

ARCHITECTURE[®]

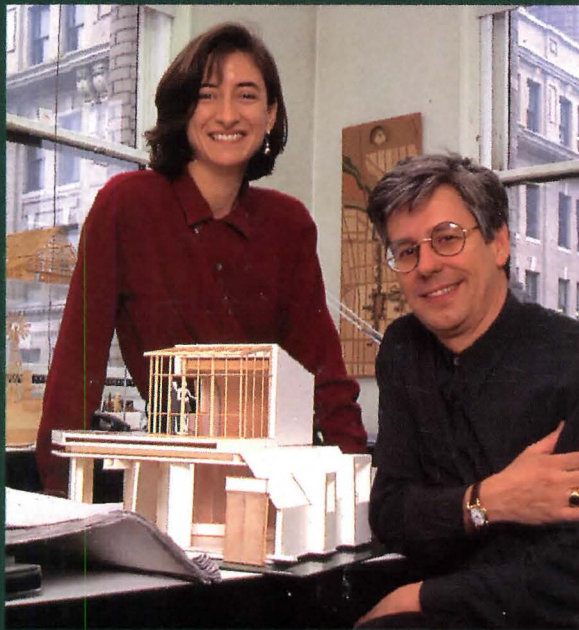
JUNE 1996

INCORPORATING ARCHITECTURAL TECHNOLOGY

\$8.95 US / \$11.00 CAN



IN THIS ISSUE:
Merger Mania
Photovoltaics Competition
Male Space



Husbands and Wives

“The innovations you expect...

INTRODUCING ULTIMA RH90®:

Smother, quieter... even a more durable surface!

- 500% more durable than other popular fine-textured ceilings
- Especially good for areas requiring frequent plenum access... quiet... high-humidity resistance



Urbanism, by historical and dictionary definition, is "the quality of life in cities; urban organization and problems." New Urbanists' devaluation of this definition to merely "urbanity" is consistent with the use of such words as "green" and "plaza" to describe parking lots.

Seaside being the New Urbanist icon, one can only ask: How, in the names of Olmsted, Howard, or Unwin, can leapfrogging thousands of acres of underutilized urban land, and raping yet another 80 acres of disappearing Florida pine barrens to build an "image of community" that can be accessed only by those with automobiles, be called "urbanism"?

It's easy—it's America at the moment. It's a sham and a shame.

*Nelson S. Benzling
Professor of Architecture
and Urban Design
University of North Carolina
Charlotte, North Carolina*

As you mention in your discussion of New Urbanist Crawford Square (pages 74-75), there were a few jazz

clubs in Pittsburgh's Hill district, but by 1950 they had disappeared. The 100-acre area, occupied by more than 1,500 families, was seriously deteriorated. Some houses had cracks in the walls large enough to see through. There were outhouses with flush hoppers that froze in the winter. The death rate due to disease was three times that of the rest of Pittsburgh. When the area was cleared, a highway and sports arena were built, as were apartments, two office towers, a hospital, a synagogue, and a hotel—and there is space for still more. It was a development project with ample justification.

*Robert B. Pease, Hon. AIA
Pittsburgh, Pennsylvania*

As a founder of the Congress for New Urbanism, I have never consciously influenced anyone's behavior, except for the worse, and I have yet to design my first picket fence.

I had nothing to do with the design of The Crossings. At my only meeting with the project's developer, he ran from the room scream-

ing, "I don't want architecture!" Peter Calthorpe deserves a Purple Heart and three oak-leaf clusters, not sneers, for getting him to build what you saw.

ARCHITECTURE should broaden its criticism to the full sweep of our pretensions: regional planning, inner-city reinvestment, and housing for new demographics. New Urbanism is more than retro architecture in the 'burbs.

*Daniel Solomon, FAIA
San Francisco, California*

Editor's note: Boris Dramov of ROMA Design reported that Daniel Solomon was involved in *planning* The Crossings, as the article states; documents on The Crossings obtained from Calthorpe were labeled Calthorpe/Solomon Associates. Our article featured examples of rural and inner-city investment as well as suburban development.

Salk's new standard

The new addition to the Salk Institute is full of grace and respect for

Kahn's masterwork (ARCHITECTURE, March 1996, pages 72-81). To have provided desperately needed resources without competing with the treasured existing facilities establishes a standard we should all hope to have the courage to measure up to in our own work.

*Kent Duffy, AIA
SRG Partnership
Portland, Oregon*

Corrections

The original U.S. Embassy in Moscow was a joint venture of Skidmore, Owings & Merrill and Gruzen & Partners, now Gruzen Samton, New York (ARCHITECTURE, April 1996, page 27).

The Neiman Group is executive architect of the Women's Village Project (ARCHITECTURE, March 1996, page 149).

A.D. Herman Construction Company was the general contractor for the Swissair Headquarters in Melville, New York, designed by Richard Meier (ARCHITECTURE, February 1996, pages 92-97).

FIBERBOND® ?



up just like standard board. Same tools, same accessories, and the same techniques.

"It provides the smooth finish I'm looking for and the long-term performance as well."

A TOUGH WALLBOARD PANEL WITH A VERY SMOOTH FACE

FiberBond is a high-performance, gypsum-based board with additions of perlite and cellulose fiber derived from recycled newspaper. It has a smooth finish and it's designed to keep its look despite rough treatment. No wonder FiberBond is gaining favor among professionals as the simple solution for demanding wallboard applications.

FIBERBOND®

FOR FIBERBOND SPECIFICATIONS AND PRODUCT SAMPLES CALL 1-800-299-0028 EXT 135

LP Louisiana-Pacific

LP Louisiana-Pacific and FiberBond are US registered trademarks of Louisiana-Pacific Corporation



FiberBond and FiberBond VHI reinforced with fiberglass mesh when very high impact resistance is required

Installer

Client

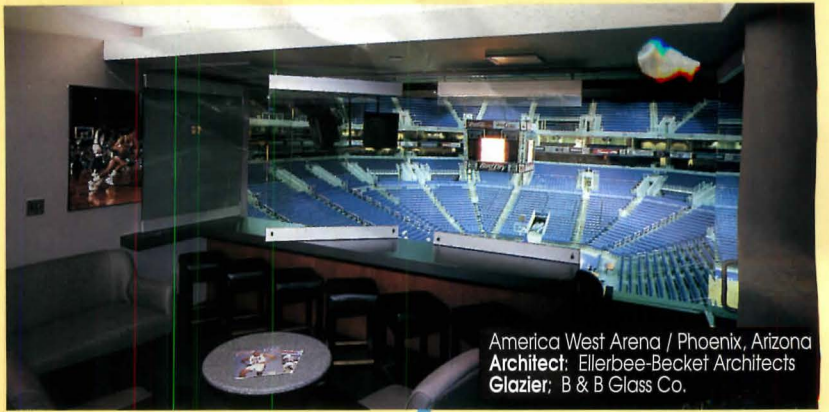
Circle 17 on information card

© Louisiana-Pacific Corporation 1995. All rights reserved.

G L A S S



One America Plaza / San Diego, California
Architect: Murphy/Jahn Associates
Glazier: Caldwell Glass



America West Arena / Phoenix, Arizona
Architect: Ellerbee-Becket Architects
Glazier: B & B Glass Co.



Alabama Sports Hall of Fame / Birmingham, Alabama
Architect: Emory Kirkwood & Assoc. Architects, Inc.
Glazier: Nel-Bran Glass Contractors



Canterbury Glassworks / Bristol, Pennsylvania



HEAT MIRROR is a trademark of SOUTHWALL TECHNOLOGIES



Bloomingdales / Minneapolis, Minnesota **Architect:** Diedrich Architects & Assoc. **Glazier:** Gateway ACG, Inc.

Events

Exhibitions

BERKELEY. "The Domestic Architecture of Greene and Greene," through August 18 at University of California, Berkeley Art Museum. Contact: (510) 642-0808.

CHICAGO. "D.H. Burnham and Mid-American Classicism," June 7-September 2 at the Art Institute of Chicago. Contact: (312) 443-3600.

"Process and Design in Residential Architecture," May 16-September 13 at the Chicago Architecture Foundation. Contact: (312) 922-3432.

MINNEAPOLIS. "The Twin Cities on Paper," architectural drawings for Minneapolis and St. Paul, through June 23 at the Minneapolis Institute of Arts. Contact: (612) 870-3000.

MONTREAL. "Frank Lloyd Wright: Designs for an American Landscape," June 18-September 22 at the Canadian Center for Architecture. Contact: (514) 939-7000.

NEW YORK. "Help Design Frederick Douglass Circle," through June 23 at the Charles Dana Discovery Center, sponsored by Cooper-Hewitt. Contact: (212) 860-6868.

"The Gustavino Company and the Technology of the Catalan Vault, 1885-1962," through June 15 at Columbia University. Contact: (212) 854-7288.

Conferences

BARCELONA. Congress of the International Union of Architects, July 3-6. Contact: 34-3-412-7651.

DENVER. Construction Specifications Institute convention, June 28-30. Contact: (800) 689-2900, ext. 772.

GAINESVILLE. "Green Building Materials," June 24-25. Contact: (904) 392-5930.

LAKELAND, FLORIDA. "Frank Lloyd Wright, A Retrospective of a Life,"

June 14-15, at Wright's Florida Southern College campus. Contact: (407) 745-4146.

Competitions

1996 Designed Landscape Forum's call for projects. **Entries due June 21.** Contact: (510) 849-9494.

Excellence on the Waterfront awards. **Entries due August 1.** Contact: (202) 337-0356.

"Furthermore..." publication grants, sponsored by the J.M. Kaplan Fund. **Deadline September 1.** Contact: (518) 828-8900.

The Canadian Center for Architecture's Visiting Scholars Program. **Applications due October 1.** Contact: (514) 939-7000.

Greenport, New York, waterfront park design competition. **Registration due October 19.** Contact: (516) 477-3000.

Designing with Light Polygal Polycarbonate Structured Sheet

LaGuardia Airport
New York City NY



Polygal Solar Grade PCSS offers aesthetic beauty, energy conservation, light transmission, solar gain or reflection, and doesn't contribute to flame spread or toxic fumes. It's a superior alternative to glass for roof windows, skylights, atria, sports halls, canopies, window renovations and a wide variety of interior and exterior glazing uses.

Lightweight and virtually unbreakable, energy efficient Polygal Polycarbonate Sheet is low-cost and easily installs flat or (cold) flexed. Available in clear, bronze, royal blue or opal

tints in widths up to 82 inches. Even special order colors are available. Lengths limited only by shipping constraints. *Ten year limited warranty.*

Circle reader service number for free Designers Kit and samples or call toll-free for immediate service and information.

Polygal, U.S.A.

2352 Hwy 14 West,
Janesville, WI 53545
800-537-0095 FAX 608-757-1525



Xerox brings a new advantage to black & white plotting.

It's the Xerox 2230ij Wide Printer. It's a better way to communicate.

Exceptional image quality – even in draft mode.

Extraordinary speed.

And the attention-grabbing power of highlight color.

A solution with the performance you need, plus the added dimension of color for distinguishing design changes, drawing layers, call-outs, and even company logos.

If you install a 2230ij before June 30, 1996, your printer will be backed by a comprehensive Three-Year Warranty.

Highlight Color.

Sharpen your lines of communication.

Eliminate errors.

Focus attention.

The Xerox 2230ij Wide Printer.

Call 1-800-937-7397,

ext. 1219 today, or visit us

on the World Wide Web at <http://www.xerox.com/XES>.



THE DOCUMENT COMPANY

XEROX

ENGINEERING SYSTEMS

Circle 71 on information card

XEROX[®] and XEROX 2230ij[®] are trademarks of Xerox Corporation. ©1996, Xerox Corporation 56USC580



THE DOCUMENT COMPANY
XEROX
Worldwide Sponsor

Deadline for Submissions: September 6, 1996

P r o g r e s s i v e ARCHITECTURE 44th Annual Awards

Jury

Sarah Graham

Angélil/Graham Architecture
Los Angeles

Laurie Hawkinson

Smith-Miller + Hawkinson Architects
New York City

Enrique Norten

TEN Architects
Mexico City

Antoine Predock

Antoine Predock Architect
Albuquerque

William Rawn

William Rawn Associates
Boston

ARCHITECTURE announces the continuation of the annual **P/A Awards**.

The purpose of this awards competition is to encourage outstanding work in architecture and urban design before it has been executed. Awards and citations will be designated by a jury of distinguished, independent professionals, who will base their decisions on overall design excellence and innovative ideas. The jury will also consider response to program and context, management of the design and construction process, technical solutions and details, and social and economic contributions. Potential entrants are urged to interpret the call for "outstanding work" as broadly as possible. Entries, however, are limited to specific unbuilt projects that have been commissioned by real clients for execution.

Judging will take place in September 1996, and winners will be notified in late September. The winning entries will be featured in the January 1997 issue of ARCHITECTURE.

Eligibility

1 Who Can Enter

Architects and other environmental design professionals practicing in the U.S., Canada, or Mexico may enter one or more submissions. Proposals may be for any location, but work must have been directed and substantially executed in offices in those countries.

2 Real Projects

All entries must have been commissioned for compensation by clients with the authority and the intention to carry out the proposal submitted. In the case of design competitions, the proposals eligible are those the client intends to execute.

3 Architectural Design Entries

Entries in Architectural Design may include only works of architecture scheduled to be completed after January 1, 1997. Indicate the anticipated completion date on Project Facts page (see item 7 on next page). Prototypical designs are acceptable if commissioned by a client.

4 Urban Design Entries

Entries in Urban Design must have been accepted by a client who intends to base development on them. Implementation plans and anticipated schedule must be explained in submission.

5 Verification of Client

The jury's decision to premiate any submission will be contingent upon ARCHITECTURE's verification that it meets all eligibility requirements. To that end, ARCHITECTURE will contact the clients of projects selected by the jury for recognition. ARCHITECTURE reserves final decision on eligibility and accepts no liability in that regard. Please be certain your entry meets the above conditions.

(Submission requirements and entry form on the following page)

reminder of design's importance to the profession.—*Ned Cramer*

ing the New York Psychiatric Insti-

anyway.—*Bradford McKee*

News



CHICAGO MUSEUM: Designed by Josef Kleihues, new Museum of Contemporary Art is entered from processional staircase.



WAYNE CABLE PHOTOS

CORNER VIEW: Exteriors are clad in cast aluminum.



SCULPTURE GARDEN: Arranged on paved tiers to east.

**Museum by Kleihues
Opens in Chicago**

When Chicago's new \$46 million, 220,000-square-foot Museum of Contemporary Art (MCA) opens on June 21, local architecture buffs will take note of the modest Neo-Renaissance apartment building directly across from it on East Pearson Street. Mies van der Rohe lived there for nearly all the 30 years he spent in this city, and even the thoroughfare that fronts the new museum's main entrance is named Mies van der Rohe Way.

No one is more alert to that fact than the architect of the new MCA. Like Mies, German architect Josef Paul Kleihues made his international reputation in Berlin, where he still practices. He acknowledges Mies and another Berlin Classicist—Karl Friedrich Schinkel, the great 19th-

century Prussian architect—as among the architects to whom he is most stylistically indebted.

All these linkages are evident in the new museum, but the dominant quality projected by the exterior is a sobriety saved from glumness chiefly by the spectacular site, one of the most desirable in the city's Gold Coast area. The State of Illinois has granted the museum a 99-year lease on land bounded by East Pearson Street and East Chicago Avenue, and separated from North Michigan Avenue and Lake Shore Drive by parkland parcels to the east and west. The MCA is thus endowed with sweeping vistas west to the quixotic, much-loved old Water Tower, and east to the city's sole grand natural feature, Lake Michigan and its limitless horizon.

Such a location, articulated by Chicago's relentless grid, surely in-

spired Kleihues's axial design, on which he has mounted a rectilinearly symmetrical structure so unabashedly Classical that its four-story main mass, clad in cast aluminum, reposes on a limestone podium, with the tall west entrance stair flanked by two polygonal wings. However, the MCA is unmistakably Modern in manner throughout, its central tract and rear facade fenestrated in large square lights. Most of the other walls are opaque rather than vitreous, a treatment that suggests masonry and Schinkel more than Mies. But Kleihues has fixed the aluminum panels to the frame by stainless steel screws, a device that he claims has the effect here of expressing—*pace* Mies—the curtain wall behind the panels. That is a reasonable reading, although the density of the panels makes the pattern of screws seem even more decorative than structurally expressive.



ENTRANCE: Glazing deviates from predominant opacity of exteriors.



ENTRANCE HALL: Axial hallway leads to view of lake.



GRAND STAIR: Homage to Rookery's helical stair.



TOP-FLOOR GALLERY: Barrel-vaulted, skylit exhibition spaces will showcase museum's permanent collection.

The unrelenting severity of the exterior is due chiefly to the compactness of the massing and the sober, tawny gray of the cladding, a color expected to grow darker and more austere as the material ages. The interior offers a striking contrast, even a relief, in the brilliance of its white walls and the generosity of its spaces. Symmetry again reigns, but the plan is various enough to provide surprises, most notably a pair of long, high, barrel-vaulted, skylit galleries on the top floor, and a comparably lofty central hall that issues inward from the foyer, following the main axis to the east and ending with the great vista toward the lake.

That view is further enlivened by the most informally composed element in the whole design, a sculptural garden that descends via several paved, tiered landings to a lawn bordering the eastern parkland. The

garden is not the only departure from the key signature of Classicism. A grand interior staircase is a highly inventive, consciously conceived homage to the spiral stair in the light court of Chicago's celebrated Rookery Building, an 1886 masterpiece designed by Daniel Burnham and John Wellborn Root. Kleihues rings in his own variation by turning the circle used in the Rookery helix into a mandorla and dressing his balusters in oak.

These latter passages are sufficiently personal in their sum to confirm that Kleihues is his own man in this design. His mixture of formal and informal recalls the "poetic rationalism" that critics have steadily applied to his work abroad, which Kleihues describes as "an expansion of Classical rationalism, an attitude that allows me to incorporate experimentation more strongly, and to

mobilize not only the mind but the emotions in the design process."

