RELEVANCE

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Volume 31 Relevance

The Student Publication of the College of Design

North Carolina State University

Marvin Malecha, FAIA, Dean of the College of Design

Preface

A life in design is characterized by hypersensitivity to the ceremonies of life. It is a way of proceeding that is made vital by engagement with the issues of life. It is the means to connect disparate pieces of information and make them whole. The essence of design thought is defined by the belief that it is possible to make the ordinary sublime. At the core of design action is the possibility to enrich the human experience. It is driven by cultural legacies and personal experiences as diverse as the species of the plants that comprise our planet. It must have at its foundation empathy for others. Design is therefore not a noun defined by a precious artifact; rather, it is a verb measured by its actions.

Apart from engagement with life, in the hands of talented and intelligent practitioners, there is a temptation for design strategies to become self-indulgent. Engaged with life, Design has meaning.

The Morrill Act of 1862 established the land-grant college with the intention to engage higher learning with the needs of agriculture and manufacturing in order to enhance the quality of life for the citizens of the nation. The land-grant act is a contribution to higher learning as important as the classical studies of the English university and the research tradition of the German institution. It is the American contribution to the evolution of attitudes about the life of a university and the needs of society. Within the context of a land-grant institution it is imperative that citizen design be a first priority. It is in this context that an investigation of relevance in the design act be undertaken.

The need for design talent beyond the lights, the periodicals and the affluent client is great. Rural communities are struggling to maintain a way of life that is as essentially American as any other characteristic of our country. Children and family environments demand our attention from school to home in a time of uncertainty and transformation. Universal design strategies inspire solutions that address physical challenges by introducing products that are better for everyone.

The manifestations of relevance in design thought and action can be found all around in the form of products, buildings and environments. It can be seen in the public art that inspires us as we pass and in the newspaper we read. Design strategies make places accessible as we grow older and signal an inclusive view of our society. It is a test of our relevance and therefore of our importance in society as designers. If we wish to be valued as designers we must see to it that design is a strategy to address the most basic needs of our communities. If we wish to be valued, we must reach out beyond the circle of the effete to those who need our energy and our talents.

Relevance is a commitment to conscience.

Marvin J. Malecha, FAIA, Dean of the College of Design

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Editors' Introduction

The College of Design emerged at NC State University during the mid-20th century under the erudite guidance of Dean Henry Kamphoefner with a sensibility evolved from the Bauhaus method and a desire to forge a new philosophy of design:

Verum Ipsum Factum ("Truth through making").

Although "truth" suggests a fixed and prescriptive goal, the notion of "making" paradoxically suggests a fluid and active process. Recognizing the legacy of this design philosophy, the editors of this publication accept its inherent paradoxes while promoting the evolution of its interpretation. Volume 31: Relevance, *The Student Publication* of the College of Design seeks an understanding of an elusive goal, which is no less valid for its elusiveness. Relevance is a truth that is realized in process, not in prescription.

In pursuit of its founding principle, The College of Design comprises five distinct disciplines: Architecture, Art and Design, Graphic Design, Industrial Design and Landscape Architecture. This diversity is the College's greatest strength, promoting both the individual advancement of each discipline and the collective embrace of identifiable commonalities. Volume 30: Continuum, *The Student Publication* of the College of Design returned to circulation with a retrospective glance and, in so doing, revealed the rich fabric of ideas generated by this environment of interdisciplinary exchange. It is this notion of interdisciplinary exchange that inspired Volume 31: Relevance.

The question of relevance in the design disciplines is one of motivation and meaning. Relevance is a topic that asks familiar questions: "Why?" "How?" and "For Whom?" As editors, we asked these questions knowing that no definitive answer existed, and that those answers we found might be true only for a moment. Yet, if the truth of relevance is constantly changing and inherently personal, why should it be a topic pursued by designers today? The answer to this question may be found in its asking. In an epoch where speed and image are often desirable, it is sometimes difficult to pause long enough to grasp the humanity buried amid the data and the gloss. Process is often lost to product, a truth antithetical to the founding principles and sustained mission of the College of Design. Relevance is the search to rediscover process.

Volume 31: Relevance, *The Student Publication* of the College of Design presents the work of a group of designers who, on the surface, fall into a number of disparate categories, negotiating issues spanning technology and manufacturing processes, economic class and culture, and environmental design considerations. Yet, all of the contributions to this volume are attempts to determine relevance by establishing new voices and identifying new audiences able to benefit from the exceptional potentialities of design. Relevance has never been more difficult to achieve than it is today in our increasingly fragmented and complex society; however, we must continue to pursue the question of relevance for the sake of those whose lives our work impacts directly. Relevance is a topic impossible to define but one which will not stand to be overlooked.
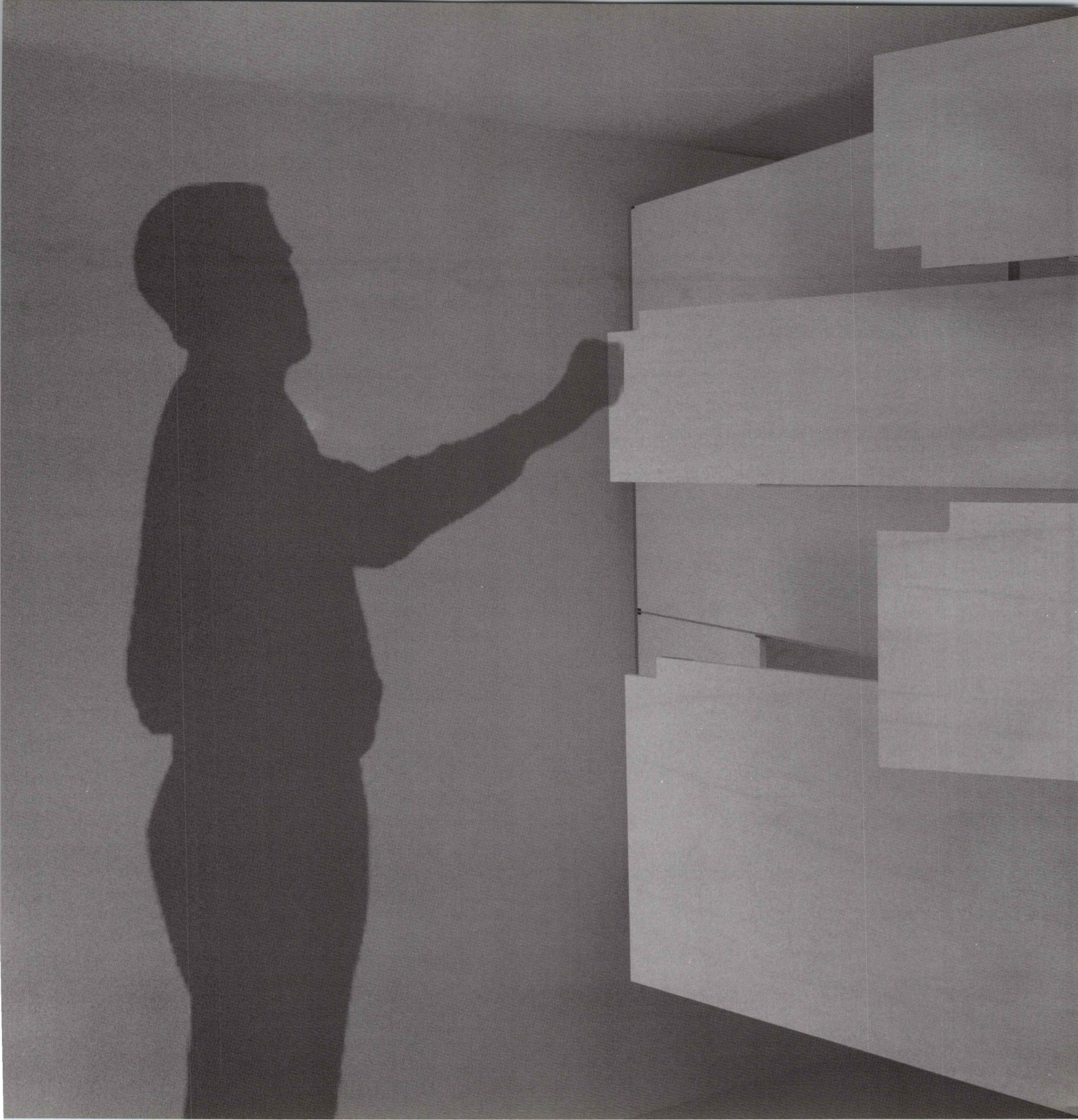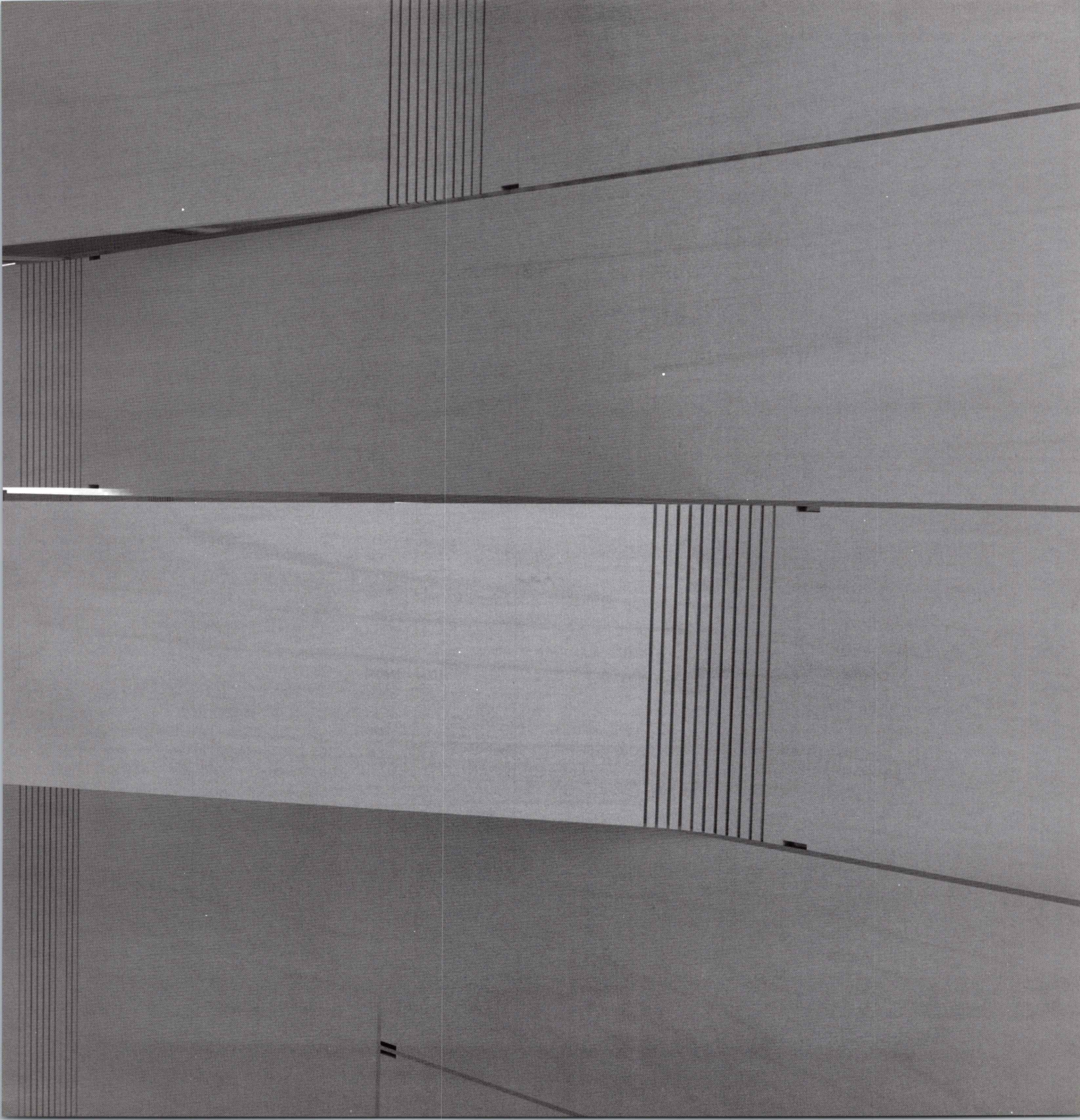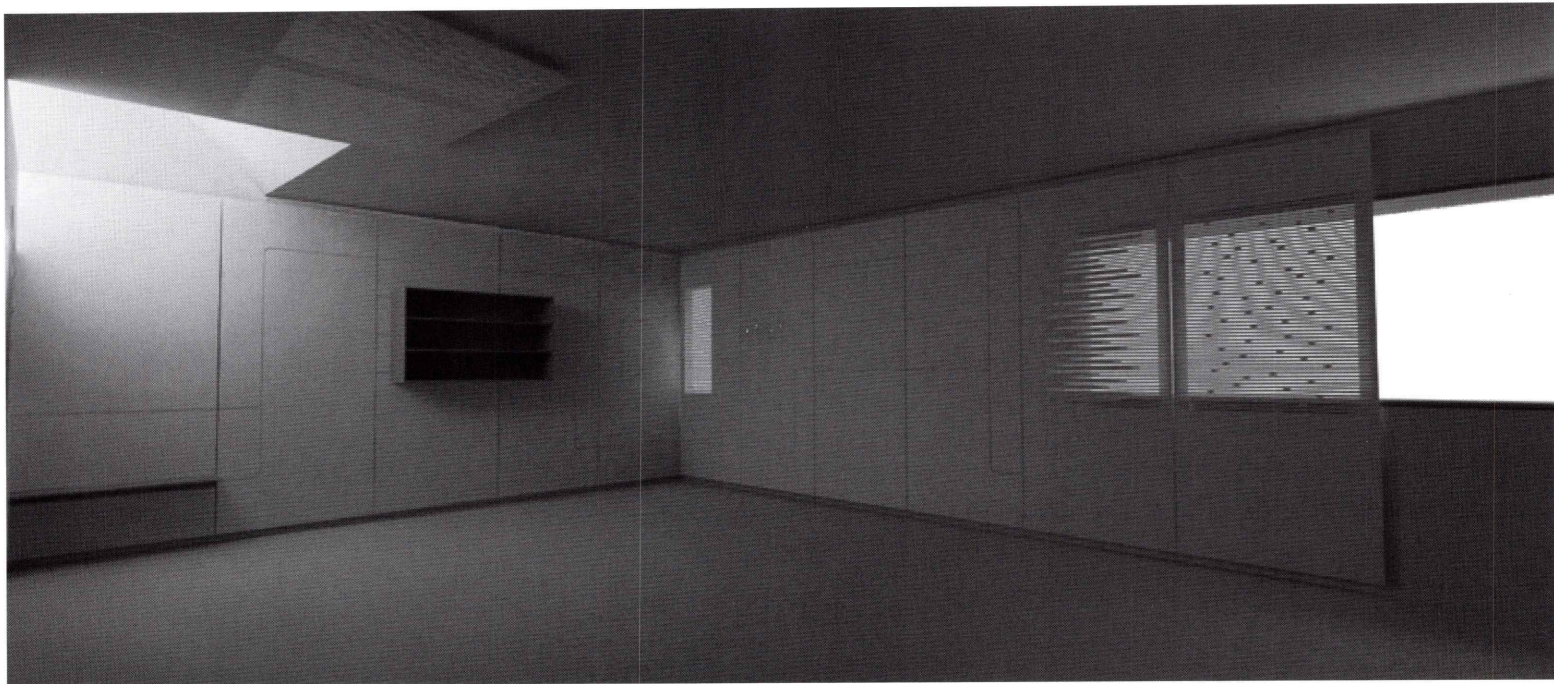
Surface and Fabrication
by Jeremy Ficca

Jeremy Ficca is an assistant professor of architecture at the NC State College of Design. He received his post-professional Master's of Architecture degree from Harvard University. His research conducted while there was included in the Immaterial/Ultramaterial exhibit and publication, which explored the non-conventional use of conventional materials.

Recognizing the legacy of designers such as Charles and Ray Eames and Jean Prouve, Ficca explores both functional and expressive innovation through an understanding and appreciation of materials and manufacturing processes. The research that Ficca discusses in the following article involves Computer Numerically Controlled (CNC) milling, a process in which a router mills a three-dimensional surface into a solid material based upon a digitally produced model. Although technology has long been held accountable for the loss of craft in the building industry, the following research suggests a potential for contemporary designers utilizing emerging technologies to reestablish a closer relationship between design and the craft of making.

Standards?

The design and ensuing fabrication of architecture is tied to and influenced by materials and related manufacturing processes. Historically, increased automation prompted standardization in these areas and severed traditional working relationships between the architect and craftsman. There were some notable exceptions in which architects sought to exert control over manufacturing. This is probably best exemplified in the practice of Jean Prouve[1], which for a span of time effectively merged studio and factory, and the prefabricated panel house collaborations of Walter Gropius and Konrad Waschmann where design of process paralleled product[2]. Both utopian pursuits ended in failure as the qualitative demands of the architect met the quantitative and economic demands of mass production in which standards increasingly catered to the lowest common denominator. Many of these standards evolved from time-tested systems in which significant set-up and tooling costs were mitigated by high productivity and increased volume. A manufacturer's equipment performed specific tasks to produce a finite product. In most instances, these rigid manufacturing processes limited material and product variation, resulting in increasingly narrow choices for consumers to draw upon. Typically, deviation from these standards became increasingly prohib-

itive due to cost and time. For architects, this resulted in a dilemma in which the particular and often unique necessities of a design project had to be addressed with a narrow palate of standardized products targeting broad audiences and necessities.

"We used to live in an era in which most things had to be made to be the same, but we are about to enter a new era where, if we want it many things or perhaps all things can be different."[3]

In contrast to the past, today's manufacturing processes are increasingly elastic and prompt considerations for the possibilities beyond mass production. Manufacturing tools can be utilized for what they perform, not necessarily what they produce, redefining the traditional notion of a Fordist assembly line[4]. Recent architectural projects illustrate such technological advances in which digitally driven equipment enable modes of production where software and hardware provide the medium for collaboration between architect and manufacturer[5]. Here, typical conventions of information exchange found within practice evolve as design document becomes a literal set of digital manufacturing instructions, providing a virtual extension of the hand of the architect into the fabrication process[6]. The translation is not seamless, requiring a familiarity with emerging techniques and a willing col-

laborator. This does, however, increasingly present the potential for customization, variation and standardization to co-exist. Ironically, the equipment that limited production variation and manufacturer–architect collaboration has evolved to a level of agility that reintroduces the very features it marginalized.

Process

Plywood and Medium Density Fiber Board (MDF) are affordable, widely available building materials utilized by the construction and furniture industry alike. Although they are quite similar dimensionally, their structural, aesthetic and machining attributes vary significantly. These two off-the-shelf materials provided a palate for the investigation of digital fabrication techniques; specifically 2-1/2 axis computer numeric controlled routing (CNC) in which two-dimensional vector CAD drawings determined tool paths. Process and product shared importance and provided opportunities to test how one moves from digital model to physical artifact while encouraging speculations on alternative implementations of both materials. To begin with, functional associations with architectural conventions were loosely defined as interior wall surfaces. The generality of context fostered unpredicted

results, while providing a basic frame of reference. The general premise was to allow for the product to evolve through material specific process investigations. It was not however, merely the result of technique. Form responded to, not followed, process. As research ensued, functional opportunities emerged. A reciprocal relationship between process and product emerged in which action on a material adjusted in response to refined goals. Together, the MDF and plywood investigations sought to produce surfaces that could respond to changing programmatic or environmental requirements of a given space, either through material mutability or built-in flexibility for future adjustment.

Performance

Generally, performance has had two distinct definitions; the effectiveness of something to fulfill its intended purpose, or the execution of a series of actions. The architectural virtues of firmness, commodity and delight defined by Vitruvius point toward the former and continue to represent a common interpretation of performance relative to architecture in which efficiencies rather than actions are the qualifying criteria[7]. Although buildings are often a stage for performance, they rarely become the object of performance. One can consider an alternate, less static definition in which performance can be seen as a dynamic responsiveness to various complex relations[8]. This suggests the potential for an architecture that is agile and capable of multiple identities, resulting in a form of detached determinism in which change primarily occurs within pre-defined limits. For the MDF and plywood investigations, these limits were largely dictated by the material itself, such as its dimension and strength. Although this is related to how the materials were machined and fabricated, the limits do not necessarily prevent accidental or intentional mis-use. They are more guide than barrier.

Performance relative to this investigation can be considered as both effectiveness and action, whereby the action of the panels is reliant upon the body. In the case of the plywood panels, action is defined by bending. The operation of the panels is facilitated through the milling
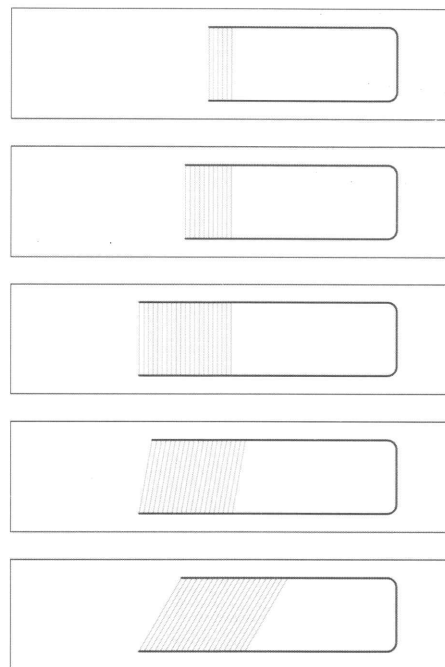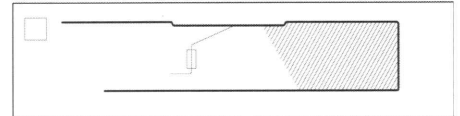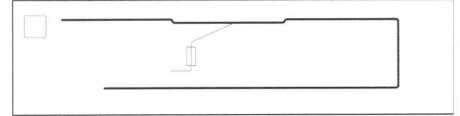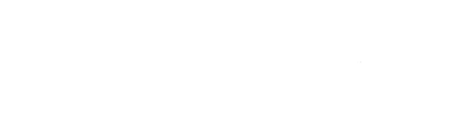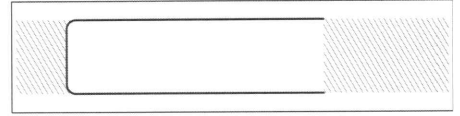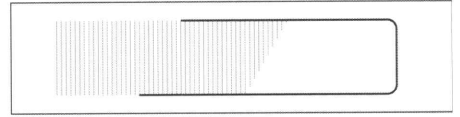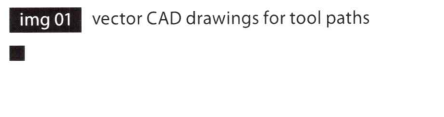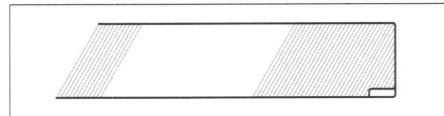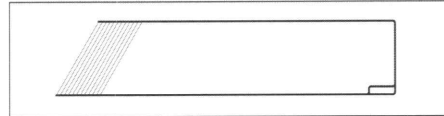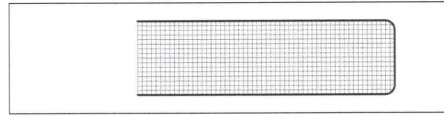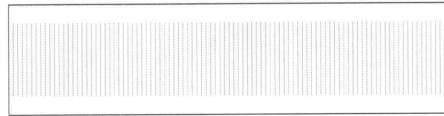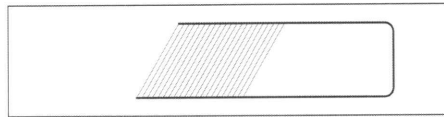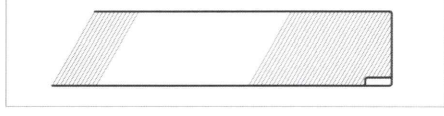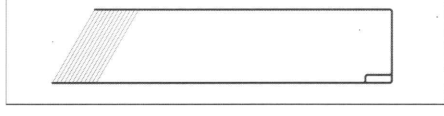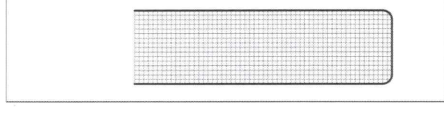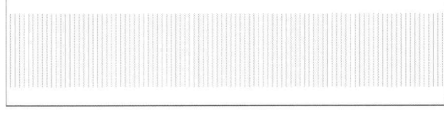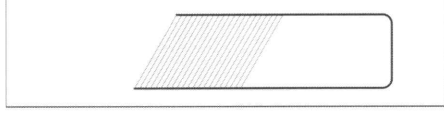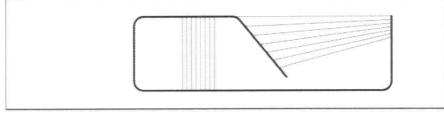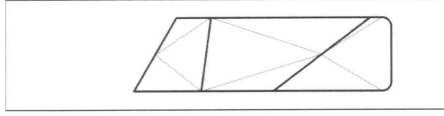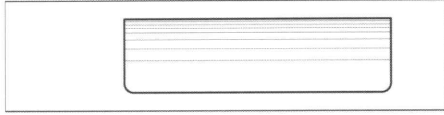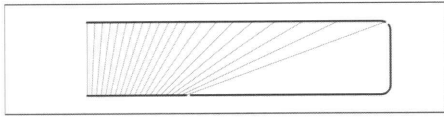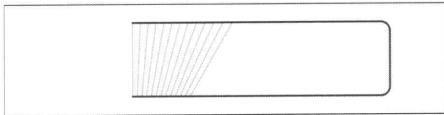
img 01   vector CAD drawings for tool paths
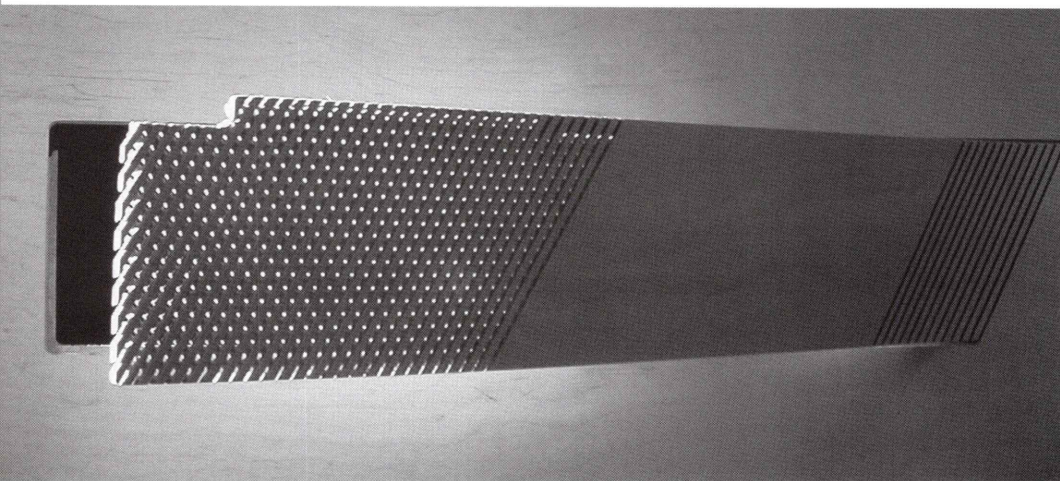
img 02   open plywood panel/screen

