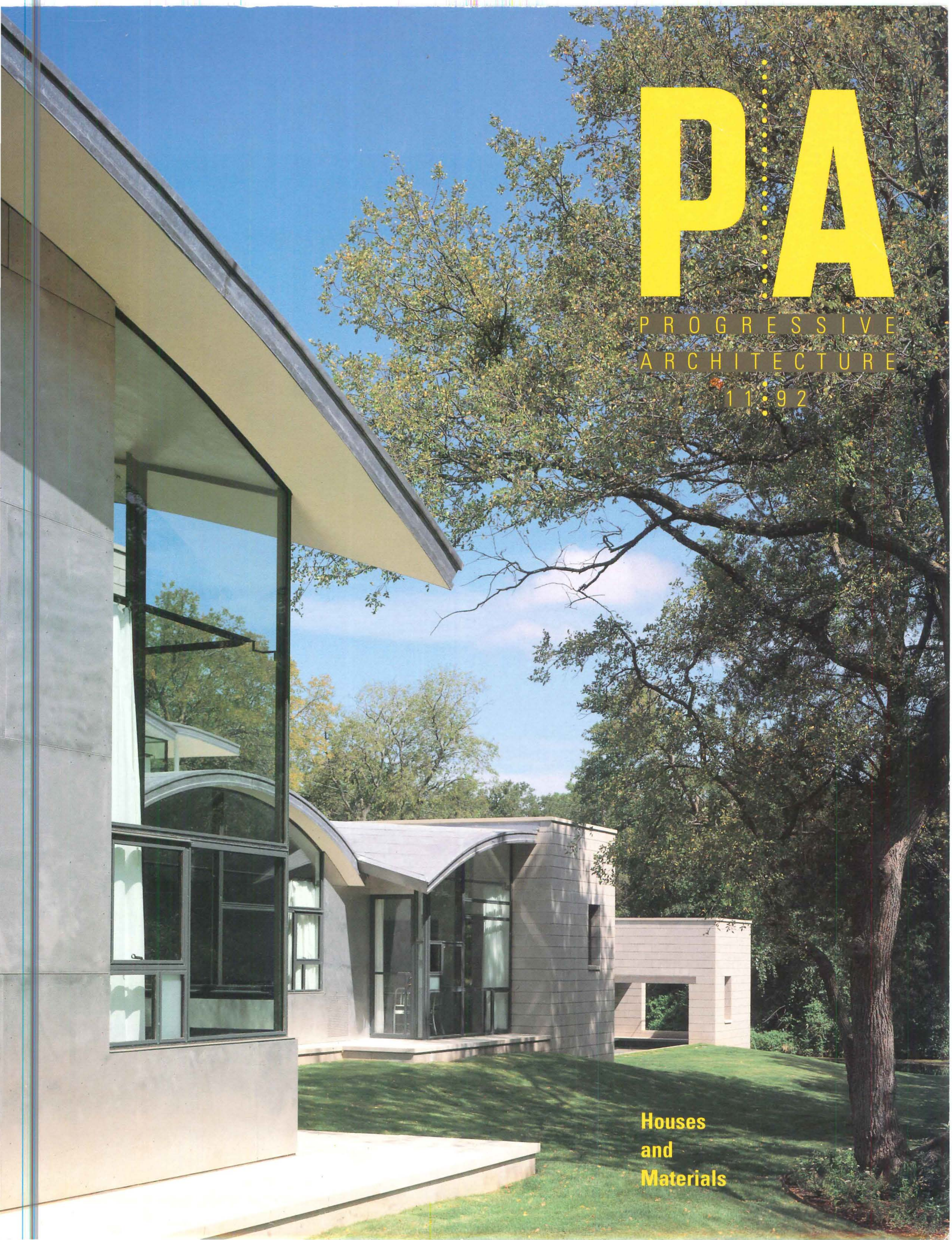
PA
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Houses
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A Macintosh w
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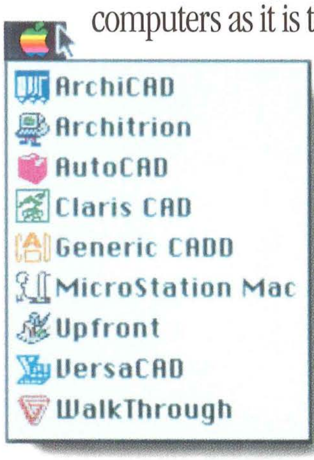
"No house should ever be *on* any hill," Frank Lloyd Wright once wrote. "It should be *of* the hill, belonging to it, so hill and house could live together, each the happier for the other."

The Apple Macintosh Quadra.

The notion of integrating into an environment rather than overwhelming it, of complementing what already exists rather than eliminating it, is as relevant to the architecture of computers as it is to the architecture of buildings.



Macintosh Quadra runs all the most powerful design and architecture software.

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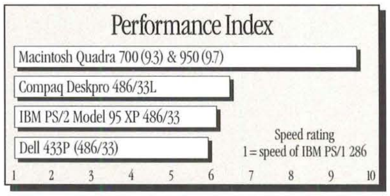

Macintosh Quadra significantly outperforms 486 PCs from IBM, Compaq and Dell running Windows 3.0.

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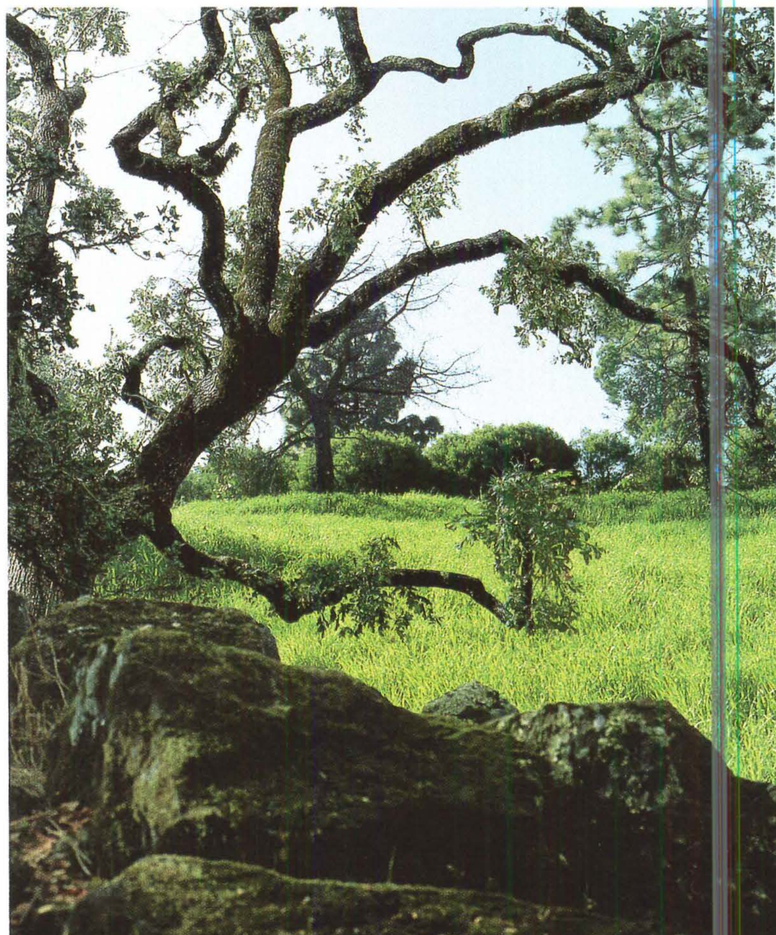

design software, including programs such as AutoCAD, ArchiC MicroStation Mac, Architrion and Alias Upfront.

That's because both the 700 and 950 powered by the awesome Motorola 6804 (rated at 20 and 25 MIPS, running at 25 33 MHz), which integrates the processor, m coprocessor and RAM cache all onto one c

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*Comparisons are based on a 1991 independent research study conducted by Ingram Laboratories that tested a variety of personal computers running applications available for both the Macintosh and Microsoft Windows 3.0 environments. **24-bit video support for up to a 16" monitor—also available for 2 neither an endorsement nor a recommendation. All product specifications and descriptions were supplied by the respective vendor or supplier. ©1992 Frank Lloyd Wright Foundation, Curtis Management. ©1992 Apple Computer, Inc. Apple, the Apple logo, Mac, Macintosh and "The power to be your best" are registered trad trademarks of Lotus Development Corp. MicroStation is a registered trademark of Bentley Systems, Inc., an affiliate of Intergraph Corp. VersaCAD is a registered trademark of Versacad Corp. Virtus WalkThrough is a trademark of

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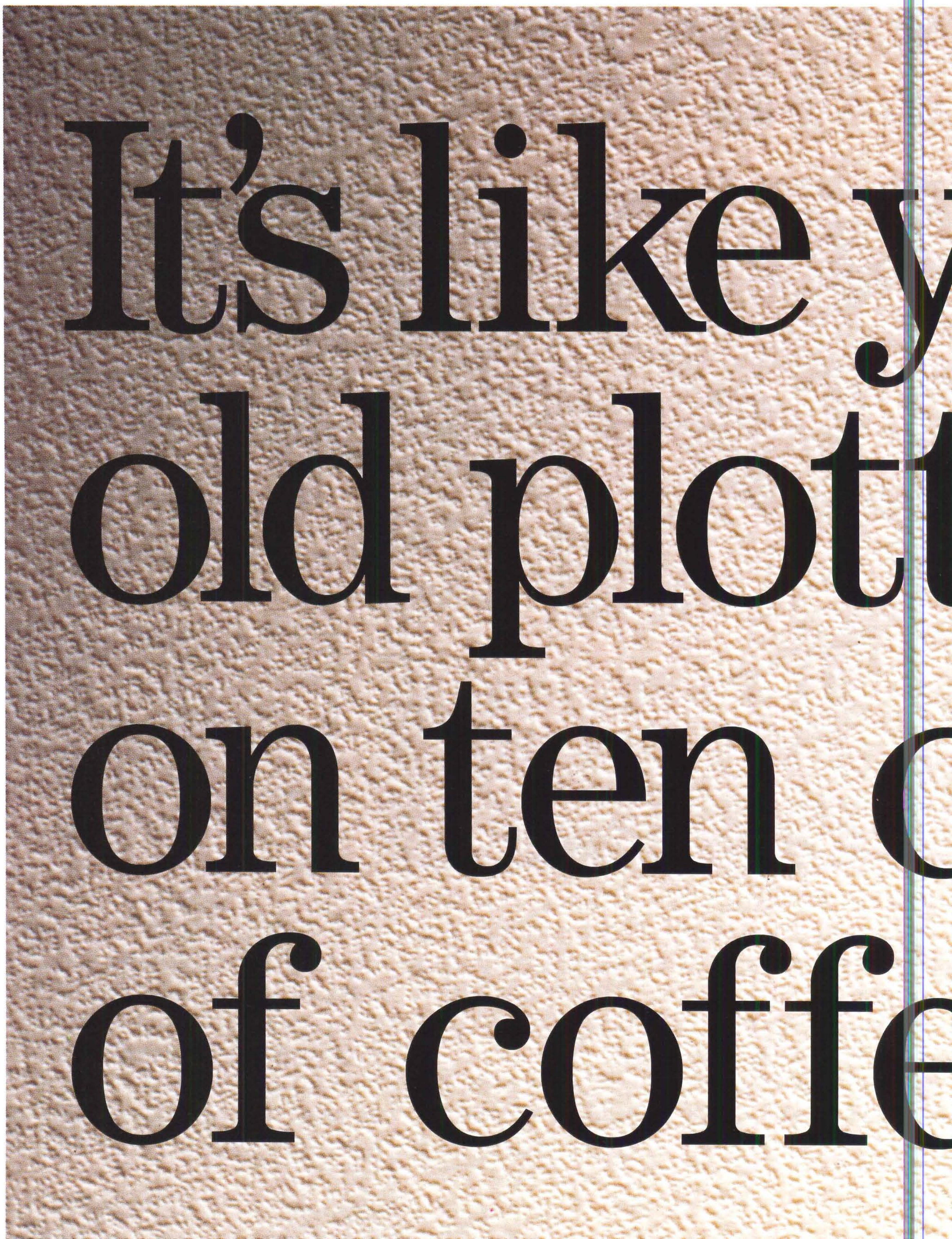
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Cover: *Stretto House, Dallas, Steven Holl Architects, (p. 54). Photo by Paul Warchol.*

Progressive Architecture November 1992

P/A

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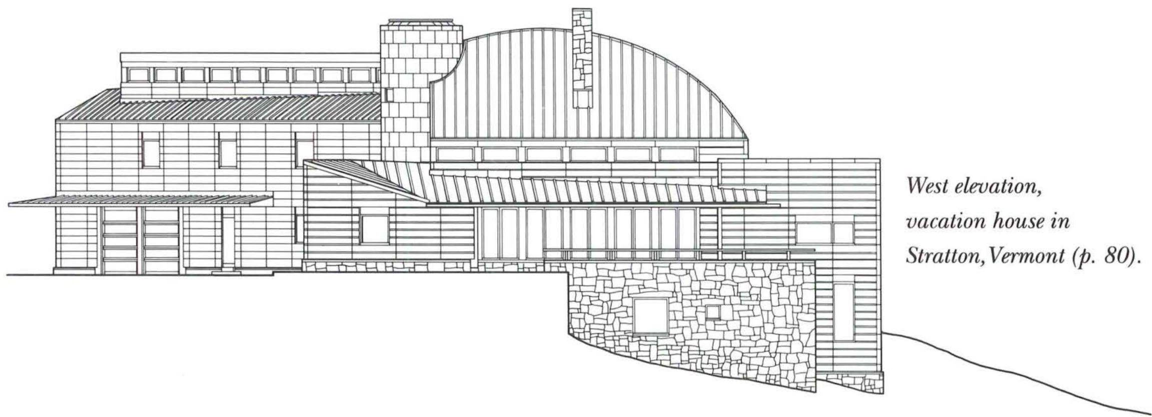

West elevation, vacation house in Stratton, Vermont (p. 80).

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Editorial
The Last House

Before AIDS patients lose their lives, many lose their homes. Good health eludes them; a dignified place to live should not.

Pick up the telephone. Call (404) 330-3022 at Atlanta's Centers for Disease Control. You'll hear the death toll of the AIDS epidemic, delivered on an answering machine: a Southern woman's voice recites numbing statistics of the dead and the ailing, updated quarterly (as many as 340,000 will have died by the end of 1993). You may be uncomfortable and silent – there's no one on the other end to talk to, anyway – while the numbers are racked up. Perhaps, like me, you'll call once more because you couldn't write the figures down fast enough or were unnerved by the rhythmic dispatch of too many too soon. Like Walter Cronkite's weekly tallies of casualties in the Vietnam War, it's a numerical litany that stirs anger and regret.

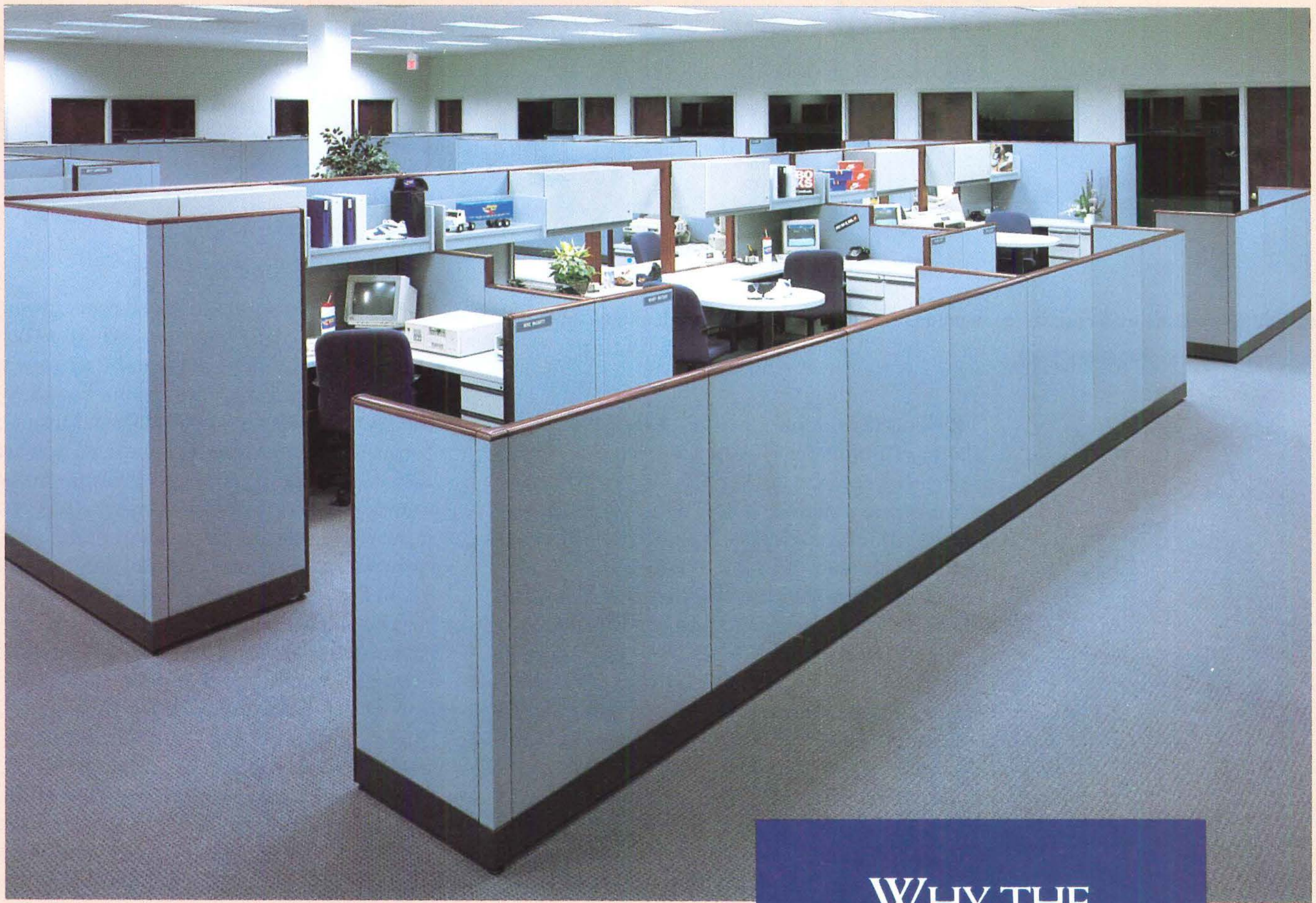
Once the numbers are jotted down, you might pause to consider the tens of thousands of personal catastrophes of people with AIDS – physically, psychologically, and financially. Every patient sees his or her body fade into a phantasm of what it once was. Often, those who are gay or drug abusers are vilified, labeled deserving victims. No one, neither the patients nor the rest of us, is prepared for the astronomical expenses wrought by AIDS: *Housing and the HIV/AIDS Epidemic*, published this July by the National Commission on AIDS (15 people appointed by the President and Congress) states that the disease costs $60,000 for each patient. It also estimates that at least one million Americans are HIV positive.

We wait, impatiently, for biologists to produce an elixir. Ranks of gay men and lesbians have been radicalized, but their activism hasn't changed the fatal prognosis that inevitably follows HIV infection. Architects – yes, architects – have plenty to offer the AIDS patient. We needn't wear laboratory jackets or take to the streets in ACTUP T-shirts (although more than a few do). We're trained to provide shelter. We know how to negotiate Byzantine laws on zoning and construction permits. Who is better equipped to design and promote residences for people disabled by AIDS? These places would cut the cost of caring for a patient tenfold, from $1000 to $100 a day. We could take 30 percent of our AIDS patients out of the hospital if they had a place to go. Those who aren't yet in the hospital need our help, too: for one-third to one-half of those with AIDS, homelessness is imminent or already real.

On fiscal, let alone humanitarian, grounds, a housing campaign is overdue. Where to begin? Design competitions are a good start (one was held in Boston; another will be announced in New York). But, as one colleague notes, talent doesn't cover construction costs. He recommends that architects ally with local AIDS advocacy groups who know how to raise funds. Why not a national effort? We should make AIDS housing the mission of the next AIA convention. If we take the initiative on this crisis, we might finally be a vanguard that the public notices.

The Department of Housing and Urban Development's response to this shortfall is lethargic at best, evasive at worst. It designates 500 units of Section 811 housing each year for AIDS patients who can live independently – an average of ten in each state. (Boston, which trails eight other cities in its number of AIDS patients, already needs 2000 units of housing for them.) HUD's plan excludes the gravely ill. The National Commission on AIDS reported that "by HUD's definition, the disease is not of such a nature that the ability to carry on daily functions would be improved by more suitable housing." This is Hobbesian logic for a "kinder and gentler" administration, a callous ploy that leaves it to us to pay the bill tenfold.

Fortunately, alliances of non-profits and state and local government provide about 180 residences for AIDS patients (a small fraction of those needed). Typically, they are rehabilitations of convents, SROs, houses, and the like. Most are modest, a consequence of tight budgets and the discreet profile preferred by care providers – sometimes to ward off disruptions by inimical neighbors. The resulting patchwork, sparse as it is, offers good lessons for architects. Many of the residences, variously named nursing homes, hospices, or (valiantly) life centers, are domestic in scale and form. They may have bedrooms like yours or mine. Porches. Living rooms for those who are able to get out of bed. AIDS patients say that the trappings of mundane life matter most when it can no longer be taken for granted. But it's not all warm and fuzzy. In New York, as in many cities, most homeless AIDS patients got the virus through IV drugs; counseling and rehabilitation are as imperative as fighting pneumonia or Kaposi's sarcoma. You can sample a range of AIDS residences on page 99 of this issue. Consider them precursors. Perhaps you can help build more. **Philip Arcidi** ■



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C E T R A G O E S E V E R Y W H E R E

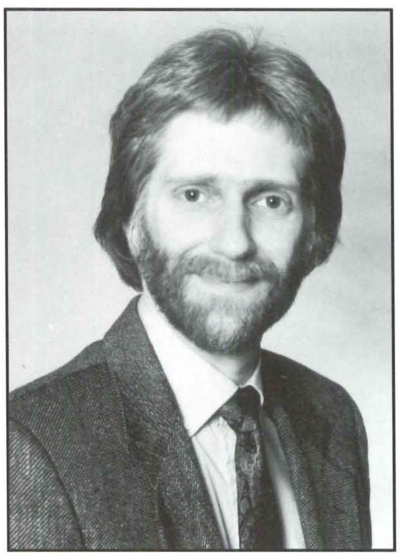
Kenneth Labs 1950–1992

Kenneth Labs, who as a senior editor of P/A remade the magazine's Technics department, died on September 19 of mesothelian cancer in a Branford, Connecticut, hospice.

Ken came to P/A in 1989 with a broad range of experience. After getting his Master of Architecture degree from Washington University in St. Louis, he worked in private architectural practice in Connecticut and Texas, in town planning in Pennsylvania, and in research. As a visiting lecturer, he taught environmental technology at the Yale School of Architecture, and he wrote a number of published documents on planning, underground construction, and energy-efficient design, including the 1983 book *Climatic Design: Energy-Efficient Building Principles and Practices,* which he coauthored with Donald Watson.

So by the time he arrived at P/A in 1989 for what would turn out to be – by his own accounting – his longest stretch in one job, Ken had some clear ideas about what an architecture magazine's technical coverage should be. Unlike previous Technics editors, he did relatively little writing himself, preferring to edit papers by experts in various fields. He began commissioning articles from researchers, practitioners, and consultants, giving them a venue for publishing new research.

Such a strategy was new to P/A; in the past, we had most often applied a kind of journalistic filter to Technics coverage. Ken's method earned us new attention and respect both from readers and from the research community.



Daryl Hawk Photography

The method also brought controversy, since the authors of our Technics articles tended to advance particular points of view. An article on brick veneer and steel studs (Feb. 1992, p. 113), for example, spawned five responses from other experts, which Ken published – along with the author's response to each (June 1992, p. 47).

Ken often said that, in order to be taken seriously, the architecture profession needed a refereed journal like those of the medical profession, where papers are submitted to peer review before publication. Establishing such a journal was one of his long-term goals; in the meantime, he did his best to push our Technics department in that direction.

But his influence on P/A extended beyond Technics. He was a vocal participant in our weekly editorial meetings, often playing devil's advocate on design issues. He had a scientist's impatience with the way some architects package vague ideas as "theory," insisting that a theory is a set of prescriptions, not an ethereal set of influences. From his frequent calls for more empirical criticism to his dogged defense of the suburb, Ken challenged our opinions and kept us on our toes.

But Ken's criticism was easy to take, because of his genial, country-bred manner. He was born on March 21, 1950, in Doylestown, Pennsylvania, and grew up in nearby Mechanicsville, where his parents, George and Violet Labs, had a chicken farm. In some ways, Mechanicsville never left him: he kept the do-it-yourself mentality that one learns on a farm. At work, that meant devising his own detailed style manual for Technics writers and sketching his own layouts before meeting with the art department. At home, it meant lavishing attention on his 1950s builder ranch in Mt. Carmel, Connecticut, putting in new halogen lighting, an elaborate sound system, and storage units with scrupulously matched moldings. He kept us updated on these projects, along with the running battle he waged with chipmunks over his strawberries.

Another of his passions was for music; he liked to say he had a guitar for every day of the week, and he sometimes played jazz guitar in New Haven nightspots. At least once, this interest cropped up in P/A: he illustrated an article on acoustics (April 1991, p. 45) with a Robert Johnson album cover that depicted the blues guitarist singing and playing while facing the corner of a hotel room. Ken, remembering the cover, had his assistant rooting through second-hand record stores to track it down for his story.

Not all of us were aware of his other interests until his death; among them were nature photography, bird watching, and writing poetry. We learned from one editor that he was crazy about rhubarb and had collected dozens of rhubarb recipes for a possible book. It sounded like Ken; he approached every pursuit as a scholar, categorizing and cataloguing and learning all he could.

As Ken's cancer advanced, he became less able to make the commute from his home to our office in Stamford. Armed with a fax machine and a modem, though, he continued his work eagerly, giving it up only when his physical symptoms prohibited it. In his later faxes, his zeal for questioning the magazine's status quo only increased; "You can say anything you want when you have cancer," he explained.

Less than a month before his death, Ken was married to Joanne Improta, formerly P/A's Circulation Marketing Manager. We were all heartened to know that Ken was spending his last days with Joanne, whom we knew to be warm, caring, and – clearly – courageous.

Besides his wife and parents, Ken is survived by a brother and sister-in-law, Wayne and Nancy Labs, of Doylestown, and their son, Jonathan. To all of them we extend our warmest sympathies. Ken was an irreplaceable colleague, and a good friend. ■

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Recalling Ken Labs

We were saddened to hear of the passing of Ken Labs, senior editor of P/A (see page 9). We knew him through his role in the publishing industry, but we knew him as much more than that. He was involved, not only in reporting on the issues facing the architecture and construction field, but also in the process of improving our practice. His devotion was motivated not by personal profit but by dedication to achievement. And achieve he did, though his time was too short. The architectural practice and the construction industry have lost a major asset and a good friend. We will miss him.

Tom Schwartz
Michael Louis
Simpson, Gumpertz & Heger
Arlington, Mass

Ross Miller on Public Housing

Ross Miller attributes the planning of U.S. highrise public housing to Le Corbusier's nasty schemes for the reconstruction of our beloved Paris (article on highrise public housing, P/A, Aug. 1992, p. 72). This follows the common misperception that architects doing housing actually can control the concept and construction of the project they are "designing." As an architect who worked for three decades in both private and public offices doing public housing, my experience in most instances was that the architects were allowed to decide almost nothing except for some of the surface detailing, which Miller goes on to relate to the fashions of the time.

The familiar American big-city highrise subsidized housing type began to emerge in the early 1930s (see Knickerbocker Village in Lower Manhattan: pre-New Deal!) in response to the concerns of social reformers over the ills of the "slums": overcrowding, little light and air, no recreation space, frequent disastrous fires, inadequate mechanical equipment and construction. Their solution was to free the site for recreation, go up into the light and air, require cross ventilation in all units, no more stair climbing with baby and groceries, and build fireproof. All this was embodied in "standards" (remember them?). The large builders who got this work insisted that the only way to do all this economically was with highrise buildings that re-used concrete forms and got maximum efficiency out of mechanical equipment and elevators. This building type was given to the architect of record to detail and "draw the plans", which differed only slightly from one project to the next. He might be humored by letting him play a bit with the fenestration, entrance. and landscaping, but to state that he could impose a foreign building type by an act of personal will shows total unfamiliarity with the process.

I submit public housing would have been built as it was even if no one involved had heard of Le Plan Voisin and its descendants, and I suspect that at the beginning many had not. If there is anyone still around who can authoritatively show that Corbu had a basic influence on our housing, it would be most interesting to hear about it.

Richard P. Rosenthal, Architect
Brooklyn, New York

Ross Miller Responds

Mr. Rosenthal misses my point on one hand and confirms it unwittingly on the other. I was not claiming in my piece that Le Corbusier guided the development of highrise public housing in America, but that he and Mies – the great Modern masters – offered a nice post facto rationale to builders and architects hungry for work. What continues to alarm me is that almost 40 years after this miserable social experiment failed, architects are still accepting no responsibility.

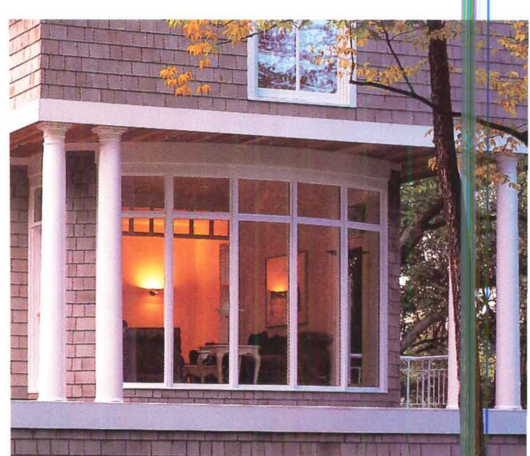
Credit Correction

The bank interior shown in the September Technics article (p. 38) was the Georgetown branch of the Riggs Bank restored by John Blatteau Architects. ■

SPECIFY MARVIN AND YOU NOT ONLY GET OUR WINDOWS, YO

As the 1991 Parade of Homes approached, builders/ architects Waters & Bonner Inc. felt they had a showstopper. Naturally, windows were a critical element in their plans. So early on in the project, Keith Waters contacted Marvin Windows.

His biggest challenge was the focal point of the home: a unit made up of five 8 ft. x 2 ft. transom-topped windows, arranged in a curved subsill to form a bow. The fact that Marvin could craft such a window didn't really startle Keith. Past experience had taught him otherwise. But he was surprised when Marvin's Architectural Department offered to draft the CAD drawings for the subsill; a gesture that saved his firm a considerable amount of time and trouble.



Yet Marvin didn't stop there. Next, they turned their attention to a soaring, 10-lite window that was also part of the plans. And by suggesting a reduction of just three inches in the overall height of this 18 ft. unit, they were able to save Waters & Bonner and the homeowner over $400.00.

Keith's prediction proved to be correct. Waters & Bonner won a regional Reggie Award for the home's

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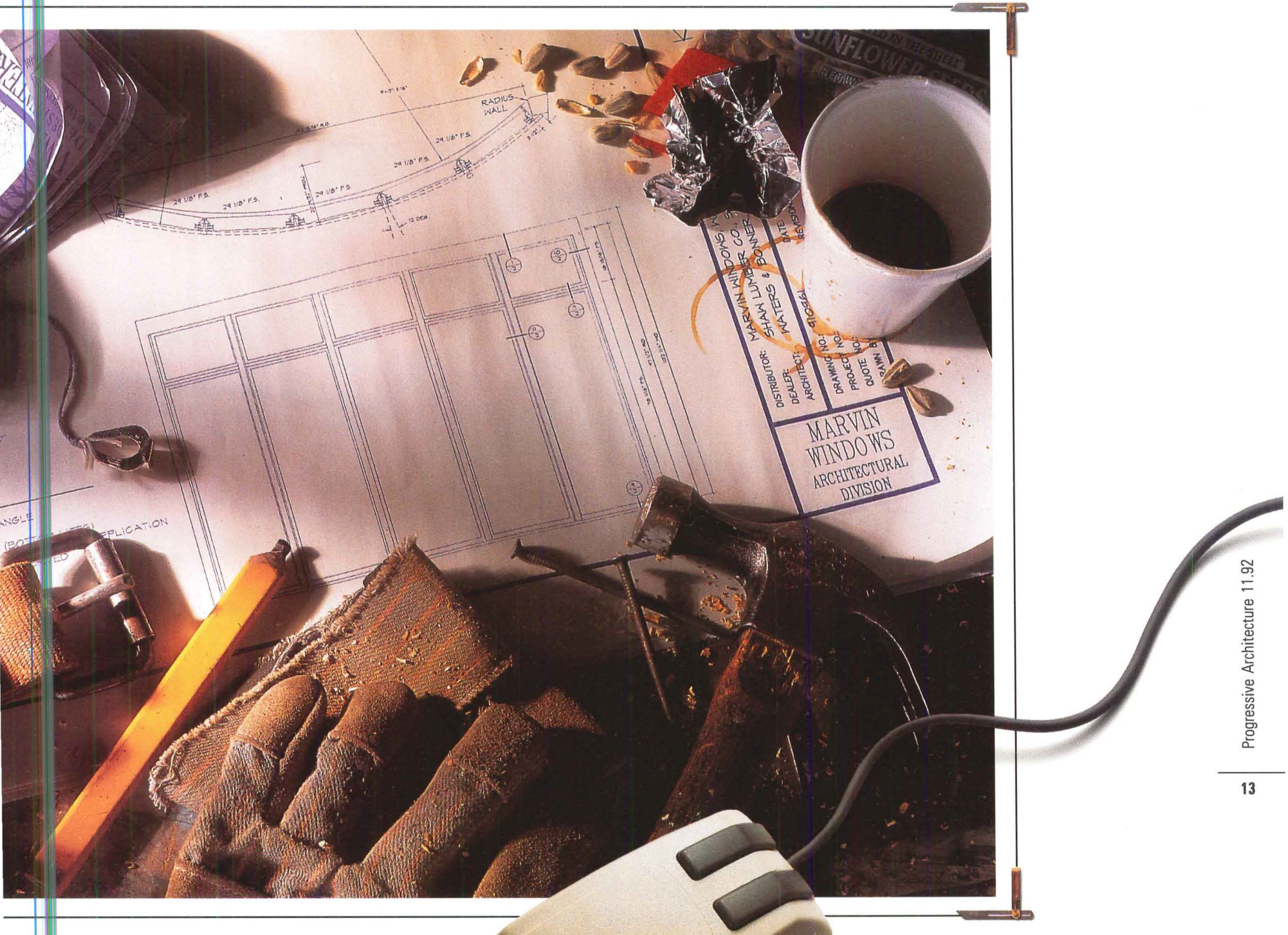

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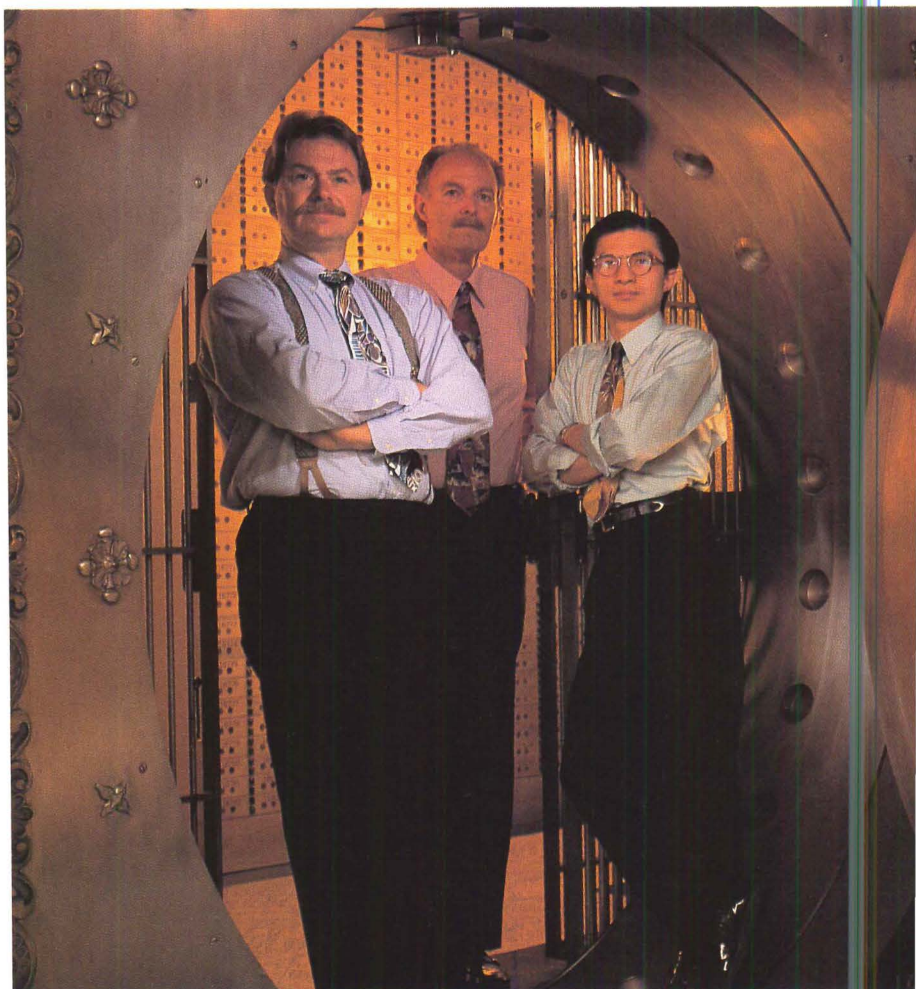
Few firms in the building and construction industry have remained immune to the recession. But TAG Architects of Southern California has fared much better than most.



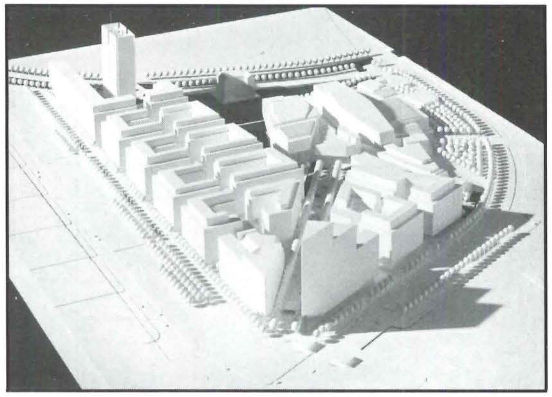
TAG's strategy was to go after banks. But instead of taking along the usual hacksaws and explosives, they selected a more powerful tool: AutoCAD software.

"AutoCAD allowed us to grow beyond the traditional role of the architect," says TAG's managing partner, Robb Axton, A.I.A. "It gave us more control over project coordination and let us offer new services, like facilities management consulting. That's critical if you want to keep winning new clients during a recession

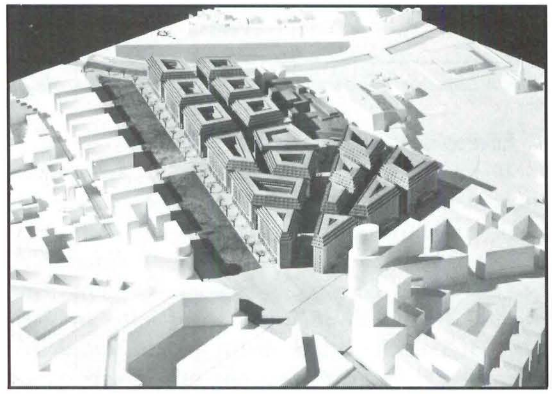
"We've already helped three major financial institutions cut costs by standardizing their facilities and building operations on AutoCAD," Axton says. "Now we're using that expertise to attract other kinds of clients

Axton also sees AutoCAD as the most viable way for architects and other trades to streamline their operations. "With AutoCAD, we no longer need design-development drawings. We just move back and forth between schematics and working drawings, coordinating every aspect with our engineers along the way

The ability to share AutoCAD files and drawings with other disciplines—like structural, mechanica



Daimler-Benz



Daimler-Benz

Murphy/Jahn's winning entry for Sony site (above); winning scheme by Renzo Piano (top right) and premiated scheme by Hans Kollhoff (bottom right) for Daimler-Benz site.

Competition Winners on Berlin's Potzdamer Platz

Exactly one year after city officials rejected proposals to build skyscrapers on Potsdamer Platz (P/A, April 1992, p. 25), the most spectacular of Berlin's post-unification developments has begun to take shape. Like no other urban project in recent memory, the winning competition designs for the Daimler-Benz and Sony sites, projected to cost 4.3 billion Deutsch marks (roughly 3.1 billion U.S. dollars), have become big news overnight, being aired on television and radio, covering the front pages of many newspapers, and unsettling the otherwise staid and sober Germans.

The competition for the Sony block, consisting of 2.2 million square feet of offices, shops, and housing, was won by Murphy/Jahn, Chicago. (Other participants included Kevin Roche John Dinkeloo, Cesar Pelli & Associates, and Kohn Pedersen Fox of the U.S.; Hermann Hertzberger of Holland; Meinhard von Gerkan and Walter A. Noebel, Germany.) Jahn's scheme features a 100-meter tower on Potsdamer Place and a 70-meter-long, 35-meter-high oval space with a glass roof.

Jahn's architecture has not met with universal approval, as many Germans fear that the scheme is too agressive, expensive, and, ironically, un-German, considering that the architect is German by birth and was educated in Munich. "The result," noted the conservative *Frankfurter Allgemeine Zeitung*, "is as American as any skyscraper city."

Renzo Piano's winning proposal for the Daimler-Benz site simply improved the preordained urban design mandated for the area. Keeping to the ten-story height limitations, he added a tree-lined pedestrian street from Potsdamer Platz to a new plaza at the rear of Scharoun's State Library, proposed a library addition, a music theater, and a canal running between the new cultural and commercial structures. The total project, a mixture of housing, shops, and office space, totals 3.6 million square feet.

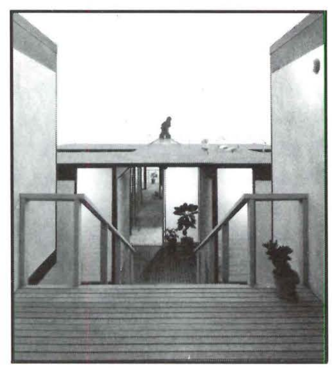
Among the 13 other competitors for the site were Richard Meier, O. M. Ungers, Josef Paul Kleihues, Hans Kollhoff, Richard Rogers, Rafael Moneo, and Arata Isozaki. Despite reputations, these designs coalesced into an interchangeable batch of proposals, and could not readily be associated with a particular architect.

The entry by Hans Kollhoff of Berlin provided the singular exception. His scheme (one of six prize winners) maintained the mandated ten-story datum, topped off by three-story, ziggurat-like, stepped roofs. He deformed the regular blocks dictated by the site's master plan, while designing each with a symmetrical façade reminiscent of the architecture of Behrens and Messel.

Kollhoff intended his design to be a bold rejection of the numbing sameness of international developer architecture. In light of the internal unease Germany has witnessed since unification (attacks on foreigners, disparity between West and East, monetary concerns), his exquisitely detailed wood models provided a somber meditation on order and irregularity, tradition and inheritance, and served as the one critical offering in Berlin's most heralded post-unification urban development competition. **Mary Pepchinski** ■

The author teaches architecture at the Technical University in Berlin and writes on architecture and urban design in the United States and Europe.

In Projects (page 99): Three approaches to housing for people with AIDS.



Marvin Rand

In Perspectives (page 94): Robert Geddes considers Kahn's Roosevelt Memorial, and Peter Blake remembers Craig Ellwood. (Above: Ellwood's 1957 Hunt House, Malibu, California.)

Pencil Points

A two-person Los Angeles development firm known as MArch has announced plans to "recreate the spirit" of *Arts & Architecture's* venerated Case Study House Program. The partners are in the process of organizing an advisory board to choose architects to design ten houses on several sites in the city. Upon completion, the houses will be opened to the public before the clients move in. Profits from the tours and related events will be used to fund architectural education programs. MArch is currently seeking corporate sponsors to help fund the project.

Kallmann, McKinnell & Wood, Boston, in association with Nolan & Nolan, Louisville, have been selected to design the University of Kentucky's new central and life sciences library in Louisville. Construction of the $58-million, 387,000-square-foot library is scheduled to begin in the spring of 1994.

Next year marks the 250th anniversary of Thomas Jefferson's birth, and at least some of the festivities will touch on his architectural career. Beginning April 13, the Thomas Jefferson Memorial Foundation will mount an exhibition at Monticello, including many furnishings and other objects on loan, to illustrate the house's appearance during Jefferson's lifetime – at the same time unveiling a million-dollar roof restoration. The American Architectural Foundation's exhibition "Thomas Jefferson and the Design of Monticello" will open at the Equitable Gallery in New York in the fall.

Finland has announced a competition for a new Museum of Contemporary Art in Helsinki. Open to architects in Nordic and Baltic countries, competition organizers have also invited Alvaro Siza, Porto, Portugal; Coop Himmelblau, Vienna; and Steven Holl, New York.

Martin Liefhebber's "Codicile" houses would line Toronto alleys.

Environmental Symposium at Ball State

It has become clear that the environmental movement is maturing from a set of overlapping issues into a cohesive, comprehensive philosophy, a "central organizing principle," as Senator Al Gore says, for the coming decades. A recent "symposium on environmentally conscious architecture" at Ball State University demonstrated that fact, presenting a diverse group of speakers united behind the common banner of "sustainability."

The symposium, held on September 11 and 12, was titled "Building to Save the Earth" and was sponsored by Ball State, the AIA, and the Environmental Protection Agency. Coordinator Marvin E. Rosenman, who is Chair of Ball State's architecture department, opted for a format packed with speakers (39 in all) giving short talks, making the most of the two-day affair. Among the speakers were advocates of "green" materials, recycling, alternative energy sources, improved indoor air quality, and urban revitalization.

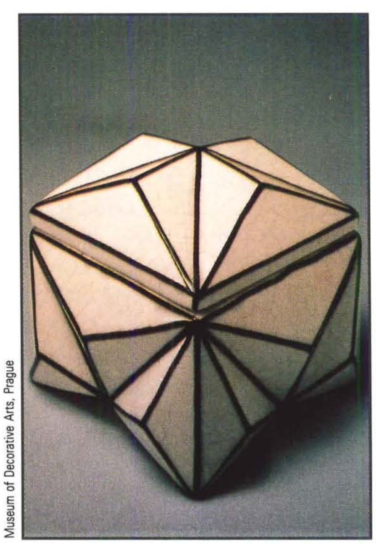
What was notable was the way some of the speakers managed to demonstrate that it is possible to synthesize these issues. Toronto architect Martin Liefhebber, for example, presented his firm's competition-winning "Codicile House," a prototypical self-sufficient house that could be built in Toronto backyards. Besides boosting density and offering an economic solution for strapped homeowners, the little house addresses other big issues with its solar panels, composting toilet, green materials, and rooftop greenhouse.

But most of the talks were more specialized: architect Paul Bierman-Lytle, who has established a green materials showroom called Environmental Outfitters in New York, offered an update on materials innovations. Doug Greenwood of the AIA discussed the Institute's ongoing Environmental Resource Guide. British architect Will Alsop (P/A, May 1992, p. 159) showed some of his firm's work – which was decidedly higher-tech than the symposium's norm – as did Jersey Devil designer-builder Steve Badanes. (Badanes also skewered the symposium's title, saying that "Building to Save the Earth" sounded like "something the Bush Administration might come up with, kind of like 'Logging to Save the Forest.' ")

Some of the most convincing talks came from veteran environmentalists: researcher Amory Lovins demonstrated again how architects can easily cut energy use drastically, using conventional technology; Pliny Fisk III discussed using local materials and low-tech building techniques in central Texas; and underground building advocate Malcolm Wells (P/A, March 1991, p. 82) showed his own work spanning three decades.

Susan Maxman, who takes office as AIA president next month, encouraged architects to take environmental stands "even if it costs you a job. You'll get ten more jobs because of it." Maxman hopes to use her post to launch environmental initiatives (though she wisely avoided the term "environmental president"). With the kind of support and know-how that was gathered at Ball State, it seems possible that some real, cohesive environmental action could be under way.

Mark Alden Branch ■



Museum of Decorative Arts, Prague

From "Czech Cubism:" 1911 "Covered Box" by Pavel Janák.

"Czech Cubism" Show in Philadelphia

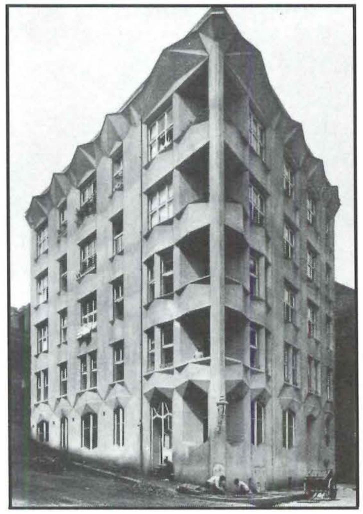
In the years immediately preceding World War I, a closely knit group of Czechoslovakian designers, heavily under the influence of the Parisian avant-garde, experimented with the application of Cubist formal principles to the decorative arts and architecture. The fractured, crystalline products of their investigations are now on display for the first time in the United States in "Czech Cubism," an exhibition at the Rosenwald-Wolf Gallery of the University of the Arts in Philadelphia through December 4th.

The key figures of the Czech Cubist movement, including Pavel Janák, Josef Chochol, and Josef Gočár, sought to give form precedence over construction, utility and material. "It is possible to predict the future direction of architecture: creativity, in which artistic thought and abstraction will take over leadership from practicality," argued

Janák in a polemical essay of 1910 titled "From Modern Architecture to Architecture."

What is intriguing about the exhibition is the enthusiasm and single-mindedness with which these men and their colleagues applied these ideas to a wide range of production, including earthenware, furniture, fabric, industrial arts, and architecture. Of the works displayed, the early ceramic pieces by Pavel Janák and the unrealized monumental projects of Bedřich Feuerstein are among the most compelling for their simple, bold gestures. Far less convincing are the multifaceted forms, but one-dimensional arguments, of many of the later façade studies and building proposals by Janák, Josef Stepanek, and others.

The exhibit is complemented by a particularly well-produced catalog published in English by the Princeton Architectural Press, featuring excellent reproductions and a series of critical essays. In one particularly nimble feat of art historical sleight-of-hand, critic François Burkhardt credits the Czech Cubist movement for anticipating every major contemporary trend in architecture from Post-Modernism to Deconstructivism. More credibly, the author also situates the work within a tradition of "critical regionalism" and in so doing anticipated a theme of the keynote address by Kenneth Frampton that opened the exhibit in Philadelphia.



Apartment house, Prague (1913), by Josef Chochol.

Museum of Decorative Arts, Prague

The exhibition, organized by the Vitra Design Museum, Germany with the cooperation of the Museum of Decorative Arts, and the National Technical Museum in Prague is on the penultimate leg of a North American tour that began at the Canadian Centre for Architecture in Montreal and will end at the Cooper-Hewitt in New York in April, 1993, before returning to Europe.

Donald Prowler ■

Student-built shelter on University of Miami campus.

$2300 Shelter Survives Hurricane Andrew

During the spring semester, seven fifth-year students at the University of Miami School of Architecture designed and built a gable-roofed shelter, based on a traditional vernacular style, as a prototype to benefit the homeless. They designed it so well that it survived winds clocked at 168 miles per hour during Hurricane Andrew's recent rumble through South Florida.

Though originally intended to be something between transitional and permanent housing, the prototype has been perceived as an emergency shelter design in the aftermath of the hurricane. But its resistance to hurricane-force winds is actually just icing on the cake. The students' design has much broader implications: it is a symbol of the potential of the architectural community to contribute to the reshaping of the public realm.

Though it has no plumbing or electricity, the students' design is a dignified solution for inexpensive, quick-build housing for the homeless. It is a 10-foot by 16-foot wood frame structure, 13 feet high, with a porch, and wire-mesh-covered clerestory. It is large enough to house four adults or a small family, and it can be built for $1500 to $2300.

The original scheme groups 12 shelters to elicit a sense of community among the occupants and the community at large. The students' desire to build such communities is now – thanks to Andrew – reinforced by popular demand, but there is a problem: the house falls in the cracks of existing codes. The response from the city has evolved from a non-negotiable "no" to potential classification of the structure as a product, rather than a house, so that it can be built without interference from building officials. Said Joseph Minicozzi, one of the student designers, "It's really sad that it takes something illegal to do something good."

The students have prepared a manual for the house (available through the School of Architecture) in an effort to allow self-help construction, and as inspiration for other students and practitioners to design housing appropriate to their own cities and towns. An architect in North Carolina, for instance, requested the house plans, built six houses, and shipped them to Homestead, Florida, to provide shelter for his mother and several of her friends who lost their homes in the storm.