Kleihues's commission grew out of the museum's mammoth recent development campaign, which has raised more than \$55 million. The 11-member selection committee was made up of staff, trustees, critic Ada Louise Huxtable, and architect-educators Bill Lacy and Gene Summers. Six candidates were shortlisted: from Japan, Tadao Ando and Fumihiko Maki; from the U.S., Emilio Ambasz and Morphosis; from France, Christian Portzamparc; and from Germany, Kleihues. According to MCA Director Kevin Consey, Kleihues demonstrated formal invention and acquaintance with a large art museum's functions, as well as knowledge of Chicago architecture.

The new museum is seven times the size of the humble bandbox it has occupied on East Ontario Street

since its founding in 1967. Monumentality prevails in Kleihues's spaces, not only in the galleries meant for the permanent collection and temporary exhibitions, but in the auditorium and the various facilities given over to education, shops, and restaurants.

While a full assessment of the new MCA must wait until the museum is open and operating, enough of the construction is completed to justify a salute to the soaring interiors and the free flow of the sculpture garden. It is regrettable that these assets impress visitors only after they have made their way past the museum's cold, gray exterior. Kleihues might have kept some of his rationality in check and given greater latitude to his poetic impulses.—*Franz Schulze*

Franz Schulze is now writing Mies and Edith: The Farnsworth House.

Introducing the value-priced Classic Series.



Featuring the classic flange design, this accessory collection meets the needs of most "middle market" buildings where cost is a major consideration.

You no longer have to settle for second best. Now you

can specify the number-one rated brand of washroom accessories and toilet compartments for all building types and budgets.

Elegant TrimLine

Series. Crisp, flush architectural lines accent this Bauhaus group, perfect for upscale commercial and institutional projects.



High-design Contura Series.



Patented Contura presents subtle arcs and radiuses, with design-coordinated surface and recessed models, appropriate for prestigious corporate projects. **Specify Bobrick, insist on Bobrick.** With Bobrick you can complete your jobs with full confidence that the building owner will be well satisfied into the future, enjoying substantial savings on replacement and maintenance costs.

Priceless service.

Bobrick fields the most experienced Architectural and Sanitary Supply Representatives backed by nationwide distribution centers, and responsive

customer service personnel.

Telephone 800/553-1600.

©1995 Bobrick Washroom Equipment, Inc.

Circle 77 on information card

Based on the theory that two heads are better than one, we offer three.



Classic Series™

TrimLine Series™



A good deal more.



**FOR DURABILITY &
LASTING BEAUTY...
THEY SHOULD HAVE
USED AVONITE**

Today you can specify AVONITE solid surface materials in 44 magnificent stone colors. Why not let us enhance your creativity?

For more information and FREE samples on Avonite solid surface materials, please call:
1-800-4-AVONITE

Circle 79 on information card



AVONITE

Science Library Opens in New York City

In April, the New York Public Library opened its new \$100 million Science, Industry and Business Library in the landmark former B. Altman department store on Fifth Avenue. In a single stroke, the interior renovation by Gwathmey Siegel & Associates satisfies city, neighborhood, library, and preservationists' needs; rare is the project that works so successfully on so many levels.

Designed in 1906 by Trowbridge & Livingston, the Renaissance-style limestone structure lost the venerable B. Altman in 1990 when the department store folded. Rumors of various tenants came and went, but the structure was ultimately developed as open condominium office space. The New York Public Library bought eight floors on the back side, facing Madison Avenue.

In New York firm Gwathmey Siegel's long tradition of object buildings, the architects shape interior elements into distinct pieces

that form an interior facade legible through wide, high vitrines. On the ground level, an undulating wall with a strip window looks into the electronic reading room. Next to a stainless steel and glass structural cage supporting the elevator, a canted, stainless steel balcony leads to a grand staircase with risers that step back incrementally with each step down. At the foot of the stairs, the two-story Healy Hall leads to the 45,000-square-foot research library in the former basement.

The Beaux-Arts structure by Carrère & Hastings that houses the public library on Fifth Avenue at 42nd Street is a hard act to follow, particularly in an abstract Modernist idiom restricted to the interior of an existing shell dense in columns. But architects Charles Gwathmey and Robert Siegel, with associate architect Jacob Alspector, succeeded in giving the interior a strong presence by monumentalizing elements that form a grand processional sequence. Like Carrère & Hastings, Gwathmey Siegel aggran-

dizes the flight of stairs into a metaphorical path to knowledge.

The palette of materials is new and old: Terrazzo floors and oak paneling recall traditional libraries, while stainless steel panels and detailing update the interior.

The ground floor and basement are the only two public floors in the library's 250,000 square feet, but the architects also created five stories of stacks for 1.2 million volumes by removing the third and fourth stories and retrofitting five floors in the original three. Staff offices facing Madison Avenue and 34th and 35th streets ring the stacks. The library also owns the original sixth and seventh floors for future expansion.

What makes the good news even better is that Gwathmey Siegel is adapting the front floors for a library for the City University of New York, which will consolidate the building as a cultural landmark in the public domain—and guarantee a design compatible with the spirited new Science, Industry and Business Library.—*Joseph Giovannini*



MICHAEL ROGOL

EXTERIOR: Former B. Altman.

F E L O N

Using pirated software
can add more to a resume than
“computer experience.”

By using copied software, people are infringing upon the rights of software manufacturers. Sadly, they're not getting technical support, manuals or updates. Worse yet, they could cripple their company with a \$250,000 federal fine. If you know someone who is using pirated Autodesk software, report them by calling 1-800-NO-COPIES. Because to some, it may be just a click of the mouse. But in reality, it's an act of lawlessness.



CALL 1-800-NO-COPIES TO REPORT AUTODESK SOFTWARE PIRACY.

 Autodesk®

© Copyright 1995 Autodesk, Inc. Autodesk and the Autodesk logo are registered trademarks of Autodesk, Inc.

MICHAEL ROGOL



SCIENCE LIBRARY: Two-story Healy Hall with grand stair serves as library's ceremonial space.

MICHAEL ROGOL



HEALY HALL: Stair and glass elevator lead to electronic reading room.

JAMES RUDNICK



ENTRANCE HALL: Strip window overlooks circulating library and reading room.

JAMES RUDNICK



PUBLIC READING ROOM: Uplights illuminate exposed terra-cotta vaulted ceilings.



Contura by Gordon

The new Gordon Contura is an extruded aluminum perimeter trim designed to highlight or isolate a ceiling area. The system includes positive locking splices and twist-in clips for grid interface at any angle. Custom curving and painting of 2, 4, 6, 8, or 16 inch widths provides endless possibilities for designing contemporary ceiling conditions.

Circle 21 on information card



Call Gordon at 1-800-747-8954 for more information and your nearest Gordon representative. Or fax us at 1-800-877-8746

**Greene and Greene
Exhibition in Berkeley**

The Arts and Crafts Movement was born in England but matured in California, reaching its most extreme expression in the work of Pasadena architects Charles and Henry Greene. The California variant is distinct for its intense regionalism, deeply influenced by the state's spectacular terrain, rich flora, and diverse heritage. By integrating nature into daily living, California Arts and Crafts practitioners hoped to produce harmonious works as solid and lasting as the earth itself.

The domestic architecture of the Greenes had an enduring influence on American living through its advancement of the bungalow, a significant innovation in middle-class housing. From 1907 to 1909, the firm produced an elaborate set of "ultimate bungalows," epitomizing the Arts and Crafts premium for finely worked natural materials and interdependently conceived details. Most were built in Southern Cali-

fornia, but a handful of Bay Area and Carmel commissions are the focus of an exhibition of 40 drawings on view through August 18 at U.C. Berkeley's University Art Museum.

"The Last of the Ultimate Bungalows" is named for the nearby Thorsen House (1909), the last produced during the firm's classic period. It includes plans and elevations, details of stained-glass motifs, and designs for fixtures, furniture, and other elements. Selected by Edward R. Bosley, director of the Greenes' Gamble House in Pasadena, the drawings complement the Thorsen House's first public showing. Home to the Sigma Phi fraternity since 1943, the house will be reconstructed with original furnishings for eight weeks this summer. The premise of "Ultimate Bungalows" coincides, then, with the premise of Arts and Crafts itself: an appreciation for the indissoluble link between process and product, between part and whole.

It is instructive to see the living room ceiling plan for Thorsen House, which specifies beams as

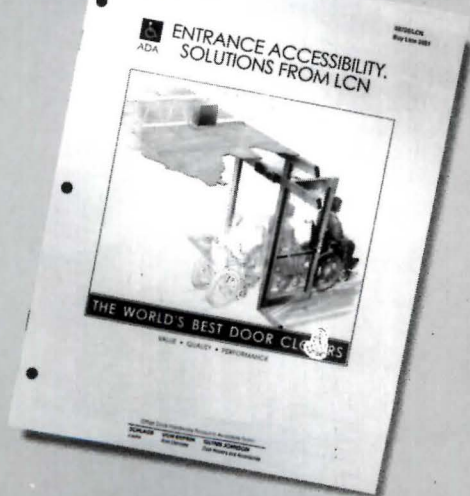
mahogany or cedar and joining pegs as ebony, and then move through the actual space two blocks away, observing first-hand the exposed hand-worked timber construction. The experience leaves the strong impression that only a firm modeled on the medieval artisan guild could have executed such intricate designs.

Drawing on the assorted expertise of masons, glass artists, woodworkers, and metalsmiths, Greene and Greene's results were as rich as nature's own bountiful offerings. They also served as a counterpoint to the burgeoning mass-manufacturing machinery that created identical, soulless, "artless" goods. California always attracted the more extreme brands of idealists, utopians, dreamers, and pioneers. The Arts and Crafts movement as it evolved on this continental edge joined not only art and craft, but heart with hand, mind with senses, soul with surroundings.—Cathy Lang Ho

Cathy Lang Ho is the managing editor of Design Book Review.

LCN AUTOMATIC OPERATORS

**Access for the Physically Challenged.
Complies with ADA.
Electric & Pneumatic models.**



BOOK IT!

LCN Auto-Equalizers are the most specified automatic operators for entrance accessibility. Circle the "Product Information Number" for a copy of the brochure or call 800/526-2400 for immediate service.

INGERSOLL-RAND LCN
ARCHITECTURAL HARDWARE
PO BOX 100 PRINCETON, IL 61350-0100

Circle 23 on information card

SARA® CAD Services

We HAND DRAFT your drawings into CAD!

FREE first sheet

\$100 per sheet

**NEW!! Free Options:
Floorplan Database
Internet Project Publication**

Satisfaction Guaranteed!

- Overnight rush option - **NEW!!**
- 3, 5, or 10 day rush options
- AIA or custom layering format
- Scan - \$5 per sheet
- Color Plot - \$10 per sheet
- Vectorize - \$10 per sheet
- CD-ROM, floppy or ftp return
- No limit to drawing complexity
- Any number of drawings



1 800 700-3025

<http://www.ePlan.com>

e-mail to: info@sara.zia.com

Circle 25 on information card

Winner of Governors Island Competition Announced

Peter Hau, a University of Pennsylvania graduate student in landscape architecture, is the winner of the Van Alen Institute's competition for the hypothetical reuse of Governors Island in New York Harbor. As first-prize winner, Hau will receive the Institute's \$10,000 Fellowship in Public Architecture. The competition was judged by Princeton University Professor of Architecture and Urbanism M. Christine Boyer, Chicago architect and planner Miriam Gusevich, New York landscape architect Judith Heintz, Houston architect Carlos Jimenez, and Barcelona architect Enric Miralles.

Hau's proposal, "Open Narratives: Reconfiguring the Air, Land, and Waters," transforms the island into a regenerative garden, with plants acting as river cleaners, filters for heavy metals, and organic air fresheners. Windmills and photovoltaic arrays would generate elec-

tricity to power island facilities.

The \$2,500 second prize was awarded to Kimberlee J. Douglas for "Wired! Island," a renovation of the island into an electronic information hub. Dilip da Cunha and Anuradha Mathur shared the \$1,000 third prize for "The Soil That New York Rejected: The Other United Nations," which envisions the island as a meeting ground for socially conscious dialogue. Honorable mentions went to the firm Archi-tectonics and designers James Corner and Kimberlee K. Yao.—N.C.

African-American Architecture Conference Held in New Orleans

A discussion of the African-American esthetic in architecture, conducted in the spirit of jazz music, was held on April 12 and 13 at the Tulane University School of Architecture in New Orleans. "JAWS: Jazz Architectural Works Shop," organized by Tulane Assistant Professor

Nathaniel Belcher, attempted to redefine architectural culture from the perspectives of predominantly black architects and educators.

Conceived as jam sessions, the speakers' personal recollections and anecdotes became the foundation for academic investigations. Felicia Davis, assistant professor at the New York Institute of Technology, presented her design for the Memorial and Museum for the African Burial Ground in New York as a way to examine the value of African-American history and cultural practices in an architecture of political conscience. University of Virginia's Maurice Cox and Harvard University's M. David Lee presented problems of race encountered in their practices, and also made the case that African-American architects are uniquely qualified to design meaningful buildings for the derelict cores of American cities.

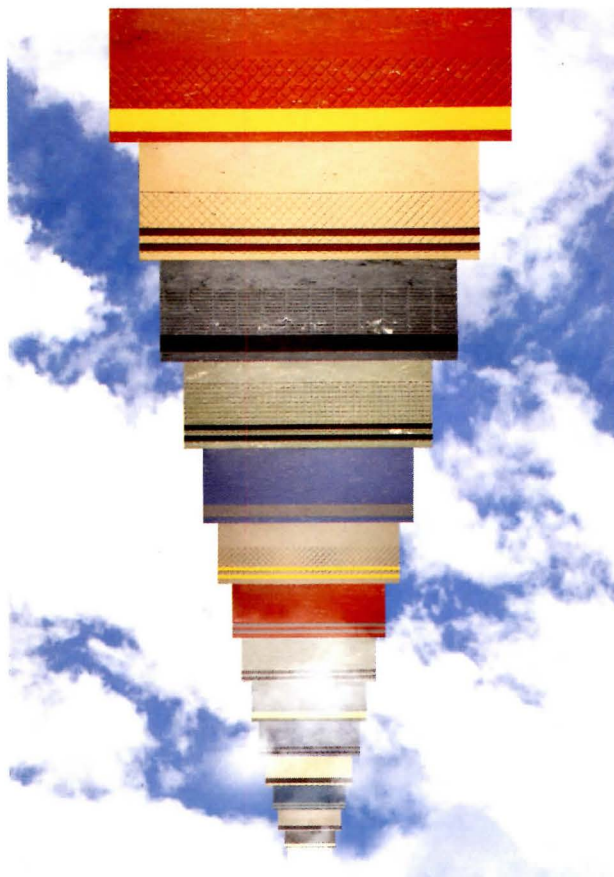
Unfortunately, the academic context often eclipsed both architecture and the participants' personal histories. Jazz's expressive words—"im-

promptu," "serendipitous," and "polychromatic"—were replaced by the fashionable rhetoric of "marginalize" and "empower." Not until the closing discussion did more emotionally charged differences begin to emerge: between youth and experience, practitioners and educators, and the divergent experiences of oppression and opportunity. But the conference only scraped the surface of a deeper core of anger and bitterness—and occasionally, optimism—attached to questions of race.

Although the architect's role in the larger societal issues associated with race remained undefined, the conference proved that the African-American experience is powerful, complex, and part of the immediate present for all people of this nation. Questions of African-Americans' future in designing relevant architecture transcend any single element of society, and deserve a more inclusive hearing.—Scott Wall

Scott Wall is an associate professor of architecture at Tulane University.

WE'RE TAKING OUR STAIR TREADS TO NEW HEIGHTS



No company takes rubber stair treads to a higher level than The R.C.A. Rubber Company. With a full range of colors, styles and adjustable nosings and abrasive strips for extra safety. Plus eye-pleasing textures. For more about our stair treads, call 1-800-321-2340.



THE R.C.A. RUBBER COMPANY
An Ohio Corporation of Akron, Ohio

1833 E. Market St., P.O. Box 9240
Akron, OH 44305-0240
(216)784-1291

Circle 33 on information card

Siedle Video - New Concept - New Price



For secured visitor and entry control.

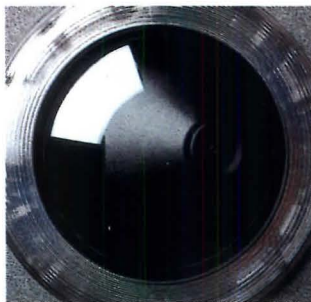
The new Siedle-Video includes:

- 3" black & white / monochrome monitor
- exclusive full active matrix backlit 4" LCD color monitor

The applications include:

- single family residences
- multi-tenant housing
- industrial, commercial & professional installations
- multiple doors and gates

The innovative video door station cameras and the new monitors with clear and brilliant video pictures, including convenient remote adjustable cameras, offered at an outstanding quality price performance.



Exclusive color & monochrome cameras with full 360° swivel range including +/- 20 degrees



Vandal resistant



Optional caller picture memory (16 pictures)

Send this Coupon to:

Siedle Communication Systems of America, Inc.
750 Parkway,
Broomall, PA 19008
800 874 3353
Fax: 610 353 9716
Please send me further information on Siedle communication systems

Name

Address

State/Zip code

Phone

Circle 81 on information card

SSS SIEDLE

New Commissions and Firm Changes

Steven Holl is designing a 6,000-square-meter oceanfront museum dedicated to writer Newt Hamsun in Hamsun's hometown of Hamørøy, Norway. The Brooklyn Post Office, built in the 1890s and now on the National Register of Historic Places, is being restored by R.M. Kliment & Frances Halsband to house offices for the U.S. Attorney and U.S. Bankruptcy Court. Swanke Hayden Connell is consolidating 350,000 square feet of office interiors for the Reuters news agency in Manhattan. Following its 1994 master plan for the Duke University campus, Cooper, Robertson is designing a 220,000-square-foot renovation and 110,000-square-foot addition to the ambulatory care clinic of University of North Carolina's medical center in Durham. Lower Manhattan's Business Improvement District has also tapped Cooper, Robertson along with

graphic designers Pentagram and landscape architects Quennell Rothschild Associates to develop a \$30 million streetscape strategy for the area. The First Presbyterian Church of Wenatchee, Washington, has selected James Cutler Architects to design a sanctuary and community center. Philadelphia-based GBQC Architects is designing a library for Ramapo College in New Jersey, and an 18,000-square-foot sports hall of fame for Pennsylvania State University. Eisenman Architects is being considered to design San Francisco's Jewish Museum.