img 03   plywood bending kerfs
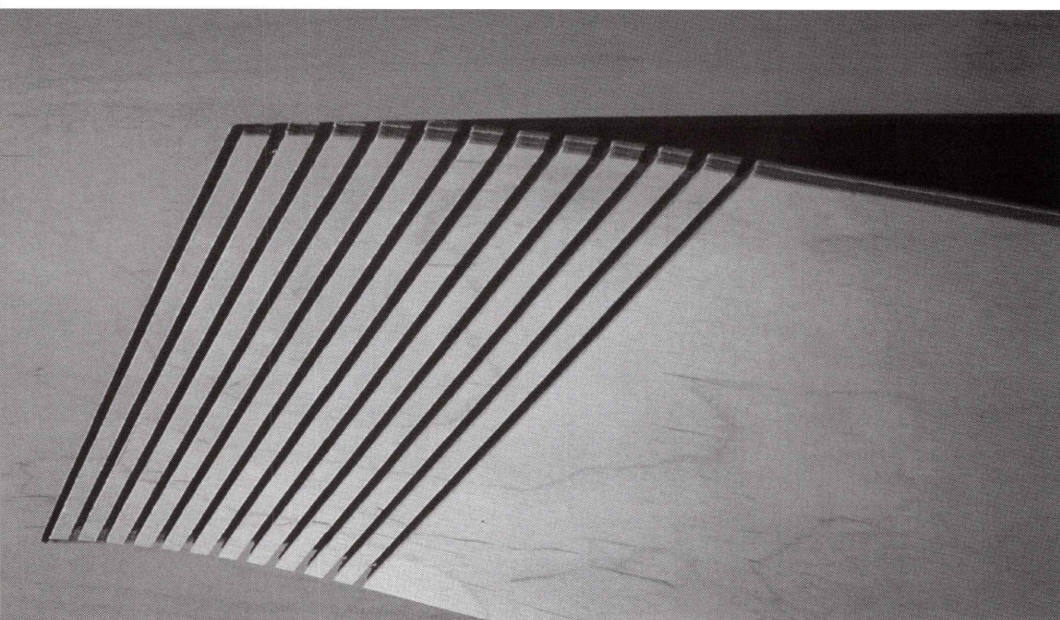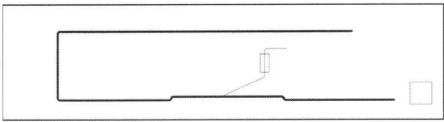
img 04   detail of hinge
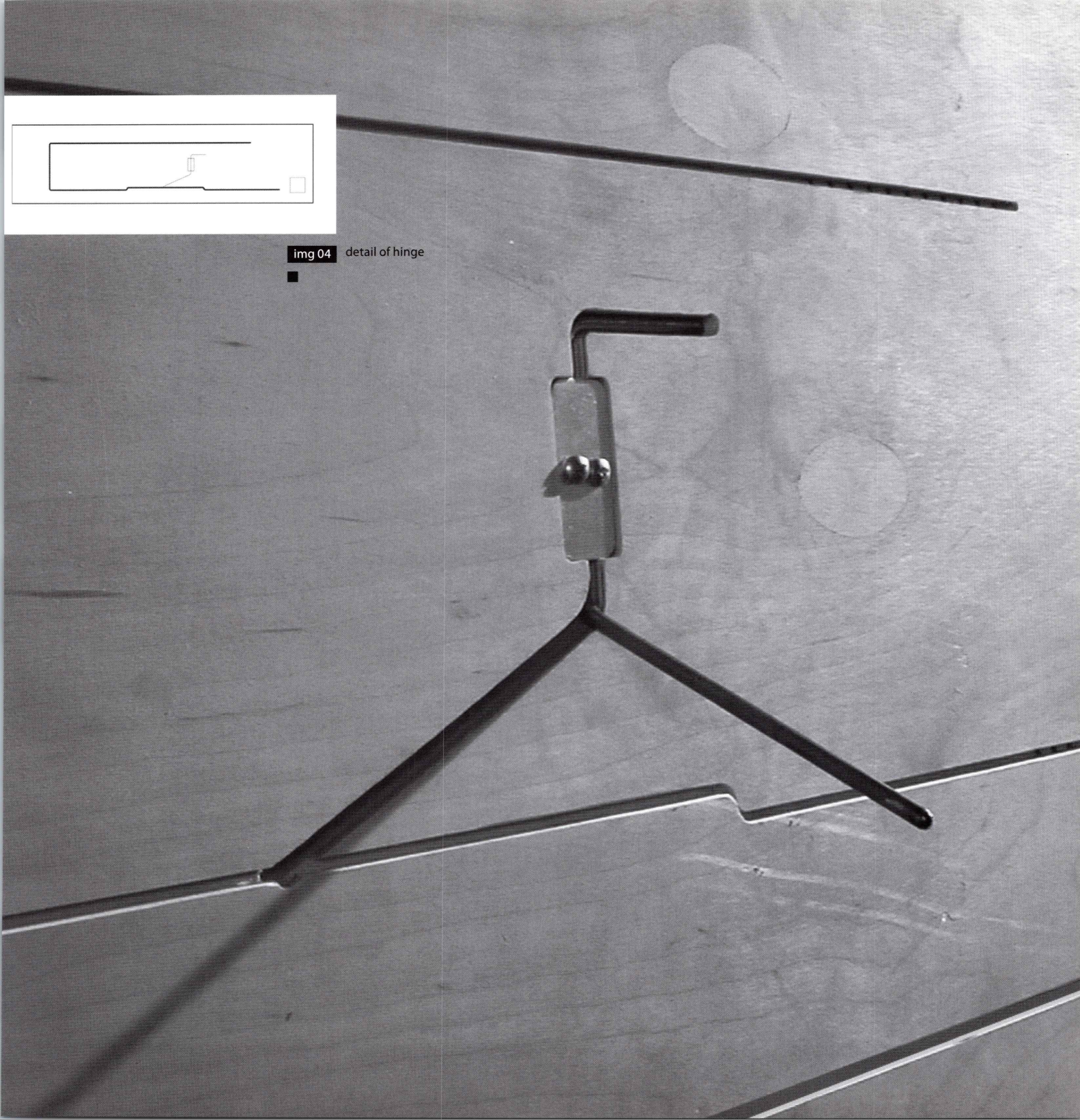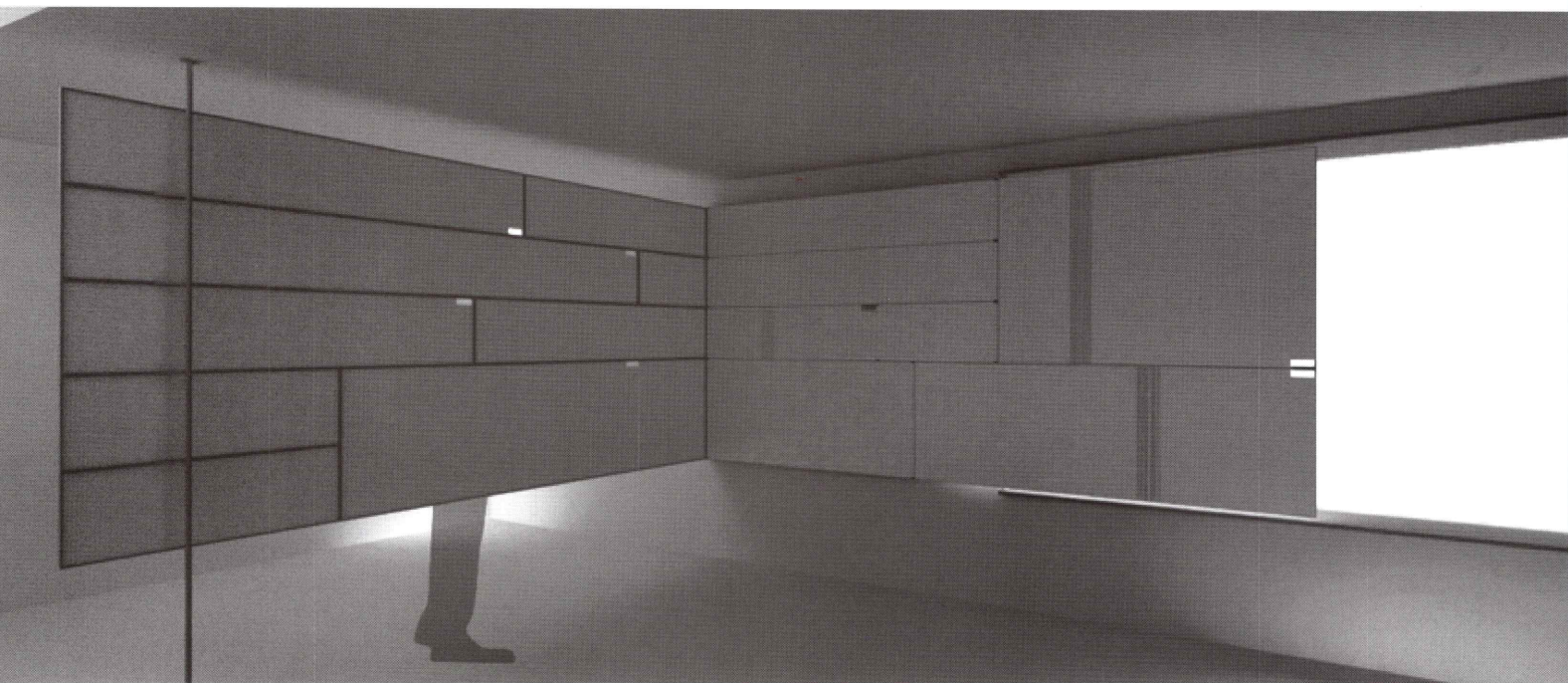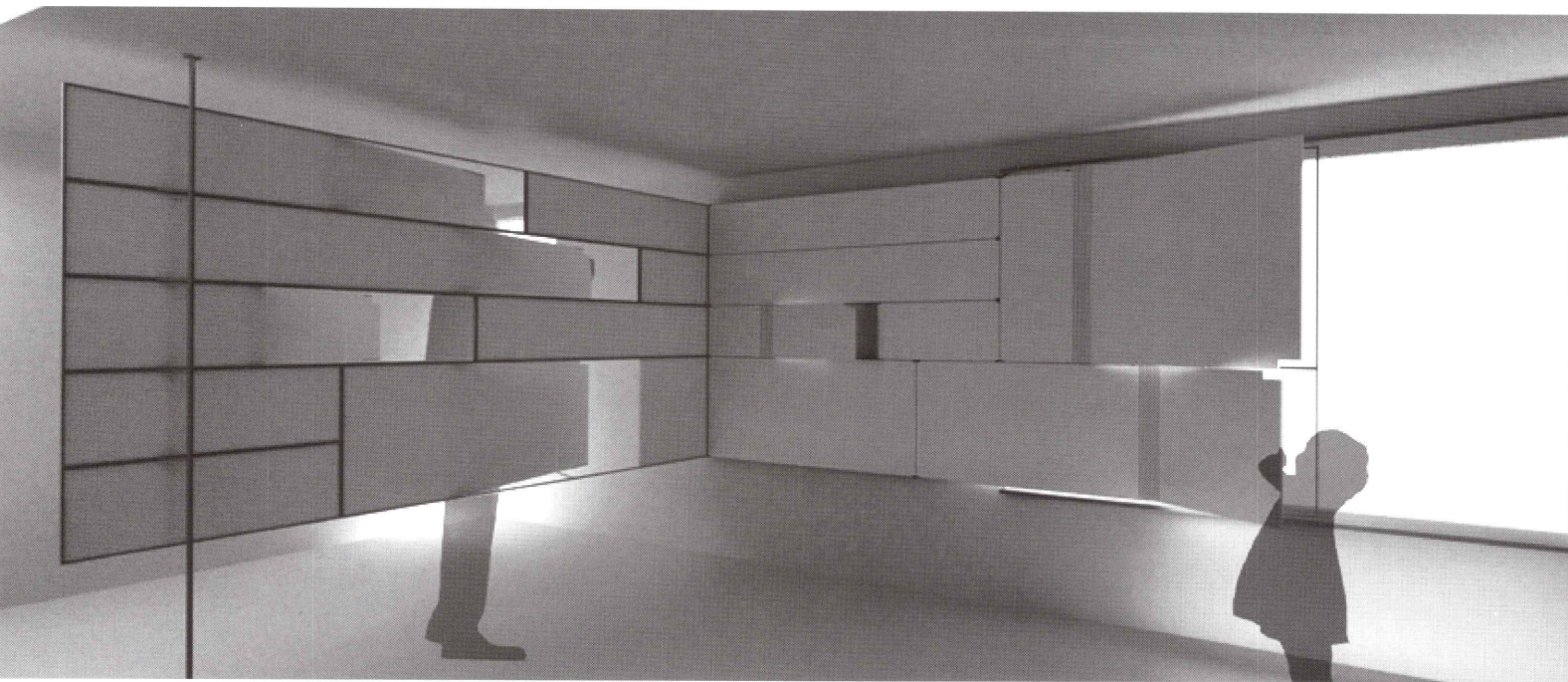
of visual clues into to the panels, informing the user as to their operation.The amount of action upon the panels is determined by the user. Here, performance becomes participatory as panels are adjusted to achieve a desired effect.

Product

Both branches of research related to Plywood and MDF occurred in tandem. Although similar techniques were employed, intrinsic differences between the materials led to quite different results. In the case of plywood, seven-ply Baltic Birch was chosen for strength and finish quality. Initial routing was primarily 2-dimensional, producing kerfs and cuts which allowed bending in response to push and pull, effectively transforming a rigid sheet into a pliable surface. A subtle change in the depth or spacing of kerfs dramatically affected ease of bending and general stability. Milling too deep resulted in precarious sheets that were easily broken. Not milling deep enough effectively left sheet rigidity unchanged. Additionally, it became clear that locating the bending element as a figure within or extension of a larger sheet provided area for mounting. As these investigations progressed, milling moved to both faces of the plywood sheet. Here, the registration and intentional mis-registration between cuts on both faces provided tabs for hardware, which held panels open or closed, while in the instance of multiple superimposed cuts of opposing angles, offered a lattice-like condition. At the scale of a room, a series of operable panels encourage a modulation of view and light through adjustments of the surface by inhabitants. The panels can be installed on top of existing walls or glazing, effectively re-skinning it, or as free-standing partitions. In both scenarios, plywood panels are attached to a steel frame, providing structural rigidity while allowing for panels to be held off of ceiling and floor. Depending upon the number of bendable panels installed, the ratio of bendable surface to fixed surface and the degree of opened or closed panels, the ability for the surface to bracket view and light change significantly.

Due to its fiber size and lack of grain, many of the outcomes of the plywood inquiry, such as pliability and translucency are unachievable with MDF. The homogeneity and strength of Medium Density Fiber board offered milling consistency throughout its section while allowing for relatively simple surface finishing. Here, the sheet contains multiple types of cuts, resulting in a vocabulary of tracks, screens and anchors. Tracks allow for objects to be hung and moved across the sheet; screens allow the transmission of light, air or view; while anchors allow for fixed fastening. The inscription of these cuts across sheets is driven by current and anticipated requirements of a space, such as lighting, storage, air circulation and view to mention but a few. The resulting panels blur the distinction between wall surface and furniture and by doing so reconfigure the relationship between room, content and inhabitant.

Both instances suggest a multiplicity of conditions within a finite system of panels. The processes employed and the resulting forms establish a formal language capable of fulfilling various needs. Cuts for a handle may also double as a light diffuser. Although they may attach onto existing walls or ceilings, both the plywood and MDF panel systems are effectively portable and provide the potential for installation in multiple locations. As user moves, so can the interior surfaces of the rooms which enclose them. The resulting reconfiguration of the panels recalls previous installations while adapting to current needs. ◣

[1] Peter Sulzer, Jean Prouve: oeuvre complete, volumes 1 and 2 (Basel; Boston: Birkhauser 1995)

[2] Gilbert Herbert, The Dream of the Factory Made House: Walter Gropius and Konrad Wachsmann (Cambridge: MIT Press 1984)

[3] Tim Crayton "The Design Implications of Mass Customization" , in Architecture and Animation ed. Bob Fear (Architectural Design 2001)

[4] Henry Ford, Today and Tomorrow (New York: Doubleday, Page & Company 1926)

[5] Bruce Gitlin, "Working with Designers: A Fabricator's Perspective" in New Technologies in Architecture, Digital Design and Manufacturing Techniques ed. Bechtold, Griggs, Schodek, Steinberg (Harvard University 2000)

[6] Christopher Mercier, Alberto de Gobbi, Fred Adickes "The Conde Nast Project: A Case Study" in New Technologies in Architecture, Digital Design and Manufacturing Techniques ed. Bechtold, Griggs, Schodek, Steinberg (Harvard University) 2000

[7] Vitruvius Pollio, in D. Rowland, translator, The Ten Books of Architecture (New York: Cambridge University Press 1999)

[8] Ali Rahim, "Potential Performative Effects" in Contemporary Techniques in Architecture ed. Ali Rahim (Wiley Academy 2002)
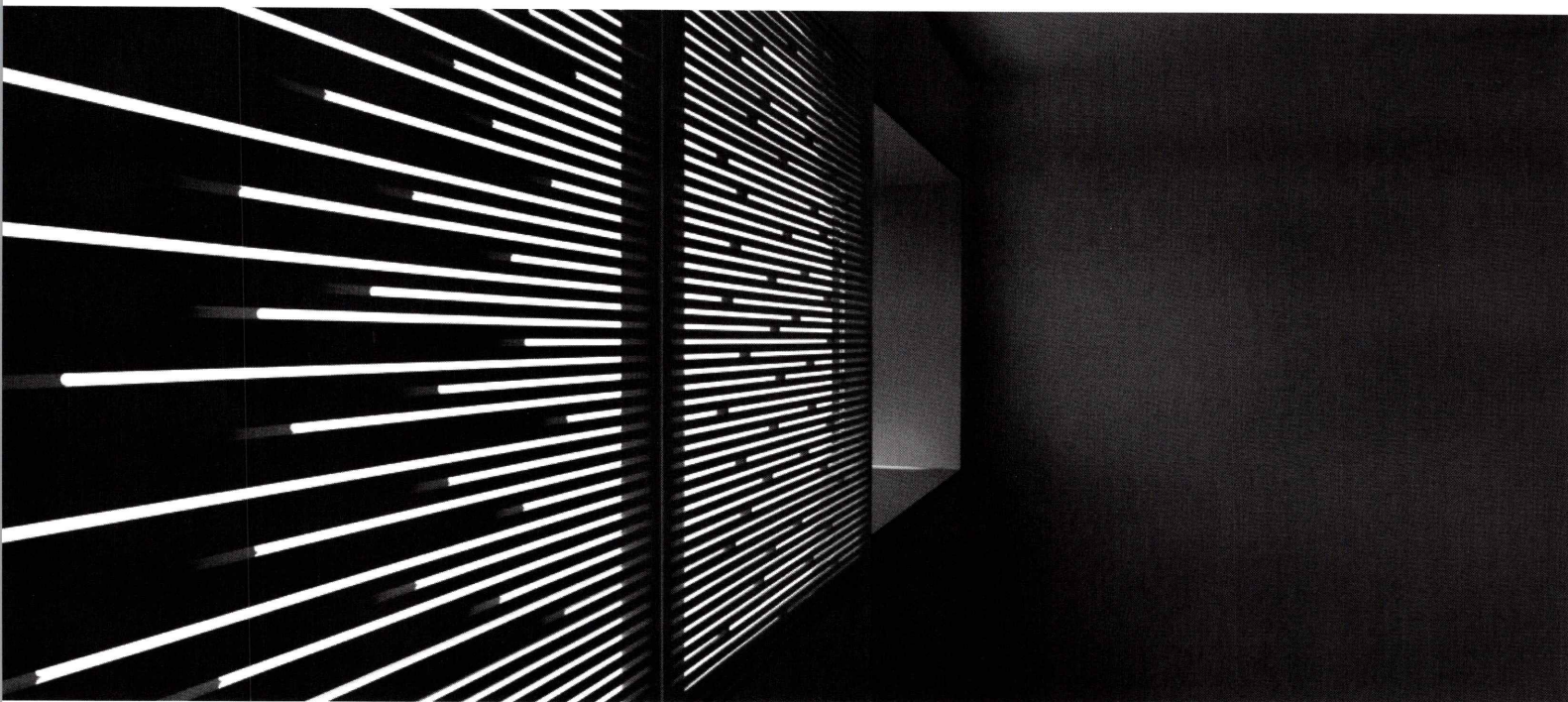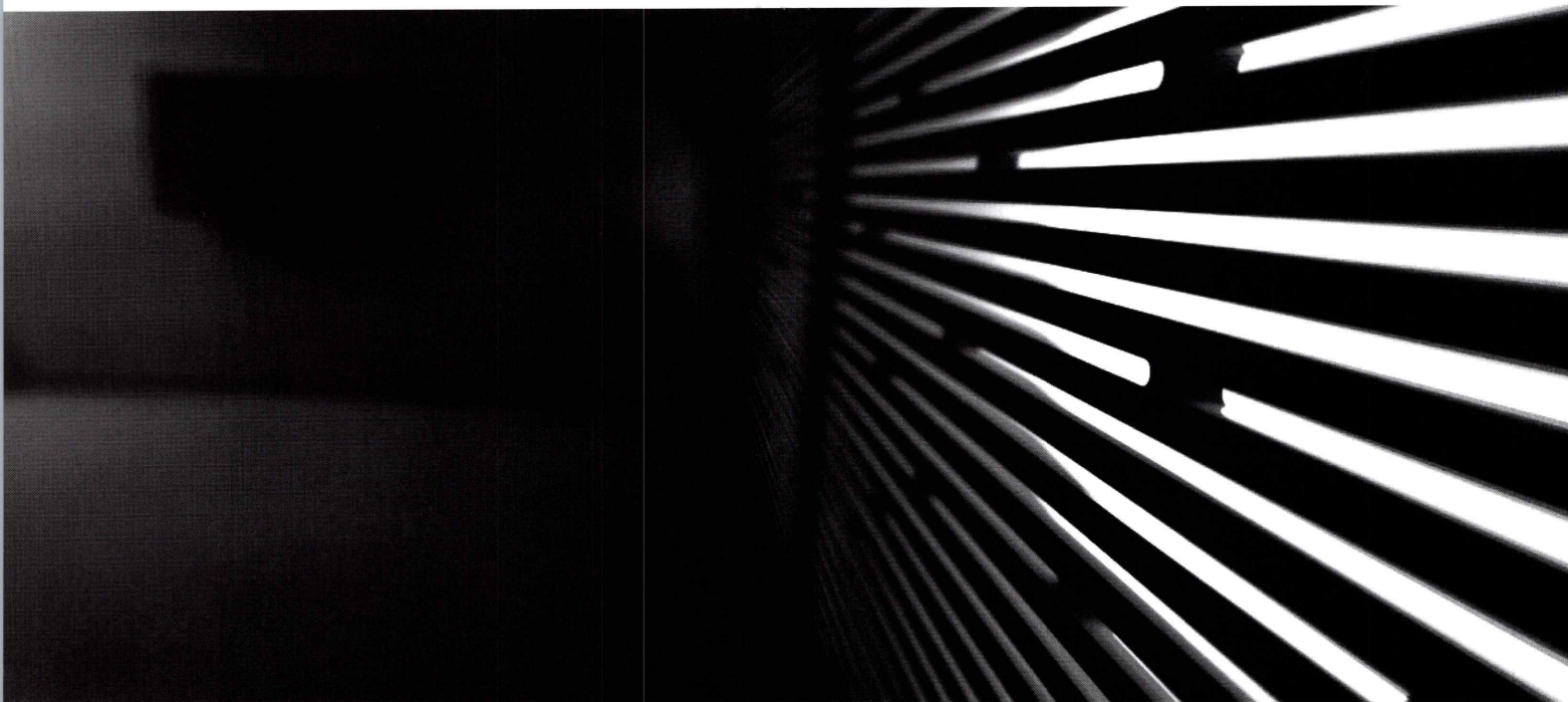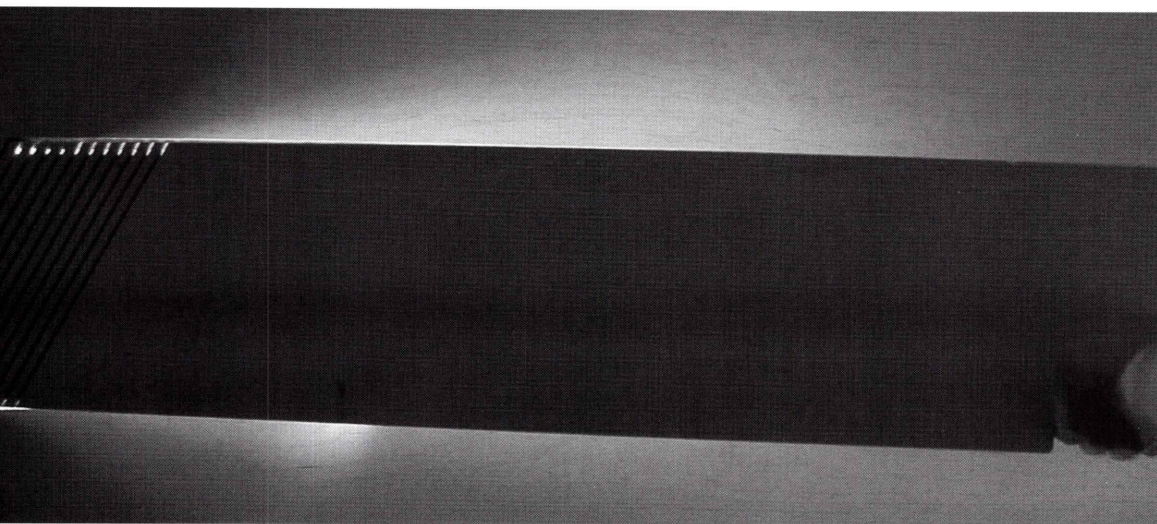
img 09 light deflecting plywood panel
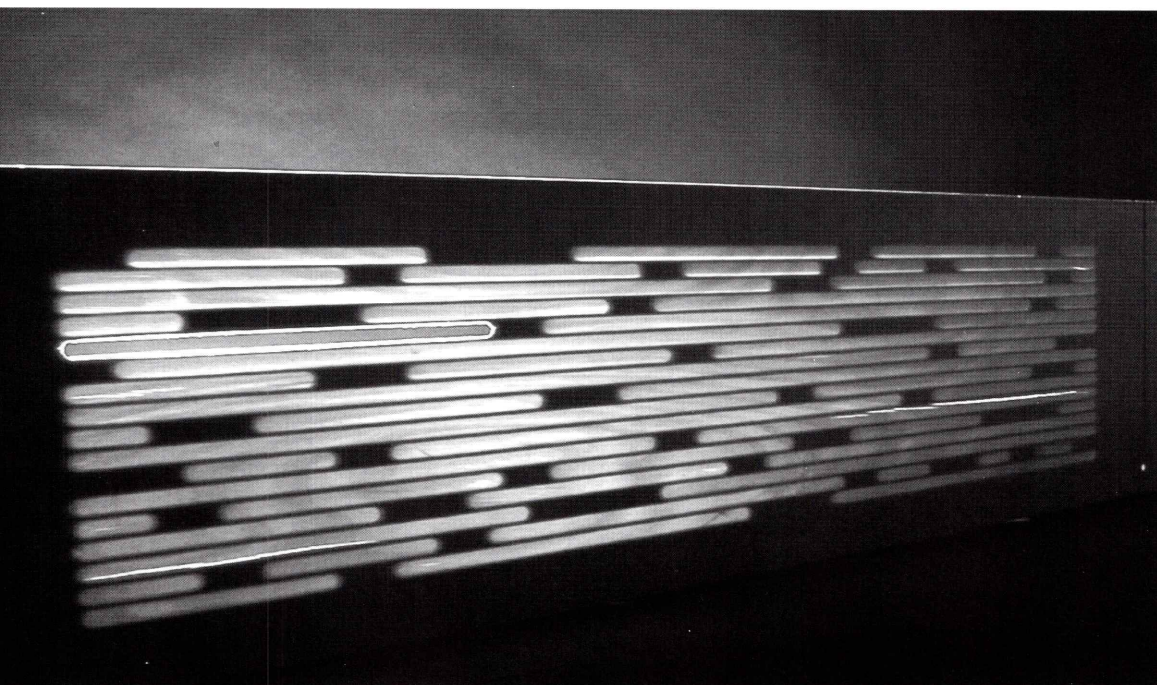
img 10 light diffusing plywood panel

img 11   panel system environment

img 12   panel system detail
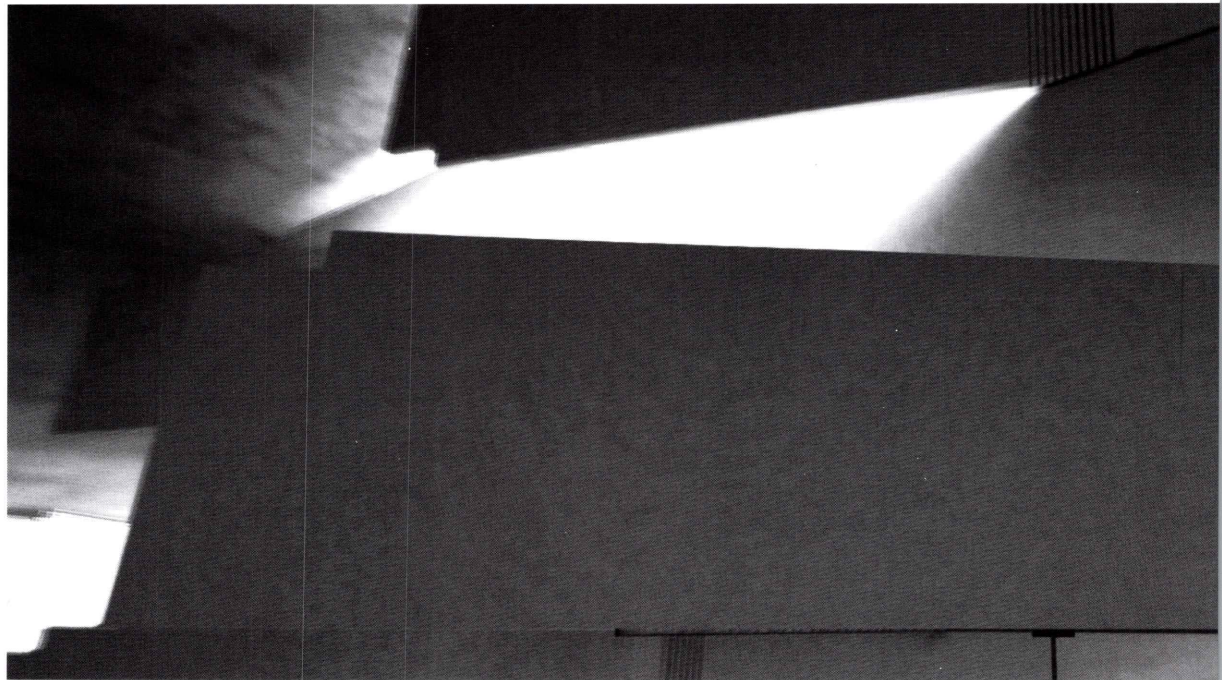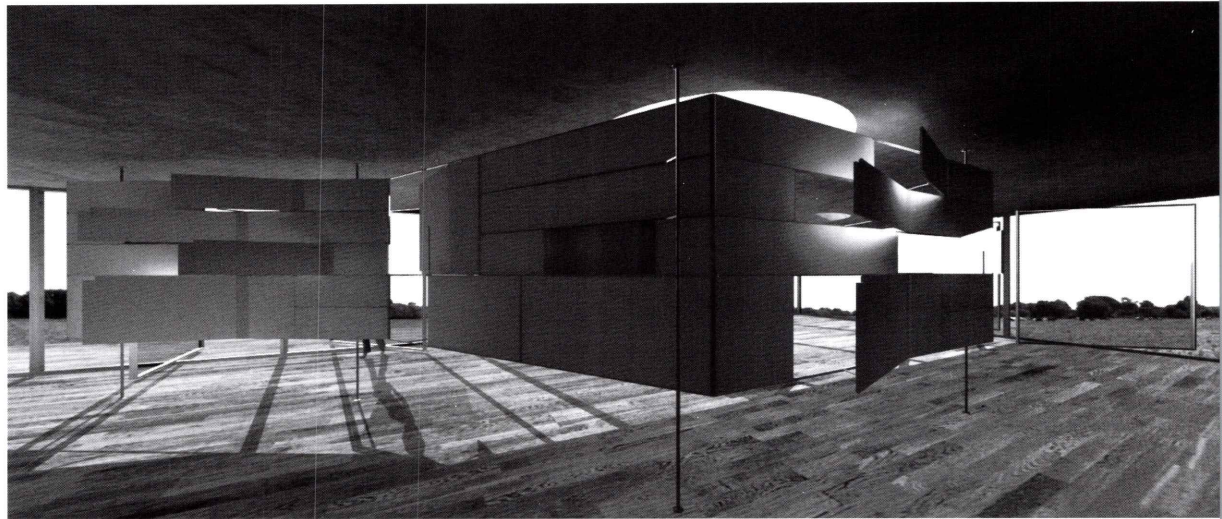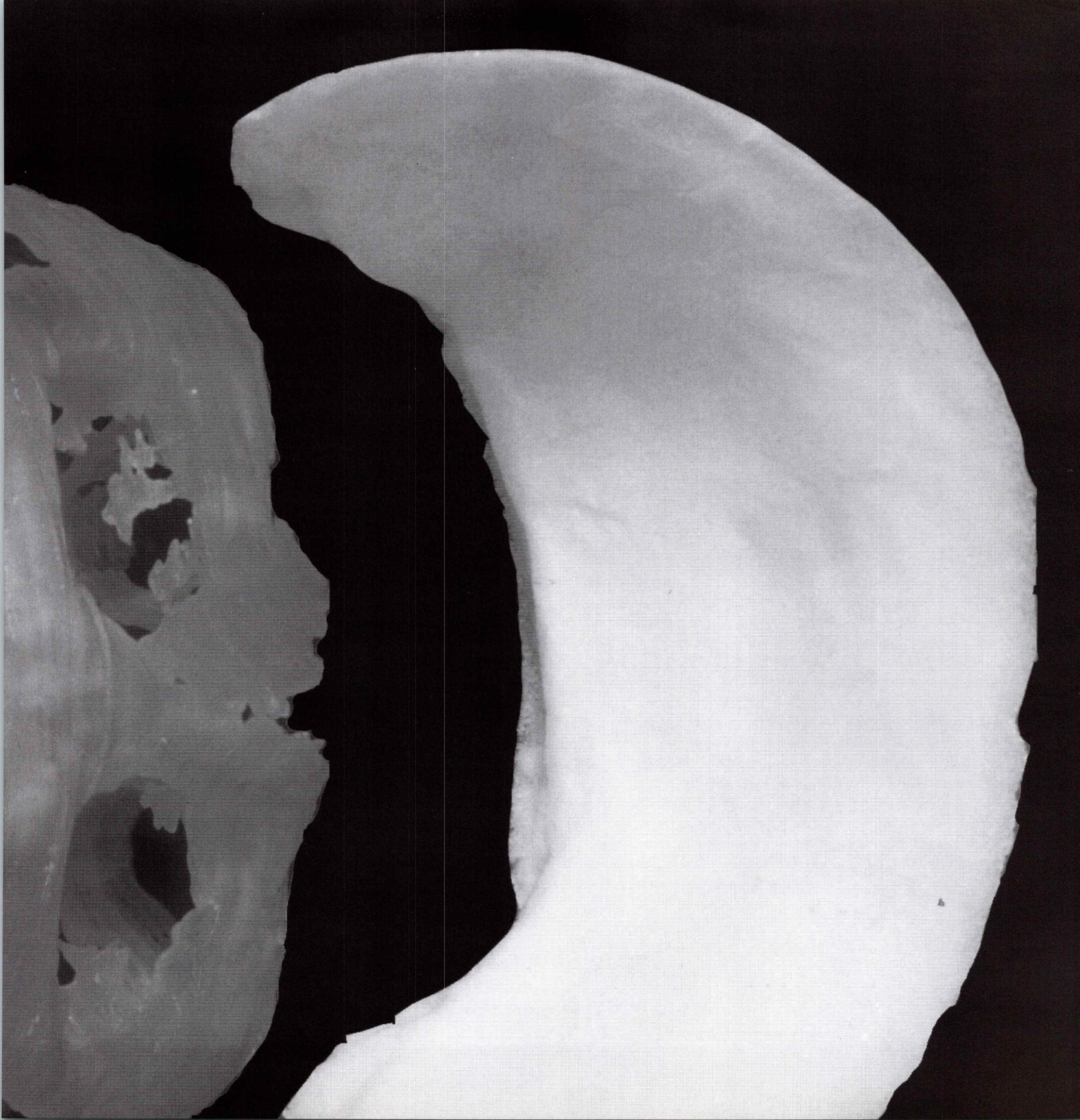
Designed for Implantation
by Franklin Bost

Franklin Bost received his Bachelor's degree in Product Design at the NC State College of Design and is currently the president of Porex Surgical Products Inc. in Atlanta, Ga. Bost's research has made a significant contribution to material, product and procedural innovations in the field of craniofacial reconstruction. The implantations, tools, and processes designed by Bost and his collaborative team facilitate reconstruction of facial trauma resulting from vehicle accidents, cancer, and birth defects. The success of his work is a result of continuous communication between both the patients who receive the implants and the doctors who are the surgical experts in the field. As a designer, Bost instigates collaboration with the manufacturers, technicians, engineers, and medical and computer technicians who produce the final implant. His work demonstrates the potential of designers to resolve complex problems by integrating a wide range of technologies and expertise. By 2004, Porex had developed a process in which sterile implants could be designed, produced and delivered to a hospital in less than 30 days. As a pioneer in a field typically neglected by designers, Bost utilizes his talents to evolve a process that is dramatically improving the quality of people's lives.

