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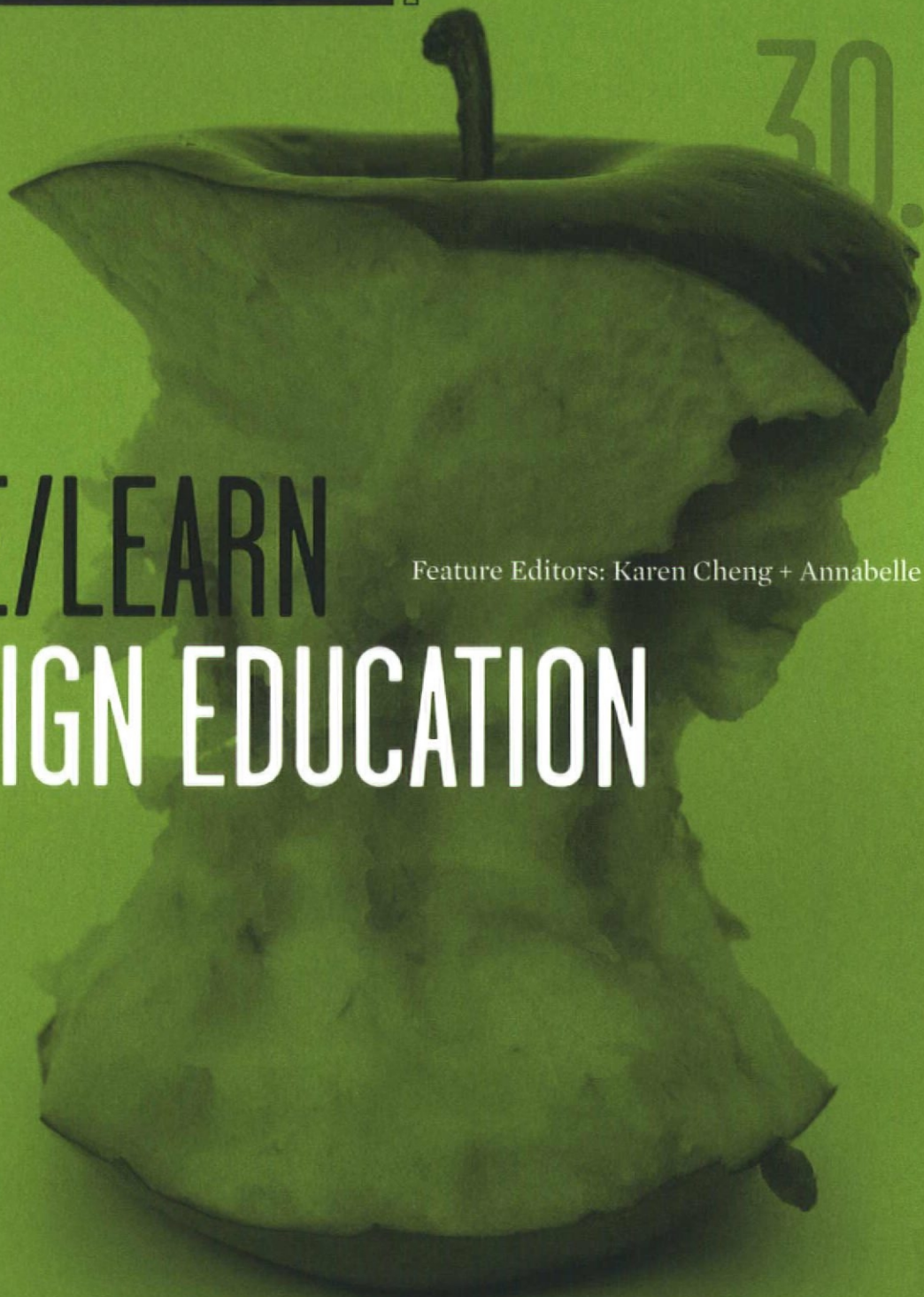

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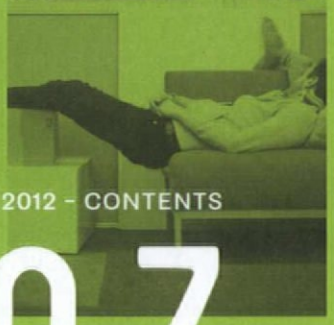

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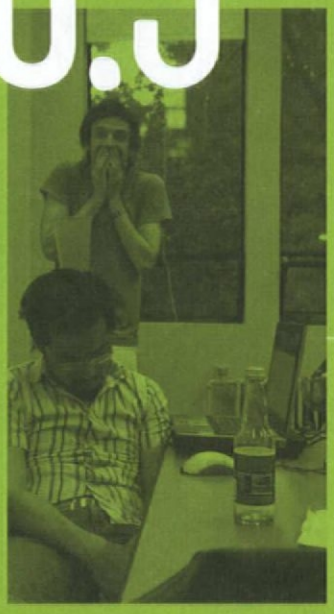

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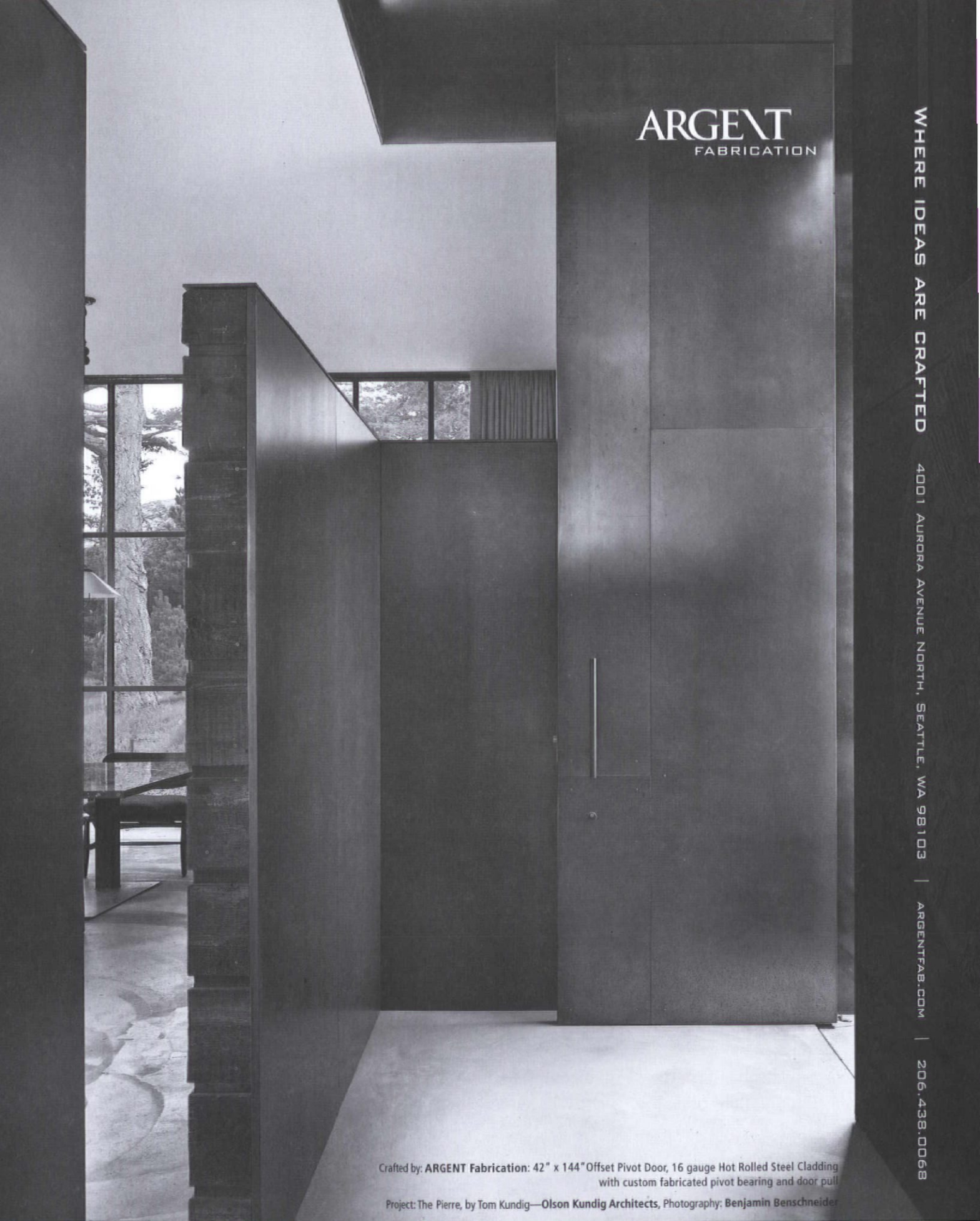

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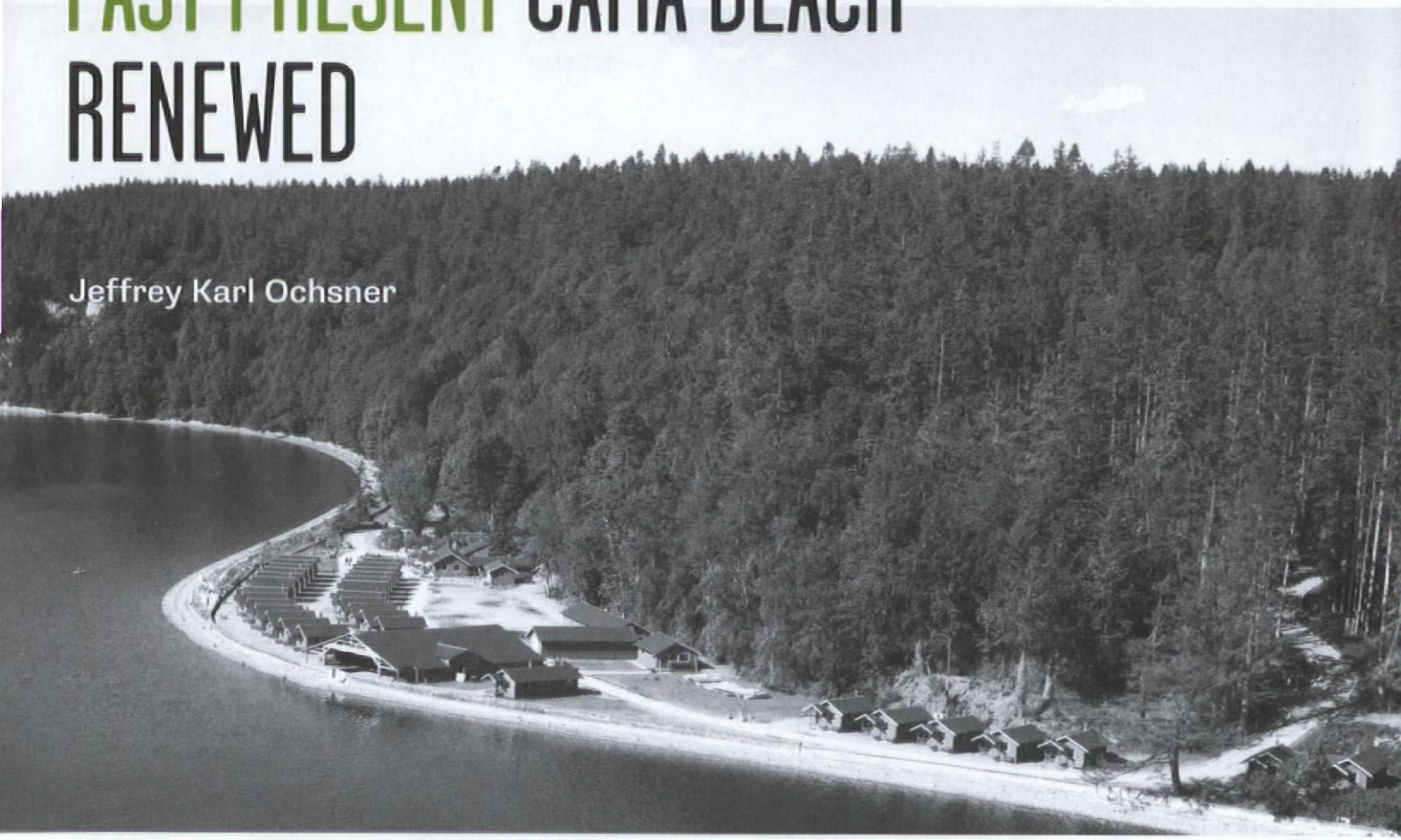
PAST PRESENT CAMA BEACH RENEWED

Jeffrey Karl Ochsner



Historically, resort communities followed a regular annual cycle. Summer, with long days, warm weather and abundant sunshine, was the busy season, with summer residents, vacationers, day-trippers and seasonal staff. In winter, days are shorter, and resorts usually closed; the part-time staff returned to school or other jobs, and activity seemed muted. Often appearing to be a period of rest, winter was also the time when repairs were made and preparations were begun for the following season.

The Northwest has been the site of many such annual cycles, though today it can be difficult to imagine the character of early Puget Sound resorts.

It was not until the 1920s that the state's road network reached many coastal communities. The development of rustic family resorts soon followed. These resorts typically provided small, low-cost cabins or tent areas, cooking facilities, small stores and boat rentals. Larger resorts might also offer organized activities. Vacationers would often bring or purchase fishing gear, rent boats and easily learn to catch the still-plentiful fish. In the 1930s and 40s, Puget Sound was dotted with such resorts. Camano Island alone likely had 14 or 15 and possibly as many as 20. Today, just one of these survives: No longer privately owned, Cama Beach Resort is now Cama Beach State Park.

The resort dates to the 1930s. LeRoy Stradley, a Seattle businessman, acquired its 434-acre site in 1933, and by May of the next year, Cama Beach Resort, with forty cottages, boat sheds, a store, bath house and recreation hall, was open for guests. After Stradley died unexpectedly in 1938, management was taken over by Muriel and Lee Risk, who kept the resort going for the next 50 years. Many guests came every year; some stayed a few days, others a few weeks or even a month. It was a place to get away from the city, to get out on the water, to see old friends or make new ones.

In the 1960s and 70s almost all such Puget Sound resorts disappeared. The original owners aged, land values increased and fish populations declined. At the same time, many people bought their own campers and boats, others built second homes, and air travel brought many more destinations within easy reach. After 1964, Cama Beach was the only such resort that survived on Camano Island.

Cama Beach Resort closed in 1989. A year later Muriel Risk died, and her family faced the question of what to do. Other resorts like this had disappeared—would Cama Beach be any different? In 1991, the heirs had their first discussions with the Washington State Parks Commission, initiating an extraordinarily complex and challenging multi-year process of transferring ownership of the resort by donation and sale, creating Cama Beach State Park.

Once the transfers were completed, the project moved through planning, design and construction. The planning team, which was headed by Atelier ps and included Larson Anthropological/Archaeological Services, completed the park masterplan in 1997. Maintaining the historic character of the site was central to the masterplan. Visitors to the park leave cars in new parking areas outside the historic district and modern amenities (including sanitary sewer, water, power and fire suppression) are hidden from view. Parametrix led the team responsible for masterplanning, site layout, overall engineering and design, and construction administration; architect Mark VanVliet designed the new entrance and buildings near the parking area, as well as restoration of the historic resort cabins. Leavengood Architects designed the new retreat lodge/dining hall. Florence ("Flo") Lentz prepared a National Register nomination for the resort; it was listed in 2000. Groundbreaking for construction took place in 2002, but most construction was delayed until 2006–2007. The grand opening of the new state park occurred in June 2008.

Today, Cama Beach includes 33 rehabilitated waterfront cabins. The 24 "standard" cabins are arranged in two rows along the shoreline looking out to Saratoga Passage; seven "deluxe" cabins form a separate row slightly to the south, and two bungalows are to the north. The cedar interiors have been refinished and amenities like electric heat and lights, refrigerators and microwaves have been added to accommodate contemporary expectations. Volunteer quilters made over 100 quilts and window coverings, and volunteer woodworkers made furniture for the historic cabins. North of the cabins, rehabilitated structures include the park office and store. The historic gas pumps in front of the store are no longer used; as envisioned, parking is now concentrated atop the bluff, leaving the cabin area relatively free of traffic. Between the standard and deluxe cabins is a large boat shed, dating from 1950, now home to a branch of Seattle's Center for Wooden Boats.

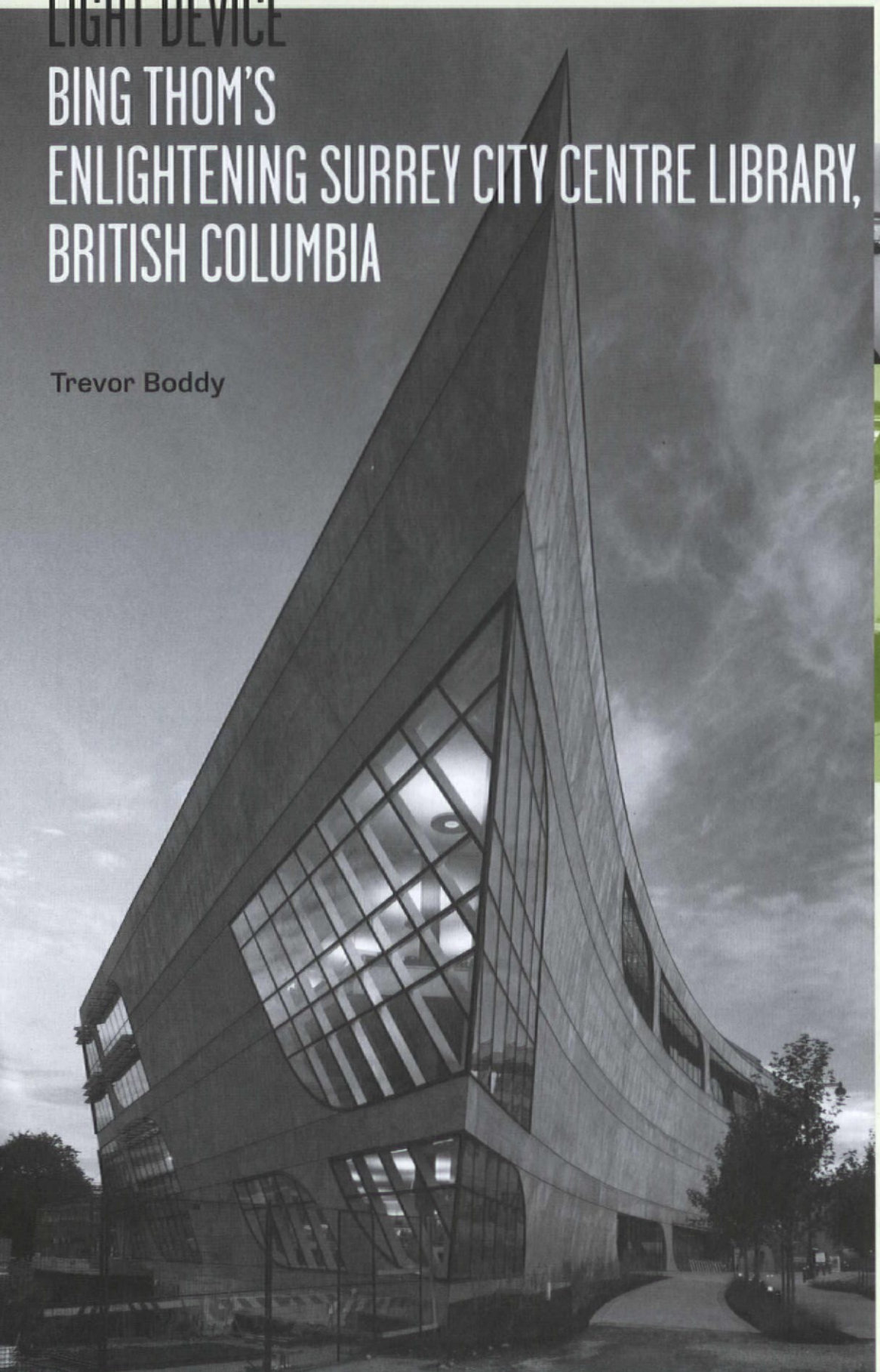
The phrase most often used to describe Cama Beach is "time capsule." In this sense, it represents a preservation project of the best kind. The buildings have been updated, yet the experience is of a time gone by that captures for us a simpler time in the life of Puget Sound. ×

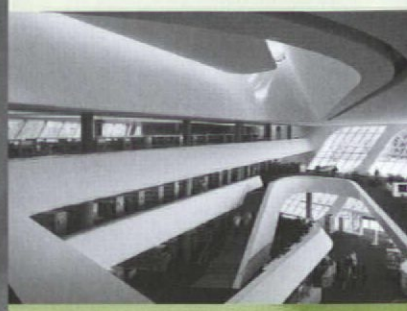
JEFFREY KARL OCHSNER is a professor in the Department of Architecture and Associate Dean in the College of Built Environments at the University of Washington. He thanks Flo Lentz, Mark VanVliet and Damon McAlister for assistance with this article. The story of how Cama Beach Resort was preserved and transformed into Cama Beach State Park is told in the book, *Cama Beach: A Guide and a History*, by Gary Worthington, published in 2008.