Perkins & Will has opened an office in Pasadena, California, headed by Gaylaird Christopher, former president of Wolff/Lang/Christopher, to focus on educational projects. Samuel T. Balen, executive vice president of the National Council of Architectural Registration Boards (NCARB), retires this month. NCARB's president-elect Darrell L. Smith of Eugene, Oregon, is leading the search to fill the position.

Obituaries

Architect Serge Ivan Chermayeff, a pioneer of Modernism, died May 8. Born in Russia, Chermayeff was educated in England, where he practiced until 1939. After emigrating to the U.S., Chermayeff collaborated on books with Alexander Tzonis and Christopher Alexander.

Philip Matthews, principal of Moshe Safdie and Associates, died April 9 of a heart attack during a presentation of the firm's shortlisted entry in the San Diego library competition. The competition was temporarily put on hold. Leonard J. Currie, the founder and first dean of the College of Architecture and Art at the University of Illinois at Chicago, died April 23. Douglas Darden, an instructor at the College of Architecture and Planning at the University of Colorado, and a 1988 Rome Prize winner, died of leukemia on April 3 at the age of 44. Los Angeles-based graphic designer Saul Bass died on April 25.

SLOAN

All You Need for Better Restrooms

Architects and specifiers prefer Sloan Optima® Flushometers. And so do their clients. These Flushometers provide the most complete flush and refill, allowing immediate repeat operation. They are attractive, vandal-resistant and give your clients dependable, "smart" sensing operation that only Sloan can provide. Plus, they comply with all ADA specifications.

- *variety of styles give you design flexibility in new and retrofit construction*
- *extremely low maintenance costs with wide network of repair parts*
- *conserves space...energy efficient*

Sloan Valve Company is YOUR restroom expert. For more information on our Optima Flushometers, including a free copy of our brochure on restroom traffic patterns, call 800-745-0800.

Circle 35 on information card



Sloan Valve Company
10500 Seymour Avenue • Franklin Park, IL 60131
Phone: 847-671-4300 • Fax: 847-671-6944

Introducing the most accurate tool for designing the right sound system for your project.



When you're planning a sound system, you don't use the most important tool, your ears, until after installation. That's when you hear it for the first time. And that's when it's too late.

Better Sound Through Research.®

At Bose®, we've applied ten years of research to develop the most accurate audio design tool ever, the Auditorer® audio demonstrator. So advanced it won *Discover* magazine's "Discover Award For Technological Innovation," this tool provides benefits that have never before been possible.

First you hear what a Bose system will sound like *in your facility*, before any equipment is installed, even if the building does not yet exist. Then we *guarantee* the final installation will match the sound quality of the Auditorer® audio demonstration.

"Now there's a new sound technology that could save building designers a lot of money."

— CNN Headline News

Wherever Sound Is Important.

You can hear Bose sound in the most demanding environments, from Winter Olympic games to NASA space shuttles to Madison Square Garden. We offer complete systems specifically engineered for clarity, uniform coverage and dependability. And with the Auditorer® audio demonstrator, results are guaranteed.

Listening To A Blueprint.



1. *Using only your architectural plans, we design the sound system with our Modeler® software program.*
2. *Through the Auditorer® audio demonstrator you listen to a Bose system, precisely as it will sound in the facility you're building or renovating.*
3. *After installation, the public hears the same superior sound in the real environment. Guaranteed.*

No Guesswork. No Surprises. No Risk.

Whatever your application, discover the most accurate way developed to design your next sound system. Call Bose today.

1-800-469-7413 Ext. 380

Name

Title

Company

Address

City State Zip

Phone ()

Call: 1-800-469-7413 Ext. 381

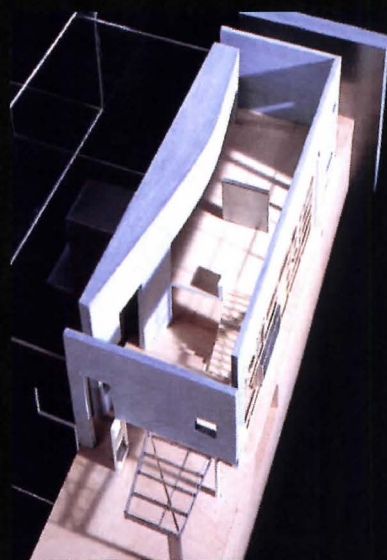
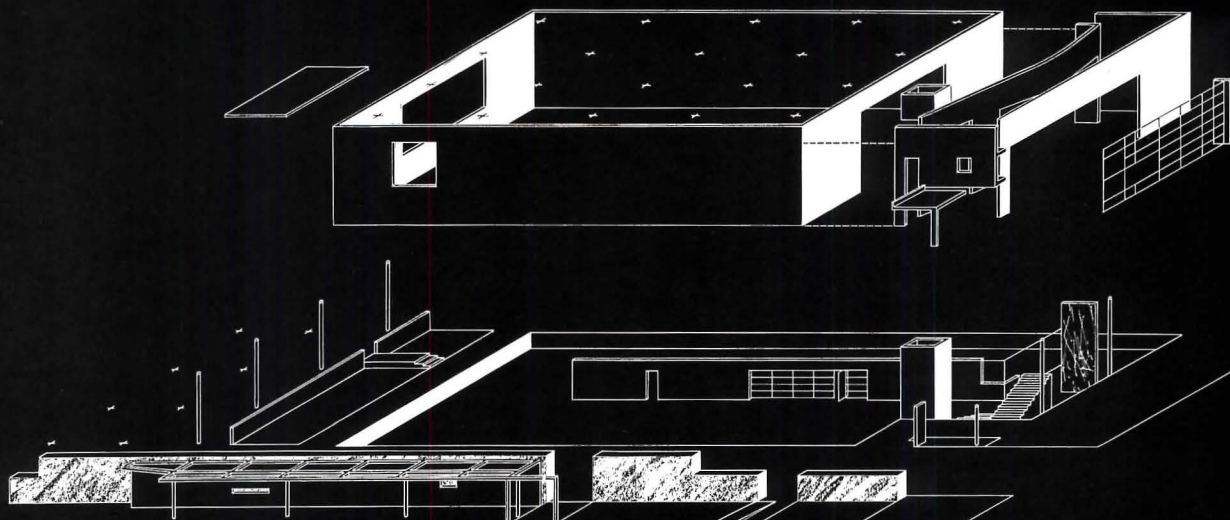
Or send coupon to: Bose Corporation, MS232,
The Mountain, Framingham, MA 01701

© 1996 Bose Corporation JN 96438

Circle 83 on information card

BOSE®
Better sound through research®

On the Boards

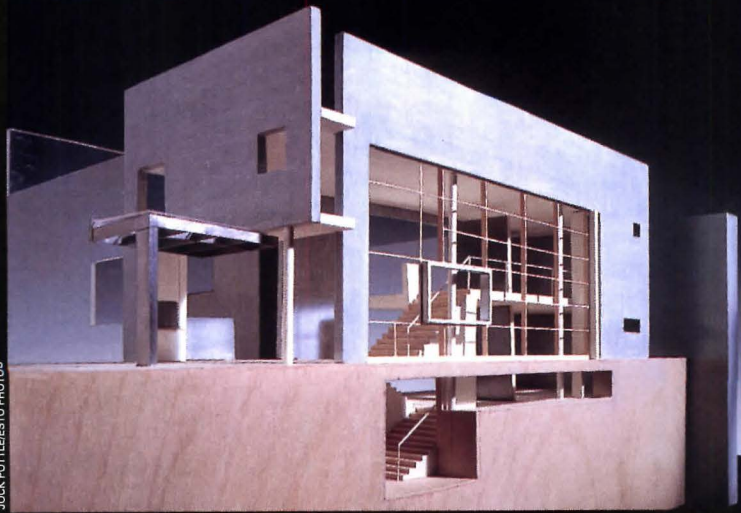


Red Hook Community Center
Brooklyn, New York
Thomas Hanrahan Victoria Meyers
Architects and
Castro-Blanco Piscioneri
and Associates

With cuts in public funding, the New York City Housing Authority has limited the construction of new housing in favor of revitalizing existing housing stock and associated public spaces. Accordingly, the husband-and-wife team of Thomas Hanrahan and Victoria Meyers, working with Castro-Blanco Piscioneri, is revamping the entrance to an existing community center on the site of the Red Hook public housing project in Brooklyn.

The 3,000-square-foot addition to the 1940s WPA auditorium and gymnasium reorients the center away from a side street to the north and toward a new transverse pedestrian spine. Its two stories house a gallery and game room, which double as lobbies with improved access to basement gathering spaces. On the south side of the existing building, the architects inserted a new window in the auditorium, creating a view to an adjacent park.

The steel-framed structure is clad in 4-inch-thick cast-limestone blocks and features aluminum and stainless steel windows. Construction of the center is scheduled to begin mid-summer.—*N.C.*



JOCK POTTLESTO PHOTOS

Make One



Get all the information you need on designs, products, installation and guide specifications for:

- Metal Stairs
- Pipe Railings
- Metal Finishes
- Metal Flagpoles
- Hollow Metal Doors and Frames
- Aluminum and Steel Bar Grating
- Steel Framing Systems
- Metal Lathing and Furring

Contact your one-stop resource for metal products specification and technical information

NAAMM

National Association of Architectural Metal Manufacturers

8 South Michigan Avenue
Suite 1000
Chicago, IL 60603
312/456-5590
FAX: 312/580-0165

Circle 37 on information card

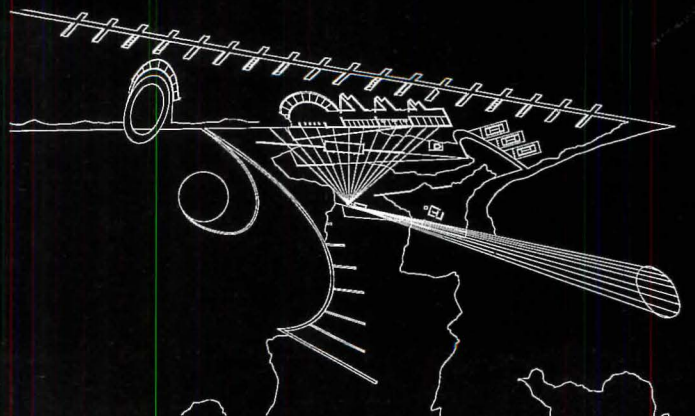
On the Boards



Gebekse Hotel and Villas
Marmaris, Turkey
Kolatan/MacDonald Studio

Kolatan/MacDonald's proposed Gebekse Hotel and Villas will inhabit the coastal Aegean landscape of Marmaris, Turkey, like architectonic earthworks by artists Michael Heizer and Robert Smithson. Each element will be excavated or built up out of a craggy hillside sloping down to two coves. The resort will be entered from the landward side.

A row of guest villas will extend from west to east across the site, providing a datum against which the more irregular forms, such as the hotel, will be arranged. The hotel will occupy two long, rectangular platforms terracing south toward the water. A cable-tensioned structure covered with parachute linen will shade the hotel and support a diving tower. South of the hotel, the piers of a marina will fan out into the water. Construction begins in 1997.—*N.C.*



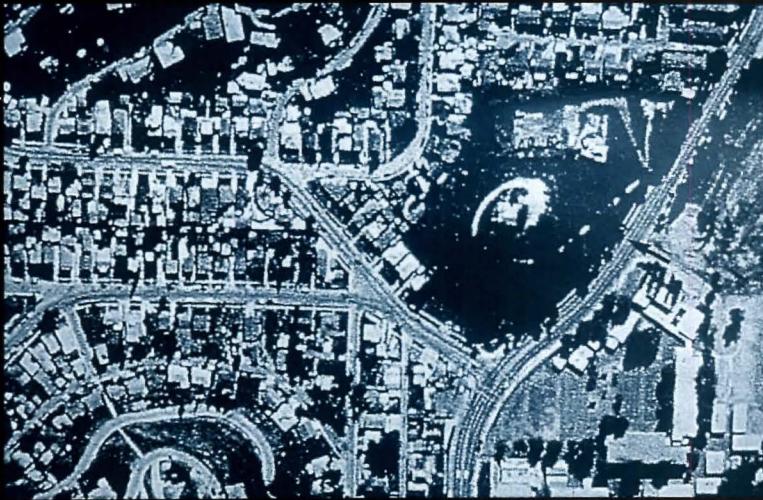
DesignIntelligence.
is interesting,
direct, and on
target. It tells
us where the
profession is
headed and
is loaded with
ideas about
how to improve
our performance
as a firm.

—Richard Green
The Stubbins Associates

Work Smart.
Read **DesignIntelligence.**

Call 703/ 904-8065 to order *DesignIntelligence* now, and receive a full year (24 issues) for just \$149—that's nearly 30% off the cover price of \$199.

DesignIntelligence
Business Solutions for Design Professionals



La Caldera
Los Angeles, California
Davids Killory Architecture

The Los Angeles-based husband-and-wife team of René Davids and Christine Killory has won numerous awards for low-cost housing designs. Their latest public housing project, to be located in East Los Angeles, reinterprets traditional hill-top settlements for the needs of multigenerational housing.

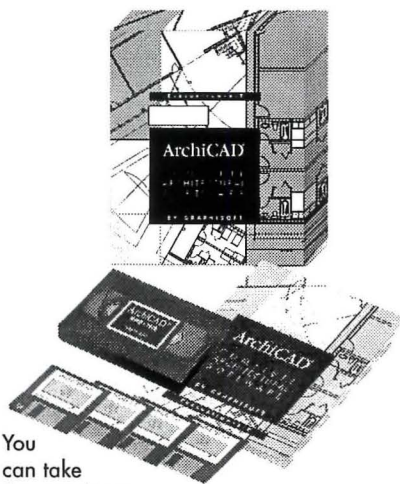
For La Caldera, or The Cauldron, the architects configured 10 identical four-bedroom units like an amphitheater around an oval courtyard. Barrel vaults, sloped roofs, and rooftop terraces will lend a picturesque profile. Each two-story, 1,250-square-foot unit will focus on a wedge-shaped internal patio and sunporch, with living spaces on the ground floor and bedrooms above. Construction is scheduled to begin next spring. —N.C.





EARN 12 AIA/CES CREDITS

AT HOME OR IN THE OFFICE
USING THE GRAPHISOFT
INTERACTIVE CAD COURSE!



You can take this AIA/CES approved self-teaching course at home or in your office in about 5 hours and earn a large part of your 1996 continuing education credit requirements! Course topics include:

- Solid Modeling
- Architectural Rendering Techniques
- Visualization and Animation
- Integrated 3D/2D Documents

and much more.

The Graphisoft Interactive CAD Course costs only **\$29.95** plus \$3.00 shipping (US only) and \$2.75 AIA/CES registration fee. Please specify Windows or Macintosh.

To order your course or find out more about ArchiCAD and seminars near you, call 1-800-344-3468.

GRAPHISOFT 

Circle 39 on information card

On the Boards



**Administrative Center
Tianjin, China
Koetter, Kim & Associates**

The administrative center for the Technological and Economic Development Area of the Chinese port city of Tianjin incorporates a city hall, statehouse, and exhibition space in a single building. Koetter, Kim & Associates saw the commission as an opportunity to provide a symbol of civic pride for a burgeoning manufacturing community caught in the throes of new development and construction.



On the south, a pair of office blocks clad in vitreous glass panels frame a glazed courtyard, which will serve as the public heart of the area. On the north, two office towers linked by glass walkways will offer views of Tianjin and the Pacific beyond. A public auditorium and exhibition space will be located at the base of the towers. Construction will be completed by 1998. —*N.C.*





American Cinematheque
Los Angeles, California
Hodgetts + Fung Design Associates

Movie impresario Sid Grauman's legendary 1922 Egyptian Theater on Hollywood Boulevard in Los Angeles has been closed to the public since it was severely damaged in the 1994 Northridge earthquake. Now, Hodgetts + Fung is renovating the theater to house the American Cinematheque, a nonprofit film

and video exhibition organization. The Egyptian-style forecourt will be restored with retail space, a café, and a rooftop garden. A 700-seat theater, defined by movable acoustical screens hung from a metal framework, will be inserted into the space of the larger original auditorium. A screening room and meeting room will also be located within the existing shell of the old theater. Construction is scheduled to begin next year.—*N.C.*



“Your focus on thinking outside of the box is needed in the design community. It's provocative and inspirational to us. The database information rings true and cuts through the jargon of the industry.”

—Neil Frankel
 Skidmore Owings and Merrill

Work Smart.
 Read DesignIntelligence.

Call 703/ 904-8065 to order *DesignIntelligence* now, and receive a full year (24 issues) for just \$149—that's nearly 30% off the cover price of \$199.

DesignIntelligence
 Business Solutions for Design Professionals

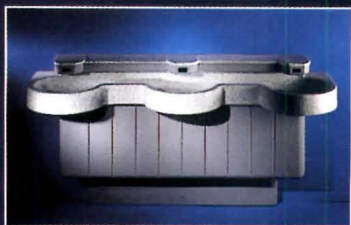
When Mike Svoboda of AT&T needed to renovate 55 washrooms,



Bradley Express® got the call.

“

At our AT&T Jacksonville, Florida plant, the washrooms had been serving 5,000 employees for 12 years. They needed updating. Bradley Express® Lavatory System was the rugged, elegant answer. Express units provide the personal space of individual lavs with the economy of group fixtures. They meet ADA requirements in a single spec, and are easy to install and maintain. The durable Terreon™ surface looks and wears like granite, but resists burns and impact.



We were able to easily incorporate all Express units into limited, existing spaces.

”

— Mike Svoboda
AT&T Facilities Manager



Express® is made under U.S. Patent #5,369,818.
© 1996 Bradley Corporation

See us at the CSI show, Booth #1020.

Bradley
CORPORATION



Always a step ahead of the crowd.™

9101 Fountain Blvd., Menomonee Falls, WI 53051
(414) 251-6000
<http://www.bradleycorp.com>

Circle 85 on information card

Throwaway architecture denigrates an esteemed model of urban design.



SUMNER SUITES: Hotel's generic design and suburban siting ignore Riverwalk context.

Hotel Degrades San Antonio's Riverwalk

San Antonio's Paseo del Rio (the Riverwalk) is one of America's few moments of great urban design, and a landmark of preservation planning. This delightful pedestrian pathway, lined with shops, restaurants, and hotels, meanders along the banks of the San Antonio River through the city's downtown. It is America's Venice, a splendid alternative to the mediocre urbanism plaguing so many of our cities.

