2010

Design and Technology Workshops 2006|2010

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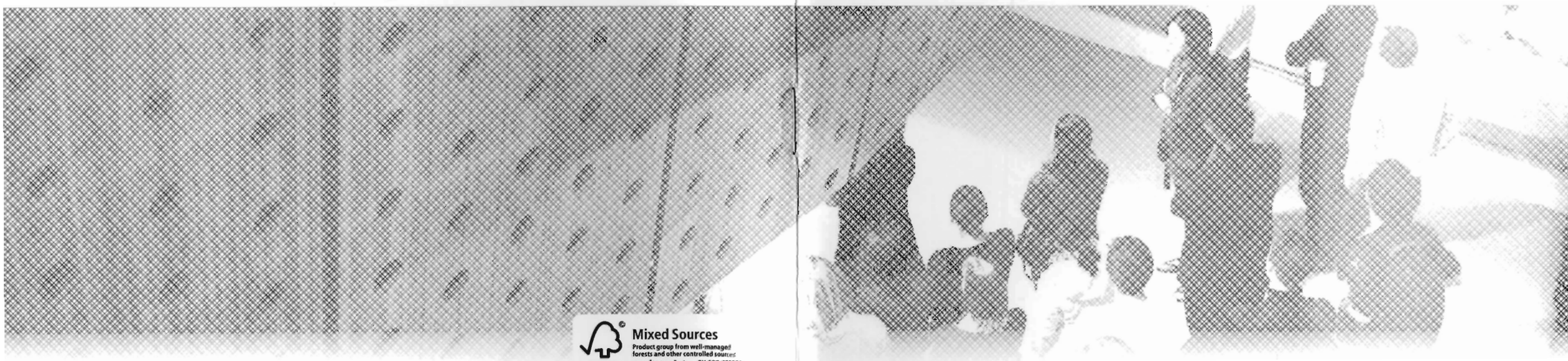
DESIGN AND TECHNOLOGY WORKSHOPS

2006 | 2010

SYRACUSE ARCHITECTURE



DESIGN AND TECHNOLOGY WORKSHOPS

are a key feature of the Syracuse Architecture M.Arch1 program. All first and second year students and their faculty participate in these two-day events that reinforce the need to integrate all aspects of the core curriculum. Working in teams, students focus on ways design ambition can be provoked by advanced technology, from mechanical or building systems to digital media and fabrication. Readings, research and lectures introduce timely issues, while the requirements and short time-frame of the projects compel new ways of working and teaching. The modes of collaboration and production that emerge in the workshops creatively extend the fundamental knowledge and skills introduced in core courses. Because these workshops allow a particular topic to be intensively investigated, new ideas and techniques enter the shared discourse of the program. Most important, the workshop experience prepares students to meet the challenges of a rapidly changing world that demands innovation and intellectual agility.

Mark Linder

Chair of Graduate Programs, 2005-2010

SHAFT

Jeremy Edminson ▸ Fall 2006

Shafts in tall buildings may account for 15% of the floor space. There are shafts for mechanical ventilation, communication, electricity, plumbing, fire safety apparatus, elevator shafts, perhaps even the fire stairs. This workshop considers expanding shaft habitation to include human life and wild life. The primacy of efficiency is thus called into question, as desire, pleasure and distraction become tactics of attraction. In these shafts, architecture resists the banal, vertically extruded, mechanically efficient service shaft. Architecture's resistors might include program, circulation, daylight, nightlight, ventilation, form, thickness, and bio-diversity. These resistors should be used in a critical way to re-shape and re-schedule the shaft.

Assume the shaft is a vertical void space within an otherwise typical tall building: a passive ventilation system "piggy-backing" onto a significantly reduced mechanical system. Each team will be assigned two plan typologies and two sectional typologies documented in the attached sheet produced by Buro Happold. Negotiate those four conditions using projective geometry. To give the resulting assemblage coherence, each team must create a continuous shaft that performs to the engineering standards for a passive ventilation system. Each shaft will be tested for effectiveness within a site model using a smoke machine. Construct at least one physical model, 500' tall at the scale 1/16" = 1'-0". The model will be inserted into a generic "site" and tested for its natural ventilation capacity. A drawing showing the intended airflow of the shaft at 1/16" = 1'-0" is also required. The model(s) will be rated on three criteria: Engineering Inventiveness, Ventilation Test, and Architectural Resistance. Each team will make a three minute presentation of the ideas and research that led to their re-configuration of the shaft.

'SCAPES

Douglas Garofalo ▸ Spring 2007

In a world where cultures, territories, borders, markets, and political or religious regimes are at once fluid and effective, architecture is shifting from compositional, object-oriented discourses to an interest in fields, ecosystems, networks, infrastructures and other emergent and dynamic logics, from the intensive development of programmatic and event driven design research to sustainable or green architectures. A crucial generative and operative component of these new 'scapes is collaboration. Diverse arrays of expertise are applied to given project, from engineers to artists, suppliers, fabricators, and critics. The architect becomes a director (not unlike film) and hierarchies evolve opportunistically as chances to extend, not control, design agendas.

Workshop teams will make a map by changing a map, as a way to consider (in quick fashion) a difficult question: how can we rethink our mandate to organize, manage and synthesize diversity and change? How could we consider and keep in play the heterogeneity of diverse, even conflicting forces? Teams will make digital and physical versions of 'scapes to be presented as both a projected animation and a fabricated, wall-mounted assembly. The digital 'scape should be generative of the technique and form of the physical 'scape. There is no required scale, but the 'scapes should be presented with one, be it microscopic, geographic, or a full size detail. Each team should decide and work accordingly. Progressively reconfigure the provided maps through diagramming and modeling. Use three diagramming techniques: point-based (Wiring Parameters), line-based (IK Solver), and surface-based (X-form). Produce a 30 second animation based on the diverse systems and/or morphologies inherent, discernable, or possible in the given map. Also produce a single exemplary image.

ECO-EFFECTIVE CAMPUS

Merrill Elam ▸ Fall 2007

Eco-effectiveness seeks to design industrial systems that emulate the healthy abundance of nature. The central design principle of eco-effectiveness is waste equals food. Teams will devise strategies for the Syracuse University campus that reexamine how buildings and their context can manage, transform and share resources to become eco-effective. This speculation combines three distinct but inseparable design aspects: a) the campus community, or how the buildings are interconnected with each other and their resources; b) transformations or proposals for building forms and configurations in response to the environment and inhabitation; c) the roles of technical devices, materials, components, and assemblies.

The first event of the workshop will be a Green Energy Tour which will introduce strategies and technologies now in development or in use on campus that can be explored or expanded by the teams. It is expected that the work produced will be both grounded in architectural knowledge and collaborative with other fields. The assigned project aims to provoke innovative, transdisciplinary proposals for ways that architecture can change how we live and sustain our resources. Each team will devise conceptual, provocative, and meaningful eco-effective strategies for a designated section of the campus. The final presentation will include: a) an image conveying a comprehensive, advanced, and speculative vision of an eco-effective campus that might be used in various media to promote this project to both general and specialized audiences; b) a strategic, spatio-temporal diagram representing the constituencies, economies, and natural and technological resources involved in the eco-effective campus; c) a conceptual model exploring the relationship between architectural form, landscape, and resource management.

INFORMATIONAL REMODELING

Brian Lonsway ▸ Spring 2008

For forty years I-81 has had an immense effect on the development, and degradation, of the City of Syracuse. Powerful voices ranging from citizens groups, to politicians, to Syracuse University and Upstate Medical University are calling for the removal or fundamental revisioning of the elevated highway. How can information be integral to design decisions and the generation of speculative alternatives?

Teams will propose alternatives to I-81 using the concepts of Building Information Modeling (BIM) as a critical framework for information-driven design. Rather than focus on the conventional (and intended) implementations of BIM (drawing production, construction management, and facilities management processes) which afford few speculative opportunities, teams will explore the creative potential latent in the conceptual basis of BIM systems. The result will be an "information model" which is simultaneously a model of information and a model of architecture. The final presentation will be an advanced application of digital media consisting of eight simultaneous video projections (one per team), arranged linearly, that document the entire length of the highway under consideration by the workshop. Research the history of the I-81 overpass and its urban and socio-political effects as a means to decide what data to collect, how to organize it, and how to conceive of the information model. Then, continue to develop the concept of your information model and produce three forms of representation: a) still or animated diagram(s) of how your project organizes and analyses information; b) a single image conveying a comprehensive, advanced and speculative vision of a re-modeled transportation artery; c) a drawing and/or anim–ation of your team's section of the overpass that shows your proposed re-modeling, including activity, effects of weather, lighting, and time.

SKIN: URBAN FARM

Kevin Lair ▸ Fall 2008

The ability of our biological skin to react and adapt to myriad internal and external changes is a model for the design of architectural enclosures. Focus on the building envelope as a system for environmental regulation. Seek opportunities for active or response "communication" between different aspects of the skin such as plants growing within the buildings (internal conditions) and the building envelope influenced by soil conditions, temperature, solar radiation, water and other factors.

Teams will apply smart materials and intelligent systems in the design of an urban farm as "agroecosystem" that integrates community participation. The farm is a modular system of greenhouses for crop production that can adapt to various site parameters. Each team will conduct basic research and then focus on specific criteria to drive the design of the enclosure, structure, smart systems and program (the plants that will be grown and the people who will grow them). While each project should address all factors, each team will focus on one of the following as the primary design opportunity: water, air/ventilation, solar/light, or thermal conditions. Projects should employ strategies for mass customization to accommodate different climates, crops and locations. Materials, assemblies and units should be designed for lifecycle performance and reuse that does not downcycle. The urban farm is a testing ground for productive innovations that will be developed through adaptive management. Produce an animated diagram of the skin and farm as a smart system, a single image conveying a comprehensive, advanced and speculative vision, a summary of design research and any necessary design drawings.

FREEZE!

Clare Olsen ▸ Spring 2009

The climatic conditions of lake-effect snow affect building design and material specifications. Snow also impacts daily life. But in this project, the material properties of snow and the processes of its accumulation will be used to address cool topics in current practice including design process, mass customization, ornament and material flows. Snow accumulation is a quintessential bottom-up design process as is freezing a frame of an animation or script as a means to determine form, while the freezing process of snow is analogous to top-down decision-making.

Each team should examine the process of ice formation that results in window frost, hoarfrost, frost flowers and rime formations. Wind forces, temperature and the accumulation surface all play integral roles in the geometry of ice formation. While the hexagonal lattice of the ice crystal remains consistent, the resultant morphologies are infinitely variable and inherently ornamental. Each team will employ 3D printing which mimics the aggregative processes of snow accumulation. This is one of the few uses of the 3D printer where the model will actually have properties of the material it is representing. Create an occupiable zone with snow and ice (600 square feet maximum) that can be easily removed at the end of the season. Employ ice, snow, glass, wood or wire as a lattice for snow crystal accumulation. Consider the ephemeral and temporal qualities of the material. Employ an additive "construction" methodology. Proceed in three phases: a) atmosphere: use consistent geometric and aggregative operative techniques, and consider the material effects of visual porosity, blurring or transience; b) water: consider the material flows (virtually and actually) of people, snow, ice and light; c) ice: solidify the ideas as design artifacts for presentation and exhibition.

CLIMATIC PLASTICITY

Sean Lally ▸ Fall 2009

Teams will design plastic infrastructures to foster micro-climate conditions that accommodate and sponsor activities usually thought to need building interiority. Born of the materialities of the exterior, imbued with the responsibility of the interior, each team will recreate the social setting depicted in a Julius Shulman photograph by replacing the building with an infrastructure that orchestrates thermal gradients, spectrums of light and intensity, air velocity, humidity, scent, and other matters. The aim is to augment and stretch the climates and natures that surround us through means other than surfaces and walls. What are the aesthetics of materials that are largely invisible to the human eye? How can gradients and intensity levels (which are the hallmark of these materials) affect programmatic and spatial organization?

