Houses
and
Materials
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Cover: Stretto House, Dallas, Steven Holl Architects, (p. 54). Photo by Paul Warchol.
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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. Typically, they are rehabilitations of convents, and local government provide about 180 residences 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 SROs, houses, and the like. Most are modest, a 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
The Athlete's Foot is a company on the go; the fastest growing retailer of athletic footwear and apparel.

“Our rapid growth is based on great quality and outstanding service, which is especially critical here in the Merchandise Distribution Department. In Cetra and Kimball,” states Roger Kehm, Vice President of Administration/Operations, “we found these same qualities. I don’t think you can find anyone in the building who doesn’t love his or her work station. I’m really proud of this building, and especially the atmosphere Cetra creates.”

Cetra. Get started on the right foot.
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 mesothelial 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.

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.
The Honesty of Natural Stone. The Serenity of Contemporary Color: Dolomiti by Marazzi.

The dynamic pace of today's hotels, restaurants, stores and homes are perfected by the ease, beauty and design of 4-rated Dolomiti glazed natural ceramic tile. Seven muted matte shades, from a handsome gray to an earthy gray-green to the softest dove rose, are single-fired for great strength and textured for resistance and durability. Scratch-and-frost resistant for outdoor patio, Dolomiti's gentle tones are pure naturals. Available in 8"x8", 12"x12", and 16"x16". For more information on your nearest distributor, call Customer Service at (214) 226-0110.

Circle No. 330 on Reader Service Card
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 craft. 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
Simonds, Gomperz & Heger
Ardsley, 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. 1993, p. 72). This follows the common misperception that architects doing housing actually 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 do almost nothing except for some of the surface detailing, which Miller goes on to relate to the "shams of the time.

The familiar American big-city 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 Blat Tam Architects.
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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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, AIA. “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, mechanical...
ession by breaking into banks. from their example.

and electrical engineers—is the key. "Some projects drown in revisions because there's no coordination between the trades," says Axton. "That never happens here. With a modem and a telephone, we can make revisions in an hour that would take other firms days."

Why, one might ask, is an architect giving away his trade secrets? Because Axton sees huge benefits when all the building disciplines and their clients standardize on AutoCAD. "With everybody working from the same base drawings, we could cut months off projects," Axton says. "That way we could all submit more competitive proposals, without digging any deeper into our own pockets."

Certainly it beats robbing banks. Would you like to learn how AutoCAD can make your firm more competitive? Just ask for our compelling AutoCAD brochure for the architecture, building-services, and construction industry. Or our guide for facilities management. They're both full of application information. And they're free. Call 1-800-964-6432, ext. 834. Outside of the U.S. and Canada, fax 415-491-8303.

AUTODESK

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Petersen Aluminum announces the introduction of PAC-CLAD Metallics—a new line of metallic finishes that combine the benefits of a full Kynar 500™ finish and the cost economy of a two-coat paint system. They are ideally suited for metal roofing, curtain-wall and storefront applications.

PAC-CLAD Metallics are notable for their depth of color and color consistency. They are initially being stocked in four colors—Aged Copper, Copper Penny, Silver and Zinc. Custom colors are also available on request. A twenty year finish warranty applies.

For more information on this extraordinary new finish, call Petersen Aluminum Corporation at 1-800-PAC-CLAD. Free samples are also available for projects over 15,000 square feet.
Competition Winners on Berlin’s Potsdamer 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 Platz 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 aggressive, 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.
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 Álvaro Siza, Porto, Portugal; Coop Himmelblau, Vienna; and Steven Holl, New York.

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 Martin 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 Jerzy Lewkowicz designer-builder Steve Badanes. (Badanes also sketched the symposium's title, saying that "Building to Save the Earth" sounded like "something 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

"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

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

From "Czech Cubism:" 1911 "Covered Box" by Pavel Janák.
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 theme of the keynote address by Kenneth Frampton that opened the exhibit in Philadelphia.

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 Busssel**

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
(continued from previous page)

Restoration/Renovation:
- Passenger Facility Improvements, Union Station, Chicago, by Lucien Lagrange & Associates, Chicago;
- Tiffany & Company/Quantas Airways, San Francisco, by Werner & Sullivan Architects, San Francisco;
- Pulitzer Fountain, New York, by Buttrick White & Burris, New York;

Interiors:

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’Aleò & Barie, New York; Carl R. Flansburgh, Earl R. Flansburgh & Associates, Boston; and Leonard Jacobson, Pei Cobb Freed & Partners, New York.

"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-minded 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 “sometimes feeling, 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.

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

Chair by “Franciscan” Wes Jones.

“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 inhospitality 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 1960s 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-
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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)
Each year a jury of your peers selects buildings which display excellence in design using architectural precast concrete. The jury looks for designs that display a highly animated use of precast which gives life and vitality to the building surface. Other considerations include good control of medium, consistent color and textural control and a design that exploits the potential of Architectural Precast.

Call For Entries
The 1993 APA Awards for Design and Manufacturing Excellence is now open to all design professionals submitting buildings featuring architectural precast concrete produced by a member of the Architectural Precast Association or the Precast/Prestressed Concrete Institute. Buildings must have been completed since January 1, 1991. Entries must be received by January 31, 1993. For an entry kit, call or write APA or circle #310 on the reader service card.