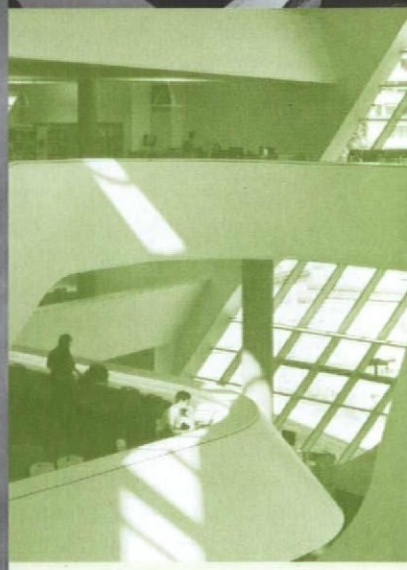
← Photo: Washington State Parks and Recreation Commission ↑ Photo: Parametrix

LIGHT DEVICE
BING THOM'S ENLIGHTENING SURREY CITY CENTRE LIBRARY, BRITISH COLUMBIA

Trevor Boddy

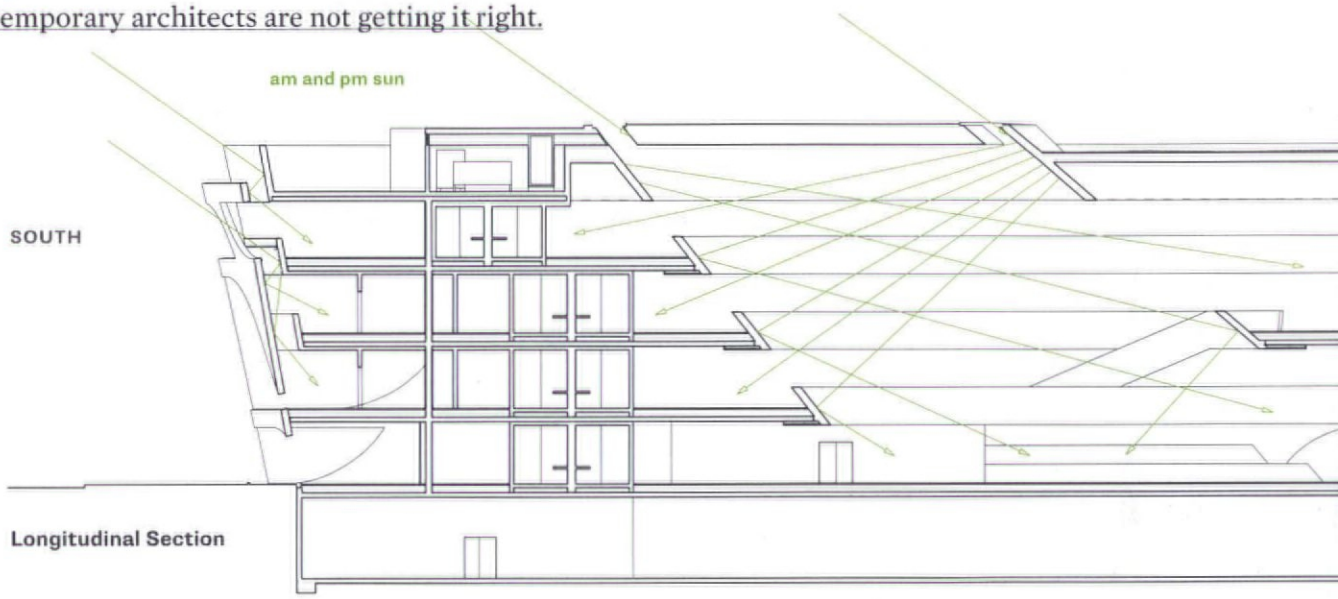






Photos: Nic Lehoux, courtesy of Bing Thom Architects
Drawing: Courtesy of Bing Thom Architects

To say Bing Thom's new central library for the Vancouver suburb of Surrey is obsessed with light is an understatement. This entire 82,000 square-foot building is shaped around its day-lighting strategy, its curving walls, angled windows and vaulted skylights reaching upwards and outwards to pull in a surprisingly even cast of light to every corner and every one of its four floors. Ensuring no portion of the stacks, reading rooms, classrooms or generous public spaces are without light in all seasons required a variety of techniques, enforcing the complex truth that fuller integration of daylight into buildings means using a range of devices, not only a single techno-fix—a key reason many contemporary architects are not getting it right.



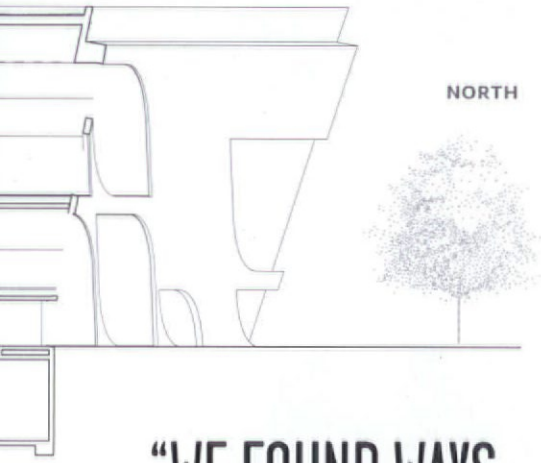
Longitudinal Section

Glare and steep contrasts of lighting levels are to be avoided in libraries. A crucial strategy here was to admit very little direct sunlight into the $36 million library—light is bounced, buffered, diverted and diffused. According to Thom, those few careful deployments of direct light in his design are like highlights of colour on top of a "ground" of impasto illumination: "We found ways to paint with light." The most dramatic of these is the ringed skylight, an ovoid donut oculus whose mullions cast patterns of shadows that track daily across the central atrium, enlivening it. There is an angled reflector around the north rim of the oculus ring, directing light back into reading areas, but only 5% of the roof's area is open to the sky vault in order to minimize nighttime energy loss.

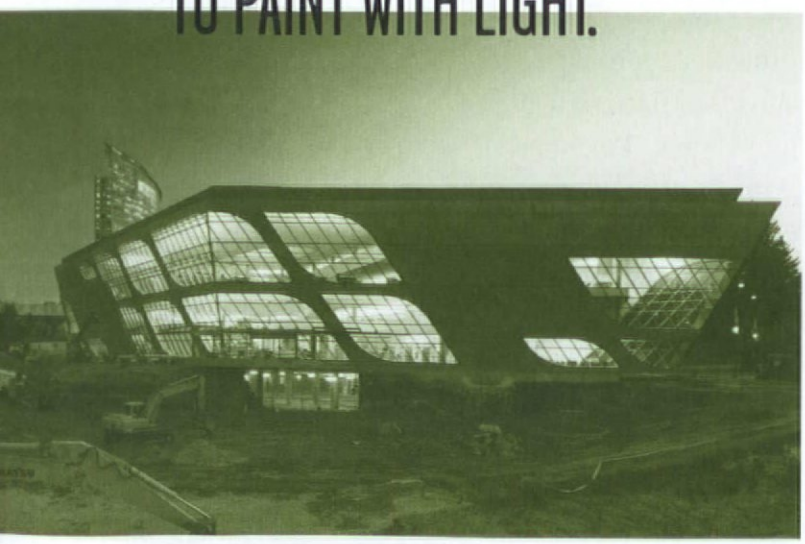
A different device is used along the curving west elevation. At the fourth floor, the building's glass line is pulled back from its cast-concrete exterior walls

with a linear skylight set along the floor-level here and at the same location on the storey below, bringing an even wash of light deep down along the interior walls to areas largely devoted to open stacks. The main reading rooms are set along large windows lining the east elevation, allowing morning heating and views to the new Surrey City Hall and civic plaza currently under construction. Again, for energy conservation reasons, only a net 50% of the library's elevation areas are glazed. These windows are deployed for maximum effect—walls facing east exploit plaza views and desired morning heating potentials and are composed of 80% glass, while those facing west have only 20% glazing to reduce late-day glare and unwanted afternoon heating problems.

The glib line passed around by Thom's local peers is that the Surrey library is "Zaha on the outside, Guggenheim on the inside." Like much gossip, there is a germ of truth in these assertions. Like many of Zaha Hadid's projects of the past two decades, the Surrey library boasts unconventional applications of cast concrete, with bold cantilevers and angled walls. Unlike wooden formwork in her earlier constructions, concrete walls in recent Hadid designs have been achieved efficiently and economically via the use of an unusually flexible concrete formwork system by PERI GmbH. Thom was a North American pioneer in use of the German-devised system, shaping the concrete cauldrons of his Vancouver Chan Theatre, then the more complex forms of his Washington Arena Stage's Kogod Cradle for experimental theatre.



"WE FOUND WAYS TO PAINT WITH LIGHT."

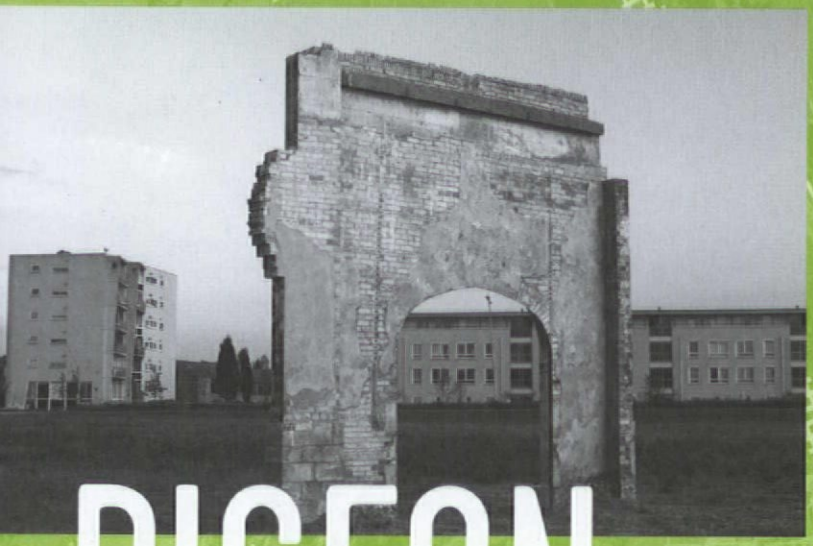


The Surrey library needed to be delivered under an extremely tight design and construction schedule. Concrete construction was the only reliable choice with these deadlines, and the PERI system provided flexibility for complex forms and tightened timeframes for set-up and concrete pours. Standard four-by-eight-foot sheets of light plywood were set diagonally on the inside of the PERI Vario GT24 flying formwork. The plywood form-liners imprint exterior walls with a dynamic set of markings, with the resulting building seeming to lean outwards and push forward towards its northern "prow"—a dynamic icebreaker slicing through suburbia's frozen banality. With its central skylight and banded rings of white balustrades flanking an atrium, the interior of the new library does at first recall the Guggenheim's ramp-circled central interior. A second look reveals the library as more nuanced and deflected by light and site concerns than Wright's singular obsession with the ramp-flanked exhibition of art.

The urban transformation of this Vancouver suburb began with the BTA-designed Surrey Central City, a hugely ambitious example of the hybridity of building program, construction palette and formal typologies that have become the hallmark of recent *Vancouverism*. The new library is but four blocks north of the previous BTA design but separated from it by a long-standing rag-tag recreation aggregation of pool, ice arena, gyms and the like. This may explain why Thom's library leans so assertively out over the sidewalks along University Avenue—it's as if the building is straining for a glimpse of its mother building, an infant arching up and out of a stroller to reconnect with her parent. The Surrey library was recently given an award of excellence as the city's best public building of the past decade by a jury that included Calgary's David Down, Vancouver's Margot Long and Seattle's Susan Jones. ×

Vancouver critic and urbanist **TREVOR BODDY**'s essay on recent Canadian architecture for the book *Atlas America* was awarded a commendation for the CICA/UIA Pierre Vago Prize for the best architectural criticism published worldwide in the past three years.

(background) Abandoned train tracks in Maastricht, NL, and the site of *Traces of Autism*'s proposal for an artists' residency space. By *Traces of Autism*, 2008.
↓ Kristin Posehn. *Reclamation*, 2007/2008. Photos: Courtesy of the artist



PIGEON DISOBEDIENCE

Jayme Yen

An artist recently described to me the difference between art and design as a difference in levels of comfort: Art is meant to rub people the wrong way, whereas design is often called in to smooth the path to clarity and understanding. It's an oversimplistic statement, but I admit there's something to it. Much of the art I'm attracted to is challenging in nature, using the tension of the out-of-place to provoke new perspectives on common situations.

As a graphic designer, I've looked to artists and artworks, including the following three projects, to redirect my assumptions about visual language and communication.

...PROVIDING AN ABSURDLY ALTERNATE VISION, LIKE A TYPE OF SCIENCE FICTION, CAN LEAVE A POWERFUL POLITICAL STATEMENT.

1 In late 2007, I moved to the Netherlands to become a member of the Jan van Eyck Academie, a "postgraduate institute for research" in art, design and theory. As a design researcher, I joined *Traces of Autism*, a long-running project whose title came from the work of Fernand Deligny. An early researcher of autism, Deligny studied his patients by simply observing their behavior as they roamed freely about his large farm in rural France. He then drew detailed maps to record his patients' paths and activities. Deligny's process inspired the methods *Traces of Autism* took to understand the geography of public space around the Jan van Eyck, the city of Maastricht and the surrounding areas.

When I arrived, the team had just completed an inventory of public space through "long, non-touristy walks" during which they concluded that public space was losing ground to gentrification and control. An association of civic leaders asked the group to make a proposal for an old industrial site at the edge of downtown. The city was looking for a new art space—preferably something that incorporated live-work studios, stores and galleries. They were hoping for something attractive, interesting and marketable.

Instead of unveiling plans for a building, as was expected of us, we proposed to renovate an abandoned stretch of train tracks. Two train cars would ride back and forth in an endless loop across the short strip of land. These trains "going nowhere" would house artists, underlining the nomadic existence of the artist as a true condition for making art. We inserted our definition of public space — true public space is not governed by market interests — into the project brief.

Over time, I've come to understand that providing an absurdly alternate vision, like a type of science fiction, can leave a powerful political statement. The final presentation, excerpted below, was, and still is, one of the more jarring things I've had the pleasure to be a part of. Imagine a video playing, the camera moving forward slowly, the screen filled entirely with a few feet of train tracks. A voiceover reads:

The "artist-in-residence" is a contradiction. It means confining the artist to the institution or the asylum. Residency kills the artistic condition... Being in a state of homelessness necessarily means being in public space. Public space is the opposite of privatized space. Public space is the space of loss. Public space is the space of powerlessness. In public space one is exposed, not protected. Being exposed is being a stranger. A stranger has no place. A stranger has no place to go to. A stranger wanders. A stranger walks. A stranger neither buys nor sells. Today, that is political. Today, the artist is a stranger. You don't choose to be a stranger: You are expelled into a permanent state of deportation, which we propose to accept.

↑ A local barrier in Maastricht, NL (2007). Photo: Jayme Yen

There was halting applause as the lights went up. An Israeli researcher had earlier told us our proposal reminded her of the trains servicing the concentration camps of World War II. We hoped that our proposal would be heard out, perhaps sparking discussion on the use of arts as tools to sell condos. Instead, our presentation did little more than make the civic leaders confused and angry. To open a space for response and dialogue, we held a public forum a couple of weeks later. People showed up expressing their disapproval and, in a few cases, fury.

The train going nowhere never came to pass. We knew it wouldn't. We had offered a dramatic, "No, but..." as a critique of the original brief. Refusing to answer the question, we had thrown up a wall to shed light on a related and important topic of our own choosing.

KRISTIN'S RESPONSE WAS A REMINDER OF GREED AND FALSE HOPES.

2 Kristin Posehn's project *Reclamation* is an intervention whose challenge emerges in more subtle ways, underlining the tension between the physicality of an object and what it stands for. While a researcher at the Jan van Eyck, she was commissioned to create a public, outdoor work in the city of Almere. The site was the last plot of undeveloped land in the city center. Almere is one of the most highly planned cities in the Netherlands, dating only to 1976, with an air of the clinical among its subdivisions.

Kristin's response was a reminder of greed and false hopes. The sculpture *Reclamation* relocates a ruin from the former boomtown of Metropolis, Nevada, to Almere. The installation is a 1:1 scale replica of the last standing façade in Metropolis. This one remaining brick and masonry arch was remade via

'THE BARRIER' EFFECTIVELY USES THE CITY'S MOST UBIQUITOUS CITIZEN, THE PIGEON, TO RECLAIM SPACE FROM THE CITY'S OTHER NATIVE INHABITANT, THE GIANT CORPORATION.

†
Kristin Posehn. *Reclamation* (detail), 2007/2008. Photo courtesy the artist

Jaroslav Kyša. *The Barrier* (video stills), 2011. Images courtesy the artist

hundreds and hundreds of photographs applied as self-adhesive vinyl to a wooden structure. Situated in the middle of an empty field, *Reclamation* is a new ruin.