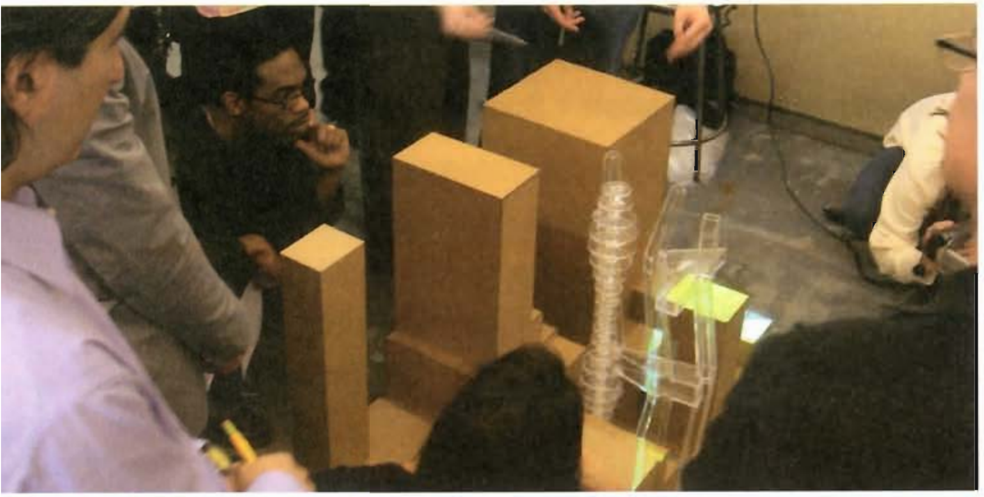
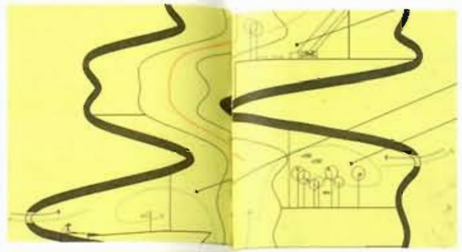
In order to design environments, climates and contexts peppered with potentials for social interaction, activities, and spatial organizations, we must question the limitations, roles and responsibilities of architecture, and pursue the potential of materials traditionally relegated to conditioning our interiors or thought too feeble to affect the exterior. Remember: reliance on the most recently available technologies is often an excuse for a weak imagination. Our imaginations will lead, and technology will follow. Proceed as follows: 1) analyze the social settings, activities and lifestyles depicted in the supplied Schulman photograph; 2) remove the building and consider the parameters and variables that maintain the depicted qualities and behaviors; 3) devise a plastic infrastructure of furniture, skeleton, subgrade, appliances, and controls to 'condition' the space; 4) choose two distinct climatic conditions to test the strategy,its variables and its repercussions; 5) produce two images, several gradient drawings, "material energies" diagrams and a 100 word statement.

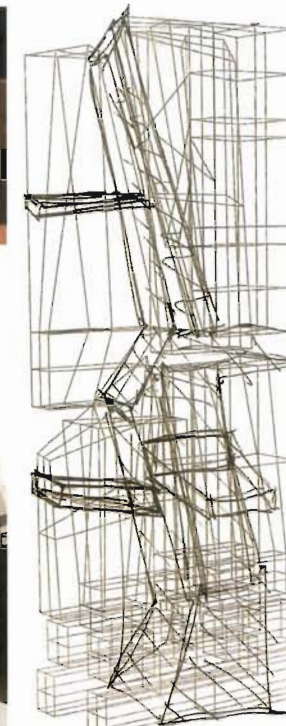
STRIPPED BARE

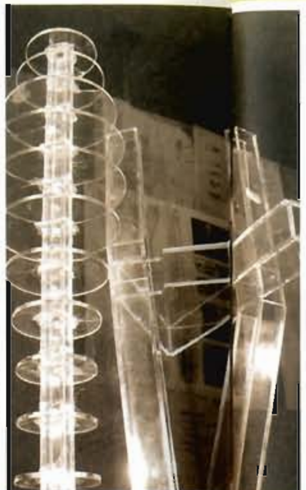
Michael Meredith and Hilary Sample ▸ Spring 2010

Over two million people have lost their homes to foreclosure. Unable to afford steep mortgages, expensive heating and cooling bills, homes sit vacant, abandoned, and are often stripped of their inner belongings (cabinets to countertops, copper piping, and even toilets) before the bank takes possession. Houses stand as ruins in decaying landscapes.

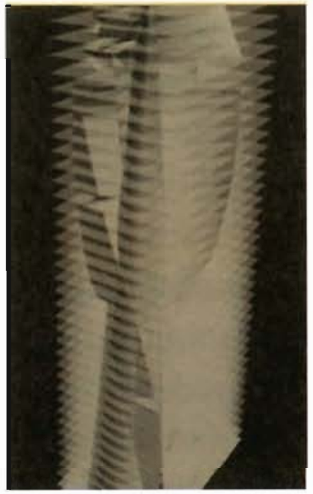
Digital and physical models will be the sole medium of operation. Teams will be given a digital model of a 4,700 square foot "spec" suburban house and assume it has been stripped bare. The house has a three car garage, central air and heating, two gas fireplaces, five bedrooms, sunroom, living room, dining room, laundry room, three and half bathrooms, an attic, and a full basement. In order to bring it back from the brink, the shell will remain and the interior will be redesigned for three families: a couple, a parent and child, and a single person. Think about complex spatial patterning to create new living configurations. Explore ways of subdividing through the excision of voids and the insertion of pre-fabricated assemblies. Emulating Gordon Matta-Clark's "anarchitecture," treat the existing house like a site for new divisions, openings, rooms, and spaces. Add at least one new stair case, and devise passive cooling systems. Consider the method of fabrication and techniques of assembly. Explore ways of using robots to carve away at the house. Produce: 1) a promotional image; 2) a laser cut model at 1/8"=1" using the supplied/approved materials (cutting should take no more than one hour) with insertions of any material or mode of fabrication; 3) a diagram explaining the system of cutting/insertion and/or assembly and/or performance.

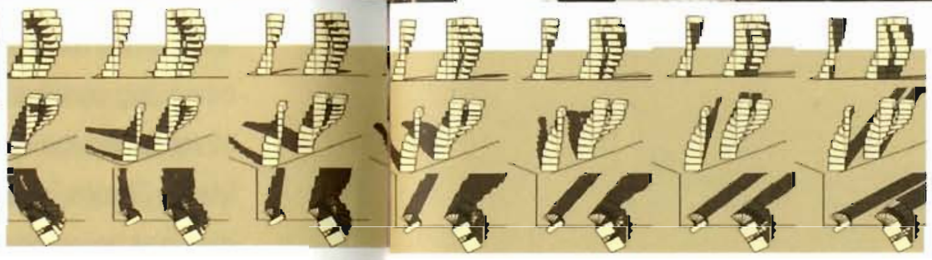









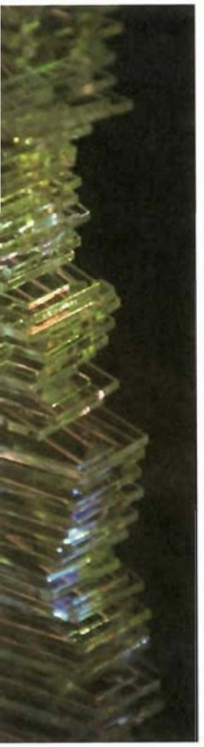



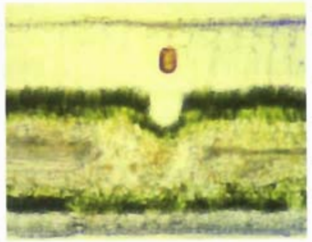
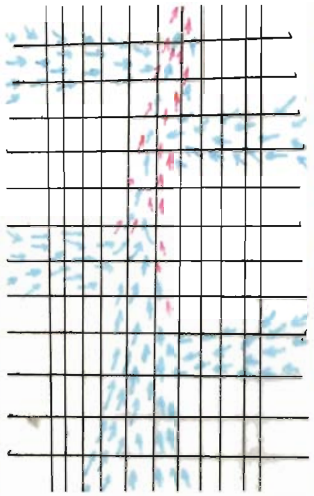
F06
SHAFT





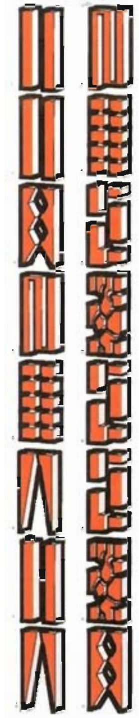





SHAFTplan typologies

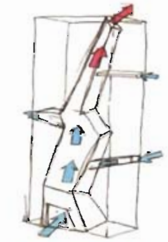
SHAFTsection typologies







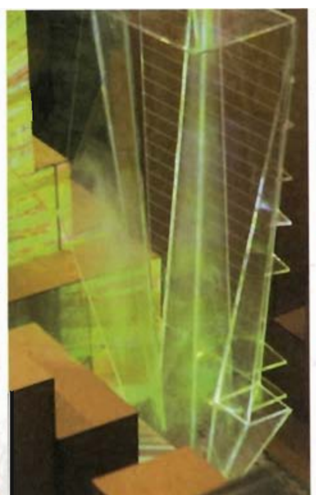
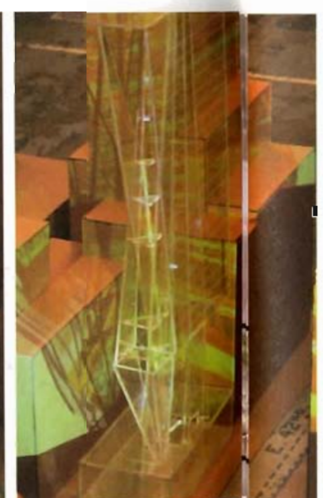


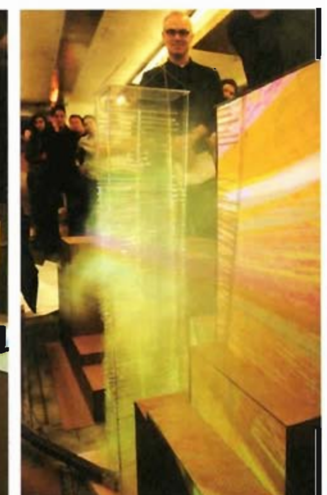










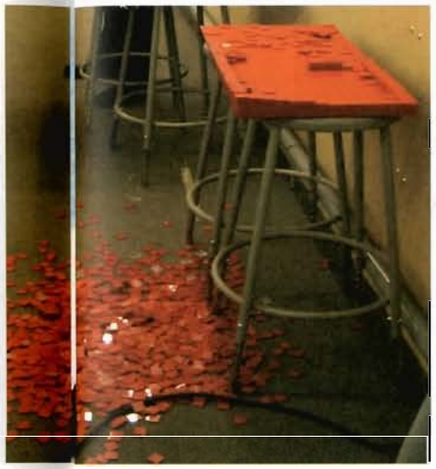


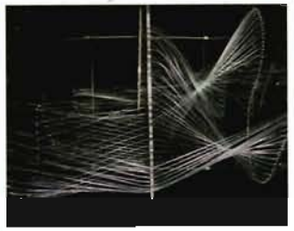




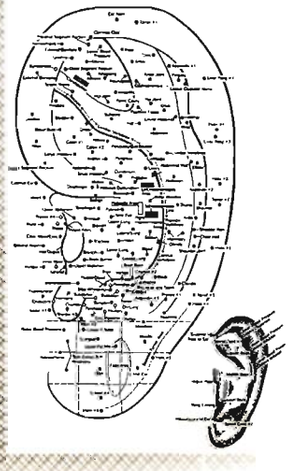







S07
SCAPES

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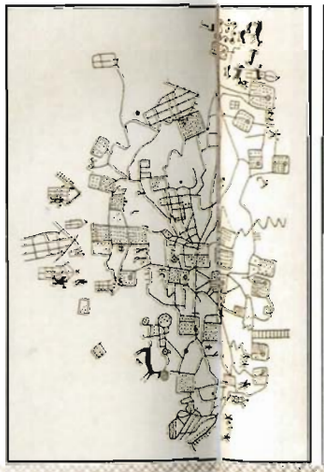
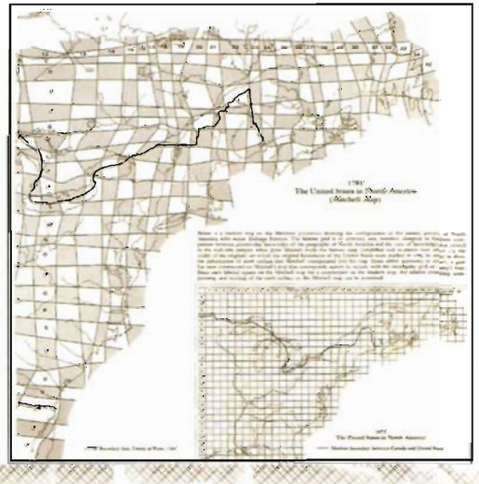