Now a little of that mediocrity has crept down to the river's edge, in the form of a generic hotel called the Sumner Suites. Designed by Gallatin, Tennessee-based Moore and Associates—house architects for Sumner Suite's parent company, Show Lodge—the hotel opened last Thanksgiving, barely seven months after breaking ground.

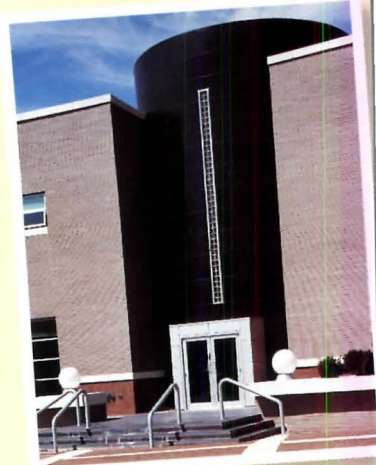
Haste makes waste. Sited on an underbuilt section of the Riverwalk,

the Sumner Suites could have become a magnet for quality development. Instead, the seven-story slab of stucco completely ignores its context, lining its prime riverfront exposure with mechanical-room service entrances. Initially, Moore and Associates proposed blacktop parking along the river, relenting only under pressure from the San Antonio Historic and Design Review Commission (SAHDC). Instead, the architect planted the hotel behind an archetypal symbol of suburbia: a sweeping, empty lawn.

The building has no architectural style, other than a passing reference to the Taco Bell school of Spanish humiliation: vestigial arches are stretched to ridiculous proportions over what is essentially a shoe-box building, with a thin metal roof painted red in an absurd reference to traditional clay tile. Ever insensitive to context, Show Lodge built an identical hotel in a shopping mall parking lot across town.

Sadly, the Sumner Suites not only fails as architecture, it also desecrates sacred ground. "A project like this should never have happened," laments SAHDC board member and architect Milton Babbitt. But the review commission allowed it, fearing the developer would inevitably appeal, and that his economic arguments would be more persuasive to San Antonio's City Council than SAHDC's esthetic objections. "We can't really stop a development," Babbitt explains. "We can only try to make it better."

Thanks to the SAHDC, Sumner Suites is marginally better than initially proposed. But the Riverwalk is worse. Its delicate historic fabric is already straining under development decisions that have increased building density, crowds, and noise. Now the Sumner Suites eats away at the Riverwalk's architectural character as well. This piecemeal erosion of one of our premier urban resources must stop.—*Reed Kroloff*



Male Space

Architecture subtly reinforces gender stereotypes—not only for women, but for men.



BACHELOR PAD: *Pillow Talk* (1959) shows how high-tech gadgets bolster virility.

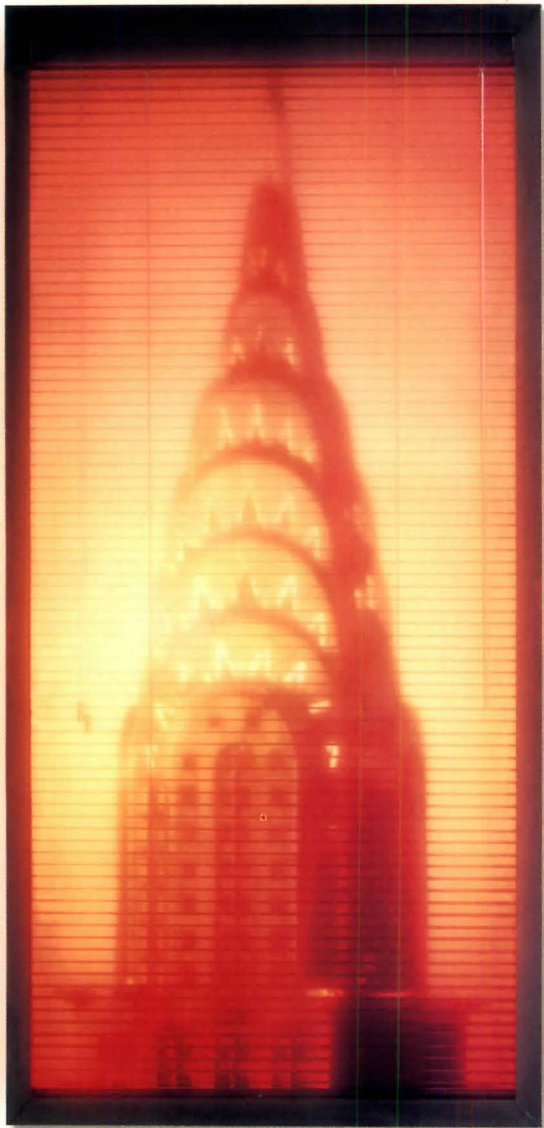
Borrowing a term from architecture, critics have begun to examine the role of space in the “construction” of sexual identity. Based on the assumption that gender roles are not innate biological predispositions, but rather are historically and culturally produced, these theorists look at how architecture functions as a cultural practice that actively shapes masculinity and femininity. From developer house plans that sequester housewives in the kitchen and husbands in the den, to large-scale plans that isolate the traditionally feminine world of the suburb from the masculine realm of the city, architecture reinforces gender differences.

By allocating and segregating human activities in space, architects create the places where individuals daily enact socially prescribed gender roles. Pioneering studies of American domesticity by Gwendolyn Wright and Dolores Hayden, and other writings by feminist historians and critics, persuasively demonstrate how our historically patriarchal society utilizes space as an instrument to define, exclude, and marginalize women. But until recently, little attention has been paid

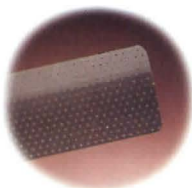
to how physical structures assist in fabricating masculine as well as feminine identity.

How does architecture configure the spaces of everyday life—streets, houses, offices, bathrooms—to define masculinity? One often-cited example is the traditional division between feminine domestic space, the home, from masculine public space, the workplace: a strategy that effectively confirms sexual difference and male privilege by spatially segregating men from women. Or consider public rest rooms, where walls separate the sexes according to the biology of bodily functions. The assumption that simple anatomical differences dictate the spatial layout and fixture design of public rest rooms merely reiterates the reigning cultural perception of sexual identity as an effect of biology. However, one look inside the typical domestic bathroom, shared by both sexes, proves how public facilities are designed only to answer to society’s codes of sexual propriety.

In addition to spatial boundaries, architecture employs other formal means to shape masculinity—the design of building surfaces and everyday objects found within them. By



IMAGINE. SUN SCREEN FOR THE OFFICE.



SHEERVIEW™

sunlight to filter through, while allowing a view even when fully closed. As a result, SheerView reduces solar heat by 42% compared to a fully opened

You want the view, but not the rays. With Levolor's SheerView™ horizontal blinds, it's not a problem.

SheerView uses a pattern of tiny pin holes in the metal slats to permit natural

blind. So it significantly reduces air conditioning costs while it cuts down on the sun's glare.

And whether you're designer, owner or tenant, that's a pretty bright prospect. For complete details, contact your Levolor representative or call 1-800-221-6803.

LEVOLOR HOME FASHIONS®
CONTRACT DIVISION

Circle 93 on information card

Architects fabricate masculine environments by seeming to undress building surfaces: less is more masculine.

identifying manliness as “genuine” and womanliness as “artifice,” architects since Vitruvius have associated the ornamented surface with femininity, not masculinity. Discussing the origin of Doric and Ionic columns in *Ten Books on Architecture*, Vitruvius writes: “In the invention of the two types of columns, they borrowed manly beauty, naked and unadorned, for the one, and for the other, the delicacy, adornment, and proportions characteristic of women.”

Perpetuating its longstanding associations with the feminine, ornament has come under sustained attack in this century from Modernists intent on upholding the notion of a building’s pared-down “inner truth.” Le Corbusier, searching for an authentic, rational, and timeless architecture, found his archetypal model in the image of the Classical male nude, as opposed to the dressed-up female clad in makeup and jewels.

But masculinity, no less than femininity, is constructed through the use of supplemental surfaces. One example, as noted by theorist Mark Wigley, is Le Corbusier’s “Law of Ripolon,” the thin coat of whitewash painted on the pristine walls of Modern buildings and associated with such “masculine” traits as logic, hygiene, and truth. Despite its apparent invisibility, this whitewash functions as a layer added to the surface of buildings.

Recognizing the practical indispensability of this second skin, Adolf Loos recommends that designers emulate the timeless simplicity of the Englishman’s austere, standardized wardrobe. Loos’s injunction makes explicit how materials are made to bear the weight of all the cultural values that masculinity purportedly connotes. Rejecting fabric and wallpaper for their feminine connotations, architects often select wood paneling, coded as ruggedly masculine, for sheathing interiors typically associated with men—social clubs, bars, law courts, and corporate boardrooms. Because of their hardness, durability, and strength, materials such as glass, steel, and stone are ascribed masculine properties.

Often these materials evoke the “manly” environments that produced them: wood conjures up a vision of a preindustrialized, predomesticated masculine wilderness, while steel invokes a picture of working-class laborers shaping molten metals in foundries. Le Corbusier derived his lexicon of forms and materials—bare white walls, industrial windows, and pipe railings—from building types mainly inhabited by men (factories and monasteries), as well as from the traditionally male domain of transportation technologies (cars, ships, airplanes).

Believing that male identity is an authentic, innate attribute of men, architects value these supplemental skins precisely because of their natural, hence “manly,” characteristics. Electing to forego applied ornament, architects such as Mies van der Rohe at the Barcelona Pavilion and Adolf Loos at the American Bar favor not only wood but marble, materials prized for a visual richness achieved through natural graining and veins.

Although they rely upon applied surfaces, more often than not architects fabricate masculine environments by seeming to undress building surfaces: less is more masculine. The Air Force Academy in Colorado Springs (1958), for example, designed by Skidmore, Owings & Merrill (SOM), illustrates how “masculine” space is created by reducing steel-and-glass buildings to their bare essentials. Set on a vast, arid, horizontal podium indifferent to the natural topography, the orthogonally disposed academic buildings frame panoramic views, allowing cadets to visually command the surrounding landscape.

From the organization of the site plan to the disposition of window mullions, the academy is ruthlessly designed according to a 7-foot grid derived from the module of a cadet’s bed. The gridded paving pattern even regulates the path of freshmen as they march across the plaza between classes.

The academy’s interiors are also conspicuously lacking in detail, obeying a logic of absence, or austerity—a logic implicitly

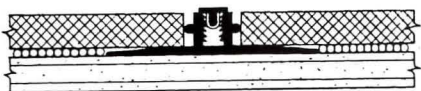
"Is that the company that made the boomerang laminate"

Atlanta architect at Marlite Focus Group



Surface Systems

Surface Systems has changed the way a lot of architects feel about Marlite, today. It allows you to put a variety of elegant, exotic and high touch materials on interior walls. This collection of over 55 standard wood veneers, metals, faux finishes and industrial materials (including phosphate cements) can be applied to the wall in four different pre-engineered systems. Retail versions are available. It is an important part of the new look of Marlite, today. Call or write to bring yourself up-to-date. 202 Harger St. Dover, Ohio 44622. (330) 343-6621. Fax: (330) 343-7296.



Marlite® Surface Systems is a pre-engineered system that minimizes installation complexities and costs. Shown is joint detail from System Two, one of four standard systems.

 **Marlite**
Today.

Circle 95 on information card

Shown: Wood Violet Phosphate Cement, in one of the 55 versions of Surface Systems, with black channel runners and black aluminum posts.

Opinion

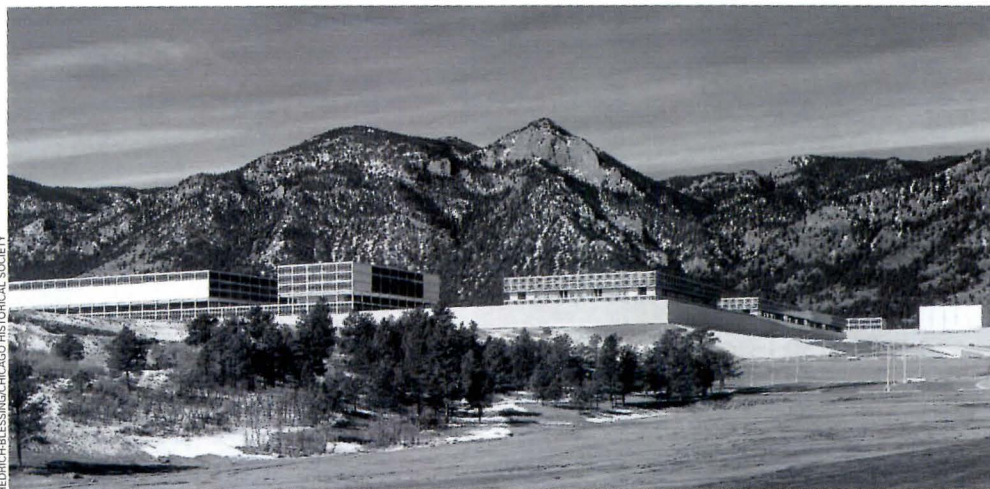
predicated on the eradication of “feminine” excess or ornamentation. Created by Walter Dorwin Teague Associates, the interiors and furnishings employ dark wood paneling and aluminum-framed furniture to create orderly and highly regimented living quarters where cadets train to become men. The exhibitionist overtones of even the most spartan masculine spaces are particularly striking in the cadet quarters, where built-in wood closets, opened daily for inspections, reveal military uniforms hung according to military protocol. These custom-designed outfits reinforce the image of masculine regimentation, hierarchy, and control imparted by SOM’s design. They represent a masculinity that pretends to be natural, but is in fact consciously produced through carefully conceived environments.

Many critics agree that masculinity is not the stable and confident sexual identity it purports to be, but instead is at risk. Discussing this issue from the perspectives of different disciplines, they outline historical and psychological reasons why men need to compensate for their deep-seated sense of vulnerability. Historians cite specific events—the Industrial Revolution, World War II—that transformed men’s roles in both the workplace and in the home. Returning after military service abroad, American men were

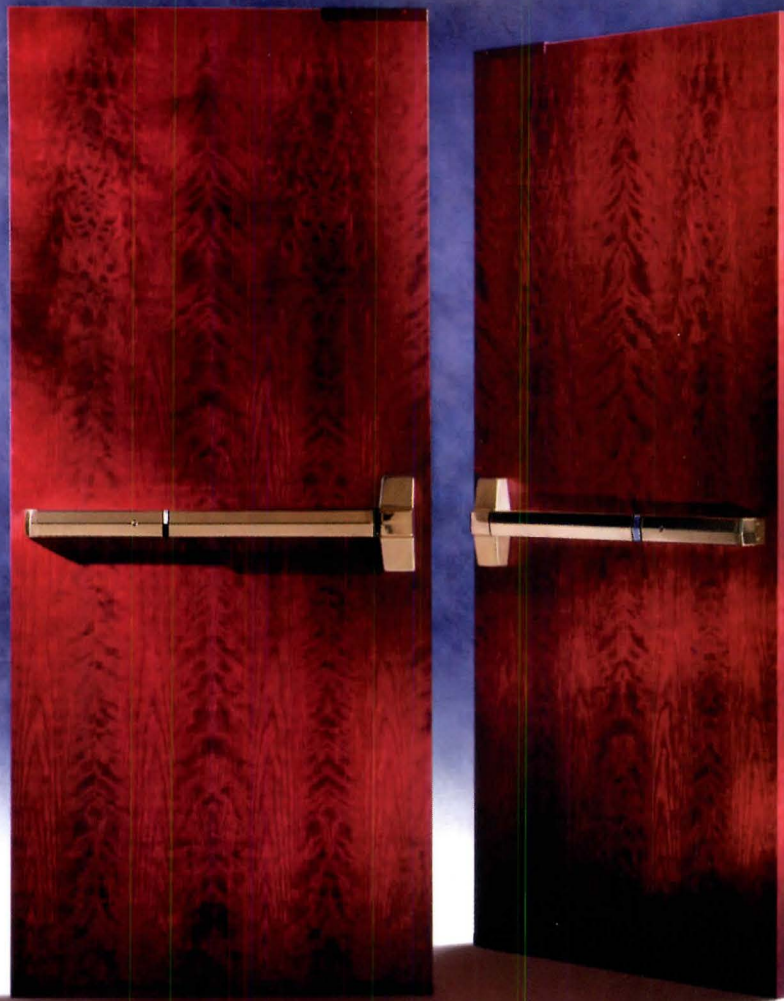
compelled to adopt emasculating new roles as sedentary office workers and suburban home consumers. And psychoanalysts attribute male insecurity to the psychic formation of sexual identity itself. Beginning in early childhood, the individual’s realization that he can never live up to the ideal of manhood imposed by family and society breeds anxiety and insecurity.

“Boy toys,” electronic gadgets and appliances created by industrial designers and often integrated as built-in components of architecture, help to shore up this imperiled masculinity. They figure prominently in postwar American architecture—especially in the bachelor pad, an apartment often featured in films during the 1950s. In his analysis of the Rock Hudson character’s bachelor apartment as depicted in the 1959 film *Pillow Talk*, film critic Steven Cohan attributes his success as a playboy to his impressive equipment: his telephone, built-in hi-fi, and electronically operated sofa bed all function as technological sex aids that compensate for (while nonetheless accentuating) the Hudson character’s fragile virility.

Updating the boy toys of the 1950s, today’s expanding array of commercially available equipment—computers, VCRs, compact disc players, projection televisions—attest to



CADET CONTROL: SOM’s Air Force Academy (1958) reinforces masculine regimentation.



YES, WE ADMIT IT WE'RE HIDING SOMETHING

BY PREPARING DOORS THAT CONCEAL VERTICAL RODS AND HAVE NO METAL EDGES AT MEETING STILES, WE'VE CREATED A LOOK OF ELEGANCE IN FIRE DOORS RATED UP TO 90 MINUTES. THAT MEANS THE TOUGHEST STANDARD AVAILABLE, HIDDEN BENEATH THE WARMTH AND BEAUTY OF UNINTERRUPTED WOOD VENEER. IN FACT, THESE UNIQUE FIRE DOORS COME IN RATINGS OF 20-, 45-, 60-, AND 90-MINUTE STANDARD PAIRS, AS WELL AS A 45-MINUTE DOUBLE EGRESS PAIR. THE DOORS ARE PREPPED FOR EASY-TO-INSTALL YALE™ CONCEALED VERTICAL ROD HARDWARE FOR AN ATTRACTIVE, UNDISTURBED LOOK THAT SHOWS OFF YOUR CHOICE OF WOOD SPECIES, DESIGNER COLORS, AND CUSTOM STAINS. TO TAKE A CLOSER LOOK AT WHAT'S BEHIND OUR FIRE-RATED ARCHITECTURAL DOORS, CALL WEYERHAEUSER AT 1-800-869-DOOR.

