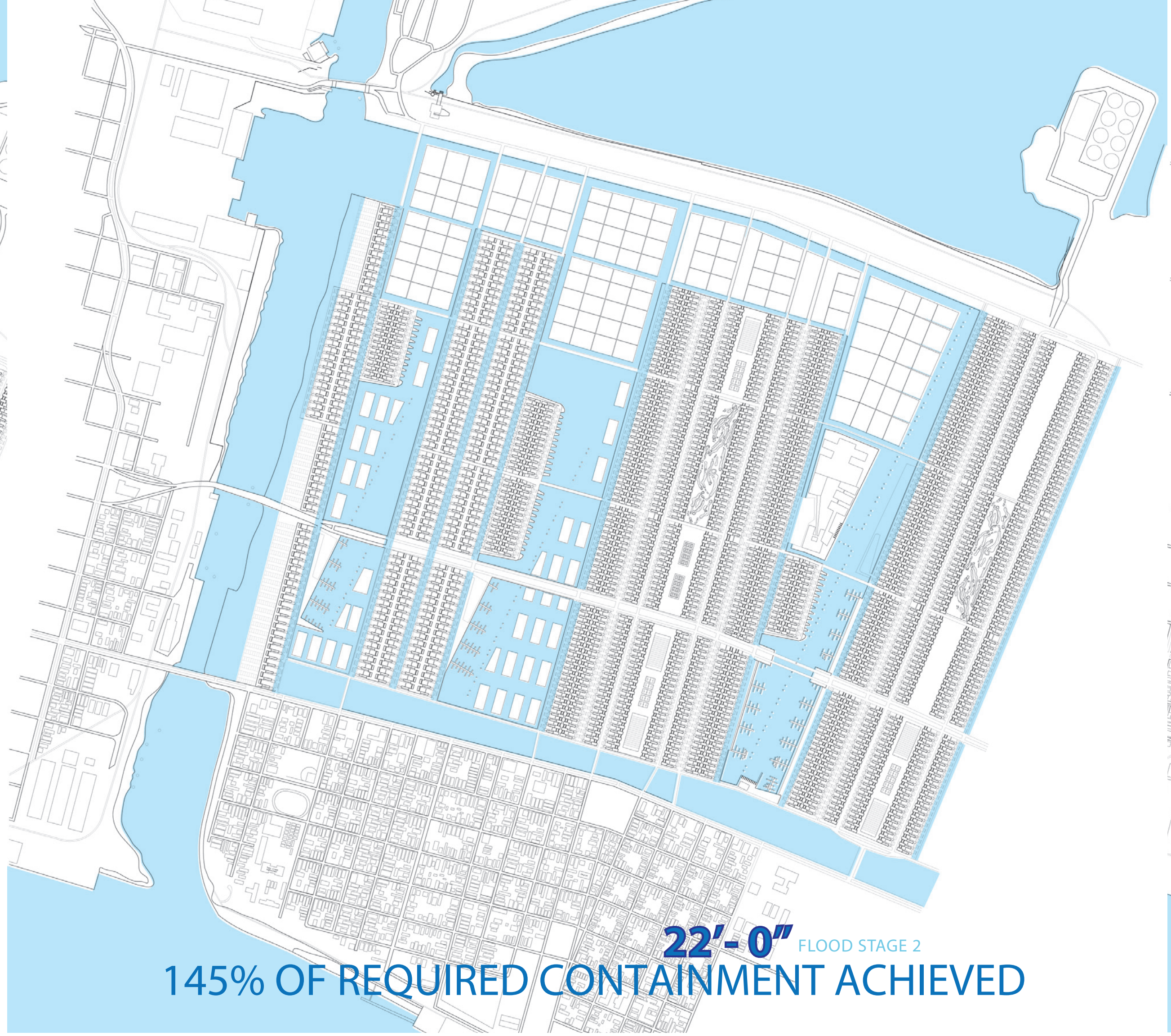
RECREATION
Rowing courses and public marinas are proposed for both water recreation and new modes of transportation. Agriculture can also be reintroduced with a crop rotation of rice paddies and crawfish.

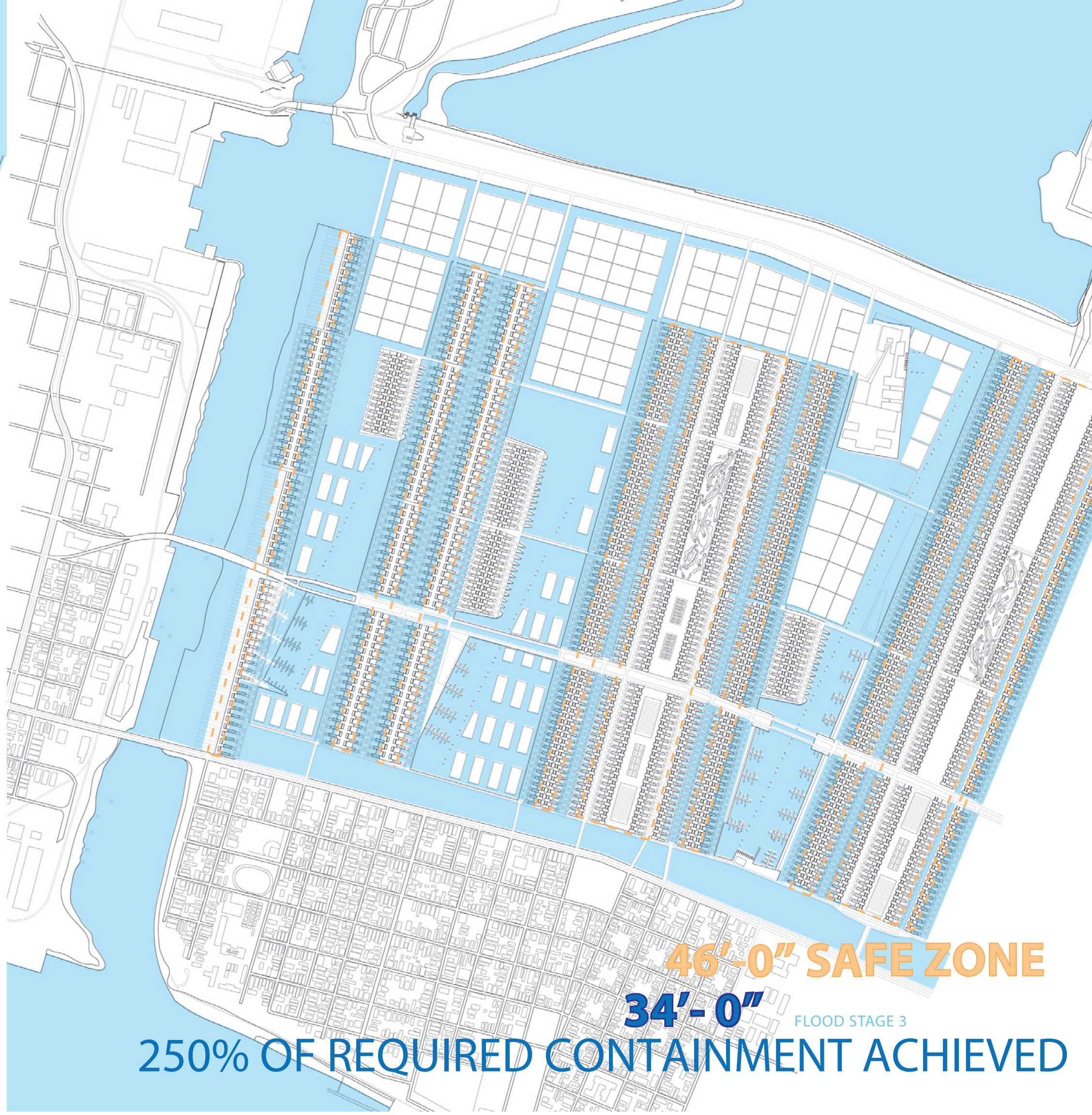
This proposal eliminates the need for current methods of mediating and containing water. The plan no longer utilizes vertical levee systems. Instead, infrastructure is responsive to the forces of nature. By shifting from a purely horizontal city to one of a vertical orientation, residents will be living and adapting to changes in water level rather than abandoning their homes and businesses. Infrastructure is therefore a productive site to rethink the social structure of New Orleans.

