YOUNG ARCHITECTS 8

INSTABILITY

Foreword by Craig Konyk
Introduction by Anne Rieselbach

The Living
KBAS
WILLIAMSONWILLIAMSON
PLY Architecture
MAD Office
Julio Salcedo

Princeton Architectural Press, New York
The Architectural League of New York

Published by
Princeton Architectural Press
37 East Seventh Street
New York, New York 10003

For a free catalog of books, call 1.800.722.6657.
Visit our web site at www.papress.com.

The Architectural League of New York
457 Madison Avenue
New York, New York 10022

Printed and bound in China
11 10 09 08 07 5 4 3 2 1 First edition

Editing: Linda Lee
Design: Jan Haux

Special thanks to: Nettie Aljian, Sara Bader, Dorothy Ball, Nicola Bednarek, Janet Behning, Becca Casbon, Penny (Yuen Pik) Chu, Russell Fernandez, Sara Hart, Clare Jacobson, John King, Mark Lamster, Nancy Eklund Later, Katharine Myers, Lauren Nelson-Packard, Scott Tennent, Jennifer Thompson, Paul Wagner, Joseph Weston, and Deb Wood of Princeton Architectural Press
—Kevin C. Lippert, publisher

Library of Congress Cataloging-in-Publication Data

Instability / foreword by Craig Konyk ; introduction by Anne Rieselbach. — 1st ed.
p. cm. — (Young architects ; 8)
ISBN-13: 978-1-56898-684-5 (pbk. : alk. paper)
ISBN-10: 1-56898-684-X (pbk. : alk. paper)
1. Young Architects Forum. 2. Architecture—Awards—United States. 3. Architecture—United States—21st century. 4. Young architects—United States. I. Architectural League of New York.
NA2340.Y6796 2007
720.92'273—dc22

2006032196

CONTENT

Acknowledgments 9
Foreword by Craig Konyk 10
Introduction by Anne Rieselbach 13
Biographies 18

The Living 20
KBAS 46
WILLIAMSONWILLIAMSON 72
PLY Architecture 98
MAD Office 124
Julio Salcedo 150

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ACKNOWLEDGMENTS

Calvin Tsao, President

The Architectural League of New York

Each year for the past twenty-five years, the Architectural League's Young Architects Forum has identified talented members of the next generation of architects and designers. Participants are chosen through a thematically shaped portfolio competition. The competition theme developed by the Young Architects Committee changes every year to reflect current issues in architectural design and theory. The committee is a group selected each year from recent participants in the Young Architects Forum; they ask prominent members of the design community to serve with them on the jury.

The League would like to thank 2005–6 Young Architects Committee members Douglas Gauthier, Naji Moujaes, and Beth Weinstein, along with the competition jurors, architects Craig Dykers, Craig Konyk, Monica Ponce de Leon, and artist Sarah Sze, for their time and insight.

We would like to thank graphic designer Michael Bierut, who has translated the themes conceived by twenty-five successive Young Architects committees into distinctive expressions of their compressed statement of contemporary issues of practice, theory, and form. Both the call for entries, issued in the fall, and the spring poster featuring winning work and announcing the exhibition and lecture series give graphic expression to the theme and text, providing a visual cue to the underlying ideas. Adam Mosseri of blank mosseri designed both the League's twenty-fifth-anniversary Web site and the online installation of this year's winning work. David Sundberg of Esto once again documented the exhibition, and Linda Lee and Jan Haux of Princeton Architectural Press are to be thanked for producing the eighth volume of work by competition winners.

The Young Architects Forum was made possible by the generous support of Artemide, Inc., Dornbracht, Hunter Douglas, Susan Grant Lewin Associates, and Tischler und Sohn. The League's programs are also made possible by the New York State Council on the Arts. The League gratefully acknowledges the support of the LEF Foundation for this publication.

FOREWORD

Craig Konyk, Principal

kOnyk architecture

Architecture is not fragile.

Conventional wisdom holds that architecture is about stability. Our buildings and cities are in many ways immutable constructs, the constant physical presence in an increasingly mobile, multitasking world. Preservation is rooted in the psychological comfort of the unchanged and the maintaining of the visual appearance of our most sacred shared asset: our cities. But the reality of architecture is that it is engaged in the revision of the present, interested in the invention of the new. This tension is what allows our cities to thrive and be the record of every collective ambition that has come before us. We think that we are somehow masters of our built world, the protagonists of the degree of change that we ourselves plan for our urban and architectural world. We make the decisions. We create the plans for the bright future. We are in control.

Until now.

If any convenient thought has been so irrevocably challenged it is this one. The loss of the Twin Towers and New Orleans demonstrate ever so clearly that forces effectively out of our control are at work in the world, altering our sense of stability, revealing the fragility of our ecosystems, our cities, our world. We are left to confront a new reality of the instability of very tangible things.

This is the implicit meaning underlying this year's Young Architects theme of "Instability." When this year's theme was announced, the destruction wrought by Hurricane Katrina was foremost in everyone's mind. An entire American city virtually destroyed. The "inconvenient truth" of global warming brought home with devastating effect. "Instability" is absolutely how one would define the state of the world at this given moment.

Is it not the role of architects and architecture to be the stabilizing influence, the consistency that holds society together? Our cities are familiar places of remembrance. To have one of them—indeed, one of our most architecturally significant ones—taken from us is destabilizing for everyone but more so for architects. It strikes at the core of who we are and what we hope to achieve through our collective efforts. Katrina was destabilizing to that core, our core.

And yet, in a strangely defiant way, our response to Katrina represents our

deepest conviction of our values as architects, as urban inhabitants and creators of habitats and homes. We cannot sit idly by as this enormous challenge, this great obligation, is before us. We can make a difference, and indeed we must. Our collective values are now defined less by what we do than by what we fail to do. In the absence of action, architects must again assume that social-stabilizing role.

Enter now the highest aspirations for our calling as architects. Our ideals are carried forward by the next generation—the young, the energetic, and the earnest—and if Katrina is only the first major defeat in a long and arduous campaign, then this generation will certainly bear witness to the real hardships and challenges yet to come. I can say confidently that if the selections of this year's Young Architects are any indication, those future challenges are most certainly their opportunities, and those who cherish architecture are most certainly the beneficiaries of this talent as expressed in the work. Therein lies the potential for architecture to not only repair and replace but also to heal and rejuvenate, to imagine the future and confidently embrace it. Truly, there exists no stronger remedy than architecture's ability to deliver on that kind of promise.

I invite you to view this tangible evidence of architects giving the gift of that promise in the pages ahead in this small book. Each and every one of them represents a bright hope, a plan for action. But most importantly they represent a defiant embrace of the future despite its uncertainties. It is a promise that we all must keep.

Architecture is fragile. Cherish it.

INTRODUCTION

Anne Rieselbach, Program Director
The Architectural League of New York

"Instability," the theme for the 2005–6 Young Architects Forum, probed the architectural ramifications of social, political, and climatic flux. Competition entrants were urged to consider how adaptive responses utilizing improvisational design methodologies might address current unsettled conditions and shape their own work and architectural practices. The committee posed a series of questions for entrants to address: Are flexible methods a necessary response to unstable conditions and an essential component of design practice? Have borrowed terminologies, ad hoc techniques, and structural improvisations evolved from prescribed methodologies and familiar forms? What is the relative value of these design tools in relation to aesthetics? How might young architects challenge preset programs and reimagine well-established forms to situate their architectural practices?

The competition winners addressed these questions as they considered the methods and materials of contemporary practice and the implications for how architecture spatially describes the ways we live and move at home and in public space. At every scale, from lamps and fish tanks to memorials, parks, and skyscrapers, their work revised and reshaped familiar forms, both programmatically and through innovative fabrication techniques. Some young architects borrowed patterns of natural growth and movement to model interior space. Others looked to biological processes for clues to create interactive and sensory-responsive surfaces and flexible structures. In almost every project on display, digital and traditional design methods yielded unexpected and stylistically diverse results.

David Benjamin and Soo-in Yang of The Living define their working methodology as "Flash Research"—a fast-track system of simultaneous research, design, and construction. In their installation two prototypes embodied the firm's explorations of innovative ways to create and animate architectural form. Better, Cheaper, Faster, a full-scale computer numerically controlled (CNC) milled lightweight framing system, used quarter-inch birch-plywood components to "make a strong structure out of weak elements." The sinuously curved frame is stackable, can be assembled quickly, and is easy to transport. A second prototype demonstrated the firm's experiments with animated, or "living," glass. A thin, transparent surface incorporated gills that opened and closed in response to

carbon dioxide levels, which trigger material actuators. The simple, lightweight wire actuators provided a different tempo of movement than mechanical alternatives.

Julie Beckman and Keith Kaseman interpret the term "instability" as an inevitable but "pliable, productive, and positive state," more generative than destabilizing. Their winning design for the two-acre Pentagon Memorial in Arlington, Virginia, is a tree-shaded park lined with 184 individual memorials. Each inscribed, benchlike unit will cantilever over a glowing pool of water. Other work includes the Space Shuttle Columbia Memorial in Nacogdoches, Texas, and various competition entries. Projecting beneath a field of images of their work, KBAS's installation incorporated a folded and welded aluminum shelf—water-jet cut, bent, and CNC milled—which held a Pentagon Memorial Unit prototype as well as project postcards. The shelf also featured a matrix of photographs illustrating day-to-day aspects of practice in their live/work space as well as inspirations for their designs.

Betsy and Shane Williamson see the "potential to move between digital and analog models [as an] opportunity for chance, choice, and the control of indeterminacy associated with a world of digital simulation and randomness." The focal point of their installation, the laminated wood Door with a Peephole, was created through a CNC-milling process. Its wavy, ridged surface is pierced at its apex by a peephole—the architects' device for highlighting the dichotomy between barrier and the act of viewing. Adjacent to the door, a slender light box with built-in slide magnifiers provided a focused way of viewing WILLIAMSONWILLIAMSON's architectural projects, ranging from urban design competitions to DogTrot, a small, reconfigurable vacation house.

Based in the Detroit area, Craig Borum and Karl Daubmann draw on the expertise of local fabrication and production firms whose work has been undercut by the economic instability of the automobile industry. These relationships allow their firm, PLY Architecture, to experiment with material research and fabrication techniques, "collapsing the distance between the architectural drawing and the act of construction." To display their work, the firm created a birch-veneer display table surfaced with wood tiles planed by a computer-controlled router. The swirling wood pattern and irregular joints activate the surface of the table, which is also punctuated by carved pockets containing postcards illustrating PLY's materials research and related built work. A laser-cut paper lamp, which illuminated the

table, is part of a series designed to explore the interplay of overlapping textured pattern with the neutral plane.

A design strategy based on complex geometries shaped by research, abstraction of data, and manipulation of architectural form informs the work of Yansong Ma and Yosuke Hayano. Recent winners of a design competition for a tower in Mississauga, Ontario, Canada (a commission that has since expanded to two towers linked by a pavilion), MAD Office has participated in a number of design competitions and has a house under construction in China. Distilling their design philosophy to tabletop scale in the gallery was Finding Meiosis, created to provide a critique of the programmatic limitations of an orthogonal grid. MAD Office charted the complex trajectories of fish in motion, and designed a digital wire-frame model based on their findings. The resulting sinuously shaped acrylic tank—with fish in residence—displayed adjacent to animated projections of the firm's design modeling techniques and fish swimming in the recast tank, graphically portrayed the sense of movement characterizing the firm's work.

Images of two houses, Casa Lasso, located in Trasierra, Spain, and the SVS House, in Branch Lake, Maine, illustrate Julio Salcedo's exploration of the duality and resulting interplay between what he has defined as "generic" and "specific" aspects of design. Casa Lasso, whose design Salcedo describes as specific, has an underlying geometry that expresses a one-to-one relationship between building site and perception. SVS House, described as generic, is based on multiple patterns of solid and void. Salcedo mapped the generative of possibilities of each formal approach on accompanying analytic drawings, which flanked the photographs of the houses. Stylized CNC-generated bas reliefs and acetate schematic models added a multidimensional interpretation to the creation of each house's underlying form.

Formally, the combined winners' work exudes an animated, albeit carefully choreographed, effect of enthusiastic spontaneity. In all cases, instability does not mean an implied uncertainty but, instead, an open-ended opportunity for inventive design and construction.

BIOGRAPHIES

The Living was created in 2004 by David Benjamin and Soo-in Yang. The practice emphasizes open-source research and design and views each project as part of larger threads of experimentation and construction. Work by The Living was exhibited at the Chicago Museum of Science in 2006, received three separate finalist prizes from the *Metropolis* Magazine Next Generation Design competition, and has appeared in numerous publications.

Benjamin graduated from Harvard with a BA in Social Studies and played in the rock band Push Kings. Yang graduated from Yonsei University with a BE in architectural engineering and managed the construction of apartment complexes in Seoul. They both received Master of Architecture degrees from Columbia University. They currently teach at Pratt Institute and at Columbia, where they are co-directors of the Living Architecture Lab.

KBAS was founded in 2002 by partners Keith Kaseman and Julie Beckman, who both received their Master of Architecture from Columbia University's Graduate School of Architecture, Planning and Preservation (GSAPP). Kaseman received his undergraduate architecture degree from Arizona State University and Beckman from Bryn Mawr College. Their entry for the Pentagon Memorial Design Competition was selected as the winning scheme; KBAS temporarily relocated from New York City to Alexandria, Virginia, to focus efforts on the memorial's realization, projected for fall 2008. Kaseman and Beckman currently have operations centralized in Philadelphia and both teach at the University of Pennsylvania. Kaseman is also an adjunct professor of architecture at the GSAPP.

WILLIAMSONWILLIAMSON is a Toronto-based architecture and design studio founded in 2002 by Betsy and Shane Williamson. Ranging in scale from furniture and installations to buildings and urban proposals, the studio's work often incorporates design methodologies associated with digital fabrication as a critical engagement of traditional modes of construction and tectonic expression.

A graduate of Barnard College and Harvard University, Betsy is a practicing architect who has previously worked for Shim-Sutcliffe Architects in Toronto and Brian Healy Architects in Boston, Massachusetts. Shane is an assistant professor

on the University of Toronto's Faculty of Architecture, Landscape, and Design. He is a graduate of Georgia Tech and Harvard University.

PLY Architecture, headed by Craig Borum and Karl Daubmann, was established in 1999 and is based in Ann Arbor, Michigan. Their work has been published internationally and has received awards for both built and speculative projects.

Borum received both his undergraduate and graduate degrees in architecture from the University of Virginia. A registered architect, he is an associate professor of architecture at the University of Michigan and was the 1996 Sanders Teaching Fellow. Daubmann received a Bachelor of Architecture from Roger Williams University and a Master of Science in architectural studies with a concentration in design computing from the Massachusetts Institute of Technology. A registered architect, he is an assistant professor of practice at the University of Michigan and was the 1999 Oberdick Teaching Fellow.

MAD Office is a Beijing-based architectural and design collaboration between Yansong Ma and Yosuke Hayano. It has received numerous international design awards for its projects, including the Absolute Tower in Toronto, Canada. The construction of the tower will make MAD Office the first-ever Chinese architectural office to design a international landmark project.

Ma graduated with a Masters in Architecture degree from Yale University. He has worked with Zaha Hadid Architects and Eisenman Architects and has taught at the Central Academy of Fine Arts in Beijing. Hayano graduated from the Waseda University and received a Masters in Architectural Design at the Architectural Association of London (AA). After graduating from AA, he worked for Zaha Hadid Architects. He is the cofounder of Aiborg, an international design partnership based in Bari, Italy.

Julio Salcedo is based in the United States and Spain. His firm engages in disciplinary modes of architectural design and practice, particularly as they apply to landscape and urban design. Salcedo was born in Madrid, Spain, and studied architecture at Rice University and Harvard Graduate School of Design (GSD) under Enric Miralles, among others. He has taught at the GSD, the City College, Syracuse University, University of Pennsylvania, and Cornell University and has contributed to various periodicals. Before defining his own practice, Salcedo worked extensively in Madrid and New York.

THE LIVING

Flash Research[1]

flash research (flăsh rē'sûrch.

An architectural project comprising:
1. A budget under $1,000
2. A duration of less than three months
3. A full-scale, functioning, proof-of-concept prototype

OUR RESPONSE TO INSTABILITY IS MORE INSTABILITY.

Political and cultural conditions change: what if walls and windows morphed in response? Air and water quality fluctuate: what if a cloud of light hovering above the Hudson changed color as a real-time display of contamination?

Instability calls for responsiveness. Responsiveness in architecture calls for new systems. Untested new systems call for full-scale prototypes.

WE MAKE FULL-SCALE PROTOTYPES, NOT COMPUTER RENDERINGS.

While some architectural projects are designed through computer renderings and visual representation, we design by building full-scale prototypes. While some architectural projects involve sequential phases of research, design, and construction, our projects engage all three at once.

For us, research = design = construction. For us, nothing counts unless we can make it. We take computers for granted, but we don't rely on computer renderings.

WE CONDUCT FLASH RESEARCH IN LESS THAN THREE MONTHS, FOR UNDER $1,000.

We also take instability for granted. To address it we have developed a methodology called Flash Research. These projects aim to test specific ideas, technologies, materials, and cultural meanings.

Because of the limits of time and money, we divide each Flash Research project into manageable, swappable built components. For one component we may

start with an off-the-shelf product, for another we may iteratively build variations from scratch. The goal is to integrate several components to create a functioning demonstration of a concept.

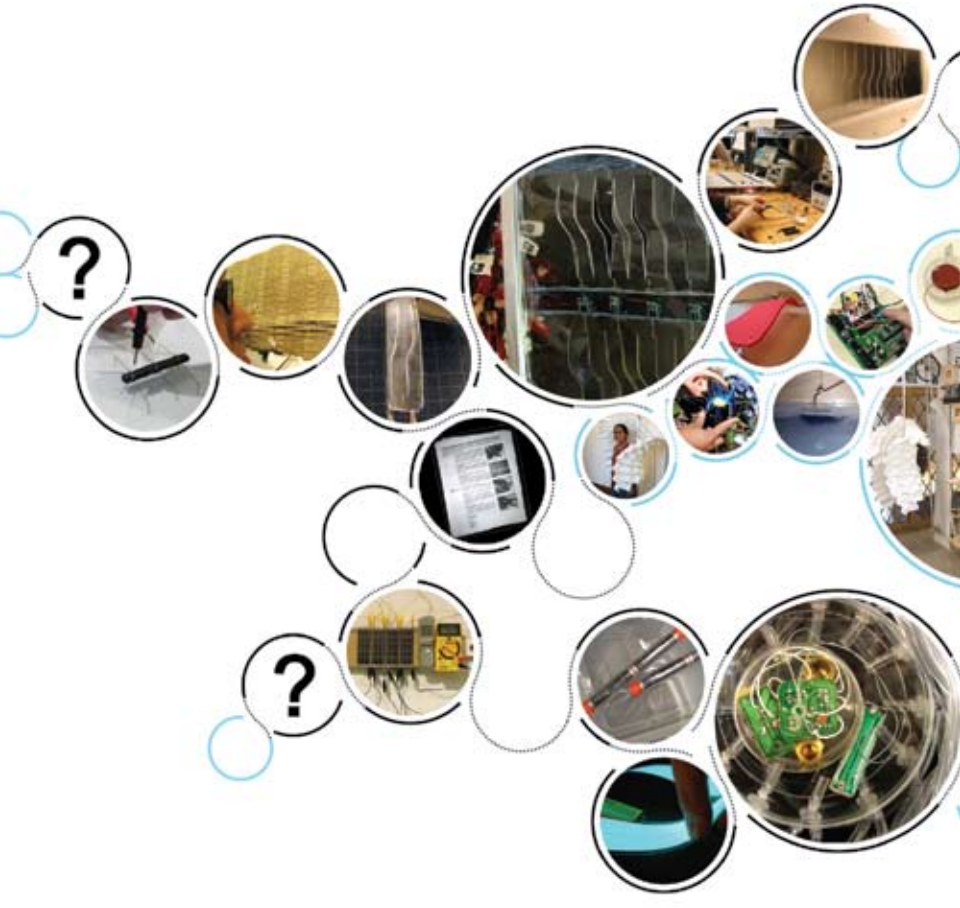
WE DESIGN UPGRADEABLE MODULES, USING OPEN-SOURCE COLLABORATION.

Yet each Flash Research project is a beginning rather than an end. Alternative components can be tested and new components integrated. Because we design with future development in mind, we publish technical specifications, circuit diagrams, tool paths, and assembly instructions, rather than glossy photographs. The life of the project is in the process, not the form.

On a larger scale, we imagine the Flash Research projects themselves to be swappable modules in new and existing buildings and public spaces. These modules can be upgraded without replacing the entire structure.

In our open-source research, we borrow from the discoveries and technologies of others and make our findings and prototypes available for reuse and further development because, above all, instability demands thoughtful collaboration.

1. Though the scope of our work includes projects for clients and for teaching, Flash Research best represents the way we deal with instability.



LIVING GLASS

Full-scale prototype, 2005

WHAT IF ARCHITECTURE RESPONDED TO YOU?

Beginning with the premise that architectural elements might move in response to their environments, we conducted research on, designed, and built a full-scale, kinetic surface. Our system collects input through an array of sensors, processes the input through microcontrollers (small, simple, programmable computers), and triggers local and global movement of a human-scale surface. In contrast to other kinetic wall projects, our surface is thin, lightweight, and transparent, without motors or mechanical parts. Our system of movement is contained within the surface itself: we embed shape memory alloy (SMA) wires—specifically, Dynalloy's Flexinol—in cast silicone. The wires contract due to electrical stimulus, causing gills, which are cut into the surface, to open and close.

Over the course of this Flash Research project, we investigated surface materials, surface treatments, input sensors, and electrical circuits through experiments and multiple prototypes. We had no prior experience with electronics or microcontrollers; we learned just enough through hands-on testing and through consulting with experts. Our full-scale, functioning demonstration responds in real time to multiple infrared sensors. With minor changes, the system could be tuned for environmental control, detecting carbon dioxide in a room and in multiple grapefruit-sized zones and "breathing" when levels are high. Here, movement promotes health by allowing airflow when needed, and it provides information by signaling a high carbon-dioxide level, which is normally invisible.

Movement: Nonmotorized, nonmechanical
Sound: None
Surface thickness in inches: 1/16
Surface opacity: Transparent
Mass: Extremely lightweight
Aesthetic: Organic
Components: Swappable, upgradeable

1. Prototype 1: movement of SMAs as the output component **2.** Prototype 2: microcontroller as the processing component **3.** Prototype 3: multiplying the unit of movement **4.** Prototype 4: controlling complex movement **5.** Prototype 5: using an infrared sensor as the input component

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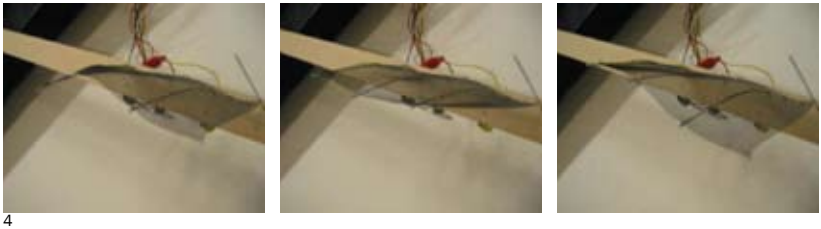

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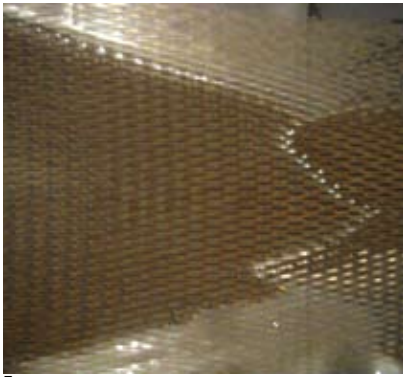
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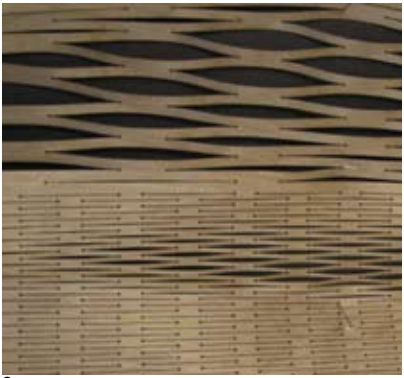
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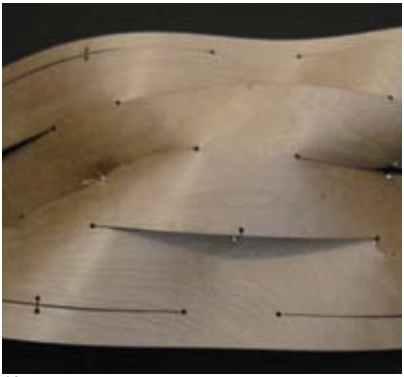
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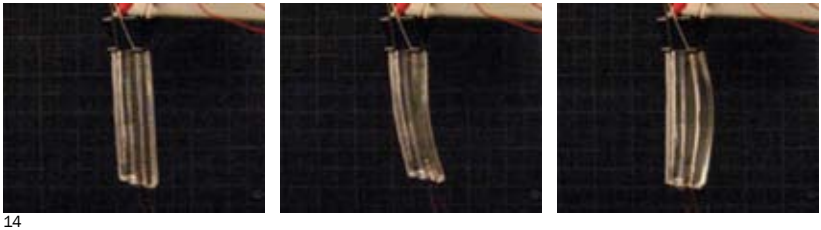

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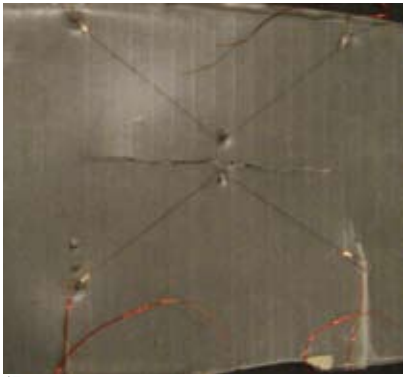
15

6–11. Slitted-surface experiments **12.** Prototype 6: swapping the counterforce **13.** Prototype 7: swapping the counterforce again **14.** Prototype 8: enhancing the movement **15.** Prototype 9: creating a surface with gills


16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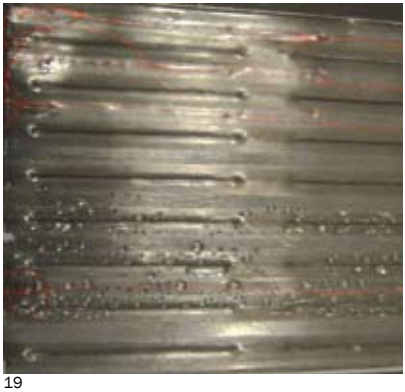
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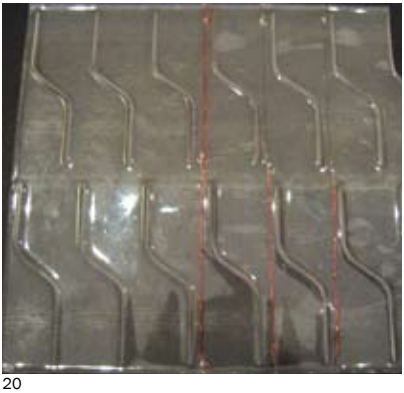
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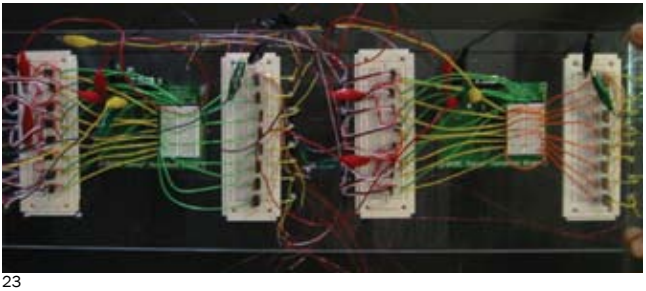

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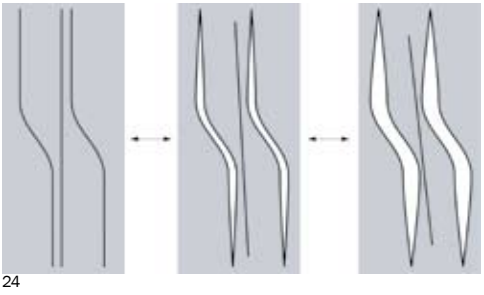

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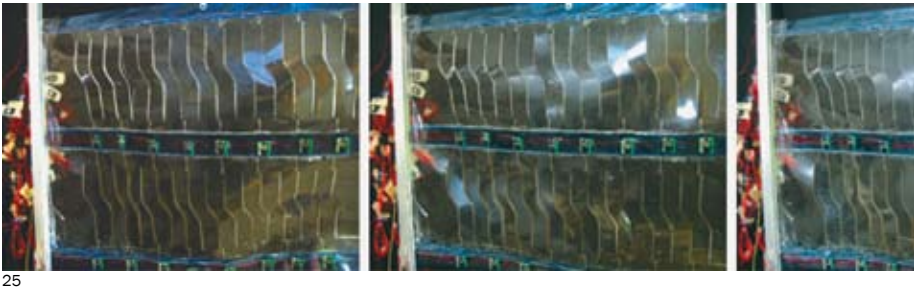
16–21. Slitted-silicone-surface experiments **22.** Input component: infrared sensor **23.** Processing component:microcontroller **24.** Output component: SMA actuator with gills



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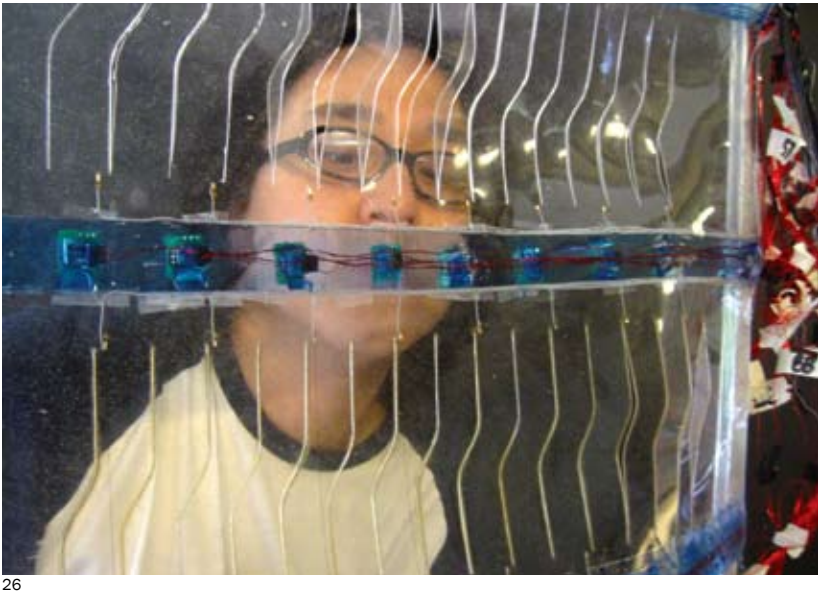

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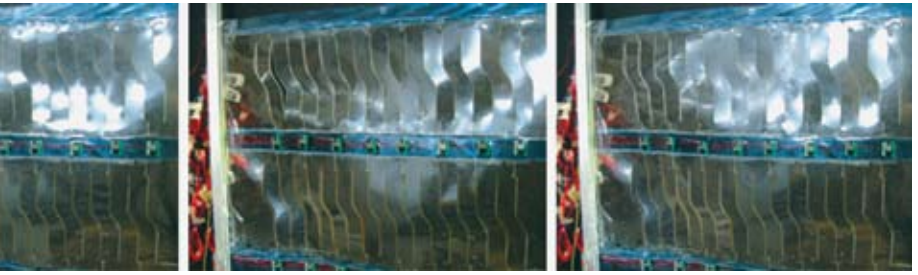
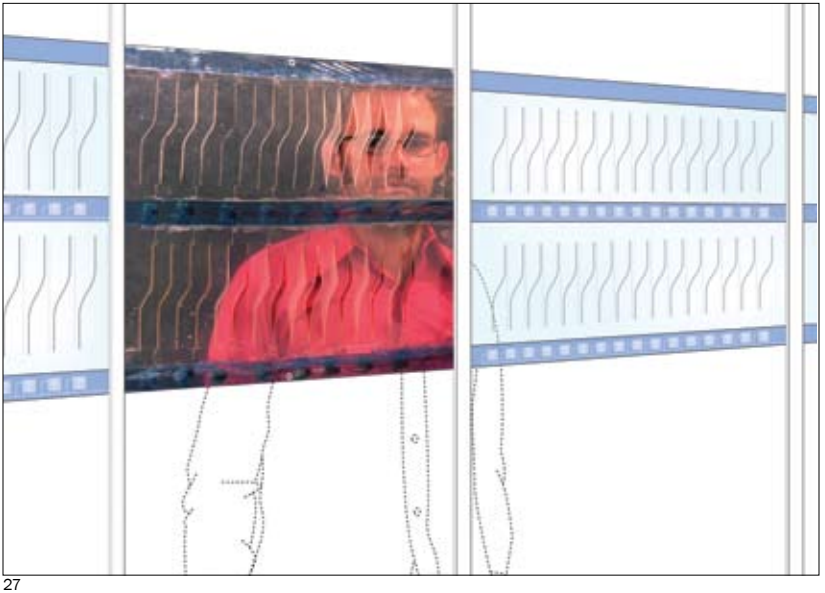
25. Sequence of activation **26.** Full-scale demonstration **27.** Potential deployment as building skin





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RIVER GLOW

Full-scale prototype, 2005

WHAT IF ARCHITECTURE PRODUCED ITS OWN ENERGY?