WEYERHAEUSER DOOR DIVISION SALES CENTER, 1401 EAST 4TH ST., MARSHFIELD, WI 54449-7780.

Circle 97 on information card

 Weyerhaeuser



Reinforced concrete . . . the cost effective solution for public complexes.

State-of-the-art, conventional reinforced concrete construction techniques provide many design and structural solutions for large public complexes. High strength, longer spans, less columns, forming flexibility and

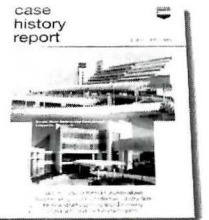


Burdin Riehl Ambulatory Care Center, Lafayette, LA

minimal operation disruption are all important capabilities that allow for more efficient design and easier construction of massive structures. These reinforced concrete advantages all result in lower costs compared to other framing systems.

Additional benefits of reinforced concrete . . . superior durability, lower maintenance, better wind-load resistance . . . *reinforced concrete provides the most cost effective solutions for large public and institutional projects.*

Find out more about reinforced concrete construction at these two public complexes. Call or fax for this new Case History Report No. 50 from CRSI. *It's Free!*



Concrete Reinforcing Steel Institute

933 N. Plum Grove Road
Schaumburg, Illinois 60173-4758
847/517-1200 Fax: 847/517-1206
Website: <http://www.crsi.org>
Circle 41 on information card

© 1996 CRSI

the ongoing male fascination with and dependence on mechanical and electronic objects. Men's obsession with gadgets has even evolved into an architectural style. Making literal the metaphorical comparison between buildings and machines first posed by the Modernists, High Tech designers such as Norman Foster and Richard Rogers conceive of entire buildings as boy toys. Their designs for the headquarters for two financial institutions traditionally associated with men in gray flannel suits, the Bank of China and Lloyd's of London, drape simple enclosures with an elaborate ornamental vocabulary of exposed pipes and ducts—virile garb that evokes Hot Rods, not white-collar office work.

Architecture, in the process of bolstering male vulnerability, thus confirms and enables male power and privilege. As the Air Force Academy and the bachelor pad demonstrate, architecture fashions masculinity according to prevailing cultural models of manhood, helping to perpetuate the status quo. But by naturalizing and reinforcing the rigid social codes that constitute maleness, architecture not only oppresses women, but men as well. It can help to institute a narrow ideal of masculinity that limits and constrains the possibilities for male identity.

For this reason, architects must pay careful attention to the ordinary spaces that we habitually take for granted, but that quietly participate in the manufacturing of male as well as female identities. Scrutinizing these sites will not only heighten our awareness of architecture's seminal role in the social construction of gender but, more importantly, will enable us to reconceive the built environment in the hope of initiating new and more emancipated modes of human interaction in space.—*Joel Sanders*

This essay was adapted from Joel Sanders's introduction to Stud: Architectures of Masculinity (Princeton Architectural Press), which Sanders also edited.

daltile is...

Ask anyone — one-stop shopping is the way to go. Good thing the new Daltile pays such close attention to color and design. From subtle neutrals to vivid brights, from sleekly modern to charmingly rustic, we can provide the most fashionable tile around. So why shop around? With Daltile, even your most stunning design statement is in the bag. For quick product samples, literature and technical information, call your local Daltile architectural representative or 800-933-TILE. Or go to www.daltile.com to visit our new web site on the Internet.



fashion.





Now there's a way to translate what's in your head—to the floor. It's the revolutionary new TacFast™ Carpet System. And it makes practically any design or border you can visualize perfectly executable. Instead of messy glue or tackstrips, this carpet uses aggressive hook and loop fasteners. The 3M hook tape bonds to the floor, the loop part is built into the carpet backing. That means installations are not only VOC and fume-free, they're exact. Lines are straight. Curves fit. Seams don't buckle. And any section can be easily removed to access sub-floors or replace worn carpet.

To learn more about TacFast Carpet, call



1-800-440-2965.

It's not just carpet, it's art.

Circle 103 on information card

ALPOLIC faces the most demanding designs.



Dramatically marking the new Silicon Graphics Computer Systems demonstration center, San Francisco's STUDIOS Architecture chose ALPOLIC® aluminum composite material to clad over 36,000 ft² of wall surface and a bold 55-foot signature column.

ALPOLIC was the logical exterior cladding for high-tech Silicon Graphics. ALPOLIC combines the superior flatness, rigidity and thermal stability of heavy-gauge solid sheet with the expressive designability of composite material. Lightweight and easily formed to the most demanding designs, ALPOLIC has a high strength-to-weight ratio surpassing solid aluminum.

MEGAFLON®, ALPOLIC's remarkable fluoropolymer coating, provides a rich palette of brilliant colors and gloss levels, even economical small-order custom colors. With MEGAFLON's extraordinary durability and fade resistance, Silicon Graphics' colors will stay vivid for years to come.

For information on ALPOLIC, call 800-422-7270. Circle 105 on information card

Project

Silicon Graphics Shoreline Entry Site, Mountain View, CA

Architect

STUDIOS Architecture, San Francisco, CA

Metal wall system

Walters & Wolf Glass Co., Fremont, CA

Material

ALPOLIC aluminum composite material in custom high-gloss and preformulated MEGAFLON fluorocarbon finishes

Mitsubishi Chemical America, Inc.
401 Volvo Parkway
Chesapeake, VA 23320



ROBERT VENTURI AND DENISE SCOTT BROWN

JOHN T. MILLER



ELIZABETH PLATER-ZYBERK AND ANDRES DUANY



HANK KONING AND JULIE EIZENBERG

BLAKE LITTLE PHOTOGRAPHY

Husbands and Wives

More firms are being headed by married couples, who are designing their practices—and private lives—in creative ways.

Architecture is an essentially collaborative medium. Although buildings and projects are routinely attributed to specific designers, anyone with more than a superficial knowledge of the architectural process understands that design is a team effort, and realizes the fiction of the solitary practitioner. The widespread belief that we no longer live in an age of heroic figures seems to be particularly strong in architecture, and that is largely a function of changing perceptions. As recent studies of the early Modernists reveal, they did not work alone—and some of their most important collaborators were women.

The lack of educational opportunities for women persisted well into this century. Even in such progressive institutions as the Bauhaus, they were shunted away from architecture and toward the applied arts. Historically, female partners of male architects were accorded a much lower status. But renewed appreciation for the work of Charles Rennie Mackintosh's wife, Margaret Macdonald; Ludwig Mies van der Rohe's longtime companion, Lilly Reich; and Le Corbusier's gifted assistant, Charlotte Perriand—only the best-known names—indicates that a major reassessment of male-female partnership in architecture is long overdue.

That impulse has led to British historian Pat Kirkham's exemplary corrective

study, *Charles and Ray Eames: Designers of the Twentieth Century* (MIT Press, 1995), in which Ray Eames's role in the partnership is upgraded from submissive helpmate to equal creator, departing from the accepted view that she confined herself to choosing colors and fabrics while he shouldered the major tasks. Later in the postwar decades, such noteworthy husband-and-wife teams as John and Sarah Harkness of The Architects Collaborative and Alison and Peter Smithson furthered the validity of married couples working together in a field then—and still—dominated by the notion that the construction of buildings is an inherently male pursuit.

Husband-and-wife partnerships do exist in other professions, but to a lesser degree than in architecture. The demanding working conditions of architecture, typified by long hours in confined spaces, combined with intense deadline pressure and a passionate commitment to perfection, seem especially prone to sparking romance. (This issue focuses on heterosexual relationships, although many of the issues involved pertain to any sexual orientation.)

The most prominent couple in American architecture today is Denise Scott Brown and Robert Venturi. Scott Brown joined Venturi's office in 1967, the same year the couple were married; two years later she became a partner.

Recent husband-and-wife teams are a result of women's increased enrollment in architecture schools.

Their only child, James Venturi, was born in 1971. As the firm's fame grew, the principals' renown increased disproportionately. Venturi, often the senior designer and a brilliant draftsman, became the international superstar; Scott Brown, who concentrated more on the programmatic and urban design aspects, was seen as a lesser contributor. Reviled by the East Coast avant-garde boys' club, she was stigmatized as a strident claimant for undue equal billing.

The "love him, hate her" issue came to a head in 1991, when Venturi, but not Scott Brown, was awarded the Pritzker Prize. Using the flimsy excuse that the award is meant for individuals, not firms, the Pritzker committee dishonored itself by snubbing the world's most distinguished woman architect, with no other female of her stature on the horizon. That scandal still rankles enough for Venturi to have *informed the AIA* that he will not accept its

proffered Gold Medal unless his partner is included. "There is this old-fashioned idea that the architect is a 19th-century Romantic genius who works alone," Venturi says, "but in fact, it is an intensely collaborative effort."

For all the difficulties Scott Brown and Venturi have endured in staking out the legitimacy of husband-and-wife partnerships in the profession, they are regarded by many younger architects as the ultimate paradigm of how to work together. Architect Janet Simon, partner with her husband Ron McCoy of their own Phoenix firm, acknowledges the debt: "Ron worked with the Venturis, so they were an example for him. But they've also become one for me, because there are still very few women in architecture, married with children, whom you can look at as role models."

Unquestionably, the recent rise in husband-and-wife partnerships is a direct result of women's increased enrollment in architecture schools since the late 1960s, and of the changing relations between the sexes which began in that period. The first generation of that new wave is now firmly ensconced in mid-career, and a number have cherished the idea of male-female partnerships from the beginning. "One of our goals when we were students at Berkeley in the early '70s," recalls architect Betsey Dougherty of then-classmate, now-husband Brian Dougherty, with whom she works in Newport Beach, California, "was to have a *practice together*."

Although many traditional roles have been set on their ear by that now middle-aged group, there is also the sense within marital teams that clear divisions of labor are still required. According to Andres Duany, whose Florida-based partnership with his wife, Elizabeth Plater-Zyberk, is among the best known of the post-Venturi-Scott-Brown generation, "Right from the beginning, Liz and I have had our firm rule: one or the other of us would be project captain—the boss—so that when there was a disagreement, we didn't argue to the bitter end. Otherwise, if you're married, where does it stop?" Betsey and Brian Dougherty have a similar strategy. "One is always in the lead, the other the collaborator," she reports. "If there wasn't one clearly designated partner-in-charge, things could still fall through the cracks—even when you see each other every day and night."

An honest recognition of individual talents and a frank assessment of what each brings to a collaboration—basic requirements for any partnership, male or female, married or not—are cited by many husband-and-wife teams. "We act as each other's best critics," says Janet Simon. "It's a synthesis. We're convinced that the product is infinitely better than if

we did it on our own. And there's a lot of mutual respect."

Yet even after a firm and its working methods are established, the professional equilibrium between partners is certain to change over the course of their careers. Julie Eizenberg, who practices in Santa Monica, California, with her husband, Hank Koning, points out, "At the beginning, Hank was much stronger than I was; he still is, technically. He could draw and add, but I was more willing to take risks. Then, at one point, I found I had achieved more power in the system. My style is interactive; his is more insular. But we always rely on the expertise the other has."

Although many husband-and-wife teams first met in architecture school, there is a wide range of demographic variation, from same-age students, to older professors (invariably male) who become romantically involved with female students, to architects who marry only later in life after they've established their careers. Now that the novelty of husband-and-wife practice has worn off, not every architect couple sees partnership as a desirable option.

Two who prefer to work separately are Houston's John Casbarian of Taft Architects and Natalye Appel, principal of her eponymous office. "I got to know John as a professor and a friend a long time before he was a date," recalls Appel, who took his courses at Rice University and later went to work for Taft, "but when we decided to get married, I immediately started looking for another job." Seeking to avoid what might be termed the Yoko Ono Syndrome—a woman coming between the male members of a successful group—Appel "knew that John and his partners were a real team and that my getting into a relationship with him could ruin the tight partnership they have. I could have been a wife or an employee, but not both. But now there's a good relationship between our offices—they call me a 'partner-in-law.'"

Architect Linda Searl, head of her own firm in Chicago, is another woman who prefers to work independently of her husband, Joe Valerio, a partner of Valerio Dewalt Train Associates. "Joe and I met much later than most couples in architecture do," she explains, "and we tend to overlap in our expertise. I learned that we'd save our marriage if we practiced separately. It's allowed us to pursue our differences: Joe does mainly commercial work and is out there on the fringe; while in my residential work, I'm more interested in what clients want to live with for the rest of their lives."

The age difference between Searl and Valerio—he's 10 years older—was another factor in their decision. "If we worked together," she believes, "I'd definitely have been in his shadow because of his greater experience. And there's

the feeling many younger women have, that 'I don't want to be partners with my spouse in order to make it.'" Yet Simon sees her decade age difference with McCoy as a distinct advantage in joint practice: "He's been my mentor. I've had opportunities to learn faster than I would have had otherwise, and as a woman in architecture, that's very important."

For all the potential pitfalls, there are also considerable rewards reported by architectural couples, whether practicing together or alone. "There's a deep understanding when one of us has to travel or stay late at the office," says Andres Duany of potential sources of friction in other marriages. "Another thing I've noticed is that many husbands and wives run out of things to talk about. That's inconceivable for Liz and myself, because we always have such a backlog."

Not every architect couple sees partnership as a desirable option, preferring separate careers.

Other satisfactions can come from unanimity over travel plans. As Linda Searl sees it, "Vacations are perfect because you both always want to go see buildings." The rewards can also be more generalized and profound. "We're life partners in every sense, and that includes work as well as family," says Betsey Dougherty. Natalye Appel finds the strength of separate career tracks in the fact that she and John Casbarian "are both individual and independent people, and that's what keeps us together." And for Julie Eizenberg, the marriage itself helps the office through the long haul: "What working together when you're married adds is that it's hard to walk away from problems. You have to sort things out."

As for long-term effects of the post-'60s boom in husband-and-wife firms, Denise Scott Brown says, "It's still too early to tell whether women bring 'womanly' character to architecture. We'll need 30, perhaps 60, years to determine that. Whether men become more nurturing and women more assertive through working together remains to be seen, but even that is a kind of typecasting I am less than comfortable with. The possibility of joint creativity is very strong, however, and the tapping of ideas is as real as it is exciting."—*Martin Filler*

Martin Filler contributes to many publications and is married to architectural historian Rosemarie Haag Bletter.



Weiss/Manfredi Architects

Having won two design competitions for high-profile civic projects, partners Marion Weiss and Michael Manfredi are in a unique position to influence the public perception of architecture. Their design of Sergeant Means Park in the south Chicago suburb of Olympia Fields has just been completed, and their scheme for the Women's Memorial and Education Center, sponsored by the Women in Military Service For America Memorial Foundation, at Arlington National Cemetery in Virginia, is finally under construction after seven years of fund-raising and design revisions.

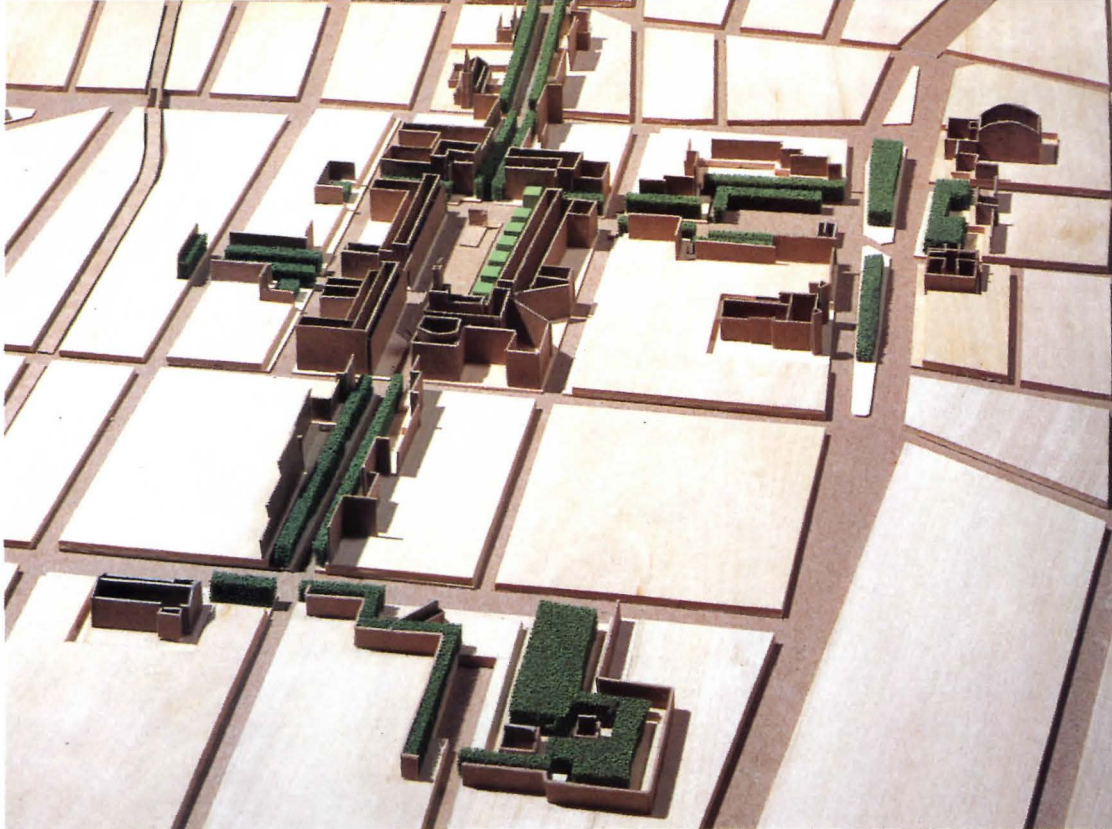
These civic projects reveal a minimalist aesthetic responsive to the sites' natural and man-made histories, using everyday words and images. The Olympia Fields park includes renovated turn-of-the-century barns and a new windmill that evoke the suburb's agricultural past. At the Women's Memorial, text drawn from military speeches and wartime personal diaries will be incised into a 220-foot curving glass skylight, to cast ephemeral shadows on the marble walls below. Weiss and Manfredi reject "willfully autobiographical shapes," they say, preferring essential forms that reflect vernacular traditions.

