Work (Architecture)

Department of Architecture

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Work 2004/2005

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Abstract

WORK is an annual publication of the Department of Architecture that documents student work in design studios and courses in the Master of Architecture and Post-Professional programs, as well as events, faculty news and student awards. It also includes abstracts of PhD dissertations defended that year. It provides an opportunity to explore the creative work of our students and is a permanent record of work in the Department.

Comments

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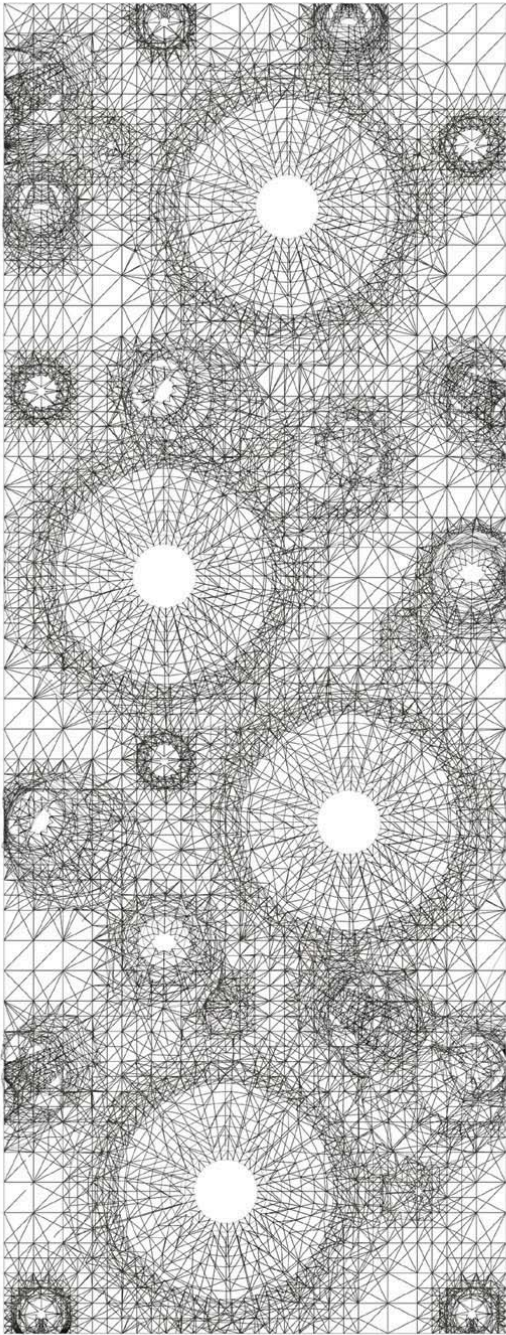LOREN SUPP
JUNSEUNG WOO

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WORK 2004/2005

UNIVERSITY OF PENNSYLVANIA
SCHOOL OF DESIGN
DEPARTMENT OF ARCHITECTURE

WORK 2004/2005

UNIVERSITY OF PENNSYLVANIA
SCHOOL OF DESIGN
DEPARTMENT OF ARCHITECTURE

Detlef Mertins, Department Chair
William Braham, Associate Department Chair

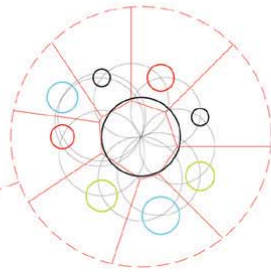**TABLE OF CONTENTS**

Adrienne Yancone, Agora for Lower West Side, New York

INTRODUCTION

The Department of Architecture at Penn provides a robust infrastructure for learning, research and experimentation from introductory to advanced levels. We provide an open and supportive environment for students and faculty alike to pursue an extraordinary range of interests and expertise. From urbanism to technology, art to science, geometry to new media, philosophy to politics, the curriculum reflects the complexity and synthetic nature of design and construction. With local and global economies now interwoven, we find ourselves imbricated in the politics of globalization, sustainability and social equity. And with the line between the natural and the human dissolving, it is becoming a site of scientific and ethical contestations. As a social art, there are conventions in architecture but no absolutes, no universal or timeless answers to recurring questions. Rather than sponsoring a monolithic ideology, we seek to nurture independent and critical inquiry from specific perspectives, broad literacy in the field and in the world, a great capacity in skills and knowledge, and a restless desire to put that capacity to work in the service of society.

Like other accredited school of architecture, we offer a comprehensive curriculum that prepares students for careers in our ever-expanding field of practice. Yet every school has a different culture, one that also changes from moment to moment, year to year. This WORK book provides a snap shot of what happened at Penn in the year 2004-2005. It makes our emerging culture visible not only to those outside, but also to everyone here. It lets us take stock of where we are and where we may be going— to bring into focus the issues and topics arising among us. In looking back over this work, five areas of shared interest or nodes of intensity stand out:

Technology and Ecology
Structures, construction and environmental engineering have long been strengths at Penn and are now informed by eco-systems approaches, as well as the opportunities of new technologies and the problematics of globalization. The introduction of computation, simulation and digital fabrication have significantly changed these areas of study and hastened their integration. We promote innovation through the hybridization of knowledge, as well as new applications of technology. Ecological issues are incorporated into our second year design studios and were the subject of a symposium on Scarcity and Excess. The Building Simulation Group launched an electronic newsletter on advances in environmental and simulation research.

Theory and Practice
Architectural history and theory at Penn is studied from the perspective of topics of current relevance. Theory informs but also critiques design culture, drawing on the humanities and social sciences. Penn seeks to link theory and practice in the service of social engagement, articulating architecture and design as evolving forms of knowledge that are disciplinary-specific yet deeply connected with other modes of intellectual, cultural, and political life. We offer dual degrees with other design fields and are now starting one with business administration at the Wharton School. Our advanced studios and electives nurture a research-based and speculative culture of design. Workshop formats of teaching are used throughout the curriculum to promote learning by doing, design-build, community service, and collaborative teamwork. At the same time, our doctoral students undertake advanced studies in focused areas as an integral part of our professional culture.

Urban Dynamics
From the spoon to the city, architects intervene in the physical environment at every scale. While urbanism may now be considered the organization of material culture across vast territories, we still focus our efforts on cities, in the historical sense. We understand the urban environment as dynamic and evolving, its forms resulting from the interaction of many shaping forces, among which the ideas of designers may be strategic. Allied with the spirit of change and social betterment, design at the urban scale seeks to tap new potentials. Students engage in civic development – seeding local economies and public spaces in Philadelphia; weaving public landscapes into transportation infrastructure in New York; conceptualizing new housing and cultural precincts in Costa Rica, Bangkok and Beijing; and inflecting commercial culture towards projects of public value. Historians and theorists bring deeper and wider perspectives to these challenges, revealing opportunities and techniques for making a difference in the complex and dynamic phenomenon of urbanism.

International Studies
With students from across the country and around the world, our teaching draws on knowledge and experience in places both near and far. Many design studios are based in other cities and other countries, tackling problems that are both local and global in nature. Our summer programs in Japan and Paris, as well as our semester program in London, immerse students in other cultures for extended periods of time. Through public lectures and events, we contribute to international networks of research and critical reflection, helping to articulate emerging issues and propel design intelligence.

Design Techniques
Focusing not only on what buildings are but on *how* they come into being and what they can *do*, our curriculum emphasizes design as a process of discovery, experimentation and testing. In this sense, the discipline may be understood in terms of techniques more than forms a priori, be it techniques for assembling tectonic elements into unique configurations for specific situations or for generating of organizational structures through non-linear algorithms that borrow from complexity science or ancient mathematical puzzles. Students learn that modes of drawing—using both hand and new media—are not only representational but also constructive, enabling as well as conditioning, conceptual as well as instrumental.

I invite you to join our deliberations about architecture today by entering WORK 2005. For more information about our programs, visit our website at www.design.upenn.edu. To see more of our student work, visit our new Architecture Student Gallery at www.arch.penndesign.net.

Detlef Mertins, Chair
August 2005

Andrew Evans, *Agora*

ARCH 501
## DESIGN STUDIO I / ARCHITECTURE AND POLITICAL SPECTACLE / MARK WASIUTA, COORDINATOR

The introductory semester studio offers opportunities to learn key skills and approaches to design. At the same time, this studio questioned received assumptions about origins, foundations, and starting points as a means to critically investigate architecture's social agency. With this in mind, the studio unfolded almost in real time along with the national party conventions and the federal elections to analyze ways in which architecture can opportunistically insert itself even in this fraught and complicated arena as a potent means of interpretation, intervention, and invention. Our premise was that there is no privileged, easy, or recommended starting point, no singular foundational knowledge that is requisite, but rather that there are multiple possible foundations, conditions, and modes of operation that design can engage, even from the start.

The three projects for the semester, thematically tied to political spectacles, built on one another. The first project, *Opposing Conventions*, addressed the recent National Party conventions and the place of architecture in these events. We focused on developing techniques of graphic and spatial analysis, and architecture's relationship to spectacle and information production. The second project, *Fixing the Vote*, concentrated on both representation and functional design at the level of constituency, voting apparatus, and voting interface. The final project, *Strategic Retreat*, emphasized architecture's relation to media through issues of domesticity, landscape, and territory.

As the assignments illustrate, key questions that circulated through the semester included: architecture's relationship to spectacle and to media; its alignment with the body; its interfaces with infrastructural system, the city, territory, and domesticity. The objectives of the studio included: learning to conceive and design architectural interventions at multiple scales; techniques of analysis and conceptual diagramming; design processes, such as physical and computer 3-d modeling, among other design development techniques. Emphases on design methods and processes varied among the instructors.

STRATEGIC RETREAT – MEDIA PAVILION FOR CAMP DAVID
JONATHAN FOGELSON: **Inspired by geological formations inscribed by the forces of wind and water over time, this project unfolded from the dynamic flows of the landscape of Camp David. It cuts terraces and interweaves the roadway into the land, creating opportunities for specific scenarios of inhabitation. It balances the needs for privacy and publicity by providing a visible and accessible upper level and a security controlled lower level.**
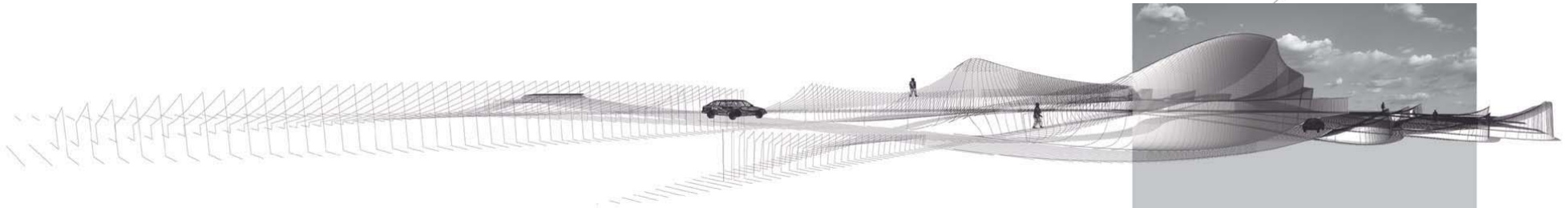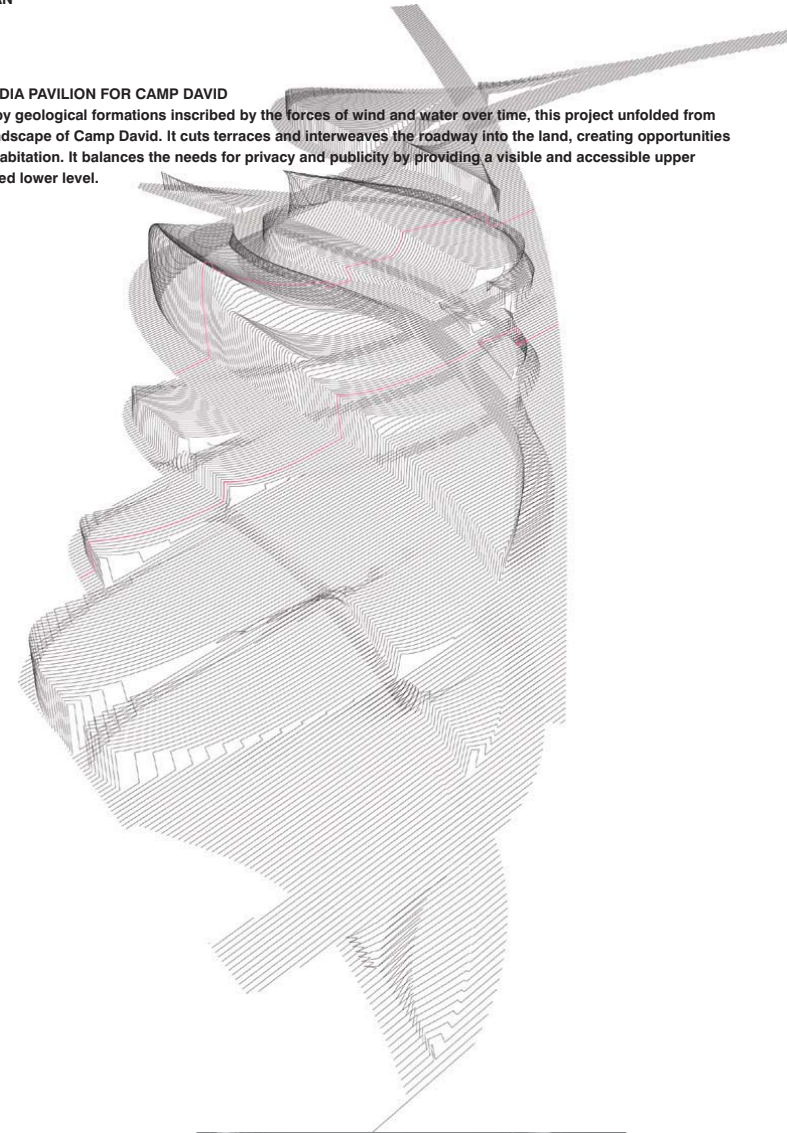
OPPOSING CONVENTIONS

JEFF TUMMELSON: When New York City "hosted" the Republican National Convention, it had dire consequences for the neighborhood around Madison Square Garden. This diagram depicts financial contributions as parasitic intruders into the surrounding economy.

ROBERT LIBUTTI: I chose to analyze Bill Clinton's simple shopping trip in Harvard Square, Cambridge, Mass., which drew a large crowd of spectators. My diagrams show the formation, movement and dissolution of that crowd. Each ribbon represents the transmission of information based on directly viewing Mr. Clinton or hearing about his presence from others.
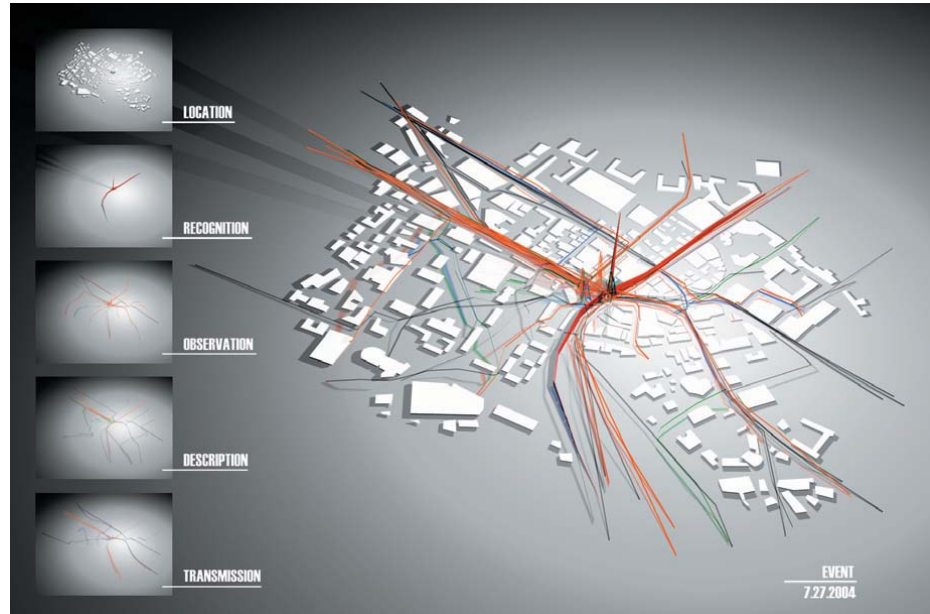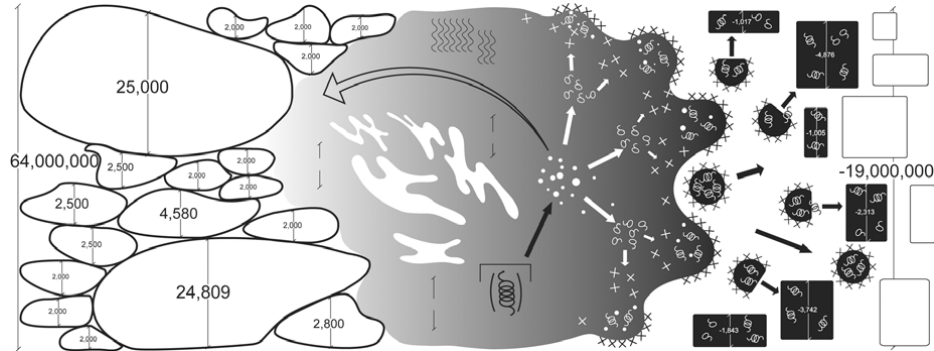
FIXING THE VOTE

JEFF TUMMELSON: Sited in the Penn Alexander School in West Philadelphia, this voting booth addresses the problem of transitory university students voting in an area to which they have limited commitment. This proposal presents a new experience of voting constructed, quite literally, of names in the community appearing in the white pages telephone directory. Through a series of modeling exercises, telephone pages assumed a structural role in a passage for voting.

ROBERT LIBUTTI: I created an interface using technology found in eye laser surgery equipment to track the motion of voters' eyes as they look at various images of the candidates. These images show a group of voting modules in Philadelphia's 30th Street Station, allowing people to vote as a group without barriers through eye movements that are imperceptible to others. The central information board is reconfigured to display candidates and provide voting information.
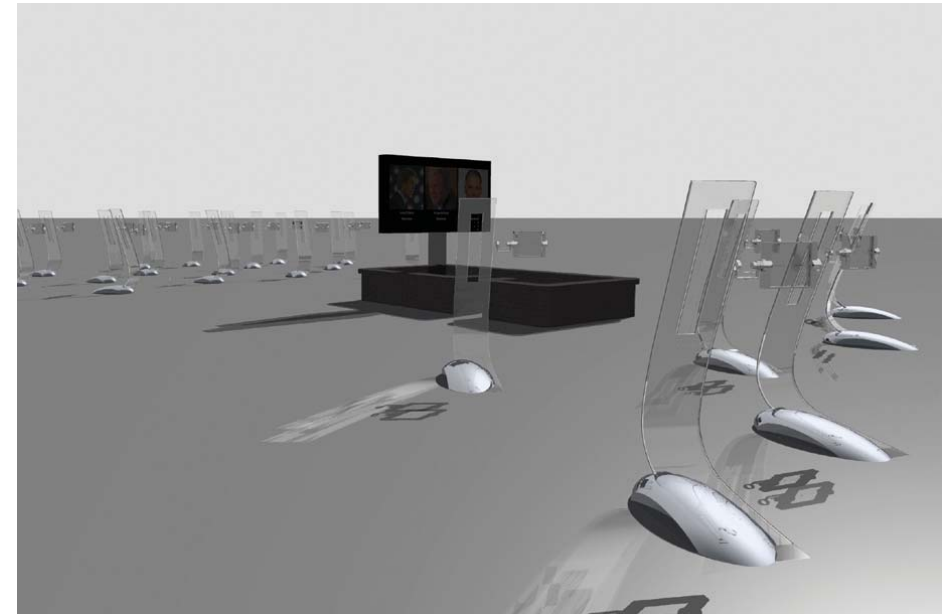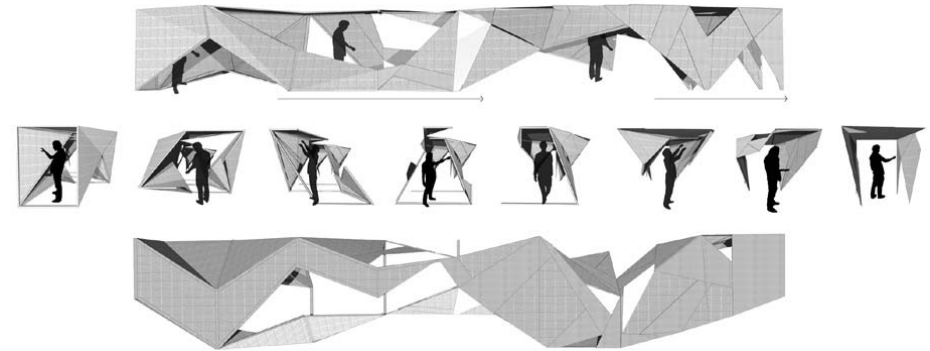
STRATEGIC RETREAT – MEDIA PAVILION FOR CAMP DAVID

ROBERT LIBUTTI: **The architecture of the project restricts the views of the President and his entourage to cinematic views based on shots from the television program, "The West Wing." The diagram shows the various types of cameras and apertures needed to produce these typical shots.**
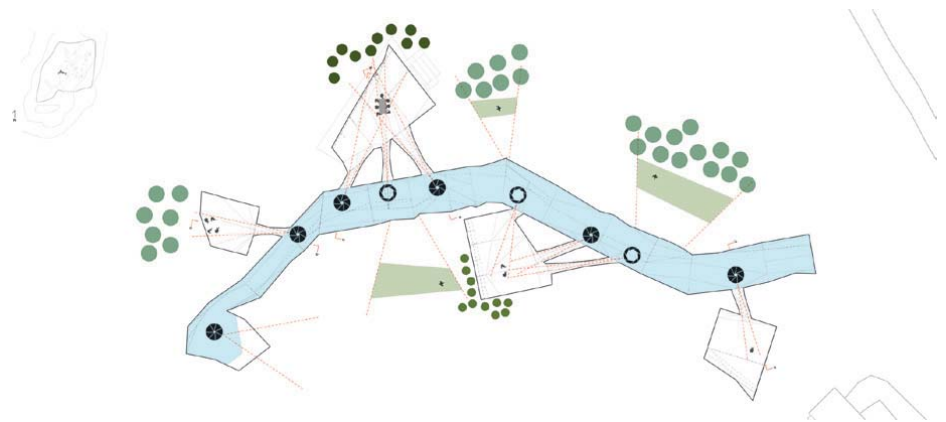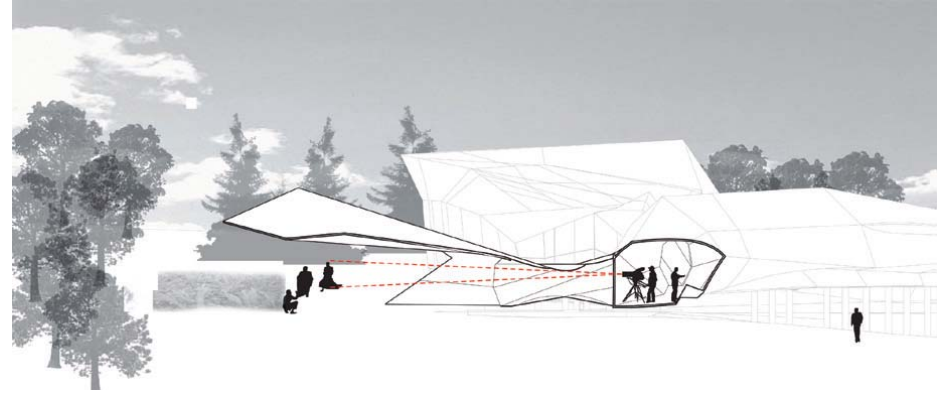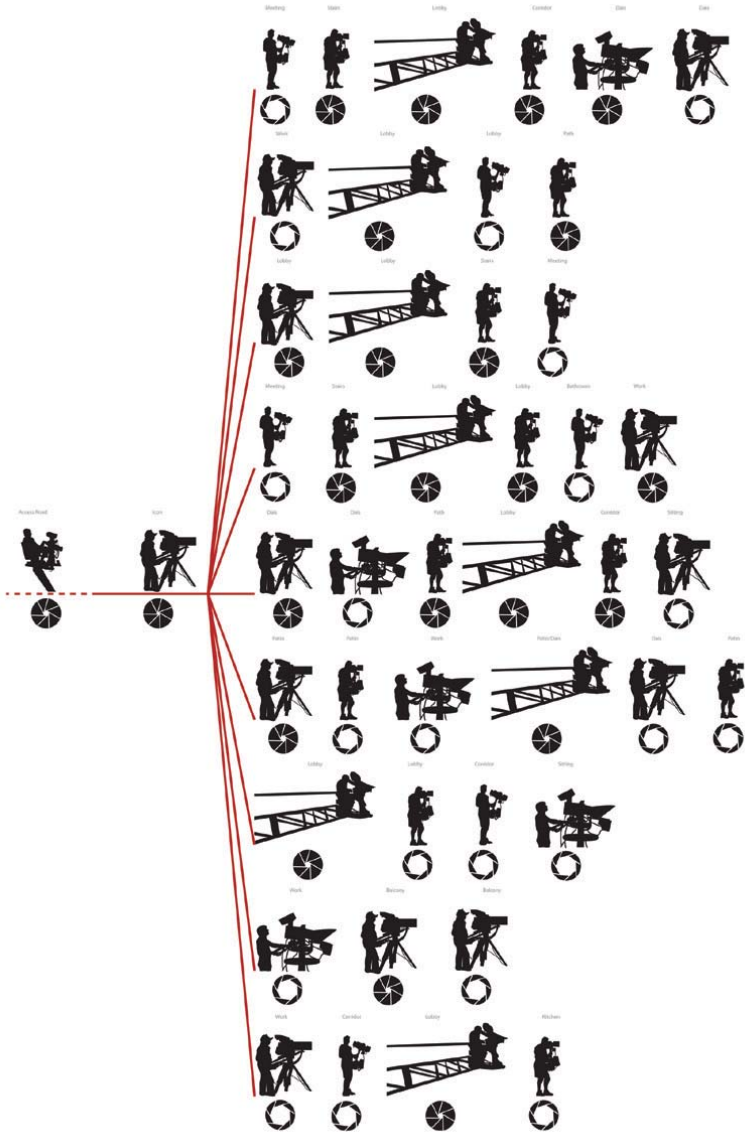
STRATEGIC RETREAT—MEDIA PAVILION FOR CAMP DAVID

MEGAN BORN: **Centered along a prescribed path, the media pavilion performed as a lens through which the media viewed executive and international politics. The pavilion was a study of scale and its affect on structure, enclosure and program.**

ARCH 502
DESIGN STUDIO II / ARCHITECTURE OF THE CITY / LAURA BRIGGS, COORDINATOR
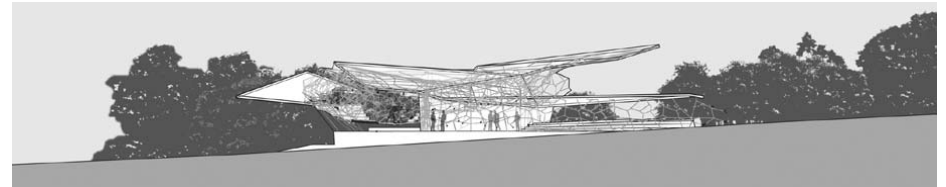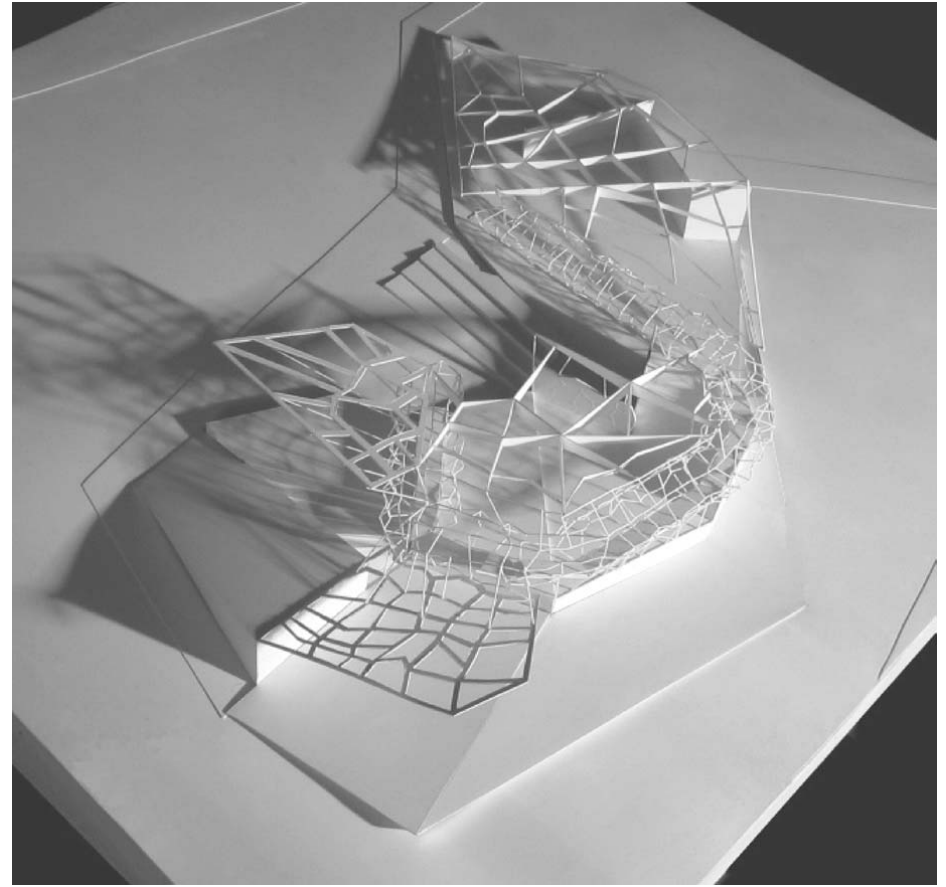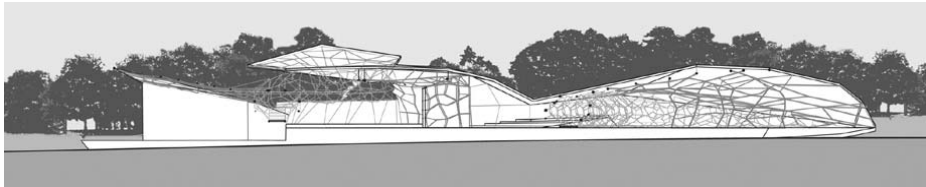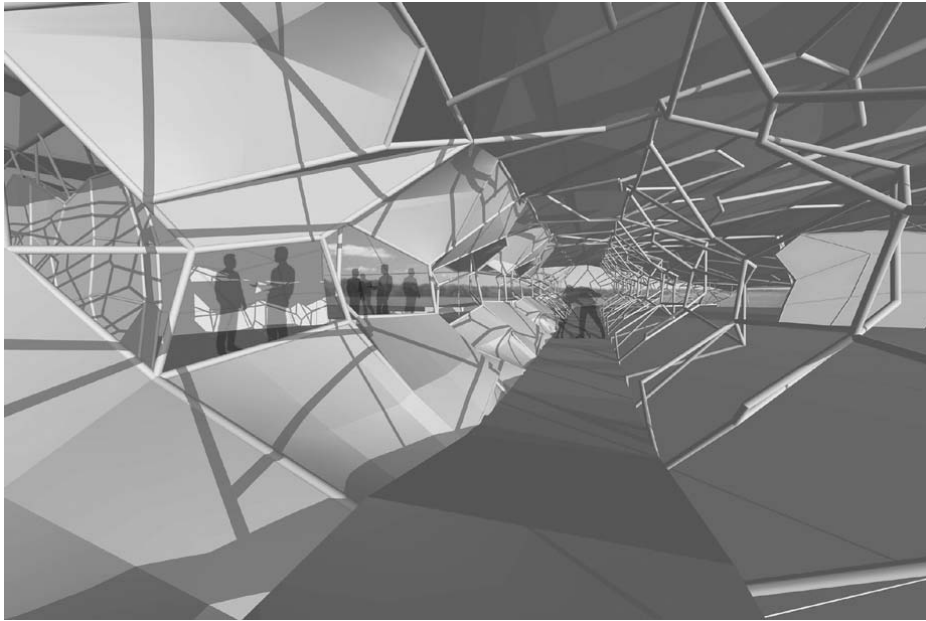
The studio was based on the premise that there is a strong interconnection between architecture and cultural endeavors. Architecture has a catalytic potential to transform the understanding and use of space and through this, the relation of individuals to one another. This studio explored the ways that architecture can provide unprecedented resolutions to complex and often contradictory societal needs and aspirations.

Through several exercises and a week long design-build charrette, the studio bracketed a set of architectural issues: understanding the potentials of different geometries and the organizational strategies they imply, introduction to tectonic logics through the assembly and the orchestration of materials, and analytical tools for understanding urban sites. In the final assignment, an articulated hybrid program required a comprehensive architectural proposal. In particular, the discourse of the studio included the following issues: hierarchies of program, implications of urban context, importance of site as a social and a physical setting, and the techniques and tools of representation.

The first problem addressed larger ideas about the surrounding community, attitudes towards ecology, technology and society in general by asking students to respond to the collapse of the campanile of Christ Memorial Church in West Philadelphia. The second design project was located at Lancaster Avenue and 38th street and addressed the needs of the West Philadelphia Community by incorporating public performance space, green space, farmer's market, and parking into one project. The third problem was a workshop in which students designed and built a communal space for sitting—a place for people passing by to stop and chat, children to gather, singers to practice, a place sheltered from the winter wind and summer sun but which catches the winter sun and the summer breezes. The fourth design problem was a new facility for the Urban Nutrition Initiative. It required research into new ways to bring together the urban and the ecological. It extended earlier investigations into spatial logics and opportunities produced by the excesses inherent to hybrid relationships and a critique of singular rationalities.