Design education prepares students with critical thinking skills, creative vision, planning techniques, collaborative experience and presentation methods that can be applied to an endless variety of complex problems. When focused in the medical/surgical area, these skills yield surprising results. During the past decade, Porex Surgical Group, Inc. has been built into a global surgical device company that produces biomaterial for craniofacial reconstruction. Porex markets unique products to medical specialties that repair facial trauma, correct congenital anomalies, repair the skull structure following surgery, and perform aesthetic facial plastic surgery.

Designing medical devices requires specialized knowledge of the user's needs (the doctor, surgeon, technician, nurse) and the consumer's needs (the patient). In-depth knowledge of regulatory pathways to clearance or approval, reimbursement issues, and the normal liability, patent, and program funding issues is also fundamental. Numerous professionals are essential to a product's conceptual development and successful commercialization. Each approaches his/her role in the process from a unique background and skill. Designers can be instrumental in collaborating with and coordinating the efforts of all these professionals to achieve their vision of the innovative, easy to use, cost-effective product.

Product needs are often communicated by a surgeon to sales personnel, or directly through conversations with developmental personnel. We have found that having our designers at medical meetings and in operating rooms establishes an important link between the designer and surgeon. It is essential to develop open communication and a trusting business relationship for a mutual flow of ideas to clearly define design goals and initial product concepts. Moreover, it is rewarding to see the designer's sketching out concepts in the exhibit booth or doctor's lounge. Seeing ideas drafted out by a "business" person intrigues surgeons, who have extensive experience in pre-surgical planning.

Once the designer is back in the office, a written procedural flow of events must be followed to comply with the design control documentation and requirements in FDA regulations and ISO standards. This process contains iterative steps in which designs are developed, evaluated and tested clinically. All conventional creative processes are available to the designer, including sketches and modeling. The advent of computer design capabilities has greatly enhanced the speed and flexibility in developing complex anatomical shapes. Specifically, the surgeon or designer can create complex designs in modeling clay, then digitize the model for refinement using 3-D modeling software

design software. Designs are sized and rotated to view in three dimensions. A dialogue is often established through e-mail with the surgeon for comment and refinement. With busy schedules during the day, this digital process allows the surgeons to review the design files at their convenience, and rapidly respond with feedback to the designer.

At a certain point, the designer will create an Initial Concept Statement, which is presented to company marketing and regulatory personnel for their review and approval toward further product development. Most implant designs are "indication specific" and are developed to address specific surgical techniques, or aid in providing a specific desired surgical outcome. Regulatory review is essential at this point because the determination of a status or potential regulatory classification determines the path for further development and clinical evaluation with patients. Marketing review is also essential because of the commercial necessity for having sufficient market size to provide appropriate financial return to the company for the time and expense of product development and commercialization.

Once a design has received initial approval for the surgeon, Alias files are converted to machine language utilizing CAM techniques to run a tooling center to create prototype molds. Engineering [non-sterile]

samples are made for surgeon review and sign-off before proceeding to produce sterile units for implantation for clinical evaluation. Sterile prototype product for clinical evaluation must be produced under the same documented manufacturing and quality control systems for commercially available products.

From Harvested Grafts to Biomaterials

In human craniofacial reconstructive surgery, the "gold standard" material has always been the patient's own tissue, such as a cranial bone, iliac crest (hip) bone, rib bone or cartilage. Grafts from these areas are harvested from the patient's body and transplanted to the required surgical site. When this suitable "autogenous" graft material is not available, "allograph" cadaver material or "alloplast" biomaterials are used. Alloplastics are materials, which can be naturally occurring, such as hydroxyapitite (coral) or man-made, such as synthetic hydroxyapitite, polymers for sutures (PVA, PLA), vascular grafts (PTFE), facial reconstruction materials (PVA, PLA, silicone and polyethylene), metals for orthopedic implants or pacemaker housings, etc. The defining characteristic is that they have a high degree of biocompatibility with human tissue and are thus suitable for implantation. The

search for the perfect alternative to the gold standard is ongoing and is the subject of extensive biomaterial and tissue engineering research and development around the globe.

During the past 30 years, research and development in porous polymers for craniofacial reconstruction and augmentation has yielded a versatile biomaterial option to the gold standard autogenous material. Polyethylene as a raw material is available with a wide range of characteristics and molecular weights. It is used to produce a huge variety of products from trash bags to toys to orthopedic implant components. High-density polyethylene (HDPE) is a simple linear hydrocarbon structure of: $CH_3-CH_2-CH_2-CH_2-CH_3$. Its high molecular weight contains no monomers or short chain polymers that can leach out into surrounding tissue. This porous polyethylene material has evolved as a routine replacement or augmentation material for the boney structure of the skull and cartilage in the nose and ears.

In the early 1970s, Dr. Barry Sauer, a biomaterial researcher at Clemson University, wanted to study the potential for using porous, high-density polyethylene (pHDPE) as an implantable material. Sauer believed that pHDPE would prove to be biocompatible and allow host tissue to integrate the material creating a long-term, stable

implant. Dr. Sauer then approached a manufacturer of porous polymer material in Georgia with an investigational plan and received a research grant.

From 1972 until 1984, material evaluations and animal testing were conducted in rabbit, turkey, and canine models. Several graduate students completed their master's theses through investigative work on biocompatibility and the integration of the hosts' fibrovascular tissue with the pHDPE materials. Research established that pHDPE allows for tissue ingrowth because of its interconnecting omni-directional pore structure. Pore sizes greater than 100 micrometers (µ) and a pore volume of approximately 50 percent (based on Mercury Intrusion Porosimetry measurements) can allow for complete host tissue integration. During this investigational phase of development, customized implants were also made for a number of special case human subjects. PHDPE proved to be a versatile material because it is rigid, but easily cut and shaped during surgery without collapsing the open pore structure.

In 1984, proper documentation was submitted to the FDA via the 510(k) process, and clearance was received for commercialization of the special porous polyethylene polymer biomaterial for craniofacial reconstruction and augmentation. The initial commercial implantable products were simple sheets, blocks and spheres that the surgeon would carve during surgery to a desired shape for individual patient needs. This biomaterial has become useful in many surgical specialties including: craniofacial (skull/bone), facial plastic (tissue/cartilage), otology (ear reconstruction), oculoplastic (eye), oral-maxillofacial (mandible) and neurosurgery (skull/bone).

In 1992, I became involved in developing this business on a global scale. Now I am often asked if I am a doctor. The answer is a resounding—no. Design skills plus self-education via medical texts, surgical journal articles and conference presentations opened the way for communication with our primary customers, surgeons. Thousands of hours in conversations with surgeons and hundreds of hours in operating rooms put me close to their techniques and their needs and desires for improved methods and surgical outcomes.

During the 1990s, many university-based surgeons expressed their needs for more complex and specialized shapes to speed surgery and better fit a variety of patient requirements. Surgeons—as most customers—do not approach life and their needs from the same viewpoint. A degreed plastic surgeon and a degreed ENT (Ear Nose and Throat) surgeon approach a facial trauma repair from different surgical education backgrounds and surgical techniques. As a result, one solution or explanation of a solution is not optimal for every customer.

To develop these "indications specific" shapes, we assembled a team of designers, engineers and researchers to begin working with a variety of surgeons to enhance patient care. Over the past decade, our expanding team has been driven by the philosophy of close and long-term professional relationships with our surgeon customers. Working in concert with various stakeholders, over 300 implant shapes and sizes of implants are now available for facial trauma repair, cancer reconstruction, congenital correction and aesthetic facial surgery. Surgeons routinely present at medical meetings around the world on their techniques with these implants. Over 250 peer-reviewed papers on clinical experience have been published in medical journals.
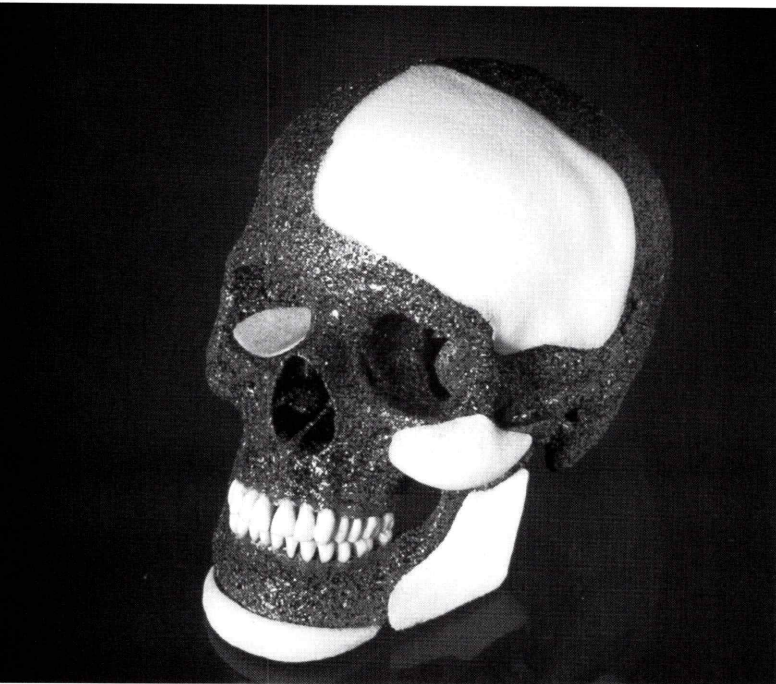
Customized Implants

Trauma from motor vehicle accidents, falls, gunshot wounds, post-cancer reconstruction and congenital anomalies create surgical needs for craniofacial [bone] reconstruction. Especially complex surgical cases require unique and innovative solutions. As always, autogenous bone is the first choice of reconstruction material; however, alloplastic biomaterials are utilized for reconstruction, often due to medical reasons or insufficient available donor material. Since these requirements are for a specific patient and more complex than standard implant designs, customized implants can be created on a prescription basis. Due to the cost and complexity of these surgeries, a document and procedures package is available for the surgeon and hospital to obtain prior approval from insurance companies. For many years, customized implants were designed by hand and produced in a process that normally took eight to ten weeks, an acceptable time. Yet shorter times would provide earlier repair and savings in hospital and home care expenses.

To simplify and speed the process, a project team composed of engineers, designers, computer technicians, software vendors and marketing personnel was assembled. The goal was to routinely provide sterile implants in less than 30 days and have "stat" fast action implants available at the hospital in less than 10 days. A simplified procedure developed and activated in 2004 achieved this goal of less than 30-day service:

Step 1 The patient's surgeon has the hospital radiologist perform a CT (computerized topography) scan to map the bony structure of the patient's skull. This scan is sent via optical disk or e-mailed to a secure company website and downloaded into a design computer. Specialized software then recreates the slices of the CT scan into a three-dimensional image of the skull and defect area.

Step 2 The designer, using his knowledge and talent, then creates an implant shape on the computer to normalize the contour of the missing or deficient bone. Often the contour of the contra-lateral portion of the skull can be captured with the software, reversed and used to create the external surface of the desired implant. As the number of customized implants increases, design history files can be utilized to adapt to similar defects in new patients.

Step 3 Once files of the skull image are completed, implant shape and position on the skull are then posted on a password-protected website. Surgeons are notified in separate e-mails of the posting site location and password for access to the specific patient's data
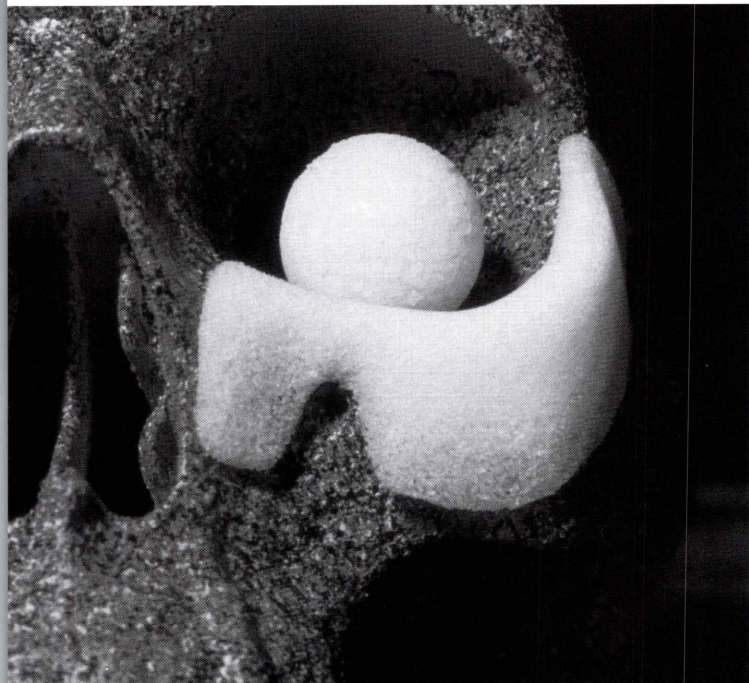
and implant design. The surgeon can view these files online after downloading a free 3-D viewer. All images can be rotated 360 degrees for complete viewing of the shapes. If the surgeon is satisfied with the shape and fit of the implant, a prescription form for the customized implant can be downloaded, signed, and faxed to the company. All these steps can be accomplished within a few hours of receipt of the CT scan.

Step 4 Once proper surgeon authorization is received at the company, CAM software is used to create a mold for production of the implant. All customized implants are then manufactured in environmentally controlled clean rooms, and subject to the same quality standards and sterilization as the routine production shapes.

Step 5 The final step is surgical reconstruction. After exposing the implant site, the surgeon places the implants and makes minor fit adjustments as may be required. Fixation to the surrounding bone is made with small craniofacial titanium plates and screws. Because of the custom fit of the implant, considerable time and overhead expense is saved in the operating room.

Autogenous material is still the gold standard in surgery and will remain so for the foreseeable future; however, through close commu-

nication and understanding of customer needs, coupled with innovative research and design methods, our design team has developed cost-effective alternatives for routine and complex craniofacial surgical corrections. The search for improved implant materials continues with research in alloplast materials and tissue engineering. The promise of tissue engineering and regenerative medicine is receiving considerable funding as a way to produce body components such as skin, vessels and bone. Commercialization of this work is generally accepted as 10 to 20 years in the future. Satisfaction for the designer comes in enhancing people's lives through this work, while the customers carry the product with them for the rest of theirs. ◣

A Conversation on Place with Billie Tsien

Billie Tsien is a partner with Tod Williams in Tod Williams Billie Tsien Associates, New York, N.Y. In 2003 Tsien was a guest lecturer and critic at the NC State College of Design. The work of Billie Tsien, including a number award winning projects, has been held in high regard for its sophisticated response to context and an informed sensitivity toward local and innovative materials. The interview which follows focuses on the value which Tsien finds in the Everyday as the tension of the Postmodern era exacerbates the void between global versus local culture. Tsien argues that despite the appearance of homogeneity in many regions of the country, distinct and precious particularities unique to that place remain. Through her work Billie Tsien demonstrates the power gained from discovering the relevance of the specific within the wash of indistinguishable.

Thomas Ryan: To what extent do you feel that your architecture is a product of your personal environment, living and working in New York? Do you feel that your design process would be significantly affected if you were based out of another location?

Billie Tsien: I don't think so. We really only have two projects in New York City. Our work has consistently taken us to other places and we are always interested in what is around us. We are like tourists; we're architectural tourists. When we go to a new place, the thing that we love the most is just driving around and finding weird stuff.

So we really do create our own context wherever we are, our own very intimate language. The point of departure for our architectural life is driving around and discovering strange and interesting things specific to the places we visit.

When we start to see what is in people's back yards and along the roads, we start to understand how people make things in that particular place. When we were in Phoenix, we were driving around the outskirts of the city and saw these big factories that make pre-cast concrete. It turns out that the weather is ideal for making pre-cast concrete because they have something like 350 days of sun in Phoenix.

Because Phoenix is a really good place for curing concrete, we decided to construct our project there with pre-cast panels. It was

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cheap, and we also understood that Phoenix is a place where you can go into a pre-cast plant and actually talk to people who will be interested in trying new and different ways of making things.

That happens every time we take on a project in a place that is new to us; we try to understand how people build there. We are not interested so much in inventing completely new materials or entirely new ways of fabricating things. We look at the knowledge people already have about making something, and then, because we have our own perspective outside of theirs, we think about how to do it in a slightly different way.

TR: So, coming into a situation as an outsider, with a certain awareness of context, becomes an advantage?

BT: Yes, and I think in a certain way it is always good to feel like you are a little bit on the outside. As we have grown older, and in some ways our work becomes more well-known, we start to feel pulled a bit to the inside. But the better place is really below the radar. We are good friends with Peter Zumthor and Glen Murcutt. They both are definitely in their own inner circle, but they have also figured out a way of working a little bit outside that inner circle, so that they can observe and relate to a specific place. We continue to admire their

work because it remains rigorous and worthy. I think in the United States, it is easier to prevent having a tight circumference limiting you and your work. It's a big country…and it is so different from place to place. With this large scale, what you hope is that your work is rooted to its particular place.

When he first got out of school, Tod worked for Richard Meier. We both respected him, but at the same time, we wanted our work to be different. It is like a child-to-parent relationship; you respect your parents, but you want to declare yourself as being different from them. I think that is one reason Tod has a very strong reaction about making work that is very particular to a place.

TR: Do you feel that areas dominated by a sprawling suburban context, such as the explosive growth found here Raleigh, can still provide a context in which a sense of place can be discovered and architecturally responded to?

BT: I have not had a chance to look around Raleigh, but I was just looking at the YMCA project that one of your studios is working on here this afternoon. There is this big generic parking garage next door to the site they are working on, but with the railroad tracks going through it, you can also see a certain kind of quality to the neighbor-

hood. With this diagonal train track and elevated train track running through, that is also very particular and interesting.

You can find amazing things all over the place, and I think to some extent having a child teaches you that. When you are looking at architecture all of the time, you start to only look at buildings or small architectural details; you are not looking at all of the other parts of life. Then you go out with little kids, and in any place they see everything and get so excited. Children find these tiny and amazing things all over, and it inspires you to look again in a different way and see what they see.

TR: So maybe it is not as hopeless as it seems at first, when you see a repetitive landscape of tract housing and parking lots.

BT: I grew up in a tract house in New Jersey, so I certainly knew that kind of neighborhood. It is a neighborhood that I both grew up in and left, but I do believe that there are always amazing opportunities around the corner.

TR: I recently saw Tod Williams give a lecture in Washington. The keynote address was given by Neal Denari, and the symposium was based on the topic of speed…

BT: Right, and Tod talked about slowness.

TR: I thought that it was a provocative contrast, exploring how the process of slowness is valid in many ways that speed is not.

BT: I think that they are just two different ways of working, and that both are interesting and valid. In some ways, we are sort of old fashioned. But if you look at the work of younger architects, I think the only real difference is that they place emphasis on different things. In the end we all want to make something that makes a powerful and wonderful experience. That is a great legacy, to make something, and to be involved in making something physical that will shape an experience or a memory for somebody else.

TR: Your buildings are often informed by the present as well historical context of their site, but in many ways they also seem to respond to what will be the future history of the site.

BT: Yes, I think it's one of the most interesting things about being an architect…I think that's why an architect always seems to die working. You're always thinking, well maybe there's one last thing I can finish or I can make, and leave.

TR: One final question, have there been any spaces from which you have recently garnered particular inspiration?

BT: There are spaces that are very obvious and sort of touchstones. The Pantheon is always a touchstone, when we're in Rome we will go there several times throughout the day, just to see where the light and the shadows are falling. Then there are stranger spaces; Tod always used to say that the view from the inside of the Statue of Liberty is an amazing space, because the copper is so thin, you really are inside of this fold, it's just an amazing sculptural space. Then there's the kind of empty space, empty places of the West, where you understand how insignificant people and architecture are. These are also very important to me. I enjoy long views very much, which is strange because I live in a city with short views, but you can always look up the streets and the avenues, and there you get a form of a long view. I guess we live our lives trying to make these powerful spaces, but I also like being reminded in the end how unimportant it is. Daily life and daily connections are equally important, and I think that's a good thing I've learned working with my husband. We try to see the office as a family situation. I think those daily connections help feed and nourish our work, and our sense of ourselves. ◣

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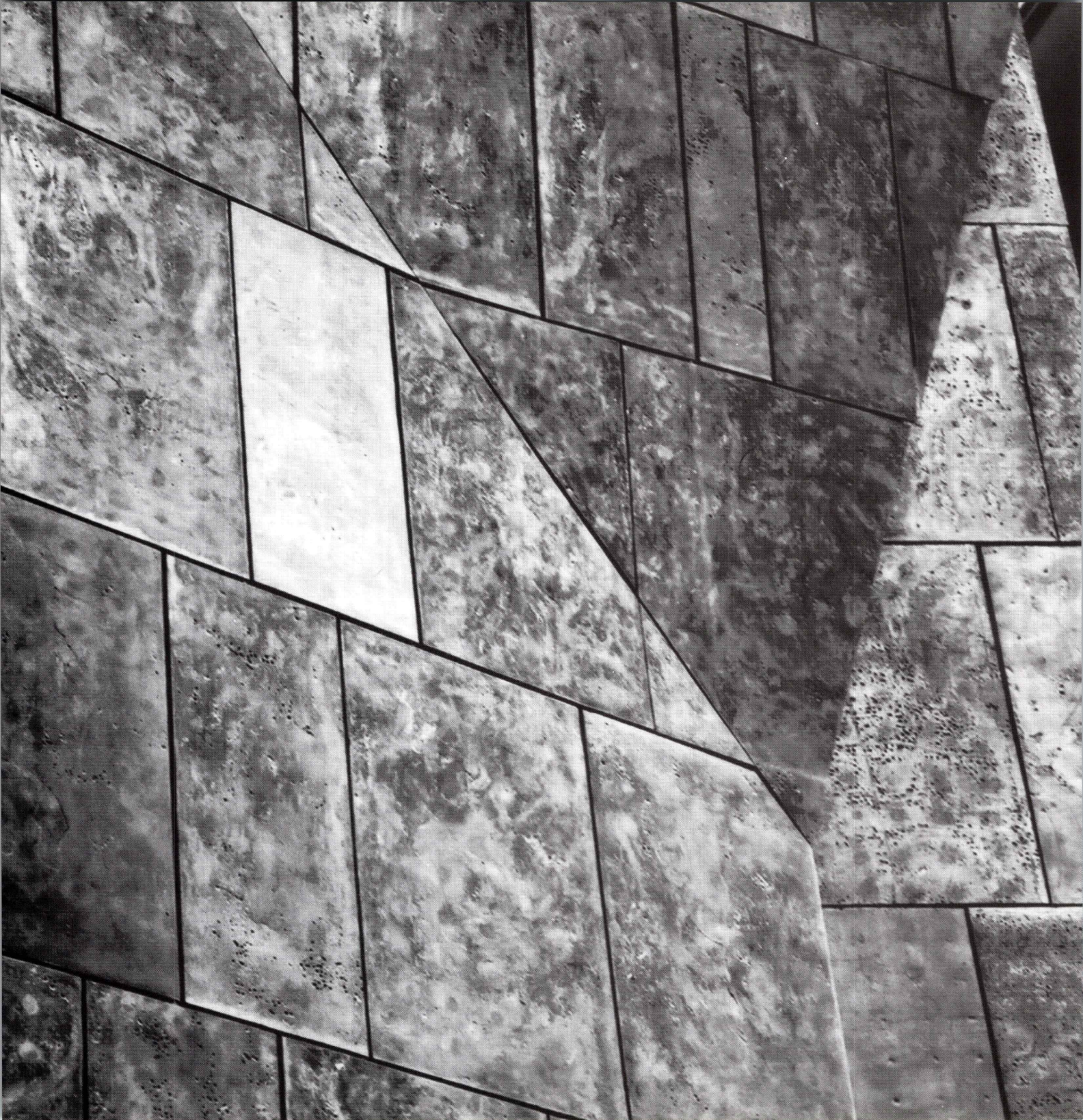
To locate relevance in contemporary discourse, two interdisciplinary forums were held during the infancy of Volume 31 to glean ideas from within the College of Design. The first forum was held in the spring of 2004, with Achva Stein, landscape architect; Bryan Bell, architect; Gail Peter Borden, architect; Lope Max Díaz, painter; Jeremy Ficca, architect; Kristen Schaffer, architectural historian; and Tony Brock, graphic designer.

On March 3, 2004, professors from each discipline were invited to participate in an open forum that discussed the topic of relevance and its permutations in their respective fields. The forum participants included: Kristen Schaffer, architectural historian; Denise Gonzales Crisp, graphic designer; Dana Raymond, sculptor; Fernando Magellanes, landscape architect; Gail Peter Borden, architect; Wendy Redfield, architect; and Bryan Laffitte, industrial designer. Found in quotations throughout this publication, their invaluable discussion broadened the perspective and scope of our search for Relevance.

Wendy Redfield: When we talk about relevance in design, we have to ask: "Is it an American issue; is it a modern contemporary issue; or is it something even broader?" I am reminded of this amazing little book called *City for a Small Planet* by Richard Rogers, not necessarily for the reason that he wrote it, which is about sustainability and urban design, but because he talks about the problem of irrelevance in architectural culture. He specifically makes a distinction between Great Britain and France, and although he was talking about Great Britain, I think there are strong parallels between their situation and the one in America. Mitterand, the president of France, said that architecture was the fourth most important voting issue in France for presidential elections. But is architecture even an important issue to the American people, or environmental sustainability? The question about our culture is why has architecture become irrelevant to most people. I think it would be naïve to take this issue on all ourselves and to say simply, "What have architects done wrong to become so irrelevant?" I think relevancy is a broader cultural issue.

Kristen Schaffer: Thomas Jefferson thought it was absolutely essential to the elevation of the United States and to the success of the new country that architecture become part of the education of every citizen; otherwise, our built environment would succumb to the lowest common denominator. We had to demonstrate to Europe, primarily, that we could govern ourselves and create a uniquely American culture. Jefferson described architecture as "the art that we live in." Architecture had to be a priority if we were going to achieve prosperity and respect in the world. And I believe this is why architects need to push their agenda and to lead rather than to follow. Every field or profession has a political and social obligation.

Bryan Laffitte: I want to pick up on what was just said about Jefferson, how "architecture is the art that we live in," because it is interesting how that idea relates to collaboration between different disciplines. I think what he said was very true for his time. There were no cars then, no television, no Internet, so the art that you lived in was literally the architecture and the environment. I think the art that we live in now is an accumulation of all the disciplines that we have represented here in this forum. Everything in our culture is manufactured, built or broadcast, and when a truck drives past our building [noise of truck driving in background] and we can no longer hear each other speak, that is the art that we are living in right now.

I think the problem that we face in terms of relevance, that I see on our campus at NCSU in particular, is the perception of relevance as a science, that the amount of funding and grants that are devoted to science is staggering in comparison to design or humanities. Genuine impact on culture and people is typically neglected. As designers, we must resist this trend. Otherwise the research of our universities promotes nothing more than a profit margin for pharmaceutical companies. I think we are much more relevant when we can affect people's lives directly. If the design disciplines are going to collaborate, they can break that paradigm; in my view that is where the struggle is.

Interview
with Rick Joy
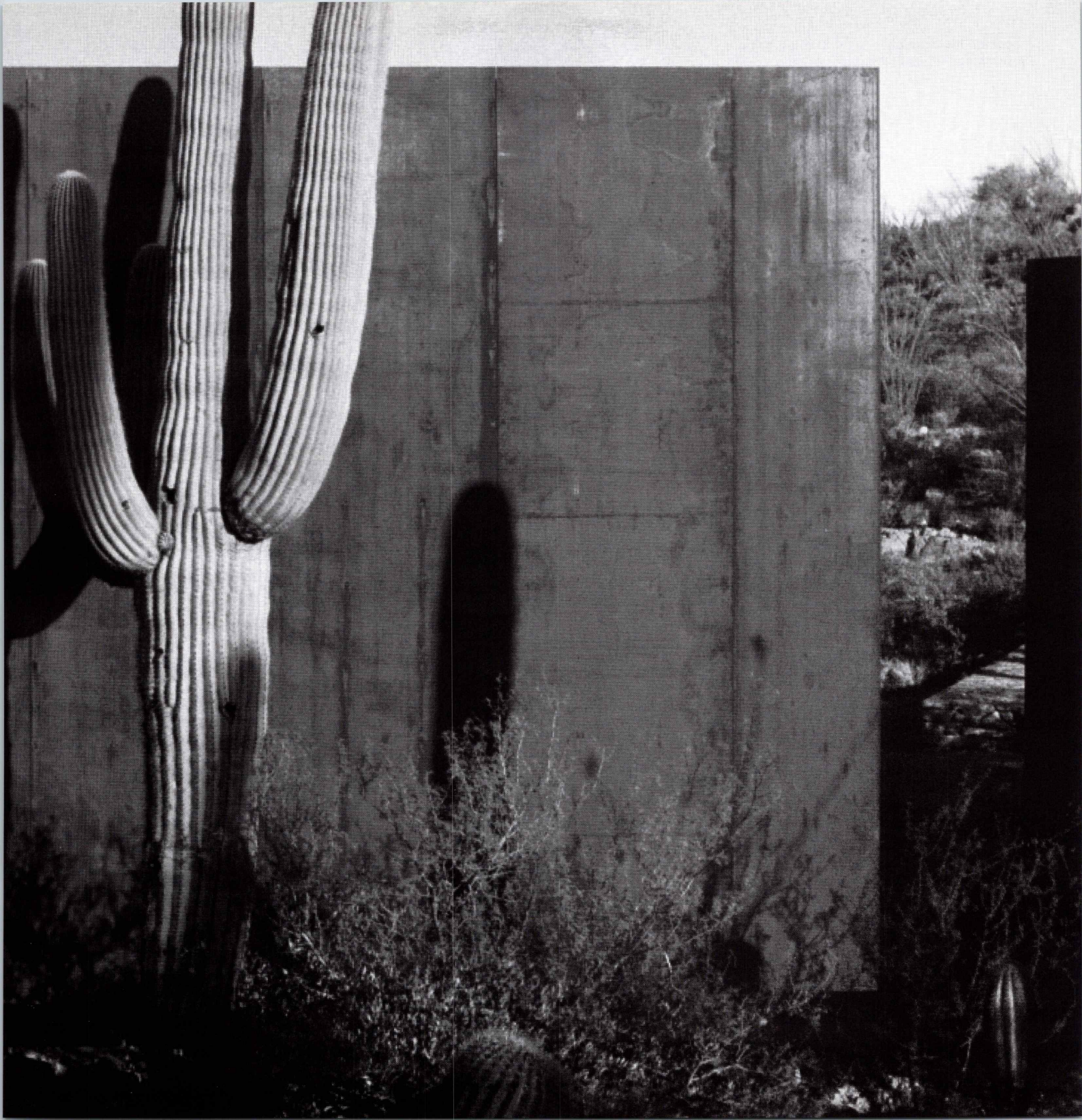
Rick Joy, AIA, is principal of Rick Joy Architects, Tucson, Arizona, and recipient of numerous design awards, including the National Design Museum's Architect of the Year award for 2004. Joy visited the NC State College of Design in the spring of 2004 as the Harwell Hamilton Harris Lecturer.