The diverse backgrounds of 37-year-old Weiss and 43-year-old Manfredi bring a cross-cultural accent to their practice. Weiss, the daughter of a Lockheed aerospace engineer, grew up in Northern California. Born in Trieste, Italy, Manfredi remembers serving as an altar boy in Carlo Maderno's 1603

Baroque masterpiece, the Roman church of Santa Susanna. Romaldo Giurgola's humanist approach to architecture—part Italian Renaissance, part Louis Kahn—brought the two together in the New York office of Mitchell/Giurgola during the 1980s.

A series of New York urban design competitions convinced them of the need to buck the contemporary trend toward privatization and focus on public projects instead. They founded Weiss/Manfredi Architects, based in the SoHo district, after winning the Women's Memorial commission in 1989, and were married three years later. Today, 75 percent of their work is for public clients, an unusually high number for such a young firm. Even their private projects stress some form of public engagement.

The couple is especially interested in breaking down the boundaries between design disciplines, seeking projects that integrate architecture, infrastructure, and landscape. Their unrealized winning competition entry in 1990 for a plaza on the Manhattan side of the Brooklyn Bridge, for example, orders the chaotic site with a cross-shaped, elevated footbridge that links the on-ramps with civic monuments such as City Hall and the Municipal Building. The value of such connections underlies Weiss/Manfredi's philosophy. "We don't want our architecture to be seen as isolated artworks," they assert. "We think of it as part of something with a history, that will someday be part of a new history."—*Donald Albrecht*

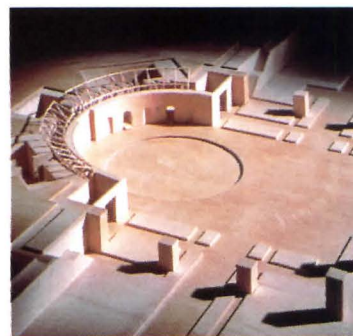
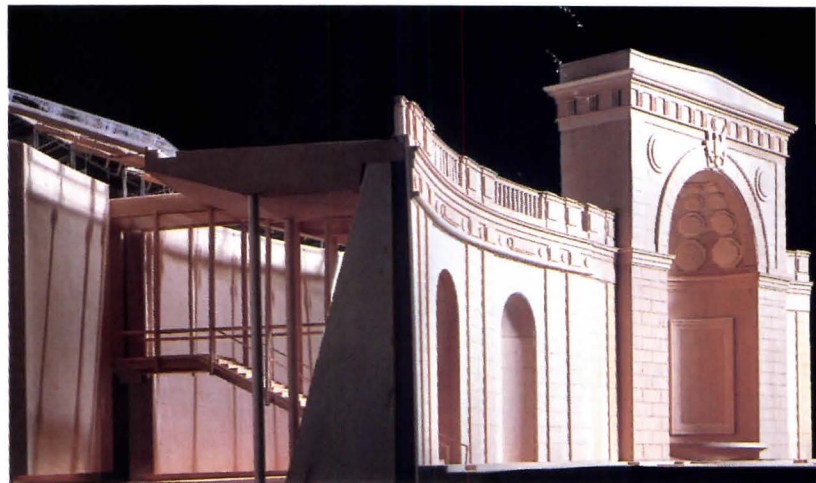


**Flushing, Queens
Urban Design Study
New York City**

Weiss/Manfredi's master plan for Flushing—one of New York City's fastest-growing areas, due to an influx of Asian immigrants—is the first urban design study to be implemented through the city council's new land-use powers. The plan seeks to control rapid growth and congestion by linking transportation systems, developing the dilapidated waterfront, and weaving historic buildings into the existing fabric. The first phase, created with Peterson Littenberg, was completed in 1994; the second focuses on pedestrian and transportation patterns.

FACING PAGE: Partners Marion Weiss and Michael Manfredi.

LEFT: Urban design study links existing stores, churches, Flushing River waterfront, and Shea Stadium.



**Women's Memorial
and Education Center
Arlington, Virginia**

Weiss/Manfredi's winning Women's Memorial and Education Center scheme, sited behind Arlington National Cemetery's 30-foot hemicycle, will include an exhibition gallery, conference center, and auditorium. Four stairways connect the memorial to an upper-level terrace framed by a text-incised glass skylight.

ABOVE: Memorial occupies 37,000 square feet behind hemicycle designed by McKim, Mead, and White in 1912.
FAR LEFT: Skylight replaces original design of 39-foot-tall glass spires.
LEFT: New landscape design will include linden trees and circular pool.

**Sergeant Means Park
Olympia Fields, Illinois**

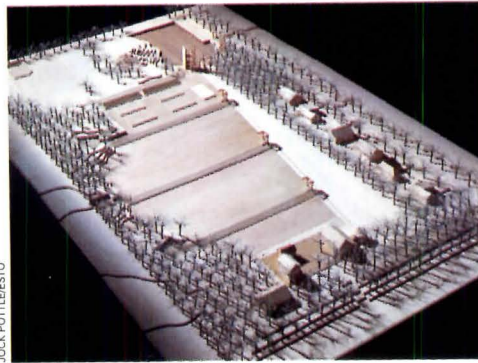
Weiss/Manfredi's design for this 20-acre park was selected over 228 submissions in the "New Town Green" competition sponsored in 1992 by the Olympia Fields Park District. Jurors selected the scheme for its elegantly sculptured landscape forms, adaptive reuse of existing buildings, and design features evoking the site's Midwestern history.

The scheme successfully builds on Chicago's 19th-century practice of placing organically designed parks within the checkerboard of the city's street grid, providing pastoral antidotes to its relentless monotony. Along the edges where the park abuts the grid, Weiss/Manfredi based a series of architectural and landscape vignettes on the theme of America's westward expansion.

A grove of oak trees along the southern boundary restages the primeval forests that disappeared in the wake of human settlement. The northern boundary is defined by a straight asphalt walkway that connects the park's public entrances; a new trellised walkway and working windmill surround a flood retention pond on the site's western edge. A romantic homestead of three renovated wood structures from the site's agricultural past graces the eastern boundary. An existing 1890 farmhouse was converted into 1,600 square feet of park district offices, and a 300-square-foot milk barn became a concession pavilion for picnickers. The homestead's focus is a 1910 barn and a new silo-shaped annex housing the 4,500-square-foot community center, which includes a two-story multipurpose space, offices, and a village meeting room.

Weiss/Manfredi echoed vernacular farm architecture by adopting a simplified, neo-Shaker esthetic of exterior batten-board sheathing, corrugated galvanized-metal roofing, and natural wood walls and polished concrete floors. The park's boundary zones enclose a grassy clearing with tennis courts and playing fields at the center of the site.

"Multiple histories," Weiss and Manfredi note of their powerful concept for the postwar suburb's new American green, "carry an implied memory that we set out to incorporate, transform, and build on." Through architecture and landscape, their park for Olympia Fields makes manifest the processes of time.



JOCK POTTLEFESTO

FACING PAGE: Curving trellis and windmill enclose flood retention pond.

LEFT: Twenty-acre "town green" includes terraced park with tennis courts and playing fields; renovated turn-of-the-century barns and farmhouse; and new pavilions, trellis, and windmill.

BELOW: Freestanding wood canopies with benches demarcate pathway along park's northern edge.

BOTTOM: Wood trellis is posttensioned with exposed system of galvanized-metal straps and rods.



BRUCE VAN INWEGEN



BRUCE VAN INWEGEN



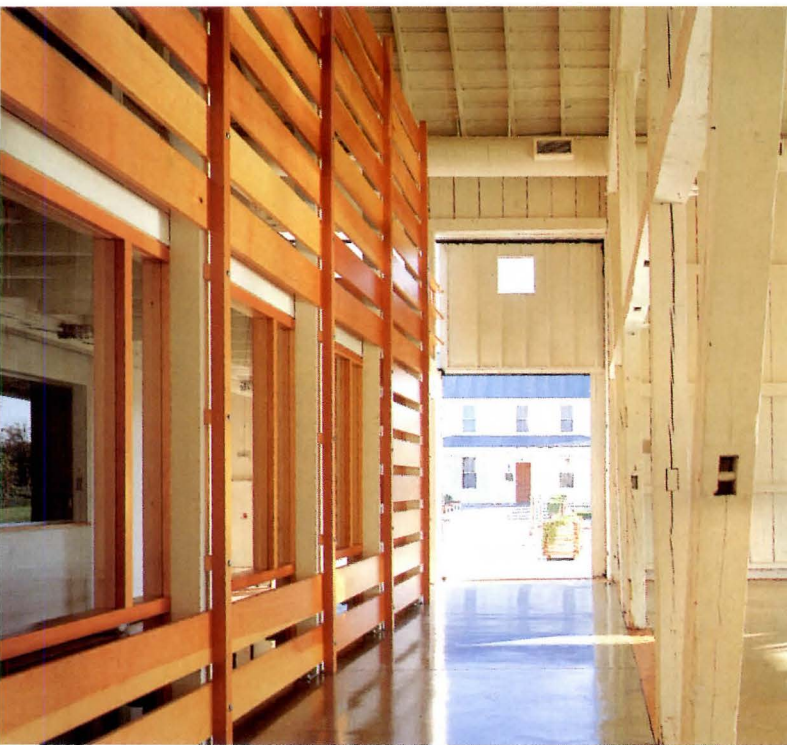
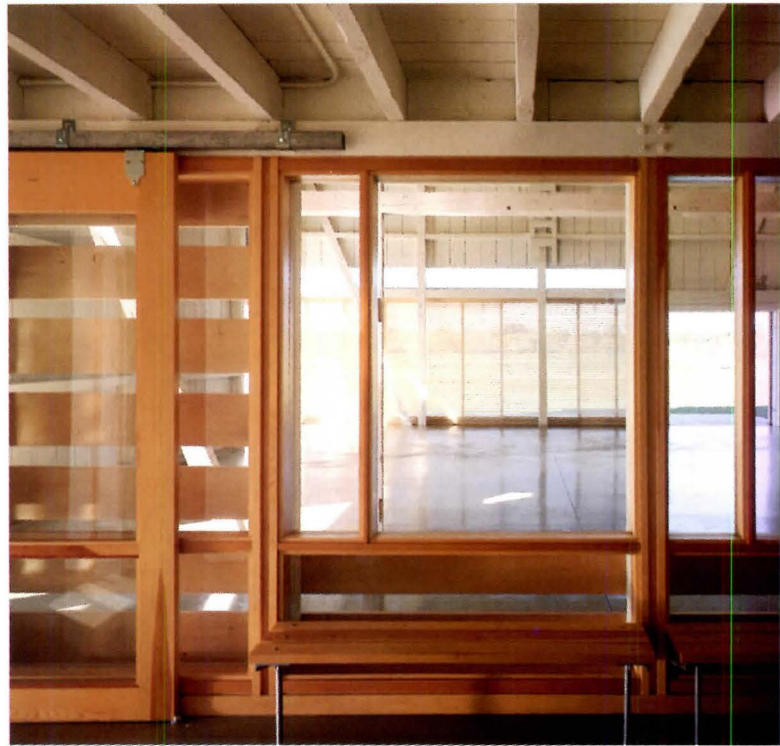
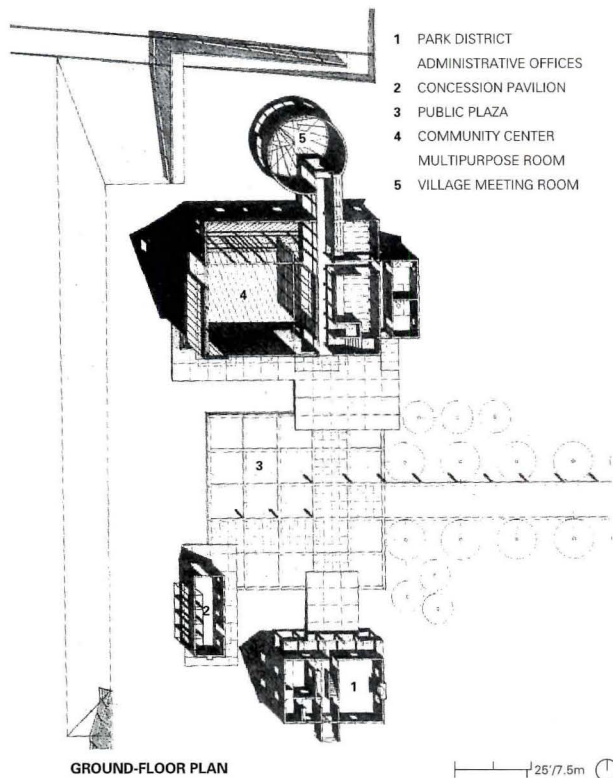




PAUL WARCHOL



FACING PAGE: Community center combines renovated barn and silo-shaped annex. Steep berm descends to clearing. **ABOVE:** Gently sloped clearing mediates between existing buildings and wood seating pavilions. **LEFT:** Concrete plaza connects community center (rear), concession pavilion (left), and park district offices (right).



**SERGEANT MEANS PARK
OLYMPIA FIELDS, ILLINOIS**

ARCHITECT: Weiss/Manfredi Architects, New York City—Marion Weiss, Michael Manfredi (partners); Stephen Moser (project architect); Madhu Gresla (field rep); Christopher Ballentine, Jennifer Graessle (project team)
ENGINEERS: Joseph Schudt & Associates (civil); Tylk, Gustafson & Associates (structural); Creative Systems Engineers (mechanical)

CONSULTANTS: Paul H. Harding and Associates (landscape); Thomas Thompson (lighting)
PHOTOGRAPHER: Timothy Hursley, except as noted

ABOVE: Plank-and-glass wall separates offices (left) from multipurpose room.
TOP RIGHT: Maple-board wall frames views of multipurpose room.
RIGHT: Planks mimic barn's structure.
FACING PAGE: Tensioned steel rods support roof of new meeting room.





Dean/Wolf Architects

Architects Kathryn Dean and Charles Wolf are pros at juggling the demands of teaching, running a practice, and raising a family. The ebullient 38-year-old Dean runs a second-year design studio at Columbia's Graduate School of Architecture; Wolf, 39, leads an undergraduate studio at Parsons School of Design, and drawing and building technology courses at Columbia. Despite their teaching loads, the husband-and-wife team have been busy renovating a five-story industrial building in New York's TriBeCa district, among other projects. "You have to funnel your passion in a way that will keep you building," explains Dean.

Dean and Wolf have shared a passion for architecture since the early 1980s, when they met as graduate students at the University of Oregon. In Oregon, they studied under Kahn protégés Gary Moyer and Thomas Hacker, whose respect for the expressive potential of materials became influential. In 1986, three years after moving to New York, Dean won a Rome Prize and Wolf received a Dinkeloo Fellowship. They spent a year together at the American Academy in Rome, where they met architects Danelle Guthrie and Tom Buresh (pages 110-115) and sculptors Martin Puryear and Bruce Nauman. "Watching the way these artists worked really affected our architectural sensibilities," recalls Dean.

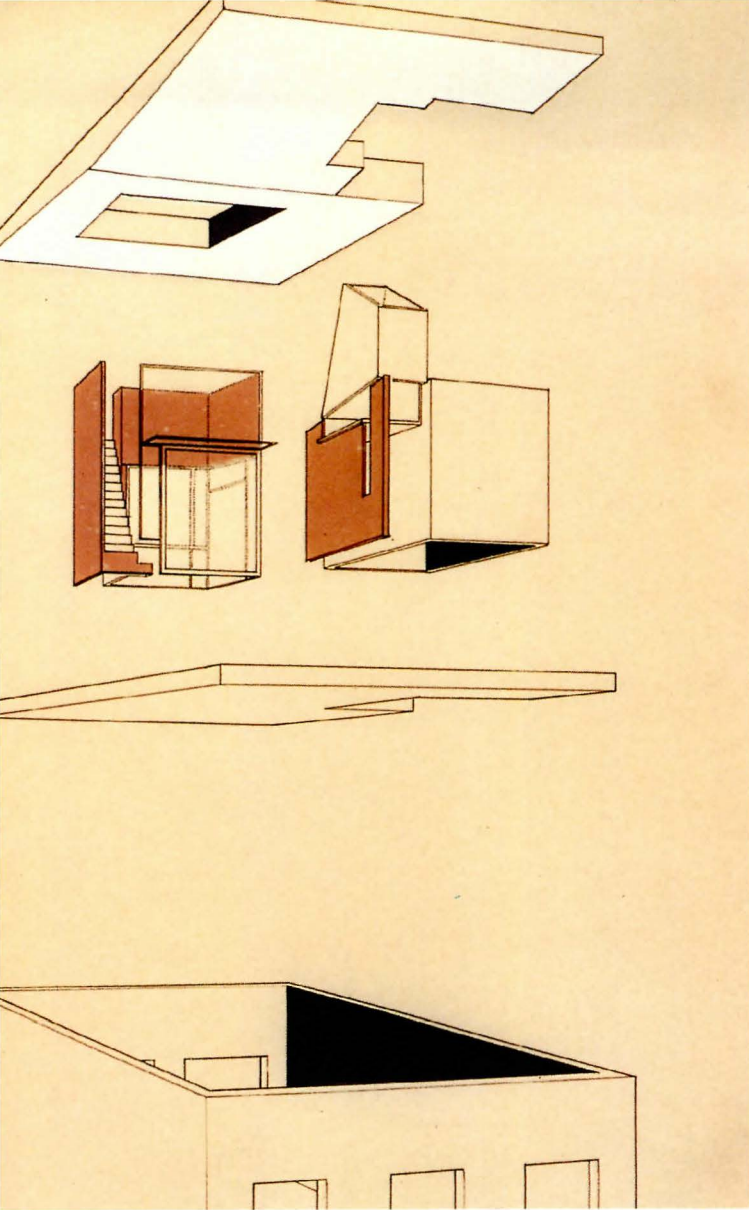
After returning from Rome, Dean resumed her job at Kohn Pedersen Fox, and Wolf rejoined Polshek and Partners. They launched Dean/Wolf Architects in 1991, and immedi-

ately began designing a 5,500-square-foot house in upstate New York. But like so many young New York City firms, the bulk of their work has been interior renovations.