JAE YOUNG JANG: Two paths are interwoven to accommodate a complex of uses and integrate the building into the topography of the site and the movement of traffic, pedestrians and the sun.
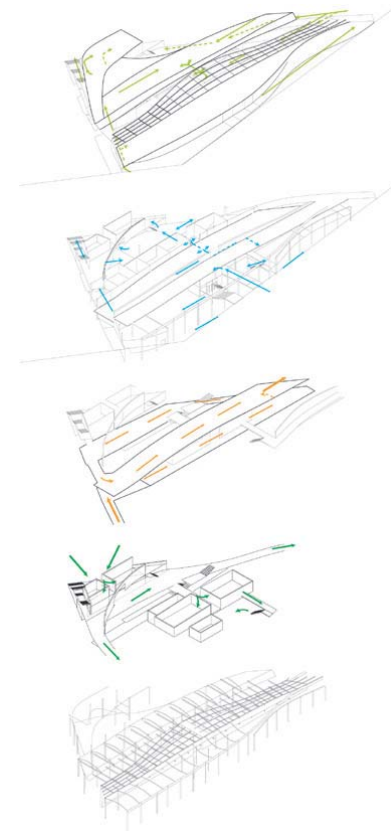
Site on Lancaster Avenue, Philadelphia, Pennsylvania. Photo: Lara Thrasher

LAUREN MCMANAMA: **Overlapping planes create a dynamic setting for a mixed use program, carving into its site in West Philadelphia.**
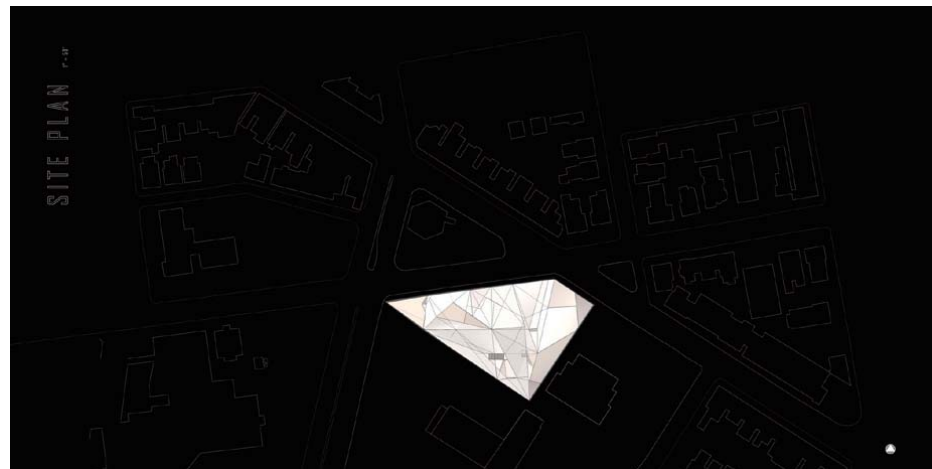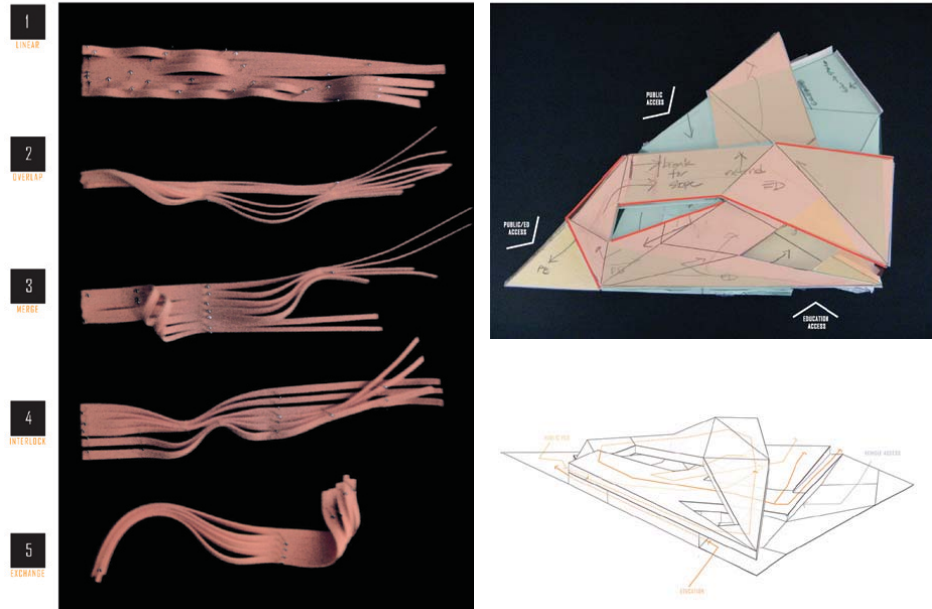
SO-JUNG LEE: **This project has similarities with cell division. Space is like types of living single cells. The space changes over time, however, and begins to be distributed dynamically. Then, each space is occupied with each different program. The programs' spaces have multiple centers. By modulating itself, it ceases to be single. It evolves with unexpected possibilities. Although it looks very complex it is still micro-organized.**

UPPER FLOOR LEVEL
LOWER FLOOR LEVEL
TRANSITIONAL SPACE
SHEAR MOMENT

OVERLAP EXPLORATIONS

SITE PLAN
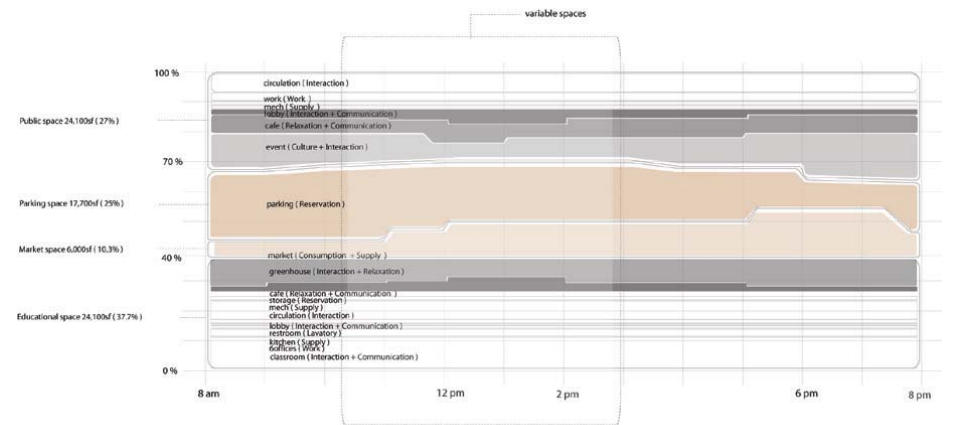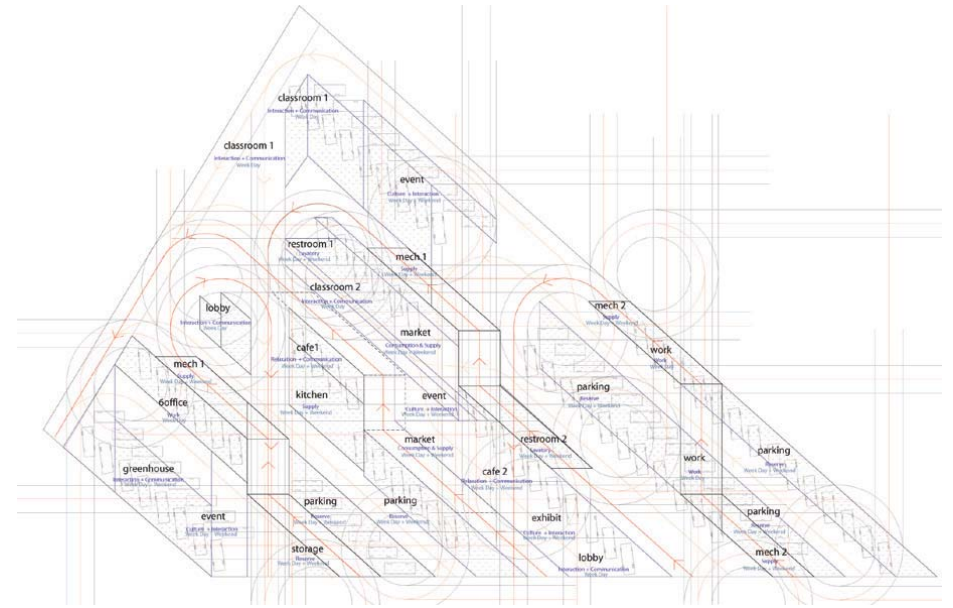
MEGAN BORN: **The project investigated building as flexible, changing and reactive. Morphogenetic algorithms were researched as a method of design. Structure, enclosure, and program were each considered as evolving conditions within the site.**
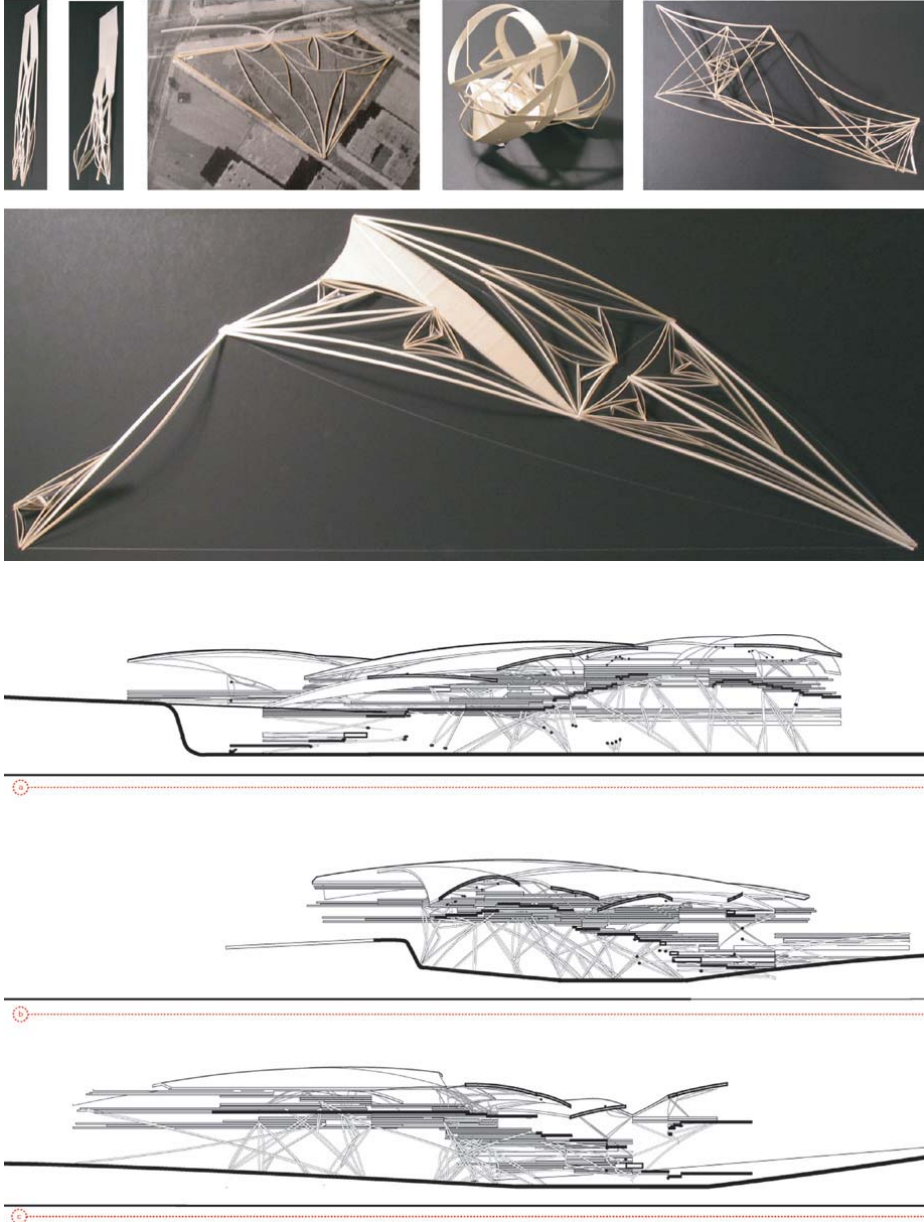
BRAD LEIBIN: **We began the project with a study of various knot structures. I played with the material of the knot and, by a series of strategic pulls, twists, and flips, created volumes and surface necessary to accommodate the program. The structure of the knot itself was then used as the connective element.**

AMY CAMPBELL: **This project uses light and structure to organize the various uses in the Urban Nutrition Institute.**
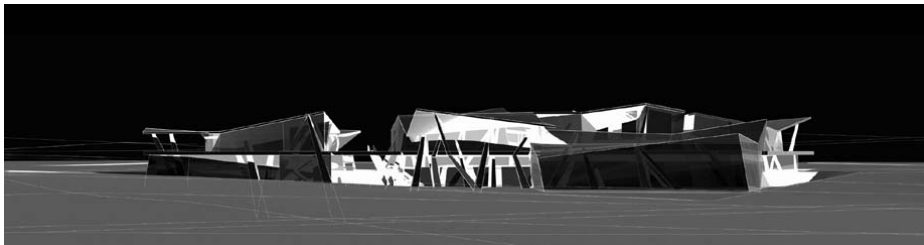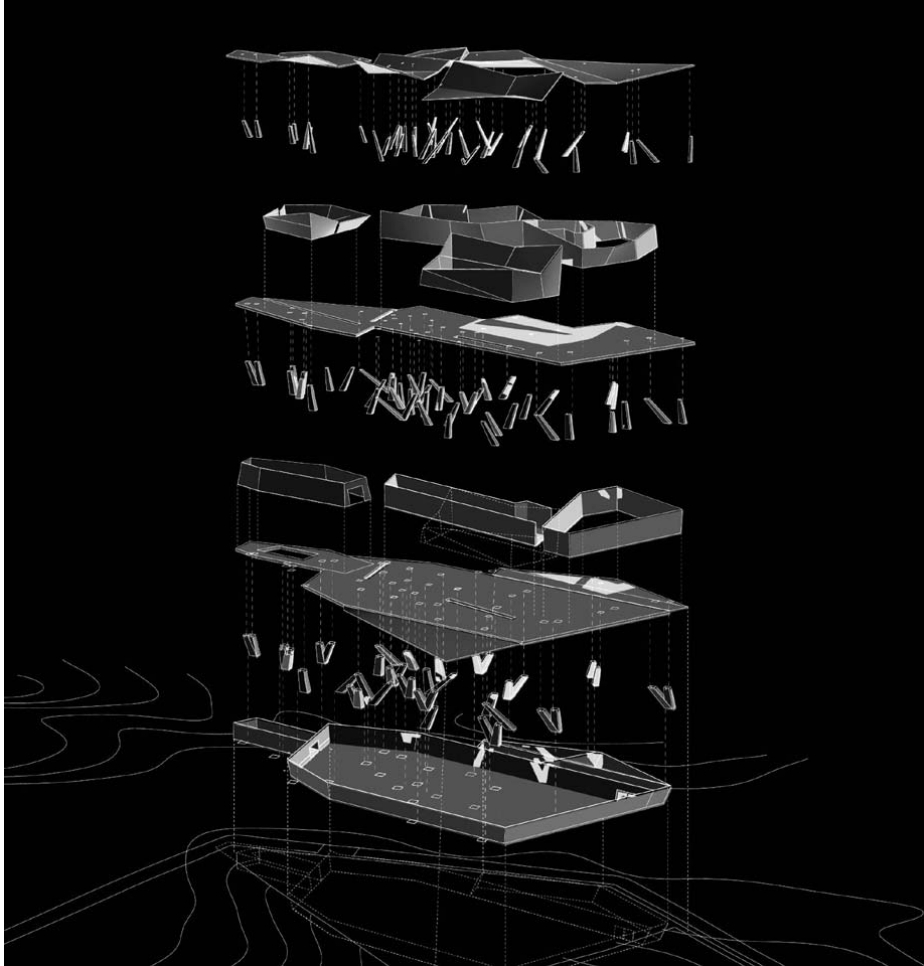
YADIEL RIVERA-DIAZ: **The city is a dynamic organism whose systems create new spaces of interaction. This project hybridizes pedestrian and vehicular systems to accommodate mixed programs: drive-through and walk-through market, parking-gallery, movie-car display, among others. The bending surface creates a display band while visual projections attract pedestrians.**

ARCH 601
DESIGN STUDIO III / TECHNOLOGIES AND ECOLOGIES / WILLIAM BRAHAM, COORDINATOR
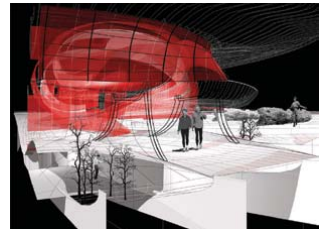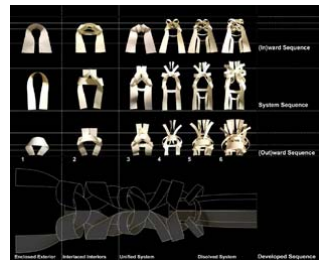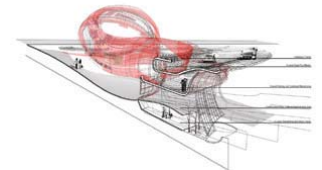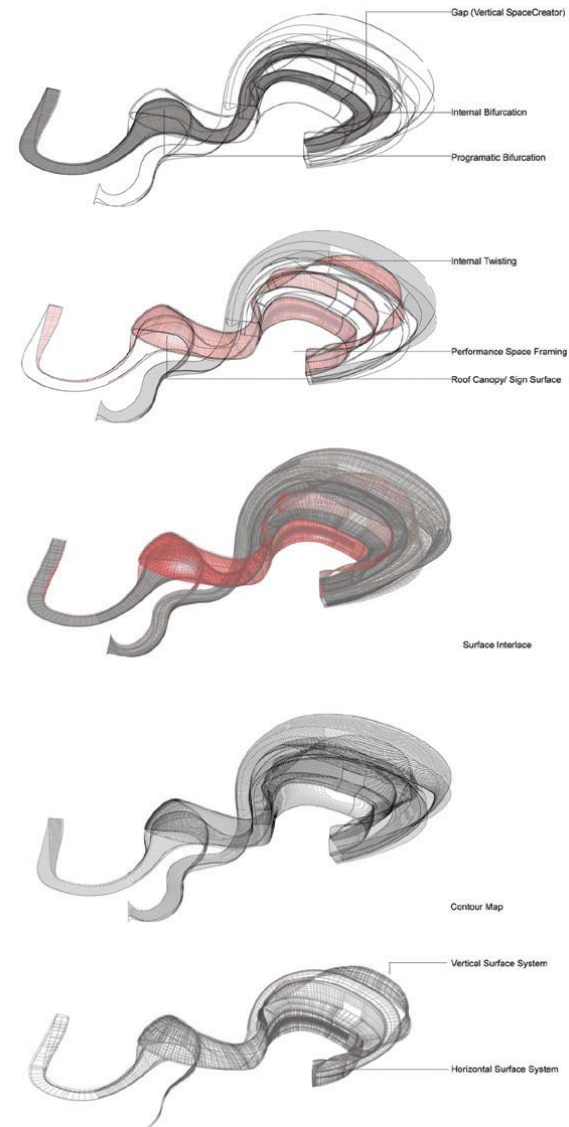
This is the first intermediate design studio and consists of six independent sections, each with its own orientation to issues of technology and ecology. Design projects involve complex public or institutional buildings, and require the detailed resolution of one ecological and technological dimension. Ecologies are considered in their natural, social, and technological dimensions, and in various degrees of abstraction and realization. This includes affinities between modes of analyzing and operating within natural ecosystems and systemic models of analysis of organizations, economies, urbanisms and material cultures, alternative economies, and the cultural politics of environmentalism, as well as the study of energy and resource use, recycling, environmental quality, and biomimetics. The studio is taught in close collaboration with Visual Studies Workshop III, whose techniques and exercises are tailored to each studio section.

WILLIAM BRAHAM

Architecture operates at different scales, velocities and intensities. In the conventional core/shell/infill model developed for commercial buildings, furniture changes faster than interior finishes, which "move" faster than information technology systems, which move faster than skin systems (15–30 years), which move faster than structural systems and sites. The studio operated at two scales, two levels, two velocities, with two intensities of illumination, on two sites.

Our project was a highly flexible hotel and short-term residence located in Penn's newly acquired Postal Lands along the Schuylkill River. Students investigated, then chose between a horizontal and vertical site along 30th Street. The rooms operate at two different time frames—hotel (days) and residence (months)—and at an individual scale. The meeting and public spaces operate at group and city scale. Finally, each room receives daylight from two different sides.

By abstracting normative representations of light in an operative analogy with detailed examinations of textiles, we searched for new approaches to the modulation of architectural illumination. Comparing such radically different formations as textiles and buildings requires us to articulate and align their characteristics with rigor, carefully considering their different qualities. Like buildings and texts, textiles emerge from the process of their fabrication. Primary procedures—spinning, knotting, plaiting, caning, looping, embroidering, felting, weaving, knitting, dyeing, printing—produce the most remarkable variety and a change in the least parameter can yield tremendous differences in texture, fold, sheen, and the reception of light. We applied both physical and digital techniques to study illumination in this operative analogy.

JAIME LEE: Conceptual montage and skin design
ROBERT GRAUSTEIN JR.: Fabric extrapolation, and three zones of occupation and dis-occupation in a hotel, showing variable lighting effects.
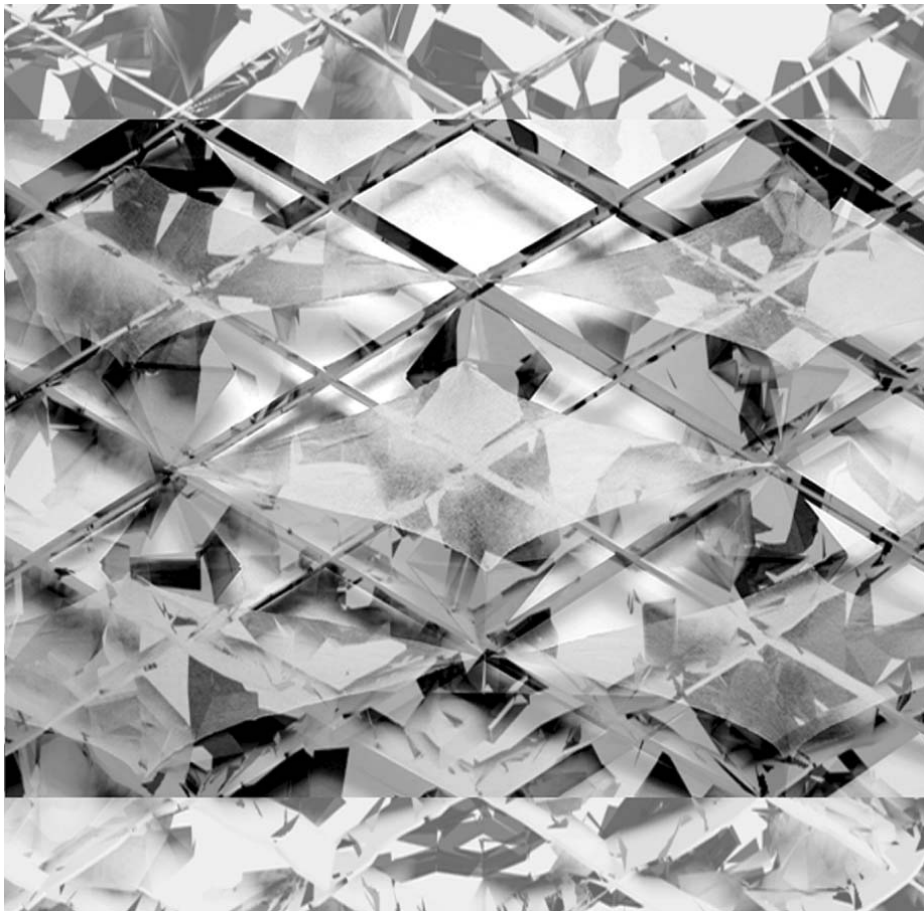
There is an inextricable link between purpose and form. If one studies objects of purpose—a hand tool, milling machine, or cell phone—the formal disposition of each object demonstrates an expression of reason. Form, embodied with purpose, ultimately results in universal legibility. This direct connection between form and purpose invariably insulates the object from discussions of style as a measurement of value. Subjectivity is replaced by objectivity. This studio undertook research, study and critique of its work relative to architecture's poetic relationship between form and purpose. The goal of this journey was to develop a higher level of "formal-consciousness" and a working process focused on reason, as opposed to the will of the architect alone. As Le Corbusier put it, "The Engineer, inspired by the law of economy and governed by mathematical calculation puts us in accord with universal law. He achieves harmony." It is by this process that program, confronted with natural forces, shapes form.

Building systems offer a unique opportunity to investigate an architecture that renders visible those things that are required to sustain an artificial environment, and to make apparent the magnitude of this effort. Our work investigated efficient mechanical systems, building orientation and earth-friendly materiality that reinforces design concepts of site and program.

The Wi-Fi Revolution counter to current trends of physical consumption is the "less-is-more" culture of the digital revolution. Wireless networking is collapsing the need for physical space as a primary social agent. This phenomenon is challenging traditional urban structure and creating new opportunities for energy and space efficiencies. A new economy of land use and transportation is emerging—an economy in which high-bandwidth connectivity is an increasingly crucial variable.

LANG CHENG: Building with two paths, one materialistic and the other idealistic. The journey within the student dorm from retail to chapel is full of interactions and experiences that encourage self-reflection.
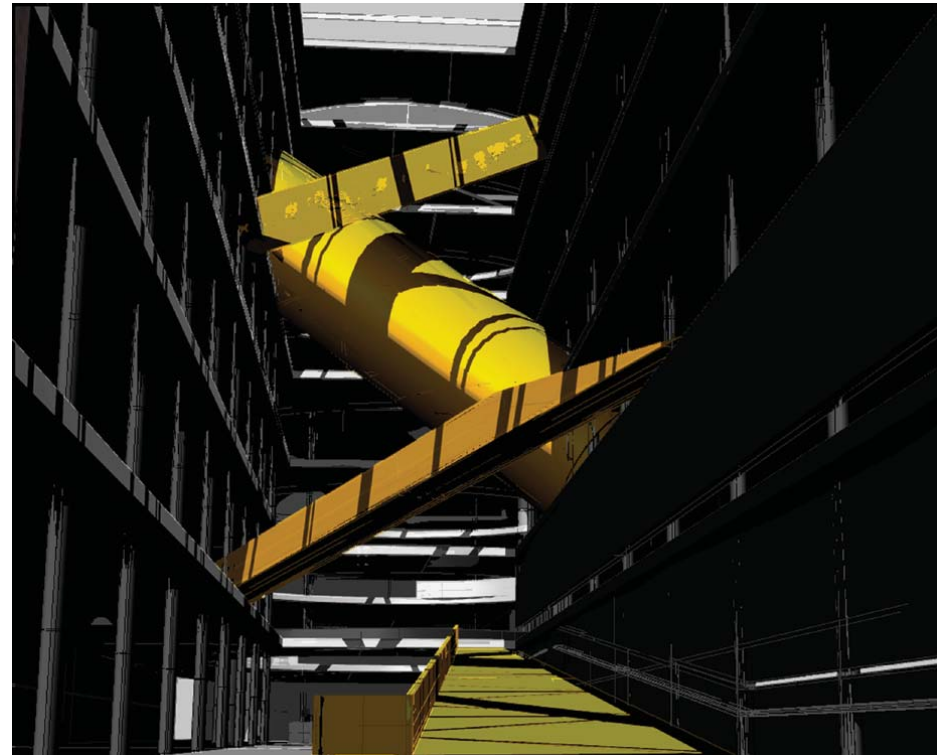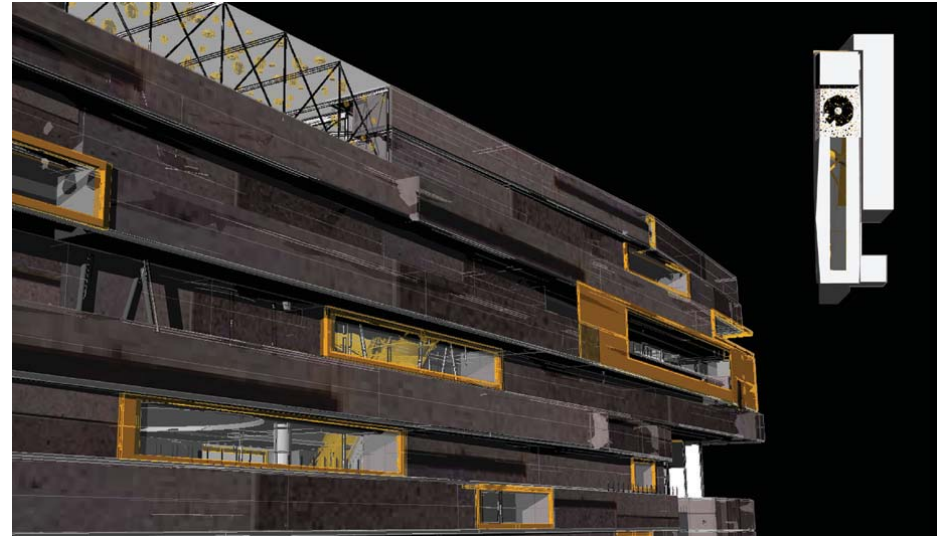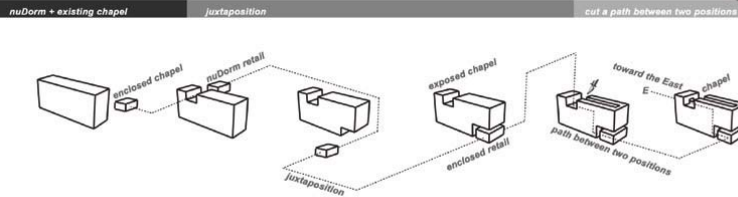
This studio was about the sun. More particularly, this studio was about solar technologies and their role in the expression of architecture. The form and material of architecture have the capacity to participate fully in the exuberant qualities of solar energy due to the affinity between phenomena of radiation (light) and physical shape. The studio sought to exploit these relationships.

Our work challenged accepted notions of sustainability by considering an alternate model of economy based on surpluses of energy rather than scarcities. The classical economic model considers movements of energy and capital according to the middle scale of human exchanges at which resources appear limited and require efficient allocation. However, if we consider movements of energy at the scale of the solar system, we see that there is a superabundance of energy. In The Accursed Share, Georges Bataille describes this "general economy" as one in which energy is always in excess; so much so that surpluses are doomed to be squandered either incrementally and by one's own choosing, or catastrophically, in the form of war, for example.

Our studio asked how can architecture be designed to formally and programmatically absorb, concentrate, or otherwise utilize this excessive solar energy. What are the material effects of such an accumulation? What are the ephemeral effects of the surpluses? How do redundancies become productive? How is the distribution of program affected by energy requirements? We looked to solar energy not just as an energy source, but as a source of new architectural morphologies. We studied geometry and abstract principles governing the relationships between light and surfaces—and looked to specific phenomena, such as caustics, for insight.

The program for this studio was the office-park; chosen for its incongruous programmatic opposition between office and park, efficiency and leisure, work ethic and luxury. Although, as currently employed, this appears to be a banal architectural type, we capitalized on the hidden potentials of these dualities. After having reconsidered these terms in light of a general economic understanding, the edges that define these two programmatic poles began to blur. The resulting synthesis paralleled the efficiency and extravagance of expression found in nature itself.

XIMENA VALLE: A simple algorithm was used to produce a field of geometries and potential conditions. I chose the ellipse for its ability to reflect incoming rays of light in a way that produced a simple caustic with a fine relationship to its originating surface. Allowing the algorithm to reproduce itself across the site, a field of potential reflectors emerged. The caustics of these surfaces were calculated for a particular time, creating a local material density. I could then determine moments of greater or lesser intensity (of light and energy for accumulation). Thus, main zones were determined as primary collectors around which energy, work, and program are concentrated. The site thus became a field of gradients, where moments of intensity filter outwards, as energy is transferred and dispersed

The typology of office park becomes a gradient condition, made up of programs of unequal intensities, facilitating the two extremes of work and leisure. Intense work areas and primary movement are concentrated around the collectors, creating a local surplus that must be dispersed. Much like an office is a local condition of productivity that through networks is able to feed a global scale, the collection centers become nodes of accumulation and excess, which are then dispersed through a range of programs. Precise relationships between light phenomena and form together with physical and material affects of accumulation, result in a new typology for office park. The park is a space that is layered and dynamic, containing oppositions of heat and cold, light and dark, work and leisure.
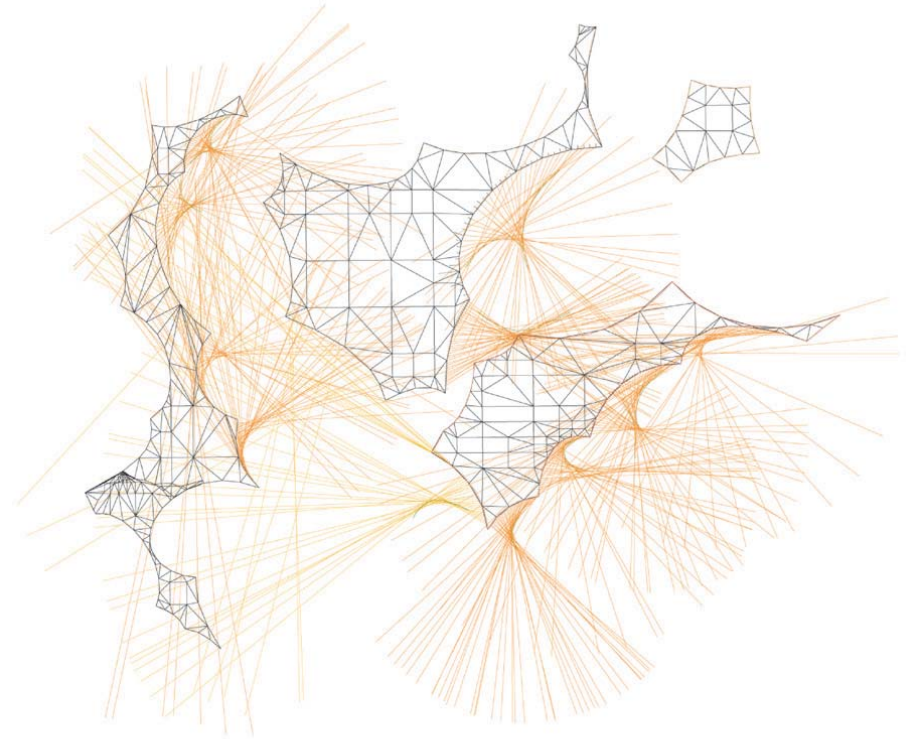
Kinema (Greek): motion, movement. In the late 1950s, performance emerged as a fundamental concept with wide impact in the humanities—particularly in linguistics and cultural anthropology. It shifted the perception of culture as a static collection of artifacts to a web of interactions, a dynamic network of intertwined, multilayered processes that contest fixity of form, structure, value or meaning. Social and cultural phenomena were seen to be constituted, shaped and transformed by continuous, temporal processes characterized by fluidity and mediation. Thus a performative approach to contemporary culture emerged.