Abby Bussel ■

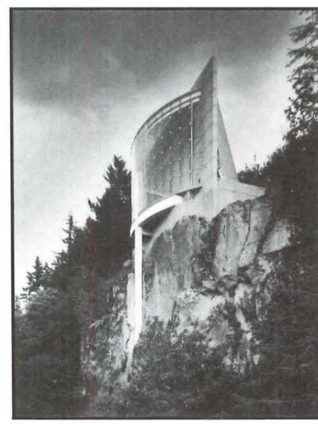
The house is one of 30 entries chosen from P/A's New Public Realm competition (P/A, Oct. 1992, p. 73) for a traveling exhibition; see Calendar for dates.

Tucker Awards for Use of Stone

The Building Stone Institute has honored 15 projects in its annual Tucker Awards program. Selected by a three-member jury of architects, the awards recognize "excellence of concept, design, construction, and use of natural stone" in six separate categories as follows.

Non-residential:

- Eiteljorg Museum of the American Indian and Western Art, Indianapolis, by Browning Day Mullins Dierdorf, Indianapolis;
- Essex Plaza, Innsbrook Park, Henrico County, Virginia, by CMSS Architects, Virginia Beach, Virginia;
- Bell-Atlantic Tower, Philadelphia, by The Kling-Lundquist Partnership, Philadelphia;



Strode Eckert

Moyer Meditation Chapel.

- Moyer Meditation Chapel, Portland, Oregon, by Thompson Vaivoda & Associates, Portland, Oregon;
- Pierpont Morgan Library Garden Court, New York, by Voorsanger & Associates, New York.

Residential:

- Country House, Brigadoon Farm, Fauquier County, Virginia, by W. Gaffney Architect, Washington, D.C.;
- Bryan House, Butler, Maryland, by Hugh Newell Jacobsen, Washington, D.C.

Landscape:

- National Law Enforcement Officers Memorial, Washington, D.C., by Davis Buckley Architects & Planners, Washington, D.C.

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Tucker Awards

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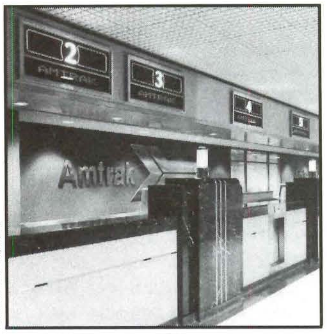


Lambros Photography

Union Station improvements.

Restoration/Renovation:

- Passenger Facility Improvements, Union Station, Chicago, by Lucien Lagrange & Associates, Chicago;
- Morgan Library Entry, New York, by Voorsanger & Associates, New York;
- Tiffany & Company/Quantas Airways, San Francisco, by Werner & Sullivan Architects, San Francisco;
- Pulitzer Fountain, New York, by Buttrick White & Burtis, New York;
- Fireman's Memorial, New York, by Jan Hird Pokorny Architects, New York.

Interiors:

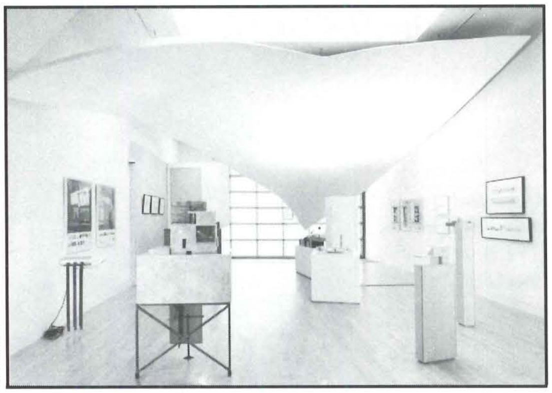
- Cali International Financial Center, Jersey City, New Jersey, by Herbert Beckhard Frank Richlan & Associates, New York.

Richard Bergmann

Lockwood-Mathews Mansion.

An annual award for a stone building constructed at least 40 years ago and still in use was presented to The Lockwood-Mathews Mansion Museum, Norwalk, Connecticut, designed by Detlef Lienau and restored by Richard Bergmann Architects, New Canaan, Connecticut.

Jurors were John Peter Barie, D'Aleo & Barie, New York; Earl R. Flansburgh, Earl R. Flansburgh & Associates, Boston; and Leonard Jacobson, Pei Cobb Freed & Partners, New York. ■



Tom Powell

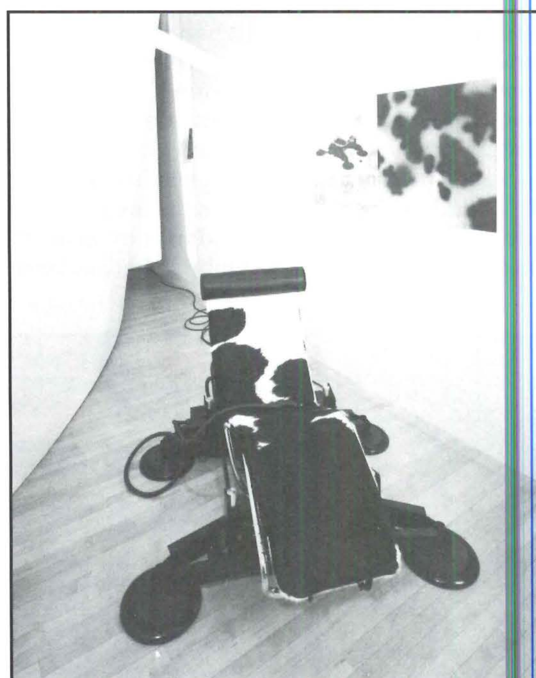
"Angels and Franciscans" installation by Susan de Menil and Bill Lacy.

West Meets East at SoHo Gallery

New York's Gagosian and Castelli galleries have joined forces for an exhibition entitled "Angels and Franciscans: Innovative Architecture from Los Angeles and San Francisco." Curators Susan de Menil and Bill Lacy have assembled drawings and models from a group of well-known West Coast architects, and have created an installation befitting the exuberance for which these architects have become known. Those exhibited are Los Angeles architects Frank O. Gehry, Craig Hodgetts and Hsin-Ming Fung, Franklin D. Israel, Konig Eizenberg, Lubowicki Lanier, Thom Mayne/Morphosis, Eric Owen Moss, and Studio Works; and San Francisco architects Wes Jones of Holt Hinshaw Jones, Mark Mack, and Stanley Saitowitz.

By and large the works exhibited have been created specifically for the show, and comprise elaborate wood and steel models, furniture, conceptual drawings, original sketches, and elaborate renderings. They depict a range of projects, only some of which have been built. Kicking off the exhibit, on September 26th, was a symposium at the New School for Social Research, featuring ten of the exhibited architects. Moderator Lacy posed the question, "Is there a West Coast school, and if so, what are its defining characteristics?" The panelists denied the existence of such a school, although some of the participants did express a belief that elements of the California culture create an atmosphere that cultivates highly individual architectural expression. Among the elements cited were cultural diversity, the absence of an architectural "establishment," and the presence of like-spirited personal acquaintances. Wes Jones, in particular, felt that the show and symposium presented a California "context" as seen through the eyes of New Yorkers, citing the relative isolation of San Francisco from Los Angeles.

Frank Gehry's absence from the symposium was conspicuous, as were the rumors that the show's original publicity had described the other participants as somehow descended from him. The panelists visibly bristled as they discussed the matter. Eizenberg admitted to "sometimes feeling that, to be noticed, one has to be more outrageous than Gehry," while Mayne insisted that he had begun his brand of architectural exploration long before Gehry became known. Eric Moss suggested that Gehry's architecture might have more to do with his psychoanalysis than with any influences that West Coast architects might have in common.



Tom Powell

Chair by "Franciscan" Wes Jones.

The exhibition will continue in the gallery at 65 Thompson Street until November 7; a substantial catalog/book has been published by Rizzoli.
David Gruber ■

"Minimal Interventions" to Help Reshape L.A.

"Listening to the City," a September exhibit of four projects at Southern California Institute of Architecture (SCI-ARC) in Santa Monica, was billed as an attempt to remake the city, not by tearing things down and replacing them with grand projects, but by inserting "minimal interventions" in forgotten or under-used parts of the existing urban fabric. These four projects had much to say both about the city and about the decreasing opportunities of architects to modify that environment. The designs also make some mordant commentary, if indirectly, on the harshness and inhospitability of life in some of the less romantic areas of Los Angeles.

Curated by SCI-ARC instructor Margaret Crawford, "Listening to the City" presents a 1990s version of visionary architecture, insofar as none of these projects could actually be built under present zoning and planning guidelines. Like visionary schemes of the past, these projects seek to remedy specific social problems through design. But instead of mile-high office buildings or colos-

(continued on page 22)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Obituaries

Samuel M. Brody

Architect Samuel M. Brody of Davis, Brody & Associates, New York, died July 28. He was 65. Brody and his partner, Lew Davis, concentrated in their early work on social housing projects, using a Modern vocabulary to synthesize form and program with a sensitivity to client needs. Riverbend Houses (1967) in Harlem and Waterside (1974) in Manhattan are among their projects. In the 1980s, when housing subsidies were curtailed, the partners turned to institutional commissions, including several university laboratories and the conservatory at the Brooklyn Botanic Garden (1989). The firm won many awards, including the AIA Firm Award in 1975; he became a Fellow of the AIA in 1969.

Paul Gapp

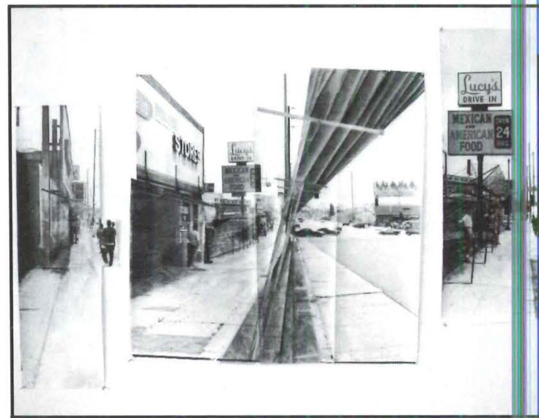
Chicago Tribune architecture critic Paul Gapp died July 30 in Chicago. He was 64. In 1979, he won the Pulitzer Prize for criticism; in 1985 he took on Donald

(continued on page 24)

Intervention *(continued from page 20)*

sal mausoleums, the architects presented projects that exist in the margins and neglected edges of the edge of the city – alleys, rooftops, backyards, parking lots – expressive of the marginality of the people for whom these projects were conceived.

Mary-Ann Ray, reprising some of the designs seen in last year's "Re: American Dream" show at the Los Angeles Municipal Art Gallery, showed housing that was literally marginal: very low-cost housing located on high-rise rooftops, trailer-like housing in parking lots, and a "many-family house" for non-traditional households sequestered behind single-family houses. Barbara Bestor's Frogtown offered six "multi-use architectural pieces" (including quonset-hut-like roofs) that can be factory-made and assembled in the backyards of small bungalows for use as live/work space. Sara MacDonald's "Design Build Collective" was a feminist allegory of cooperative living, in which the architect would provide the shell of the building, while the working-class women who would live and work in the building would arrange the interior spaces by group consensus. MacDonald's elevation for the collective, set in downtown Los Angeles, is an image of economic self-reliance and communal life, set in a tough-looking, don't-mess-with-us structure. And Heather Kurze's scheme examines an intersection in West Los Angeles where Hispanic men gather to wait for work as casual laborers. To humanize the area, she added awnings for shade, a basketball court, free-standing bathrooms and even counseling services housed in a building that resembles a produce stand.

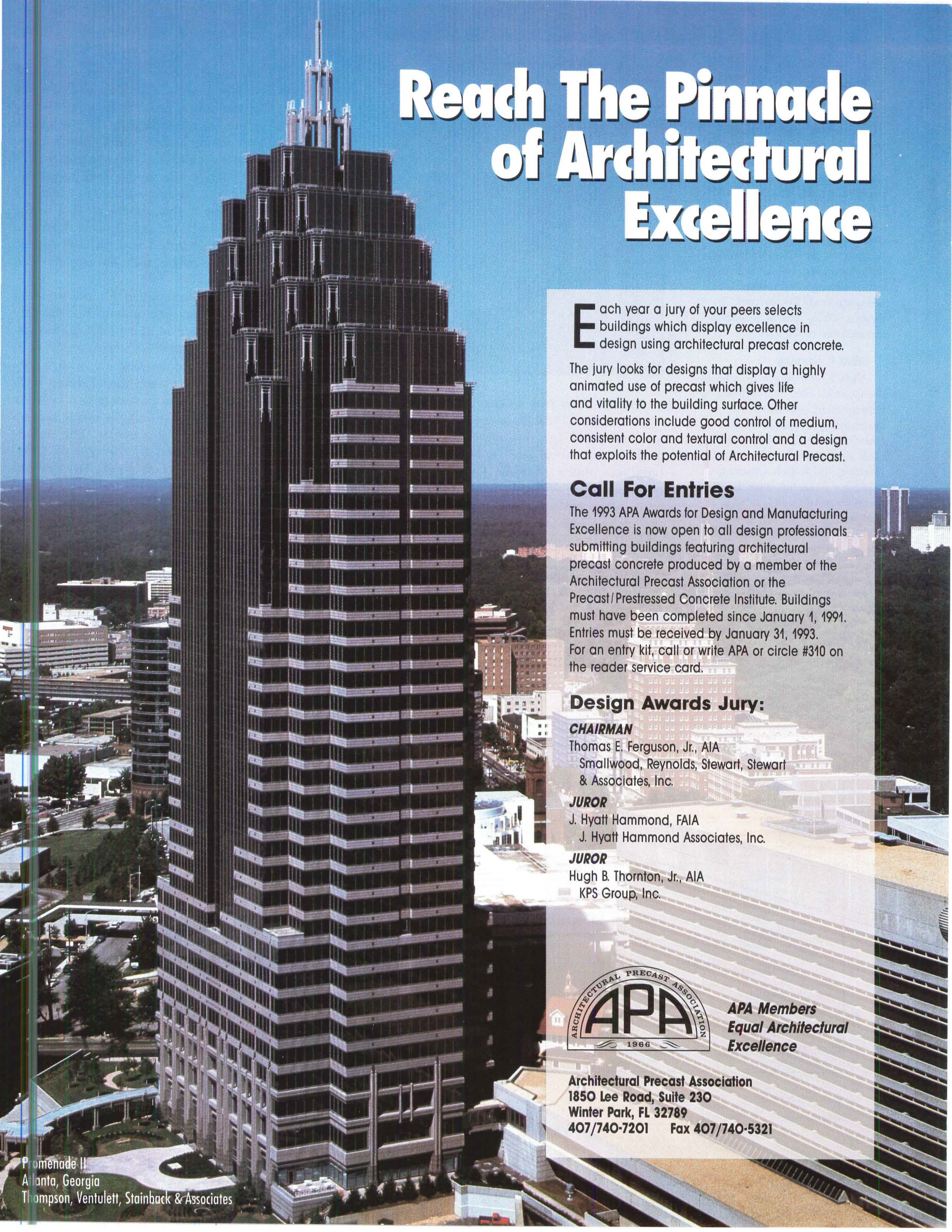


Heather Kurze

Heather Kurze's street interventions from "Listening to the City."

These tough-minded projects are ultimately positive in their focus on real people in uncomfortable situations. They represent a renewal of the abandonded credo that design can improve the lives of ordinary people. These stark images also appear to be a rebuke to a profession that seems more interested in designer objects than in urban research. **Morris Newman** ■

(News Report continued on page 24)



Promenade II
Atlanta, Georgia
Thompson, Ventulett, Stainback & Associates

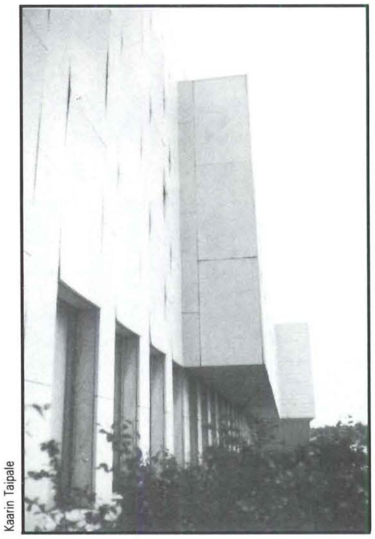
Obituaries

(continued from page 22)

Trump with a article lambasting the developer's proposal to build a 150-story skyscraper off the southern tip of Manhattan – prompting a $500-million lawsuit initiated by Trump that was dismissed in Federal District Court. Before joining the paper in 1972, he directed the urban journalism fellowship program at the University of Chicago and worked for newspapers in Chicago and Columbus, Ohio. He was an honorary member of the AIA.

Nina F. Hartung

Nina F. Hartung, principal of the Coxe Group, Philadelphia, a management consulting firm specializing in design, and a contributor to P/A's Practice column, died April 17. She was 45. Hartung and Robert Gutman, professor of architecture at Princeton University, produced a comprehensive research study of training and development practices of architecture and engineering firms. In 1987, she, along with her partners at The Coxe Group, wrote *Success Strategies for Design Professionals*.



Kaarin Taipale

Bowed marble panels plague Alvar Aalto's Finlandia Hall.

Helsinki Deals With a Crumbling Aalto Façade

The city of Helsinki and local preservationists are embroiled in controversy over the marble cladding on Alvar Aalto's Finlandia Hall. The building's sheets of white Carrara marble have been yellowing and curving noticeably since the early 1980s, and some are now bowed as much as two inches. The building is now wrapped in nets and railings in order to prevent pieces of stone from falling to the ground.

Finlandia Hall, a concert and congress hall complex built in the early 1970s (P/A, Aug. 1972, p. 50, April 1977, p. 67), is the only element of Aalto's urban design for the city center that was ever realized. His choice of Carrara marble for the façades owes certainly as much to his love for Italy as to the white stone's reference to the Greek origins of Western architecture and culture.

Chemical analysis indicates that the presence of sulphur and water in the atmosphere turns calcium carbonate into calcium sulfate, in a process known as "sugaring." Researchers say that in the case of Finlandia Hall, the marble is suffering at the hands of both chemical and physical forces: the warping of the panels may have to do with their excessive size.

Preservationists have applied for the building to be listed as a national monument. But the City of Helsinki, the owner of the building, has arranged for any landmark designation to omit mention of the marble, in keeping with a city decision in March to replace the cladding with another material. The city has requested bids for "stone or any material that looks as much like the original Carrara marble as possible." The recladding should be completed by the end of 1994, using Bethel white, Tolga, or Mount Airy granite.

After an outcry from Finnish and international architects over plans to reclad in a material other than marble, the ministers of culture and of the environment have intervened. Results of their talks with the city's technocrats and economists are yet to be revealed. **Kaarin Taipale** ■

The author, formerly editor-in-chief of the Finnish journal Arkkitehti, *is Deputy City Architect of Helsinki.*

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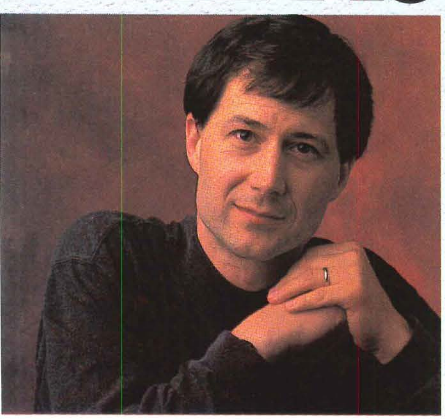

—Stewart Tilger, Photographer, Seattle, WA

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Calendar

Exhibitions

Fragile Ecologies
Through November 29

Queens, New York. Though "Fragile Ecologies: Artists' Interpretations and Solutions" is not specifically architectural, the projects presented investigate the relationship between the built and the natural. Museum of Art.

Modernism, Reform, and Tradition
Through November 29

Frankfurt am Main, Germany. "Modern Architecture in Germany from 1900 to 1950. Reform and Tradition" chronicles the exponents of "moderate Modernity," revealing a "movement that has not yet been included in any canonical history of architecture." German Architecture Museum.

P/A's The New Public Realm
Through December 12

Washington, D.C. This traveling exhibition of public works proposals submitted to P/A's The New Public Realm ideas competition (see P/A, Oct. 1992, p. 73 for the winners) is organized in collaboration with Architects, Designers, and Planners for Social Responsibility. It will debut in a former commercial space owned by the Pennsylvania Avenue Development Corporation, 425 Seventh Street, NW.

Opa-Locka
Through December 17

Coral Gables, Florida. "Architectural Drawings: Arabian Fantasies for Opa-Locka" documents the curious history of the city of Opa-Locka, designed by architect Bernhardt E. Muller based on the Tales of the Arabian Nights and partially built just north of Miami by Glenn Curtiss, an aviator-turned-developer. University of Miami, Lowe Art Museum.

Cities: Form and Ideology
Through December 27

Columbus, Ohio. "Framing American Cities: New York/Columbus/San Francisco" is a traveling installation by architect/sculptor Mark Robbins. Wexner Center for the Arts.

Contemporary Spanish Architecture
Through January 3, 1993

Chicago. "Building in a New Spain: Contemporary Spanish Architecture" addresses the form and political liberation of architecture in post-Franco Spain. Twelve projects built between 1986 and 1992 are on view. Art Institute.

Competitions

Energy Efficient, Sustainable Building
Entry deadline December 31

Greenfield, Massachusetts. The Energy Efficient Building Association and the Northeast Sustainable Energy Association are cosponsoring the 1993 Building Design Competition. Entries should "demonstrate cost effective and repeatable techniques and systems which use energy, water, and raw materials, which minimizes the impact of the building on the external environment and produces a healthy environment for the occupants." Contact Lise Marshall, NESEA, 23 Ames St., Greenfield, MA 01301 (413) 774-6051.

Commercial Flooring
Entry deadline January 1, 1993

Lancaster, Pennsylvania. The "Elements of Style Commercial Flooring Design Competition" will recognize the "creative use of Armstrong resilient commercial flooring." Projects completed in the U.S. between January 1, 1991, and December 31, 1992, are eligible. First prize is $5,000. Contact Elements of Style Design Competition, Armstrong World Industries, P.O. Box 3001, Lancaster, PA, 17604.

Rotch Travelling Scholarship
Application deadline
January 4, 1993

Boston. This two-stage competition for a travel scholarship is open to U.S. citizens, under 35 years of age, who have a degree from a Massachusetts school of architecture. Two stipends, one of $30,000 and a second of $15,000, will be awarded. Contact Rotch Travelling Scholarship, Boston Society of Architects, 52 Broad St., Boston, MA 02109.

Innovations in Housing
Submission deadline
January 7, 1993

Tacoma, Washington. The 1993 "Innovations in Housing" competition calls for the design of "a move-up home with a flexible floor plan in 2800 square feet or fewer. It is sponsored by *Better Homes and Gardens, Builder,* P/A, and the American Plywood Association and is cosponsored by the American Wood Council. Contact Innovations in Housing, P.O. Box 11700, Tacoma, WA 98411 (206) 565-6600, ext. 172.

Home of the Year
Entry deadline
January 15, 1993

Palatine, Illinois. The American Hardboard Association's 1993 "Home of the Year" awards program recognizes single-family, detached homes that demonstrate the "full potential of hardboard siding's versatility." Contact AHA, "Home of the Year Contest," 1210 W. Northwest Highway, Palatine, IL 60067.

Ideas for the Embarcadero
Entry deadline
January 30, 1993

San Francisco. "Call for Vision, San Francisco Embarcadero/Waterfront Competition" is an international ideas program sponsored by CfCA/2AES and other community organizations. Entrants are asked to suggest schemes for the revitalization of this neglected area of the city. Three $10,000 prizes will be awarded. Contact Pam Kinzie, CfCA/2AES, 1700 17th St., 2nd floor, San Francisco, CA 94103 (415) 863-1502.

Palladio Prize
Entry deadline
January 31, 1993

Venice, Italy. The biannual Andrea Palladio International Prize for Architecture, sponsored by Caoduro Rooflights S.p.A., is open to registered architects and engineers who will be 39 or younger as of January 1, 1993. Contact Caoduro S.p.A., Via Chiuppese 15, I-36010 Cavazzale (Venice), Italy tel. 444/45959 or FAX 444/945164.

Sustainable Communities
Registration deadline
April 1, submission deadline
May 5, 1993

Washington, D.C. The AIA and the UIA have announced a "Call for Sustainable Community Solutions" The competition program is now available. Contact Carl Costello, AIA (800 365-ARCH or FAX (202)626-7518.

Conferences

A/E/C Systems, Construct Canada
December 2–4

Toronto. The Third Annual Canadian Computer and Management Show for the Design and Construction Industry and Construct Canada are among the events to be held at the Metro Toronto Convention Centre. Contact Sharon Price, A/E/C Systems Canada, P.O. Box 310318, Newington, CT 06131-0318 (800) 451-1196 or FAX (203) 666-4782; Construct Canada (416) 869-1156 or FAX (416) 869-1660.

Affordable Housing
December 9–10

College Station, Texas. Topics to be discussed at the "Innovative Action Ideas for Affordable Housing" conference include"employer-assisted housing programs and the emerging role of higher education in promoting affordable housing and community revitalization." Contact Texas A&M Center for Housing and Urban Development (800) 633-2374 or FAX (409) 862-2375.

Paris Furniture Fair
January 8–12, 1993

Paris. The 34th Paris International Furniture Fair is held at the Parc des Expositions, Paris-South – Porte de Versailles. Contact SM International, 22 Avenue Franklin-Roosevelt, F-75008 Paris, tel. 40 76 45 00 or FAX 45 63 78 24. ■

THE FIRST THING WE DID TO HELP REMODEL THIS OLD HUNTING LODGE WA

This large, beautiful room is the centerpiece of what was once an exclusive hunting lodge. Built in 1930, the property was converted to a single family residence in the early Fifties. But 40 years of paint, plasterboard and paneling had all but hidden its original elegance.

So, when new owners began renovating it in 1991, they asked architect Katherine Cartrett of Mulfinger, Susanka and Mahady to recapture the original rustic charm of the place.

They asked her to use only the finest high performance building products available. Given those terms, it's not surprising that, when the subject of windows and doors came up, the owners asked to talk with Marvin.

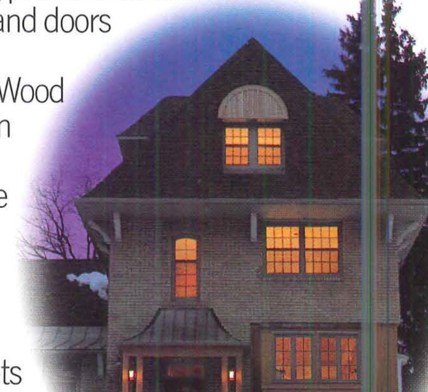
The first step was an on-site meeting. Nick Smaby from Choice Wood Custom Residential Remodelers was there. So were representatives from the Marvin dealer and distributor.

One by one, they inspected every opening in the home. Then the entire group sat down and planned the job out.

Sizes were discussed. So were shapes, styles, energy efficiency, maintenance and budgets.

By the end of the day, the plan called for a combination of new windows and replacement sash – 46 windows in all. There were eight sets of doors too.

The results of that meeting are pictured above. The Marvin Sliding French Doors add light and open the room to the panorama of woods and hills



TART FIRING QUESTIONS.

beyond. And in keeping with the architectural style of the home, each door features custom divided lites and an exterior finish in a color mixed specifically for the project.

Today, this rustic home looks much like the hunting lodge it once was. And if you ask the owners, they'll tell you the key was tracking down the right window and door supplier in the first place.

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If you've got a look you're trying to achieve or a problem you just can't solve, call the one company you know will have the right solution. Call Marvin Windows and Doors at **1-800-346-5128** (1-800-263-6161 in Canada). Or mail the coupon for a free catalog featuring the entire line of made-to-order Marvin windows and doors.

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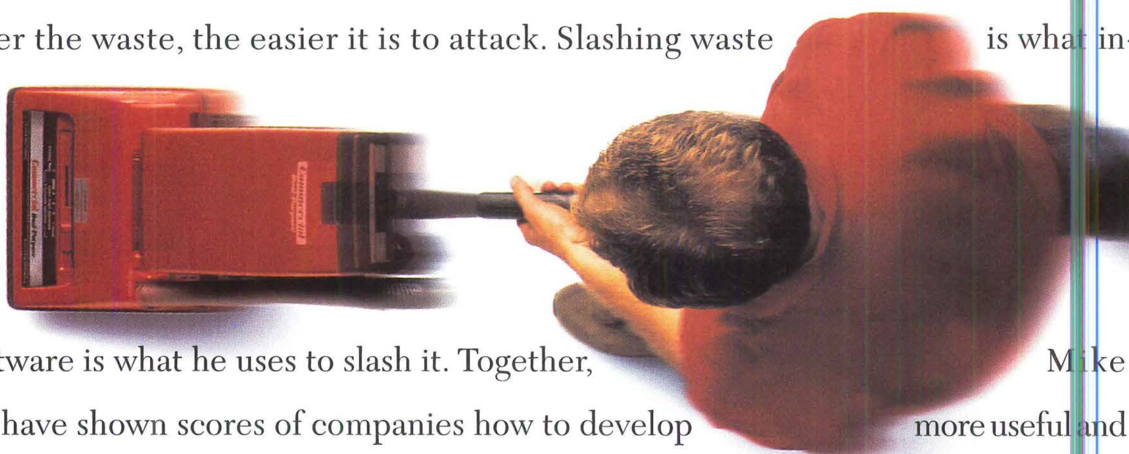
How AutoCAD
a million dollars

Ancient floor plans lie trapped behind a filing cabinet. $100,000 worth of executive furniture marinates in a damp basement. Somewhere a jackhammer rips into a gas line. Welcome to the nightmarish world of facilities management.

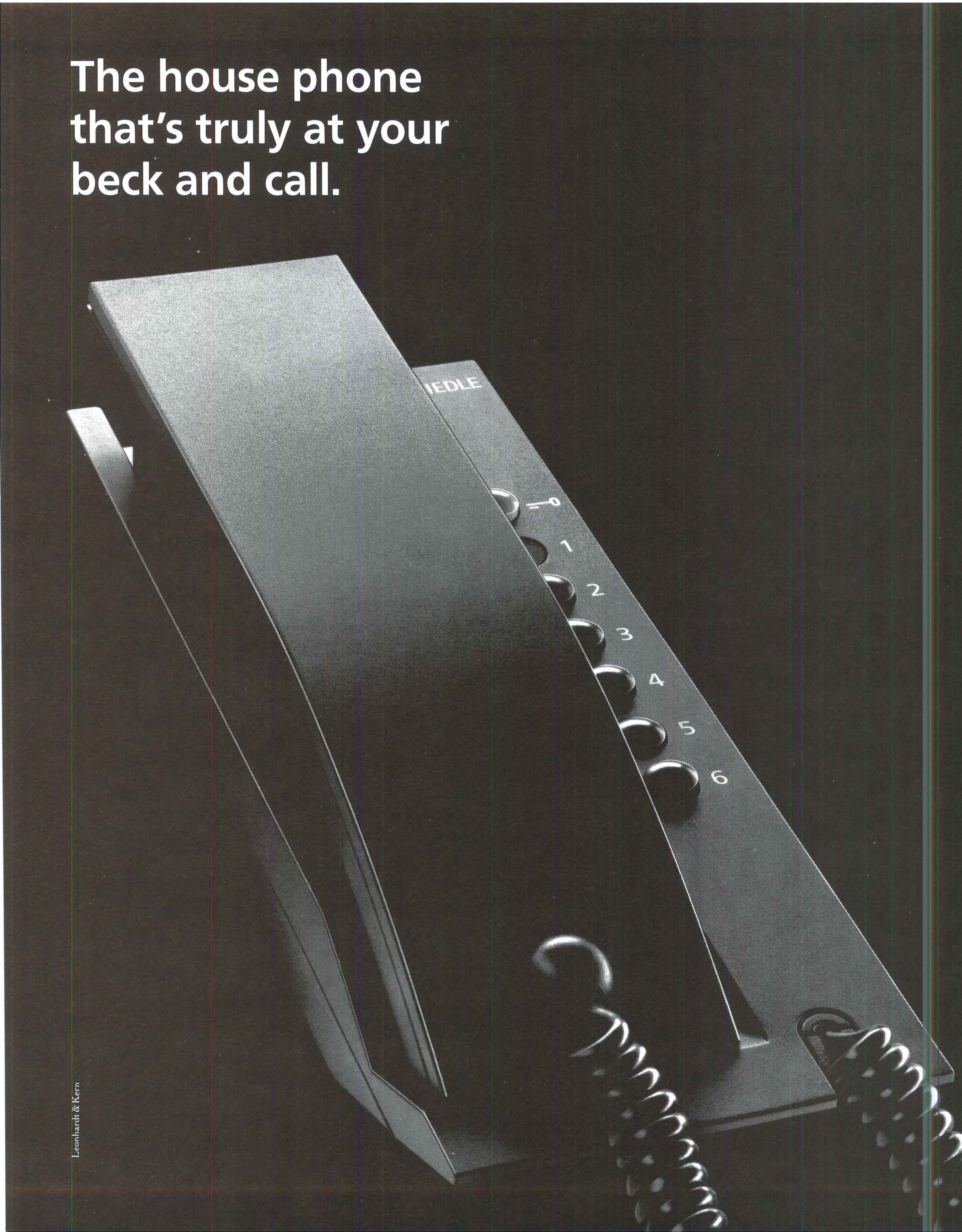
Most facilities managers inherit a hornet's nest of problems. And no tools to solve them. The fact is, when it comes to their facilities, most companies simply don't have a plan. That unenlightened strategy costs corporate America billions of dollars every year. But there's one encouraging note: the bigger the waste, the easier it is to attack. Slashing waste is what inspires a facilities management specialist, like Mike Thorne.



AutoCAD® software is what he uses to slash it. Together, Mike and AutoCAD have shown scores of companies how to develop more useful and accurate information about their buildings and other assets. And save a fortune in the process.

Take the now famous cleaning bill incident. Mike's facilities-consulting company, Applied CADD Technology of Houston, was working for a large real estate holder in a 55-story building. As Mike and his client put the floor plans into AutoCAD, waste-slashing opportunities appeared left and right.

Eyeing the large columns that ran around the perimeter of the building, they wondered: Would deducting the columns from the square footage make a difference in the office cleaning bill? AutoCAD promptly gave them the answer. It cut the cleaning bill by $60,000 a year. So far that adds up to almost half a million dollars, and counting.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Practice

Norman Coplan analyzes two different interpretations by the courts of "no damages for delay" clauses in contracts.

Law: Delay Clauses in Contracts

It is a common practice in public contracts, for both design and construction, to incorporate provisions that limit claims for damages arising from delay. The rationale for such clauses is to protect public agencies, which must work under fixed appropriations or loan commitments, from being sued for unreasonable delays. In considering the validity of "no damages for delay" provisions, U.S. courts have adopted two distinct philosophies: the "literal enforcement approach" and the "New York approach." The basic issue between these two approaches is whether or not a "no damages for delay" provision precludes a suit if the parties involved did not contemplate the extent of the actual delay when they entered into the contract .

Illustrating the "literal enforcement approach" is the Maryland case of State Highway Administration v. Greiner. In this case, an engineer asserted a claim against a State agency for damages arising from delay. The contract, which included the design of a bridge, the preparation of plans and specifications, and the review of shop drawings, provided that the engineer would execute the work continuously and diligently and that "no charges or claims for damages shall be made by him for any delays or hindrances, from any cause whatsoever during the progress of any portion of the services specified in the agreement." Any such delays were to be compensated for by an extension of time allowed for the completion of services. The expected duration of the services was 15 months, but because of various delays caused by the owner, the project was not completed for a period of approximately six years.

The plaintiff argued that the delay involved in this case was not contemplated by the parties and was therefore not precluded by the "no damages for delay" provision of the contract. The court held that the contract was clear and unambiguous and that it precluded recovery of delay damages by the plaintiff. Although recognizing that many states have concluded that a delay not contemplated by the parties is an exception to the enforceability of "no damage for delay" clauses, the Maryland court reached the opposite conclusion, relying upon cases in other states that supported the literal application of the clause.

The "New York approach" to this issue is reflected in the case of Corino Civetta Construction Corp. v. City of New York. In this case, the City defended a claim against it by several contractors for delay damages on the ground that the broad exculpatory clause contained in the contract excluded all claims for delay damages unless deliberate and intentional misconduct is established. The highest court of the state, however, did not accept this argument, ruling that even exculpatory language that purports to preclude damages for all delays resulting from any cause whatsoever are not to be read literally. Even with such a clause, said the court, damages may be recovered for delays caused by the owner's bad faith, or its willful malicious or grossly negligent conduct, or for uncontemplated delays.

The court reached this conclusion based on the concept of mutual consent. Having agreed to the exculpatory clause, said the court, it is presumed that the contractor intended to be bound by its terms. However, it can hardly be presumed, concluded the court, that the contractor bargained away his right to bring a claim for damages resulting from delays, which the parties did not contemplate at the time the contract was made.

In a later and more recent case, the New York court held that a contractor who contends that delay was not within the contemplation of the parties, has the burden of demonstrating that the delay was wholly unanticipated. However, neither this court, nor any court, has defined or described those types of delay which would be considered as within the contemplation of the parties and those which would not have been anticipated. Thus, under the "New York approach" the areas of exclusion and inclusion under the "no damages for delay" rule, are unclear.

The effectiveness of a "no damages for delay" provision may depend not only upon the jurisdiction to which it is subject for interpretation, but upon how it is worded in the contract. The validity of such clauses in private contracts is also subject to controversy, and the judicial rules applicable to the interpretation of public contracts may not necessarily apply to private ones. Nevertheless, the use of the clause can be a potent tool in minimizing potential claims under a construction contract. **Norman Coplan** ■

The author is a partner in the New York law firm of Bernstein, Weiss, Coplan, Weinstein & Lake..

Practice Points

A new not-for-profit organization has been created to provide information on voluntary dispute prevention and resolution techniques to the construction industry. Contact The Construction Industry Dispute Avoidance and Resolution Task Force (DART) for further information, (202) 296-5775.

The Professional Services Management Journal (PSMJ) has released its *1992 PSMJ Financial Statistics Survey.* The survey finds that typical profit levels for design firms fell 16 percent below last year's already dismal levels. The survey's publisher does not expect improvement for the construction industry at least into mid-1993. The survey is available for $195 from PSMJ, (617) 965-0055.

The Association of Engineering Firms Practicing in the Geosciences (ASFE) has published *Limitation of Liability: A Handbook for Consulting Engineers, Environmental Consultants, Architects, Landscape Architects, and Other Design and Technical Consultants.* The "how-to" guide discusses crafting contract language, the legality of limitation of liability provisions, and the business aspects of this form of contracting. The guide sells for $45.00 from ASFE, (301) 565-2733.

William Lohmann reviews, 25 years later, the Stanford Report's predictions about automated specification writing.

Specifications: The Stanford Report

In this hectic age, it is sometimes useful to pause and look back to see where we have been. The past is much easier to evaluate from a distance and, in the process, prescient landmarks often stand out. Such is the case with the Stanford Report, in its twenty-fifth anniversary year. Commissioned by the Construction Specifications Institute in 1967, the Stanford Research Institute surveyed the state of the art in automated specification writing at the time. The resulting 62-page report documented current specification practices but, more important, projected apparent trends far into the future. We are still trying to catch up.

The report identified six levels of specification development:

Level I: Cut-and-paste preparation and manual processing of specifications. Remember your old Smith Corona?

Level II: Introduction of automatic typewriters.

Level III: Automated techniques for storage, retrieval, and modification of text. Development of the master specification concept was foreseen as a major factor in the evolution of the specifier's role.

Level IV: Automated editing of master text based on predetermined dependency logic. We know it now as the "expert system" approach.

Level V: Automated product selection and specification generation based on performance and cost characteristics. Drawings and specifications are integrated.

Level VI: Full integrationof automated design, documentation, and construction functions, including facility management operations.

Most firms in 1967 were operating on Levels I and II. A few were at Level III. An even smaller number at Level IV were using mainframe programs like "SPECS," which was created by a group called Automated Procedures for Engineering Consultants (APEC). Level V was being explored only in academia with "MODCON" at Pennsylvania State University and the "ICES (Integrated Civil Engineering System)" program at the Massachusetts Institute of Technology. Level VI was essentially blue sky.

In 1976, a survey of computer applications in architecture revealed a growing number of firms using computers. According to the survey, conducted by the American Institute of Architects, more firms were moving to the middle levels and fifteen specification-related programs were identified. APEC's "SPECS" was still around, new Level III names, like "EDIT," "Quickspec," "SWRIT," and "YES" had appeared, and PSAE's "MASTERSPEC" had been introduced. Most of the applications were still on mainframe systems and minicomputers; the personal computer was just then starting to emerge.

By the 1980s, the specifier's role had indeed evolved, from that of a "writer" to the keeper of the firm's master text, with a position of broader influence on the project team. Specifiers were adapting standard word processing programs like WordPerfect and Microsoft Word for automated processing. CSI had marketed "COMSPEC" and Heery and Heery Architects and Engineers, Inc., was collaborating with Sweet's Division of McGraw-Hill Information Systems on "SpecRite." Level III was in full swing. Most research on Level IV specification applications wasfound in government programs, such as "EDITSPEC," which was developed at the Army Corps of Engineers Research Laboratory, and the Veterans Administration "Spectran" program. NAVFAC was working on a Level IV system to integrate specifications with graphics and other design information.

Many of those early names are now gone. Technology goes fast when you are having fun. We now hear about ARCOM's "Masterworks" and "MicroComspec," "Specsintact" from the National Institute of Building Sciences (NIBS), and ASG's "Specify" with "SuperSpec." "SpecRite" has evolved through "SweetSpec" into "SpecSystem." Crammed with support data for the design and construction process, related product selection databases on magnetic and CD-ROM laser disks, like "Eclat," NIBS's "Construction Criteria Base," Vertex's "Electronic CADalogs," and CSI/CAD Information System's "CONstruction Information (CONI)," are exercising on the sidelines. Some newer programs, such as the AIA's "ConDoc for CAD" and "DocuKEY" from Architectural Synthesis, are finally moving toward the integration of drawings and specifications. But none of them are yet fully integrated into the documentation process described in Level V of the Stanford Report, which 25 years ago predicted that such software would be in everyday use in only 10 to 20 years.

Level VI software is even more elusive, in spite of diligent efforts by organizations like Jung/Brannen Research and Development Corporation of Boston, the Construction Sciences Research Foundation, the Integrated Construction Association in Sacramento, and the Center for Integrated Facility Engineering at Stanford University. Cost estimating programs have been linked to CAD software but not to specifications. CAD graphics and specification text on computer media are often requested by building owners, but they represent a small part of the data necessary for effective facility management. Autodesk talks about cyberspace, but the final link between drawing keynotes and specification text is not yet in place.

Where do we go from here? The Stanford Report identified three potential roadblocks to development of Level V and VI integration – fragmentation of the construction industry, a traditional reluctance to change, and lack of funds for necessary research. Its authors expected the first two obstacles to be removed by future competitive economic pressures, citing the space and aviation industries as potential factors in promoting integration. The report concluded with a plea for design and construction research funding "in time to help solve today's urgent urban problems." In retrospect, none of these factors has changed significantly since 1967, so we may be in for another 25 years of piecemeal documentation.

William Lohmann ■

The author is Vice President, Specifications, for Murphy/Jahn in Chicago.

Michael Chusid discusses the job opportunities that building product manufacturers have to offer architecturally trained people.

Products: Building Product Careers

As opportunities for traditional architectural employment appear to be declining, many architecturally trained people are having to face involuntary career adjustments. If you are in this situation, you should be aware of opportunities for architects in the building product industry.

This industry is a large and robust sector of the construction economy and consists of manufacturers, trade associations, independent sales agencies, and distributors. Many architects find it hard to contemplate careers outside of design firms. To overcome this mind set, compare architects to engineers. It is widely recognized that engineers can succeed in industry as well as in consulting firms. In the same way, the communication, technical, aesthetic, and organizational skills acquired through architectural education and practice can qualify you for positions in building product sales, technical service, and management.

Sales

Who, for example, is better suited to make sales calls on architects than a fellow architect. While salespeople without construction background can spend years learning the language of architecture, it is already your native tongue. With your training you will not only understand your product, but also how your product contributes to the overall success of your customer's design. If you are selling windows, for example, you will be able to talk not only about glass and aluminum, but also about how the fenestration can reinforce the designer's concept. You can roll out the tracing paper to help solve detailing problems. The ability to see the total project as greater than the sum of its parts will enable you to establish better rapport with architects – to be not only their sales representative, but also their consultant.

Your architectural skills will also find applicability in building product marketing. You have been trained to understand the big picture and to organize myriad small details that are necessary to accomplish a vision. Your communication and presentation skills will give you the edge in presenting your ideas and communicating them to corporate management as well as to your customers. Even your draftsmanship and aesthetic training will be called upon to help you create effective product literature and advertising for your product.

Technical

Product research and development may appeal to the more technically inclined. Product design is similar in many respects to building design. It begins with defining the performance requirements for the new product and developing alternative solutions. But while most architectural designs are one-of-a-kind structures and are not tested until occupied, product designers often have the opportunity to build prototypes to refine ideas and test a product's performance. Your understanding of construction materials and methods will be enhanced by an increased appreciation of the nature of materials and manufacturing processes.

Building product manufacturers also need architecturally trained individuals to serve as project engineers. With construction technology becoming more complex, consulting architects increasingly delegate detailing responsibility for building systems to manufacturers. Project engineers must evaluate the building and contract requirements and must design appropriate solutions compatible with their firm's capabilities. Individuals in these positions also act as in-house consultants to provide trouble-shooting, make field inspections, obtain code approvals, and respond to special inquiries about a product's performance or suitability for proposed applications. Your knowledge of the way buildings work will be tested daily.

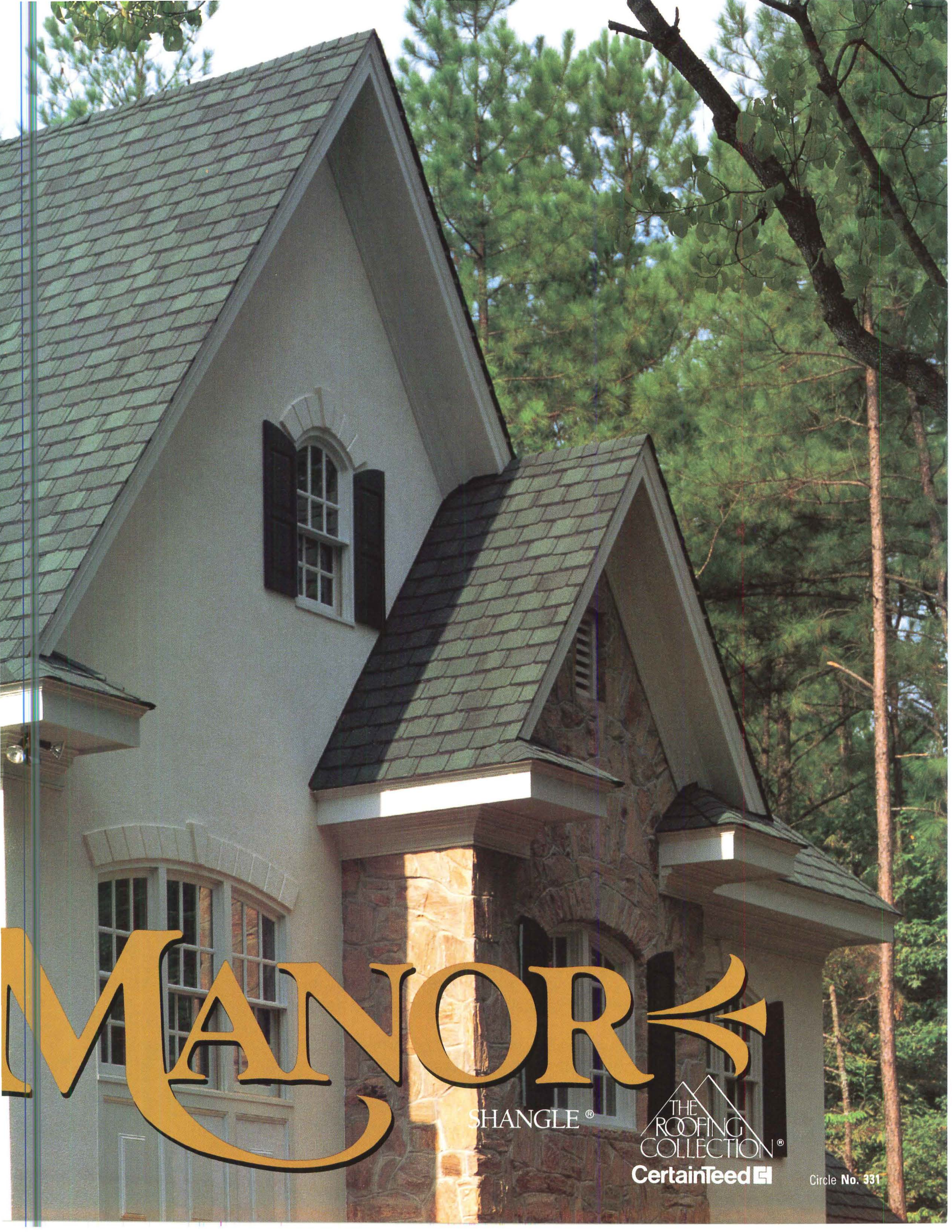
Working for a manufacturer in a particular area of building technology, such as roofing or curtain walls, can enable you to develop a degree of expertise not normally obtained in architectural practice. You may eventually be able to return to practice with an attractive area of specialization.

Management

Experience as a principal of a design firm can be parlayed into a management role in the building product industry. While the product is different, you must still recruit and manage staff, marshal resources, watch the books, and supply the vision that gives a business direction.The same entrepreneurial drive that leads many architects to start design firms has prompted others to launch building product businesses. Architects have developed many new building products when they recognized product ideas, stylistic trends, or construction problems not satisfied by existing products. And some have gone on to found companies to manufacture or market their product ideas. As in any industry, most of these new businesses fail. But others have succeeded and range in size from small custom millwork shops to leading manufacturers like Kawneer, founded by an architect who first patented metal window frames. Before launching your own building product firm, you may want to spend a few years working for an established company to learn the territory. But even if all you are launching is your own career, look for a company with a commitment to quality and training, who will provide opportunities upon which you can build.

In general, economic rewards and job security in building product firms are at least as good or better than in architectural practice. If you decide to make a career shift into the building product industry, take your architectural sensitivities and passions with you; you will not stop being an architect just because you no longer work in a traditional practice. The building product industry influences architecture through the invention and dissemination of new technology , new building systems, the economic and political clout of major national and international manufacturers, and the persuasive powers of advertising and sales. During your career in building products, you will make significant contributions to the success of hundreds of buildings. A career in building products will still enable you to leave your mark on the quality and future of architecture. **Michael Chusid** ■

The author left architectural practice to become a sales and marketing consultant for building product manufacturers.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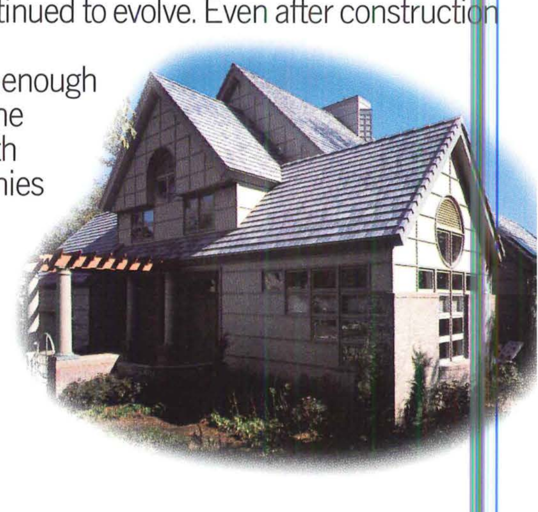
WE DELIVERED THESE WINDOWS TWENTY YEARS AHEAD O

In 1989, *Newsweek* magazine ran an article about the house of the future. "In the 21st century," they asked a panel of experts, "how will the typical suburban home look? What new building products will be commonplace?"

The idea intrigued the producers of the public television series *Hometime*. They decided to build the house.

They formed a team to begin planning the project. And one of the first companies they made part of their plans was Marvin Windows and Doors.

You see, despite blueprints, the home's design continued to evolve. Even after construction began, new ideas were constantly proposed and analyzed.



The project called for companies that were flexible enough to keep pace; companies that could play an active role in the evolving project; companies that could respond quickly with aesthetically correct, functionally sound products. Companies like Marvin.