Design Awards Jury:

CHIEF MANAGER
Thomas E. Ferguson, Jr., AIA
Smallwood, Reynolds, Stewart, Stewart & Associates, Inc.

JUROR
J. Hyatt Hammond, FAIA
J. Hyatt Hammond Associates, Inc.

JUROR
Hugh B. Thornton, Jr., AIA
KPS Group, Inc.

Architectural Precast Association
1850 Lee Road, Suite 230
Winter Park, FL 32789
407/740-7201 Fax 407/740-5321
Trump with an article lambasting
southern tip of Manhattan –
promtping a $500-million lawsuit
initiated by Trump that was dis­
missed in Federal District Court. 
Before joining the paper in 1972,
he directed the urban journalism
fellowship program at the U niver­
sity of Chicago and worked for
newspapers in Chicago and Co­
lumbus, 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 col­
umn, died April 17. She was 45.
Hartung and Robert Gutman ,
professor of architecture at Prin­
ceton University, produced a
comprehensive research study of
training and development prac­
tices of architecture and engi­
eering firms. In 1987, she,
along with her partners at The
Coxe Group, wrote Success Strate­
gies for Design Professionals.

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 cal­
cium 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 ar­
 ranged 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 reclad­
ing 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. Kaarina Taipale

The author, formerly editor-in-chief of the Finnish journal Arkkitehti, is Deputy City Architect of Helsinki.
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"I compete with the giant studios, so my business image is very important."

-Stewart Tilger, Photographer, Seattle, WA

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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.
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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Circle No. 317 on Reader Service Card
How AutoCAD saves a million dollars a year

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 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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And that's just a cleaning bill. With AutoCAD, you can put all kinds of expenses under the microscope: leasing, space design, all kinds of construction and maintenance services, furniture and equipment management, inventory tracking, asset depreciation and long-range facility planning. So the potential for cutting costs is enormous.

Of course, any form of computer-aided facilities management is better than those coffee-stained lists you inherited. So why use AutoCAD? Because intelligent facilities management requires accurate information in a standardized form that even computer novices can use. And AutoCAD is the world CAD standard. Many of the architects, contractors, designers and equipment suppliers you'll be working with are already using it. That makes it easier and cheaper for you to get things done. In fact, there's a good chance the firm that designed your facilities did it on AutoCAD. So, much of the information you need may already be available to you.

Even starting from scratch, you can develop a master plan for your facilities on AutoCAD for a few cents a square foot, maybe less. Or you can set up your own AutoCAD system—with any optional add-on facilities program—for less than $10,000. Either way, your investment should pay for itself in a matter of months. Or at least by the time your first cleaning bill arrives.

To learn more about how enlightened facilities management can save your company money, call 1-800-964-6432, ext. 801. And ask for our comprehensive facilities management guide. It's quite useful and it's free.
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We know that AutoCAD has served you well. But you may be spending a lot of time grappling with the software. Getting it to do what you need can be difficult.

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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 unanticipated 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 its 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

Practice

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.

The author is a partner in the New York law firm of Bernstein, Weiss, Coplan, Weinstein & Lake.
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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 integration of 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 was found 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,” “Specintact” 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/Bran nen 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.
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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 vein, 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 craftsmanship 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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**A Call for Sustainable Community Solutions**

- Registration Deadline: April 30, 1993
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- Selection of Awards: May 15, 1993
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Section through 90° bend showing steel core
and connecting pieces.
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).
The experiential ideas behind Steven Holl's Stretto House are backed up by rigorous detailing.

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.
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 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.
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 holistic 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 milliions, 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.
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.

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: 1½-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.
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 tense, 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 freestanding; 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 whirl 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 “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.
The Rowhouse Realigned

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

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.
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' x 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; re-sawn cedar plankface 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.)
Cost: $230,000.
Photos: Richard Barnes.
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.
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 acknowledges 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

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.
Project: Albair 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 Callaro, 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.
General contractor: Bardo Builders.
Costs: not available.
Photos: Alexander Vertikoff.
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)
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 free-standing 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.
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).

**Project:** Piku Residence, Orchard Lake, Michigan.

**Architects:** Denison Luchini Architects, Chicago and St. Louis (Dirk Denison, principal 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, Boone*, 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.

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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
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) splay the Modernist white box and embeds it in the earth; it is a counterpoint to the serene houses of Mies van der Rohe or 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.
"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 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.
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.

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
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
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

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 1 1/4" 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 furring strips at 2-foot centers with countersunk nails.
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.
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 4x12 beams and light 4x4 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.
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 drawbridge. Inside, the house consists of a central, thick-
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, $\frac{3}{32}$" 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.
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.
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
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.
Project: Park Road House, Toronto.
Designers: Donald McKay and Company, Ltd., Toronto (Donald McKay, designer; Douglas Birkenshaw, Tim Boyd, Jantine 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

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.

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.

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 spatial settings and 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.

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 sportscar, 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; 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.