Performative architecture can be described in similar fashion as having a capacity to respond to changing social, cultural and technological conditions by perpetually reformatting itself as an index, as well as a mediator of (or an interface to) emerging cultural patterns. In performative architecture, the spatial program is not singular, fixed or static, but multiple, fluid and ambiguous, driven by temporal dynamics of socio-economic, cultural and technological shifts. In performative architecture, therefore, the emphasis shifts from the appearance of buildings to processes of formation grounded in imagined performances, indeterminate patterns, dynamics of use, and the poetics of spatial and temporal change. The role of designers is less to predict, pre-program or represent the building's performances than to instigate, embed, diversify and multiply their effects in material and in time. This necessitates a shift from scenographic appearances to pragmatist imagination of how buildings work, what they do, and what actions, events and effects they might engender in time.

The studio explored performative patterns and strategies in which space unfolds. Cultural identity and spatial practice were rethought through performative acts that recode, shift, and transform meanings. Architectural space was considered to be inhabited by operative practices. The programmatic framework for the project was CINEplus—space devoted to movies, consumption and exhibition. CINEplus consisted of movie theaters and auxiliary spaces augmented with additional programs that emerged from an analysis of the project's context: the wider realm of contemporary culture and the immediate realm of the site and its current uses.

KATHRYN MASI: I wanted to create a space that denies the generic but embodies versatility. The combination of temporary customization and permanent utilities results in an adaptable space of event possibility. A warped grid system provides structural, as well as infra-structural, support for a variety of potential uses and perceptual affects.
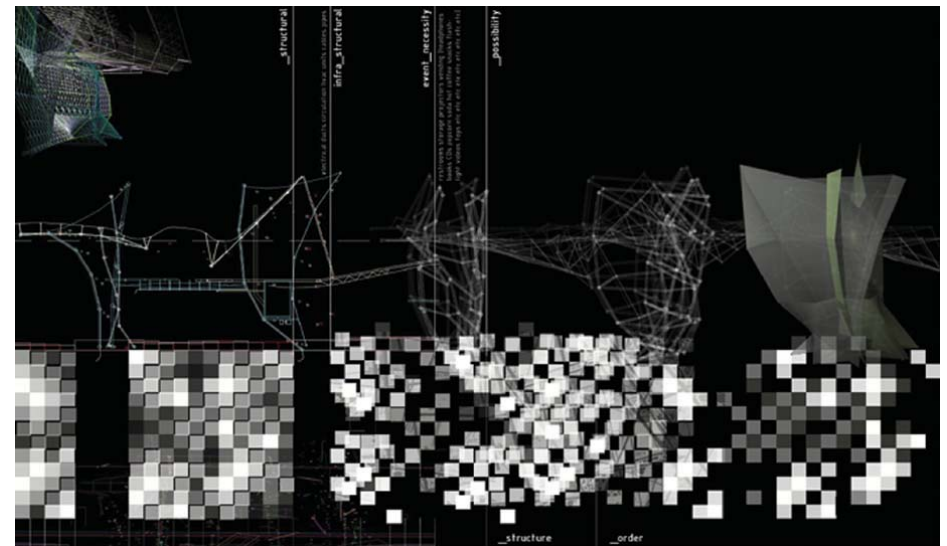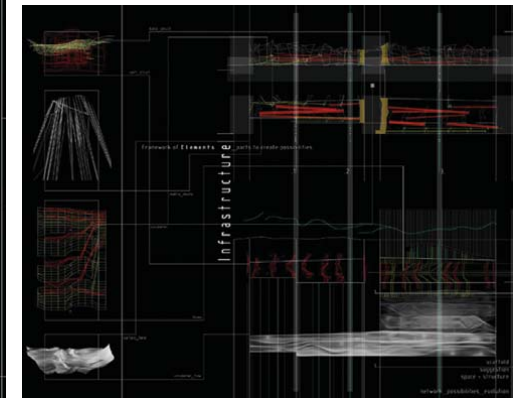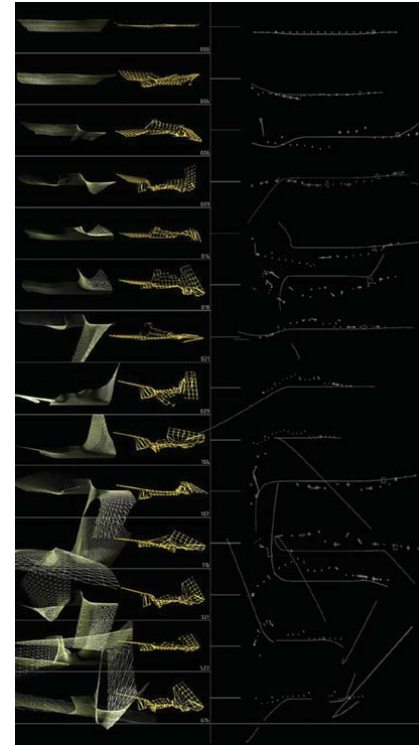
This studio investigated new possibilities for an old program, the marketplace or agora. In addition to being one of the first features of urbanized society, the marketplace is also its most persistent form of public activity. Though in the past the marketplace was an important space of politics and information (news), today it is marked by an intense hegemonic rationality that forces a pattern of unmitigated, banal consumption followed by disposal. As we find a global economy revealing itself in progressively more sinister manifestations, it is becoming urgent to find new forms of exchange that facilitate public life within a more intelligent ecological framework.

The accumulation of junk finds curious points of release at the fringes of our society. Though never entirely legitimized, our economy continues to find ad-hoc organizations such as open air markets, unlicensed street vendors, and flea markets. These self-organizing micro-economies culminate now in phenomena such as eBay. This studio deciphered the peculiar ecologies of these intelligent networks and made proposals to extend their physical analogs.

The studio studied long span structural scaffolding upon which micro architectures can be incrementally built. This represents fundamentally different challenges as to how services are distributed, how territory is defined and maintained, and how ownership is regulated. Repetition and difference were foregrounded as a formal issue. Subtle modulations of sameness were the preferred mode of expression.

Students located their proposals within the larger context of the Hudson Yards in the West Side of Manhattan, New York City. The Hudson Yards in NYC is the largest undeveloped tract remaining on the island of Manhattan. The site represents tremendous challenges and opportunities for public life in NYC. Projects carefully evaluated the intricacies of this important site and sought to uncover new opportunities for public space.

ADRIENNE YANCONE: This project accommodates the functions of a modern agora within a redefined space frame of various structural densities. Several geometric studies were needed to address the intensive requirements of site and program. The vortex was chosen as the primary focus for the form of the market because of its natural ability to mutate linear flows.
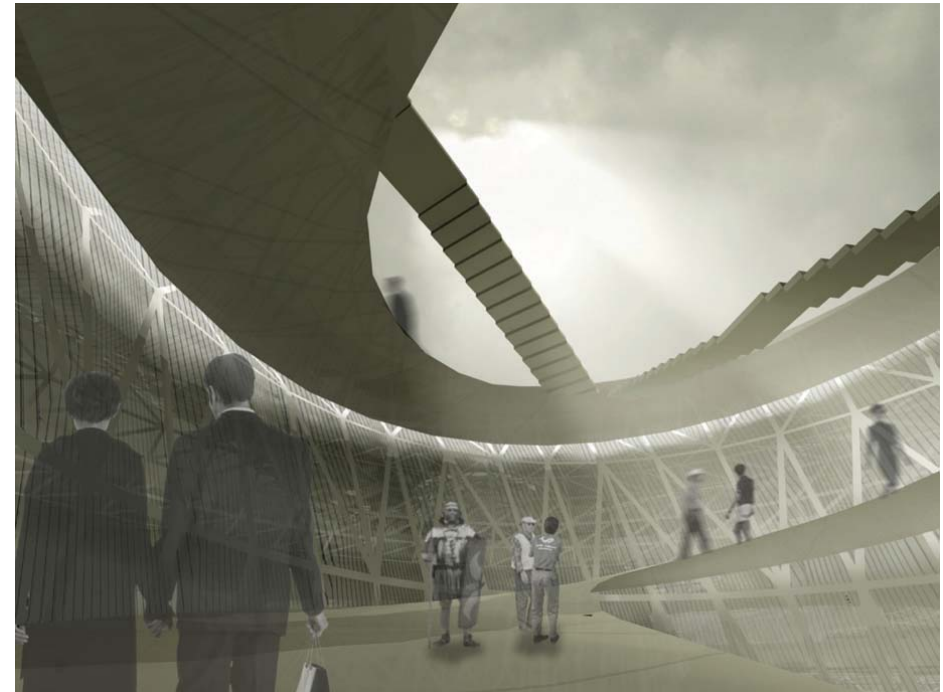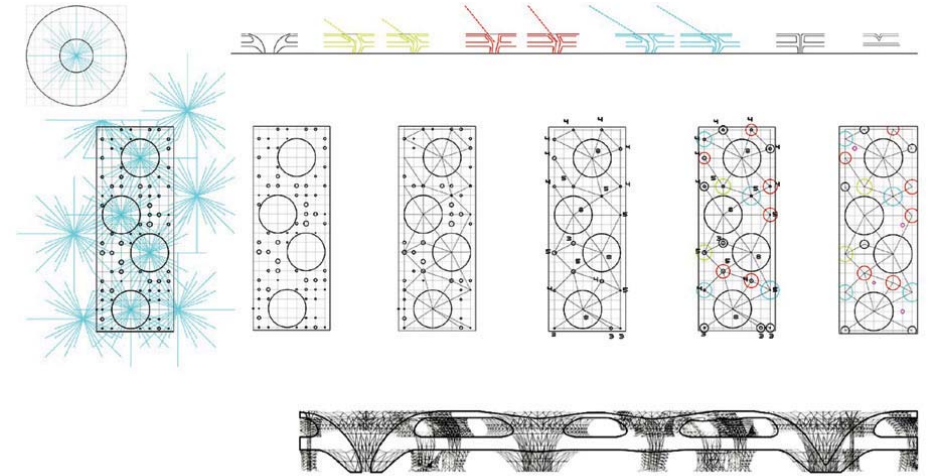
This studio posited the building surface as a dynamic condition, simultaneously opaque and evanescent, intricate and monolithic. Termed "sheer opacity," this quality of enclosure provides an investigative focus for the consideration of surface as a performative and dynamic perceptual field, a site for the mediation of physical and perceptual phenomena. Projects were developed through a series of "layers" in which students built material constructs, mounted installations, and made digital simulations and large-scale detail studies of their proposals.

Drawing distinctions with the dissolved surface that support canonical modernist notions of continuity between interior and exterior, the studio focused on constructed skins—the intricate joining of materials to form dynamic, structural, performative material surfaces. In the work of contemporary architects Shigeru Ban, Office dA, FOA, Peter Zumthor, Herzog & de Meuron, Gigon & Guyer, and others, the presence of the building is constituted less by the display of its constitutive structure than by the material effects of its increasingly multi-layered and multivalent building surface. The studio experimented with the complex thickness that constitutes enclosure, and challenged the structure/skin dichotomy by building skins that act as both structure and enclosure. Complementary topics in construction technology, ecological building systems and communication media were also addressed.

The methodology of the studio was driven by investigations of the dynamic and changing relationship between building material, use (program) and the environment (site). This necessitated the use of dynamic systems of analysis, which included the simultaneous consideration of material, temporal and spatial conditions. Students experimented directly with the material and construct behavioral models that respond physically to real forces, such as gravity, water, and light.

The vehicle with which to investigate "sheer opacity" and constructed skins was a community aqua center and synchronized diving venue. The Aqua Center is a collection of several kinds of water activities. It offers an array of sensory environments which include still and moving water, aromatic plant life, humidity and dry sauna, interior and exterior spaces, solitude and conviviality. A studied choreography of spatial organization allowed certain rooms to spatially coincide with light penetration or qualities of lightness, darkness and reflectivity at certain times of day, and over the seasons of the year.

ISABEL CASTILLA: A hybrid material, made by embedding a metal mesh in a cast rubber mold, is used to create a large sculptural volume that holds the different pools of the aquacenter. The rubberized mesh can be both plastic and elastic. Using these qualities, the pools are designed so that particular areas can expand and contract according to the number of occupants, therefore creating a constantly changing topography. The surface's change is registered on the underside of the pool, which serves as a public promenade space for Fairmount Park in Philadelphia.

ARCH 602
DESIGN STUDIO IV
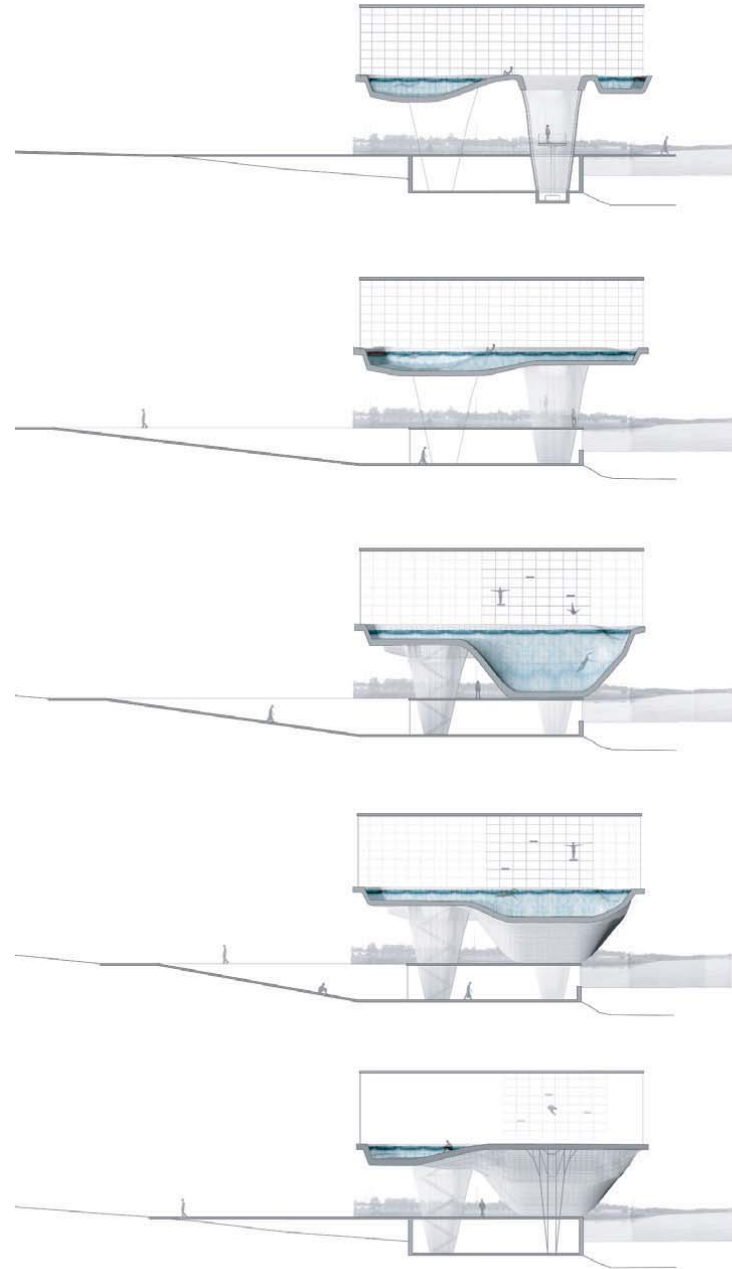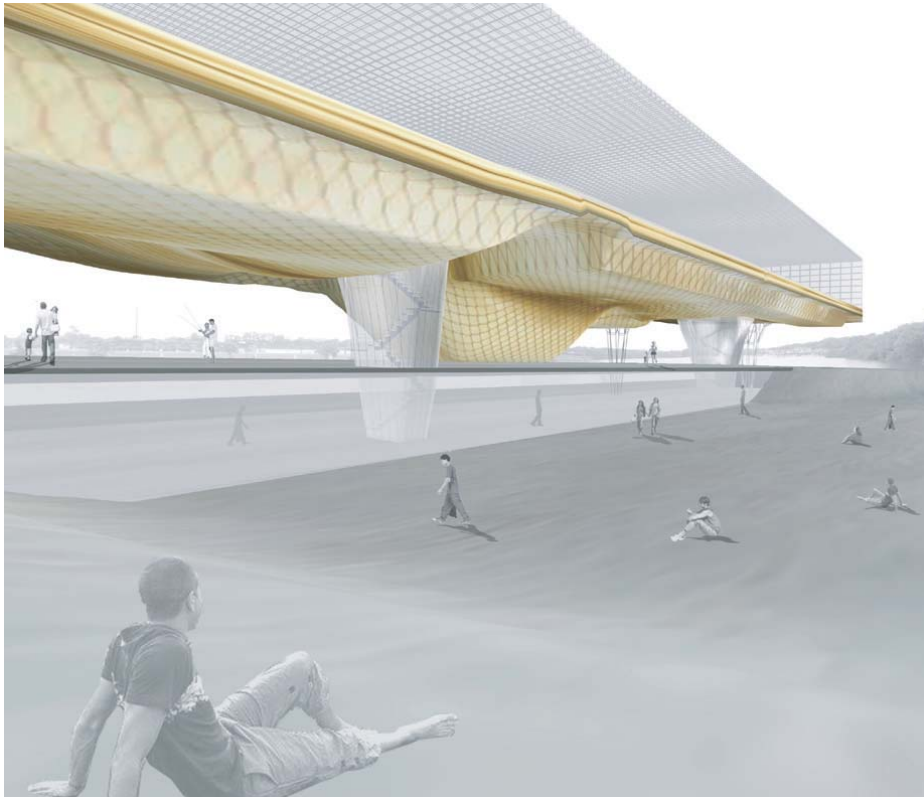
This is the first of three elective studios in which each instructor develops their own pedagogical agenda and students choose from among these options.

After thousands of years of brilliant cultural achievement followed by 200 years of colonial wars, internal strife, and harsh economic and social restrictions, China has rejoined the larger community of nations in what must be considered one of the most dramatic series of social and economic transformations in history. The largest and most rapid urbanization ever to take place is occurring today throughout the nation with unexpected and unprecedented opportunity and dilemmas. Beijing, the political center of China since the Ming dynasty in the 14th century, like every other urban center, is being radically transformed physically and socially.

The studio studied an important district on the northwest edge of the city. Here one finds once rural—even wild—landscapes that are undergoing enormous pressures for development. A series of hills and rivers which were once the sites for temples, country villas, farms and forests, providing fresh water for the city, have now been overtaken by compounds for government officials, squatter settlements, highway construction, tourists and weekend visitors. Although developers and local planning officials are now eyeing the district for massive residential, tourist and commercial development, other planners and officials are moving forward with proposals for incorporating large portions of the area into a regional greenbelt around Beijing and a new National Historic Park. Several very significant historic sites, including the New Summer Palace and the ruins of Yuan Ming Yuan, are located in or adjacent to this area.

This studio was structured as a collaboration between the disciplines of Architecture and Landscape Architecture. Students in this studio worked together with students in Laurie Olin's studio in Landscape Architecture. The final project was a building and/or landscape project demonstrating the student's knowledge of cultural and spatial prototypes for mixed use development, ecological processes, and speculative proposals responding to the unique urban conditions in contemporary China.

KAZUYUKI MORIHATA: This is a plan for a medium density residential and commercial area with park and agriculture, west of the Summer Palace in Beijing. Clusters of buildings are located to take advantage of sun and wind while weaving landscape, walkways and roadways through the site.

Regional Plan

Agricultural

Residential

Agricultural

Summer Palace

Enlarged Plan

Car Circulation — People Circulation I
Parking space — People Circulation II
Ring Road — Enlarge Area
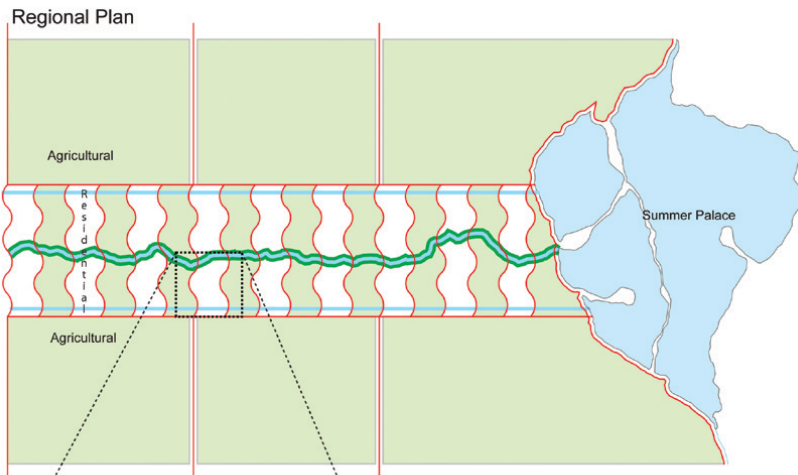
Agricultural
Public Green
Private Green
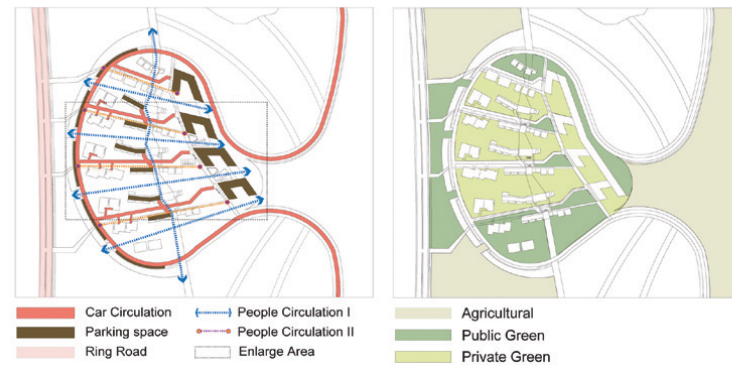
This studio engaged the introduction of gaming parlors into Philadelphia as a way to bring new resources into the municipality to support schools and provide essential public services. But we did not do so directly as architects for a casino. Rather than an attractor or entertainment zone we considered the role that the casinos are expected to play as generator(s) and router(s) in a system of local and global exchanges that could be used to sponsor specific municipal improvements. The relationship of Gambling to Education and Public Service in this context served as an opportunity to investigate the 'architecture' of resource flows and to speculate about their architectural possibilities.

The restructuring of the property tax bill was a starting point but we did not limit ourselves to conventional definitions of money. Our speculations ranged widely, with students 'designing' their way into and out of the countless traps, pitfalls, dead-ends and blind alleys that any intelligent restructuring of resources inevitably encounter. Their diagrams, plans of action and constructed situations were seen as a profound contribution and a 'massive change' of FORTUNE for the CITY.

"The property tax bill, if approved by the Senate, would work like this: School districts would raise their income taxes by 0.1 percent. The extra revenue, about $200 million statewide, would be used for dollar-for-dollar reductions to property taxes. The state then would match each local dollar of property tax cuts with from $2 to $17 in state money. The poorer the district, the more state money it would receive. This would solve a long-standing disparity in public education funding, in that richer school districts can afford to spend more on schools than poor districts. In the Lehigh Valley, the plan would mean an average tax cut ranging from 31 percent for the Allentown School District to 18 percent for the Bethlehem Area School District.

"Everybody is on board for the property tax cut," Perzel said. "There's only one way to get there, and that's gambling. You can't have one without the other. There's no waltzing on this."

The Morning Call of Allentown, Pa., is a Tribune Publishing newspaper. The Baltimore Sun By John M.R. Bull

AARON RYBA AND STEVE PITMAN: A new reality-TV show titled "Extreme Philadelphia" is the face of a subversive community revitalization effort. It uses comparative currency methods and advertising to bring together Big-Box retail and community members in creating community centers as catalysts for future revitalization in disadvantaged areas. The show follows volunteers and petty-crime offenders as they are trained in manual labor to then construct their own community center, info-cafe and Big-Box retail satellite store. The retail store is prefabricated from 20 foot ISO shipping containers, which act as a local hardware store and show-room catalogue for Big-Box retail while the community-center and info-cafe are built into the residual space, providing public meeting spaces, internet access and cafe beverages. In exchange for advertising, stores like Ikea, The Home Depot and Best Buy donate materials and products. Money from the new Philadelphia casino provides start-up fees for training facilities while the TV production company ABC produces and airs "Extreme Philadelpia."

The studio reflected on the role of architecture in reconstituting civic life in a deteriorated urban setting. We understood revitalization in terms of reclaiming territory and explored strategies of "territorialization." We defined this as acts of presence and intervention that seek to affect the multiple layers of society. The crucial challenge of the studio was to explore architecture as a cultural act of profound social and political implications in the city transgressing its common understanding as a self-referential object.

The studio analyzed how urban and civic infrastructure can be articulated to promote the existence of pauses and affinities along an urban journey. We used dynamic modes of analysis to consider the simultaneous conditions of material, time and space. Students generated loci for perceptual effects and static/dynamic measures, through a succinct but flexible program, embedding cultural and infrastructural program in a deteriorated urban fabric. On the edge between serving and being served, this approach questions modes of territorial occupation. The project focused on redefining architectural components of civic institutions within a small scale city that has been largely abandoned. The intervention demonstrated different modes of engaging the landscape, understanding the impact of buildings as material and experiential extensions of the land. The studio addressed the impact that the proposals could be expected to have on the environment. The students worked in pairs.

CHRISTINA YARON AND NICHOLAS KOSTER: This proposal manipulated the ground through cutting, folding and carving to reconnect the city to the waterfront. Transforming the available space into a permeable public landscape provides new sites for transportation nodes that will bring people to and from Newburgh: a train and bus terminal, a ferry terminal and a marina.
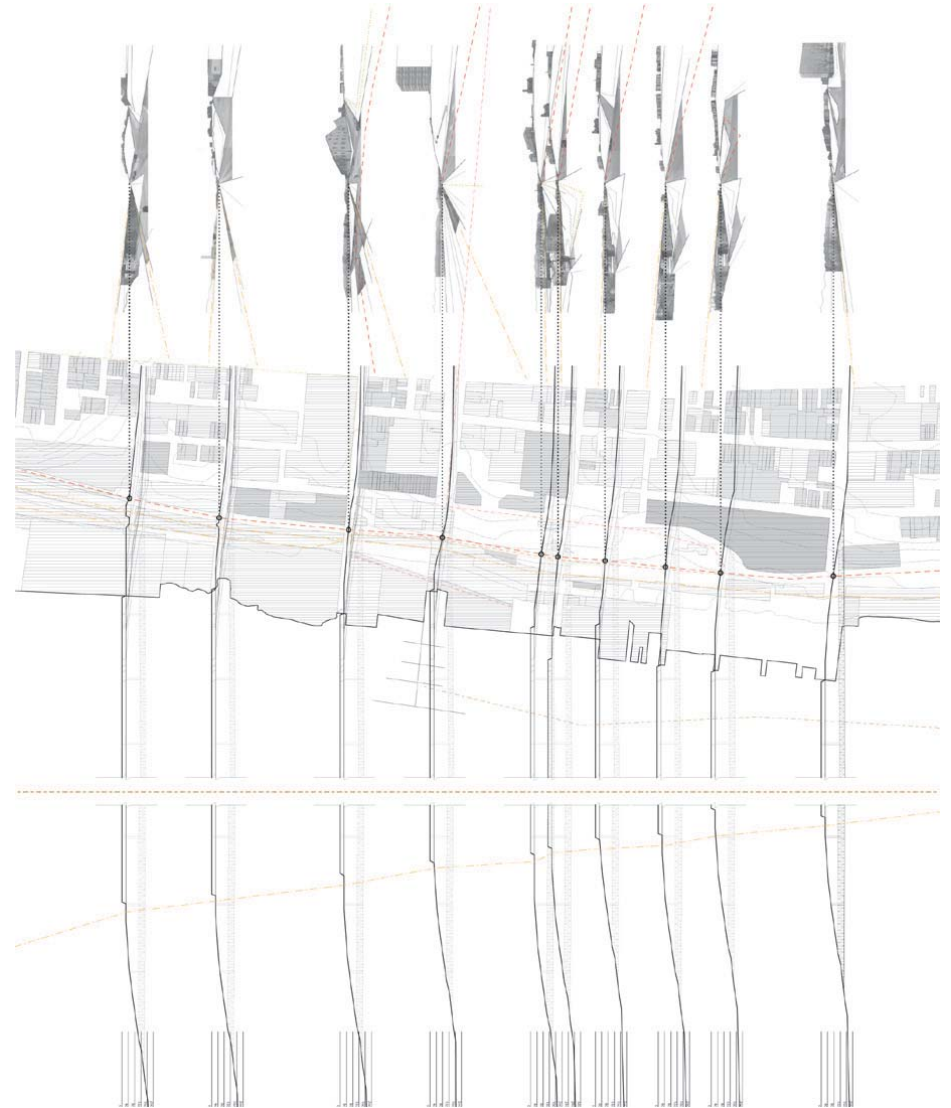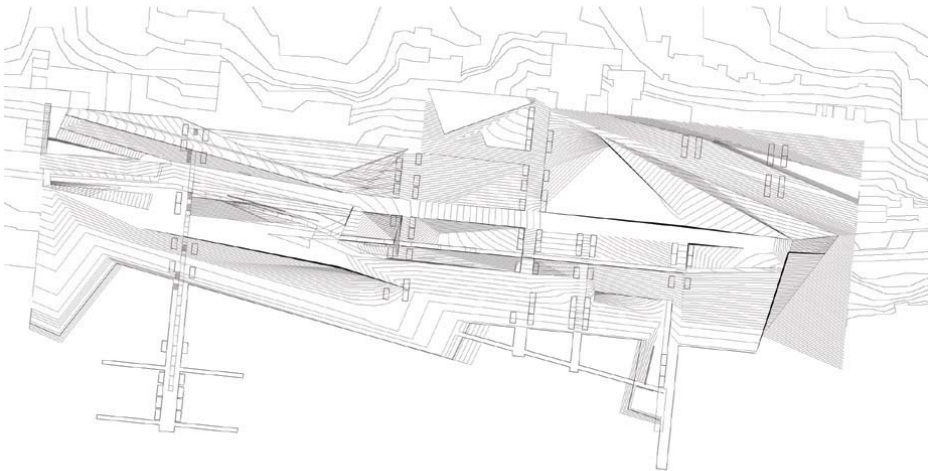
This studio tackled the issue of gambling in Center City Philadelphia and any implications for architectural form and spatial organization that this might have. The Commonwealth of Pennsylvania approved gaming in the summer of 2004 with two slot parlors slated for Philadelphia by the end of 2007. The Gaming Control Board can override local zoning codes and three sites on Market Street East have been discussed as potential sites:

1) The 1100 block of Market Street through to Chestnut Street, including the south side of the 1100 block of Chestnut Street. This site includes historic structures, including a block-long commercial structure from the 1930's and the Beaux-Arts Stephen Girard office building. Also, at times, included in relation to this proposal is the 1000 block of Market Street.
2) The Disney Quest site at 8th and Market Streets.
3) Above the western portion of the Gallery II.

The Center City District has been working with the Jerde Partnership on the impact of gambling on Market East. John Jerde is a 'guru' in the field of Casino design and 'place-making.' His office's principle publication and MANIFESTO—'You are Here'—served as a provocation for us as did the development strategies of the Trump organization, and the legendary skills in the Casino world of Las Vegas entrepreneur Steve Wynn. The studio explored alternative possibilities for the development of the Market Street site, which included an assessment of the positive and negative impacts of gambling in the Center City area. Recommendations were made in relation to density and programmatic complexity that embrace the opportunity offered by the Gaming Board's ability to override preexisting codes. This was used as an alibi for an operation that would establish new standards for urban design and architecture in Center City—in negotiation with existing conditions or 'under-cover.'

Each student was encouraged to push an architectural idea to its extreme manifestation. To test the realism of their work, students were asked to choose one of their images to submit to an architectural journal of their choice and to prepare a layout for its cover.

JAIME LEE: The initial form of this project was developed by conforming to local conditions: the regular grid of the city and the heights of surrounding buildings. A building skin was introduced to further connect the casino to its environment, introducing solar energy and lighting, natural ventilation, and treated rainwater into the building, with the potential to connect with the city's utility grids. While attempting to assimilate into the existing urban fabric, the resultant design actually introduces a completely new language into the city. Novel conditions are achieved which enhance and accentuate the building's relationship to its site, including the creation of new framed views of favorite local landmarks. The existence of the casino itself is made trivial by its absorption into this new urban framework.
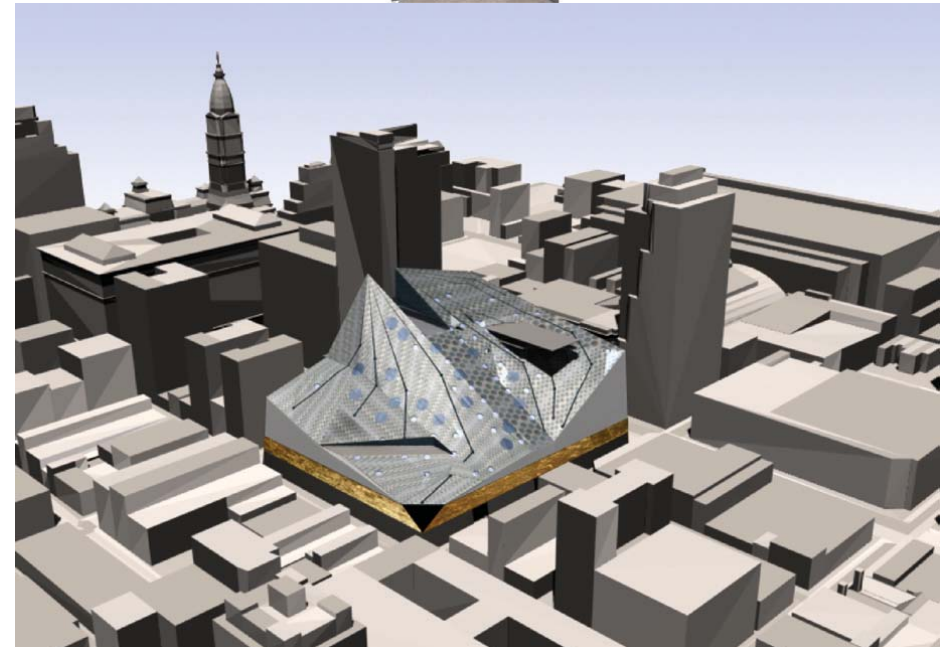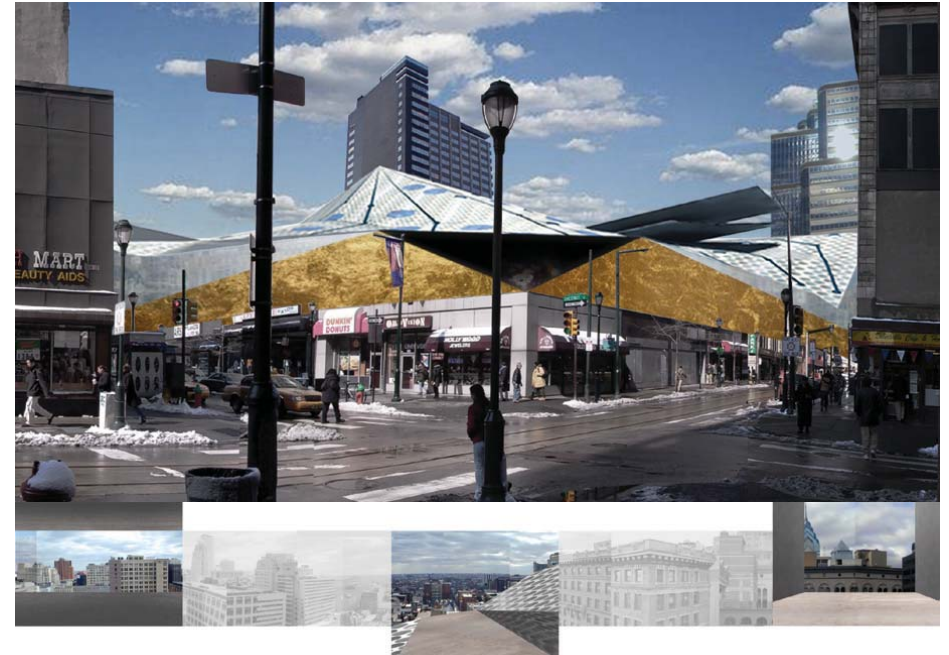
Cultivation and culture share the same linguistic root, but are often considered diametrically opposed. Cultivation is the act or art of cultivating; to prepare, loosen or break up the soil to foster the growth. Culture carries more complex identities defined as developing the intellectual and moral faculties, especially by education. Museums can be seen as structures that contain collections of high art and high culture. The botanical garden is an unusual kind of museum—a fragile collection that constantly changes: needs room to breath, is dependent on sun and water and is a constructed "natural" environment dependent on man-made infrastructures to thrive.