New York City, and most of the world, lacks a public indicator of water quality. How can we tell if the water is cleaner today than yesterday? How do we know if it is safe to swim? Or to eat the fish?

In this Flash Research project, we built a full-scale prototype of a network of pods that floats in public waterways, senses water quality, and produces a display visible from the water or on shore. We used floating strips of thin-film photovoltaics connected in series to recharge a single AA battery. We then rewired a low-cost pH sensor to detect changes in water quality and to correspondingly trigger an LED connected to uncoated fiber-optic strands.

The result is an ethereal cloud of light hovering above the water's surface that changes colors according to the condition of the water below. Our system allows for the swapping of each component: alternative energy-harvesting devices, low-tech sensors, and low-energy lighting or actuators can easily be integrated. Making use of new technology for collecting, storing, and spending microunits of power, we created energy self-sufficient architecture.

System: Energy self-sufficient
Electricity harvested: Microunits
Electricity spent: Microunits
Testing of water quality: On site
Display of water quality: Immediate
Installation: Easy
Wiring required: None
Deployment: Modular
Energy harvesting: Distributed and redundant
Signaling: Distributed and redundant (multiple units ensure the function of the system as a whole even if one malfunctions)
Components: Swappable and upgradeable

1. Close-up of full-scale prototype **2.** Experiment 1: energy harvesting through solenoid (a coil of wire and a magnet) **3.** Experiment 2: energy harvesting through electroactive polymer (a thin, flexible sheet that changes state when electricity is applied)

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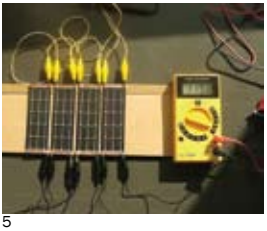

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4. Experiment 3: energy harvesting through thin-film photovoltaic cells **5–7.** Experiments 3a–3c **8.** Experiment 4: LED output triggered by darkness **9.** Experiment 4a **10.** Experiment 5: water quality measurement by pH sensing **11–14.** Experiments 5a–5d **15.** System flow chart


9

10

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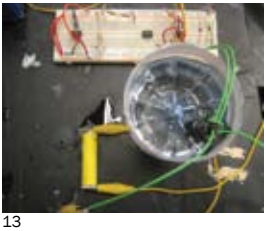
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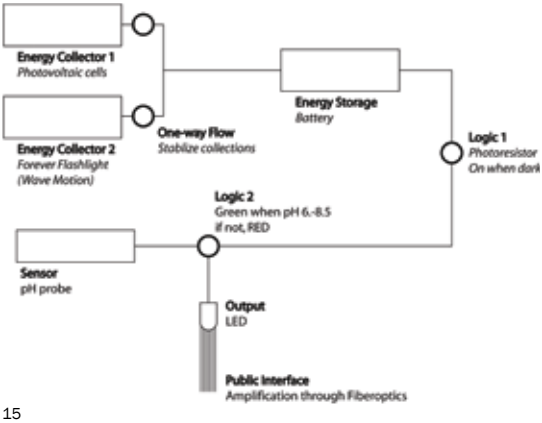

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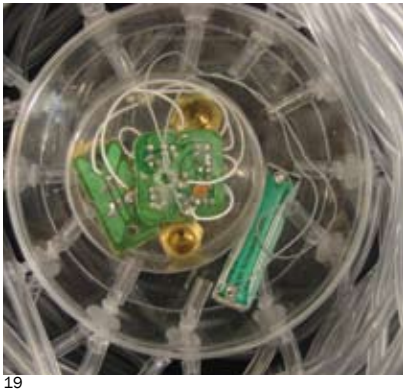

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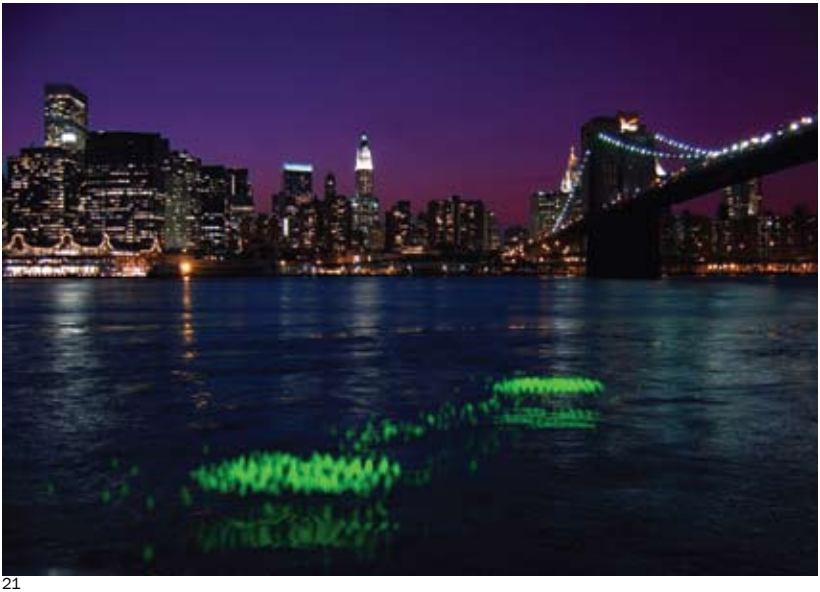
16. Energy-harvesting component with photovoltaics **17.** Energy-harvesting component with solenoid **18.** Input component with pH sensor **19.** Processing component with circuit **20.** Output component with LEDs and fiber optics **21.** Potential deployment in East River: water is safe **22.** Potential deployment in East River: water is not safe



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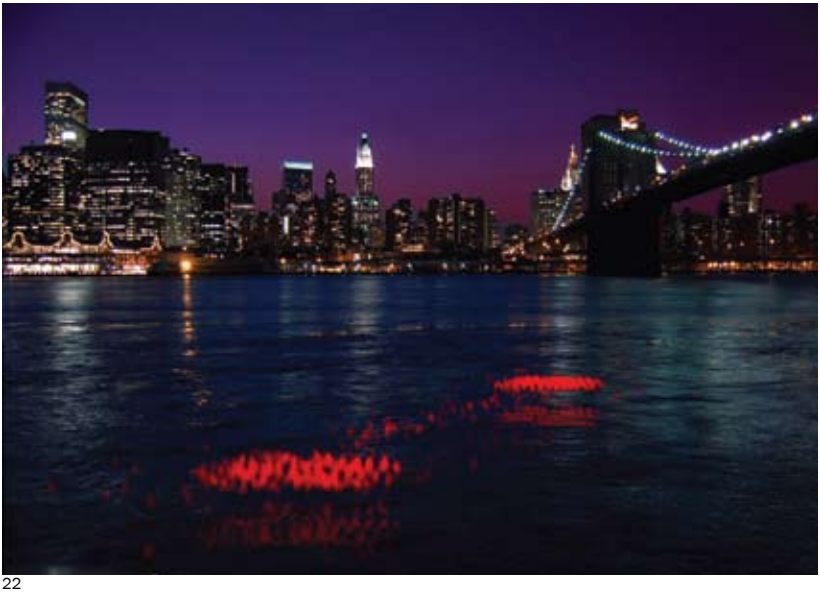

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BETTER, CHEAPER, FASTER

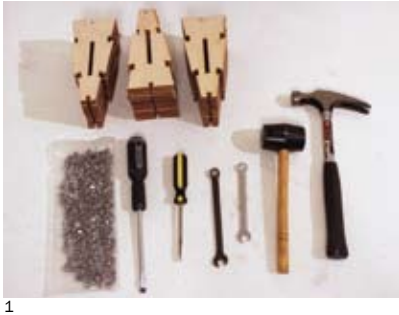
Full-scale prototype, 2005

WHAT IF GOOD ARCHITECTURE AND BOTTOM-LINE DEVELOPMENT WERE THE SAME THING?

Our hypothesis is that new computer-based fabrication techniques can link "good" architects and real estate developers, creating unprecedented opportunities for both—developing concept where once there was mainly profit and developing profit where once there was mainly concept.

For this project, we developed a low-cost, lightweight framing system that is collapsible and easy to assemble. Using slats of one-quarter-inch plywood fabricated with a computer numerically controlled (CNC) milling machine, we created a full-scale demonstration of a frame for a small building. Through testing and strategic arrangement, we created structural strength out of thin, weak members. With this research and design process, we realized the use of CNC technology for efficiency rather than form.

Height in feet: 10
Square feet of structure: 100
Weight in pounds: 120
Dollars per square foot: 9
Hours to mill: 6
Hours to assemble: 1
Non-specialists as workers: 2
Tools required per worker: 3
Sheets of plywood: 10
Steel fasteners: 632
Plywood wedges: 52
Plywood slats: 144



1

1. Tools for assembly **2.** Weak material: one slat **3.** Weak material: two slats **4.** Weak material: three slats **5.** Weak material: AC plywood **6.** Weak material: Baltic Birch plywood

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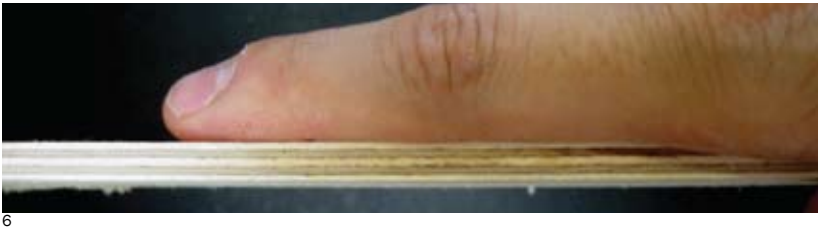

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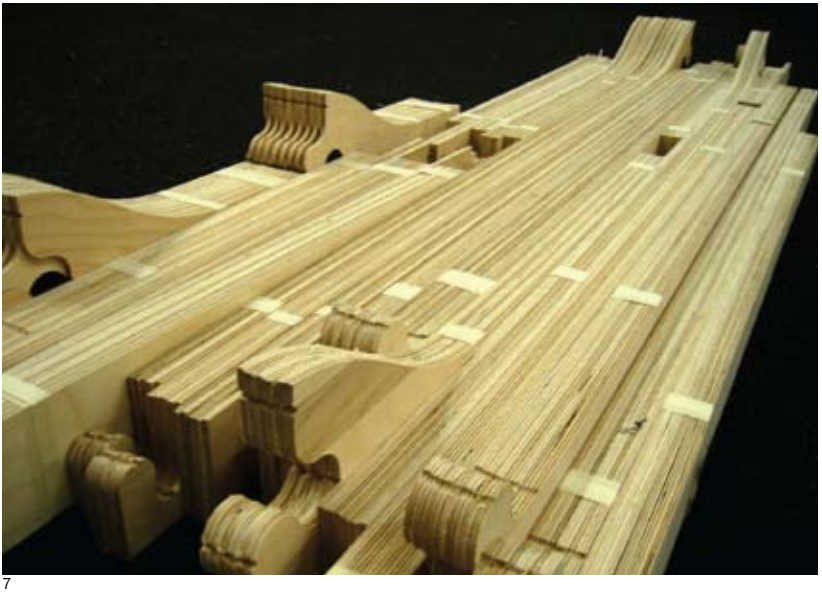

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7. Stackable and easy to transport **8–9.** Collapsible **10.** Joint experiments **11.** Issue 3: how to connect vertical with horizontal **12.** Issue 6: how to maintain rigidity

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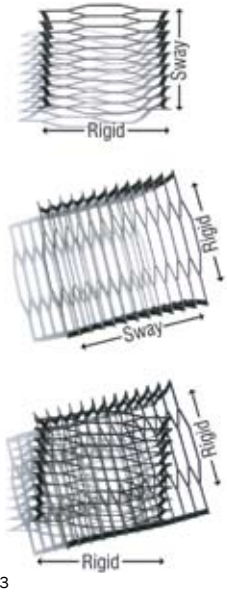

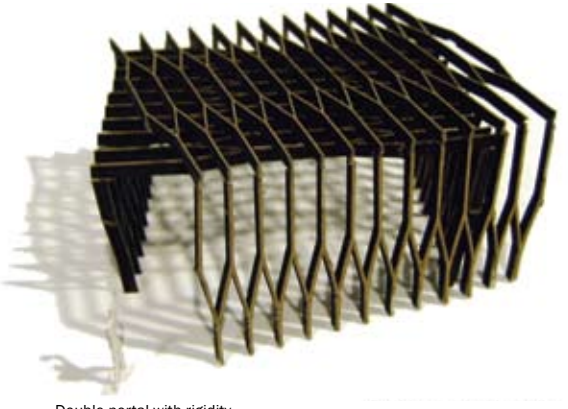

Double portal with rigidity

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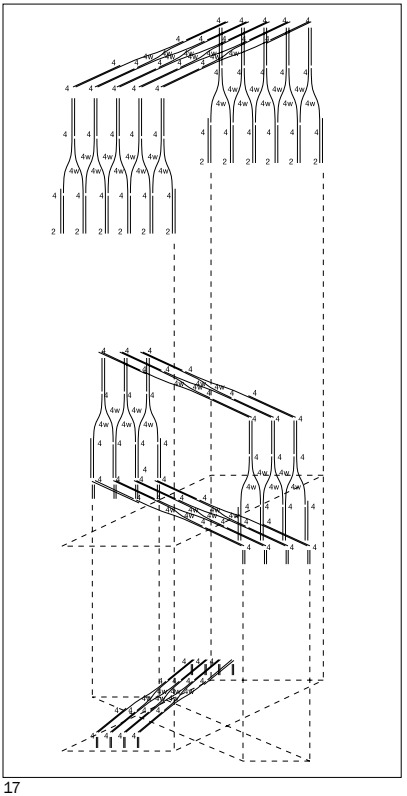
13. Issue 4: how to create rigidity **14.** Issue 5: how to keep the module expanded **15.** Issue 7: how to skin the frame
16. Rapid construction



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17. Assembly diagram **18–20.** Full-scale demonstration

KBAS

From the inside, it often seems that few things in the world are less stable than a young design practice flying-by-wire. However, it is clear that stability is a fundamentally relative condition. The extent to which the privilege of projecting architectural ideas into the world can be its own parachute directly correlates to the magnitude and frequency of the turbulence exerted on the needle one might use to measure stability's constant flux. Ever persistent, instability tends to pull the needle in its own direction much more often than not. To ride through this complex and chaotic continuum, we have no choice but to consider instability a strategically pliable, productive, and positive state—then dial-in operative protocols as such.

KBAS is a studio committed to architectural invention through strategic thought and precise execution. We are rooted in the perpetual pursuit of ideas, utilizing questions and imagination as the impetus with which design proposals and fabrication methodologies are refined and deployed. We practice design as a rigorous process of interrogation, development, refinement, and adjustment toward specific goals at hand and opportunities that emerge along the way. Research and development drives much of our focus, geared to the extent both possible and required. Productively and symbiotically exploiting our ever-growing network of incredible collaborators, we employ multiple strains of precision in parallel with each other: tactical, operational, conceptual, geometric, qualitative, and procedural. Coupling these strains with a vast array of digital tools at our disposal, we have developed an acute facility to carve space out of instability's continuum, such that we have time to think, test, and rethink.

PENTAGON MEMORIAL

Arlington, Virginia, 2003–present (projected completion, 2008)

A two-acre park located on the West Lawn of the Pentagon, adjacent to the point of impact of American Airlines Flight 77, the Pentagon Memorial will be a place like no other. Both individual and collective in nature, the memorial intends to record the sheer magnitude of that tragic day while providing layers of specificity to begin to tell the story of the 184 individuals whose lives were taken at the Pentagon on September 11, 2001. Inviting personal interpretation on the part of the visitor, the memorial provokes thought yet does not prescribe what to think or how to feel.

Organized by a timeline based on the ages of the deceased, 184 memorial units are uniquely placed along age lines parallel with the trajectory of Flight 77—each marking a birth year, ranging from 1930 to 1998. Highly articulate in its form and placement, the memorial units are the heart of the project, as each unit demarcates a special place dedicated to each individual. Directional orientation inherent to the cantilevered unit indicates whether an individual was aboard Flight 77 or in the Pentagon at the time of impact. Each individual's name is engraved at the end of the cantilever, hovering above a pool of water that glows with light at night. Fully designed in a three-dimensional computer-modeling environment, the memorial unit will be produced through computer numerically controlled (CNC) technologies and cast in a highly specialized stainless steel.

These memorial units are dispersed throughout a strategically tactile environment with material choices and detailing geared toward sensory enhancement. For example, a porous and loose, stabilized gravel system will not only allow visitors to hear their own footsteps but also those of others. While providing shade to the memorial units, brilliant foliage will create a dynamic canopy of light and color throughout the day and seasons. The constant and slow exfoliation of the Paperbark Maple trees over time provides a natural mechanism by which change is registered. Furthermore, this grove will retain its foliage well into the fall, when most trees in the region will already be bare. Finally, the Memorial Park is surrounded by a continuous perimeter bench backed by a soft border of ornamental grasses—together with the memorial units, there are over 2,000 linear feet of seating surface, creating a comfortable environment for several people or several thousand.

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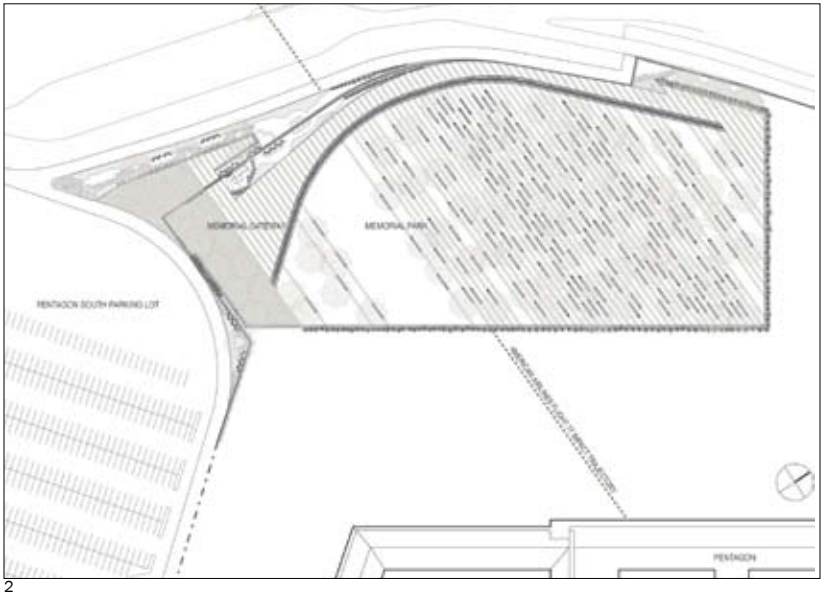

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1. Aerial view of site **2.** Site plan

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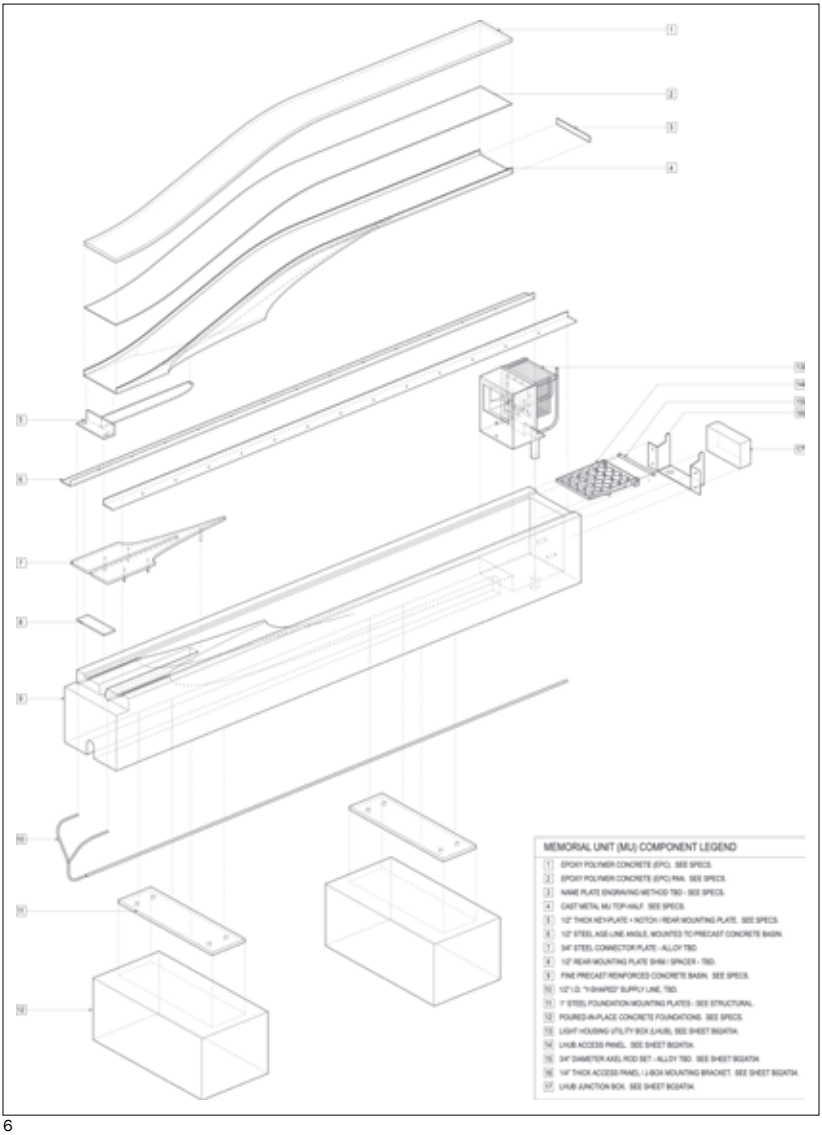
3. View of memorial from adjacent highway **4.** Bird's-eye view, evening **5.** Memorial unit, night view
6. Memorial unit, assembly-instruction drawing


MEMORIAL UNIT (MU) COMPONENT LEGEND
1 EPOXY POLYMER CONCRETE (EPC). SEE SPECS.
2 EPOXY POLYMER CONCRETE (EPC) PAN. SEE SPECS.
3 NAME PLATE ENGRAVING METHOD TBD - SEE SPECS.
4 CAST METAL MU TOP HALF. SEE SPECS.
5 1/2" THICK KEY-PLATE + NOTCH / REAR MOUNTING PLATE. SEE SPECS.
6 1/2" STEEL ASB LINE ANGLE, MOUNTED TO PRECAST CONCRETE BASIN.
7 3/4" STEEL CONNECTOR PLATE - ALLOY TBD.
8 1/2" REAR MOUNTING PLATE SHIM / SPACER - TBD.
9 FINE PRECAST REINFORCED CONCRETE BASIN. SEE SPECS.
10 1/2" I.D. "Y-SHAPED" SUPPLY LINE, TBD.
11 1" STEEL FOUNDATION MOUNTING PLATES - SEE STRUCTURAL.
12 POURED-IN-PLACE CONCRETE FOUNDATIONS. SEE SPECS.
13 LIGHT HOUSING (UTILITY BOX (LHUB). SEE SHEET BG0470.
14 LHUB ACCESS PANEL. SEE SHEET BG0470.
15 3/4" DIAMETER AXEL ROD SET - ALLOY TBD. SEE SHEET BG0470.
16 1/4" THICK ACCESS PANEL / J-BOX MOUNTING BRACKET. SEE SHEET BG0470.
17 LHUB JUNCTION BOX. SEE SHEET BG0470.

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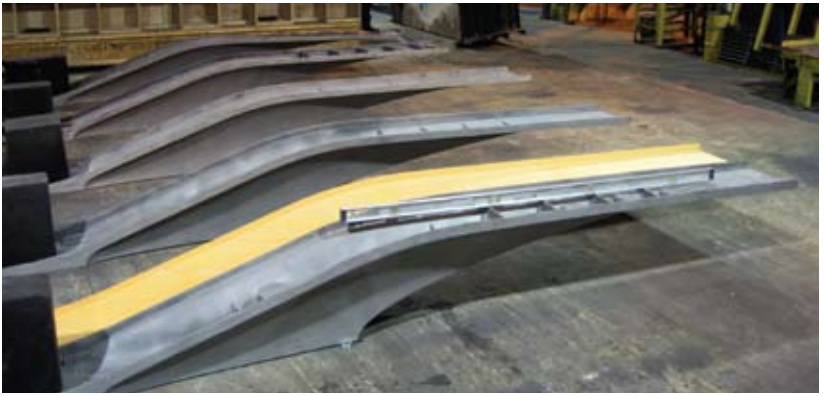

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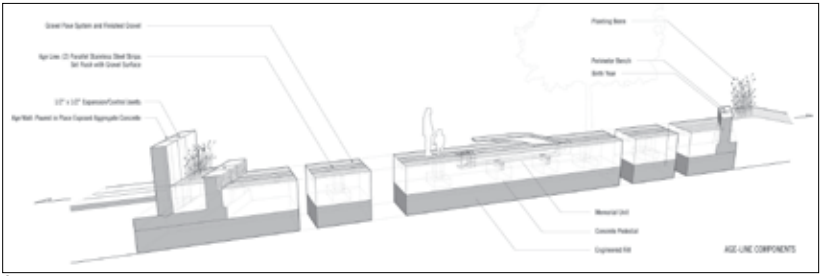

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7. Memorial unit, prototype development **8.** Memorial unit, prototype refinement **9.** Age line components
10. Tactile field, daytime view **11.** Individual and collective Memorial Park

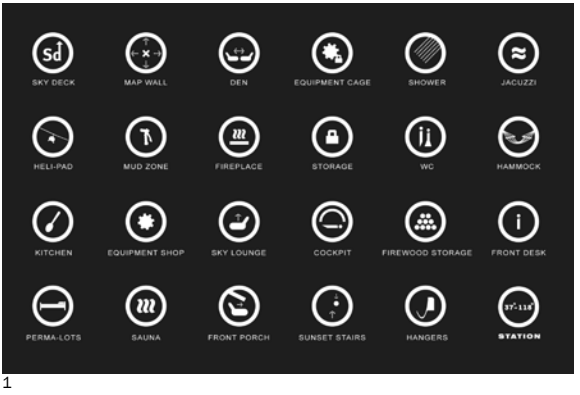
STATION 37N-118W

Big Pine, California, 2003

Palisades Glacier Mountain Hut Design Competition Entry / Honorable Mention

A retreat in the High Sierras, Station 37N-118W provides a unique start or finish to a long journey. Seamlessly ramping up through the lodge along perma-lots of sleeping quarters, lounging dens, and walls of trail maps, the weary traveler arrives at the sky deck for a grand finale of sky, mountain and tree tops, and stars. Delicately floating above the natural terrain upon a system of thin columns, which minimizes the footprint of impact, the mountain hut is largely self-sufficient. Passive heating, cooling, water retention, and ventilation systems drive the overall geometry and orientation of the site.

An exercise in developing and refining methodologies necessary to work continuously across a nationwide network of team members, the Palisades Glacier Mountain Hut was developed with operations, communications, and meetings in and between Alexandria, Virginia; New York, New York; San Francisco, California; and Minot, North Dakota.