While they would eventually like to expand to larger-scale projects, Wolf concedes that interiors give them a tremendous amount of experience in *detailing and crafting materials*. Theirs is a rigorous Modernism, but one that explores the expressionistic potential of bronze, copper, plywood, and sandblasted glass. Dean and Wolf eagerly experiment with new finishing techniques and assembly methods—treating plywood cabinets with pigmented beeswax, casting concrete fixtures, and fabricating brass window casings.

Such richness of form and texture flows from a balance of talents. "We're almost exactly opposite," claims Dean. "Kathryn is more involved in the conceptual development and resolving formal and compositional issues," Wolf elaborates, "while I'm concerned with how to build the project. But there's a real dialogue on everything we do." This dialogue is reflected in their working habits—the architects often switch desks repeatedly to work on the same drawings.

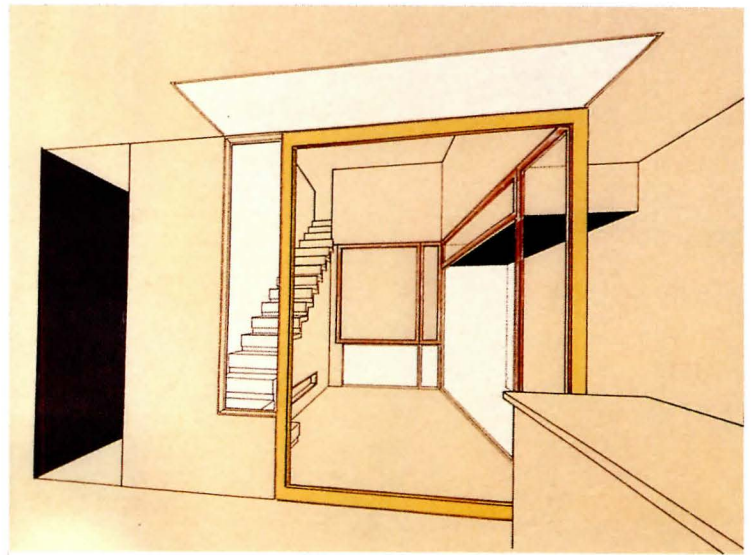
Dean and Wolf continue to balance practice, teaching, and family life. And when their family conversations drift back to office talk, it's the couple's 3-year-old daughter who reminds them of the line between work and family time. Laughs Dean, "She's the one who comes and turns our computers off and tells us to stop talking."—*Raul A. Barreneche*



Loft Renovation New York City

On the top floor of a TriBeCa loft building, Dean and Wolf are building their own live/work space from a rich palette of bronze, copper, plywood, and sandblasted glass. Eventually, the couple plan to move their office to a new rooftop studio, to be reached by a copper-clad stair in an outdoor atrium within the loft.

LEFT: Courtyard interior will be sheathed in copper banding; tilted entry wall (right) creates forced perspective with double-sloped butterfly roof.
BELOW: Courtyard at loft's center provides natural light to each room.

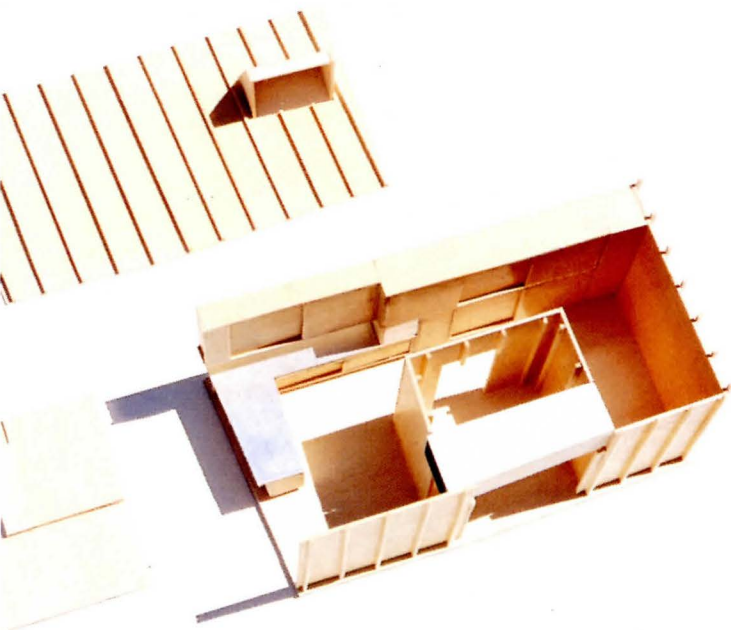


Loft Renovation New York City

Downstairs from their apartment, Dean and Wolf are renovating a loft for a painter. The architects conceived the 1,400 square feet as two interlocking apartments, to allow the client to sublet part of her space. When the owner is in town, pivoting plywood doors create separate entrances around an elevator. When she's away, a pivoting door can be locked into place over the kitchen counter to seal off her bedroom from a communal studio and living space, which the tenant can still access. Scale variations such as the oversized pivoting doors and the 4-foot-square kitchen cabinets make the tight loft appear more spacious.

FACING PAGE: Principals Kathryn Dean and Charles Wolf.

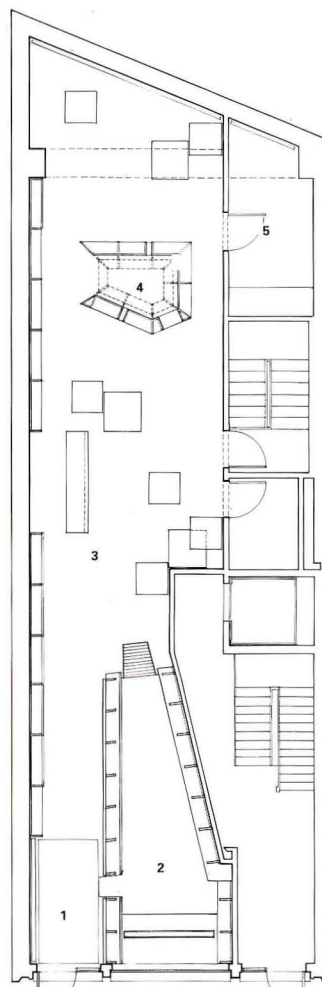
LEFT: Pivoting doors divide rectangular plan into two interlocking units.





Just Jake Toy Store
New York City

Dean and Wolf's interior for a TriBeCa toy store is a welcome departure from overscaled toy supermarkets. Located on the ground floor of the same loft building housing the firm's latest apartment renovations (page 101), the toy store's long, rectangular floor plan is broken down into distinct spatial zones: a reading area, parking spaces for strollers, storage huts for tricycles and beach balls, even a small area for art classes. Brightly painted plywood shelves and storage units underscore the architects' attention to scale, as well as their concern for materials and craftsmanship. The partitions and shelves bring the scale of the space down to children's level, and although they appear lightweight and almost temporary, the units are built of sturdy, kid-proof double-laminated plywood.



GROUND-FLOOR PLAN

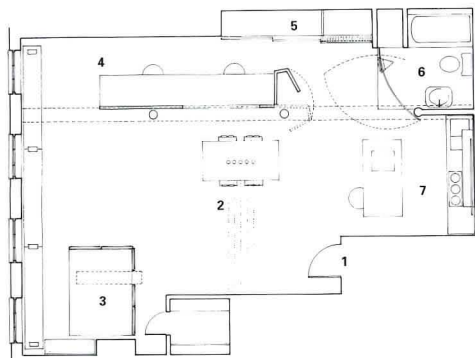
- | | |
|----------------|-------------|
| 1 ENTRANCE | 4 CRAFT HUT |
| 2 BOOK BOAT | 5 OFFICE |
| 3 DISPLAY AREA | |

FACING PAGE: Brightly painted shelving units provide storage space for toys.
ABOVE: Plywood partitions in primary colors diminish scale of lofty interior.
LEFT: Gathering spaces such as reading area turn toy store into informal community center for families.
PLAN: Spatial zones within rectangular floor plate include angular reading room (bottom) and informal classroom space (top).

JUST JAKE TOY STORE
NEW YORK CITY

ARCHITECT: Dean/Wolf Architects, New York City—Kathryn Dean, Charles Wolf (principals)

GENERAL CONTRACTOR: Brian Flaherty
PHOTOGRAPHER: Eduard Hueber



FLOOR PLAN

1/8"=2.3m

- 1 ENTRANCE
- 2 DINING/
CONFERENCE
- 3 BEDROOM
- 4 WORK ROOM
- 5 LIBRARY/STORAGE
- 6 BATHROOM
- 7 KITCHEN



Downtown Apartment New York City

While Dean and Wolf's own Tri-BeCa loft (page 101) allows the architects to experiment with spatial sensibilities, their former downtown apartment reflects their fondness for materials. The thin, rectangular space is partitioned into smaller "rooms" by five screens finished in a range of colors and textures: crisp canvas and steel for a curved bathroom screen; rough wool and polished cotton for a panel separating the dining area from a small office. The pair also experimented with casting a kitchen counter and sink in concrete finished with a technique borrowed from a sculptor friend: as the concrete cured, pigment was worked into its surface, then waxed to create a glasslike finish. A large concrete dining table and totemic wooden chairs anchor the overall tectonic composition.

PLAN: Series of screens and partitions divide irregular floor plan.

ABOVE LEFT: Slotted, fabric-covered partition screens dining room from office.

ABOVE RIGHT: Architects worked purple pigment into beeswax coating of plywood kitchen cabinet.

RIGHT: Wood and woven aluminum partition encloses bed.

FACING PAGE: Curving steel-and-canvas panel pivots to enclose bathroom.

DOWNTOWN APARTMENT NEW YORK CITY

ARCHITECT: Dean/Wolf Architects, New York City—Kathryn Dean, Charles Wolf (principals)

GENERAL CONTRACTOR: Dean/Wolf Architects

PHOTOGRAPHER: Eduard Hueber







Frens and Frens Restoration Architects

Tucked into the far southeastern corner of Pennsylvania, the Brandywine River Valley's historic landscape of 18th-century stone barns and Quaker meetinghouses provides a wealth of commissions for Dale and Susan Frens's five-person preservation practice. Frens and Frens Restoration Architects tackles the adaptive reuse and preservation of such landmark sites as Daniel Boone's Berks County homestead, Valley Forge National Historic Park, and William Penn's Bucks County family home.

The couple's small-town life is dramatically different than their early careers in New York City. Dale, who was raised in Michigan, worked for preservation architect Jan Hird Pokorny Architects after graduating from Columbia University's preservation program in 1980; Susan, who grew up in Chicago and studied architecture at the University of Michigan, worked in the offices of Perkins & Will and Haines Lundberg Waehler. In 1982, Dale joined John Milner Associates, a small preservation firm, and the pair moved to West Chester, Pennsylvania.

The Frens opened their own practice in 1986 in a small row house near the center of the town of 17,000 residents. With no employees at first, they limited their practice to technical consulting on others' preservation projects. As they began taking on their own preservation jobs—and as their two children required more room—Dale and Susan quickly outgrew the town house. In 1988, the architects moved into a large Victorian

house, which they began restoring. The building now functions as both the family's residence and the firm's office: the wallpapered dining room, for example, doubles as a conference room, and offices are housed in converted second-story bedrooms.

Working at home made it easier for Susan to balance her full-time professional commitments with raising two young children: a son, now 12, and a daughter, 15. "The kids took naps under our desks, which was fine because I could keep working," she recalls. Despite their live/work arrangement, the Frens have established some degree of separation: While he writes preservation specs, technical briefs, and historic structure reports, she oversees architectural programming and space planning. Their staff works at drafting tables and CAD stations across the hall.

The firm's preservation philosophy is one of deference to existing structures. "We look to the building to guide us," explains Dale, "rather than applying our preconceptions of what buildings of a certain period should look like." Such preconceptions are exactly what led 1950s preservationists to inaccurately modify the Revolutionary War quarters of General Lafayette in Chadds Ford. Armed with a range of techniques—site archaeology, paint and mortar analysis, even dendrochronology—Frens and Frens set out to correct the mistakes. Such a methodical approach is as much a part of their preservation philosophy as their motto "The less intervention, the better."—*Raul A. Barreneche*



Historic Sugartown Restoration
Willistown Township,
Pennsylvania

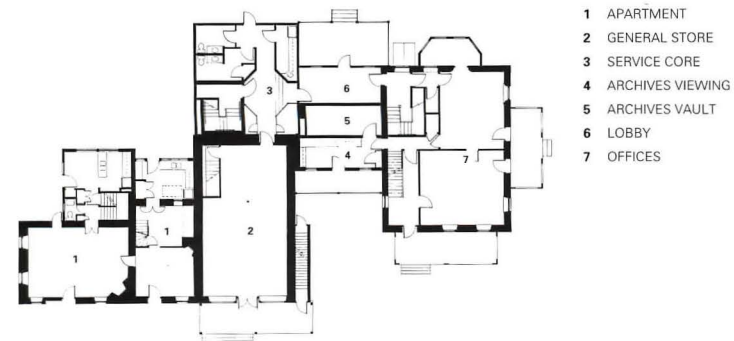
A cluster of five stone buildings in rural Chester County marks the site of an 18th-century crossroads called Sugartown. The 11,000-square-foot complex includes three houses built between 1795 and 1850, an 1820 general store, and an 1879 house addition. Frens and Frens converted the buildings into two residential units, exhibition space, offices, and a public meeting room. The final phase of the project, the reconstruction of the general store's interior, will be completed this summer.

FACING PAGE: Principals Susan and Dale Frens.

TOP: Renovated buildings include apartments (left) and offices (right).

ELEVATION: Historic structures were woven into mixed-use complex.

PLAN: Lobby connects offices to store.



- 1 APARTMENT
- 2 GENERAL STORE
- 3 SERVICE CORE
- 4 ARCHIVES VIEWING
- 5 ARCHIVES VAULT
- 6 LOBBY
- 7 OFFICES

GROUND-FLOOR PLAN





CHESTER COUNTY HISTORICAL SOCIETY

TOP: New historical society headquarters integrates former Horticultural Hall (far left) with old YMCA.

ABOVE: Dilapidated entrance to YMCA was removed.

FACING PAGE, TOP: Auditorium's ceiling is crowned by acoustic panels and Arts-and-Crafts-inspired lanterns.

FACING PAGE, LEFT: Former YMCA gym was renovated into new auditorium.

FACING PAGE, PLANS: Old buildings house new exhibition spaces (left), library, and auditorium (right).

Chester County History Center West Chester, Pennsylvania

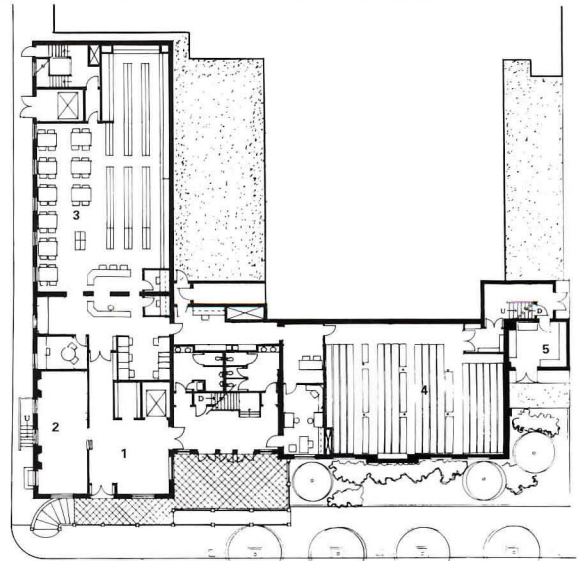
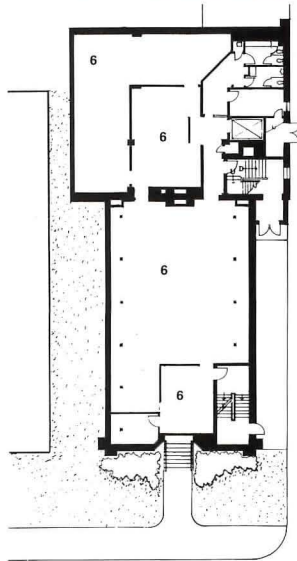
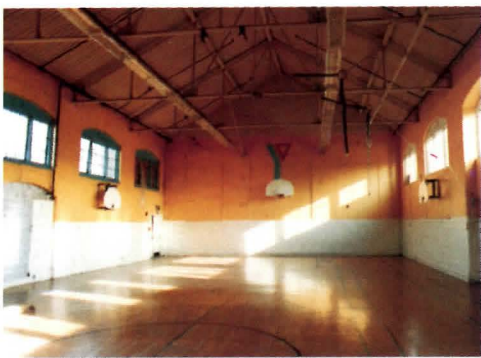
Only a few blocks from the Frenses' house in downtown West Chester, a new history center combines two of the town's most prominent historic landmarks: Horticultural Hall, an 1848 Neoclassical shed designed by Thomas U. Walter, the architect of the Capitol dome in Washington, D.C.; and a 1908 Colonial Revival structure that previously housed West Chester's YMCA.

The historical society decided to look for new headquarters after outgrowing its space in Horticultural Hall. Fortunately, the neighboring YMCA building, augmented in 1979 by a severe concrete-and-metal addition, had fallen out of use.

In 1988, the historical society purchased the run-down brick YMCA and hired Frens and Frens to study the feasibility of fusing the two buildings into a single headquarters

for the historical society. The firm married a skillful preservation of the existing historic exteriors with a complete adaptive reuse of the interiors. Working from historic photographs, Frens and Frens reconstructed roof pediments and a large Palladian window in Horticultural Hall, as well as a majority of the YMCA's brick exterior walls.

Very little historic fabric remained inside the old YMCA building, with the exception of some wood wainscoting and a pair of murals from the late 1940s. The architects therefore installed contemporary materials and reconfigured the interiors to accommodate a new library, administrative offices, and an auditorium. In the stone-clad Horticultural Hall, the team designed exhibition spaces for the historical society's surprisingly rich collection of Colonial furniture, paintings, and decorative objects. A new second-story bridge connects the two buildings.



FIRST-FLOOR PLAN

- | | |
|---------------|------------|
| 1 ENTRANCE | 4 ARCHIVES |
| 2 MUSEUM SHOP | 5 KITCHEN |
| 3 LIBRARY | 6 GALLERY |

40/12m



Guthrie + Buresh Architects

Like many other young architects, Danelle Guthrie and Tom Buresh, both 41, find themselves working with limited budgets and constrained programs. Unlike others, however, the principals of Los Angeles-based Guthrie + Buresh Architects welcome the constraints.