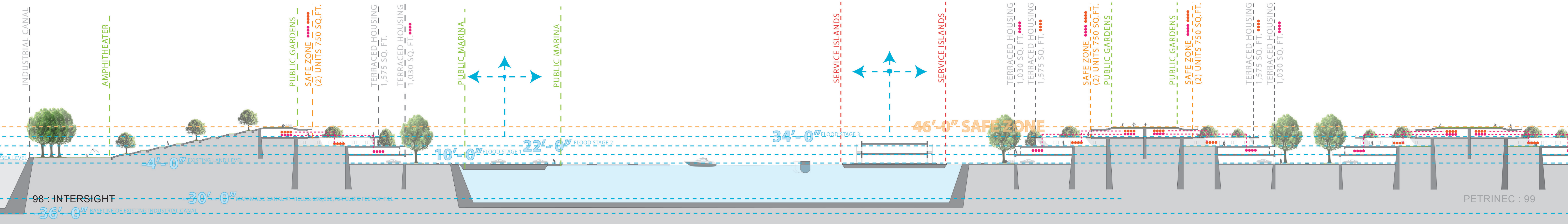
RESPONSE

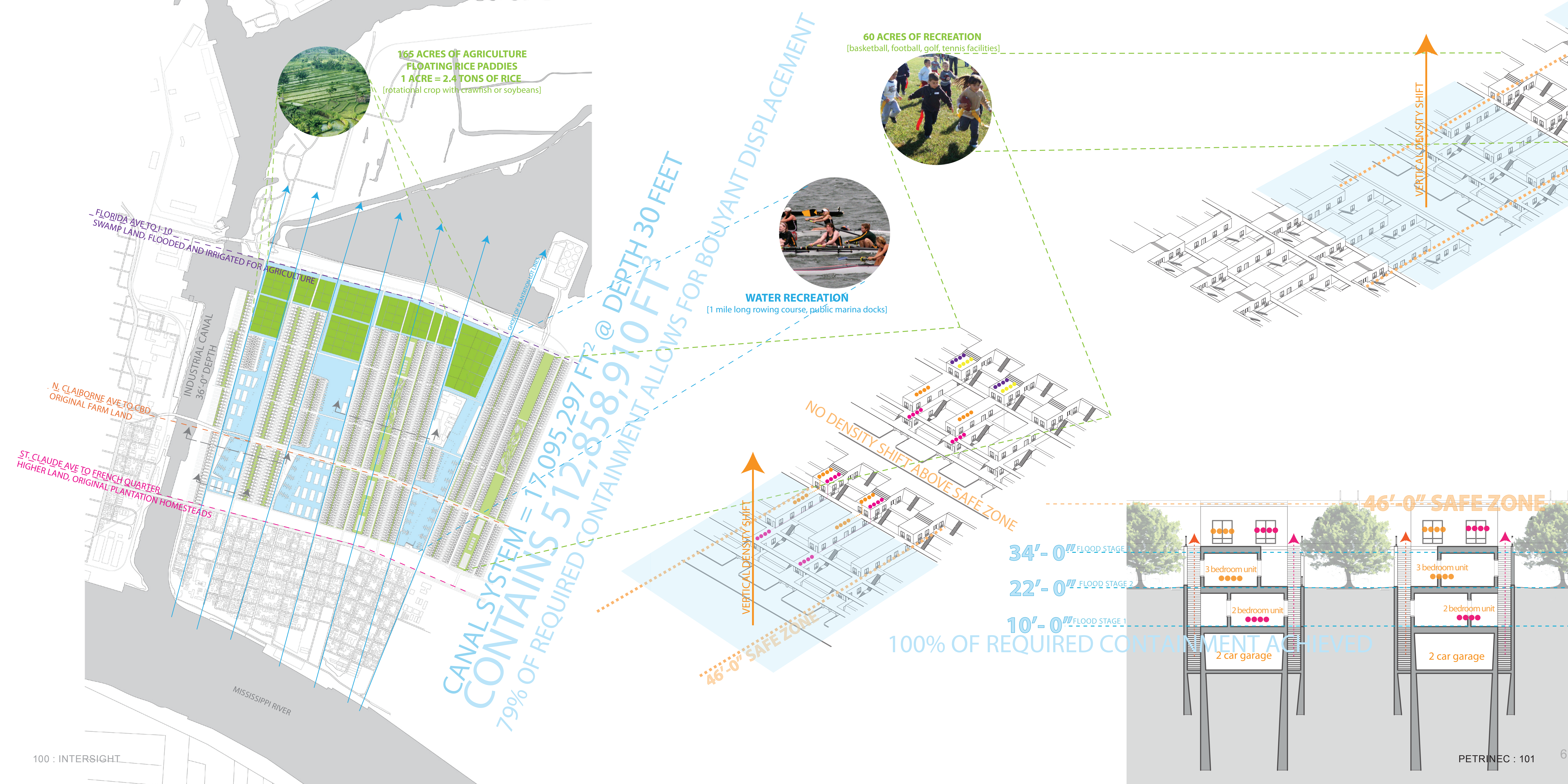
address *PERMANENCE* - *INFRASTRUCTURE* as *SITE*











165 ACRES OF AGRICULTURE
FLOATING RICE PADDIES
1 ACRE = 2.4 TONS OF RICE
[rotational crop with crawfish or soybeans]
60 ACRES OF RECREATION
[basketball, football, golf, tennis facilities]
WATER RECREATION
[1 mile long rowing course, public marina docks]
FLORIDA AVE TO I-10
SWAMP LAND, FLOODED AND IRRIGATED FOR AGRICULTURE
N. CLAIBORNE AVE TO CBD
ORIGINAL FARM LAND
ST. CLAUDE AVE TO FRENCH QUARTER
HIGHER LAND, ORIGINAL PLANTATION HOMESTEADS
INDUSTRIAL CANAL
36'-0" DEPTH
MISSISSIPPI RIVER
CANAL SYSTEM = 17,095,297 FT² @ DEPTH 30 FEET
CONTAINS 512,858,910 FT³
79% OF REQUIRED CONTAINMENT ALLOWS FOR BOUYANT DISPLACEMENT
VERTICAL DENSITY SHIFT
NO DENSITY SHIFT ABOVE SAFE ZONE
46'-0" SAFE ZONE
46'-0" SAFE ZONE
34'- 0" FLOOD STAGE 3
22'- 0" FLOOD STAGE 2
10'- 0" FLOOD STAGE 1
100% OF REQUIRED CONTAINMENT ACHIEVED
3 bedroom unit
2 bedroom unit
2 car garage
3 bedroom unit
2 bedroom unit
2 car garage

SPRING 2008
PD 360
ENVIRONMENTAL DESIGN WORKSHOP II

COLLEEN ERRAIHANI

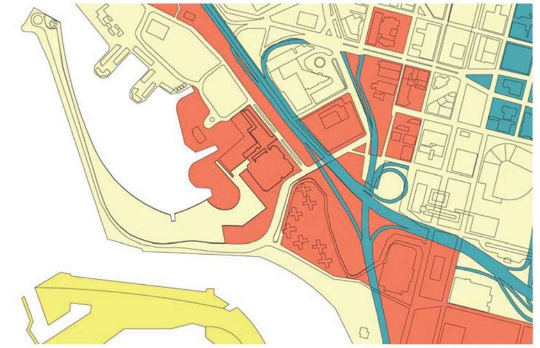
faculty
MILENKO IVANOVIC

key

proposed Waterways
proposed Infrastructure
proposed Parking
proposed Parcels
proposed Greenspace
existing Residential
existing Commercial
proposed Development

city owned Land
county owned Land
state owned Land
federal owned Land
revitalization District

buffalo 2008

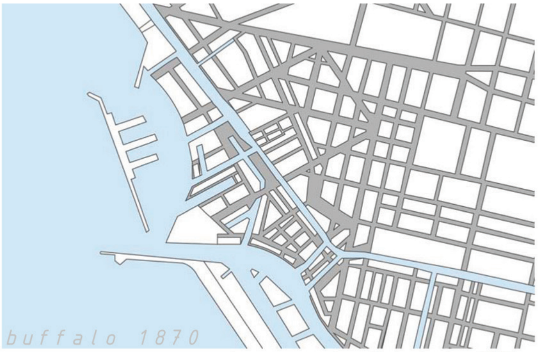


land ownership 2008

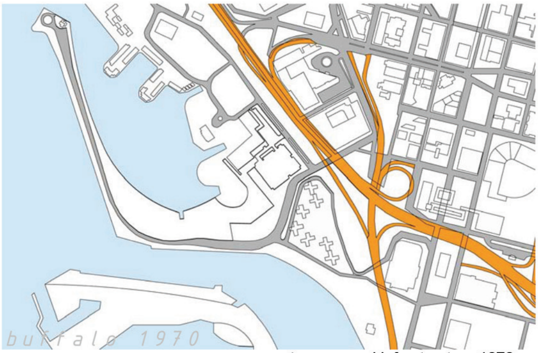
revitalization boundary 2008

key

buildings and parcels
waterways and canals
infrastructure ground
infrastructure raised
parking and lots
greenspace or recreation
commerical development
residential development



waterways , canals and infrastructure 1870



waterways and infrastructure 1870

by segregate uses we close the door to possibilities...

key

transportation *most dense*
transportation *dense*
transportation *less dense*
transportation *least dense*

pedestrian *most dense*
pedestrian *dense*
pedestrian *less dense*
pedestrian *least dense*

circulation study 1870

circulation study 2008

map overlay - current below / proposed above

BUFFALO'S WATERFRONT

Buffalo's outer harbor is a reminder of industry and trade. Grain elevators are monuments of the industrial past and also serve as an inspiration and source of debate about the future. Any possible plan for outer harbor redevelopment needs to address a strategy for conservation or reuse of grain elevators. It is difficult to redevelop this area due to the fact that most of the land is owned by the federal government. However, land owned by the city has been converted into open green space. A series of maps catalogues use and land ownership as well as scenarios for restructuring and revitalizing the outer harbor.

proposed conditions 2008

LECTURES

Frank — January 23
BARKOW LEIBINGER

January 30
STUDIO SUMO

Pierre — February 6
THIBAULT

Barry — February 13
BLUESTONE

Rahul — February 20
MEHROTRA

Inaki + Juan — March 6
ÁBALOS + HERREROS

BUFFALO WORKSHOP/WOOD LECTURES — March 17
PLY/VJAA/MILLER HULL

MARTELL LECTURE Thom — March 19
MAYNE

CLARKSON CHAIR . ARCHITECTURE Kenneth — March 26
FRAMPTON

JAMMAL LECTURE Tridib — March 28
BANERJEE

BIRDAIR LECTURE — April 2
DILLER SCOFIDIO + RENFRO

BETHUNE LECTURE — April 3
FOREIGN OFFICE ARCHITECTS

Benedetta — April 4
TAGLIABUE

GPSA LECTURE . Robert — April 15
CERVERO

Vincent — September 17
JAMES

September 25
GIGON + GUYER

Jack — September 26
QUINAN
7:00 PM

Dan — October 13
GRAHAM
112 Center for the Arts — 6:30 PM

October 22
GREATBATCH PAVILION
Toshiko Mori/Dmitri Jajich/Paul Kreitler/Bruce Nichol
Albright-Knox Art Gallery — 8:00 PM