After evaluating all the design and performance objectives, Marvin provided large, factory-assembled multiple units combining view, casement and round top windows. To complement the home's exterior, the window mulls on the assemblies were built to line up perfectly with the grid pattern established by the siding. Remote control

BUILDING connections

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> **Randy Croxton, AIA**
> *Croxton Collaborative Architects, New York City*

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April 22, 1-4 p.m. EDT	*Land, Resources, and the Urban Ecology*

A Call for Sustainable Community Solutions

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Submission Deadline	*May 5, 1993*
Selection of Awards	*May 15, 1993*
Publication of Selected Projects	*September 1, 1993*

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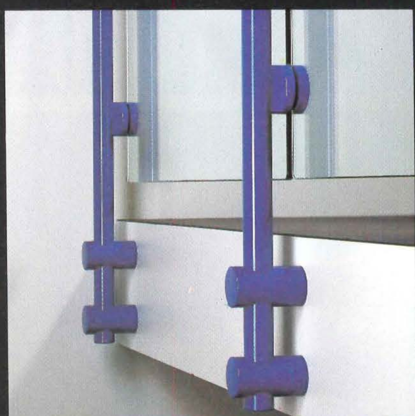

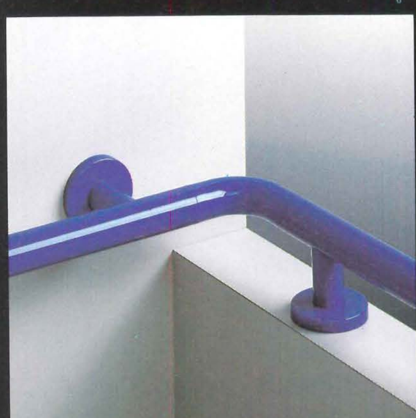

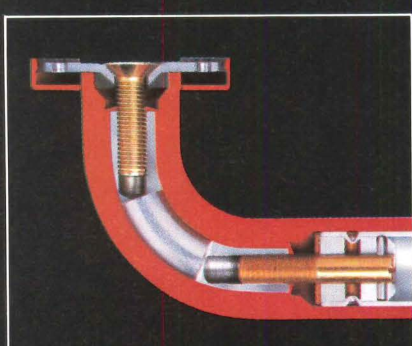

Section through 90° bend showing steel core and connecting pieces.

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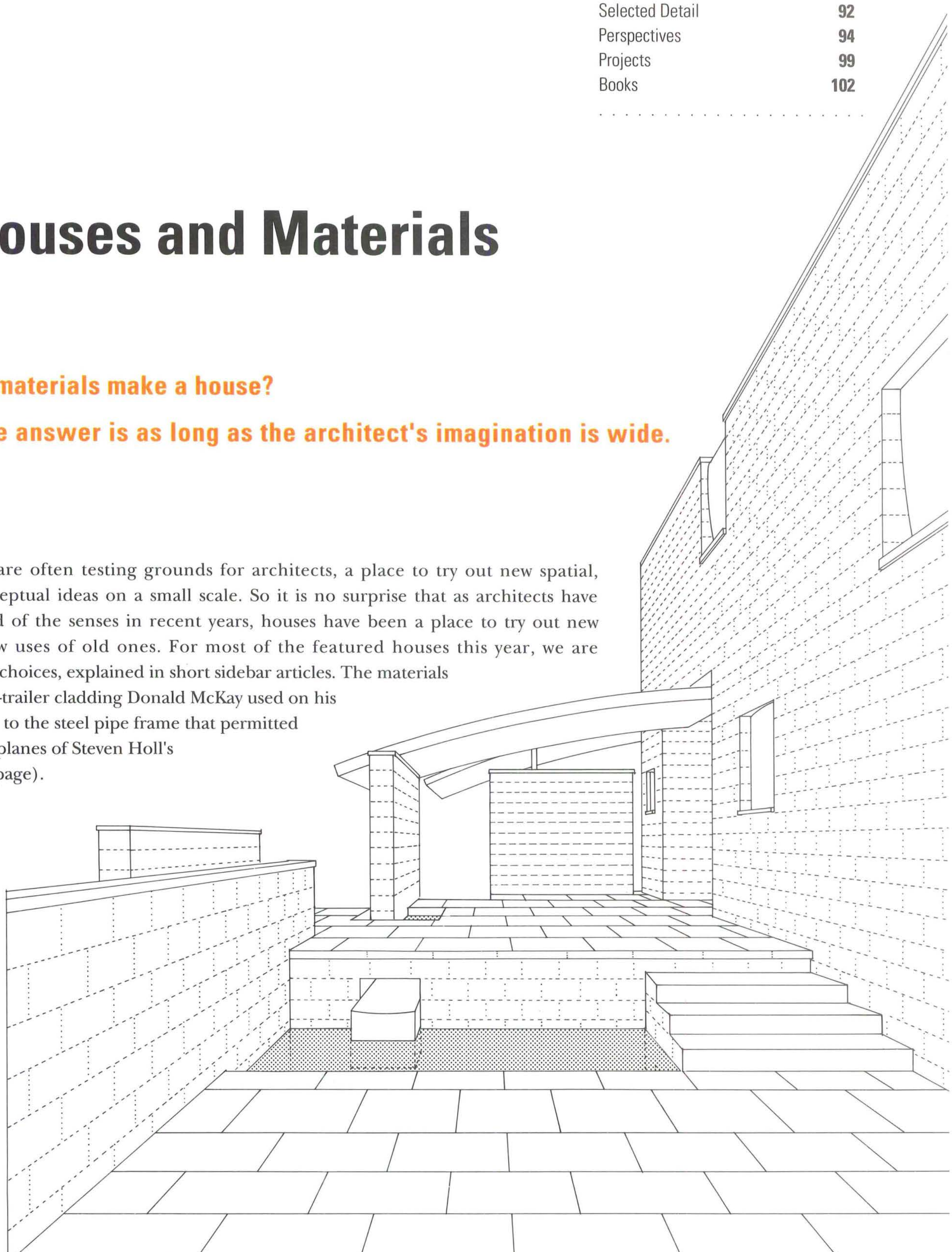
Houses and Materials

What kinds of materials make a house?

The answer is as long as the architect's imagination is wide.

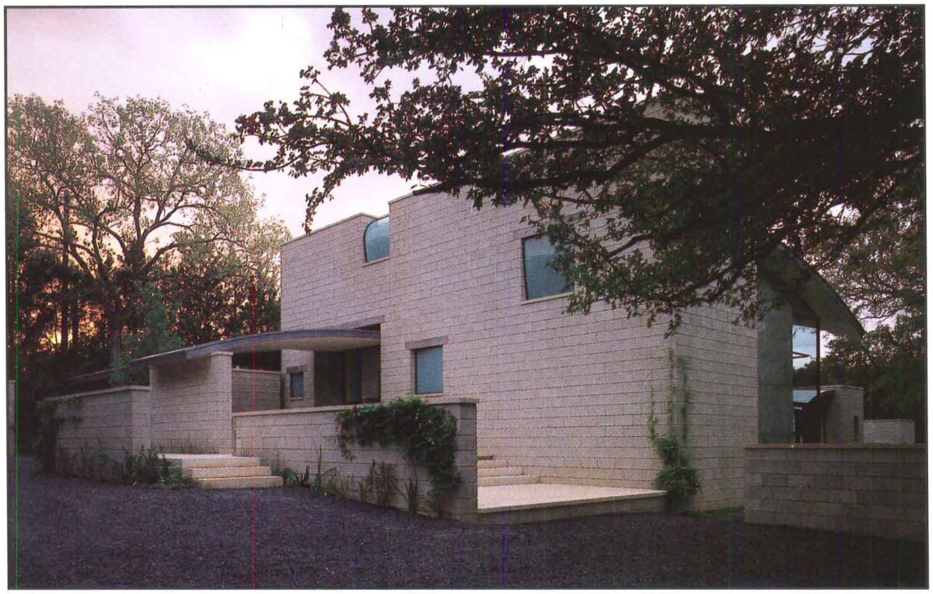
Houses, of course, are often testing grounds for architects, a place to try out new spatial, structural, and conceptual ideas on a small scale. So it is no surprise that as architects have re-entered the world of the senses in recent years, houses have been a place to try out new materials – and new uses of old ones. For most of the featured houses this year, we are focusing on material choices, explained in short sidebar articles. The materials range from the truck-trailer cladding Donald McKay used on his own house (page 86) to the steel pipe frame that permitted the thin curved roof planes of Steven Holl's Stretto House (next page).



Entry terrace, Stretto House, by Steven Holl Architects.

Stream and Consciousness

The experiential ideas behind Steven Holl's Stretto House are backed up by rigorous detailing.



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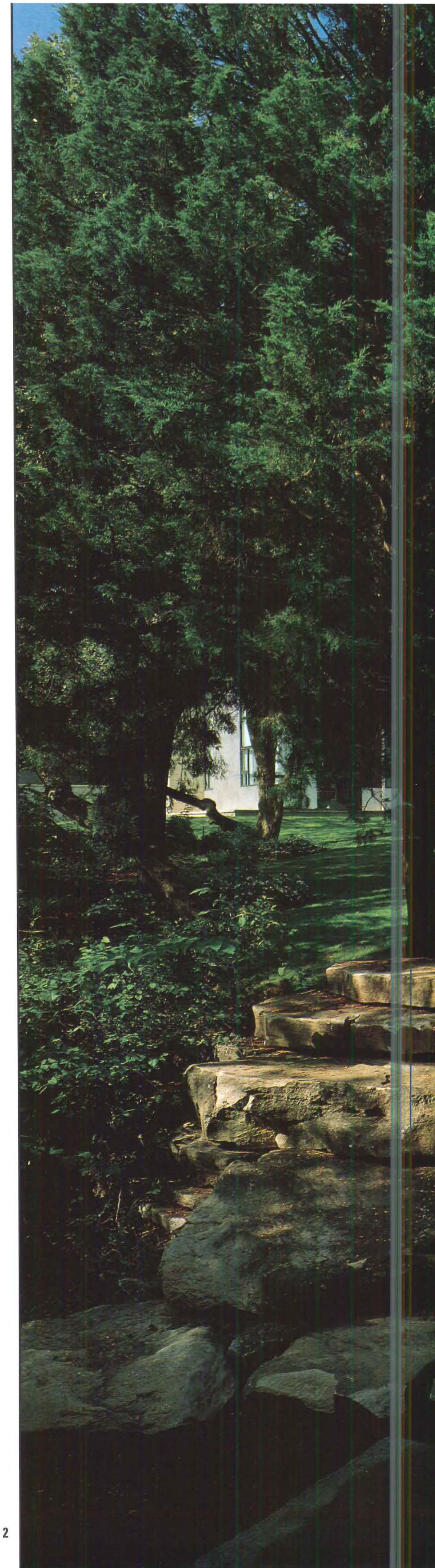
The Stretto House takes its inspiration from the spring-fed creek that runs beside it (2). Four dams in the creek create small pools and cascades, which Holl echoed by organizing the house around four dam-like room elements of concrete block. Between these elements is a system of curved roofs sheathed in lead-coated copper. The exterior walls under the roofs are lightweight compositions of glass and hand-sanded aluminum panels mounted on metal studs with unsealed joints.

The south-facing front entry (1), set in a hard, two-story concrete block façade with only a few translucent windows, is reached from a limestone-paved forecourt that passes around a small pool and fountain. The door is sheltered by a gently curved canopy.

A small spring-fed creek runs through an upper-class suburban neighborhood in North Dallas. Steven Holl Architects drew from this rare vestige of unspoiled wildness in the largely bulldozed, paved-over North Texas plain the first of many organizing strategies for the firm's design of an extraordinary new house.

A previous owner, who sold the acre-and-a-half site to Holl's clients, had built four low concrete dams in the creek bed, stabilizing the creek's water level and creating a series of small cascades and pools. The program called for a large house (6000 square feet, with lots of room for displaying the clients' art collection), along with a separate guest house. Holl knew, as he has written, that he wanted "to break [the house] down into parts that [could] be rendered in different materials."

Holl designed four bar-shaped volumes constructed of sharply detailed concrete block, clearly corresponding to the dams in the stream. Set on 45-foot centers, these volumes are each approximately 10 feet wide and 45 feet deep; the first two sections are two stories tall, the second two only one story. The plan modules shift back and then slightly forward on the site as the house slopes gradually downward from the limestone-paved front terrace at the southwest corner to the other open court at the northwest end, which leads to a "flooded room" in the last masonry volume that embraces the creek.



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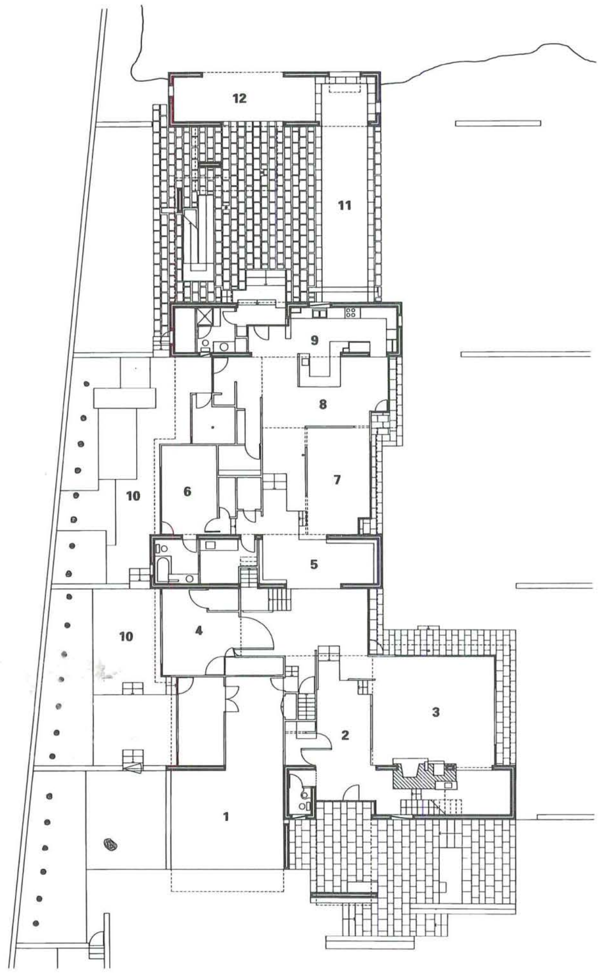
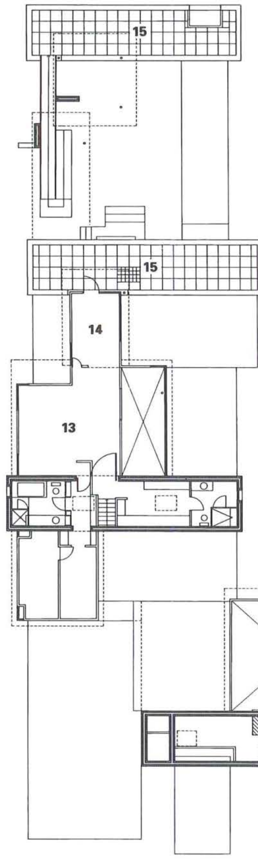


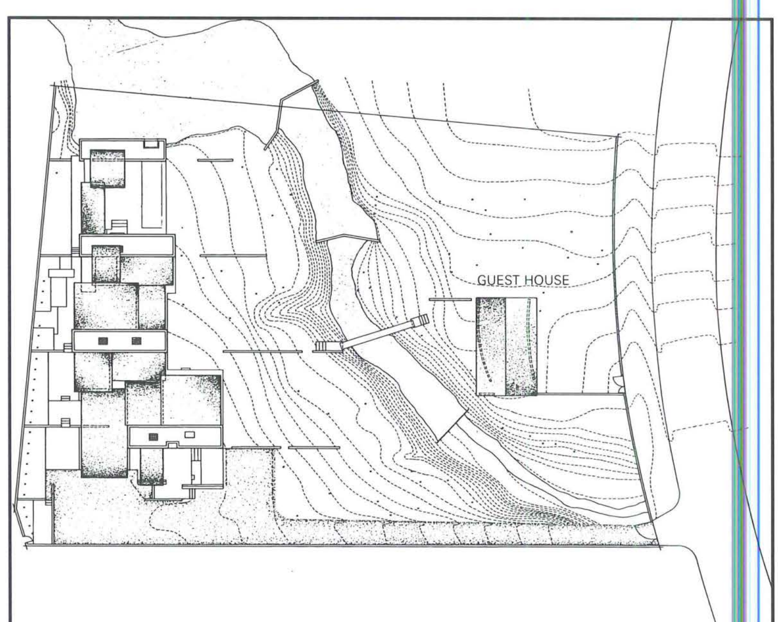
FIRST FLOOR PLAN

N 20'/6m

1 GARAGE
2 ENTRY
3 LIVING ROOM
4 ART STORAGE
5 LIBRARY
6 STUDY
7 DINING ROOM
8 BREAKFAST AREA
9 KITCHEN
10 WALLED GARDEN
11 POOL
12 FLOODED ROOM
13 BEDROOM
14 SITTING ROOM
15 ROOF TERRACE

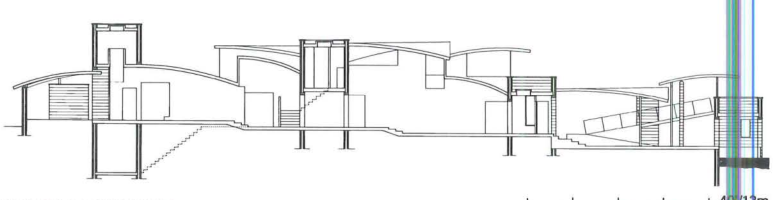


SECOND FLOOR PLAN



SITE PLAN

N 40'/12m



SECTION LOOKING WEST

40'/12m

3

4

Between the masonry bars floats a contrasting system: thin, wave-like roof forms, constructed of curved pipes and covered in lead-coated copper shingles. The house's perimeter, under these sailing roofs, is similarly delicate, formed of window walls and lightly constructed curtain walls of hand-sanded aluminum panels, which are attached over a waterproof membrane to a metal-stud frame.

Inside, space is organized around the stuttering circulation path that telescopes downward from the front door to the flooded room. On the eastern side are the sunken, drooping-roofed living room (opened to the foyer by a cutaway corner); the dining room; and the kitchen. Separating living room and dining room is a narrow, windowless library, painted all in black. On the western side, the spaces are given over to the garage, closets, art storage, a study with a small bathroom, a utility room, and a wood-paneled pool room.

The ground plane is open and light; by contrast, movement upward to the second-floor areas is given a sense of constraint. Narrow, springy metal stairs lead off the entryway, ascending over a small bar area to a small second-story office. Black concrete stairs also lead from the hall to the second-floor bedroom, which is perched above the module between the library block and the kitchen. Only outside on the rear court is an upward movement opened up by the concrete ramp leading to the flooded room's roof terrace.

Golden sections abound in plan and elevation: Holl says that he was particularly influenced, as the design for this house developed, by listening to the *Music for Strings, Percussion, and Celeste,* by Béla Bartók, who used golden-section relationships in his compositions. The fugue at the concerto's beginning is a famous example of the power of *stretto,* the overlapping and building of musical themes: Holl calls the project, with its overlapping spaces, the Stretto House.

The strictness of this ordering device contrasts with the loose arrangement of the thin columns that support the twisting roofs. Holl says the columns were arranged where required for support, in what appears to be a random swirl. In the living room, one column is inside the window wall, while another stands outside under the eaves, and another, revealed by a foot-high notch, is within the wall dividing living room from foyer.

The house's materials are plain. Indeed, the rough dove-gray concrete block is a surprisingly vernacular choice for such an upper-crust residence – vernacular as in Stop-N-Go instead of as in time-hallowed farm house. But the precise joints and planarity used for laying the block makes this unconventional material work for the house, and such craftsmanship is maintained throughout, as one might expect from the contractor, Thomas Byrne Construction of Fort Worth, who built the

(continued on page 61)

The stair landing that leads to a small upstairs office opens onto the living room (3), with its black concrete floor and Holl's tables, designed as representations of musical notation. Beyond is the east side of the house, cascading to the rear court. The thinness of the roof structure shows best above the living room (4). The underside of the roof is finished in hand-troweled plaster. Visible on the ground floor, inside the first concrete-block "dam," is a bar area.

5

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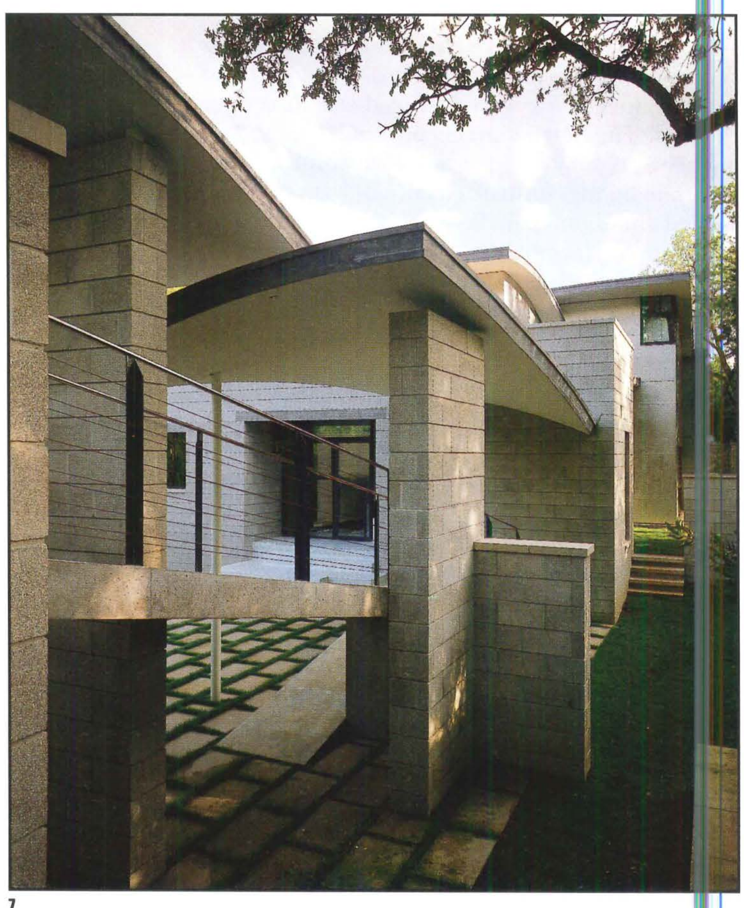

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The rear court (5) is paved with limestone blocks set in turf. At left is a lap pool; at right, a covered ramp leads to a deck that overlooks the creek. A thin column, barely visible as it emerges from a block wall (7), supports the ramp's canopy. The flooded room (6) is the climax of the architect's play of structure against site. A view toward the entrance (8) shows the series of low terrazzo steps that define the main circulation path.

Materials: Steel Pipe Structure

Steven Holl wanted the flying roof sections of the Stretto House to be as free to curve and as thin as possible, in contrast to the masonry cells around which the house is anchored.

"We designed the roofs and made a model, and mocked up a coping in our office. We saw we wanted a roof no thicker than about seven inches," says Holl. "Then we began to investigate how close we could get to what we wanted and by what means it could be built."

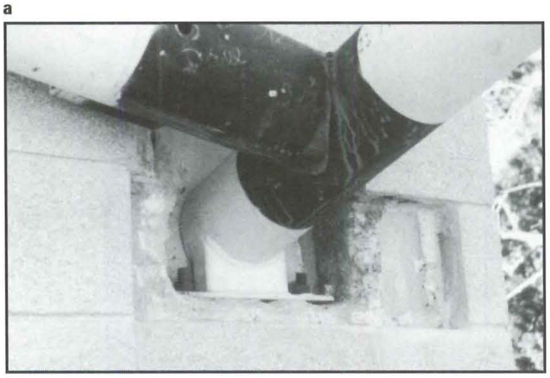
Working with Thomas Taylor and Johan Bremer of Datum Engineering in Dallas, the architects investigated using steel beams and poured concrete shells, but ruled both systems out: the steel was too expensive and would have resulted in too thick a section, while concrete shells would also have been expensive and, while initially thin, would have been thickened by necessary insulation.

Finally the designers settled on standard six-inch pipes (d), which were inexpensive and were available in a variety of strengths. They could be bent any amount in one direction, and their curved surfaces allowed a smooth relationship of the pipes to curves in other directions. Batt insulation could be placed between them, and they could then be decked top and bottom with plywood (c) that could, in turn, be covered with lead-coated copper above (a) and plaster below, maintaining the seven-inch thickness.

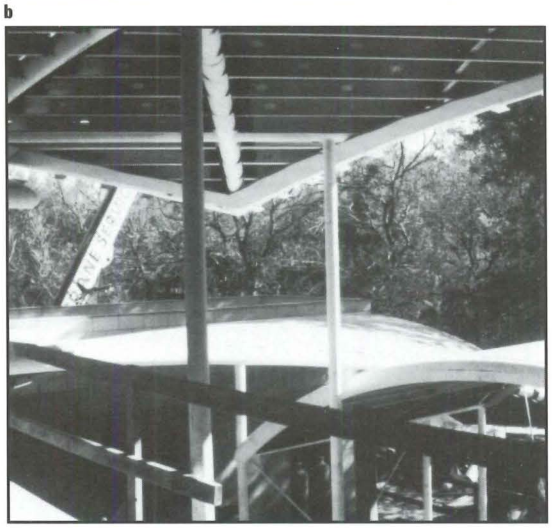
Steel, Inc., of Dallas fabricated the pipe, working with Bendco of Houston, which rolled the pieces by using magnetic induction to heat them; Barker and Bratton then cut the "fishmouth" angles at which the ends would be welded together. The pieces were numbered and brought to the site, where they were assembled by two Native American ironworkers working for Baten Erectors of Dallas.

The steel roof frames were set onto steel plates in pockets in the masonry walls (b), which were themselves reinforced to carry lateral loads and the downward thrust of the roofs by placing steel-reinforced grouted columns, 12 feet on center, between the inner and outer layers of masonry blocks.

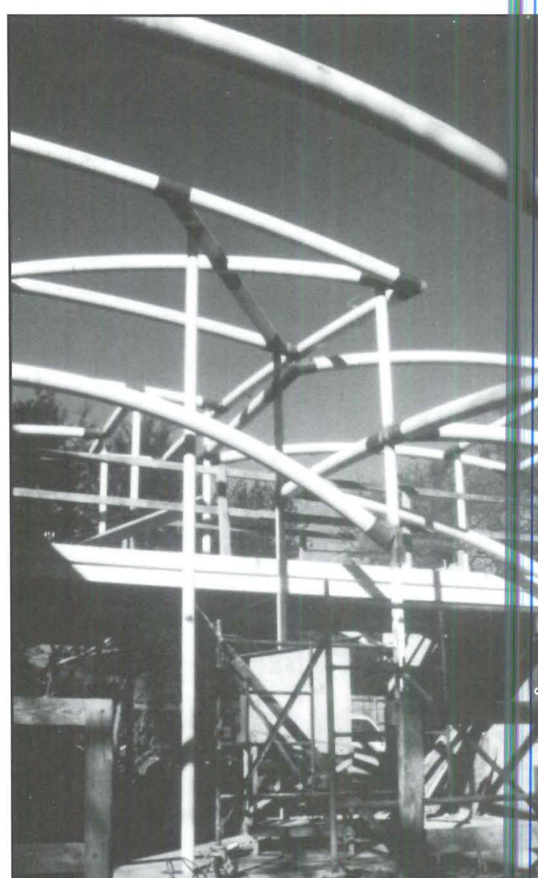
a



b



c



d

Construction photos: Steven Hall Architects

9

(continued from page 57)

Kimbell Art Museum. The floors are pale terrazzo, and most of the walls are white hand-troweled plaster. Punctuating the space and describing the boundaries of the spaces under the roof sections are plaster walls painted yellow, blue, and terra cotta. The front door, the walls in the restroom off the foyer, and the sills of some windows are covered with chemically "reddened" brass. Colored tile and wood paneling are used in the bathrooms and dressing rooms upstairs.

Holl says that his firm worked on the project for seven months before the clients saw any drawings or models, and later refined the design for an additional eight months. The time and care invested show in the intricately crafted decorations that link motifs and proportions at every scale.

Holl has written about the need for architects to break free of linguistics and other misleading psychological models and to strive instead for a direct representation of experience in their work. In the Stretto House, this drive for direct representation shows in the way Holl has focused on water flowing over low dams and has elaborated these unassuming elements into interlocking paradigms of movement and repose for his clients.

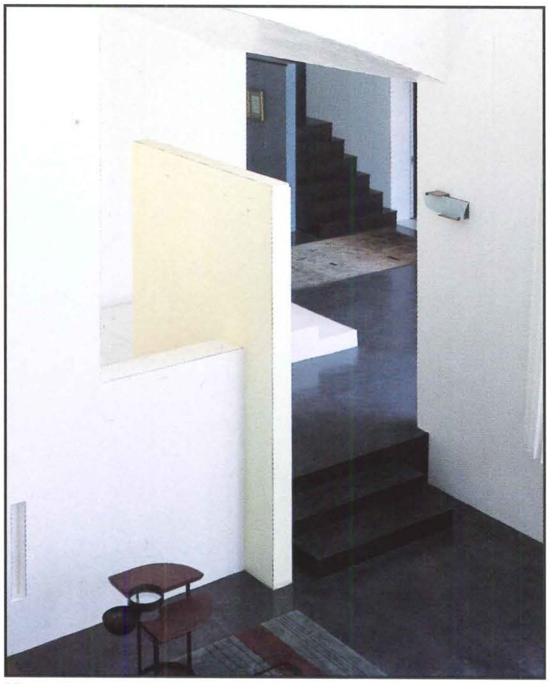
But layered over this easily recognizable portrayal of site and habitation is a second system, one built on almost total self-referentiality. First, of course, there is Holl's near-obsessive use of golden-section relationships, which gives the perimeter of the house, in particular, a graphic, two-dimensional quality that seems at odds with its flowing spaces. Golden sections are described by mullions, by walls and openings, by kitchen cabinets and bedroom closet drawers, by bathroom mirrors. Several doors are wide, handleless slabs that pivot at the point where square intersects rectangle. Just when you think you might come down with Alberti poisoning, however, Holl introduces a second set of references, based on the free curves of the roof: curved cast glass pieces are used as windows, light fixtures, and as a spout for the entry court fountain. The curves-vs.-rectangles motif is even applied to the toilet-paper holders in the bathrooms.

This list is far from exhaustive. All the surfaces and even what lies beneath them have been drafted into the service of Holl's relentlessly examining intelligence. The effect might have been claustrophobic, but the opposite is the case. All the polishing, shaping, and framing recedes into a kind of visual white noise, eluding definition instead of demanding attention, and giving the clients the freedom to enjoy the masterful evocation of dwelling and creek that provides the house's basic diagram. **Joel Warren Barna** ■

The author is P/A's Texas correspondent and editor of Texas Architect. *His book,* The See-Through Years, *published by Rice University Press, will appear this month.*

Holl has patterned the exterior walls using squares and rectangles in strict-looking golden section relationships, and he used the same strategy to discipline the placement of walls inside the house (9). This patterning gives the envelope of the house a graphic, two-dimensional quality that is enlivened by materials and details in a surprising range, from the substantial noodle of bronze that forms the handle of the reddened brass front door to the curved cast-glass insets that break out of the window corners at the entry (right in photo).

Dark-stained wood stairs (10, 11) lead to the house's single bedroom on the second floor. (Overnight guests are quartered in a guest house across the creek, where the roof is rectilinear and the walls are curved and shaped.) Beneath the bedroom are a study and an art storage area, reached through a pivoting door (11). The bedroom looks down on the hallway, where some of the clients' largest works of art are displayed (12). The dark concrete floor gives way to white terrazzo (which climbs up to form the lower half of the walls) as the house steps down past the kitchen to the rear court.



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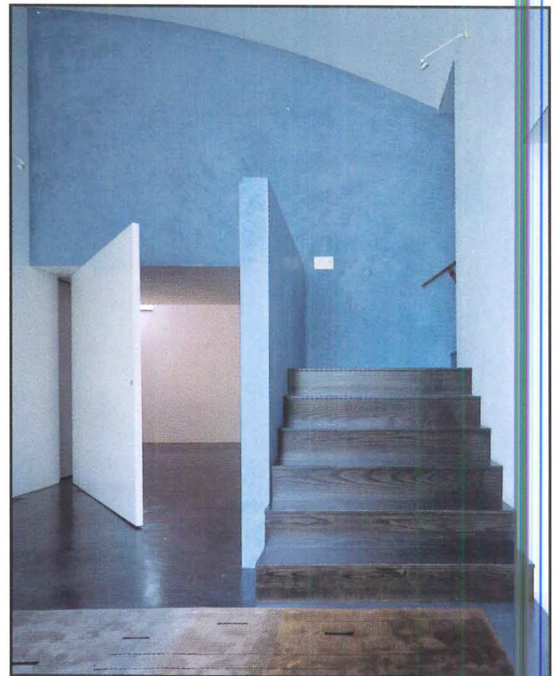


11

Project: *Texas Stretto House, Dallas, Texas.*
Architects: *Steven Holl Architects, New York (Steven Holl, principal; Adam Yarinsky, project architect; Peter Lynch, Bryan Bell, Matthew Karlen, William Wilson, Stephen Cassell, Kent Hikida, Florian Schmidt, Thomas Jenkinson, Lucinda Knox, project team).*
Consulting Architect: *Max Levy, Dallas.*
Client: *name withheld at owner's request.*
Site: *$1^1/_2$-acre wooded site bisected by a stream with three existing dams.*
Program: *6000-square-foot house with two-bedroom guest house, terraces, and lap pool.*
Structural system: *reinforced concrete pier and grade beam foundation; masonry loadbearing walls; bent steel tube beams and pipe columns.*
Major materials: *limestone aggregate concrete block, aluminum panels, lead-coated copper and rubber membrane roofs, exposed concrete ceilings, white and pigmented plaster walls, colored concrete and terrazzo floors (see Building Materials, p. 131).*
Mechanical system: *chiller, gas-fired boiler, four-pipe system with fan-coil units.*
Consultants: *Kings Creek Landscaping, landscape; Datum Engineering, structural; Interfield Engineering, mechanical.*
Contractor: *Thomas S. Byrne, Inc.*
Costs: *withheld at owner's request.*
Photos: *Paul Warchol, except as noted.*

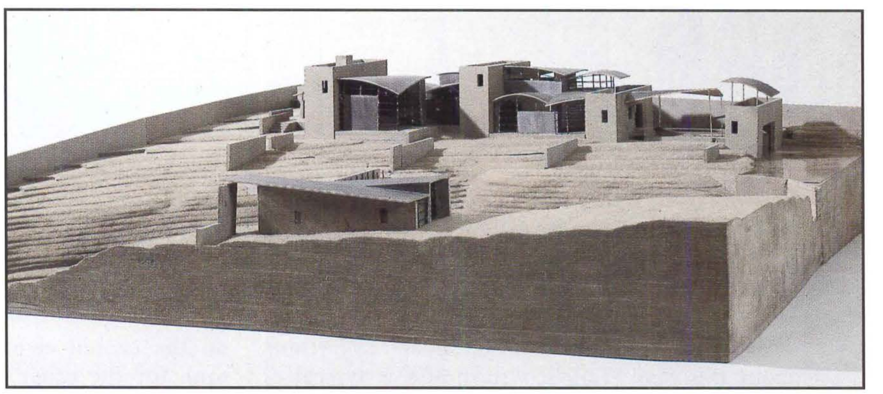
12

Stretto and Style

Michael Benedikt examines the Stretto House – and Steven Holl's words about it.

No house published in these pages is likely to be less than a *tour de force* of architectural composition, and Steven Holl's Stretto House, a concerted exercise in form making, material control, and terse, museum-quality detail, is no exception. The front door opens to a rush of light and space, of sheeny planes, etched edges, pale color, and a distant view of green water framed, it initially seems, 50 times over in successively smaller overlaps between cross-sliding bars of space. Around this experience the house pivots; the house is "anchored." To the right, facing east, are large rooms with billowing ceilings giving onto a lawn that slopes to a creek; to the left is the "business" side, rooms more closed and dark: spaces for the storage of art and of persons. This much is understood soon upon entry.

Now: no baseboards, no moldings, just incisions, swoops, and tight, instantaneous changes of planarity and material and color. Integrally colored plaster walls gleam with workmanship, as do floors, sills, joinery, and hardware, the etched and stained metals, the cast glass panels, the Pyrex window corners. Indeed, one quickly notices that *no* significant corner remains unquestioned or unchallenged, not in two dimensions and not in three. The Box is not so much exploded in Rietveldian or Wrightian fashion, but each of its corners is undone, unstitched, taken out, reconfigured, re-seamed. Windows are shifted to the extremes of scale, to the "missing wall" and the "punched opening," the former energized by Mondrianesque division, the latter fetishized by subtly curved glazing and apparently serendipitous placement. Columns are free-standing; here and there commas and cuts expose structure otherwise invisible. In short, one witnesses the masterful execution of a *style*, a coherent set of choices of form, color, and material, in this case predicated upon the grammar of De Stijl and Suprematism, but unique nonetheless to Holl and to this, his time.



Of course, one can hardly say "style" without thinking "mere," and herein lie the questions that Steven Holl poses for all of us. Can a style ever be deep? Or must style be ignored, denied, dissolved into other, more serious, more abstract modes of discourse? With his built work and with his writing, respectively, Holl answers *each* question in the affirmative. I would affirm only the former. Architecture no less than music can work with motifs. Architects no less than composers and musicians can admit to a swirl of stylistic influences from contemporaries, and still speak to us urgently and coherently. There is nothing to fear. Wind and rhythm, water and dust, voice and value, these are the tuned substructures of consciousness, and a style is but a way of sounding its ancient strings. At the same time, we continue to call to each other as co-makers and co-inhabiters of the contemporary world.

I say all this in defense of style because Holl is a master of it but would have us think of his work far more abstractly, far more theoretically, as an outcome of phenomenological insight, pure and direct, into the nature of architecture. If, as G.H. Hardy said of mathematics, sublimity arrives upon the achievement of depth, universality, novelty, inevitability, and economy, then Holl aims to score on all points. Cleanly. Without metaphor.

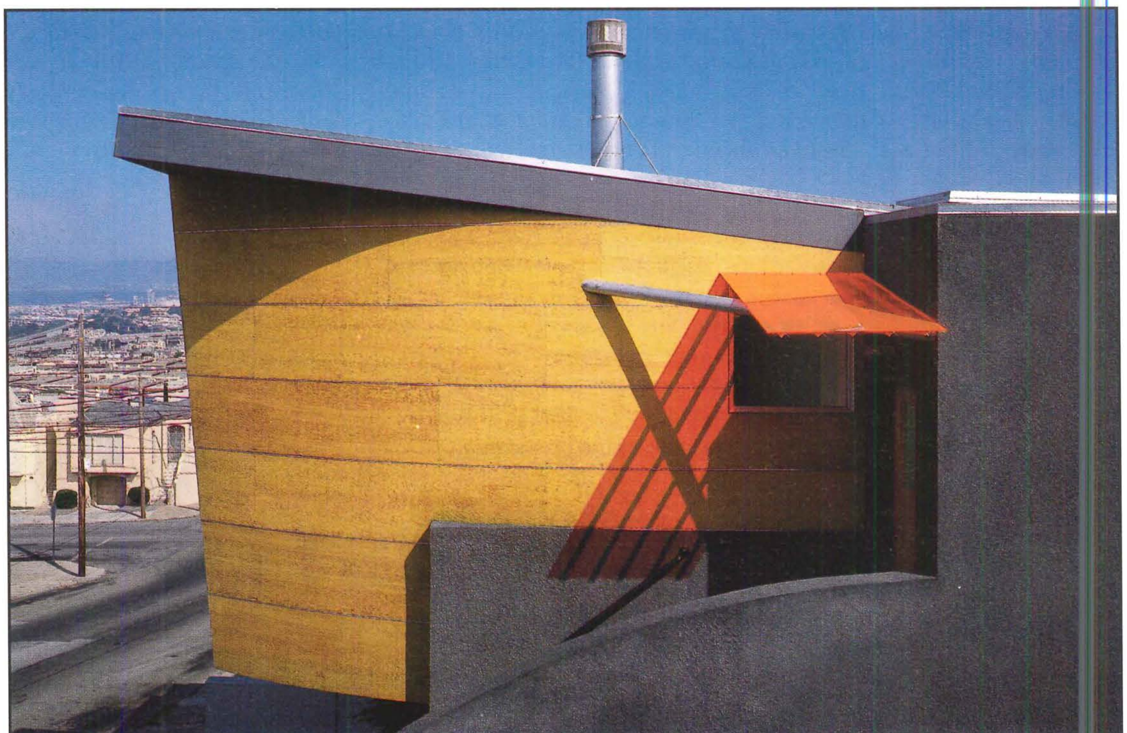
One wonders then about the value of the name given to the house, *stretto,* a musical term meaning to "speed up the tempo" as though "through the narrows" or, alternatively, referring to an overlapping of call and response. As the house descends towards the north, its "aqueous space" can indeed be felt to speed up as it passes the kitchen and flows out to the "flooded room"; and inside, the floor indeed seems to lap over into three subsequent levels with liquid, rail-less, terrazzo steps. But the house's graceful roof shells never overlap, and their energy never surmounts the "dams" constituted by the masonry segments. If anything, they seem somewhat pressed between them, broken, rearing up. This would not matter if Holl did not also pose the house as an analog to the thrice-dammed stream that runs through the site, a stream, we might note, that runs in the opposite direction.

Holl would also like us to consider the house's relationship to Béla Bartók's *Music for Strings, Percussion, and Celeste,* which, strettos aside, cleanly divides heavy (percussion) and light (string) sounds in four movements in just the way the Stretto House cleanly divides its heavy and light elements. This may well be, and any number of Modernist buildings do the same. But we might remember that Bartók began his musicological investigations by analyzing the vernacular folk tunes of Hungary, deriving from them certain unique, pentatonic orderings he expanded into a scale system that privileged no note except by imperceptible intervallic symmetries around it, and ended with music distant indeed from anything folk-like or functional as folk music. So too Holl begins with pure phenomena and putatively local materials, and ends with a house that bears little relationship to Texas, its climate, coloration, fundamental materials, or its vernacular. If this is forgivable, it is because we all dream of Eden, and know that a measure of denial is essential to architecture. Moreover, Bartók was as interested in style as the rest of us. **Michael Benedikt** ■

The author is Meadows Centennial Professor of Architecture at the University of Texas at Austin. His books include For an Architecture of Reality, Deconstructing the Kimbell, *and* Cyberspace: First Steps.

The Rowhouse Realigned

Eye-popping finishes and low-rent materials break with Bay Area rowhouse convention in this residence by Kotas/Pantaleoni Architects.



1

The cantilevered entrance canopy and the yellow-dyed cedar cladding are characteristic of Kotas/ Pantaleoni's vocabulary (1). The hooded living room windows screen the view from the street (2). A nylon sail protects the back porch from prevailing winds (3).

Appearances to the contrary, nearly everything about this San Francisco rowhouse is typical of houses in the city's outer neighborhoods. Standing two stories high on a 25′ × 100′ lot with a minimal front lawn, it has a bay projecting from the second floor above the street-level garage and a back yard large enough for a garden. But beyond these conventions, architects Jeremy Kotas and Joanne Koch of Kotas/Pantaleoni Architects have abandoned the characteristics of typical Bay Area residences. The front bay is pulled out and cranked eastward toward the view as are the dining area and back porch. The warped plan of this basically rectangular building is revealed inside with two walls on the upper level curving outward from the hallway in the middle of the house; the living and dining rooms are thus visually enlarged. The only house for blocks that breaks rank with the boxes along the streets, it is also the only one that makes the most of its hillside location.

The architects are known for their quirky and colorful houses. In fact, the client chose them partly because they use bright colors as a substitute for costly materials. At first, the architects wanted this to be a natural house with redwood plywood on the canted elements and a natural concrete tone for the other walls, stuccoed in a pebbled texture. When the client found the untreated cement to be too blah, the walls were dyed blue-gray and were enriched with maroon-colored pebbles. When the redwood proved to be scarce and expensive, they turned to less costly cedar plywood and stained it yellow to complement the concrete walls. Accents in fluorescent pink-orange appear in the plastic front-porch roof and the nylon sail that screens the back porch.

Although the architects abandoned their idea of using materials in their most natural state, nature will prevail in the long run: as the yellow dye fades, the cedar plywood will become silvery-gray and rain will gradually wash away the dark finish of the maroon pebbles. In the future, when the base of the house becomes warmer and the top cooler, nature will have produced the kind of harmony that the designers originally envisioned. It will become more subdued, allowing the house to fit in, while providing the best view on the block.

Sally Woodbridge ■

The author is P/A's San Francisco correspondent.

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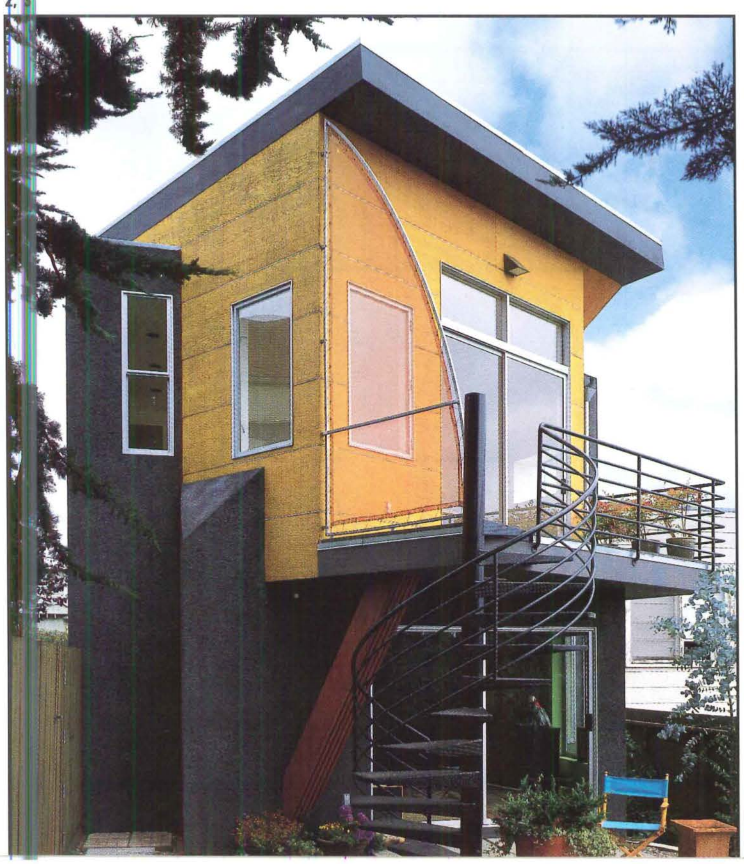
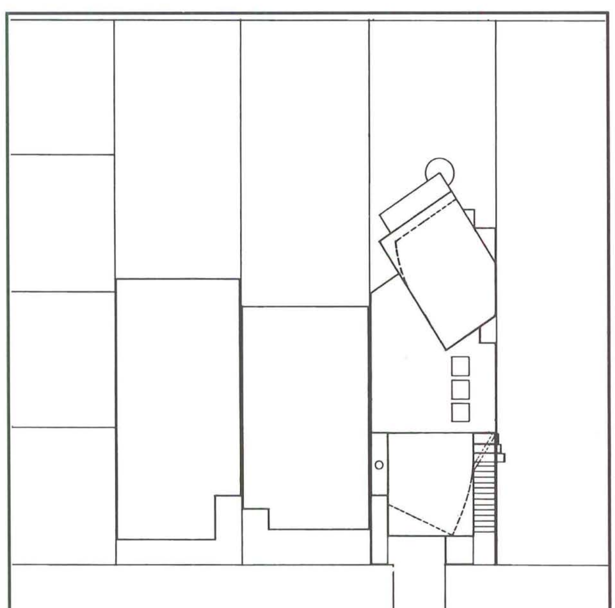




SITE PLAN

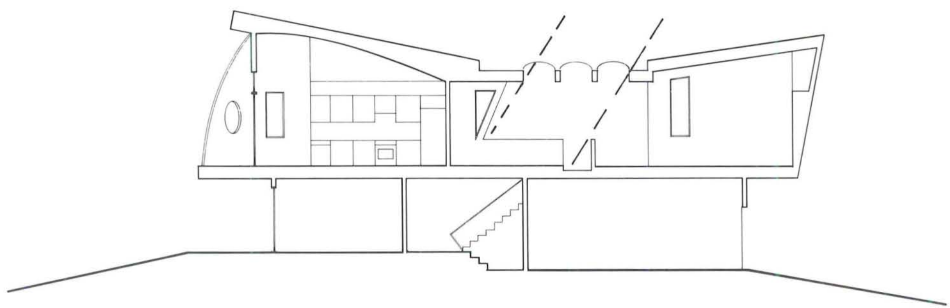
N 20'/6m

4

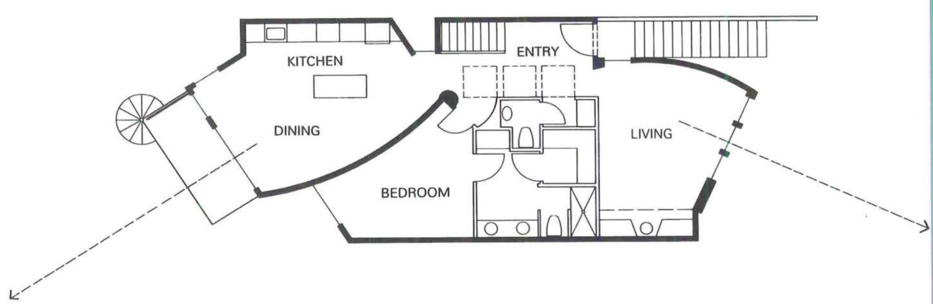
5

From the entrance, the serpentine plan makes a simple program visually complex (5). The floor-to-ceiling windows link the living room to the city; the recessed fireplace shaft helps to maintain an intimate scale within (4).

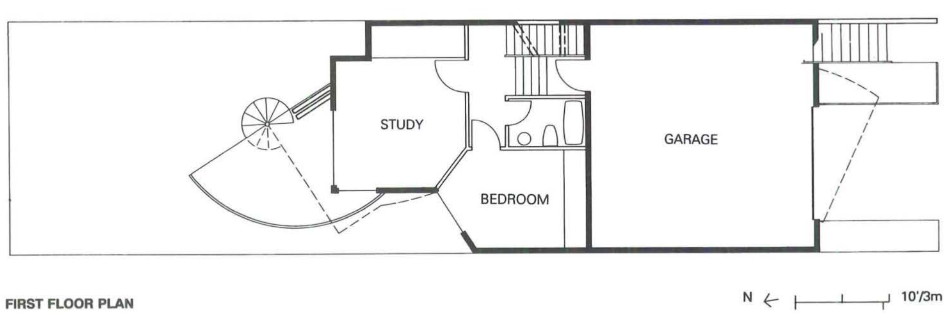
Project: *Faith's House, San Francisco.*
Architects: *Kotas/Pantaleoni Architects, San Francisco (Jeremy Kotas, Anthony Pantaleoni, principals-in-charge; Joanne Koch, project manager; Bob Collins, Diana Woodbridge, Alice Soohoo, Ellen Rush, design team; David Louie, models and renderings).*
Client: *Faith Gohstand.*
Site: *25′ × 100′ lot sloping east.*
Program: *2415-sq-ft house with two bedrooms and a studio.*
Structural system: *wood frame.*
Major materials: *integrally-colored heavy dash-textured stucco with maroon gravel; resawn cedar plainface plywood with yellow aniline dye; fluorescent plexiglass; plaster (see Building Materials, p. 131).*
Mechanical system: *natural gas-fired, forced-air furnace.*
Consultants: *John Dempcy, landscape; Werner Martin, structural; John Britton, BEC Associates, Title 24 (Energy Compliance Report.)*
General contractor: *C.O.D. Construction (Neil Cotter, John O'Donoghue).*
Cost: *$250,000.*
Photos: *Richard Barnes.*



SECTION



SECOND FLOOR PLAN



FIRST FLOOR PLAN

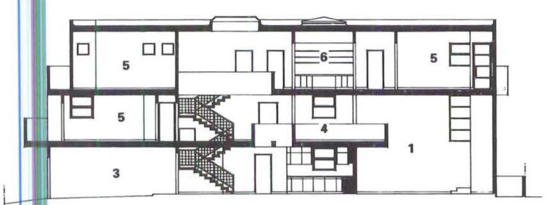
Options Included

Real estate developers put a premium on cost-effectiveness. James F. McGlothlin, a Venice, California, architect, makes it intrinsic to good design.

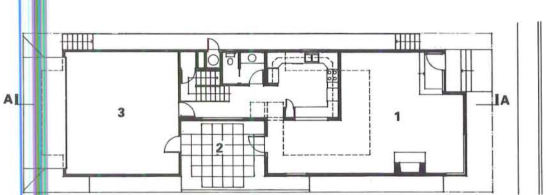
If we consider the speculative house a package for sale, the architect's seal is its design voucher, a marketing edge in a competitive market. Venice, California is one of the best places to observe the scenario: here, pedigreed design is imperative in upscale houses. The literati of visual culture expect more than built-in garages and roof-top jacuzzis; they want an architectural statement.

James F. McGlothlin has more than a few Venice spec houses in his portfolio. He turns the paradoxes of these commissions – high-style, but governed by pragmatics – into a design advantage: the parameters help to clarify his intentions. He considers the high-end spec house the inverse of the custom house, where one-of-a-kind features are designed, sent out for bids, and almost inevitably altered to fit the budget. When he works for a developer of spec houses, McGlothlin researches prices for custom work from a fabricator he knows well *before* he designs. Costs can then be monitored

1



ALTAIR PLACE HOUSE, SECTION AA 20'/6m



FIRST FLOOR PLAN N → 20'/6m

1 LIVING/DINING
2 COURTYARD
3 GARAGE
4 MEZZANINE
5 BEDROOM
6 STUDY

Clapboards and horizontal mullions form a taut skin on the Altair Place House (1). A variation of a one-family townhouse, it has a courtyard in the middle, with rooms oriented to the front (2) and back. McGlothlin explains that the front door (detailed like the windows) will be used as much as the garage entered from an alley; people walk, as well as drive, in Venice.