In New York City, the philosophical and physical friction between culture and cultivation is manifest in the current boundary between the Brooklyn Museum of Art and the Brooklyn Botanic Garden. Initially envisioned by Olmstead to be one institution, the museum and botanic garden are now separate settings divided by a high berm and parking lot. The Brooklyn Botanic Garden seeks to create a visitor center as an entry to the garden that provokes the curiosity and interest of the visitor.

Students analyzed the growth patterns of various botanical structures. Each plant carries with it intrinsic maps for growth as well as unique adaptive capacities to thrive in hostile conditions. Students also studied architectural models/precedents designed to display distinctly different collections, where the structure of circulation and thresholds are central.

The Brooklyn Botanic Garden Visitor Center has the capacity to redefine the physical and philosophical relationship between museum and garden, introducing new liaisons between landscape and structure, parking and garden, exhibition and inhabitation. This studio investigated the specific requirements of parking, exhibition and circulation as points of departure for the elaboration of a series of more radical architectural concepts. This new center has the potential to create a porous interface between the garden and the city, the parking lot and plant collection, culture and cultivation.

HANNAH JACKSON: Taking the structure of a ginko leaf, the visitors center reorganizes the ground between the museum and the botanical gardens into undulating terraces for parking. The building itself is integrated into the largest of these landforms.

ARCH 701
DESIGN STUDIO V
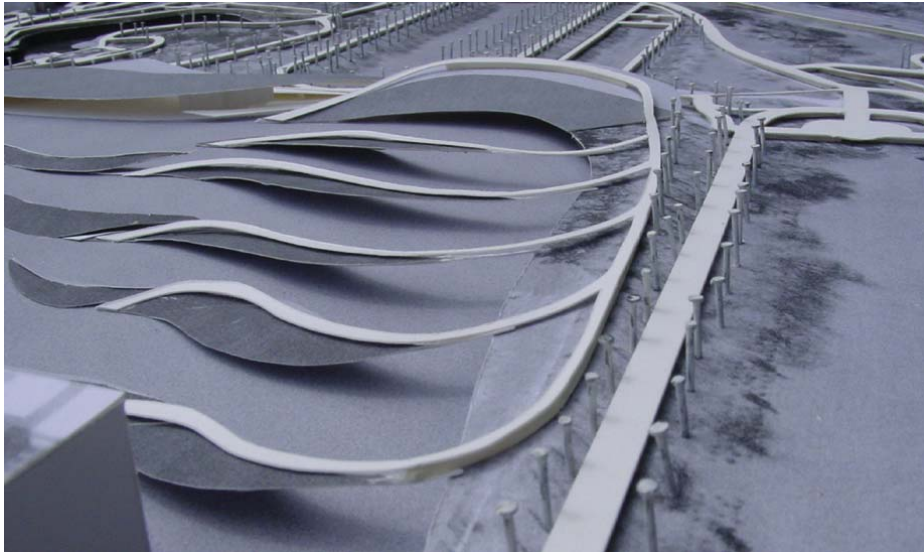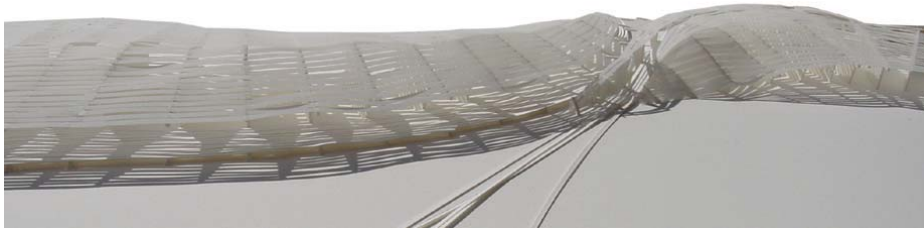
This is an elective studio at the advanced level in which each instructor develops their own pedagogical agenda and students choose from among these options.

Based in London for the semester, students in this studio studied London's green spaces. Historically, the parks and squares of London played a critical role in the formation of the particular forms of urbanism that emerged during Georgian and Victorian times. Their configuration and use relative to the public spaces, fabric of houses and housing, matrix of roads and carriageways, as well as spaces of pleasure, made them indispensable elements of the architecture of the city.

The studio studied several historically significant green spaces and analyzed their development and changing uses over time. The range included squares such as Bedford, Covent Garden, and Russell Squares, parks such as Hyde, Regents and St. James Parks, the Regents Canal and marginal urban sites such as rail yards, parking lots, sports fields, and waste depots. We also looked at recent examples of contemporary green spaces in the city—such as the Jubili Line parks, The Barbican, Greenwich River Park, Mile End Park, and Paddington Basin—and considered issues relevant to their design. The work focused on using the students' observations and analyses to guide the production of a video of "a walk in the city." These videos presented the spaces as critical players in the events that took place in them. They made tangible and spatial phenomena and perceptions that are often fleeting and seemingly immaterial.

MATT NOWACZYK: Hampstead Heath, like many places in London, is full of characters. There are the birds at Highgate pond, people walking their dogs at Kenwood, the shadows behind Jack Straw's Castle Pub and even the airports over Parliament Hill. There are few clear paths, so often we must make our own. Sometimes our paths cross and something happens, something gets left behind, a trace of that brief encounter. These encounters are not always registered at the time they happen—instead we find them later, floating in pictures, videos, or even in our head. The videos and drawings you see are attempts to articulate these sometime latent moments. Together they represent a new space, a space that is beyond that which can be simply expressed in a form or a map. To me they are mental maps, which I have composed from the many walks I took through the Heath.

tracing the heath

farjadi studio
london, 2004

sure, I know that you are tired of hearing about it, but
most repeat the same theme over and over again, it's
as if they were trying to refine what seems so strange
and off and important to them, it's done by everybody
because everybody is of a different stripe and form
and each must work out what is before them
over and over again because
that is their personal tiny miracle
their bit of luck

-Charles Bukowski
"Me and Faulkner"

The birds at Highgate Ponds

- Video Still - Video Collage - Video Still - Bird Trace
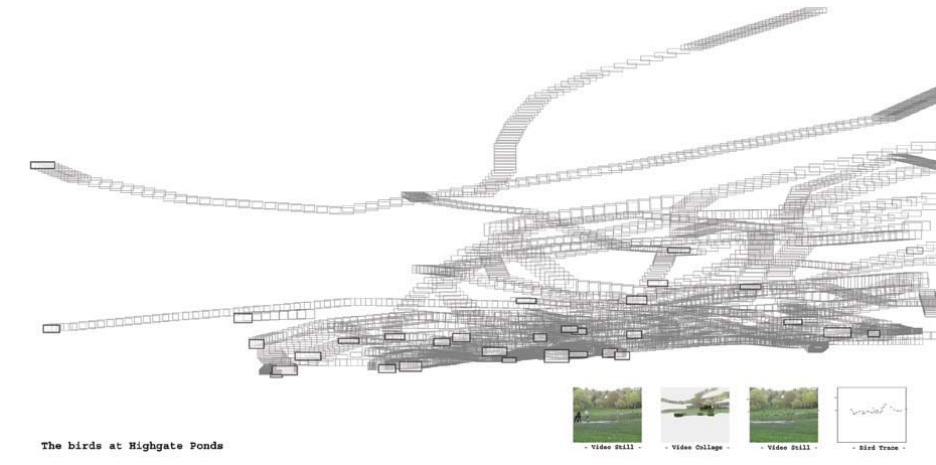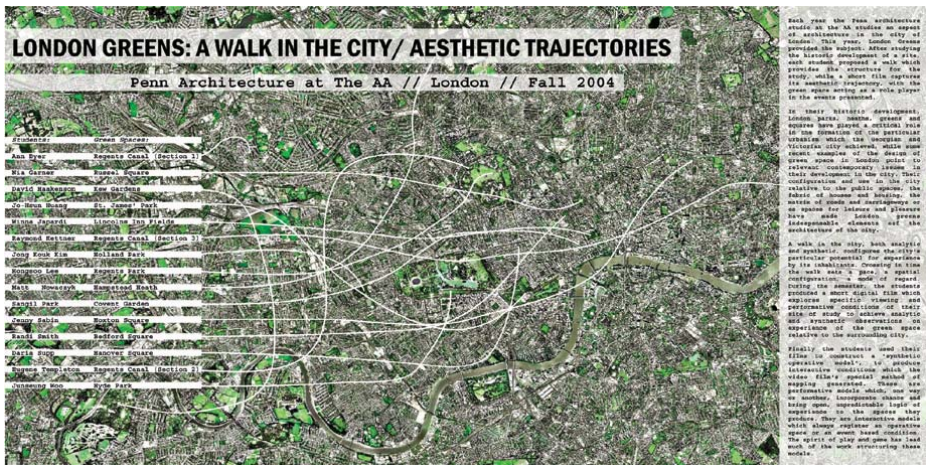
From the first day of the semester the studio was structured as a feedback loop. The loop moved between the three bases of the studio: design, research, and fabrication. Students entered and exited the loop at any base. Once they entered, they moved sequentially from one base to the next. At the start of the studio, the students divided into three subgroups, each of which chose one of the bases as the start of their project. The overall group addressed all three issues simultaneously and in a parallel manner while individual students started with one issue and then moved through the others. Each student stayed on each base for fourteen days. At that point, everyone shifted to the next base. The result was that everyone completed multiple cycles. They were just starting a new cycle at the time of the final review. Therefore the final review did discuss "a finished product" but an evolving one. The architectural project was, then, into its nth version at that stage and had clearly matured in terms of design, research and fabrication.

DESIGN: In choosing to work with software that was specifically created for industrial design and film animation (rather than for architectural design), our studio explicitly engaged the issue of cross-categorical pollination and sought to problemmatize it in the design process itself.

FABRICATION: Our production technology was preset by the availability of a laser cutter and a CNC mill at the school. Students had the benefit of having this tool on hand and could familiarize themselves quickly with its CAD/CAM interface. They were soon able to use it with inventive ease.

RESEARCH TERMS AND TECHNIQUES: tissue, lace, interlacing, carving, scoring, etching, cutting, puzzle, fractal, inlay, bending, bias cut (cut across the grain, diagonal cut), folding, tethering, entangling, multi-scale folding pattern, elasticity, plasticity, rigidity, viscosity, origami, origami module, tessellation, weave, weave tessellation, knotting, creasing, crimping, crumpling with precision

JI YOUNG CHUNG: SELF-ORGANIZATION AND URBAN COMPLEXITY: Starting by analyzing the techniques of orgami, the project developed a catalogue for digital fabrication based on folding, creasing, and rotation. In turn, this system was translated into an urban condition of density through variation.
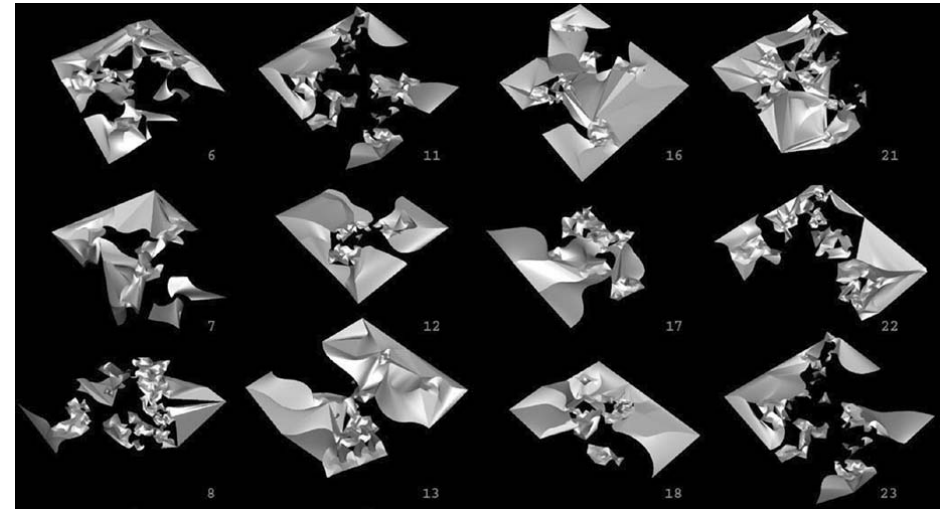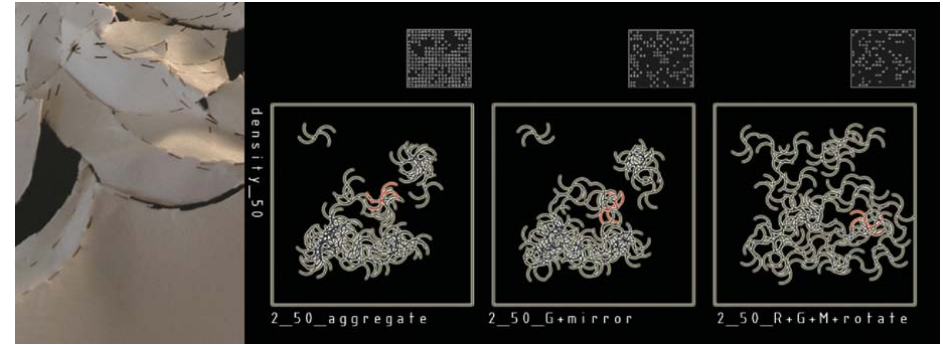
local connection

scale
mirror
rotate
meet edges
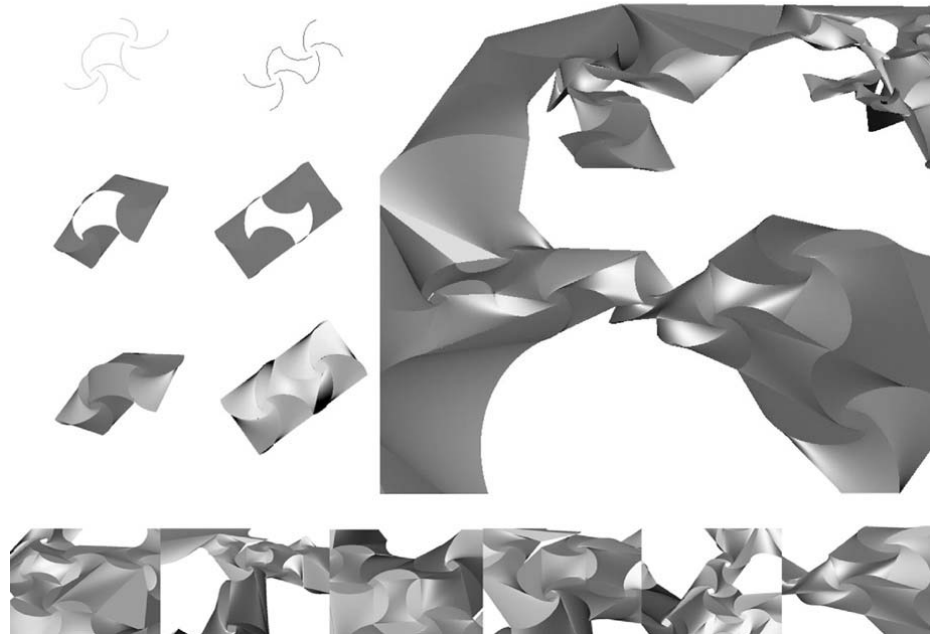
The topic for this studio was the design of an elevated promenade that connects and continues the central walkway on the University of Pennsylvania campus. The project connects Locust Walk by a pedestrian bridge over 34th Street to Smith Walk, connects Smith Walk by a second pedestrian bridge over 33rd Street to the sports precinct at the Hutchinson gymnasium, and connects the sports facilities by a second pedestrian bridge over 33rd Street to the sports precinct at the Hutchinson gymnasium, and connects the sports facilities at the upper level by a third pedestrian bridge over 30th Street to the lower field sports facilities at the Levy Tennis pavilions.

The axis over these three bridges was continued as an elevated promenade between the SEPTA and Amtrak rail tracks. This elevated promenade serves as the roof to a lido (place for changing, bathing, equipment storage, offices, cafes, etc.) that is housed under and around the elevated promenade. The lido serves existing and proposed sports facilities. The designs considered, that in the future, that this pedestrian promenade from Penn may connect over the Amtrak lines, the Schuylkill Expressway and River.

Any critique of a bridge or building analyses and describes the relationships among the variables in the continuum that conjoins matter, material, structure, skin, construction, space and place. Students examined and graphically represented the following four aspects of all three bridges, the elevated promenade and lido; physics, poetics, aesthetics, and essence. All concepts were presented in the geometric language of the vector (direction and magnitude), analysis of the isotropy (flow of space), and rheology (flow of matter) in the built elements, its site (earth and sky) and use.

MATTHEW KRISSEL: BRIDGESCAPE AS INFRASTRUCTURE OF EVENT: The bridge is a horizontal spiral designed as a double shell structure of composite carbon fiber and epoxy resin. The spiral allows the design to be easily tuned for spatial and programmatic events across different scales and locations. Echoing the experience of Locust Walk, it opens and closes in a polyrhythmic structure that creates diversity and change along the path. Spaces are activated with newsstands, email stations, energy bars, media centers and viewing pods. They sponsor moments of potential gatherings and unplanned events.
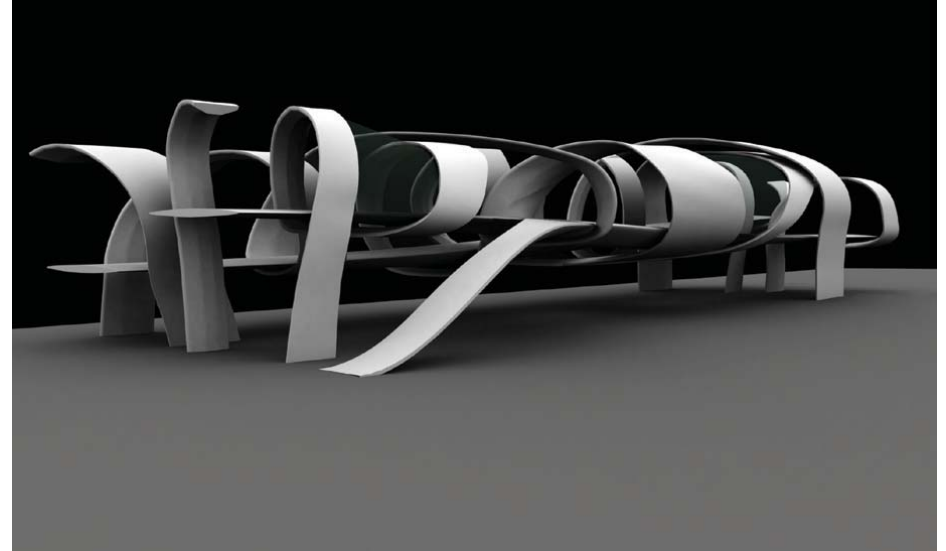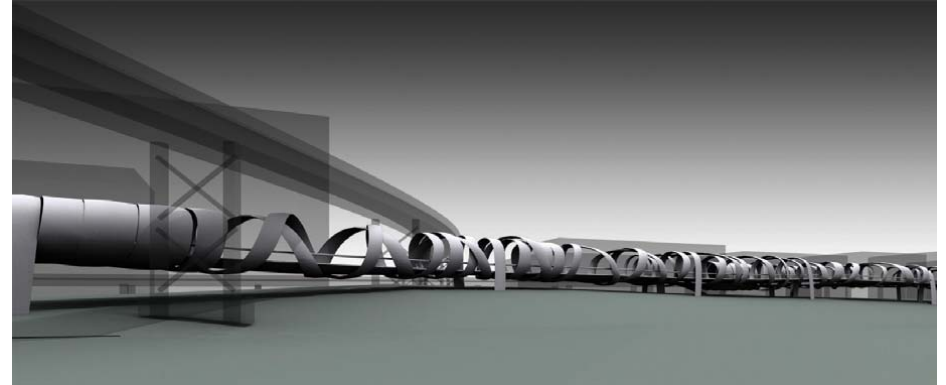
Digital techniques for design enable new transformative effects in cultural, social and political production. Techniques have always contributed to the production of human and cultural artifacts, but their refinement and acceleration after the industrial revolution has emerged as the single most important element in the development of cultural endeavors. This studio sought to harness the full potentials of techniques to produce new architectural effects that are catalysts for cultural progression.

Architectural design can propagate cultural development through a complex feedback loop that exists between architecture, its environment, technology, culture and the subject. To participate in this development, design needs to locate itself in a temporal process that informs concepts and arranges techniques that produce the most affective scenarios for the subject. This process is reliant on a two-way transfer of information, which establishes the necessary precondition for feedback, and uses techniques and their ability to incorporate responsiveness, contingency and the accidental in a generative process. These are dynamic animations. The resulting temporally conditioned material arrangements are catalytic formations, which give primacy to formation over Gestalt, to dynamic multiplicity over finite totality.

This studio focused on the development of techniques that sponsor innovation and invention in the formation of architecture. Once learned, these techniques allow us to operate intelligently toward the generation of organizations and the growth and evaluation of patterns in the development of form. This studio employed three primary techniques for deriving variegated geometry from systems of material homogeneity: dynamic animations, NURBS modeling, and stereo lithography.

The goal of the project was to generate cultural events for the 2012 Olympiad in New York City. The formations engendered by the students operated within and adapted to the existing infrastructure of the city. They would invite visitors to participate in the cultural events that they generate.

BRANDON BUCK, OHSUB LEE: Stereolithographic model study
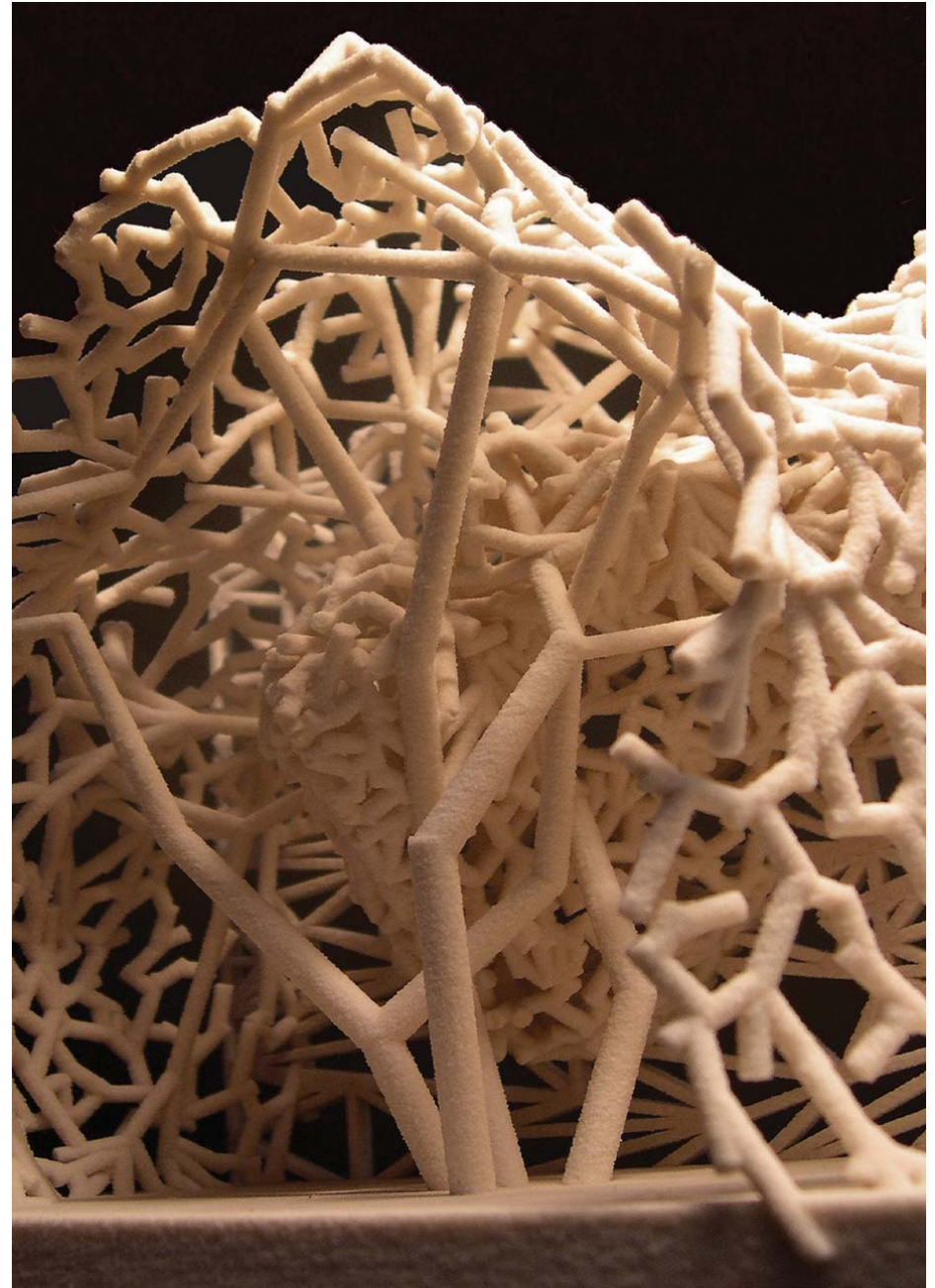
The world of the architect is marked by an oscillation along a shadowy line separating presence and absence. The back and forth motion to his/her work makes appearances unstable. A possible gesture of reconciliation may be what in painting is called Stilleben (still life) or natura morta (dead nature): architectural settings frozen, perhaps seen as a protest against the flux between the eternal and the ephemeral.

We began our studies with trivial matter. That is, we looked at inconsequential particulars, often overlooked details and the physical flotsam and jetsam of everyday life. Study methods were open-ended and speculative, courting risk and chance. We worked in the belief that architectural design / making is a revelatory and critical act.

The eventual focus of our work was the design of an Urban 'Still-Life', an institute for the city to house a collection of cultural artifacts, secrets and ephemera. The collection was based on various "contributions" from existing collections in Philadelphia: The Philadelphia Folklore Project, the Balch Institute for Ethnic Studies and others.

JOHANN MORDHURST: This project builds on initial explorations into operations of masking and veiling, mapping and its superimposition onto the object mapped, and surveying as a phenomenal tactile endeavor. The spatial organization and tectonic expression of the museum incorporates partial, multiplied and juxtaposed views, enabling the visitor to discover varied and personal itineraries.

ARCH 703
POST-PROFESSIONAL DESIGN STUDIO
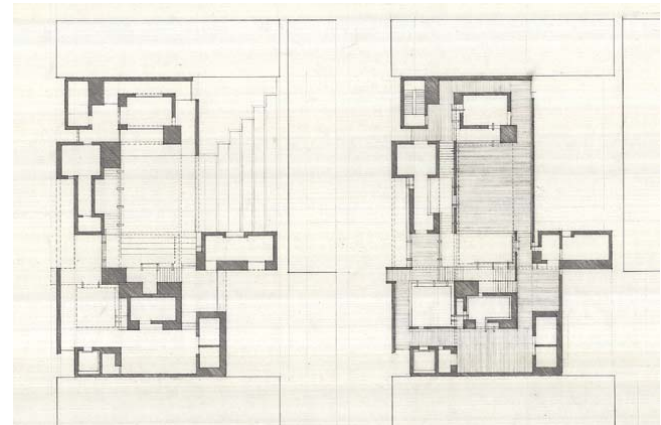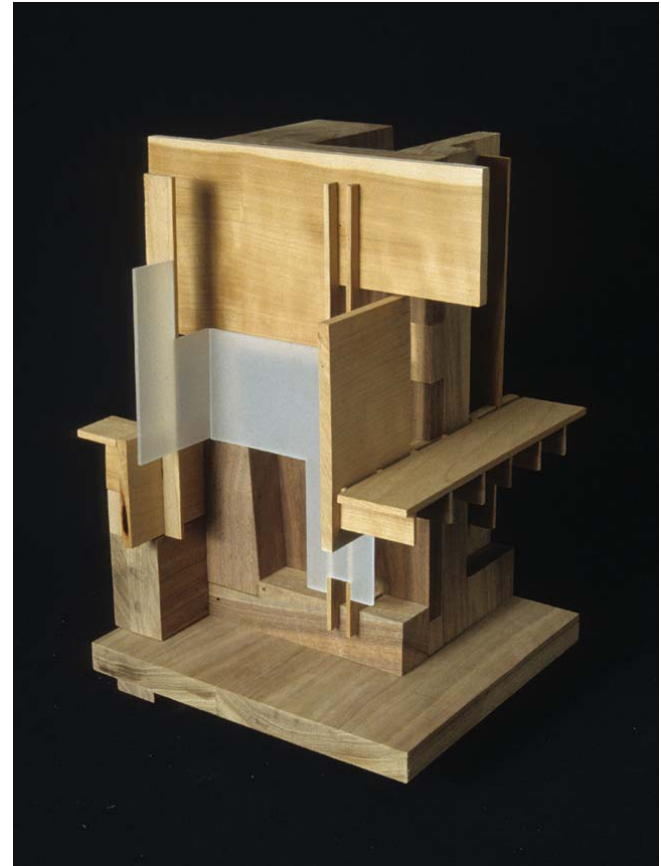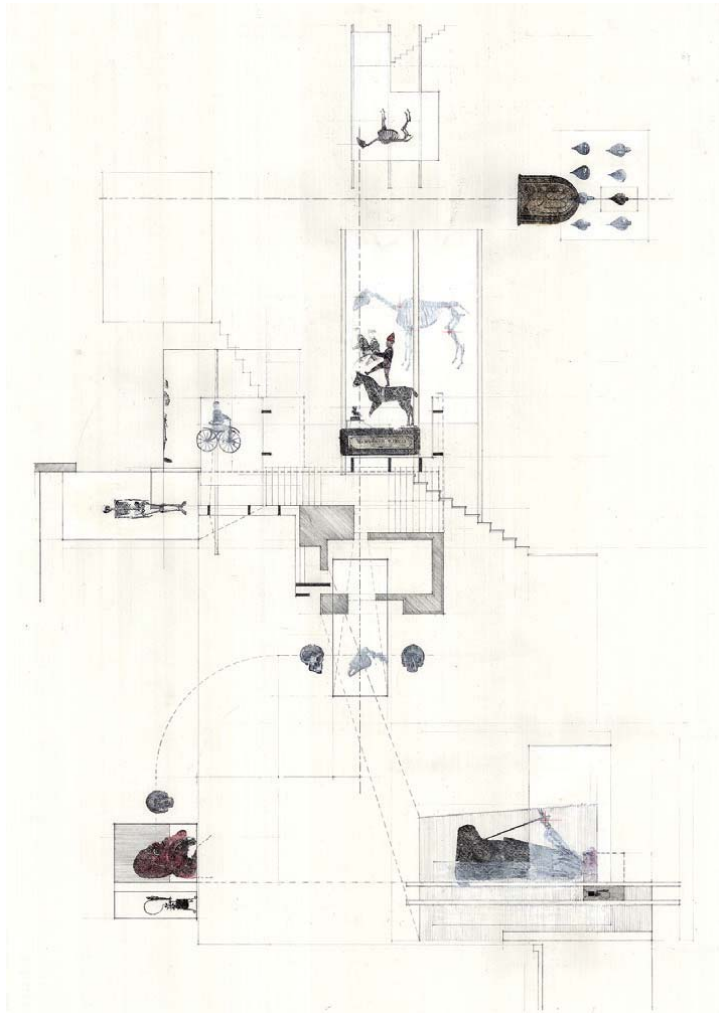
WINKA DUBBELDAM WITH PATRICK KEANE: HOTEL 22 // SUPERSATURATION
Pure information, efficiency and lifestyle—this studio focused on the spatial effects of globalization for the cultural development of Bangkok, Thailand. Where initially Asian development focused on fast economical growth and technological innovation, it recently started to focus on what's left behind: the cultural base. Reduced to a mere 'memory' or reminder of its original existence, it is critical for Asian society to negotiate with its cultural past and develop a new synthetic cultural base. This studio defined a new cultural entity in Bangkok—HOTEL 22—which will have a unique existence both locally and globally.

Thailand is located in the center of South East Asia, and it is the fastest growing economy in this region. Bangkok, the largest city in Southeast Asia, acts as a capital for the region. Many large international firms dealing in petroleum, mining, textiles, and rubber use Bangkok as their trading hub. Bangkok has become an under-planned, overdeveloped sprawl, with congestion, toxic air and other environmental problems. The best word to describe this over-development is "super-saturation" in which even sidewalk space is considered an asset.

Bangkok is perfectly positioned to host this brief, with an emerging middle class of Thais and a large ex-patriot community. Within Bangkok, HOTEL 22 is in a district that has all the makings of a mixed-use art and cultural center for the rest of Asia. Currently the ground floor houses auto body shops and an art gallery called the "Invisible Art Gallery." There are six galleries to the east of this square—a nascent "Chelsea style art district" for the city. The studio began with research into the economic, political and cultural base of the city and country. Three-dimensional animated environments were used to create maps of this dynamic data. This analysis of the synthetic urban base enabled students to work towards design proposals within subsets of different environments.