Richard — October 24
CLEARY
7:00 PM

CLARKSON CHAIR . PLANNING Michael — October 29
TEITZ

Jan — November 12
EDLER

Maurice — November 19
COX

Mathias — November 21
KLOTZ

EXHIBITIONS

PELLA DESIGN AWARDS
August 18 - September 12

BENCH
September 15 - September 26

INTERSIGHT v11.08
September 29 - October 17

GLOBAL PROGRAMS
FRANCE COSTA RICA UK
October 20 - November 7

INTEGRATED DESIGN
November 10 - December 5

HOMEWORK
December 8 - December 19

ARCHITECTURE + FLIGHT
Buffalo Niagara International Airport Gallery — January 11 - February 22

TRUTEC BUILDING
Hayes Lobby — January 21 - February 1

BUILDING UB
Hayes Lobby — February 2 - 14

AIA AWARDS
James Dyett Gallery — February 4 - 25

SILO DREAMS
Hayes Lobby; Reception 5 - 7 pm — February 15 - 29

WARP/MATERIAL + FABRICATION
Hayes Lobby — March 10 - 31

FRESHMAN DESIGN
Anderson Gallery — March 22 - April 21

ARCHITECTURE AS DOUBT
Banham Fellow Eva Franch Gilabert . James Dyett Gallery — March 28 - April 28

WALTER BIRD
Hayes Lobby — April 2 - 25

APRIL 2008
MARTELL LECTURE
ABRIDGED EXCERPT

TRANSCRIBED BY:
JODI PFISTER

THOM MAYNE

Thom Mayne, Professor of Architecture at UCLA, is a founder of the Southern California Institute of Architecture (SCI-Arc) and has held teaching positions at Columbia, Harvard, Yale, The Berlage Institute in the Netherlands, and the Bartlett School of Architecture in London. Currently, he holds a tenured faculty position at the UCLA School of Arts and Architecture. His distinguished honors include the Pritzker Prize, the Rome Prize Fellowship from the American Academy of Design in Rome, Alumni of the Year Award from USC, Member-elect from the American Academy of Arts and Letters, and the 2000 AIA/LA Gold Medal in Architecture. With Morphosis, he has been the recipient of 25 Progressive Architecture awards, 54 AIA awards and numerous other recognitions for outstanding design.

I became interested in building complexity early in my career and am just now realizing what that meant. In the beginning, small projects were overworked and became overly complex. Now I realize that what I was really fascinated with in complexity was the vastness of our field. I am becoming increasingly interested in fact that architecture touches so many disciplines. It has such huge inputs that it is a limitless profession. That is why it is unmasterable and what makes it frustrating, yet so incredibly interesting. It is impossible to finally get your arms around it, completely impossible because of the vastness of information. Of course, this situation has become more extreme as the amount of information available to us has increased exponentially.

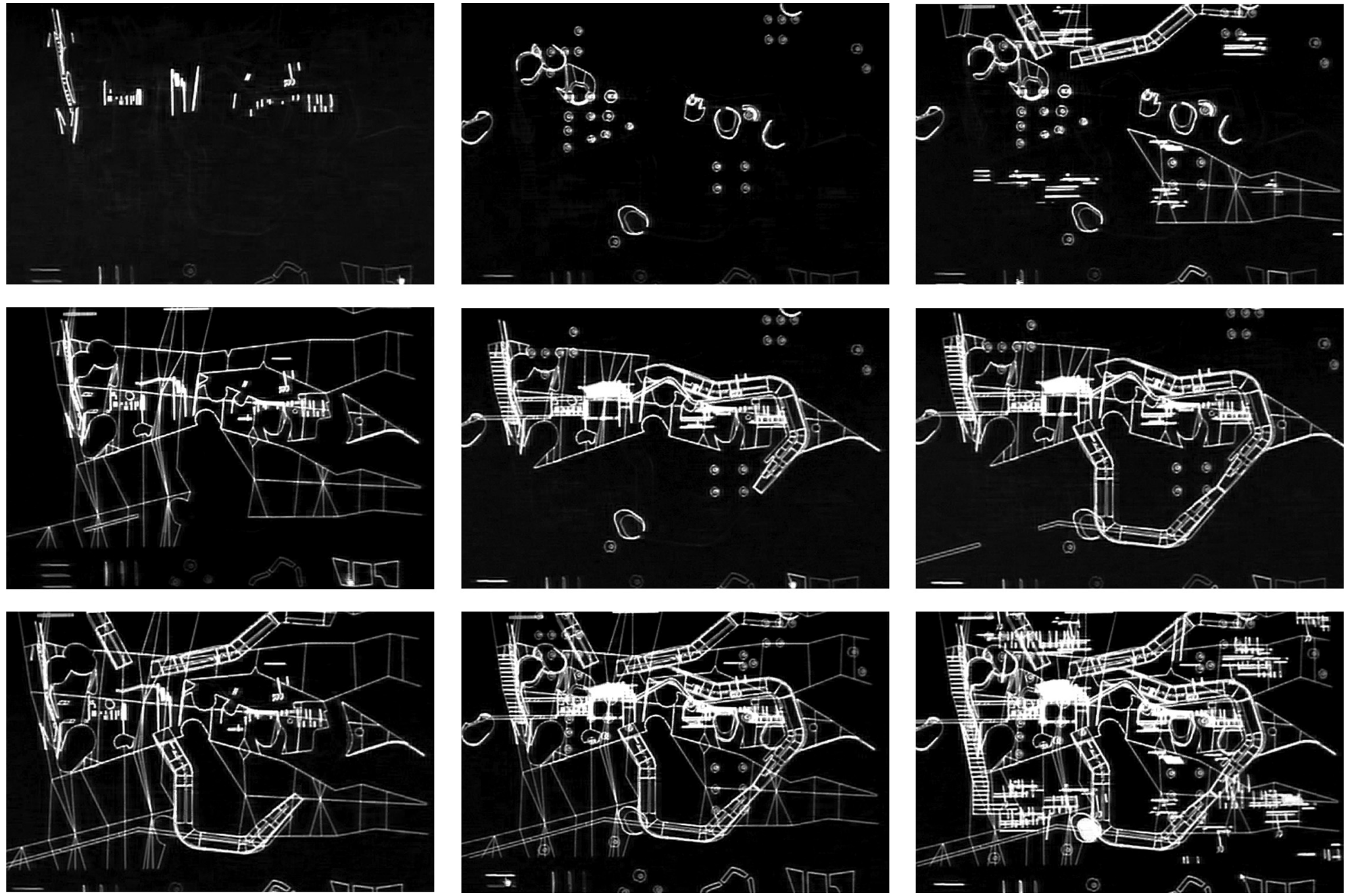
I have articulated our work through four broad territories or relationships: urbanism, nature, the tectonic and methodology. I am not interested in the sub-disciplines or subsets of architecture, but rather in the integration or connection between these territories and the ability to discriminate throughout each project which of these territories develops some sort of hierarchical or predominant relationship. That's the key. Sometimes the relationship between the rational ways one thinks though a project and more intuitive approaches become quite complicated. If you have studied psychoanalytic behavior, it involves incredibly complicated nuanced approaches towards complex psychological behaviors which require exploration and analysis with multiple entry points. Architecture is the same. When a project is started, sometimes in the beginning of the investigation, one connects directly with the utility or the functional formation of the work.

In my earliest projects, I was fighting against the Miesian idea of the radical reduction of architecture, against the generic notion of a singular idea which is completely disinterested in specificity, much less in something idiosyncratic or complicated like an enigma. People are more interested in things that cannot be understood. However, Mies reduced architecture to an extremely convenient building methodology primarily because of its simplicity and economy. There was no desire to understand the problem other than at the level of the simple tectonic or the conceptual idea of minimilization. Every project I did started to challenge this thought, and instead favored relationships of non sequiturs. My work reflects the relationships or dissociations that make more complex organisms, more complex structures that parallel the history of city making.