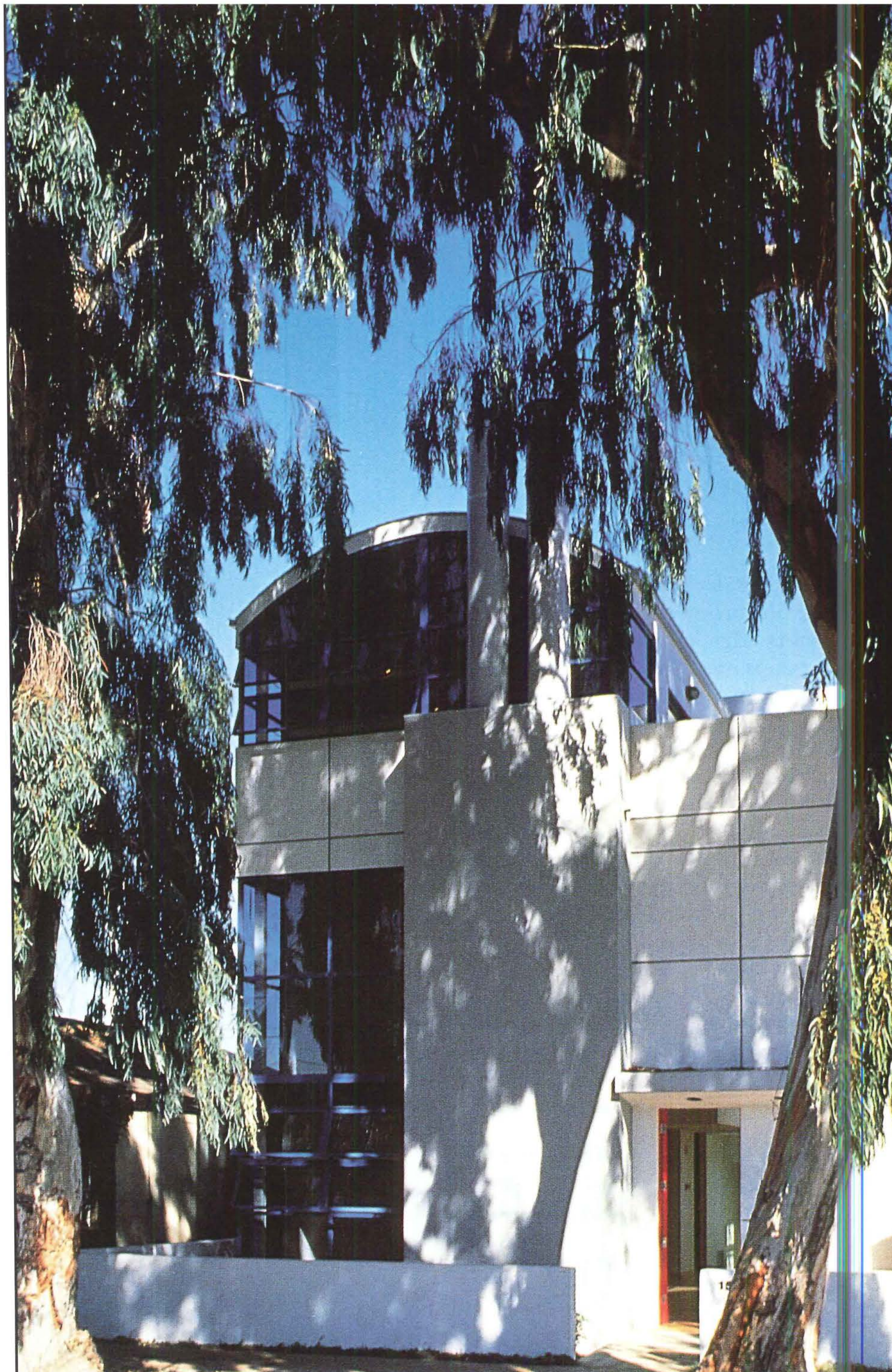
2

closely and special features reserved for places with high impact, such as the façade. As the pair of Venice houses shown here illustrates, the results are rigorous and understated. They're also more economical than they seem.

Both houses (a block apart from each other) are good street architecture, modest and urbane – ironic qualities, given their locale: these are the homes of Venice's new gentry, young neighbors of the funky bungalows that made this Los Angeles's architectural Bohemia. Developers reason that houses like these, which tower over their older counterparts, are mandated by inflated land costs. McGlothlin says that because of such costs it is only a matter of time before his houses are fully surrounded by equally bulky neighbors. The pattern is familiar: rent escalates beyond the means of lower-income residents, diversity becomes the casualty of a booming real estate market.

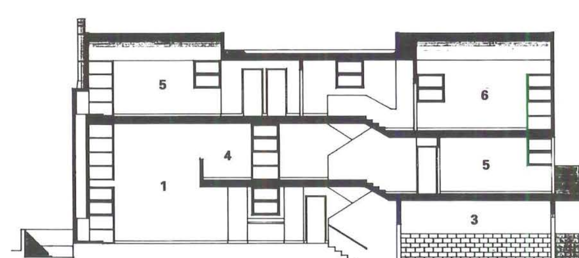
If we narrow the frame of view from the neighborhood to McGlothlin's narrow house lots, his design skills come to the fore. The austerity of Irving Gill, Los Angeles's pioneer Modernist, comes to mind: McGlothlin's Altair Place house is a monochromatic box without a trace of sentiment. Walter Gropius's houses in Dessau could be cited for the corner glazing and dematerialized façades. McGlothlin acknowleges that "there's an inherent dishonesty in very clean architecture . . . peel away the skin, and it's not clean at all." Nonetheless, he opted for tightly-wrapped façades, detailed so that the three floors within aren't obvious. Double-height windows of aluminum, precisely detailed, align with front living rooms, enabling residents to take in Venice's lively street scene. McGlothlin's elevations belie the rich sections within, where mezzanines can serve as dens or home offices, a way to maximize returns on the purchase price. Flexible inside and neutral outside, these are durable houses, prudent investments in real estate.

Philip Arcidi ■



3

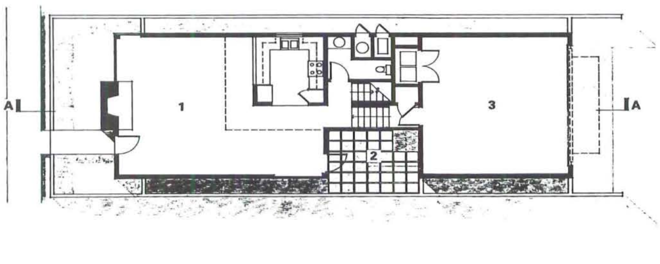
The Cabrillo Avenue House (3) has a stucco and glass façade of inordinate sleekness, given its checkered Venice context. Similar in plan and program to the Altair Place House, this residence has floor-to-ceiling windows and a glass door that open to a private courtyard (4). Skillful detailing renders the corner a wraparound membrane of steel and glass.



CABRILLO AVENUE HOUSE, SECTION AA

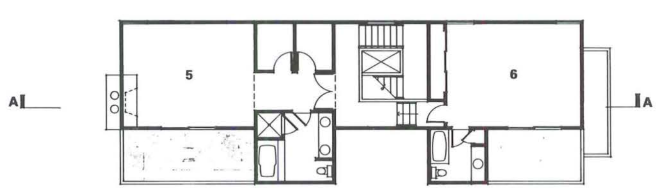
Project: *Altair Place House, Venice, California.*
Architects: *James F. McGlothlin, Venice (James F. McGlothlin, project designer; Glenn T. Tomita, project manager).*
Clients: *Robert Douroux and Elaine Spierer.*
Site: *a 30' x 90' lot with an alley, flanked by houses with 5-ft front yards and lap siding.*
Program: *a 3686-sq-ft, 3-bedroom house with internal courtyard.*
Structural system: *wood frame, with steel moment frame at garage; slab on grade with continuous footings.*
Major materials: *exterior clad in cedar siding and stucco; gypsum drywall interior; aluminum awning windows (see Building Materials, p. 131).*
Mechanical system: *gas-fired forced air units.*
Consultants: *Parker/Resnick, structural.*
General Contractor: *Robert Douroux.*
Costs: *not available.*
Photos: *Alexander Vertikoff.*

Project: *Cabrillo Avenue House, Venice, California.*
Architects: *James F. McGlothlin, Venice (James F. McGlothlin, project designer; Glenn T. Tomita, project manager).*
Clients: *Mark Galloro, Ed Murphy, Scott Corell.*
Site: *a 30' x 85' lot with an alley, flanked by smaller wood frame houses.*
Program: *a 3328-sq-ft, 3-bedroom house with internal courtyard.*
Structural system: *wood frame, with steel moment frame at garage.*
Major materials: *exterior clad in stucco; gypsum drywall interior; aluminum awning windows (see Building Materials, p. 131).*
Mechanical system: *gas-fired forced air units.*
Consultants: *David Lau & Associates, structural.*
General contractor: *Bardo Builders.*
Costs: *not available.*
Photos: *Alexander Vertikoff.*

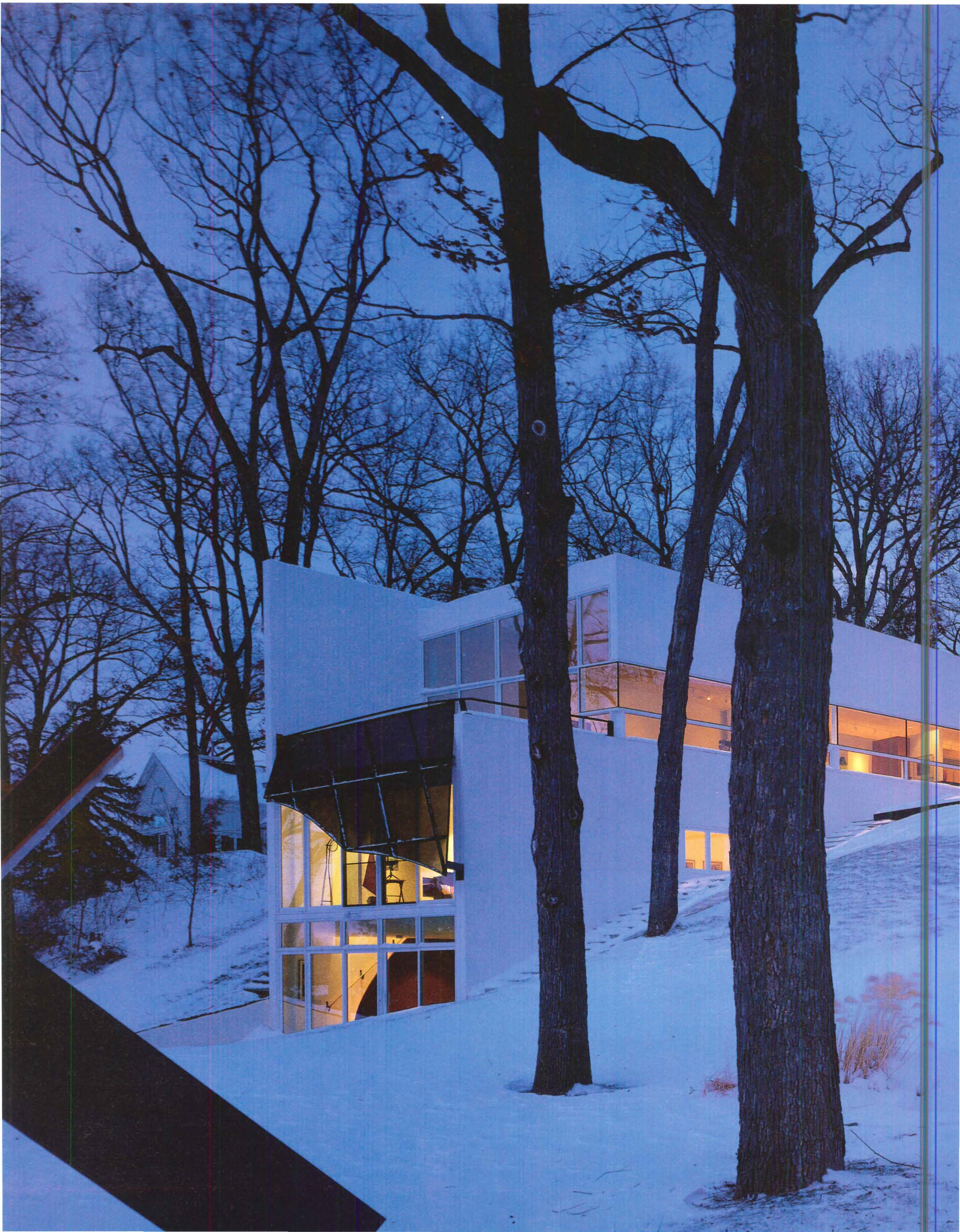


FIRST FLOOR PLAN

N → 20'/6m



THIRD FLOOR PLAN



Folded Viewframe

A vista is at once compressed and expanded in a lakefront house by Denison Luchini Architects.

You might expect the Modernist Piku House to sit awkwardly among its conventional clapboard-sided neighbors in Orchard Lake, a well-to-do suburb of Detroit. But the house is not simply an anomaly. Its nature is more complex, at once disquieting and unassuming. The architects, Dirk Denison and Adrian Luchini, who were cited in P/A's last Young Architects issue (July 1990, p. 81) may have had this in mind, judging by their observations: "The house is meant to make you feel a little uncomfortable. The domestic is always threatened."

You could almost overlook the house when approaching by car. Tall prairie grasses and wild flowers indigenous to the Midwest are planted by the driveway (in contrast to the rigorously groomed lawns on either side); they wave in the draft of passing traffic. A steel wall, rusted to an earthy brown that suits the landscape, rises behind the plantings, nearly concealing the house from view.

This minimalist streetfront is an overture to Denison and Luchini's site strategy – one that rings with rationality, as if every feature grew from the topography and program as easily as prairie grass from Michigan soil. In order to open the house to views of the lake, the architects positioned the house along the northern lot line and gave it a singular V-shape. "It is a single line folded into the landscape," says Denison. Luchini adds: "When you stand at the cross of the two wings, you witness the two wings folding away and the landscape opening."

The site is relatively narrow and steeply pitched, 100 feet by 240 feet, with a 20-foot drop to a small lake. The clients, a couple in late middle age who plan to continue living in the house when they retire, wanted a single-story home that would be manageable when their old age sets in.

There are views to the water from every room on the main floor. The outer walls are virtually windowless, providing seclusion from neighboring houses. The plan has a logical division between

(continued on page 74)

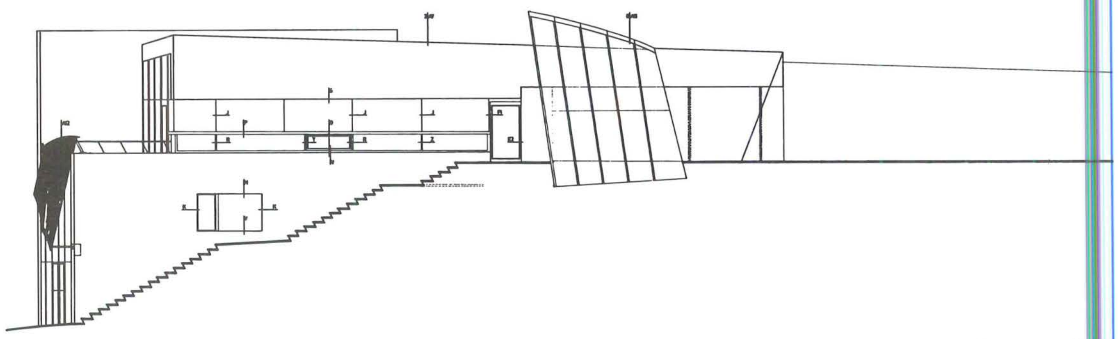
Seen from the lakeshore, the Piku house is a twin structure, with living areas and guest bedrooms in the multi-story wing opposite the couple's private quarters (1).

1

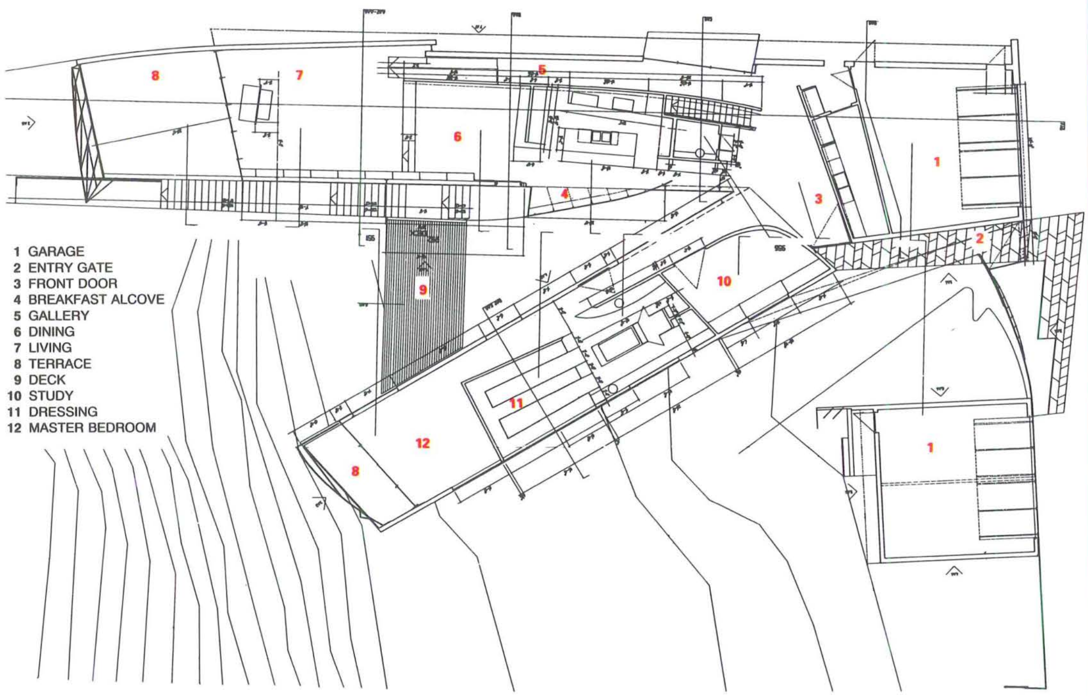
Household Steel, Rust Optional

Heavy-gauge, cold-rolled steel with a rusted surface is an unusual material for a residential project. But it suits the Piku House, inside and out. The wall that shields the house from the street and the interior stair wall employ 5/8-inch-thick steel plates. The outside wall, a freestanding piece on footings, was not sandblasted, but was left as it came out of the foundry. The scales that formed naturally as the metal cooled remained. Then, when the wall was exposed to the weather, rust developed behind the scales. They were shed after 18 months, leaving a rich surface of rust. For the interior wall, an acid spray was used to accelerate the process. Both walls were coated with a polymer to seal the surface and protect it from further weathering.

These walls, as well as other custom steelwork, were fabricated by Gary Kulak, a sculptor from Detroit. His work on the glass bay in the courtyard was particularly painstaking: the alcove's complex simultaneous curves were to appear as close to continuous as possible. To this end, Kulak broke the steel frame into three-foot sections and erected one at a time. He calculated each custom-made steel rib in sequence to accommodate no more than a 1/16-inch glazing tolerance. The result looks effortless – a sleek enclosure of faceted glass.



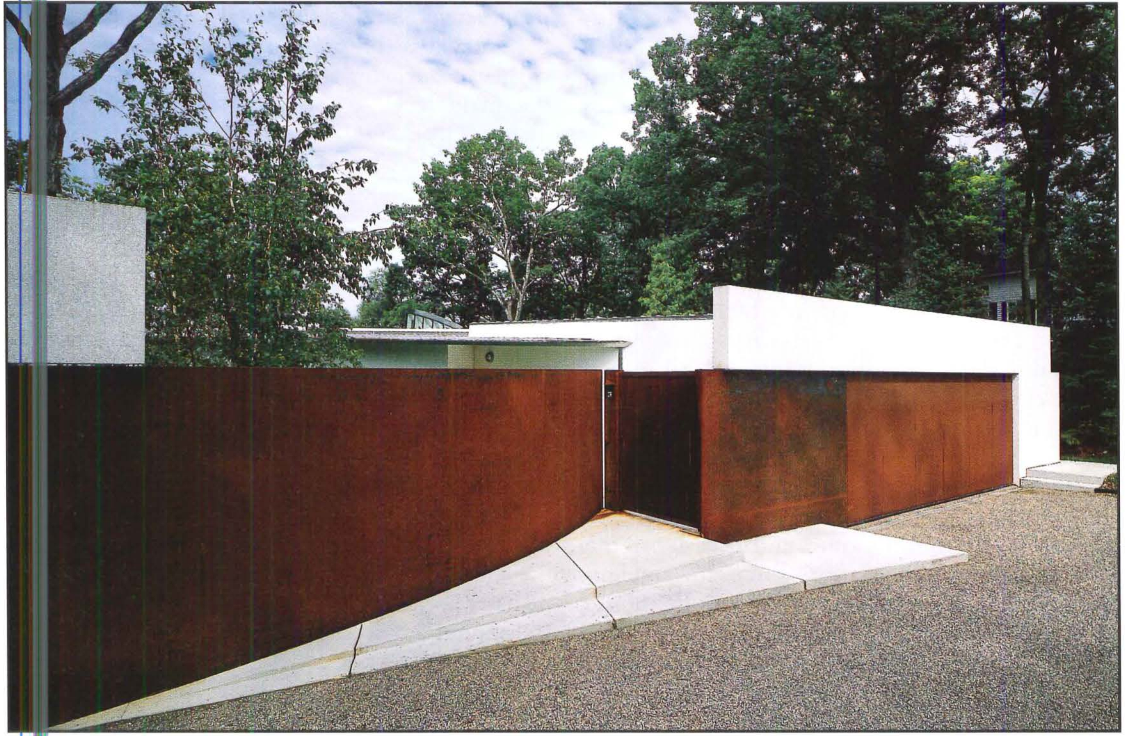
SOUTH ELEVATION FROM COURTYARD



PRIMARY FLOOR PLAN

2

3



4

An aerial view shows that the Piku house occupies a tight lot flanked by conventional suburban houses (2). The triangular stretch of lawn and deck offers outdoor privacy, an exceptional dividend on a densely settled lakefront (3). The street façade is as minimal as some of the client's modern sculpture, with rusted steel plates that screen the garage and curve to the entry gate (4).

The acutely angled junction of the wings (near the front door) acts as a perspectival frame; it implies that both the cone of vision and space expand in the distance (5). The view from the living room (6) encompasses the courtyard at close-range (to the left) and the lake in the distance; the dining area is two steps higher so that the vista is not obscured when the living room is occupied (a ramped gallery extends behind the wall to the right). Seen from the bedroom wing, the sloped breakfast bay is a shell of glass superimposed on the rectilinear house (7).

5

Project: *Piku Residence, Orchard Lake, Michigan.*
Architects: *Denison Luchini Architects, Chicago and St. Louis (Dirk Denison, partner in charge; Adrian Luchini, Dirk Denison, designers; Michael Pierry, project architect; Cecilia Perez, Jack Frederick, Morgan Fleming, project team).*
Clients: *Frank & Shirley Piku.*
Site: *a 100' x 240' sloped site on Pine Lake.*
Program: *a 7,470-sq-ft (gross) house for empty nesters with an extensive art collection; westward view to the lake was the primary focus.*
Structural system: *reinforced concrete foundations and perimeter walls, roof truss joists, TJI floor joists, wood frame infill walls.*
Major materials: *monolithic steel panels, exterior insulation system, structural thermopane glazing, heat mirror & low "E" glazing, stainless steel lap joint roofing, maple wood flooring, teak plank decks (see Building Materials, p. 131).*
Mechanical system: *2 zone forced air heating (gas) and central air conditioning.*
Consultants: *John Grissim & Associates, landscape; Thomas Wroblewski, structural; James Bess, Boome^2, mechanical & electrical; Gary Kulak, Steve Patra, steel fabrication; Virgil Greene Co., millwork; Wolverine Marble, stone fabrication; Michelle Oka Doner, Gary Kulak, sculpture; Laura Foster Nicholson, fiber artwork.*
General contractor: *Marlin Construction.*
Costs: *not available.*
Photos: *Balthazar Korab.*

(continued from page 71)

private and public: the master bedroom and bath are located on the short leg, the dining and living rooms are along its longer counterpart. Bedrooms and a family room are tucked on two floors beneath the living room where the land slopes down to the lake. (These floors, it is understood, may become inaccessible to the couple as they age and stairs become difficult.)

At the juncture of the wings, the architects amplified the spatial tension inherent to the *parti.* The entry is located here, so you are thrust immediately into the house's most complex space, called the "vortex" by Luchini. The word is well chosen: the wings seem to take off from this point. Between them, an acutely angled courtyard lined with butt-glazed windows appears to be folded into the house, yet stands outside it. A sculptural bay of glass protrudes into the court and rises above the roofline. This glazed alcove heightens the ambiguity of the boundaries: you can stand in the house and in the courtyard at the same time.

The living area's visual and structural frames are likewise ambiguous. Denison and Luchini created a forced perspective in the public wing by progressively raising the height of the ceiling. At the entry it is compressed to nine feet; in the far corner of the living room – the outermost room on the main level – it rises to thirteen feet, four inches. The double angle of the roof (it slopes back toward the street and away from the courtyard) is another unsettling shift. This catalogue of disorienting details is, if not neutralized, softened by sweeping and beguiling views of the lake.

The house is not merely a gratuitous play on architectural themes. The alcove is not just a gesture; it is also a pleasant and sunny place to breakfast. Throughout the house, there are provocative features – like the onyx-screened fireplace that seems to float before the window wall – where traditional domestic pleasures are accommodated, though not always in the usual ways.

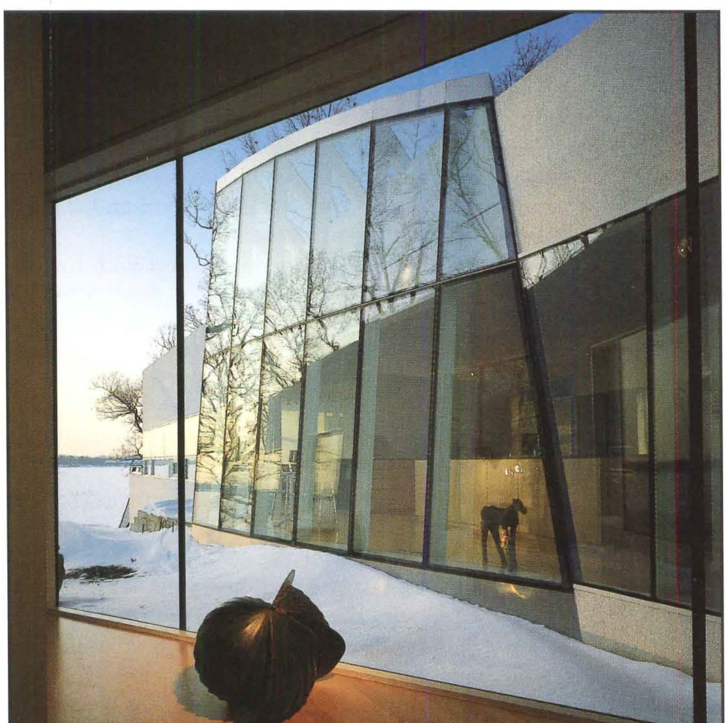
There's one noticeable flaw in the house – a circulation problem. A ramped gallery running the length of the north wall was intended to be the primary way to reach the living room. In time, it will accommodate wheelchairs if necessary. But for now, the gallery is hardly used: everyone who visits, Denison concedes, takes the more direct path along the internal window wall, drawn by the

6

view. Many guests even fail to notice there is another route. Considerable care was invested in the gallery's design, particularly in a wall that tilts precariously along the long axis of the public wing. The architects' efforts here seem wasted.

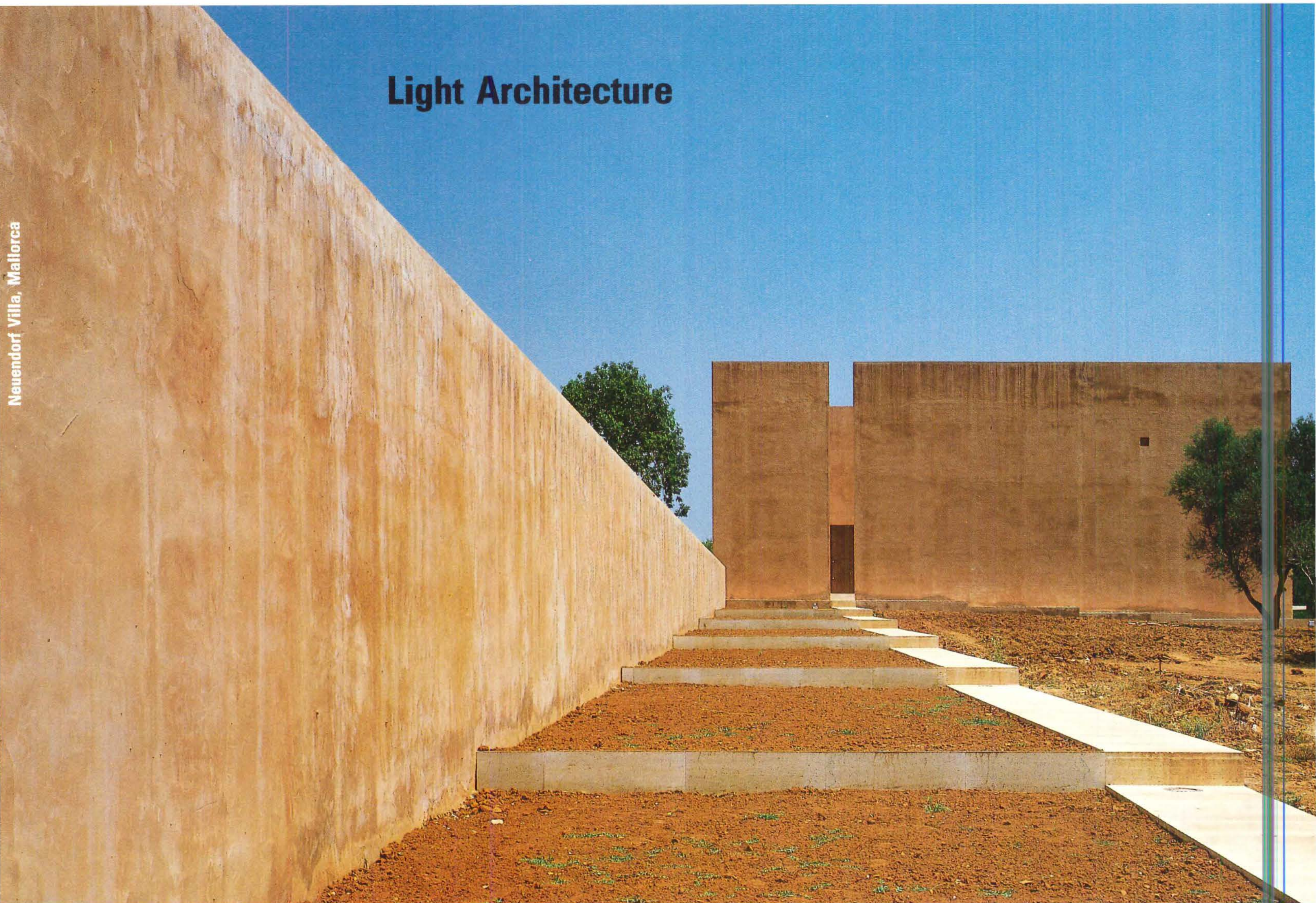
Denison and Luchini's collaborative design (they no longer work together) splays the Modernist white box and embeds it in the earth; it is a counterpoint to the serene houses of Mies van der Rohe or of Le Corbusier in the 1920s, pavilions that float above the land. The Piku House proposes a more complex figure/ground relationship that arises partly from the house's contradictory nature. Outside, the house has the cool impenetrability and volumetric self-possession of a work of sculpture. Inside, this image gives way as the house's interior edge dissolves into transparency and the architecture amplifies the site's most compelling qualities. The house is never a mere foil to the view. Rather, it is a dramatic participant, actively shaping and framing the experience of being there. **Cheryl Kent** ■

The author is P/A's correspondent in Chicago.



7

Light Architecture



Neuendorf Villa, Mallorca

1

The sun plays a major part in Silvestrin and Pawson's spare Neuendorf Villa.

"The light is partially responsible for the architecture," says Claudio Silvestrin. Talk like that can become rather trite, as architects raise the ghost of Barragán or Kahn to describe even their most banal projects. But when a design vocabulary is reduced to the spareness of the Neuendorf Villa, a vacation home on Mallorca for a German art dealer, the Mediterranean sun does play a remarkable figural role. The architecture itself is as simple and sharp as sun and shadow, so sun and shadow become especially prominent.

Silvestrin, who began this project with his former partner, John Pawson (P/A, Sept. 1991, p. 128), complains that Modern work is "too often developed in plan," and asserts that this project was "designed for the eye." A look at the plan – a gridded square in which an L-shaped set of rooms defines a square courtyard – might seem to belie this claim, but Silvestrin says the concept preceded the ordering devices. And a visit confirms that the house is more sensuous than systematic.

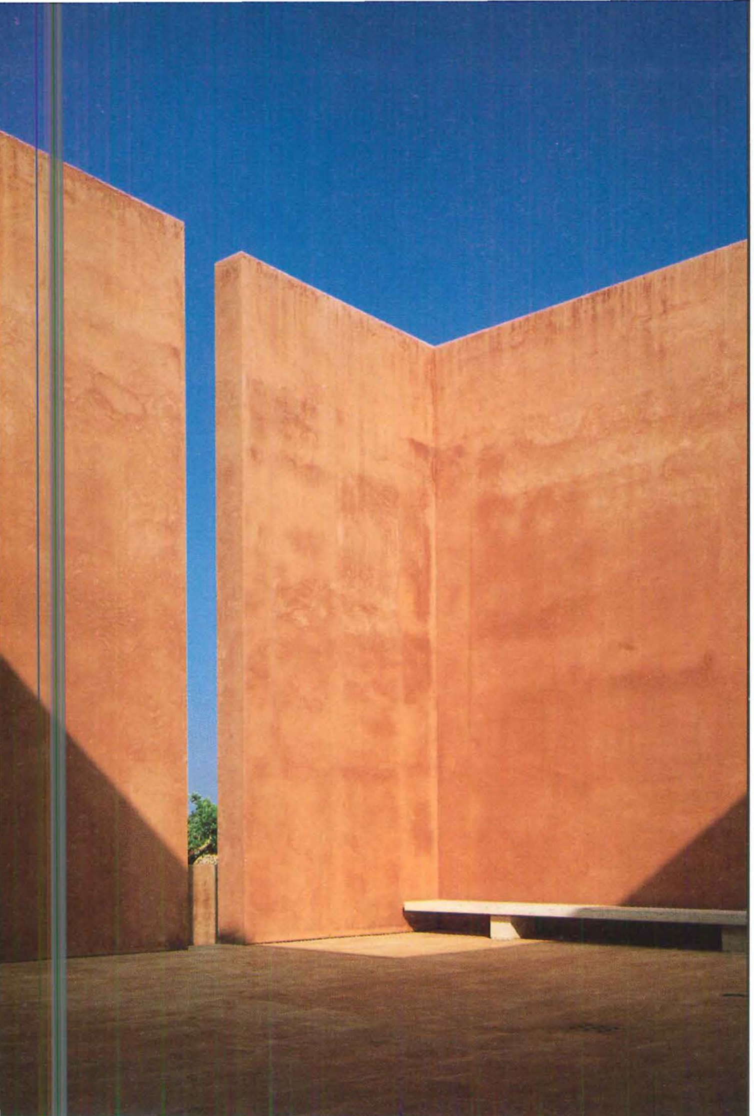
The house is set in the Mallorcan countryside amid olive trees and low stone walls. The experience begins with the long, straight approach to the house, alongside a relentless 350-foot wall. The wall ends at the house's front, where you pass through a narrow vertical gap into the courtyard. The contrast between the courtyard's high red walls and the deep blue Mediterranean sky is intense, as is the emptiness of the space. When I visited, we spoke in a whisper as we toured the house (at the request of the clients, whose children were asleep), only heightening the sense that this is more a Zen holy place than a vacation getaway. But even in a whisper, there were hints of the walls' reverberant quality; this is undoubtedly a different kind of place when filled with a family.

While the outside of the house is defined by the intensity of the sun, the interiors successfully diffuse it, offering a welcome, cool contrast. But here, too, the spareness is almost primitive: the dining room, with its kitchen hidden behind a low, stone-faced wall, contains only a simple stone table and a fireplace, its plaster back wall already beginning to be stained black. A welcome contrast to the rectilinearity is the stairwell, which seems to have been hollowed out of plaster or stone; it is sensuous and curving, the only curve in the house.

It is difficult to see this exquisite house as livable, although the clients speak enthusiastically of its pleasures. Clearly, even Silvestrin is ambivalent about how seriously such a house must be taken: not long after saying he didn't want the house to become a shrine, he cursed the family dog for tracking red mud on the stone paving. ■

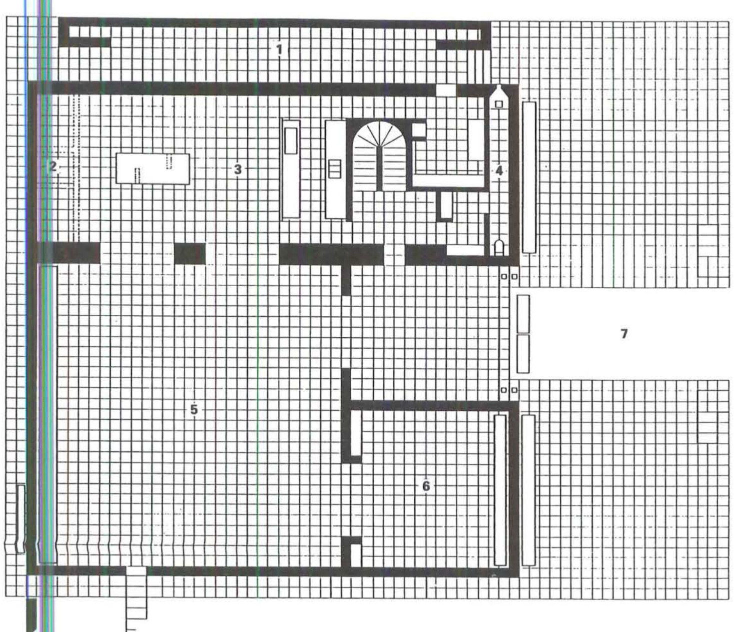
Mark Alden Branch

The long walk to the house (1) takes you along a wall that goes from sixteen feet to four feet in height, and past a sunken tennis court (not shown). The rooms form an "L" around a walled courtyard (2) that takes the place of a conventional "living room." Each elevation of the house is fenestrated differently; the north side (3) has square punched windows. The low wall running parallel to the façade is one of several "hiding places" built in for storage. The plan (bottom) employs a 41.5-cm grid; that figure was the most efficient for cutting the slabs of Santanyi stone paving.



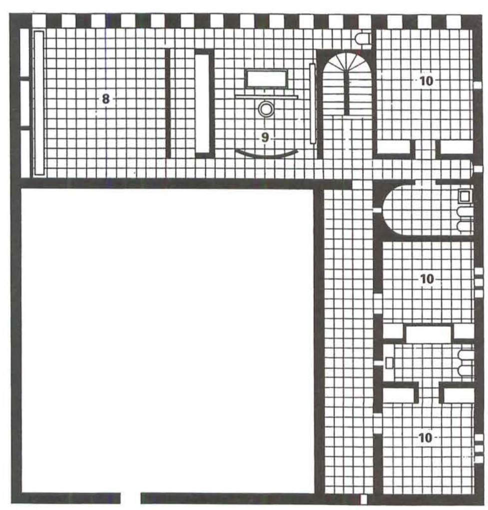
2

3



FIRST FLOOR PLAN

N 20'/6m



SECOND FLOOR PLAN

1 STORAGE
2 FIREPLACE
3 KITCHEN/DINING
4 LAVATORY
5 COURTYARD
6 OFFICE/STUDIO
7 POOL
8 MASTER BEDROOM
9 MASTER BATH
10 BEDROOM

Materials: Stucco and Stone

The stone houses, barns, and walls of the Mallorcan countryside seem to emerge from the ground, unlike the Neuendorf Villa, with its sharp-edged, towering walls. But in determining what the surface of those walls would look like, Claudio Silvestrin tried to bring the house back to the land.

The walls themselves are concrete masonry, covered with a troweled-on stucco compound of lime and pigment. Silvestrin, who is a native of Italy, says he grew up with this ancient technique: "It symbolizes the skin of our bodies, which is also very thin and porous."

The natural color of the stucco comes from the inclusion of the intensely red local soil in the mix. Never uniform in color, the walls will become more mottled in the rain and, eventually, "pale off" in the sun. Such a variable, imprecise surface mitigates the aggressively rectilinear, rational quality of the house.

The other way the house is anchored to its site is by the use of locally quarried Santanyi stone – the travertine-like material seen in Mallorcan vernacular buildings – for floors, inside and out. Unlike the rough-quarried stone of the surrounding buildings and walls, though, the floors are of cut, square tiles.

4, 5

The spare kitchen/dining area (4) has a built-in stone table and a low stone-clad wall disguising the kitchen itself. Large square doors disappear into the walls, opening the area to the courtyard. In the rooms upstairs (5), the wall-washing skylights soften the effect of punched windows on the facing walls. On the east elevation (6), bedroom windows are shielded from the sun by a heavy, box-shaped shade. Beneath the lap pool are guest rooms and storage areas.

Project: *Neuendorf Villa, Mallorca.*
Architect: *Claudio Silvestrin, London, and John Pawson, London.*
Clients: *Hans and Caroline Neuendorf, Frankfurt, Germany.*
Site: *25 acres of farming land with olive trees near the eastern shore of Mallorca.*
Program: *6200-sq-ft, four-bedroom villa on two floors with lap pool extension and inner courtyard.*
Structural system: *reinforced concrete frame, masonry infill.*
Major materials: *Santanyi stone floors, stucco exterior walls, plaster interior walls and ceilings, wood doors and windows.*
Mechanical systems: *underfloor hot water heating.*
Consultants: *Tietz & Partners, London, structural.*
Costs: *withheld at owner's request.*
Photos: *Richard Bryant.*

Viewing Angles

For a hilltop site overlooking a ski community, William Pedersen of Kohn Pedersen Fox Associates has sculpted an angular belvedere.

The partners of Kohn Pedersen Fox Associates have rarely found themselves dealing with a house client. When a retiring corporate executive, with whom KPF had worked, consulted design partner William Pedersen about an architect for his Vermont retreat, Pedersen gave him some recommendations but allowed that he, too, would like to be considered. The clients chose Pedersen.

In many ways this is a dream commission on a dream site: the challenge was to take proper advantage of the site and its views. From an eminence at the north end of the Stratton village, the house looks south across a valley – a golf course at its bottom – towards the cone of Stratton Mountain, with ski trails inscribed on its north slope. But there were limiting factors: the property was narrow at the top of the ridge, where the house was to go, with neighbors close by to the west.

Pedersen's primary concern was the experience of the principal view. He wanted Stratton Mountain to be visible as visitors came up the drive to the house; the direction was right, but up to ten feet of bedrock at the top of the ridge had to be cut away to open this prospect. From the house, he wanted to capture the view to the mountain at an angle, rather than in a simple, frontal manner. Another objective was to minimize the volume of the 5600-square-foot house as seen from the drive. Having established some basic plan angles, Pedersen went on to develop the house as a set of crystalline, angular volumes, which accommodate the moderate-to-steep roof pitches required by code.

Entering the house, past a low, almost Wrightian vestibule and an extra high cylindrical circulation node, one finally senses the tall, geometrically complex, though intimately scaled, volumes of the main living areas. Their plain white surfaces capture light from openings at many different heights and angles. Some spaces in angular salients – notably the main stairwell, the husband's study, and the master bath below that – offer effective outlooks on the surrounding woods, and the crow's nest at the top of the circular tower affords a broader panorama.

Pedersen originally wanted only simple, tough materials in these interiors. As the design evolved, however, materials such as mahogany and polished green marble were introduced. Detailed with KPF meticulousness, the interiors' palette and finishes suggest a character more urban than the rustic setting calls for. **John Morris Dixon** ■

1

2

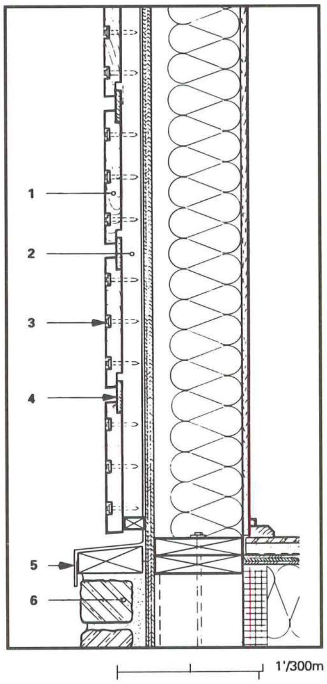
To emphasize the geometry of the volumes (1), Pedersen brought the metal roofing down onto the walls as part of a layered sequence of materials, with cubic slate at the base and rough cedar boards for most of the walls (see page 82).

Seen from the driveway (2), the house defers to the view; a low, angled porch indicates the entry. From downhill (3) one can see the prow-like private retreats.

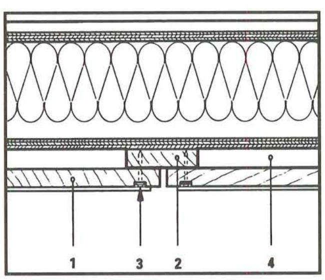
Materials: Cedar Board Cladding

For the principal wall surface of the house, taking its place between the rough cubic slate of lower walls and the lead-coated copper of roofs and various projections, Pedersen wanted something with a rougher surface and stronger relief than traditional clapboards or shingles. The solution is a system of cedar boards – typically 1¼″ thick, 12″ high, and 6′-0″ long – set an inch out from the actual weather enclosure.

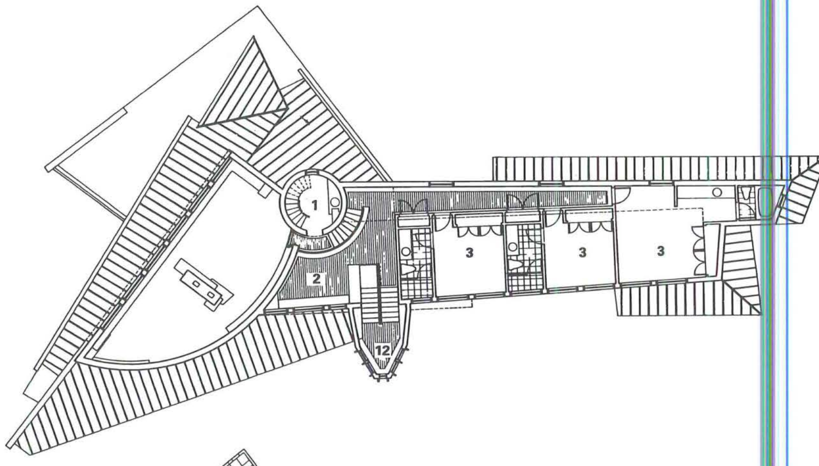
Delivered to the site with pre-drilled bolt holes, the cedar slabs were simple to apply; resin impregnation of the rough surfaces made site finishing unnecessary. Between the articulated bolts at their ends, the boards are also connected to firring strips at 2-foot centers with countersunk nails.