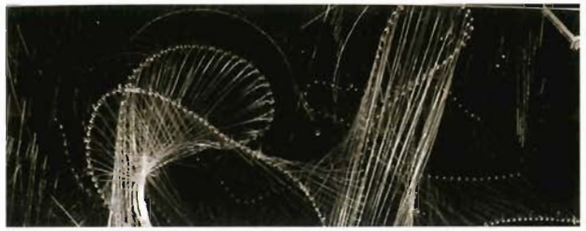












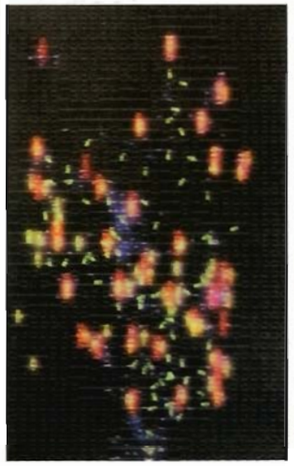


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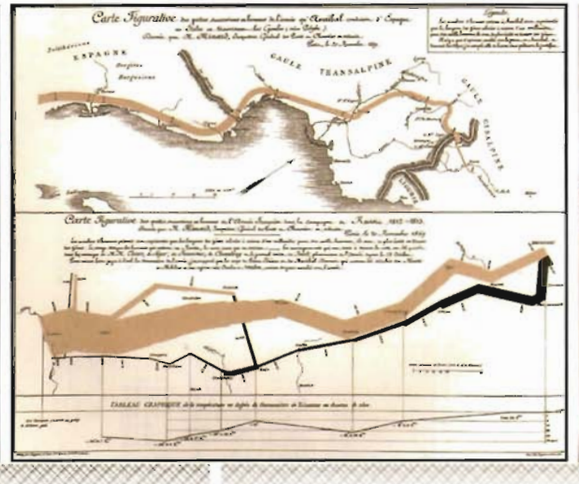
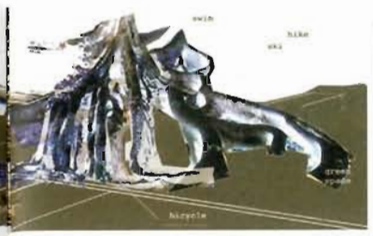
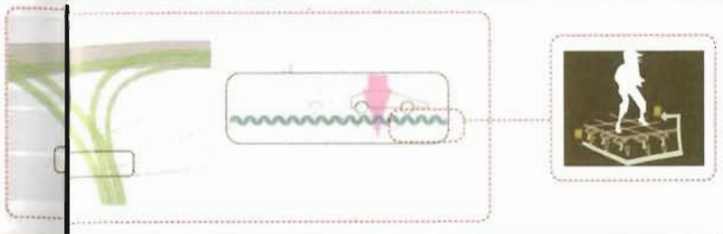

Carte Figurative
ESPAGNE
GAULE TRANSALPINE
Carte figurative
TABLEAU GRAPHIQUE

MEXICO
PALENQUE



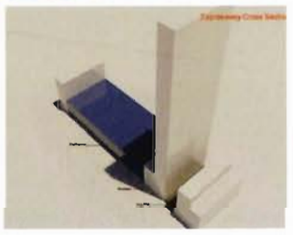


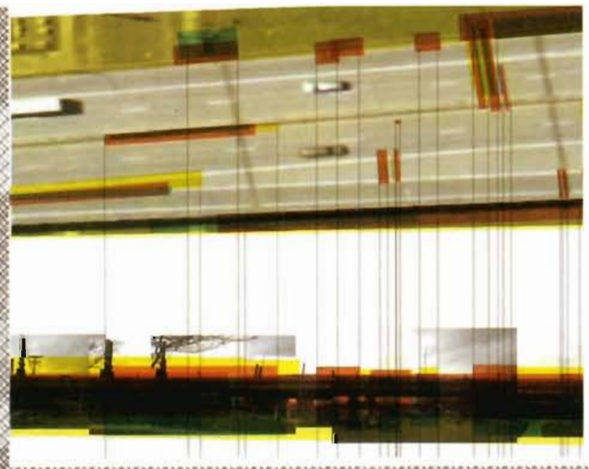


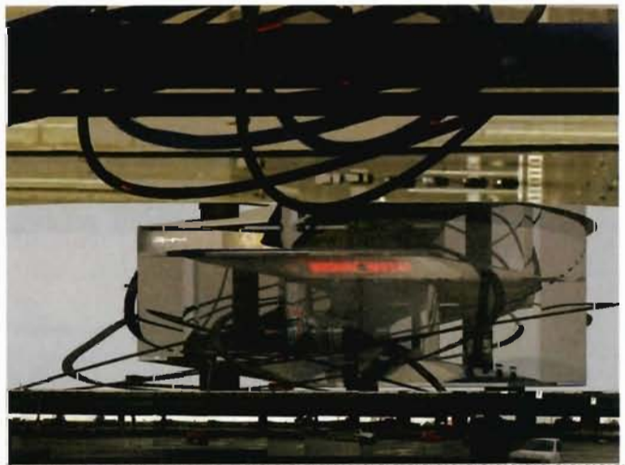




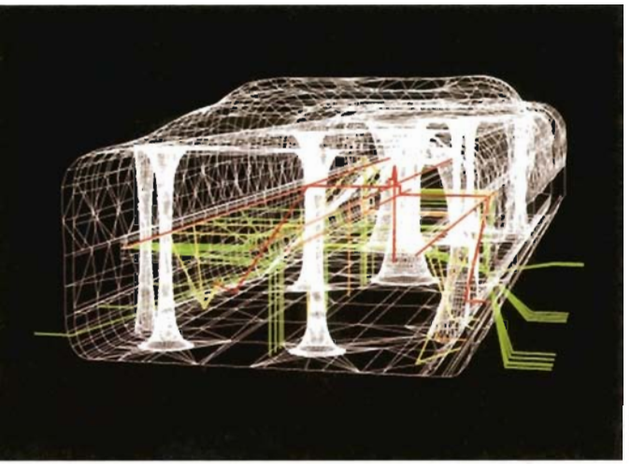


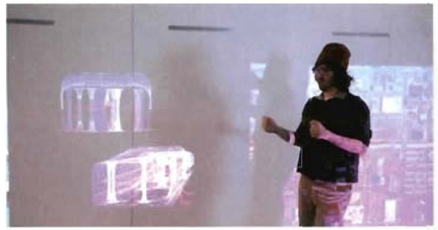



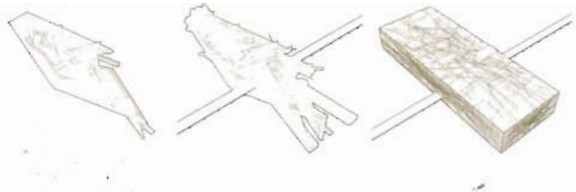


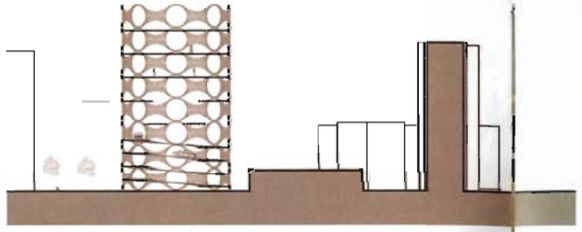



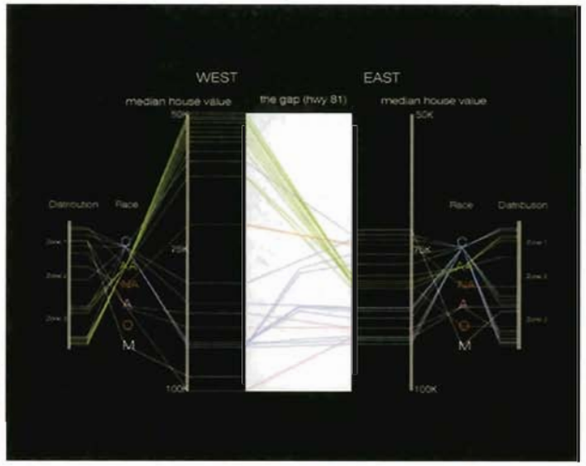

S08
INFORMATIONAL
REMODELING










WEST
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median house value
the gap (hwy 81)
median house value
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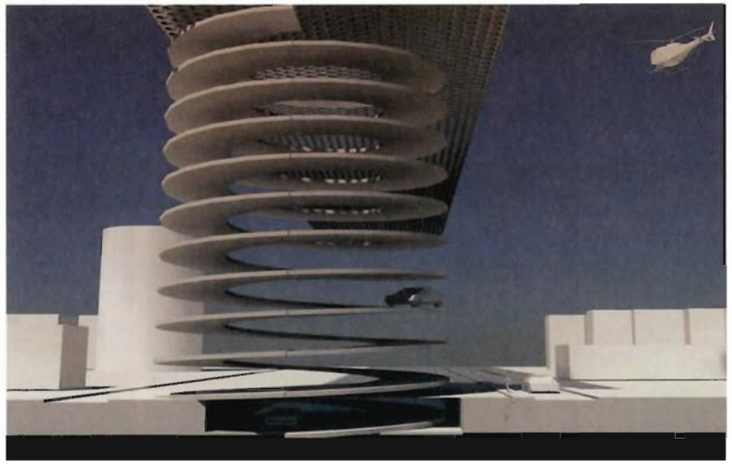
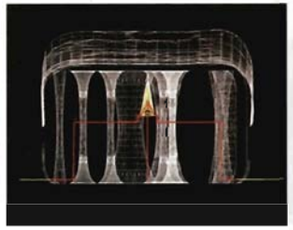
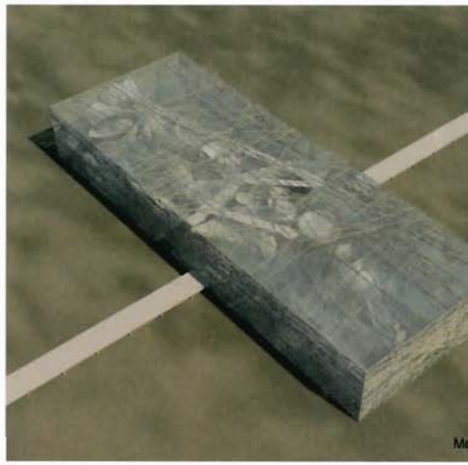
Race
Distribution