Metropolis was founded in 1910 by real estate developers who sent pamphlets lauding the city's (entirely fabricated) resources and amenities. It was then abandoned in 1925 due to lack of water rights. Its parallel is not difficult to find in Almere, with its sales pitches and marketing brochures. I doubt city officials took note of the connection between Metropolis and Almere implied by *Reclamation*. After all, they included a photo of the artwork in a glossy advertorial magazine. In any case, city officials let it stand, strange and out-of-place, perhaps unsuspecting that this façade among the sub-developments carried a message from the future. *Reclamation* was an interruption in the otherwise serene façade of the planned city.

3 *Traces of Autism* and *Reclamation* used black humor to draw attention to problems inherent in commissions; Jaroslav Kyša's *The Barrier* presents a more light-hearted way to disrupt everyday behaviors and expectations. In the video documentation for *The Barrier,* Kyša is in a London park feeding breadcrumbs to a large flock of pigeons. He continues to feed them as he starts walking, leading the ravenous birds from the park to the street (where they politely stay on the crosswalk) until finally he deposits them in front of the entrance to a big-name store. While the pigeons continue to scramble for crumbs, store customers are forced to break through the live barrier to exit or enter. Passing through the fluttery mass of birds, some recoil in disgust or fear. *The Barrier* effectively uses the city's most ubiquitous citizen, the pigeon, to reclaim space from the city's other native inhabitant, the giant corporation.

I once referred to *The Barrier* as "pigeon disobedience." Disobedience is also apparent in the *Traces of Autism* proposal and the installation *Reclamation*. All three projects willfully ignore and redirect — even hijack — questions and assumptions to address current social conditions in new ways. All three inspire me to think harder about how a strategy of "No, but..." can throw expected responses into stark relief, forcing priorities to be reexamined and alternatives to be contemplated and explored. ×

JAYME YEN received her MFA in design from the Yale School of Art in 2006 and was awarded a 2006-2007 design fellowship at the Walker Art Center. Interested in increasing her exposure to different art and design processes, Jayme moved to the Netherlands in 2007 to become a researcher at the Jan van Eyck Academie. She is currently the graphic designer for the Henry Art Gallery at the University of Washington.

The other day I met someone who was energetic and committed and crazy enough to start a new school of architecture. During our conversation he asked me what I'd distilled from my years of teaching. Not much, I told him, but wrote down what came to mind. That's all, he said, six things? I wish him luck.

ON TEACHING ARCHITECTURE

JM Cava

1. Competent architects, not bad artists.

Teaching architecture should produce competent (or better) architects. Not mediocre (or lesser) artists. The fine arts are not architecture and architecture is not a fine art. Wonderful architecture has the same emotive potential to enrich our lives for generations as does any art form. Architecture needs no outside validation from fine arts, literature, science or philosophy.

2. Architectural precedents are personal and dynamic.

History is alive for any designer. Its text is as personal as a favorite book, with dog-eared pages, scribbled liner notes, diagrams and doodles. Architecture students are generally not preparing for advanced scholarship—history for them should play a fluid, familiar and supportive role throughout their entire design careers.

3. No ideas but in things.

Williams understood that any creative efforts withstanding the test of time return us to the ontological "thing-ness" of the world, a world of the sentient being. Look, for example, at the use of metaphor by Steven Holl and Louis Kahn. Holl uses pure abstractions—interpretations of music, biology, poems and literature, all complex intellectual constructs. Kahn, on the other hand, alludes to humans evoked in simple, almost primal settings—thinking, talking, playing or meeting.

"GOOD TEACHING IS MORE A GIVING OF RIGHT QUESTIONS THAN A GIVING OF RIGHT ANSWERS." —Josef Albers

4. Teacher and student are the same.

The teacher learns and the student teaches. At some point the student becomes more teacher than student. It is with this slightly messy process that real learning takes place.

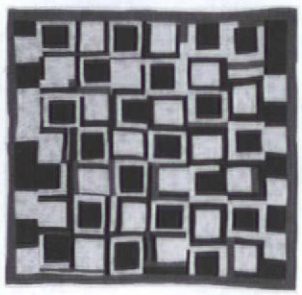
5. Design studios reflect Baumol's model.

Advanced technology cannot improve the efficiency of design learning, whose nature is inefficient by most standards. The studio environment is less like building a car and more like playing a Mozart string quartet; the same five musicians require the same twenty minutes to perform it today as two centuries ago.

6. True extraordinariness is hidden in ordinariness.

Great architecture — or great anything, for that matter — is not necessarily famous or monumental or decreed by a select few. Students can attain greatness in total anonymity; it is liberating for them to realize they do not have to be labeled "extraordinary" (i.e. a "starchitect") to have their professional lives fulfilled. For what, when you think about it, is great design? And under what circumstances is it conceived? According to architects' interviews, it's a complex, convoluted and erudite process, beyond our everyday understanding. Perhaps. Yet listen to Mary Lee Bendolph, a woman working in a backwoods Alabama town of 700 people, whose utilitarian compositions are, according to the New York Times, "some of the most miraculous works of modern art America has produced":

> *My sister-in-law's daughter sent those clothes down here and told me to give them away, but didn't nobody want them. That knit stuff, clothes from way back yonder, don't nobody wear no more, and the pants was all bell-bottom. We ain't that out-of-style down here. I was going to take them to the Salvation Army but didn't have no way to get there, so I just made quilts out of them.* ×



"Housetop" variation. Quilt 2006. Cotton/ 74 x 75 inches. From the book *Mary Lee Bendolph, Gee's Bend Quilts, and Beyond.* Photo: Pitkin Studio

JM CAVA has taught architecture in the Pacific Northwest for a long time.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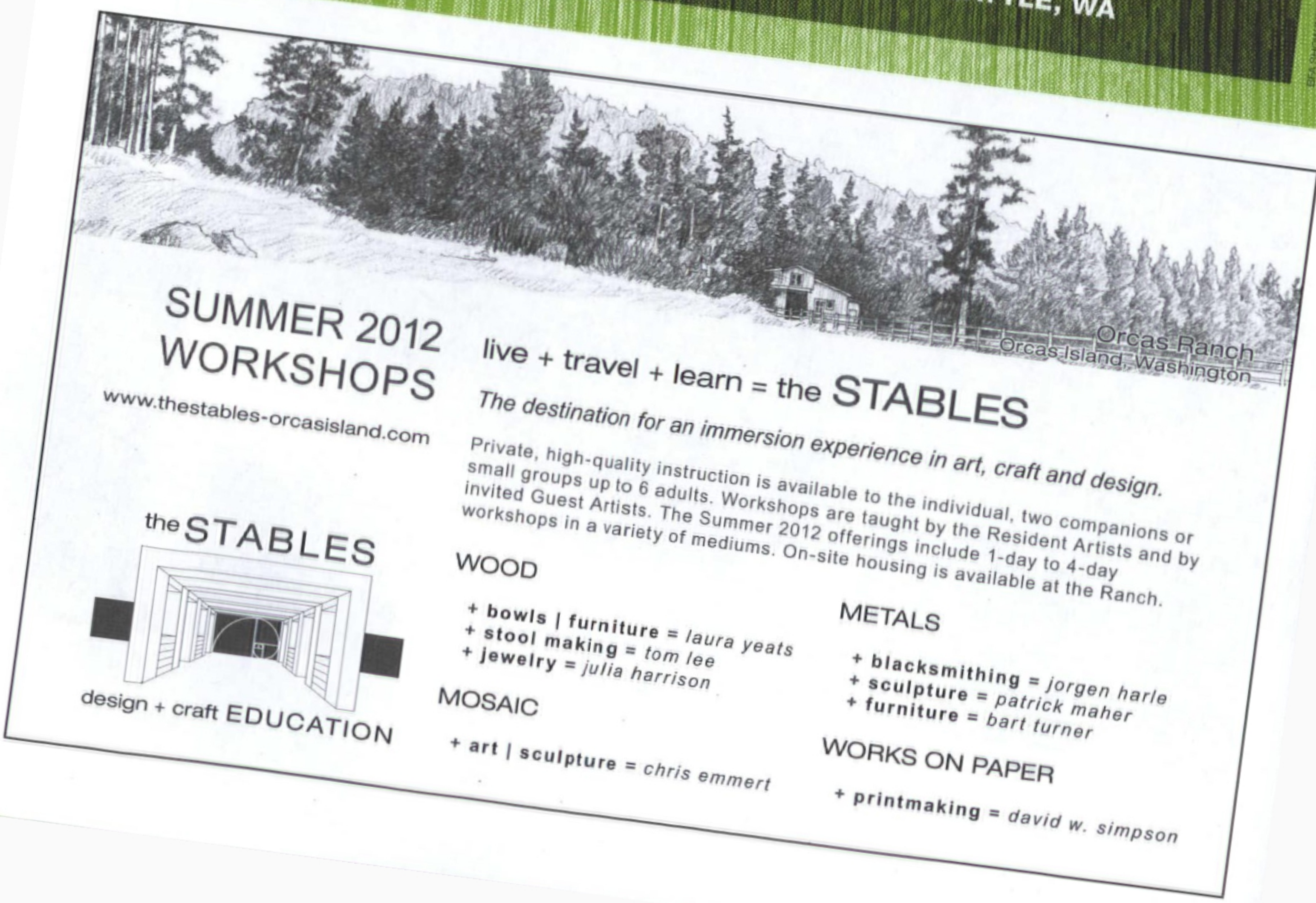
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+ printmaking = david w. simpson

LIVE/LEARN DESIGN EDUCATION

ANNABELLE GOULD:

When people ask me what I do for a living, I say, "I'm a graphic designer." But after a moment, I add, "I also teach design." For me, these roles are symbiotic, forming the classic model of a designer/educator. My design practice forces me to stay current in the field and enables my work and ideas to be relevant to students. In turn, the processes and explorations of my students allow and encourage me to reflect on the meaning and purpose of design and to develop of a more self-aware, critical design practice of my own.

KAREN CHENG:

When people ask me what I do for a living, I say: "I'm a professor—I teach design." Unlike Annabelle, I rarely mention that I'm also a working designer. Although I still love to make things, I find that I'm increasingly interested in design research—analyzing the processes and practices of design, and especially, the strange processes and practices that we call "design education." As an educator, this research informs the key design challenge: creating the quarter-long, year-long and degree-long sequences that shape the designers of the future.

In this issue of ARCADE, we explore a range of patterns, models and methodologies that exist in design education. The field of design is changing rapidly in fascinating ways. While in the past, design may have focused most on issues of form or aesthetics, increasingly the profession has grown to encompass social, cultural, technological and economic contexts, as well as new tools and technologies.

The expanded scope, scale and complexity of current design problems and their impacts on design education are discussed in "What We Don't Teach—but Should." This theme is also addressed in Magnus Feil's essay on the importance of design foundations, "Push Pull Twist."

Design awareness and design education have both expanded over the last decade, reaching past traditional boundaries, and in this realm, Brian Boram explores the emergence of design thinking in K-12 education. On the opposite end of the spectrum, Amy Gustincic writes about her experience in the Design MBA program at the California College of the Arts.

On the lighter side, the communication design firm studiovertex humorously depicts the tendency for design students to "Polish the Turd." Also, the article "How to Survive Critique" provides candid advice (and amusement) for both students and critics.

Our favorite part of the issue comes directly from ARCADE readers. We are delighted to publish the insightful, funny and frank results of ARCADE's first ever Design Education Survey in "If I Knew Then What I Know Now." The prize for best entry goes to Owen Irianto, for his wry, self-deprecating essay, "Perverse Modernist." Thanks to all the wonderful ARCADE readers who participated by reflecting on their recent (and not-so-recent!) design educations. □

Karen Cheng is Chair of the Division of Design at the University of Washington. She is the author of *Designing Type* (Yale University Press, 2006). Annabelle Gould is Chair of Visual Communication Design at the University of Washington and owner of Annabelle Gould Design (www.agould.com). Karen and Annabelle have been colleagues at UW since 2003; this issue of ARCADE is their first design-project collaboration.

Photo: Sam Cook

AGENTS OF CHANGE: DESIGN THINKING FOR K–12

BRIAN BORAM

On a school visit with my daughter last October, we sat in a small lecture room to experience a high school classroom in action. Two teachers introduced themselves, a drama teacher and a math teacher. A class in dramatic mathematics? No—a team-based approach to using research, experimentation and prototyping to solve a real world problem. In short, design-based thinking in the classroom.

The project presented was the creation of a puppet theatre for kindergarten students. By defining the challenge and determining the criteria for success, students needed to think about how the kindergartners would use and react to the puppet theatre. Activating math skills such as measurement, numeration and geometric problem-solving, the students planned for the approximate height and width of the performers, researched appropriate materials, considered cost, defined area and developed a process for construction. Here it is, I thought, an act of thinking and making that connects to our everyday lives.

Brian and Wallis Boram. Photos: Brian Boram

My daughter, Wallis, is entering 9th grade this coming fall. I wonder how well she is prepared to solve the world's complex problems. At her K-8, I observed her ability to present and assess her own work and also saw her experience the dynamics of collaborative teams—a process I was not exposed to until higher education. Are the skills of "design thinking," such as creativity, adaptability, empathy and synthesis now at the forefront of a new curriculum?

When I asked Wallis about design thinking in her classroom, she responded as most 14-year-olds would: "What's that?"

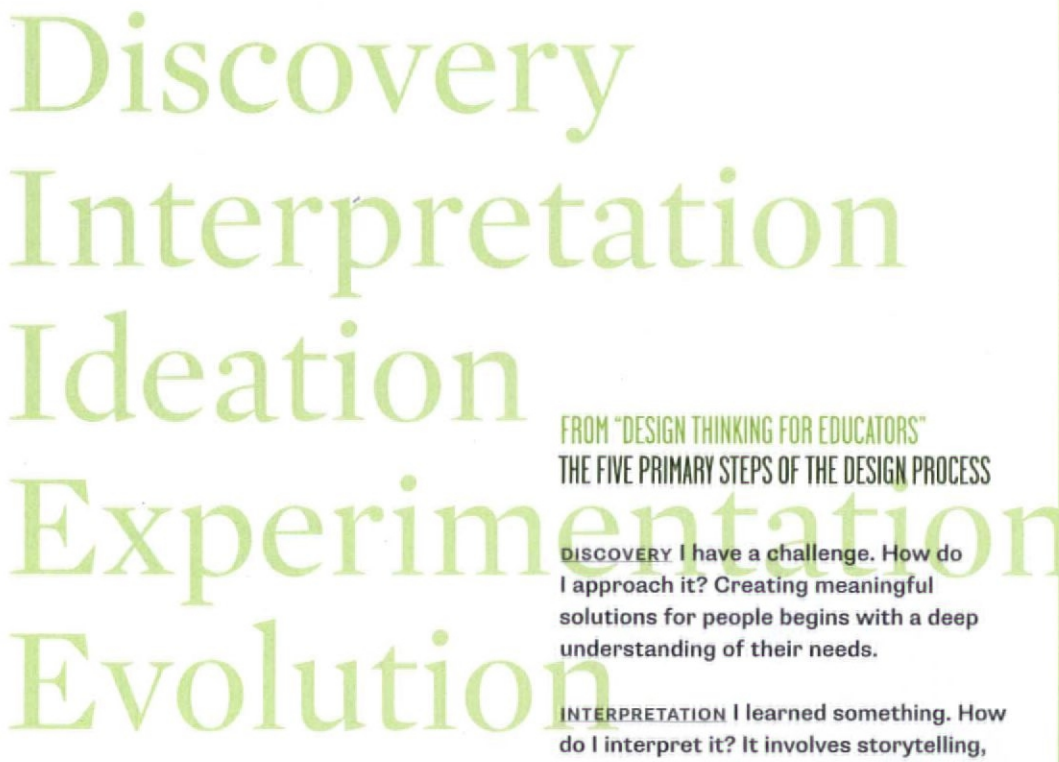
I said, "You know, research, character maps, work groups, coming up with an idea, making stuff, presentations."

Looking a bit perplexed, she said, "Yeah—is that what you do, too?"

Over the past decade, there has been momentum to create awareness about design thinking in its broader use outside of the traditional disciplines of graphic design, product design, interior design and architecture. The push to teach 21st-century skills has sparked vigorous debate in American schools, and investigative learning seems to be finding its way into the classroom. The d.school at Stanford has been working to spread design thinking amongst K-12 educators since 2008. Speaking to the benefits of critical thinking in primary and secondary education, IDEO's Sandy Speicher, a strategic advisor for the K-12 Lab at the d.school, says, "Design thinking at its core is about asking 'what if?'... and choosing to do something about it."

This program and offshoots like *Prototype Design Camp*, which invites young creatives from cities all over the US to use the mindset and methodology of design to solve real world problems, or the *Institute of Play*, which promotes game design as a means for personal and social development in public schools in New York and Chicago, are just beginning to realize their potential for influence. The culture of design has become so pervasive in our society that teachers are naturally introducing new modes of design-based thinking and learning where students are empowered to shape knowledge rather than merely receive it.

Of particular interest is an impressive "Design Thinking for Educators" toolkit (www.designthinkingforeducators.com) that has recently been developed by a team of IDEO designers in collaboration with Riverdale Country School in New York City. The toolkit helps teachers create solutions for everyday



challenges in the classroom and equips teachers with the process and methods of design.

"Teachers design every day; they structure all kinds of solutions," says Speicher, who draws parallels between designers and teachers. When presented with ideas of design thinking, teachers realize the power of changing the situation in front of them. The toolkit helps teachers to build the design process into their lesson plans and engage the classroom environment in new and different ways. The teaching becomes energized, and it reinforces the connection with students.

Wallis and I are 14 and 46 respectively, but we do share a common ground, although we may not call it the same thing, or use it in the same way. We are both "design thinkers," and these processes and values guide our behavior and our response to the world. As her teenage years present new challenges, I hope that the lessons of design thinking that are taking hold in schools gives her generation the skills to make our world a better place. □

BRIAN BORAM is a designer and optimist. He is the founder and principal of RMB Vivid and is an ARCADE board member.

FROM "DESIGN THINKING FOR EDUCATORS"

THE FIVE PRIMARY STEPS OF THE DESIGN PROCESS

DISCOVERY I have a challenge. How do I approach it? Creating meaningful solutions for people begins with a deep understanding of their needs.

INTERPRETATION I learned something. How do I interpret it? It involves storytelling, sorting and condensing thoughts, until a compelling point of view and clear direction for ideation emerge.

IDEATION I see an opportunity. What do I create? With careful preparation and a set of rules to follow, a brainstorm session can yield hundreds of fresh ideas.

EXPERIMENTATION Building prototypes means making ideas tangible, learning while building them and sharing them with other people.

EVOLUTION This involves planning next steps, communicating the idea to people who can help realize it and documenting the process.