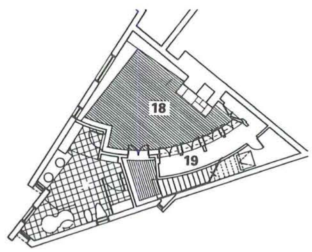
1 CEDAR SIDING
2 CEDAR FURRING
3 HEX-HEAD STAINLESS STEEL LAG SCREWS
4 CEDAR BATTEN
5 LEAD-COATED COPPER FLASHING
6 STONE VENEER



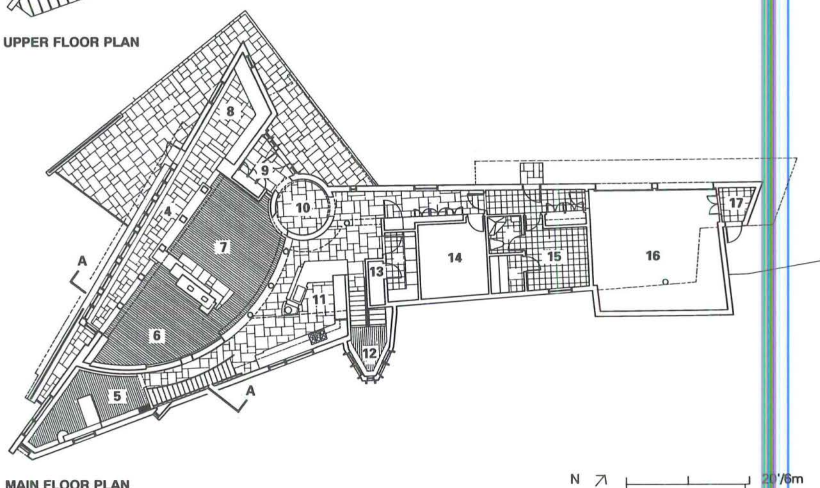
1 STAIR TO OBSERVATION DECK/WET BAR
2 LOUNGE
3 BEDROOM
4 SOLARIUM
5 SOUTH STUDY
6 DINING ROOM
7 LIVING ROOM
8 NORTH STUDY
9 ENTRY VESTIBULE
10 ROTUNDA
11 KITCHEN
12 MAIN STAIR
13 LAUNDRY
14 MECHANICAL
15 BOOT ROOM
16 GARAGE
17 TRASH ROOM
18 MASTER BEDROOM
19 CLOSETS



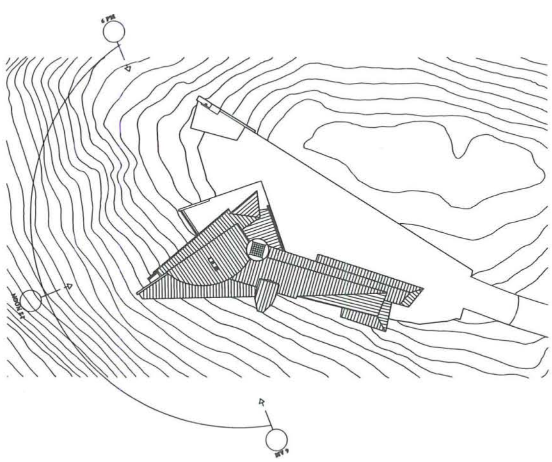
UPPER FLOOR PLAN



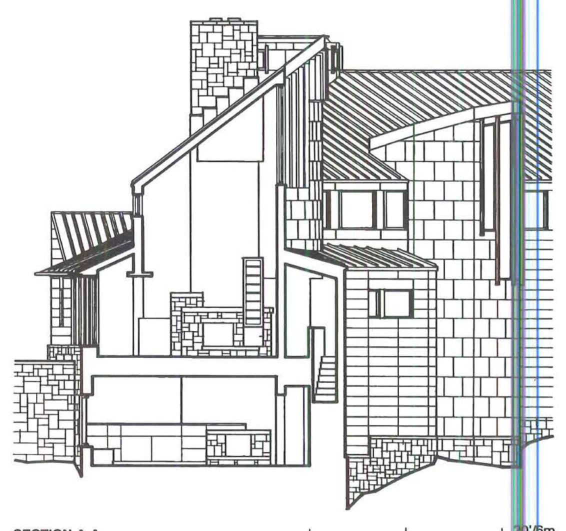
PARTIAL LOWER FLOOR PLAN



MAIN FLOOR PLAN



SITE PLAN

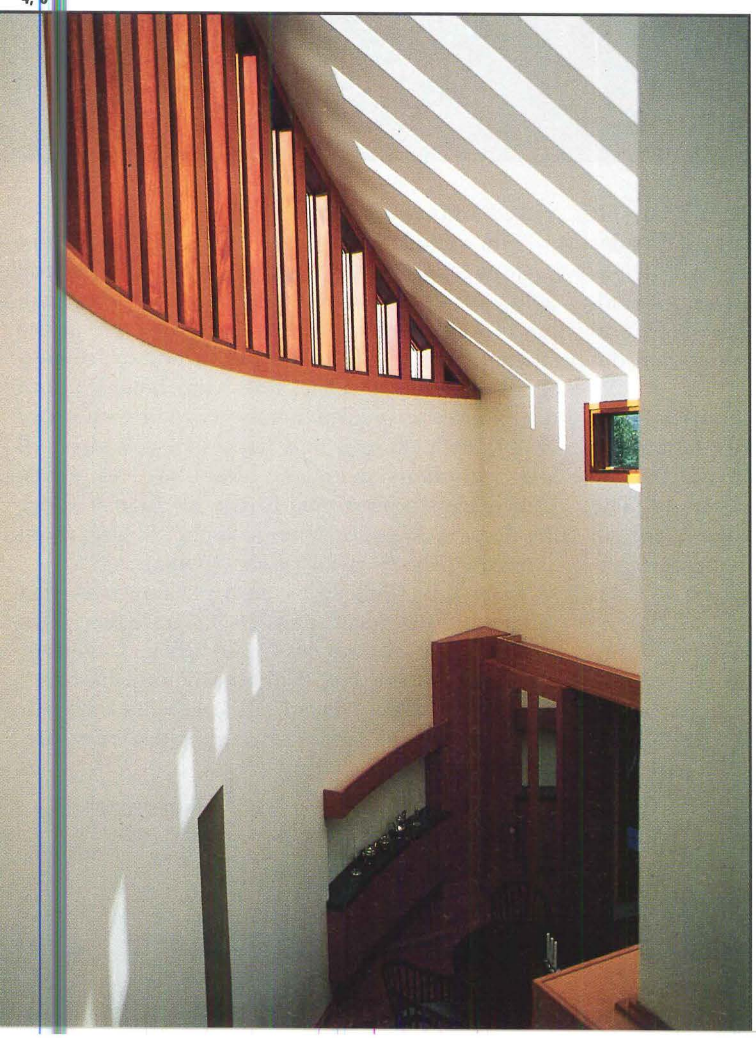


SECTION A-A

Project: *Carwill House, Stratton, Vermont.*
Architects: *Kohn Pedersen Fox Associates (William Pedersen, design partner; Joshua Chaiken, senior designer; Alex Bergo, project manager; Tzadik Eliakim, John Fernandez, Armando Guttierez, Cecelia Kramer, Anthony Mosellie, Kia Pedersen, Kate Nesbit, Denise Vanderlind, Susan Seastone, design team).*
Site: *about 7.5 acres of rocky, densely wooded hilltop.*
Program: *all-year vacation house, 5600 sq ft.*
Structural system: *wood frame on concrete foundations; steel and micro-lam wood beams as needed.*
Major materials: *Vermont slate, cedar boards, lead-coated copper; fir and mahogany interior trim; cherry and marble interior floors (see Building Materials, p. 131).*
Mechanical system: *baseboard heating supplemented by forced air.*
Consultants: *Dunn Associates, landscape; Severud Associates/Knight Consulting Engineers, structural; J.W. & D.E. Ryan, mechanical.*
General contractor: *Amorex, Inc.*
Photos: *Wayne N.T. Fuji.*

4, 6

5

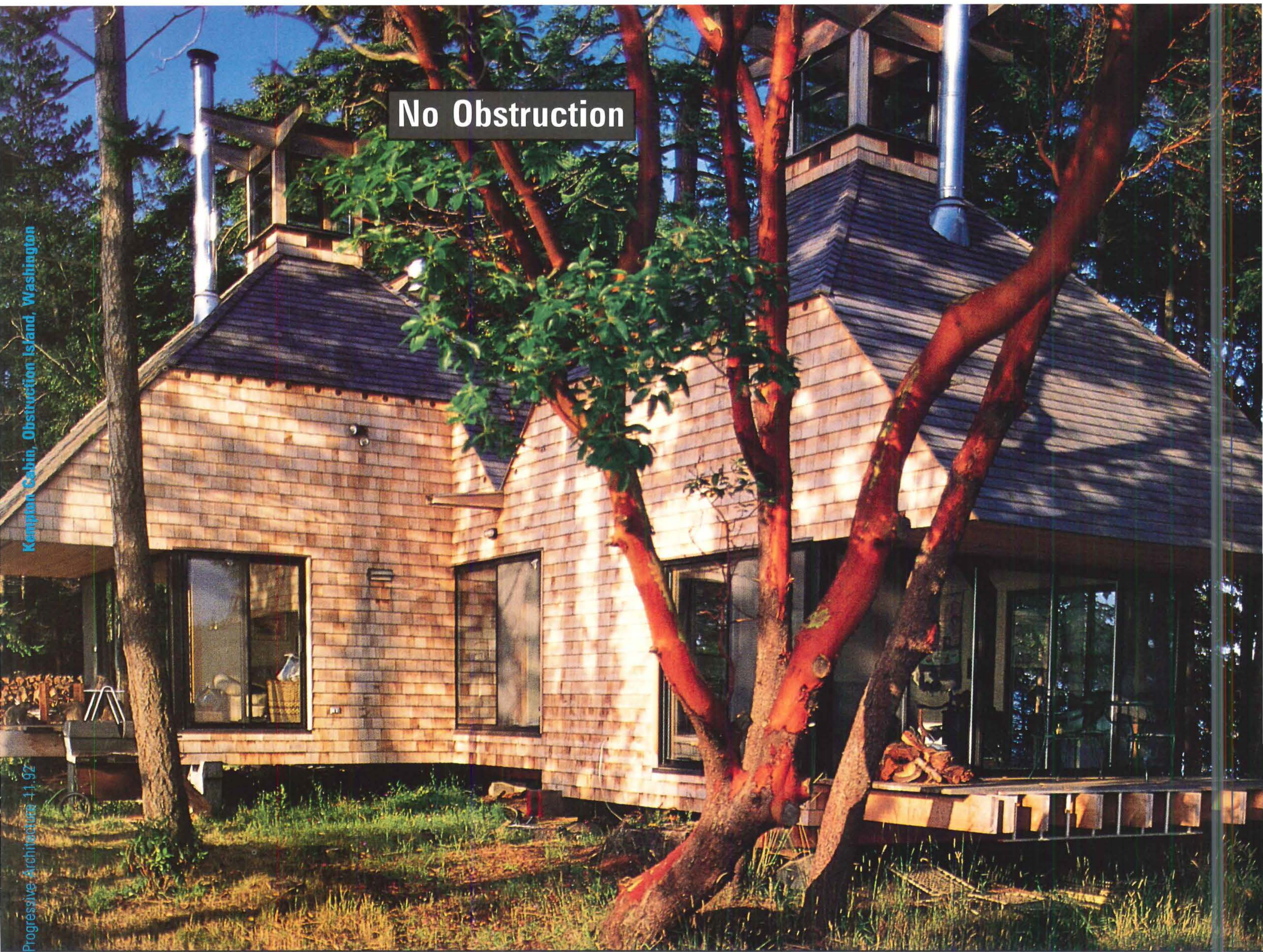


7

Tall interior spaces, with modest floor areas, spin off from a cylindrical node (4). A fireplace of slate blocks (5), with a delicate cabinet appended, separates dining and living areas; high counters behind a curving row of columns define the kitchen. A tall, curved clerestory (6) casts morning light on the sloping dining room ceiling. A curved corridor (7) leads from the living area to the prow-like south study; a stairwell (left in photo) goes down to the master bedroom; the solarium on the far side of the dining room forms a kind of ambulatory facing the prime view. Smooth fir columns and light valances, mahogany window sash, and floors of cherry and polished marble – the latter substituted for slate during construction – lend an unexpected air of urban elegance.

Kempton Cabin, Obstruction Island, Washington

No Obstruction



1

Surrounded on three sides by water, a vacation cabin respects its site.

The pavilions (1), with decks and corresponding views oriented to view corridors, are entered through the transitional space between the two westernmost blocks (2) via a simple stair. Inside, each module has a black wood stove and its black exhaust stack (3), and the frames of the glazing are also black; the effect is of voids, rather than of framed openings.

The site offered an embarrassment of riches. It is on the tip of a long peninsula with spectacular views through the woods to the water and neighboring islands. The site is on Obstruction Island, one of the smallest of the heavily wooded and sparsely populated San Juan Islands that dot Puget Sound northwest of Seattle.

Architect Arne Bystrom broke the house into three pavilions, each with its own orientation and deck, and glazed walls facing views selected according to natural openings in the woods. The interconnected cedar-shingled pavilions are all folds and angles, with weighty overhangs projecting sharply above the decks. At the apex of each module is a glazed cupola or lantern.

Entry is up a simple set of stairs into the western-most unit. Here the intersection of the pyramidal roof forms a V-shaped ceiling pointing ahead to yet another dramatic view, but leading the visitor to the living room or the kitchen on either side. The pavilions comprise a west-facing living room that doubles as a guest room; the kitchen/dining room projecting northward with two baths along the south side; and a master bedroom to the east. The units are joined by glazed "transition spaces."

The varied orientations of the openings give each pavilion its own particular quality of natural light; soft light from the cupolas washes the pavilion ceilings. Interiors are a virtuoso play on the subtle differences between natural woods; ceilings are beveled clear cedar, floors are hemlock, and the exposed structural members are fir with heavy double 4×12 beams and light 4×4 columns. All are continuous members; there are no joints. There are sleeping lofts in the overhangs above the decks. Pocket doors in the kitchen/dining room allow for privacy in the other pavilions.

Despite its small size – each pavilion is 16 feet square and the house totals 1024 square feet – this is a complex and sophisticated work. It neither fights against nor blends naturally into the beauties of the site. Instead, it augments and enjoys them in its own highly individualistic way.

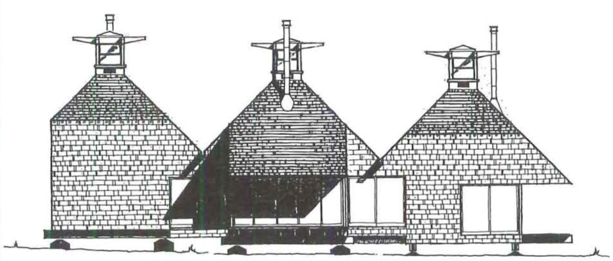
Donald Canty, David Maurer ■

Donald Canty, former editor of Architecture *magazine, is P/A's correspondent in Seattle; David Maurer, a graduate student and teaching assistant at the University of Washington, is a practicing architect in Seattle.*

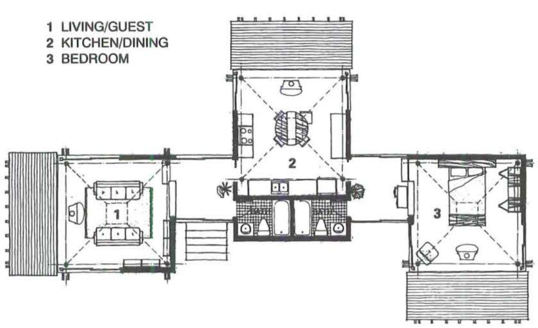
2

David Maurer

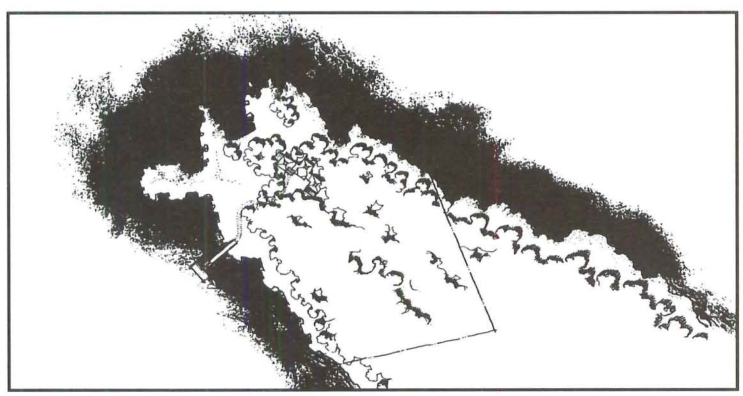
3



NORTH ELEVATION



PLAN



SITE PLAN

Project: *Kempton Cabin, Obstruction Island, Washington.*
Architect: *Arne Bystrom Architect, FAIA.*
Client: *James S. Kempton.*
Site: *wooded parcel on a peninsula with rocky shores in the San Juan Islands.*
Program: *vacation cabin of 1024 gross square feet (interior).*
Structural system: *wood beams on concrete piers, wood frame walls and roof.*
Major materials: *wood; aluminum sliding glass doors.*
Consultants: *Darrold Bolton, structural; Energy-Ecotope, ecological.*
General contractor: *Charlie Norton Construction Corp.*
Photos: *Arne Bystrom, except as noted.*

Disordering Device

A citation winner in the 1991 P/A Awards program, this Toronto house by Donald McKay & Company raises important questions about order and disorder.

The phrase "A man's home is his castle" has had two common interpretations: the house as a comforting refuge from a hostile world and as a less-than-comforting prison for women who, until recently, have had precious few rights or work opportunities outside the home. That home-as-castle idea, however, has been reinterpreted and destabilized in this house, one of the first major works by Toronto designer Donald McKay.

Although castle-like in some ways, the house challenges the domestic order implicit in the home-as-castle, with its distinctions between work and home life, public and private activity, formal and informal space. Yet, this house, which McKay designed for himself and his art-dealer wife, also suggests that there are limits to how far such deconstruction can go – that it is one thing to question existing systems of order and quite another simply to promote disorder, the likes of which, in the early Middle Ages, first gave rise to castles for purposes of protection.

The Textual House

Standing on a quiet residential street, surrounded by structures displaying various historical styles, the house looks quite austere and guarded, with a three-story brick block rising up behind a glass-and-metal-clad wall and a moat-like depression in the front yard. The approach to the entry is by way of a steel-framed walkway that, while it does not move, looks like a Constructivist interpretation of a draw-bridge. Inside, the house consists of a central, thick-

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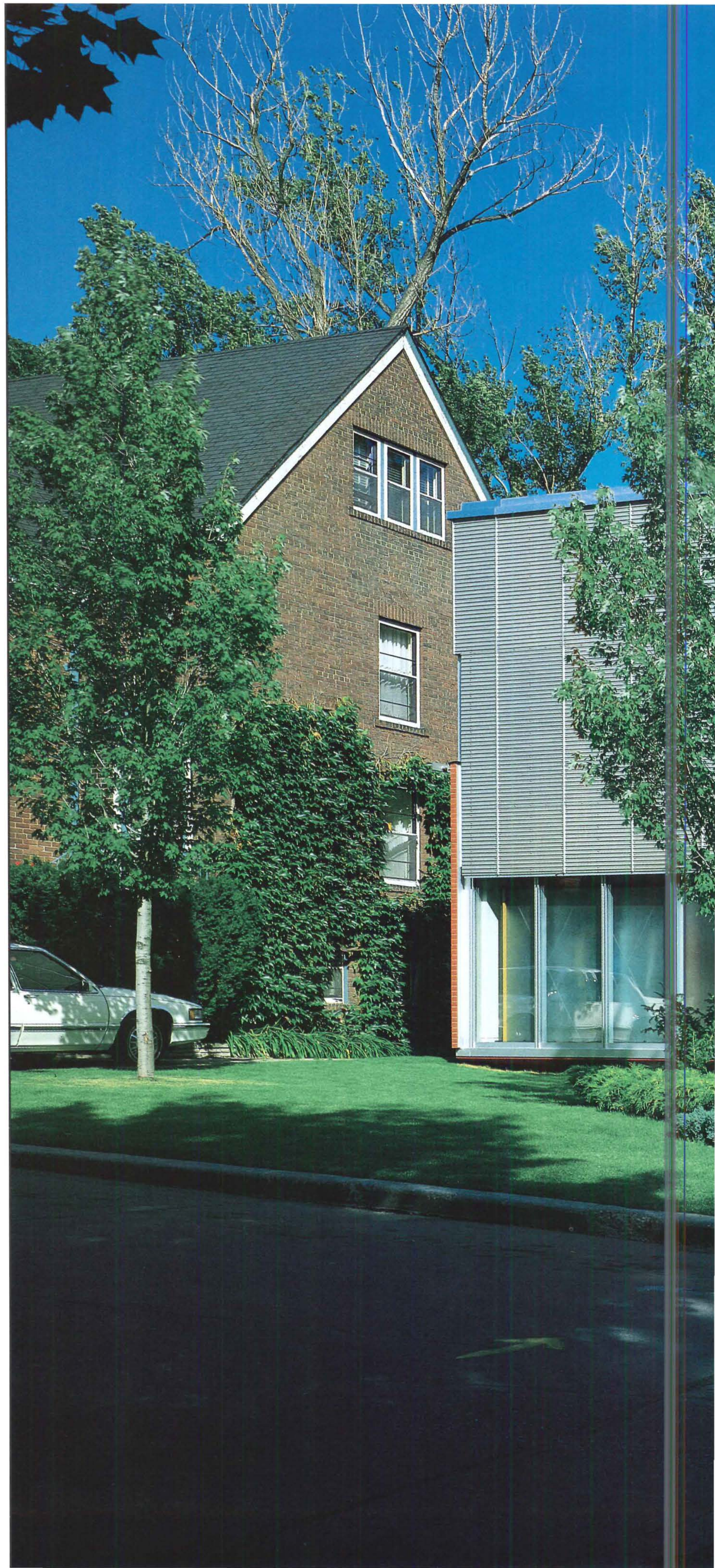


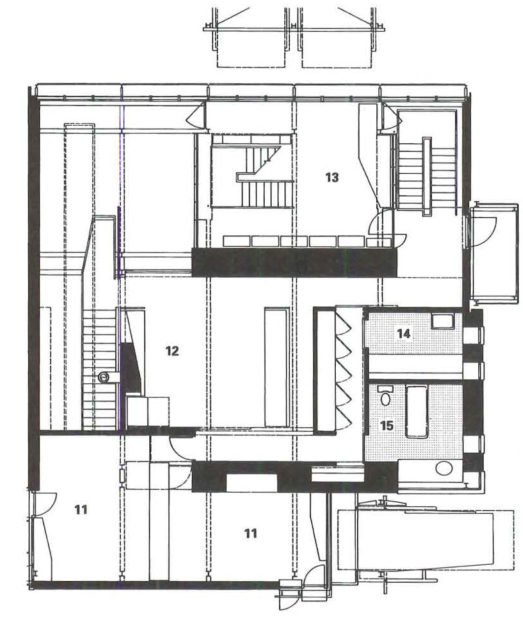
The house's mass and setback respect those of neighboring structures (1), but the almost industrial aesthetic and the layered form refer to a broader set of ideas about order and disorder and the wider context of the post-industrial city.

1

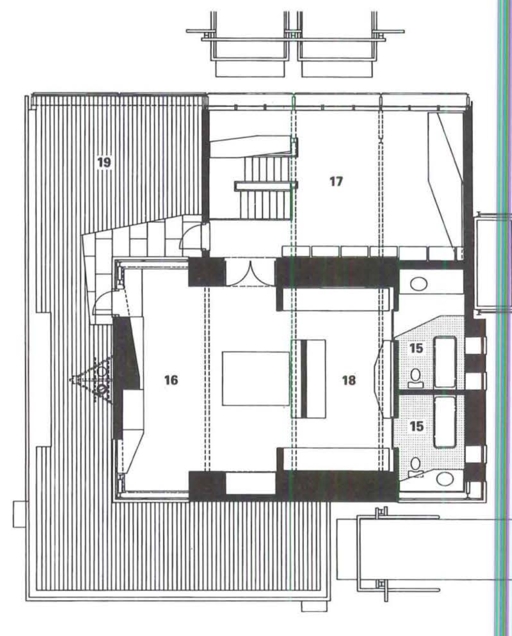
The glass wall at the back of the house, facing a terrace and pool and flanked by a sunken garage (2), is shaded during the day by an aluminum screen and steel sun structures. At night (3), the wall becomes transparent, revealing the complex layers of surfaces and spaces inside.

Materials: Metal Cladding

Wanting the "finest possible aluminum finish on the house" and dissatisfied with the aluminum siding or panel systems on the market, McKay approached Fruehauf, the truck manufacturer, to develop a corrugated metal panel similar to that used to clad truck trailers. The gauge of the metal is heavy, 3/32" thick, and it is coated with an aluminum-oxide epoxy paint, "which will age over time," says McKay, "turning a darker gray." One of the biggest problems with the panels was preventing galvanic corrosion, so McKay and Fruehauf designed a fastening system: stainless steel bolts whose shanks are separated from the aluminum panels by Teflon washers and whose heads are separated from the panels by Neoprene washers. The other problem, according to McKay, was that "the contractor didn't want to install the cladding." As a result, McKay's own staff was trained to put up the panel system. "The panels," says McKay, "were factory fabricated to fit and they went up in a very straightforward way." Such a close working relationship between designer and manufacturer is not unusual for McKay. His firm regularly moves between architectural, industrial, and furniture design; currently Palazzetti is distributing an innovative line of modular furniture that McKay's office has designed. This transgressing of the arbitrary lines that separate one discipline or industry from another is also of a piece with McKay's larger interest in destabilizing systems of order that are no longer useful or productive.

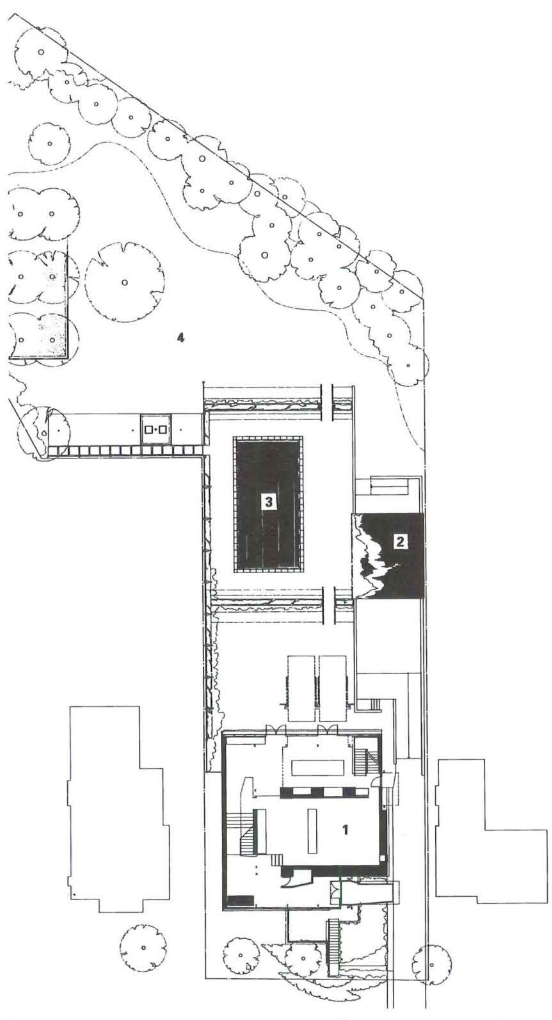


SECOND FLOOR PLAN

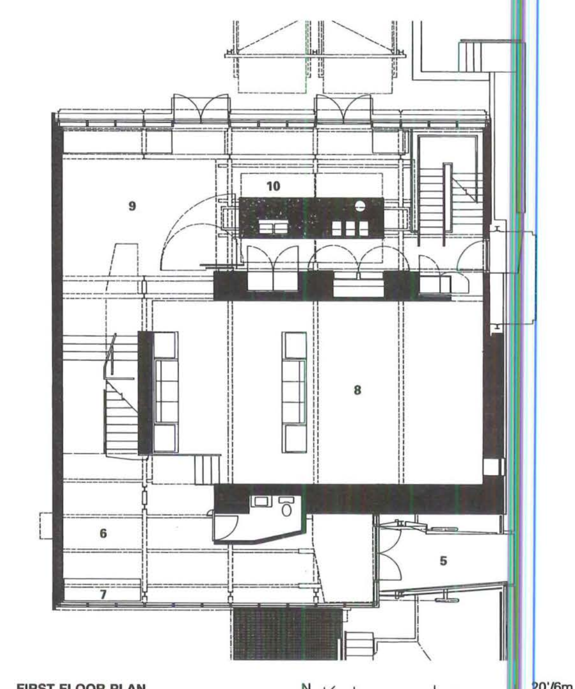


THIRD FLOOR PLAN

1 HOUSE
2 SUNKEN GARAGE
3 POOL
4 YARD
5 BRIDGE
6 ENTRY VESTIBULE
7 CLOSET UNIT
8 LIVING/ENTERTAINING SPACE
9 DINING SPACE
10 KITCHEN
11 BEDROOM
12 LIVING ROOM
13 LOWER LIBRARY
14 LAUNDRY
15 BATHROOM
16 MASTER BEDROOM
17 UPPER LIBRARY
18 DRESSING ROOM
19 ROOF DECK



SITE PLAN



FIRST FLOOR PLAN

2, 3

(continued from page 86)
walled, brick-clad core – a kind of castle keep – around which wraps a steel-framed "porch," as McKay calls it. The core has a sort of great room – a high-ceilinged, nearly windowless space that doubles as a living room and gallery for the display of art. Above it, within the brick core, are stacked another living room and a master bedroom. Other spaces – a dining area and kitchen, a library/office, guest/children's bedrooms – occupy the area between the brick core and the outer wall. "It's really an inward-focused house," noted 1991 awards juror Ralph Johnson (Jan. 1991. pp. 98–99).

Throughout the house (which has changed little from the awarded project) there is a visual blurring of the boundaries between spaces; in several places large doors pivot, slide, and swing around to open one room to another. There is also a blurring of functions within some spaces. The first floor, for example, can easily be converted from a living/dining/kitchen area into an entertaining and reception area for art openings: custom-designed furniture can be rolled away and wing-like panels can be folded down over the kitchen counter. This use of movable furniture to define the function of a space recalls not only that of the Medieval castle, but that of the residential and commercial adaption of industrial loft space in our own time.

Indeed, references to industrial lofts are found throughout the house (an appropriate setting for modern art, much of which is created in such spaces). The house has a modified mill-type structure, with wood plank flooring, exposed steel framing, and elements such as steel stairs and steel-framed railings that are a more sophisticated version of those found in older factory buildings. A similar industrial-strength toughness pervades the furniture, much of which McKay himself designed, and the two gangly steel-framed sunshade structures that stand in the backyard. The house, said juror Adele Santos, "is really a piece of machinery."

But none of the associational qualities of the house are fixed. If the house recalls aspects of castles and factories, it also brings to mind banal 1950s architecture. The plan of the house also begs several interpretations: parts of it read as a wrapped core, other parts as a layered skin or a carefully composed free plan. The house is all of these things, but none of them completely – an open-ended text accepting many interpretations, rather than a complete, internally consistent work. In this regard, the house reflects McKay's interest in the many ways you can "chisel away at order, or digress from it."

The entry vestibule and dining area (4) occupy the space between the brick-clad core and the outer wall. The formal living room (5) doubles as space for the display of art and for large-scale entertaining. The Mission furniture complements the pieces that McKay himself designed. The kitchen features a free-standing counter, which can be covered by hinged panels during parties (6). Storage and refrigeration units are recessed into the thickness of the core wall. The less formal living room on the second floor (7) can also be closed off by a large door.

4, 5

6

7

The Limits of Disorder

Here, McKay echoes one of the current obsessions of our intellectual culture: the destabilizing of systems of order and the exploration of the "uses of disorder" as Richard Sennett once put it. This inversion of the traditional humanist task of finding order in the world has produced some quite extraordinary architecture – objects such as this house, which resist being comfortable or domestic and yet which have a remarkable complexity and subtlety. This post-humanist interest in psychoanalyzing culture – uncovering the things we repress behind our tidy façades – also has produced some provocative new ways of looking at the world. McKay, an associate professor at the University of Waterloo, has written a series of papers on suppressed aspects of the city (the "shadow city" of the "unruly, the disorderly, the foreign and the frankly criminal," and the "metropolis" whose wires and cables and transportation links form "a network without image") and on unconventional urban behavior patterns (that of the "cosmopolitan" and the "nomad . . . who can participate in several different cultures").

McKay recognizes, however, that there is a legitimate question as to just how far we can go in the pursuit of disorder. That has not been a particularly fashionable question to ask because, in our polarized intellectual climate, it sounds reactionary, as if begrudging the real gains implicit in the deconstructing of order. But we are being less than honest with ourselves if we think disorder can be infinitely extended. Deconstruction works because there are stable systems of order to analyze; critical theory thrives because there is a political order in the West that allows for such freedom of thought and expression; post-humanism is even conceivable because of the tolerance of humanistic culture.

There is, in other words, an important distinction to be made between questioning systems of order and giving up on the possibility of order altogether. "We forget," says McKay, "that the opposite of order is not disorder, but a new kind of order," something that he has not forgotten in this house. For all of McKay's skillful "chiseling away" at ordering systems, the house remains a coherent, if open-ended, work. And despite its brash, hard-edged demeanor, the house still respects the scale and setbacks of its neighborhood, accepting as a kind of frame the domestic order it questions.

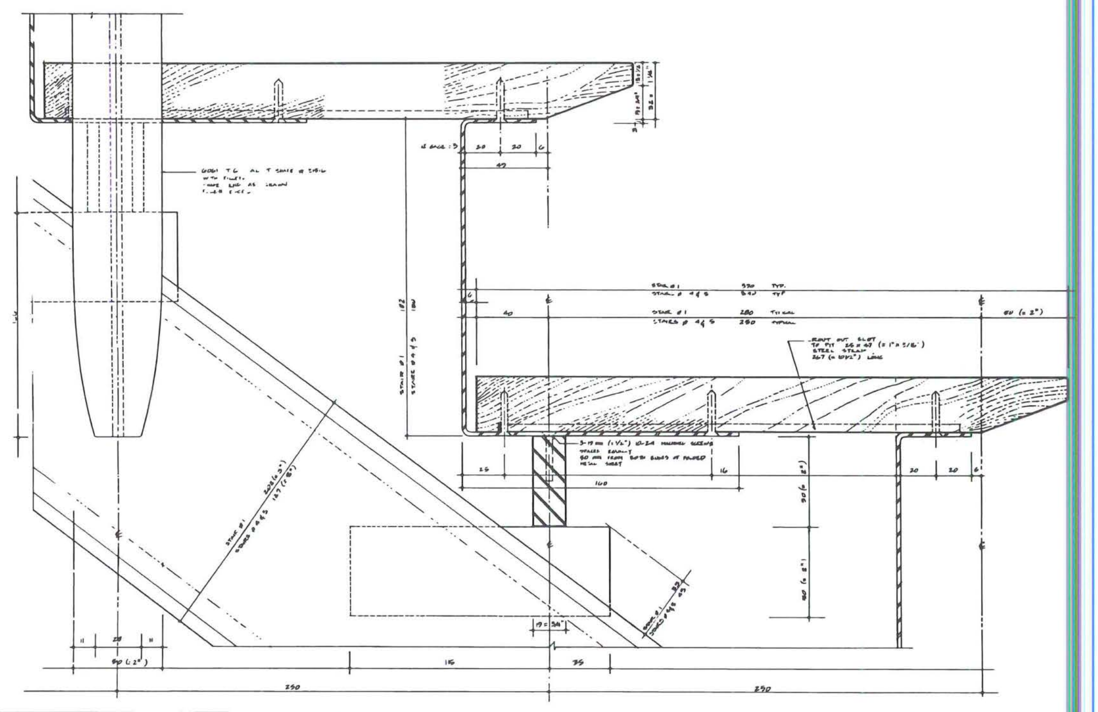
Finding the limits of disorder is not just an architectural matter. Politically, the world has enough instances of radically destabilized systems – Somalia and the former Yugoslavia, for example – in which people are starving or at each other's throats. If, in North America, we can create a new, more diverse order out of the current cultural and intellectual ferment, then a renaissance of sorts lies ahead. But if we cannot, or refuse to do so out of some misguided sense of intellectual consistency, then we face a very dark future indeed – one in which we may yearn for a house with thick walls and a moat before our door. **Thomas Fisher** ■

Selected Detail

Stair Details
Park Road House

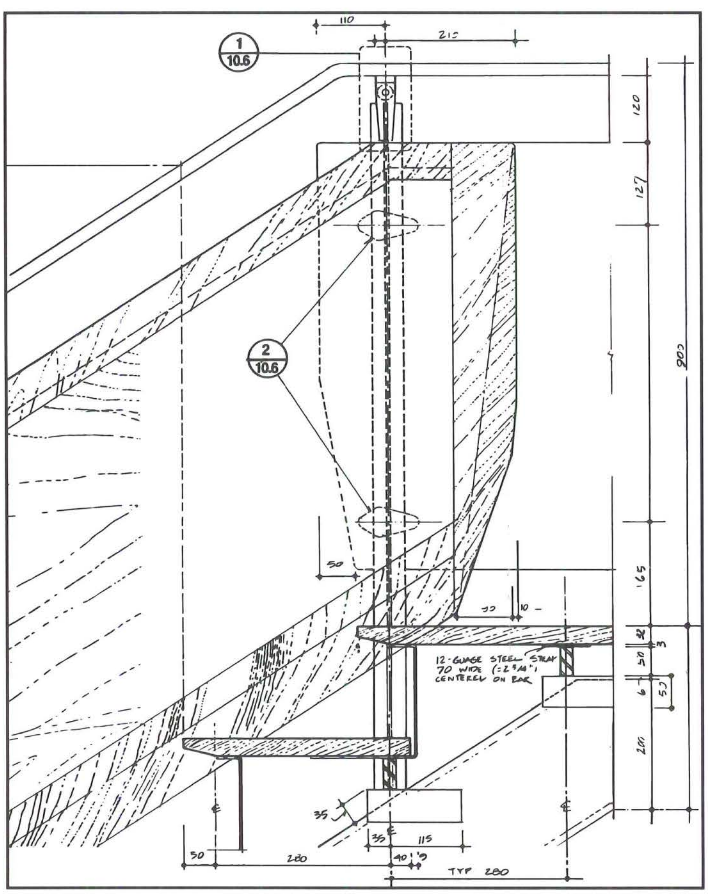
The stair details show the extent to which this house has been conceived of as a problem of industrial design. Rather than take a standard steel pan stair and set into it a tread material that functions simply as the wearing surface, McKay has made the wood treads an integral part of the stair structure (8). And, like so much of Donald McKay's other work, every piece of the stair is left exposed, visually sliding past adjacent elements.

The wood treads connect folded 12-gauge steel sheets that serve as the stair's risers. (Steel straps, countersunk into the underside of the treads, help hold the assembly together.) The folded sheets, in turn, are screwed to rectangular steel bars that carry the load down to two steel channels serving as stringers. Strapped to the steel bars under the treads are 6-millimeter-thick aluminum T-sections, to which are fastened a balustrade of 19-millimeter-thick plywood. The T-section also supports a thin, lozenge-shaped steel rail. Like McKay's furniture designs, the stair consists of a limited palette of materials put together in a simple, very direct way. The result is both complex and allusive: a highly articulated assembly that refuses to be resolved into a unified composition. ■



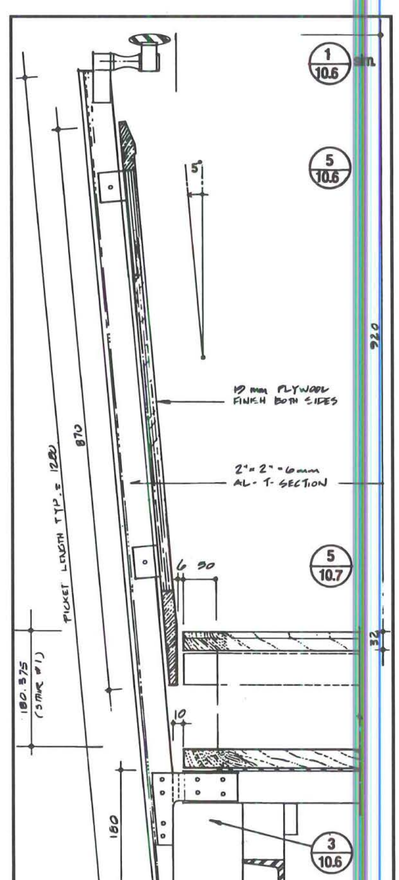
STAIR TREAD AND RISER DETAIL

4"/10cm



DETAIL AT STAIR LANDING

10"/25cm



SECTION THROUGH RAILING

10"/25cm

Project: *Park Road House, Toronto.*
Designers: *Donald McKay and Company, Ltd., Toronto (Donald McKay, designer; Douglas Birkenshaw, Tim Boyd, Janine Debanne, John Filipetti, Bruce March, Sarah Pearce, Mark Pitman, John Potter, Michael Wabb, project team).*
Client: *Sandra Simpson.*
Site: *26,200 square-foot ravine site on a residential street near the city's center.*
Program: *To accommodate the client's art collection and entertaining needs, the 6390-square-foot, three-bedroom house is organized into more formal spaces in the masonry-clad core and less formal, family functions in the perimeter "porch."*
Structural system: *steel frame with heavy wood deck on poured concrete foundations.*
Major materials: *aluminum curtain wall, brick, glass, metal panels, exposed steel structure, white oak floors.*
Mechanical system: *gas furnace with forced air ducts running vertically through core walls; two air conditioners in basement and two on the roof.*
Consultants: *James Floyd & Associates, landscape; Peter Sheffield & Associates, structural; Trinh Engineering, mechanical; Tanco Engineering, electrical.*
General contractor: *Marcus Design Build.*
Photos: *Robert Burley, Design Archive Inc.*

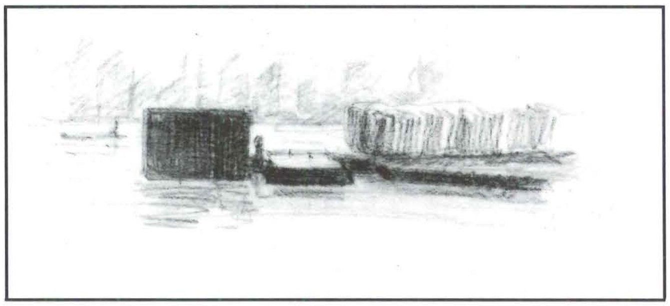
Perspectives

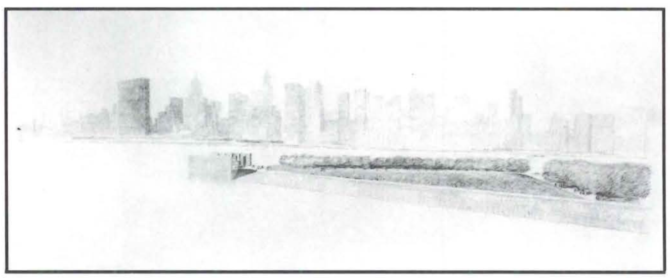
As fundraising begins for the realization of **Kahn's FDR Memorial**, **Robert Geddes** meditates on the architect and his work.

Kahn and the Civic Realm

My intention is to analyze the design of the Franklin Delano Roosevelt Memorial, its place in the New York landscape, and its place in the architecture of Louis Kahn. My viewpoint – that of a working architect – is necessarily different from that of a critic or a historian, such as Brendan Gill or Vincent Scully, coming as it does from within the discipline and practice of architecture today.

But first, some personal history. I first met Louis Kahn in 1947, in Philadelphia. I was 24, studying architecture with Walter Gropius at Harvard. He was 46, just starting to practice on his own, in a townhouse office on Spruce Street, and starting to teach at Yale. 1947 was also the year of the "Greater Philadelphia" exhibition, designed by Edmund Bacon, Oskar Stonorov, and Louis Kahn, which dramatically showed architectural possibilities for the city's future.





Perspectives, circa 1973, of Louis Kahn's Roosevelt Memorial, proposed for Roosevelt Island, New York.

I saw Lou on many visits to Philadelphia; he was very generous and eager to talk with me, or anyone, I suppose. At Harvard, I organized a collaborative thesis on a downtown plan for Providence, Rhode Island. It was about ideas being generated in Philadelphia. In the 1950s, on the faculty of Penn, a group of architects – later to be called "The Philadelphia School" – came together. Lou was a great teacher, and his works remain to teach us today. What are the lessons?

First, the importance of *origins* as the source of understanding and imagination. Lou believed, as it was believed in the Enlightenment, that the quintessential character of a thing, an institution, a landscape, or a building, is not in its sophisticated development but in its beginnings. He preferred the early to the late, the essential to the superficial, the authentic to the faddish and fashionable. In the FDR memorial, the garden and the room are "points of departure." Each one's origin is made clear: for the garden, a meadow and a forest-edge; for the room, "when the walls parted and the columns became," architecture begins.

Second, the meaning of *form*. Underlying Lou's work is the classical conception of form, that is, a composition that has clarity and coherence, an ordered relationship of parts and wholes. It has origins in geometry: the concept of the center; the circle and the square; symmetries and asymmetries around a point or an axis, along a line. The goal is clarity and coherence, a community of parts.

Where do the parts of the composition come from? For Lou, they come from classifications, that is, from classifying the nature of a social institution, the nature of a building's spaces, the nature of a city's streets. Lou believed that the process of creating goes through three phases: the unmeasurable, the measurable, the unmeasurable. The mid-stream phase is measurable, functional, rational. It is similar to Francis Bacon's three-part library classification system: memory, reason, and imagination.

Third, form is created by *structure*. Structure is a key concept in modern thought, and is central to Lou's work. Structure means organization. It has two meanings in architecture: composition (that is, the organization of parts to create visual wholes) and construction (that is, the organization of parts to create stable buildings). The two meanings need not be in opposition, and each can be carried forward somewhat autonomously from each other. In Lou's work, the two types of structures – as composition and as construction – are brought together. The integration of structure is clear in the FDR memorial's form: the garden, a structure of trees; and the room, a structure of columns and walls.

Lou challenged Modern architecture profoundly by his explorations of structure. The key to structure – both as composition and as construction – is the counterpoint of column and wall. Here are some key examples in Lou's work: the Richards Medical Research Building's columnar frames; the Kimbell Museum's walls and vaults; the Salk Institute's embedded wall columns; the wall structures of the capital of Bangladesh. Lou was a devoted Modernist, who was simultaneously an anti-Modernist.

Just as Kahn was interested in origins, we can learn about his architecture by looking at its origins. His work can be divided into three parts. First, his Beaux-Arts education, at the time of the City Beautiful movement, which was creating civic monumentality in American architecture. It had clear principles of composition for buildings and cities. Philadelphia was a fine place to experience this civic monumentality. Philadelphia became his drawing board.

Second, in the 1930s, the emergence of European Modernism in the United States was first expressed dramatically by the tower of the PSFS building designed by George Howe and William Lescaze in Philadelphia. For Lou, it was a manifestation of a new architecture. During the depression years, architects in Philadelphia responded with social housing and neighborhood design, expressing a sense of the importance of social institutions in community life. Lou's work during the New Deal period was exemplary. He was involved in the design of the Jersey Homesteads, later called Roosevelt, New Jersey;

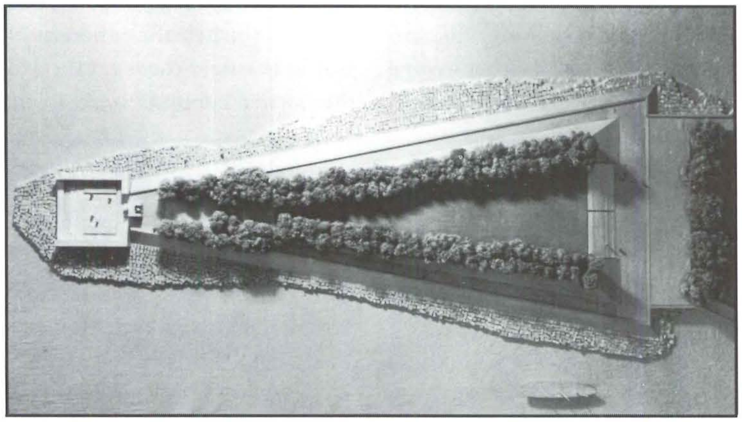
"Lou believed, as it was believed in the Enlightenment, that the quintessential character of a thing . . . is not in its sophisticated development but in its beginnings."

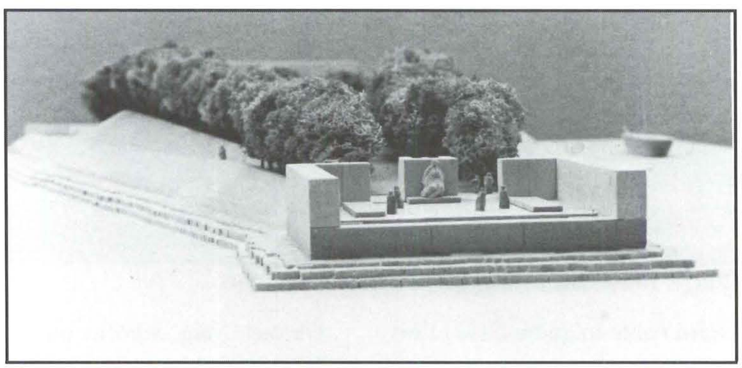
and in some of the most satisfying social housing and community design in Philadelphia. He joined with his colleagues in forming professional organizations of architects and planners concerned with social responsibility.

The third phase of Lou Kahn's career is remarkable for us to contemplate. It is a Modern architecture of Platonic idealism, of social forms and spatial forms that are created with Classical principles. A question often raised by critics is, what caused this transformation, this transcendence? I believe it came about because the third phase of Lou's career closely combined teaching and work as an architect. His teaching was a laboratory of architecture. He worked with students in the studio and in reviews of student work as if they were exploring the frontiers, as well as the origins, of architecture. The influences of others were absorbed. The conceptual structures of Buckminster Fuller and the compositional principles of Josef Albers are evident. Lou led the search for order, for coherence of form. He separated form from design. Form is order. Design is choice, circumstantial. In that sense, Lou was concerned with form as the essence of architecture. The search for form brought him back to his origins, his concern for monumentality, social institutions, and the civic realm.

Where does the design of the FDR Memorial fit in this chronology? The memorial is a late work, one of the last. It embodies the essence of Lou's thought. First, a geometrical order, a composition of clarity and coherence. Second, a structure that is both compositional and constructional, in which the relationship of column and wall, structure and space is integrated. Third, the materials – the granite, the paving, the trees – are organized to create both mass and space. The materials themselves speak without decoration. And finally, light is created. The light of the sky over the garden and the room, the light of the vista looking past the United Nations, overlooking the harbor, framed by the shadows of the granite walls.

Now, let us consider the FDR Memorial design in its setting in New York. The memorial is addressed to both nature and the culture of the city. New York – beyond the conventional sense of the city, its buildings and streets, its neighborhoods and districts – is a landscape of rivers and islands bordered by landmarks. The Statue of Liberty is such a landmark, and so are the bridges across the rivers and the United Nations on the river's edge. The tip of Roosevelt Island lies asleep, but full of possibilities. Lou's design for the FDR Memorial would give it a remarkable life, and we would gain a new landmark in the city of rivers, islands, and landmarks.





Photos: George Pohl/Louis I. Kahn Collection.

Overhead view of model of FDR Memorial, top, and detail view of open "room," above.

Let us consider the memorials in New York. We have a large collection of memorial sculptures. (The recent announcement of a figure of Eleanor Roosevelt adds to this fine list.) We have some green spaces that are dedicated as memorials, such as Washington Square. We have private monuments, such as the Towers of Trump, Chrysler, and Woolworth, but few truly public memorials. An exception is the mausoleum of Ulysses S. Grant on a hill overlooking the Hudson River. Most of our major memorials are traffic places: airports named for John F. Kennedy and Fiorello LaGuardia; a bridge named for George Washington, and a tunnel named for Abraham Lincoln.

But we do not have dramatic public memorials comparable to those in the nation's capital. Why not? The power of the Washington Monument and the Lincoln Memorial comes from their place in the city, in the architectural landscape. They do not have anything to say directly about Washington or Lincoln; indeed their meaning comes from their spatial settings and from the public realm that they evoke. They are spatial monuments. They demonstrate Immanuel Kant's philosophical definition of space which is the "possibility of being together." The FDR Memorial has this spatial possibility: to evoke the public realm, "the possibility of being together."

Robert Geddes ■

From a lecture delivered in July at the Museum of Modern Art under the auspices of the Franklin and Eleanor Roosevelt Institute in New York.

The author, a principal of Geddes Brecher Qualls Cunningham in Princeton, New Jersey, was dean of the Princeton School of Architecture from 1965 to 1981, and is now the Luce Professor of Architecture, Urbanism, and History at New York University.

Peter Blake reflects **on Craig Ellwood,** colleague and friend.

A Feel for Steel

In the five months or so since Craig Ellwood died in Italy, I have been thinking about him and about the things he managed to accomplish. And the more I think about the latter, the more I come to admire what Craig did in the 30 years or so he functioned as an architect.

Most people looking at his rectilinear, steel-and-glass buildings would say that he had been a faithful disciple of Mies van der Rohe, which would be quite true. Craig would be the first to admit his debt to Mies which was, of course, considerable.

But the more you look at Craig's elegant pavilions, the less "Miesian" they turn out to be. Mies van der Rohe – let's face it – came to most of his steel-and-glass buildings from the general direction of Schinkel and Berlage and Peter Behrens' German Embassy in St. Petersburg, the construction of which Mies supervised. Although Mies liked to talk about the technology of our time and of the future, he didn't – if the truth were known – quite understand what he was saying: his beautiful structures were classicist temples rendered in steel, and both Craig and I admired them without reservation. In fact, when Mies's New National Gallery opened in West Berlin, the two of us dropped everything and took off for Berlin to attend the dedication ceremonies, in part because we felt that we should report back to Mies, who wasn't able to go because of his health.


Collage, Bridge House, designed in 1968.

But Craig came to his "Miesian" buildings from a very different direction. He had started out working for a building contractor who specialized in light steel construction. The contractor did buildings for Richard Neutra, Raphael Soriano, Charles Eames, and other avant-garde architects in Southern California; and Craig worked on these structures as a draftsman doing shop drawings, as a cost estimator and, most important, as a foreman. He learned everything there was to learn about that sort of construction, and he learned it "hands-on," on the job.

Mies, of course, had a somewhat similar training: as a boy he had worked for his father, a masonry contractor, and had become almost obsessed with the logic and beauty of brickwork, a fixation that endured for the rest of his life. And when he headed the School of Architecture at IIT, he nearly drove his students crazy making them do full-size drawings of bricks and more bricks, laid in different courses and patterns, and turning corners in different ways.

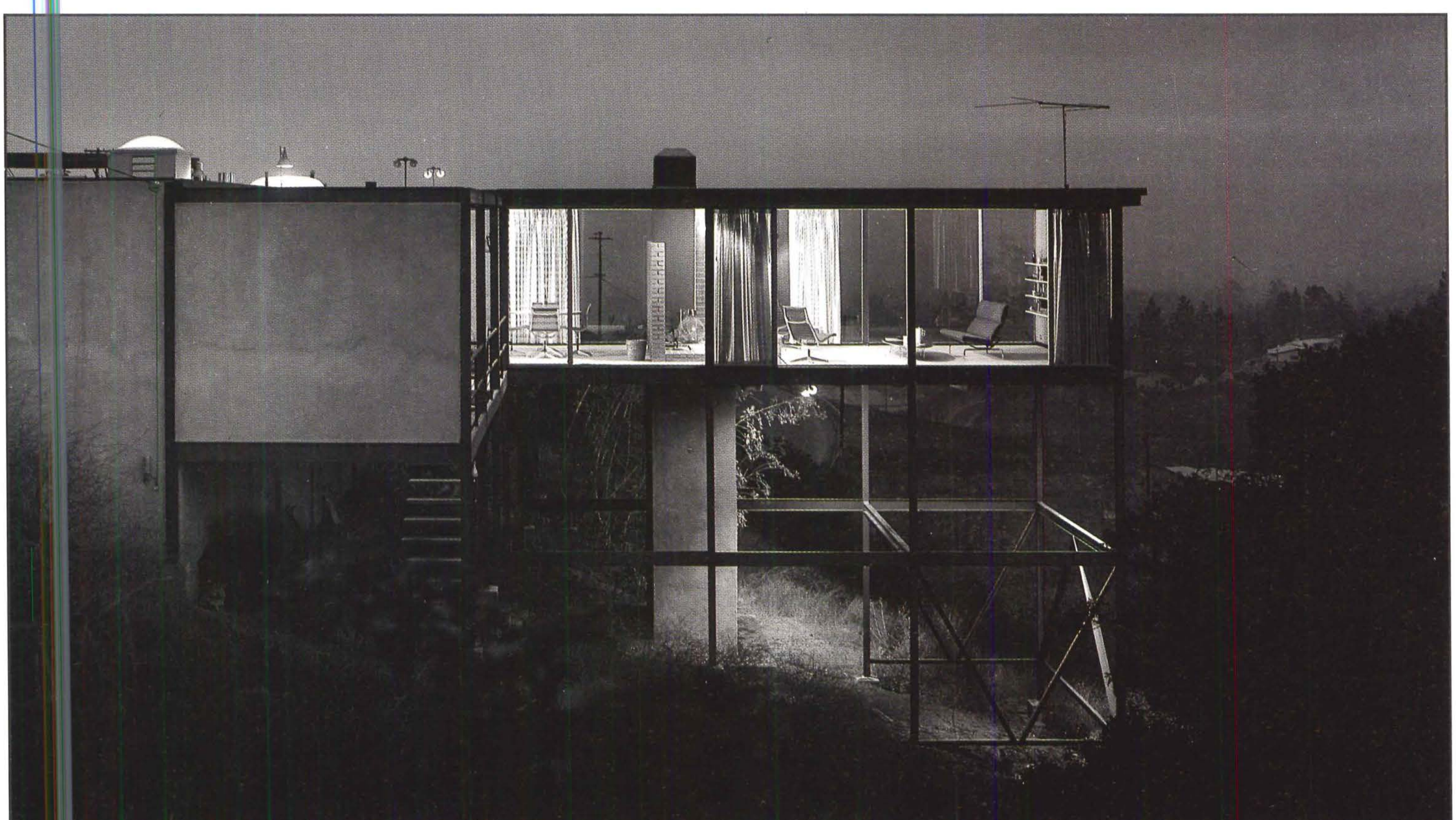
The difference between Mies's professional upbringing and that of Craig Ellwood almost half a century later was that Craig became expert at handling steel – an entirely modern material, requiring a very sophisticated and detailed knowledge of fabrication, assembly, and finishing. I always had a sneaking suspicion that Mies didn't really understand the nature of steel all that clearly. In most of his beautiful steel-and-glass structures, he would handle this (to him) very new material in the way earlier generations of architects might have handled blocks of marble – i.e., in an almost classical way, *as if it could function only in compression.* Admittedly, Mies's Farnsworth House and his New National Gallery, with their deeply cantilevered corners, pushed the inherent qualities of steel to their outer limits. But in the steel cages on the IIT campus and on Lake Shore Drive, the corner columns were so massive that they might as well have been formed out of stone – despite the fact that those corners, in reality, could easily be configured to carry almost no weight at all!