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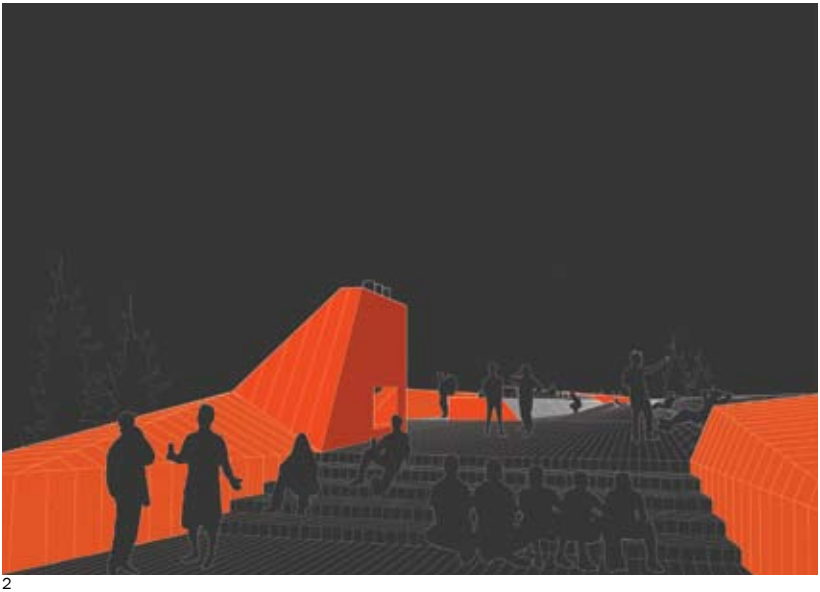
1. Program identifiers **2.** Sky deck **3.** Skeleton and skin **4.** View from helipad toward perma-lot front porches



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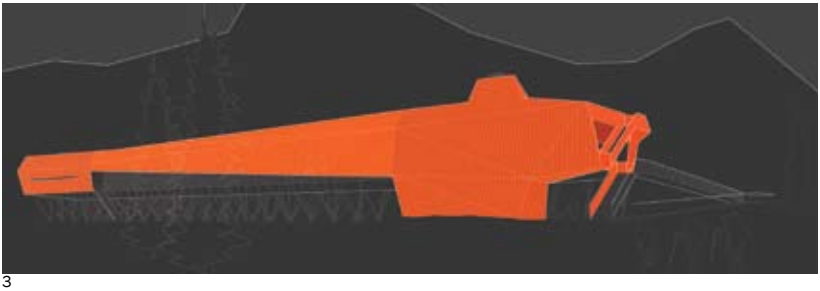

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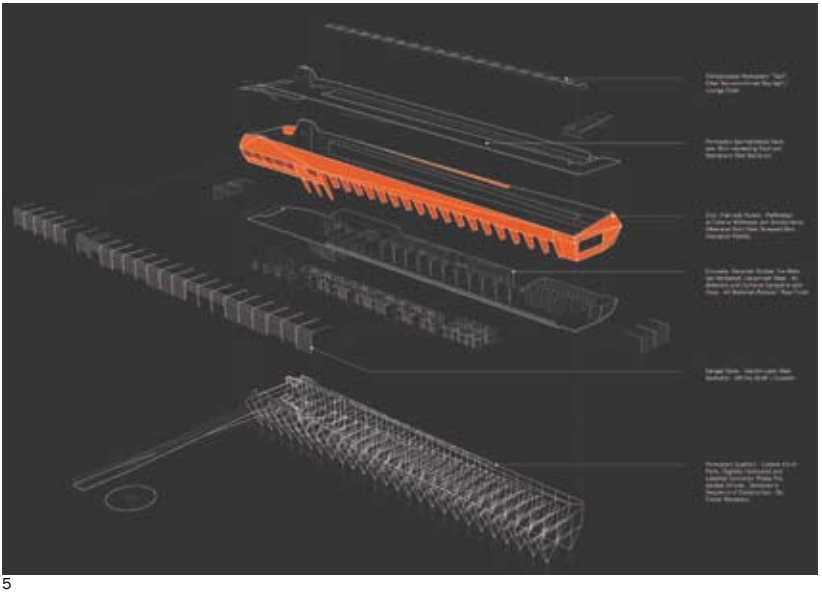

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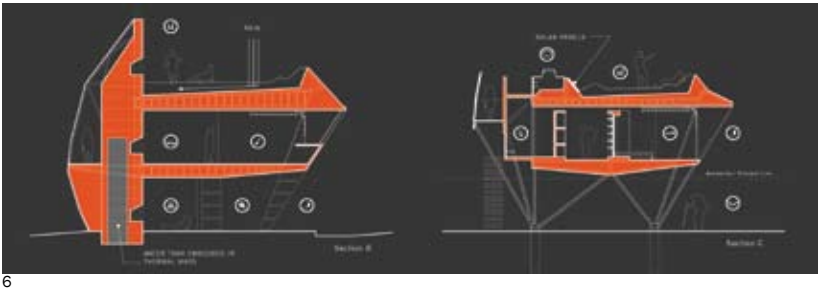

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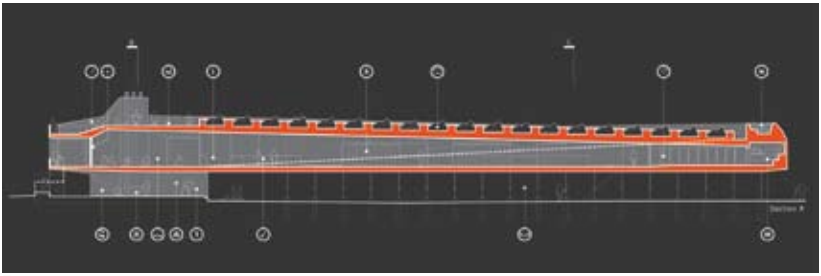
5. Primary components **6.** Sections **7.** Section through cockpits **8.** Circulation flow **9.** Plans



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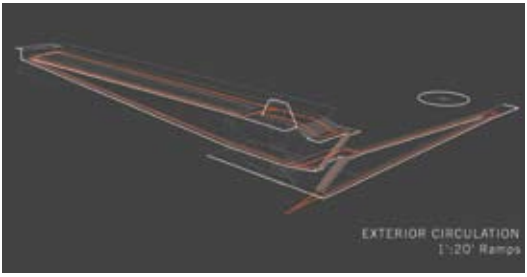

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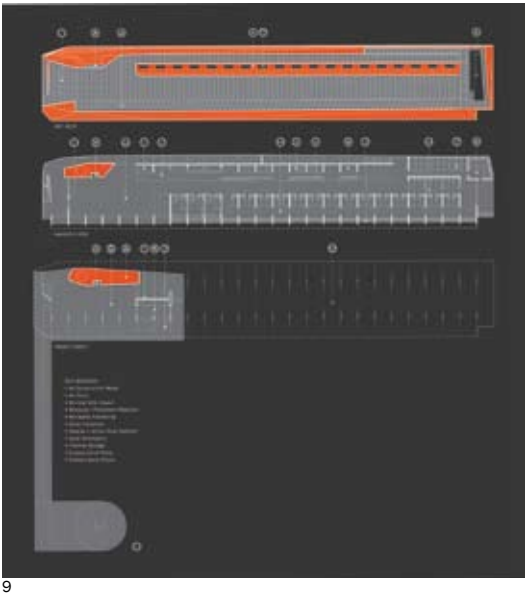

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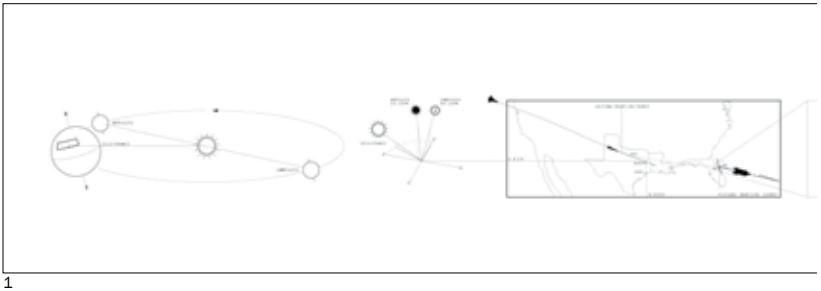
SPACE SHUTTLE COLUMBIA MEMORIAL

Nacogdoches, Texas, 2004–present

On February 1, 2003, the world suffered a tragic loss. After seventeen days in space, sixteen minutes before it was due to land at Kennedy Space Center in Florida, the Space Shuttle *Columbia* broke up upon re-entry in the skies over Texas. At 7:59 a.m. (CST), *Columbia* and her international crew of seven astronauts lost all contact with NASA Mission Control. In the minutes that followed, *Columbia*'s debris cloud settled across a 200-mile-long by 4-mile-wide corridor that spans from west of Dallas to east of the Texas-Louisiana border.

This memorial is an enduring component to *Columbia*'s final mission. Aligning precisely with solar geometries and those specific to this mission, the memorial is comprised of a pavilion set within a small park and will be fabricated utilizing advanced composites, materials inherent to the aerospace industry, such that the monocoque shell will be incredibly thin yet extremely rigid. Intertwining imagination and respect, this memorial provides a space where the new relationship between *Columbia*, her crew, all those involved in her recovery efforts, and the impact felt by the community of Nacogdoches, Texas, can be uniquely contemplated.



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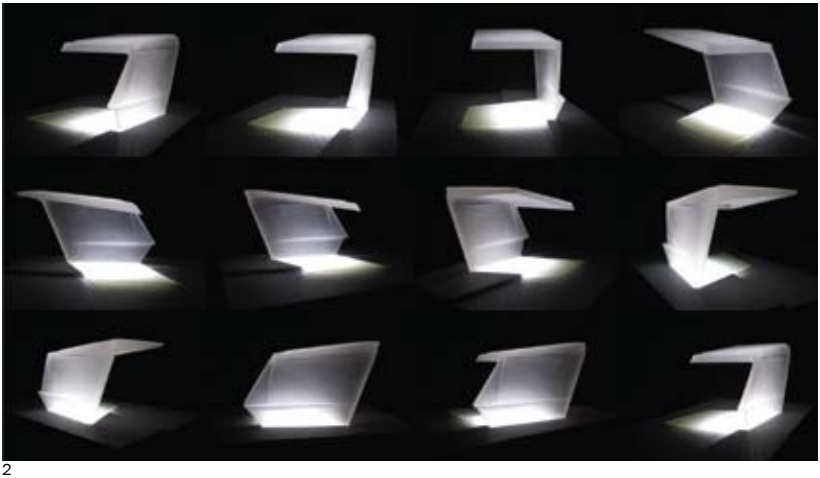
1. Pictogram of mission-related geometries defining pavilion configuration **2.** Pavilion analysis, stereolithography model **3.** Developmental iterations of pavilion geometries



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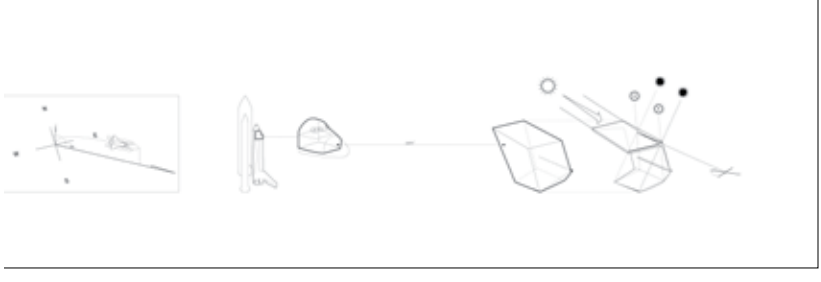

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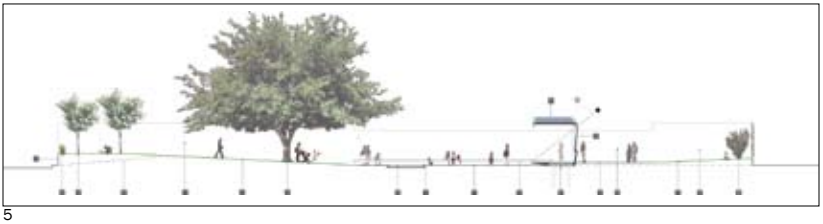

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4. Site model **5.** Site section **6.** Afternoon view of memorial park **7.** Morning view of memorial pavilion **8.** Names of Space Shuttle *Columbia*'s crew, precisely illuminated by the sun every February 1st at 7:59 a.m. (The geometry of the pavilion is largely based on sun angles and mission-specific data, such as the launch azimuth.)

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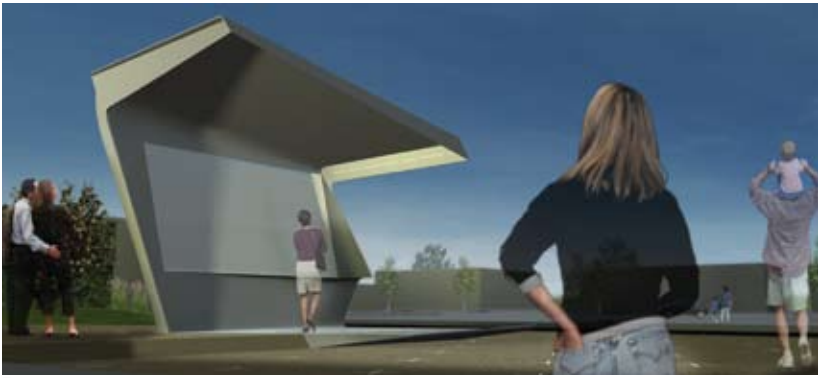

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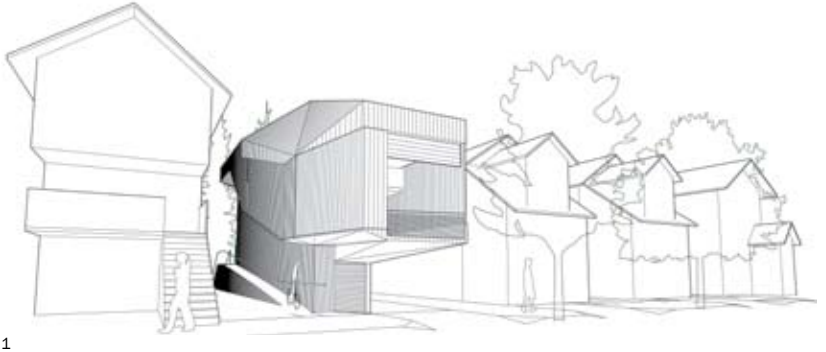
PORTLAND THRU-HOUSE

Portland, Oregon, 2004

Living Smart: Big Ideas for Small Lots Design Competition Entry / Citation for Design Excellence

Through a series of productive zoning initiatives, a new narrow-lot topology has emerged in Portland, Oregon. In 2004, the City of Portland announced a call for ideas to spark dialog within the community regarding the latent potential of these twenty-five-feet-wide by one-hundred-feet-long residential sites. Questions put forth sought examples of how local interventions might positively affect the regional fabric. In an effort to open up the typically stagnant imagination that drives many cities toward residential mediocrity, the city published resultant ideas in a monograph for distribution specifically targeting developers and general contractors.

We responded to this call. By consolidating circulation, flexible occupation, and ventilation through a straightforward fabrication and construction strategy, we conceptualized the narrow lot as a place to live *through* rather than *on*. As such, the Portland Thru-house is built with prefabricated, structural program boxes braced by frames that support an operable skin. Integrating structural components with programmatic potential allows residents to augment and refine critical habitation preferences. Barbecue on the top-yard, ride a bike to the front door, and turn the living room into the front porch—who wouldn't want to live here?



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1. Typical street view **2.** Section perspective **3.** Plans

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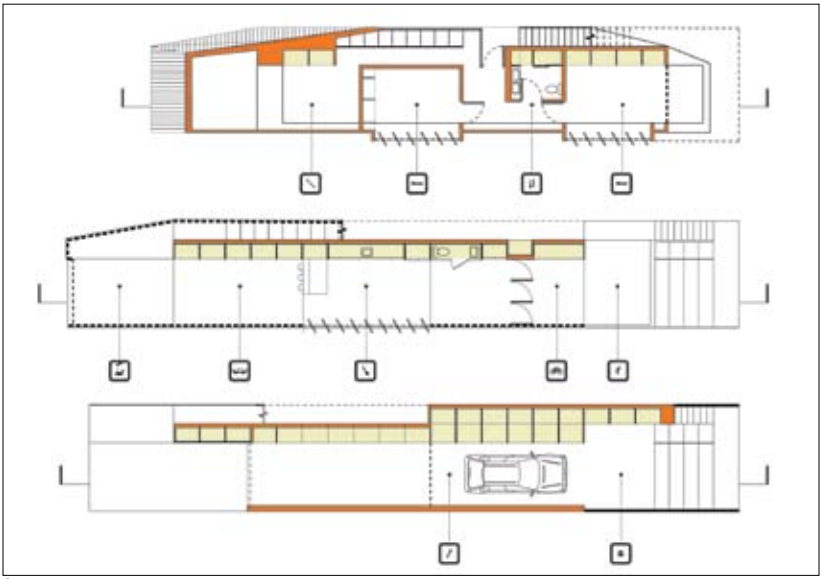

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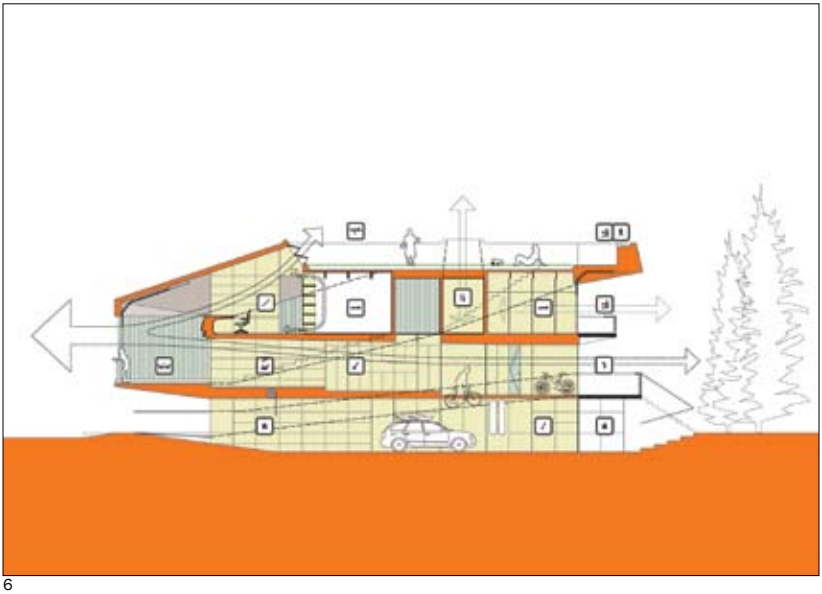

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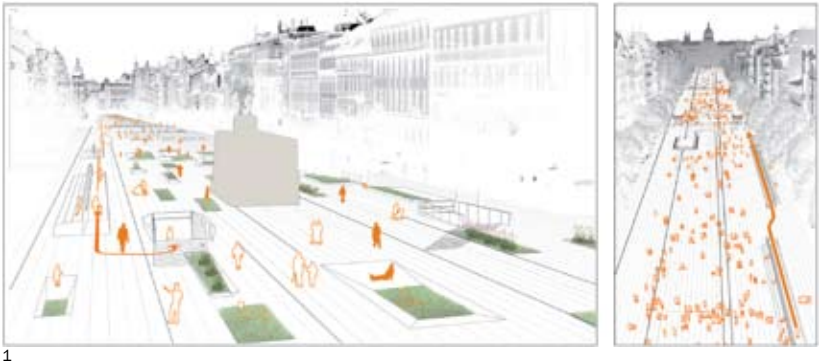
4. Top-yard **5.** Primary components **6.** Section

VÁCLAVSKÉ NÁMESTÍ

Prague, Czech Republic, 2005

Rethinking Václavské Námestí Competition Entry

Circumstances rarely afford the opportunity for any city to fundamentally reinvent one of its core urban volumes, especially with the physical scale and historical magnitude of the prominent Prague square Václavské námestí. To reactivate this pedestrian corridor of myriad users at both multiple scales and cycles of use, we used a process of speculation and diagrammatic documentation to spark the momentum from which target conditions emerged. Playing through iterations on this conceptual game board, one can set up, evaluate, and describe multiple scenarios of use while suspending assumptions about the formal qualities and resolution of the place. Potential opportunities from these conceptual games helped define a programmatic strategy—the first draft of which was written in the form of questions. For example, within Václavské námestí, how does one create a permeable field of sticky attractors for ritual activities or seasonal events? The notational diagrams documented potential answers to such questions and served as the communication tools that facilitated the collaboration between KBAS and HMA Architekti, our Prague-based colleagues in this endeavor.



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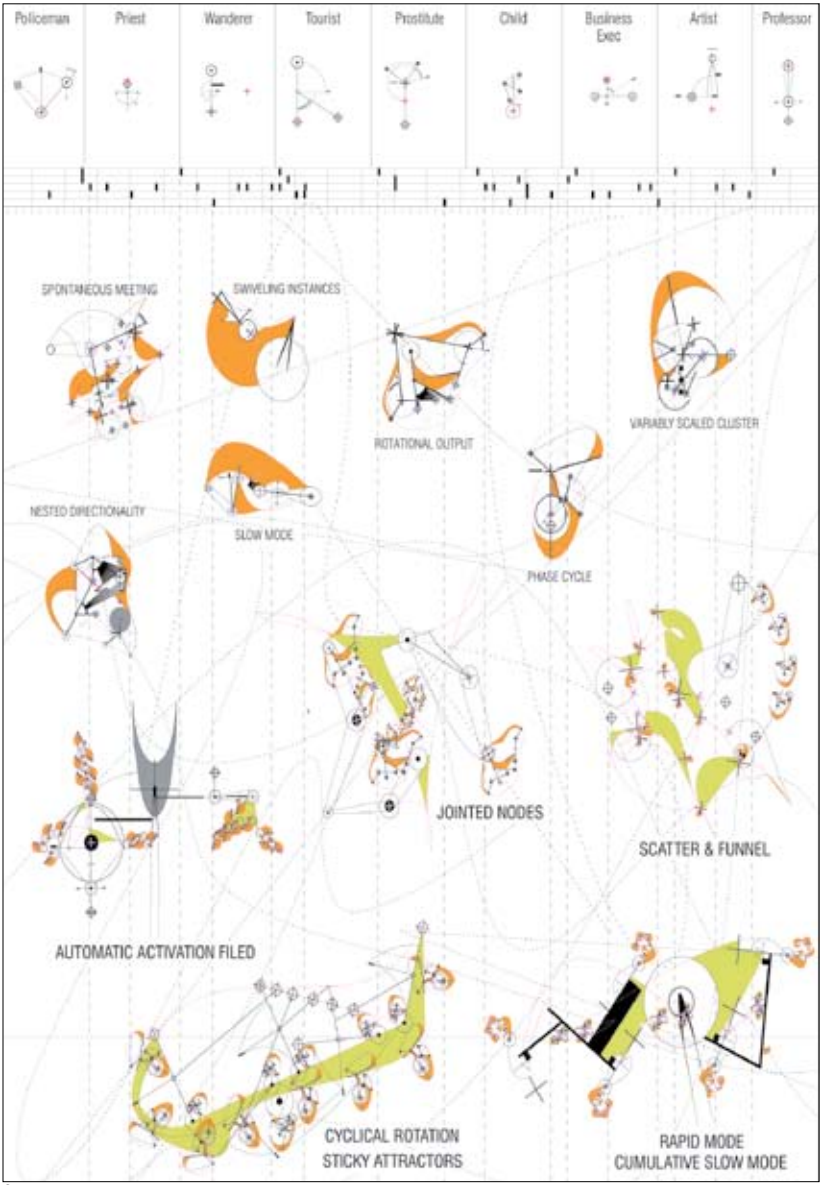
1. Field activation: reclaimed pedestrian territory **2.** Game board: question generator


Policeman
Priest
Wanderer
Tourist
Prostitute
Child
Business Exec
Artist
Professor
SPONTANEOUS MEETING
SWIVELING INSTANCES
ROTATIONAL OUTPUT
VARIABLY SCALED CLUSTER
NESTED DIRECTIONALITY
SLOW MODE
PHASE CYCLE
JOINTED NODES
SCATTER & FUNNEL
AUTOMATIC ACTIVATION FILED
CYCLICAL ROTATION
STICKY ATTRACTORS
RAPID MODE
CUMULATIVE SLOW MODE

REVEALED: CAMERA OBSCURA PROTOTYPE

New York, New York, 2006

The room-sized camera obscura provides a space within which visitors will experience the uniquely projected and inverted real-time images of site-specific performances produced and directed by internationally acclaimed site-artist Stephan Koplowitz. Temporary in nature, the first deployment of the camera obscura prototype was at the World Financial Center Plaza. With this first installation as a positive proof-of-concept, the prototype will lead to the refinement and production of numerous cameras that will travel to cities around the country and the world in a series of public art installations and event programs produced by Koplowitz.

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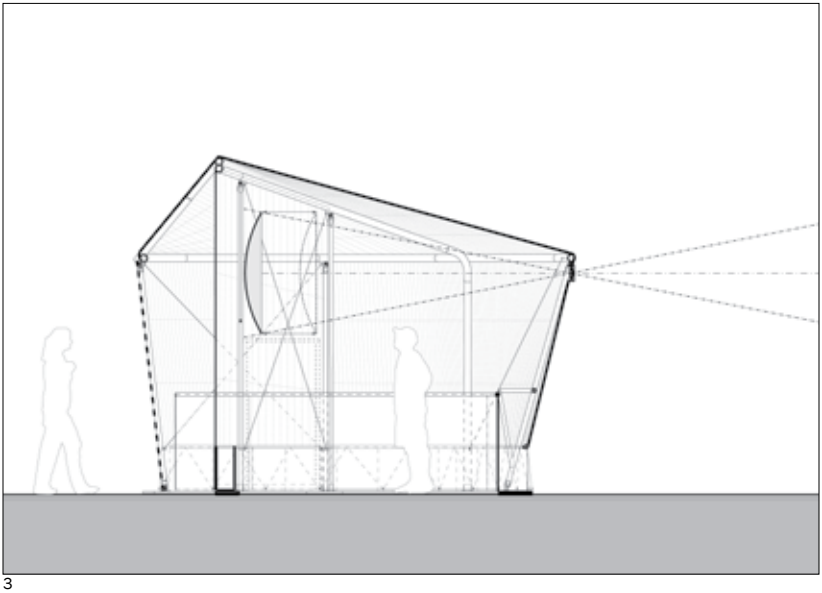

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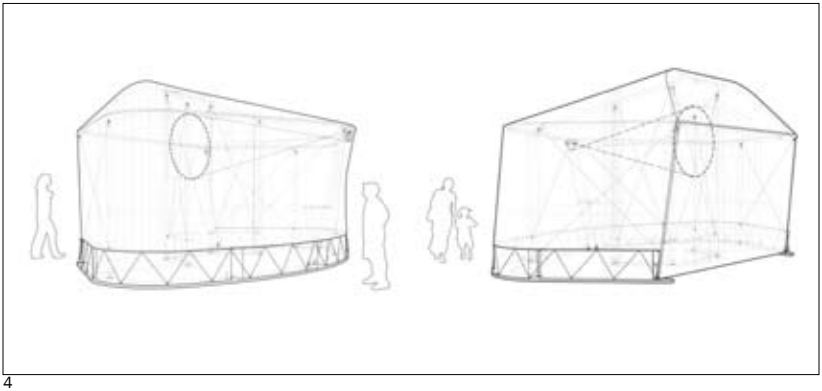

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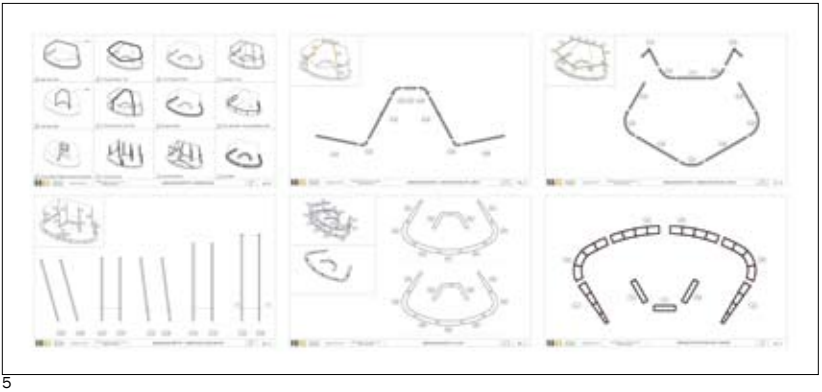
1–2. Developmental renderings **3.** Section through lens and projection screen **4.** Fabrication drawings, perspective views



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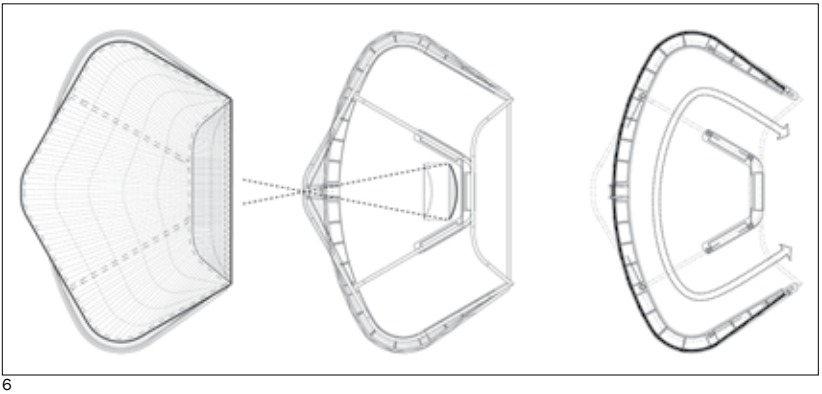

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5. Camera component assembly drawings **6.** Plan **7.** Fabrication and assembly sequence **8.** Field of vision
9. World Financial Center Plaza installation

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WILLIAMSON

WILLIAMSON

The following projects explore the theme of instability, particularly in their relationship to flexible design methodologies. Perhaps the best way to characterize this work would be to position it within a generative paradigm associated with scripting, simulation, and digital fabrication techniques. Several proposals, including those for the Pentagon Memorial, Holocaust Education Resource Center, and the Nam June Paik Museum, incorporate algorithmic operations relative to pattern generation and form finding. Other projects, like Stock Space, use rigid-body dynamics simulations as well as finite-element analysis. Such processes, though, are not privileged over the aesthetic. Rather, the critical engagement of early conceptual artifacts often leads to the re-engagement of the process itself.