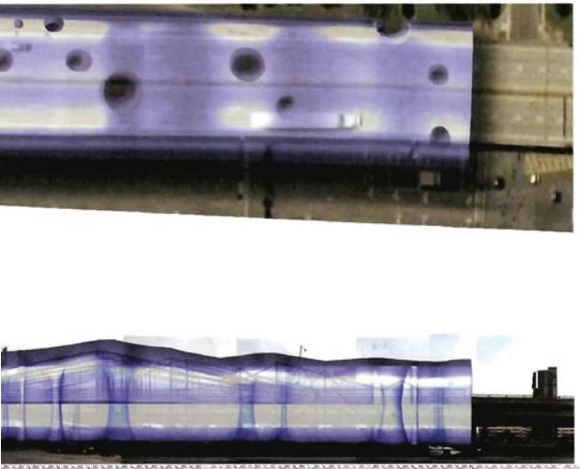


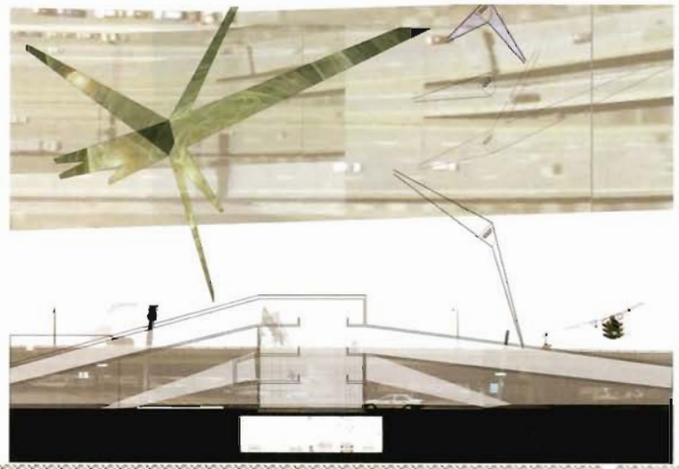



Assess the Naturally Occurring Detriments of the Underpass Condition and Amplify Them to Create a Desirable Coalition Linking East and West Sides of I81


Welcome to
Exit 18



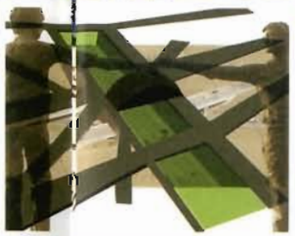
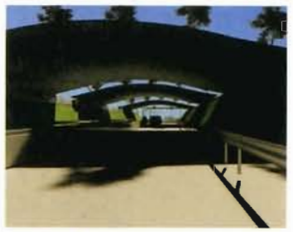
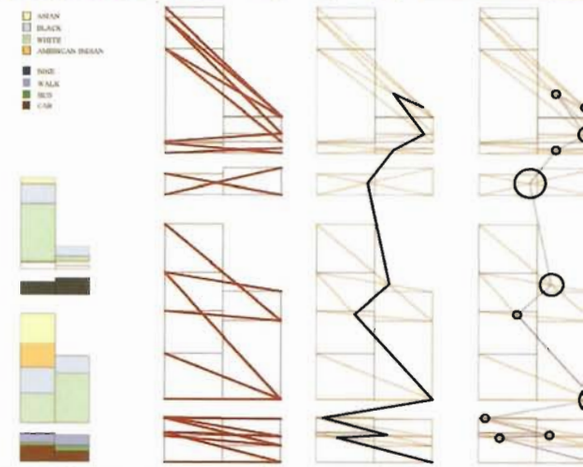
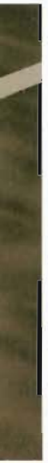
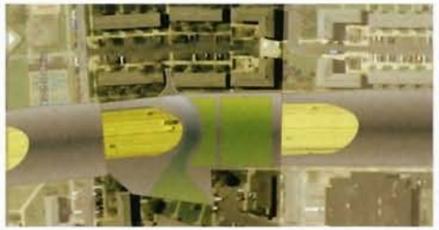


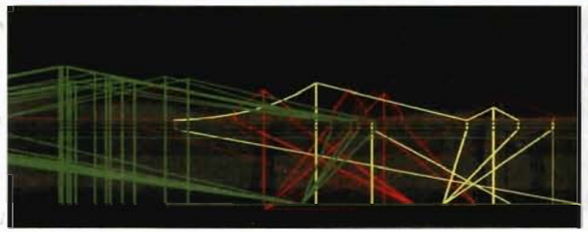


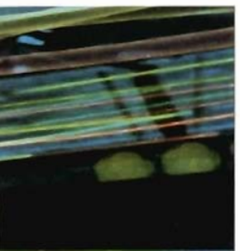
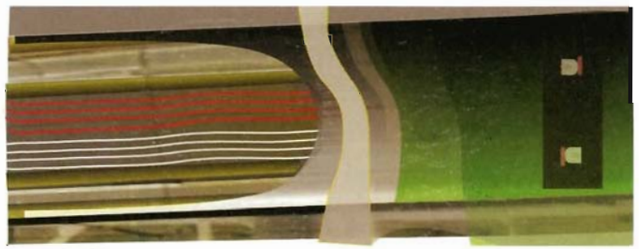


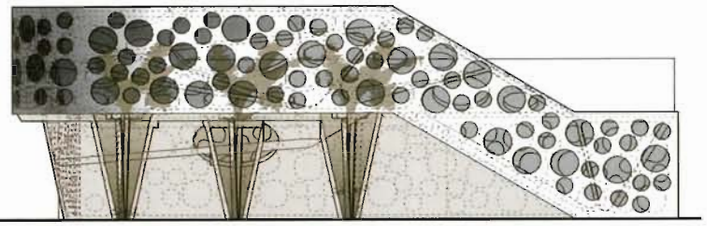
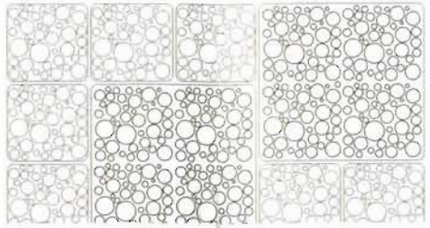
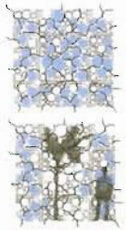
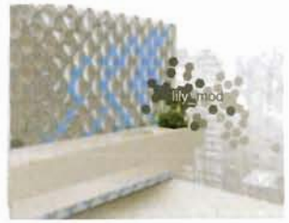




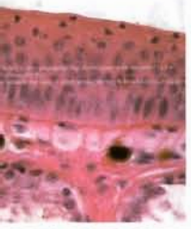




ASIAN
BLACK
WHITE
AMERICAN INDIAN
SIDE
WALK
SUN



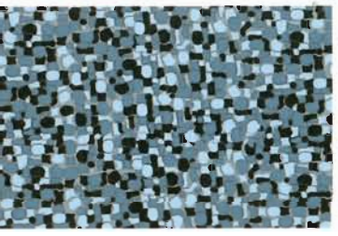
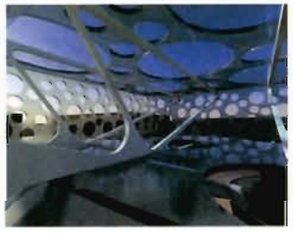