In the following interview, Joy talks about the lessons of the design-build process that defined the first few years of his career, and then looks ahead to the possibilities and potential pitfalls of projects which are becoming increasingly larger and more complex. Joy argues that, at any scale and regardless of the degree of complexity, successful architecture can only be realized through hard work and personal involvement with a project and its clients. Thoughtful engagement with the landscape and consideration of architectural sites as places that humans experience—these are what inspire lasting architecture, not sensational forms or buildings justified solely by a theoretical position.

Editors: Can you describe how the architecture of the Southwest and its distinct community have influenced your work?

Joy: My work is not that influenced by the architecture of the region. Of course there's this beautiful and refined straight-line architecture in the landscape of the adobe buildings. It's really how you have to build them. But beyond that I'm a lot more influenced by the minimalist landscape artists who have done major things like Turrell and his crater, Judd at Marfa, and Michael Heizer, and all those guys, Walter De Maria. There's always another position they take…their readings. It's so stimulating. It makes me really look closely. "Readings" is the way I say it.

But there's this whole movement Kenneth Frampto n started with critical regionalism. I don't really believe that I'm a player. Because what's happened is that regardless of what region you're in people think that by looking closely at the vernacular and then just tweaking it to fit today's perspective on different things like construction and lifestyle, that that's being regional. To me that just develops skin-deep styles, not regional styles. That is just too shallow for me. I need more and have more to offer. So there's a lot we can learn from the buildings in our region, but everyone around us deserves the same level

of invention that made those buildings. Right? We are architects first. (The influence of site) is not to the level—and I haven't been practicing enough yet—of Glenn Murcutt, who studies every leaf and twig and breeze and condition in the environment. I'm more interested, really, in experience in the landscape: simple body movement, scale, referencing the landscape, a certain quality of light, editing and re-presenting views in the landscape, colors and textures, smells and shadows.

Editors: Do you think that this perspective on the landscape comes with a freshness for you, as it did for the land artists, when they came from the East Coast in the 1970s?

Joy: Yeah, I grew up in Maine, and I don't take any of the landscape for granted. I mean, I'm like a little kid in a playground. When you glance across a landscape it looks like just rocks. To me it's a blast! It's like listening to some music and hearing a new guitar riff or something all of a sudden.

Editors: Is that experience personal, and do you need these types of personal experiences?

Joy: I think you do, yes. This is something I'm thinking about a lot these days. We're getting bigger projects, and I'm teaching studio. I've tried to think deeply about really what are the discernable characteristics of any architecture that you or I say is good. We can all just point to something and say, "Man, that is good!" Or go in a space and just really feel good. And I think, of course there is proportion, scale,

detail of the concept and how the building materials that support the content work and all of that. But in the end, I think what it really takes to make a moving space is to be full-on personal with it. Bring in the whole history of your lives. When you go to Barragan's Chapel in Mexico City, you don't come away going, "Man, that was some cool detail he did with that." You don't. There's an atmosphere, a quality of life mostly that he's created there that is sensual on many levels. And it's the personal work he did to make that space—you can just feel him still there. You get the same thing from going to Frank Lloyd Wright's Taliesin West. Whether you like those forms or not, a person was behind that work. Or Sverre Fehn's Nordic Pavilion. It just exudes this incredibly powerful energy, and there's barely anything there. Take Lewerentz's St. Mark's: there's meaning in every brick and where it was placed and how it was placed. You feel the life of the architect.

It's unfortunate today, where the big practices often have a developer mentality, and personal care is lost.

Editors: How does your interaction with clients influence your work?

Joy: One thing that's happened for me with all of my clients, except for a pair of new clients, is that they have all been old enough to be my parents. So on most occasions, they've saved up all of their lives to have their dream house, and I've been the person they've come to. While they are very respectful, love the work and appreciate the professional level that I'm on, I still, because of the way I was brought up, feel like I'm their son and I'd better not screw it up. So I've never really tried, and I think it's actually wrong in most cases, to let

the opportunity become my opportunity to express myself. What I've done instead is just let myself get very personal and offer some deep readings and some incredibly hard work to make it special on other levels. The Tubac House is an expressive form, all of the work is. But it's moving for them (the client) and for me to be there because of the way that we took the landscape away and re-introduced it with these edited little vignettes behind the walled courtyard. A cool guy made the front door for us at good price, and how good the owners feel every time they open it, whether they think about it or not, is beautiful. Just being personal is a greater gift to your clients than making some incredible expression.

Editors: When you involve yourself personally with a project and the client, can other people come away with a different experience from that building just as meaningful as what you had intended originally?

Joy: It's not personal expression, but just doing the hard work and caring on every level until I know that I haven't compromised. If somebody doesn't like it, it doesn't matter to me. It's not personal expression. It's not whether they like it or not. It's not like I did a sculpture, and I'm hoping everyone likes it. The building is for them, for Warren and Rose or Jack. A lot of people say that, but I genuinely have that feeling. I just went to the Catalina House after only having looked at it in pictures for two years. It was my first house. You know, we made the little book with Princeton, and the house became this icon for me like the architecture we study. I started feeling how great it was, and I had to catch myself. I said, "Whoa! I did this; I remember this!" It was so loved by the client; they put little things around the house and planted a couple more plants. That's where the rush is. The chase is to let being personal make something really special.

Editors: How do you think scale begins to affect the focus and quality of your projects?

Joy: We're getting bigger now, and in January, we started a $40 million hotel project. So we've gone from $1 million houses to $40 million luxury hotels. We've got houses now in Moab and Napa; the one in Napa is for Francis Ford Coppola, we're just kind of thrown into this intense world that's bigger.

I have a great office now, seven people including me. How to keep it personal is the question. I'm outsourcing a lot of things. I've got a development office that does my management, internal management, and all the paperwork. I have an accounting firm that does office management for me, and an associate firm that does a lot of drafting under our guidance. So, I can still have this small, cool little office; I can still be in the room with everybody, and they can listen to me talking on the phone. Everyone knows the bigger picture. They hear me answer questions the way I answer them. There's no real answer yet, but keeping it personal is the key.

Editors: So you're in the process of understanding how these changes will affect your approach to your work?

Joy: Yes, and it may take forever. But I do know I'm smart enough to not take too much work. You see people go down; a lot of architects started out with really beautiful work and then got hungry. You say, "What happened?" Well, it's because it's really hard to say, "No." You know, they're not just houses in Tucson for $400,000 any more. It's a $5 million house right next to Bob Hope's in Palm Springs; it's a house hanging off a cliff in Nashville; it's a house in Vail and a studio arts building at the University of Maine; modular housing in Seattle. I want all of those! You go down fast if you don't stay personal. I'm just not interested in the money. There's nothing I want to buy, so it's enough to get a nice little house, a nice little place to live and work. We just take all the money we get and spend it on other projects.

Editors: Because you started out building your own designs, do you think that attitude, even if you don't continue to build your own buildings, will continue to have an influence on your process in future projects?

Joy: Well no, it's been just a reaction to it. The contractors for all the projects in my book are extremely well budgeted. Even the one that looks really high end, the Tubac House, wasn't even a million bucks. You see the numbers from contractors, and you say, "I know I can do

it cheaper…and better." I just started hiring recent architecture school graduates and putting together building teams, teaching them how to cut wood and doing all that stuff. And we built it, just because we had to. I really didn't want to do it; I almost hated every minute of it. But we're stopping that now.

Editors: Really?

Joy: Yeah. Its a great way to start out, though. When you guys graduate the best thing you can do is build something; design a little house and build it. Get the money somehow, no matter how, even if you have to go someplace really rural where the cost of living is next to nothing. Do it. In Tucson, we bought our house for next to nothing. We did all the additions and work for a good price. Once you do that you have a new business card in life, right? You can then set the tone for your practice. And the tone I wanted to make was we're going to build all these things. I want to build stuff, and I'm never going to compromise.

Editors: And you've been able to carry that through?

Joy: I have. And it helped that I was 28 when I started architecture school. So I had some of those things figured out. But I've never compromised. The minute you do everyone loves it. That's how it goes. The minute you compromise, people say, "Oh man! Look at that!" And then it's a slippery slope.

Editors: But eventually you felt like the time needed to build your own projects was distracting you from being able to focus on designing?

Joy: I'm an architect, not a builder. I can build things, and I do build things; we can build stuff better than contractors usually. But I'm more stimulated by the brain work than by a saw and hammer and managing. It turns out that building ended up being a conflict. But all that knowledge of building just helps. It builds confidence in clients, and contractors can't really walk all over me because I know what they do. I can do it just as well.

Editors: Have there been professional collaborations that you've found beneficial and that have had a lasting influence on your work?

Joy: Well, I work with James Carpenter on projects. He's doing gallery ceilings on the Coppola house right now. A lot of times it just feels like a collaboration with the people in the office or someone who is building. It's a full-on collaboration with Coppola because he's the contractor on that, personally.

Editors: Really? So he's intimately involved?

Joy: Yeah. And it looks like we're going to be, hopefully, doing one for Sophia [Coppola]. I've met with her three times. And that will be a real full-on collaboration. And I want it to be.

Editors: Do you think that, by working with a filmmaker, some conceptual ideas about filmmaking might influence the architecture?

Joy: There is that, but you know what? It all comes down to these characteristics of light and space and tactile qualities and roots and all that, the real basics that move people, not the cinematic work that we could do.

Editors: Maybe you can describe your view of architectural theory and writing. Do you think that these theoretical ideas have a meaningful influence when applied to architecture?

Joy: Well, the discourse is fun, you know. To be involved, to be intellectual, to believe in architecture is a blast. But it's more stimulating in school than it is in practice. Regardless, an important part of architecture is that discussion. Unfortunately, people layer that stuff on buildings in superficial ways that don't mean anything, really. In the end, everybody leaves, and the building is sitting there. There are no more articles and no more discussions, and somebody has got to use it. Unfortunately, in schools, theory is one of the better ways for teachers to teach. So much about what I do is intuitive that it just relies on hard work; there's no talent in this business. It's hard work and caring. You

can't teach somebody how to care; you can't teach somebody how to work harder; you can't teach somebody how to perceive things. It just takes time and commitment and passion. In architecture schools it's easier to develop a poignant construct or a paradigm that is obtuse. The more obtuse it is, the more everybody thinks you're…you know.

Editors: That's when the theory is no longer applicable or meaningful?

Joy: Right. If somebody asks you to sit in on a review at Harvard, you can bet that it's going to be an urban design project, even in the architecture department. With that, you can posture yourself and make statements about what needs to change in a city. But ultimately, making something, that's what starts to change things. That's really what it takes. That's real architecture. Be an architect, be a maker. They don't teach that in school. They let everyone believe that they can think deeply about something, make a position, and that's going to make change.

Editors: You mentioned Barragan earlier and how powerful it is to experience his buildings. Do you think that too much of the architectural profession is focused on sensational forms and image rather than creating truly meaningful places?

Joy: Form has been a pretty consistent pursuit throughout architecture. The Parthenon is a pretty sweet object, the Pantheon, a pretty sweet object. These explorations have always been about architecture as objects. I just believe that the really good things aren't so much about the object. When you go to the Alhambra, or just look at it in pictures, you're not going to talk about the shapes of the architecture or any details at all. You're going to talk more about sensory experiences you had, of long corridors, of deep, dark shade. You might say things like, "the pergola or the tunnel," but you'll also talk about how cool the smell was. That will be the memory that you'll have, the serious memory. You'll smell it again somewhere else, and you'll recall that trip long before you would if you saw a similar arch someplace. But I'd really be full of it if I told you I'm not interested in architectural form. I design houses that are steel boxes, others that have big massive dirt walls. I care about that too, but it's not just the exercise. For a lot of architects it is. That's all they talk about.

But you know, there's more cultural meaning behind Bryan McKay Lyons, if you look at his work. There's serious cultural work that he's done, and he cares about his interest. You can see it. For many architects it's just business, or knocking people's socks off with a sensational form. And it's killing museums these days. I mean, Jesus! You know what my position on that is? That work all presents itself from a position of weakness. It's kind of like the macho dude that's standing there with his big truck, who wants to pick a fight with you. He's the most insecure guy you'll ever meet, right? And the guy that kicks sand at your girlfriend at the beach, he's insecure when he does that. And I say that museums that hire Gehry to do a Bilbao or a Libeskind to do a Denver Museum of Art are insecure; they're groping at ways to lure in the public they think is not smart enough to want to really come there for the art. That museum in Denver started out at $20 million. Now it's $75 and they have a lousy collection. It's all cowboy art and pre-Columbian stuff that we've all seen, right? What if they spent $55 million on art, and did a $20 million museum like they were supposed to that was a really good place to show art, instead of trying to be a piece of art? I'm not so interested in the object first, it's all together. It's the people that come and give lectures.

You'll see them in the feeding frenzies for these big public projects, trying to show everyone that what they can do is better or not attainable by anybody else; they're the only ones. So, when I come to a school like this I just write it on my calendar. There's nothing special other than I can work harder than all you guys. ◣

img 01   studio of Rick Joy;
photo by Frank Harmon
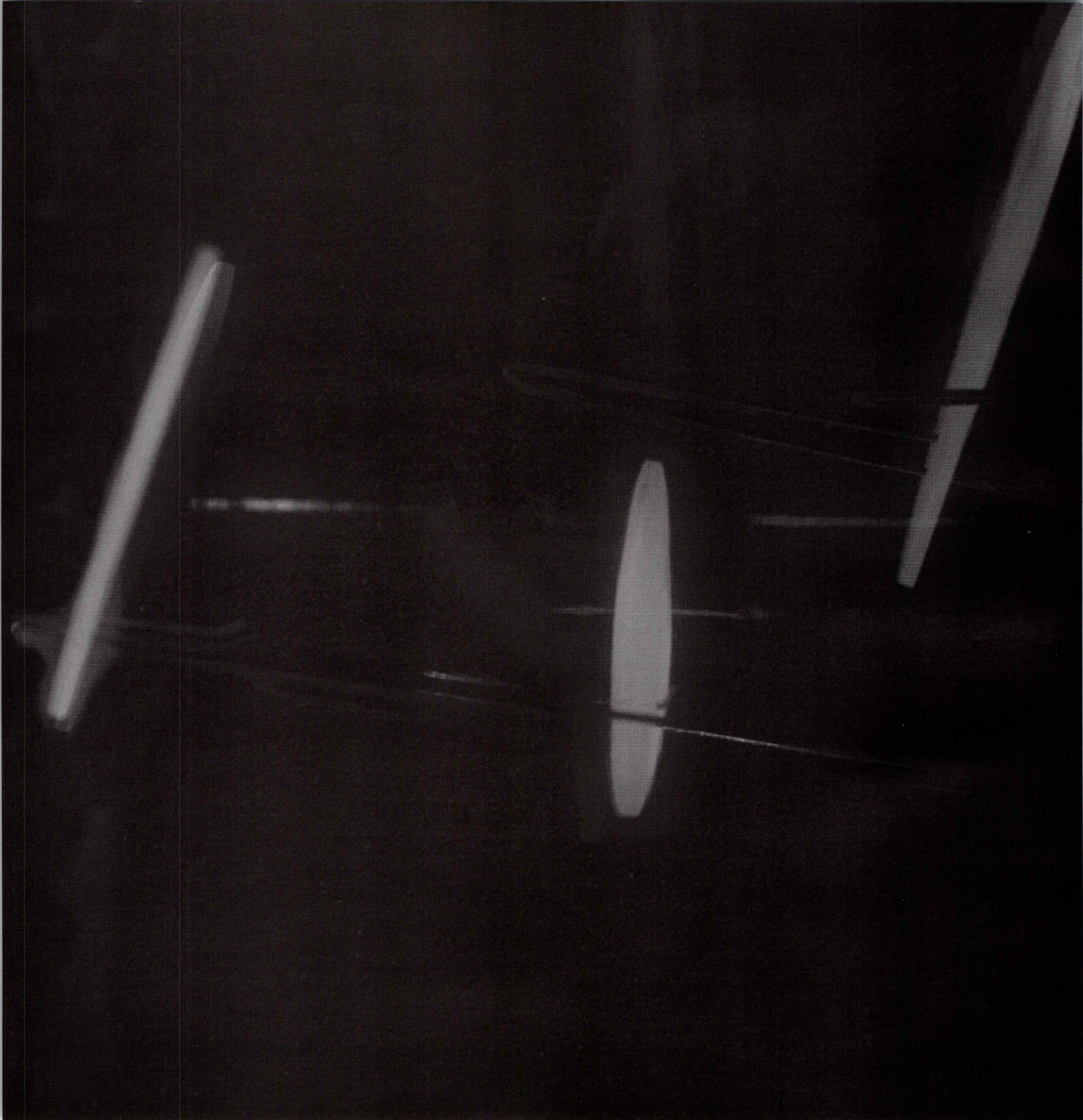
Process and
Production
by Brigitte Shim

Brigitte Shim is a partner of Shim Sutcliffe Architects, Toronto, Ontario. In 2003 Shim was a guest lecturer and critic at the NC State College of Design. While primarily focused on architectural design, the work of Shim-Sutcliffe bridges across traditional disciplinary boundaries into the fields of furniture and product design. Shim-Sutcliffe's Adirondack Chair, the focus of the following article, originated as a 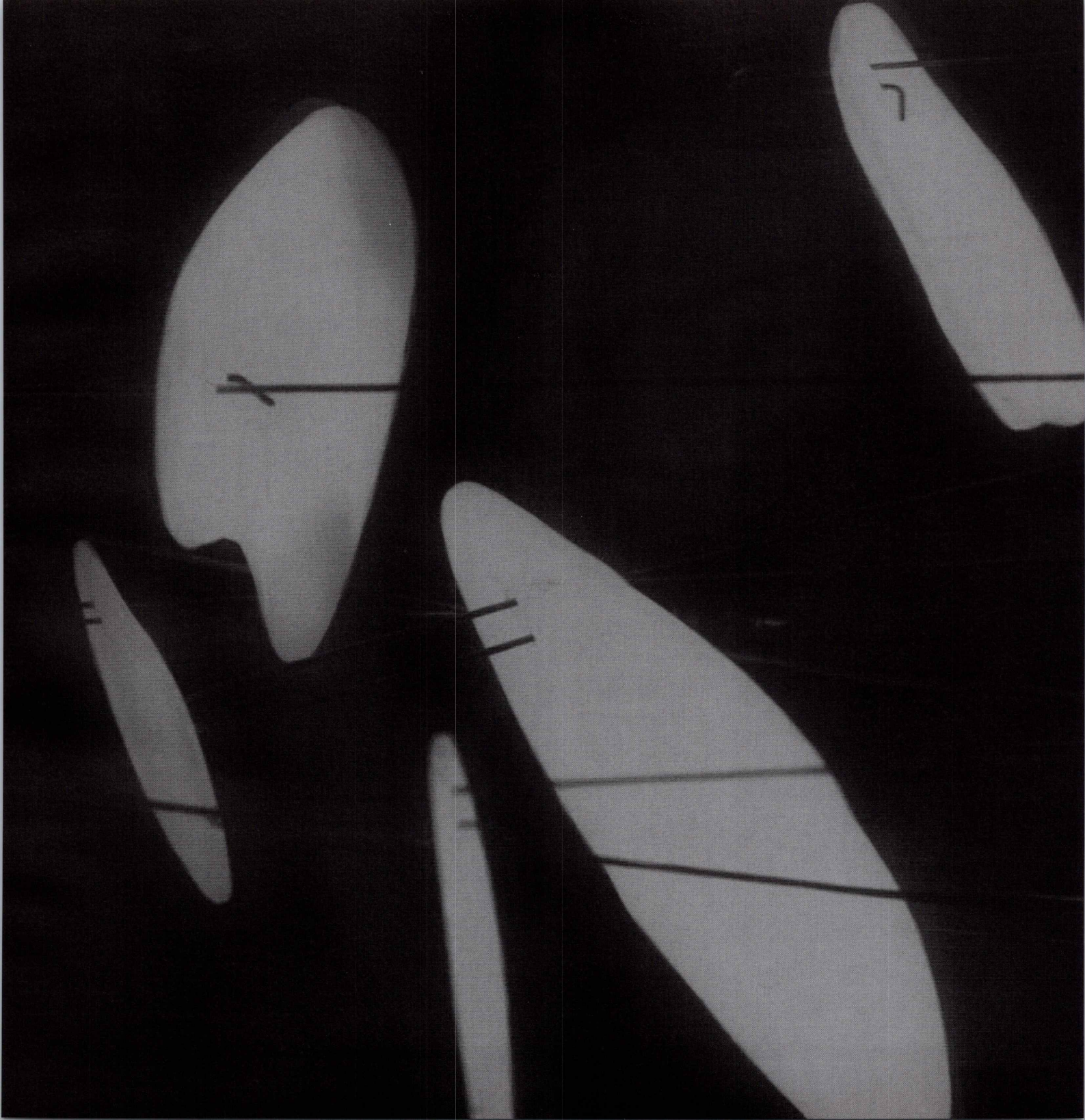unique design for the Muskoka Boathouse (also designed by Shim-Sutcliffe) in the Adirondack region of Canada. The challenge accepted by the designers was to adapt this singularly tailored object into a design that conformed to the processes of mass production. In the following article, Shim describes a process where the influences of cultural and regional identity, which are integral in their architectural design, are fused into the context of mass-production and retail. Shim begins to deteriorate the dichotomies of marketing-based design versus client-based design and global culture versus local culture.

The Canadian Shield is an ancient rock formation with sedimentary and metamorphic rocks that were scraped and gouged as the last ice age receded. Throughout the three million square miles of Shield there are thousands of lakes, many now dotted with summer cottages and boathouses. In Canada, this 4.5 billion year old Canadian Shield and the vast forests and lakes that cover it define our notion of landscape.

The HAB furniture line by Shim-Sutcliffe Architects is inspired by the Canadian Shield landscape. When Shim-Sutcliffe was asked to design a boathouse in the Muskoka Lake region of Northern Ontario, we invested much time to understand both the physical and the cultural landscape of the Shield. We were not interested in mimicking the traditional Victorian boathouses that inhabit this landscape. Rather, we were interested in the numerous ways that wood has influenced the culture and consciousness of this region of Canada for decades.

Our Muskoka boathouse can be described as a "sophisticated hut with a heavy overcoat." The boathouse references the remarkable and beautifully crafted mahogany Muskoka boats, which were made sturdy enough to deal with the roughness of open water and yet sophisticated enough to host martinis at sunset. To allow the boat-

house to float above the water, heavy timber harvested from dense coniferous forests provided the underwater infrastructure necessary to support the docks and piers. This project was realized by considering these two contrasting ways of working with wood as the starting point for a new Muskoka boathouse.
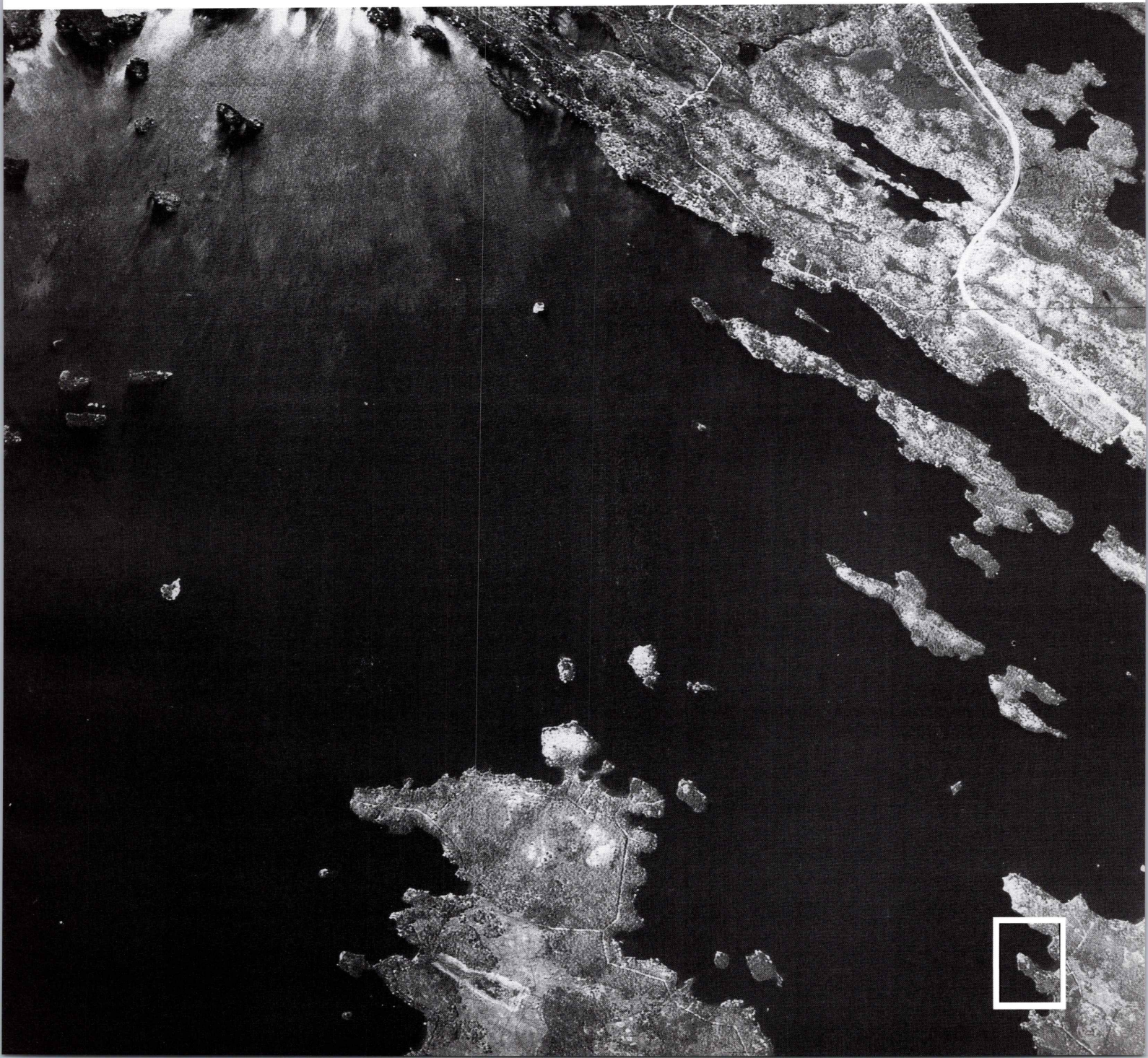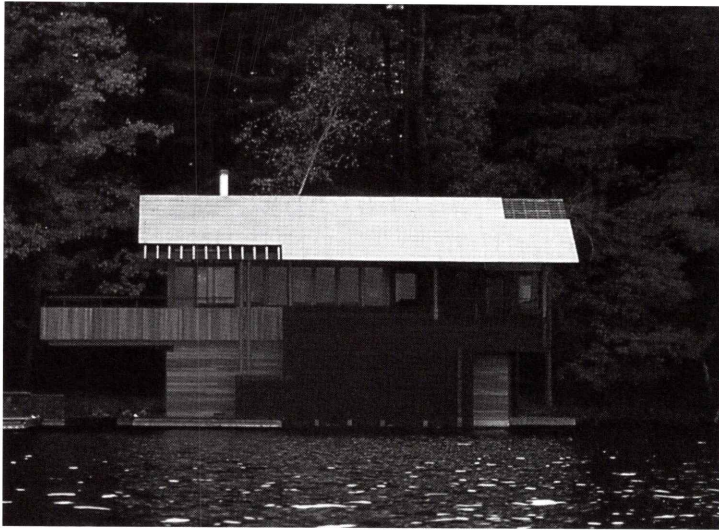
A chair is not a building—but many modern architects have tackled the problem of the chair as yet another means of exploring ideas, materials and details. The traditional Muskoka chair is a familiar fixture on docks and porches throughout the Canadian Shield landscape.

Everyone understands the particular program of a Muskoka or Adirondack chair. When sitting in the chair you must be able to balance a tall, cool drink, newspaper, magazine and/or book all at the same time while sitting in a slightly reclined position. The challenge for us was to produce a contemporary chair that reflected the function and feel of the traditional Muskoka chair.