Craig, who learned to understand steel the way American (and especially Californian) kids grow up to understand what's under the hood of a sports car, used steel in only one way: in the way it made sense and, incidentally, art. I never heard him say a critical word about his idol; but I suspect he was secretly amused by Mies's rather old-fashioned, 19th-Century understanding – or lack of understanding – of advanced technology.

Unlike Craig, who at one time owned not one but two Lamborghinis (and knew how to repair them) and had a pilot's license (or claimed to have one when he flew me and a couple of equally terrified friends through the skies of Southern California), Mies probably didn't really know how to drive a car, or change a tire. To Craig, as to other young Americans of his generation, routine technical know-how and more-than-routine knowledge of advanced technology were so much a part of his upbringing that he rarely bothered to mention them. When he talked about his buildings he would be especially proud of some innovative ways of fabricating the steel or of some bright new ways of cutting costs; like Mies, he never, ever – pardon the term – bullshitted about his work. What was beautiful about it, what was art, was so self-evident, sometimes so breathtaking, that it required no comment, certainly none from the designer himself. He was a very modest guy, in many ways; he was immodest only about the ways he had put together his buildings – economically, precisely, fast, and with supreme assurance.

Morley Baer

Rosen House, West Los Angeles, built 1962–1963.



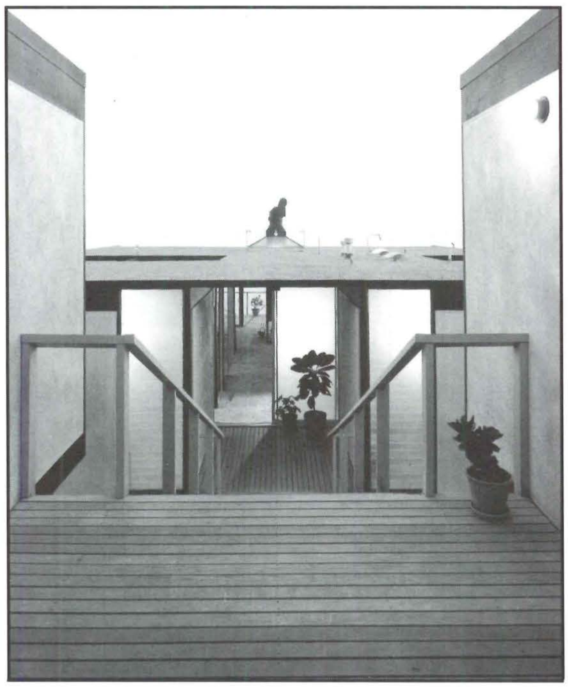
Marvin Rand

Smith House, Crestwood Hills, West Los Angeles, built 1957–1958.

"Craig, who learned to understand steel the way American (and especially Californian) kids grow up to understand what's under the hood of a sportscar, used steel in only one way: in the way it made sense and, incidentally, art."

The difference between Craig and his idol, then, was that Craig was a pragmatic builder who happened also to be a superb artist – while Mies was a superb artist who built "honestly" and sometimes quite conservatively. Like Mies, Craig had very little formal education as an architect: while he was working for that steel fabricator in Southern California after World War II, he attended night school classes in engineering at UCLA. And for many years afterwards, Craig was treated as somehow inferior by the local architectural establishment – which, however, liked to walk off with a good many of his innovative ideas and gave him little credit in return.

Not so the critical establishment. After Craig had designed and built his first house in 1950, the editor of *Arts & Architecture,* the late John Entenza, a man of great charm and daring, commissioned Craig to design and build a remarkable "Case Study House" for his magazine. In the following year, 1953, Craig completed a small complex of steel-and-glass courtyard houses in Hollywood – and the built complex won First Prize at the 1953–54 International Exhibition of Architecture in Saõ Paolo, Brazil. The jurors who chose this work by a young, unknown Californian included Le Corbusier, Walter Gropius, Alvar Aalto, and Josep Lluis Sert. Not bad for a mere beginner. Not bad for someone not permitted, under California law, to call himself an "architect" – then or, for that matter, for decades to follow!



Marvin Rand

Hunt House, Malibu, built 1956–1957.

Soon after John Entenza "discovered" Craig and his elegant work, some of the rest of us began to take notice and, as an editor at *Architectural Forum,* I went to California to meet Craig and to look at his buildings. That was 40 years ago, and we remained very close friends. Some time in the early 1970s, "Shu" Knoll Bassett – Hans Knoll's widow, who was now married to Harry Hood Bassett – asked Craig and me to join up and to design a house for her and her husband on a spectacular site in East Hampton, Long Island.

I flew to Los Angeles, and Craig and I designed the house in a non-stop charrette lasting three days and three nights. It was perhaps one of the best things either of us had ever done. Alas, the Bassetts decided to sell their East Hampton site and to move into an old family house in Vermont instead. Not long ago I noticed that some incredible piece of neo-klutz now "graces" that beautiful site, despoiling the land and the pure heritage of that lovely promontory off the American continent.

Well, it wasn't Craig's only disappointment. Architecture in the U.S. starting, roughly, in the 1970s, had increasingly become a plaything of rich vulgarians and their publicists. Architects who knew virtually nothing about building – and absolutely nothing about building well – but who talked and talked, and talked and talked, were becoming all the rage. Magazines, galleries, museums, and other players in the fashion game were taking over; "name architects" chased the "taste-makers," and vice versa.

Craig Ellwood, I suspect, began to feel lost. He just didn't know how to play the vulgarians' game, and would have felt miserable had he tried. He had always been interested in sculpture and painting, and admired the work of Josef Albers in particular; and so he sold his small practice in Los Angeles and moved to a little farmhouse near Arezzo, in Tuscany. He and his new wife, Leslie, made a studio out of an existing barn, and he began to paint large and luminous abstractions that were shown in various European galleries. Leslie and Craig had a lovely daughter, Caitlin, and everyone seemed extremely happy. Craig had been a passionate tennis player much of his life, and he was annoyed when his joints and muscles began to conk out. Still, Italy was beautiful, and so was his family. They would come to the U.S. in the winter months, when their farmhouse got snowed in. He was teaching at various schools of architecture as a visiting professor, and he sounded just the way he always had – quiet, amused, sure of himself, and happy. He died very suddenly, perhaps from too little tennis. Or too much. Or too little building.

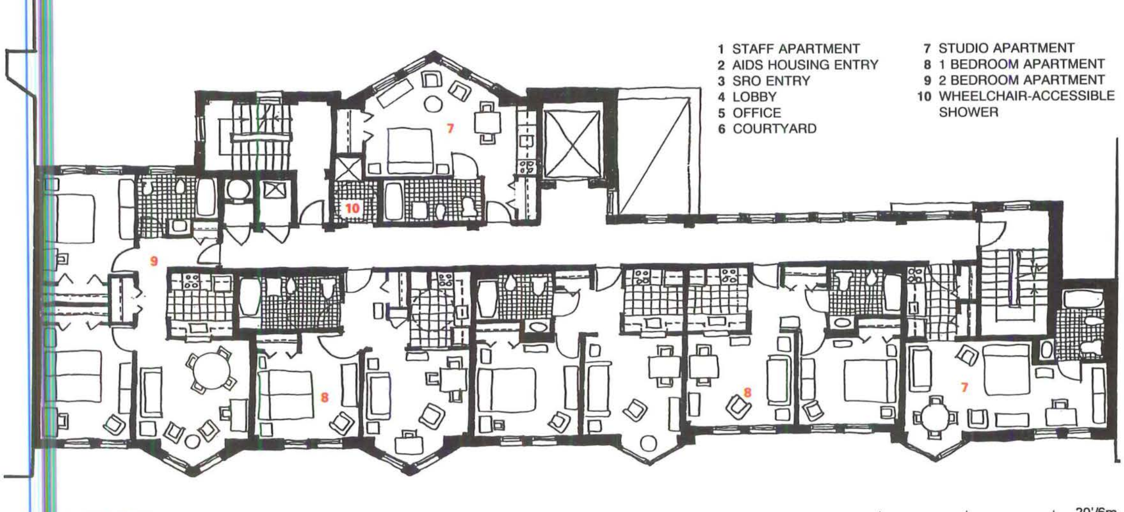
In the five months or so since the day I got the news, I have thought a lot about my friend – this maker of beautiful, delicate, exquisitely elegant spaces of light and air, steel and glass. I suspect that one of these days a new generation of architects, as yet uncorrupted, will discover this simple and honest and truthful artist, and find out for itself what it was like when Modern architecture was young and idealistic and full of passion, and a building was judged by the quality of its structure and its spaces, and not by the noise it generated. **Peter Blake** ■

The author, an architect based in Washington D.C., is former chairman of the Department of Architecture at Catholic University, and former editor of Architectural Forum *and* Architecture Plus.

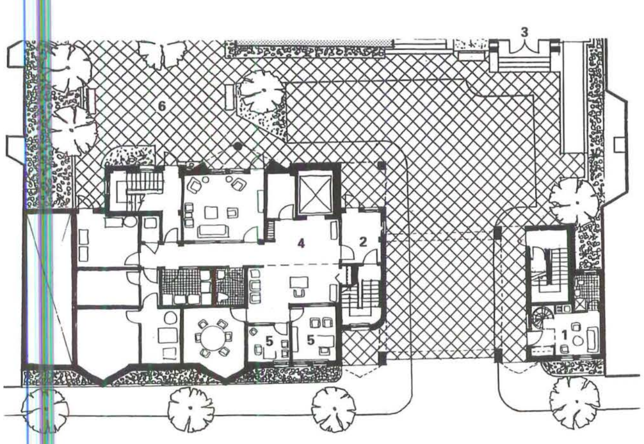
Projects
Housing for People with AIDS

Three noteworthy projects show the part architects can take in the fight against AIDS.

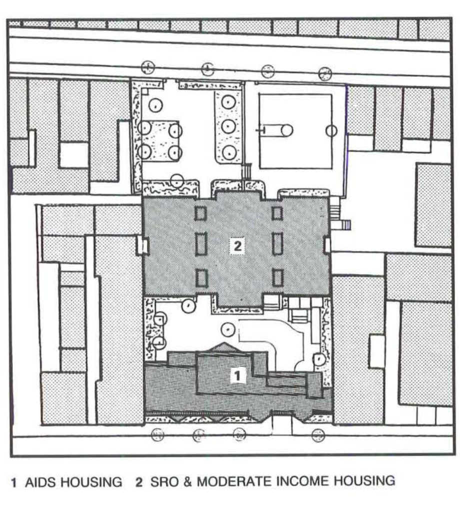
CHIA-MING SZE, PETER FANEUIL HOUSE, BOSTON, STREET ELEVATION



TYPICAL FLOOR PLAN



FIRST FLOOR PLAN



SITE PLAN

AIDS has no prejudice: not only gay men, but also large numbers of IV drug abusers, women, and children are HIV positive. Some can live with parents, a spouse, or a lover until they die. Many cannot; some are already homeless. But few need to stay in a hospital for long, since AIDS-related symptoms flare up cyclically. While more housing for people with AIDS is imperative (see this month's editorial, p. 7), there is no universal model to accommodate them all.

Examples of solutions are illustrated on these pages: an apartment house for those whose symptoms have not yet precluded independent living, a furniture factory converted into a nursing home, and a residence that comprises "cottages" – a domestic milieu that belies a high staff-to-patient ratio.

Most of the AIDS housing that emerges in the near future won't have *partis* as clear as these. Rehabilitation projects provide housing more quickly and discreetly. This is often the safest route to take. It's hard to ostracize people with AIDS if their residence doesn't stand out – a consideration reflected in the three buildings shown here.

Peter Faneuil House

Beacon Hill, the presumed sanctuary of Boston's Brahmins, will be the site of this 20-unit "independent living facility for persons with AIDS." Supported by its neighbors and designed by Chia-Ming Sze, a Boston architect, Peter Faneuil House will be built on the grounds of a surplus public school. It will be home to AIDS patients who meet HUD's criteria for funding – they must be able to care for themselves on admission. The House will accommodate residents as their health deteriorates; they need not move to a hospice. Each apartment is large enough for medical equipment and the bedside care of visiting nurses.

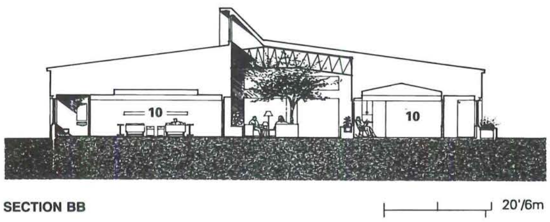
A non-profit development by Rogerson House, the Hale-Barnard Corporation, and the AIDS Action Committee of Massachusetts, the House takes advantage of an initiative from the Mayor's Office, whose RFPs promoted affordable housing and apartments for people with AIDS. Single persons, couples, and families – a cross section of Bostonians who are HIV positive – will occupy the new, contextualist building illustrated here. SROs, studios, and apartments for subsidized and moderate-income tenants are slated for the school next door – a composition that challenges stereotypes of Beacon Hill.

Leeway AIDS Facility

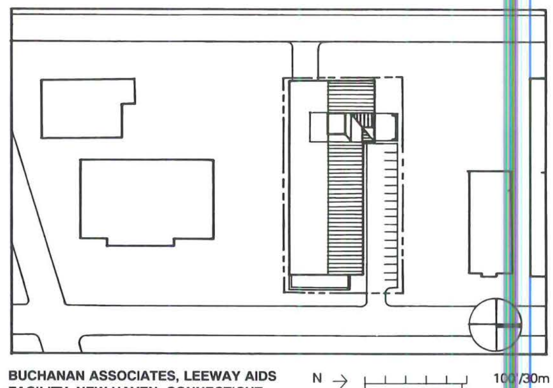
When Catherine Kennedy was planning Connecticut's first nursing home for people with AIDS, she and George Buchanan, her architect, found it would be cheaper to rehabilitate a 1950s steel-and-block factory than to renovate a rooming house. But the real challenge would be to make this New Haven residence a place that would alleviate depression, not promote it.

Kennedy started the Leeway project when she saw that most of the city's AIDS patients, typically impoverished drug abusers (and sometimes their wives), have only two housing choices: the hospital or the streets. She and Buchanan envisioned Leeway as a nursing home/hospice staffed and designed to provide the social support that homeless people with AIDS don't get from friends or family; some become suicidally depressed.

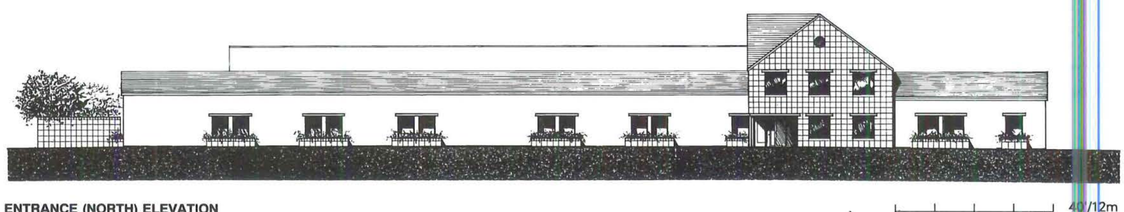
The nurses' close attention will be as important as activities that engage the 30 residents in the day-to-day life of the nursing home. Accordingly, the architect designed an extra-wide double-loaded hallway with nurses' sta-



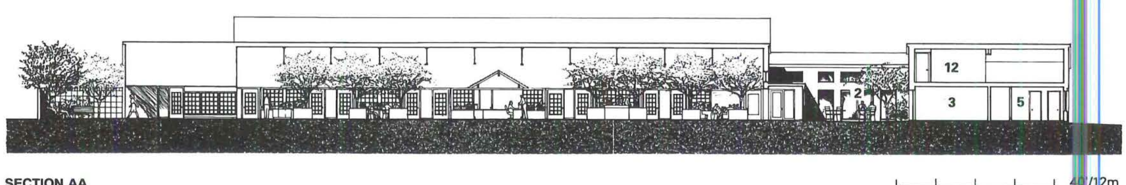
SECTION BB



BUCHANAN ASSOCIATES, LEEWAY AIDS FACILITY, NEW HAVEN, CONNECTICUT, SITE PLAN

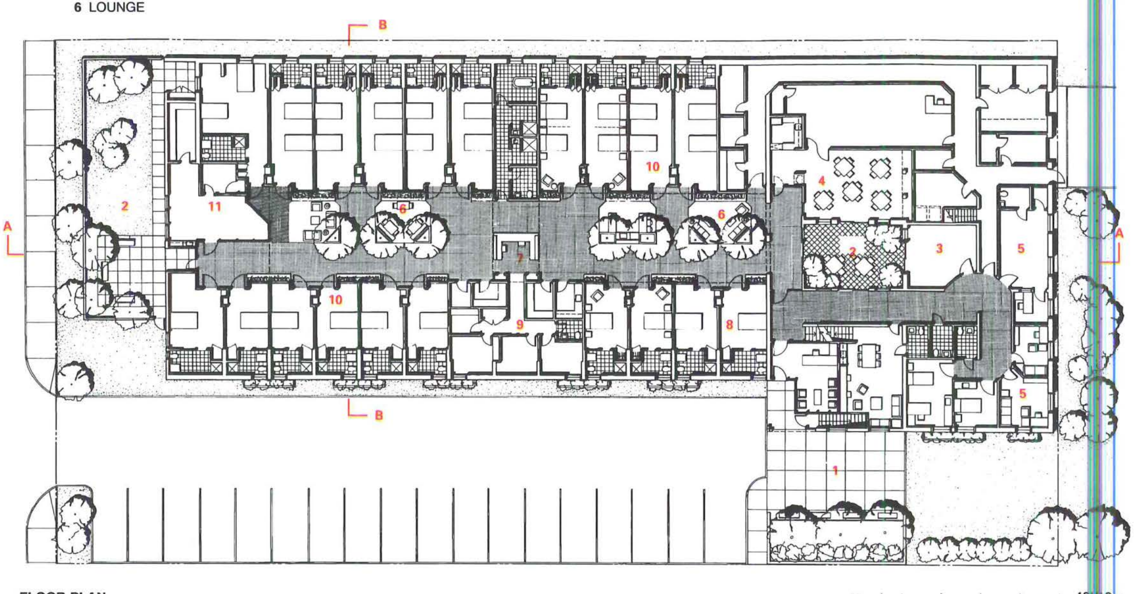


ENTRANCE (NORTH) ELEVATION



SECTION AA

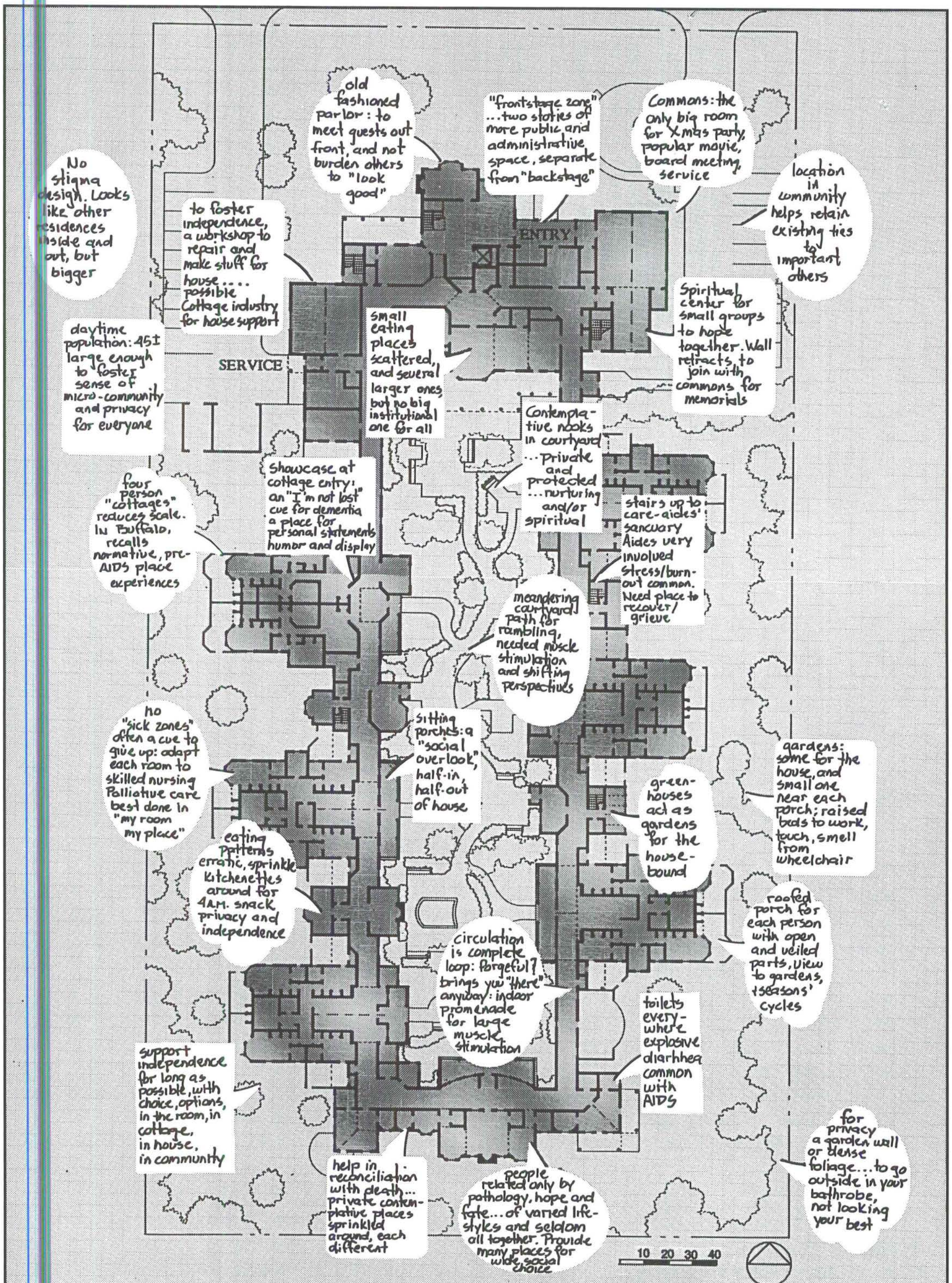
1 ENTRY COURT
2 COURTYARD
3 GROUP/QUIET ROOM
4 DINING/TV ROOM
5 PATIENT TREATMENT/ OFFICE
6 LOUNGE
7 NURSES' STATION
8 ISOLATION ROOM
9 NURSING STAFF
10 TYPICAL PATIENT ROOM
11 INDOOR RECREATION
12 ADMINISTRATION



FLOOR PLAN

1 CIRCULATION LOOP
2 ENTRY TO COTTAGE
3 LIVING/FAMILY ROOM
4 KITCHENETTE
5 PRIVATE HALL
6 TOILET
7 SINGLE BEDROOM
8 PRIVATE PORCH
9 BATHING ROOM
10 LINEN STORAGE
11 LAUNDRY
12 CARE PROVIDER'S RESPITE ROOM
13 QUIET ROOM
14 PORCH

COTTAGE FLOOR PLAN



HAMILTON HOUSTON LOWNIE ARCHITECTS, & BOSTI, BENEDICT HOUSE, BUFFALO, NEW YORK, ANNOTATED FLOOR PLAN

tions, lounges, and a snack bar. Anchored by two courtyards, it is a lofty passage daylighted by a clerestory on the ridge line. Oriented to this common area, the bedrooms are insulated from the desultory industrial environs by a periphery of bathrooms. A two-story gabled addition (offices are upstairs) will replace loading docks with an entry that implies "home."

Benedict House

More ambitious than any AIDS housing yet built, this scheme calls for a courtyard bordered by six "cottages" and two common buildings. The courtyard, a shared back yard, is complemented by a more private periphery of private porches with garden views. The plan, designed by Hamilton Houston Lownie, a Buffalo architectural firm, incorporates behavioral research carried out by Mike Brill of BOSTI, the Buffalo Organization for Social and Technological Innovation, Inc.

While it seems luxurious, this scheme astutely addresses the psycho-social problems of people with advanced AIDS symptoms. Benedict House's 24 patients, homeless or unable to care for themselves and usually poor, aren't expected to bond as if this were a fraternity; the plan makes interaction an option, not an obligation. Nor does it distinguish those who can walk freely from the seriously ill; there are no cues that anyone has reached the time to "give up." The House gives patients plenty of places to visit – greenhouses, scattered dining rooms, contemplative spaces, and garden paths. These options help keep boredom and depression at bay. Benedict House will provide a haven, a secure place to face the issues of dying – both the fear of abandonment by society and family, and the need to reconcile with the unknown. **Philip Arcidi** ■

Seaside and Beyond

If we dwell on Duany Plater-Zyberk's traditional imagery, we may not see its urban innovations.

Two monographs, reviewed by **Anne Tate**, suggest the breadth of their work.

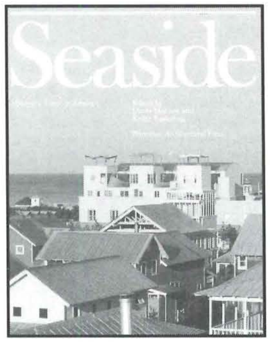
Books of Note

Modernism in Italian Architecture, 1890 – 1940 *by Richard A. Etlin, MIT Press, Cambridge, Massachusetts, 1991, 736 pp., $65.* This hefty volume offers an insightful analysis of the many strands of Modern architecture that emerged during one of Italy's headiest eras.

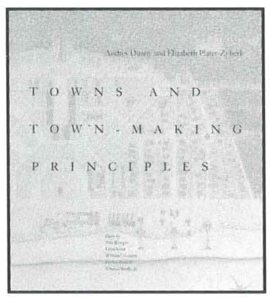
Inventing Times Square: Commerce and Culture at the Crossroads of the World *edited by William R. Taylor, Russell Sage Foundation, New York, 1992, 467 pp., $39.95.* Seventeen scholarly essays provide a social history of the square's tourists, theater industry, and not-so-respectable denizens.

Architecture and Planning of Graham, Anderson, Probst & White, 1912 – 1936: Transforming Tradition *by Sally A. Kitt Chappell, University of Chicago Press, Chicago, 1992, 352 pp., $65.* These successors to Daniel Burnham's firm – designers of Philadelphia's 30th Street Station and many Chicago landmarks – are positioned as "mainstream" traditionalists, equally adept in Classical and Modern styles.

Arquitectonica *edited by Massimo Vignelli, text by Beth Dunlop, AIA Press, Washington, DC, 1991, 214 pp., $55, cloth, $40, paper.* The work of the Miami architects – like that of their Art Deco predecessors – has made street theater a three-dimensional act. Projects from 1976 to 1990 in and beyond Miami are covered.



Seaside: Making a Town in America *edited by David Mohney and Keller Easterling, Princeton Architectural Press, New York, 1991, 267 pp., $39.95 cloth; $24.95 paper.*



Andres Duany and Elizabeth Plater-Zyberk: Towns and Town Making Principles *edited by Alex Krieger and William Lennertz, Harvard University Graduate School of Design/Rizzoli, New York, 1991, 120 pp., $25 paper.*

Seaside is sometimes faulted for not being what it was never meant to be – a year-round working town. Intended as a picturesque resort community, Seaside breaks no promises. Some critics dismiss Seaside as an architectural boutique, as if its charm must be incompatible with economic viability and serious work. To dismiss its planning as irrelevant to "real life" is to underestimate seriously its exemplary power as a development, an image, and a place. People travel hundreds of miles to spend a week here – a sign, perhaps, that they might be interested in living in a similar community.

By now any reader of these pages is familiar with this debate and the theories of Seaside's creators, Andres Duany and Elizabeth Plater-Zyberk. Two new books substantively increase our understanding of their work, in contrast to the newspaper stories or TV spots that have popularized their firm, Duany Plater-Zyberk (DPZ). These books emphasize documentation over diatribe: many have heard Duany argue that radical traditionalism can save the suburbs. Here readers can study how he and Plater-Zyberk apply their principles to their projects.

Seaside: Making a Town in America parallels the paradoxes of that town's appeal. This monograph strives to transcend Seaside's pretty-picture press and thoroughly documents its controversial development. The editors of the monograph, David Mohney and Keller Easterling, made a serious effort to put the lessons of Seaside before us in cogent form. But despite their best intentions – and the real successes of the planners – the book offers Seaside in unconnected pieces. It's left to the reader to assemble them in his or her imagination. Seaside is most important as an example of integrating issues: none of the pieces of the town is as important as the threads of logic connecting them. As Easterling observes in the opening of her essay,

> Seaside's real value has often been invisible in photography and press coverage. The chief innovation has less to do with its buildings and more to do with the space between the buildings and the buildings' response to that space.

Yet the bulk of the book is a catalog of buildings presented as individual objects, arranged by architect, not by type or location. Indeed, the structure of the book compartmentalizes the reader's perceptions of Seaside, separating the atmospheric from the analytical. No doubt, this single-volume collection of the plans, codes, buildings, and objectives of Seaside provides a great service. But the parts still fail to cohere. The architectural catalog, perhaps the weakest part of the book, may well be its most salable feature. The black and white photography is uneven, and the level of documentation varies: some buildings are unbuilt projects, others are several years old. While the catalog aspires to be comprehensive, it instead succeeds in freezing one moment of a continuing evolution; there is a "see your friends in print" feel about it.

The strongest argument for traditional planning is made through the evolution of the Seaside plan itself. Well documented here, the journey moves from Modernist Miami to the rediscovery of the American small town. The structural logic at each stage of this journey belies any facile Post-Modern interest in image; it underscores the intellectual integrity of DPZ's work.

Towns and Town Making Principles, the architects' first published presentation of their planning *oeuvre*, is a teaching tool, simple in its organization, yet ambitious in its intent. Assembled by Duany and Plater-Zyberk, it reveals the rigor and didactic underpinnings of their work, as well as a sampling of DPZ's recent planning projects, grouped by scale, from villages to towns and regions. The few

(continued on page 132)

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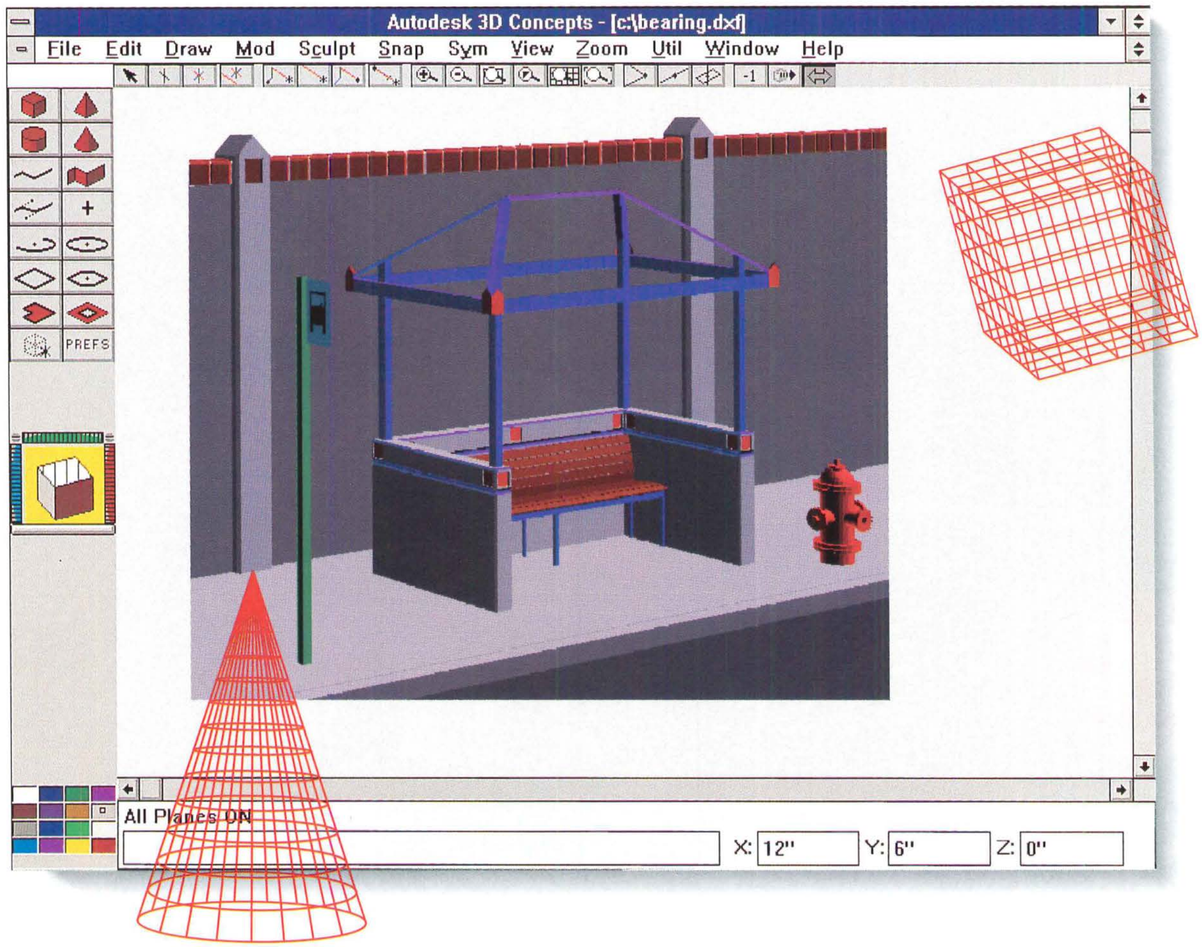

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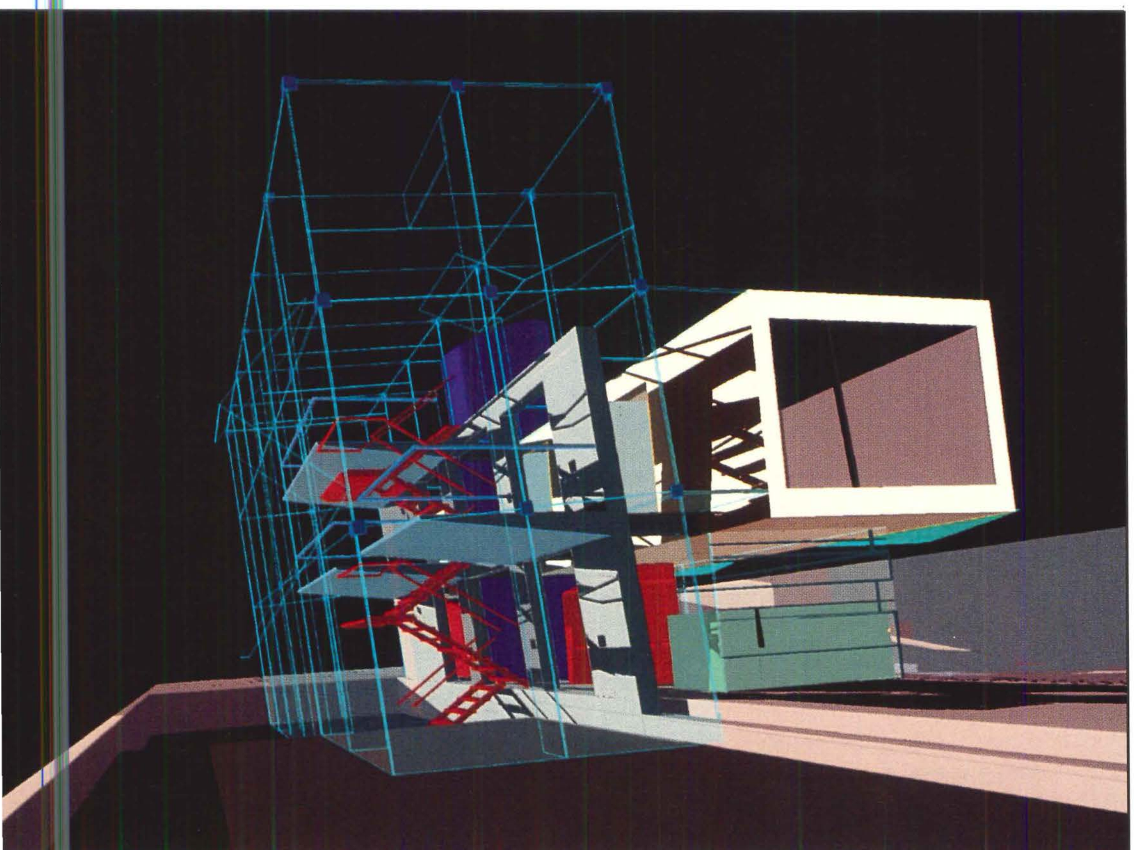
Design and Automation



Bernard Tschumi's office is using CAD to design, among other projects, this house in The Hague *(see page 110)**.*

Architectural computer systems have moved beyond being merely sophisticated mechanical pencils. P/A takes a look at how firms are using computers for all aspects of architectural work, with examples from offices in the U.S. and Europe.

A Third Wave Practice

Eastlake Studio Principal, **Robert Young,** describes his firm's philosophy for using computer technology.

A dozen years ago, a debate smoldered over whether computer technology could be efficiently used in producing construction documents. Today, the focus has shifted to whether computer technology can be effectively used as a tool to support design activities. At Eastlake Studio, we think the debate has missed its mark. We believe that computer technology is most effective and efficient when used in support of all phases of the design/documentation process and that the intelligent integration of computer technology in design practices will result in a dramatic change in the design process itself.

Everywhere we turn, we are bombarded with announcements that our society has entered a new age of information. If this is indeed true, then what we do and how we do it should respond to the wealth of new information. To a large degree, the architectural profession has failed to adapt, and continues to employ the same processes that have been in practice for the past seventy years.

In the 1970s, the more advanced design firms introduced computer technology into practice. An organizational model is represented in figure 1. Firms were typically organized in functional departments with a hierarchical structure. Computer technology was introduced at the lowest level of the hierarchy – to support production activities. Tasks were automated and the flow of information did not reach decision makers and did not affect their decisions. Firms were unable to take advantage of the power of the computer.

In the 1980s, the more enlightened design firms organized in teams (figure 2). If the firms were truly advanced, each team might have a dedicated computer, or CAD station and operator. However, if the CAD operator was sick or on holiday, little got done. Decision makers moved closer, but were still removed from the source of new information and unable to take advantage of the power of the computer.

In the 1990s, we submit a different model for technology in practice (figure 3). Firms will be most effectively organized in teams, with principals or senior staff members serving as team leaders. Everyone in the practice will have at least one computer. Computers will be found in the primary workspace, and many staff members will have computers and modems in their homes, and others (if their work requires travel) will carry laptops, notebooks, or palmtops. Computers inside and outside of the office will be fully integrated and the network will be transparent to the client. Because of the firm's structure and intelligent use of computer technology, the organization will become a dynamic network of people and information. Processes will be redesigned, and everyone will be able to take advantage of the power of the computer.

We are asked on occasion if extensive use of computers reduces time in documentation and affords more time to devote to design. We believe the opposite is true. Because computer technology is used in design (and all other phases of work), documentation phase activities can be facilitated and significant efficiencies can be achieved. Dr. Shoshana Zuboff, in her book *In the Age of the Smart Machine,* makes the following observations:

> Information technology is characterized by a fundamental duality that has not yet been fully appreciated. On the one hand, the technology can be applied to automating operations according to a logic that hardly differs from that of the 19th Century machine system – replace the human body with a technology that enables the same processes to be performed with more continuity and control. On the other [hand], the same technology simultaneously generates information about the underlying processes through which an organization accomplishes its work. It provides a deeper level of transparency to activities that had been partially or completely opaque. In this way information technology supersedes the traditional logic of automation. The word that I have coined to describe this unique capacity is *informate.* Activities, events, and objects are translated into and made visible by information when a technology *informates* as well as *automates.*

A 1984 survey by Harper and Shuman, Inc., of Cambridge, Massachusetts, identified typical ratios of labor costs for architectural services (figure 4). The survey reveals that average labor costs for predesign, schematic design, and design development total 31 percent, while construction documentation averages over 43 percent. In our practice, over 50 percent of cost/time is allocated and spent in programming and design activities while 30 percent is spent in the documentation phase.

We believe that through intelligent integration of computer technology, enlightened clients, and more and better programming and design activity, the time required for documentation can be dramatically reduced. Computer use in the documentation phase does not free time for more design study; rather, better problem definition and design can facilitate efficient documentation.

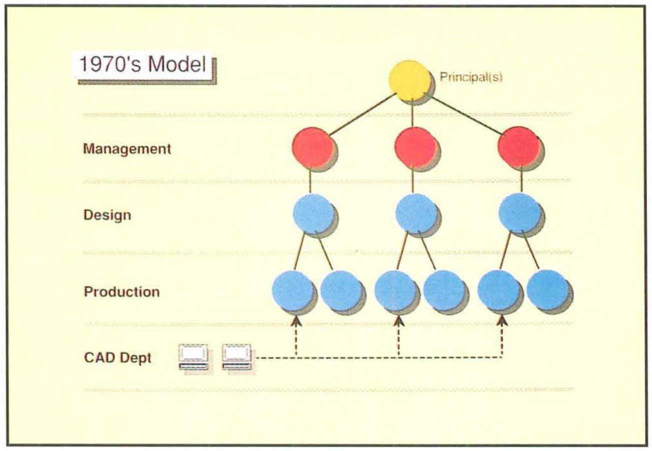
Two additional factors overlay the diagram and provide context. First, the cost of making changes increases over time, and second, the value of information in decision making decreases over time. We believe that decisions can only be as good as the information used in making them and that the first few decisions made in any design project are the most crucial: they shape everything that follows. In an increasingly complex world, with compounding uncertainty about what the future may hold, expanding volumes of information, and shifting business paradigms, one of the most difficult tasks in the design process is to sift through mountains of data and to distill the essence of need. The ability to do this is the initial step in what we refer to as third-wave design.

Alvin Toffler defined the first wave as the shift to an agrarian society, the second wave as the shift to an industrial society, and the third wave as the shift to an information society. The table in figure 5 identifies characteristics of second wave (industrial) organizations and third wave (information) organizations. It is adapted from John Sculley's 1987 book, *Odyssey*.

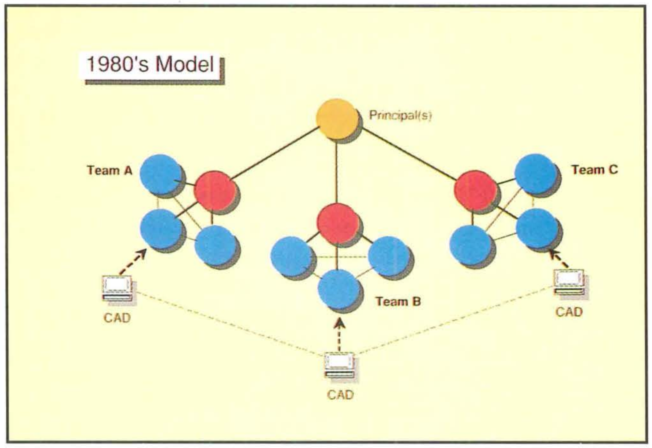
We believe in the principle of one person/one computer (at least). We do not have any drafting tables and do not consider ourselves to be an automated firm. Rather, we refer to our practice as having integrated computer technology throughout. We employ a low-tech approach to the use of sophisticated technology. We prefer very simple, easy-to-use, over-the-counter software. If an application is too complicated, it is abandoned for lack of use.

Computer technology is used to support every aspect of our practice – in design services, marketing, and administration of the business. Everyone is involved; there are no computer passwords and no locked files. Every member of the studio organization has access to any existing information that may be required to support her or his decision making. We believe that computers should be used as tools that enhance an individual's capacity to think, create, and manage. For most firms in the future, it will be only this way.

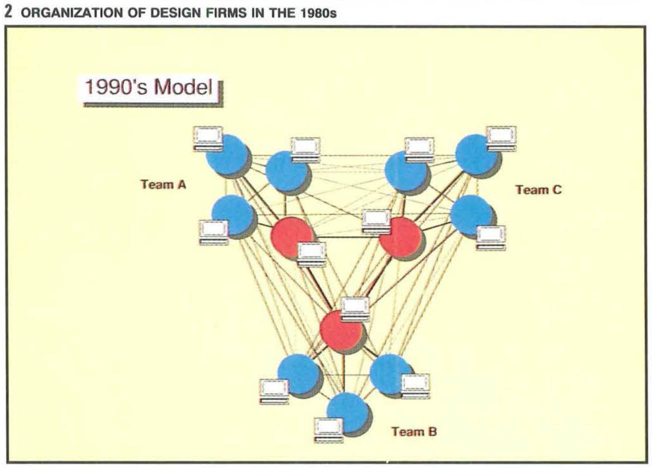
Traditional processes will change; accordingly



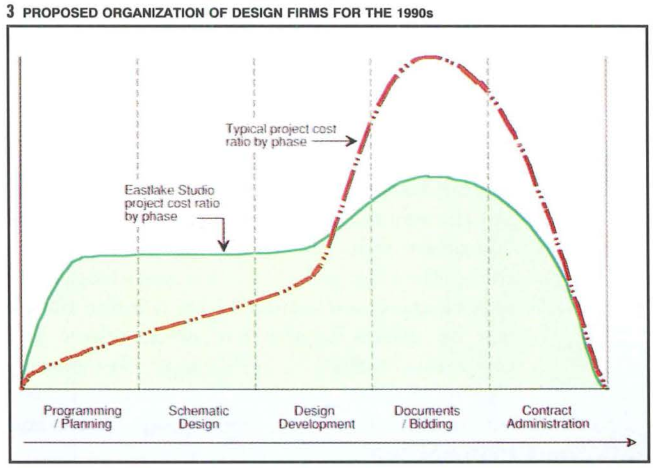
1 ORGANIZATION OF DESIGN FIRMS IN THE 1970s



2 ORGANIZATION OF DESIGN FIRMS IN THE 1980s



3 PROPOSED ORGANIZATION OF DESIGN FIRMS FOR THE 1990s



4 COMPARISON OF COST RATIO BY PHASE FOR 1980s MODEL VS. EASTLAKE STUDIO

CHARACTERISTICS OF SECOND WAVE (INDUSTRIAL) ORGANIZATIONS AND THIRD WAVE (INFORMATION) ORGANIZATIONS		
Issue	**2nd-Wave Organization**	**3rd-Wave Organization**
Advantage	Better Sameness	Meaningful Differences
Culture	Traditional	Genetic Code
Expectations	Security	Personal Growth
Focus	Institution	Individual
Flow	Linear	Non-linear
Information Flow	Vertical	Horizontal and Vertical
Leadership	Dogmatic	Inspirational (stewardship)
Mission	Goals/Strategic Plans	Identity/Direction/Values
Motivation	To Compete	To Build
Organization	Hierarchy	Network
Output	Market Share	Market Creation
Quality	Affordable Best	No Compromise
Resource	Cash	Information
Source of Strength	Stability	Change
Status	Title and Rank	Making a Difference
Structure	Self-sufficiency	Interdependencies
Style	Structured	Flexible

5

Characteristics of second wave (industrial) organizations and third wave (informational) organizations, adapted from John Sculley's 1987 book, Odyssey.

teams are carefully formed around individual projects and require active participation by client representatives. All team members are involved throughout project work, from initial meetings to occupancy. Everyone participates in all phases of work, everyone is afforded the opportunity both to contribute and to learn. Teams are made responsible and accountable. There is continuity, ownership, pride in one's work, and a type of satisfaction that does not occur in a linear, assembly line, "pass it along to the next person" process.

We believe that the issues design practices will have to address in the coming decade will be related to diversity and choice, the environment, changing business paradigms and new learning processes. New information will have to be managed, analyzed, deciphered, and distilled. Intelligent use of computer technology will afford assistance – but only if it is concurrent with redefinition and redesign of problem solving processes.

Integrated computer technology will afford design firms with a rich source for new business (products and services) opportunities. Task automation won't cut it alone; process automation will be a stepping stone; practice automation will provide the technological power needed to effectively respond to a new marketplace. Regis McKenna in Relationship Marketing offers the following:

> The 1990s will belong to the client. Technology is transforming choice and choice is transforming the marketplace. As a result we are witnessing the emergence of a new paradigm – not a "do more" that simply turns up the volume on the spiels of the past, but a new knowledge- and experience-based model. This transformation will be driven by the enormous power and ubiquitous spread of technology. Technology has moved into products, the workplace, and the marketplace with astonishing speed and thoroughness.

Two fundamentals – knowledge and experience – will increasingly define the capabilities of a successful organization. Knowledge based activities require a company to master a knowledge of the technology in which it competes; of its competition; of its clients; of new sources of technology that can alter its competitive environment; and of its own organization, capabilities, plans, and way of doing business. Knowledge based models can be put to work in three essential ways:

1. Integrating the client into the design process to guarantee a solution that is tailored not only to the clients' needs and desires, but also to the clients' strategies.
2. Generating niche thinking to use a company's knowledge of channels and markets to identify segments the company can own.
3. Developing the infrastructure of suppliers (existing and/or new), vendors, partners, and users whose relationships will help sustain and support the company's reputation and technological edge.

At Eastlake Studio, we prefer to use technology to aid in defining problems (content) too complex to understand without the aid of computers. Some firms choose to use computer technology to model complex design solutions (form) too complex to do by hand. We believe firms that use computers only to model complex forms are missing an opportunity to provide more highly responsive problem definitions, statements, and solutions.

In the 1972 film *Design Q&A,* Charles Eames was asked: "What do you feel is the primary condition for the practice of design?" His response was, "Recognition of need." Twenty years later, Eames's answer could not be more relevant. ■

Robert Young

The author is a principal of Eastlake Studio in Chicago.

"12 months and 12 systems later we decided ArchiCAD was the system for us."*

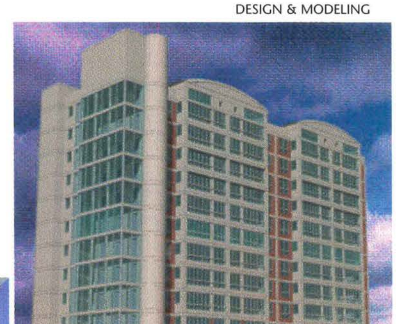
"We chose ArchiCAD for three primary reasons: Its ability to convert instantly from 2D to 3D makes it a very powerful design tool. Its detailed rendering ability makes it a very powerful tool for presentations. And, its ease of learning and operation. People in our in-house training program typically find themselves able to put a building together within the first two hours!

"One of the strengths of ArchiCAD is its functionality throughout the life of a project. We use it for schematic design because it allows us to examine many different design options. Then we move into preliminary design and take advantage of the rendering capabilities of the package. From there we move directly into the construction drawing phase. The data base generated during these two phases can then generate a Bill-of-Materials for very detailed cost estimates.

"The upshot here is that we can use ArchiCAD from the beginning to the end of the project."

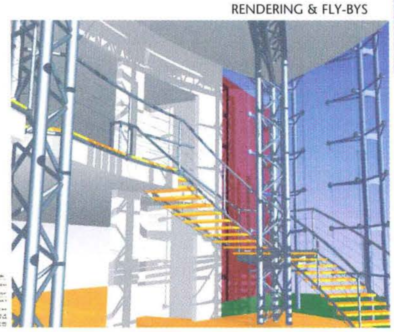
Chuck Hill, Architect
The Orcutt-Winslow Partnership
Phoenix, Arizona
Orcutt-Winslow is a firm of 30 registered architects specializing in educational and medical projects.

DESIGN & MODELING



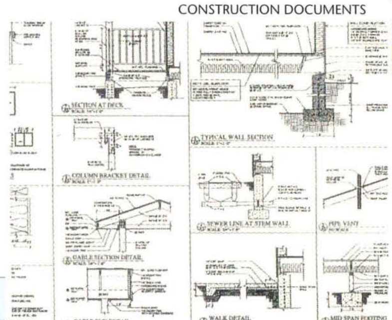
Media 5 Architects

RENDERING & FLY-BYS

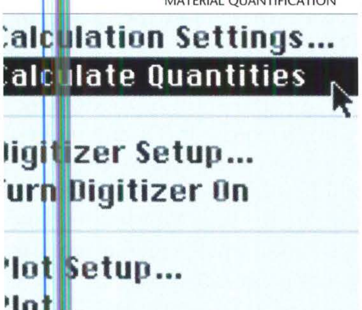


Bertram+Bohnemann, Architects

CONSTRUCTION DOCUMENTS



MATERIAL QUANTIFICATION



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Tools of the Stars

Matthew Barhydt takes a look at the use of computers in two high-profile design firms.

What the Offices Use

Eisenman Architects uses Form-Z software from Auto-des-sys on a Macintosh IIci platform with memory cards, color cards, and math co-processors. With Form-Z, says McCrery, the user works continuously in 3D. Wire-frame forms in any geometrical shape are manipulated, cut, and pasted until the desired 3D model has been built. A fully rendered 3D model can be be generated in as little as an hour's processing time. Views of the models can be saved as "slides" that take into account light and shadow.