PUSH PULL TWIST

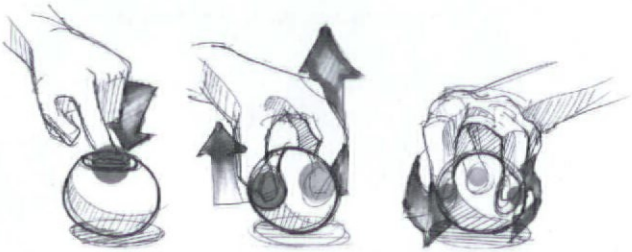
MAGNUS FEIL

↓
Projects designed by
Eric Brunt
Frances Tung
Flyn O'Brien
Chet Sangnil
Nathanael Martin
Kay Kim

I strongly believe in the foundations of design: the traditional visual and conceptual skills that are the building blocks of all design disciplines. Historically, the classical elements of design foundations are the abstract components that structure a visual language – color, texture, shape, volume, space and line – and these elements are still valid and of critical importance for novices to study in great detail.

However, industrial designers are increasingly being asked to design products and systems that incorporate interactivity. This means that the traditional design foundations must enlarge to also include a related exploration of behavior. That is, students must learn, early in their development, to consider the users of their designs and to understand products as a bridge that enables dialogue between users and a service or function.

As an instructor, I seek to address this important issue through the adaptation of a classic industrial design exercise entitled "Design Semantics"–semantics being the "study of meaning," and the goal of the project being to create forms that embody meaning for a user. During this short exercise (lasting only three to four weeks), students are asked to create a family of three control elements–forms that communicate either "push, pull or twist" to a user. It is a deceptively simple project, as students soon discover that it is not an easy task to create forms that can suggest their function through shape alone, bare of typography.

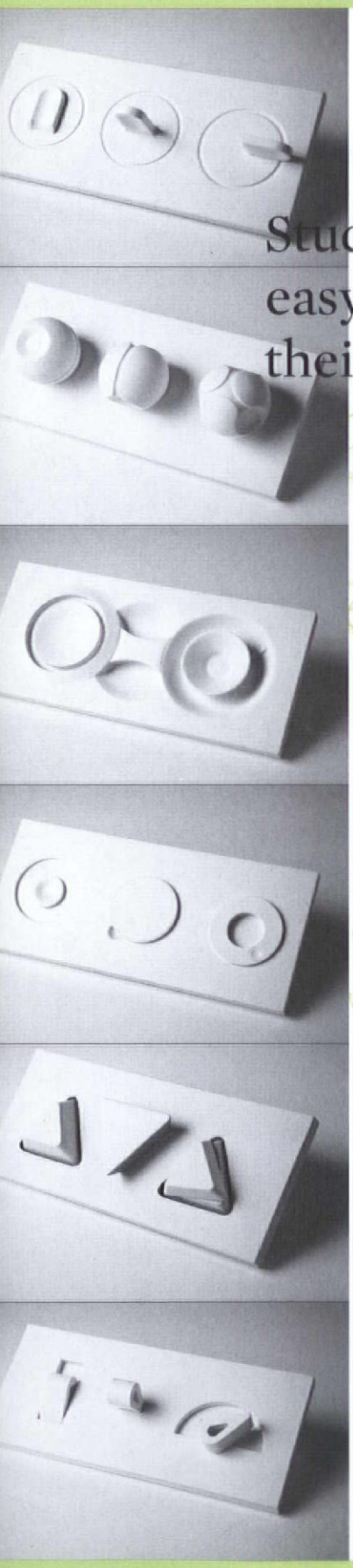


We begin by examining control elements that have existed in both the past and the present. I often demonstrate key issues by discussing typical automobile seat adjustment levers–control elements that are hidden from view and whose forms offer no cue for neither the initial engagement nor the subsequent need for user self-propulsion. I also draw attention to the natural signs in the world around us.

Using photography, the students start by creating a large visual inventory of controls. Their taxonomy typically includes switches that are commonplace – light cords, elevator buttons, doorbells, home appliances, etc. – but also more unique derivations that are spotted in car interiors or electronic devices. The students consider which forms might be multifunctional–there are forms with affordances that can suggest two kinds of interaction (for example, pushing and sliding simultaneously).

Once this visual research has been completed, students move to the process of abstraction–they need to find the quintessential shapes that "tell the user what to do." They use drawings and computer renderings to begin to define their own forms, exploring the articulation of both 2D and 3D space. They move between the drawings/renderings and physical modeling, often using Play-Doh or clay to test their forms. Like much of design, it is a kind of serious play activity–it can be very amusing to see the students enter the critique with their Tupperware containers filled with control elements.

Certain issues are common with the project. Students often find that creating the "family" is more difficult than anticipated; two of the control elements will be related, while the third is an outlier. Additionally, the refinement of the form presents new challenges. Students suddenly realize that details are more important than they initially thought–in fact, that details are critical to both avoiding ambiguity with the user and to achieving a high level of visual sophistication. Finally, as they move to the final wooden display form, they learn how to use a mechanical lathe and how to sand, paint and finish the wood model. (Note: all students agree on a single color of white paint for the entire class; one additional color may be used if it aids in the communication of meaning).



Students soon discover that it is not an easy task to create forms that can suggest their function through shape alone.

Given the short time period for the project, it's not always possible to conduct formal user testing on the final control devices. However, students do, of course, show their friends and look for their responses (sadly, some final models have been broken in the user's enthusiasm to perform a push, pull or twist, as not all models are fully functional. This occasional accidental damage can be seen as a complement to the achieved realism of the model).

I assign this project because it balances formal and conceptual issues while emphasizing research, the design process and the skillful execution of ideas. Like all good design foundations projects, it teaches students how to see, think and develop an idea, and it encourages them to refine their understanding of what a design problem can be. Most importantly, the students experience, in a compact unit, the combination of rational, intuitive and critical thinking, and they learn to construct meaning using visual form. □

MAGNUS FEIL is an Assistant Professor for Industrial Design at the University of Washington Division of Design, School of Art. He received his MFA in Industrial Design from Ohio State University and a Diplom (FH) from Fachhochschule für Gestaltung, Schwäbisch Gmünd, Germany. His research interests are product design in aviation and medicine; product interaction; control of views, vehicles and robotic platforms; and aspects that guide form in industrial and interaction design.

Photography and sketches by Luke Springer and Frances Tung.

WHAT WE DON'T TEACH—BUT SHOULD

ANNABELLE GOULD

About this time every year, a new group of undergraduates exits the Visual Communication Design program at the University of Washington. Three years of study and approximately 20 classes covering many areas of practice usually amounts to a strong portfolio and optimistic job prospects. And yet, it's around this time each year that Design faculty look at one another and say, "Hmmm, wish we could add 'X' to this particular class," or "include more 'Y' in the curriculum."

When I was in design school in the early 90s, there was no talk about user-centered research, content creation tools or interdisciplinary collaboration. Desktop publishing barely existed. Social media meant happy hour, and cell phones, if available, were the size of bricks. Foundation courses in graphic design were focused on teaching a rigorous process, and using form and type to solve problems. Students like myself graduated and headed into the world to make discrete artifacts, mostly in print: a poster, book or logo. Fast-forward to 2012 to what seems like a science fiction movie: technology abounds, we're "plugged in" everywhere and audiences can affect communication in fundamentally different ways. Designers are working through new and multifaceted problems. Yet the fundamental structure of most graphic design programs hasn't changed.

Some educators argue that teaching the same traditional foundation skills (as taught 20-plus years ago) is valid. That's partially true. The essentials of visual form, process and typography are timeless. But that's only one part of the equation. The tools that designers use to realize their ideas are now infinitely more complex, as well as the mediums in which they work.

Much has been written about what's missing in current design education. In addition to being thoughtful problem solvers and excellent form-givers, today's designers are expected to know and practice a whole host of things that we don't specifically cover in school. With that in mind, here's a brief list of things we should teach (more of) in school but don't (yet):

Collab
Writing
Busine
Techno
Comm

The essentials of visual form, process and typography are timeless. But that's only one part of the equation.

Des1+1 (Collaboration)
A typical design project today involves complex problems that can't be solved by one person. The lone "hero" designer model doesn't work anymore. Yet most of the projects assigned in school are framed around the individual student. Some classes are set up for group projects, but the mentality is still "every man for himself" as grades come in.

DesABC (Writing for Designers)
There's no denying that a practicing designer spends a good deal of their day writing: email correspondence, proposals, pitches and project briefs. In the case of recent graduates, writing also includes job applications and cover letters. As visual people, design students don't spend a lot of time writing. But like anything, the more we do it, the better we get at it. We need to offer a class for designers that covers writing these and other kinds of materials.

Des$$$ (The Business of Design)
Business is clearly overlooked in most design programs. While we encourage our students to find jobs and mentors right out of school, the reality is many of them will end up freelancing somewhere along the way. On the more tactical side of business, schools rarely cover basic practices such as billing, estimating jobs or submitting proposals. I doubt if most students know what an RFP is. But a more fundamental problem is that design programs rarely draw a connection between the concerns of design (form, concept) and the concerns of a CEO or Chief Marketing Officer. Designers need to understand the language of business and the business goals of any project.

DesUmmLike (Communication)
Creatives have to "sell" ideas to groups of people all the time. We've all heard stories of brilliant ideas that didn't go anywhere because someone blew the presentation. Everything from too many "uhs" or "likes" to failing to make direct eye contact, and most importantly, speak clearly and with confidence. Presentation skills take time to develop, of course, but by putting students in courses such as communications, public speaking, debate or even drama, they can practice (many times over) the art of speaking to a group of people.

Des007 (Design + Technology)
Most design degree programs are still heavily print-centric. Our students need to work across existing and emerging digital spaces (mobile apps, interfaces, video, the web – not dead yet!), as well as print spaces and even physical spaces. Increasingly "proof of concept" requires some sort of interactive mockup before the final work begins. This issue applies to most creative disciplines, not just visual communication. But many attempts to introduce coding and basic programming have yielded mixed results. It takes time to learn code, which, depending on how you look it, might be better spent developing stronger visuals or better concepts.

A different issue is that many students don't see the value in learning code. After all, plenty of designers work with a developer who does the final programming. But our students need more exposure to coding to understand the constraints and opportunities related to technology. This will also give them an appreciation for the concerns/culture of developers.

Could some of these classes be taught within the confines of English, computer science and the business school? Absolutely. Experts in these subjects certainly have more knowledge of their core areas than design faculty. But aside from the logistics of managing access for non-majors within another department, the challenge really becomes connecting these subjects back to the practice of design. It's difficult enough to help students see relationships between their design classes, let alone connecting across disciplines.

All of this calls for a more inclusive, multifaceted approach to teaching to design. In reality, we can't possibly cover all that a designer needs to know in the timeframe of an undergraduate degree. School simply lays the groundwork for a lifetime of learning–and we can only hope that once students enter the professional world they continue to learn on the job. Of course, graduate school (at the master's or doctoral level) is another opportunity for extended design education. □

IF I KNEW THEN WHAT I KNOW NOW DESIGN EDUCATION SURVEY

We asked–and, boy, did you answer. In the first ever ARCADE Design Education Survey, readers shared their stories, opinions, wisdom and advice from their formative years in the academy. In the following pages, you'll find survey responses accompanied by images from all areas of design and design education - "creative spaces" in architecture, photography, industrial design, graphic design and interaction design - in the Pacific Northwest and beyond.

What's the best piece of career advice you've ever been given?

Better to think of yourself less as a "building" or "product" or "landscape" designer than as someone who "takes an interest in the ratio of the way things are to the way they could be."

DANIEL FRIEDMAN, Dean + Professor, University of Washington, College of Built Environments

I think my dad tried to give me this advice, and I didn't understand it until I was a more experienced professional: Find connections that don't feel forced–the ones based on genuine friendship and respect are the easiest to make, and yet most powerful tools for moving forward in your career.

BRETT MACFADDEN, Partner, MacFadden & Thorpe

During sophomore year, a professor told us that "Your career as a designer starts now"–meaning that everyone in the class would someday be a colleague in the "real" world. It put all of us in a more professional frame of mind and made us think beyond just being a student. From that point on, we had to take our education more seriously.

JOSH KORNFELD, President/Owner, General Assembly Product Design

"You'll get the amount you can ask for with a straight face"–courtesy of a professional practice teacher at USC Architecture. It sounded so basic at the time, but it's served me very well.

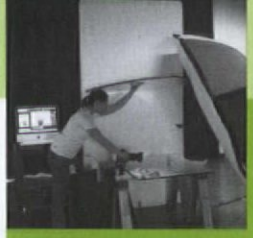
ERIN WILLIAMS, Koning Eizenberg Architecture

I met Bradbury Thompson just a few years before he died. He had very clear blue eyes. He said he had heard I was writing a book. I said, yes, I had started. He looked at me piercingly with those blue eyes and said, "When you decide to stop writing it: don't."

NATALIA ILYIN, Visiting Professor, Cornish College of the Arts

From the dean of an architecture school: "Get out of studio, spend some time with your friends who aren't becoming architects. . .not only will you have more fun, but they're your future clients."

MYER HARRELL, Weber Thompson Architects



(p 36)
Seattle Central
Photo: Anthony Roma

Cornish College of the Arts
Photos: Tori King and Rosie Heffernan (sleeping student Nancy Taing)

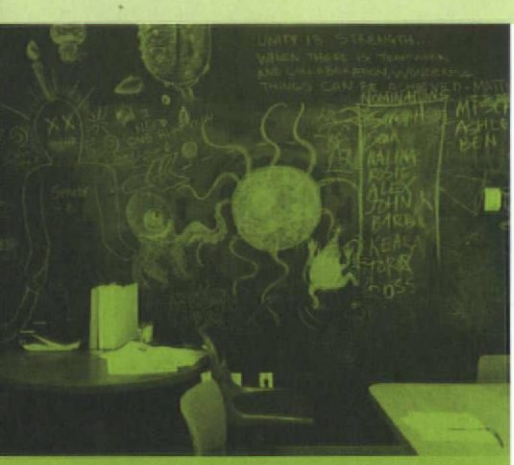
Tectonic, Seattle
Photo: Brenna Marketello

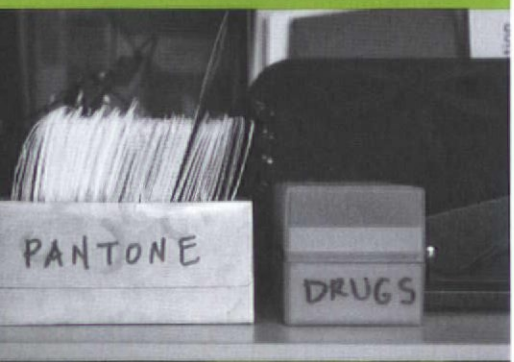
University of Cincinnati
Photo: Luke Woods

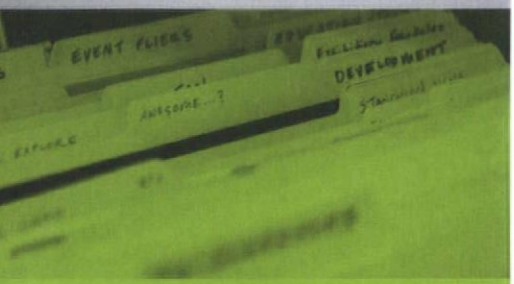
(p 37)
Cornish College of the Arts
Photo: Tori King

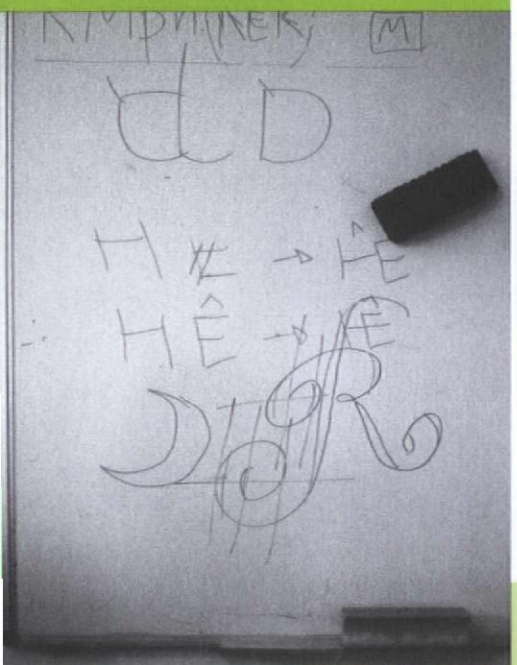
Henry Art Gallery, Seattle
Photos: Sam Cook

Typofonderie, France
Photo: Pascal Béjean









What do you think design schools do well/poorly?

Design schools give students access to instructors and buy them four years of time to make mistakes in a safe environment. But schools sometimes think too much of their ability to produce great designers out of everyone while not really preparing students for real-world challenges. Also, schools could do a better job at teaching students entrepreneurship—or even attempting to teach students in this area.

ANDI RUSU, Partner, IF/THEN

Design schools help creative students find their voice and passion. But they should also educate the whole person and not sacrifice the liberal arts for practical skills. Students need both.

ANDY DAVIDSON, Interactive Media Producer, Golden Section

Most design schools teach students to think critically. But students need to know more about new technologies—specifically, how to tailor new technologies/design methodologies to practice.

ED PALUSHOCK, Senior Project Manager, The Miller Hull Partnership

Design schools inspire, nurture passion and create a foundation for lifelong learning. But they do not effectively deal with practical concerns.

ED WEINSTEIN, Principal/Founder, Weinstein A|U

Design schools develop good work ethic, methods and iterative approaches to address a range of problems and various self-reflective qualities. One other thing that some schools do well is change. By change, I mean evolve over time to address the changing needs of society, market, technology, etc.

Currently, I believe that many design schools focus too much on training design technicians and less on training thinkers and planners. Skills are an important part of any profession, but many schools focus an extremely large part of their curriculum on training skill-based technicians of design which may only prepare students for a very narrow field of opportunities once they leave school.

JASON O. GERMANY, Assistant Professor, Product Design, University of Oregon

Good design schools give their students a solid foundation in both thinking and skills. With the right kind of studio project experience, students become very adept at handling complex problems through design.

Design programs within universities have the advantage of richer academic offerings. Independent design colleges, if excellent, offer the advantage of more exposure to design itself. Ideally, a student should get both experiences. Schools that confuse learning software programs with design education don't offer the right kind of foundation for deeper, ongoing learning.

LINDA NORLEN, Associate Director, Design in Public (nonprofit organization)

IF I KNEW THEN WHAT I KNOW NOW

What career advice would you offer to someone training as a designer today?