We started our investigation with cardboard models, sketches and large drawings, as we would begin a building project. We built full-scale prototypes in our studio using limited tools and equipment. We asked everyone who came to our studio to sit in the working chair prototype and grilled them about what worked or didn't work. Howard

img 02 muskoka boathouse
        photo by Howard Sutcliffe

img 03 mahogany HAB chair
        photo by John Howarth
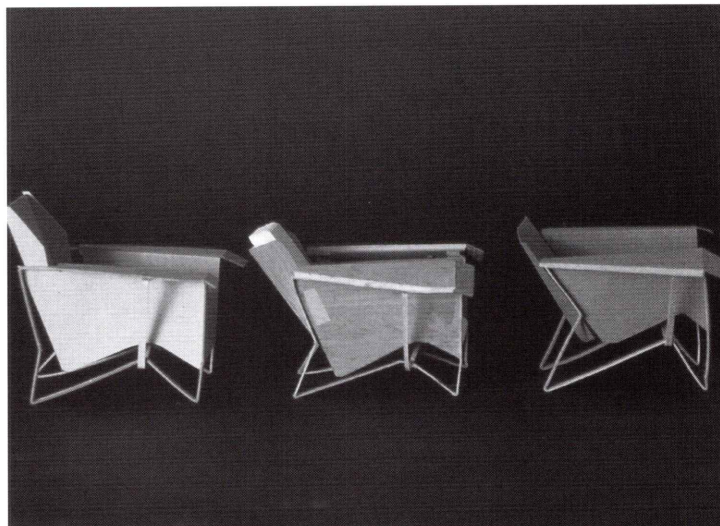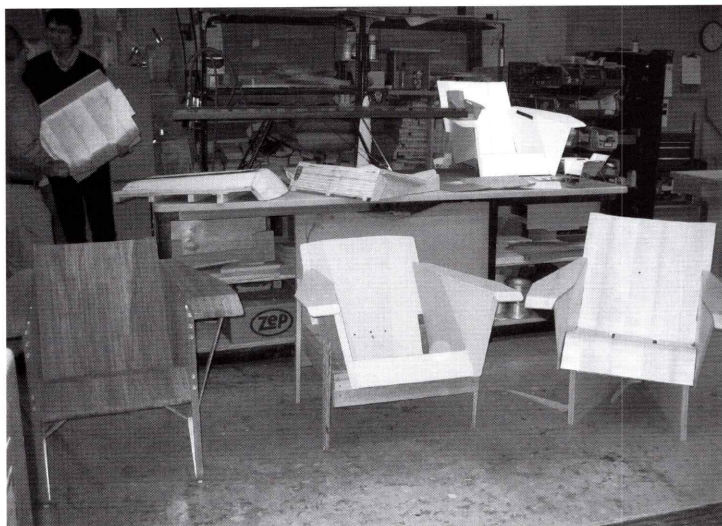
Sutcliffe is 6'-1" and I am 5'-2". We decided the chair had to be comfortable for both of us for it to be successful. Two mahogany prototypes of the chair (above right) were built in a custom millwork shop, and they now sit around the fireplace in the Muskoka boathouse.

In collaboration with Nienkamper, a modern Canadian furniture manufacturer, we experimented with pressed and molded wood as a means of shaping this chair. We worked directly with owner and pioneer Klaus Nienkamper and Nienkamper's master-craftsman Willy Ewaschuk to test our design ideas in their Toronto factory.

Prototypes of different pieces of the chair were created in Nienkamper's factory using their sophisticated equipment and vacuum presses. Each piece was scrutinized, critiqued and reworked. The Shim-Sutcliffe studio also generated full-sized, cardboard mock-ups to synthesize the numerous minor adjustments needed to refine the design and address the limitations of the fabrication process. The collaborative process between Nienkamper and Shim-Sutcliffe reflects a desire to design an elegant mass produced chair that shares many affinities with our previously custom-made prototypes.

Gerald Sheff, half of the client team for the Muskoka boathouse, coined the name of the HAB Chair. He is an avid Montreal Canadiens hockey

fan, and he is trained as an architect. HAB, for Gerry, references the Habs (nickname for the Montreal Canadiens hockey team), Howard and Brigitte (designers of the chair), Habitat ("place of abode"), and inhabit ("dwell in or occupy"). We are indebted to Gerry, who has been a remarkable client. His passion and love of construction, materials and ideas has been an inspiration through both the architectural design process and its extension into the design of the door hardware, boat cleats, chairs and lights for his Muskoka boathouse.

The wooden HAB chair is shown above left in maple with a steel base. The chair is available in other woods and we also developed a metal version of the HAB chair that can be used outside or inside. To craft this chair, plates of aluminum are cut out by Computer Numerically Controlled (CNC) water jet cutters and folded and finished with powder-coat paint. Both wooden and metal versions of the HAB chair are available with upholstered pad for seat and with back in leather, fabric or vinyl.

The magic of catching fireflies and their bioluminescence in a jar was the inspiration for the Bug Lamp. The original Bug Lamp prototype

img 06 maple HAB Chair
■
img 07 aluminum HAB Chair
        photos by Steve Moretti
■
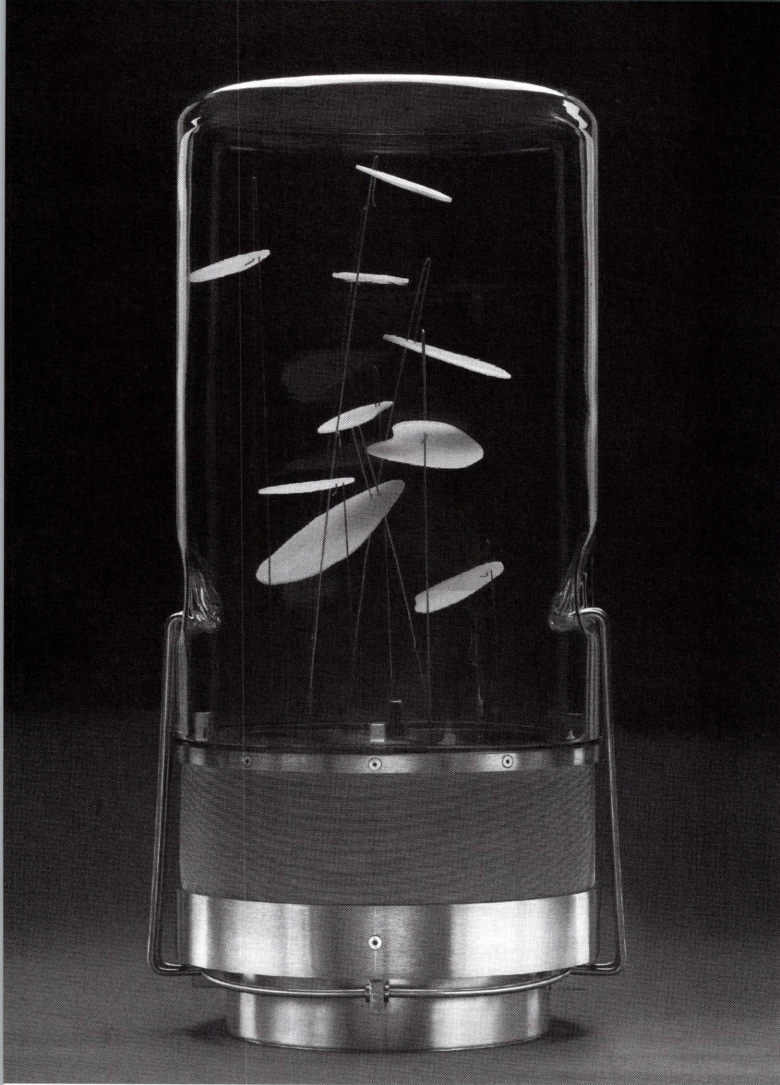
was designed for a covered outdoor dining area that is part of the Muskoka Boathouse. Drawings explored the possibility of grouping mylar chips within a "ready-made" mason jar which is suspended by a stainless steel cable to create a hanging outdoor lamp.

The initial prototype was adjusted, altered and developed for production. The mylar chips were refined into cast-resin discs embedded with a phosphorescent powder that glows for up to 90 minutes after the light is turned off. Lamp components consist of ready-made scientific glass, cast-resin organic discs, stainless steel mesh and rods. ▲
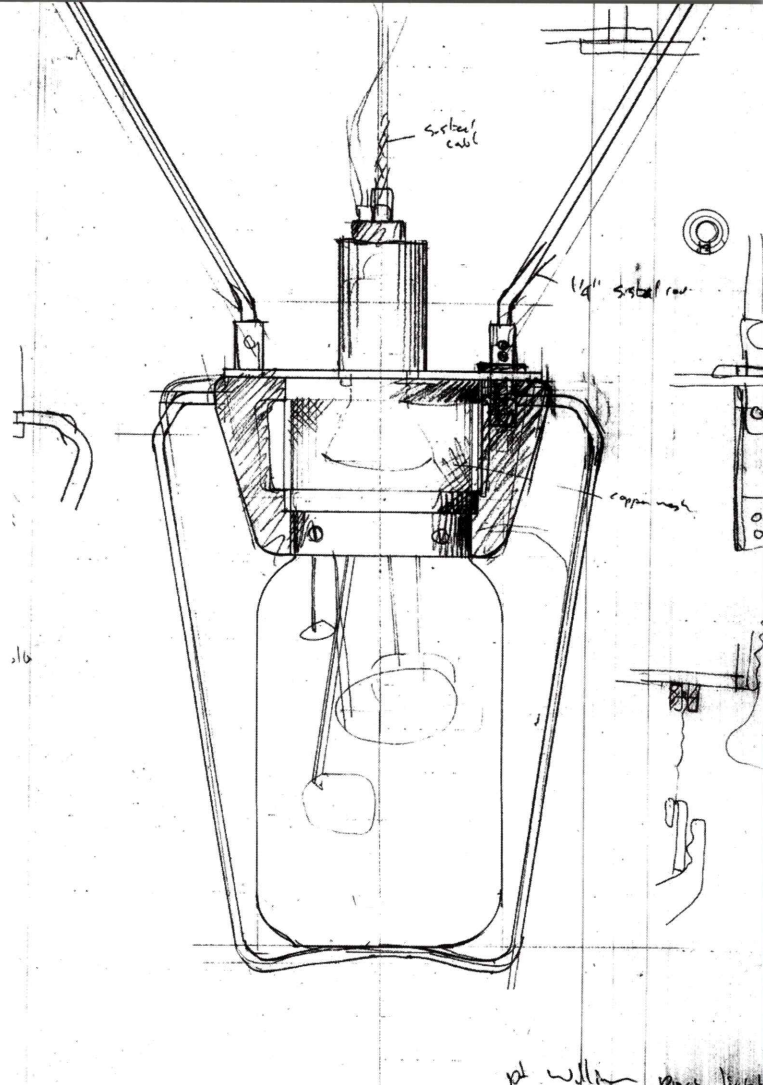
img 08 **HAB Bug Lamp**
photo by Steve Moretti

img 09 **HAB Bug Lamp sketch**
sketch by Howard Sutcliffe

Excerpt 2: Relevance and the Role of the Individual

Dana Raymond: …As an artist, an educator, and somebody who works and pursues activities in the community, I think that each of my individual roles addresses different relevancies that are each valid. Relevance and truth are not parallel. What I fear the most about relevance is that people are searching for an absolute, and I do not think that such an absolute exists. If we all conjure up this notion that there is one goal we are all searching for and that we will all find it, then I think we will fail. Relevance is a reflection of social, economic, political, religious, and environmental values, but it is a reflection that comes out of the perspective of an individual. What each individual finds relevant is a reflection of what they are confronted with day-to-day, which doesn't make relevance any less important…

When I was younger, maturing as an artist, I was pushed and drawn by the things that were going on in the art world and wanted my work to develop that. But I don't care any more about that kind of relevance, which is external. My outlook now has to be internal as far as concept and projection. And that process is not easy to teach. You can encourage, allow, and nurture a student's development as an artist, but their relevance has to also come from within them.

Fernando Magallanes: Do you think that there is still a dialogue between the artist as an individual and the public—whether it is Eisenman making puns on Vermini or Bruce Nauman making puns on Duchamp? Where does the personal dialogue end and the greater dialogue begin? Is a connection possible between these two?

Denise Gonzales Crisp: The general direction of research, in graphic design in particular, indicates to me that contemporary design is not primarily about imposing a dialogue that is completely new and unfamiliar on the public. Design requires an understanding about what is happening in our culture. People outside the discipline must be able to relate to what we do and affect what we do. So designers are beginning to ask questions like, "Who is my audience; who am I really talking to?" Design is becoming less about romanticizing the individual designer.

Dana Raymond: Well fortunately all art and all design isn't personal. There will always be works of art and design that extend beyond the individual and beyond that inner circle of artists. So I don't worry about that. In the art world, for instance, in the last 25 years, much of the installation art has been politically, socially, or environmentally motivated. And although I personally have gotten very tired of it, I think that type of expression is valid. And at times I still like to express some political or social content in my work. But I would rather see something more magical and experiential rather than staring at art the same way I would read a newspaper, or watch television, just trying to exist in our society up against so much that is brutal.

Fernando Magallanes: Can I respond to that also? When you talk about relevance, you cannot disregard revolution. When a group or an individual introduces a new idea that impacts society, there is revolution and change. So the definition of what is relevant might change as well. Society doesn't always dictate to the individual what is relevant.

Dana Raymond: Each designer has to ask the question of how they want to play the game. Do you want to play ball the way others play it, or do you want to introduce a whole new set of rules and attempt to make society understand them? Those are the two different approaches, and it is up to the individual to make that decision. Whoever is doing this work has to understand these dynamics and utilize them in a way that is positive.

Fernando Magallanes: Even leaders are led. We are all led by something.

Wendy Redfield: Peter Zumthor, in his book about resistance, is calling for architecture to speak its own language, to essentially justify itself as opposed to developments over the last 30 years, like semiotics and deconstructivism, which depend upon the rhetoric of other disciplines. The question is to what extent must design look beyond itself, outside of its own boundaries in order to become more relevant in a broader cultural sense? And to what extent must architecture look to its own very long history to find what has always been relevant and important to people about architecture and present a correction to current trends that do not fulfill those needs? Where are we in this continuum? What has always been important about architecture should and will always be important about architecture.

Our Suburban
by Gail Peter Borden

Gail Peter Borden is assistant professor of architecture at the NC State College of Design. He received a post-professional Master's of Architecture with Distinction from Harvard University, and in 2001 received a prestigious Graham Foundation Grant to support the development of his forthcoming book Suburban®: The Potentials for the Celebration of Inevitabilities.

Borden's research deals primarily with contemporary architecture and culture in the suburban landscape. He accepts our suburbs as an undeniable manifestation of our consumer-driven culture, and proposes a series of designed suburban houses which attempts to evolve this context. These insertions create a dialogue with the existing physical, cultural and economic conditions in order to challenge them. Borden's premise is that architects have too long ignored the realities of suburbia and that only by exploiting these realities can architects begin to have an impact in this particular sector of our built environment.

Demand is inevitably indebted to supply.

Relevance in architecture can be interpreted on multiple levels; from cultural to social, economic to political, educational to practical. Despite the diversity of issues, each is inescapably dictated by the relative relationship between service and product. In architecture, there are two primary means for overturning the ever-expanding irrelevance and perceived frivolity of the design profession: focus and method.

Mission 01 [focus] is the reallocation of efforts with a dedication to serve lower—and middle—income groups. Currently architectural productivity is clustered toward the extremity of either end: the wealthy or the socially forgotten. The "middle" group is disregarded, despite comprising nearly 96 percent of the general population and the largest potential user group. The architectural manifestation of this group in the United States is distinctly represented in "the suburban." This is where architecture must allocate its focus.

Mission 02 [method] is the re-establishment of the architect as design director to redefine the balance between service and product. Over the past century professional relevance has slowly eroded. The machine age initiated serial production as a means toward convenience and affordability, thereby establishing a marketplace based

solely upon product. The impact upon the architectural profession was an evaluation of relevance based either on perceived "need" or afforded "luxury," with both mandated by service.

The weak link in this equation is its reliance upon the client to approach an architect and initiate the evolution of work. The decision to select and employ an architect, and thus the desire for and presence of architecture, was left in the hands of the client. The power of design was removed from the hands of the designer.

I believe that it is time to reverse this conventional operation. In doing so, the present reading of the client-architect relationship must be re-envisioned. The right of innovation and creation must come from the new visionary and independent architect.

The following propositions are based upon this definition.

Suburban

The contemporary built landscape has evolved as a manifestation of our culture. Throughout history, the economics, beliefs, geographies and technologies of each epoch have assembled to define the constructed environment. The close dissection and understanding of each of these components provide a clear understanding of the resulting built form, but more importantly they can offer insight into the mechanism that produced it.

Much debate has emerged about the suburban condition, almost universally condemned as ecologically unsound, ergonomically inconvenient and aesthetically unattractive. Though many of these conditions exist at times, the suburban condition is in fact a pure spatial manifestation overlaying democracy, capitalism and America's agrarian geography.

The triangle of democratic politics, capitalist economics and diverse geographies established a new method of spatial development in America. The singular and independent parcel emerged as the primary spatial building block. Caught between the density of the old city and the loose isolation of the farm or villa, the suburban condition emerged.

The contemporary landscape is suburban; the "common" landscape is the new architectural frontier. When speaking toward contemporary American architecture, the suburban condition and the associated trends and traditions of sprawl, the dominant engine is the single-family detached house. The "American Dream" of home ownership propagates the loose development of cities. Arterial development of commercial strip centers, big box commercial stores and the brand name have extended disposable commodities to include the residence. The house has evolved to hybridize the generic image and function of living. Practicality has been sacrificed for iconography. Technological advances, occurring with frequent spurts across the past century, have demanded an associated ingestion into the home formally, functionally and programmatically to no avail. The parameters of domesticity have been changed.

The current single-family house subscribes to a model that addresses bank loan guidelines but denies the contemporary cultural condition. The forms, functions and styles—though commonplace—are anachronistic and divorced from their original intention. The focus on type, via technology rather than nostalgia, will provide meaning through formal, functional and cultural evolution. The following propositions present opportunities for the conventional and average condition: the reconsideration of the single-family home. Iterations based upon the standard economic, programmatic and functional needs illustrate the potential to find architecture in the "ordinary." By focusing on both the process and fabrication of the house, these prototypes suggest a method of design positioning contemporary culture as the foundation for specific and viable solutions for changing our constructed landscape. These prototype houses "build what we are."

Current Housing Reports

In 1995, approximately 56 percent of American families (current owners as well as renters) could afford to purchase a modestly priced house in the area where they lived. That is, they could afford to purchase a modestly priced house with cash or could qualify for a 30 year conventional mortgage with a five percent down payment. Ninety-five percent of this group currently owns their house.

The median value of the maximum amount that owner families could afford to pay in 1995 to relocate to another house (using conventional financing) was $136,100. With current costs of inflation and real estate market values rising, the average has elevated to a median house value of $184,006 (the majority of which were built between 1960 to 1969). The proposition for a home must provide the economic realities mandated by the house as commodity. The transferability of the dwelling provides for its value. Currently the market conditions subscribe to a formal vocabulary based in features. The home becomes marketable based upon the specific components. The proposition for these homes is to provide the necessary programmatic framework of the conventional home (three bedroom, two and a half baths on the typical 60"x120" lot) but shift the formal, spatial and cultural opportunities of their composition.

The greatest current housing supply and demand in the United States occurs in the suburbs. The single-family house is still the "American Dream" and the standard to which the majority aspires. Currently these landscapes are devoid of architecture. They are dominated by speculative builders that subscribe to a singular model of development, regardless of family size, geographic location, material quality or formal meaning. The house has eroded all synchronized sense of practicality and iconography of home. The result is a bleak and pervasive landscape studded with the conventionally bland. These houses assume the responsibility of providing for new living within the framework of affordability. The celebration of the processes that determine the house provide for its configuration.

Principles

The production of a new model for suburban living representing the possibilities of its inception demands a comparative analysis of the existing condition. Primary principles include: surface area, program, typology, material, service/served, public/private, day/night, indoor/outdoor, phasing + mutability, modularity, experience, and cost. Each of these elements becomes a topical means for re-approaching the responsibility and direction of contemporary living. An evolutionary premise does not simply accept the object as an artifact to be ingested, but rather requires a conceptual premise to be adopted and developed into a synthesized relationship within the residence. The following principles provide a conceptual foundation for the design of each house.

Percent Surface area: Conventional construction methods rely upon material selection and modularity to employ their systems efficiently. The three primary surface components that effect both cost and experience are roof, wall and glazing. The prototype houses employ conventional construction methods—streamlined and modulated.

Materials: The diversity of choice, quantity and quality—all relative to the life cycle costs—establishes the parameters for material determination. Employing conventional materials unconventionally provides efficiency in cost, modularity and effect.

Typologies: The typical house built today subscribes to an image of what a house should look like. The prototype houses suggest what a house could look like. Subscribing to organizational models that emerge from the functional requirements of contemporary domesticity, the prototype adopts the same site conditions, basic spatial needs, and building techniques and updates them to increase the experience and quality of domesticity.

Service/Served: The typical home distributes service functions such as storage, utility, bath and kitchen facilities as necessary. The ganging of service functions provides clear articulation of these spaces and a separation of public and private while streamlining their needs through group association.

Public/Private: The typical house is singular in form, relying upon the articulation of space as public or private to be determined by furniture and apertures. By zoning the public and private and articulating their boundaries through formal expression, the prototype houses allow for a greater spatial definition, formality, and diversity with smaller square footages.

Day/Night: The prototype houses attempt to blur the singular functionality of any given space. Employing zones rather than rooms, the single story free plan allows for multiple functional interpretations.

Indoor/Outdoor: The bounded form denies the typical house useful connectivity between house and garden. The organization of the prototype house provides for a fluid movement between outside and inside, connecting and expanding interior spaces both visually and
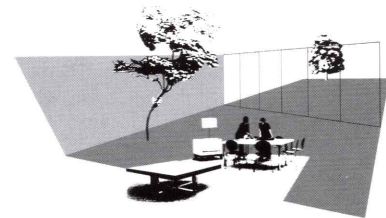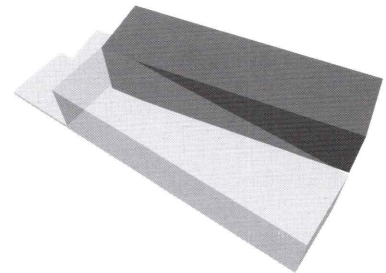
physically with the exterior. Any increased costs required to accomplish this transparent connectivity, while maintaining privacy, is balanced by a reduction in square footage and an expansive spatial perception.

Phasing: The static conception of the typical home requires the construction of the entire structure and all of it amenities in one burst. As a result the threshold for home ownership is increased, and the traditional market produces a nomadic attitude that requires one to move to a larger house. The prototype houses are based on the idea of mutability: the allowance for the expansion and contraction of the house based upon changing needs. The composition established through an efficiency of modularity and sequencing provides for the segmental construction of the home.

Experience: The typical home subscribes to features rather than architecture to fabricate "quality." Subscribing to a compositional connectivity, the prototype houses rely upon a return to form and space to orchestrate the experience of architecture.

Cost: A comparative cost analysis positions the prototype within the same boundaries as those of conventional construction, adjusting traditional distributions to increase the quality of the architectural experience while maintaining or even decreasing the cost.

Modularity: Relying upon the dimensional quality of materials, the prototype houses minimize material waste and standardize structural, cladding and finish dimensions to reduce the complexity of the systems and to minimize labor. Employing durable natural materials, the prototype houses simplify the ever-increasing complexity of contemporary systems and rely upon the beauty and intrinsic properties of the material.

01   02

03   04
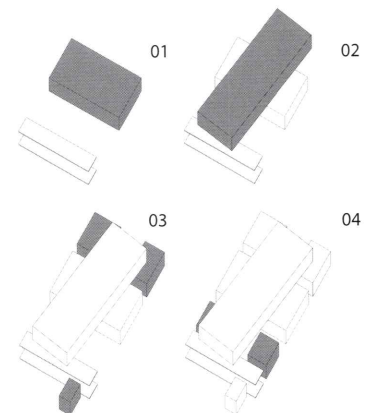
Program House [House 01]

The Program House relies upon three primary guiding principles: the articulation of form based upon program, the collection of these articulated programs on an indoor-outdoor plinth and the ability to phase these programs over time. Separated by section into public and private zones, each function is one of a series of distinct pavilions. Their collection results in interstitial space that bridges and blurs the boundary and compartmentalization of both program and house.

img 04 program house plan
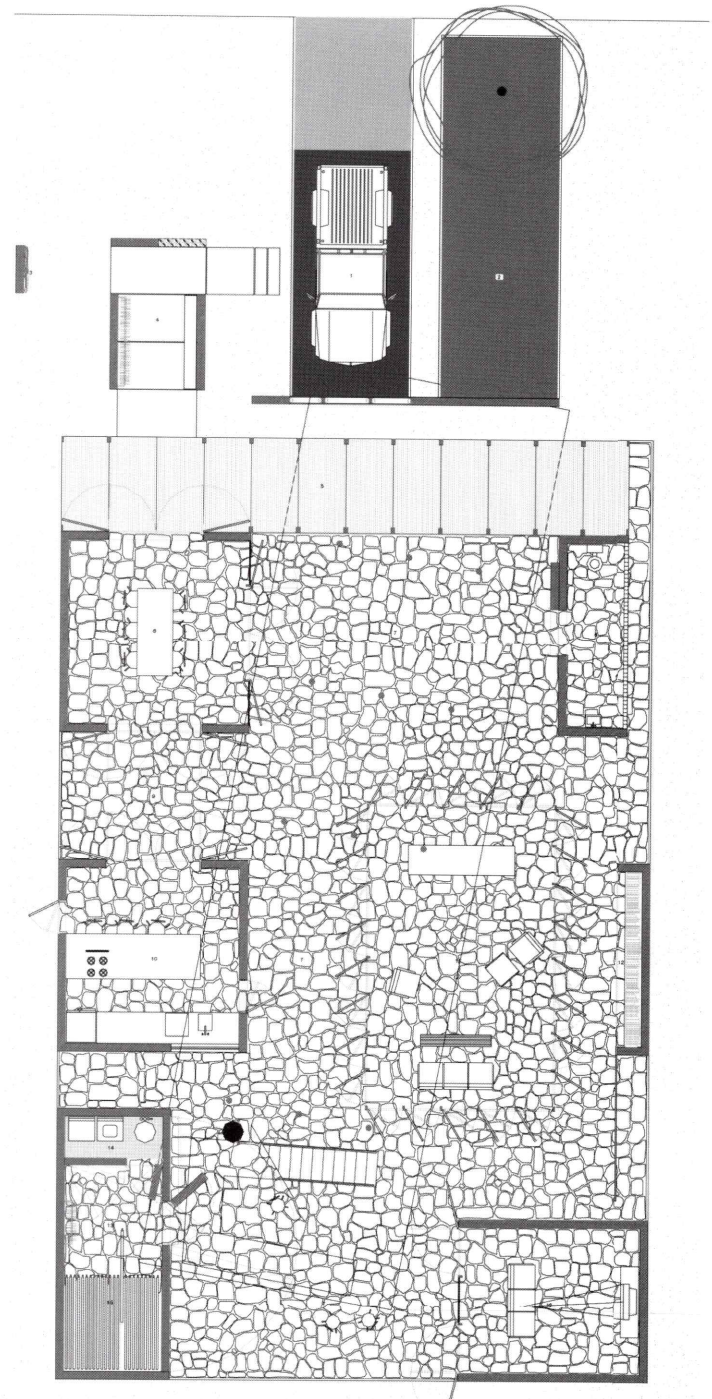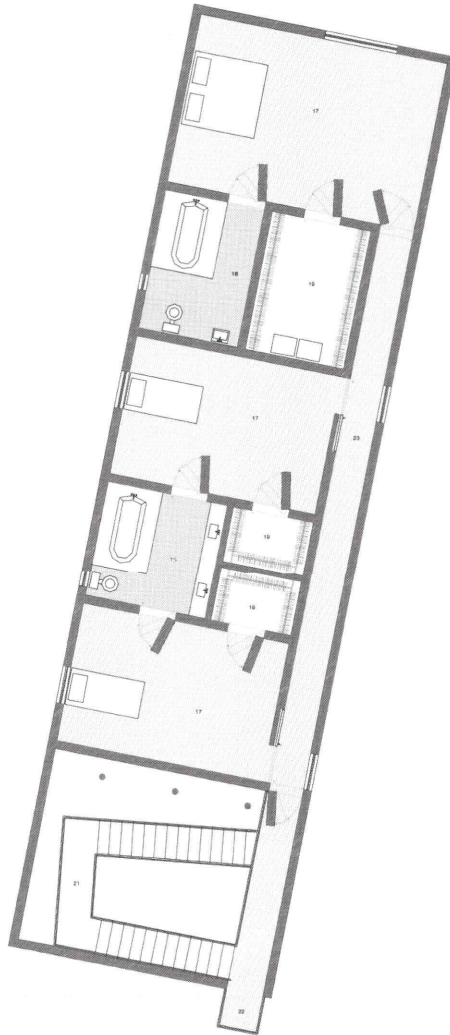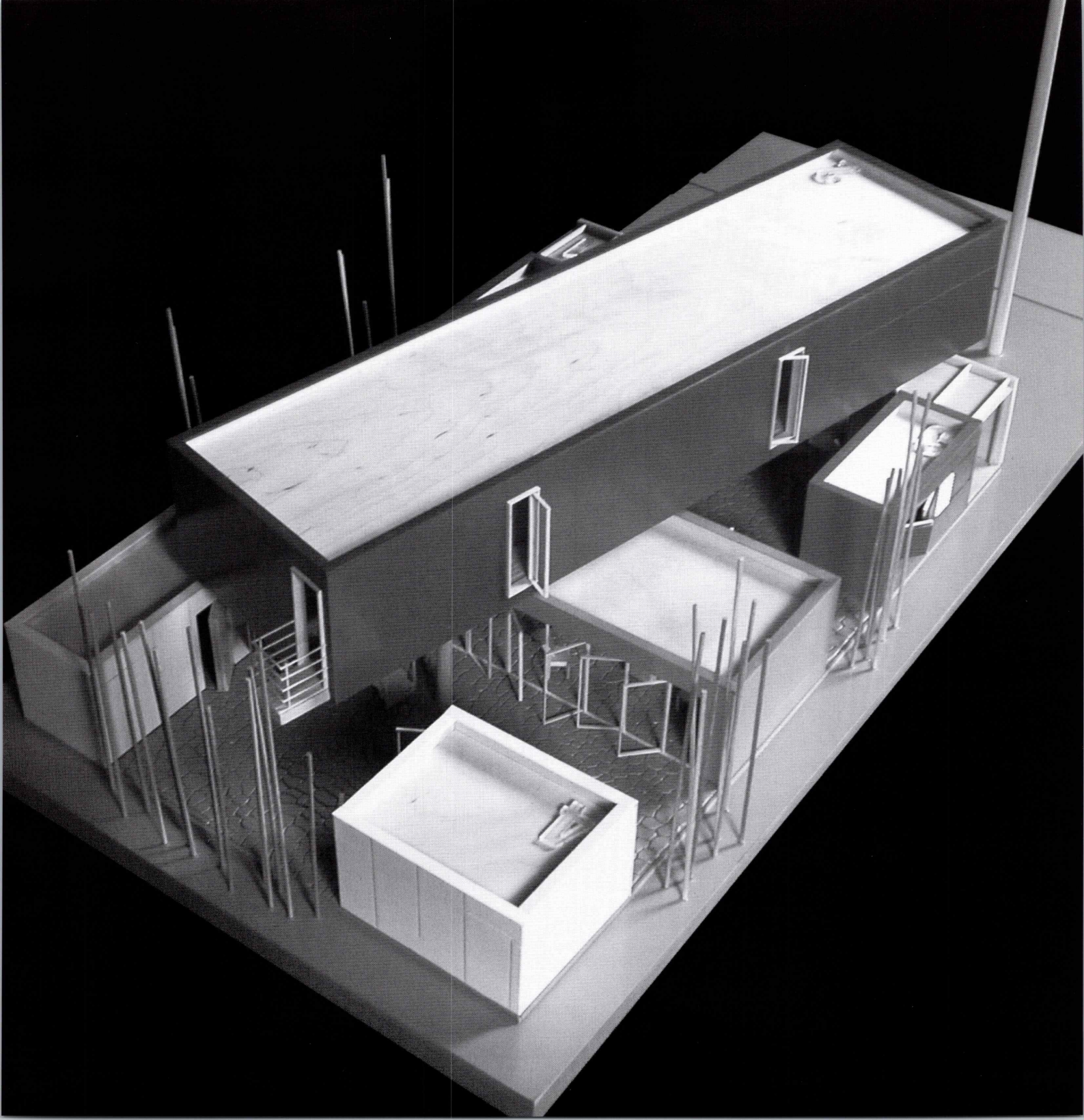
img 05 model
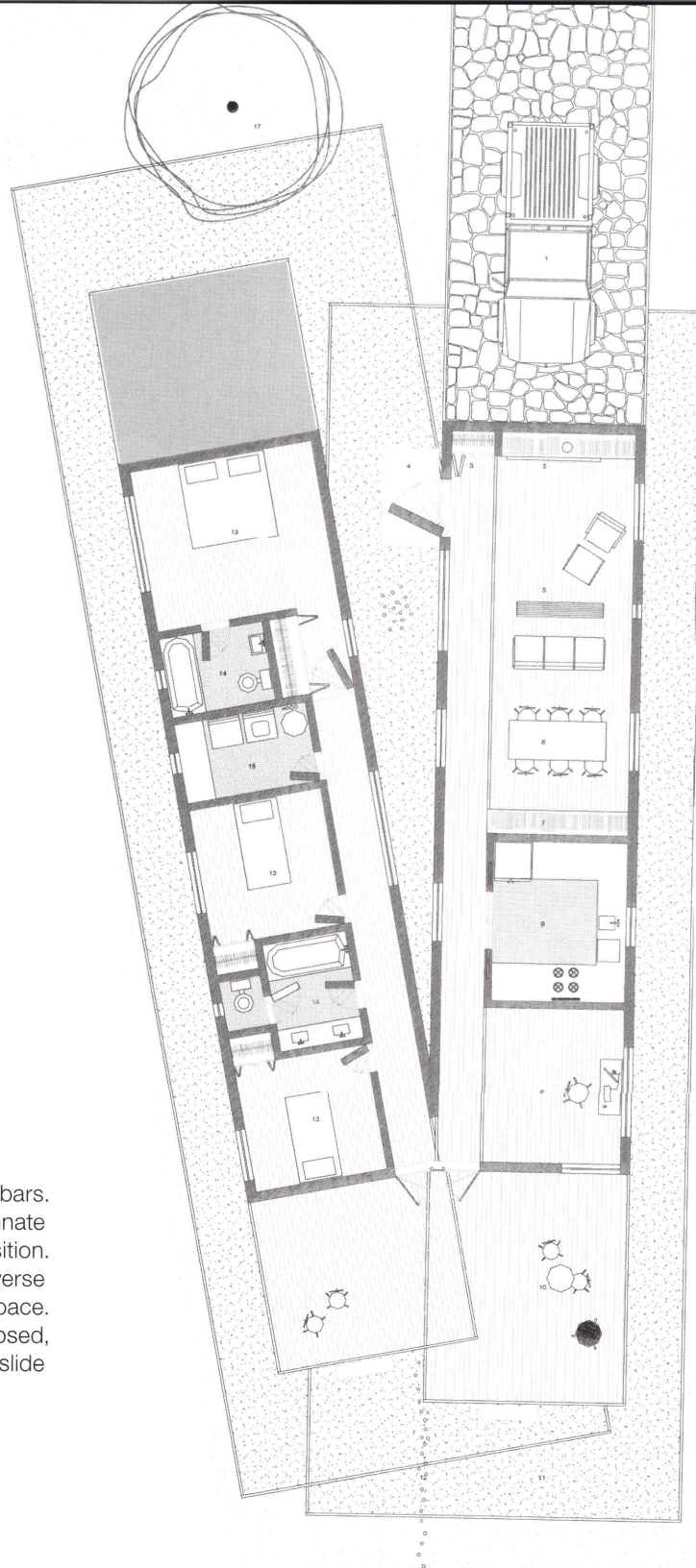
Gradient House [House 06]