As a secondary tool, AutoCAD software run on IBM PCs is used for some large scale two-dimensional design drawings, but mostly for production work. Through DXF translations, design work done with Form-Z can easily become the basis for construction drawings on AutoCAD.

Bernard Tschumi's offices use Architrion in both 2D and 3D modules. With the modeling software, 3D models are built from geometrical components selected from a default library and manipulated by the user. Models have "blocks" – properties with built-in values such as building materials and thicknesses that can be assigned by the user. This allows plans and sections to be "cut" from a 3D drawing and exported to the 2D software for production drawings. According to Kowalski, a 3D model with a few colors takes about 15 minutes to process once all of the data has been input and different views set up. Complex views with more colors and better resolution that account for a light source may take as long as five hours to process. "Slides" of saved views can be used to generate presentation drawings.

Lower computer costs and innovative software have brought computer-aided design into some high-profile design offices where drawing and model building used to be held sacred. No longer seen as strictly a production tool, CAD is becoming an integral part of their design process. These firms who straddle the worlds of theory and practice are finding that the use of the computer can have philosophical ramifications that go far beyond its use as a "mechanical pencil."

Wolf Prix, Peter Eisenman, and Bernard Tschumi occupy a unique niche within the architectural profession. They represent the avant-garde in a profession whose public face is often anonymous and corporate in character. It shouldn't be any surprise, then, to find them also at the vanguard of computer-aided design.

Constructing Deconstructivist Architecture

Wolf Prix has argued that architecture like his could not be realized without the use of CAD. Prix explains that CAD is essential for finding "important measurements in space" such as X, Y, and Z spatial coordinates as well as axes and lengths. These points represent an abstract three-dimensional model about which their designs are constructed. "We play at calculating the impossible joint . . . we need a lot of mathematical calculations," a process, says Prix, that would otherwise take months to determine. James McCrery, a designer with Eisenman Architects agrees. "If you are making Deconstructivist architecture, it's quite impossible to do it without computers," notes McCrery. "If you don't have computers, you're approximating Deconstructivism, you're not doing it. You're guaranteeing inexactness by drawing; you just can't do it and be right." Peter Eisenman brought CAD into the office because, "he couldn't do what he wanted to do," explains McCrery. Any work that comes into the office now goes on to their CAD system.

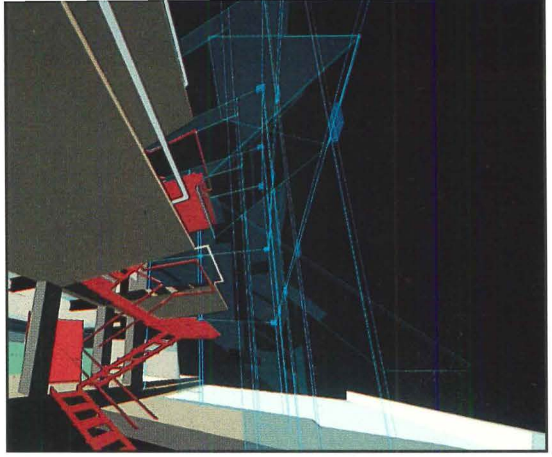
McCrery believes that CAD can and should be used as a conceptual design tool. "It makes you think about your conceptual development in a different manner. It changes the way designers think. When you are working at the computer, you begin to think relative to your medium – three dimensionally."

At Eisenman Architects, CAD is seen as an effective way to model form but, according to McCrery, this can lead to some problems. "Space is the commodity of exchange here," says McCrery. "With CAD, three-dimensional modelers model form: planes, volumes, solids. They do not model space." McCrery believes that because of this deficiency, CAD will never entirely supplant the necessity of building models by hand. With architecture based on Post-Structuralist criticism, "rarely can architects predict the spatial ramifications of those texts, those systems, those operations. It behooves them to build physical models of the space. Computers aren't able to do that."

Simulating CAD

Bernard Tschumi's office has taken a more theoretical approach to the use of computers in design. Ironically, one of his most renowned works was conceived without the use of CAD, but with CAD in mind. Bernard Tschumi recalls the begining of work on the Parc de La Villette in Paris: "At the time we did not have computers. The project was based on the decomposition and the deconstruction of the cube. When we were doing a series of drawings, we felt very early on that the logic that was within the system was such that it made complete sense to have it done through computers. The drawings that we were doing by hand were done purposefully to look like computer drawings," he says. The drawings looked so much like CAD-generated drawings that after they were published Tschumi received numerous calls from people inquiring about his software.

Four years after starting work on La Villette, Tschumi brought CAD into his offices, and the last 12 out of a total of 22 follies have been designed using CAD. "Quite often, it was simply a sketch and then one would literally go onto the machine. You could have the whole building designed within 10 days," says Tschumi. But the notion of simulating the use of CAD remains intriguing to him. It is the "mechanistic aspect," as he puts it, "the idea that you can do a series of moves – once you've set the rules of the game, there's a moment when the computer takes over." "After simulating the computer as a sort of conceptual reality – as something which will be outside ourselves – then we started to use it for real," says Tschumi, referring to the 1991, two-and-a-half million square foot Kyoto Railway Station competition. "It was a competition where we had to be almost at the level of schematic design. Hence, there was a huge amount of work with a series of requirements in



UNIC *Architrion 3D model of a design for a small house in The Hague by Bernard Tschumi Architects.*

illustrating that work. We knew that there was absolutely no way that could be done with our simulated technique," he says.

In reacting to the constraints of the competition, Tschumi and his competition team, including designer Tom Kowalski, began to discover that the computer allowed them to pursue particular design ideas that they had never fully envisioned. Once the drawings were put on the computer, Tschumi realized that the computers "not only were allowing us to explore certain things that we could not quite do by hand – at the same time they were allowing us to push the project one step further than you would be able to do by hand. Somehow, there were limitations with what the hand could 'see.' With the computer, you could 'see' more than you could see with your hand."

Kowalski is doing much of the design work on the first project in the office to be started from scratch on CAD, a small house in The Hague. "The interesting thing about this project was partially due to the limitations of the software," says Kowalski, about Architrion, a French software package distributed in the U.S. by UNIC. With Architrion, it's much easier to draw in plan than in section, so he had to treat his sections as plans and then rotate them. He believes that in this way the technical capabilities of the software influenced the way in which the house was spatially conceived.

The Seduction of CAD

Recent CAD software development is in the direction of "photo-realism," the ability of approximating three-dimensional space with photographic-like quality. Kowalski, for one, considers it an advantage that Architrion does not as yet have this capability. He doesn't think that CAD software can ever accurately represent the experience of architecture, nor that it should. What is much more interesting is "figuring out what to combine with what, or what kind of shortcuts to take," argues Kowalski. "Theoretically, everything is possible on the computer." Photo-realistic rendering isn't something that James McCrery misses using their Form-Z software, either. It can be a valuable tool for clients or lay people who are not accustomed to thinking spatially, says McCrery, "but for a lot of architects, I don't think that it's quite good enough. There is still a somewhat two-dimensional quality to virtual reality, that might be addictive, dangerous, and very interesting."

Just as Bernard Tschumi was fascinated by the aesthetic ramifications of computer-generated drawings on La Villette, Kowalski seems more interested in using the computer on its own terms. He believes that constraints such as the size of the computer screen result in a kind of fragmentation in thinking during the design process. "What's interesting about that fragmentation is that it allows for different or non-linear sort of thinking about the architecture and the relationship of spaces," he argues, speaking about The Hague house project. "You can make cross references which are based entirely on the computer workings. They are not related to the sequence of entering or anything of that sort which is very traditional thinking – extending axes, rooms off of corridors, things like that."

Kowalski pushes aside any idea that exploring architectural design through the capabilities of CAD represents a formalist approach to architecture. Although "I'm very much against the pure sort of chance, the pure accident," he insists, "I think that it's interesting to have them and use them as tools. Not that what you're going to get at the end of the experiment has to become architectural, but it can become the basis of understanding architecture."

James McCrery believes that getting caught up in the way that the computer works, of making decisions for the sake of seeing how things can be done with CAD, is "either a good danger or a bad danger. It doesn't happen, but it is dangerous to allow yourself to become part and parcel of the software. Then you begin thinking and taking the project down the software line, rather than take the software down your line. It's a fancy hammer and it doesn't build houses. It won't do the work for you."

Tom Kowalski agrees. "What I'm talking about is realizing the danger and trying to subvert it, not to embrace it. The ultimate technology is very, very seductive." **Matthew Barhydt** ■

The author is a designer and a graduate student in the Architecture and Design Criticism program at Parsons School of Design.

What They're Doing With It

Major projects done at Eisenman Architects using CAD are: an office complex in Berlin; Emory University Center for the Arts in Atlanta; and an enormous site plan competition in Frankfurt that the firm recently won. The Emory University Center for the Arts is an irregularly shaped series of four new buildings combining performance spaces for various music, theater, and cinema facilities. It was begun before CAD was fully in place in the office, so much of the early conceptual design work was done on the boards. Since then, however, McCrery has modeled the entire project with the Form-Z software. Design work is proceeding solely using CAD. The project in Frankfurt is "urban scale intervention," as McCrery describes it, "the first project in the office to be entirely designed on CAD." Eisenman Architects has overall responsibility for site planning, consisting of millions of square feet of mixed-use development, and will be the architects for several buildings. The project in Berlin (now on hold), was entirely modeled on the computer during conceptual design.

As noted, Bernard Tschumi's offices first began working with CAD on the Kyoto Railway Station competition. Although they lost the competition, their experience using CAD helped lay the groundwork for their next competition, the Chartres Masterplan project, which they won. Spread out over 450 acres at the eastern edge of the city, this new development is to include housing, offices, and sports facilities. He was amazed by the "incredible potential and playfulness of the computer." The house in The Hague (shown) marks the firms' most extensive use of CAD to date.

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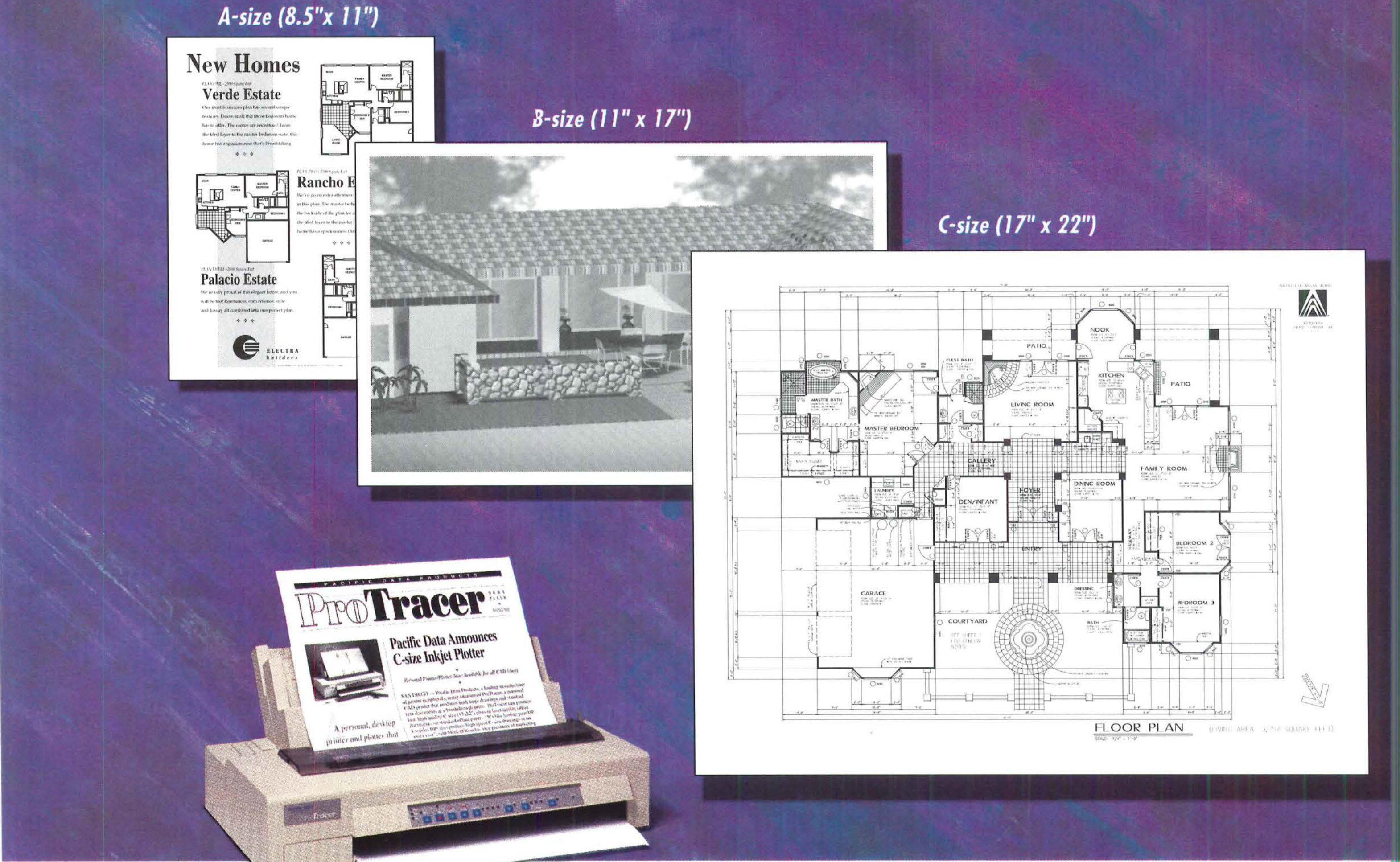

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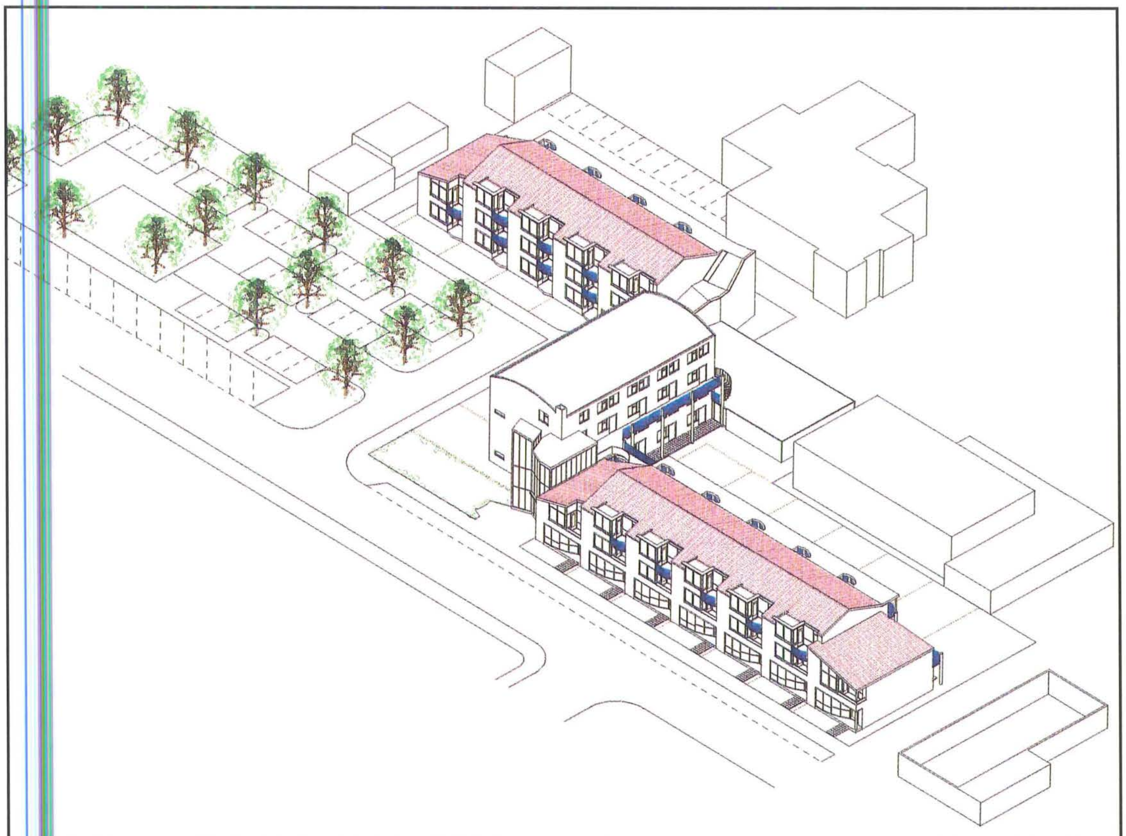
3D Common Market

Terrence Schilling discusses the use of 3D CAD in Europe.



Planning-review drawing plotted from a 3D model on a color inkjet plotter, for a 45-unit public-housing project in Aalsmeer, Netherlands, by Hans Wagner Architektenburo.

Like their North American colleagues, European architects use CAD to create 2D production drawings. However, many rely on 3D model-based CAD systems instead of the 2D drawing-based systems so widely used in this country. Indeed, the major new 3D CAD software products are being developed in Europe and imported to North America. Why is this so? There are three characteristics of architectural practice in Europe that make 3D model-based CAD systems more suitable:

1. The convention of showing more detail on plan drawings. European plan drawings often show every stud in a sheet-metal wall, every brick and layer of material in a masonry wall. In North America plans are more schematic; they serve as an index or reference to other drawings. North American architects also tend to cross-reference from plans and sections to not only large-scale details, but also schedules and specifications. European architects, by contrast, consider plan drawings to be "horizontal sections" of a building.

2. In Europe, construction is organized around the assembly of components, often from prefabricated and modular systems. This fact is reflected in European dimensioning conventions, coordinated by modular increments, often without leader-lines. In the U.S., building systems are usually continuous, linear or extruded, rather than modular. In North America, construction practice emphasizes field assembly, organized around trades; assembly is the responsibility of the contractor.

3. European construction documents include "quantity surveys." Prepared by the architect or a specialized consultant, complete "Bills-of-Quantities" include precise listings of areas, volumes, and quantities for each component used in construction. This contract document takes most of the guess-work out of estimating the cost of construction. In North America, construction cost-estimating rarely goes beyond preliminary budgeting done during the design stages. Such budgeting is based on area takeoffs, not actual material takeoffs or quantity surveys. Definitive quantity takeoffs are done by the contractor, often not until actual bidding. In contrast to the European architect's role, architects in North America see cost estimating as an unwanted liability. Contractors consider it proprietary, and usually highly confidential information.

Against this backdrop of differences in archi-

"For you, the plan controls the rest of the drawings. But we use the 3D model to control all the other drawings."

What They're Using

Both Burckhardt+Partner and Hans Wagner use the 3D CAD system developed by STAR Informatic, a Belgium-based software developer. B+P operates 25 Hewlett-Packard Series 300 Unix workstations, spread amongst separate CAD centers in three of their five office locations. Each CAD center also has an electrostatic plotter. Hans Wagner operates three Hewlett-Packard Series 400 Unix workstations and an ink-jet plotter. STAR Informatic has distributed their software in Europe since 1983. Applications include 3D modeling, animation, scanning, and database interfaces for architectural design, roadway and railway design, and mapping. It is distributed in the U.S. by Ridgeline Software, Irvine, California.

tectural practice, I looked at two European firms who use 3D CAD. The two firms are of different sizes and work on different types of projects, but both are using sophisticated 3D CAD successfully.

Burckhardt+Partner AG, Basel, Switzerland

Burckhardt+Partner (B+P) is a 200-person firm with six offices. B+P serves both commercial and institutional clients, with both architectural and urban design services. Using 26 Unix workstations, CAD operations are conducted at three of B+P's six office locations. Andreas Miville is "the head chef" of this system. An Associate Partner, Miville speaks four languages, works as a project designer and spends about one-third of his time on system management functions, primarily trouble-shooting and interfacing with management.

Unlike many North American firms who use productivity gains to justify CAD systems, B+P's goal in using computers is improving the quality of their services. The architectural profession, according to Miville, "is three-dimensional. If you have problems with a 3D model, you'll have problems with the building. [With 3D CAD], you're forced to think and solve problems at the computer rather than in the field. If a wall is not located according to dimension, you see it right away."

A related benefit of 3D CAD is that it's harder to get away with nominal dimensions – objects drafted in one place and dimensioned to another. Even with 2D CAD, architects often use this shorthand, but discrepancies show up more readily in a 3D model. Resolving these discrepancies in the office means fewer problems in the field. B+P uses 3D CAD throughout each phase of project work, including the earliest stages of design, construction, and facilities management services. "For you, the plan controls the rest of the drawings. This is true in Europe also. But we use the 3D model to control all the other drawings, and all the systems in the building as well. A 3D model is something which has great value," says Miville, who has worked in the US.

According to Miville, simplicity is the key to the successful use of a 3D model. "The 3D model is no more complex than it has to be. There is no need to model every little part of a project." The model begins with dimension-driven solid blocks. As the design progresses, smaller detailing – cross hatching, sills and jambs – are "pasted on" the 3D primitives. This process is done with symbols, which are stored and retrieved just as with 2D CAD. 2D line-work is thus associated with 3D primitives, and each face of the model corresponds to either a plan, elevation, or section view. Designers add more detail as the work progresses. Without changing any 3D elements, architects add 2D symbols for drawings at a larger scale.

Renderings and videos are created from the same 3D model. B+P develops most of their own renderings with the same software, but they use a service bureau for photo-realistic renderings and videos. "You need a 'scientist' for (the latter) type of work," Miville observes. The distinction is the same as that between a presentation model and a working model; working models are done in the office.

Hans Wagner Architektenburo, Amsterdam, Netherlands

Architect Hans Wagner's office has twelve architects, and designs public housing, office, and commercial projects. Three Unix workstations are interspersed among stand-up drafting tables in the small office, over which Wagner has his residence. "We use 3D right from the start. I might spend a few hours, or half a day sketching in pencil. Then I turn the design over to the system," Wagner explains. "If it's difficult to show in a sketch, we start directly with a 3D model," says Wagner.

Wagner uses 3D CAD to engage clients in a dialog about their project. "The client is looking for an architect. He comes to us one day. Within a couple of days, we have a 3D model of his project. The client comes back. We show him the model. He never goes to another architect." The system paid for itself in one year by enabling Wagner to provide a uniquely competitive service.

Wagner finds 3D modeling accelerates the decision process. "It used to take three or four meetings to get the client to understand the design. This required lots of full size drawings; sometimes a physical model; a lot of time. Now we show the client [the project] in 3D on the screen. We can get the client to approve the design in two meetings," says Wagner.

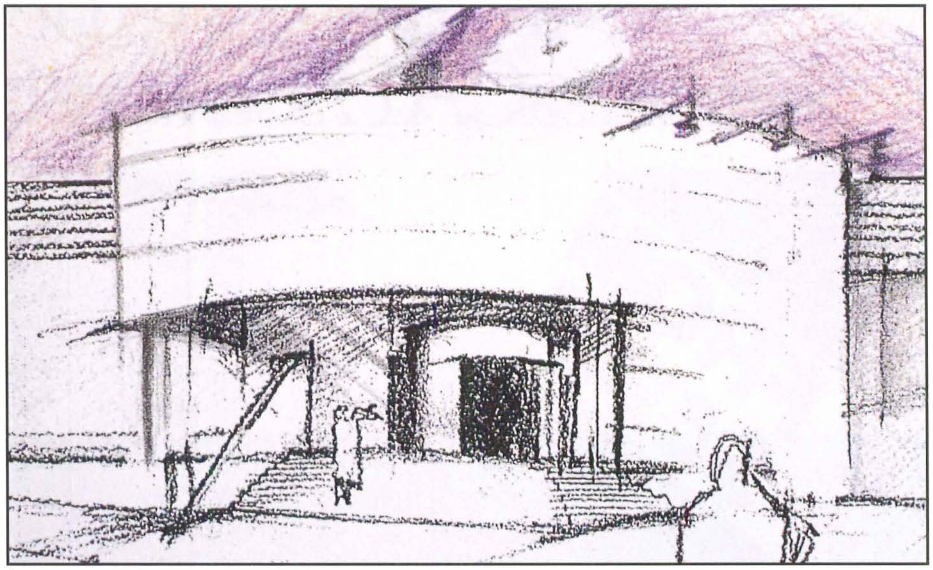
If Wagner had his way, the entire review and approval process would go in front of the CAD screen. However, with a large project, even the high-resolution screen (1280 × 1024 pixels) is too small. Plots are not Wagner's favorite medium. Compared with the screen, plots are slow and

A concept sketch (1) and rendered 3D model (2) are compared with a photograph of the final built project (3), a commercial office in Mulhouse, France by Burkhardt+Partner AG.

fussy. When the screen is too small, Wagner fits the media to the size of the meeting. For small groups he uses direct photographs off the screen, and an ink-jet plotter creating black-and-white plots with color highlights. For public presentations he uses 35 mm slides off the screen, and a service bureau for presentation-quality laser plots.

If an older structure is being replaced by a new project – often the case in a city like Amsterdam – tenants from the existing project are empowered to review the proposal and make recommendations. "I don't know how we could do it without a 3D model," Wagner observes. His presentations include axonometric views and perspectives taken from locations on the streets around the project. A typical housing project for Wagner includes 25 to 75 dwelling units in a three- to five-story structure. He begins a 3D model with a massing study that, "shows the possibility for the type of project." At this stage, the model is composed of simple volumes representing each unit, units assembled into buildings, and buildings arranged on the site. 3D groups, when exploded, include an entire dwelling unit with floor, walls, built-ins, even finishes, dimensions, and titles. Since these 3D groups are stored in a master directory, changes to the unit are reflected in copies throughout the project. Wagner often reuses dwelling units from previous projects. Once he gets the clients' initial reaction, he begins work customizing the units. From the first meeting, typically it takes only five to seven days to complete this preliminary design stage. "Only after this, do we go to plots," Wagner explains, "then back to the system." Once the final design is approved Wagner simply extracts working drawings from the model, adding annotations and dimensions where necessary. **Terrence Schilling** ■

The author is president of Ridgeline Software, a Unix-systems consulting, sales, and support company in Irvine, California. He wrote Intelligent Drawings, Managing CAD and Information Systems in the Design Office, *published by McGraw-Hill, and is a member of the AIA Task Force on CAD Layer Guidelines.*



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How to Get Started

Neil Weinstock explores strategies for automating design.

Technology does not make for productivity gains until people figure out how it lets them do things differently. This process of discovery is often dependent on increased competition spurred by tough economic times. The last revolution in industry was the advent of electricity; U.S. productivity actually went down in the first decades of electrification. Productivity finally increased only in the 1930s, as competition forced factories, tools, and work systems to become more efficient. With the worldwide recession of the 1990s, competition between struggling design firms is driving an investigation into the advantages of computer technology. Automation is now coming to the design professions with a suddenness that resembles the 1930s upheaval in manufacturing. Efficient new automated work procedures are being figured out. Firms that resist this transition may find themselves marginalized or simply out-of-business.

Automation in this sense does not mean simply buying computers and software to produce working drawings. The use of computers throughout the entire design and documentation process is necessary to effect real increases in efficiency. Whether just starting out or moving up to truly automated design, you will now have to work very hard to keep up with the competition. You will also have to avoid the three common pitfalls encountered by firms when they investigate automation:

1. Do not believe ads and puff stories that promise gee-whiz CAD wonders. Your investigation must be thorough, and must center on your firm's individual needs.

2. Watch out for consultants who push custom software. Such software can end up serving as an umbilical cord forever linking you to them, and cuts your ability to network with peers, the vast majority of whom are using standard software running on generic hardware.

3. Avoid the common default strategy of asking engineers for advice on automating. You risk ending up with a system that's fine for engineers and cumbersome for architects.

Increased automation is likely to pay off by keeping you in business, enabling you to let go of some people and to teach more skills to those who remain. But to make automation work, you must have a strategy to achieve efficiencies and improve quality and service. You may want to start small, and increase automation gradually, or you may want to jump in headfirst. There are advantages and disadvantages to both methods, and these relate to trends in the A/E/C industry (see sidebar).

Where to begin

Picking a beginning point for your investigation is an arbitrary decision. You may begin by deciding what kind of hardware you can afford, and then shop for software, or you may do the reverse – pick a software system and look at what hardware is needed to run it. In the end there should be a symbiotic back-and-forth investigation that allows you to question your assumptions and arrive at a critical solution. Whatever the process, there are several factors that must be a part of any investigation. Speed is the most discussed benefit of automation, but there are many distinct usages of the word. From the point of view of choosing hardware, the faster the processor and the more memory the better. All software looks and performs better running on faster hardware. Large amounts of memory can speed up older software, and may be vital for new programs. Since the first CAD software was written, upgrades and new programs have mushroomed in size, and new software releases often simply won't fit on old machines.

Speed is a more difficult issue to evaluate when considering software packages. The most important issue is how quickly a program enables your practice to operate, not how long it takes to redraw a line. Manufacturers of popular 2D CAD systems often compare their product's speed with the competition's for standard tasks on standard hardware. These tests should not be an issue in your investigation, since they are primarily geared to using CAD for production. The time it takes a software package to execute tasks can almost always be improved by beefing up hardware.

Do not expect that using computers will inevitably reduce the amount of time spent generating drawings. CAD speed often merely adds up to many more drafts of the same project, or more complex projects accomplished in the same time that simpler projects used to demand. You should calculate efficiency to take account of these factors – as part of a general plan to improve the quality of the services you offer.

Another aspect of speed is the time it takes your firm to become proficient with computerized methods. The more complex CAD systems take

Nine Goals for Design Automation

1. *Networking.* Nothing is more supportive of general business efficiency than networking together all of your clients, designers and engineers, construction and facilities managers, interior designers, even government regulators and community groups. Virtually any computer and any software can be networked in some way, but workstations are built to network. They exchange data much faster than PCs or Macintoshes. If you haven't got the cash for a workstation, at least invest in PCs with wide data buses meant for networking. Your software ought to use AutoCAD's DXF and other popular file exchange formats. Beware of programs that rely on the IGES file-transfer format; they may not be fully compatible with each other.

2. *Automated Sketchpads.* These are programs for the front end of the design process, the products of which can be transferred to CAD for refinement. Autodesk's AutoSketch begins to fit the bill, Alias' Upfront is even better, and more in this direction is on the way. Pen-based computing will allow you to take notebook sketches and transfer them to CAD programs (see P/A, Oct. 1992, p. 69).

3. *Artificial Intelligence.* Since the phrase "parametric design" has proved to sell software, many vendors of architectural CAD now claim that their programs do parametrics. Most do not. Sigma Design's Arris and Arcaid's Draw are true parametric packages. Change a parameter of an object in these systems, and associated details change automatically.

4. *Libraries.* Experienced CAD operators create their own

(continued on next page)

"If you can't get rid of the single-function production department altogether, you're not properly automated."

(continued from previous page)

libraries of frequently drawn objects, like stairs, windows, and furniture. Many pre-drawn library packages are available from third-party vendors. Big libraries mean large demands on memory, so plan to use them on new hardware.

5. *Layers.* The more complex the CAD package, the more you should have the ability to customize its layering. The number of layers is less important than your ability to configure them.

6. *Multiline Commands.* Also called customizable lines, these allow you to draw quickly and to denote interior walls, exterior walls, floors, HVAC ducts, et al.

7. *Automatic Dimensioning.* Most CAD programs do include this feature, which saves time in documentation.

8. *Three-Dimensionality.* 3D systems are inherently more efficient than 2D systems at parametrics and at storing and employing complex standard shapes. They allow the user to take infinite perspectives and fly-throughs, which can aid in the design process. However, 3D systems hog processing capacity, and are meant for use on very powerful hardware.

9. *Rendering.* This is an important visualization tool. The better rendering applications can do rough calculations of shadow-casting based on time and date. Some allow the user to montage the design with a digitized photograph of the existing condition. Both traits may expedite the approval process for a given design.

longer to learn, so learning-curve speed trades off against productivity gains. The default method usually employed to get up to speed quickly with new software is to buy programs most people already know how to use. But this can lead to the old trap of computerizing only production, as those employees with prior computer experience make drawings, and those without prior experience do programming and design. Senior partners never learn the system, and in hard times like the present, the production people who know the system are frequently let go.

If you can't get rid of the single-function production department altogether, you're not properly automated. You need computers you can sketch on, which then translate that sketch into a CAD draft to be refined. You need to be able to electronically network the design to engineers and other contributors. The system must be easy enough to learn and use so senior partners can be productive on it without feeling like they've been demoted to drafting associate. Such a system will require volumes of artificial intelligence (AI), visualization, and other productivity aids.

One option is to start from scratch. Starting over is often easier than retrofitting. You may already have begun to use one of several PC CAD systems, and have found you have reached its limits. If you can afford it, you may decide to buy a top-of-the-line system such as Sigma Design's Arris or Alias' Sonata, running on a network of $30,000 workstations. These 3D CAD programs offer a level of sophistication far beyond simple 2D or 3D drafting programs. This would not be a bad course, though it entails a few months of low productivity as you learn the system.

Incrementalism is a more reasonable path for those with shallower pockets, those impatient for productivity gains, or those unwilling to take a do-or-die leap into a new system. Third-party software is the answer. The popular CAD "engines," Autodesk's AutoCAD, and Intergraph's MicroStation can be customized with add-on software that turns the drafting program into a design tool. AutoCAD – the most popular CAD software – has attracted scads of add-on packages from other vendors and from Autodesk itself. Among the more popular add-ons for AutoCAD is Softdesk's AutoArchitect, which allows the user to draw building components, like walls and columns, instead of just lines and planes.

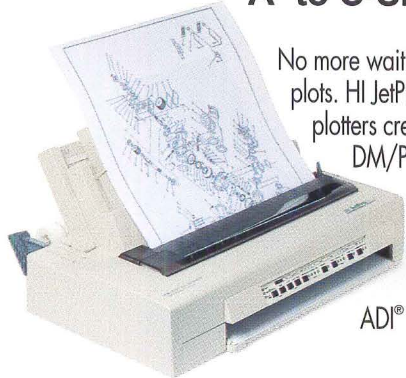
Using the add-on industry gives you the benefits of relatively short learning curves. Firms with employees already trained on a CAD "engine" will have little difficulty learning its add-ons. AutoCAD and the third-party software often used with it represent a large enough market that many popular books are available. Such books are virtually always better written than the software's documentation, and bring users up to speed quickly. The drawback of third-party software is that it usually isn't as good at whatever it's meant to do as software that has been written from scratch to do the same tasks. Since AutoCAD was written originally for DOS systems, it cannot now take the same advantage of faster processors that programs originally written for workstations can. MicroStation, was written for workstations, but is available for DOS, so it may appeal to those who want low initial cost, but are concerned about upgrading to workstations over time. However, there are currently fewer add-ons available for MicroStation than for AutoCad. If you decide to go the route of CAD add-ons, you should look for catalogs of compatible software, which are given away by Autodesk, Sun Microsystems, IBM, and other large vendors, so you can quickly find new programs to fill any need.

Finally, you want the most computer you can conceivably afford, but more money does not necessarily buy more computer. You can look forward, in a year, to being aghast at how much cheaper your choices will have become . . . and yet proud that your system was worth its depreciation, since you're still working. **Neil Weinstock** ■

The author has written several books, including The Complete Directory of Automated Design Software, *Prentice-Hall, 1990; and* Computer Animation, *Addison-Wesley, 1986.*

HI JetPro®. A day's work in under an hour.

9:00 AM
A- to C-Size CAD Plots

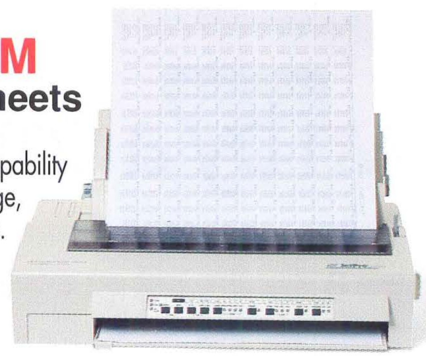


No more waiting for pen plotter check plots. HI JetPro Series V100 and V50 plotters create HP-GL™/2, HP-GL and DM/PL™ CAD "review plots" at 360 dpi in under five minutes! No options needed. Includes real and protected mode ADI® drivers.

9:05 AM
FAX Output

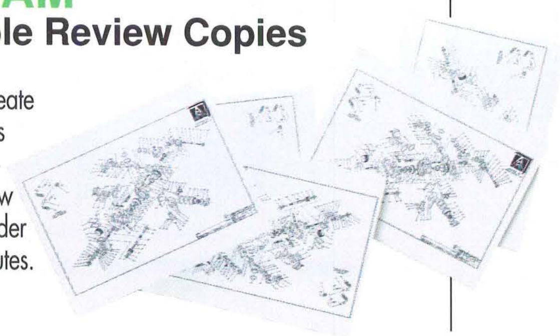
HI JetPro V100 outputs FAX/modem files directly for high-resolution A- to C-size plain paper copies. Optional sheet feeder for A- and B-size output.

9:10 AM
Spreadsheets



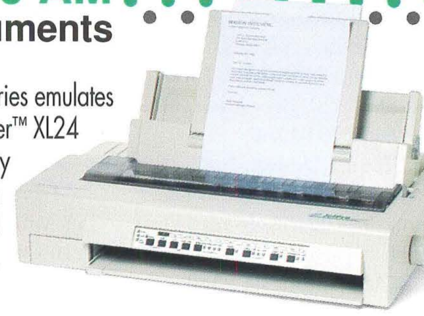
C-size and rollfeed capability allow you to create large, readable spreadsheets. Drivers are available for Windows™ 3.0 and 3.1 compatibility.

9:15 AM
Multiple Review Copies



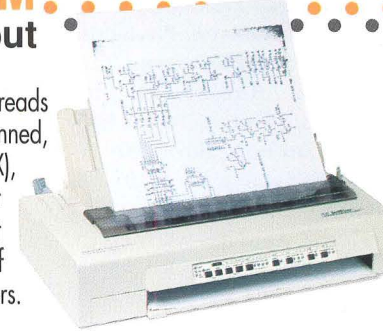
For meetings create A-size review copies in one minute; high-quality, C-size review copies in under five minutes.

9:30 AM
Documents



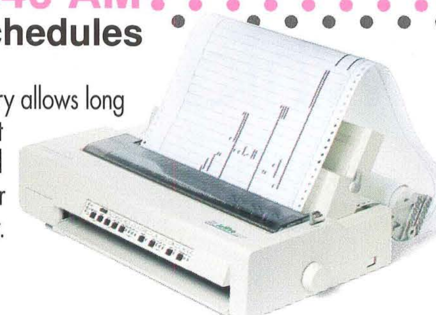
HI JetPro Series emulates the IBM® Proprinter™ XL24 to create high quality reports and letters from a wide range of word processing packages.

9:35 AM
Scanner Output



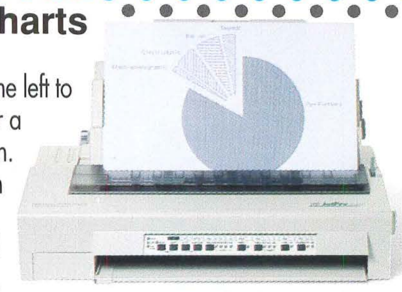
HI JetPro V100 automatically reads and outputs high-resolution, scanned, raster images from hand-held (PCX), desktop (TIFF) and large-format scanners (RLC and CALS). At a fraction of the cost of electrostatic plotters.

9:40 AM
Project Schedules



The rollfeed accessory allows long project management charts to be plotted from rolls of opaque or translucent bond paper.

9:50 AM
Presentation Charts



There's even time left to do large-scale charts for a 10:00 AM presentation. For information on HI JetPro Series plotters, or the name of your local dealer, call 1-800-444-3425.

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Directory of Resources

Core CAD Vendors:

ArchiCAD, Graphisoft, 400 Oyster Point Blvd., Ste. 429, South San Francisco, CA 94080, (415) 737-8665.

Architrion, UNIC, Inc., 1330 Beacon St., #320, Brookline, MA 02146, (617) 731-1766.

Arris, Sigma Design, Inc., Reservoir Pl., 1601 Trapelo Rd., Waltham, MA 02154, (617) 890-4904.

AutoCAD, Autodesk, 2320 Marinship Way, Sausalito, CA 94965, (415) 332-2344.

Board, Arcaid Ltd., Heriot-Watt Research Park, Riccarton, EH14 4AP, Scotland. Phone 011 44 31 449 5595.

Designer 1 Architect, CGL Ltd, Rockmount House, Trevor Hill, Church Stretton, Shropshire, SY6 6JH England. Phone 01144 694 723 095.

Form-Z, Auto-des-sys, Inc., 1685 Old Henderson Rd., Columbus, OH 43220, (614) 538-1122.

MicroStation, Intergraph Corp., WYLE4, Huntsville, AL 35894, 800-345-4856.

Sonata, Alias, Inc., 110 Richmond St. East, Toronto, Ont. M5C 1P1, Canada, (416) 362-9181.

VersaCAD, Computervision, 100 Crosby Dr., Bedford, MA 01730, 800-248-7728.

Add-On Software Vendors:

Archibus FM, Archibus, Inc., 177 Milk Street, Boston, MA 02109, 800-541-ARCH.

AutoCAD customizers, Caricato Systems, 1211 N. Dutton Ave., Ste. I, Santa Rosa, CA 95401, (707) 576-1140.

AutoCAD customizers, DCA Softdesk Software Inc., 7 Liberty Hill Rd., Henniker, NH 03242, (603) 428-3199.

Database interface and utilities, CADS (Auckland) Ltd., 83 Grafton Rd., Auckland, New Zealand. Phone 011 64 9 394 906.

Land-planning programs, LANDCADD International, 7519 E. Highway 86, P.O. Box 604, Franktown, CO 80116, 800-329-3388.

3D Modeling and Rendering Software Vendors

Upfront, Alias, Inc., 110 Richmond St. East, Toronto, Ont. M5C 1P1, (416) 362-9181.

DynaPerspective, Dynaware USA, Inc., 950 Tower Lane, Ste. 1150, Foster City, CA 94404, (415) 349-5700.

ModelShop, Paracomp, Inc., 1725 Montgomery St., 2nd fl., San Francisco, CA 94111, (415) 956-4091.

StereoCAD, StereoCAD, Inc., 10430 S. DeAnza Blvd., Ste. E-110, Cupertino, CA 95014. (408) 446-9012.

Studio Base 2, 53, ave. de Breteuil, Paris, 75007 France. Phone 011 33 1 47 34 43 98.

Valis, The VALIS Group, P.O. Box 422, Point Richmond, CA 94807, (510) 236-4124.

WalkThrough, Vitrus Corp., 117 Edinburgh South, Ste. 204, Cary, NC 27511, (919) 467-9700.

Wavefront, Wavefront Technologies, 530 E. Montecito St., Santa Barbara, CA 93103, (805)962-8117.

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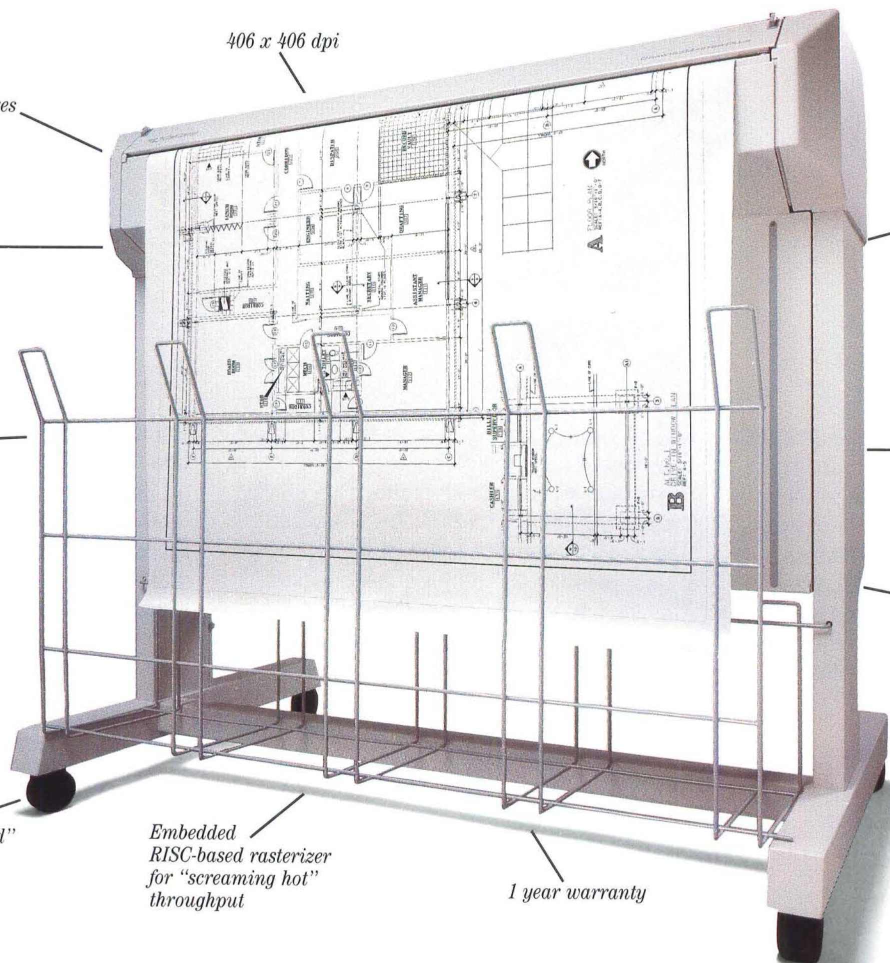

CADALYST MAGAZINE HIGHLY RECOMMENDED 1990

Awarded "Highly Recommended" rating by CADalyst Magazine

DrawingMaster™ Plus is hot to plot.

In fact, it was specifically designed to run with the fastest CAD systems–taking just minutes to do jobs that take pen plotters hours.

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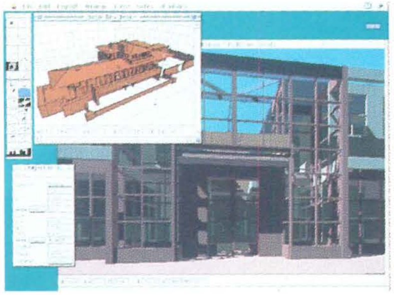
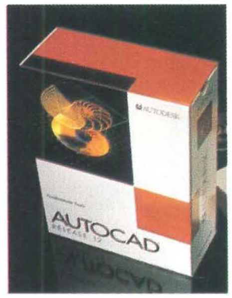
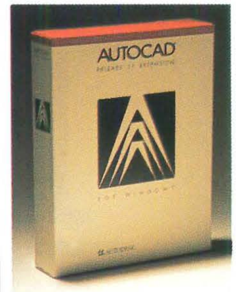


DesignWorkshop is the first three-dimensional design tool! The flexibility of the Macintosh interface combined with feature-based solid modeling lets you move and reshape blocks without any commands. Objects are created in perspective or orthographic views by simple three-dimensional dragging with the mouse. Direct exchange of drawings with Claris CAD is also possible.
Artifice, Inc. Circle No. 340

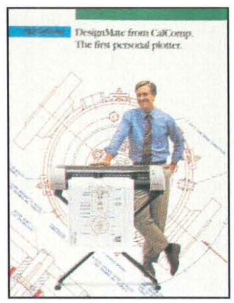


AutoCAD® Release 12 is a general design, drafting, and modeling software program that runs on a wide selection of desktop computers and workstations. AutoCAD's open architecture makes it uniquely flexible as a graphics standard for every discipline.
Autodesk, Inc. Circle No. 341

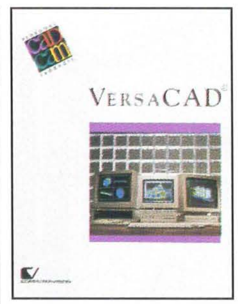


AutoCAD, the world's most popular design software, is now available for the Windows operating environment, thanks to a new $99 Extension for Windows product. The Windows interface and inter-application features add substantial productivity and ease of use advantages to a program that is already uniquely flexible and versatile for nearly every design application.
Autodesk. Circle No. 343

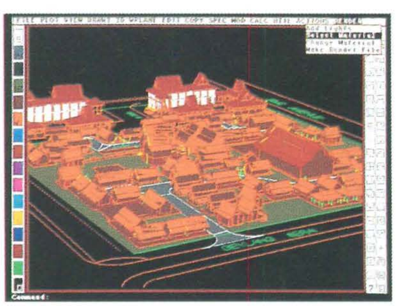
Autodesk 3D Studio™ Release 2 is 386/486-based PC graphics software for creating high resolution, three-dimensional models, renderings, and animations. 3D Studio can also quickly render CAD (DXF™) files as richly detailed stills or animated visualizations. Release 2 is ideal for creating architectural walk-throughs and a host of other photorealistic, three-dimensional presentations.
Autodesk. Circle No. 342



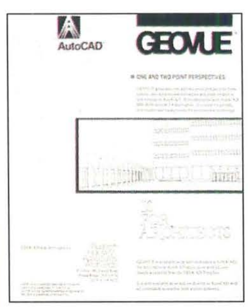
This 8-page brochure describes CalComp's new, low-priced DesignMate pen plotter. The brochure details the plotter's versatility (it plots on ANSI 1 through ANSI 4-sized media, on desktop or optional stand); ease of use; reliability; and plot quality. Illustrations include unretouched, full-color reproductions. **CalComp, Inc.** Circle No. 344



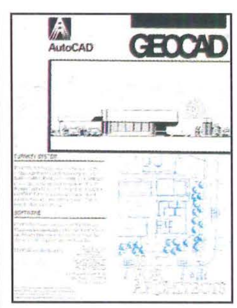
VersaCAD software from Computervision is one of the most popular drafting packages on the market; it is used by more than 80,000 people worldwide. This full-color, 8-page brochure describes the wide-ranging capabilities of VersaCAD. It is lavishly illustrated with real examples submitted by VersaCAD users.
Computervision. Circle No. 345



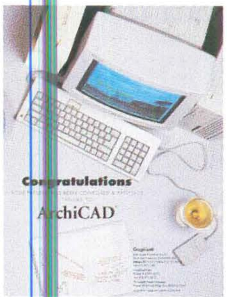
FastCAD 3D can take you from plan to presentation in a single package. Selecting, drawing, and editing entities has never been faster or easier. Why not optimize your design environment with FastCAD 3D's eight interactive windows, icons, and pull-down menus? Viewing three-dimensional objects is a snap from any position in hidden line, surface, and animation modes.
Evolution Computing. Circle No. 348



GEOVUE creates perspectives directly from two-dimensional elevations and plans done in AutoCAD or GEOCAD without the need to build three-dimensional models inside the computer. Perspectives are constructed using a horizon line, picture plane, and station point. Multiple perspective studies can be generated on a single drawing and display.
GEOCAD Inc. Circle No. 346



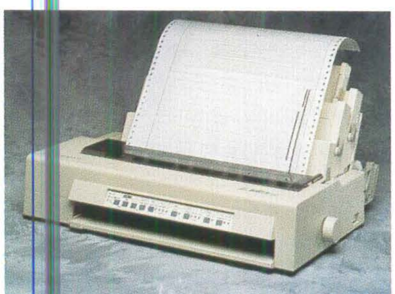
GEOCAD is an architectural application to AutoCAD. It contains symbol libraries and routines that create complete presentation and working drawings, including plans, details, schedules, architectural fonts, and much more. GEOCAD has a uniquely friendly graphic interface that builds on architects' skills instead of forcing them to learn new ones.
GEOCAD Inc. Circle No. 347



This four-color brochure describes 18 features and capabilities of ArchiCAD, GraphiSoft's architecturally dedicated CAD software. Creative people should not be limited by arcane command sequences or hostile interfaces. ArchiCAD works the way you do: it uses familiar tools without compromising features or power. No other program makes the design and the documenting process simpler. **Graphisoft.** Circle No. 349

This full-color product brief includes product features, technical information, cabling requirements, and ordering details for the new HP DesignJet 600 monochrome inkjet plotter. The DesignJet 600 can produce a D-size drawing in less than three minutes; it has 300 dpi draft and final and 600 dpi-quality enhanced output quality modes. **Hewlett-Packard.** Circle No. 351

This full-color brochure features HP's full line of hardcopy output devices for CAD applications, including the new HP DesignJet 600 monochrome inkjet plotters, HP large-format and desktop pen plotters and color graphics printers. All of these products are backed by HP quality, reliability, and the lowest-cost service contracts in the industry. **Hewlett-Packard.** Circle No. 352

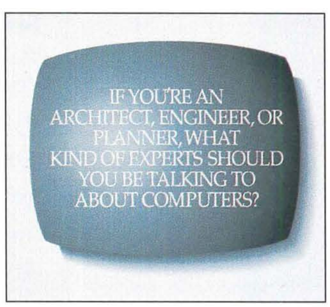


Summagraphics' new Houston Instrument JetPro V100 is three plotters in one. It is a vector plotter for outputting review plots; a high-resolution raster plotter for scanned images; and a wide format document output device for reports, project management charts, format spread sheets, and plain paper fax copies. It supports the HP-GL/2, HP-GL, and DM/PL languages. **Houston Instrument.** Circle No. 355

MicroStation(TM) has led the way in bringing power and functionality to CAD on PCs and workstations. MicroStation(TM) includes more than 500 commands and features such as advanced associative dimensioning, powerful surfacing commands (NURBS), built-in sophisticated rendering capabilities, translation-free compatibility, upward and downward compatibility with each upgrade, and more. **Intergraph Corp.** Circle No. 353

Marvin Windows' CAD software is designed to work with CAD Versions 2.52–11.0. The software lets design professionals draw and detail windows and doors with just a few keystrokes. It includes standard size symbols, elevations, and an architectural detail and specification manual.
Marvin Windows. Circle No. 354

ProTracer combines the desktop convenience and low price of a laser printer with the ability to produce 360 dpi, A- to C-size (17″ × 22″) output. Using the latest in inkjet technology, ProTracer provides Epson and IBM emulations; an ADI/PADI plotter driver; and optional accessories including HP-GL and PostScript emulation, memory boards, and sheet feeders.
Pacific Data Products. Circle No. 356



The Premisys Corporation is a group of computer programmers and systems designers. But they are also architects, engineers, and planners – just like you. They have provided technical consultation, custom software, training, and support to clients all over the world. And they can probably help you, too.
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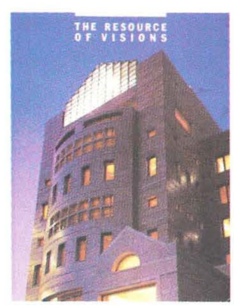

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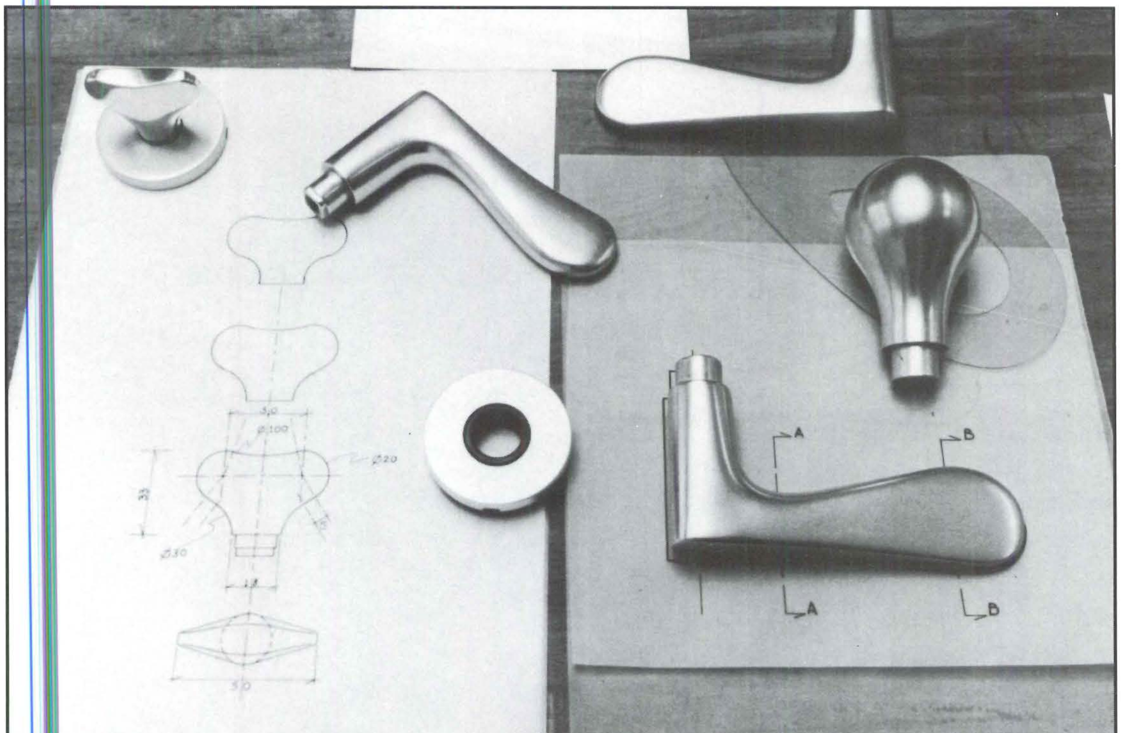
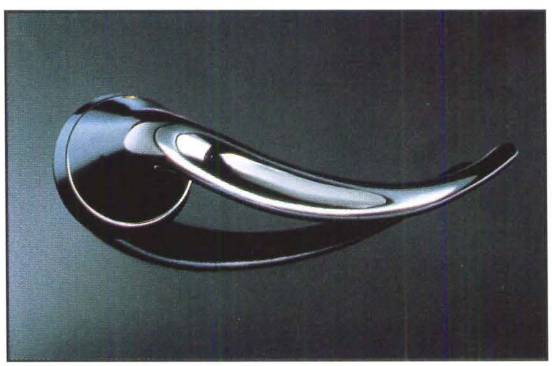
New Products and Literature

New Products and Literature



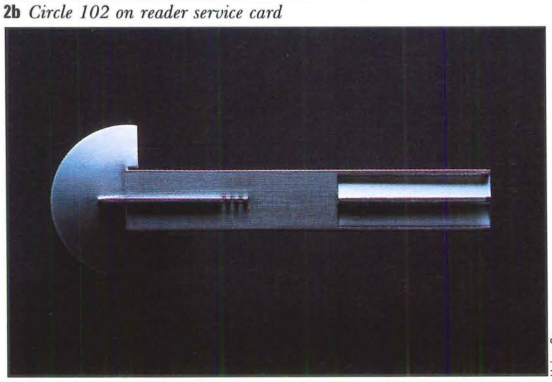
1 *Circle 100 on reader service card*

2a *Circle 101 on reader service card*



2b *Circle 102 on reader service card*

2c *Circle 103 on reader service card*



Union Co.