Design is as much a philosophy as a state of mind. Be curious and passionate in everything you do.
MAGNUS FEIL, Assistant Professor of Industrial Design, University of Washington

Never get good at anything you don't really like doing.
RON VAN DER VEEN, Principal Design Leader, Seattle Office, DRL Group

What you think design is right now is likely to only slightly resemble what it will become. Tools will change, skills will change and what is valued by clients will change. Be prepared to be flexible, find conviction in your approach and work your butt off for what you believe in. That will create demand and respect.
TIMOTHY MILLER, Senior Design Strategist, Teague, Seattle

Follow your passionate interests. There are many jealous, mean people who will discourage you, (Seattleites: Remember you live in a passive-aggressive city). Ignore them, and listen to your heart!
PAUL BYRON CRANE, Landscape Architect/ Whole Systems Design

Learn about the things that your clients care about, so that in addition to doing the design you want to do, you can have clients to make them happen.
LESLEY BAIN, Principal, Weinstein A|U

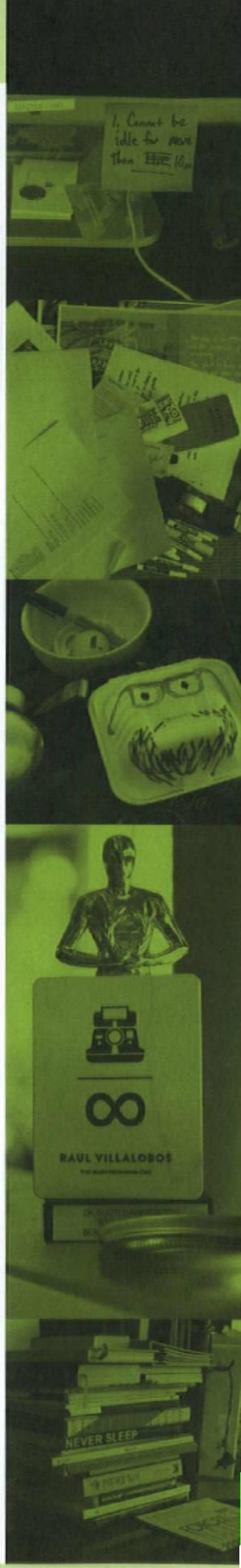
Be flexible. Most people don't end up doing what they thought they would.
GEOFF BRIGGS, Owner, I and I Design

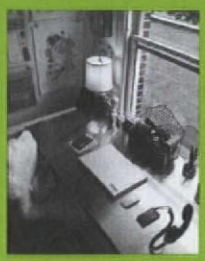
If there's something you want to work on, just do it! Don't wait for cool projects to come to you, or they won't.
LAUREN JONG, UX Designer, Google

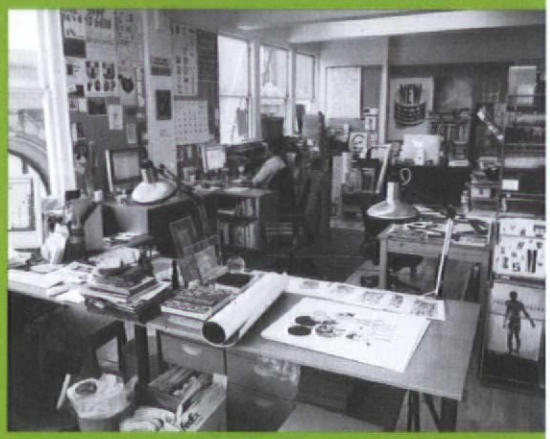
If you can, when you have the chance, go for the more interesting position out of school, rather than the one with better pay. That first direction can lead you down a far more rewarding path, and better money will follow.
KRISTINE MATTHEWS, Assistant Professor of Visual Communication Design, University of Washington and Owner/Director, Studio Matthews

Get ready to learn until you die. The world (literally, the environment itself) is changing as never before, and its dragging countries, economies, companies and technological development along with it. Designers who want to keep bringing home the bacon are going to have to continually re-prove their mettle by satisfying new user needs, using new technologies, following different economic models, all while geopolitical manufacturing dominance shifts from the West to the East and then to North Africa and beyond.
DOMINIC MUREN, Lecturer, University of Washington

Learn code.
AUGUST DE LOS REYES, Senior Director, Samsung







(pg 38)
DIGITALKITCHEN, Seattle
Photos: Morgan Henry

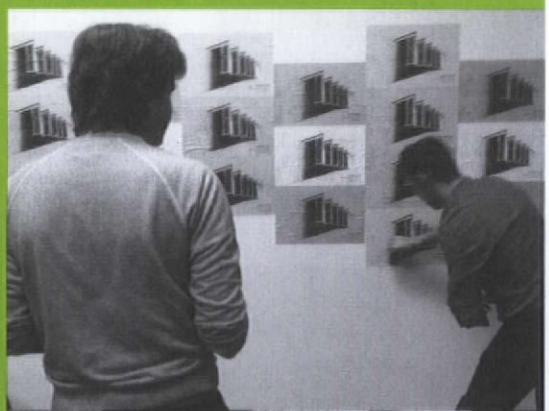
(pg 39)
↑ Modern Dog, Seattle
Photo: Michael Strassburger

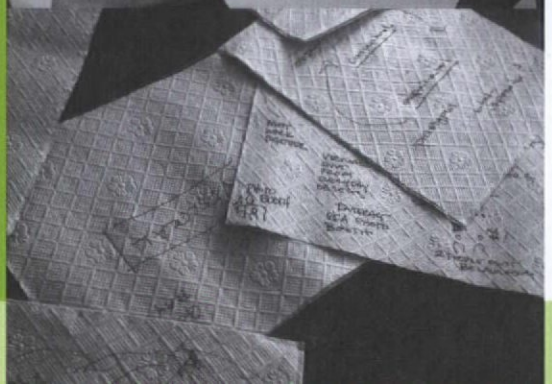
The Dye Lab, Seattle
Photo: Alanna McGowan

↗ frog, Seattle
Photo: Sophie Milton

MacFadden & Thorpe, San Francisco
Photo: Brett MacFadden

Iacoli & McAllister, Seattle
Photos: Charlie Schuck





Stay loose and be ready to immediately jump on any interesting opportunity that presents itself!
LANCE WALTERS, Assistant Professor of Architecture, University of Hawaii

Seek out ways to develop your verbal and written communication skills. These become even more important in practice.
KIRSTEN MURRAY, Owner/Principal, Olson Kundig Architects

Learn the history of the design that inspires you. Travel and see places and things. Study language, the arts, other cultures. Learn to see through other eyes.
CHRISTOPHER OSOLIN, Owner/Principal/Espresso Maker, Replinger Hossner Osolin Architects

Make sure this is really what you want to do. There is very little money in it.
CHRISTOPHER LEWIS, Partner Lewis + Smith LLC

You will design many more things than you think you will. You absolutely *must* take an interest in technology and how it is shaping our lives. Graphic design is not just pretty-making.
ALYSHA NAPLES, Design Manager, Hewlett-Packard Labs

Aim for the top. Being a designer with real influence can be the best career ever. Being a middling designer taking orders will become boring very quickly.
ANNE TRAVER, Designer and Affiliate Assistant Professor, University of Washington

IF I KNEW THEN WHAT I KNOW NOW

The Essential Design Library

The top twelve books for design students as selected by our readers in the ARCADE 2012 Design Education Survey.

"Explores economics, management, computer science, psychology and philosophy to understand human beings and the work of human beings (artifacts). The ideas Simon presents are widely applicable to the real world, especially when designing organizations or other large-scale projects."

"Ha! Just kidding."

"So many of us call it *The Bible* because it's full of guiding light and poetry—but also because of its tissue-thin pages."

"Fascinating read about the way people interact with the objects and devices that they encounter in their environment. A must read for anyone who designs just about anything and wants it to be useful rather than just elegant or attractive. Especially recommended for software developers, hardware developers and residential/commercial architects."

"It will blow your mind and then convince you that your mind isn't really your mind but an artifact of the Technium, our global compendium of collectively dreamed technology."

"Touches every aspect of design, from semantic to typography, from design pragmatism to responsibility—and, wonderfully, it is free for you to download."

"Ching seriously BREAKS it down! I got most of my Ching books my freshman year of architecture school, and you couldn't pry them from my hands."

"One of those rare books that makes you view the world differently afterward."

"Bachelard presents poetic interpretations of enclosures, inside/outside, and other spatial phenomenon while applying them to such entities as the nest, the shell, the corner, the drawer, etc. A work to savor, slowly. Highly recommended to those who enjoy poetry, philosophy, architecture or art."

"Every professional designer knows that almost every project generates endless arguments because your client isn't as visually literate as your design professor or creative director. You cannot argue why Helvetica is better than Arial with your client! Paul Rand's book helps designers counter the client's doubt by showing logical, process-orientated ways to better present your work."

"Gives fantastic insight into the design process—the raw exploration and experimentation in every facet of the Eames's creative process."

Photo: Sam Cook

"Conveys the iterative character of the design process, as well as the nature of the creative junction of liberal arts and technology."

IF I KNEW THEN WHAT I KNOW NOW

Design Stories

(pg 42)
UW College of Built Environments
Photos: Sam Cook

(pg 43)
Facebook, Menlo Park
Photos: Francis Luu

In 1976, late one evening in the studio, I asked for a desk crit from my 4th year coordinator, Daniel Libeskind. I talked about my intentions for my project, an art school. He said abruptly, "Architecture is not words. Come to me when you have drawings." That was a turning point for me.

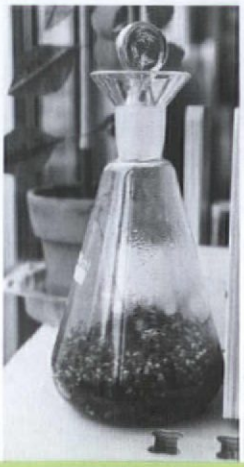
ROB HARRISON, Principal, Harrison Architects

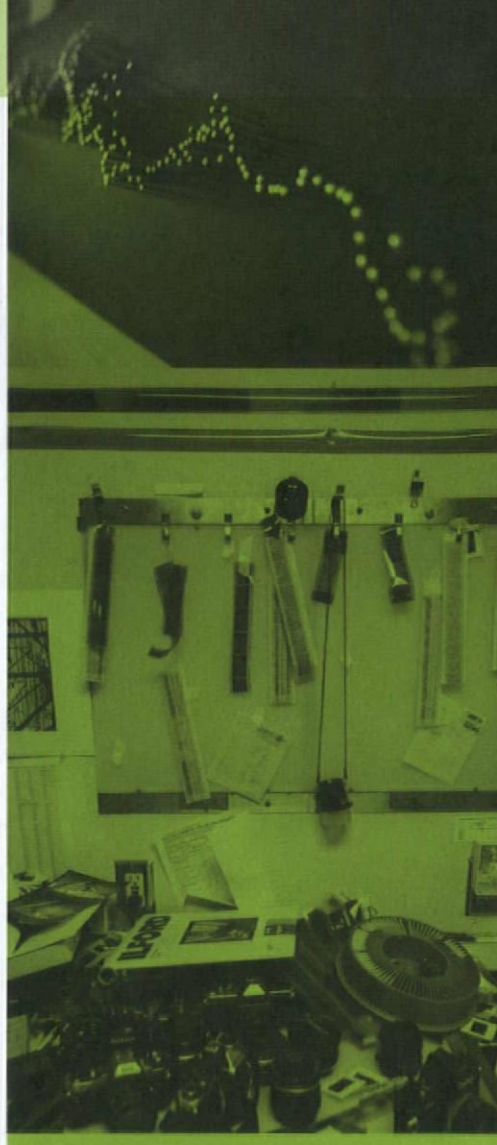
I remember a prof (who shall remain nameless) reaming a student one day for not putting enough time into his project and really just dumping on him. At the time, I thought it was unnecessarily tough and even a bit mean. But maybe it was just what was needed because at the next crit, that kid brought in an amazing amount of really well thought-out work. And to his credit, the prof was equally as complimentary as he had been negative before. I guess the takeaway is that sometimes you just have to call it like it is, with no apologies.

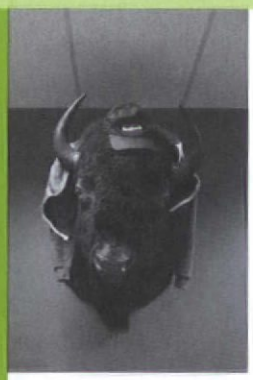
BEN GRAHAM, Principal/Creative Director, Turnstyle

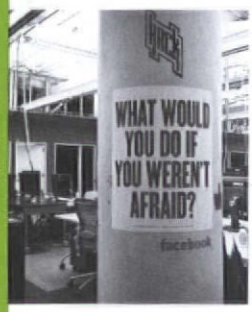
My first studio professor told us on our first day of class: "If I ever give you a compliment on your work, it's because I'm feeling weak that day." ...but looking back, it was a fairly balanced introduction to the design jury process :)

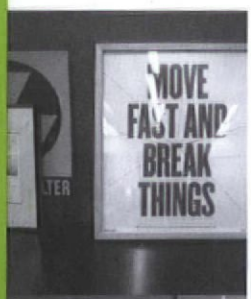
KERRY MASON, Architectural Designer, Tetra Tech, Inc

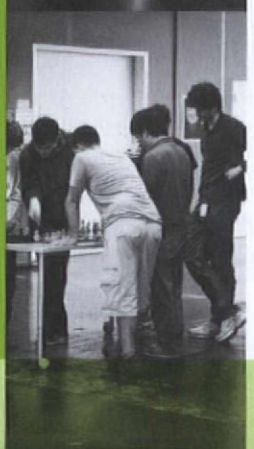












PERVERSE MODERNIST

Back in my days as a graphic design student, I was obsessed with Modernism and Swiss typography. I idolized Josef Müller-Brockmann, Armin Hofmann, Wim Crouwel, Otl Aicher, Karl Gerstner, Willi Kunz and the likes. I was so attached to these designers that my own work began to resemble theirs: clean, simple and minimal, with abstract photography and reduced iconography. I was methodical and obsessed with the modular typographic system—in fact, I couldn't work without the grid!

My epiphany began when I started to practice as an independent design professional. My first clients were the owners of an upscale family restaurant. They wanted their brand to convey authenticity, freshness and warmth.

I presented my initial ideas and mood boards as well as some sketches of their menu. The client's reaction? They were baffled by the minimalism, especially in the menu layout—a design that could have easily come from *Die Neue Typographie*.

To explain, I gave them a design history lecture, describing broad concepts such as "less is more" and "form and content." I even showed them work from Massimo Vignelli and Chermayeff & Geismar.

The clients didn't get it. They demanded to see something new. They even said, "The menu layout is so empty, are you sure this has been designed?"

I began to feel some self-doubt. Were my ideals wrong?

Knowing that I would have to change direction, I happened to see Michael Bierut's essay on Modernism, "Battle Hymn of the Tiger Mentor, Or, Why Modernist Designers Are Superior" in the *Design Observer*. Bierut describes designing a monograph on designer Tibor Kalman—the founder of M&Co., and the editor of the subversive *COLORS* magazine. Even though Bierut had lots of ideas on how the book could embody the irreverence of M&Co., Tibor instead advised him to "do a really nice clean layout – like a Vignelli book – but then fuck it up a little."

I also recalled the words of one of my design professors. She had once said that a good solution could be executed in any style. That we should be versatile in execution.

So I began to experiment with "style"—a real taboo when it comes to Modernism.

I still used a limited color palette, but I went crazy with typography, using multiple typefaces, even a script font.

The client approved this new solution. But more importantly, I got away from my own dogmatism. And I continued by exposing myself to even more diverse approaches—looking at the work of James Victore, Milton Glaser, Bob Gill and Rick Valicenti—all which I used to resent.

I discovered that the work of these non-Modernists isn't completely unrestricted. There is order in the chaos—in the number of brushstrokes, in the amount of ink splatter and even in the off-the-grid handwritten typography. The work isn't "Swiss," but it is good, and it does have relevant and immediate visual impact.

To conclude, my point is this: as a designer, never let a personal obsession get in the way of your development. After all, design is a unique profession in which you can learn new things from many different clients, allowing yourself to be enriched through gaining a wide range of knowledge and information.

So why limit yourself to doing architectural symposium posters for the rest of your life? Sure, you can be passionate about jazz and do a whole series of jazz festival posters, but why not venture out a little and also test yourself in other areas? I think it's time to use a little intuition and to have less visual restriction. But don't go overboard and pull stunts like the London 2012 Olympics logo (or the Pepsi logo), unless you want to be known as a designer with "imaginative" rationale.

OWEN IRIANTO, 2006 UW VCD graduate, Owner of Atelier Owen Irianto in Jakarta, Indonesia

DESIGNING MY FUTURE

AMY GUSTINCIC

I never thought I'd go back to school. But as I near the completion of my MBA, I couldn't be more excited about my future possibilities.

With an undergraduate in graphic design, I happily worked as a designer for years. I had passion for the profession and believed in the power of design. But after running my own successful design studio in San Francisco for over 10 years, something changed. The economy tanked, business was not great, and, more importantly, my passion faded.

I knew it was time for a change. After much soul searching, my business partner and I made the decision to close our studio. In addition to the challenging economic times, we realized we were moving in separate directions and neither one of us was entirely happy. Over a number of months we laid off our last employee and closed out our remaining projects. It was a bit of a scary time, but I knew it was the right thing to do. I retained a few clients so I could continue to have income while I figured out my next move.

I wasn't sure what that next move would be until I found the MBA in Design Strategy at California College of the Arts (CCA) in San Francisco. The DMBA, as it's known, is a fairly new program that seeks to prepare the next generation of innovation leaders for a world that is profitable, sustainable, and ethical. A business school within an art school? Really? The DMBA combines design (design thinking and design process), sustainability (and systems thinking) and business (particularly new approaches to management, leadership and economics). It was instantly clear that this was where I needed to be.

As I mentioned, I never planned on going back to school and I was not looking for MBA programs. I was intuitively searching for the intersection of design and business, and I found it at the DMBA. As I already lived in San Francisco, the choice to apply was even easier. In addition, the low-residency format makes it possible to continue working while in the program. I was accepted into the third cohort of this unique program and jumped in with both feet.

Much of the work in the program is team-based and focuses on working with real businesses, not just case studies (although there are plenty of those too). The solutions we create rely on user-centered research, prototyping, critique, and iteration. Traditional business and organizational issues such as finance, economics, operations and marketing are also covered but always incorporating design approaches and processes.

On the cusp of graduation, I can reflect on some of the biggest lessons I've learned.

Being in school is fun.

I'd been a teacher more recently than a student, and I forgot how much I enjoyed being surrounded by smart, creative individuals from a wide variety of backgrounds who share a passion for making the world a better place. It's also a lot of work, but digging into self-defined projects has been exciting and rewarding in a way that client-defined projects seldom were. Whether concepting business-model innovations for AT&T or figuring out a way to bring solar lighting to one-million Africans by the end of 2013, school is a safe space to explore new interactions and solutions that, often, aren't enabled by many organizations' day-to-day requirements. My passion is back as I learn to apply my design skills in a business context.

Design-business experience is relevant.

I wasn't sure how a graphic design background would play-out in business school, but much of my experience has been highly relevant–I just needed to look at it from a new perspective. Running a design studio gave me first-hand experience in standard business-school material such as accounting, finance and entrepreneurship. And my design education and work experience set me up for the innovative, design and integrative thinking component that's unique to the DMBA.

Having the degree is important.

There are those who've said I could have just read some great business books and not gone back to school. I've learned a l ot in school that I probably wouldn't have learned on my own, and, aside from the incredible experience I've had in the program, having an MBA makes a statement. It gives traditional thinkers who might not believe that "just" a graphic designer

Design Thinking + Design Process + Sustainability + Systems Thinking + Business = MBA in Design Strategy

could help innovate their business the confidence to work with me. And it's giving me confidence that I can step into this new world, speak the language and make a real difference.