Key to all of this work is the production of physical artifacts. Considering our Door with Peephole, for example, the interpretative analysis of patterning afforded through oblique lamination was more contingent upon the act of subtraction than that of CNC machining. Notwithstanding, the possibilities and constraints of digital fabrication deeply inform our work and research. The potential to move between digital and analog models is the means by which critical subjectivity mitigates accidental occurrence. Here lies our opportunity for chance, choice, and the control of indeterminacy associated with a world of digital simulation and randomness.

HOLOCAUST EDUCATION RESOURCE CENTER

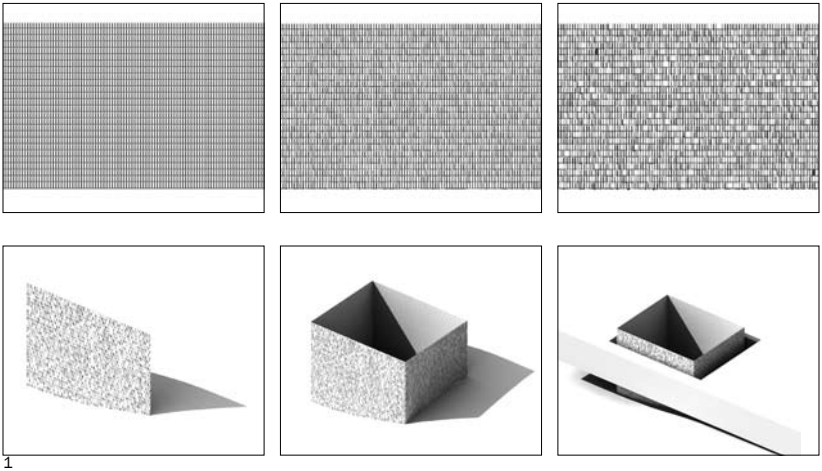
University of Maine, Augusta, Maine, 2004

Competition

The Holocaust Education Resource Center educates students and the public about the history of the Holocaust and how the application of its lessons pertaining to human rights and individual diversity can benefit our changing world.

The project is organized as an enfilade of teaching and social spaces flanked by circulation and support corridors and syncopated with openings to the sky and to the surrounding landscape. Central to the scheme is the exhibition gallery. Viewed from the exterior, it is the mass supporting the building and anchoring the project to the site. From the interior, the gallery appears delicate, its walls washed with light. The limestone surface references traditional Jewish paper cuts, an important folk art during the seventeenth to nineteenth centuries, that was nearly lost because its practitioners either emigrated or, tragically, perished in the Holocaust.

1. Studies of the algorithmic variations of the exhibition gallery wall **2.** Plan: the entry courtyard was designed as a preamble to the rhythm of interior spaces and serves as an exterior social space. The education rooms adjacent to the entry house classrooms, lecture spaces, and research facilities. A large reception area flanks the exhibition hall and gallery at the eastern end of the building. Here the focus shifts from an inward study of history to the outward view of the community beyond. **3.** Site model



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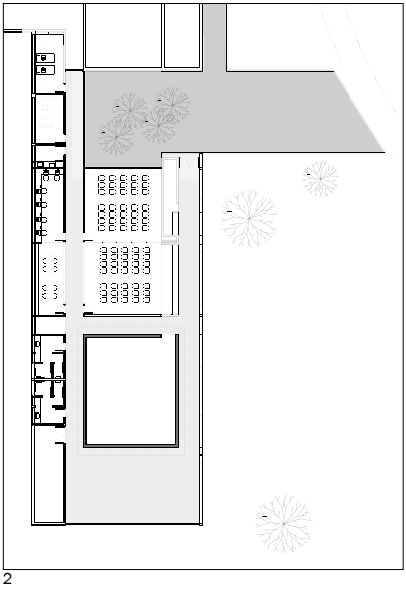

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4. Elevation fronting the main campus drive **5.** View from the entry to the exhibition gallery's figured wall
6. Sensor-activated illumination highlights the proximity between visitors and the exhibition gallery wall

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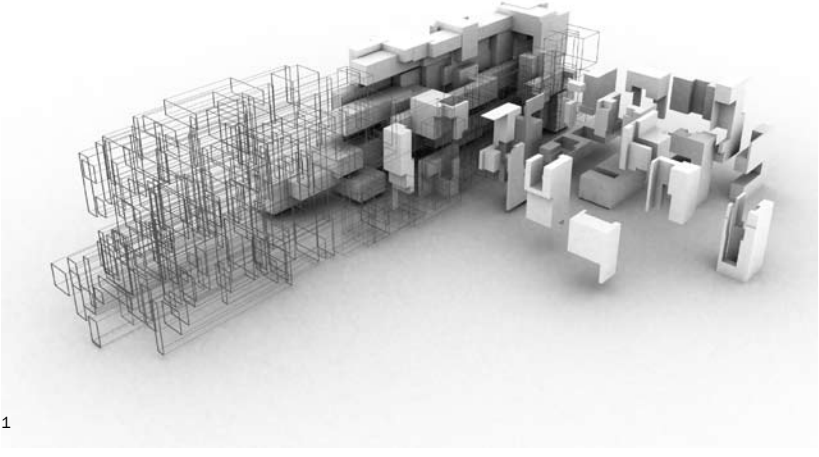
PENTAGON MEMORIAL

Arlington, Virginia, 2002

Pentagon Memorial Design Competition / Finalist

This memorial addresses loss as both an individual and a collective experience. To accomplish this, 184 individual memorials are dispersed worldwide while one collective memorial remains on the Pentagon site.

The individual memorials represent the positive form of a subtraction from the collective memorial. They link together in complex ways, resulting in unique forms that will be sited and installed in the victims' hometowns. The remaining voids in the collective memorial stand in absence of individual representation and provide niches for visitors to leave mementos at the site of the tragic event of September 11, 2001.



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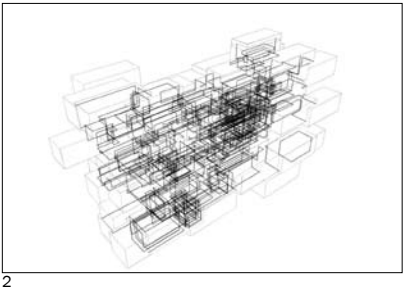
1. The interaction between the 184 discrete forms is driven by the parameters and constraints of an algorithmically derived dynamic simulation. Initially this system incorporated a simplified and uniform version of each memorial. **2–6.** The 184 volumes were scripted to subtract from each other upon intersection, with a specific rule that three must overlap at all times. Boolean operations were restricted to maximum depths within each volume in order to avoid the dissection of any particular piece. **7–8.** Hypothetical siting of the individual memorials



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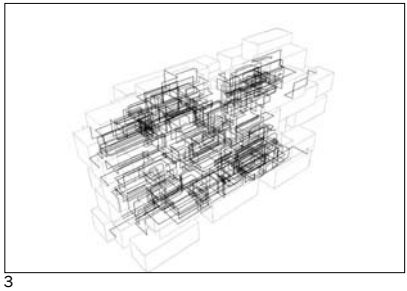

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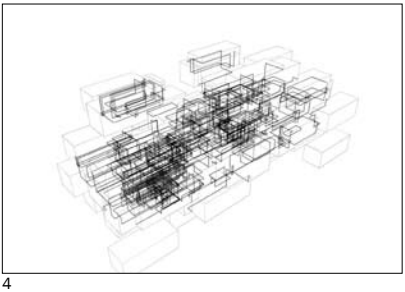

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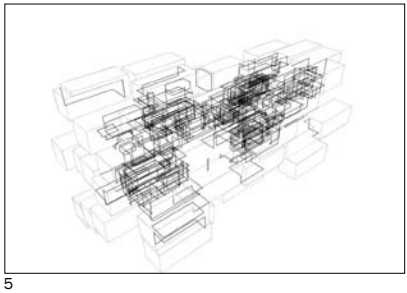

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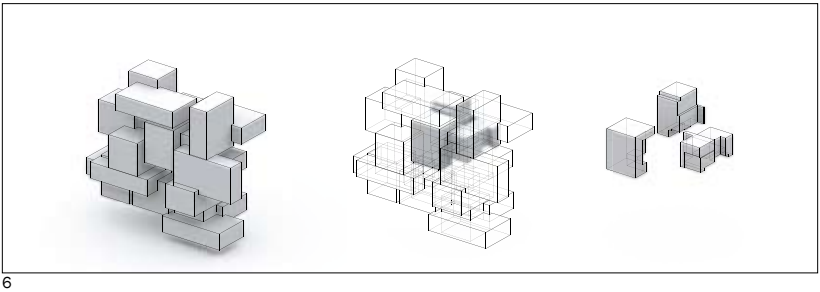

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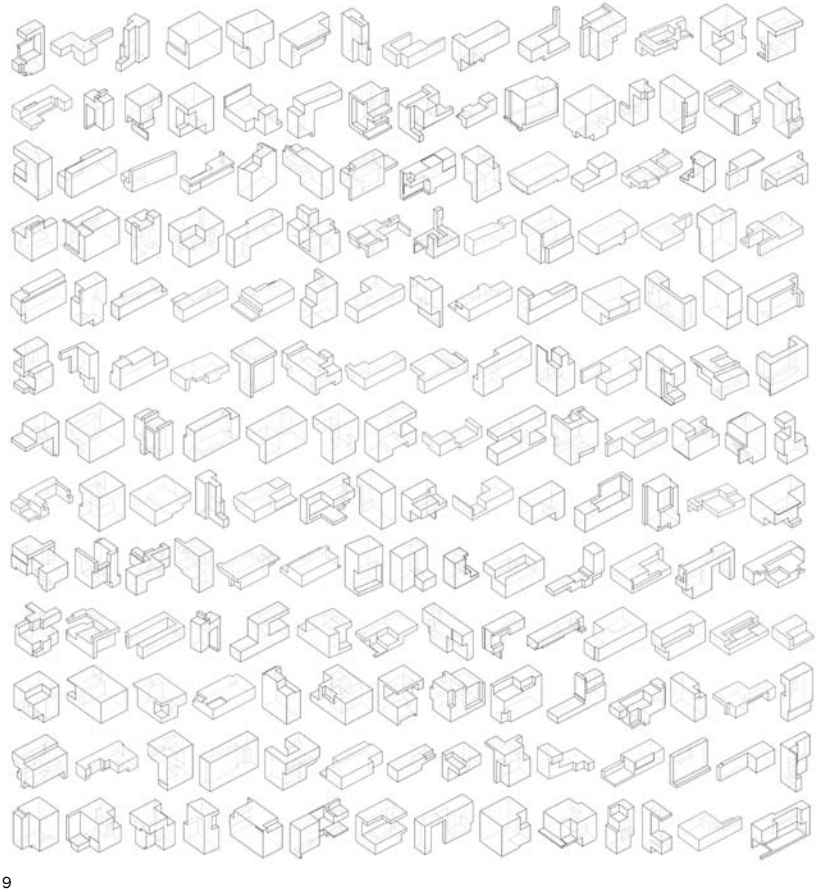

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9. The family of individual memorials **10.** Site model **11.** Section detail **12.** Plan and section showing plinth, Maple bosque, and collective memorial **13.** Elevation diagrams and their corresponding prototypes **14.** The experience of walking through the dense Maple bosque and arriving at the clearing to discover the collective memorial establishes a sense of place otherwise absent in the Pentagon landscape.

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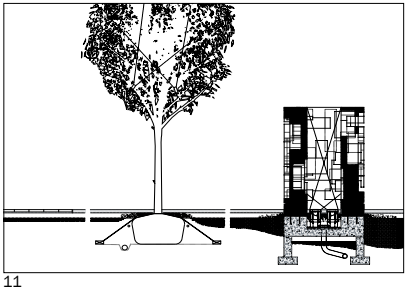

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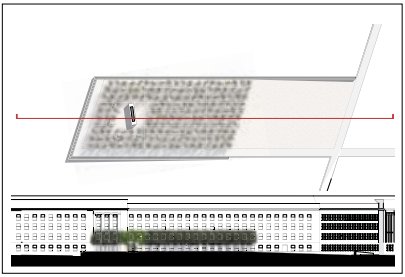

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URBAN WATERWAYS

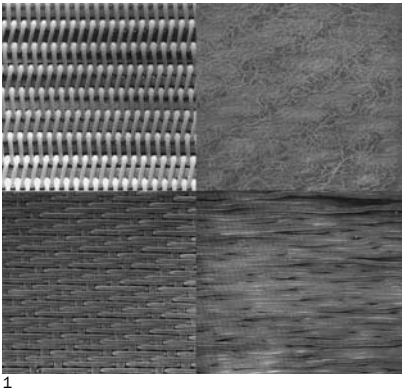
Chicago, Ilinois, 2004

Burnham Prize Competition / Finalist

Urban Waterways offers a vision for the installation of water-taxi stands along the Chicago River. Through a series of site-specific strategies, this proposal offers a gesture of continuity to three different conditions: the movement of pedestrians, the movement of vehicles, and the movement of water. The idea of controlling movement via infrastructure, inspired by the initial precedent of reversing the flow of the Chicago River in 1871, provides the conceptual foundation for each of the new taxi stands and their associated architectural programs.

An articulated system of water filtration is the common thread between the three river stations. Built as spaces within dense infrastructural matrices, each station exposes the mechanisms responsible for purifying the once-toxic waters of the Chicago River. Analogous to the movement of water-taxi riders along the river between the Loop and Joliet, the flow of water is mitigated by the infrastructure of each river station.

1. Examples of filtration textiles **2.** Conceptual diagram showing a field of cartridge filtration columns **3.** Aerial view indicating the water-taxi station at the mouth of the Chicago River **4.** Plan: the first taxi stand, at River East, weaves along the southern shore close to the lock at Lake Michigan. An indoor-outdoor pool complements the existing taxi program. The shore is carved away, and the pool spans the newly created channel of water. The traversal of this span by pool visitors, in conjunction with the filtering of water, juxtaposes two varying forms of movement. **5.** Aerial view marking the water-taxi station at the west river wall at Wacker Drive **6.** Plan: the second taxi stand at Wacker and Madison attaches to the western-shore wall and provides multiple points of entry from street level. The presence of both indoor and outdoor theaters, woven amongst the circulatory system, allows for the descending movement of commuters to the taxi stand, located at water level, to mimic the flow of water through the filtration devices.



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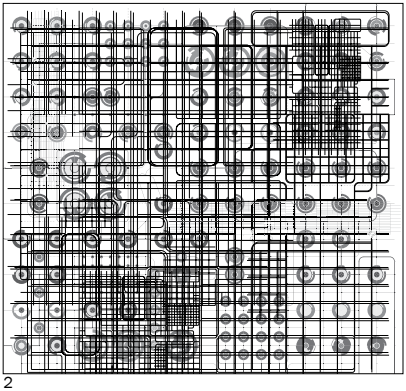

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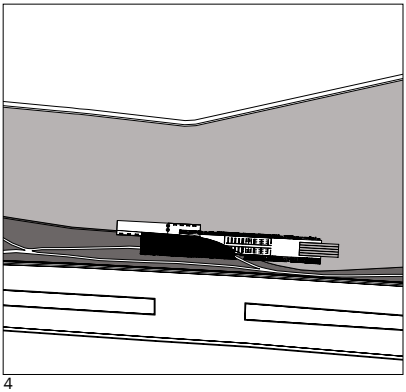

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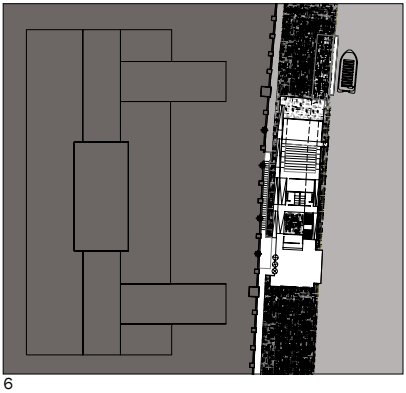

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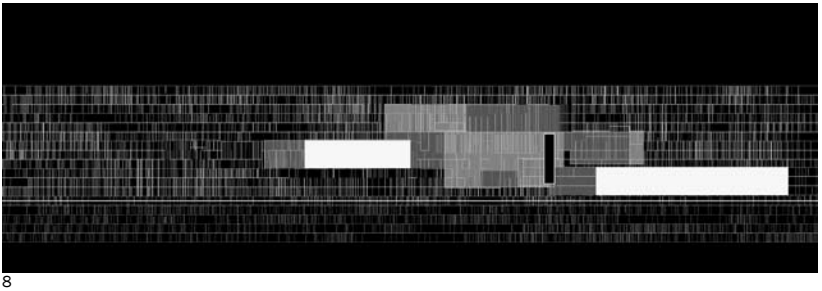

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7. View showing the theater lobby and water-taxi station opening up to the river **8.** Conceptual elevation showing the spaces stepping down from the street to the water **9.** Aerial view showing the water-taxi station at the entrance to the Chicago Sanitary and Ship Canal **10.** Plan: following the Chicago River Master Plan, the third proposition at the Chicago Sanitary and Ship Canal seeks to restore and incorporate natural areas into the urban fabric. Including a boathouse program, this taxi stand takes the form of an offshore floating dock. It is anticipated that the industrial landscape will be transformed into park areas linked together by the commercial and public nature of the boathouse/taxi program and be complemented by the new riparian vegetation and high canopy trees. **11.** Section showing proposed geothermal pipes supplementing the filtration infrastructure
12. View looking southeast toward the boathouse and storage facility

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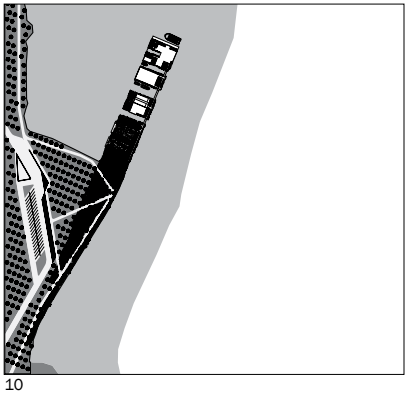

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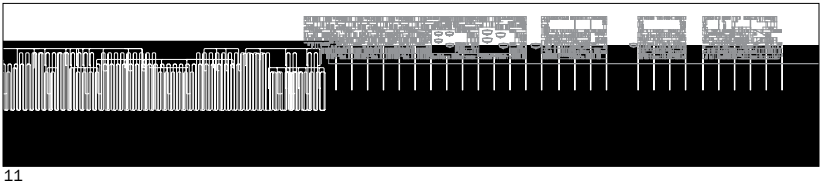

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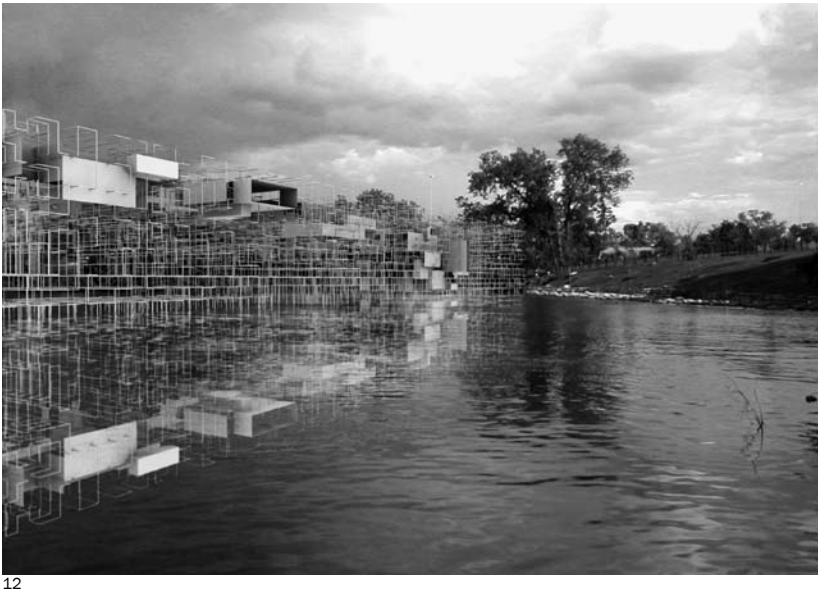

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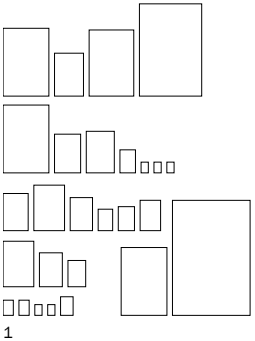
A MUSEUM FOR NAM JUNE PAIK

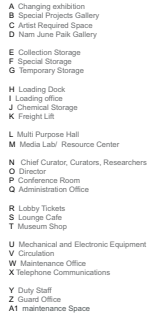
Seoul, Korea, 2003

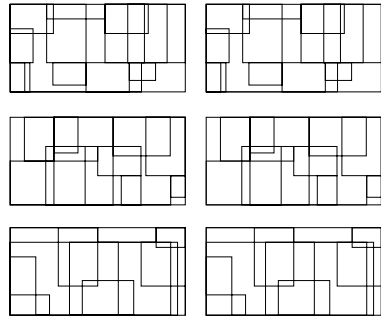
Competition

Throughout his career the artist Nam June Paik took what was familiar and made it unfamiliar through simple yet profound reorientations. In designing this monographic museum we chose to focus upon aspects of Paik's work that engage issues of composition and orientation.

This project conflates orthographic conventions of plan and elevation though descriptive geometry. Complex three-dimensional figures are created from the intersection of prismatic forms, derived from program-driven profiles, extruded horizontally and vertically. The simplicity of the base profiles is juxtaposed against the complex and varied three-dimensional spatial arrangement derived from this projective operation.







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1. Proportional study of the required programmatic elements: each program box provided a building block for potential orthographic representation. Within these programmatic elements, three sets of profiles were derived. These profiles served as both plans and elevations for the subsequent operations. **2.** The predominantly north-south direction of the volumes allows the capture of soft north light as well as reflected light from the filtered southern-facing window. **3.** Diagram showing the constructed volumes and terraces **4.** Site plan: the proposed museum takes advantage of the topography and blends into the established landscape by creating a system of stepped terraces. These planted areas are the exterior exhibition and recreation spaces for the museum and are linked to the system of footpaths and green spaces that run throughout the park.

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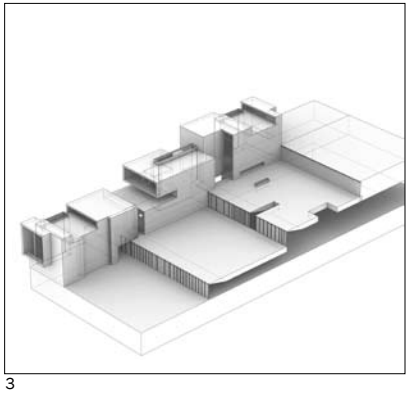

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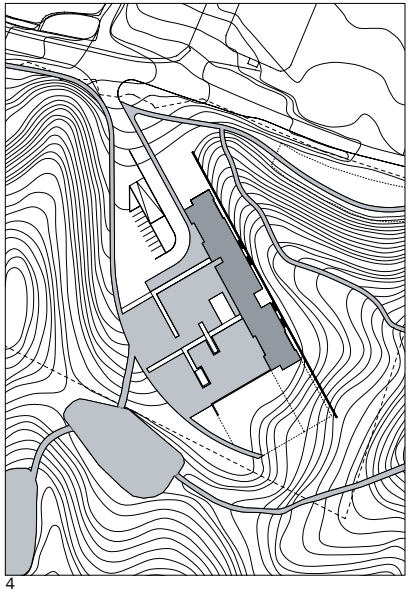

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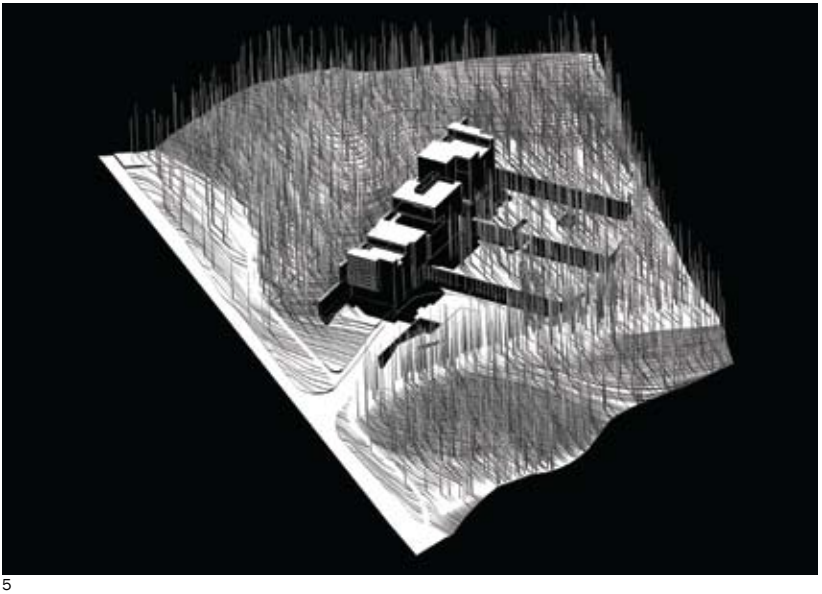

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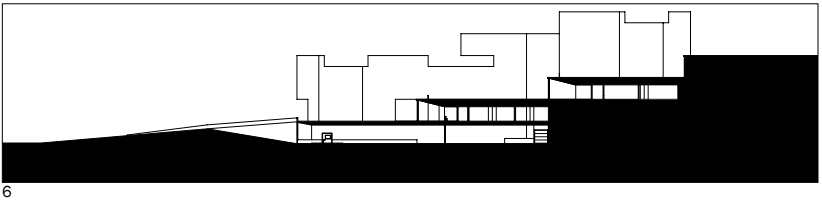

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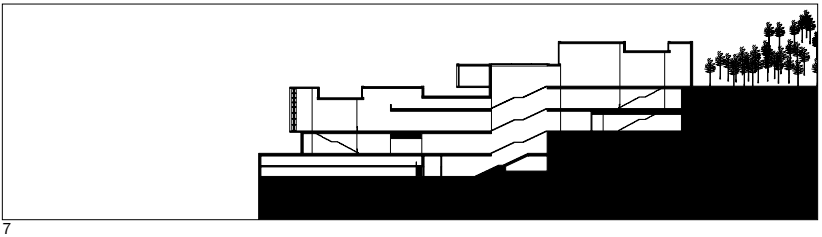

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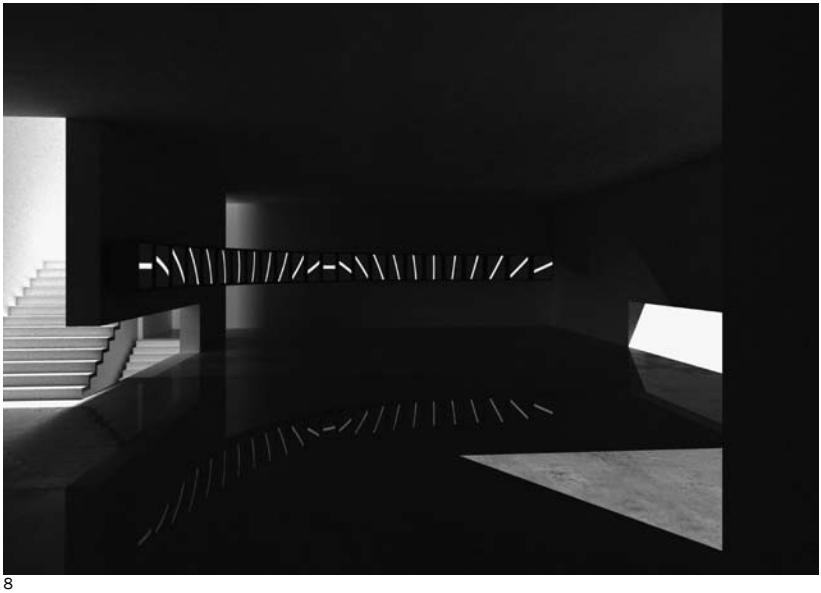
5. Site model **6.** Section cut through the terraces showing their relationship to the galleries beyond **7.** Section cut through the galleries showing the various circulation elements



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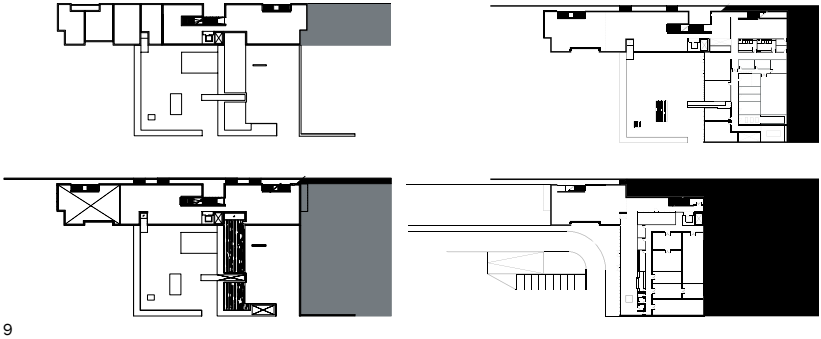

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8. Gallery interior: rooms that hold significant works, such as *TV Clock* (shown), *TV Garden*, and *Family of Robots*, are the anchors on the chronological path of Paik's work and form the foundation of the permanent collection. The sizes of the rooms vary to allow for both large and small works to be shown on all three floors. **9.** Plans: the arrangement of the exhibits tells the history of the media, from early investigations through contemporary practice, by maintaining a chronology of Paik's work and interjecting examples of other projects by significant artists.