CARMEN MCKEE: How might a new center for electronic and media arts respond to the decentralization that Bangkok has experienced? The dynamics of the city's life and transformation over time were analyzed and visualized using animation. The directionalities, clusterings and movements discerned became the basis of a gallery in a specific location.

Left Page (p2)

Labels (top): computer technology · art & culture venues · office · population · manufacturing · airport business

Callouts: population cluster · established city · integrated cluster · airport cluser

Frame labels (right column): frame 100 · frame 300 · frame 500 · frame 600 · frame 650 · frame 900

decentralization

These stills are from an animation predicting the relationship between the city of Bangkok and the new airport to open in 2006, and demonstrate the relationship by analyzing certain characters of the city in their development. These characters are the population, factories, computer technology, and art venues. The nodes for these characters are Bangkok and its subcenters, and the new 'Airport City'.

Frame 100 This frame describes the beginning conditions of Bangkok. Population is *centralized*, factories are emerging, and the population is continually pushing the limits of the city outward.

Frame 300 By this time, the city begins to create pockets of density that attract other characters. There has begun a need for art/cultural centers (depicted by the red balls) and these begin in the center and then also follow the patterns to decentralize as the population has. Frame 300 shows that the population is beginning to create sub-centers and *decentralize*.

Frame 500 This frame shows an established decentralized city. Computer technology in the city has taken off (depicted by the lines), and grows at a rapid pace. It begins in an already established city of centers and subcenters and it grows directly towards these nodes. It has no reason to go anywhere else that is not developed.

Frame 600 Here we see the beginnings of the *Airport City* (whose functions are depicted by the black squares), and while it is small and in its beginning stages it has very little effect on the city. The technology has reached out to the subcenters and continues to strengthen its relationships between.

Frame 650 Only a few frames later, however, it is apparent the major effects the new airport has on the city. After the emergence of the Airport City, it doesn't take long for it to become an attractor for functions of the city. The Airport City attracts the technology and the factories and has some weight in attracting the art and culture. However, the Airport City is not as accommodating as a place for the population to reside.

Frame 900 This frame shows visually a decentralized population in subcenters through pockets of density throughout the model. The factories have also been attracted to some of these subcenters, and in some cases have created their own subcenters due to factors like government initiatives. The computer technology that grew at such a high rate has been pulled to the strongest attractors - the established downtown Bangkok and the rapidly growing Airport City. It almost seems to wrap around the two entities; it connects them and makes their relationship even stronger. The attractor for the art and cultural venues for Bangkok is the project being proposed and is located between the downtown area of Bangkok and the new Airport City. This frame shows that the majority of venues have located themselves between Bangkok and the Airport City where most of the exchange occurs.

Conclusion

Through this diagrammatic model it is clear that there is a relationship between the established downtown Bangkok and the potential rapid growth of the Airport City. They are entities participating in a dynamic symbiotic relationship that changes the current state of the city of Bangkok. The established city gives support to the new city and visa versa. It's a mutually beneficial relationship strengthened by the factors that they share, i.e. technology, industry, etc.. It's a duality that can extracted from the diagrammatic abilities of this animation and studied in actuality. The two entities represent:

Established vs. *New*
Local vs. *Gloabal*

p2

animation

Right Page (p5)

Key Points From Animation

1. **Cores and Attractors** – Cores generate growth and attractors act like magnets. A core can also be an attractor. Attempting to induce a new art cluster will require a core that can generate growth.

2. **Growth over Time-** The Animation would not exist without growth or time. This suggests that the art cluster model should expand over time.

3. Coevolution Like the animation suggests, the placement of an additional core creates a symbiotic relationship where both the city and the airport cores mutually benefit. The new art district should have an additional core that can benefit and be benefited by its location in the art community.

4. **Core Placement-** Close proximity of the two cores is important. The direct path between them will have the most strength and the shorter the distance between them, the denser the cluster will be.

5. **Areas of Growth can become Attractors-** In the animation, the dense area between the city center and the airport became an attractor and even shifted the location of the art centers.

6. **Trace Geometries-** If the two cores are not in place at the same time, when the second is introduced, it will have an affect on the first. As the model is always changing, the new core will cause a physical change or shift on the original core, and leave a mark even after the original core has adjusted.

7. **Disbursement of Population-** In the animation, the population was what pushed the periphery of the city. Initially, spreading evenly, and eventually clustering and creating dense nodes of population. In the new art district; do the galleries parallel the growth of the population?

8. **Cluster Individuality-** In the model, all the clusters are not made up of exactly the same particles. There are clusters that are primarily industrial due to incentives. There are clusters that are mostly office and business, since they rely on similar infrastructures, etc. There are clusters that need to be accessible to consumers and ones that don't.

Shown at the top of this page are a series of animations. In these animations the attractors were placed at particular locations and a particle system was pulled, over time, past the attractor. The attractor deformed the particle system resulting in the images shown above. The deformation of the lines demonstrates the impact the new building will have on people going by. To the right is shown an enlarge frame of the animation. It shows both plan and section of the animation on the site. As the particle system moves by the desired site, it bends and circles in on itself due to the strength of the attractor.

315

p5

abstract machine

ARCH 704
DESIGN STUDIO VI / RESEARCH STUDIO / ALI RAHIM, COORDINATOR

This is the final elective studio in which instructors develop their own pedagogical agendas, focused on their specific areas of research in design.
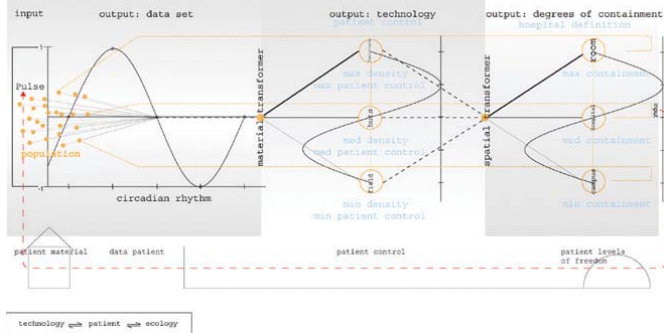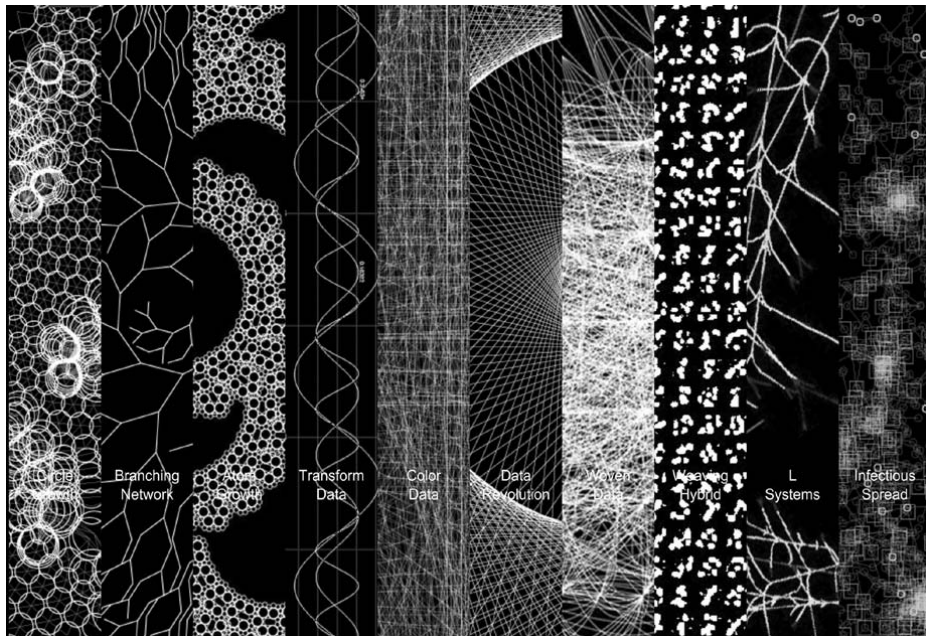
This studio explored the function, purpose and design of hospitals. Hemmed in by institutionalized thinking, and with the Hippocratic Oath to heal long forgotten, our hospitals are often the dismal end product of bureaucratic thinking. Drawn out in corridors and packaged in silos of beds, denuded of emotion, the person dehumanized and a cipher—who does not contemplate these edifices with disquiet and anger? But what if these assumptions were challenged and a new look taken at what makes up a hospital and its organizing principles. And if we reinvent an architecture of empowerment, of material, color, sound and critical planning that directly promotes well being, individuality, and care, then would that architecture not heal?

   Draw a hospital as a container and the problem begins. We need to have a more open approach. By analyzing the relationships of nurse to patient, doctor to nurse, hospital to doctor, research to hospital through feedback, a new set of criteria were developed for the organization of hospitals. From the individual "hospital"—a unit idea of rehabilitation and cure—to the field condition—a multi-tasked event of simultaneity (patient/nurse/doctor/treatment/education)—new insights were gained by applying non-linear analysis to the standard assumptions. By simply moving out of the boundary, seeing a hospital also as an education process linked to research brings in a non-linearity, and innovative models for future healthcare could be proposed. Definite physical geometries were looked at, but also networks of relationships that may provide the real structure to initiate a revitalized health program.

JOSHUA MACKLEY: Comparison of centralized and decentralized systems
RAYMOND KETTNER, CHIA-HUA LIU, TANYA SAMARASINGA: Concept Diagram and Oscillations
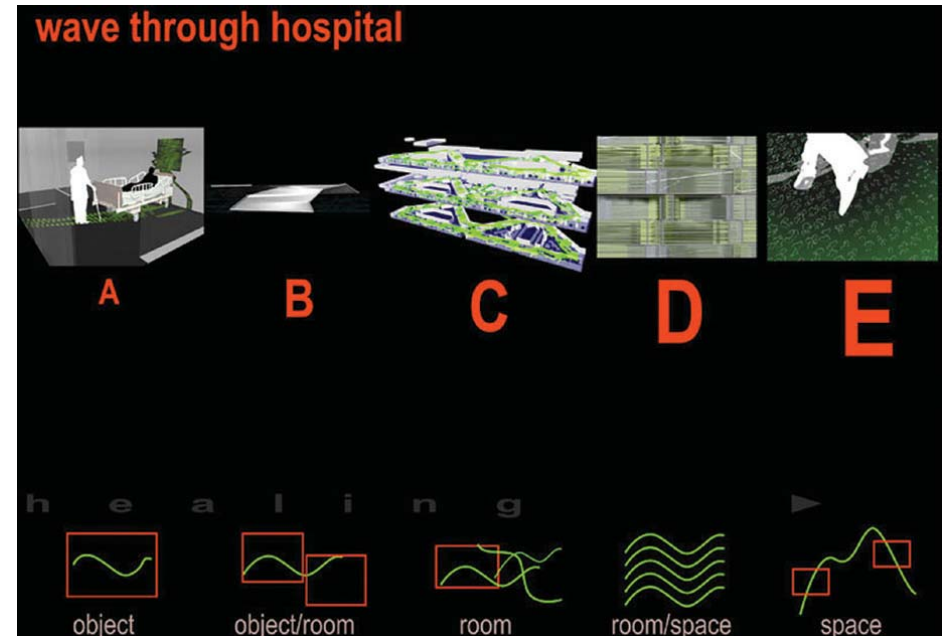
This studio approached the question of integrating gambling into the city of Philadelphia by suggesting that the monetary development and spin-off effects of legalized gambling need to be considered as part of a synthetic framework for the development of the city. Students pursued a process-oriented approach that analyzed existing urban dynamics, hypothesized potential programs and development models for the city, on the basis of which a demonstrative design was then proposed.

Each student was responsible for their own site selection and program development, which emerged from research and analysis of the existing city and known models for gaming programs. The studio conducted case studies in Las Vegas and elsewhere, interviewed casino developers and managers, and undertook field research into the casino experience. On the basis of their analysis of Las Vegas and Philadelphia, they developed arguments of response and opportunism.

Using time-based physical simulation software, the students constructed 'dynamic models.' They layered animated sequences of the urban systems into which they were attempting to assimilate new patterns of behavior as well as spatial organizations. It was at this point that preconceptions had to be abandoned in order to achieve the iterative translation of concepts into behaviors. Since behaviors do not have static form, designing on the basis of a behavioral model requires the invention of translational techniques. These techniques generate a tectonic that informs how the program is delineated to the site, while embodying the dynamicism of the system that was originally studied.

The studio resulted in a widely diverse portfolio of projects differentiated by site, program, urban strategy, and formal technique.

BARRY GARVIN: Using animation techniques, an analysis of emergent nodes and patterns of activity were used to generate a surface geometry, which fuses the various fabrics of the site and deploys them to organize, place and layer the program of the casino. By connecting different urban organizations, this architectonic system incorporates a new gaming culture into the neighbourhood in ways that are catalytic of further new developments.
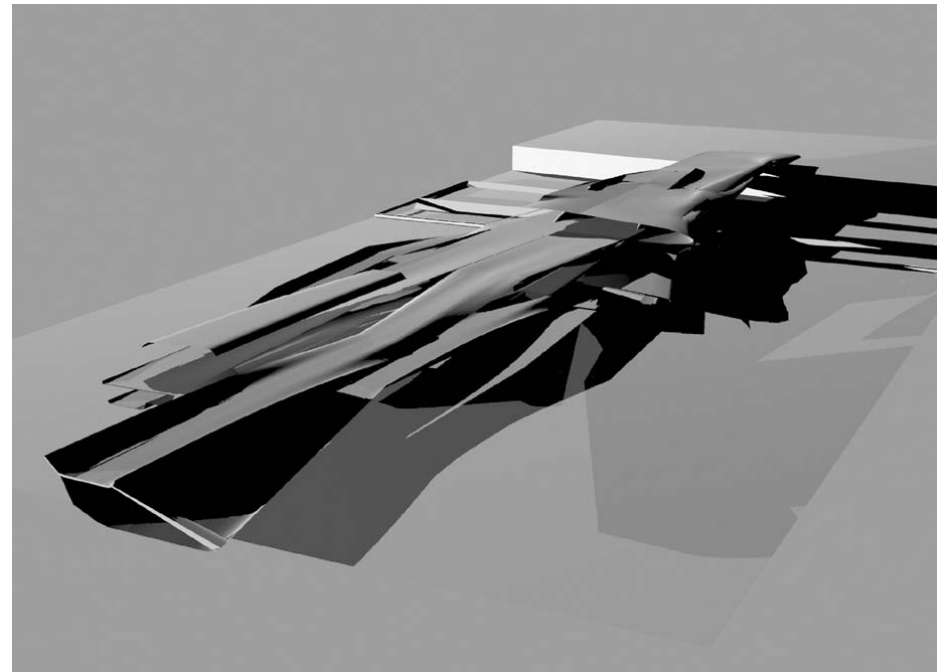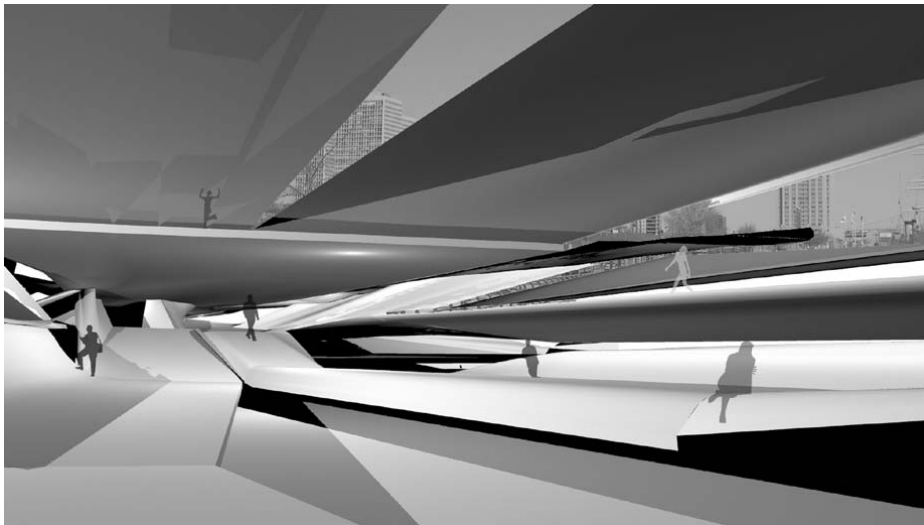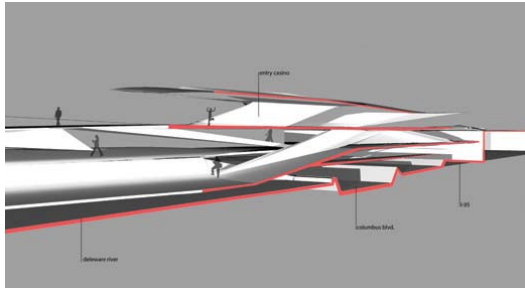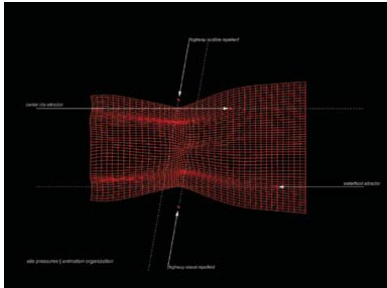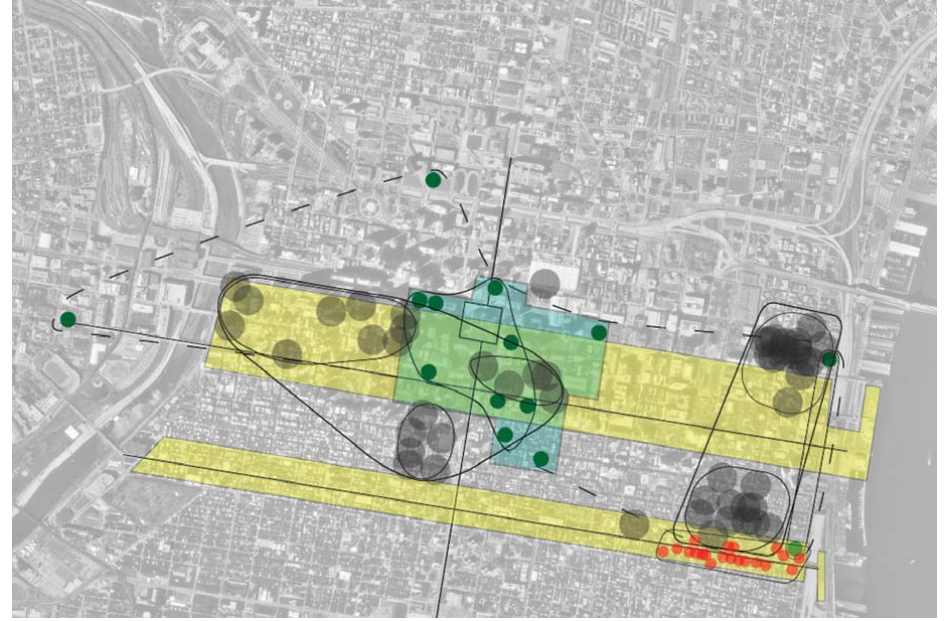
We asked: "Had Michel Serres been at CIAM, how would it have affected the Athens Charter?' The question was posed in order to propel a contingent condition, to revisit what were the driving forces for the architecture of urban living in light of what Serres suggested is the work of parasites in the (in)equalities of order in organisms and organizations. The Athens Charter, the work of CIAM 4, formulated The Functional City with brute optimism about the clarity of its order, rationality of the city and its architecture. While CIAM 6 called for Rural Urbanism, social housing projects foregrounded various urban conditions of public and private life since the initial meeting of CIAM 1. In the depth of discussions around planning for vital urbanism, technological progress, industrial production and the form of each functionality, we inserted the discourse of Serres to test its potential impact on formal and programmatic contingencies of the design for urban living now.

   Our task was a pragmatic one and concerned with a plausible present in architectural thinking and design. We recognized the rhetorical need for renewed words, new vocabularies and techniques to propel our project with the forces of contemporary contingencies. The studies produced mutations of projects of housing designed by our architect protagonists in the form of villa, urban house, apartment building or housing complex. The students undertook critical studies of exemplary housing projects and read Serres' text on Parasites with the intent to accentuate the incidental, probably, fortuitous, random, uncertain and unexpected formal and programmatic processes that will effect the configurations of parameters shaping a new project for urban housing.

MATTHEW KRISSEL: DELAMINATING DE LA SOTA: Alejandro de la Sota's small village outside of Seville, Spain (Pueblo de Esquivel, 1955) was chosen to host a parasite evolved from Michel Serres's search for the accident, the interruption, the static that was so quickly suppressed by modernism. The game Go was hybridized with de la Sota's strict urban hierarchies, producing a three-dimensional field structure of chance, variation, and multiplicity.
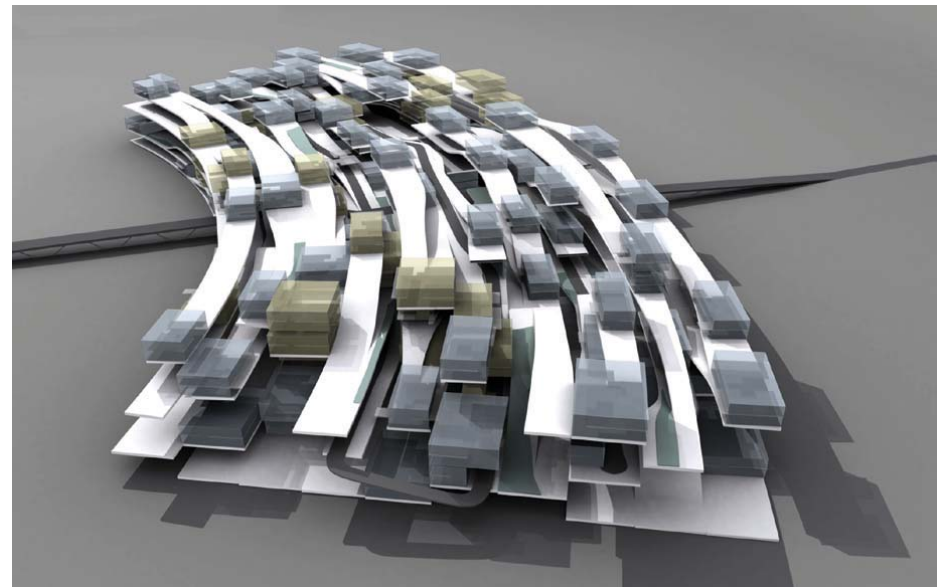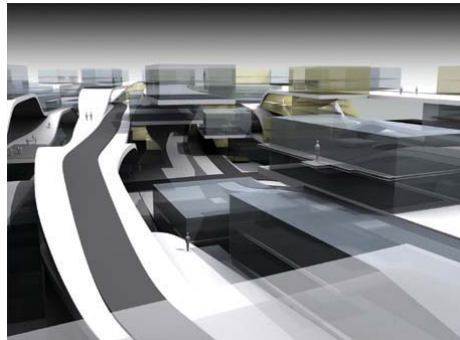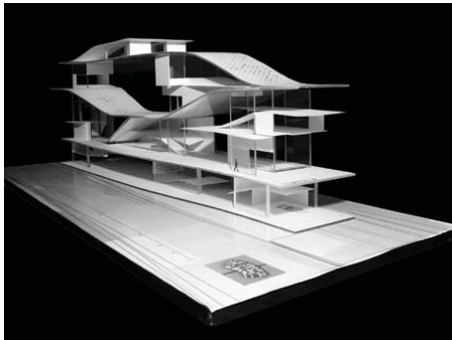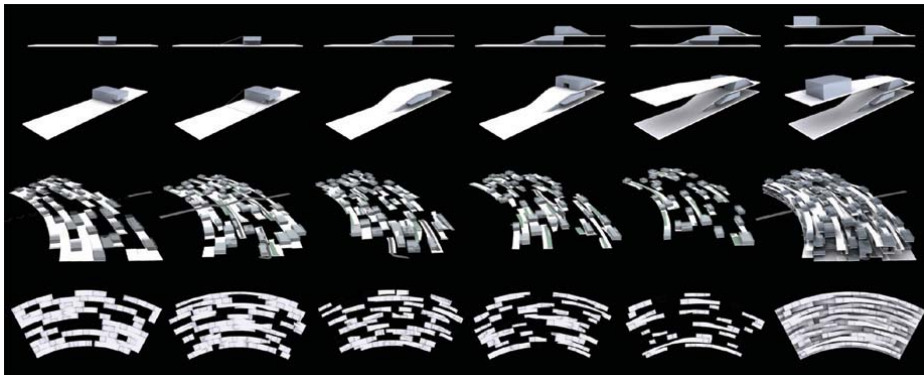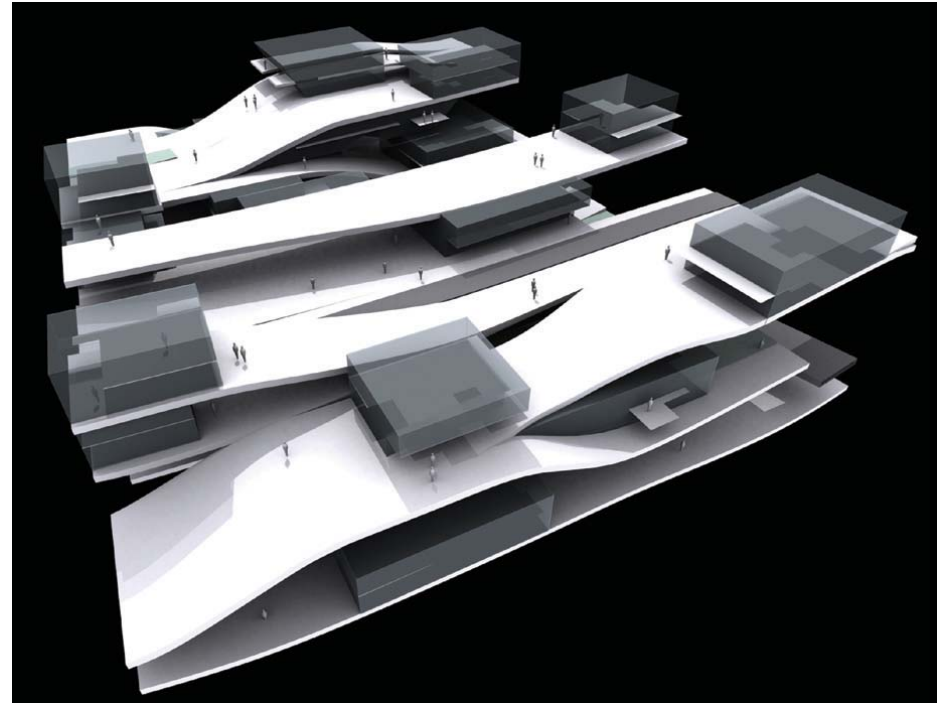
There is nothing we look forward to with such anticipation as the prospect of architecture catching up with the rest of the twentieth century. While buildings are still put together nail by nail on site, manufacturers of everything from toothbrushes to 747s explore new materials and methods of making. The prospect of mass customization, transfer technologies, and off-site fabrication should be givens for your questions in architecture, just as issues of structure, enclosure and use have been givens for a thousand years. Your interpretation can be commonplace or exotic, local or global, detail-oriented or holistic, philosophical or physical. Just about any approach is valid as long as the given topics are explored.

We find architecture in those elements that many architects relegate to their engineers. The mechanics of building retain a lifetime of potential architecture. We believe in form within function and the poetry of use and the craft of assembly. The demands of time and money are eroding the very soul—the craft and quality of what we all do as architects. Since these demands will not disappear, architects must redefine the place of craft and quality in their work. While we in architecture have suffered from an ongoing erosion of craft, other industries have undergone a renaissance. We seek the substance of modernity, the methods of design and assembly that have enhanced the craft of construction in cars, ships and planes. Craft and making is as important as ideas and images.

The long-term problem of multi-unit new loft housing was our subject in the studio. The program for each unit of housing called for a kitchen, bathroom, and undefined loft space. The only limitation was that the entire amount of housing explored was to be brought to and erected on the site in two weeks. Site preparation (foundations, utilities prep., etc) did not have to be included within this limitation. Students were responsible for all documents needed to fabricate the house as well as mapping out both the fabrication and assembly sequence. Ongoing research addressed three topics: logistics, materials, fabrication.

STEPHANIE FELDMAN: Structural Resin Prefabricated System for Housing

ARCH 704 / ALI RAHIM AND SHANGHAI URBAN WORKSHOP WITH QINGYUN MA

This research studio examined emergence and its relation to the formulation of architecture by utilizing dynamic systems in an opportunistic fashion for the generation of growth and evaluation of patterns in the development of Shanghai, China. We had the unique opportunity to experience this first hand in a sponsored ten-day workshop located in Shanghai. This allowed us to deal with the full complexity of the city including local economics, politics, infrastructure, urbanism, and various programs that lead to effects that are greater than the sum of their parts. Emergent organizations look for correspondences and overlaps between locations, parties, and functions involved in the city. This process is reliant on a two-way transfer of information, which establishes the necessary precondition for positive feedback, and uses techniques and their ability to incorporate responsiveness, contingency, and the accidental in a generative process. The resulting temporally conditioned material arrangements are emergent organizations that give primacy to formation over Gestalt, to dynamic multiplicity over finite totality. Dynamic systems circumvent pre-determined analytical processes that constitute figure/ground, ideal types and studies relationships that yield tendencies and capacities that are relational.

The design research focused on the material conditions of Shanghai and on the development of techniques for innovation and invention in the formation of architecture. This studio employed three primary techniques for deriving variegated geometry from systems of material heterogeneity; fluid dynamics (dynamic animations), NURBS modeling, and stereo lithography (Rhinoceros).

The theme of the workshop in Shanghai was "Urban Public Service Units." Such entities have been established to accommodate collective needs in the city. During the socialist regime, they were laid out as a basic grid to cover the population with an equal length of reach. Although it is spatially artificial, it is rigorously logical for a population reflecting the rule of socialist welfare. But the city of Shanghai is anything but a gridded city. In addition, the urban value system is never spatial. When the new round of urban development came in the late 1980s, the clash between socialist equal distributions and market economic patterns emerged.

The Shanghai Urban Workshop run by Qingyun Ma was sponsored by Skidmore, Owings & Merrill LLP.

LOREN SUPP: VERTICAL MARKET: This project examines emergent fluidic behaviors as evident in market activity along streets in Shanghai, China. Using these site-based phenomena, a new "vertical" strategy was established that enables market activity, yet opens the streetscape for alternative use.

ARCH 706
DESIGN STUDIO VI / INDEPENDENT THESIS / CATHERINE VEIKOS, COORDINATOR
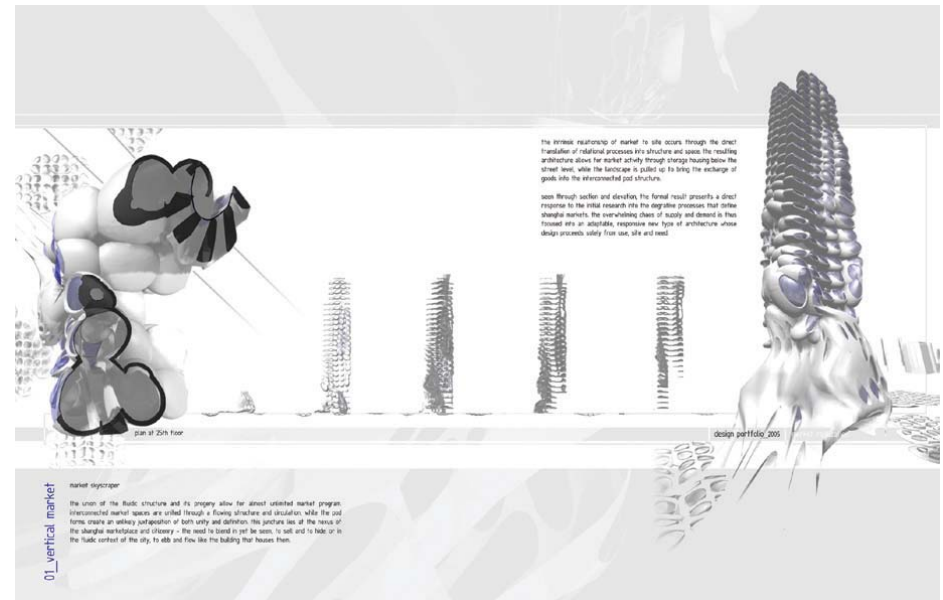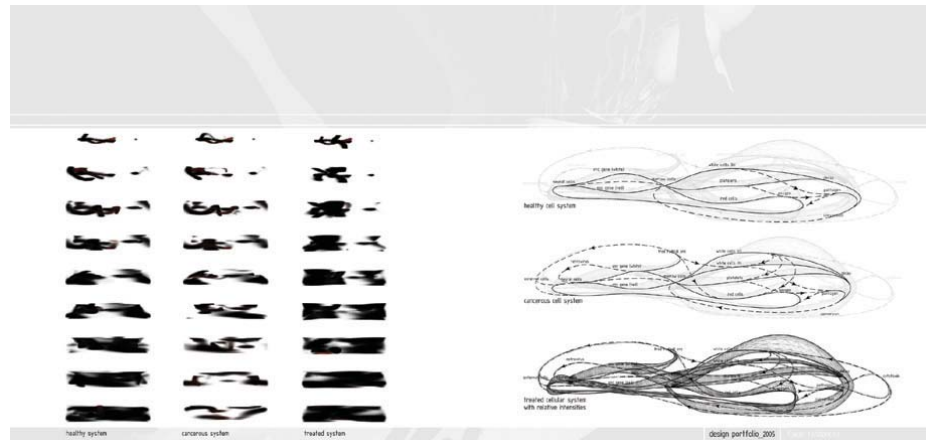
In their final semester, students may elect to do an Independent Thesis rather than an ARCH 704
Research Studio, subject to approval by the Thesis Committee.

above: Owens Lake Symbiosis explores the integrating of habitation + recreation + infrastructure to generate a new ruralism; one
based on the conservation of open spaces and native ecologies to sustain the local economy through tourism.

The architectural thesis project makes available a unique opportunity for independent critical exploration. By individually framing
and developing a project through one's own topic and methodology, the thesis project initiates a set of issues and methods that
may continue into students' independent careers. A thesis project is self-reflective; that is, by instigating their own project, students
necessarily confront the scope of their education and choose to extend or alter directions in which they have been taught.