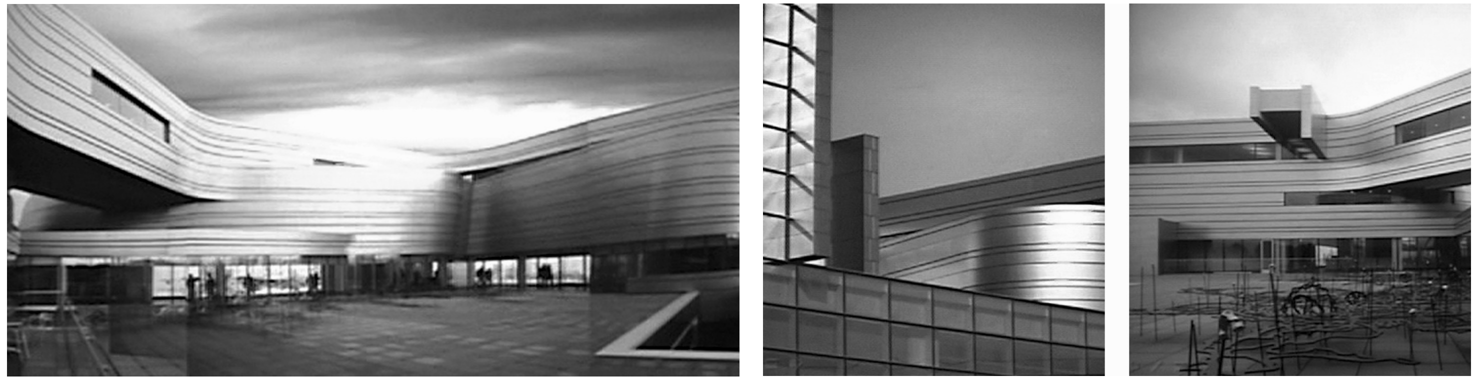
Consequently, I have never thought of architecture as subtractive but rather as additive. Conflict is the basis of everything I do. If it's black, it's white. Whatever it does, I pursue its opposite. Oppositional tension produces huge amounts of energy and also represents a social and psychoanalytical model. Probably the most important thing it means to be a human being today is to understand the difficulty of resolving irreconcilable tensions. It is the essence of being modern.

Through the generous support of Christopher and Sally Martell, the Martell Distinguished Visiting Critic Program makes it possible to bring architects of international significance to the School of Architecture and Planning at the University at Buffalo each year to work closely with graduate students in the design studio and also give a school-wide public lecture which is published by buffaloBOOKS.

2007 Tod Williams + Billie Tsien
2006 Brigitte Shim
2005 Steven Holl



Multiple systems are overlaid to shift complex programs into an organized plan for the Giant Group Pharmaceutical Campus in Shanghai, China.



The plinth represents status beyond the day-to-day life of the city and acknowledges the continuity of history in the Federal Courthouse in Downtown Eugene, Oregon.

OCTOBER 2008
GREATBATCH PAVILION LECTURE
ABRIDGED EXCERPT

TRANSCRIBED BY:
ALBERT CHAO

INTEGRATED DESIGN
THE GREATBATCH PAVILION

TOSHIKO MORI, ARCHITECT

Panel Discussion,
Albright-Knox Art Gallery,
Buffalo, New York

Presenters:
Toshiko Mori
Architect
Dmitri Jajich
Structural Engineer
Skidmore Owings & Merrill LLP
Paul Kreitler
Environmental Engineer
Landmark Facilities Group
Bruce Nichol, ARB RIBA
Facade Engineer
Front Inc.

Toshiko Mori won the competition to design the Visitor Center for the Darwin Martin House in 2002. The Greatbatch Pavilion opened to the public in March 2009. During the construction phase in 2008, the architect, in conjunction with structural, environmental and facade engineers, led a discussion on the design of the new pavilion and highlighted important concepts of integrated design.

The new Visitor Center is considered an anti-building. It was designed to contrast with the Darwin Martin House that was designed by Frank Lloyd Wright in 1903. For example, the 7'-7" module of the pergola designed by Wright was projected onto both the structure and glazing of the pavilion to establish a dialogue with Frank Lloyd Wright's ideas. Similarly, while the existing house is built of brick, the pavilion explores transparency. If Wright moves into solid brick, I will move into clear transparent glass. If Wright does a hip roof, I will do a reverse hip roof. And while the Visitor Center is long, linear and light, the Darwin Martin House is known for its massive qualities. This strategy of oppositions is deployed throughout the design. It helps to define the Visitor Center as a public building while the Darwin Martin House clearly remains a private residence.

A significant aspect of the original Darwin Martin House is its role in establishing the open plan as early as 1903. The use of columns and piers makes space flow. Additionally, the piers in the Darwin Martin House are multi-functional and serve as both structure and infrastructure. They deliver gas, electricity and heating systems, and they serve as house furniture. Wright's use of the cantilever is also a very progressive concept.

In the original proposal for the new visitor pavilion, four piers acted as the primary structural elements for the cantilever roof. The design of the structure was fundamental to achieving this illusion by using columns to create what appears to be a cantilever. However, it is in fact a long span that is supported at the limit of the glazing. The integration of structure and curtain wall was important and involved a lot of going back and forth between the architect, structural and environmental engineers, the facade consultant, the main contractor and the glazing subcontractor.

The environmental engineering concept was developed to embrace sustainable design strategies. The building has radiant heating and cooling systems embedded in the floor that are connected to geothermal wells. A solid west wall creates a thermal mass to protect the pavilion from the cold prevailing winds. Snow accumulated on the inverted roof will also act as a passive insulation layer. We also provided heat traces in the piers to allow for drainage through those piers.

There is no ductwork within the space and air is induced to move naturally with a convection system. The pavilion has been designed to accommodate a range of numbers of people. CO2 sensors are used to monitor occupancy, and the system responds accordingly. It is like a building that breathes and is a contemporary response to Wright's organic principles.

A skylight admits daylight throughout the building. The slope of the ceiling bounces daylight into the visitor center. The majority of the time the building is open, artificial lighting will not be required. There is also a snow light reflector. When there is an accumulation of snow, heat and light will bounce off of the snow to induce heat gain inside the pavilion. This increases the efficiency of the building, which will then require less mechanical heating.

In addition, there is a geothermal system that taps into a constant ground temperature of 47 degrees. No condenser is required. As condensers tend to make noise, this is important in this residential neighborhood. The geothermal systems also expand into the Martin House, allowing it to be self-sustaining.

The radiant floor system provides constant heat or cooling most of the time. There is also a forced air system which takes care of large groups of people and big events. The ductwork for the forced air system has been designed to provide a good acoustic environment.

In designing the lighting we collaborated with Arup to develop a strategy which does not have overhead lights but instead uses lighting that is reflected off the ceiling. Using three-dimensional imaging and simulation techniques, it was possible to predict the performance of each component and the systems within the building.

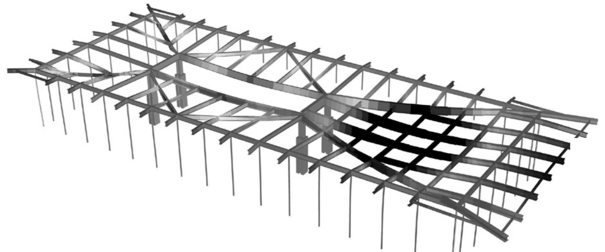
The west wall of the pavilion is concrete, which has a significant role to play. The wall has a shelf cantilever that is similar to the cantilever on the second floor of the Darwin Martin House. This reinforced concrete provides thermal insulation as well as protection against the west wind. It also acts as a fresh air intake and through its profiled surface provides a visual link to the brick pattern of the Darwin Martin House facade. It becomes a memory of the Darwin Martin façade. This wall was difficult to construct, and we worked with the contractor who built many mockups using different release agents, concrete mixes, vibration techniques and so forth. It took a lot of time. Although the hundred feet of wall was poured in just one day, it demanded a high level of collaboration on site. The details are meticulous. We used the exact dimensions of bricks from the Darwin Martin House, and if you look at a corner detail, you will see the same profile as the Darwin Martin House with deep recesses that make bricks look like they are floating.

The steel columns are $2^{1}/_{4}$" by $2^{1}/_{4}$" in section and made of solid stainless steel. They were CNC milled and then ground to make absolute 90 degree corners. The slenderness is possible because of the 7'-7" module. Instead of having 25 or 30 foot spans and large columns, we have come up with a strategy of having many smaller columns so that the structure is there, but it disappears.

The facade is triple glazed panels that are $3^{1}/_{4}$" thick and 15 feet high. These are some of the largest glazing panels in North America. This fabrication process was very important because the tolerance was only 1/4 inch.

Top: Concrete pour of west wall. Image provided by LPC
Center: View of northwest concrete wall. Image provided by Toshiko Mori Architects
Bottom: Interior view of completed Visitor Center. Image provided by Toshiko Mori Architects.

Slender columns in construction. Image provided by SOM



Gravity load deformed shape - DZ contour. Image provided by SOM

DMITRI JAJICH, STRUCTURAL ENGINEER

Because we wanted a clear and unencumbered perimeter for the building, we focused all the structural lateral strength at the four central piers. Conventionally, we would have wanted to use diagonal bracing to stiffen them up, but as that was not acceptable, the columns are cantilevers that are fixed at the base. All the rigidity comes from this connection. To achieve that, you cannot just stick it into the ground like a fence post because the loads are too great. There is a frame of underground beams that are almost 3 feet deep, which allows the columns to cantilever up above the ground. In addition, encasing the column in concrete gives more stiffness than a steel column.

The perimeter columns, which are 2 1/4 by 2 1/4 inches, are about 15 feet tall. A formula by mathematician Leonhard Euler calculates that the load at which a column will buckle is proportional to the stiffness of the column. It has nothing to do with strength. If the column were to buckle, the material would still be fine. The column would just elastically deform.

One of the design imperatives was to make the external façade as transparent as possible. When we studied the buckling of columns, we discovered that at three times the given load, the slender columns would still not be overstressed. It is unusual to have a solid stainless steel column. Although we often cover up structure, here, even though it is minimal in size, it is expressed as a significant architectural element.

Base glass clamp construction. Image provided by Toshiko Mori Architects

BRUCE NICHOL, FAÇADE CONSULTANT

The fully glazed wall is clamped rigidly at the base and cantilevers vertically. This eradicates the need for any vertical framing in the glass. It is also triple glazed with half an inch of air space between each layer. At the base, only the inboard laminated ply of glass is working structurally, and while the entire triple glazed buildup takes some lateral load from the wind, the primary structural work is done by the inner layer. Consequently, it is clamped into a steel double angled system. This is a typical detail for a glass balustrade. However, very few balustrades are over 15 feet tall!