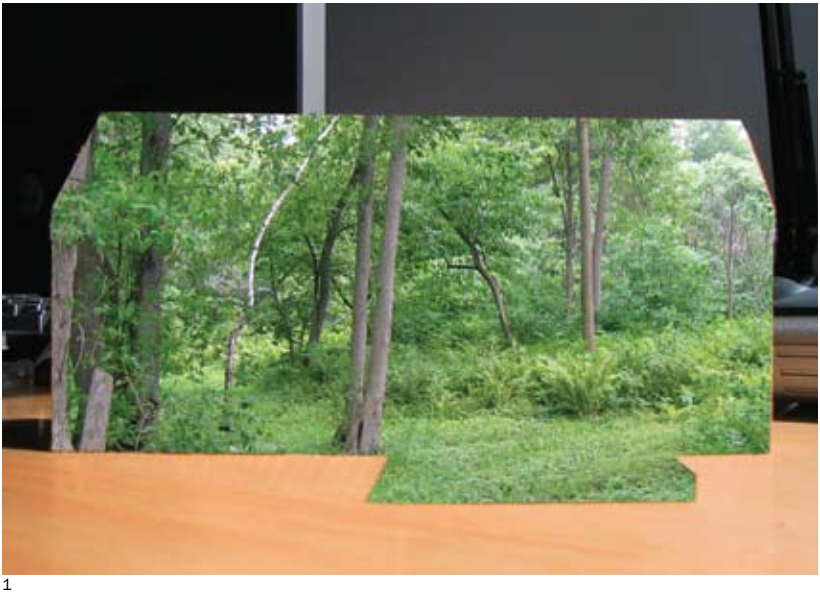
DOGTROT

Orillia, Ontario, Canada, 2006

This proposal looks to the dogtrot house for inspiration. This late nineteenth-century housing type, common in the American Southeast, linked two structures with a central covered porch. It was an effective use of material as well as an efficient passive ventilation system.

In southern Ontario, the outbuilding is a well-manipulated type. Required to be one hundred square feet or less, it does not need a permit for construction and can stand as a one-season structure. The dogtrot typology facilitates the merging of two outbuildings into a useful summer cottage.

In the summer, the facing interior walls are folded up and a set of sliding panels encloses the central breezeway to form a single large room. This exposes glazed openings on the east and west sides that reinforce the transformation of the DogTrot from an exterior passage to an interior enclosure.



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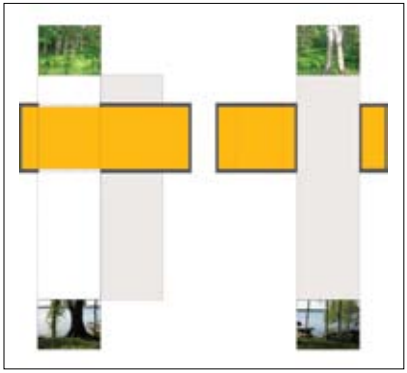

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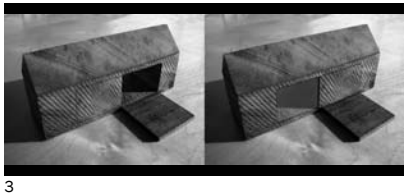

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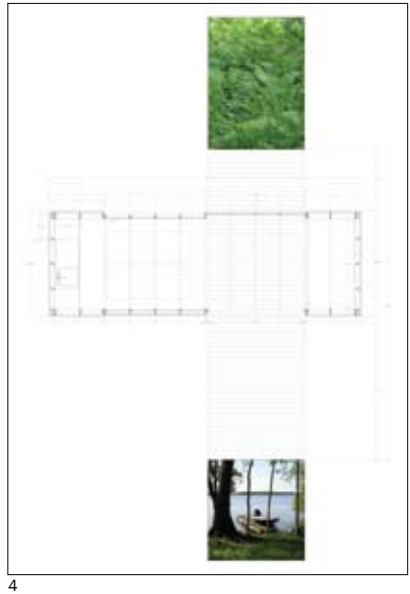

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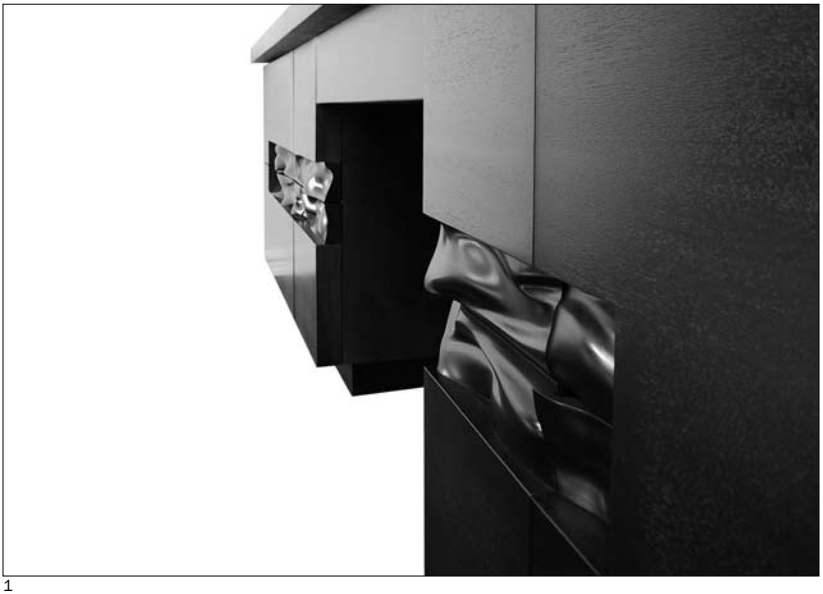
1. Conceptual sketch showing landscape through the space of the cottage **2.** Diagram showing the shifted view when the space is enclosed **3.** Sketch models showing the open and closed positions of the sliding panel **4.** Plan showing the one-hundred-square-foot kitchen and living area, the fifty-six-square-foot interior/exterior space, and the forty-four-square-foot master bedroom **5.** Rendering of the project in context

SLIP DESK

Toronto, Ontario, Canada, 2001

An office renovation included furniture commissions that afforded investigations into hybrid modes of veneer-based and solid-hardwood construction techniques. CNC milling was used exclusively as a distinguishing characteristic between veneer and solid, highlighting the intended tactile moments in the project.

The organization of the desk allows for a milled-cherry block to intersect all operable doors and drawers. The solid wood reads as a continuous, carved surface with finger pulls integrated into its form. In contrast, the cherry veneer used on the flat surfaces of the desk further enhances the thinness of the material.



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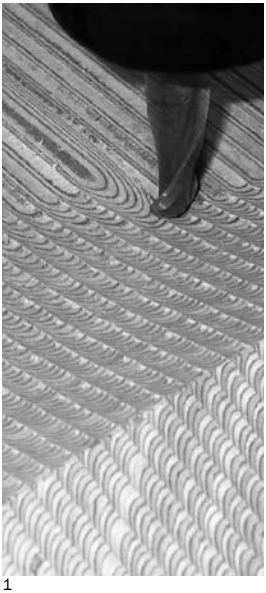
1. View showing relationship of the milled insert to drawers

DOOR WITH PEEPHOLE

Toronto, Ontario, Canada, 2004

Designed and manufactured for inclusion in the 2004 Better Living Exhibition at the Mercer Union Gallery in Toronto, this door is an investigation in three-dimensional patterning afforded by oblique laminate construction techniques and the subtractive process of CNC milling.

The peephole is an activation device across the space of the door, registering on either side its use or nonuse. Defining the inside, the peephole is pulled toward the viewing eye while the geometric ridge is a barrier pulled sharp to the outside.



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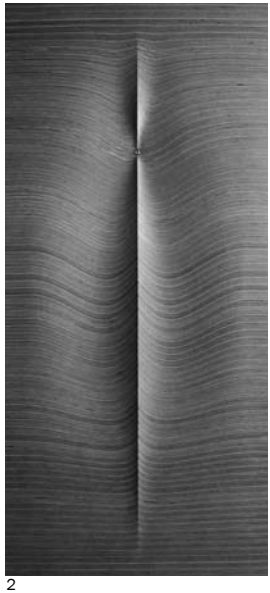

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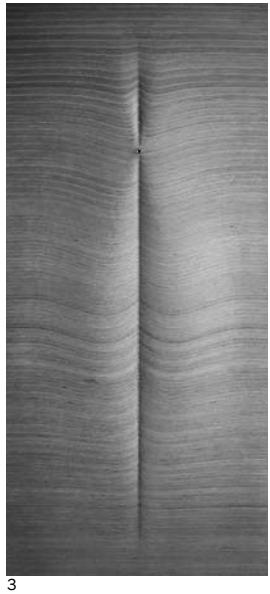

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1. Milling detail **2.** Exterior elevation **3.** Interior elevation

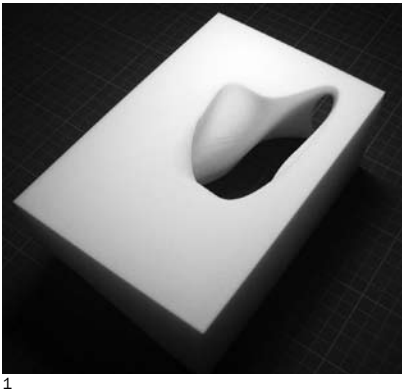
STOCK SPACE

Toronto, Ontario, Canada, 2005

Modest in budget and ephemeral in nature, STOCK SPACE was installed, exhibited, and dismantled over a five-day period at the Toronto National Trade Center as part of an invited exhibition of concept spaces at the 2005 Toronto Interior Design Show. Occupying 450 square feet within a 110,000-square-foot convention center, STOCK SPACE was small, vertical, warm, and quiet, in contrast to the immense horizontality of the mechanically cooled trade floor of nearly 40,000 exhibitors and attendees.

STOCK SPACE was an investigation of limits. Material had to fit through doors and on our CNC-milling table. It had to clear staircases, be carried by hand, and be stored compactly within the confines of our fabrication area.

The resulting assemblage of stacked modules embodied traits of the orthographic grid associated with the length and width of the stock, the topographic contours associated with the depth of the stock, and the isoparametric grooves of the resulting surface. The collective composition of these elements was the analytical result of maximum machining curvature.



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1–2. Three-dimensional prints showing the subtractive volume and logic of assembly **3.** View of the surface curvature **4.** Detail view showing the module steps

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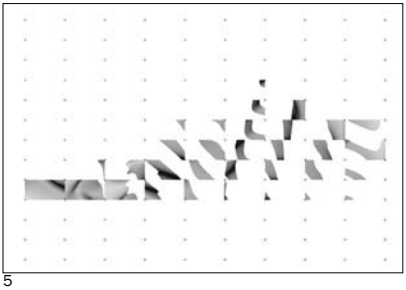

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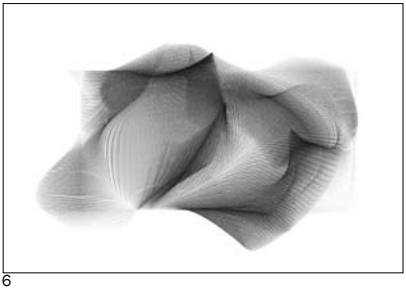

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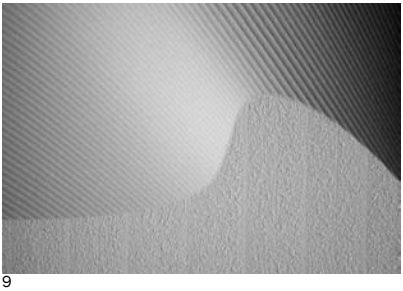

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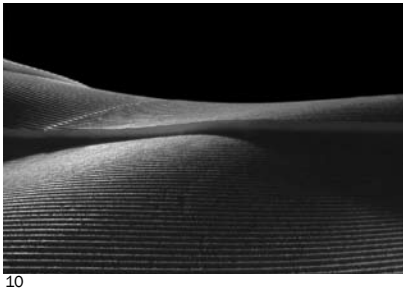

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5. Cut diagram **6.** Volume normals **7.** CNC milling detail **8.** Model showing relationship of modules
9. Detail showing the cut-and-planed stock **10.** Detail showing the continuity of the scalloped surface
11. View from entry

PLY ARCHITECTURE

PLY Architecture explores practice as applied research. The premise of a research practice is one that rejects the routines of professional practice by embracing continuous reinvention through a fundamental questioning of disciplinary boundaries. This questioning propels the research practice to investigate new modes of production, new organizational relationships, and new professional trajectories.

The economic instability of various types of large-scale industry has opened opportunities for a more responsive practice to engage the decentralized, specialty fabricators looking for new economic alliances. These temporal alliances allow for the investigation into procedural research, combining digital and analog fabrication techniques and a new form of material research. These relationships between designer and maker continue to open new possibilities for the practice of architecture.

Common materials and readily available building systems are a particular area of focus. Working within the logics of these products, new methods and assemblies produce unexpected spatial effects and configurations. This approach strives to balance experience and innovation. It challenges the reductive economies of construction, enriches sensual experience, and resists the simplistic imagination of market-driven architecture. As a result, the work sheds new light on the pragmatic efficiency and logics of fabrication and the ability to control the sensuality of surfaces. The work stands in opposition to the conventional wisdom that availability and low-cost must inevitably lead to a banal and repetitive built environment.

ROBBINS ELEMENTARY SCHOOL

Renovation and Addition

Trenton, New Jersey, 2004–5

National Design Competition / Finalist (phase I), Honorable Mention (phase II)

This proposal responds to an expansive attitude toward education and community, where the potential of each emerges from its relationship to the other. In recognizing the evolving role of the Robbins school as an educational community, this submission intertwines public spaces and classrooms around a series of outdoor courtyards and playgrounds. The expanded educational facilities provide an open learning environment during school hours and can be securely accessed after hours for community use.

The addition doubles and duplicates the volume of the existing school. The new school complex is organized as three concentric layers that wrap an internal courtyard and plaza. The layers consist of an outer series of precast concrete panels, a central core of classrooms and circulation, and an inner fiberglass screen. In each of the layers, the proposal explores the potential of materiality and construction economy to address issues of identity, environment, and learning.

The outer building envelope is an assembly of structural precast concrete panels that rotate along a gradient that responds to sun angles. The repetition of these building components not only provides a cost-effective means of construction but also generates identity. As panels rotate, the line of enclosure follows the interior edge, resulting in subtle variations in the classroom plan. From the exterior, the elevations are patterned with light, shadow, and color.

with Jen Maigret, Michael Powers, Sam Barclay, Jeana D'Agostino, Josh Bard, Lizzie Rothwell, Kasey Vilet, Na Young Shim, Ka Young Shim, Nick Quiring

1. Pedestrian entrance along corner of Tyler and Benton streets **2.** Various wrappers were used to unify existing and new educational activities

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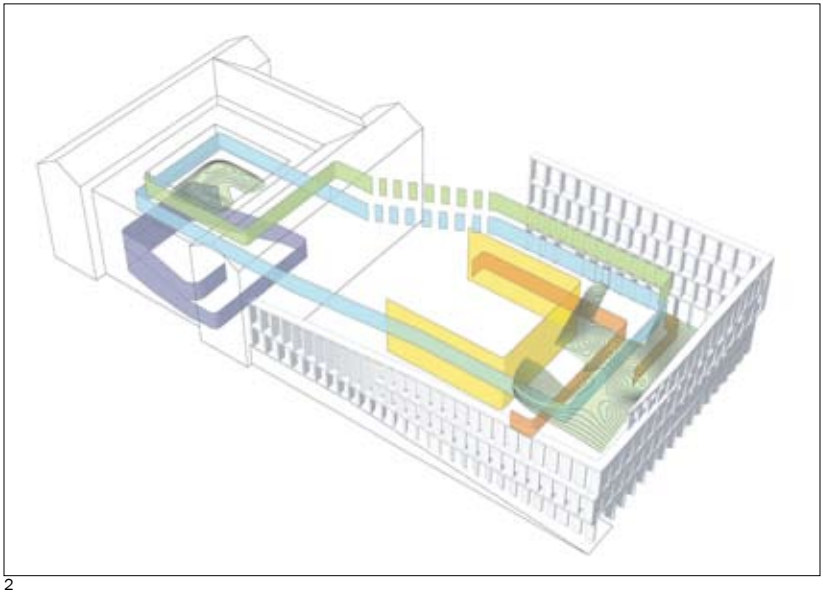

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3. Community entrance to gym and activities center **4.** Entrance lobby overlooking auditorium **5.** Ramp to classrooms past the library/media center **6.** View from cafeteria overlooking the gym **7.** View in the protected main courtyard **8.** View outside the main entrance (for drop-off and pick-up) **9.** Massing model of addition that doubles the size of the existing school structure **10.** Color strategy for the auditorium, cafeteria, and gym

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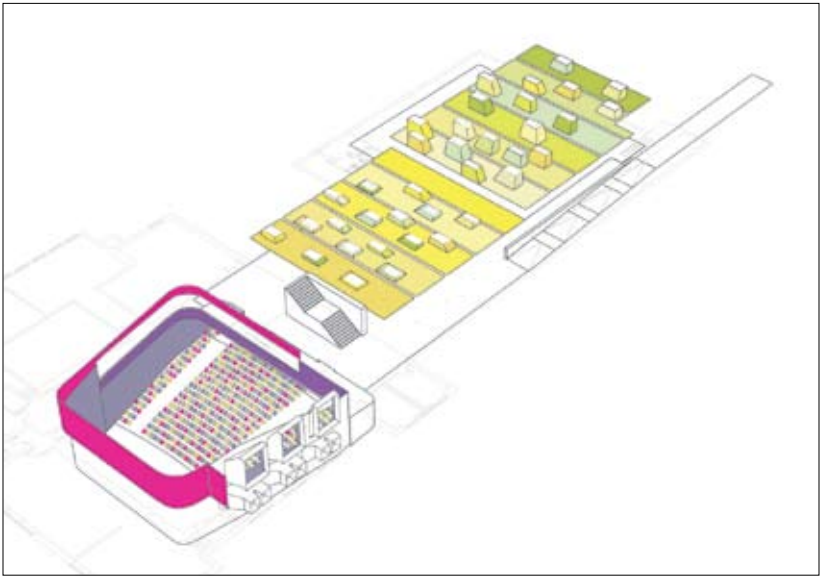

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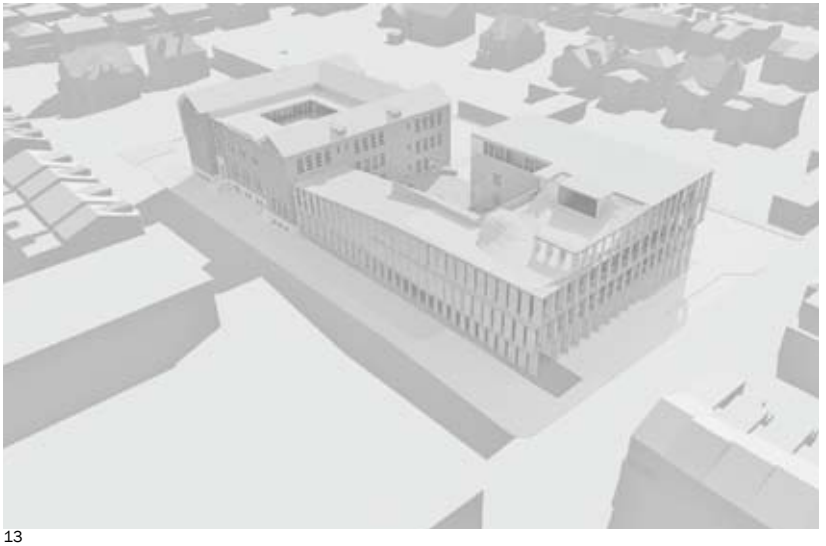

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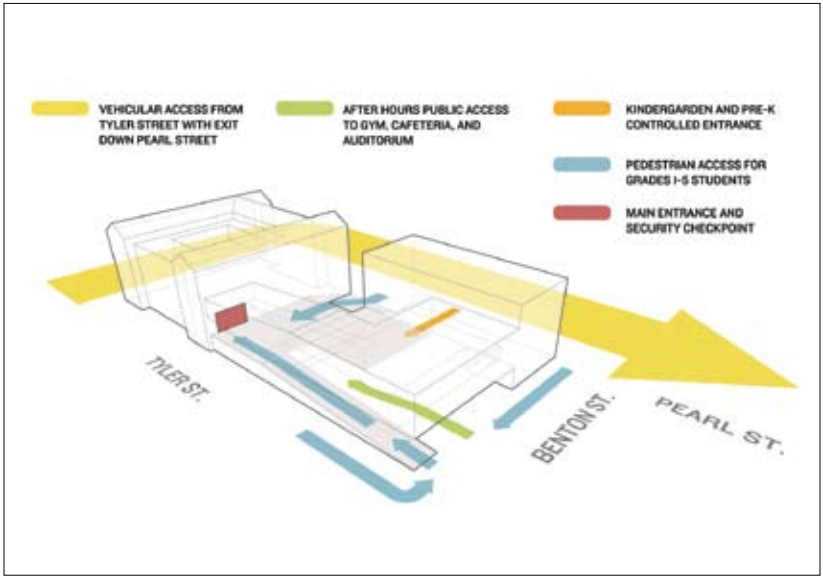

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11. Section through large-scale model **12.** Front elevation facing the neighborhood **13.** Project in the context of the residential neighborhood **14.** Circulation patterns for vehicles and children

BTB2 (Burrito Restaurant)

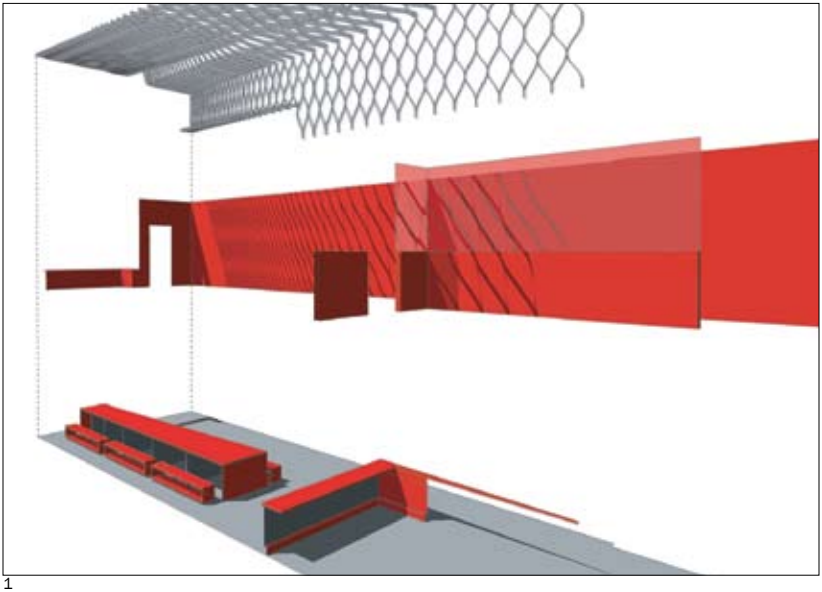
East Lansing, Michigan, 2005

Experiments for the BTB2 interior emerge from a series of questions about the relationship between the craft of making and new technologies of digital fabrication. These new methods are often employed in the fabrication of complex forms that often result in inordinately large quantities of wasted material as the complexity of form precludes the efficient use of standard flat-sheet products. This project illustrates our desire to produce complex formal and spatial readings with an economy of means.

A mixture of advanced digital fabrication techniques and traditional labor produced a ceiling where each part is unique and distinct from its neighboring part. This complexity yields a space where the form and materials are integrated to create a sensuous experience. The subtle variations in pattern and spacing on the ceiling make it simultaneously open and closed depending on the perspective. The open and closed nature of the ceiling also allows the lighting and mechanical systems to be concealed above. The reflective nature of the raw aluminum acts as an illuminated surface where both spotlights and headlights from traffic create various shimmering effects.

with Jeana D'Agostino, Jen Maigret, Michael Powers, Liz Kuwada

1. Exploded axonometric showing furniture, walls, ceiling **2.** View looking toward the street (photo: Curt Clayton)



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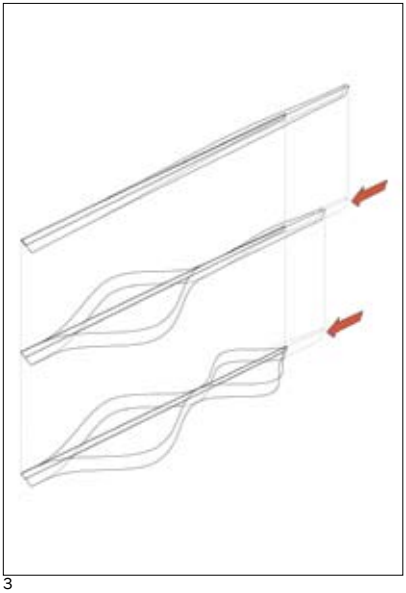

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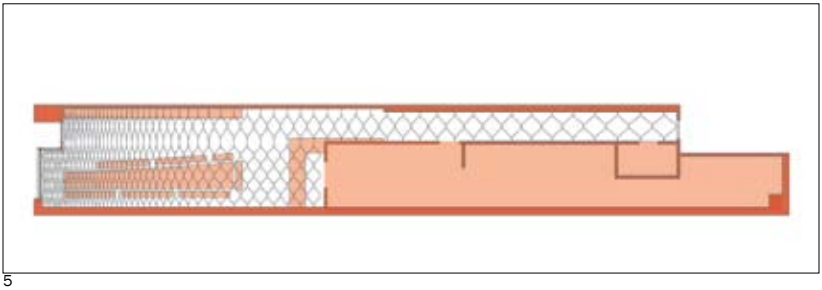

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3. Assembly diagram, from flat to installed final form **4.** View of custom table and benches in the dining area **5.** Floor plan showing expansion of ceiling from front to back **6.** View of takeout counter and aluminum kitchen partition

HOUSE: CASE STUDY CLEVELAND, OHIO

2002

Cleveland Case Study House Competition / First Prize

This project proposes an alternative to the contemporary American house, which would directly address the contradictions between the increasing number of domestic nomads (families relocating every couple of years—based on census data) and the seemingly ingrained American nostalgia for a fixed and "close" relationship to the land based on agrarian ideals.

Through careful consideration of the relationships between fixed and flexible uses of program as well as the application of premanufactured housing units (the second floor), the case study house can be occupied efficiently by a single family, an extended family, or even multiple families with extended rental opportunities, giving owners the option to use the house as investment in addition to dwelling.