The Gradient House zones public and private functions into two bars. Relying upon material modularity, the simple boxes use these innate geometries to define their proportion, location and skin composition. The bars, identical in exterior proportion, subscribe to two diverse spatial types: a free plan and a compartmentalized cellular space. Associated with public and private, day and night, open and closed, each realm identifies itself relative to the other. The floor plates slide past each of the boxes to create a substantial rear porch.
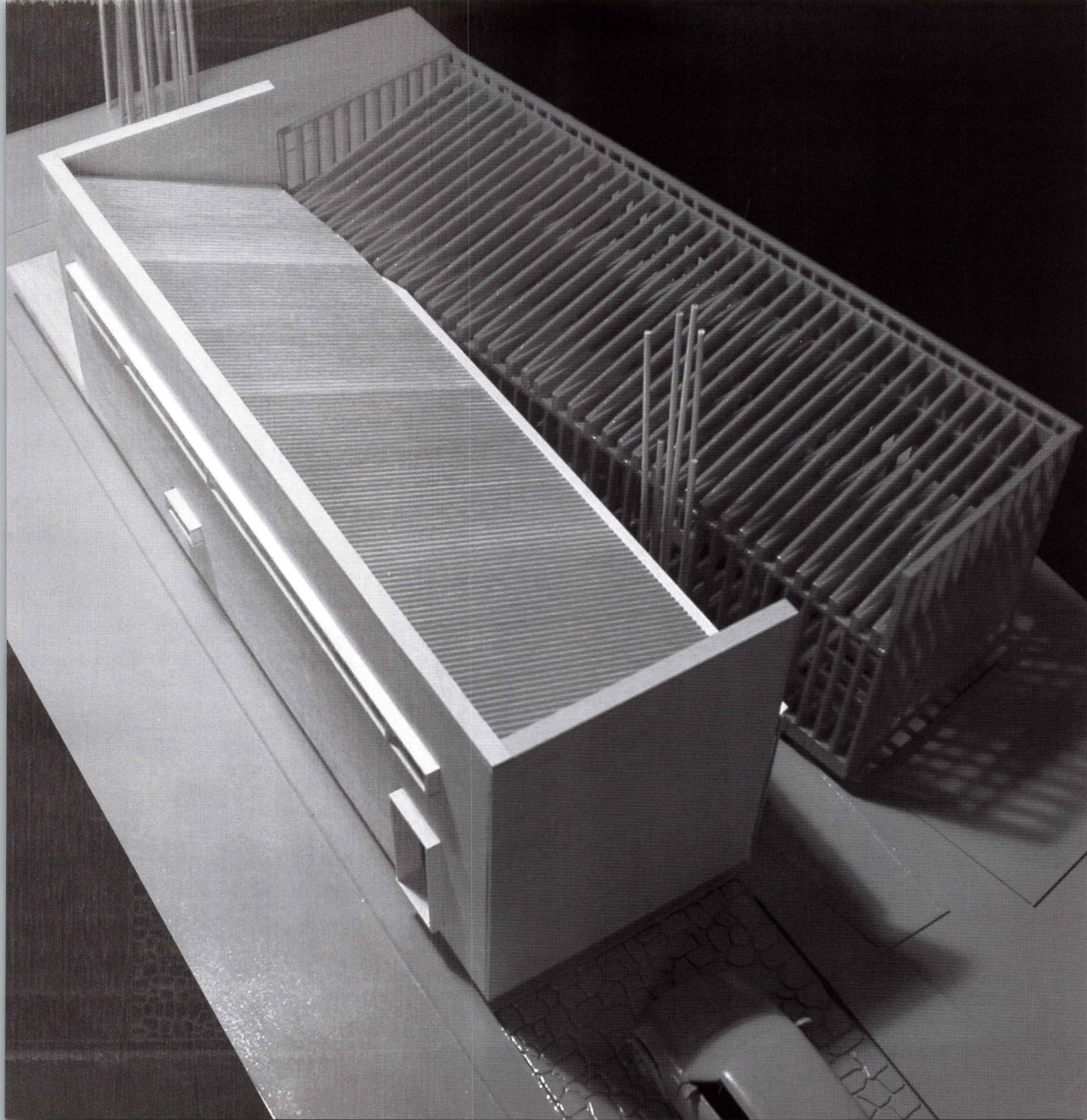
Constellation House [House 14]

The Constellation House shifts the traditional responsibility of the wall to the roof. The result is an internal world articulated by large roof apertures that organize the house with light. The perimeter is perforated with three portals for entry. The modular panelized box relies upon its figurative roof for its formal exterior articulation and internal spatial organization. The dimensions and quality of the aperture correlate with the associated space below and the activities they illuminate. Movement between the shafts of light draw the inhabitant through the house by defining function and experience simultaneously. The efficiency of the narrow plan, combined with the vertical orientation of the formal composition, allows for a double density to the site. The result is a reduction of land cost that allows the liberated funds to be reapplied to the roofscape.

img 08 constellation house plan

img 09 model
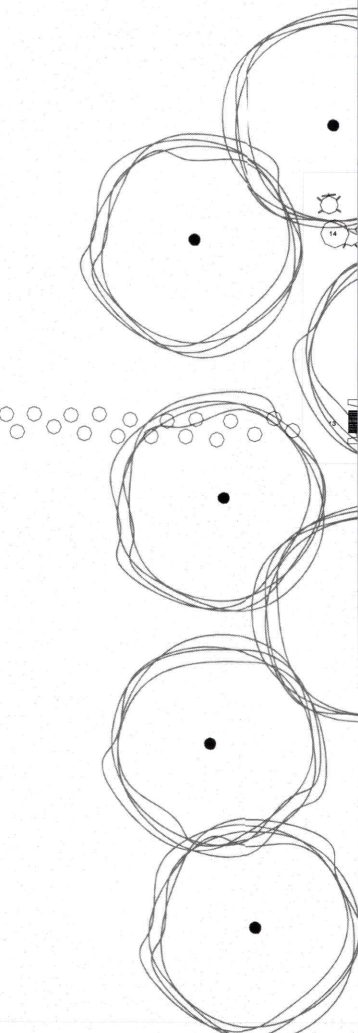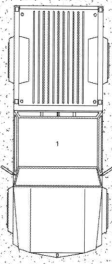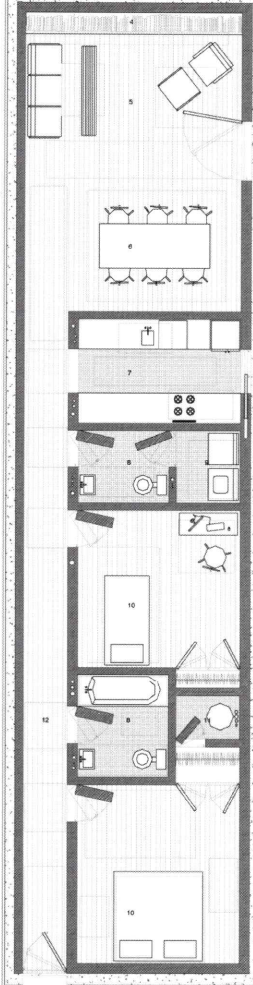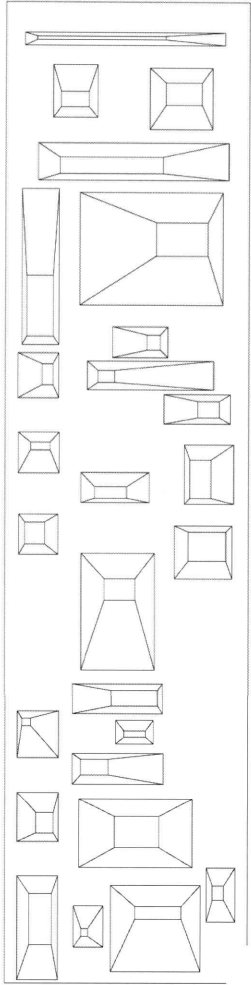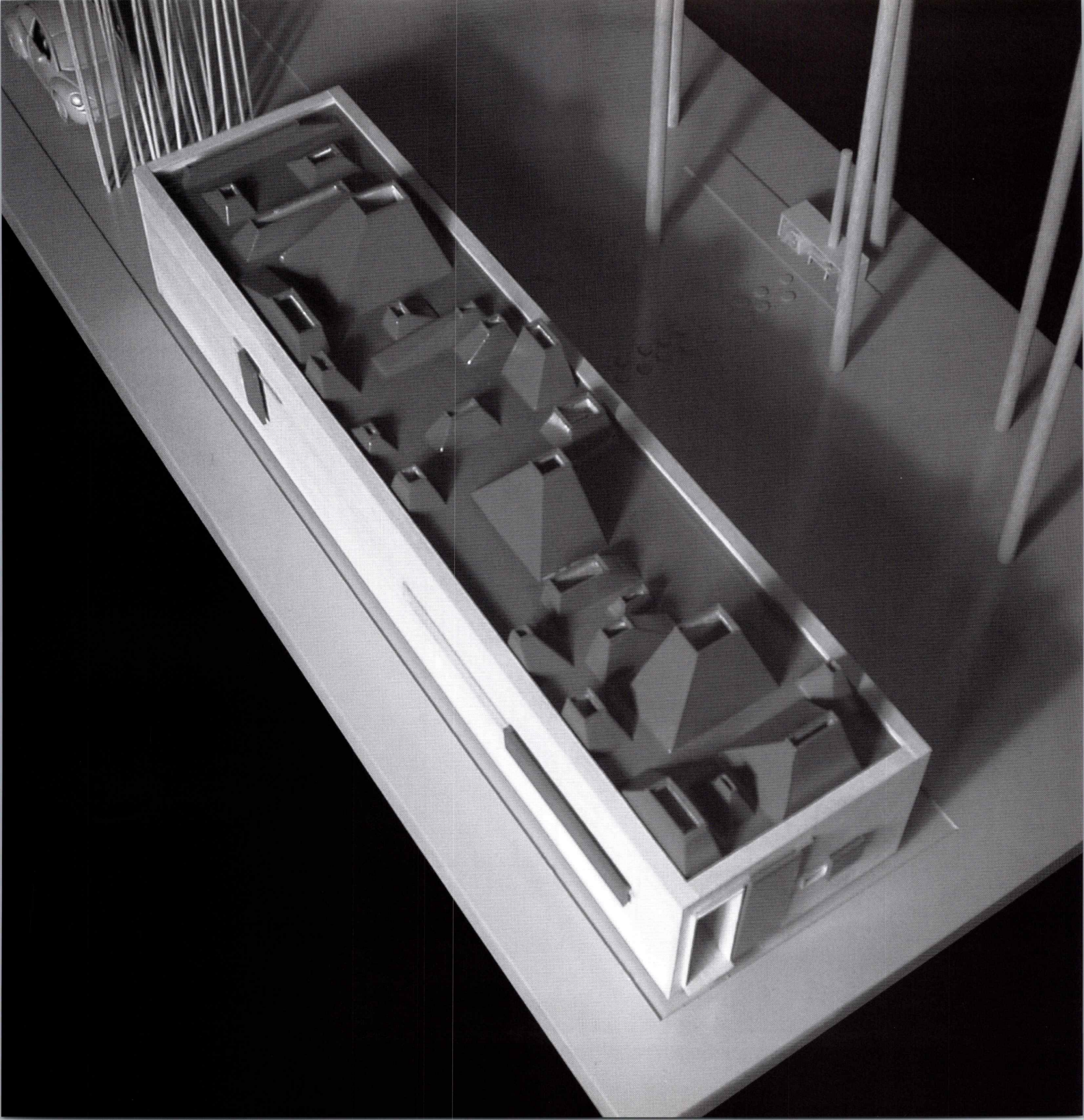
img 12 program house

img 13 gradient house

img 14 constellation house
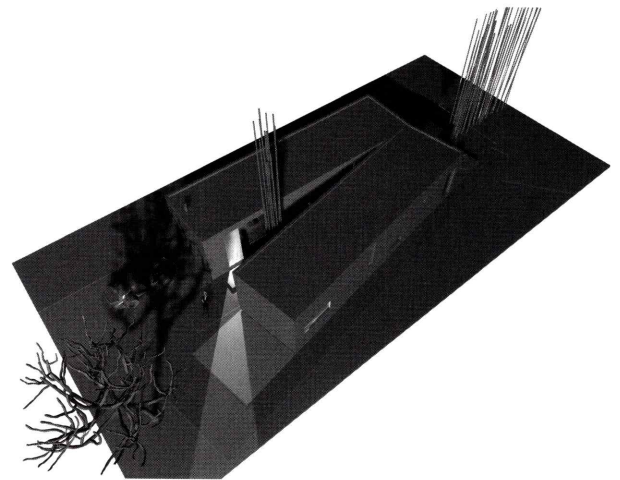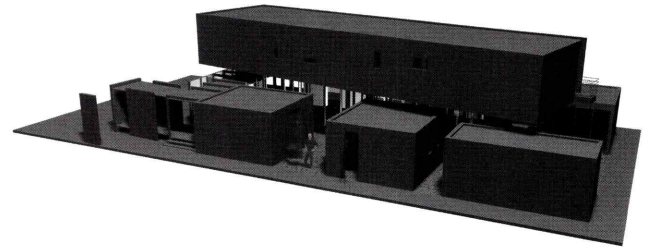
Prospect

Affordable housing and the quality of housing stock as a whole are intertwined community design issues. Through these propositions, the re-inventing of the single-family home provides opportunities for rethinking the origin and evolution of an entire landscape. The insertion of a new model, subscribing to a working methodology that is not based in mimicry but rather in cultural response, all bracketed within the boundaries of the current economic and construction systems, provides an alternative route to the current direction of development. The house becomes a mediator allowing for a redirection of the system.

The reinvention of growth patterns, the evolution of new methods of living and a cultural revaluation of spatial needs and perceptions are on the horizon. Rather than an apocalyptic abandonment of all associations with the current methods, these propositions direct their evolution. Their innate premise remains untouched; even their character relative to many of the existing, governing infrastructures remains practical and quantifiable. The re-appropriation comes through clarifying methods, streamlining construction principles, addressing technological evolutions and taking into consideration the quality of space as governed through light, site, program, material and the formal implications of "everyday" architecture. ◣

Fernando Magallanes: I am interested in this notion of speed and the way society perceives speed, particularly as a landscape architect because we deal with geology; and natural processes take a long time. The landscape is perceived as static, but it's really biologically alive and changing, geologically alive. Yet we live in a society that wants instant gratification. So many landscape architects as far back as the 1930s have been using more man-made elements because they can get more instantaneous landscapes.

Now we're having a bit of division in the discipline, debate about whether we've neglected nature because it takes time for landscapes to develop and grow. But we have to find a way for society to understand and appreciate this type of slowness for it to be relevant. We shouldn't only produce instant landscapes.

Wendy Redfield: What you said about finding a way for society to understand in order to make design relevant is an interesting point. Relevance is a moving target because what's relevant today is not relevant tomorrow. To me that's the whole problem, in a way, with relevance. Relevance is flaky and can be confused with popularity, which is a much weaker idea.

Editor: How has technology and speed affected the disciplines in a positive way?

Denise Gonzales Crisp: Certainly, technology and the Internet make research easier, and information becomes more quickly accessible than it once did. This information can help you understand and absorb the ideas of other disciplines and cultures. But once you have this information, you have to take the time to reflect on it, to digest it, and review it. You have to find the balance between speed and depth because humans have a biological pace far different than that of the Internet. We might be made up of electrons, but we don't read them the same way as computers. We come back to this issue of relating our process to the context of human beings, who are not just an economic unit, not just a user of certain things, but people who love and remember and feel sad and may be engaged and moved by things.

We must remain conscious and critical of how the technology is shaping us, and be willing to step in and shape the technology to be an appropriate interface between humans and the world.

And I would say that humans are the enablers of these technologies. Technology can empower people, and that's a very different way of thinking about how to design the interface, how to interact with technology.

Principles of Good Housing
by Eric Naslund

Eric Naslund, FAIA, is principal and design partner of Studio E Architects, San Diego, Calif. Studio E has been involved in several housing projects that serve low-income and under-served families. Naslund describes what he calls "architectural jujitsu" where Studio E explores the potential of collaborating with non-profit developers to create buildings that are environmentally responsible and urbanisitcally responsive, which enhance everyday living for their inhabitants. While operating as a successful for-profit firm, their work outside of the traditional architect-client relationship has allowed Studio E to pursue a positive, socially motivated agenda, responding to the landscape in which their work is situated and to the clients whom they serve.

So often the design of housing in America is a pro-forma exercise. By this I mean that the making of housing can be a kind of mechanistic process that is concerned primarily with production and costs. The exercise is largely a quantitative one. Housing becomes a kind of product and not a place.

There is no question that the housing need in this country is great—particularly for low-income individuals and families—and making a place for everyone is important. But where does design fit in? How is the architect to be relevant in the making of housing? Is there a place for inquiry and investigation? Can we meet the need while making places of quality and graceful accommodation?

I believe that there is no necessary conflict between strategies of production and insistence on design. It is possible to marry an agenda of humane and livable places with the processes and terms of housing production. To do so requires acceptance of certain realities.

Strategy

The architect must develop an intimate understanding of the means of financing and production of housing, developing the ability to speak the

img 01 Torso Grove:

Set on a leftover parcel near the U.S./Mexico border, Tesoro Grove is sandwiched between a freeway, a pump station and the back side of adjacent properties. In response to this setting, the project is organized around an internal village street that links plazas, common areas and a large community lawn. Buildings form and overlook these spaces to create a continuous and legible public realm. Porches, terraces and stoops give individual units a safe yet engaged relationship with the larger community.

language of the others who play crucial roles in making housing happen. Without this knowledge, the process can be monolithic and unyielding. Knowing the underlying structure allows the architect to investigate and find creative ways to navigate through. Understanding the agendas of the other players allows the architect to graft on and expand the issues of importance. This might be thought of as architectural jujitsu, where the opponent's force is redirected rather than absorbed.

Agenda

At Studio E our redirecting addresses aspects of places we admire and think are important to the making of places worth inhabiting. Some of this redirecting is accomplished with attitude, some by technique and some through pure persuasion. Most of the time all three are employed. In any case, it is important to start with a set of values and principles that are specific enough to be directive while open ended enough to be flexible. Additionally the things that interest the architect should be additive to the agenda of the client. A good architect I know once said that he always gives the client everything he or she wants—and a whole lot more. The "whole lot more" is where we try to open up opportunities.

Redirection is based on seven notions:

Specificity

We seek the idiosyncratic and particular. Generic solutions do not interest us, instead we ground the work in the specifics of place. Most housing design in this country does the opposite, but we have had some success because our efforts are inferential rather than referential. The connections to the context are not literal but still understandable. In one case, citing a suburban community's agrarian past allowed us to use metal siding and stenciled address numbers. Our work rejects generic solutions, grounding itself instead in the specifics of place.

Placemaking

The act of building is primarily concerned with the creation of places for people. Community results from collective spaces that invite shared participation. Our buildings define the public realm, shape open spaces, mark thresholds and create transitions. We start with the open space and put buildings around it rather than the other way around.

img 02 Homesafe:

■ This project explores the co-housing model as a safe environment for women and children fleeing domestic abuse. It is located in an awkward infill site in a blue-collar neighborhood of San Jose. Six shared houses consisting of four suites and shared living, cooking and eating areas are gathered around a communal outdoor space. A daycare and counseling facility stands watch at the "front door" to the site. Careful consideration was given to the creation of thresholds of privacy for the recovering families.

Reclaiming

Most contemporary planning can be characterized by the accommodation of the automobile at the expense of almost all else. Our site plans insist that cars be convenient but contained, balancing their impacts with other considerations. Where possible, parking areas are co-opted for other activities: plaza, grove, marketplace or play yard. We try to design play spaces that allow cars to pass infrequently. The exclusive devotion of site area to move and park cars is a waste.

Alchemy

The chief aim of alchemy—a pseudo-science practiced in the Middle Ages—was to turn base metals into gold. As modern-day architects/alchemists, we embrace the ordinary programs, leftover sites and modest construction budgets of our practice and seek to extract extraordinary and memorable results.

Possibility

We strive to create buildings and public spaces that transcend program to provide comfortable places to live one's life. Ideally, our buildings anticipate and accommodate change, reuse and adaptation. We offer them as "frameworks" to inhabit, as places of possibility.

Energy

We find that buildings that respond to climate are both an environmental benefit and more uplifting places to inhabit. We employ simple, time-honored techniques that reduce energy consumption and connect people to the natural phenomena of their place. In the California Desert, for instance, we reintroduced the ancient technique of wind towers for passive cooling.

Choreography

We arrange paths of movement through sequential or serial space to enhance the experience of occupation. We favor mystery over expediency, preferring discovery through visual contrast, tactility, sound and temperature.
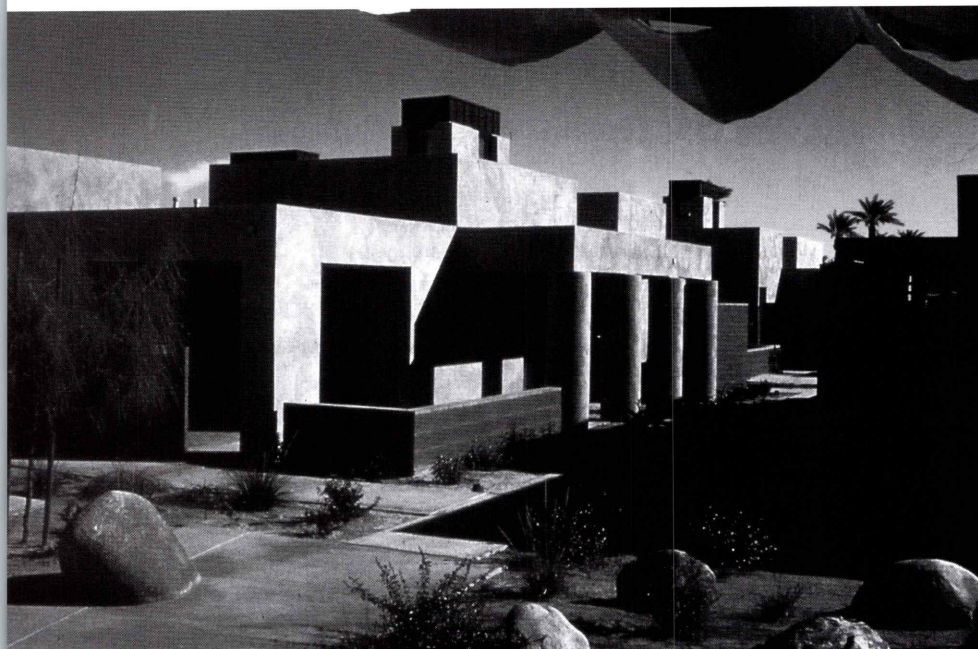
img 03 Orange Place Cooperative

Thirty-two townhouse units stretch along this long, thin site on a small street in Escondido. The units are grouped to form edges and make usable, defined outdoor spaces in the tradition of Southern California's bungalow courts. Like its precedents, Orange Place takes advantage of a benign climate, blurring the distinctions between indoors and out, between private and shared.

img 04 Indian wells Senior Housing

img 05

The design of Indian Wells was guided by two principles: create a cohesive community while employing an appropriate and sustainable pattern of development for the California Desert. The project accomplishes the former by making a continuous connective open space system enfronted by every unit. The latter principle was satisfied by appropriate site layout, careful shading and the inclusion of thermal chimneys. Inspired by the wind towers of the Middle East, the chimneys exhaust hot air and capture prevailing breezes.

thermal chimney

prevailing breezes

hot air vents through transom window

hot air rises along sloped ceiling

cool air enters

cool air enters from breakfast court

cool air enters from outside grotto

shaded outdoor room   living/ dining   bedroom
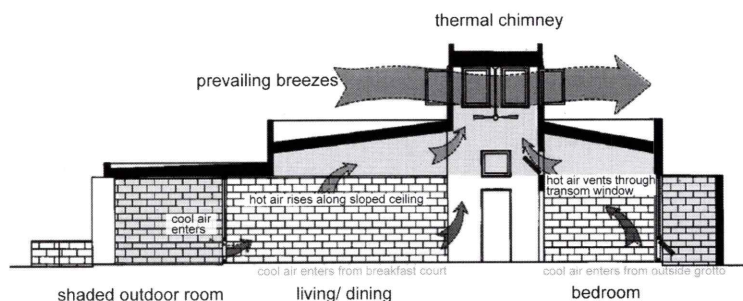
Conclusion

It should be noted that the qualitative aspects of our agenda are not in conflict with the quantitative interests of our clients. The business plan is respected. This is especially important in affordable housing—where we have done most of our work—because these projects need to meet stringent financial constraints and the budgets are skinny at best. The basic assumptions about program, budget and construction technology not only need to be accepted but embraced. What can be challenged is the way these facts are integrated into a design solution.