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 São Paolo, Brazil. The jurors who chose this work by a young, unknown Californian included Le Corbusier, Walter Gropius, Alvar Aalto, and Josep Lluís 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!

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 Basset — Hans Knoll’s widow, who was now married to Harry Hood Basset — 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 Bassets 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 if 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, Caidin, 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.

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 parties 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-
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 BOST!, 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**
Books

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.


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 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.


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)
Jim Scalise finds FastCAD®'s speed and ease of use gives more than an increase in quality production time... "We found other systems difficult to learn, but FastCAD enabled us to get up and running in short order. Architects that need the fastest CAD system have to see this to believe it. FastCAD really lives up to its name. Without FastCAD it would be tough to compete and we wouldn't have time for the extensive detailed work we consider standard on all construction documents. Plus, paper storage would be overwhelming and we'd still have 'draftsman's cramp' in our fingers and graphite on our forearms. After winning two National CAD Drawing Contests and dating our clients with FastCAD, it's as easy for me to endorse as it is to use."

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Computer Focus
Design and Automation

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.

Bernard Tschumi's office is using CAD to design, among other projects, this house in The Hague (see page 110).
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 to activities, and 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—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
### Characteristics of Second Wave (Industrial) Organizations and Third Wave (Informational) Organizations

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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 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.

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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 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.
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“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.”

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What the Offices Use

Eisenman Architects uses Form-Z software from Auto-desys on a Macintosh IIfci platform with memory cards, color cards, and math co-processors. With Form-Z, says McCrery, the user works continuously in 3D. Wireframe 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 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 Architron 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 length. 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 beginning 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

Tools of the Stars

Matthew Barhydt takes a look at the use of computers in two high-profile design firms.
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 Architrition, a French software package distributed in the U.S. by UNIC. With Architrition, 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 Architrition 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.
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PACIFIC DATA PRODUCTS
Terrence Schilling discusses the use of 3D CAD in Europe.

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-
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.

Architectural 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 short-hand, 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 x 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 Burchardt+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 User 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 unpalatable cord forever linking you to them, and cut 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)
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, etc.

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 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.

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

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9:05 AM
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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
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9:15 AM
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9:30 AM
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9:40 AM
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Circle No. 329 on Reader Service Card
Directory of Resources

Core CAD Vendors:
Archicad, Graphisoft, 400 Oyster Point Blvd., Ste. 429, South San Francisco, CA 94080, (415) 737-8665.
Archi/Com, UNIC, Inc., 1330 Beacon St., #320, Brookline, MA 02146, (617) 731-1766.
AutoCAD, Autodesk, 2320 Marinship Way, Sausalito, CA 94965, (415) 332-2344.
Designer/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.
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, DCA Sofidesk Software Inc., 7 Liberty Hill Rd., Henniker, NH 03242, (603) 428-3199.
Database interface and utilities, CADS (Auckland) Ltd., 85 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
DynaPerspective, Dynaware USA, Inc., 950 Tower Lane, Ste. 1150, Foster City, CA 94404, (415) 340-5700.
ModelShop, Paracomp, Inc., 1725 Montgomery St., 2nd fl., San Francisco, CA 94111, (415) 956-4091.
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.
Wavefront, Wavefront Technologies, 550 E. Montecito St., Santa Barbara, CA 93103, (805) 962-8117.

Which one was drawn by a computer?

Of course, “A” was. But so was “B.” That’s the magic of Squiggle.
Squiggle is an amazing new program that can liven up ordinary, mechanical-looking CAD drawings so they look as if they were actually drawn by hand.

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DrawingMaster™ Plus is hot to plot.

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Circle No. 324
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

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

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 GECAD 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 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

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® has led the way in bringing power and functionality to CAD on PCs and workstations. MicroStation® includes more than 500 commands and features such as advanced associative dimensioning, powerful surface 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. The Premisys Corporation. Circle No. 357

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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 anthropomorphic.

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
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 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" x 6" tiles are high-fire glazed and can be used for interior or exterior applications. The 8" x 8" concrete blocks – also available in brick or glass – are 3 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
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 lounge, 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

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 (continued on next page)

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Circle No. 320 on Reader Service Card

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

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

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
Extended 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.

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-Seat™ 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.

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(continued from previous page)

Freestanding Book Shelf

Designed by Toon van Tuijl of Eindhoven, Holland, the "Matute" shelf is constructed of cherry and birch and is 75 5/8" long, 15 5/8" deep, and 76" high. van Tuijl.

Engineered Studs

A new line of engineered studs made from short pieces of lumber and bonded together with finger joints is available in 2x4 and 2x6 dimensions and up to 10' long. Louisiana-Pacific.

Circle No. 003 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
Found beneath the ancient city of Jericho, this brick is believed to be about 10,000 years old.

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


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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

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

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.

There is both nostalgia and utopianism in DPZ's plans with churches and town halls, 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 developer 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 enshrined, one hopes that respectful architectural innovation may be introduced. However, Krieger: 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 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 Abacu Architects & Planners, the Boston firm that won P/A's affordable housing competition in 1991.

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

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SITUATIONS OPEN
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.
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