Design is the future of business.
Kind of a big statement, but after spending two years in the DMBA, I believe it's true. In the business world, successful strategies favor innovation and sustainability. The processes, unique collaborative and empathetic skills and perspectives that designers bring are invaluable to this approach.

In the end, I'll have an MBA, but I'm still a designer, although my definition of what it means to be a designer has greatly expanded. It now encompasses all of my classmates, whether they come from finance, nonprofit or traditional design backgrounds like me. I don't yet know exactly what I'll be doing after graduation – whether I'll open another business, get a full-time job, or operate as a consultant – but I see a world of opportunities to work collaboratively at the intersection of design, business and sustainability to make a greater impact and create positive change in the world. □

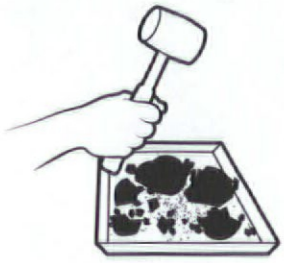
↑ Sachi DeCou, Jessica Watson and Amy Gustincic in CCA's DMBA studio working on their group Venture project, *peeq*, which engages families in energy savings. Photo: Team member Olivia Nava

AMY GUSTINCIC is a designer and entrepreneur working at the intersection of design, business and sustainability. She is currently exploring ways to engage families with their home energy use to increase energy efficiency. *@peeqlabs*

HOW TO POLISH A TURD ADVICE FOR DESIGN STUDENTS

Many students waste a lot of time working on a single idea that is not very good to begin with. This is called "polishing a turd." It may be a better use of time to polish an actual turd. Here's how you do it.

1. Select a turd (animal dung works well). Leave it for several days until it has hardened and become completely dry.



2. With a hammer or mallet, pound the dried dung into a fine powder.

3. Create a thick mud by adding water to the powdered dung. The resulting dough should not be too wet or dry.

4. Shape the dung dough into a ball about the size of a pool ball.

5. Put the dung ball into a plastic bag and set it in the fridge to dry for 30 minutes to a few hours.

6. Remove the ball from the plastic bag and work some dry dirt onto the surface. Then, back to the plastic bag for drying again.

7. Remove the ball from the plastic bag and add a very fine and dusty dirt to the surface.

8. Gently polish the ball with your hands until it has a definite luster (this can take several days). Finish polishing with a soft cloth.

Voilà...

You now have a very shiny turd.

HOW TO SURVIVE CRITIQUE: A GUIDE TO GIVING AND RECEIVING FEEDBACK

KAREN CHENG

Sadly, now that Steve Jobs is gone, there is no single, omnipotent critic capable of unilaterally determining how good or bad a design is. Of course, some people (i.e., design faculty, Pritzker Prize winners) are more informed or knowledgeable than others, but design is a complex endeavor, resistant to simple metrics or measures. Therefore, in design education, instructors rely heavily on a subjective form of review known as "Critique." There are many ways to critique and be critiqued, and learning how to give and receive feedback is an essential skill that extends beyond design education. Here, a few thoughts for students and their critics—and critics and the critiqued at large. →

A visit from guest critic Jean François Porchez, French type designer, in February 2012. Photos: Sam Cook

HOW TO SURVIVE CRITIQUE:

FOR CRITICS

Avoid creating a "climate of fear."

Certain students respond well to intense, combative and competitive situations, but they are a minority. Studies find that most students prefer environments that they define as "supportive." Furthermore, teacher behaviors such as humor, affinity seeking ("a positive attitude toward another person") and self-disclosure ("sharing personal feelings and information with others") have been found to reduce defensiveness, hostility and anxiety in students. Psychologists theorize that students can better direct their attentions toward specific tasks (like improving their design work) when they are not preoccupied with "fight or flight" responses (as triggered by threats to their egos).

"Candy coating isn't such a bad idea—it makes it possible to swallow much needed medicine."

Use the hamburger method.

Begin with a positive, constructive comment on something that works well in the design (top half of the fluffy bun). Next, get to the meat, which is, of course, constructive criticism—what could be improved. Finally, end with another positive acknowledgement (bottom half of the bun).

Many "old-school" faculty members dismiss this method as superficial candy-coating (known more colloquially as "the shit sandwich"). But candy-coating isn't such a bad idea—it makes it possible to swallow much needed medicine. As long as the "buns" are comprised of genuine, accurate observations, students benefit from receiving feedback that tells them both what is and isn't working in their designs. (Of course, this method requires that you be able to observe at least two aspects of the design that are effective.)

Focus on "why."

In a productive critique, critics must explain *why* they do or do not accept the solution being offered by the designer. The entire raison d'être for critique is our desire to analyze and debate the success of a design. In the analysis, we need to determine what components are essential and how those components work together toward success or failure. If the design is flawed, does the error lie within the individual components themselves or in the way they have been combined? A detailed analysis of *why* is essential in enabling the designer to improve his or her work. Simple statements of affinity, positive or negative are insufficient.

Make actionable suggestions.

Many design students, especially novices, love direct suggestions. That way, they can simply point back to the critic ("It was your idea!") when the result is awful. Of course, there are ways to deflect (some instructors say, "Well, if that's what you got out of what I said..."), but such strategies don't build rapport for future critiques.

Perhaps the best solution is to first point out the problem, then offer several possible solutions, hedging carefully with phrases such as "it might not work in this case" and "this is just one idea," etc. In this way, the critic provides specific examples that clarify without assuming total responsibility for failure.

Respond to the work and to the person.

A good critic responds to both the work as well as the person who made it. The best instructors recognize that some students are fragile and need support and encouragement to do their best. Other students are bold and require blunt, strongly-worded feedback to even slightly change their perspectives. Still others are indifferent or preoccupied with aspects of their lives that are not design-orientated (what's for lunch?). Critique involves managing these and other personalities, motivations, backgrounds and cultures.

HOW TO SURVIVE CRITIQUE:

FOR DESIGN STUDENTS

Be ready with your work.
Generally speaking, instructors think poorly of students who are unprepared for a critique. There are exceptions–professors who think, "Great! Now I can leave class early!"–but those aren't faculty mentors you want to cultivate.

Even if you don't have any work to show, it's still best to come to the critique and participate by watching and listening (also known as "learning from others"). You should tell the instructor that a major catastrophe prevented you from completing your project, but do this simply, without making elaborate excuses. You should also apologize, say that you feel badly about the situation and that it won't happen again. However, try not to cry or freak out (this kills the mood for the rest of the class).

Be ready to say something about your work.
Some design projects are self-explanatory, and in this case, your instructor and classmates can immediately respond to your work without preamble. However, if complete silence falls, it usually means that either: 1) no one can figure out what they are seeing or 2) the work is truly dreadful. In these instances, you need to jump in and briefly explain what you had in mind when you made the work. Keep it short–the more you talk, the less time there is for feedback.

Based on your rationale, the group can discuss if your basic concept is compelling or not. If the concept is viable, individuals can try to offer suggestions that improve the design execution. If the concept isn't worthwhile, the critique ends–there's no point in "polishing the turd" (see page 50).

Listen, keep an open mind and avoid getting defensive.
It can be painful to hear negative comments about your work, but the most important thing you can do during a critique is listen. You want to be aware of all the reactions people have to your work, both good and bad. Most importantly, you want to understand *why* people respond the way they do. This information will enable you to adjust and revise your design with the goal of making it more successful.

Avoid being defensive. You don't have to justify your work–arguing makes you seem unwilling to accept input. Try to stay calm. If anger management is a problem, plan in advance–for example, make a voodoo doll that you can stab when you get home, after critique.

The fact is that most people are pretty nice–*too* nice. Some students hesitate to give any negative feedback at all. You can encourage their participation by openly inviting constructive criticism: "What do you think is the least successful part? Where do you think I can make improvements?"

Don't take it personally.
If you have a particularly bad critique (overwhelmingly negative feedback, the critics tear up, tear down or otherwise crush your work), try to not take it personally. There are some mean-spirited individuals, but generally, faculty and students are just trying to help. In an ideal world, those giving critique would be respectful and focus objectively and rationally on both the flaws *and merits* of your design solution. However, we live in a non-ideal reality.

Take notes, or have someone take notes for you.
Get in the habit of recording the feedback that you receive. Instructors like to see you write down their suggestions (Tip: clients like this, too). Critiques move quickly, and it's easy to forget ideas and references (to other designers or related design projects).

Be positive and polite.
Even if you get totally crushed, thank your colleagues and the instructor. Phrases like: "Thanks, I'll think about all this" or "I appreciate the input" encourage people to keep helping you in the future.

After the critique: Decide what revisions to make.
Not all the suggestions you receive in critique will be useful. Some input may actually be in direct conflict. For example, one person told you to make an element larger, but another person said to make the same part smaller. Now what?

What matters is analyzing *why* people make conflicting suggestions. Often, a problem has multiple solutions. After the critique, it's up to you to decide how to address the issues that were identified. To do this, you need to think critically about the objectives of your design–what exactly the design needs to accomplish–and determine how specific changes can move you toward a more effective solution. □

"Try not to cry or freak out—this kills the mood for the rest of the class."

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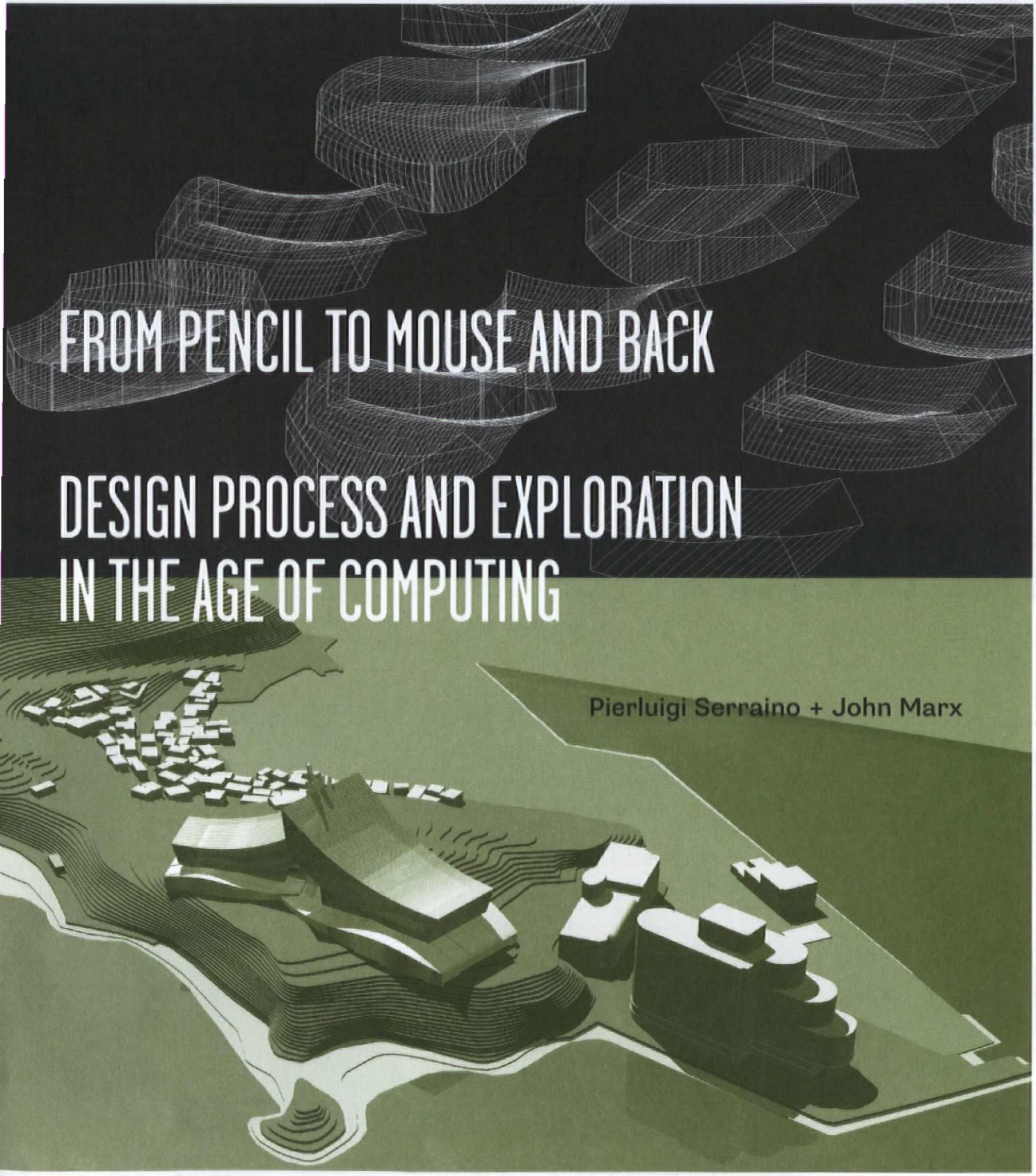
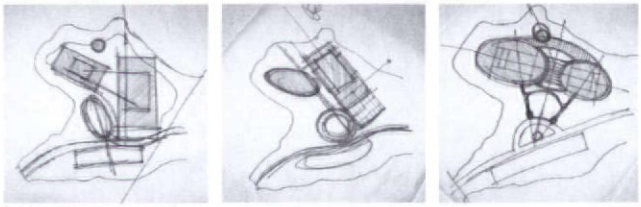
FROM PENCIL TO MOUSE AND BACK

DESIGN PROCESS AND EXPLORATION IN THE AGE OF COMPUTING

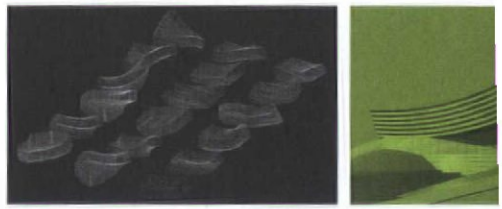
Pierluigi Serraino + John Marx



All drawings courtesy of John Marx



↑ Initial sketches



↑ Deformations studies ↗ First digital iterations

We're twenty years into the digital revolution, and much has changed in the architecture world. Practices have been redefined, sculptural forms have been built, legal contracts have been restructured and the workplace has undergone major revisions in layout and workflow. Such an extreme overhaul, unimaginable when computers first made their appearance next to drafting tables, has dislodged the certainties architecture had relied upon for centuries. What we consider the prime tool for design's conception and production has been called into question; in the hands of software engineers and programmers, what was once The Pencil has now become a multitude of computer applications. The ability to represent (photorealism), the means to simulate the behavioral performance of a building and the speed at which highly complex design-options may be explored constitute the three-legged stool on which the present and future of architecture lies.

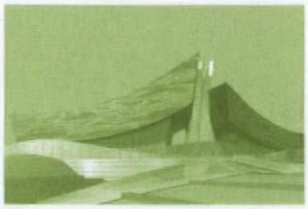
Winston's celebrated dictum "We shape our buildings; thereafter, they shape us" could be edited to: "We shape our tools; thereafter, they shape us." The T-square along with the 30-60- and 45-degree triangles undeniably have profiled much of the built environment since the Renaissance. Thinking of architecture two-dimensionally (façades as urban pictures) and proportionally (the relation of parts to the whole) emphasized surface as opposed to space. Architecture was something to be seen rather than experienced. Thinking of architecture in this way also activated cognitive processes uniquely tied to drafting that are not always exercised when using 3D-modeling technology: constructing space with the grammar of perspective (ground plane, horizon and vanishing points), visualizing without the aid of machines, and intimately comprehending tectonics—i.e. the good old "how buildings go together." This last point — that with the loss of physical drafting and modeling we experience a decreased intuitive understanding of building construction — is the side effect of the lack of gravity and other physical attributes on digital sculpting, where the veritable and the fictional blend seamlessly. Plans and elevations provided a volumetric and rational matrix upon which to structure land use and civic life within human experience. The fit of digital forms in our typical urban reality is a prominent topic of debate nowadays.

While digital tools have fostered a new expressionism and liberated architectural forms from the restricted palette of Platonic volumes, they have also created an anathema of the language of proportion; they have disseminated illusionism the same way the etchings of Escher did (you can see the space, but you can't build it), and they also put too much focus on the outside of buildings at the expense of a holistic view. A case in point is the famous Aqua Building, of which no notable interior is known, though the glamorous waving of its floor plates in space is public knowledge.

A new set of terminology has become standard in today's generation of digital modelers, replacing both the classicist and modernist nomenclature of space formation. Deformations, mapping, meshing and parametric modeling — scripting that enables designers to explore non-Euclidean geometries — provide the arsenal of formal strategies that in their countless sequencing possibilities return the final architecture of our time. It is irrefutable that specific digital tools have allowed architects to articulate shapes that might have been impossible otherwise (perhaps even facilitating the creation of structures to a point of exasperation, in which form beats function). But how do these tools and the possibilities they offer play out in the evolution of an actual design?

The dialogue between hand and mouse is exemplified in Form4 Architecture's Crashing Waves, a study for an invited competition for the design of a music complex in Korea initially dedicated to controversial composer Isang Yun (1917–1995). Through a concrete exploration, this case study, designed with the aid of an acoustical consultant, offers tangible insight into the iterative journey between analog sketching and the 3D-digital modeling environment. It is important to note that the same person produced both the hand sketches and the digital-model rendering included in the study, collapsing what is today still the breakdown between a senior designer's conception and an associate designer's supervised execution of an idea.

In visiting the prominent site, visible from all sides of a generous bay, the group identified a theme — two waves crashing into each other — meant to connect the program brief (a recital hall, a concert hall and accessory spaces) with the magic of the place. Early hand sketches established the key ideas; an accretion of small spaces surrounds two arched, shallow boxes facing each other and culminates into a vertical, luminous element. In a matter of days, the exploration of the site

↖ ↑ First digital iterations

↑ Selected option on site model

↗ Photomontage of project on site

↑ Initial sketch

THAT ARCHITECTURE IS A FULL SENSORIAL EXPERIENCE IS A WELL-KNOWN TRUISM, AND YET DIGITAL SIMULATION IS STILL FAR FROM BEING ABLE TO SERVE THE OTHER SENSES AS WELL AS IT SERVES THE EYE.

options yielded over 33 schemes within a very tight timeframe. Plan sketches were then produced around certain design constants to visualize numerous permutations of the same idea. All of them were scanned and quick massing models were produced on the computer and positioned on a digital site-model representing existing conditions. Much effort went into creating digital deformation studies—bulging bending, tapering, twisting and folding the basic shape. Inserted on a virtual table, each option was then compared to the others and classified by its merit.

A selected sample of these options were then presented to the client through weekly updates. Upon receiving feedback, additional hand sketches were produced, and editing on the computer started to generate variations within the theme. Following a few cycles in this phase, the client settled on one massing option that the architect further developed and detailed.