The thesis project is by definition an open work, that is, its scope is limited only by the parameters of the question posed. This
question, the thesis topic, however properly speculative, must necessarily establish a relationship to ideas formally or popularly
identified as architectural, whether belonging to the realm of building or the multiple discourses embraced within the architectural
discipline. For many students, the process of selecting a topic begins simply with questions still open from previous studios or
coursework, but topics may be chosen from a wide range of architectural thinking. Through the thesis process, these questions are
concurrently researched, elaborated, edited, and finally manifested in a work of architectural dimension. A thesis project is a work of
craft, a work of building a set of ideas into a final statement and set of conclusions.

This significant opportunity, to address a question of lingering individual import, comes with an equally significant demand.
Students pursuing a thesis project must be motivated predominantly by the strength of their interests. In distinction to a research
studio, where faculty provide the critical direction for the studio's agenda, along with a set of research interests and a design
methodology, students pursuing the thesis are expected to do the same independently, though with the guidance of a faculty advisor.

NICHOLAS WALLIN, JOHN MORAN, NATHANIEL CRAM (SUPERVISOR: BRANKO KOLAREVIC): We undertook a group design-build thesis project that
explored various production techniques and modes of collaboration in digital design and fabrication to create a public information kiosk in the Powelton
Village neighborhood near Penn.

COURSES / REQUIRED

ARCH 511 History and Theory I, David De Long

The language of architecture depends on meanings derived from built forms. These meanings derive partly from theoretical discourse. But they derive also from beliefs and perceptions that often went unrecorded at the time of conception, particularly in examples more distant in time and place. A study of these forms themselves is critical to understanding architecture in its fullest sense. In instances where architects have recorded their intentions in writing, comparisons of those intentions with the buildings themselves can reveal aspects of historical significance. This course dealt with the evolution of architectural forms and of their accompanying meanings. It dealt also with varied functions of use and pragmatic technologies of construction that have contributed in varying degrees to shaping those forms, and it references major forces of those societies that have built them. It identifies essential themes of architectural design that possess ongoing relevance, investigating changing patterns of order; more than once these patterns have derived from apparent disorder, a quality that has intrigued architects for generations. Underlying themes included alternating patterns of axiality and circularity, corporeality and incorporeality, symbolic illumination and darkness, and representational buildings without conventional functions. For the most part these themes played little part in the formulation of modern architecture. The assumptions that led to this shift, and the exceptions that reflected attempts at a more meaningful continuity, are essential to our own era in which connections with the intellectual and aesthetic bases of architecture are being evaluated.

ARCH 512 History and Theory II, Kazys Varnelis

This course traced the emergence of contemporary issues in architecture by exploring the field since the start of the twentieth century. Rather than presenting a survey of the material, this course constitutes an advanced theoretical introduction to the key ideas that shape architectural thinking today, introducing topics as overlaying strata, with each new issue adding greater complexity even as previous layers continue to influence the present. Every class addressed specific themes through close readings of pertinent projects within the historical constellation of ideas, values, and technologies that inform them.
Of particular focus for the course was the relationship between architecture and modernity. Modernity is a new form of life, in which Karl Marx aptly wrote, "All that is solid melts into air, all that is holy is profaned, and man is at last compelled to face with sober senses his real conditions of life, and his relations with his kind." If the nineteenth century marks the emergence of a modern civilization, judged by many to be bereft of purpose apart from profit and loss and unceasing growth and change, the twentieth century is defined by attempts to resist that modernity, organize it, and turn it to the advantage of mankind. To this end, this course traced architecture's relationship to organizational regimes of modernity such as Fordism, Taylorism, and Post-Fordism, the rise and fall of the machine as an object not to represent but to emulate, and the increasing focus on architecture as a matter of process, not product. Throughout, the course highlighted the tension between a drive towards rationalization and an urge to form.

ARCH 521 Visual Studies I, Rhett Russo (Coordinator), William Hayes, Gavin Riggal, Srdjan Jovanovic Weiss

This was a half-credit course that supports ARCH 501 Architectural Design Studio with focused instruction on modes and methods of architectural representation, using both manual drawing and computer modeling. Aspects of visual analysis,

orthographic projection, and architectural representation were introduced through lectures and then explored through a series of related drawing assignments. Principal projects focused on computer modeling, drawing and production of site material for ARCH 501.
Recent advancements in fabrication techniques, some of which have been appropriated from other industries, have begun to reconfigure the practice of architectural drawing. This class established the framework for a fluid working method between projective modes of architectural representation, three-dimensional digital modeling and drawing as a vehicle for expression. This course did not privilege one form of drawing over another; rather it sought to promote design flexibility, through the supple interchange of media; the practical demands for the negotiation of geometry and the freedom of imagination.

ARCH 522 Visual Studies II, Cathrine Veikos (coordinator),: Sarika Bajoria, Gavin Riggall, Igor Siddiqui, Patrick Stinger, Rhett Russo

This was a half-credit course that enabled students to develop a three-dimensional spatial imagination and the architectural drawing skills that index spatial inquiry and allow for its two-dimensional representation. Through a series of exercises, the course built on ARCH 521, interweaving salient skills from architectural drafting and free-hand drawing with digital three-dimensional modeling and rendering.
The work involved a high degree of precision, logical rigor and innovation. Synthetic understanding of space in three dimensions and mastery of the skills required to both project and simulate these in two dimensions was the goal of the series of workshops. The course placed emphasis on the speculative nature of drawings and their capacity to provoke the imagination and communicate ideas. As such, the workshops were complementary to design studio work; the drawings produced in transcended the problem of representation to become architectures in themselves. Our aim was to promote invention, thoughtful selection of techniques and their hybridization.

ARCH 531 Construction I, Laura Briggs

This course introduced students to the basic principles and concepts of architectural materials and technologies of fabrication and assembly. It described the interrelated nature of structure, construction and environmental systems.

ARCH 532 Construction II, Lindsay Falck

This course continued the introduction of materials and methods of construction begun in ARCH 531, focusing on light and heavy steel frame construction, concrete construction, light and heavy-weight cladding systems and systems building.

ARCH 533 Environmental Systems I, Ali Malkawi

This course undertakes to study human needs, comfort, performance and sense of well-being in relation to the physical environment, both natural and constructed, which occur in and around buildings. It introduces the mechanical systems in modern buildings with emphasis on tracing environmental, energy and waste problems that pertain to buildings. These problems make it imperative that architects be familiar with the systems that affect building energy use. Students gain understanding of those elements of buildings that contribute to their heat and cooling loads and methods for reducing energy consumption.

Different methods of analysis, evaluation, and simulation are introduced and employed.

ARCH 534 Environmental Systems II, William W. Braham

In this course we considered the environmental systems of larger, more complex buildings. Contemporary buildings are characterized by the use of such systems—ventilating, heating, cooling, dehumidifying, lighting, communication, controls—that not only have their own demands, but dynamically interact with one another. The relationship to the classic architectural questions about building size and shape are even more complex. With the introduction of sophisticated feedback and control systems, architects are faced with conditions that are virtually animate and coextensive at many scales with the natural and manmade environments in which they are placed.
The first task of the course was to understand those systems and their purposes in simple linear forms through analysis and calculation. The second task was to examine their dynamic interaction with one another—between lighting, cooling, and building shape for example—and with the environmental conditions they are meant to ameliorate.
Coursework included an environmental analysis of a room in a building on the Penn campus. Such investigations involve measurements and performance simulations of environmental behavior and documentation of the HVAC systems of the building.

ARCH 536 Structures II, Richard Farley

This course provided a study of structural elements and their assembly into building structural systems, concentrating on design principles and structural behavior. The analysis and design of two-dimensional elements (flat and curved) and foundation systems were covered, as well as selected topics such as dynamics and composite elements. The course focused on observing and experiencing structural behavior, as well as on the influence of the construction process on design of structures.

ARCH 611 History and Theory III: Problems in Knowledge and Design, Sanford Kwinter

This course treated the history of forms in the 20th century as an integrated whole within which architecture plays its historical role. Architecture was examined as a form of (plastic and concrete) thought and not simply as a technical practice or an applied science. It focused on the changing theories and notions of space that have shaped architectural production and reception. One can say that all history is the history of forms, yet we know little about what form really is or what it can do. There is no way to understand—or to practice—architecture without developing some feeling for what it is connected to, for the specific historical processes with which it communicates or in relation to which it is engendered.
To produce 'important' work, a designer must tap the same shaping forces that give form to the knowledge systems that make up the world in which she lives. Comprising our world, these forces remain practically invisible to us and yet represent the greatest reservoir of formal innovation available to design. In the end, all historically significant architectural arguments consist in building connections to—at once 'expressing' and altering—these underlying shaping forces in our world.
After the great gestures of intellectual emancipation that marked the 1960s and '70s, after the so-called 'death of the author,' etc. there ensued a crisis of thought and identity within the creative disciplines. What has not been produced yet as an answer (or even as a defense against the nihilism that followed) is a new theory of creation. (The concept of 'process' that came to the fore-

ground in architecture during this period just hides the problem rather than answering it.)
This course sustained examination of the problem of creation in the modern era and summarized the intellectual routes that architectural theory and practice have traversed since the Second World War. A principle goal of this course was to encourage the use of real research in design process by demonstrating a variety of relationships between design and ideas from the last century. Topics of lectures included the physics and metaphysics of creation from a wide variety of perspectives and disciplines—art, music, cinema as well as chemistry, mathematics, linguistics—slowly weaving them together to posit a general and non-classical approach to form.

ARCH 621 Visual Studies III, Cathrine Veikos (coordinator), Sarika Bajoria, Nicholas Desbiens, Fareh Garba, Steven Gastright, Ben Krone, Patrick Stinger

The final set of Visual Studies workshops extended the trajectory of ARCH 521 and 522 further into digital media, supporting new design directions by actively identifying the salient strengths and limitations of digital techniques. A series of intensive two-day sessions were held at critical points in the development of the studio project in ARCH 601, informing and supporting the studio work with digital techniques. Students were taught in their studio groups and instruction was tailored to be appropriate to the direction and focus of each of the studio sections.
The sequence of four exercises built on each other to nurture a synthetic understanding of space in three dimensions and a mastery of the skills required to both project and simulate its representation in two dimensions. Rather than limit the exploration to topological surfaces or animation-driven investigations of complex forms, the drawings were seen as a performative locus: visual repositories of data from which information can be gleaned, geometries tested, refined and transmitted. The workshops supported explorations into light, color, motion, structure, site, the body, subjectivity and materiality. Exercises could emphasize the representation of the formal properties of things made and their phenomenal effects, or representation of how the things are constituted, processes of assembly, hierarchical relationships or generative techniques. Students were encouraged to experiment with media-specific techniques and create hybrids by alternating and combining virtual and material techniques.

ARCH 631 Case Studies in Emerging Technology, Lindsay Falck

The course focused on current trends in technology being developed for the construction of buildings. In some cases, emerging technologies involve new techniques for processing or assembling previously used materials, as with structural glass walls, whereas in others, totally new materials and processes of production are evolving, as with composite materials, such as carbon-fiber and resins formed and processed in autoclaved molds. The ultra-high strengths of alloys of ferrous and non-ferrous metals are other examples of these new possibilities. The course also examined the rapidly changing methods of fabrication and on-site assembly of construction components, as in the CAD/CAM processes.
These emerging technologies relate to structural components, enclosure components such as those for roofs and walls, service and environmental control and to the processes of fabrication and on-site assembly techniques. Emphasis in the case studies presented by visiting lecturers and faculty was on the holistic nature of the design and construction process. This emphasis extended into the assignments undertaken by students in their analysis of a selected project, where all phases of design and building are studied.

Students worked in groups of no larger than three, and conducted their research through the following phases: overall descriptive program of the project, structural analysis, analysis of the building envelope, analysis of the environmental controls and service systems, and construction separates.

ARCH 632–001 Space and Structure, Peter McCleary

This course examined topics in the relationship between space and structure:
• the continuum from architectural space through geometric space to structural systems and materials;
• vector analysis (direction, orientation and magnitude) of the isotropy (directionality of activities) of space. Summary of spatial types: cave, hut, tent; or Classical, Modernist, raumplan, Constructivist, De-constructivist, smooth and striated, "complex," etc.;
• classification of structural systems by axes of restraint, degrees of freedom, dimensionality and geometry of curvature. Summary of structural systems: changing geometry of configurations; and compressive masonry, flexural steel and reinforced concrete, tensile planar fabrics and linear ropes;
• rheology of flow of force and axes of strength of materials;
• synthesis by integrating the weave of space with the warp and weft of the structural system and material;
• case studies: from stone to cast-iron and steel, from stone to reinforced and prestressed concrete; from masonry to cable-net and glass; from canvas to carbon fiber, etc.;
• readings from the humanities and the sciences; and
• exercises in transformations of material, structure and space.

ARCH 632–003 Material Effects, Jane Harrison

The potential of computer generated form appears inexhaustible. This surplus of form can be regarded as provocation to develop formal and spatial configurations that demand the new hybrid, synthetic and composite materials. The course embraced this but worked with an explicit focus on the performance of material in relation to both an emerging 'Ecological Consciousness' as it was termed by Gyorgy Kepes (1970), and the assumption that political and spatial transformation is always contingent upon the material environment. Consistent with this, material effects were understood as ecological effects, as much as a register of psycho-spatial, and technical performance.
Felix Guattari postulated, in 'The Three Ecologies' (2000), that 'without modifications to the social and material environment, there can be no change in mentalities.' He argued that this necessitated the formation of a new discipline, which he called 'Ecosophy', linking environmental ecology to social ecology and what he called mental ecology. We noted Guattari's anxiety and recognized the limitations of the word 'Ecology,' but considered it acceptable, and more generally recognizable, as an umbrella term for many connected fields, and patterns of relationship.
The course developed competence in inventive material design and developed criteria for discussing performative effects, which are verifiable by sensing what they do and how they work in reality—virtual, augmented or actual—and are related to an extended field of affects and effects, many of which are non-visual or defy explanation using image based media. The course included four possible categories of exploration: High Cost—'High Tech' materials, New Composites, Low Cost / Recycled Materials, Ultra-Low Cost and 'Junk' Materials.

ARCH 632-004 Parametric Constructions: An exploration on 'Virtual Standardization', Marta Malé-Alemany

The seminar and workshop investigated the role of the computer in the production of architecture, and its capabilities to change established paradigms of design. It examined how the specifics of computation may assist in combining creativity and efficiency, which could lead architects into new ways of facing and responding to design problems.
In particular, it focused on the alternative possibilities that are emerging from parametrics and associativity. This was considered at both the conceptual and the technical level, emphasizing the former as a foundational operative tool that is linked to a different design mentality. The seminar gave students an understanding of the theoretical and practical implications of parametric design, and the ability to think and develop an architectural project through principles of variation and adaptability.
The research aspects of this seminar were developed and deployed through the resolution of a small-scale design project. Given the production reality offered by CAD-CAM tools, the project looked at the subject of the architectural surface (i.e. building skin, interior partition or other) as a membrane that can "mediate" between multiple conditions (i.e. interior/exterior, private/public) and become a material "interface" that has the ability to index multiple sets of information, collapsing performative qualities with more formal or ornamental aspirations.
With parametric constructions, students generated designs that "orchestrated" the relationship between form and performance, and still contributed in the generation of specific and desired aesthetics effects. Students were encouraged to use the laser cutter to digitally fabricate prototypes of these constructions, in order to test the material and tectonic implications of their designs.

ARCH 632–005 Building Simulation, Ali Malkawi

Simulation is the process of making a simplified model of some complex system and using it to predict the behavior of the original system. During the past decade, advancements in computer technology made it possible for building simulation to be part of the design process. This course provided students with
1) an understanding of building design simulation methods
2) hands-on experience in using computer simulation models and 3) exploration of the technologies, the underlying principles, and the potential applications of virtual environments (virtual and augmented reality) as a simulation tool in architecture.
State-of-the-art computer models for thermal, lighting and acoustic analysis were introduced and their application in architectural design was explored. A building was analyzed throughout the semester in terms of:
• Climate and Site Analysis
• Energy and Passive Solar Systems
• Lighting and Daylighting Systems
• Acoustic Systems
• Virtual Visualization
• Design Integration

ARCH 632–006 The Reflexive Surface, Laura Briggs

The seminar and workshop explored the implications of emerging solid-state technologies for architecture and involved the design and full-scale fabrication an activated enclosure. The class intertwined laboratory workshops, theoretical speculation, and full-scale investigation.
Building surfaces steal light as they interrupt the projection of the sun's ray. The construction of the skin acts as a filter that interferes and modifies the quality of light and shadow through its apertures. With photovoltaic technology, light particles are literally absorbed within the substance and translated into agitated energies. Light becomes electric light, mechanical movement, and/or audiovisual information. The surface can perform.
The goal of this course was to explore a reflexive surface where one side receives and the other reacts. While building envelopes typically are made up of several layers that serve discrete purposes, the skins developed in this seminar interrelated parts across the thickness of the wall. We analyzed the role of the super thin layers of silicon, positively and negatively charged, which can be crystallized, cut, deposited, scored, into and onto multiple substrates. The very small compositions and patterns of these layers have the potential of radically different effects at different scales. The world of the microscope and the telescope, the minute and far away, served as guides and tools. Finally, the understanding of surface was not limited to two-dimensional plane geometries. Instead, the skin was asked to respond to the spinning axis of the earth and wandering toward the horizon with appropriate complex curvatures and/or planar intersections.

ARCH 638–001 Architectural Acoustics, Neill Woodger

This course began with an introduction to the fundamentals of acoustics including sound propagation, sound representation and measurement, sound transmission and associated materials, sound absorption and related materials, and reverberation time. After covering these fundamentals, the course covered the history of the development of performance space, principles of acoustic design of theatres, opera houses and concert halls. The implications of currently developing construction technologies, materials and design methodologies for the future of architectural practice relative to acoustic design were considered.

ARCH 638–002 High-Performance Building Envelopes, Alberto Cavallero

Last century's advances in digital representation, analytical techniques, systems engineering, mass manufacturing and mechanized construction have given us an unprecedented freedom in the technical feasibility of building. Yet along with this surge in ability we have developed an additional set of requirements for our buildings under the heading of "performance." Nowhere is this more clearly visible and critical than in the design of a building's external enclosure. We have succeeded in building walls that are increasingly transparent and ethereal, and simultaneously more resistant to wind and rain than their brick and stone predecessors.
Now that "high-tech" is no longer new, we are entering an era where we expect still more of building technologies. Rather than being satisfied with simply the appearance of technology, we continue to demand more from the actual performance of buildings, expecting them to improve the interior experience, to use natural resources judiciously, to tread lightly on the environment, and perhaps some day to produce more energy than they consume. Conversely, from an aesthetic point of view, we may become more sophisticated in our expectations for the experiential quality of these buildings, learning to understand glass and other materials as more than simply transparent and shiny.
This course focused on the parameters guiding the design, analysis and construction of high-performance building enclosures. A heuristic methodology formed the core of the course: By designing a portion of a wall for an actual project for the FDA, we critically studied the entire process of realizing a sophisticated enclosure. The result is both experimental and believable.

ARCH 638–003 Building Systems Integration, Richard Farley

The course examined various building systems from air distribution to voice and data systems and their effect on architectural design. Building Systems Engineers present design principles using case studies of high-rise construction, mid-rise and small-scale projects. The course also focused on high-tech buildings and the implications of sustainable design. Tall buildings provided the context for discussing the special considerations that height and volume introduce to a functioning modern building. Mid-rise commercial and institutional buildings facilitated the consideration of state-of-the-art application of mechanical, plumbing, electrical, telecommunications and data, fire protection, fire alarm and instrumentation controls systems. Laboratories and technology buildings were used as examples of advanced intelligent buildings that contain controlled and sensitive environments. Tailoring and optimizing the various approaches were considered around the issues of smaller scale projects.

ARCH 638–004 Lighting Design, William Braham

Light is a difficult subject for architects; it is too abstract, too much the subject of physics, metaphysics, perceptual psychology, and digital simulation. Architectural illumination is equally subject to the dictates of common sense, history, and of the inquiring, speculative gaze with which it is appreciated. While technical investigations produce admirable analytical standards, this course examines those generative topics that occur at the intersection of physical mechanisms and human curiosity. Following a rhetorical model rather than a scientific one, two such topics are Mechanism and Registration. These topics do not replace the rules that guide architectural lighting at a pragmatic level, such as "light the merchandise" in retail settings.

Nor do they exclude technical measurement and analysis. Rather they allow us to re-contextualize technical and pragmatic concepts, providing a critical position from which to initiate architectural design through light.

In the spirit of productivity, architectural illumination is generally taught and examined in terms of utility, according to the work it can do and the energy required to do it. Consideration of light for its own sake reverses that mode of inquiry, taking the same physical principles and material conditions as the source of invention. Mechanism and Registration are topical designations of illumination considered for its own sake, as in 'the play of light'.

ARCH 671 Professional Practice I: Settings for Architectural Practice, Harris Steinberg

This was the first of a two-semester workshop that familiarizes students with the organizational, institutional and legal contexts for practice. It opened doors for students through ties to leading practitioners and encourages critical reflection on the nature of architecture practices today. This initial workshop focused on the organizational design of a range of contemporary practices. Students developed an understanding of the logics of practice by visiting four architectural offices during the semester, from small to corporate firms, specialized to international practices.

ARCH 672 Professional Practice II: The Building Process, Harris Steinberg

This course was the second workshop on professional practice that addresses the organizational, institutional and legal context of architectural practice. It studied the building process from the viewpoint of the different participants. Students developed appreciation and understanding of the importance of the relationships between the key "players" in the building process by visiting architects, developers, clients, contractors and fabricators in their place of work. They explored the different roles of these players and asked how each figures into the building process as a whole. We examined the goals of the architect and ask if they at times conflict with those of the other members of the team.

ARCH 772 Professional Practice III, Peter Piven

This course addressed the nature, planning, management, and administration of professional disciplines in generally, and architecture, specifically. It began with an investigation of the concept of the Professional. We studied the law of agency and professional responsibility and liability. What characteristics distinguish a professional, their function in a differentiated market economy, the motivations of the practitioner and the inherent conflicts of those interests with the interests of her clients. The course addressed the marketing and the procurement of professional services, their value and role in the essential problem solving process, and the differences between product-based and process-based relationships.

Lectures outlined the forms and formation of the practice to include various organizational options. The subjects included business planning and financing; employment law and hiring practice; remuneration structures; marketing and sales; decision making and leadership. Having established a hypothetical fledgling practice, the student went through the sequence of events associated with solicitation and contracting of work. Lectures presented the law of contracts, torts and property as they apply to professional practice. Given a contract, the class examined various models of project delivery. The roles of professional associations, technical consultants, and various other profes-

sions were also discussed. Having investigated the interests of the practitioner, we turned to the perceptions and satisfaction of the client, and the risks and contingencies of practice, including professional liability, insurance and insurance law, risk assessment and management, and professional ethics.

ARCH 811 Advanced Theory I: Topographical Premises, David Leatherbarrow

This course provided students who are embarking on a career of scholarship in architecture with a first introduction to some of the principle themes and texts of the tradition, spanning the time of Alberti to Rossi, reading both primary and secondary texts. In addition to introducing these themes and texts, this course also aims to help students develop the practices that are typical of scholarly inquiry. To limit, somewhat, the abundance of thematic and historiographic material that could be covered, the course also had a topical focus, signified by its title: Topographical Premises, referring to both the premises of the architectural and urban site, and the conceptual underpinnings of the related disciplines. Part of the course's aim is to consider the potentials for conflict and agreement between these concerns, how the realities of the first call for reconsideration of the second.

Each week the three hour meeting time was divided into two parts: first, a presentation by one of the students on the week's topic and readings, and second, a concluding presentation by the professor, highlighting some aspects of the theme and introducing others that may have been overlooked. Each of these presentations was followed by a discussion. All participants prepare for the meetings by reading the texts that were listed on the reading list, and considering the relevant buildings, drawings, gardens, cities, paintings, etc.

ARCH 812 Advanced Theory II: Materiality of the Text, Kazys Varnelis

This seminar developed students understanding of the methods of scholarly inquiry by reading a selection of writings by architects, considering them within their disciplinary and cultural context and situating them with regard to the built objects that surround them. To give order to this broad undertaking, the semester was organized by the question of the "Materiality of the Text." To this end, we looked to the texts not only for the arguments they contain, but also as technologies organizing and structuring knowledge and production. The course investigated texts from Vitruvius to the present day as material objects that inform, and are informed by, architectural thinking. Throughout, questions of ordering, visuality, and excess were considered as were the dialectic between the need to consider documents and objects on their own terms versus the historiographic drive for broader frameworks. Authors read included Vitruvius, Palladio, Serlio, Perrault, Laugier, Sullivan, Loos, Le Corbusier, Gropius, Venturi, and Koolhaas.

Jenny Sabin: I chose to study graffiti in and around Hoxton Square. Graffiti is writing space. These marks connect one territory to another. Directed by my wandering eye, I used video to document the influence that this writing space had upon the texture of my walk. Through a series of abstractions the video revealed the space of graffiti. I then created stickers, postcards, t-shirts and a website, adopting tactics employed by graffiti artists to promote Graffitiscape.

ARCH 711 Transformations of the European City, Dalibor Vesely

The course challenged the conventional separation of the modern epoch from tradition to more critically at the complex and ambiguous nature of modern architecture and the European city. Leaving behind the one-dimensional vision of modernity, the course tried to answer what is modern not only in the instrumental (constructivist) tendencies but also in the less obvious expressive tendencies (mannerism, romanticism, expressionism and surrealism for instance).
The lectures were structured as a dialogue between the urban context of contemporary architecture and the history of changes in the fabric and culture of the most important European urban centers. The world of the city represents not only the culture of architecture, but also a framework in which its creative possibilities are mostly defined. The sequence of lectures addressed the transformation of European cities (and architecture) in relation to the divided representation in the baroque period, the first manifestations of modernity during the eighteenth century, the transition from the cosmologically based architectural order to historicism, the formation of modern aesthetics and the sublime, the romantic tendencies and their continuity in the twentieth century, instrumental thinking and its role in the formation of the modern movement complemented by modern subjectivism (psychoanalysis), the fragment as a paradigm of modernity, and the contemporary situation of simulated and virtual realities and tele-presence.

ARCH 712 Material Science and Materialist Philosophy, Manuel De Landa

This course examined concepts in materials science, stressing not only the usefulness of this knowledge for the purposes of design but also its intrinsic interest as a basis for a technically sound philosophy of matter. The course was shaped by the belief that architects benefit from a more detailed philosophical knowledge of the theoretical principles behind structural engineering. At the same time, it was informed by the idea that the creative use of computer software and digital simulations would benefit from additional philosophical resources. Specifically, the course highlighted new software that simulates biological evolution (so-called 'genetic algorithms' that may be used to 'breed' new architectural designs) and illustrates its value in the practice of engineering. The course integrated insights from two different areas crucial to contemporary design: material science and engineering, on the one hand, and computer simulations involving a host of new 'virtual materials' such as NURBS surfaces, particles and meatballs, as well as the intersection of these with the new evolutionary software.
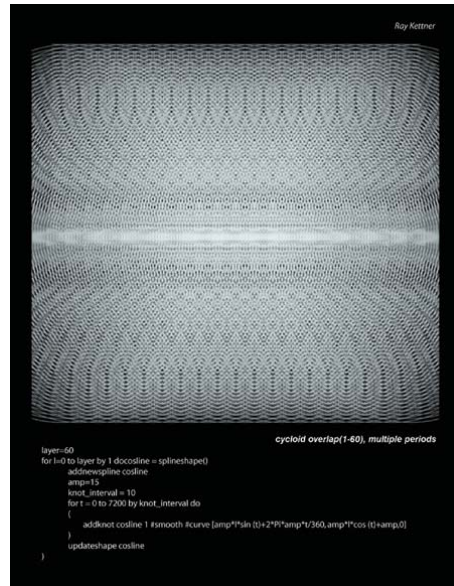The lectures began with an introduction to the theory of the genesis of material form elaborated by the French philosopher Gilles Deleuze and continued with a history of material science, a discussion of scale and in particular the issue of cracks, an overview of metallurgy and fracture dynamics, the mathematics of structure, and the consequences of nanotechnology. The concluding lectures addressed the materials revolution, organic materials, the mathematics of structure, and the technologies and concepts underlying virtual materials and ultimately virtual reality.

ARCH 713 Geometry and Matter, Cecil Balmond and David Ruy

If geometry can only be alluded to metaphorically, if it can be signified but not used, it follows that it cannot be the signifier in the way that, for example, the equilateral triangle was the signifier of the Holy Trinity in seventeenth-century art and architecture. Instead, the geometry itself has to be the thing symbolized or represented. It becomes the subject matter. This is indeed a momentous change of status. There had always been a sense in which geometry was architectural subject matter, but circumstances had never previously arisen where it was forced to be that alone. —Robin Evans
This seminar traced the astonishing and intertwined history of mathematics, physics and architecture since the 17th century as a prelude to considering the opportunities offered by new sciences and new cosmologies for architecture today. Topics included: Euclidean vs. Non-Euclidean geometry, Liebniz vs. Newton, projective and topological geometries, Riemannian manifolds, quantum gravity vs. string theory, cellular automata. Mini-symposia included guests from a variety of backgrounds, including Daniel Bosia, Sanford Kwinter, Jeff Kipnis, Peter Macapia, Philip Ording, Jesse Reiser, Ben Aranda, and Chris Lasch. Students were required to make individual contributions to an Advanced Geometry Manual. The manual will be an evolving compendium of research into advanced geometry. This year's specific contribution consisted of a large format graphic taxonomy of geometric models and an informal lexicon of critical terms.