This is where working with non-profit housing developers has proven to be beneficial. While our clients don't generally come with design aspirations, they do come with open minds. They are responsive to a well-reasoned concept intended to make a better place to live. This openness has allowed us to expand their agenda and build projects that include our notions about what makes for good housing. Now that many of these projects are built and can now be experienced, the for-profit world is now hiring us to do the same for them: a phenomenon one might call "trickle-up". ◣
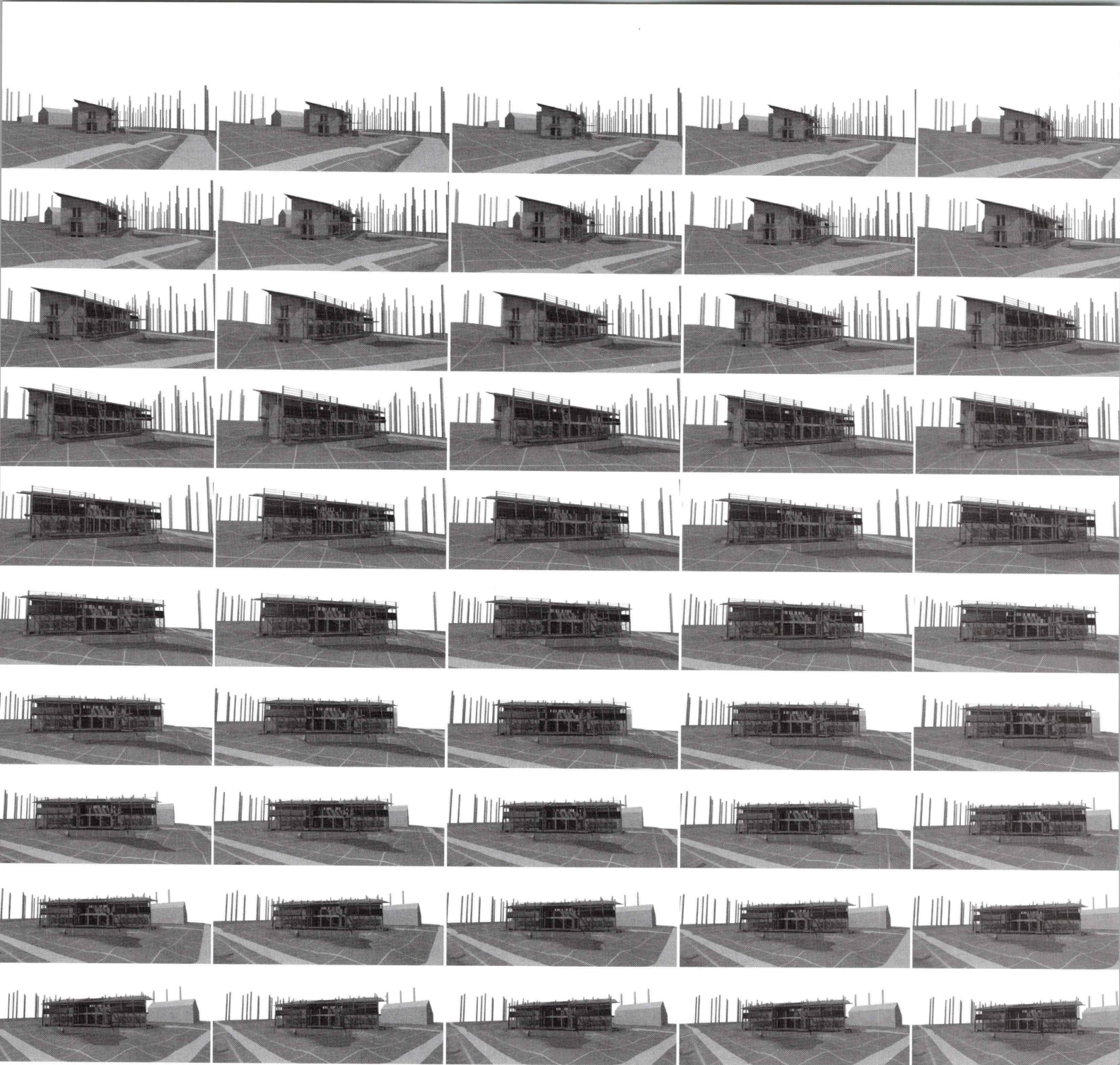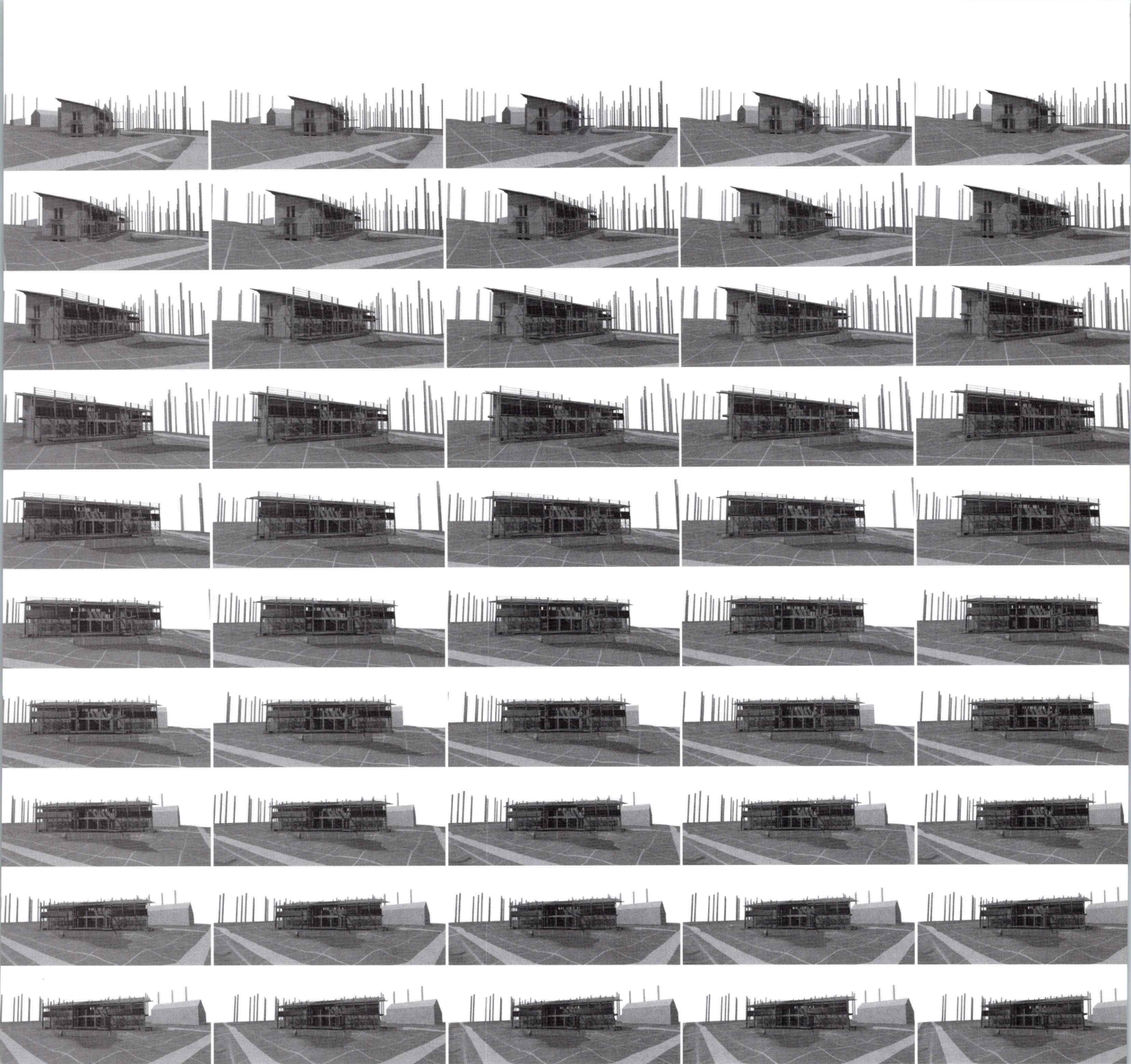
Towards a Green Architecture
by Frank Harmon

Frank Harmon, FAIA, is an associate professor of architecture at the NC State College of Design. Educated at the Architectural Association in London, he is principal of Frank Harmon Architect in Raleigh, North Carolina, the recipient of numerous regional and national design awards.

At the onset of the 21st century, no discussion of the relevance of design would be complete without consideration of environmental responsibility. Although recent awards-based policies have prompted some architects to apply a checklist of environmental performance standards to building designs, Harmon also seeks a more harmonious integration of design quality, environmental responsibility and the history of a place. As Harmon explains, designers have the opportunity to create buildings that mediate the natural elements without the use of excessive energy. Such environmental responsibility demands sensitivity to the climate of a region, appropriate application of local materials, and thoughtful placement of a building on its site. Harmon points out that if architects consider the lessons of generations past, they will discover buildings that not only use less energy but are also more delightful places to inhabit.

Since the Industrial Revolution in the 1800s, architects have firmly believed in the power of technology to solve environmental problems. Architects solve problems of lighting, heating, cooling and ventilation of buildings mechanically. We no longer deal with heat and humidity by opening the windows. Just the reverse: we close them up tight and crank up the AC. As post-Industrial Revolution architects, we have "transformed nature" by creating artificial environments, what the critic Reyner Banham called the "architecture of the well-tempered environment."

Ironically, buildings built prior to the Industrial Revolution were very much in balance with nature and solved problems in a very natural way: buildings were smaller and, consequently, used less energy; windows opened; construction materials were indigenous to the area in which they were used. Today, instead of solving environmental problems, architecture creates them. Our buildings use over 50 percent of all energy created in the United States, consume one-third of all the trees that are cut, and siphon 25 percent of the nation's fresh water. As a result, today's architects are searching for more high-tech ways to use less energy. Yet to make our 21st century buildings more environmentally responsible, we should not only look toward technol-

ogy, but we should start looking backward to lessons we can learn from pre-Industrial construction.
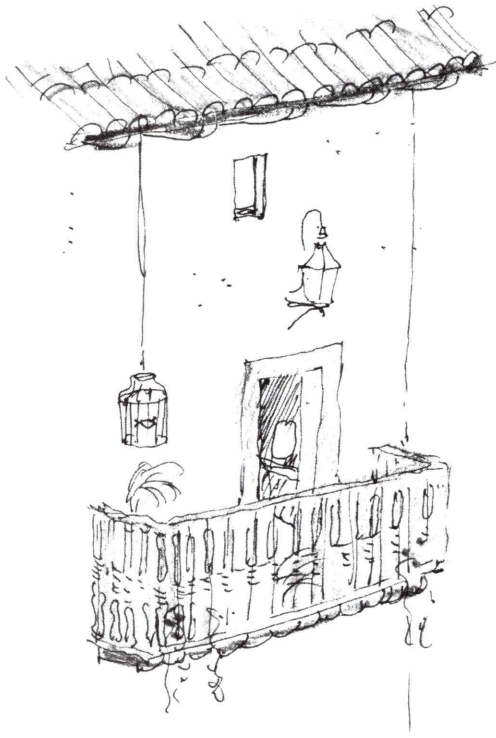
Speaking of pre-Industrial—on an August night several years ago, my wife and I drove to Taxco, a silver mining town on the central plateau of Mexico. We got lost on poorly marked mountain roads, swerved to miss a truck while driving in a thunderstorm, and arrived at our hotel at 2 a.m., shaken and exhausted. The night watchman showed us to our room, where we collapsed, barely noticing our surroundings.

At dawn, however, we awoke to discover sunlight saturating the whitewashed adobe walls of our room and illuminating a roof made of gnarled tree trunks. Outside our room, a terrace overlooked the town of Taxco. And from that vantage point, we could see thousands of adobe houses which seemed to grow from the hillside, melting into the rocky hills outside the town.

Fastened to the terrace wall were several green glass bottles of the sort we throw away every day in the United States. Someone was growing vines in the bottles, obviously caring for the plants each morning. We felt at home in this place, in contrast to the frightening night on the road leading to it. In Taxco we were surrounded by the

sort of people who turn old bottles into something beautiful—such a simple but human gesture, which held us together like the gentle architecture resting on the hills, or handprints in the adobe walls. Life was sustained by this decent place.

How is it that the town of Taxco, so simply constructed of sticks and mud, can have such profound emotional impact? I've heard Taxco referred to as "picturesque" and "ravishing." And I believe that what underlies its beauty are three quite elemental principles, or qualities: deference to the land, respect for simple, indigenous materials, and careful use of energy. The people who built Taxco understood these principles. Those who live there today still do. And these three principles—indigenous materials, energy conservation and responsible land use—are universal concerns for architecture today.

Sticks and Stones

Why do most of the ancient buildings we admire so much seem so naturally rooted to their places? Because prior to the Industrial Revolution, buildings were made of materials that were available close at hand. We instinctively respond to the limestone buildings that rise
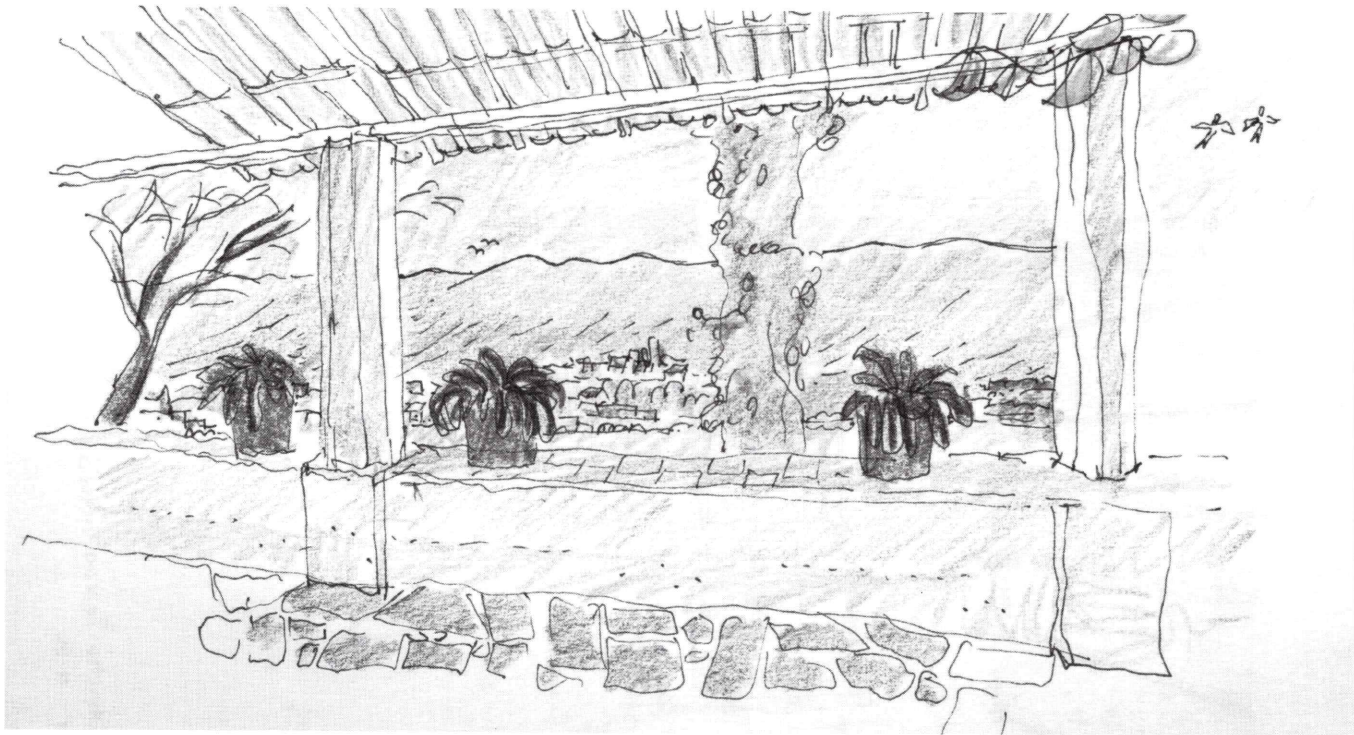
on the rocky plateau of Avignon, France. In Mexico, houses of woven twigs neatly plastered with mud are deeply moving. We feel the same kinship to materials in a log cabin, made from the very trees above it that shade its roof.

Yet in 2004, we build quite differently. The architect Glenn Murcutt creates houses sublimely connected to the land of Australia, yet he then uses sunscreens built in Norway and fireplaces imported from South Africa. When I built my own house in North Carolina several years ago, I was surprised to see a truck arrive at the construction site piled high with steel roof beams manufactured in Texas. How strange that a roof for my house, so carefully designed for the climate of Raleigh, came from 1500 miles away, nearly in Mexico.

It was at that point, I believe, that I began to think locally. For an outdoor classroom on the Scuppernong River in Tyrrell County I specified Atlantic white cedar, the same trees growing next to it in a black water swamp. Atlantic white cedar has been used for generations in eastern North Carolina to make shingled houses and shrimp boats because of its strength and resistance to rot. The classroom's contractor, however, wanted to use western red cedar from British Columbia, 4000 miles away. It was cheaper, he argued. But, I countered, using a local

material would reduce the pollution caused by transporting the red cedar and encourage the growth of sustainable forests nearby. If the forests are nearby, we'll be encouraged to take good care of them. Besides, who wouldn't want to create a building in eastern North Carolina that is as familiar and friendly as a shrimp boat?

Taxco is built of mud, sticks and the fronds of palm trees. Its buildings show the marks of their making like a clay pot shows the fingers of the potter who formed the bowl. Since the Industrial Revolution, we have become detached from our environment and alienated from our built structures because we can't relate to how they are made. Yet I believe that, just as we feel a kinship to the maker of a handmade clay pitcher when we pour water from it, architects can evoke a shared physical world if we design and construct our buildings by adhering to those three simple principles so evident in that little town in Mexico.

Energy

We are engaged today in a war on terrorism. If we are not to be victims of this war, we need to accept responsibility for it. Part of our
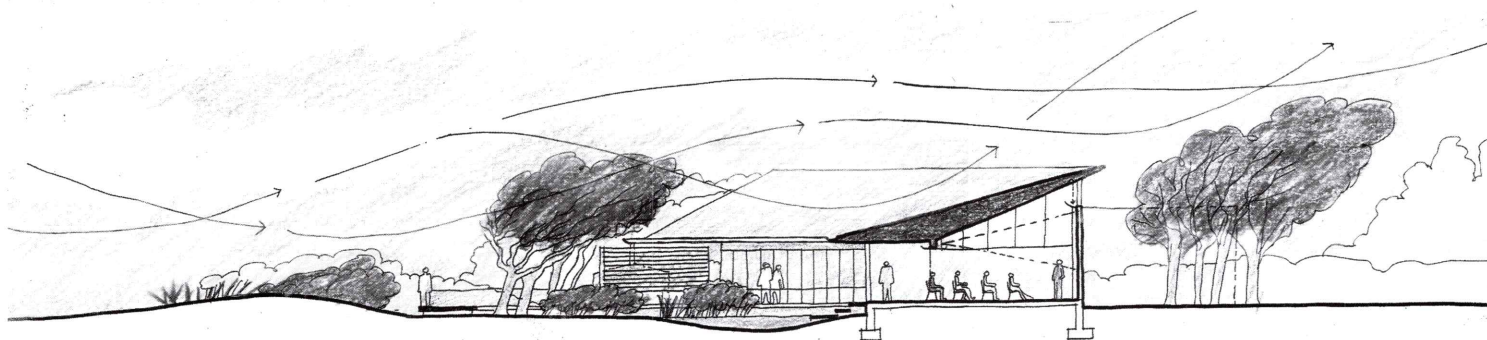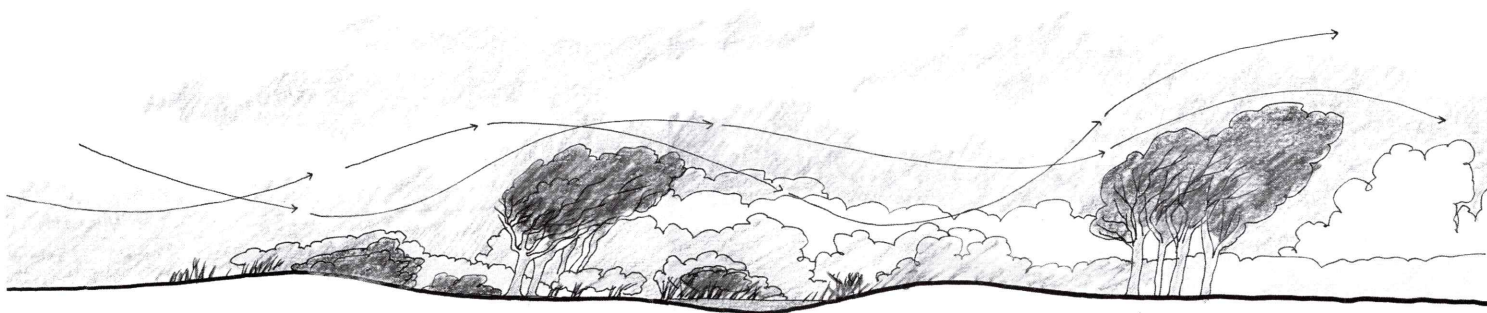
img 01 terrace overlooking the town of Taxco

img 02 series illustrating the building form as it is shaped
by the natural environmental conditions
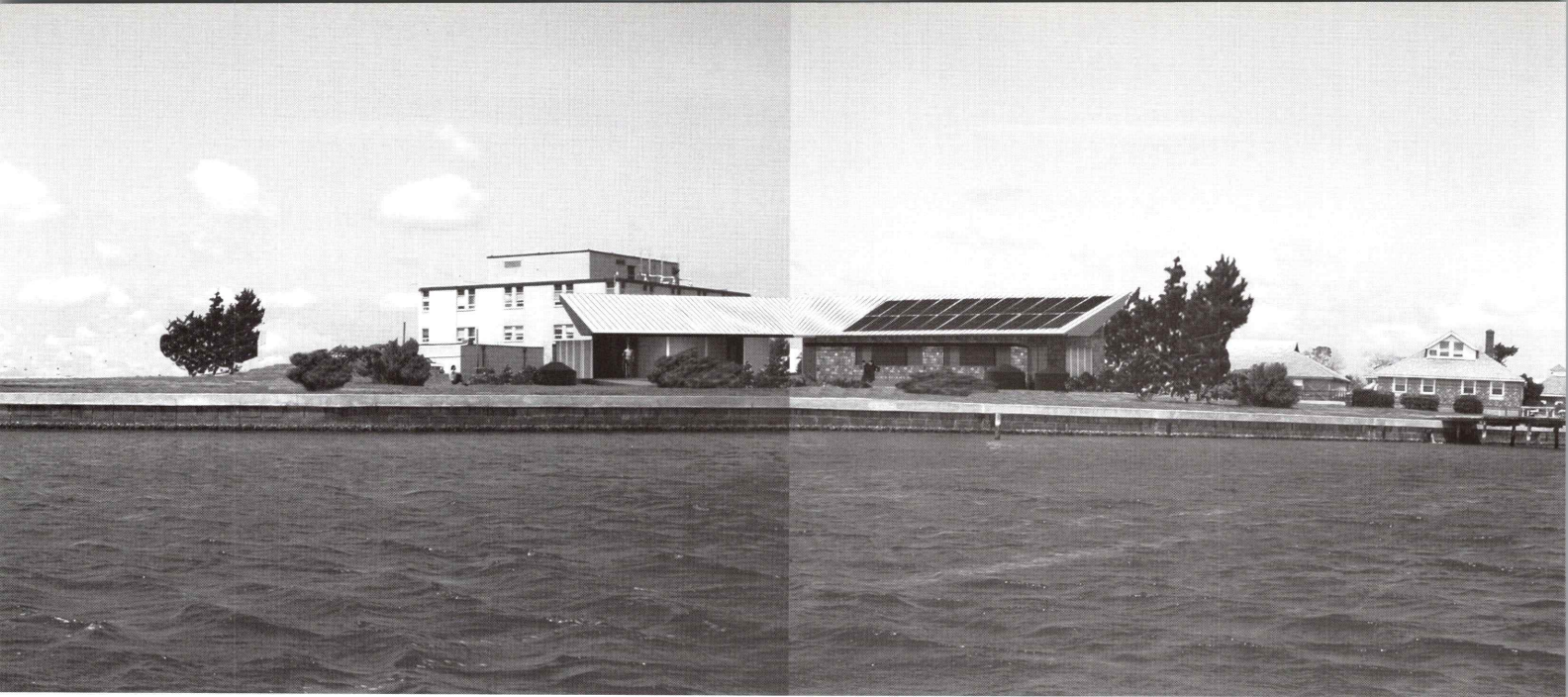
img 05　OSTC: entrance from campus

responsibility is our profligate use of energy in the United States and the extraordinary resources we expend to get that energy for our buildings.

If we must turn to technology to conserve energy, we will find it available. Photovoltaic cells on rooftops, for example, can convert the warmth of the sun into electricity, lighting the rooms below. Geothermal wells placed in the ground below a factory or office can use the constant earth temperature to heat and cool the workspace. My office is currently designing an Ocean Science Teaching Center to be located in Beaufort, North Carolina, where for two centuries traditional buildings have collected the ocean breeze by facing into the wind. Our building faces into the wind also, and with geothermal wells, a photovoltaic rooftop, and a wind turbine it will generate all the energy the center needs for lighting, cooling, and laboratory equipment. The teaching center will use 50 percent less energy than a normal building because its windows open to porches that shade the walls and catch the southwest summer breeze.

Of course, buildings that conserve energy cost more to build. The Ocean Science Teaching Center will cost about 15 percent more than a conventional building. But compare that to what it costs for our military to make oil safe for SUVs. The science center will pay for its extra cost in less than five years. How long will it take to replace the trees that are being killed on our Blue Ridge Mountains from pollution from coal-fired power plants?

For many people, energy conservative design is synonymous with thick walls and small windows. "Efficient" buildings mean boring buildings. Yet nothing could be farther from the truth. Sustainable design doesn't mean bland design. Look at the old houses of Charleston, South Carolina, to see what I mean. Charleston's original planter families wanted their brick mansions to recall English country houses. Before long, however, they noticed that their slaves were more comfortable in the hot, humid summer than they were. Modeled on African houses, the slaves' cabins had porches and were one room deep, allowing the evening breeze to flow through the structure. Unlike the brick mansions, those wood cabins didn't hold the heat at night. Thus the Charleston "single" house evolved: one room deep with porches opening to walled gardens. And they are as desirable and comfortable today as they were then.

In Taxco, thick adobe walls temper the hot summer sun and release it into the rooms at night when the air is cool. As we learn to use energy more wisely, the air around us will be fresher and cleaner, and we'll want to open the windows.

Mother Earth

If we could point to one single thing that has had the most profound effect on the landscape as we know it today, it would have to be the bulldozer. Where once we had only mules and shovels to move earth, now earth-moving machines flatten hills, fill valleys and clear forests for building sites. We are just beginning to realize the harm bulldozers have caused. In North Carolina our rivers and sounds, the second greatest estaurine system in North America, are dying—and not because of lost wetlands or storm run-off from Wal-Mart parking lots. The destruction of forests, which slow and absorb the rain, is killing this estuarine system.

In Taxco, the building sites were made by man and donkeys. Each rock ledge and declivity inspired creative building because the earth could not be moved. As individual as the houses are, the town's landscape enjoys a unity akin to a vine growing over rocks.

In the South, rural fields contain houses and barns built of flimsy materials, yet they seem as at home in their place as cows standing in a meadow. Farmers, not architects, designed and constructed these houses and barns, yet today we cannot build as well as those farmers, who were forced to respect the land and the natural landscape without benefit of bulldozers.

I believe that we, as architects, are ethically challenged to design and build in such a way that enhances the land—that makes it better than the way we found it. And I'm not arguing for a retreat from technology, but, rather, for a more profound use of it. So how can we, in the age of the Internet, air conditioning, and photovoltaics, create the sense of wonder found in a thatched hut in Mexico? Good architecture lives in complicity with our senses. Ultimately, architecture is measured by simple things, like sunlight sparkling in a coffee cup. For architects, the act of building should be an act of caring. By building sustainably, in the words of the late Sam Mockbee, "What we build are shelters for the soul as well as houses for our bodies."
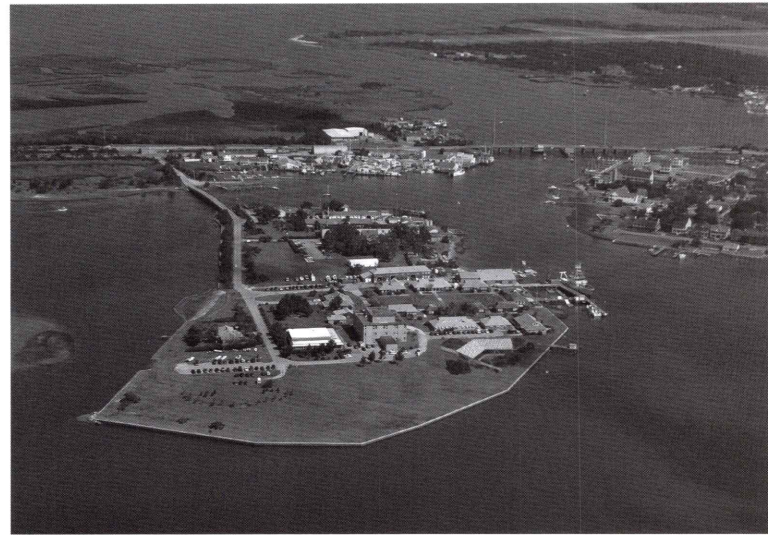
img 06 OSTC: Piver's Island North Carolina
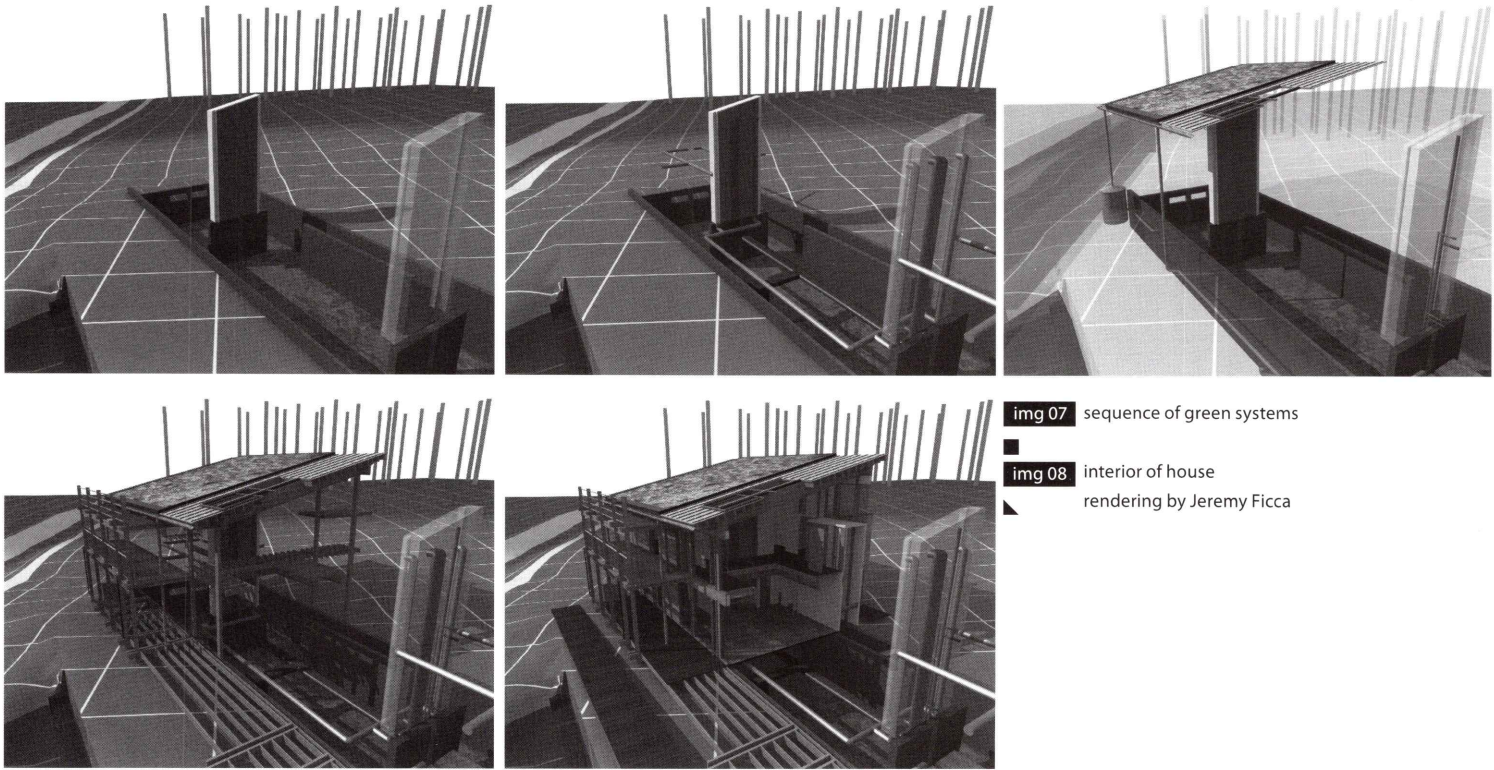
Green Project Case Study:
DELTA (Duke Engineering Living Technology) Smart House

The Duke Engineering Living Technology (DELTA) Smart House will serve as both a house and as a testing ground for eleven engineering students from the Duke University Pratt School of Engineering. Students will monitor the mechanical and electrical systems, as well as use the house to conduct their own experiments to develop "smart" innovative environmental building technologies. As a "living laboratory," the DELTA Smart House offers students a unique opportunity for hands-on engineering experience outside of the classroom. The DELTA Smart House also demonstrates to the community the potential of living in a "smart" house that is both energy efficient and in harmony with its environment.

Green Systems Technology

The DELTA Smart House is a south facing building designed as a simple, flexible shell onto which various green technologies such as photovoltaics, green screens and rainwater cisterns can attach to by way of an access rack along the south side of the building.

The roofing system of the DELTA Smart House will feature a vegetated roof, solar hot water panels and a retractable skylight that allows natural light and fresh air into the two-story courtyard below.

The plan is comprised of open spaces on both floors ideal for public activities, with lab stations interspersed throughout. These spaces are flanked by the sleeping areas, separated from the public spaces by a functional core. This core includes bathrooms and "smart" walls, which are accessible vertical chases containing plumbing, mechanical and some electrical equipment that supplies the entire house. The perimeter walls of the house and the ceilings on the first floor are equipped with removable panels that allow students access to utilities for monitoring and adapting various technologies over time.

The site will collect all of its storm-water runoff and store it in a bio-retention pond that will act as a natural filter for the runoff before it is absorbed back into the earth.