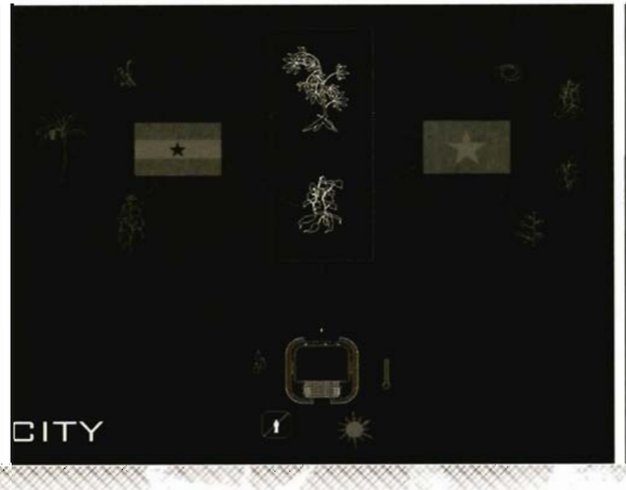










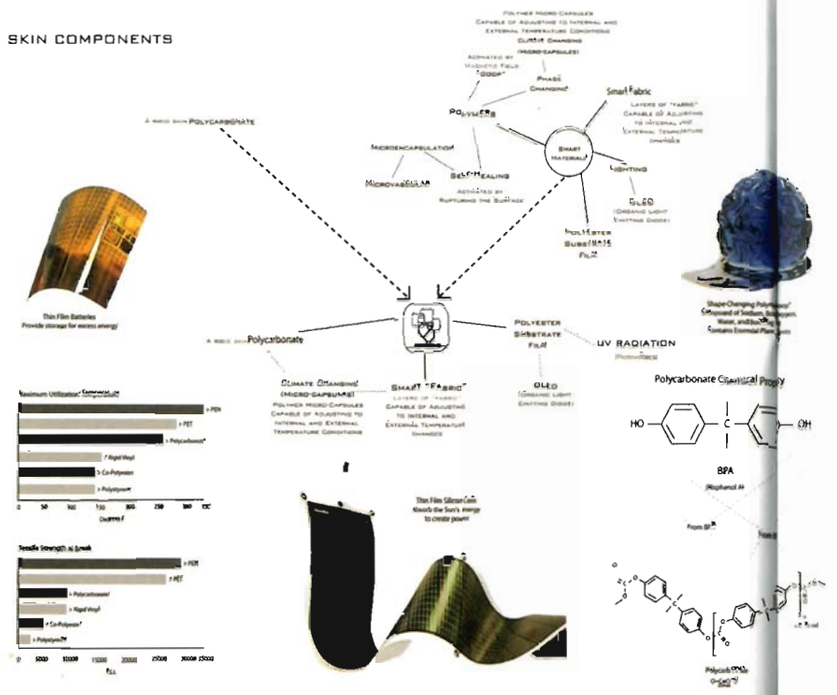


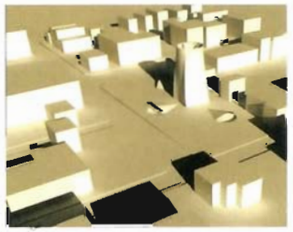



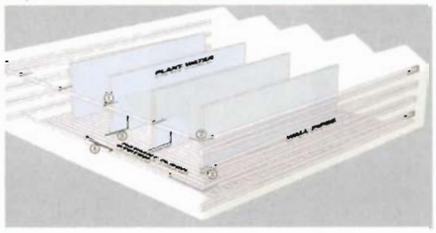


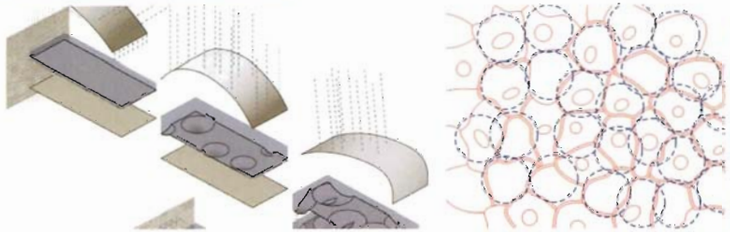
F08
SKIN URBAN FARM

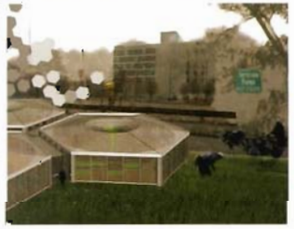
SKIN COMPONENTS

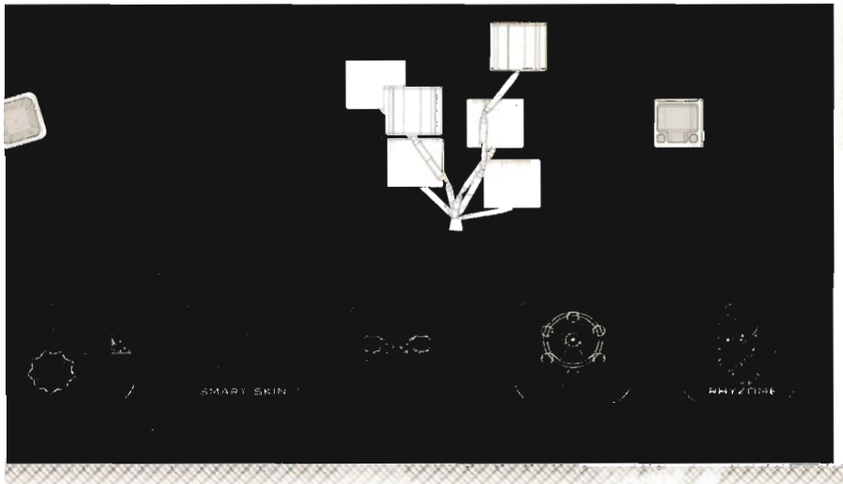


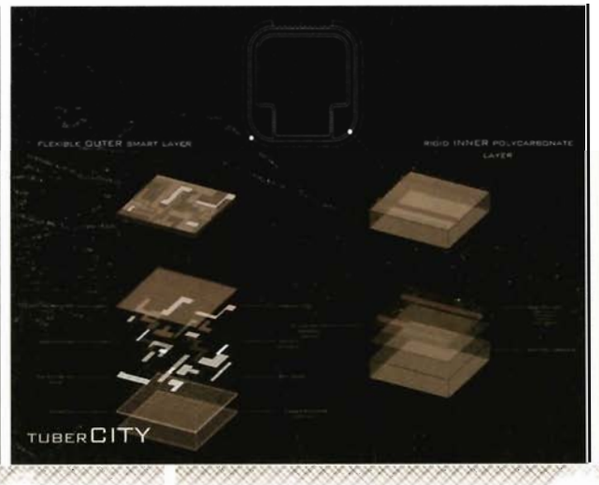




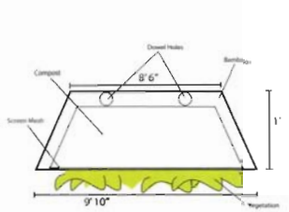


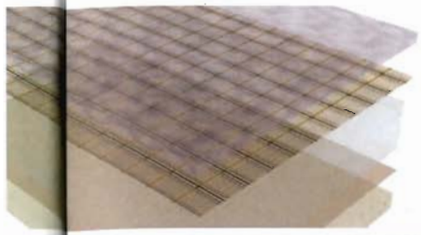




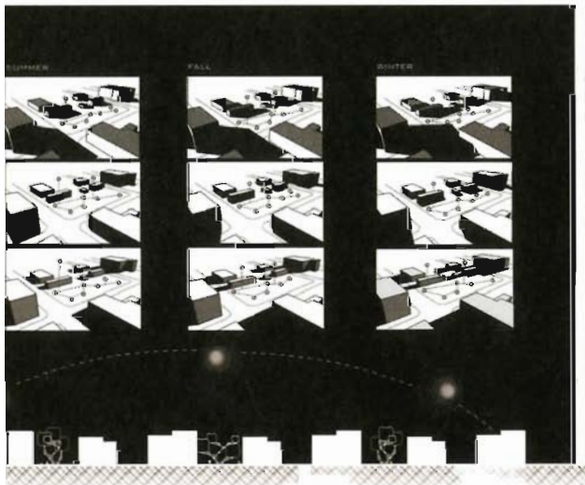


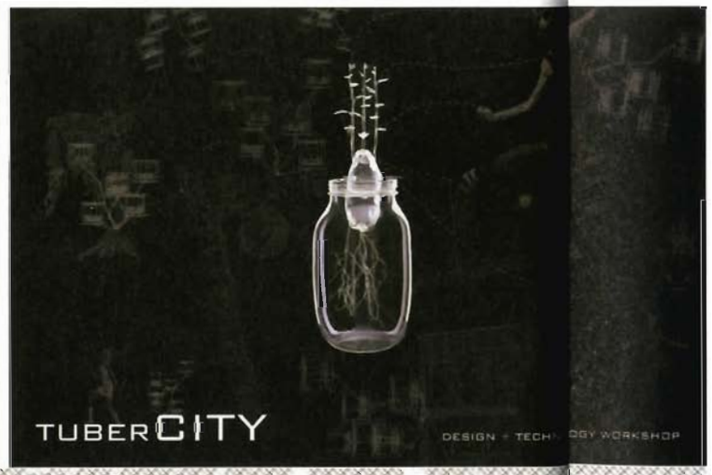

clay nanosheets
polyvinyl alcohol


Dowel Holes
Compost
8'6"
Bamboo
Screen Mesh
1'
9'10"
Vegetation

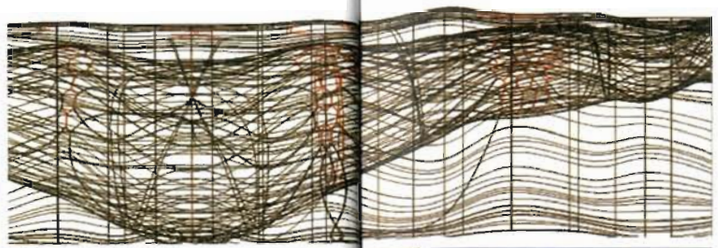



RENDERS


SUMMER
FALL
WINTER


TUBERCITY
DESIGN + TECH

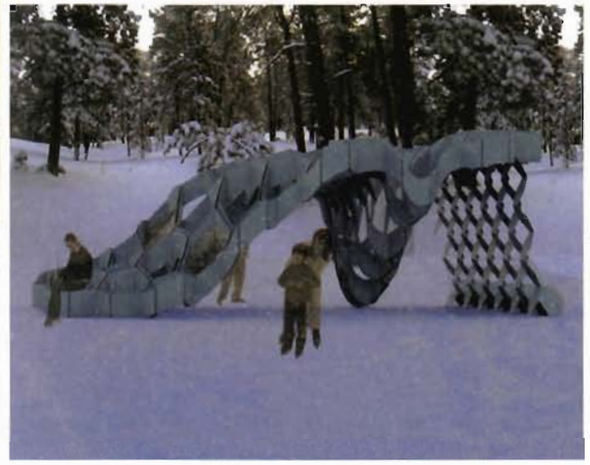


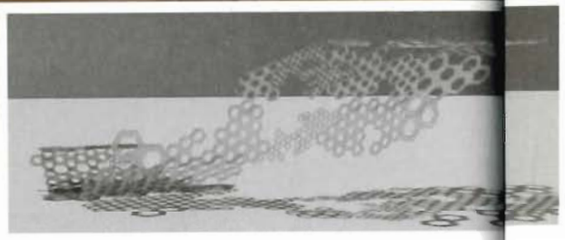


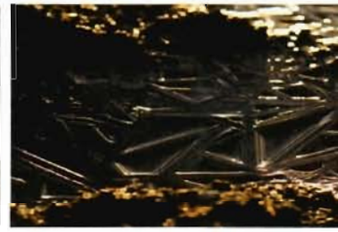
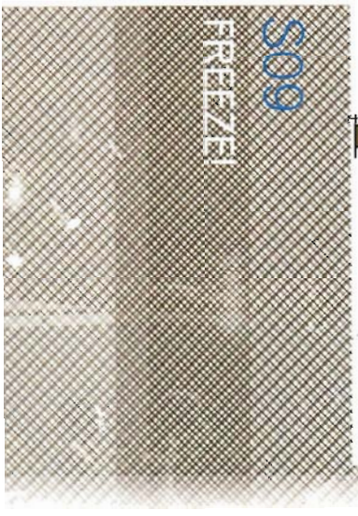
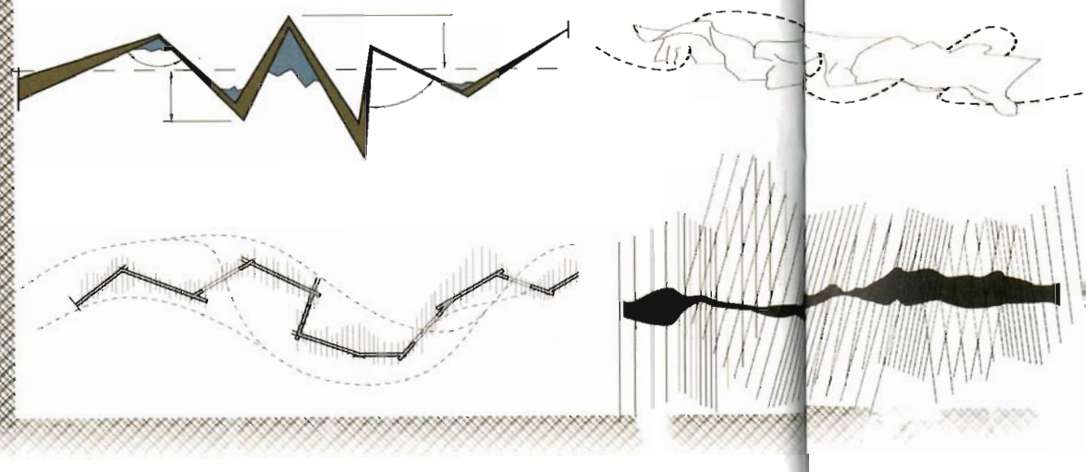
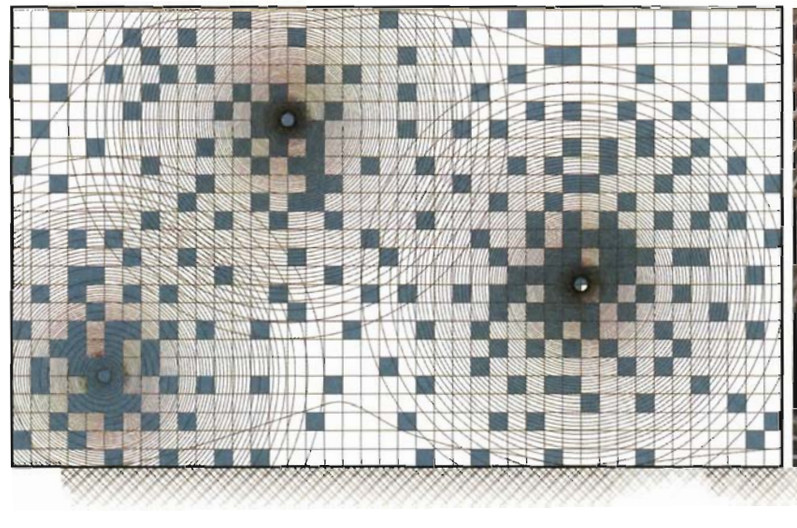