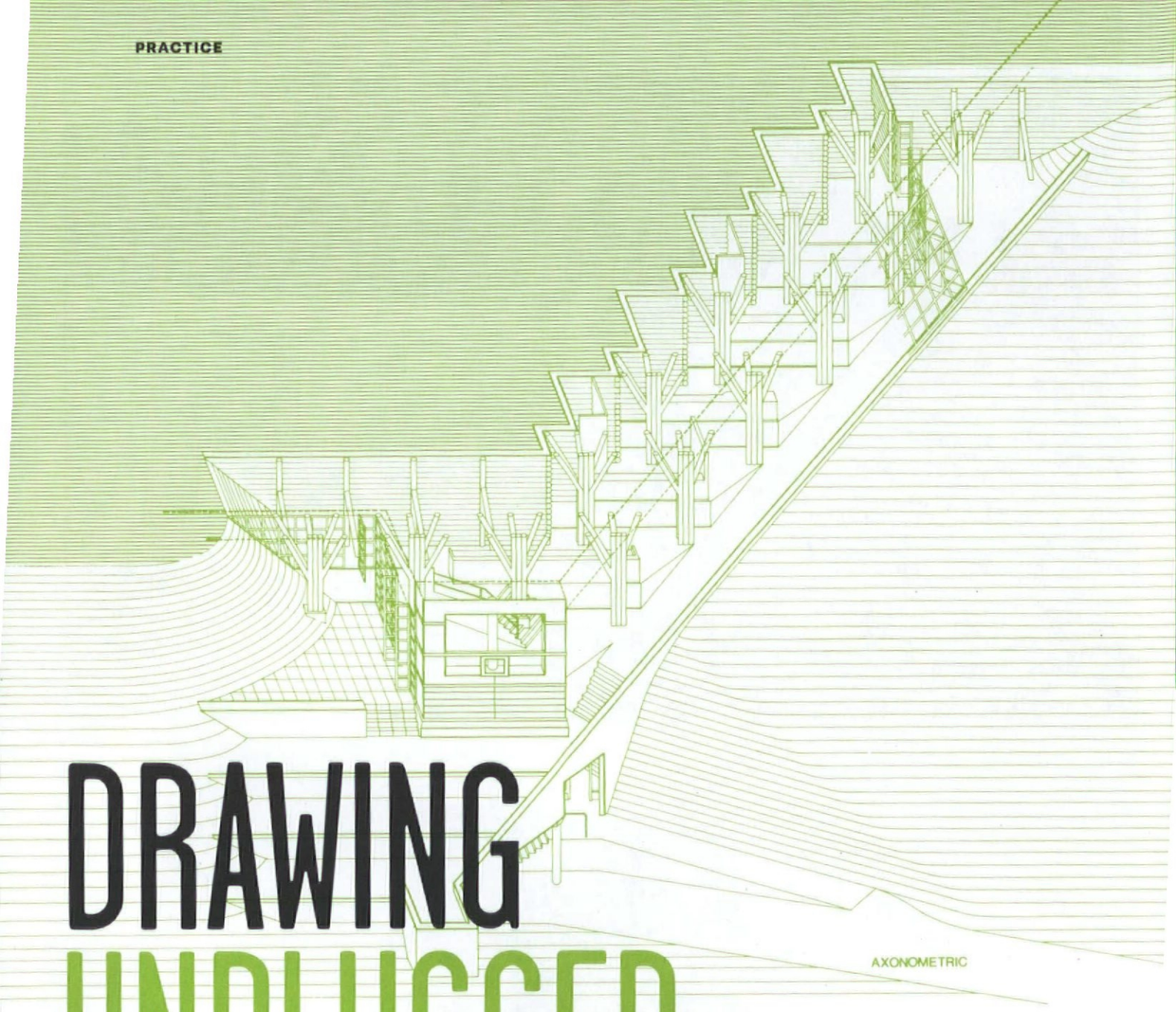
Although a physical sketch-model was made, the time it took to create and the information it yielded proved to be inefficient when compared to the digital process. Additionally, in the exploration of the buildings' skin treatment, the speed of generating and assessing options when sketching and 3D-modeling informed each other took center stage. Given the prominence of the complex within the bay, an accurate representation of various versions was pivotal for both client and architect to make reliable decisions and move the design forward. From the texturing of various metal-paneling options to more structural-driven imagery, one after another, dozens of building envelopes were studied, represented and evaluated, straddling tectonic credibility and rigorous design inquiry. The combination of one person designing, sketching and modeling dramatically sped-up a process that could have taken significantly longer had the tasks been distributed in a team.

However, such ease in visualization increases the risk of certain side effects. That architecture is a full sensorial experience is a well-known truism, and yet digital simulation is still far from being able to serve the other senses as well as it serves the eye. The evaluation of a design on its visual merit alone would be a setback on the path of awareness to what architecture can do in the twenty-first century, but clinging to past modes of production would be just as irresponsible and out of touch with our time. If the drafting table is gone, freehand sketching is here to stay. And because any architect interested in building will eventually confront the economics of construction and real estate, the competitive edge gained through the efficiency of digital modeling is hardly a negligible factor. With that said, physical models can still play a role beyond client representation, yielding critical information as sectional artifacts. But even more importantly, aside from the pressure of market forces on professional practice, would any significant knowledge be lost if the process of conceiving architecture were to go fully digital in the future? This may be a question that various generations of architects would respond to differently. The next twenty years will tell. ×

PIERLUIGI SERRAINO, AIA, is principal of Architecture3, an author and an educator of design studio and theory courses at AAU and the OLLI Institute at UC Berkeley. His work and writing have been published in professional and scholarly journals, such as *Architectural Record, Architectural Design* (UK), the *Journal of Architectural Education* and the *Journal of Art Historiography*. He has lectured widely on the subject of mid-century modern architecture, architectural photography and digital design.

JOHN MARX, AIA, is the design principal of San Francisco-based Form4 Architecture. Over his long career, he has designed more than 150 buildings in 11 different countries. John began designing digitally in 1991 and has widely lectured on this topic; in 1996, he became a lecturer in the Department of Architecture at UC Berkeley, where he developed a course in digital design and co-taught a course in Internet-based placemaking.

Written by Serraino, Marx's first monograph, *Wandering the Garden of Technology and Passion* (Balcony Press, 2012) has just been released.



AXONOMETRIC

DRAWING UNPLUGGED

David Miller

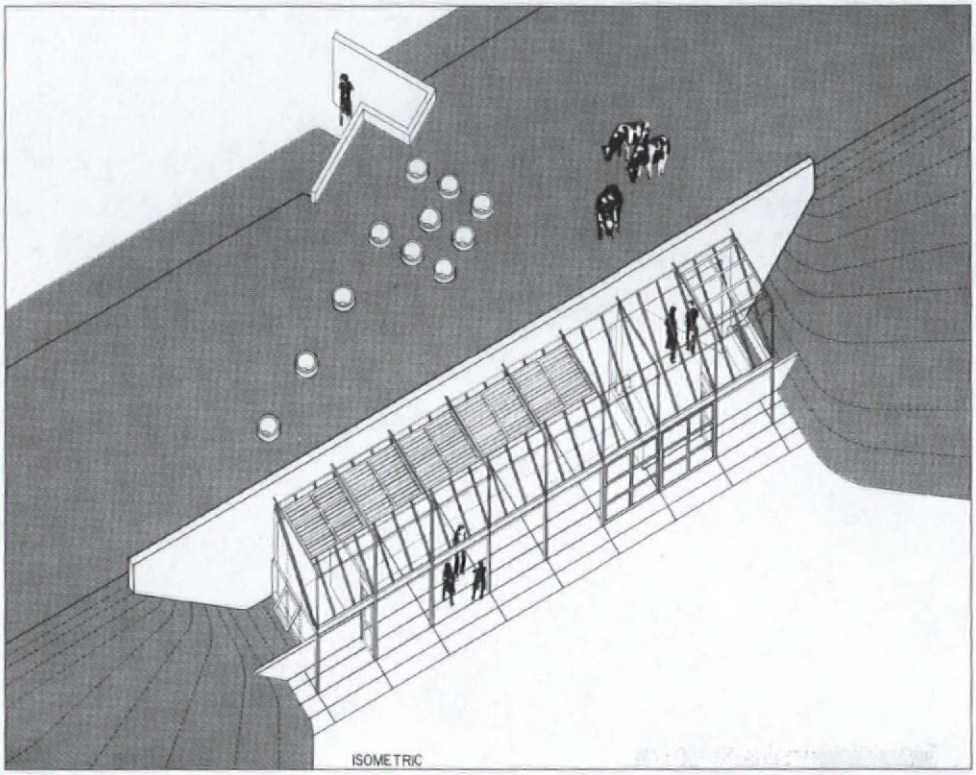
In October 1985, when lecturing at the opening of the Fogg Museum addition at Harvard, architect James Stirling was asked, "How do you do these amazing drawings?" His answer was simple: "With rapidographs!"

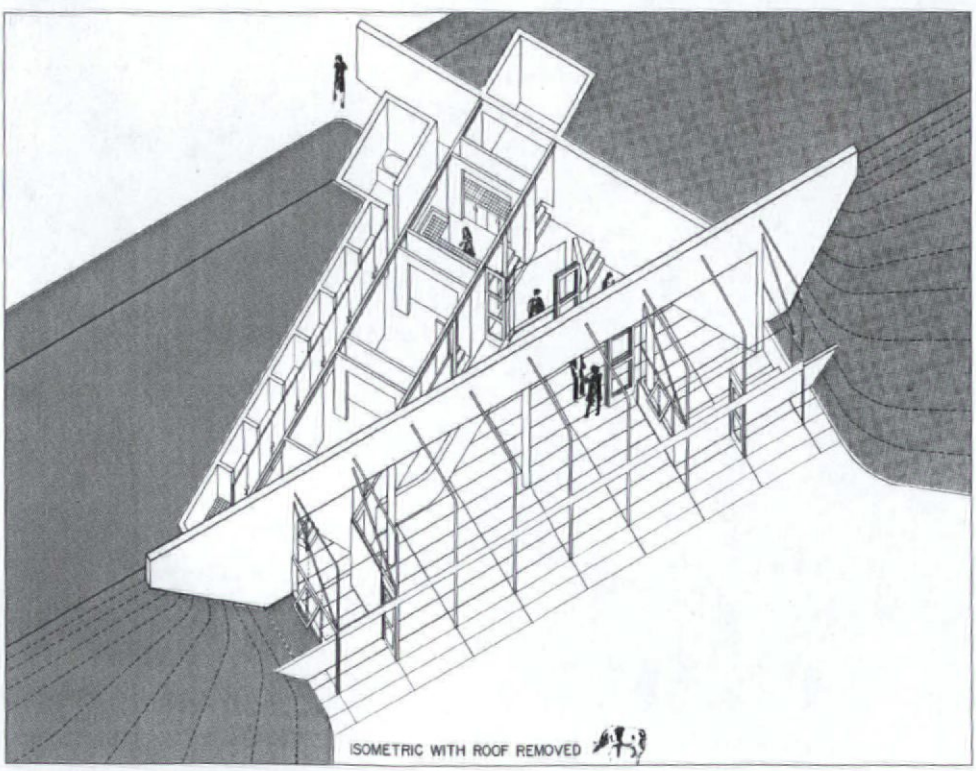
While the completed building typically gets all the attention, the process by which it is created isn't often revealed. When it is, it's typically discussed through an analysis of a designer's hand sketches, watercolors or diagrams—rarely from looking at his or her hard-line drawings.

The design drawings presented here are from early Miller Hull projects in which the final presentations were crafted by drafting with pen-and-ink onmylar. These drawings were in black and white and created from a system of precise line-weights learned from mine and my partner's time studying architecture at Washington State University. The individual drawings, plans, sections, elevations and axons were always developed with the composition of the entire sheet in mind. While they were initially drawn for client presentations, we also considered their ultimate publication in journals. The resulting challenge was that the line weights needed to work at different scales. The rigor that was needed to produce these drawings played a significant role in a process of design refinement. Every line was deliberate, every drawing was considered to be essential to the project's manifestation.

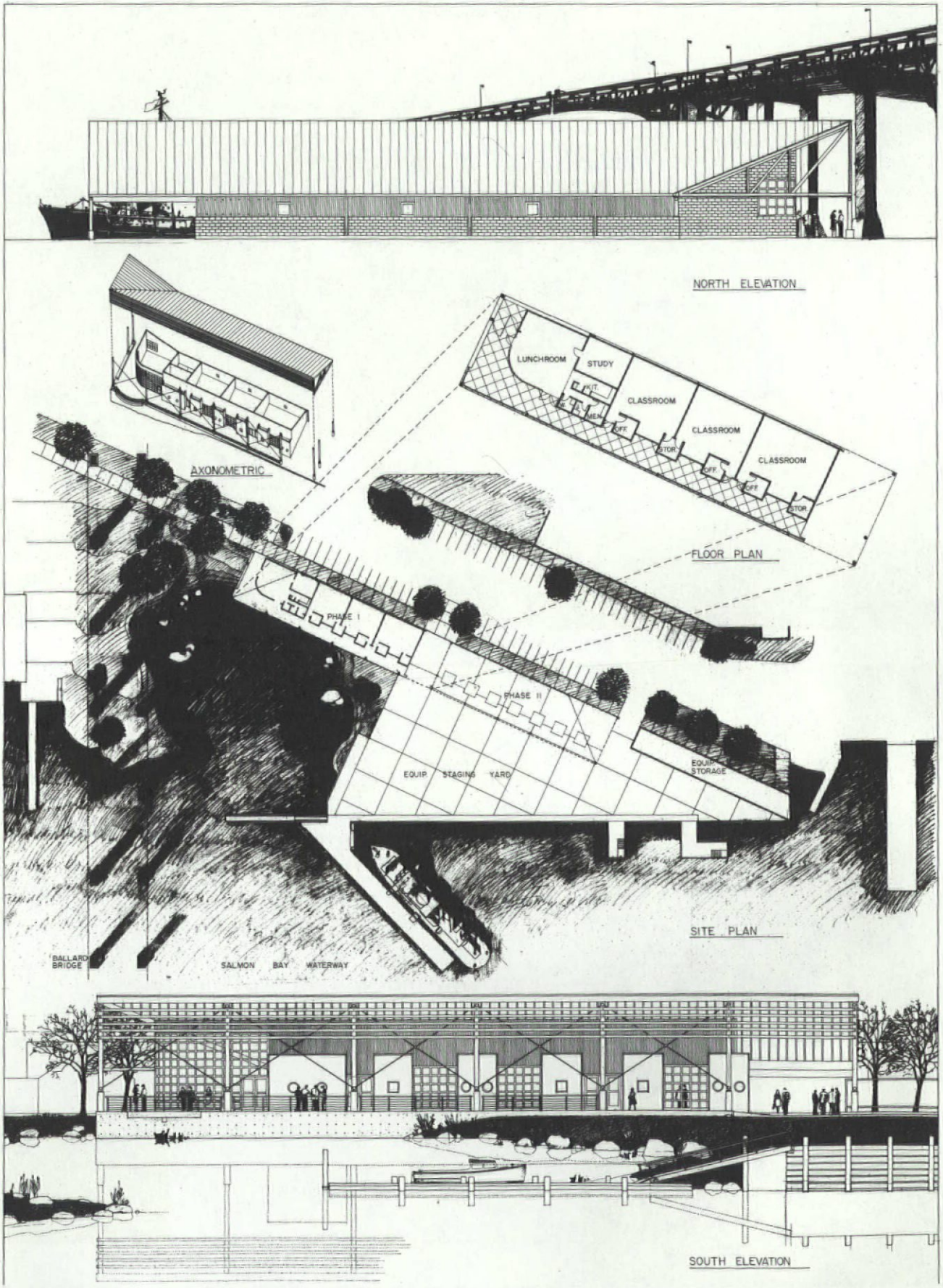
(pg 57+59) Drawing by David Miller
(pg 56+58) Drawings by Bob Hull

When we look back at these projects, the drawings always come to mind. In many ways they feel as important to each project's legacy as the completed structure.





DAVID MILLER, FAIA, is a founding partner, with Robert Hull, of The Miller Hull Partnership. The firm, established in 1977, has received over 250 awards for design excellence including the AIA National Firm Award in 2003. David is a professor and current chair in the Department of Architecture at the University of Washington.


NORTH ELEVATION
AXONOMETRIC
LUNCHROOM
STUDY
KIT
MEN
CLASSROOM
CLASSROOM
CLASSROOM
OFF
STOR
FLOOR PLAN
PHASE I
PHASE II
EQUIP STAGING YARD
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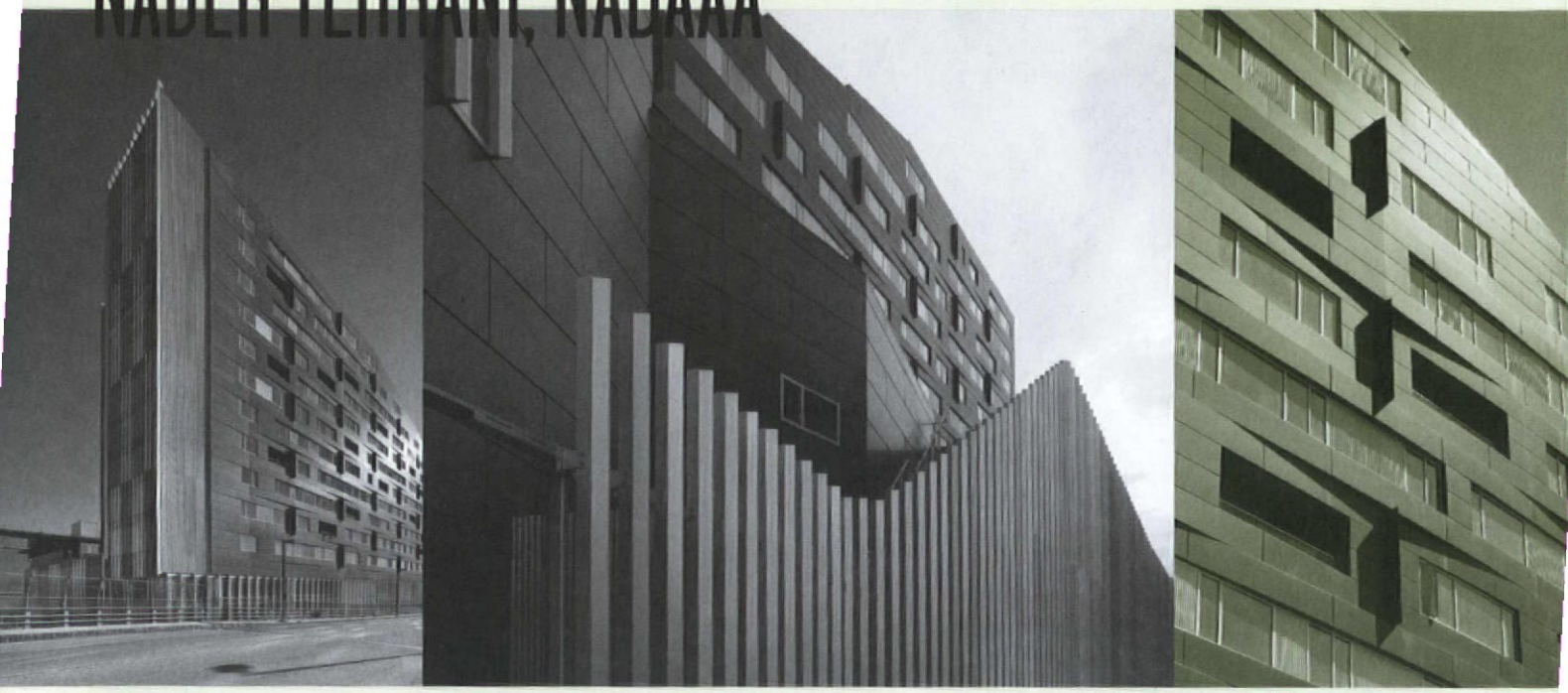
UNRAVELING METHODS OF DESIGN AND CONSTRUCTION AN INTERVIEW WITH NADER TEHRANI, NADAAA



Macallen Building, 2002, Boston, MA All photos: John Horner

BUILD IIc

Last winter, we sat down to talk with practitioner and academic Nader Tehrani, who works and teaches in Boston.