The DELTA Smart House will create a bold, personal and interdisciplinary environment for research and education through living. ◣

The Relevance
of Relevance

Paul Tesar

A native of Vienna, Austria, where he studied architecture at the T.U. Wien and received the professional degree "Diplomingenieur," Paul Tesar, Ph.D. has practiced in a number of offices in Vienna and Lugano, Switzerland. Tesar is a professor of architecture at the NC State College of Design, and his present teaching, research, and scholarship centers on an understanding of architecture as a public and social art. With his following examination of relevance, Professor Tesar continues work first explored in his dissertation, examining the work of the philosopher Alfred Schütz for its applicability to architectural theory, and proposes a theoretical basis for the possibility of intersubjectivity in architectural expression. Through an examination of both current and historical precedent, Professor Tesar supports the power of relevance in the practice of architecture, and its essential place in contemporary culture.

"Form is a language, and that language should be intelligible to us: we yearn for intelligibility and therefore for expression. Part of modern anxiety is due to the lack of legitimate expressiveness, because we are surrounded by secretive things that deny us the communion that we think should naturally appear in the work of man in space." [1]

Eladio Dieste

Introduction

This expression of serious concern, stated by the great Uruguayan architect Eladio Dieste a few years before his death in 2000, proposes an idea that must strike many among us as a peculiar anachronism in today's aesthetic climate: that architectural expression actually could have—no, should have—something like a moral dimension, a dimension that transcends the secrecy of architectural expression. This secrecy could result either from a predominantly private, subjective and idiosyncratic "language" (if that is not an oxymoron), or perhaps from a muteness that resides at the opposite end of the spectrum, from a neutrality and interchangeability of form that is devoid of content, meaning, or passion. Both have the potential to deprive us of the intelligibility and legitimate expressiveness of architecture, either because we don't understand what is there, or because there is nothing there to be understood.

Dieste's first concern, that "part of modern anxiety is due to the lack of legitimate expressiveness" (my emphasis), may be rooted in part in the convictions that inform his own architecture. He was a master of reinforced masonry construction, and a kindred spirit to such architects as Pier Luigi Nervi and Felix Candela. The architectural expression of their buildings, based on an inherent logic of structure, material and construction, seemed to leave little to the volition of the designer, if we define it as a form of unlimited freedom of the whims and vagaries of an ego. It offered instead much for the creative spirit to be discovered within the depth of a language of matter, and challenged the imagination to find ways to make its hidden inner beauty apparent to our senses.

But it is the second assertion, that "we are surrounded by secretive things that deny us the communion that we think should naturally appear," that interests us primarily in the present context. It seems to proclaim something like a basic human right to architectural expression that is naturally relevant and engaging, without a need for theory to understand any secretive code that informs it. Dieste is not talking about beauty, or taste, or appeal—connections to things that are always at least partially subjective—but about something more fundamental: that any expression of architectural form will never have a chance to affect us if it does not reach us first. He is talking about

something like the moral imperative of relevance, the soil from which all these other qualities and potential relationships grow.

Relevance and Experience

Imagine going to a concert or a theater performance and as we listen to the music, or watch the play unfold, we start to feel that what we hear or see does not seem to interest us, that our attention seems to be wandering to other "irrelevant" things in our immediate surroundings. We start to wonder whether we have not made a mistake in attending this performance at all, because it does not seem to be addressed to us, or to what we care about, that we somehow seem to have landed in someone else's world.

What we experience in a situation like this is not so much an issue of like or dislike, of approval or disapproval, of agreement or disagreement, but rather a kind of indifference that arises from a sense of disconnection. In the realm of aesthetic experience even feelings of aversion, disagreement, or rejection, arise from a relationship—in this case simply a negatively colored one—and are as such a constructive part of the give and take of living. Apathy and incomprehension, on the other hand, point to the exact opposite, the lack of any "communion". Aversion or disagreement is the result of a confrontation, a

form of encounter. It is loaded with directed energy, it can be developed and transformed, sometimes even into its opposite. Apathy and unintelligibility, by contrast, are dull, lifeless, and empty. They are the consequence of the fact that something has remained inert and has not passed that all-important threshold of relevance, the entry gate to our being.

Relevance—the condition that something connects with us and a given matter at hand, that it affects how we think, feel, and act, or simply that we care at all—is probably the most fundamental screening device of human experience. Things and events in our life that do not pass this threshold literally "do not exist" for all intents and purposes, at least not for us. We filter them out and ignore them, and they remain obscure and unimportant. They may be "there", but they do not enter our world.

Why do we need such a filter of selection and discernment? We need it because it protects us from the overwhelming amount and complexity of information in our environment, in other words from sensory and cognitive overload. The limited capacities of our central nervous system, our mind, and our memory simply do not allow us to register, to remember, and to "process" everything that exists and occurs around us. The vast majority of what potentially would be there for us to perceive and to attend to bounces off and remains in the dark. The selective spotlight of relevance directs our attention to things that matter, that have significance for our condition, our existence—and, more immediately, for "the situation at hand".

Relevance also arises from the fact that experience in the present does not occur in a vacuum. We have no other choice than to experience all "new" experiences in the natural context of our past experiences, particularly experiences with similar things or situations. What we know and remember helps us makes sense of what we experience now—of what use would it be otherwise? Our memory of past experiences is projected into the present in the form of expectation and, if met, allows us to deal with something in an expected and routine way. Being able to do this at least some of the time liberates our limited energy and capacity to attend to situations that require all of what we have to give: to that which we didn't expect, to that which surprises us.

Clearly we need a mix of both, the familiar and the new, in our experience. A world consisting predominantly of familiar things would lack sufficient stimulation, would be too comfortable to keep us alert, would soon become predictable and boring, and perhaps even prompt us to rebel against it with random and irrational acts to create artificial challenges. Too much newness, on the other hand, would have the opposite effect: unable to cope with a constant onslaught of new information we would start to feel confused and perhaps even threatened. We would feel disconnected from our surroundings not because we are lulled into boredom, but because nothing would seem to connect with anything we know. We would have to disengage ourselves from our surroundings to protect us from information overload and react with apathy. If too much familiarity disconnects us because there is no need to pay attention, too much newness disconnects us because we don't have enough attention to spare.

We should remember that such notions as the familiar and the new, expectation and surprise, habit and originality, convention and creativity, the ordinary and the extraordinary—all manifestations of a ground-to-figure relationship—are best thought of as word pairs, because one concept cannot really be defined without the other. The figure becomes invisible without the ground. Thus the ground always will be

the dominant part, and if the figure of the surprising somehow grows into the expected, a situation we seem to be facing with increasing frequency today, then (what used to be) expectation simply turns into surprise—there is no escape from this. Ludwig Wittgenstein once put it most succinctly and humorously this way: "When I came home I expected a surprise and there was no surprise for me, so, of course, I was surprised." [2]

Relevance and Architecture

Relevance is not a fixed relationship, but one that changes with our situation. What is relevant at one time may not be at another, what is relevant to me may not be relevant to you. If this is true then it raises the legitimate question why we should bother with the problem of relevance in architecture at all. How could we possibly know what is relevant to whom? Architecture does not have a known "audience" to address. Architecture tends to survive its clients and users, whose relevance-predispositions we might be able to ascertain, and typically exists in the public realm, where it is experienced by a broad cross-section of humanity. The "audience" of architecture, if there is such a thing at all, is essentially anonymous and unknowable, and the relevance of architectural expression therefore cannot be specific. Architectural expression, if it should choose to do so, cannot relate to

you or to me specifically, but only to "us" generally and typically: to our shared frames of reference, to our shared memories, to our shared humanity, to the fabric that establishes the communicative community that binds us together above and beyond all of our differences, specific interests, and individual identities.

There are further things to consider regarding the problem of relevance of architectural expression. In distinction to most other arts, architecture typically occupies public space, which makes it not only the most public but also the most unavoidable of all the arts. While we choose our contact with other arts, architecture, as a constituent part of our everyday experience, imposes itself on us, all of us, regardless of whether we know or don't know, whether we are interested or not. Other arts select their publics to a much higher degree—their audiences tend to be informed and interested, in other words usually equipped with prior specific knowledge, interpretive motivation, and therefore a certain predisposition for relevance—which is not the case for architecture. Architecture rarely is experienced as a "framed thing", like a painting in a gallery, a sculpture on a pedestal, or a musical or theatrical performance—a "framed event". We typically encounter architecture as a quotidian reality and most often will not honor it with our focused attention, to stop to figure out, or even to decipher, what it is, what it means, let alone what the architect might have meant.

Nothing could be further from the truth. We will either perceive it as naturally relevant, pertinent to our situation and comprehensible with the interpretive equipment we bring to it from our past, or we won't.

Architecture, unlike the "purer" and "finer" arts, like music, poetry, or painting, is also typically tied to a utilitarian substrate, which becomes the first and inescapable context for the relevance of its expressive ambitions. It is not just an art; it is the art of building. As such the products of architecture normally do not belong to the artist, as would be the case with a (non-commissioned) painting, poem, or piece of music. Whatever else the products of architecture may be, they are also the outcome of a professional service, which has legal and ethical responsibilities not only to the client, for whom relevance may be given prima facie, but also to the public at large. Like the professions of medicine or law, which cannot see themselves only as hired guns for the interests of a patient or a defendant in a court case, but also as advocates for the public interest in health and justice in general, architecture as a profession has similar responsibilities vis-à-vis the public realm, a fact that should impose some degree of restraint to the liberal pursuit of personal and private interests of the architect or a client.

Finally architecture, by design or by default, builds the stage for our communal, social, and public life, as it happens in public spaces and public buildings—it is a public art. More than any other art it has the opportunity to express, to make tangible and comprehensible, the values and aspirations we share, the ideas that should last, the ideals we believe in. For some, like Dieste, this opportunity seems to be tantamount to a mandate, a moral imperative. Relevance of architectural expression is not a luxury, but a necessity, if architecture as a discipline is to remain a relevant part of public life, an ambition that is increasingly covered up by other priorities in recent architectural production.

Relevance and The Building of Art

Imagine a wreck that resulted from the crash of a stealth bomber, an express train, and an ocean liner, with dismembered triangular airplane wings, jackknifed railroad cars, and the hull of a sinking vessel with twisted scraps of metal jutting into the air. **img01**

This calamity happened, of all places, in the suburbs of Klagenfurt, a quiet and charming provincial capital in the mountains of Austria. But things are not always what they seem. This monstrous pile of artfully composed high-class rubble of uncertain provenance or purpose turns out to be nothing more than the administration building of a local bank. It is a relatively recent creation of Morphosis' Thom Mayne, one of the brightest stars in California's architectural sky, whose building has afforded this small European country the opportunity to finally free itself from the architectural backwoods.

The first thing that strikes one about the building is that it seems to be at pains to avoid any horizontal or vertical lines, and particularly those wicked trappings of all conventional architecture, the right angles between them. It can't be quite consistent in this respect, of course, because the floors of offices and the shafts of elevators still seem to prefer horizontal and vertical planes, but they are cleverly hidden behind a precariously tilted façade of perforated sheet metal, perhaps to express the internal drama of an office building where people shuffle paper and stare into computer screens all day. Needless to say, the building does not even faintly resemble anything in its suburban surroundings, a fact that has to be noted as a definite advantage in a place that could be mistaken for the typical American mumble-jumble of faceless shopping malls, franchise restaurants, gas stations, and parking lots.
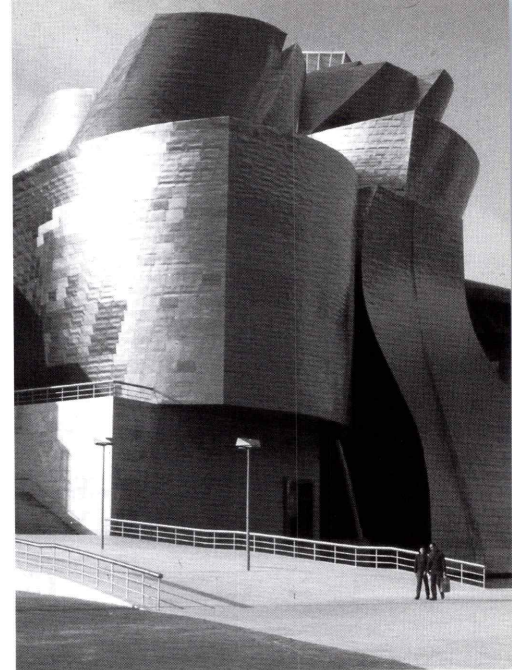
img 02

img 03

img 04

How did this thing get there? It was the result of a limited competition, which the architect won fair and square, albeit with the help of somewhat like-minded peers who seemed keen on setting a precedent that would legitimize their own exploits of a similar kind. The composition of the jury was no accident, because the bank, savvy to the public relations possibilities of such a building, invited mostly architects of the, at the time very popular, "deconstructivist" persuasion.

I am not sure why a bank would look for an architecture that uses "rural and urban topologies" to create a "reconstructed fragment of rural topography…representing the seismic shifts of tectonic plates" [3]—a concept that seems to be equally applicable for this bank in Klagenfurt as for another architect's architecture school in Cincinnati—as a far-fetched excuse for a structure that presents an apt image of the almost chaotic complexity and instability of a contemporary world devoid of meaning or purpose. Or to put it another way: one wonders what would compel a bank to accept a design ideology that regards it as one of its tasks to soil the all-too-comfortable nest of conventional society and its capitalistic consumer values, the kind banks generally depend on and seek to promote. The executives of the bank, who must have made the final decision to go ahead with the project, seemed to like it simply because it was "provocative", "progressive" and "dynamic",

img 05

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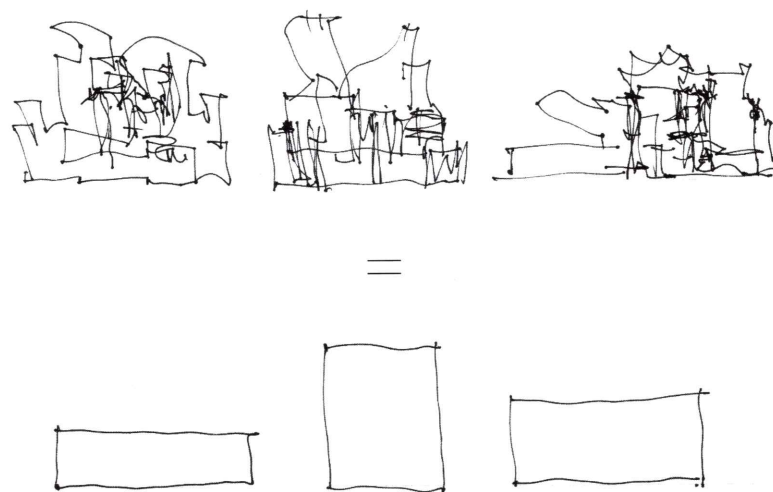
without understanding, or perhaps even caring, about any of the architect's theoretical motivations and underpinnings. Concerned mostly about marketing prowess, they just wanted a building that would knock everybody off their feet—topology, seismic shifts, deconstruction, or whatever.

One of the pioneers in this trend of a sanitized avant-garde in the service of the establishment is another frequent architectural export from California, Frank Gehry. Admired for his ability to produce a constant flow of highly unusual shapes, many looking more or less like huge pieces of crumpled aluminum foil, he now is asked to drop his trademark titanium-clad wads with great regularity in cities all around the world. Their rather similar outside appearance seems primarily determined by the mysterious anatomy of his mind, rather than by such trivial aspects as the particulars of site, use, material, or building type. The Frederick R. Weisman Museum on the campus of the University of Minnesota in Minneapolis, one of his earlier attempts at this idiom, is really no different than one of his more recent, the Guggenheim Museum in Bilbao and several others in between. **img 02,04** He has become the unchallenged master of the mass production of unique items—with the degree of uniqueness from one instance to another about the same as from one wad of aluminum foil to another—and somehow manages to have each of them celebrated as a major creative breakthrough by the media who are economically dependent on a steady supply of stunning images that look good on the printed page.

What both of these relevance—challenged buildings have in common is an ingenious principle: they seem to be based on a formal language of "universal relevance", which can be applied, and has been applied, with minor variations, to just about any imaginable building type or site, because it is essentially arbitrary and has nothing to do with either. But universal relevance, it turns out, is actually nothing more than universal irrelevance in disguise, and as such neither morally nor aesthetically superior to, let's say, designing all buildings in the form of shoeboxes. **img 05**

A notable exception to this idiom is Gehry's "Fred and Ginger" building in Prague, **img 03** which actually responds rather well to its urban context on a prominent corner along the Vltava river, and sports an architectural likeness of America's favorite dancing couple. But one cannot be quite happy with that building either. While whimsical and perhaps even funny, I am afraid it will suffer, in the long run, the fate of many one-line jokes: they are amusing once or twice but not a thousand times over, which is how we experience a building in the course of everyday life in the center of a large city. But more importantly regarding the question of relevance: how did Fred and Ginger ever get to Prague? What do

they have to do with Czech culture, with that city, with that site, with an apartment/office building? Does the architect pull such themes at random out of a hat?

Architecture seems to have the peculiar license to make a bank look like a crashed airplane and get away with it, while an aeronautical designer could hardly decide to make his plane look like a bank and expect it to fly. Architecture is by its very nature less defined by necessity than technical objects tend to be, and it consequently leaves a lot of room to the volition of the designer. Architecture's notion of design is freer and more akin to an applied art, than to how an engineer would conceive the term. This freedom has recently been amplified by technical innovations in building materials and rather sophisticated computer programs, and has put us in a position to conceive, draw, design, and build just about anything we want to. But the very fact that we now can do almost anything should concomitantly pose the question of what we should do with ever more urgency. Freedom includes the freedom to abuse freedom, and therefore requires more vigilance on the part of the architect, if architecture is not to deteriorate into a purely subjective and arbitrary form of self-gratification or sink to the level of amusement park entertainment, a kind of restraint architects like Mayne and Gehry, as well as their clients, apparently are not prepared to exercise. They are blazing the trail to transform architecture from "the art of building", as we have known it for millennia, into "the building of art".

So what's wrong with architecture as built art, even if it is the designer-label kind? Would we not rather have the Maynes and the Gehrys build these buildings—architects with talent, even if misguided at times—than watch some mediocrities put up clunkers? Should we not be happy to have some certified works of art in our midst, rather than further additions to the standard ooze of built stuff that surrounds us? Should we not be grateful to them for attracting a lot of attention to architecture, for fueling the public debate to the benefit of the discipline and the profession as a whole?

Well, yes and no. Yes, I would rather have these buildings than some mediocre conventional ones, given that choice, but we should remember that there is an awful lot of territory between the two and that most good architecture will be found there. What bothers me about them is their sheer subjectivity and willfulness, their inaccessibility and incomprehensibility without the benefit of "the code" to decipher them, their identity as isolated, autonomous things, their lack of participation in, and contribution to, urban space, their aesthetic anachronism—don't they remind us of what the Russian Constructivists and the Cubists did decades ago?—masquerading as avant-garde, and particularly their blatant inarticulateness. If architecture once was characterized as "frozen music" (by both Schelling and Goethe), then this is architecture as it artfully moans and groans, shrieks and squeaks, bashes

and smashes and crashes. For thousands of years architects have struggled with the aesthetic question of "appropriate form", a term that implies a concern for relevance. Now it seems to be enough to be arbitrary, as long as one is consistently arbitrary in a personal and recognizable way.

Relevance and The Art of Building

In this context I have to agree with an important distinction Adolf Loos, the enfant terrible of Viennese turn-of-the-century avant-garde architecture, made in 1910. Perhaps at least partially in response to the public criticism of his controversial apartment building on Michaelerplatz in the historic center of Vienna, his austere protest against the vapid historic eclecticism of his time, **img 06** he proclaimed:

> "The building has to be liked by everybody. This is in contrast to the work of art, which does not have to be liked by anybody. The work of art is a private matter for the artist. The building is not. The work of art is brought into the world without a need for it. The building satisfies a need. The work of art is responsible to no one; the building is responsible to everyone. The work of art wants to tear people out of their state of comfort. The building has to serve comfort. The work of art is revolutionary; the building is conservative. The work of art shows mankind new directions and thinks of the future. The building thinks of the present." [4]

While it may not be exactly a matter of being liked by everyone, and leading architecture to the lowest common denominator, Loos seems to underscore architecture's responsibility toward the public realm, which it both occupies and defines. There it becomes one of the many building blocks of the city and an inevitable element of our shared experience. Unlike art, which we can choose to consume or to avoid, public architecture imposes itself on us and thus cannot be just a matter of the architect's or a client's desire for idiosyncratic expression. Unlike art, its language cannot be simply proclaimed or invented at will. People were shocked by Loos's building not because they did not understand what it meant, but exactly because they did. The "Looshaus" is a good example of architecture as "the art of building" because it is eager to participate in the built culture of the city. It uses an idiom that makes it comprehensible as what it is (an apartment building on top of a store) and is highly site-specific. In spite of the radicalism of its architectural expression, which can be best appreciated if one compares it to its contemporary neighbor to the left, **img 06** it accepts the lot lines of the block, the levels of the adjoining cornices, and the square with its buildings as givens. It does not just use the surroundings as an incidental backdrop to offset its own difference, it responds and contributes to the whole, works within an established expressive system, stretches the language of architecture, as it was understood at the time, but does not abandon or replace it. Even in his most provocative buildings Loos saw architecture always as a public and collective, and not primarily as a private and subjective form of expression. As much as Loos used writing for the exposition of his ideas, he hardly ever used it to explain his architecture. He did not have to. The challenging and provocative relevance of the external appearance of many of his buildings, often in stark contrast to their internal sense of comfort, was obvious.

This is perhaps where part of the problem lies today. Many of the best artists of our time have become increasingly disenchanted with, and even cynical about, our culture. They seek to either distance themselves from it and withdraw into an iconoclastic realm of their own making, or reflect it in an expressively heightened form to hold a sort of mirror up to the rest of us.

Gehry is of the first kind. He is a cheerful iconoclast who simply invented his own brand of an architectural language, with about as much chance for communicative success as a man who would invent his own verbal language and hope to be understood: we would hear the sounds but no meanings beyond them. But that does not really matter in Gehry's case because his shapes have no ambition to "say" or to "mean" anything. They just exist—and glitter. In this respect they seem similar in spirit to Christo's recent "Gates" project in Central Park in New York City in February of 2005. This temporary site-specific installation of several thousand saffron-colored fabric-clad frames creates a magical transformation of a familiar environment. **img 07** It entertains and delights us and then prefers to be relegated to our memory—the magic would wear thin very quickly if it were a permanent presence. Similarly, when Christo wraps buildings he takes the wrappers off after a while to reveal the familiar building underneath. Many of Gehry's buildings seem to be driven by a similar desire to be an "event", albeit a perennial one, like celebrating Christmas every day. He leaves his wrappers on forever, because he could not take them off, even if he wanted to. There is no building under the wrapper. The wrapper is the building.

Mayne and Morphosis, on the other hand, seem to belong to the second kind. Their (de)compositions, no matter how they are (post facto?) justified by the architects, reflect the complex and contradictory spirit of our time, which may lead them to the colliding, jarring, tumbling, fragmented—and beyond these basic gestures largely incomprehensible—forms of their buildings. But unlike a work of fine art, which could afford to be disquieting, disturbing, or even horrifying, architecture can do no such thing. Architecture is not just a commentary on life, it is life. Thus what is most disturbing about Mayne's architectural commentary on our disturbing times is that he makes it an aesthetic end in itself and beautiful to look at.

But a miraculous fate has befallen the architectural avant-garde of today. Far from being scorned and rejected—the perennial badge of honor of those who used to sacrifice their economic success on the risky altar of the cutting edge—contemporary built art, the more "avant" the better, seems to be finding its way into the mainstream with amazing ease. Popularized and even glorified by media, the avant-garde has been successfully transformed from its traditional role as a thorn in our side into a highly desirable entertainment and marketing commodity, mainly because businesses, cultural institutions, and cities alike have discovered the tremendous earning potential of architectural spectacles as destinations. Gehry's Guggenheim museum in Bilbao, for example, has been a ringing commercial success and is a star performer in the rapidly growing branch of the travel industry called "architectourism". Never mind that most people don't have the faintest idea what all the impressive flailing of shape and space is all about. It is enough that it is different, interesting, loud and brash—and that everybody is talking about it.

Conclusion

Perhaps one of the worst consequences of the recent popularity of architecture as the "building of art" is that it has found an army of lesser talents ready and eager to imitate the successes of the stars with predictable results, and that it has created havoc in many architecture schools around the world. It shifts the debate away from confounding cultural, social and ecological issues, where it should be, to purely aesthetic ones, where it has been far too long. It reinforces the worst stereotypes of great architects as lonely and misunderstood heroes at the cutting edge of culture, as "Promethean Creators", as some starry-eyed journalists would have it. It makes us talk more about what can be done, than what should be done. It causes us to forget that the true task of architecture is not to entertain us with the hypertrophies of the corporate culture, which increasingly includes the corporate culture of "culture" as well, but rather—as Lewis Mumford has put it so aptly—to build "a home for man", which is to say not just to reflect the crazy world in which we live, but to find ways to resist it and bring it back to its senses.

Developing a certain reverence for the power of relevance might be a good place to start. Consider Dante Alighieri's wonderful metaphor, somewhere in the eighth or ninth circle of Hell in his Divine Comedy, as a "lake of ice". Metaphors, understood as instruments of under-

standing and insight, equate something with something else that we commonly would not think of in the given context. They render the subject under consideration in a fresh and poetic way, jolting us out of our habits of perception and thinking. They make us look or listen up. Metaphors depend on a certain degree of tension between "frame and focus", with our conventional expectations of hell being the frame, and the "lake of ice" the focus in Dante's metaphor.

The success of Dante's metaphor depends in equal parts on the fact that he could count on certain conventional notions of "hell" in our heads, as he could count on our familiarity with icy lakes. He also had the correct intuition that these two notions, while perhaps baffling at first sight, can be brought into a relevance relationship with one another. The two concepts are sufficiently far apart to create tension, but not so far apart that a connection would become impossible.

Suppose Dante would have instead called hell an "astruc" or a "broom". He certainly would have gotten our attention, but for the wrong reasons and with no results. In the first case no original insight, no transformation of our consciousness would be possible because nobody knows what an "astruc" (an arbitrary word without meaning) is. In the second case no expansion of our idea of hell would occur because the two concepts—hell and a broom, no matter what connection the author might see there—are too far apart for us to link. Much like some of the attention-grabbing buildings addressed above, they would be in their own way irrelevant and therefore remain mute and inert.

In literature, in architecture, and in life in general, relevance is the bottom line. Without it not much of what we do really matters. ◣

[1] Dieste, Eladio. (1992). Estetica y diseño. Trazo, Magazine of the *(Montevideo) Center of Architecture Students,* November 1992, 55-56.

[2] Wittgenstein, Ludwig, (G.H von Wright, ed.). (1980). Culture and Value (p.45). Chicago: The University of Chicago Press

[3] Text quotes taken form Morphosis website.

[4] Loos, Adolf. (1962). Sämtliche Schriften (p.314-315). Wien: Herold Verlag.
Note: This passage is taken from from Loos's 1910 essay Architektur, contained in a collection first published in Vienna under the title Trotzdem in 1930. The translation is mine. The German word "Haus", which Loos uses in this passage, has often been incorrectly translated into English as "house", as in Kenneth Frampton's essay The Architect as Master Builder in Roberto Schezen's (1996) book Adolf Loos: Architecture 1903-1932 (p.15). The German word "Haus" has two meanings: "house", as in English, and "building". The "Looshaus" is not a house but an urban apartment building. In the quoted passage Loos is not talking about "houses" but about buildings, i.e. architecture, in general.

General references on the topic of relevance:

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Images:
*img 01: Hypo Alpe Adria Zentrum, Klagenfurt (Photograph: Morphosis)
img 02: Frederick R. Weisman Museum, Minneapolis (Photgraph: Paul Tesar)
img 03: "Fred and Ginger" Building, Prague (Photograph: Paul Tesar)
img 04: Guggenheim Museum, Bilbao (Photograph: Frank Harmon)
img 05: Illustration by Paul Tesar
img 06: Apartment Building Michaelerplatz, Vienna (Photograph: Paul Tesar)
img 07: "Gates" by Christo, New York 2005 (Photograph: Frank Harmon)*

In Closing

NC State's College of Design is a collection of five design disciplines: Architecture, Art and Design, Graphic Design, Industrial Design, and Landscape Architecture. In a college of such diversity, it seemed appropriate that the focus of *The Student Publication* would be broader than that of many other Design publications. And although each of the editors for Volume 31 is a graduate student in the School of Architecture, each has a background outside of the Design disciplines: one in English, one in Art Studies, one in Art and History.

In keeping with our subject, we felt that the process of creating a publication about relevance would be as important as the final product. We wanted to do more than create a publication of seductive projects and sleek images. Two interdisciplinary forums were held during the early planning stages of the publication to glean ideas from the within the College of Design community. Professors from each discipline were invited to participate in an open forum to discuss the topic of Relevance in order to provide insight into their respective disciplines through their professional and personal experiences. Excerpts from these forums can be found throughout the publication.

NC State University College of Design
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The College of Design wishes to thank the following donors for their generous support of *The Student Publication* Campaign. Without their commitment we would not be able to revive this important publication.

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vol 32
Preview

The true strength of any artifact such as the Student Publication lies not only in its ability to record the immediacy of the surrounding Design dialogue, but also in its ability to help pave the pathway for future dialogues and discussions within the Design community.

With the revival of *The Student Publication* in 2003 came the need for reflection and recollection—the need to evaluate our future course by first documenting the past. Volume 30 became a timestamp that recorded the Design benchmarks within the 20th century while building a foundation for future discussion as we enter the 21st century. This second installment of the revived publication has then addressed the timely question regarding the relevance of Design; knowing that first, one must reestablish the focus back to the designers, and their existence as a measurable, necessary, and significant force in society. This volume provides a transition into the new century, for it has graciously taken on the responsibility of surveying our changing landscape, taking into consideration the addition of one of the greatest advances in design technology—the personal computer. As this publication has proven, Design is, has been, and will, remain relevant within the minds of those who choose to embrace the possibilities it poses for the future.

With the past and present condition of the 21st century now recorded, the need to embrace the future is both imminent and apparent. The intent of Volume 32 of *The Student Publication* is to focus on the necessity of Designers to embrace this new future without hesitation and without apologies, yet always with a sincerity and respect for the opportunities the past has created.

In 1909, the poet Filippo Marinetti initiated the well-known literary movement of Futurism with his manifesto *Le Futurisme*. This manifesto, among many others written, was a definitive call for revolutionary, collaborative action from all artists in the fields of architecture, art, dance, music, and the graphic arts. The discussion on new advances in industrialization and technology had reached a new pinnacle, resulting in numerous debates concerning man's relationship to (and reliance upon) the machine. Similarly, with our reliance on the computer (as a machine? as a tool? as our Designer?) and the world-wide-web, we find ourselves grappling with these same questions. What is our relationship to these objects, and how has their dominance effected the direction of the Design professions?

Volume 32 of *The Student Publication* will follow in the approach established by the Futurists, by first embracing the exciting new possibilities that this technology can bring. While we must always be mindful of the abuse, misdirection, and callousness that new technologies can create, we must not allow ourselves to be crippled by our own unwillingness to change. This volume argues that even with the changing landscape, design has relevance. The celebration of these changes, the desire for originality, and the embrace of new technology now must be admired and sought.

And in so doing, a "New Futurism" may be discovered.

Jason Toth
Editor, Volume 32
The Student Publication of the College of Design