The house is designed to allow for phased construction—complete as either a one-story house or with one, two, or three second-floor lofts. These premanufactured lofts can be shipped to the site whole and built out as required by the owner/occupant. The interior plan and site strategy allow for one of the lofts to become a one-bedroom rental unit, minimizing the owner's financial obligation while providing flexible use of space.

with John Comazzi, Gretchen Wilkins (principals); Elise Shelley (landscape); Kevin Conway, John Fleming, Wei Hu, Randy Knight, Jen Maigret, Erin Ray, Katherine Wheeler Borum, Carl Lorenz

Additional support provided by the Taubman College of Architecture and Urban Planning, the University of Michigan

1. View of front lawn

1


LOFT 1
renting
working
sleeping
dressing
PLAYING
working
dining
living
relaxing
LOFT 2
retreating
sleeping
dressing
studying
DINING
working
living
relaxing
playing
LIVING
working
dining
relaxing
playing
WORKING
living
dining
relaxing
playing
LOFT 3
retreating
sleeping
dressing
studying
COURT
playing
working
servicing
YARD (back)
filtering
sheltering
storing
TERRACE
growing
cooking
dining
GARDEN
climbing
living
screening
POOL
reflecting
collecting
holding
LAWN
living
playing
relaxing
YARD (front)
viewing
harvesting
facing

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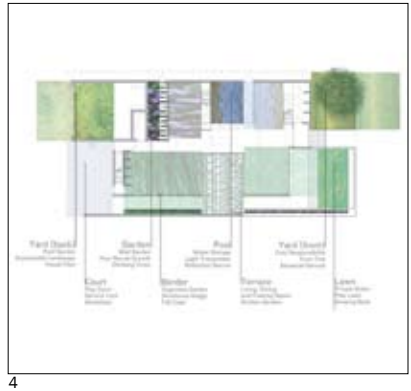

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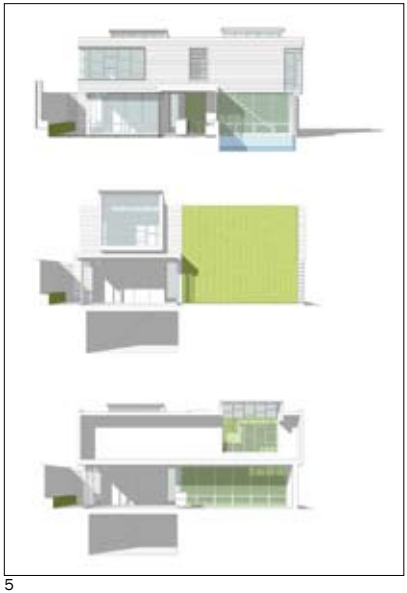

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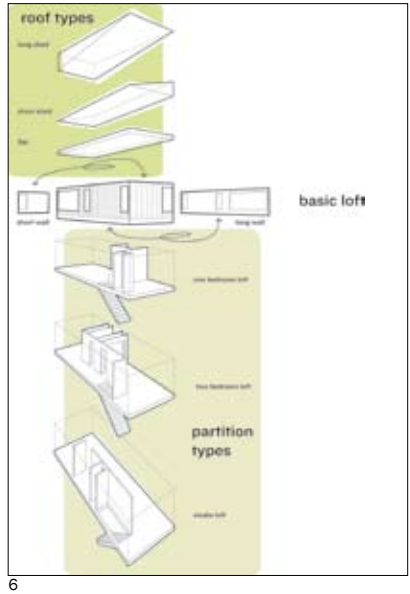

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2. Diagram of site-built ground floor and prefab lofts **3.** House in neighborhood context **4.** Diagram of spaces and planting material **5.** Cross sections through the house, from front (top) to back (bottom) **6.** Assembly and customization strategy

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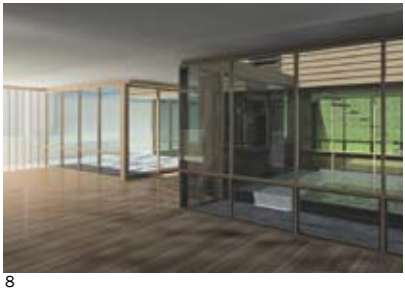

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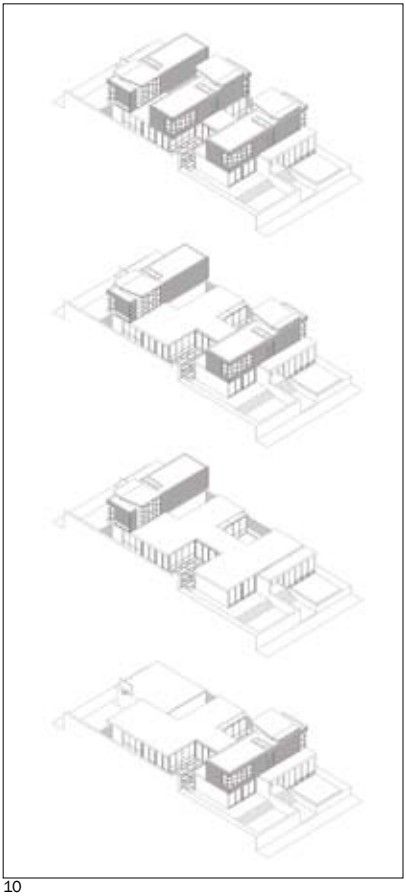

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7. Dining area with vertical garden beyond **8.** View of public living area with water garden beyond **9.** View of prefab sleeping loft **10.** Possible strategy for gradual addition of prefab loft units **11.** Longitudinal section **12.** Ground floor programmatic study for TV family **13.** Loft programmatic study for TV family

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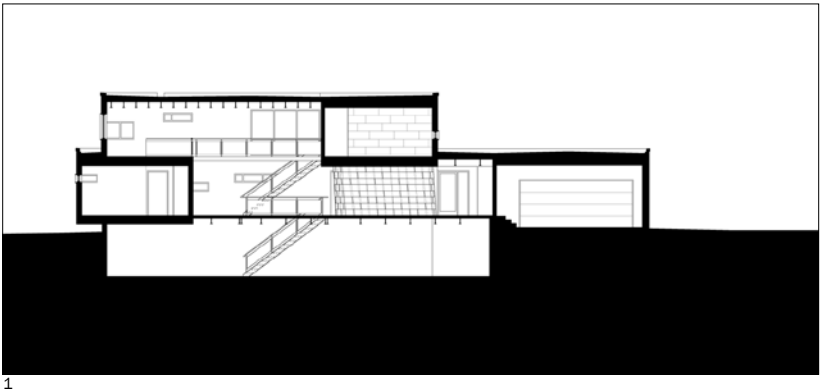
DAVIDS RESIDENCE

Rochester Hills, Michigan, 2004–present (projected completion, 2007)

The Davids Residence builds on the spatial proposal of PLY Architecture's case study house for Cleveland. The private areas of the house, the master bedroom and children's bedrooms, are contained within closed volumes. These rooms define spaces within the larger volume of the house. A study occupies the space above the master suite, and the kitchen and screen porch sit under the children's loft (bedroom). The house departs from the PLY case study house in its construction. Here the exterior walls of the house are cast-in-place reinforced concrete. The formwork remains as an integrated system and the exterior is then clad with varying textures of concrete paneling.

with Michael Powers, Jen Maigret



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1. Longitudinal section **2.** South elevation **3.** Floor plans **4.** Aerial view **5.** View toward the entry

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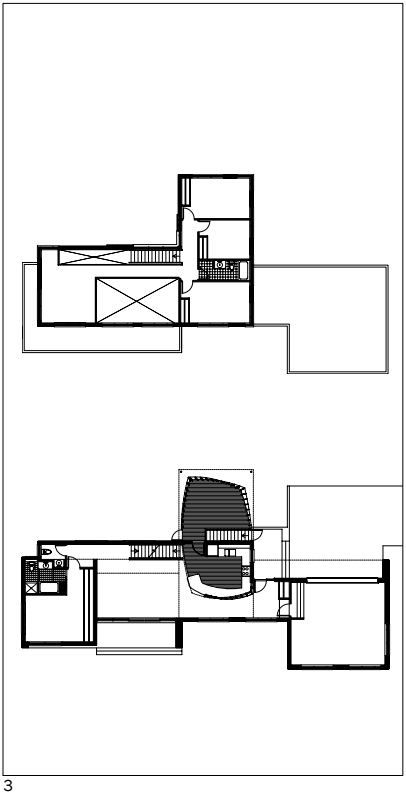

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PLY LIGHTS

2003–present (ongoing)

Product development

These lights investigate the latent translucent qualities of thinly cut wood as a series of light fixtures. The scale of the plywood lights enables the use of scrap material. The light shades initially explored the illuminated qualities of paper, wood veneers, and laminated plywood before finally taking advantage of the porous structure of end grain, which acts like a fiber-optic wire when lit. The material filters the light with the warm color of the wood grain.

with Jeana D'Agostino, Kristen Little, Jen Maigret, Michael Powers, Maria Walker

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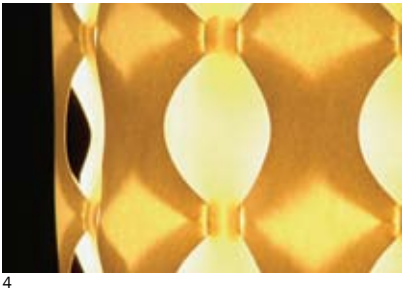

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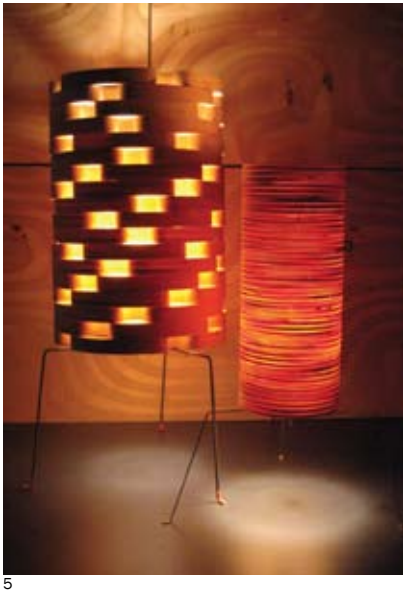

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1. Paper light lit from the outside **2.** Paper light lit from the inside **3–4.** Details of the paper lamp **5.** Fixtures from the glowing plywood series **6.** Paper light fixture made with two layers of laser-cut paper **7.** Fixtures on display at the Building Practices exhibit

MIES VAN DER ROHE PLAZA

Lafayette Park, Detroit, Michigan, 2004

Two-stage Design Competition

This project renders the movement of water visible. This approach is in dialog with Mies van der Rohe's Farnsworth House terrace, which hides the drainage technology below the surface. The plaza—designed to honor Mies—collapses rich materiality and performance into a single, dynamic surface. The permeability of the surface collects and percolates water, enabling a plant material to emerge throughout the voids of the surface. Ultimately, the project celebrates the materiality of water both in its ephemerality and longevity.

The bas-relief strategy is used not only for the overall figure in the plaza, but within the individual concrete tiles. The fabrication of the tiles emerged out of "book-matching" investigations as inspired by Mies' trademark use of large slabs of material cut into rectangles and book-matched symmetrically about their joints. The visual striations inherent in stone become score lines in the concrete, directing water into the field of planting beds throughout the plaza. The strategy of pattern (mirroring, rotating, doubling, flipping) synthesizes the figurative and the abstract, the aesthetic and the functional. Material and program are combined into a single figure that incorporates seating, paving, permeability, and planting.

(a collaboration between PLY and PEG Office of Landscape and Architecture)
with Karen M'Closkey (PEG), Carl Lorenz, Jen Maigret, Michael Powers, Matt Battin, Peter Stavenger, Keith VanDerSys (PEG)

1. View of plaza looking north, toward the Lafayette Park Towers **2.** View of plaza from under the canopy of adjacent retail spaces **3.** Detail of engraved, aluminum wall cap

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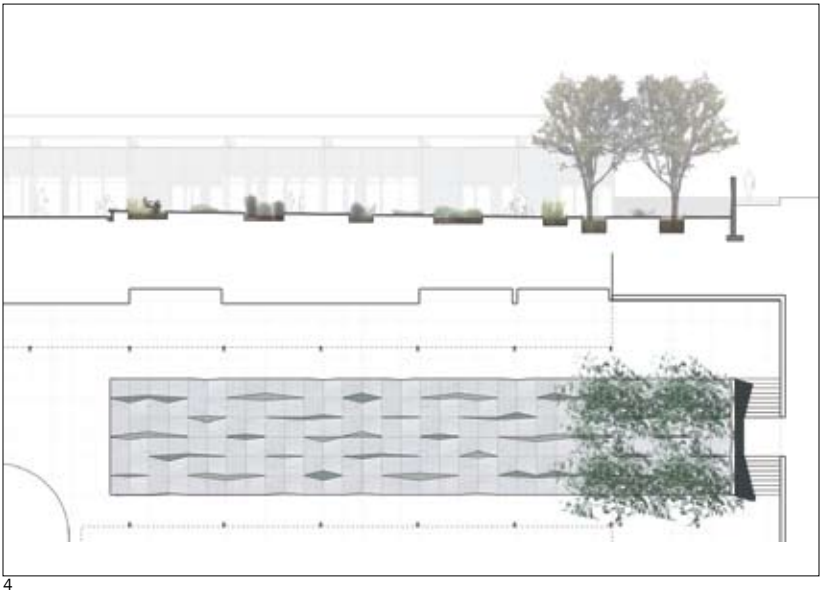

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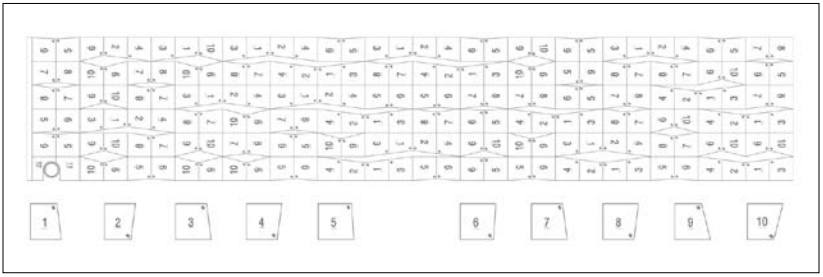

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4. Plan and section **5.** Installation diagram with tile type, orientation, and location **6.** View of formwork at the precasting plant **7.** View of plaza surface just after construction **8.** Drawing of the subtle topographic variations of the plaza surface **9.** Drawing of water collection using contours **10.** Drawing of water movement using vectors

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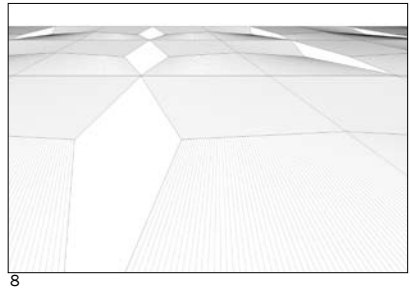

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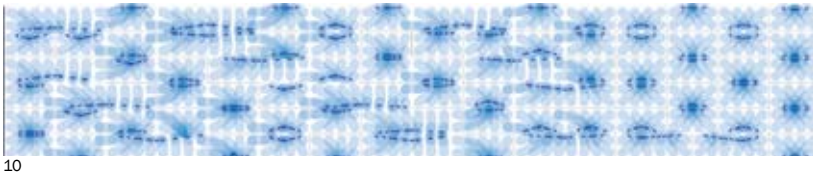

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MAD OFFICE

MAD's designs herald an architecture of a new era, an architecture that responds to the evolving urban environment. Speculations range from media, art, individual structures, and urban landscapes. MAD is dedicated to exploring flexibilities of function and tradition and cultivating the potential latent in basic ideas and realizing these possibilities.

MAD integrates its design philosophy with available advanced technologies while maintaining a consciousness of the social and cultural climate of today's China. Although many Chinese and foreign architects currently practice in China, few address the social and cultural challenges facing the country. Numerous massive, uninspired constructions are carried out at incredible speed, and urban spaces are increasingly becoming devoid of character. These new constructions often ignore traditional and contemporary urban ideals. Buildings are no longer isolated objects as traditionally defined but characteristic components of the urban environment. MAD proposes new urban organizations and logics by analyzing and incorporating existing values, desires, and politics. This climate becomes a unique opportunity to use media and design to mediate between these factors and guide future urbanisms and contemporary Chinese cities.

MAD partners with engineers, programmers, artists, landscape designers, and energy and structural consultants from around the world and is committed to continuing these alliances to address challenges in design and to provide creative solutions. MAD's ideas are executed at multiple scales, ranging from a fish tank to a 780-foot residential high rise.

FINDING MEIOSIS

Fish Tank Installation for Beijing Architecture Biennial 2004

The fish tank is both an experiment and an artwork and relates ideas about cellular processes, morphogenesis, biology, experimentation, process, and ultimately an organism's relationship to a confined space. The experiment employs the stages of the cellular development cycle as phases of the experimental process. The goal is to develop a new fish tank space.

At the prophase, we tracked the movement and trajectory of fish in a standard tank. A fish's world in the water is relatively free of gravitational restrictions. This data of movement was the initial driving force for the design strategy in maximizing and optimizing the use of limited spaces. At the metaphase of our experiment, the analysis of the trajectory in three-dimensional space revealed a high frequency of movement around the edges. Our experimental objective became to smooth and morph the external surface to diffuse the high concentration of movement near the edge.

At the anaphase, basic vectors of the movement trajectory were translated into an initial space frame and into a continuous, fluid spatial organization to optimize the cubical space, or the fish tank. The movement of the fish determined the manipulation of the interior surface. Because the fish move near the edge, the edge was strained inward, connecting internal surfaces within the tank. The two skins, interior and exterior, are diametrically opposed and create a dynamic and ambiguous space. The pull inward of the skin of the fish tank through the center amplified the edge condition and also created a unique void in the center of the tank. The surface of the tank now occupied the center of the tank—what would be inhabited by water in a standard tank. The internal space pushed outward and became the external space; the external pulled inward to become the interior. This created both a distinct inversion of spatial relationships as well as continuous and smooth-surfaced habitat for the goldfish.

At the telophase, the use of Stereo Lithography Modeling method allowed the fish to circulate in fluid space, displaying an innovative architectural form.

Size: 11.8 (W) x 11.8 (D) x 15.7 (H) inches
Material: Resins by Stereo Lithography Modeling

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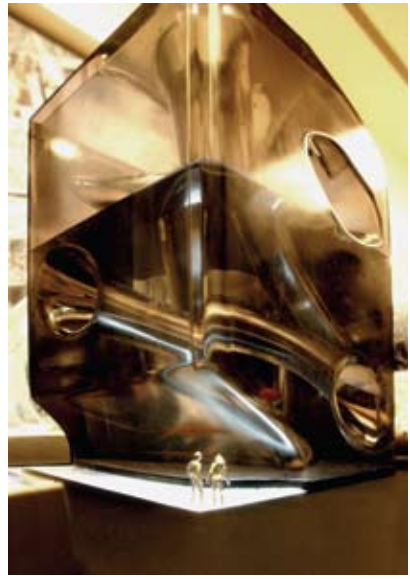

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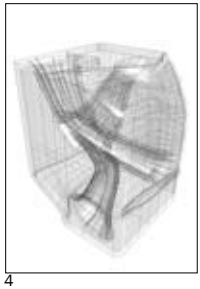

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1. Detail of fish tank **2.** Fish living in comfortable tank **3.** Empty fish tank **4.** Sketch of fish tank
5. Trajectory of swimming fish—developed from digital analysis of several video frames recording their swimming trajectory

THE ABSOLUTE TOWER

Mississauga, Ontario, Canada, 2006–present (projected completion, 2009)

International Competition, first prize

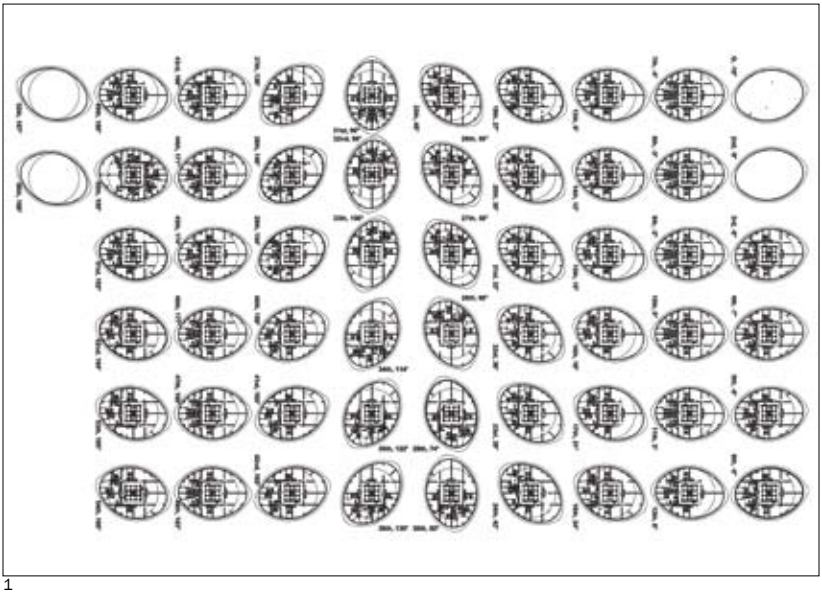
Modernism has a famous motto: "A house is a machine for living in." However, as the machines and the society constructed upon it have experienced dramatic changes, how should we understand today's architecture? What message should architecture convey if it has less to do with industrialization and more to do with suburbanization?

Like other fast-developing suburbs in North America, the Canadian city of Mississauga is seeking a new identity that best explains its character. This is a great opportunity to respond to the expanding need of the city in a special way rather than follow the example of other suburbs striving to become metropolises. Situated in the heart of downtown Mississauga, the fifty-six-story, 484,375-square-foot tower is visible from the 401 and 403 highways as well as Lake Erie. Careful consideration of both its form and location informed the design. The undulating and iconic form embraces the gateway condition at the crossroads of Hurontario Street and Burnhamthorpe Road while complementing the surrounding downtown landscape. The building is sculpturelike in its overall effect. As the new landmark of the city of Mississauga, it will become the icon of the present landscape.

A continuous balcony surrounds the entire building, eliminating the vertical lines used in traditional high-rise architecture to emphasize the height. The structure evokes the city dweller's desire for nature, with proximity to sunlight and water. The removal of vertical lines displaces the emphasis from the height and accentuates the lateral torque and sinuous contour. The tower's twisting rhythm resembles the contour of the human body, and, in fact, the Absolute Tower has adopted the nickname "the Marilyn Monroe Tower" by the locals for its curvy and "sexy" appearance.

with Qun Dang, Shen Jun, Robert Groessinger, Florian Pucher, Yi Wenzhen, Hao Yi, Yao Mengyao, Zhao Fan, Liu Yuan, Zhao Wei, Li Kunjuan, Yu Kui, Max Lonnqvist

1. 360-degree floor rotation **2.** Aerial view **3.** Night view



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HONG LUO CLUBHOUSE

Beijing, China, 2006

The expansion of Beijing City has accelerated the development of its periphery area for the last few years and has fostered the emergence of suburbia. This spread of the city has helped develop the first typologically suburban spaces in China. Hong Luo Lake and the surrounding lakeside landscape is a rapidly growing residential area. Surrounded by the natural environment, the Hong Luo Villa Project is located in the Miyun district, in North Bejing, only an hour drive from the city center. As Hong Luo's popularity increases, the promise of its rapid development in the foreseeable future has attracted extensive investment into the district.

The construction of Hong Luo Villa project was composed of three phases. Approximately 150 villa-style residences were built during the first two phases, while the third phase will emphasize landscape design. MAD was responsible for development of the 5,244-square-foot clubhouse, a community gathering place for the surrounding villas, built during the second phase of the development. The sites for all three phases are situated along Hong Luo Lake. The clubhouse floats on the lake, creating an easily accessible public space at the center of the community. Four branches stem out from the clubhouse—two connect the structure to the land and other two house additional lake programs. Of the latter two, one leads to an underwater platform, the other to a swimming pool floating on the lake. The swimming pool is built into the lake and keeps the surfaces of the natural and the artificial water at the same level.

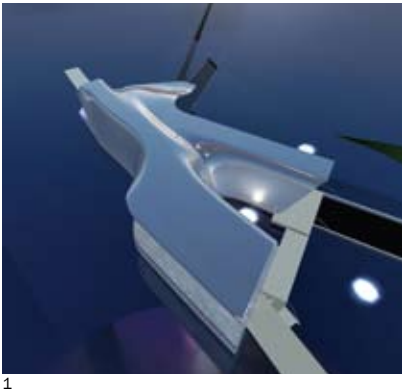
A wood bridge, the primary access to and through the clubhouse, connects the villas to the clubhouse. This walkway flows through the clubhouse and continues to meet another bridge, linking the clubhouse, physically and phenomenologically, to the landscape beyond. The circulation, based on topography, landscaping, and environmental considerations—including the lake, mountain views, and the villa site—determined the architectural form. The access path and bridge descend to water level as it nears the house, revealing the main function of the building—a gathering space.

Two major roads converge at the center of the house and ascend to form the roof. The roof shape is a projection of the linear and functional organization of the ground-level program, allowing for open spaces and panoramic views. The

concrete roof pulls down, almost touching the bridge and the undulating water surface. The gesture creates a unique transition between liquid and solid. In this way the structure and the functions of the house are naturally integrated.

The architecture explores the city dweller's understanding of nature. Hong Luo Clubhouse creates an ever-changing space that echoes with the surroundings, where people and the nature are united. The mountain and the water provide sanctuary and hope for the community.

with Florian Pucher, Shen Jun, Christian Taubert, Marco Zuttioni, Yu Kui



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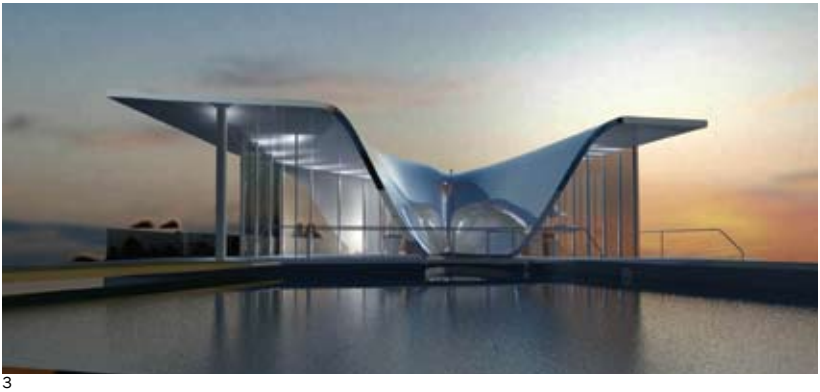
1. Aerial view rendering **2.** Interior view



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3. View of clubhouse with descending roof **4.** View across lake **5–6.** Main structure under construction
7. Entry under construction **8.** Bridge connecting the clubhouse to the landscape

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GUANGZHOU TWIN TOWERS

(West Tower)

Zhujiang New Town, Guangzhou, China, 2004

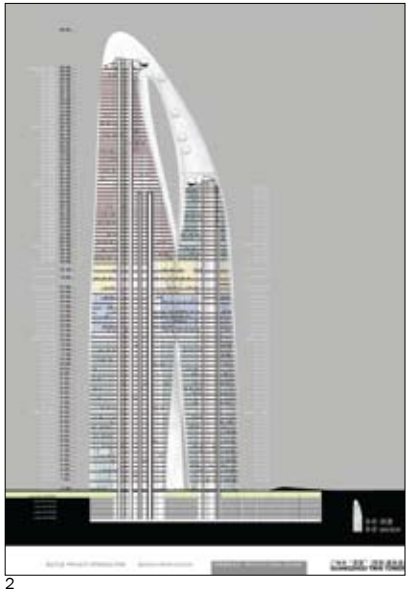
Though the Guangzhou Twin Towers may not be the tallest building in the world (it is only 1,272 feet high), it still cherishes the chance of becoming the greatest high-rise building. Unlike monuments that embody their grandeur in height and formalism, the twin towers declares its significance in the unique way it symbolizes the interconnectedness and diversity of Guangzhou.

The institutional framework of the traditional skyscraper is too rigid—nothing but simple, mediocre, linear structures that duplicate or superpose. A building's landmark status wanes quickly as taller buildings are erected—records for the tallest buildings instantly supplanted. A building needs to create and realize higher-level complexity in its role in the modern city.

The new Guangzhou Twin Towers is not an office machine, it is a living mixture within itself: the spaces for commerce, service, and entertainment are at a parallel level as the office and hotel. The two-structure footprint of the base merges as one at the vertical center of the towers only to branch into two above this point. Situated in a 334,585-square-foot site, the twin towers is a dynamic landmark that expresses an urban vigor.

1. Aerial view **2.** Section **3.** Function diagram

1



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CHANGSHA CULTURE PARK

(Museum, Opera House, Library)

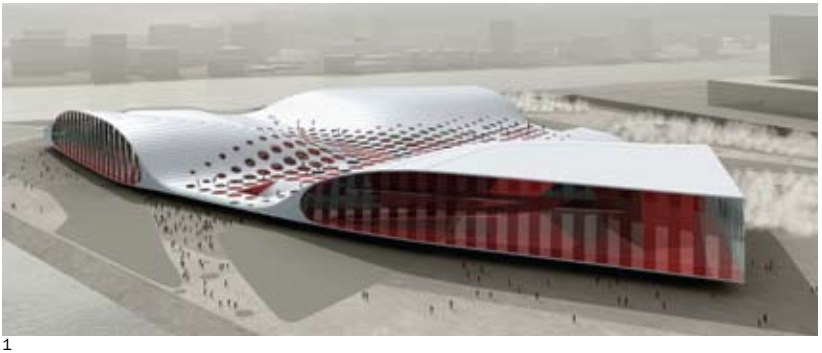
Changsha, China, 2005

Changsha Waterfront Culture Park Design Competition

The greatest challenge of this architectural project was to create a new cultural platform for Changsha City that serves as a dynamic link between its urban context and the waterfront. The site is blessed with the strong presence of a rich, natural environment.

Changsha's new culture park has two surfaces that respond to and articulate its internal functions. Under the top surface, the music hall, museum, and library are gathered together. Because of the manner in which the roof undulates over these spaces, the two not-quite-distinct levels (the interior space and the uncovered "roof" of the building) can both be accessed at ground level. This allows people to enjoy any of the facilities—and any activity, be it exhibition and entertainment in the daytime or carnivals in the evening—at levels both inside and outside of the building. The three programs, contained in a 645,834-square-foot space, have greatly promoted the image of the culture park and have added to the charm of the city.

with Qun Dang, Yu Kui, Li Guo Jin, Shen Jun, Florian Pucher, Yi Wen Zhen, Li Juan, Zhao Fan, Hao Yi, Yao Mengyao



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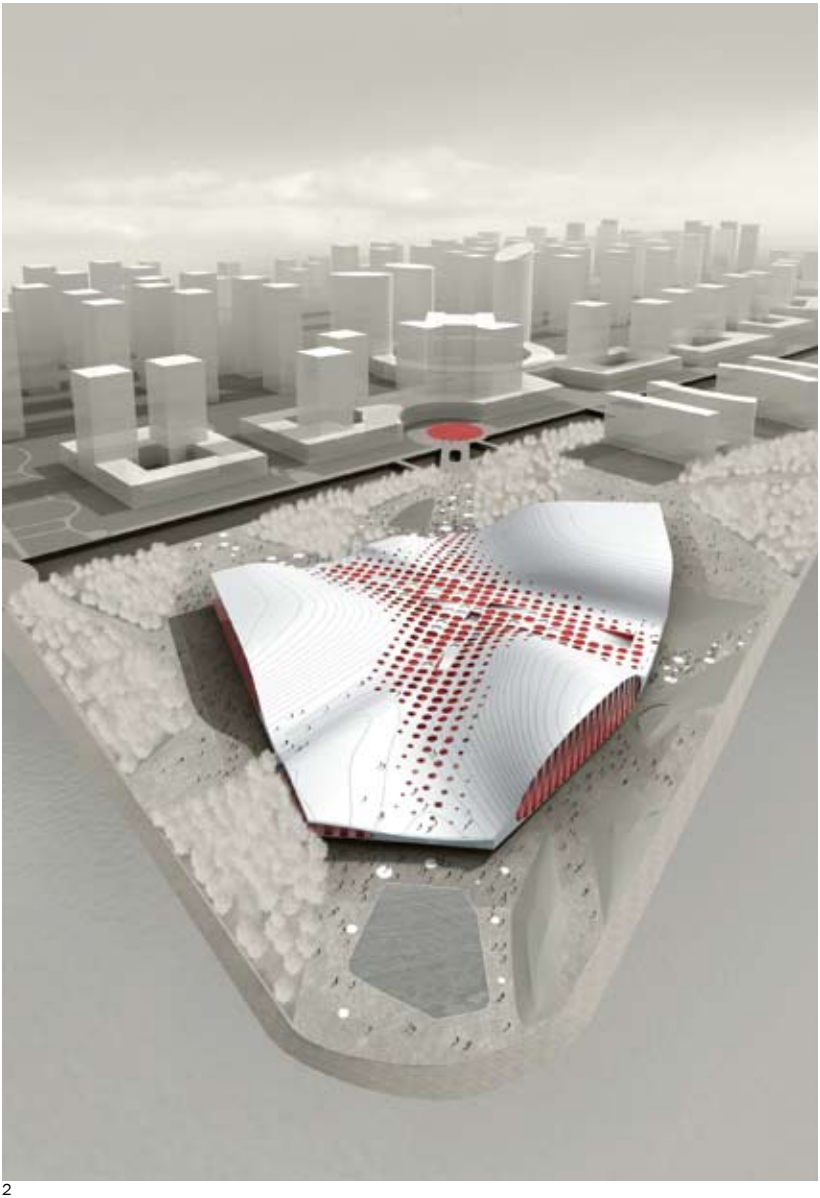
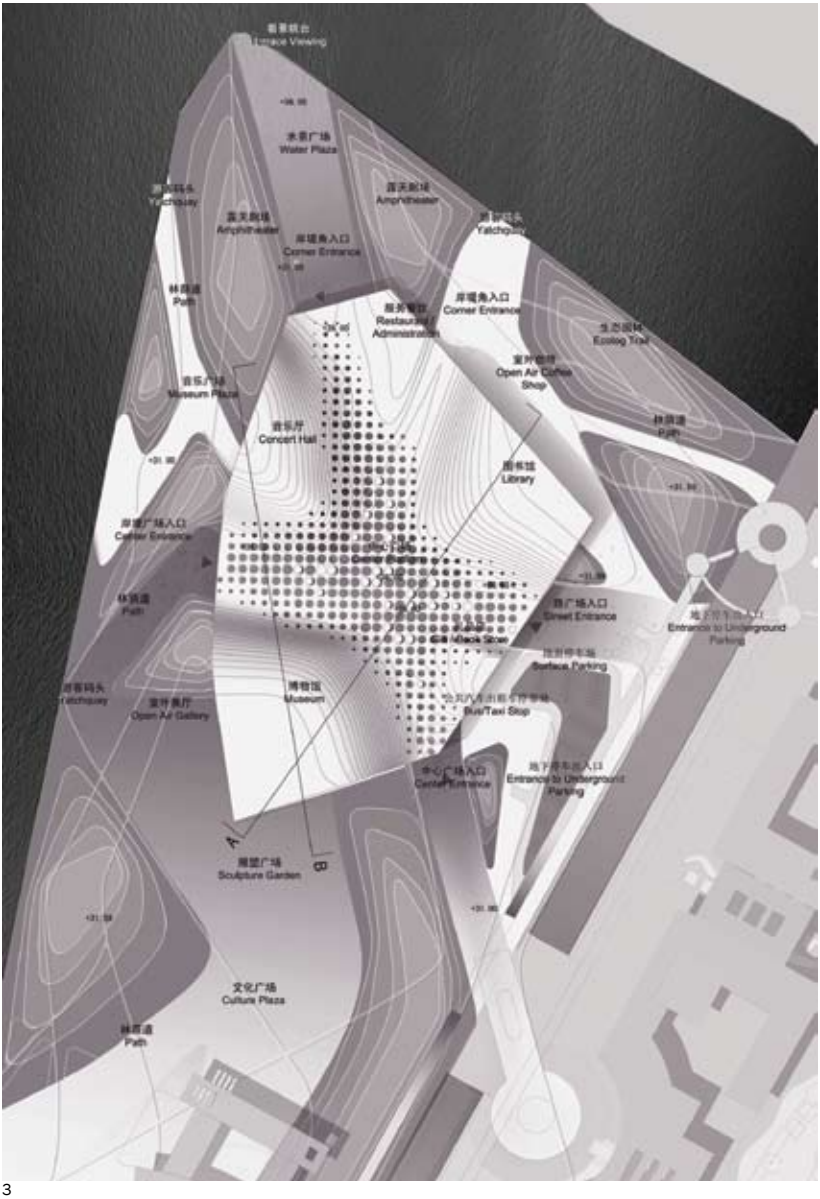
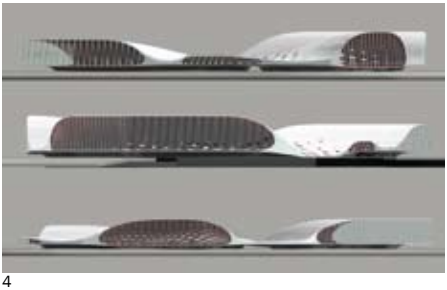
1–2. Aerial views




Terrace Viewing
Water Plaza
Yatchquay
Amphitheater
Corner Entrance
Path
Restaurant Administration
Ecolog Trail
Open Air Coffee Shop
Museum Plaza
Concert Hall
Library
Center Entrance
Street Entrance
Entrance to Underground Parking
Surface Parking
Bus/Taxi Stop
Museum
Open Air Gallery
Sculpture Garden
Culture Plaza
A
B



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3. Master plan **4.** Elevations **5.** Ground-floor plan **6.** Daytime view from the river **7.** Interior view

RISING HOUSE

Beijing, China, 2006

The Rising House is a 2,766-square-foot information-technology engineer's weekend home at the foot of the Great Wall in Beijing. The driving concept of this scheme is "germinating from landscape," which makes the house look like a natural part of the landscape. The downslope site, facing the hills and river, makes it possible to exploit the contours of the hill. A continuous volume is lifted up on one side from the ground level, while a glass-enclosed living space is inserted in between the elevated portion of the volume and ground, surrounded by a courtyard that connects to the outside on the ground floor. The rising volume resembles a continuous and undulating landscape.