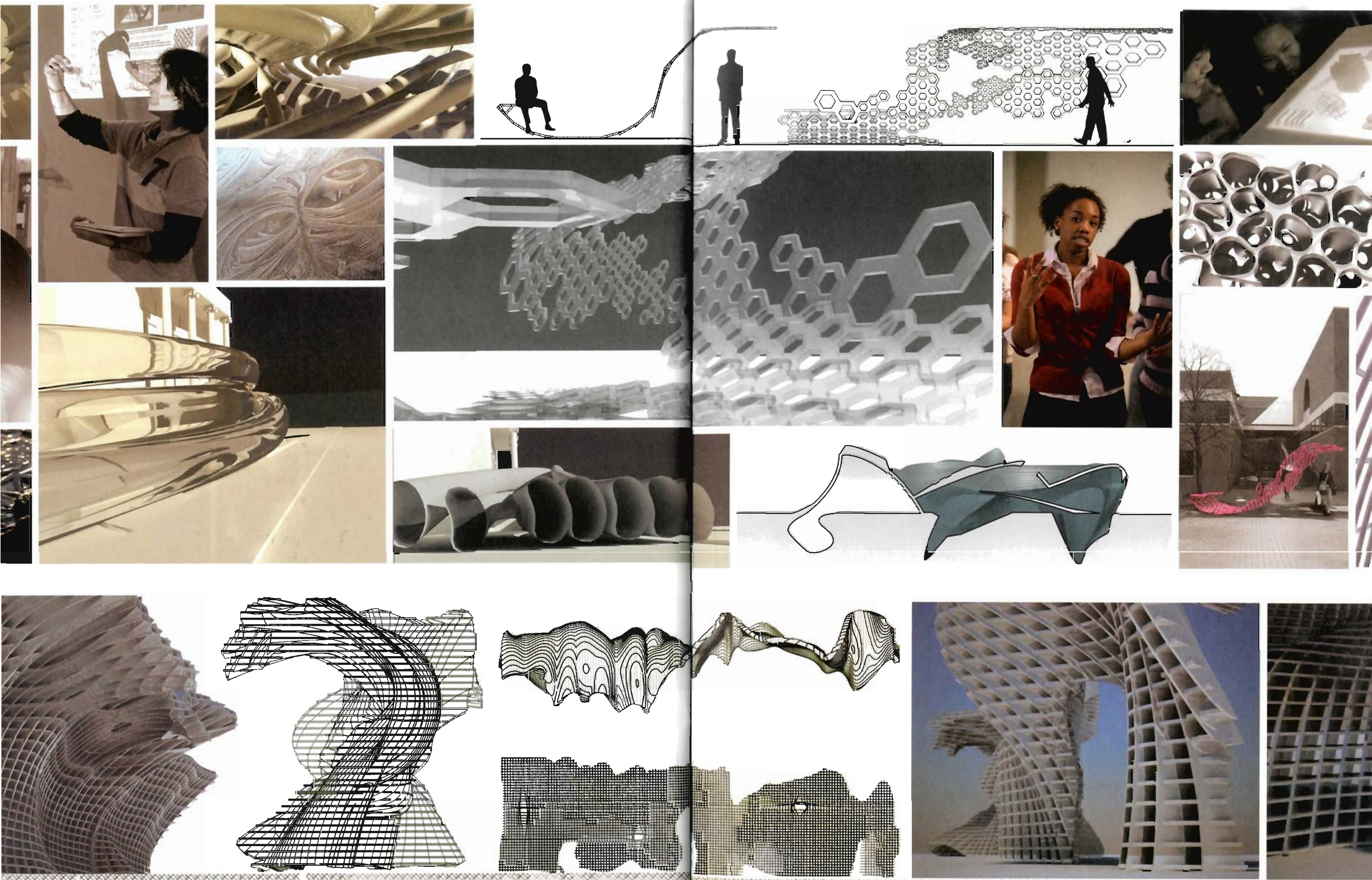


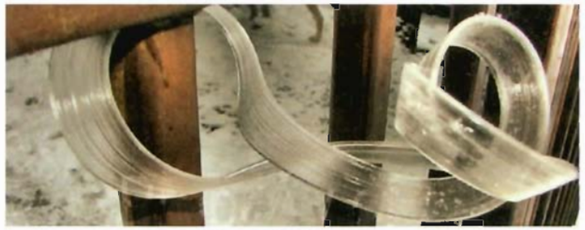


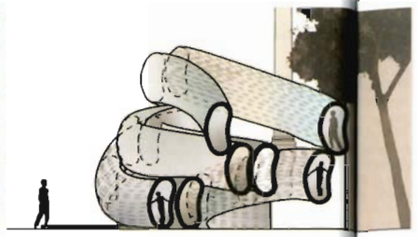



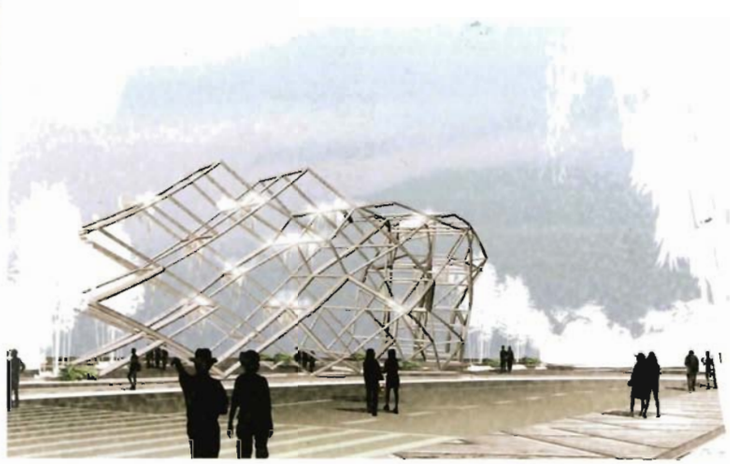



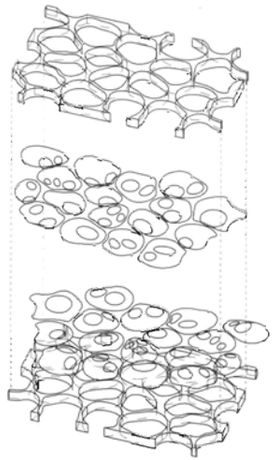


S09
FREEZE!



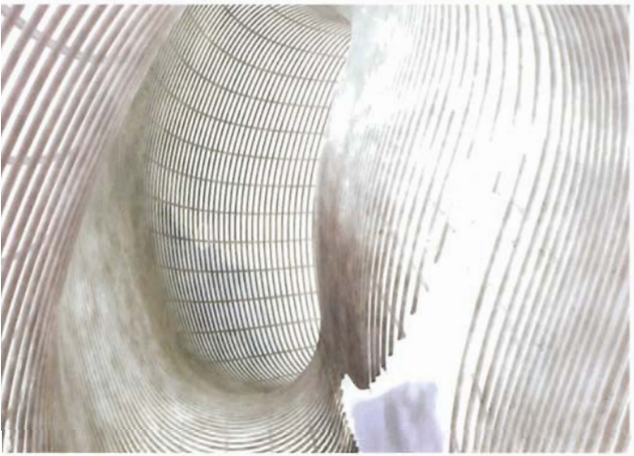




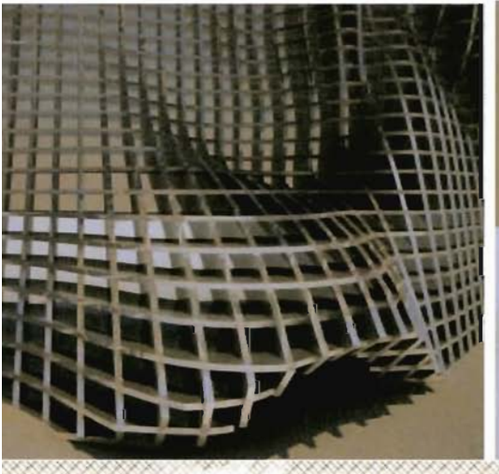


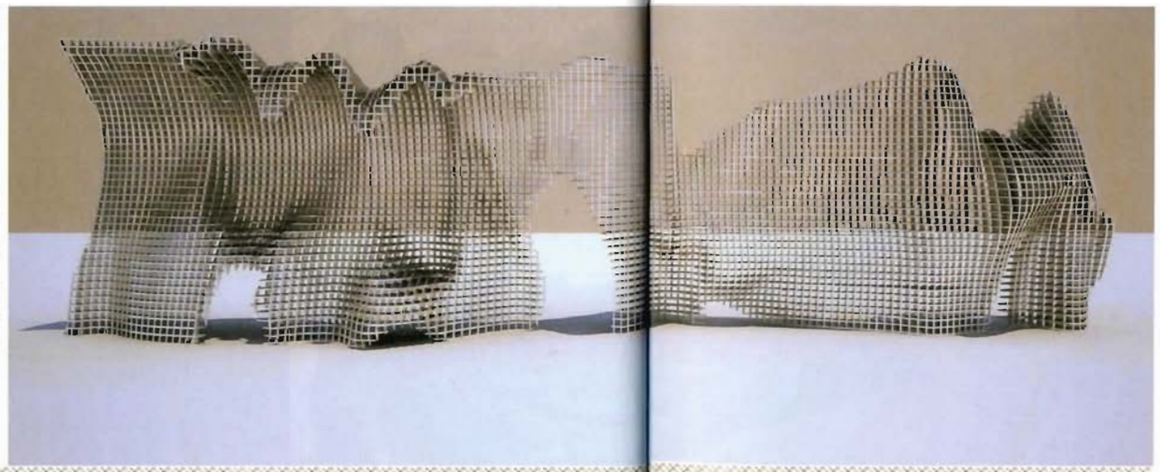







snow flow
people flow



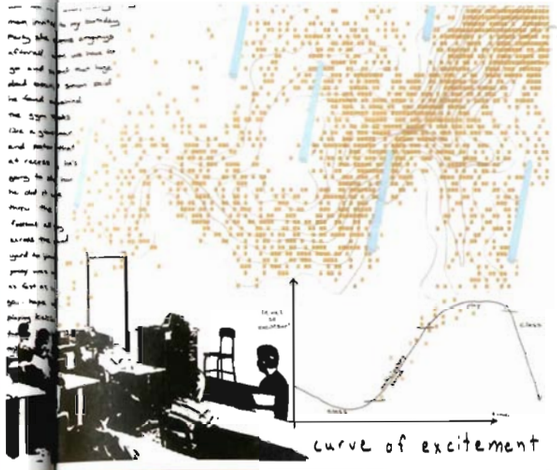










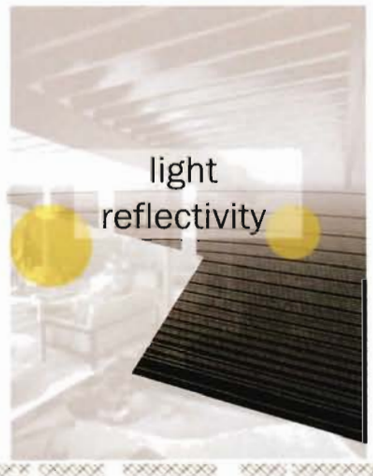
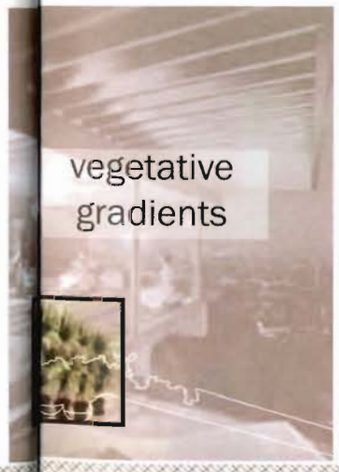
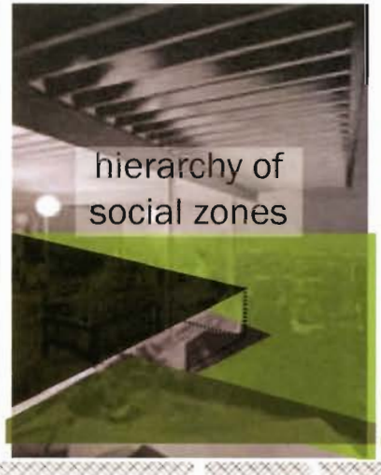
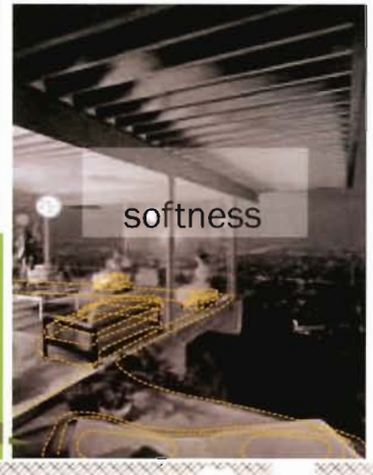