cycloid overlap(1-60), multiple periods

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    }
    updateshape cosline
}
```

ARCH 714: Mies: In and Against the World, Detlef Mertins

An in-depth examination of the architecture and thought of Ludwig Mies van der Rohe (1886–1969) focusing on the modes of practice that he developed over the course of his career. In considering the entire career of a significant architect, students are encouraged to reflect on a range of issues, including the modus operandi of the architect—its singularity or multiplicity over many projects, clients, sites, and historical contexts—the relationship of buildings to the architect's theoretical statements and intellectual development; the relationship of architecture to urban design, art, and allied design arts; close readings of the formal and material attributes of specific buildings; the relation of form to historical contexts; the relationship of form to use and changes in use over time; and the psychological and experiential affects of architecture. Where critics and historians have tended to consider Mies's work as singular, this course explored the thesis that it can best be understood in terms of at least five semi-discrete models of practice each of which emerged during a specific period in his life. In every instance, attention was given to the techniques employed by the architect, their theoretical underpinnings and their effects on the occupant. Throughout, the course also considered Mies's work in relation to contemporary architecture and architectural theory.

ARCH 715 Seminar on Architectural Criticism: Memorials and Memory, Witold Rybczynski

Me·mo·ri·al: Something, such as a monument, intended to celebrate or honor the memory of a person or an event.
Since the beginning of civilization, people have built memorials in the form of monuments—steles, columns, arches, statues. The debate over exactly how to commemorate the victims and heroes of 9/11, particularly at the World Trade Center site, have raised—among other issues—the question of exactly what constitutes an appropriate memorial today.
Is there such a thing as a modern monument? Or is there a contradiction between the modern condition and monuments as Lewis Mumford suggested: "If it is a monument it cannot be modern, and if it is modern, it cannot be a monument." But even if the idea of a modern monument is accepted, what sort of architectural and artistic language is to be used? Individual memorials have often included figurative sculpture; have such monuments become obsolete? How far can abstraction take us? What is the relationship between the event or person being memorialized, and the monument itself? What role do acts of commemoration (e.g. wreath-laying, leaving mementos, personal visits) play? Is it necessary to believe in heroism to create monuments? And where does that leave a society that often confuses heroism with athletic accomplishment, celebrity, and victimhood.

This year the seminar in architectural criticism explored these and associated questions. We examined memorials—new and old—both in formal terms as well as in terms of content. The seminar included guests as well as a field trip to Washington, DC (Arlington, Lincoln Memorial, World War II Memorial, Vietnam Veterans Memorial, Korean War Veterans Memorial).

ARCH 717 Self-Organization and the Dynamics of Cities, Manuel De Landa

This course began with an examination of the geopolitics of urban history and in particular presented the hypothesis that it was the dynamics of medieval Western towns that supported the power of Europe as the prevailing power in this millennium, in comparison to the power of China and Islam. These dynamics existed in the interaction between capitals dominated by centralized decision-making and metropols dominated by decentralized decision-making. The thesis suggests that volatile trade, turbulent finances and arms races all acted as self-stimulating dynamics that characterized the economic and military life of the West since the early millennium.
On the basis of this proposal, a more speculative and philosophical analysis of the key concepts was undertaken, using Deleuze and Guattari's concepts of 'rhizome' and 'tree' as introduced in 1970, namely the possibility of understanding urban processes and forms through models of biological and geological processes and forms. The class concluded with a discussion of the potential of computer simulations to model urban dynamics in a bottom-up approach—beginning with populations of decision-making citizens—in contrast to a top-down approach, which begins with a small number of formulas intended to capture the dynamics of the city as a whole.

**ARCH 719 Architecture and Branding, Anna Klingmann**

Global culture has made its mark on cities of the 21st century. Due to international market forces, rapidly expanding information technologies, and the restructuring of cultural practices architecture is subjected to radical changes. We are confronted with the amalgamation of multiple categories—be it local with global scale, economic and cultural interests, private and public realms. Place and market, culture and economy, local authenticity and global consumer culture enter into a conglomerate of complex relationships.
Although the effects of global mass culture on space have been examined at recent symposia and in architectural periodicals, there are only few attempts to include and/or deduct architectural design strategies that might be adequate to the dynamics of economic globalization and its effects on the contemporary city. How do architects navigate within this highly commodified, ephemeral, and competitive terrain, formulate critical positions, anticipate future changes, and redefine method? In order to initiate their own autonomy in the market reality of globalization, architects have to change their role from passive service providers into proactive strategists, promoting vigorous involvement in both commercial and civic ambitions—not by smoothly bridging them but by emphatically intersecting them. Only by developing an ability to negotiate conditions without being fully subsumed can alternative models arise that have the power to mediate and advance market-oriented thinking.
Accordingly, the material presented in this seminar exposed the current conflict of architecture as an ambivalent construct caught between two imperatives: on the one hand to achieve autonomy of architecture as an independent cultural construct, on the other to break this autonomous status into an expanded field of mass-culture.

ARCH 722–001 Exchanging Surfaces: Between Line and Shadow, Marion Weiss

The making of architecture is executed through the reading of lines, mathematically described to indicate the boundaries and relationships of materials. Central to the act of drawing is the act of invention; illusion precedes realization. Line, surface, shadow, and perspective, explored through different media, are the language of inquiry. As a laboratory to test both analog and digital media, this course tested how modes of representation can reveal the qualitative aspects of spatial propositions. The course was organized as a series of loops between media, layering and capturing their intrinsic effects and intensifying the potential for new expression.
Running parallel to these investigations, the course included discussions with artists and architects exploring representations of space and form; visits to galleries, museums and architecture offices provided a window into the relationship between the instruments and media utilized to project built form and the preceding propositional representations. This course engaged the intuitive and ephemeral with the highly precise.
This course helped students explore ideas about:
• Natural light / artificial light
• Transparency / translucency / opacity
• Collage as field / collage as object
• Orthographic space / perspective space
• Reflection in darkness / reflection in light
The exchanging of surfaces explores the relationship between the goals of a project and the media of exploration, engaging the process of conceptualization with the process of drawing, recognizing that the act of drawing and the artifact of the drawing invite distinct possibilities for transformation.
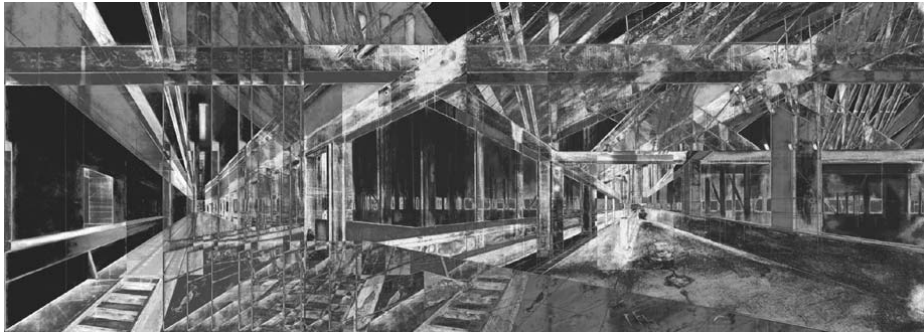
ARCH 722–002 Furniture Design, Andrew Jones

This course introduced furniture design concepts and strategies, and provided practical insights into the material manipulation and aesthetic experimentation that are the essential elements of furniture designing and making. Lectures and case studies helped students to learn from precedents and develop their own designs. Students were guided through a series of design exercises, culminating in the final project—a chair design fabricated in actual materials. Students learned about problems unique to furniture design such as scale, weight, cost, production, etc.. Students undertook five studio projects and one case study. The design processes used during the projects conveyed a sense of craft and precision. The final project focused on whether the project employs materials in making an appropriate structural chair design. Students were expected to consider carefully how the body is accommodated through heights, angles, and shaping.

ARCH 731 Experiments in Structure, Peter McCleary

Studies of the relationships between geometric space and those structural systems that amplify tension. Experiment using the hand (touch and force) in coordination with the eye (sight and geometry) during the construction and observation of physical models. Verbal, mathematical and computer models are secondary to the reality of the physical model.

In typology, masonry structures in compression (e.g., vault and dome) correlate with 'Classical' space, and steel or reinforced concrete structures in flexure (e.g., frame, slab and column) with 'Modernist' space. We seek the spatial correlates to tensile systems of both textiles (woven or braided fabrics where both warp and weft are tensile), and baskets (where the warp is tensile and the weft is compressive).

The experimental models are impressions of the type. Models are prototypes, expressions and 'things,' and types are the archetype, 'unsaid,' and 'before the being.' The structural type, or matrix, has its origin in suspension and hanging—as in a funicular rope with a centenary curve. The spatial type is the place of hovering—in a state of suspension between the earth and the sky.

The poetics of discovery, straightens the hanging rope. This inexplicable movement results from the introduction of a compressive diaphragm weft to the pre-stressed tensile warp—creating a series of hyperboloid of revolution spaces. As expectations are challenged, the experimenters, full of wonder, understand that space derives from the balance of the warp and weft achieved through the weaving of force (hand) and geometry (eye).

ARCH 732 Building Systems Integration, Ali Malkawi

The interrelationships of environmental control systems were explored by means of building type studies. Innovative systems are emphasized. Projects such as residential, educational and commercial buildings, office and assembly buildings, and facilities for research and manufacturing are analyzed in details. The operational characteristics of buildings are studied with regard to occupancies and their needs. The relationship between energy conservation and the principles of initial building cost versus life cycle costs are discussed.

The first part of the course analyzed the systems of several existing buildings. This study was accompanied by lectures about typical system components and basic sizing calculations and simulations. A visit of one building helped to understand the integration of these systems. The second part of this course studied an office building. The layout of this building was provided. The work began with a proposal for the building envelope. Based on this design and the functional needs in the building, the environmental control systems were developed through computational simulations.
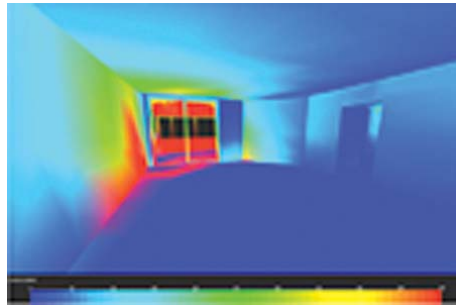
ARCH 734 Architecture and Ecology, Muscoe Martin

Architecture is an inherently exploitive act—we take resources from the earth and produce waste and pollution to make buildings. The construction industry, for example, is one of the single largest producers of greenhouse gas emissions in the United States as well as in other industrialized economies. Over the past ten years a growing awareness of the negative environmental consequences of construction has led many designers to look for ways to change how we design and build in order to lessen these impacts. These efforts have produced a number of revised construction techniques, innovative design tools, new products and marketing strategies, and have begun to have a significant effect on the building industry. However, the mainstream design world, in the U.S., has been slow to incorporate these approaches into either architectural theory or practice. This course explored the evolving notion of "sustainability" as it relates to the practice of architecture. We discussed how concerns about energy conservation, resource efficiency, open space preservation and indoor environmental quality are affecting the design of buildings. We learned to track the ecological scale effects o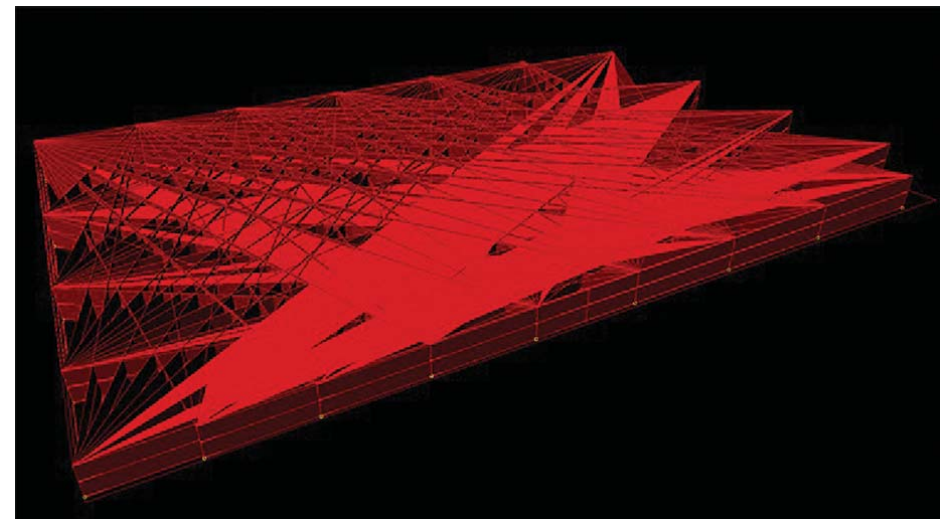f architectural design decisions. We critically reviewed the currently accepted metrics of sustainability including the LEED® Green Building Rating System, the Ecological Footprint and other indicators. We investigated the integral connections between urban design, landscape architecture and hydrological engineering and their impact on the environmental impact of development.

ARCH 739 Building Pathology, Samuel Y. Harris

This course addressed the deterioration and failures of buildings and their component systems. It included the technical aspects of materials and building failures, as well as the social and economic forces that also affect the fate of a built environment. Students were exposed to the techniques and vocabulary of construction, building failure assessment, restoration processes, and the techniques and methods of monitoring and testing buildings. Case studies were reviewed. For all of these topics, the course explored the various ways buildings deteriorate and fail physically, and the techniques of measuring and monitoring buildings for the purpose of assessing or foreseeing these changes.

ARCH 741 Experimental Design and its Effects on Architectural Form, Ali Rahim

This seminar explored the intellectual development and design techniques of experimental architecture using digital media and its associated effects on architectural form.

The pace of change in culture today, with the advent of digital media, is accelerated in part due to new technologies such as on-demand television, the Internet and electronic brokerage and banking. These developments represent an ongoing transformation from material to immaterial transactions. Experimental architects are clearly adapting to these advancements by shifting towards design techniques and methods of construction that are more responsive to these rapid and complex changes. New strategies have emerged based on the infinite number of ways that the digital medium is able to explore complex immaterial information. Some such design techniques and methods of construction include folding, chaos theory, complexity, self-organization, emergence, the formulation of new materials [polymer composites], methods of manufacturing (full scale printing machines, flexible mold systems), and project assembly systems (robotics and positioning systems). As a result, architectural forms and practices are increasingly pliant, inventive, adaptive, and capable of responding quickly to changing circumstances.

One of the most obvious characteristics in the application of the medium is the way in which it brings about changes to the design process and the production of architectural form. Understanding these changes relies on developing productive knowledge by investigating three distinct yet inter-related influences on experimental architecture. Intellectual development is comprised of an understanding of philosophy, cultural theory and technology. These three aspects combine and culminate in design techniques available today, and their various effects on organizational, programmatic, spatial, material, structural arrangements and manufacturing of architectural form.

ARCH 742 Digital Morphogenesis, Branko Kolarevic

In contemporary architectural design, digital media is increasingly being used not just as a representational tool but as a generative tool for the derivation of form and its transformation – digital morphogenesis. In a radical departure from traditions and norms of architectural design, digitally generated forms are not designed or drawn as the conventional understanding of these terms would have it, but are calculated by the chosen generative computational method. The emphasis shifts from the "making of form" to the "finding of form."

This course surveyed generative digital processes and their underlying computational concepts such as topological geometries, isomorphic polysurfaces ("blobs"), motion kinematics and dynamics, keyshape animation (metamorphosis), parametric design, genetic algorithms (evolutionary architectures), performance simulation, etc. Emphasis was given to parametrics, which allows designers to create an infinite number of similar objects. The course also addressed the emergence of repetitive non-standardized building design systems based on digitally controlled variation and serial differentiation, i.e. mass-customization.

ARCH 744 Digital Fabrication, Branko Kolarevic

The digital age is challenging not only how we design buildings, but also how we manufacture and construct them. In the conceptual realm, digital generative processes based on kinetic and dynamic systems, genetic algorithms, and parametric design are opening new territories for formal and tectonic exploration. The technologies of digital fabrication are creating a direct link between what can be conceived and what can be constructed. The implications are vast, as relationships between conception and production are being radically reconfigured by the digital "file-to-factory" processes.
The complex geometries that are now attainable have also produced a renewed interest among architects in materials, their properties, and their capacity to produce desired aesthetic and spatial effects. New materials offer unprecedented thinness, dynamically changing properties, functionally gradient composition, and an incredible repertoire of new surface effects. As a result, new building skins have not only new expressive qualities, but also new tectonic depths and new geometric complexities. This course addressed recent advances in digital technologies for design, fabrication, and material science and the unprecedented opportunities they created for architectural design and production practices.
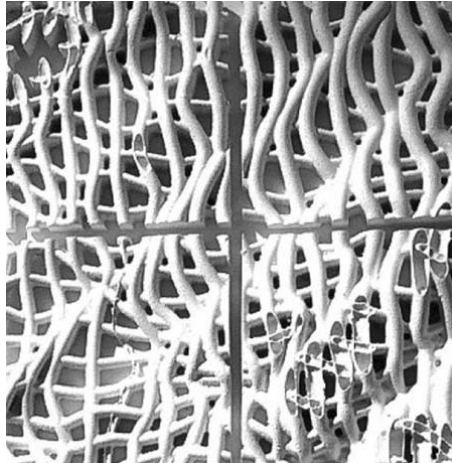
ARCH 745 Information Culture: The Web as Polis, Dean Di Simone

The ubiquity and ease of publishing content on the web has helped define a culture, a culture that architects are actively engaging by leveraging unique ideas of inhabitation and experience through graphical and technical means. The online medium has borrowed from many analog precedents including graphic design, film and architecture but finds its success in collapsing these models into a unique form of communication through experience in the evolving datascape. When this experience is coupled with theoretical and philosophical underpinnings, there exists the potential for an unprecedented medium of expression. The course identified and investigated different methods of structuring and dispersing information within networks, and explores the ways of using these methods to create a public forum. It reviewed parallels to urban phenomena, biological and natural organizational paradigms, AI and bionics. Case studies

provided the material for this investigation; assignments, the opportunity to develop one's own statement.
The course focused on two distinct components of our networked environment that comprise the way an interface is inhabited: navigation and spatialization. By focusing on these components, we attempted to undermine the linear and performative nature that exists in the PUSH medium of today's internet and draw from architectural ideas to create an unscripted experience. Exercises developed a tool-set to allow for the designer to create a public space, or 'polis', that extends the value of the internet as a communications and experiential tool.

ARCH 748 Advanced Digital Media: The Post-Medium Condition, Cathrine Veikos

Theorists in art, architecture and visual media have described the digital world as one of "mediumlessness" and proclaimed that "technological and cultural developments have together rendered meaningless one of the key concepts of modern art—that of medium." (Krauss) Although indebted to specific media-based techniques and their attendant ideologies, software removes the material reality of techniques to an immaterial condition where the effects of material operations are reproduced abstractly. The importance of the digital format is that it allows for maximum intermingling between the arts by eliminating the physical media that sometimes stands in the way of such interplay.
The "Post—Medium Condition" is exemplified by installation art, which has multiple histories and diverse influences, including architecture, performance art, sculpture, cinema, land art and painting. Installation art places new emphasis on the first—hand experience of the viewer. The viewer is not reduced to a disembodied eye, but is quite literally present. In its site-specificity and "supra-sensorial" preoccupations, it rehearses many architectural techniques such as those that organize and structure perception. Following the articulation of the premises of this contemporary work, and its antecedents in movements like Minimalism and Concrete Art, which also sought a return to material realities, the seminar will focus on the reintegration of material phenomena into the digital realm. The antinomies, material and ephemeral, will be explored through contemporary examples in architecture as a dynamic condition of built surfaces which are simultaneously opaque and evanescent, intricate and monolithic.
In this course students studied the materials, joining, and innovative assemblies of building skins and screens. In a workshop format, students developed digital simulations and material constructions of dynamic, structurally- and -ecologically -responsive surfaces that respond specifically to environmental and constructional realities.

ARCH 752 Case Studies of Urban Design, Gary Hack

In this course, urban design is taken to mean a subset of projects that are designed to change the public realm of cities. Design is important as a way of framing the issues, examining possible outcomes, and providing an agreed upon destination. However, urban design situations are usually characterized by multiple actors, lengthy times for implementation, objectives that shift over time, and often indeterminate outcomes that must be reconsidered as events unfold. Ideas are the central currency of urban design. They need to be powerful and clear enough to capture the imagination of those who will lead the effort to implement them. The best urban design ideas can usually be conveyed through a small number of powerful images or metaphors that transcribe a plan into compelling need. This plan, and the ideas underlying it, must be context specific—one size does not fit all. Urban design involves several important habits of mind: thinking

of the next larger context when conceiving of any action; considering how a place will be actively changed over time; recognizing the past history of a place, while designing for the future; and thinking strategically in terms sequencing. Considering the cases over the course of the semester, we looked for the ways that these attitudes are expressed through drawings, words, plans and images. This course was an opportunity to examine the many processes of design and implementation of complex urban development projects. Over the course of the semester, the class analyzed thirteen important examples of urban design, ranging from design of a small village to the largest most complex urban design plans in cities across the globe. Most cases were presented by the designer or developer responsible for the project.

ARCH 762 Design and Development, Witold Rybczynski

This course provided an introduction to the relationship between architectural design and real estate development. The examples discussed focus on buildings in which we live, work, and shop, and illustrate the important role that architectural design can play in real estate development. Topics included housing design, commercial buildings, adaptive reuse, downtown development, mixed-use projects, and planned communities.

ARCH 765 Project Management, Chip Arena

This course introduced students to techniques and tools of managing the design and construction of large and small construction projects. Topics included project delivery systems, management tools, cost-control and budgeting systems, professional roles. Cost and schedule control systems were described. Case studies illustrated the application of techniques in the field.

ARCH 768 Real Estate Development, Asuka Nakahara

Through this course, students may become better decision-makers and real estate leaders, understand and assess the risks in real estate development and investments, be more productive in their first job, and familiarize themselves with the real estate development process. The course focused on "ground-up" development as well as re-hab, re-development and acquisition investments. We examined the similarities and differences of traditional real estate product types including office, R&D, retail, warehouse, lodging, single family and multi-family residential, mixed use and land. We also analyzed "specialty" uses like entertainment retail and golf course development, and relatively new concepts like New Urbanism and timeshares. Students learned the development process from market analysis, site acquisition, zoning, entitlements, approvals, site planning, building design, construction, financing, and leasing to ongoing management and disposition. Special topics, like workouts and running a development company, were discussed. Throughout the course, we focused on risk management. In a business filled with uncertainties, minimizing risks results in maximizing long run profits.

ARCH 773 Metamorphosis: Strategies of Transformation in Architecture, Landscapes and Urban Design, Tony Atkin

This course investigated the transformation of the existing character of the site, the program, and the architect through a building project. The evolution of buildings, urban forms, and landscapes is examined through the study of the determinants and strategies of their modification. To inform our study, we examined concepts of metamorphosis in mythology, literature,

biology and cultural anthropology, and compare them to architecture and landscapes.
We grounded the investigation through an interpretive study of the building processes in the pre-historic societies of Southwest America, ancient and contemporary Japan, Renaissance Rome and Turin as well as the contemporary work of Carlo Scarpa, Alvaro Siza and Juan Navarro Baldeweg, among others. Students investigated an aspect of metamorphosis in architecture, urban design or landscape through an interpretive study of their own design, developed in consultation with the professor and presented to the class.

ARCH 780 Architecture in Education, William Braham

AIE is a 20+ year program of teaching architecture in Philadelphia area schools run by the American Institute of Architects. As participants in the AIE Program, students have the opportunity to work directly with children in the classroom making an impact on their lives and on the future of our neighborhoods and cities. Students work with a classroom teacher and a design professional to develop a weekly series of eight (1-1/2 hour) interdisciplinary experiential lessons using the built environment as a laboratory to create stimulating new ways of seeing, learning, and doing. Students participate in the course on a volunteer basis or may receive one half course unit of credit. For information about the program please visit the AIE web site http://www.aiaphila.org/.

ARCH 790 Architectural Culture: From Theory to Research, David Turnbull

This course examined the scope of research culture as it has developed in architecture over the past decade and as it evolves to address new conditions. The three themes that structure this course are: World_Cities, Building_Effects, and Mind_Bodies. These themes subtend from an economic and political discourse of globalization, and encompass the ecological imperative and opportunities related to the widespread use of digital media.
The course opened with a trajectory charted by Joan Ockman and Michael Hays which starts in the mid 1940s, notably the Bretton Woods N.H. conference of 1944 which established the IMF, World Bank, and ultimately the WTO, the apocalyptic conclusion to the 1939–1944 war in Europe and Asia, and the ensuing struggle to rebuild devastated cities. Hay's book ends in the early 1990s, where this course starts, with the release of Nelson Mandela, the collapse of the Soviet Union, the demolition of the Berlin Wall and—in the wake of a period of remarkable technological transformation—the proliferation of desk top computers, the catalytic invention of the world wide web (in 1991) by Tim Berners-Lee, and developments in mobile communications, the HIV/AIDS plague, ecological crisis, economic globalization and War. A different audience and different tools transform architectural speculation. In place of the reflexive and critical preoccupations of "theory" and its purposefully problematic relation to practice they propose practices of "research" and of design as research.

DISSERTATIONS

An Archaeology of the Fragment:
The Transition from the Antique Fragment to the Historical Fragment in French Architecture Between 1750 and 1850
Yusuf Civelek; Supervisor: David Leatherbarrow

Although architects before the time of the French Enlightenment often made use of historical forms in their designs, this practice radically changed between the years 1750 and 1850. The fragment itself changed, as did the ways it was used. The transformation of the fragment followed three stages: it changed from the antique, to the elemental, to the historical fragment. Through the course of this transformation, design also changed, it came to be understood as composition. This dissertation describes the history of this transformation in consideration of writings by French author-architects, as well as their designs. It also shows how the new conception of the fragment gave birth to the next stage of architectural history: eclecticism.
Mid-eighteenth-century changes in European architecture were prompted by growing familiarity with recent archaeological work especially in Italy, the country of ancient ruins. In France, antique fragments were adopted initially as formal and spatial motifs that enriched architectural design by means of picturesque effects, inspired by paintings and Piranesian etchings. Later, these fragments gradually became regular elements of architectural composition. Charles Percier and Jean-Nicolas-Louis Durand, two disciples of Boullée, took over his imagery and technique of composing with antique fragments, but relied less than he did on the building's picturesque and sensationalist aspects. Composition in elementary antique fragments underlay the neo-classical architectural education at both the Ecole des Beaux-Arts and the Ecole Polytechnique in the beginning of the nineteenth-century.
In the 1830s, a group of pensionnaires argued for freer assembly of architectural elements that would allow diachronic reading of historical fragments as opposed to synchronic antique-looking motifs. Architects like Henri Labrouste, Léon Vaudoyer, and Félix Duban preferred imitating the historical progress of architecture over Greco-Roman elements and compositions. Eclecticism taught them that mixture of antithetical things gave birth to something new after a transitory phase. While neoclassical architecture imitated the mature architectural representation of a distant past, eclectic architecture of the romantic-rationalists imitated the immature expressions of the architecture in transition. The buildings of the second group revealed a new problem of representation in architecture, a problem that had begun to emerge already in the architecture of the eighteenth-century: the problem of style, expressed most famously if pathetically in the early nineteenth-century as a question: "in what style shall we build?

Imaginary Figures of Death and Life in the Architecture of Grandjean de Montigny
Milton Vitis Feferman; Supervisor: Joseph Rykwert

The central theme of this dissertation thesis is that many architectural works produced at the end of the eighteenth century in France, while programmatically distinct, incorporate images drawn from a common set of ideas and images.
One observes that during a long historical period, philosophical, religious and even secular ideas—reproducing constant and repetitive imaginative narratives—coalesce around certain central themes: the representation of an earthly pilgrimage that, after conquering a symbolic path of sins and difficulties, arrives at a "space" that represents liberation; images of the garden of Eden, of the primitive ladder to the heavens, and of the spatial "ambitus" that forms the imagined illustration to the ancient text of the "Tabula Cebetis."
To illustrate these concepts, two exemplary architectural models executed by the French architect Auguste-Henry-Victor Grandjean de Montigny (Paris, 1776–Rio de Janeiro, 1850) are utilized: an Elysée or Cimitière, selected for the Academy's 1799 Grand Prix competition and his house built in the Gávea section of Rio de Janeiro, Brazil.
The initial section describes the context and parameters of the design competitions at the École de Beaux Arts, in Paris, at the end of the eighteenth century, illustrating the similarities and differences in the approach to imagery of the projects presented by students. The conditions for the development and conception of a new civic theme in French cemeteries is examined, particularly as exemplified in the works of the architects Durand-Thibault and especially in the works of Etienne-Louis Boullée in his seminal work for a Temple of Nature.
The formal and symbolic strategy for a cemetery presented by Grandjean de Montigny is analyzed, with a description of how symbolic ideas and spatial narratives were appropriated and adapted to form a new symbolic formatting for this novel architectural program.
Finally, this dissertation analyzes how these ideas and symbols contributed equally to the development of a personal project—the construction of Grandjean's residence in Brazil—describing how they were appropriated and adapted not only to a new program of domestic habitation, but also to a new physical, social, and architectural environment that characterized Brazil in the mid nineteenth century.

Leberecht Migge (1881–1935) and the Modern Garden in Germany
David Henderson Haney; Supervisor: David Brownlee

The dissertation research was initially based on the question of the role of garden and landscape in German modern architecture of the early twentieth-century. The results of this investigation have conclusively proven that although the subject of land and garden in connection with modernism has been under-emphasized, especially in non-German historical narratives, these were central concerns of the period. One garden architect emerges as the most significant of the period, Leberecht Migge (1881–1935). Migge was a close colleague and collaborator of many important modern architects including Hermann Muthesius, Ernst May, Bruno Taut, and Martin Wagner. Although he was a talented garden designer, his greatest significance comes from his ability to synthesize practical and theoretical developments from a variety of fields, including architecture, garden design, urban design, social reform, agricultural reform, and ecological gardening. He was a central figure in four great movements: garden and park reform, urban planning, the Siedlungen (housing settlements), and organic architecture and planning. For the dissertation, his extensive body of work including books and articles as well as theoretical and built projects has been carefully analyzed not only within the context of his biography, but also within overall developments of the period. Perhaps his single most significant contribution to architectural theory was his own redefinition of the primitive hut, a figure that he probably took from Le Corbusier. Migge argued that the original dwelling had been purposely constructed as a movable or temporary structure in order to facilitate relocation in search of food or new ground. Thus dwelling in its most fundamental form not only provided basic shelter, it was also an expression of dwelling as biological act, and thus symbolic of the essential integration of human life with the organic systems of the earth. Though the technology of the period was often not sophisticated enough to effectively realize his ideas, many of his conceptual paradigms are of such a fundamental nature that they remain relevant to contemporary discussion.

Leopold Eidlitz:
Becoming an American Architect
Kenneth Franklin Jacobs; Supervisor: David Leatherbarrow

Leopold Eidlitz (1823–1908) was born in Prague and trained in Vienna as a land manager, a position in which he would have worked for the Austrian government as a building inspector or designer of small, rural structures. He came to the United States seeking work as an architect in 1843. Arriving alone, he quickly settled into American society, and within three years moved from a job with Richard Upjohn, the English-born designer of Trinity Church, Wall Street, into his own practice. He subsequently married into an old New England family and began a career in which he worked with the most prominent members of the New York City and State political and architectural communities Although Eidlitz's architectural ideas were progressive, they were not unique for their time. He held that a building's massing should emerge from its plan, that materials should be used in a rational manner, and that ornament should be used to enhance structure, materials, and function. For these reasons, some have considered him an organicist or proto-functionalist. However, his philosophical and architectural concerns were more complex.