Working on interdisciplinary platforms, Nader Tehrani's research has focused on the transformation of the building industry, innovative material applications and the development of new means and methods of construction. As the founding principal of office NADAAA, Tehrani's work has received many prestigious awards, such as the Cooper-Hewitt National Design Award in Architecture. Also a professor, Tehrani is the head of the department of architecture at the MIT School of Architecture and Planning.

You are the son of an Iranian diplomat, born in England and raised in Pakistan, South Africa, Iran, Italy and finally the United States, where you were educated at RISD and Harvard. Do you consider yourself to be a globally conscious architect?

The diversity of my background invariably defines me, but as an architect, I think one is defined by an intellectual pedigree altogether distinct from one's personal background. In my case, the RISD years provided me with a series of debates, references and cultural agendas that rode above my personal biography—or maybe they offered a lens of visual and disciplinary terms through which I could reread my own background in broader terms than I could have previously.

What do you consider to be the primary architectural challenges that we face in the United States?

The 70s and 80s brought back an appreciation of history, cultural lineage and precedence that expanded the perspective of design at the time, but also during this period the relationship between architecture as a discipline and building as a practice was often ignored. Architectural training broke the link between design and construction processes. To exacerbate this, the way in which AIA contracts are currently drafted in the US has further amplified this disconnect, creating an innate adversarial relationship between architects, contractors and clients.

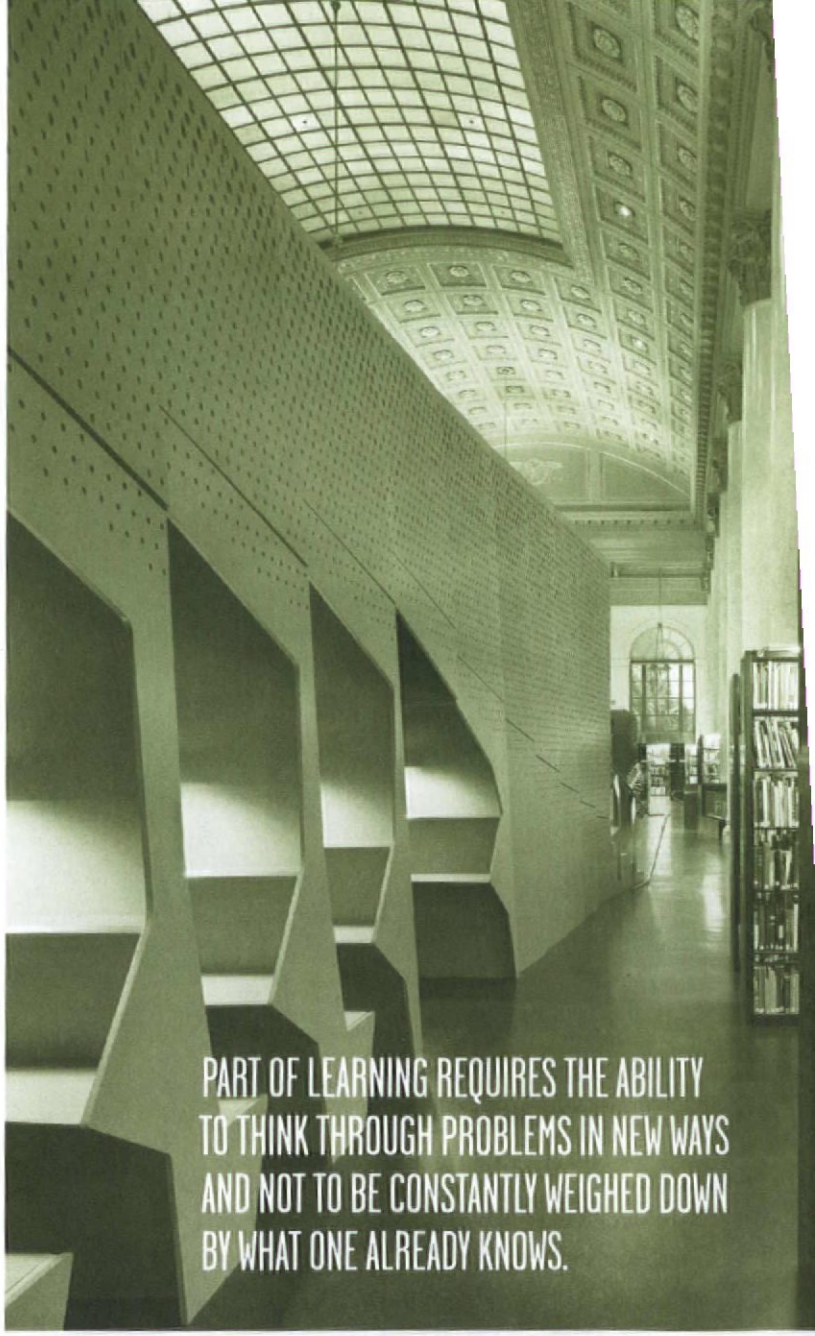
NADAAA's practice (then under my founding name of Office dA) emerged during a significant shift. The economic crisis of the 80s led the architectural practice to rethink itself, and our approach involved a ground-up reworking of the design process—to include thinking through methods of fabrication as a design imperative and necessary preamble. This involved investing research into the means and methods of production at a time when they were under the sole purview of the builder and contractor.

One of the principles your firm NADAAA is dedicated to is the transformation of the building industry. What are your concerns with the building industry as it currently exists?

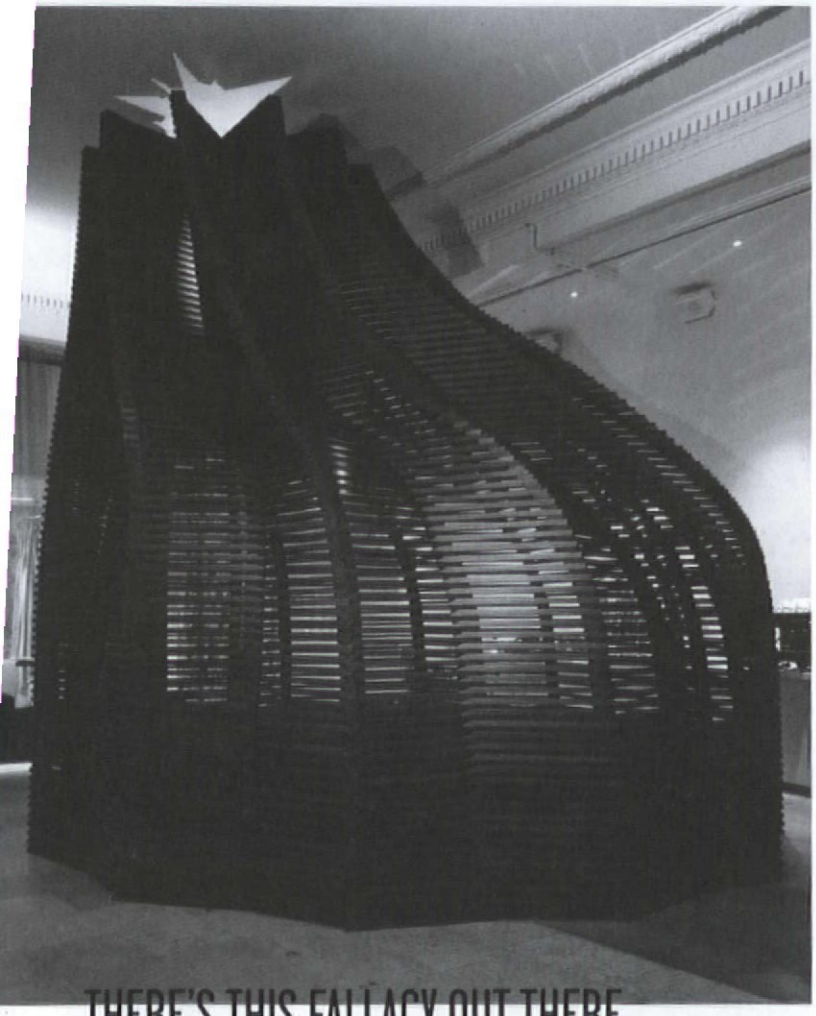
From our point of view, the separation of drawing from building and the builder's singular control over fabrication are both problematic. They ensure an unnecessary and unhelpful gap between design and building.

The work we're doing at NADAAA unravels the practices of architecture and building and rejoins them. We often seek out subcontractors and those in building trades and ask what they do, how they do it and learn everything we can about their methods; we reinterpret their abilities as our launching point. We will often radicalize what they already know or alter one element of what they do towards different ends, but we operate within their area of expertise, expanding their domain. This leads to a mutual back-and-forth in which we work and learn together.

This method of working becomes all the more important in an international practice dealing with countries that have fundamentally different building practices. We are currently working in Australia, China and South Korea—these are all vastly different cultures, and we have had to tap into their ways of working and communicating. For example, China and Korea are remarkably swift in their schedules



RISD Library, 2006. Providence, RI



THERE'S THIS FALLACY OUT THERE THAT I WANT TO DISPEL: THAT IN ORDER TO BE A GOOD ARCHITECT, YOU HAVE TO HAVE HAD THE ON-SITE EXPERIENCE OF "BUILDING WITH YOUR OWN HANDS."

of both design and fabrication, leaving little time for design development. For this reason, one has to be extraordinarily rigorous in one's selection of agendas and editing ideas. In turn, both countries can often build complex details that would be unaffordable in the US, given the standardization of the industry here. At the same time, quality control over details remain a huge hurdle because the status of contract documents do not have the same gravity as they do in the US—all of which makes one more selective about what to design and what to control.

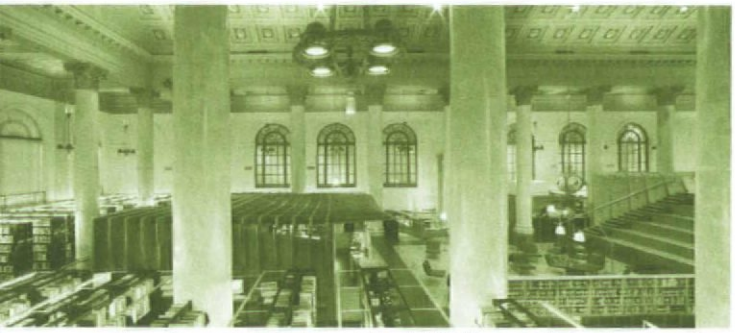
The cultivation of new means and methods of fabrication is also a priority of yours. What have you found regarding the relationship between the architect's vision and the architect's tools—the things that make the thing? Does one lead the other?

There's this fallacy out there that I want to dispel: that in order to be a good architect, you have to have had the on-site experience of "building with your own hands." As architects, I think it's our job to learn how things are built and constructed, to learn what the trades have to do in order to build something. But having a comprehensive knowledge of construction isn't dependent on site experience but an ability to reinterpret conventions, to be able to imagine strategic alternatives to the norm and understand avenues to reconfigure the elements of everyday building.

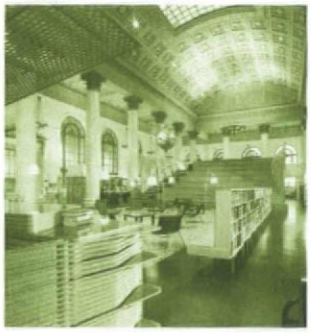
An example of this is the wood dome that we designed for the interior of Mantra Restaurant in Boston. We were not experts in pricing, but the numbers we received back from the contractor instinctively felt too high. As an alternative, we took on the exercise of determining the cost and time required to build the dome ourselves. We sat down and calculated how many sheets of plywood we would need to get cut, how long it would take to build each layer of wood and what the labor costs would be per hour. We came up with a cost that was a fraction of the contractor's price—approximately one sixth of the cost, including profit.

When it comes to the unfamiliar, builders will either grossly overprice projects or price them so they're unbuildable. In these cases, architects have to find another way to get things done. Our in-house pricing exercise gave us a system to transform the contractor's thinking and the math to properly calibrate the pricing.

We don't intend to run through a study like this on every project nor do we intend to marginalize the building trades. We've simply found that in order to innovate, one must find new ways of doing things that haven't been done before. Pricing exercises, installations and material studies have all played an important role for us in terms of developing design tools.



← Mantra Restaurant, 1990, Boston, MA



↑ RISD Library, 2006. Providence, RI

Another important strategy is bringing consultants and engineers on board early in the design process. The various systems that are part of their disciplines influence the direction of a project in critical ways, and their incorporation makes for a smarter design process, less value engineering and the possibility of a thoroughly integrated project.

The projects you take on seem to focus less on any particular project type and more on the methods of design and construction. In terms of the market place, has it been challenging not specializing in particular types of architecture?

Honestly, I don't know. We have become experts on little things and have accumulated skill working at a variety of scales. We learn everything we can on each project, and I think our clients benefit from that. All scales of design interest us, from a chair to urban planning, and this curiosity has led to the knowledge and experience that allows us to take on a diversity of project types.

Larger projects like the Macallen Building Condominiums in Boston must require a high level of diplomacy. How are you able to balance the process of architecture with that of public approval?

Many political moves occur on a project of this size and complexity, simply in order to allow each community and group to have a voice. There are multiple meetings, extensive presentations and subsequently, things are compromised. Sometimes this is less an architectural problem and more related to business. But it is all relevant to the project.

Interestingly, the original zoning for the Macallen site made it implausible to build anything of consequence there—both architecturally and commercially. The site was an industrial area near a railroad line, and it wasn't originally seen as buildable. Fortunately, the developer saw the potential of the site. Thus, it needed to be rezoned from scratch, and it was our initial analysis that set the terms for the new zoning rules.

The resulting design solution, which offers public space, on-street retail, expanded green areas and a plaza, was made possible by our zoning studies and has come to create an amenity for the neighborhood, producing better urbanism and extending the city's fabric in an important way.

In your work with students, you've discussed the importance of "unlearning." In what areas of the profession could architects most benefit from this idea?

As designers, we are all the products of education systems that come from very specific mindsets—much of which are valuable. At the same time, as culture changes, as the industry transforms, as new drawing software is developed, much of our skill sets are led to obsolescence. For this reason, unlearning is an important factor—to unburden ourselves of bad habits, arbitrary conventions and outmoded techniques. Part of learning requires the ability to think through problems in new ways and not to be constantly weighed down by what one already knows.

With the practice of architecture evolving so thoroughly, how are you preparing students for a future profession that we don't yet know?

The curriculum at MIT is teaching students how to think critically; our core exercises are focused on a series of architectural riddles that aim to prepare the students intellectually, to make them think and invent alternatives. Knowing that what they learn now will become fundamentally different within a few years, their education includes a set of intellectual exercises that teach resilience towards change. ×

BUILD llc is an industrious design-build firm in Seattle run by Kevin Eckert and Andrew van Leeuwen. BUILD llc's work focuses on permanence, sustainability and efficiency. BUILD llc maintains an architectural office, a cabinet shop and a development company and is most known for their cultural leadership expressed in frequent posts on their BUILD blog. BUILD team member Sandy Ha contributes to the ARCADE interview series. *www.buildllc.com*

DESIGN-MINDED EVENTS IN THE NORTHWEST

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BYDESIGN 12
Northwest Film Forum + AIGA / Sponsored by ARCADE / 20–25 July
BYDESIGN 12 explores intersections of design and film with six days of screenings and special guests. An array of documentaries, short films and sequences, and presentations celebrate aspects of design in our culture of moving-images.

"Visions of Future Spaces," Sunday, 22 July
On behalf of Northwest Film Forum and ARCADE, filmmaker, writer and ARCADE Editorial Committee member Charles Mudede will present "Visions of Future Spaces," a talk exploring architecture and interior environments in Science Fiction films. *Northwest Film Forum, 1515 12th Avenue, Seattle / nwfilmforum.org*

PechaKucha Night: Story
An ARCADE Partnered Event / Friday, 22 June, 7:00 pm
Created by two American architects living in Tokyo, PechaKucha, a networking and entertainment event, has spread to over 500 cities worldwide. Seattle's chapter chooses a theme for each event, which invited presenters interpret. Tonight's theme: *Story*.
[storefront] Olson Kundig Architects, 406 Occidental Avenue, Seattle
pecha-kucha.org/night/seattle

Revolution of Forms: Cuba's Forgotten Art Schools
Lecture by John Loomis / Presented by Space.City
Lecture: 12 July, 7:00–9:00 pm / Film: 13–15 July, Northwest Film Forum
Space.City presents a lecture by John Loomis FAIA, author of *Revolution of Forms: Cuba's Forgotten Art Schools*. *Revolution of Forms* explores that euphoric moment at the beginning of the Cuban Revolution to the subsequent collision of architecture, ideology and culture in 1960's Cuba. The Escuelas Nacionales de Arte were constructed to reinvent art and architecture as the revolution reinvented society. The book details the extraordinary project's fall from political favor, the race to finish the schools, their abandonment, recent rediscovery and restoration. This Space.City lecture accompanies a Northwest Film Forum screening of *Unfinished Spaces*, 13–15 July.
spacecityseattle.org / revolutionofforms.com / nwfilmforum.org / unfinishedspaces.com

George Nakashima: A Master's Furniture and Philosophy
The Wing Luke Museum / 12 July–20 January, 2013
A leading mid-20th century designer in woodworking, George Nakashima (1905–1990) is known for his fine detailing, finishing and spirituality stemming from a deep kinship with nature. In this exhibition featuring vintage Nakashima furniture, architectural drawings and sketches, follow how Nakashima's life experiences translated into his work and explore his legacy.
The Wing Luke Museum, 719 S. King Street, Seattle / *wingluke.org*

MORE UPCOMING DESIGN HAPPENINGS

Roy McMakin: *I Continue to Believe in the Potential to Express Hope and Sorrow Through Furniture*
Western Bridge
Through 28 July
westernbridge.org

The Next 50
The Seattle Center
Through 21 October
thenextfifty.org

Design with the Other 90%: CITIES
MoCC
17 August–5 January
museumofcontemporarycraft.org

July Installation
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