3 *Circle 104 on reader service card*

Product Focus: Hardware

Doors and windows are generally outfitted with mundane hardware, conceived with little speculation about the subtleties of the hand or regard for the satisfaction of the eye. The handles and knobs presented here successfully relate the contours of the hand to the form of the hardware.

British designer Jasper Morrison has produced a collection of aluminum knobs and handles (1) for FSB of Germany. The tactile familiarity of these pieces is a manifestation of Morrison's pragmatic approach. His levers, knobs, hooks, and door stops exemplify their stated purpose.

RDS, an Italian company established in 1945, recently set up a new division, called Kleis; it has produced four diverse collections of hardware, though a U.S. distributor has not yet been found. Riccardo Dalisi's Gemma lever (2c), a combination of polished solid brass and Murano glass, is crisply luminous. Flavio Albanese's black lacquered brass and wood Xilo lever (2a) is astutely Modern. Hannes Wittstein's Sinn (2b) is sensuously anthromorphic.

Architect George Ranalli's door lever (3), part of a collection of commercial hardware for the Union Company of Japan, is intricately detailed. The curved head of the cast aluminum lever elegantly suggests the direction of movement.

Abby Bussel ■

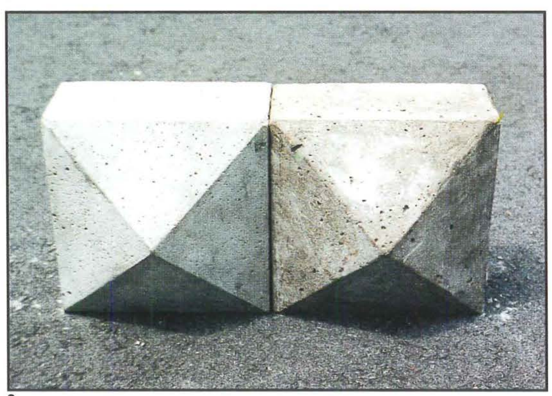
Building Products

1 Engineered Wood Rim Board
"TimberStrand™ LSL" (laminated strand lumber) engineered wood rim board has been introduced for use with the "Silent Floor"® residential floor system. Designed to replace $3/4''$ plywood, this rim board (or rim joist) is available in a standard thickness of $1\frac{1}{4}''$, and is available in 11′-8″ or 17′-6″ lengths. Trus Joist MacMillan.
Circle 105 on reader service card

2 Decorative Concrete Blocks, Tiles
"Pyridiam"™ tiles and concrete blocks were developed by Stephanie Mark, a residential designer in Stamford, Connecticut. The 6″ × 6″ tiles are high-fire glazed and can be used for interior or exterior applications. The 8″ × 8″ concrete blocks – also available in brick or glass – are $3\frac{1}{2}''$ deep. Pyridiam.
Circle 106 on reader service card

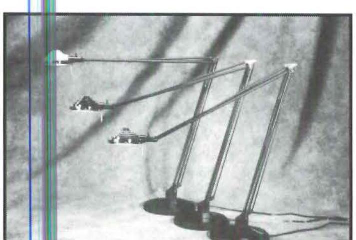
3 Modified Asphalt Waterproofing Agent for Built-Up Roofing
"PermaMop"® is the "first modified asphalt to combine extended weatherability with a high softening point to serve as a long-term waterproofing agent for premium built-up roofing system." A comparison of durability characteristics shows "PermaMop" (right) and a conventional asphalt, (left) applied to the same roof. Owens/Corning Fiberglas.
Circle 108 on reader service card

1


2

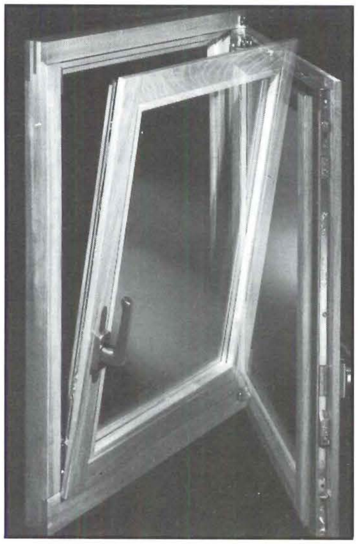

3

Furniture by Donald McKay
Donald McKay of Donald McKay and Company Limited, Toronto, (see p. 86 for a house by the architect) has designed the "Soap Box Series," a collection of pieces based on a set of interchangeable parts. A wooden box is the base for each piece, which is outfitted with steel brackets and urethane rollers. Each component – seats, arms, and backs – is individually slipcovered. The collection, including a chair, an ottoman, a two-seat sofa, a four-seat sofa, and a chaise longue, is appropriate for commercial and residential applications. Palazzetti.
Circle 109 on reader service card

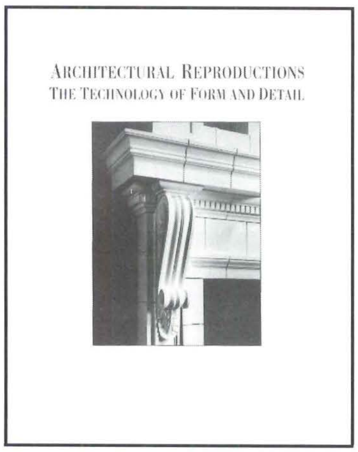


Halogen Task Light
The "Halogen Task Lighting System-1" has a 360 degree, directable head and is available with a jade green, traffic-signal amber, cobalt blue, white, or opaque black shades. It holds a 35-watt, 12-volt halogen lamp. Luxo Lamp.
Circle 110 on reader service card

Gypsum Construction Guide
A new, comprehensive *Gypsum Construction Guide* for residential and commercial construction, is written in the CSI/Master Format System. It is color-coded and has 140 pages. Gold Bond Building Products.
Circle 200 on reader service card



Tilt-and-Turn Windows, Doors
Tilt-and-turn windows and doors can be specified in any shape or size. Eurotec.
Circle 111 on reader service card



Architectural Ornaments Brochure
Traditional and contemporary architectural ornaments are available in a variety of materials: cement, plaster, and polymer-based materials as well as cast, sheet, and fabricated metals. Aggregates and pigments can be incorporated into solid moldings and glass-fiber-reinforced thin-shell parts; paint finishes are also available. Architectural Reproductions.
Circle 201 on reader service card
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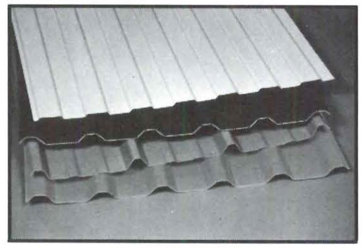
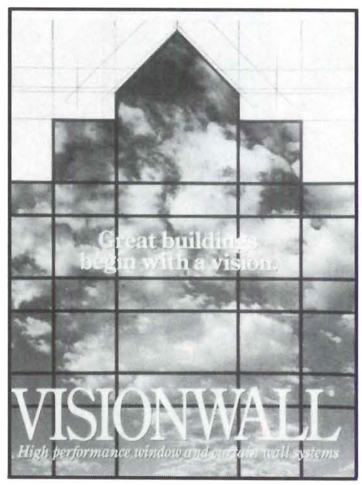
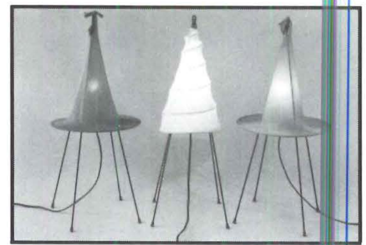


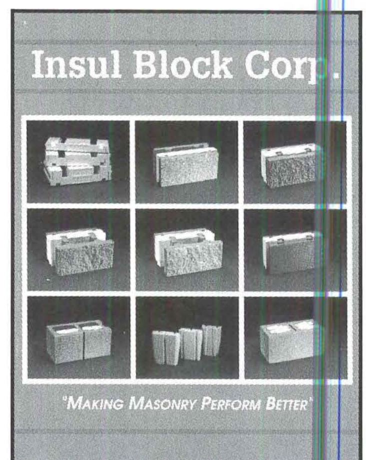
Laminated Building Material
"Fibraphene" is an opaque, laminated building material with fire-resistant properties and strong weight-bearing characteristics. Sheets of "Fibraphene" are produced from "Norsophen," a thermosetting phenol resin. With its single or double gel coat of polyester resin, it is highly resistant to corrosion and oxidation. Applications include partition walls, shingles, roofs, and thermal and roof insulation. Fibres du Hainaut.
Circle 112 on reader service card



Window and Curtain Wall Brochure
Great Buildings Begin with a Vision is a new commercial products and systems brochure containing photos and technical illustrations, thermal and optical data on curtain wall systems and punched and stripped windows, performance characteristics, and test data. Visionwall Technologies.
Circle 202 on reader service card



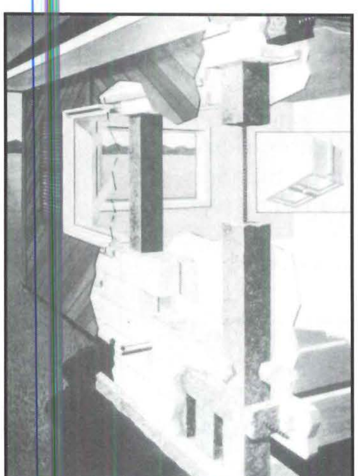
Lycra Lighting
"Cefalu" and "Madonie," designed by Martha Davis of Able, New York, are 22" high and 12" wide. They may be ordered in green, red, blue, white, and silver, or natural wood-grain shades with a black metal frame. Able.
Circle 113 on reader service card



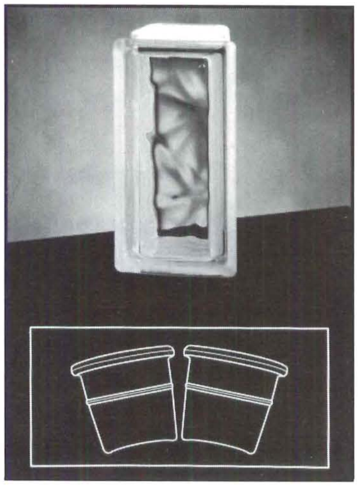
Insulated Concrete Block Brochure
R-value tables and specifications for "Polycore" and "Polylok" insulation inserts are described in a new brochure. Insul Block.
Circle 203 on reader service card

Earth Tone-Finished Wall Planks
This plank wall system is now available in "Earth Hues"™ finishes. The granite-like patterns are a new addition to the "Naturetones Series." The 16"-wide tongue-and-groove hardboard planks are applicable for commercial projects. Marlite.
Circle 114 on reader service card

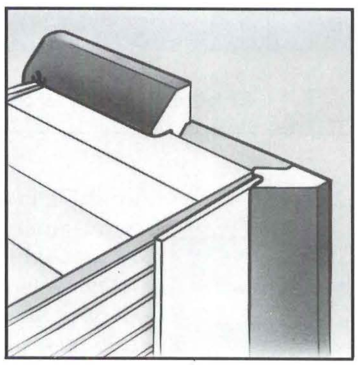
Extruded Aluminum Fixture
The "F18 Series" uses an 18-watt compact fluorescent lamp with a computer-designed stamped reflector. The fixture can be focused in any vertical or horizontal direction and it is compatible with track, c-clamp, canopy, unistrut, and weighted-base fittings. It is available in black, white, or silver aluminum finishes; options include an injection-molded louver for low brightness and glare control, plastic or glass U.V. filters, spread lenses, and light-blocking screens. Lighting Services.
Circle 115 on reader service card



Mortarless Building Block
This new interlocking mortarless building block is said to provide structural support equal to that of concrete block. The 8″ × 8″ × 16″, 12-ounce blocks are produced from expanded polyurethane foam and are molded into a tongue-and-groove shape. They stack, interlock, self-align without mortar, and have an R-value of 24 for both foundations and outside walls Featherlite®.
Circle 116 on reader service card



22 Degree Curved Glass Block
"Allbend" glass blocks have rounded faces and tapered side walls. They can be configured to a radius as short as 12″. The blocks are 8″ high and 4″ thick. Glashaus.
Circle 117 on reader service card



Flexible Truck Dock Pads
"Frommelt Wedge-Seal"™ dock pads have a diagonal projection that seals tightly against trailer tops and sides yet reduces surface contact areas and minimizes pressure against a building. Rite-Hite.
Circle 118 on reader service card

Modified Bitumen Utility Sheet
"Nail Fast"™ "Kraton® SBS" modified bitumen utility sheet is a new, nailable sheet designed to eliminate the need to apply adhesive to seal under laps and along nail lines. A watertight seal is created around fasteners owing to the elastic nature of the SBS modified coating. Tamko.
Circle 119 on reader service card
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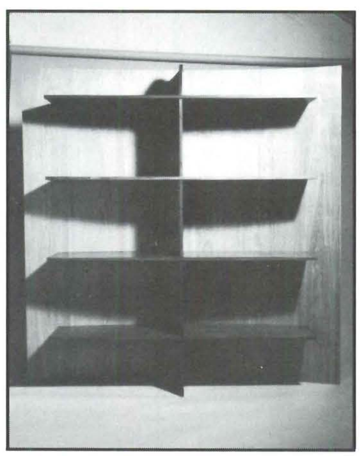
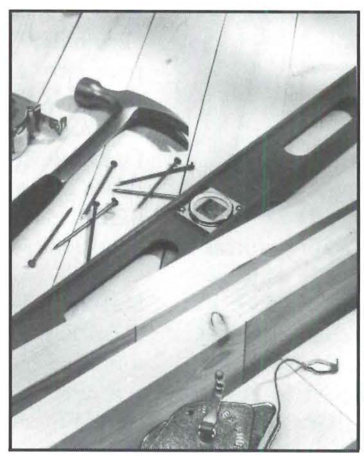


Freestanding Book Shelf
Designed by Toon van Tuijl of Eindhoven, Holland, the "Mamute" shelf is constructed of cherry and birch and is 75⅔″ long, 15⅔″ deep, and 76″ high. van Tuijl.
Circle 120 on reader service card

Clipless Standing Seam Roofing
The "UC System IV No Clip Standing Seam Roofing System" fastens to a substrate or purlins and snaps together. It is available in steel, aluminum, and copper, and with various edge-to-edge pan widths and seamless lengths up to 40 feet. Copper Sales.
Circle 121 on reader service card



Engineered Studs
A new line of engineered studs made from short pieces of lumber and bonded together with finger joints is available in 2×4 and 2×6 dimensions and up to 10′ long. Louisiana-Pacific.
Circle 122 on reader service card

PRESERVATION
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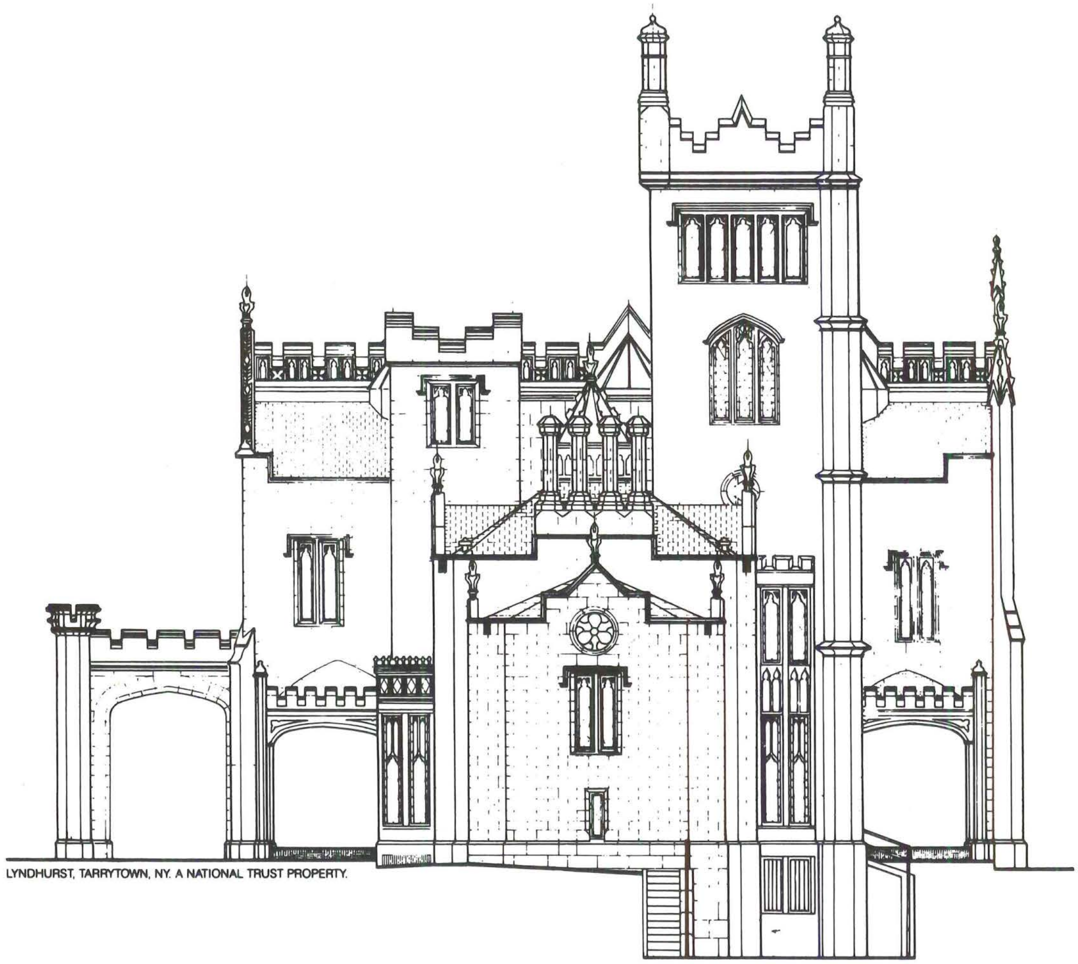

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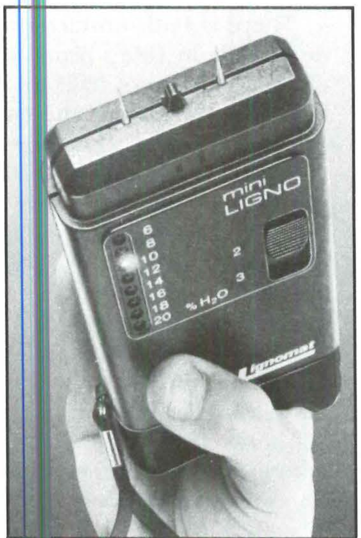
Building Materials



Wood Moisture Meters

"Mini-Lignos" moisture meters are offered in six different models with various moisture ranges and maximum measuring depths. Two sets of interchangeable pins, automatic on/off switch, and LED indicator are among the standard features. Lignomat USA.
Circle 123 on reader service card

Security Wall Systems

"Structo-Base Gypsum Basecoat Plaster" is spray-applied to sheets of 12-, 14-, 16-, and 18-gauge galvanized steel mesh and finished with "Imperial Finish Plaster" to form "Structocore Security Wall Systems." The system was designed for high-security needs such as correctional facilities and bank vaults. Partitions are 3½" to 4½" thick. USG.
Circle 124 on reader service card

Movable Wall

The "Ultramovable" wall system, with unitized construction, is available in a range of standard baked-on polyester enamel paint colors, fabrics, and wood veneers. Power base units are factory installed; pivoted doors are are non-handed and are on a patented pivot hinge; and patterned, textured, or custom-designed glass and steel panels are available. Clestra Hauserman.
Circle 125 on reader service card

Major materials suppliers as they were furnished to P/A by the architects for buildings featured this month.

Project: Stretto House, Dallas (p. 54). *Architects: Steven Holl Architects, New York.* Foundation concrete, concrete block: Texas Industries. Rebar: Lofland Co. Aluminum panels: Offenhauser Co. Plaster: USG. Steel windows: Hope's Architectural Products. Bent glass windows: Dlubak, Inc. Buff Leuder's limestone exterior paving: Leander Cut Stone. Colored concrete: Lithocrete/L.M. Scofield. Lead-coated copper roofing: Revere, Inc. Rubber membrane roofing: Carlisle. Mastic waterproofing, caulking: Sonneborn. Batt insulation: Owens Corning. Rigid insulation: Dow. Paver pedestals: Enviroscape. Studs: Unimast. Interior paint and stain: Benjamin Moore. Locksets: Schlage. Refrigerator/icemaker: Subzero. Cooktop: Dacor. Oven/warmer: Thermador. Dishwashers: Kitchen Aid. Sink: Elkay. Fittings: Franke. Security/fire detection: Racal/Chubb. Custom Lighting fabricator: Tom Hand. Modupoints light artwork: Modular International. Lavatories: Kroin, Elkay. Water closets: American Standard. Plumbing fittings: Speakman. Gas-fired furnace: Lochinvar. Fan coil units: Magic-aire. Chiller: Carrier. Thermostats: Johnson Controls.

Project: Faith's House, San Francisco (p. 64). *Architect: Kotas/Pantaleoni Architects.* Clear anodized aluminum frame windows: Ventana. Acrylic Dome skylight: Crown. Fiberglass Batt insulation: Century Insulation. Front bay yellow stain and garden room paint: Dunn-Edwards. Square cut hinges: Schlage. Alarm/motion detection: Bay City Alarm. Nylon fabric sail: Sullivan Awnings. Spiral stair: Stocklin Bros. Rear exterior lighting: Shaper. Dining room lighting: Artemide. Bathroom fixtures: Kohler. Vanity and shower: Grohe. Kitchen sink faucet: Elkay. Forced air unit: Payne. Dining room table: Skip Schaffer. Stereo system: Bang & Olufson.

Project: Altair Place House, Venice, California (p. 67). *Architects: James F. McGlothlin, Venice.* Gypsum drywall: U.S. Gypsum. Aluminum awning windows and metal exterior door: Metal Window. Wood doors: T.M. Cobb. Overhead garage door: Coffey Overhead Door. Dex-o-tex roofing: Crossfield Products. Interior latex and enamel paint: Sinclair. Recessed can and surface mount lights: Halo.

Project: Cabrillo Avenue House, Venice, California (p. 68). *Architects: James F. McGlothlin, Venice.* Built-up roof and composition shingles: GAF. Gypsum drywall: U.S. Gypsum. Aluminum awning windows: Metal Window. Plastic pyramid skylights: Bristol-Fiberlite. Solid & hollow core doors: T.M. Cobb. Roll-up garage door: Pacific Overhead Door. Stucco paint; flat latex interior paint: Dunn-Edwards. Recessed can lights: Halo Lighting. Forced air unit air conditioning: Day n' Night.

Carwill House, Stratton, Vermont (p. 80). *Architects: Kohn Pedersen Fox Associates, New York.* Slate walls and fireplace: Vermont Structural Slate. Cedar cladding: Vermont Wood Industries. Windows, custom, mahogany: Duratherm. Doors, custom, fir: Yankee Windows. Hardware: Conant Custom Brass.

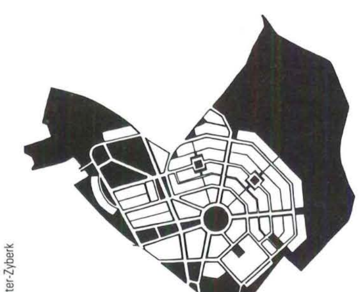
Piku House, Orchard Lake, Michigan (p. 70). *Architects: Denison Luchini Architects, Chicago and St. Louis.* Fourteen-inch wood TJI trusses: Trus Joist. Exterior insulating wall system: STO Industries. Operable wood windows: Marvin. Stainless steel laminated and solid wood doors and wood millwork: Virgil Greene Millwork. Steel laminated hollow metal door, sunscreen, railings, breakfast room alcove: Gary Kulak. Concrete floor with bronze inlays: Michelle Oka Doner. Stainless steel continuous weld lap joint roofing: Schreiber. Waterproofing: Tyvek. Chrome hardware: Hager. Custom brass & steel handrails: Patra & Patra. Wall sconces: Louis Poolsen. Track lights: Hald Light fixtures. Recessed incandescent light fixtures: Lightolier. Suspended dining room incandescent light fixture: Artimede. Translucent onyx, stainless steel, black granite fireplace and stone countertops: Wolverine. Living room coffee table (design by Denison and Luchini): John Kriegshauser. Dining table: Tobias Scarpa. Dining chairs: Bellini. Club chairs: Giuseppi Terragni. Sofas: Denison and Luchini.

Books *(continued from page 102)*
photographs and perspectives included are reproduced as black-and-white miniatures, almost neutralizing the evocative power they wield at community and client meetings.

The focus is on the collection: the book's consistent presentation highlights the ways circumstances inflect DPZ's methodology. In their frequent public presentations, Duany and Plater-Zyberk tend to promote their arguments without presenting their designs, often leaving their colleagues to respond, "OK, but how?"

As Patrick Pinnell's essay (one of five in the book) notes, DPZ's plans show a continuing process of approximation, an Aristotelian rather than a Platonic ideal. Their codes – too often mistaken for attempts to impose a single vision – are frameworks for evolution and experiment. The work avoids absolute pronouncements just as much as Duany delights in making them in his stump speeches.

Project for a Rural Village near Annapolis, Maryland, by Duany Plater-Zyberk: web-shaped plan is a hybrid of orthogonal and radial street patterns.



Duany Plater-Zyberk

Pedestrian network cuts across blocks, park, and squares: walking will be easier than driving.

There is both nostalgia and utopianism in DPZ's plans, with churches and town halls on village greens. Neither the complexity of our culture nor its increasing disillusion with institutions is evident. The plans set aside prominent sites for unspecified institutional programs almost as a challenge to a community to form social bonds.

Alex Krieger notes that designing towns "is not a new but a remembered idea." He applauds DPZ for taking on America's suburban developers. The duo's willingness to deal directly with the men (almost exclusively) who shape the American landscape has transformed the architectural and development worlds. Duany and Plater-Zyberk have not been afraid to dirty their hands with financial and legal issues; they showed how these matters can be affected by design solutions.

Krieger credits Duany and Plater-Zyberk with "pragmatic idealism" and notes that the "shockingly sentimental" illustrations of their towns are a marketing tool that increases the comfort level of the developers and home buyers. We have come to expect a conservative, if not reactionary, response from the American public; DPZ seems to assume that one radical idea at a time is enough. Once the planning principles are securely ensconced, one hopes that respectful architectural innovation may be reintroduced. However, Krieger's cautionary note is critical: he warns that images usually dominate the public's understanding of the issues, and they are easily appropriated for more standard developments.

Perhaps Duany and Plater-Zyberk's most important lesson is detached from the specifics of their plans and buildings: they have revived the architect's dual role as tastemaker and civic missionary. These books are a record of their campaign. Read them for lessons in raising public expectations. **Anne Tate**

The author is a principal at Abacus Architects & Planners, the Boston firm that won P/A's affordable housing competition in 1991.

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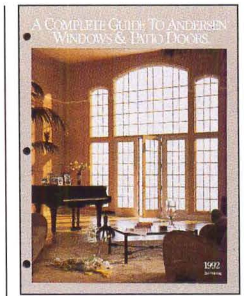
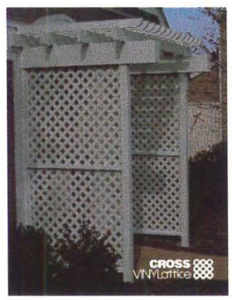
Circle No. 335 on Reader Service Card

Residential Products Literature Digest

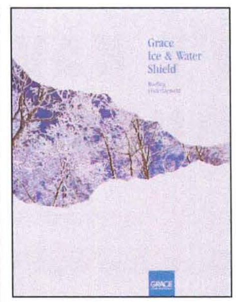


This 156-page catalog includes detail drawings, four-color photographs, and descriptions of the products offered by the nation's largest manufacturer of windows and patio doors. A section is devoted to drawings of dramatic combinations of windows and patio doors. Product sizes and technical data on air infiltration, U and R values, and low emissivity glazings are included.
Andersen Windows, Inc. Circle No. 359

The complete line of fiberglass insulation products for residential and commercial applications is described in this new catalog. Size availability, R-value ratings, energy standards, and building code information are included.
CertainTeed Corporation. Circle No. 360

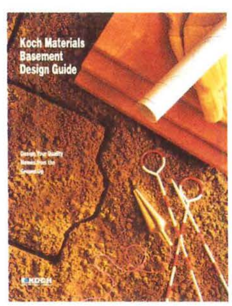


CROSS VINYLattice never needs painting. It is easy to install because it saws cleanly and can be fastened without splintering or cracking. Reinforced strips and shop-welded joints provide great impact resistance and durability. Several patterns, sizes, weights, and colors are offered.
CROSS VINYLattice. Circle No. 361

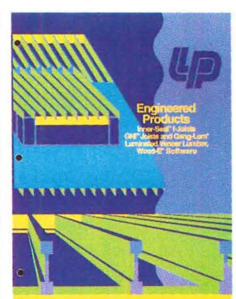


This brochure describes product specifications and application guidelines. Using our sloped roof underlayment membrane is the most cost-effective, long-term protection you can use against damage from ice dams and wind-driven rain. It is a tough, flexible, self-adhering membrane that installs easily under virtually every kind of roof.
W.R. Grace & Co. Circle No. 362

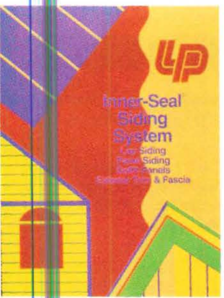
Kallista is a Greek word meaning "most excellent, most beautiful." The innovative, custom-made, uniquely elegant plumbing fixtures manufactured by Kallista exemplify these words in every way. A brochure is available to provide an overview of Kallista's beautiful products, including bathtubs, whirlpools, faucets, accessories, basins, shower fixtures, and enclosures.
Kallista, Inc. Circle No. 363



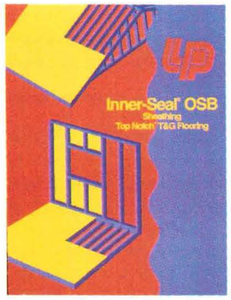
This brochure highlights construction techniques and design considerations that help to make the basement into a livable space. These recommendations along with the use of Koch Materials' Tuff-N-Dri Exterior Foundation Waterproofing System can eliminate leaks in basement walls. The system comes with a 10-year limited warranty.
KOCH Materials. Circle No. 364



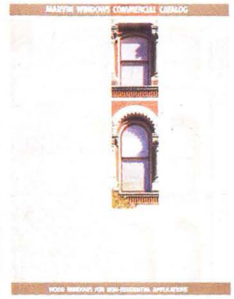
Engineered wood products are designed to eliminate the common problems of solid sawn lumber. Gang-Lam LVL, Inner-Seal I-Joists, and GNI Joists are stronger, more stable, and easier to handle than solid sawn lumber. This catalog includes span and uniform load charts and information on the new Wood-E® Cut and Wood-E® CAD engineering software.
Louisiana-Pacific. Circle No. 365



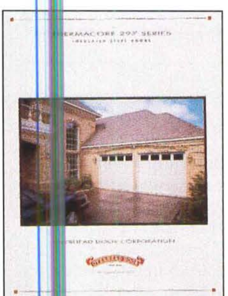
This complete line of exterior products made from Inner-Seal OSB–lap and panel sidings, soffit panels, trim and fascia board–have a pre-primed, protective layer to hold paint and stain longer. The products have a uniformly strong and consistent composition throughout and are exceptionally resistant to warping, splitting, and buckling.
Louisiana-Pacific. Circle No. 366



Top Notch™ T&G Flooring, part of the line of Inner-Seal OSB structural panel products, is a stable and durable subflooring. Moisture-resistance has been improved with the addition of tongue notches to aid water run off. Inner-Seal sheathing panels are available in a wide range of thicknesses and are perfect for use in remodeling or new construction projects.
Louisiana-Pacific. Circle No. 367

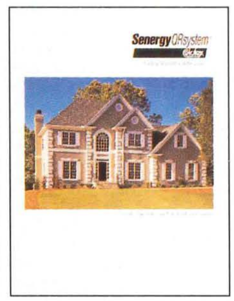


Marvin manufactures a line of made-to-order wood and wood-clad windows for nonresidential applications. Graphs emphasize thermal and structural performance; tables provide energy data. Double-hung, casement, awning, gliding, and bay models are a few of the options available.
Marvin Windows. Circle No. 368

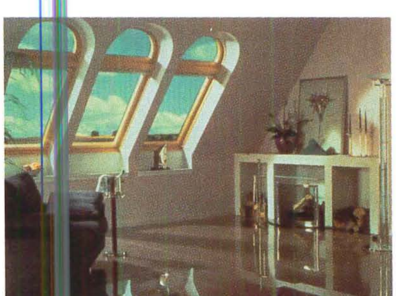


The new 297 Series Thermacore® insulated garage door features a high-quality metal-foam-metal sandwich construction. The polyurethane foam insulation does not contain any CFCs or HCFCs. The door is available in a wood grain-embossed, raised panel, or a flush panel design.
Overhead Door Corporation. Circle No. 369

Because of its architecturally accurate and authentic detailing, the Architect Series product line is the best choice for the discerning architect. These elegant products are designed for architects who understand the importance of renovating existing structures according to historical styles.
Rolscreen/Pella. Circle No. 370

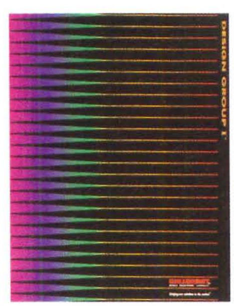


Senergy, Inc., has introduced a new exterior residential wall system called the QRsystem. The system, designed in conjunction with the Celotex Corporation, provides unlimited design and color opportunities and increases the insulation value of the home. To enhance the beauty and durability of your next residential project, use the Senergy QRsystem. **Senergy®.** Circle No. 371



The new VELUX® Round Top Roof Window is the first window of its kind in the U.S. Handcrafted with a solid wood frame, high-performance glass, and maintenace-free exterior aluminum cladding, the Model GIR Round Top Roof Window is made to be installed above the VELUX Model GGL Roof Window for a combination that both admits natural light and ventilates the room.
Velux-America Inc. Circle No. 372

Watercolors has introduced a new stainless steel washbasin to its Pump Sink Line. The bowl is supported by a black steel band. Other washbasins are available with Terra Cotta Pottery and White & Black enamel finishes. The Tap Pole Enamel Finish colors are black, white, gray, red, and yellow.
Watercolors Inc. Circle No. 373



Ralph Wilson Plastics now offers a 24-page, full-color brochure that features the Design Group I™ collection of WILSONART® decorative laminates. The brochure showcases 234 colors and patterns , all available with a 10-day delivery promise. Complete specification information is included.
Ralph Wilson Plastics. Circle No. 374

P/A Classified

SITUATIONS OPEN

SYRACUSE UNIVERSITY - School of Architecture is conducting a search for the following expected full-time positions beginning Fall 1993:

ARCHITECTURAL DESIGN
Assistant or Associate Professor of Architecture; tenure-track positions. Teaching responsibilities include design studio and one of the following specializations: drawing, computer aided design, building technology, design theory. Candidates should demonstrate a capacity to teach undergraduate and graduate studios, have a professional degree in Architecture with experience in professional practice, and have an interest in pursuing intellectual goals through scholarship, teaching and practice.

Interested candidates should send curriculum vitae, a maximum of ten photocopied samples of design work (not to be returned), a statement of interest and goals, and the names of at least three references, by Monday, February 1, 1993, to: **Ann Munly, Chair, Faculty Search Committee, 103 Slocum Hall, School of Architecture, SYRACUSE UNIVERSITY, Syracuse, NY 13244-1250.** Ethnic minority and women applicants are strongly encouraged to apply. AA/EOE

RICE UNIVERSITY School of Architecture is seeking candidates for a tenure track appointment at the level of Assistant Professor. Candidates should hold the M. Arch. degree or its equivalent, with some professional experience. Teaching responsibilities will include design studio and required or elected courses. The following areas of interest or expertise are desirable, but not mandatory: Design, Urban Theory, Landscape, Technology. Rice University is an Equal Opportunity/Affirmative Action employer. Letters of interest (including curriculum vitae) should be forwarded to:

Search Committee Chair
School of Architecture
Rice University
P.O. Box 1892
Houston, Texas 77251-1892

BUILDING ENGINEERING

Concordia University. Centre for Building Studies. The Centre has an opening for a tenure-track faculty position. Applications are sought from candidates whose interests and expertise lie in the area of architectural engineering with emphasis on lighting and building environment. Successful candidates will have an architectural background with a Ph.D. or equivalent related to this area, accomplishments in terms of research publications and related experience. Ability to generate research funding is also an important criterion. Duties include teaching at graduate and undergraduate levels, supervision of M.A.Sc. and Ph.D. students and research. Although the language of instruction at Concordia University is English, bilingualism (English and French) will be an asset. Salary and rank are negotiable depending on academic qualifications and experience. Send a complete resume with three references to: Dr. P. Fazio, Director, Centre for Building Studies, Concordia University, 1455 de Maisonneuve Blvd. West, Montreal, Quebec, H3G 1M8. In accordance with Canadian requirements, first priority will be given to Canadian citizens and permanent residents. Concordia University is committed to employment equity and encourages applications from women, aboriginal people, visible minorities, and disabled persons. All things being equal, women candidates shall be given priority. Applications will be accepted until the position is filled.

COLUMBIA UNIVERSITY
FACULTY POSITION(S) AVAILABLE

Assistant or Associate Professor of Architecture: Emphasis on Architectural Design, Urban Design, and/or Architectural History/Theory. Responsibilities for the full-time position(s) include teaching, scholarship, and administration. Candidates must hold a Master of Architecture or equivalent. Professional and/or teaching experience required. Deadline: by December 31, 1992 applicants should respond with letter of interest, curriculum vitae, names of three references and illustrations of their work or a writing sample not exceeding 35 pages. Material should be sent to:

Bernard Tschumi, Dean
Graduate School of Architecture, Planning, and Preservation
402 Avery Hall
Columbia University
New York, NY 10027

Columbia University is an Affirmative Action/Equal Opportunity Employer.

Faculty Position - The Department of Architecture and Interior Design at Philadelphia College of Textiles and Science invites applications for a full-time visiting or tenure-track assistant professor position. Strong design abilities, must assume responsibility for teaching and coordinating one design studio level and one or more of the following: structures, building technology, CAD, environmental controls, human behavior/perception, contract design, furniture design, landscape design or urban design.

Send letter, vitae, three professional references, and samples of design and scholarship to: Gary J. Crowell, Chair, Dept. of Arch. and I.D., Philadelphia College of Textiles and Science, School House Lane and Henry Avenue, Philadelphia, PA 19144. Review of applications will begin January 15. AA/EO Institution.

ARCHITECT. 40 hours per week, $26,800 per year. Design of various types of international projects including hospitals. Working with clients during various stages of project execution from schematic design through documentation. Requires Bachelor degree in Architecture and five years experience. Apply at the Texas Employment Commission, Houston, Texas, J.O. #6844510, or send resume to the Texas Employment Commission, TEC Building, Austin, Texas 78778. Ad Paid by an equal opportunity employer.

INSTRUCTIONAL POSITION

Stevens State Tech serves the post-secondary educational and training needs of deserving students residing within the commonwealth of Pennsylvania.

Architectural Drafting
Two year Associate degree program. Successful candidates must be a registered architect with experience in Computer Aided Design and at least eight years of technical experience. Teaching experience also a plus. Appointment to be made for August 1993. Deadline for application is December 31, 1992.

Send letter of application, resume and list of at least three reference to:
Ms. Betty Jo Howard
Sec. Search Committee
Thaddeus Stevens State School of Technology
750 East King Street
Lancaster, PA 17602
(717) 299-7611
Stevens is an affirmative action equal opportunity employer.

Technics Editor

Progressive Architecture has an immediate opening for an experienced person with a background in architecture and building technology. Responsibilities will include generating and editing technical features and collaborating with editorial staff on other articles and issues. Familiarity with building products, specifications, and detailing necessary. Previous journalistic experience not required. This is an opportunity to direct a critical information resource for the architectural profession. Salary negotiable. **Send resume and sample of work that you have written or edited to: Thomas Fisher, Executive Editor, Progressive Architecture, 600 Summer Street, P.O. Box 1361, Stamford, CT, 06904.**

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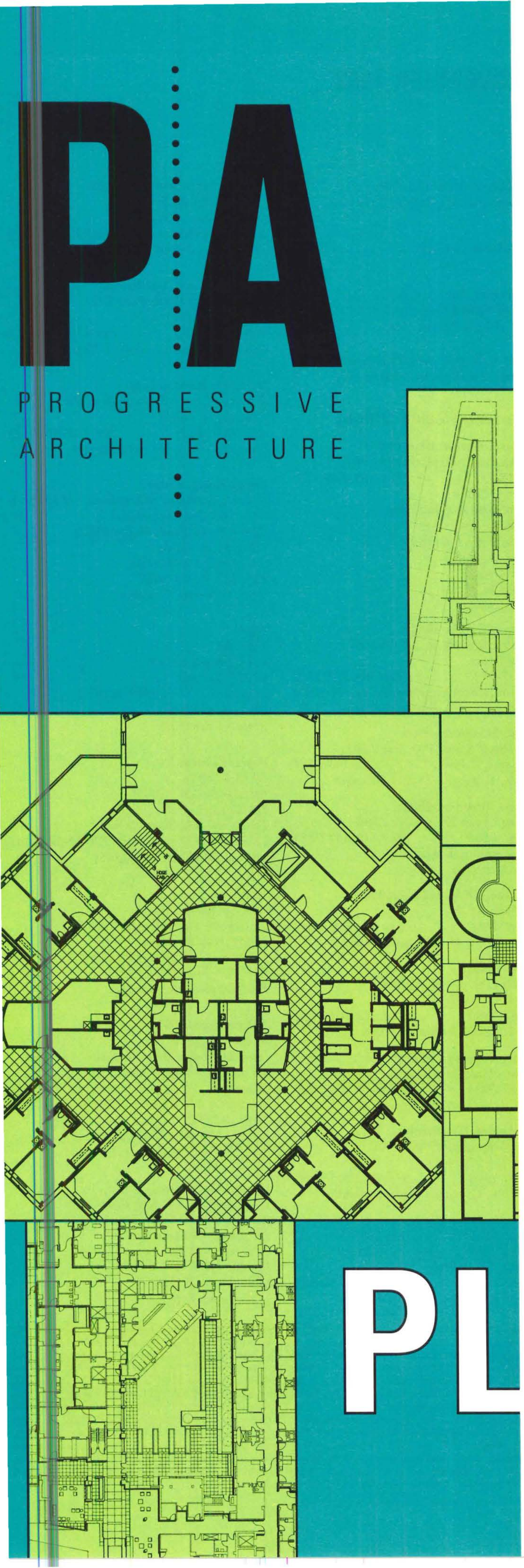

P/A PLANS

The New Edition is in Production Now

If you missed the announcement in the last issue of P/A Plans, the next one is fast approaching, and is scheduled to appear in March, 1993.

The upcoming edition will feature municipal buildings, and specifically those to house administrative functions of a municipality. Because we feel that a separate category exists for such specialized buildings as libraries, fire/police stations, and jails, this type of municipal building will not be included in the March issue except in the instance of a facility that comprises any of these functions in combination with administrative offices for municipal government.

To repeat the suggestions included in the introduction to P/A Plans, August supplement:
The format and information shown in the last issue will remain the same in the next.

- An architect's statement and the data will be allowed the same amount of space in March. Additional information may be supplied for our own understanding of the project, but will probably not be included in the text.
- Plans and sections should be provided as clear black and white PMTs, K-5s, or stats, without room names or structural grid, section cut, or dimension lines; there must be a graphic scale and north arrow, however. A photocopy of the plan with room names will be needed for us to construct an appropriate legend.
- Two or three photos of either the finished building, renderings, or models should accompany submissions.
- Submissions are requested as soon as possible, but must arrive no later than December 1, 1992.

The second edition of P/A Plans, scheduled for August of 1993, will cover long-term care facilities. Submissions for this issue should be submitted by the first of May.

Reader response has told us that you appreciate the P/A Plans supplements, so we invite your continued contributions to these special editions.

P/A ADVERTISERS' INDEX NOVEMBER 1992

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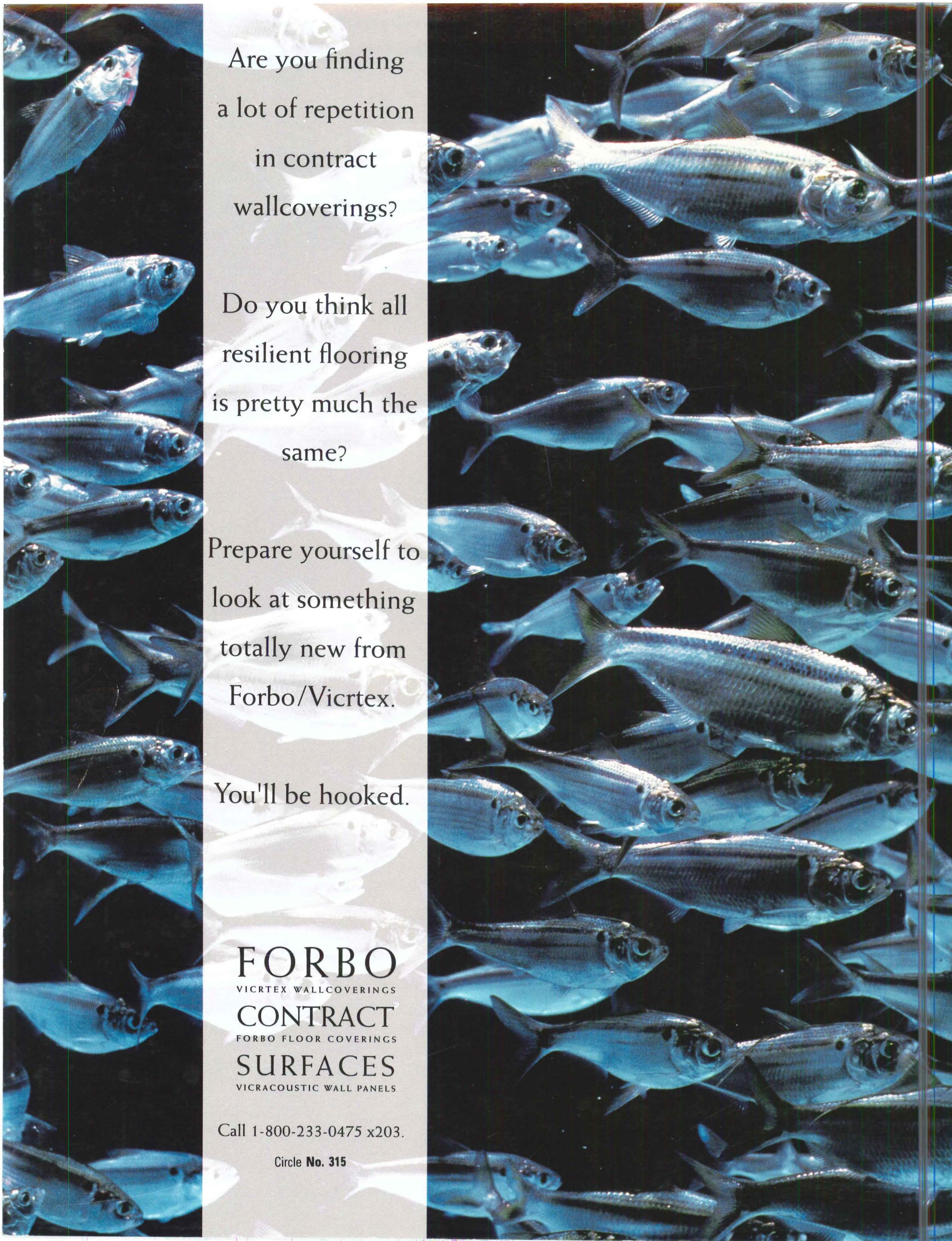
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