One aspect of the roof cantilever is the positive or negative displacement from snow loads or wind uplift. In relation to the glass façade, this has to be taken up in the head joint. The entire gravity load of the glass is taken at the base but lateral restraint and wind loads that act on the exterior have to be taken at the head.

Originally, the glass was clamped at the head with a slip connection that allowed the roof to move up and down for snow and wind loads. However, that required a very tight tolerance in the steel head detail at the top of the insulating glass. Consequently, the detail evolved as an aluminum frame that allows the roof to move up and down without the glass ever touching its surrounding frame.

Radiant floor installation. Image provided by Toshiko Mori Architects

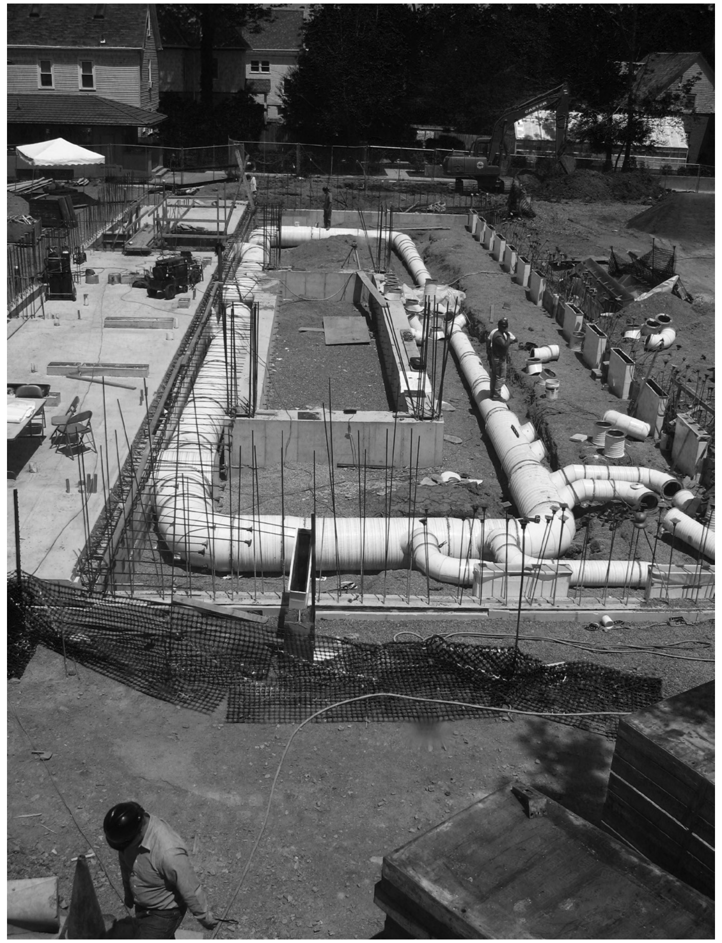
PAUL KREITLER, ENVIRONMENTAL ENGINEER

While the structure and glass façade are a visible part of the architecture, the environmental systems tend to be invisible. In addition, this building presents a particular acoustic environment - it is a glass structure with a concrete floor and a drywall ceiling, so there is nothing that is soft or absorbent in the entire building.

As a result, absorption is located below the floor slab. Slowing the air down at the outlets around the perimeter of the building helped to reduce noise. In addition, each of these outlets is oversized and consequently the air moves very slowly under normal operating circumstances, which also helps to reduce the noise.

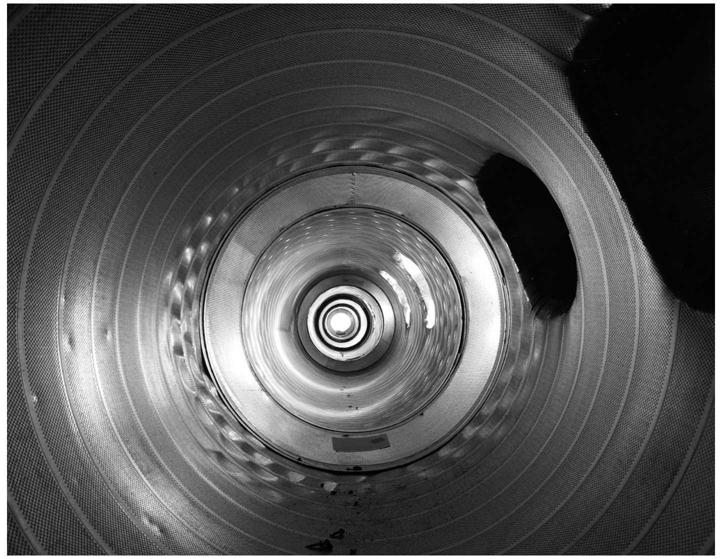
Other systems are hidden in the main columns. This is an approach that was inspired by Wright, who wanted every building element to serve multiple purposes. In addition to drawing users' attention to the center of the building and supporting the large cantilevers, these columns house the plumbing, drainage from the roof, the fire suppression system and electrical conduits. There are no other vertical penetrations through this building.

To ensure good indoor air quality, the scheme has a high efficiency air filtration system which removes all the particulates, pollution and pollens. In addition, the outdoor air and ventilation are controlled by CO_2 sensors which monitor the number of people in the pavilion. As CO_2 levels rise, additional outside air is introduced into the space, increasing air exchange throughout the building. As people leave and the CO_2 levels go back down, the building slowly closes the outside air intakes. This reduces energy usage. An outdoor air economizer also allows the building to turn off the systems when the outdoor temperature is just right, as if to say, "It is nice outside, let's open the window."



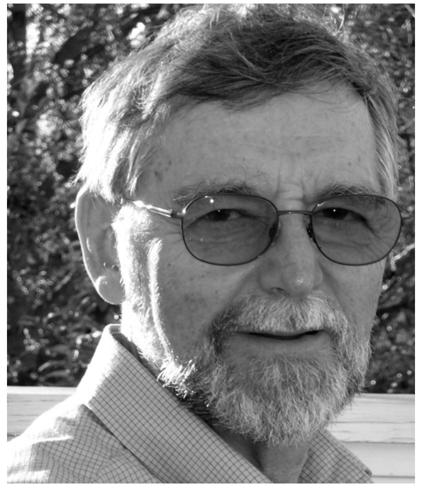
Underground ductwork. Image provided by Toshiko Mori Architects

View through the ductwork. Image provided by Toshiko Mori Architects



DR. MICHAEL B. TEITZ

PLANNING + ECONOMIC DEVELOPMENT
AN UNEASY PARTNERSHIP



In October 2008, the Department of Urban and Regional Planning continued its annual tradition of hosting the Clarkson Chair. Through a week long series of public lectures and seminars, hosted on and off campus, the Clarkson week promoted interdisciplinary scholarship on a topic of current interest. The lectures and seminars also facilitated knowledge-sharing among academicians and local planning practitioners.

Dr. Michael Teitz, Professor Emeritus, University of California, Berkeley and Senior Fellow of the Public Policy Institute of California, gave the annual public Clarkson lecture while he was in residence at the University at Buffalo.

The relationship between planning and economic development is both old and new. Although we are in a time of what seems unprecedented economic turmoil, debates over planning and markets go back beyond the emergence of planning as we understand it. How planning should relate to business and the economy in a capitalist world has also been a complex and sometimes tortuous issue as long as planning has been a professional activity in modern cities and regions. Some theoretical positions see the question as straightforward and simple. Neoclassical economists argue that planning is justified only where the market fails, with a precise definition of the meaning of market failure. Marxists argue that the economic system determines all else, so that what we see as planning is an epiphenomenon that simply serves the interest of capital. I take a skeptical view of such theoretical and ideological systems and prefer a third perspective, that of history, which presents us with events, people and actions that do not seem to fit our models. History teaches us to be careful about what we take for granted; the pity is that in popular movements and economic bubbles, we so often forget that.

In 1963, so far as I know, no U.S. planning school taught economic development, though some did teach regional planning with a pronounced economic slant. Furthermore, few planning departments in cities saw themselves as engaged in economic development, other than in redevelopment, the legacy of urban renewal. In 2009, it is a rare planning school that does not offer at least one course in economic development, often linked to community development. Even more striking is the number of cities in which the planning department now incorporates a specific economic development function. For example, the Minneapolis Department of Community Planning and Economic Development offers help with foreclosures, business startups, loans and grants for business, among other things, in addition to zoning, long range planning and infrastructure development.

How should we understand and interpret this profound shift in what is seen as important to the field? Before trying to do this, it is necessary to clarify what we mean by the term “economic development,” to articulate where it comes from, and to set out its relationship to urban planning.

PLANNING AND ECONOMIC DEVELOPMENT

What, exactly, is economic development? I would argue that it is the conscious effort to enhance the economy of cities, regions, or countries, with the intent of increasing wealth, income and employment, expanding opportunities and raising the quality of life for people. For planning, in the broadest sense, this is not new. In 1808, Albert Gallatin, the Treasury Secretary during President Jefferson’s administration, laid out a plan to enhance the economy and prospects of the U.S. by building a great truck road down the east coast, constructing four canals to lower shipping costs and create inland waterways, and constructing road and river improvements that would cross the Appalachians giving access to the Ohio Valley.[1] The Gallatin Plan was a visionary but practical proposal, most of which was implemented, though not as Gallatin had envisaged. Shortly before, Congress had passed the Northwest Ordinance, which set out the spatial basis for a nationwide real estate market, enabling agricultural and urban development. Later, the railroads and the Homestead Act did much the same for the interior of the continent. Clearly, the republic’s founders made no little plans, and their eyes were on economic development.