curve of excitement








F09
CLIMATIC PLASTICITY

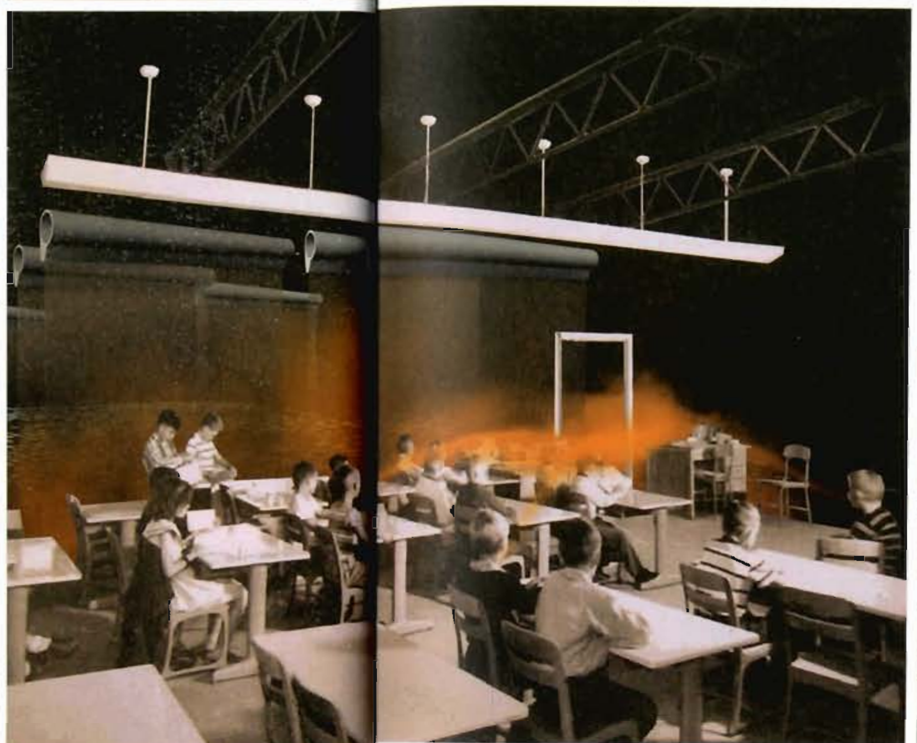

light
reflectivity

vegetative
gradients

hierarchy of
social zones

softness



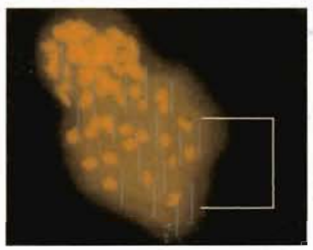


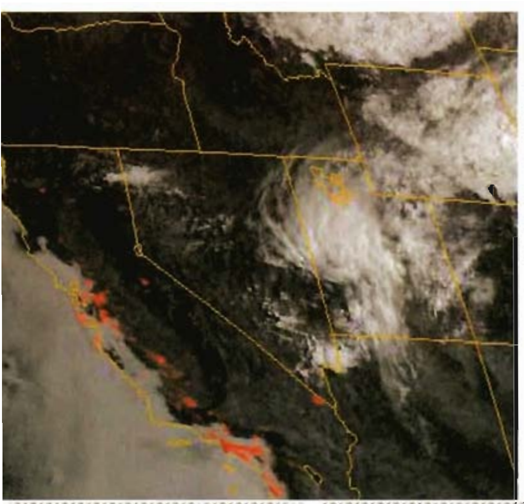
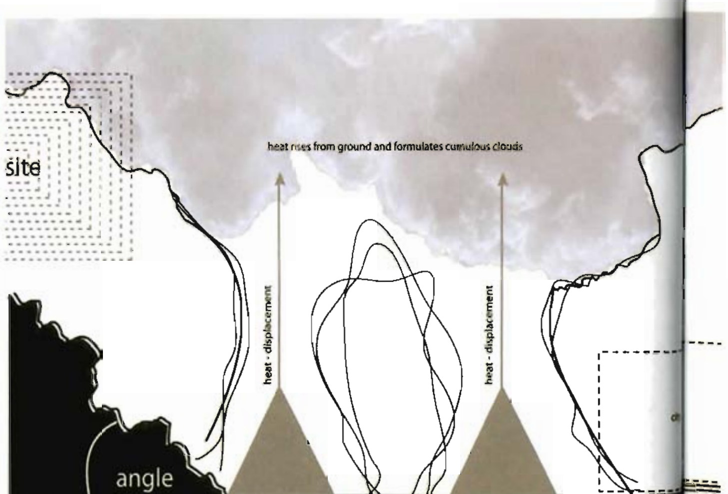
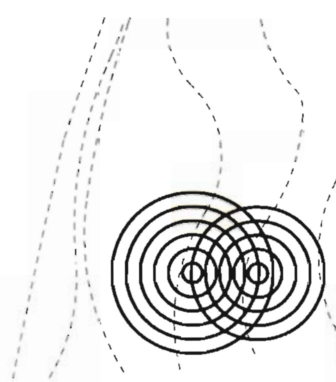
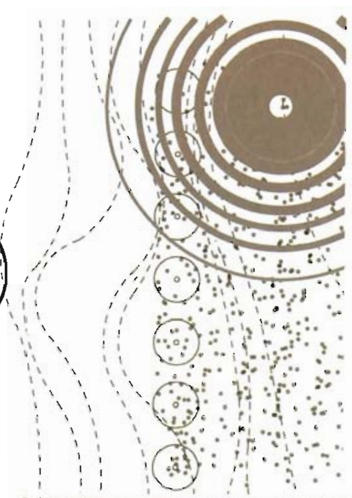
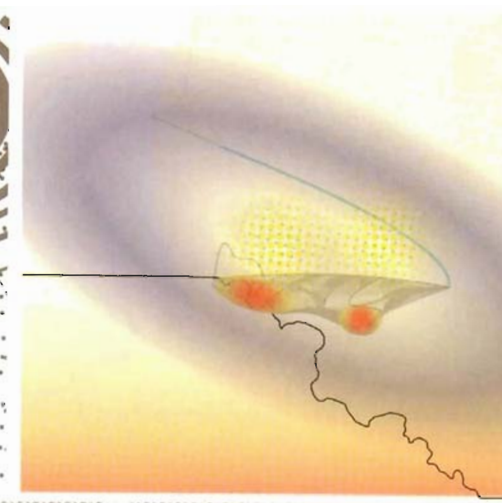




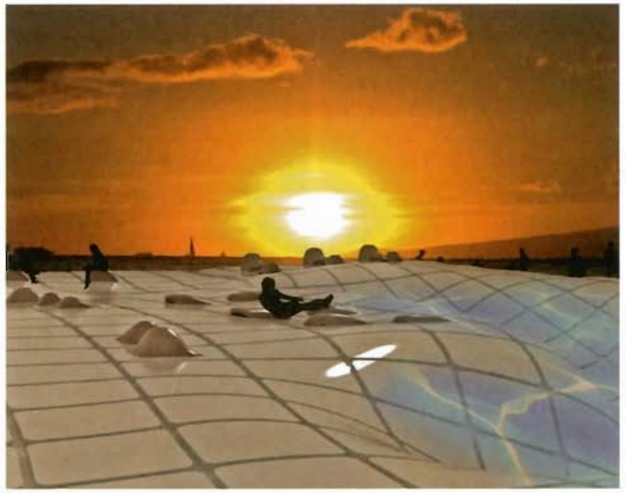



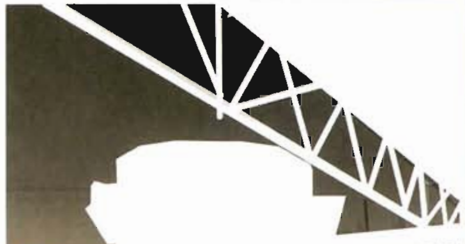


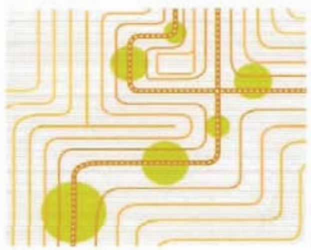



site
heat rises from ground and formulates cumulous clouds
heat - displacement
heat - displacement
angle




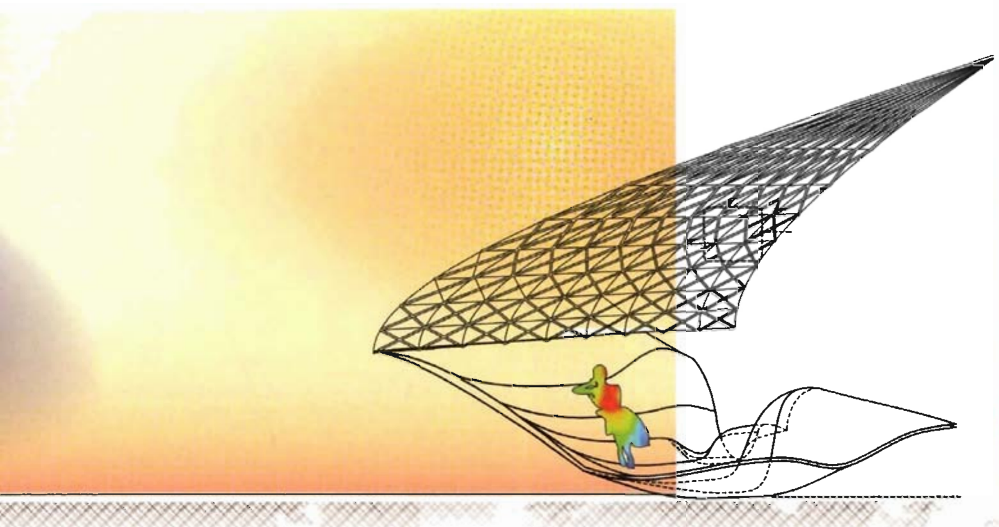
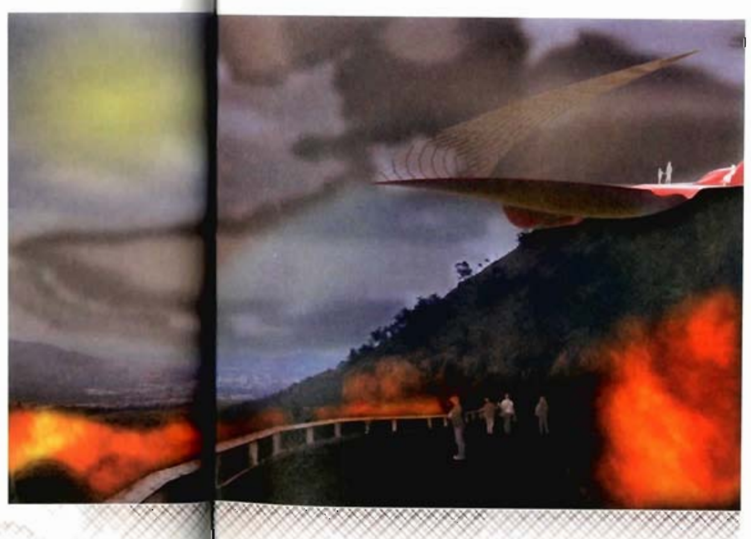
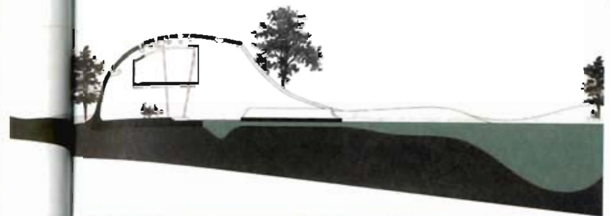