Eidlitz approved of the emerging convergence of engineering and architecture, but he also believed in the socially redemptive role for art advanced by German Idealist philosophers. He considered architecture to be an art and was certain that science would assure its progress by eliminating the arbitrariness associated with indefinable and unsupportable notions of "taste." In this way, art would be reconciled with technology and assure its progress. Emulation of or rupture with the past would not be necessary for architecture because beautiful forms would be valued for the knowledge they imparted rather than the precedent they conveyed.

DISSERTATIONS

Building in the Air:
Aspects of the Aerial Imagination in Modern Italian Architecture
Ross Jenner; Supervisor: Joseph Rykwert

Franco Albini, a little-theorised architect, is usually included unproblematically in the mainstream of modernist architecture. This thesis examines little noticed elements in his work, endeavouring to show how they deviate from, but are also integral with, modernist principles. Albini's work is examined in relation to his precursor Edoardo Persico and his contemporary Alberto Sartoris. Emphasis is placed on Albini's prewar works. The theme of lightness is developed for the period from Futurism to the 1950s, following motifs of transparency, ascension, displacement, floating, and suspension. Albini's genealogies are traced through themes of lightness in earlier buildings; the impact of flight on construction and vision; in Abstraction, Metaphysical art, and Magic Realism—each drawn out from and typified by readings of a particular work. The metaphor of suspension is employed as a heuristic device to elaborate configurations as yet little considered. Whereas Sartoris' hovering axonometric images were caught between a rationalism of functionalism but also of ratio (a transcendent surpassing of material and earth), suspension in Persico and Albini was a freedom within, rather than from, materiality.
Suspension is as much a withholding as it is freedom and release. Both architects explored suspension literally—but also, embracing paradox and irony, metaphorically. Marginalised and suspended politically, they were confined to the ephemera of exhibition and installation design. Their work, consciously or unconsciously, became an image of their condition. Temporal suspension, anticipation, surprise, suspense, and the un-actualised—connoting potentiality—materialised as frames, grids, white surfaces, and figures drawn from aeronautics. Empty space, just as real as solid bodies, became a medium of the irreducibility of potentiality to actuality. Though holding to the principles of functionalism, Albini's 'unreal levity' extended to paradox as suspension of logic, irony as suspension of self, and grace as suspension of the weight of necessity in play and the oneiric.
Not considered major architects, Persico and Albini, nevertheless, provide through their play with suspension and potentiality rich material for a re-examination of current accounts of modernist grids, white walls, and 'immateriality'.

Towards a Draped Architecture:
An Examination of Theatricality, Virtuosity, and Ambiguity in the Recent Works of Frank O. Gehry and Others
Açalya Kıyak; Supervisor: David Leatherbarrow

Since the late nineteenth-century architects and historians have made comparisons between clothing and architecture considering modern clothing as a metaphor for modern architecture. The argument of this study is similar in the sense that drapery has been considered as a metaphor for the billowing surfaces of contemporary architecture. It argues that in the current practice of architecture there is a shift from tailored architecture towards draped architecture where its exterior surface appears like a drapery loosely laid over buildings. Looking at paintings and sculptures by a variety of artists and sculptors this study explores the crossovers and intersections between the representation of drapery in art and in architecture. It examines the notion of drapery emphasizing: (1) its theatrical and festive character; (2) its simultaneous attempt to create ambiguity and curiosity; and (3) its relationship to the concepts like autonomy, opacity, and permanency; and (4) finally how it becomes an important means of displaying and celebrating technological virtuosity. Each chapter ends with a critical assessment of a recent building by Frank O. Gehry who could be seen as the best representative of draped architecture in order to demonstrate the different instances of its paradoxical representations. The Richard B. Fisher Center for the Performing Arts at Bard College in Annandale-on-Hudson, New York, the Experience Music Project in Seattle, and the Jay Pritzker Pavilion in Millenium Park in Chicago, all coincide in their theatrical, ambiguous, and virtuosic qualities. The motif of drapery considered both literally and in its metaphorical dimensions opens topical questions that are pertinent to the current architectural practice. Given the materiality and weight of the building, rendering of a drapery is not an easy task. Nonetheless, as this study revealed, it becomes a vehicle for displaying technological virtuosity, theatricality, and mystery.

Façade-Poche:
Performative Representation of Thickened Window-Walls in the Works of Marcel Breuer, Richard Neutra, and Jose Luis Sert
Hayub Song; Supervisor: David Leatherbarrow

Facade-poche, a term introduced and defined in this dissertation, designates the surfaces and inhabitable depths enclosed with "thickened" window-walls in late modern buildings. It is configured by platforms, window-walls, and overhangs, all of which create well-shaded, inhabitable, and external depths. Unlike a facade that behaves as a visual object, like a picture plane in the street, the inhabitable depth of the facade-poche makes the building and site operative for human use. Particularly in late modern architecture, thin window-wall configurations began to adopt sectionally thickening elements in order to improve its function of sunshading and lessoning glare. Meanwhile, the thin window-wall as a representative modern style was exploited as a voyeuristic tool and picture frame. At the same time, technical considerations of moderating glare and sunlight prompted the instrumental development of new glazing systems and sunshading devices. Yet, both drives neglected the patterns of use that occur in the transitional space between the building and the site, the facade and the street.
My emphasis on human use is motivated by a desire to redirect considerations of 'form and function' toward the questions of 'what a building does to us' and 'what a building represents.' This theoretical direction will question traditionally divided architectural representations—iconic, tectonic, structural, and regional—and propose a more embracing mode of architectural presence, the performative representation. Performative representation will be differentiated from functional aesthetics by considering the topics of the site and the life practices, which present tasks beyond technical and aesthetic ones. Selected examples of the facade-poche from postwar America—the works of Marcel Breuer, Richard Neutra, and Jose Luis Sert, representatively—will support this proposal and provide a diversity of human use, both in non-urban and urban situations. I will argue that these facade-poches sustain the renewal of human use and in doing so, represent traces and possibilities of inhabitation from the scale of intimate to urban experiences. This argument suggests a new concept of the physiognomy of architecture in the perception, construction, and interpretation of the facade-poche. While the philosophical tradition of physiognomy, i.e. body and soul correlation, gave rise to an expressive, but merely surficial facade, another tradition—the anonymous but shared tradition of cultural praxis—has given rise to another facade, one that is thicker, inhabitable, and expressive of life.

Architecture in the Manner of Giovanni Battista Piranesi:
Ornamental Excess and the Apotropaic Function of Grotesque Representations
Franca Trubiano; Supervisor: David Leatherbarrow

Giovanni Battista Piranesi's architectural representations have made significant contributions to the historiography of early modern architecture. His achievements in this regard continue to enthrall many a contemporary scholar solicitous in identifying the larger polemical and theoretical context within which he imaginatively depicted architectural figures. This dissertation maintains Piranesi's inventive manner was largely characterized by his return to the prodigious number of ruins which demonstrated the presence in antiquity of forms of figuration incongruous, licentious and capricious. So vast had been their numbers, Piranesi adopted their eccentric characteristics in the creation of his own genres of representation. And revealing the extent to which he recognized in their midst ancient modes of 'grotesque' figuration is the aim of this dissertation. Foremost in his embrace of antiquity had been the enthusiasm with which he penned hundreds of pages of text and etched thousands of ornamental fragments, sites which had privileged architecture's narrative dimension. His obsessive preoccupation with paintings, sculptures and furnishings revealed, moreover, an unremitting fascination for ornamental surfaces. In this regard, he explored two distinct settings; the subterranean grotto and the pastoral landscape, locations in the Roman campagnia to which he had been compulsively attracted throughout his career as both had demonstrated the presence in antiquity of a plethora of grotesqueries whose meaning Piranesi sought to decipher. To this end, he undertook a journey to the origins of ornaments in ancient ritual practices. Seminal in this regard had been the ancient city of Herculaneum in whose excavated fragments a culture endowed with a surplus of 'licentious' manners had been recognized. During the 18th century this ancient territory's capricious proclivity was theoretically construed. And in hundreds of ornamental artifacts, forms of figuration were celebrated for their apotropaic functions. Ancient griffins, serpents, satyrs and sphinxes endowed with talismanic powers proliferated throughout the Bay of Naples, and their presence evidenced ancient forms of Bacchic worship. Piranesi's unequivocal attention to this family of figures is the focus of this dissertation. For with every frenetic act of interlacing, he sought to resurface a narrative dimension of architectural ornaments increasingly obfuscated by modernity.
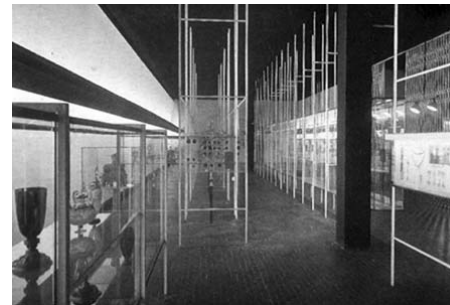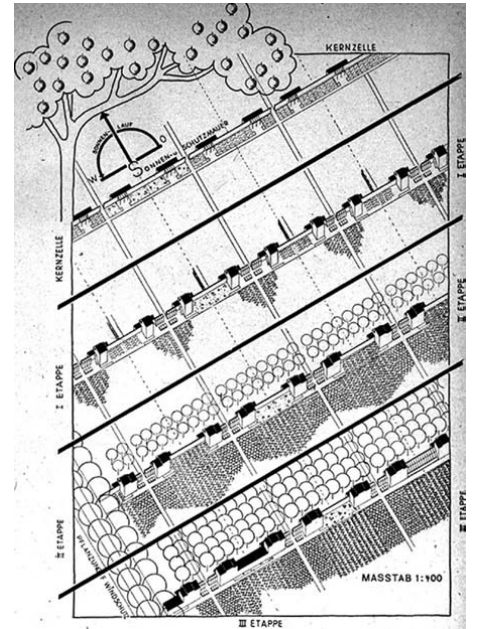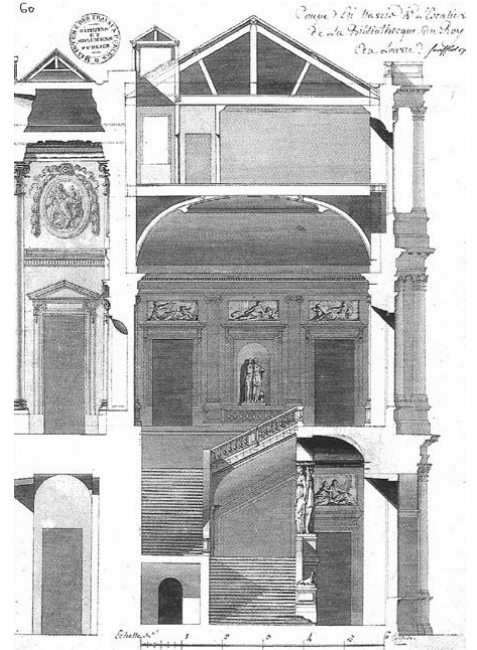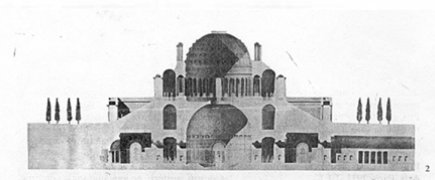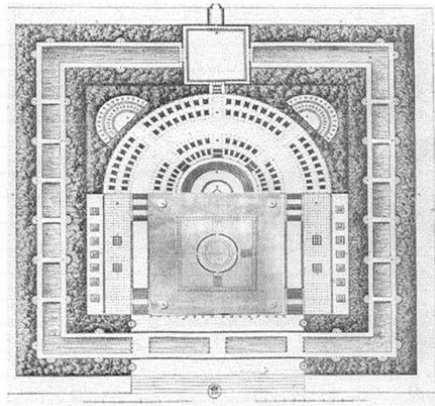
EVENTS

FALL 2004 LECTURE SERIES

"Ant Farm and Beyond"
Chip Lord, Professor, University of Santa Cruz
September 9

"Your unintended consequence"
Olafur Eliasson, Berlin
September 14

"Toward a Theory of the Architectural Program: Between Cybernetics and Utopia"
Anthony Vidler, Dean and Professor, Cooper Union
September 30

"Enduring Innocence"
Keller Easterling, Professor, Yale University
October 18

"Microinfrastructures"
Luca Galofaro, Professor, University of Santa Cruz
Ian + Rome, Universita Degli Studi Roma TRE
November 8

"Transparency and the Glass State: La Bibliotheque nationale Francois Mitterand"
Annette Fierro, Professor, University of Pennsylvania
November 18

"Articulating Complexity"
Patrik Schumacher, Zaha Hadid Architects, Professor, Architectural Association, London
November 22

BOOK LAUNCHES

Topographical Stories: Studies in Landscape and Architecture
David Leatherbarrow
November 15

Advanced Building Simulation
Ali Malkawi and Godfried Augenbroe
November 15

SYMPOSIUM

ReCovering Post-War Europe Art and Architecture 1945–1970
October 8–9
A joint Architecture and History of Art PhD Conference organized by Alexander Eisenschmidt, Jonathan Mekinda, Meredith Malone, and Julia Walker. Sponsored by the Departments of Architecture and History of Art with support from Penn's Institute for French Culture and Technology and the Institute of Contemporary Art.

Space Making and Social Meaning
"Theorizing Social Space: Aldo van Eyck and the Realm of the 'In-between'" / Dr. Annie Pedret, Illinois Institute of Technology
"The Ethics and Aesthetics of the Tabula Rasa" / Lucia Allais, MIT
"Socialist Architecture in Romania, 1960–1970" / Juliana Maxim, MIT
"The Child at CIAM: The Negotiation of Agency and Control in Postwar Architectural Discourse" / Roy Kozlovsky, Princeton University

New Technologies, New Techniques
"Welcome to the Machine: Art and the Technological Society in Post-War Europe" / Dr. Stephen Petersen, University of Delaware
"A 'Regional Multi-National' Design Geography of IBM" / John Harwood, Columbia University
"Realism 'through the Immaterial'" / Kaira Cabañas, Princeton University
"May 1968 and the Question of the Image" / Victoria Scott, SUNY Binghamton
"The Rise of Panel-Technology in 1950s Czechoslovakia" / Kimberly Zarecor, Columbia University

Urban Intervention
"Metropolis: A Tale of Some Cities" / Dr. Hadas Steiner, University of Buffalo
"Townscape in Context" / Mathew Aitchison, University of Queensland
"Positioning Wolf Vostell" / Benjamin Lima, Yale University
"The Architectural Arms Race Across the Berlin Wall" / Inez Weizman, Architectural Association

Memory and Recovery
"Matter and Memory in Post-War France" / Rachel Perry, New York University (Paris)
"The Problem of Memory in Situationist Artwork and Painting" / Karen Kurczynski, Institute of Fine Arts, NYU
"Luigi Non's Intolleranza 1960" / Adrian Duran, University of Delaware
"A Surplus of Memory: Envisioning the Future of Old Warsaw" / David Snyder, Princeton University

EXHIBITION

Urban Life: Housing in the Contemporary City
September 7–December 10
Organized by the Architecture League of New York
Sponsored and exhibited by Facilities and Real Estate Services of the University of Pennsylvania

This exhibition featured twenty recently completed urban housing projects from cities around the world. Drawing from cities including Paris, Vienna, Osaka, and London, the exhibition brought together housing projects that offer creative answers to these questions and suggested innovative or provocative points of comparison with housing design efforts in the United States. Architects include Frederic Borel, Neave Brown, Coop Himmel(b)lau, Bill Dunster, Koning/Eizenberg, Michael Pyatok, Stanley Saitowitz and many others.
The exhibition was organized around six 'perspectives on housing,' which serve as criteria for evaluating the projects as urban strategies. Three perspectives focus on different levels of scale: body, building, and city. Three more consider approaches to implementation: environment, technology, and issues of finance and development.

SPRING 2005 LECTURE SERIES

"Recent Projects and Workshops"
Kinya Maruyama, Professor, Arts and Architecture School, Waseda University, Team Zoo, Tokyo
February 7

"Personal Ground"
Ada Karmi-Melamede, Architect, Tel-Aviv
February 9

"A New Kind of Science"
Stephen Wolfram, Founder and CEO, Wolfram Research, Champaign
February 15

"Massive Change: The Future of Global Design"
Bruce Mau, Bruce Mau Design, Toronto; Director, Institute Without Boundaries, George Brown College, Toronto
February 24
Sponsored by Skidmore, Owings & Merrill, LLP

"Perverse Ecologies"
François Roche, R&Sie, Paris
March 16

"Immergence"
Mark Goulthorpe, dECOi, Boston/Paris, Associate Professor, MIT
March 24
Sponsored by Ewing Cole

"Grotesque Mutations, Horrific Variations"
Hernan Diaz Alonso, Xefirotarch, Los Angeles; SCI Arc
April 7

BOOK LAUNCHES

Architecture as Signs and Systems for a Mannerist Time
Robert Venturi and Denise Scott Brown
January 19

Performative Architecture: Beyond Instrumentality
Branko Kolarevic and Ali Malkawi
April 14

PENNDESIGN CHARRETTE 2005

Slots and the City?
February 10–13

In 2004, Pennsylvania joined the ranks of states with legalized gambling upon the passage of legislation allowing fourteen slot machine venues totaling 61,000 machines across the Commonwealth. The 2005 PennDesign Gaming Charrette aimed to test the physical implications of this legislation. Over the course of one weekend, 106 PennDesign students in 22 multi-disciplinary teams investigated how quality urban design might integrate gambling into the urban fabric of America's fifth largest city. The charrette addressed more than design of a casino—it presented the opportunity to investigate the impact of a casino on its larger urban context. The principles of urban design explored by the charrette were meant to help bring design issues to the forefront and provide vivid examples that could be infused into the public debate.
The charrette was launched with presentations by Rick Burcik, Ian Cope, Stan Eckstut, David Gouvernor, Jennifer Lendler, Paul Levy, Steve Mullin, Andy Nothstine, Tyler Pollesch, Don Rypkema, Sandy Shea, Harris Steinberg, Mayor John F. Street
The Philadelphia Daily News published the winning submissions and honorable mentions for both proposed gambling sites along with news stories and editorials about the charrette and the partnership with PennDesign. The News carried a special report of the charrette and gaming related articles as part of their Rethinking Philadelphia series.
In May 2005, PennDesign students presented the results of the charrette and the three architectural design studios from the spring semester to the Philadelphia Gaming advisory Task Force at the Mayor's Reception Room in City Hall.

SYMPOSIA

Resistance
Spiegel Symposium 2005
March 17–18

Resistance, the first annual Spiegel Symposium, was jointly organized by the Institute of Contemporary Art and Penn's departments of Architecture, Cinema Studies, Fine Art and History of Art.
It was held in conjunction with the exhibition "Accumulated Vision: Barry Le Va," at the Institute of Contemporary Art, curated by Ingrid Schaffner.
Labeled "anti-form" or "scatter art," Barry Le Va's aggressive, room-scale installations of felt and glass challenged viewers of the late-sixties and seventies. This symposium explored themes of "resistance" in the culture and politics of the period, from Vietnam protest to punk and the furthest reaches of contemporary art, music and literature. Barry Le Va and Greil Marcus gave keynote lectures.

Panels:
The Trouble with Resistance
Ingrid Schaffner, Chrissie Iles and Klaus Kertess
Moderated by Christine Poggi
Resistance in Architecture
David Lewis, Mark Wasiuta and Alexander Eisenschmidt
Moderated by Detlef Mertins
A Cinema of Resistance
David James and Peter Decherney
Moderated by Tim Corrigan
Down and Dirty: Art in the Distributional Field
Beverly Semmes, Allen Ruppersberg and Ingrid Calame
Moderated by Robert Storr

Scarcity and Excess: Biology, Ecology, and Design
An evening symposium: March 31, 2005

On the surface of the globe, for living matter in general, energy is always in excess; the question is always posed in terms of extravagance. The choice is always limited to how the wealth can be squandered. —G. Bataille
A well known environmental architect relates a parable about a flowering fruit tree in which he observes how excessive and inefficient it seems to produce so many blossoms. He uses this observation to chastise other environmental designers for their obsession with efficiency (and sustainability), and urges them to adopt the more nuanced measure of "eco-effectiveness." It is a powerful parable, but it also points at many more difficult questions about sex, waste, complexity, and mortality, questions which lurk behind any attempt to make general analogies between nature and design.
In response to such questions, the Department of Architecture convened an evening symposium to explore contemporary ideas about biology, ecology, and design. Faculty from many disciplines discussed different approaches to the issue, from direct study of biological examples to generative design techniques that simulate ecological complexity and variety.
Beauty, innovation, resilience, and complexity are virtues that have long been admired in organic systems. They formed the subject of the symposium.

Participants:
William W. Braham, Laura Briggs, James Corner, Leif Finkel, Ali Malkawi, Detlef Mertins, Jean-Michel Rabate, David Ruy, Cathrine Veikos

STANDING FACULTY

Tony Atkin recently received commissions for a dormitory at Dartmouth College, an art and archaeology museum for Wesleyan University, and a new master plan for the University of Pennsylvania Museum in association with David Chipperfield of London. The firm's work on the Penn Alexander School in West Philadelphia received an urban design award from the Urban Land Institute. He received a grant from the J. M. Kaplan Fund for the publication of Structure and Meaning in Human Settlements (Fall 2005), which he co-edited with Professor Emeritus Joseph Rykwert.

Cecil Balmond was commissioned to design the Master Plan for the redevelopment of forty-three acres at the Battersea Power Station in London. He collaborated with Alvaro Siza and Eduardo Souto de Moura on the Serpentine Pavilion in Hyde Park, London, and with Rem Koolhaas/OMA on the CCTV Building in Beijing, China. He also designed the Coimbra Pedestrian Bridge in Coimbra, Portugal and was commissioned to design a pedestrian bridge for the University of Pennsylvania. He gave the Felix Candela Lecture for 2004 at the Museum of Modern Art.
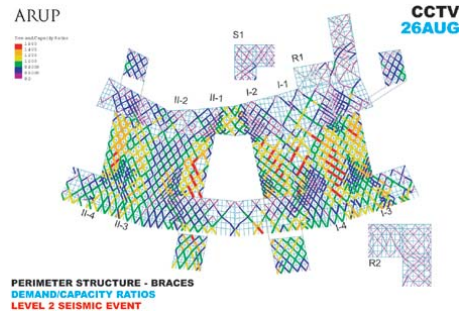
David G. De Long published Auldbrass: Frank Lloyd Wright's Southern Plantation (Rizzoli).

Winka Dubbeldam's Greenwish Street Project in New York was completed and included in the Venice Biennale of Architecture, Metamorph, curated by Kurt W. Forster. She gave lectures at Columbia University, the National Building Museum, Montana State University, Tulane University and participated in the Arquiecture Vanguardista Internacionale conference in Mexico and the Een Utopisch Vacuum conference at the TU Delft. Her exhibition "From Hardware to SoftForm" traveled to the H&R Galeria in Mexico City. Her work was published in many venues, including the journals Metropolis, Icon, Surface, Architectural Record, Monument, Made in Holland and Esquire, and the publications New York Minimalism, Metropolis, and Architecture & PC: La Rivoluzione Digitale in Architetettura. She is currently working on an eco resort and two residences in Panama, the Museum for Contemporary Design in the Netherlands, and a variety of projects in New York and Philadelphia.

Homa Farjadi's project for the Madrid Campus of Justice was exhibited in Madrid while her Kelung Project for Taiwan Gateways toured through the Ministry of Tourism. Her recent work was featured in Memar and Dialogue. An interview was published in Abadi magazine in Tehran. She won second prize in an international competition for the Keelung Maritime Plaza in Taiwan. Her current work includes master plans for Manzanares River Linear Park in Madrid and Atlantic College Dormitories in Wales, an apartment building in Manchester, two residences in London, and temporary installations at the South Bank Centre London.

Stephen Kieran and James Timberlake of KieranTimberlake Associates LLP achieved major commissions including the west Campus Residential Initiative, Cornell University, the Philadelphia Theatre Company, and the new Sculpture Building at Yale University's School of Art. Together, they received several American Architecture Awards, an Honor Medal of the Pennsylvania Chapter of the AIA, and a Residential Architect Award. Their work was published in Architectural Record, Architecture, Interior (Taiwan) and The Architect's Journal. Both gave numerous lectures and, together, were appointed Max Fisher Visiting Chair at the University of Michigan. Kieran was also appointed the Bruce Goff Visiting Professor at the University of Oklahoma.

Branko Kolarevic and Ali Malkawi published their edited volume Performative Architecture: Beyond Instrumentality (Spons Press), which followed their highly successful conference of Fall 2003. Contributors include Godfried Augenbroe, Jean-François Blassel, William Braham, Jan Edler, Thomas Herzog, Harald Kloft, David Leatherbarrow, Peter McCleary, Ali Rahim, Mahadev Raman, Craig Schwitter, Lars Spuybroek, and Andrew Whalley, as well as the editors.

David Leatherbarrow published Topographical Stories: Studies in Landscape and Architecture (University of Pennsylvania Press), "Architectural History by Architects" (Journal of the Society of Architectural Historians Newsletter). He gave lectures at University College Dublin, National Building Museum, University of Cambridge, and Edinburgh University and keynote addresses in conferences at Silpakorn University in Thailand, La Villette in Paris, Cardiff University, and the University of Newcastle. Sam Ridgeway's interview of Leatherbarrow was published in Architecture Theory Review.

Ali Malkawi was promoted to Associate Professor with tenure. He edited a special issue of the Journal of Architectural and Planning Research on Advancements in Computational Simulation and published articles in Automation in Construction, Architectural Engineering and Design Management, and Energy and Buildings Journal. He gave papers at the annual CAADRIA conference, the world Renewable Energy Congress, the American Solar Energy Society Conference, Conference on Computer Graphics and Vision (Moscow), the Iberoamerican Congress of Digital Graphic Conference, and the first International Conference "From Scientific Computing to Computational Engineering." His Building Simulation Group started publishing a monthly on-line newsletter, Innovative Insight, on subjects concerned with simulation and sustainability. He also gave lectures at Harvard University, Chinese University in Hong Kong and Tsinghua University in Beijing.

Peter McCleary chaired a panel and gave a paper at the 3rd Annual Hawaii International Conference on Arts and Humanities. He lectured at Tsingua University Beijing, Miami-in-Paris, American Academy in Paris, and Institute for Lightweight Structures in Stuttgart. He published essays in Performative Architecture: Beyond Instrumentality and Ueli Brauen & Dory Wàlchli 1999-2004.

Detlef Mertins published essays in Walter Benjamin and Art, CASE: Lafayette Park, FOA's Arc: Phylogenesis, and NOX: Machining Architecture. He gave lectures at the University of Venice, Akademie der bildenden Künste Wien, California College of Art, Illinois Institute of Technology, University of Illinois Chicago Circle, Columbia University's Collins Kaufman Seminars in Art History, a Board meeting of Skidmore, Owings & Merrill, and a conference in honor of Robert Geddes at Princeton University.

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26AUG

PERIMETER STRUCTURE - BRACES
DEMAND/CAPACITY RATIOS
LEVEL 2 SEISMIC EVENT

NEWS

Enrique Norten won the Mexico Prize for architecture, the Leonardo da Vinci World Award of Arts 2005. His recent work in New York was the subject of an exhibition at the Museum of the City of New York, titled New York Fast Forward: Buildings by Enrique Norten/TEN Arquitectos. The show featured his competition winning project for the Brooklyn Public Library for the Visual and Performing Arts and the Harlem Park mixed-use project at 125th Street and Park Avenue, which combines a hotel and apartments in a thirty-four storey tower. The show also included the Chelsea Arts Tower and One York Street in Tribeca. Norten also designed the exhibition installation for The Aztec Empire at the Guggenheim New York and was chosen to design the new Guggenheim in Guadalajara. His 750-acre JVC Center, also in Guadalajara, is being done in collaboration with Toyo Ito, Jean Nouvel, Wolf Prix, Daniel Libeskind, Thom Mayne, Steven Holl, and the late Philip Johnson. Norten's design for the giant dome will form its centerpiece. A large-format monograph on his work was also published this year by Landucci Editores, with critical essays by Jorge Volpi and Silvia Lavin.

Ali Rahim was selected for the "Design Vanguard 2004" issue of Architectural Record magazine and included by Zaha Hadid in 10 x 10_2: 100 of the worlds most exceptional emerging architects (Phaidon). He participated the Non-Standard Praxis conference at MIT, the Performative Architectures conference at Technical University Delft and gave lectures at Harvard University, Ohio State University, SCI Arc, the AIA New York Chapter, and the Universidad Francisco Marroquín, Guatemala. His work was exhibited in Visionica 2005 (Centro de Cultura Antiguo Instituto, Spain), "Structures Ephemeres pour la Ville d'Athenes" (Fondation Hellenique, Paris), "Fast Forward. Hot Spot. Brain Cells" (First Architecture Biennial Beijing), "Performativity in Architecture" (TU Delft, curated by Kas Oosterhuis), "Sign as Surface Select" (Florida International University) and "Newest Tendencies in Architecture" (Municipal Gallery of Lamia, Greece). His current projects include a commercial office tower in Dubai and a light fixture for Ivalo Lighting.
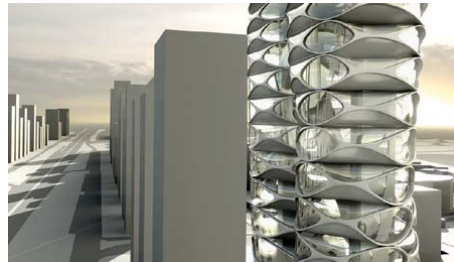
Witold Rybczynski became Architectural Critic for the on-line magazine Slate and also published the articles in New York Stories, A Journey Through Texas, and American Monument. The Perfect House: A Journey with the Renaissance Master Andrea Palladio was published in German and Japanese, The Look of Architecture, also in Japanese) and One Good Turn: A Short History of the Screwdriver and the Screw in Chinese. He gave lectures at the Preserve and Play Conference, National Park Service, Chicago, Sotheby's Institute of Art, New York and The Mount in Lenox, Massachusetts.

Joseph Rykwert, Emeritus Professor, was nominated for the prestigious Gold Medal of the Royal Institute of British Architects. He lectured widely and is co-editing Structure and Meaning in Human Settlement (Fall 2005) with Tony Atkin.

Harris Steinberg organized the PennDesign 2005 Charrette, "Slots in the City" in partnership with the Philadelphia Daily News; the results were published in a special section of the Daily News. He was a lead designer and convener of the Franklin Conference on School Design (www.upenn.edu/civic/franklin) organized in partnership with the editorial board of The Philadelphia Inquirer. The forums brought citizens and experts together to draft civic design principles and hold a design charrette, the results of which were published by The Inquirer.

Cathrine Veikos received the 2004–05 Rotch Traveling Studio Scholarship for her research on "Experimental Surfaces, Phenomenal Effects" in Sao Paulo and Salvador de Bahia, Brazil. She presented papers at the national and international meetings of the Association of Collegiate Schools of Architecture.

Marion Weiss won the Academy Award for Architecture of the National Academy of Arts and Letters in recognition of the strong personal direction of her work. Her competition-winning project for the Seattle Art Museum—Olympic Sculpture Park and Exhibition Building—was featured in the exhibition, Groundswell: Designing the Contemporary Landscape at the Museum of Modern Art. An exhibition of her recent work, Surface/Subsurface, was presented at the University of Virginia, while her design for the Olympic Rowing Facilities for New York City 2012 was included in the Pan American Architecture Biennial in Quinto. Her work was published in numerous magazines, including Metropolis, Architecture Today, Slate, Architects Newspaper, and Architectural Record. It was also published in As Built, edited by Clare Johnson, OPEN: New Designs for Public Space, by Raymond Gastil and Zoe Ryan, and Metropolis, 5th Sao Paulo International Biennial of Architecture and Design. Weiss lectured at the Center for Architecture New York, the Art Institute of Chicago, Iowa State University, Cooper Union/Architectural League, Parsons School of Design, Speed Museum Louisville and the Museum of Modern Art New York. New projects include a mixed use arts building for Barnard College, New York; the Brooklyn Botanical Garden Visitors Center; Lower Manhattan Urban Design Studies for the area surrounding the Brooklyn Bridge/FDR; and the Center for Peace at the Greentree Foundation.

Dean DiSimone's Nike Genealogy of Speed Exhibition in New York was featured in Metropolis, AIGA Annual, SPA-DE Magazine, and Communications Arts. His entry to the MoMA PS1 Young Architects Competition was published in Praxis and his recent work was featured in the Taschen publication Best Portfolios. He completed websites for Mazda Crossport and Mazda Miata, the Camilo Vergara Urban Image Database, and the online exhibition Cezanne and Pissarro: Pioneering Modern Painting for the Museum of Modern Art. He designed the new digital gallery of student work for the Architecture Department at Penn, which is now part of the Department's website: http://www.arch.penndesign.net/ and started a new firm, Crimson Design Group.

Lindsay Falck created a prototype of a possible tent structure to be used on Penn's campus for special events. The prototype was commissioned by Penn's Facilities and Real Estate Services division and is located in their lobby at 3101 Walnut Street. The prototype follows from a two-year PennPraxis study of tents for the campus that also involved Peter McCleary, RFR in Paris and Nicholas Goldsmith of Future Tents in New York.

Andrew Jones was commissioned to design the Olo Guest Chair family for Keilhauer as well as the Ripple High Density Stacking Chair.

Srdjan Jovanovic Weiss won the commission for Stadium Culture, a center for recreation and new media in Novi Sad, Serbia, and completed the Rubber Bar at the Swiss Institute of Contemporary Art in New York.

Inge Rocker and her students from Spring 2004 mounted the exhibition "Re-coded: Studio Rocker" at the Aedes East Gallery in Berlin.

David Ruy exhibited Rogue Wave, a site-specific installation in collaboration with Karel Klein and Paul Mayoda, at the Pace Digital Salong, New York.

David Turnbull and Jane Harrison won the commission to design the communications infrastructure for the thirty-eight acre development of the Battersea Power Station in London. They also prepared the communications infrastructure and e-learning strategy for the South Eastern University of Sri Lanka as part of their tsunami recovery work.

NEWS

STUDENTS

Kevin Fennell, Meaghan Pierce-Delaney, Rachel Johnson, and A J Pires won an honorable mention in the open design competition for The Parachute Pavilion at Coney Island, organized by the Van Alen Institute, New York. Graduates Mayva Marshall-Moreno, Adam Montalbano, Patrick Stinger and Roman Torres won Third Prize in the same competition.

Kevin Fennell won the Skidmore, Owings & Merrill Travel Fellowship awarded to one graduating student in architecture in the U.S. each year. He will undertake a comparative study of the different pressures for modernization in Istanbul and Athens. Turkey's desire to join the EU and Athens' "city building" for the 2004 Olympics present two different cases for modernization in cities with ancient histories and multiple empires.

John Moran won a Fulbright Grant to research sustainable architecture in Ireland. He will be working with the Faculty of the Built Environment at the Dublin Institute of Technology.

A J Pires edited and Christian Munoz designed a publication of the fifth Women in Design Symposium (Spring 2003), which proposed projects for the Strawberry Mansion neighborhood in Philadelphia. The publication is titled, 2003 Strawberry Mansion Charette. A digital version is available in the Publications section of the Department's website.

Ian Baldwin and Angela DeRiggi edited and produced the first edition of the PDprimer, Fall 2004, whose goal was "to inject breadth, transparency and perhaps a bit of ease into everyday life" at PennDesign.

PRIZES AND AWARDS GIVEN TO STUDENTS

American Institute of Architects Henry Adams Medal
First Prize: Jenny Elizabeth Sabin
Second Prize: Carmen A. McKee

Arthur Spayd Brooke Memorial Prize
Gold Medal: Jenny Elizabeth Sabin
Silver Medal: Matthew Krissel
Bronze Medal: Junseung Woo

Paul Philippe Cret Medal
David Kevin Fennell

Paul Philippe Cret Prize
Andrew Schlatter

Harry E. Parker Prize
Nicholas Wallin

Alpha Rho Chi Medal
Stephanie Feldman

Warren Powers Laird Award
Cheuk Yue J. Wong

Charles Merrick Gay Scholarship
Ximena Valle

Samuel K. Schneidman Fellowship
Hormuz Batliboi

Frank Miles Day Memorial Prize
Nikoletta Stagias

Harlan Coornvelt Memorial Medal
Lauren McManama

Mario J. Romanach Fellowship
Jessica Brams-Miller

James Smyth Warner Memorial Prize
Adrienne Yancone

Faculty Prize
Eric Spencer

Walter R. Leach II Fellowship
Andrew Schlatter

T-Square Club Fellowship
So Jung Lee

Mr. and Mrs. William L. Van Alen Traveling Fellowship
Eric Ellingsen

Will M. Mehlhorn Scholarship
500-Level
First Prize: Nikoletta Stagias
Second Prize: Meagan Born
Third Prize: Eli Pearlman-Storch
600-Level
First Prize: Mary Barensfeld
Second Prize: David Friedman
Third Prize: Hormuz Batliboi
Ph.D., M.S. Architecture
Asseel Al Ragam
Grace Ong

Donald Prowler Memorial Prize
Jennifer Vander Veer

Albert F. Schenck- Henry Gillette Woodman Scholarship
First Prize: Lisa Schwert
Second Prize: Theodore Slowik
Third Prize: Brandon Gehrke
Honorable Mention: Megan Born, Todd Bennett, Katy Min, Amy B. Campbell, Jean Pierre Casillas, Jae Young Jang, Peter Rae

E. Lewis Dales Traveling Fellowships
Alejandro Biguria
Lucio Blandini
Halee Bouchehrian
Benjamin Cadena
Isabel Castilla
Michelle Cianfaglione
Adam Goodfellow Davis
Olga Drobinina
Robert Graustein Jr.
Sung Ho Hong
Amy E. Johnson
Christopher Junkin
Do-Hoon Kim
Myunghoon Kim
Kazuyuki Morihata
Diego Pacheco
Stephen Pitman
Sang-Hun Rim
Aaron Ryba
Todd Shapiro
Yongjoo Shin
Ximena Valle
Christina Yaron

The 2005 John Stewardson Memorial Competition Fellowship
Winner: David Kevin Fennell
Finalists: Matthew Paul Krissel, Joel R. Wenzel

John Stewardson Memorial Scholarship
First Prize: David Kevin Fennell
Second Prize: Hongsoo Lee
Third Prize: Jenny Sabin
Honorable Mention: Joel Wenzel, Luciana Couto, Matthew Krissel, Josh Mackley
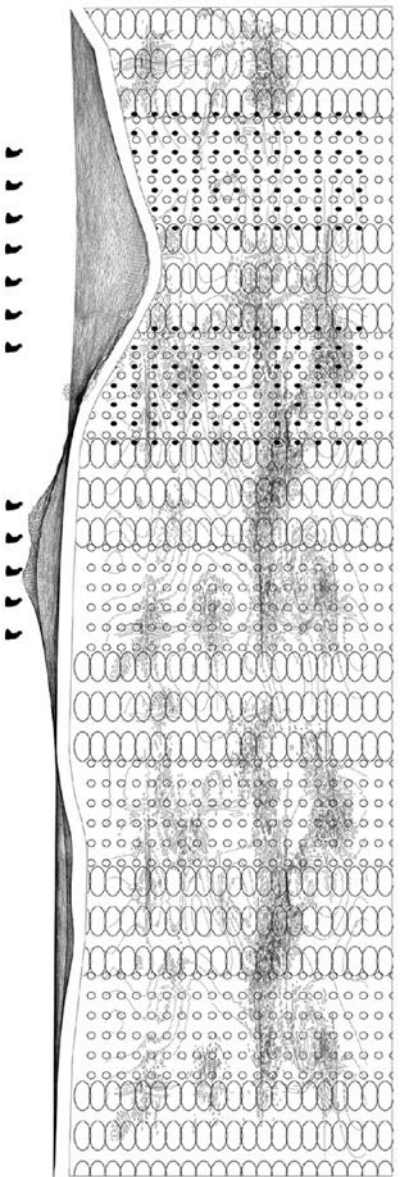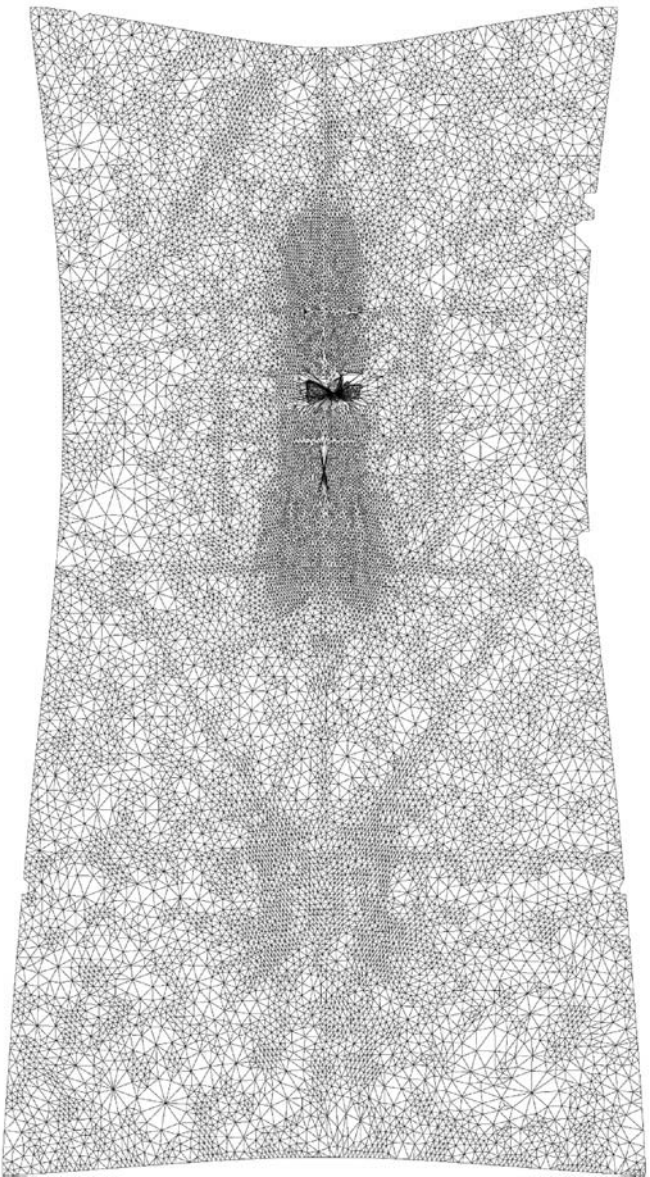
Kevin Fennell: A mosque and community center for the Muslim community in Mechanicsburg, Pennsylvania. Winning entry for The 2005 John Stewardson Memorial Competition Fellowship.