Planning for economic development has even deeper roots. From the earliest times states sought to enhance their power and influence through trade and conquest, with the two often virtually indistinguishable. With the end of feudalism in Europe and the rise of commercial and industrial capitalism, nation states and independent cities sought wealth in many ways. This included mercantilist efforts to promote exports and imperial conquests to gain gold while protecting markets in the New World or in Asia. Even small city states, such as Venice, could become powerful by supporting their rising merchant class with investments in infrastructure, such as the Arsenale, and regulation of trade, enforced by military power.

However, it is the industrial revolution and the rise of the 19th century industrial city that frames both the emergence of urban planning and of urban economic development. How this occurred resembles an historical ballet, in which different impulses drive both economic development and the emergence of urban planning as a field. The new industrial cities, first in Britain, then later in the 19th century in Europe, the U.S., Russia and Japan, were dangerous, dirty, unhealthy, congested and ill governed, but they were also very rich. The emerging bourgeois middle class, together with some elites sought to solve these problems in a variety of ways - Robert Peel with professional police, Edmund Chadwick with sewers and water, Robert Snow and Florence Nightingale with public health and hospitals, even Baron Haussmann with the boulevards of Paris. Industrialists and their associates, too, remade the city, mostly in their own interest, but also with reformist impulses. Think of Andrew Carnegie and the Homestead steel plant, Joseph Dart and the grain elevator, and George Pullman and the town of Pullman.

But it is only in the latter half of the 19th century that urban planning emerged as a field from urbanization and reform. Again, there are many strands - the Progressive reformers, such as Jane Addams, Mary Simkhovitch, Lawrence Veiller and Florence Kelly seeking to improve housing, counter poverty, assimilate new immigrants and decongest the city; designers and developers, such as Frederick Law Olmsted, creating new forms of suburban living; industrialists and architects, such as the Chicago Mercantile Club and Daniel Burnham creating grand visions of urban reform in the White City in Chicago World’s Fair of 1893 and the City Beautiful of Chicago’s 1909 Plan; and the utopians, such as Ebenezer Howard’s Garden City, Patrick Geddes and Karl Marx, some more and some less practical, seeking ways to ameliorate capitalism. What an amazing time it was; yet, city planning was still institutionally nascent.

Conventionally, that birth in the U.S. is marked by the first National Conference on City Planning, which convened in New York City in 1909. This year will be the planning profession’s 100th birthday, to be celebrated by the American Planning Association, the lineal descendant from that first conference. But what kind of planning was it that emerged from the tumult? It turned out to be not so much a planning of ideals and visions, but rather a planning with lesser but more practical concerns, such as regulation, zoning and subdivision control. A very different group of innovators was at work. Men such as Benjamin Marsh had traveled to Germany and returned to advocate regulation of urban development, and in his case to serve as secretary to a new Commission on the Congestion of Population. In 1913, the Peoples’ Institute of New York City invited a German planner, Werner Hegeman, to visit the U.S. He toured the country, visiting cities, lecturing and producing a plan for Oakland and Berkeley. The flavor of this plan was very different from earlier ones. His report on Oakland and Berkeley was comprised of four chapters - harbors, railroads and streets, parks and civic centers - emphasizing planning as urban and civic efficiency.

This new planning was driven by the market and by the need to establish norms and standards for public intervention that could stand the test of constitutionality. It made the world safer for development by preventing excesses, whether of high buildings which cancelled each other’s light in New York, or of subdividers threatening neighboring investments. Its heroes were of a different breed: lawyers, such as Alfred Bettmann, who would devise the strategy for securing zoning in the 1923 Euclid decision of the Supreme Court, at the price of detaching zoning from an active planning function at the local level. Harland Bartholomew, who became named as the first city planner, was hired by an American city, Newark. Afterwards, Bartholomew founded the most successful planning consulting firm in the first half of the 20th century. The planning professionals and concerned citizens in this period were trying to make better places, but they were, in fact, trying to do that from a fundamentally weak position vis-a-vis real estate development interests. The institutional structure that emerged fit the real estate boom of the 1920s and the beginning of automobile dominance. But it also contained a deep ideological contradiction between the idealistic goals of urban planning, as enunciated both by its professional leaders and emerging theorists, notably Lewis Mumford, and the practical function of planning in relation to development, especially after World War II. But even at this early period it can be heard in planners’ concerns about their inability to implement the plans that they made, expressed in the familiar lament about plans gathering dust on the bookshelves.

The 1920s boom collapsed into the Great Depression, which powerfully focused attention on the economy and how to keep it afloat. The impacts of the Depression and the New Deal on planning were immense: the former in decimating planning departments and jobs; the latter in new legislation and institutions that would influence the field, both immediately and in later decades. Planners became involved in new economic and social initiatives, from Robert Moses using federal money to create jobs rebuilding Central Park in Manhattan, to Rexford Tugwell advocating for new towns, to the creation of the Tennessee Valley Authority with the avowed intent of raising farm incomes and industrializing through hydroelectric power. The years of the New Deal were stirring ones for planning, but the underlying presumption of direct government intervention in the economy would not survive World War II.

After 1945, the pent-up demand for housing, fueled by rising productivity and income, exploded in growth. The dominance of the automobile as a means of transportation and the powerful image of the suburb, with home ownership, space and the family at its core, made real estate development immensely profitable. The largest developers, such as William Levitt, scarcely needed public planning, other than to provide highway access and water and sewer connections to their developments. Nonetheless, the development process as a whole did need orderly processes. Planning departments grew in numbers, as did the number of planners they employed, together with planning consultants. Urban renewal, arising from a mixture of downtown business interests, planning and modernist architectural idealism, added to the growth. Planning in the late 1950s received a huge boost through the federal 701 program that provided financial support for comprehensive approaches to urban renewal under the 1954 Housing Act. Planning schools were also part of this expansion. Where there had been perhaps two programs offering a masters degree in planning before 1940, by 1960 there were 37, and by 1975 almost 70 programs. At present, there are 85 accredited programs. What were all these planners doing, and what were the schools teaching? UC Berkeley's program reflected the field. It was heavily directed towards urban physical planning - the making of master plans for neighborhoods, cities and regions, with an emphasis on land use allocations, transportation and parks. This would be supplemented by some specialty courses on housing, urban renewal, planning law, some social science methods and perhaps history. In planning offices in cities, the equivalent was the zoning desk for handling subdivision and development applications, and the long range planning section to work on general plan revision; in larger cities, they might do capital improvement plans, and there might be other specialists. Urban renewal or redevelopment was largely under the auspices of newly formed redevelopment agencies, although also engaging planners. No one called what they were doing economic development, though urban renewal was intended to be just that.

What most planners were doing was not very new; they used the tools developed earlier - zoning, subdivision control and general (or master) plans. Many smaller towns had their plans done by consultants. In larger cities, the problem was bureaucratization and political weakness. In the planning schools, some social scientists, influenced by their experience in the New Deal, were beginning to call for a much broader conception of urban planning - one that would encompass not only physical development, but also social and economic development. Others were denouncing the idea of comprehensiveness as a fantasy. Jack Kent referred to the period from 1940 to 1960 as "twenty years of confusion" and his response was to reformulate the old master plan idea into one that would provide a stable basis within the planning tradition.[2] Yet, even as planners complained of their frustration in seeing their ideas go down under political pressure, most seemed to retain a core of belief that what they were doing was for the greater good. Still, planning ideology had little place for economic forces. Although plans projected growth, land and housing requirements, economic growth by the 1950s had simply become so accepted that it seemed to be the business of someone else, most likely the local Chamber of Commerce, which in its turn planned only its traditional role of booster for business and advocate of subsidies for new industrial plants. Within a few years, however, the field would look very different.

THE RISE OF ECONOMIC DEVELOPMENT

What changed, both in the world and in planning? There are three great divides. First, after 1945, the world changed profoundly. Colonial empires either collapsed or were challenged in wars of liberation. A new agenda was in place. Under the UN and multilateral international agreements, new institutions, such as the World Bank and the IMF were formed. Part of their agenda was to oversee the transition of the new post-colonial nation to a path of development that would raise their incomes. The idea of economic development in a national and international context was on the table. It would influence planning thought profoundly, through such scholar-practitioners as John Friedmann and Harvey Perloff.

The second divide was domestic. In the US, by the early 1960s, the post-WW II expectation of rising incomes based on manufacturing jobs was challenged by a phenomenon that came to be known as de-industrialization. Both at a national scale and regionally, manufacturing that was formerly in older, industrial cities relocated to more efficient sites on the periphery of cities or to regions with cheaper labor, leaving empty factories and abandoned industrial sites. It was a seemingly inexorable process that resulted in the percentage of total employment in manufacturing falling from over one-third of the total to less than ten percent today. Ironically, this shift has been partly offset by a huge growth in manufacturing productivity. But that is of little comfort, then or now, to those whose relatively well-paying jobs disappeared. In the post-WW II decades, a large proportion of that group was African-American. They had moved to the cities during the Depression and the war, and now they could not follow the jobs, in large part because they were prevented by racial discrimination from access to new suburban housing. The ghetto populations of major cities were stranded and profoundly dissatisfied. As one recent commentator on the stock market meltdown observed, it is worse to have had money and lost it than never to have had it at all.