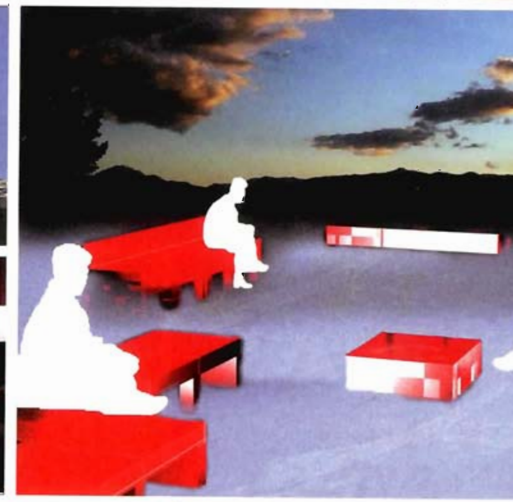


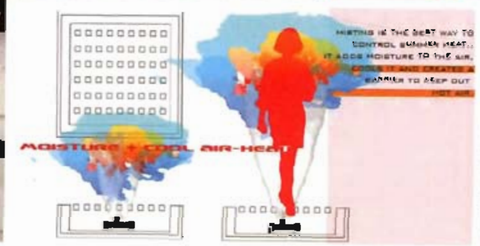


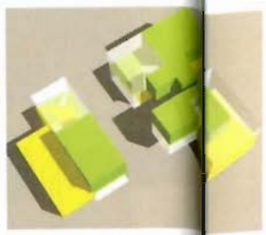



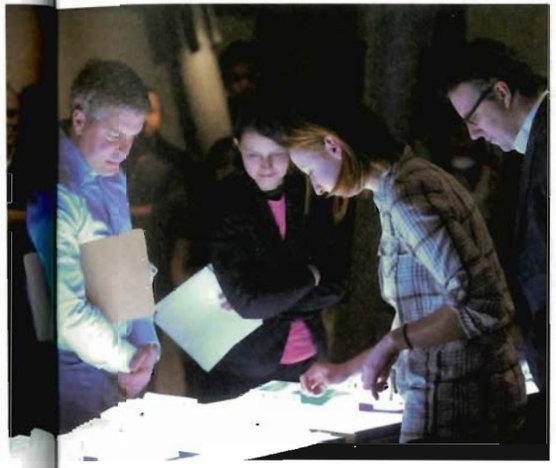




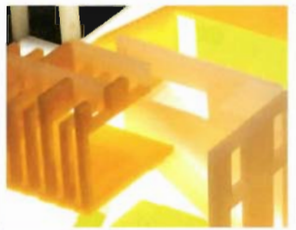


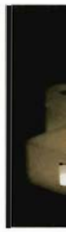




MISTING IS THE BEST WAY TO
CONTROL SUMMER HEAT..
IT ADDS MOISTURE TO THE AIR,
BARRIER TO KEEP OUT
HOT AIR.

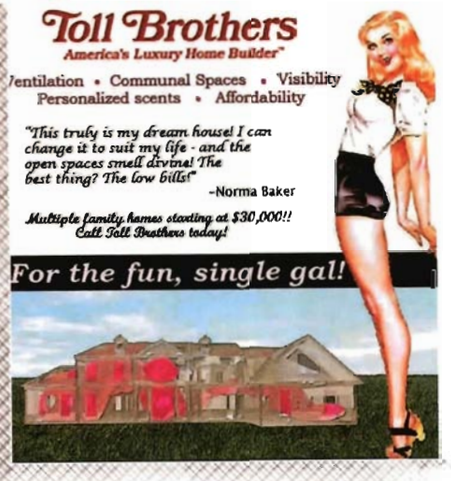



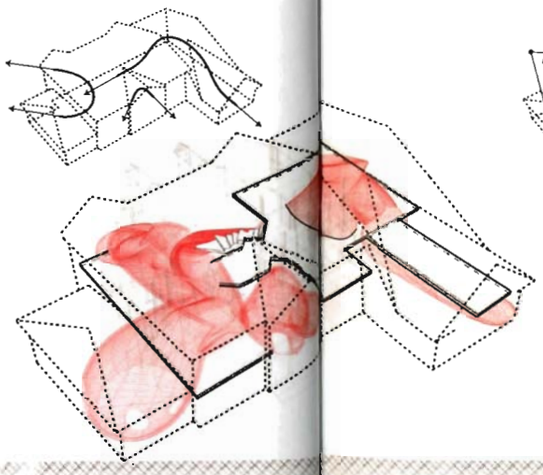


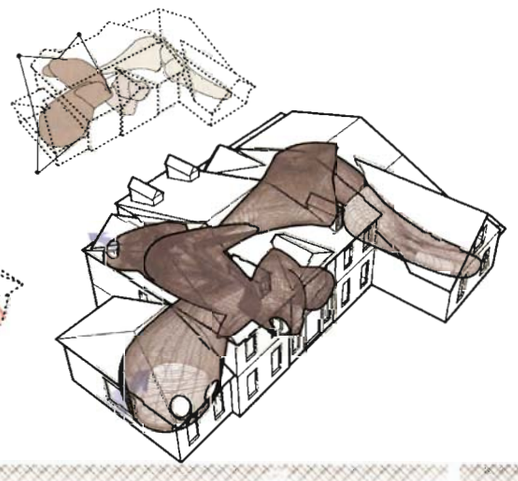




S10
STRIPPED BARE







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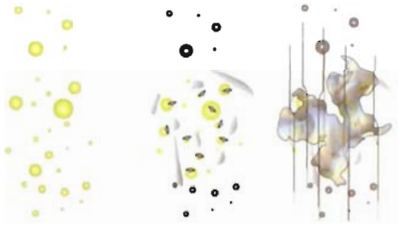
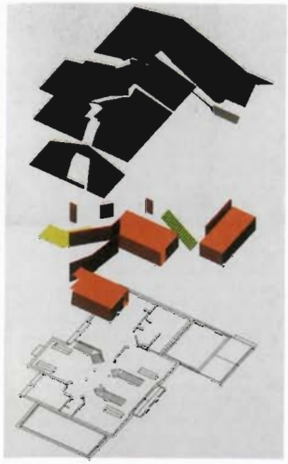
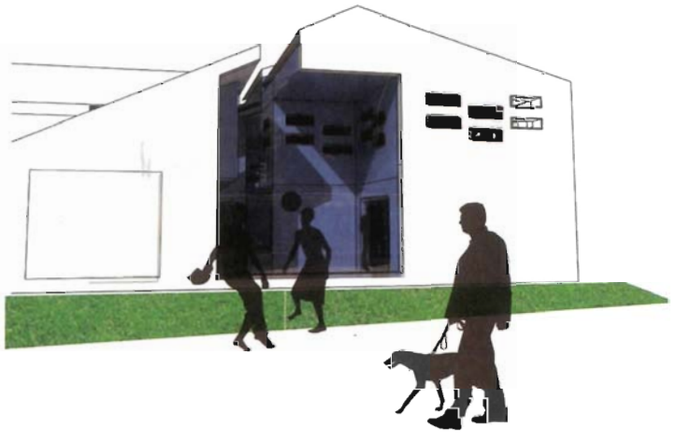
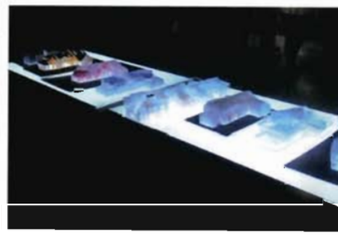
* per cubic foot of space

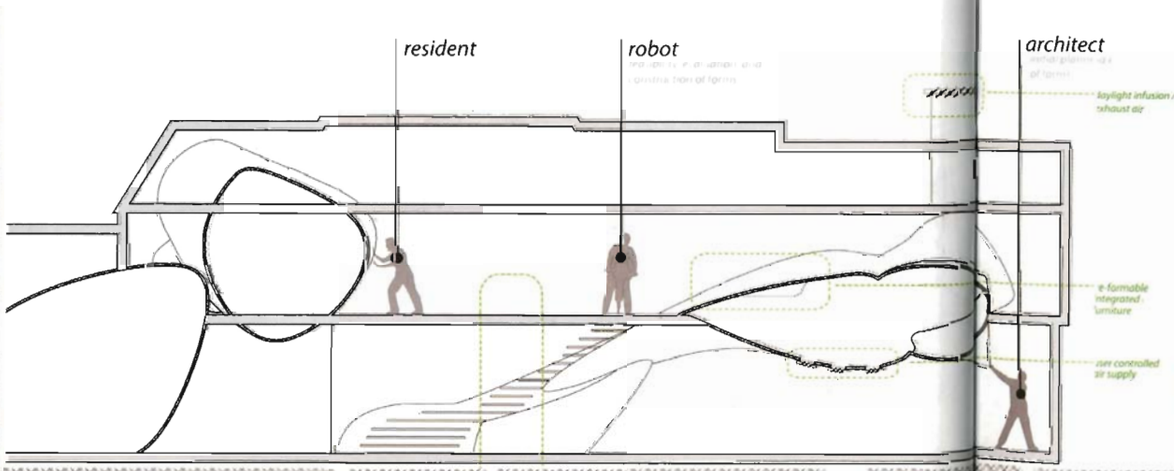


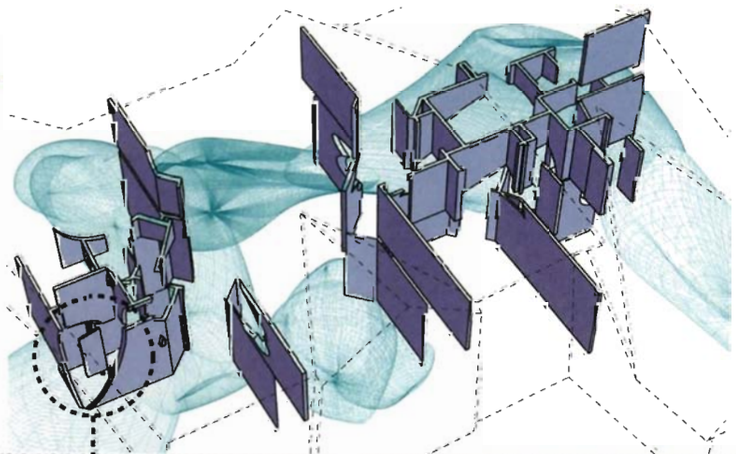


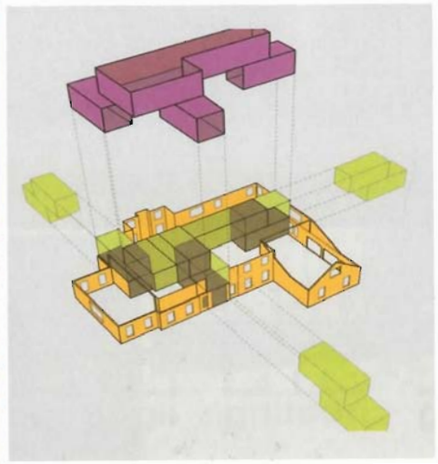


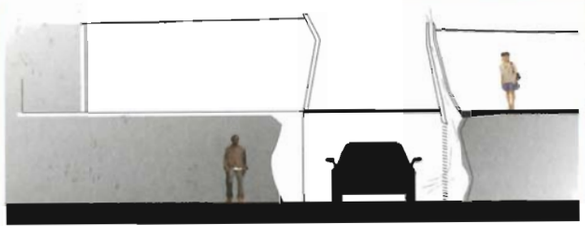

cooling
heating
lighting




resident
robot
architect
daylight infusion /
xhaust air
e-formable
integrated
urniture
user controlled
air supply





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