The ground-floor plan follows the example of Mies van der Rohe's Farnsworth House. On the upper level, the plan is reversed—a pool enveloped by a glass roof and floor, which allows sunlight to shine through the water and glass floor of the pool into the ground-floor living space below.

with Shen Jun, Florian Pucher, Marco Zuttioni, Yu Kui, Chritian Taubert, Li Kunjuan, Hao Yi

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1. Courtyard **2.** Gate **3.** View from river **4.** View from street **5.** View from interior living area up to the pool

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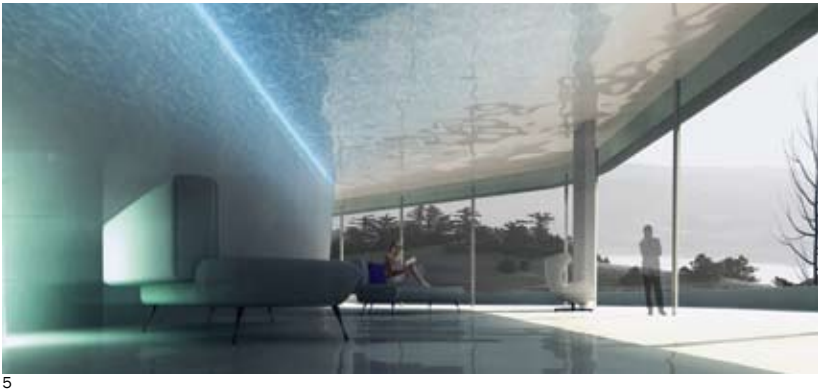

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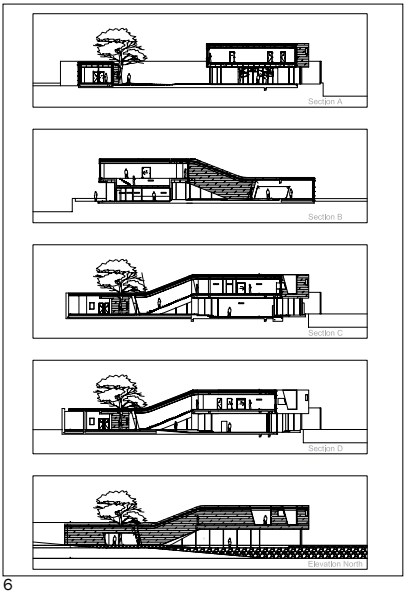
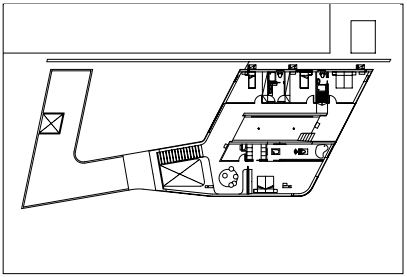

Section A
Section B
Section C
Section D
Elevation North

6



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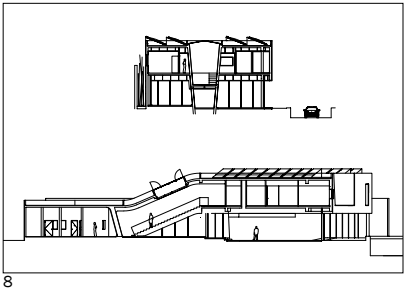

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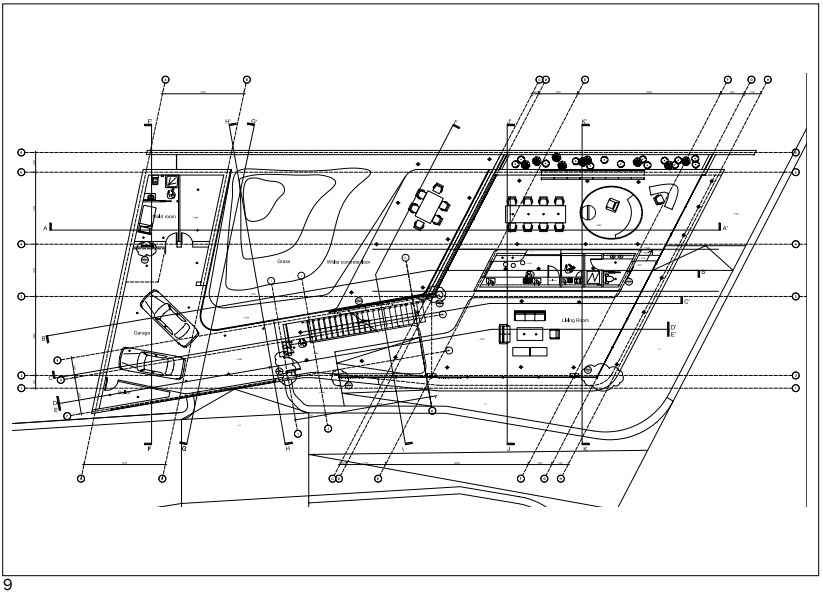
Art Court
Grass
Walls and Fence
Garage
Living Room

9

10

6. Sections and plans **7.** Second-floor plan **8.** Sections **9.** Ground-floor plan **10.** Construction site

FUDAN UNIVERSITY SCHOOL OF ART

Shanghai, China, 2006–present

The new Fudan University School of Art includes an art gallery, performing-arts spaces, and public spaces. It is a 322,917-square-foot venue that can hold various art exhibitions as well as spaces for people to live, study, and work. An undulating and soft-looking surface joins an existing warehouse space to create the school. The surface forms a three-dimensional platform and connects the different levels of the space.

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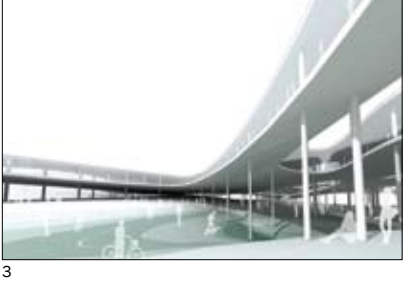

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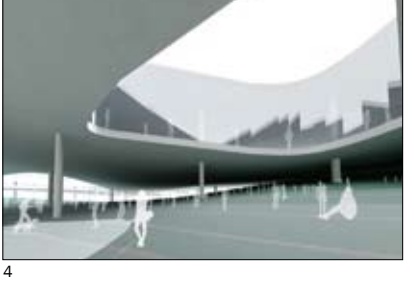

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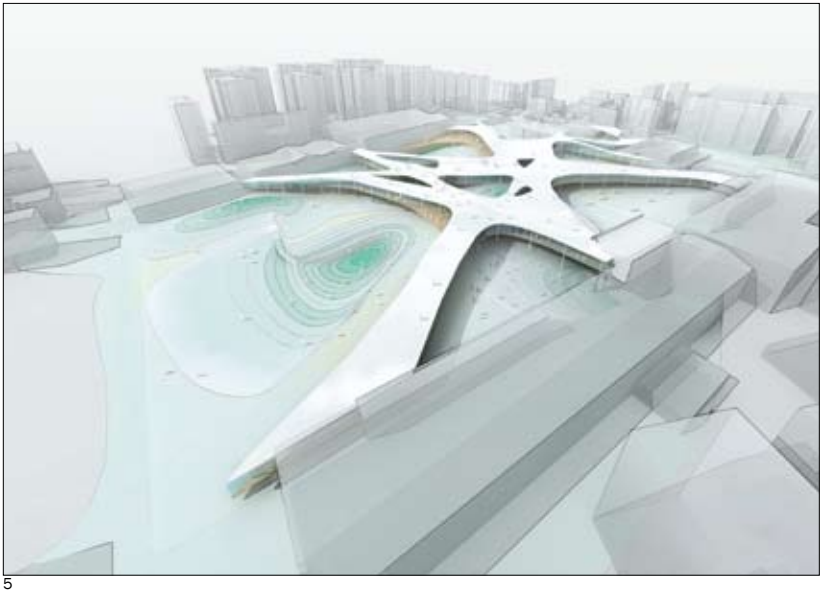
1. View of roof **2.** Ground-floor view **3.** View from courtyard **4.** View of public space **5–6.** Aerial views



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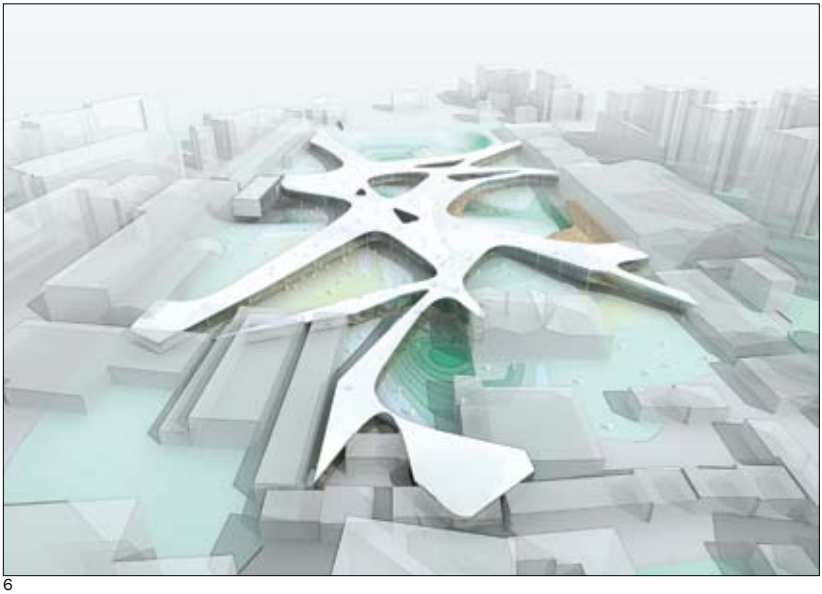

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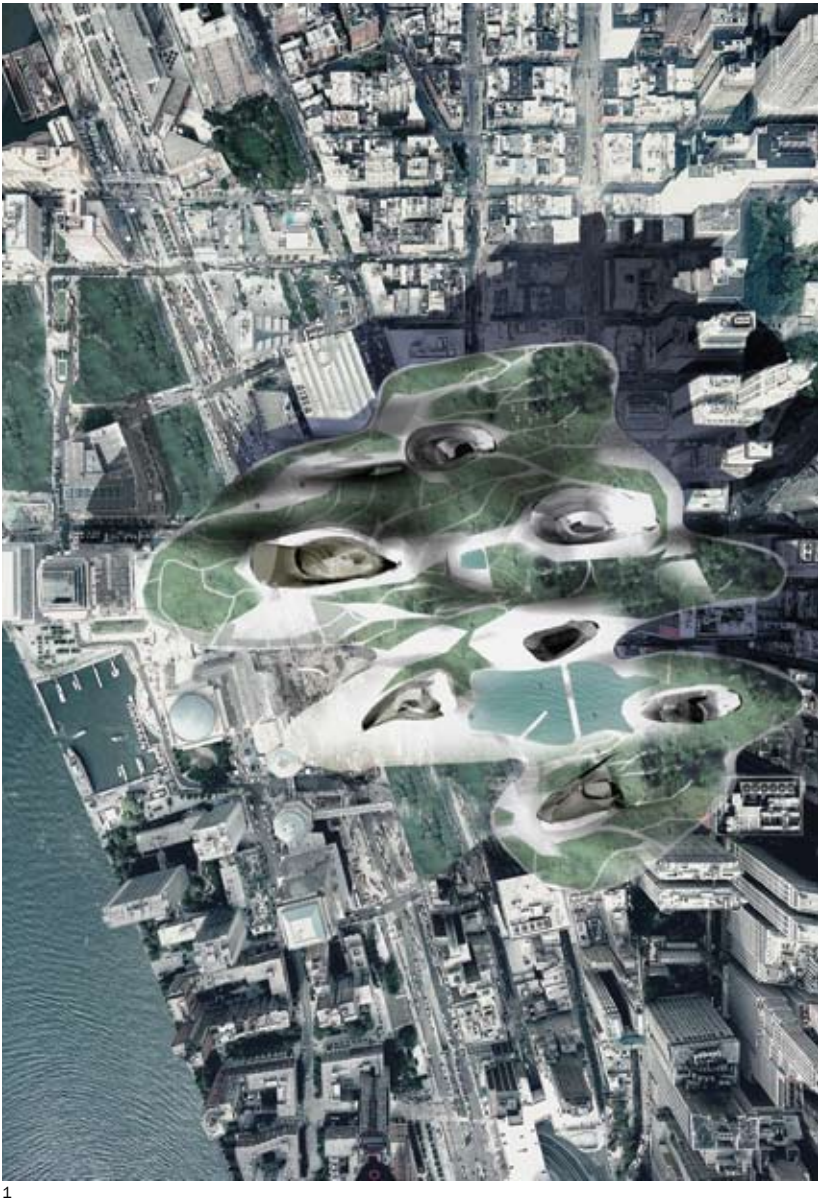
WTC REBUILT—FLOATING ISLAND

New York, New York, 2002

The proposed WTC Rebuilt—Floating Island is not a working machine. It is a constructed organism, a programmed landscape hovering on the World Trade Center site and meeting the surrounding buildings in the sky. A rigorous analysis of the international trade pattern revealed that successful contemporary business practices are not reliant on the size of the working space. Our strategy was to maintain the business infrastructure within a limited space, where digital technology plays the leading role. A multimedia center for business, a digital working station, an air-transportation center, international meeting rooms, and a convention center embody and translate this strategy. Also provided are facilities that relate to other urban spaces, such as theaters, digital cinemas, recreation centers, hotels, restaurants, working gardens, parks, trees, and even a manmade lake.

Unlike the traditional vertical skyscrapers that isolate themselves from the city, WTC Rebuilt—Floating Island organizes downtown Manhattan horizontally and encourages human movement and activity. The ground level, for example, is open to the public. With its new organizational structure, this proposal articulates our query of the "machine aesthetics" and the "vertical city," characteristics of modernism. Our ambition goes beyond the discussion of visual symbolism. We believe the best memorial to the World Trade Center is development.

1. Roof plan



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2. Aerial view **3.** Master plan **4.** Section **5–6.** Views from the street **7.** Function diagram

5

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cafe
offices
park
library
media cent
meeting
offices
park
theater
gallery
offices
restaurant
retail

7

JULIO SALCEDO

There is a broad issue that has guided much of my research for the past three years: architecture's relationships outside of its realm. Outside both in topological terms—its role in landscape and urbanism—and epistemological terms—its approximation and alignment with other fields of research. Within this definition, the terms "generic" and "specific" architectures, the two modes that best describe my research, reference current epigenetic research—the generic stem cell and its path of differentiation toward specificity. Different from many practices today, architecture's interest in other epistemes is addressed within the discipline itself. The architectural research establishes relations outside architecture by modes of operations deeply embedded in the architectural practice itself, such as the parallel use of geometry and program to both describe the methods of designs as well as to define a precise architectural structure.

The foremost intent of my research on the generic is to introduce an expanded understanding of the term. The generic is often seen as banal, off-the-shelf, and as predictable production modes and cultural standards. However, it is also systems of abstract relations that generate rules, that are configurative, that evolve, and that are adaptable. This second interpretation is a part of today's broader debate on the genetic and the generative. There is a close relationship between my research into generic systems of configuration and recent forays into biological/genetic references to describe new architectural practices (e.g., Foreign Office Architect's phylogenetic discussions).

Even more than the literal reading of Alison Smithson's article "How to Recognize a Matt Building" (1974), the reading of Alison and Peter Smithson's Retirement Home project of 1959 became a revelatory moment in my understanding of generic design. At first glance, the project appears to be a quotidian Mies van der Rohe plan. This first reading corresponds with a cultural generic of borrowed typologies and elements. Further examination reveals other, unexpected relationships, such as the excessive division of the core in plan and multiple sliding doors that make rooms out of the larger space. In this latter reading, a second definition of generic as a complex configurative system emerges: a system that

provides maximum flexibility and options, where the strength of the design relies on charged juxtapositions between different programs and volumes.

Recently the use of the generic by practices such as MVRDV has been twofold. First, it relies on abstract systems ("The design itself is an 'abstract system,' a machine that, within the margins dictated by third parties, generates as many differences as possible in order to accommodate as many individuals as possible."[1]). Second, there is another aspect of the generic work that bases its operativeness in assembling borrowed typologies by realigning banal phenomena. MVRDV's Dutch Pavilion at the Hanover World Expo (2000) creates a matrix for endless possibilities as well as reorganizes discreet known landscapes within such matrix. This expanded framing of the term "generic" defines a mode for architecture to engage various complex phenomena at the urban and territorial scales.

The generic mode remains active at different levels within a specific architecture—mainly, the specific can contain smaller generic components. A specific architecture also possesses a genus—a generative logic dictating its development. However, this genus is not configurative, it is figurative and exacting of a particular relation. The specific relies on geometry and perception to articulate the habitation of architecture and its externalities. Much of the recent discourse on the relationships between geometry and perception has been advanced by Robin Evans, whose *The Projective Cast* (1995) contains a drawing by Piero della Francesca titled "Rotated Orthographic Projection" (ca. 1474), which, though appears to be the simplest of drawings, depicts a projection and a vanishing perspective overlapped on the side. A specific mode of research incorporates the generic, but it is closely tied with individual relations to site, materials, culture, and habitation. If the generic privies the morphological and programmatic, the specific privileges use and perception. It is a question of complexity vis-à-vis intricacy.

My work lies in a continuum between these two modes, which becomes a helpful lens to discern architectural approaches and interventions. The work also tests the functionality of these modes in architecture's relationships outside its realm. Casa Lasso charts an application of the specific-tilting continuum as an architecture tackles the landscape and the social. Other projects remain to mine this continuum.

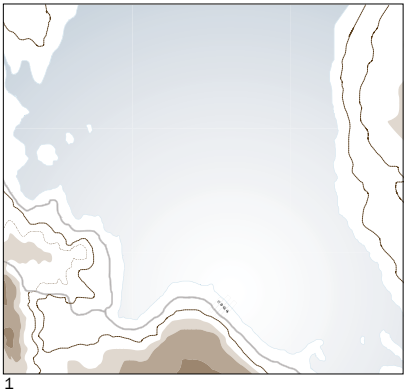
1. Bart Lootsma, "Towards a Reflective Architecture," *El Croquis* 84 (2003).

SVS HOUSE

Branch Lake, Maine, 2005

The SVS (solid void solid) House at Branch Lake is the built realization of two prototypes planned for four lots. The design for the SVS House explored a generative/generic mode of design, which relies both on configurative techniques derived from a "genus," or essential elements, as well as the manipulation of the pervasive local building types. My interpretation of this mode of design is inspired by my research of Peter and Alison Smithson's 1959 unrealized project for a retirement house as well as a reinterpretation of some contemporary European practices, such as the Dutch designers MVRDV.

The program required flexibility and multiple performance possibilities: the house is intended to vary widely in its occupation and potential uses, ranging from a single artist space to a large family home. There was additional demands to subscribe to a "total energy consumption" standard, achieved by using local and mostly renewable sources, and a budget of $115 per square foot. These demands were met by designing slight transformations into vernacular building technologies, such as the platform framing and concrete foundation. A skylight and one of the



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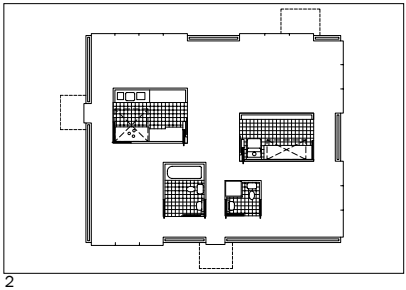

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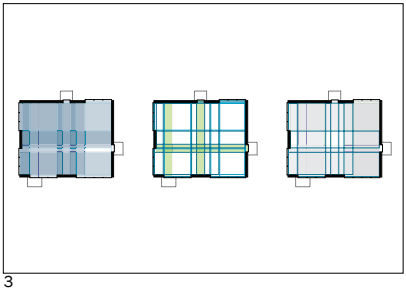
front elevation windows of a large volume lights the unprogrammed lower level. All of these predicaments are the territory of a generative/generic mode of design.

At the smaller habitation scale, there are two matrices of a program-filled solid and of paired voids. The cohabitation of these two matrices affords a complex reading of space as both a discrete set of elements and a sinuous, continuous landscape. These formal operations calibrate the degrees of privacy and continuity between adjacent domestic elements. In this manner, the house provides several modes of dwelling. At the larger scale, there was a manipulation of the standard platform-framing envelopes and expected morphologies. The slight offset of the two volumes introduces an element of seriality that displaces the readings of platform-framing construction. At the level of cultural agency, the generic plays up its alignments with previous late-modern housing types, namely the ranch model.

The SVS House does not rely on figurative compositional techniques but rather draws from the richness of adjacencies, alignments, and overlaps to generate its program performance, its spatial intricacy, and ultimately its architectural appearance.

with Francesco Gennarini, Jeremy Reed, Mauricio Estelleras; F. L. Davis & Co., contractor
photography by Fabian Birgfeld



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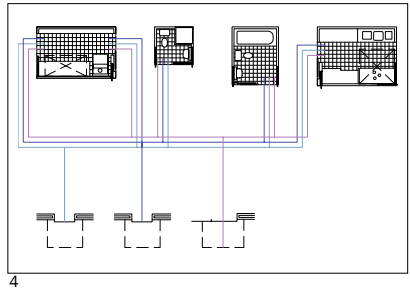

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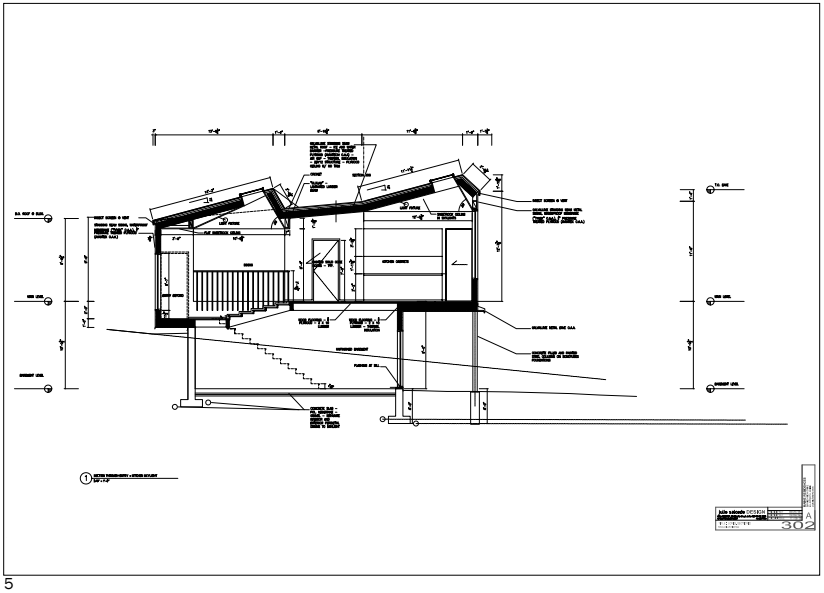
1. Site plan **2.** Peter and Alison Smithson's unrealized 1959 retirement house, plan **3.** Generative projections **4.** Generative paths



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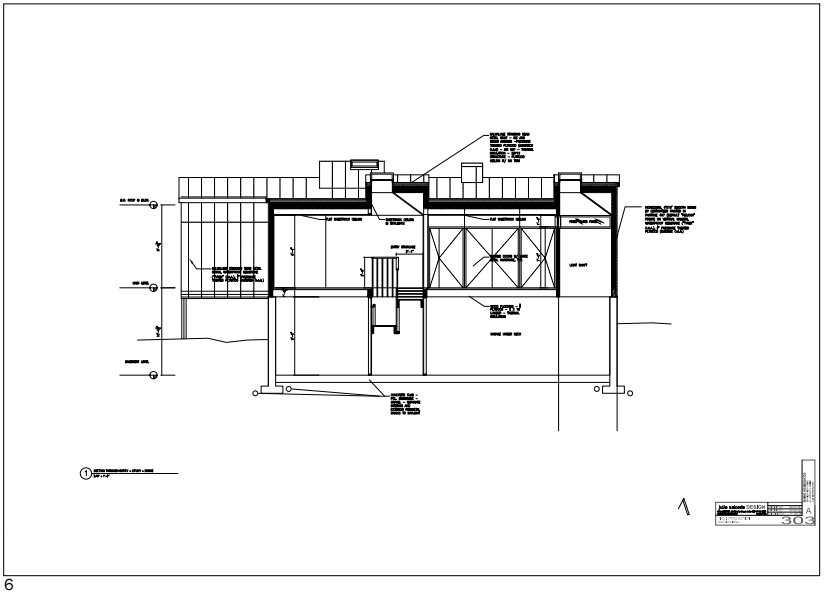

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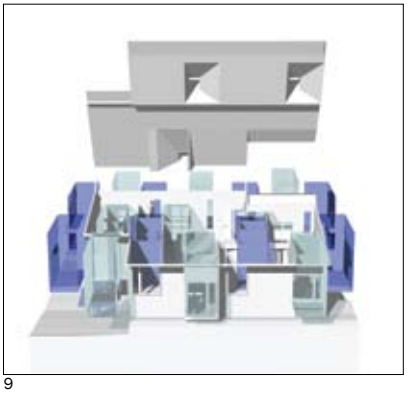

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5. Cross section **6.** Long section **7.** View of facade from road access **8.** View of interior from entrance
9. Solid-void-solid composite diagram

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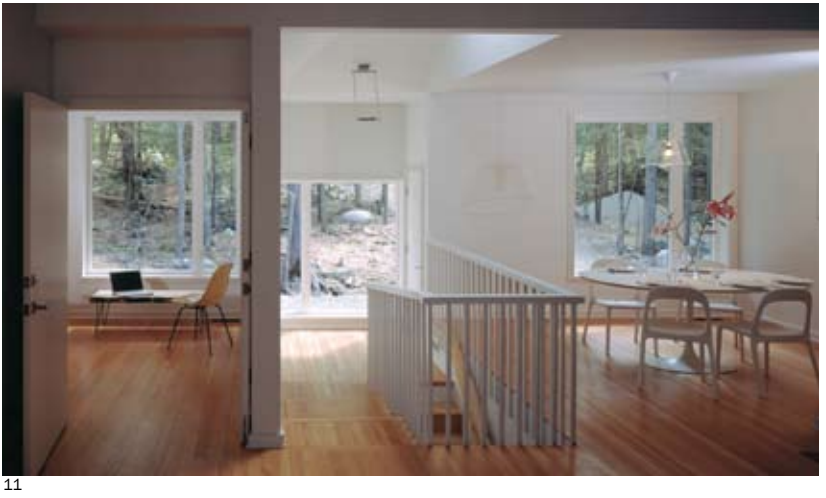

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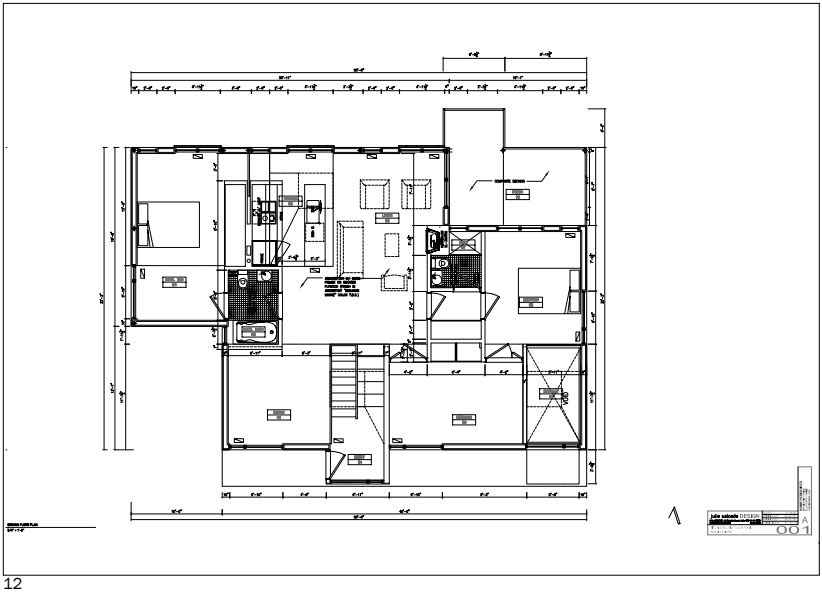
10. View of carport and lakefront facade **11.** Interior view toward entrance **12.** Ground-floor plan
13. North and south elevations



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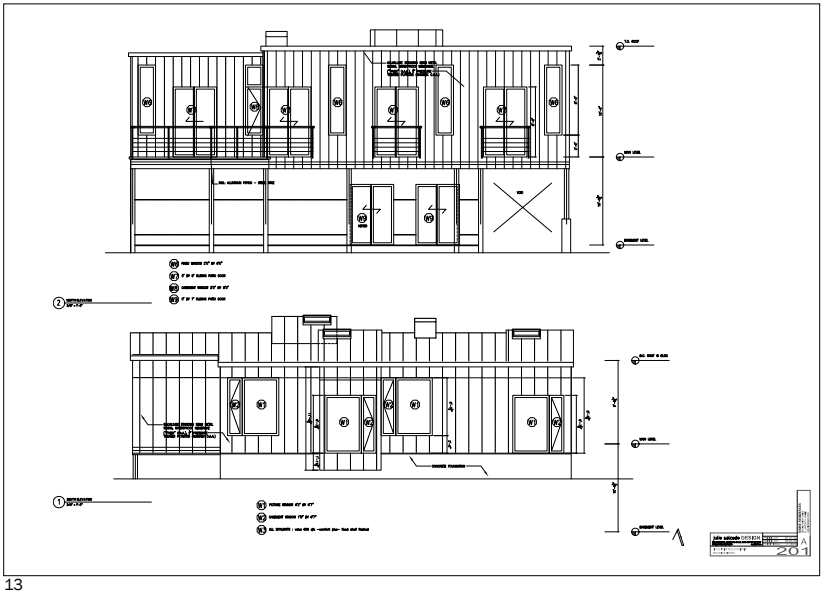

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SYRACUSEHEART

New York, New York, 2004

Competition / First Prize

Syracuseheart, a collaborative project between students and faculty at Syracuse University, was the winning entry of a competition for an installation on the facade of the Lubin House, an institutional building on Sixty-first Street and Fifth Avenue in Manhattan. This installation was conceived to be concurrent and discursive with Christo and Jeanne-Claude's *The Gates* project, hence its timing and location. The installation consisted of syncopated, pneumatic structures caught between two meshes of different densities. The structures filled up with air and illuminated at random.