A third great divide was embodied in a new and powerful social and political force. By the 1960s, the civil rights revolution was transforming the expectations of African-Americans and whites alike. The demonstrations and urban riots of the 1960s shook the foundations of American political and social life. People simply rose up against discrimination, poverty and unemployment. New laws were created in response, such as the Voting Rights Act and new initiatives, such as the War on Poverty which re-established the idea that government should act in order to attempt to change the economic circumstances of people in poverty. Suddenly, there were new programs and organizations, such as the Bedford-Stuyvesant Restoration Corporation in Brooklyn, that seemed to fit the older, more idealistic planning models of the 1930s and earlier, with the intent to change economic outcomes for people. Planners helped to invent them, and they could and did find employment in them.

But was this planning? For many in the field, even those who had advocated urban renewal, this simply was not part of the planning domain. For others, notably those such as Paul Davidoff, who had been advocating for opening suburban housing to racial minorities, this was the essential core of what planning should be about. Community development, which had been largely the domain of political advocacy groups following Saul Alinsky, suddenly became the focus of federal funding through Model Cities and the array of programs around it. By the late 1970s, a parallel world of non-profit and local governmental agencies had emerged. Within planning departments in older cities, community development became a force that was reflected institutionally and politically. In the schools, too, courses began to be taught, and scholars were writing about it and advocating for it. In different places it took different forms, with varying degrees of radicalization.

I suspect that the catalyst for economic development in planning was the economic shock of the 1970s, which exacerbated the dire situation of older cities, both large and small. A variety of federal programs was attempted, ranging from direct employment subsidies under CETA, to project subsidies under UDAG. Although the programs were short-lived, they pushed city governments to create organizational vehicles to manage them, and often those vehicles were planning departments. As the focus of programs shifted towards job training and workforce development, the institutional locus remained, partly in planning and partly in special local agencies established for that purpose. Fiscal exigencies often pushed the two together under new compound titles. The schools picked up this movement and began to teach economic development courses. At Berkeley, the first course in 1981-82 was an undergraduate class invented by two doctoral students in planning. It was followed the next year by a graduate course, and textbooks started to appear shortly thereafter.

CONCLUSION

By the 1990s, economic development could be said to be established as a field in planning. But what was it? And was it a part of planning? Those are hard questions to answer.

The tool kit of local economic development was and remains limited, both in scope and effectiveness. Subject to fashion, this is a characteristic that has not changed much, as is evident from the rush of cities to become the next "X Valley", or to attract the "creative class." Theoretical and empirical advances have been made, notably in the study of clustered development, but translating them into practice remains stubbornly difficult. Interestingly, among the most effective has been brown field planning, especially when done well. The economic world too has changed, with increasing globalization and technological development. The role of information based industries continues to grow, even as developed economies seem to consist more and more of service transactions, making it sometimes hard to identify economic drivers. A good example is the role of the arts and arts districts, which many cities have used for regeneration.

Where economic development stood and stands within planning is also complicated by the fact that the field itself has fragmented into specialties that live together uneasily. From its earliest days as a profession, planning experienced dissension. After the 1909 conference, housing advocates separated themselves from the mainstream planning profession, even as planning distinguished itself from architecture and landscape architecture. From the 1950s onwards the process accelerated. The traditional core of planning was morphing into land use planning, incorporating some new ideas and technologies; it was linked to urban design, even as that emerged in its own right. Traffic planning early on became part of engineering, but transportation planning, which was becoming increasingly technical and managed through new institutional forms, was also becoming distinct. Community development, focused on the inner city, often found itself at odds with land use planning. From the 1970s onward, environmental planning emerged both as a field and as an energizing force in land use planning. All of these have been joined by yet more, ranging from sustainability planning to energy planning, and most recently, food security planning, among others. Planning schools both reflected and in many ways contributed to these shifts through research, and they helped to define them as career paths.

Thus, by the turn of the millennium, urban planning looks more like a conglomerate than a field. Perhaps this is a sign of professional maturity, but it also poses problems of identity. Who or what, exactly, is a planner? I cannot answer that, but I would like to end with a couple of observations. First, in conglomerates the component parts are often in competition with each other. What does economic development planning have to support it in this competition? I would suggest that in times of economic difficulty, when other forms of planning are often under pressure, economic development might have more resilience, thus supporting the larger planning enterprise. But to do so, I believe that economic development will need to demonstrate that its tools are effective, and it needs to connect more closely to other streams in planning.

On a more positive note, there may be synergies to be gained between economic development and those other streams within planning. One example of such a possibility is the Eastern Neighborhoods Plan in San Francisco. For decades, the Planning Department and the Mayor's Office of Economic Development have been battling over the use of old industrial space in the City. The industries are gone, but the Department was reluctant to rezone industrial land for live-work condos, information sectors and other uses. Finally, after lengthy negotiations with the planners and the community, a plan has been devised. It still provides space for industrial development, but it also recognizes a new category - production, distribution, repair - that reflects an important economic reality in the post-industrial city. This example shows that it is possible to integrate economic development thinking into conventional land use planning, as does the creation of art districts or other special use areas that reflect current economic realities and aspirations. What is certain is that planning cannot back away from these realities and retreat into urban visions. Yet, neither should we renounce our visionary history. My hope is that we can do both.

—

[1] Carter Goodrich (1958). "The Gallatin Plan after One Hundred and Fifty Years," Proceedings of the American Philosophical Society, 102, 5, 436-441.

[2] T.J. Kent (1964). The Urban General Plan. San Francisco: Chandler Publishing Company.

FEBRUARY 2008
ARCHITECTURE DEPT
CLARKSON CHAIR
ABRIDGED EXCERPT

TRANSCRIBED BY:
MARY JANE CARROLL

KENNETH FRAMPTON
A DISCUSSION

Kenneth Frampton is the Ware Professor of Architecture at the Graduate School of Architecture, Planning, and Preservation at Columbia University. Frampton has also taught at Princeton University and the Bartlett School of Architecture, London. In 1972, he became a fellow of the Institute for Architecture and Urban Studies in New York and a cofounding editor of its magazine *Oppositions*.

Frampton is well known for his writing on twentieth century architecture. His books include *Modern Architecture: A Critical History* and *Studies in Tectonic Culture*. Frampton's essay "Towards a Critical Regionalism" is included in the book, *The Anti-Aesthetic: Essays on Postmodern Culture* edited by Hal Foster. In 2002, a collection of Frampton's writings over a period of 35 years was collated and published under the title *Labour, Work and Architecture*.

When *Towards a Critical Regionalism: Six points for an architecture of resistance* was first published in 1980, Papadakis, the owner of the magazine *Architectural Design,* approached Thames and Hudson and asked if *AD* could publish excerpts from this book. Thus, *AD* published a special issue of the magazine that had the title *Modern Architecture and the Critical Present* which consisted of extracts plus reactions to the book from invited contributors. In that process I asked Dalibor Vesely, an immigrant Czech who teaches in the School of Architecture at Cambridge University, if he would contribute to the publication. Vesely introduced me to an essay by French philosopher Paul Ricoeur entitled "Universal Civilization and National Cultures" which inspired me to write the essay on regionalism. I did not write the essay immediately even though I found Ricoeur's work very inspiring.

"It is possible for an architect to have a direct relationship to a city."

This brief period was very important to me. I worked with Monica Pidgeon as an editor for *AD* for two and a half years. This was before the book had been written. I traveled to Europe a number of times and started to think about certain things. My practice was established in Cologne and worked between Germany and England. Ernst Geissel had a practice in Zürich and Gino Valle had another practice in Udine. Due to these specific locations, speculations arose that there were relationships between England and Cologne, between Valle and Udine, and between Geissel and Zürich. I began to think that it was difficult to imagine any architect in Birmingham or in Manchester having this kind of relationship with a city, but formulated an idea that in Continental Europe it was possible for an architect to have a direct relationship to a city. We published articles on the work of Valle in *AD* so the direct link between that preoccupation was there 20 years before I wrote the essay.

In addition, in 1980 the Venice Biennale director Paolo Portoghesi organized "The End of Prohibitions" and "The Presence of the Past." Robert Stern invited me to go to the Venice Biennale as a so-called commissioner. I went to one meeting and then resigned as it was clear where it was going in terms of historicists. Stern was very dominant and you got the sense that the whole idea of modern architecture in Columbia at that time was problematic, at least inside the School of Architecture. So, I had the feeling that one had to formulate another kind of idea about architecture. It was partly to do with my experience on *AD*, partly to do with Dalibor Vesely and the text by Paul Ricoeur, and partly to do with the situation in Columbia. Those were the stimuli that led to writing the essay.

Your work is distinct from that of historians or theorists. Looking at your work from the outside, you are an architect writing for architects about architecture, which is different from a historian writing on architecture or a theorist writing on architecture. This is an interesting distinction because of the types of issues that you pay attention to in your writing. After the last Clarkson seminar, you were asked whether there was a political agenda or a political trajectory in the six states that you laid out. The two states that you referred to as "scars on the mind," housing and civic form, in fact have to do with a social responsibility that architects have to a larger society. The other two states that you named as being critical practices have to do with sustainability and topography and the landscape. Both relate again to a kind of responsibility, an ecological responsibility that ties the architect to a larger realm. It seems that there is an underlying predisposition that would organize the order of these states in a certain way. This would have to do with a sense of conscience and responsibility toward other human beings, nature and the collective.

I think when one looks at the total amount of new building and when one looks through magazines, one is very aware of the field, the scope, the limit, the boundary of architecture as a practice considered on a very large scale. In that context, it is not easy to position oneself. I have sometimes found myself in a situation with students who after all will have to choose how they are going to pursue the practice of architecture. There is a certain level of choice, as well as fortune and luck, and students have to find their own way. You can see by looking at what is being produced that people are working at different levels. They have made choices, in order to be able to work. Somehow I associate this with the idea of how one grounds a field that is hybrid by nature. This hybrid nature is one of the strong aspects of architecture. Architecture does not submit to the division of labor so it is possible for many other fields to be circumscribed by the boundaries of architects in the way that they bring their work to society. I often like to tell the story of the satirical Harvard mathematics professor who became famous as a witty song writer. Tom Lehrer wrote a song in which he is talking about Wernher von Braun, the scientist who came from Germany to the United States and became part of a team that developed the American Space Program. There is a great line in which he says "little rockets go up, who cares where they come down, it's not my department, said Wernher von Braun." This summarizes the issue of the division of labor for me. Architects, more than any other practice, need to confront the reality of power. Power can be hidden in other situations, but in the making of buildings the question of power is present - money and bureaucratic rules or the capriciousness of bureaucracy are in your face, so to speak. This is a strong aspect of architecture, but it is also a weakness.

"To design you need talent and to program you need genius."

I was not hooked on landscape in 1983 when I wrote *Towards a Critical Regionalism*, but I have become more and more preoccupied with landscape and topography. This is also conditioned by living and working in North America and the endless suburban strip. What can be done with those regions that already exist? And who is going to rebuild these areas? I started to think that it was possible to make limited interventions and that these limited interventions could or should have a topographic character. This line of thinking led me to an interest in landscape urbanism and created links to Charles Waldheim, James Corner and Peter Walker.

I have started to think about what we can do with this endless suburbia and the non-connection between community buildings and commercial shopping malls and supermarkets. The blacktop that extends everywhere is as cheap as possible, and it eliminates landscape. What if society was interested in integrating these places with other community services to make a megaform? In the essay, "Megaforms and the Urban Landscape" I revisit the work of architects Scharoun, Mendelssohn and Aalto to examine the way in which a building has a particular program inside but is also a metaphor of the landscape. So, for example, the stepped formation of the Hemmablock, which is indebted to Aalto, is a kind of typography in itself.

"Architects, more than any other practice, need to confront the reality of power."

Tadao Ando told me that after the Hong Kong and Shanghai Bank was completed in 1986, a Japanese developer came to him with a commission for something similar. Ando took the project for two weeks, then gave it back to the developer and said "I think that, after a certain height architecture is not possible." It is an incredible statement. He does not specify the height, but to this date he has not broken his ethic. I think he is right. Can we really get excited about high rise buildings? Are they really pushing toward a culture that is worth something? I have my greatest doubts that they do.

You suggested that the architect should work in an architectural realm and not presume to be an artist, and you cited examples like Gehry. At one point, you also said that perhaps there was a time in history when this was practiced. Do you think there is a need to move away from this type of design because of a change in values or responsibilities?

The thing about work that is embedded in the ground is that it has many dimensions. It creates a place; it is not just an object. One of the difficulties that arose with the model of medieval and baroque architecture was the closed circle, the total work of art. Frank Lloyd Wright pursued the total work of art. Although Wright had an antipathy to painting, he frequently used sculpture. However, the idea of a total work of art presupposes a religious culture to work properly. The problem with Art Nouveau, for example, was that it was secular. Wright had to make a religion out of nature worship, so therefore it is not convincing. It is too arbitrary an imposition. The other point is that when art is not religiously placed in the wall but is merely paintings hung on walls, that is the beginning of the art market, which brings with it market gratification and art objects. I think that architecture should be a context culture. It should not be pre-emptive of culture. A certain architect will make a building, like a museum, but he does not really care about the museum. That building, like Gehry's Guggenheim Museum in Bilbao, becomes the real art object. The space in which the art is to be exhibited is mediocre and the whole experience of the museum and its narrative are mediocre. Everything is sacrificed in support of the architect's preoccupation with being an artist. It is amazing the degree to which the museum as a building type illuminates value questions between architecture and art.

You have been talking about tall buildings and architecture over a certain height. It is my understanding that as an architect, it is our job to design for people. If people require for us to build high rise buildings, shouldn't it be our job to figure out a program to make these buildings work? Maybe we haven't done that yet or maybe it's too far in the future for us to do now, but is this something that we will have to do eventually?

"Can we really get excited about high rise buildings? Are they really pushing toward a culture that is worth something? I have my greatest doubts that they do."

I am not prepared to be quite as dogmatic as Ando about the design of high rise buildings, but I appreciate the sharpness of the aphorism. I think that kind of insight puts you on edge. Either by luck or by choice, you arrive at being able to practice architecture or you have to accept the fact that there are different ways to practice. I did show some high rise buildings in my lecture, and I am an admirer of the Seagram building, for example. But the difficulty with the high rise is that most of these buildings have no compensating element at their base. They simply have a lobby, security control, elevators and that's it. They do not make any kind of urban statement. By contrast, the New York Times building has the virtue of the commercial space, the auditorium and a courtyard garden at its base. With these elements, the building establishes an urban realm, and I think of that as a very positive aspect. Another example is Rockefeller Center, which is clearly an astonishing achievement. Part of that achievement has to do with the fact that it is not a single high rise, but a whole city in miniature. Le Corbusier is supposed to have said that to design you need talent and to program you need genius. The question is, to what extent the architect can actually develop the program and intervene through discourse with the client. That also reminds me of Piano's work on the Morgan Library. For that project he persuaded the client to cut deep down into the schist to make this homogenous element with the pre-existing buildings. The contribution that Piano has made is to create micro-urban spaces out of pre-existing elite scholarly institutions and high rise buildings.

You have said that people don't know what they like anymore, but throughout the lecture you highlighted examples that indicate you have an affinity for particular materials – brick, bamboo, etc. – and that you were against the way that stone is now being used. This is certainly a romanticized view of materials. I sense that you are critical of those kinds of practices that are related more to spectacle, specifically those having to do with the materiality of the surface of the building. Could you elaborate?

The question of material takes me back to questions of tectonics. In *Towards a Critical Regionalism*, there are a number of oppositions that are discussed, and one set of these oppositions is between the tectonic and scenographic. I moved to this question of tectonics and away from the issue of critical regionalism because I felt critical regionalism was very fragile and that one ought to try to ground the field in another way. I suppose if I am honest, I was influenced by Clement Greenberg's thinking about the autonomy of painting, as in modernist painting, where the paint itself and the application of paint are autonomous. Because of this influence, I began to think about the tectonic and methods of construction, and that they could be set up as an argument for architecture as an autonomous discourse. Material is an intrinsic part of the building. Once one focuses on materials, it is difficult to move away from them. However, one thing bothers me about this interest in materials. I am disturbed by recent practice where things are pushed to extremes and particularly by architects who put an enormous emphasis on material, as in the case of Herzog and de Meuron. Often the interiors of the buildings that they design are underdeveloped. Interim space almost does not exist when all the energy is diverted to the material of the facade. By withdrawing from architectural space, this approach seems extremely reductive.

CLARKSON CHAIR
WILL AND NAN CLARKSON

Will and Nan Clarkson

The Clarkson Visiting Chair is an endowed visiting position awarded semi-annually to a distinguished scholar or professional in the disciplines of architecture, planning, research and design. This award is in recognition of excellence in the pursuit of scholarship and professional achievement within these disciplines and is made possible by the generous support of Will and Nan Clarkson.

PAST CLARKSON VISITING CHAIRS

ARCHITECTURE

2008 Kenneth Frampton
2007 Joan Ockman
2006 Anthony Vidler
2005 Glenn Murcutt
2004 Peter Zumthor
2003 Lars Lerup
2000 Mark Wigley
1999 K. Michael Hayes
1996 Sanford Kwinter
1994 Daniel Hoffman
1992 Alberto Perez-Gomez
1990 Marco Frascari

URBAN PLANNING

2008 Michael Teitz
2007 Michael Greenberg
2006 Lawrence Frank
2005 Peter Dreier
2004 Michael Kwartler
2003 Gerrit-Jan Knaap
2001 Alan Artibise
2000 Michael Storper
1998 Robert Yaro
1995 Patsy Healey
1993 M. Christine Boyer
1991 John Forester

faculty
DAN HESS
LYNDA SCHNEEKLOTH
ADAM SOKOL

STUDY ABROAD PROGRAMS

Traveling abroad enhances architecture students' awareness of the world and brings them closer to understanding global diversity, appreciating what is universal and unique to a culture.

MONTEVERDE, COSTA RICA

This multi-disciplinary program offers students the opportunity to live and work on ecological and social projects in a rapidly developing region in Costa Rica. Students participate in a seminar on sustainability, enroll in Spanish language classes and take an intensive studio with one of the many organizations in Monteverde working toward sustainable design. Reports, plans, design proposals or actual environmental interventions are prepared depending on clients' requirements. In addition, there are a series of lectures and field trips to local cooperatives, ecologically managed farms and forest reserves.

PARIS, FRANCE

This program based in Paris with several trips through France, enables students to study the relationship of architecture and power throughout history, from Roman construction to buildings commissioned by recent political leaders in France. In addition, students take a drawing course that engages them directly with the built environment.

NEWCASTLE, ENGLAND

Through interactions with Newcastle University faculty and planning professionals from the Newcastle Gateshead region, MUP students investigate urban regeneration, arts development, waterfront planning and city-university interactions. Beyond the city of Newcastle, the region provides fertile design and policy frameworks for comparative study of urban planning in the U.S.