The relationship between the natural and the synthetic present in Christo and Jeanne-Claude's work was reexamined by unearthing some of the cultural and artistic themes present at the time of the conception of *The Gates* around 1968: while the ideas behind modernism were being questioned, there remained a redemptive belief in technology as seen in the work of Ant Farm and Superstudio. The installation presents technology as uninhibited and engaging while producing additional simultaneous readings of insularity and banality.

with Kelly Bennett, Michael Cornoni, Colin Simmer, Joshua Simoneau, Emillio Stokes, Jennifer Tarsio, Professor Anne Munly (faculty mentor)

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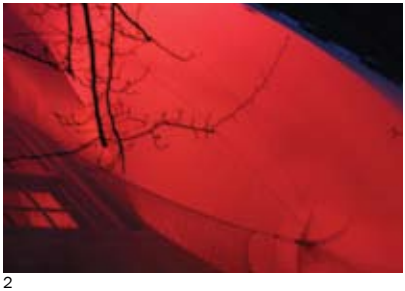

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1. View from below **2.** Detail **3.** View from a block away

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PLANTING SEEDS

Hamar, Norway, 2005–present (ongoing)

Project, Salcedo.brossa estudio in collaboration with Marc Brossa

To meet both the growth and industrial restoration needs of the city of Hamar, Norway, Planting Seeds proposes not a formal solution but a mechanism for increased development in a recovering landscape. In direct contrast to usual patterns of urbanization—i.e., the adjacent grid—buildings and landscape here evolve within a reciprocal relationship, and over time their complementary interactions will support a multifunctional urbanity. New infrastructures, housing, commerce, recreation, land remediation, and interaction with ecological systems are gradually implemented and allowed to thrive.

Planting Seeds capitalizes on the site's different development pressures: time constraints, programmatic definition, and the existing contextual conditions (isolation by transit infrastructure from the city fabric, an open-edge condition between city and nature/lake, extreme climate conditions, and soil and site contamination). In its adherence to the complexity and changing nature of these specific parameters, the project defines an alternative to the "generic extension" of the grid of the city onto the lake.

The project introduced a scattering of physically elevated and publicly programmed platforms to the site, or "seeds." These seeds hover above a simultaneously designed and installed landscape comprised of ridges and furrows and aimed at habitat growth and soil and water remediation. They are anchors, new rocks of the waterfront. Connected to the city over, above, and longitudinally to the train tracks, they draw people to this previously unknown site. Based on the dimensions and orientation of the traditional blocks across the train tracks, the seeds host public facilities—a greenhouse, a theater, a spa/swimming pool, a convention center, a leisure center, and a library.

As the landscape matures and program needs transform, a new architectural skin grows around the initial seeds, expanding upward and outward and hosting residential, office, and commercial spaces.The seeds evolve from the initial stages in two different ways: explosion and implosion. In the first model, the seed retains its hollow core with new segregated uses added peripherally. In the second model, "solid" public programs occupy the core—convention halls, theaters, cinemas—requiring additional layers within to house both open, public programs and other segregated uses.

Public enterprises are supported by private interests and vice versa. Their partnership spurs the growth of physical and economic layers. The skin lives and breathes with the enlivened landscape, utilizing and recycling the resources of air, water, and energy they occupy and displace. The skins provide circulation through mechanical conduits, thermal insulation, solar energy, and heat exchange. The project will restore a diverse shoreline edge condition and wetland habitat to the site over a fifty-year period.

with Guri Nadler (urbanist), So Young Park (architect), Kyung Ok Do (architect), Christine Graziano (landscape architect), Joe Mauer (landscape architect), ROM eiendomsutvikling as (developer)

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1. Hamar, Norway, waterfront

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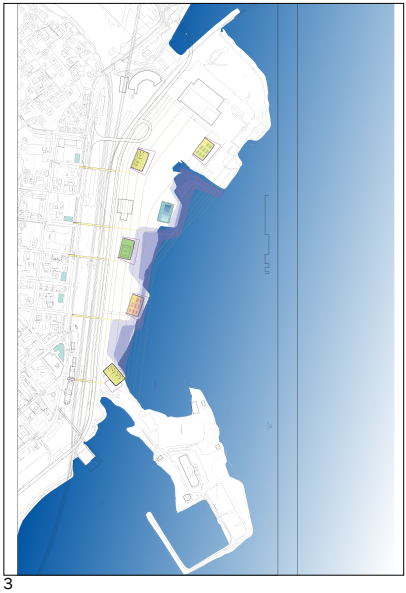

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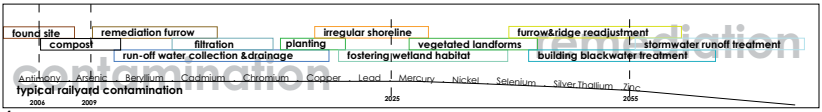

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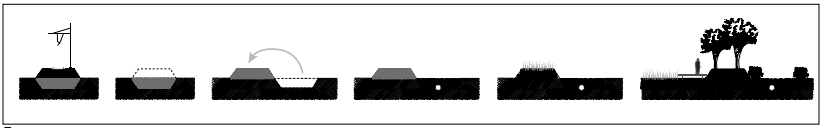

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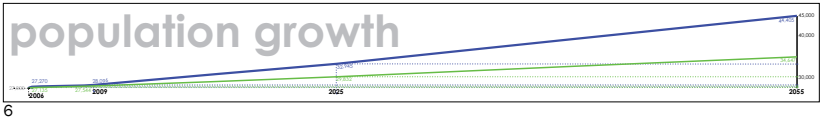

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2. Hamar, winter 2006 **3.** Hamar, summer 2009 **4.** Timeline of site remediation **5.** Furrow strategy
6. Hamar population chart **7.** Hamar, winter 2025 **8.** Hamar, summer 2055 **9.** Urban networks

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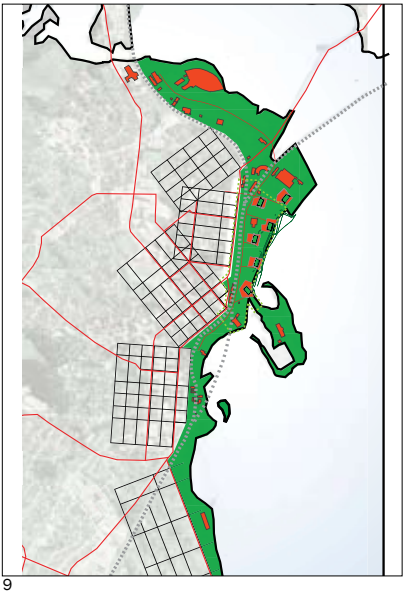

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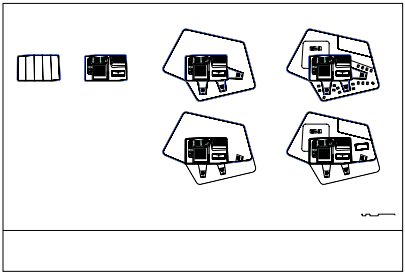

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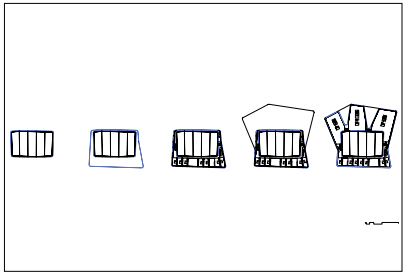

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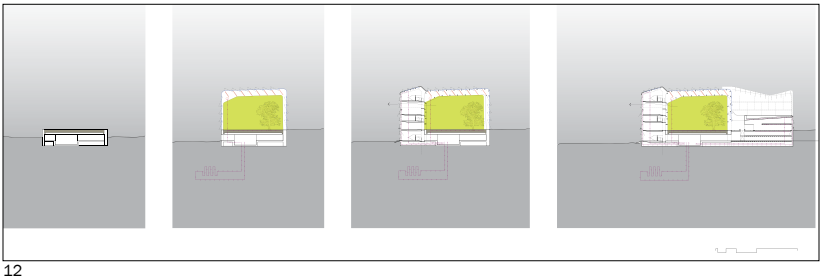

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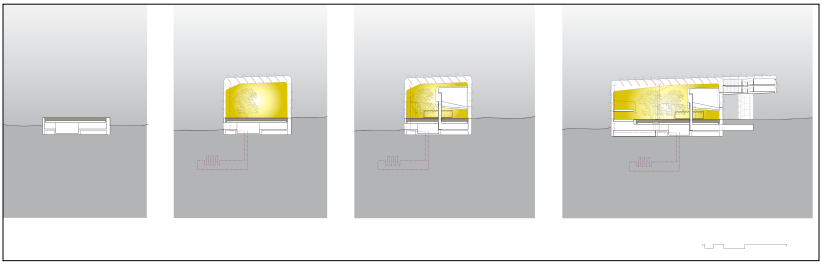

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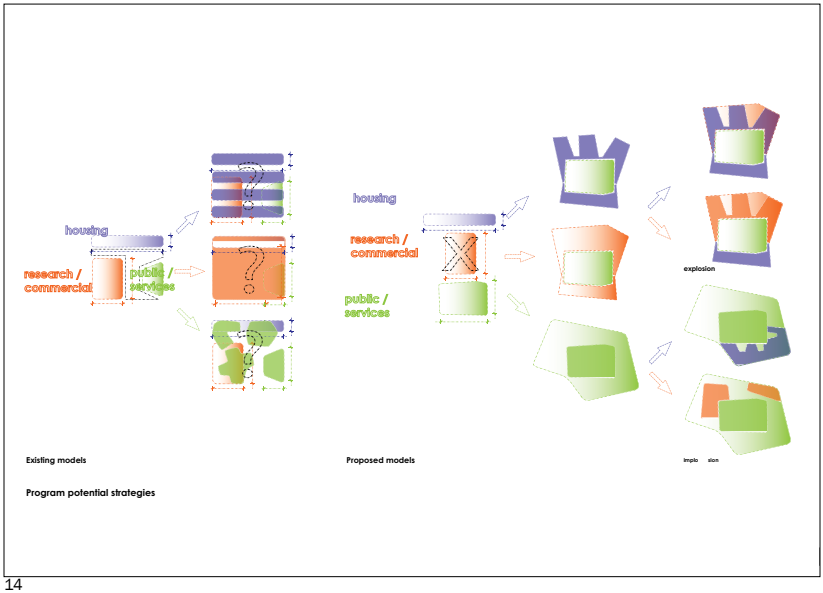
10. Plan: explosion scenario **11.** Plan: implosion scenario **12.** Section: explosion scenario **13.** Section: implosion scenario **14.** Program strategies **15.** Program diagram


housing
research / commercial
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housing
research / commercial
public / services
explosion
Existing models
Proposed models
Program potential strategies

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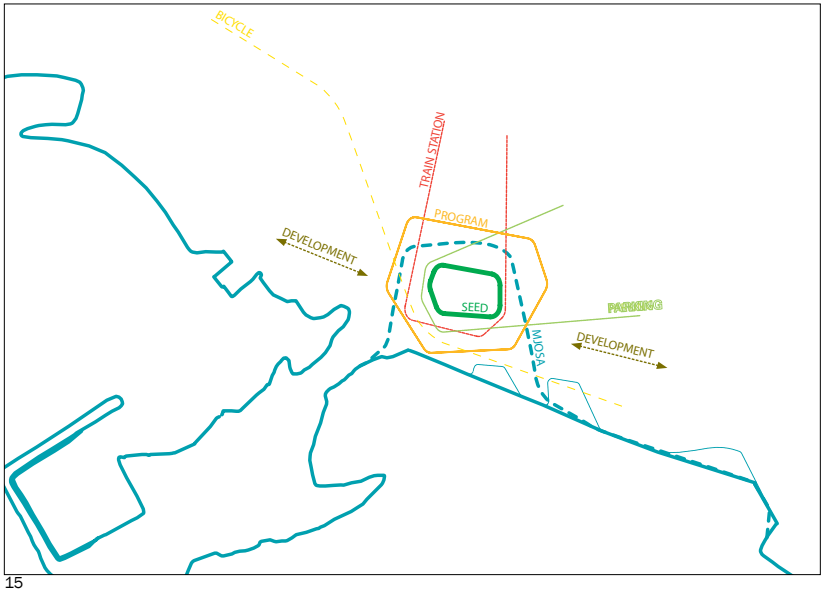
BICYCLE
TRAIN STATION
PROGRAM
DEVELOPMENT
SEED
PARKING
MIOSA
DEVELOPMENT

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WOODSTOCK MUSEUM

Woodstock, New York, 2005–present (ongoing)

Since its beginnings in 1920, the Woodstock Artist Association (WAA) has been committed to exhibiting and collecting work in all media by local artists and supporting the tradition of Woodstock, New York, as the "Colony of the Arts." Located in the center of Woodstock, the WAA functions as a cultural center as well as an archive for the work of esteemed artists who have lived and worked in the vicinity.

The existing historic facility and additions house the collection and exhibit space for temporary shows. As the museum's programmatic needs change, the structure needs to transform and enlarge within the existing space. The proposed design introduces an element of seriality and repetition to co-opt existing idiosyncratic volumes, to address the new requirements for the museum, and to choreograph the movement of its visitors.

The construction and structural logics dictate the parameters of seriality in the design. In terms of construction, the reiteration of architectural elements—a series of double upside-down U-frames—anticipates a construction sequence of events that will expand over most of the existing structures before dismantling a few of the additions. Structurally, the design relies on a triangulated structure at the top joints of the frames that would otherwise be moment connections. The series of frames transforms from the incorporation of the triangulation within the frame to its externalization outside of the frame, keeping the interior space free of lateral structures. The movement through the design sets up a choreography that weaves through the new and old structures as well as supporting the changing nature of space in relation to structure.

with Francesco Gennarini, Jeremy Reed, Mauricio Estelleras

1. Montage of front facade **2.** Cross section **3.** 3D rendering: early skin study **4.** Structural 3D rendering: front view **5.** Structural 3D rendering: rear view **6.** Western facade **7.** Eastern facade

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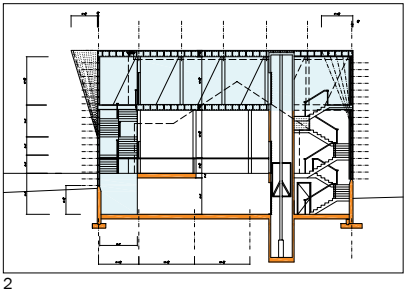

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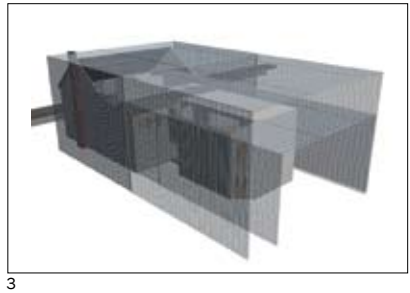

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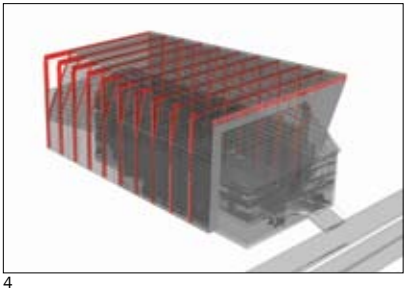

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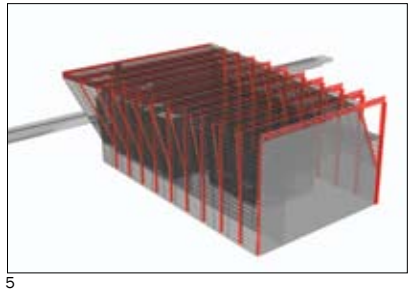

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CASA LASSO

Trasierra (Cantabria), Spain, 2004

Casa Lasso, a 1,700-square-foot residential structure, is located near the small village of Trasierra halfway between the Basque country and Galicia, on Spain's northern Atlantic coast. Emerging from a windswept former cornfield overlooking the Gulf of Biscay, Casa Lasso intertwines the built structure with the landscape. This occupation forms a figure eight along the site's longest diagonal and aligns itself with the direction of prevailing winds.

The design technology arises from this nexus in the landscape. The structure is composed about a series of hinges or vertical axes occurring at the moment of crossing the figure eight. This technique defies and rejects standard projective geometry, which focuses on elevations and facades, in favor of an alternative projective composition that develops about the axis and the spaces in-between. This method proposes a new typological approach to domestic models rather than central or lineal typologies: Casa Lasso defines a new model for cohabitation through the open quadrants of the nexus.

Perceptually, Casa Lasso relies both on the figure eight as well as on the quadrant-hinge technique. As one moves through the figure eight, it is not that there is an architectural promenade vis-à-vis a complementary system as much as there is a totalizing environ for perception of landscape and structure. The quadrant-hinge method only makes precise what already happens when approaching a multiaxial construction.

Casa Lasso's program is a part-time, single-family residence composed of four bedrooms, two and a half bathrooms, a living room, a dining room, and a kitchen. There was an equally demanding internally motivated program: the client family had been fragmented and the design for house invested in new social relationships—resulting in the distribution and grouping of paired bedrooms on one hand and communal spaces on the other about the exterior quadrants. The plan allows for a high degree of collective and individual dwelling: while the project is a continuous ribbon—one big lasso—the public spaces face each other at less than ninety degrees so that it is possible to partake in each other's activities. The bedroom wings, although on two different levels, are grouped around an exterior quadrant, distancing themselves from the public realm. In a complementary fashion, the thematic shading of the collective and the individual programs is played

in the landscape: the approaches to the structure provide either the option of being seen or quietly disappearing into the bedrooms.

Casa Lasso is a concrete structure with thermal masonry infill and a local-stone cladding. The millwork is anodized aluminum with insulated glass. The interior floor panels are recycled from a local chestnut farm. Some interior components are either tiled or lacquered in different colors: yellow, light blue, mint green, and jade green.

with Michael Chen, Jane Kim, Iñigo Cores; Construcciones Mazcuerras, contractor
photography by Miguel de Guzman


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1. View of western quadrant **2.** View of interior stair **3.** View of living area

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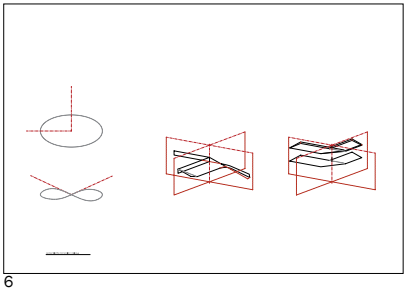

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4. Aerial view of site **5.** Programmatic diagram **6.** Diagram of geometry **7.** View of southwestern quadrant
8. View of eastern quadrant **9.** View of exterior retaining wall

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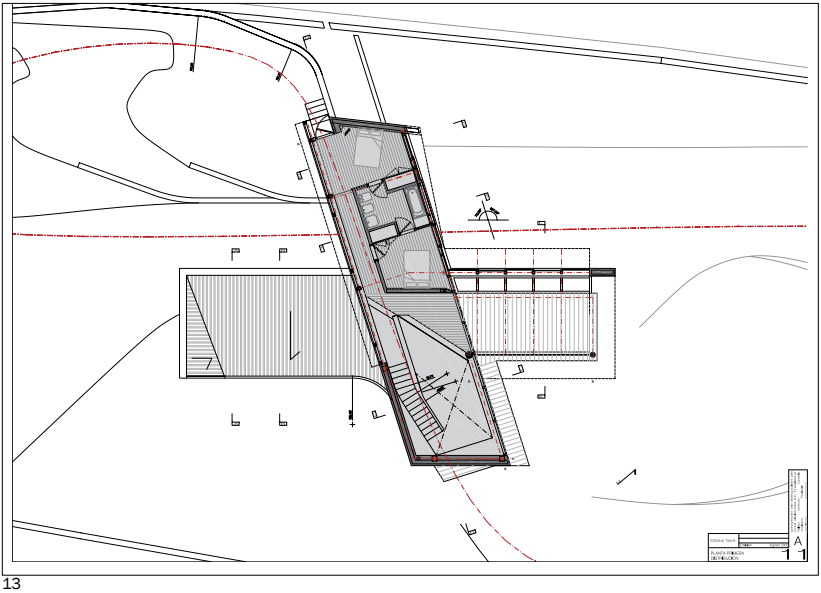
10. View of southeastern quadrant, at dusk **11.** View of southwestern quadrant, at night **12.** View of northern quadrant **13.** First-floor plan **14.** Ground-floor plan



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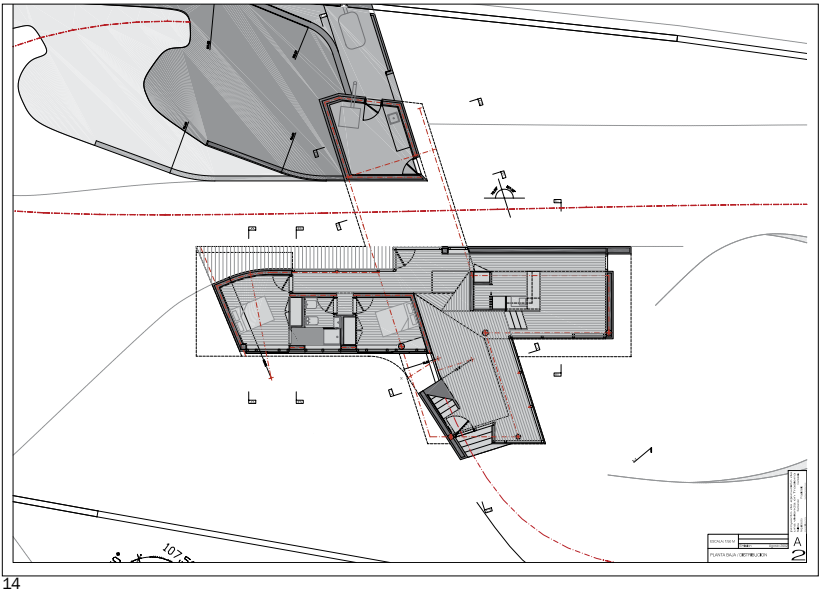

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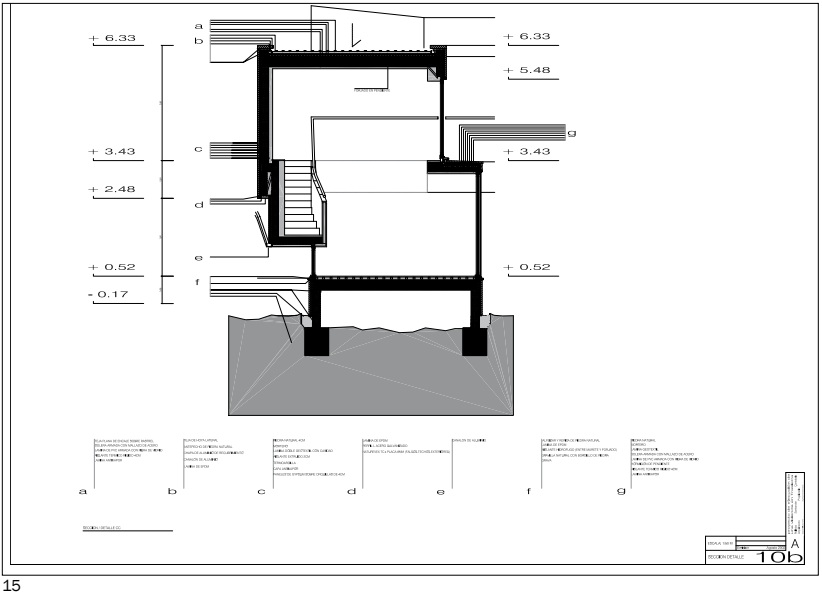

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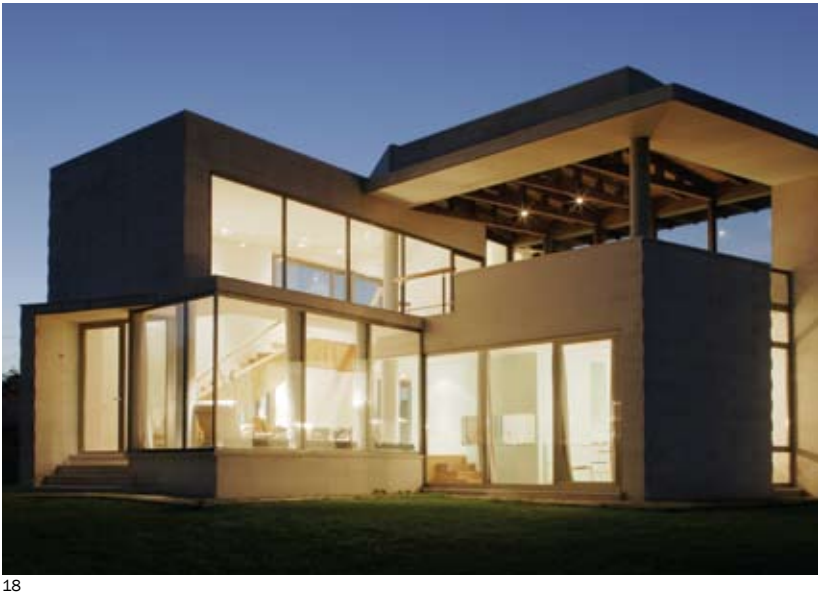
15. Detail section **16.** Construction of stairs and roof slab **17.** View of dining area **18.** View of northern quadrant **19.** West and east elevations **20.** North and south elevations



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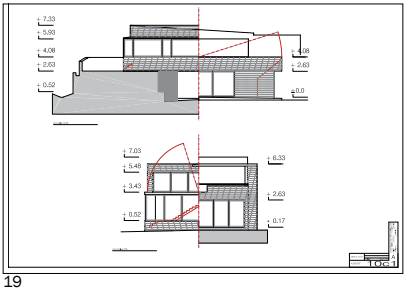
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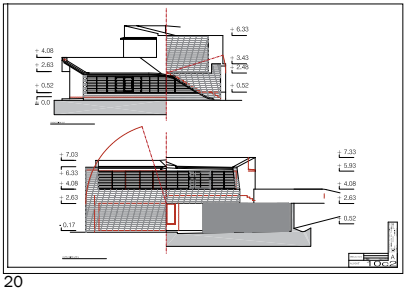
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