“Our recent projects are in reaction to the 1980s, when the work was very exuberant but sometimes lost a sense of its site,” says Buresh, while Guthrie adds that the self-imposed modesty of their work reflects changes in both the economy and profession. After graduating together from UCLA’s Graduate School of Architecture and Urban Planning in 1985, the two architects emerged as designers during the recessionary 1990s. While still struggling, they confirm that slowing down has allowed them to reconsider design issues of appropriateness, context, and place.

Iowa-born Buresh, the son of an engineer, aimed for architecture from college; Los Angeles native Guthrie was an arts major in college and later switched to design. Their different backgrounds have enriched their work: Guthrie lists artists Robert Smithson, Robert Irwin, and Donald Judd as well as architects John Hejduk, Raimund Abraham, Alvar Aalto, and Rudolph Schindler as among the pair’s influences.

The two principals describe their working relationship as an exchange—sometimes a battle—between equals with distinct identities. “We fight about everything,” says Guthrie straightforwardly. Neither has settled for a

predetermined role: both are equally comfortable designing, meeting with clients, or working out production details. “One person will take the lead on a project, and when he or she gets exasperated, that person will hand it off to the other partner. It’s like tag-team parenting,” explains Buresh.

At UCLA, the pair experienced architectural exuberance firsthand. He worked for Frank Israel while in school; after graduation, she worked for Israel while Buresh went to Frank Gehry’s office. An early scheme for a building in a Roman piazza, undertaken when Buresh was a Dinkelloo Fellow at the American Academy in Rome, reveals their former employers’ influence in an object-making proclivity. Now, both architects report that they have grown more interested in appropriateness, honesty, and directness, without added ornament or extraneous drama: their current models are industrial buildings. Buresh likes to describe the firm’s own WorkHouse (pages 112-115), a combined studio and living quarters, as a “suburban loft.”

Guthrie + Buresh’s work seems to bloom under otherwise difficult conditions: tight sites, low budgets, and their newfound austerity of approach. For a boaters’ facility at King Harbor Marina in Redondo Beach (facing page), “we tried to make the design as boring as possible,” asserts a tongue-in-cheek Buresh. The building’s high-profile skylights were an afterthought, he adds, explaining, “The client didn’t want the building to look too plain.”—*Morris Newman*



**Boaters' Facility
Redondo Beach, California**

At King Harbor Marina, Guthrie + Buresh have taken their no-frills experimentation to a logical extreme. Their orderly, if somewhat anonymous, design for a boat owners' facility shuns expressive gestures or even compositional hierarchy. "We wanted it to look like well-made cabinetry," Buresh says. They chose a long, narrow configuration—24 by 152 feet—for the wood-frame building. The facility is constructed on a 4-foot-on-center structural module, which is underscored in the elevations by wooden storage lockers. The interiors house toilets and shower areas, a mail room, and a skylit laundry area.

FACING PAGE: Principals Danelle Guthrie and Tom Buresh.

ABOVE LEFT: Teak-veneer plywood lockers and clerestory wrap building, which replaces structure destroyed in 1994 Northridge earthquake.

ABOVE RIGHT: Laundry area is daylit by roof monitor.

LEFT: Entrance leads to women's showers (left) and laundry area (right).



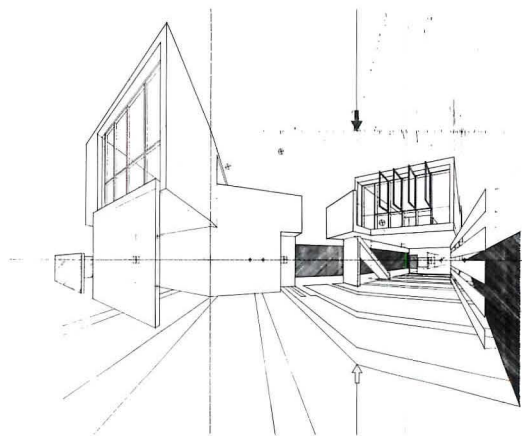
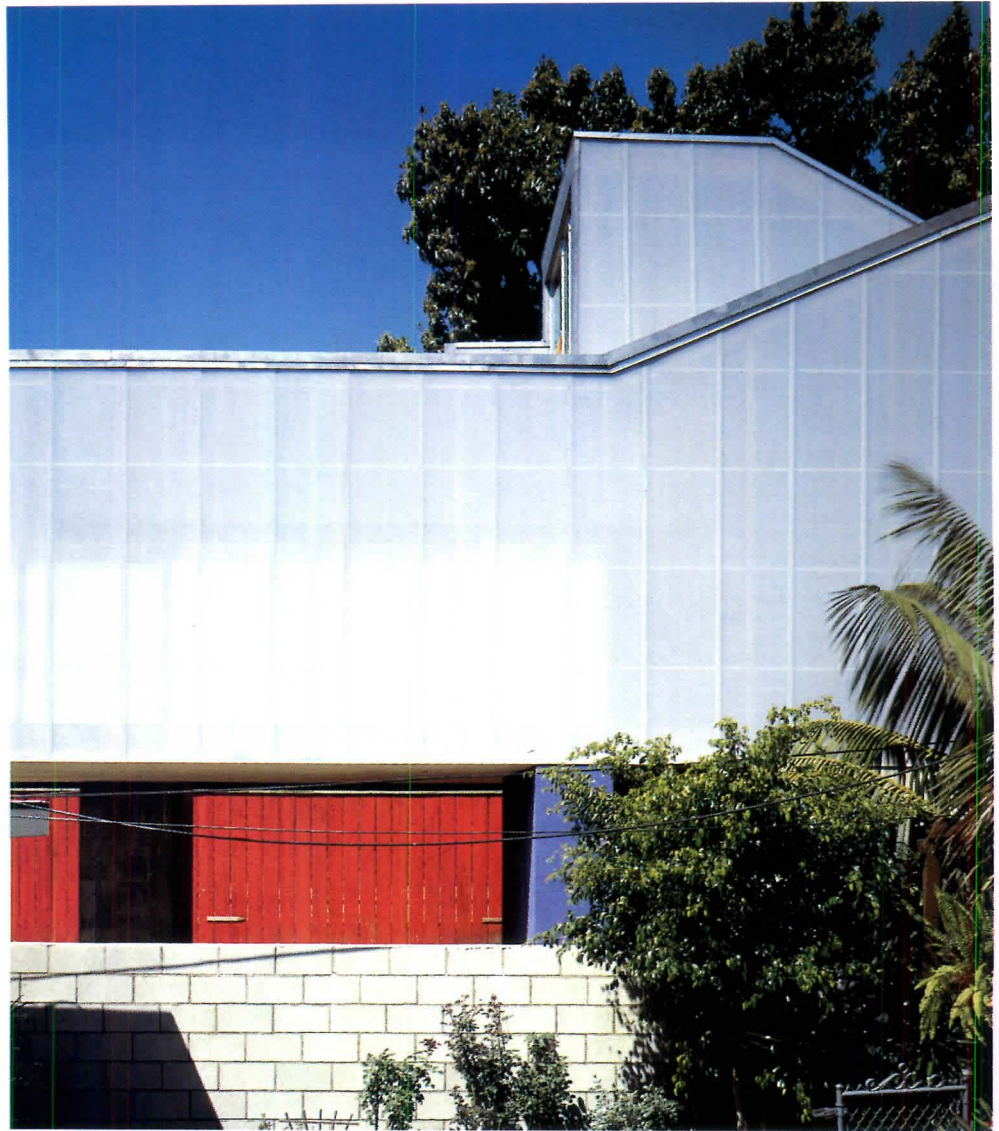
WorkHouse
West Hollywood, California

Guthrie + Buresh's WorkHouse combines a studio and residence for the architects and their 8-year-old son. The project's utilitarian, unadorned form reflects the partners' interest in industrial buildings; interior spaces have been left as open and unprogrammed as possible.

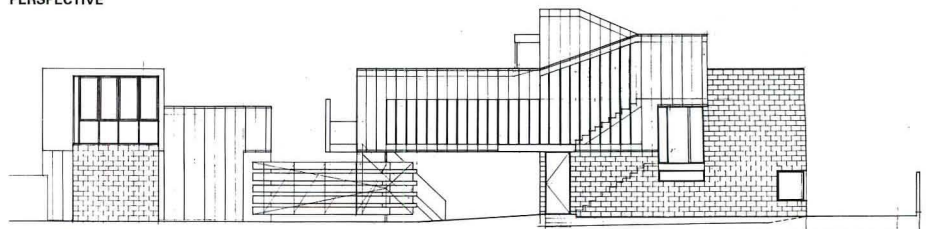
The 1,800-square-foot structure is located at the rear of a residential lot, behind a tiny frame house dating from the 1920s. Guthrie + Buresh planned to replace the existing house with a streetfront studio and one-bedroom apartment, to be rented for extra income; the WorkHouse would be constructed behind the new building. Only the WorkHouse has been completed; the 1920s frame house remains standing.

The architects placed their 600-square-foot studio over a carport, providing a view to the street, and extended their living quarters behind the studio on three levels. The building is almost a simple rectangular volume, long and narrow. Its 18-foot width reflects the dimensions of the narrow, irregularly shaped lot (approximately 40 by 115 feet). The living room and kitchen occupy the garden level; a child's bedroom and bath are housed on the second level; and a mezzanine on the third level contains the master bedroom.

Framed in wood and reinforced with diagonal steel rods, the west-facing elevation of the studio is simply composed of three rows of windows. The south and north walls are covered in translucent polycarbonate panels that admit daylight while ensuring privacy from a neighboring apartment building. Much of the interior is finished in plywood. The most dynamic area of the house is the stairwell, where the staggered floor planes—the studio to the west and the residential levels to the east—seem to float toward each other like barges in space.



PERSPECTIVE



SOUTH ELEVATION

ABOVE RIGHT: Stairwell is expressed and clad in polycarbonate panels.

PERSPECTIVE: Original scheme was to consist of streetfront house (left) and WorkHouse, now built (right).

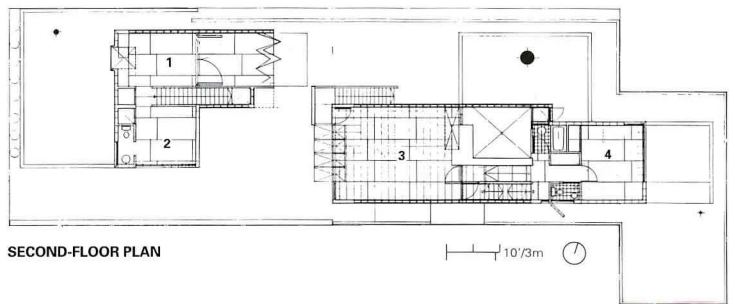
ELEVATION: Streetfront house (left), intended for rental, was to adjoin WorkHouse (right).

FACING PAGE: Supported by two steel columns, studio hovers above carport.





FACING PAGE: WorkHouse's fireplace (center) is expressed on southeast elevation; door opens onto side yard.
BELOW: Studio is finished in plywood.
RIGHT: Plywood-lined balustrade will support built-in bookshelves.
BOTTOM: Wood post-and-beam studio stairwell is lit by polycarbonate panels.
PLAN: Original scheme shows unbuilt apartment and studio (left), planned to replace existing house.



**WORKHOUSE
 WEST HOLLYWOOD, CALIFORNIA**

ARCHITECT: Guthrie + Buresh Architects, West Hollywood—Danelle Guthrie, Tom Buresh (principals); Dave Maynard, Josh Coggeshall, Mike Ferguson, Adam Woltag (design team)
GENERAL CONTRACTOR: RAC Construction, Thomasson & Associates
PHOTOGRAPHER: Anne Garrison/David Hewitt, except as noted

- 1 LIVING ROOM OF PROPOSED HOUSE
- 2 BEDROOM OF PROPOSED HOUSE
- 3 WORKHOUSE STUDIO
- 4 WORKHOUSE BEDROOM



LISA QUINONES

Thompson and Rose Architects

It is difficult to imagine a pair of partners more perfectly matched than Charles Rose and Maryann Thompson. The 36- and 35-year-old husband-and-wife architects head an 11-person firm in Cambridge, Massachusetts, specializing in institutional buildings firmly anchored in landscape and ecology. Having met as architecture undergraduates at Princeton, the partners' résumés are identical, except that Thompson holds, in addition to her master's degree from the Harvard Graduate School of Design, a master's in landscape architecture. Striving to marry landscape and architecture in buildings that heighten a visitor's experience of wind, rain, sun, and vegetation—what Rose calls “the phenomenology of a site”—Thompson and Rose marry their design talents in a strongly collaborative practice. They work at back-to-back desks, often comparing drawings at the end of the day to discover similar sketches. Notes Rose, “We have an incredible trust in one another's design sensibility.”

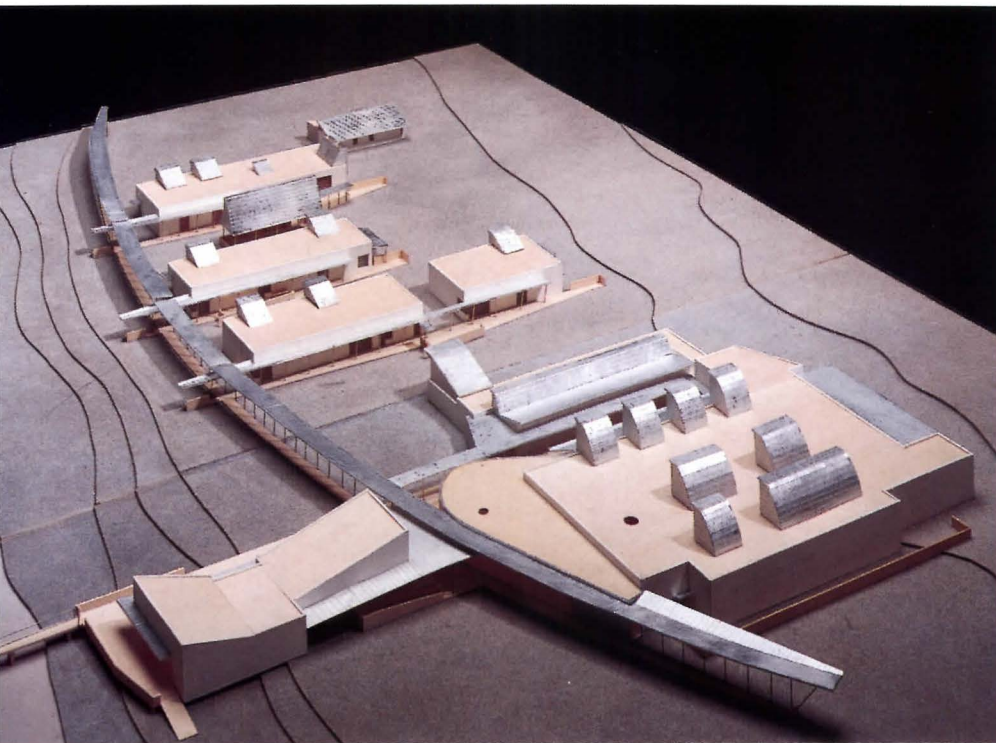
Thompson and Rose resemble each other in complexion and stature, and they tend to complete one another's sentences, revealing their youthful enthusiasm. (The couple also have a 5-year-old and a toddler, a condition that probably renders them oblivious to constant interruption.) Thompson grew up in an artistic Cincinnati household and entered Princeton with an interest in both chemistry and painting; Rose is the product of an alternative education and the Manhattan School of Music, where he studied piano. Wed in

1983, they travelled together in Asia, where they were inspired by gardens in Kyoto, Japan, and Suzhou, China; and the masonry Mogul architecture in Fatehpur Sikri, India.

The pair began graduate school at Columbia in 1984 but, seeking a more landscape-oriented curriculum, transferred to Harvard after a year. They deeply value the academic influences of Michael Graves, Peter Waldman, Gwendolyn Wright, Rafael Moneo, Denise Scott Brown, and landscape architect Michael Van Valkenburgh.

Thompson and Rose landed their first commission while still students in 1987. Now completed, the Hartsbrook School in western Massachusetts stresses connections to the environment, sealing the couple's reputation for architecture that celebrates rather than dominates the landscape. The Atlantic Center for the Arts in New Smyrna Beach, Florida, and the Florida Gulf Coast Art Center are similar careful assemblages, both grouped to capture views of surroundings. Thompson describes these projects as “machines for reinterpreting the landscape.”

Working on 10 to 12 projects a year, Thompson and Rose initiate client contacts, pursue competitions, and take projects through schematic design together. They design in model, Thompson explains, because they enjoy exploring structure and tectonics. “The sense of ego and authorship isn't what's critical to this office,” reports Rose. “We care about putting out great work, not where it comes from.”—Heidi Landecker

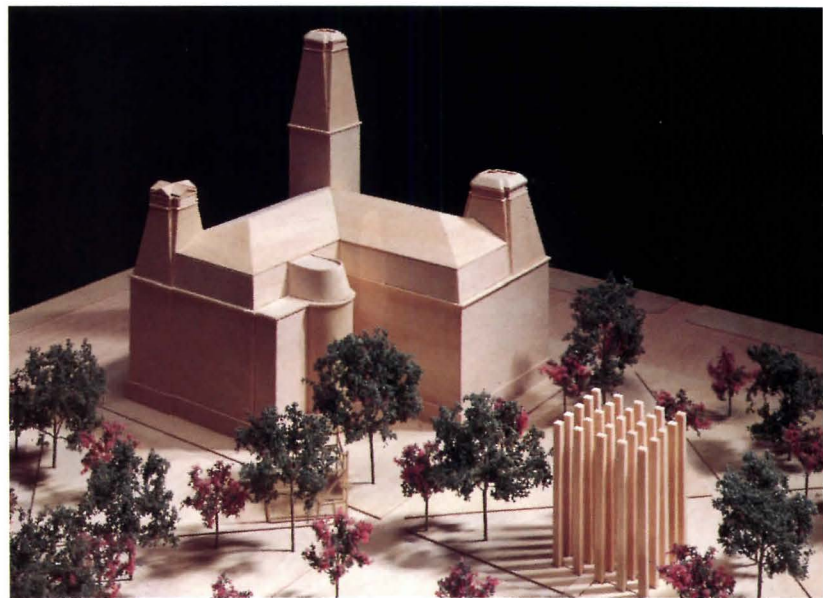
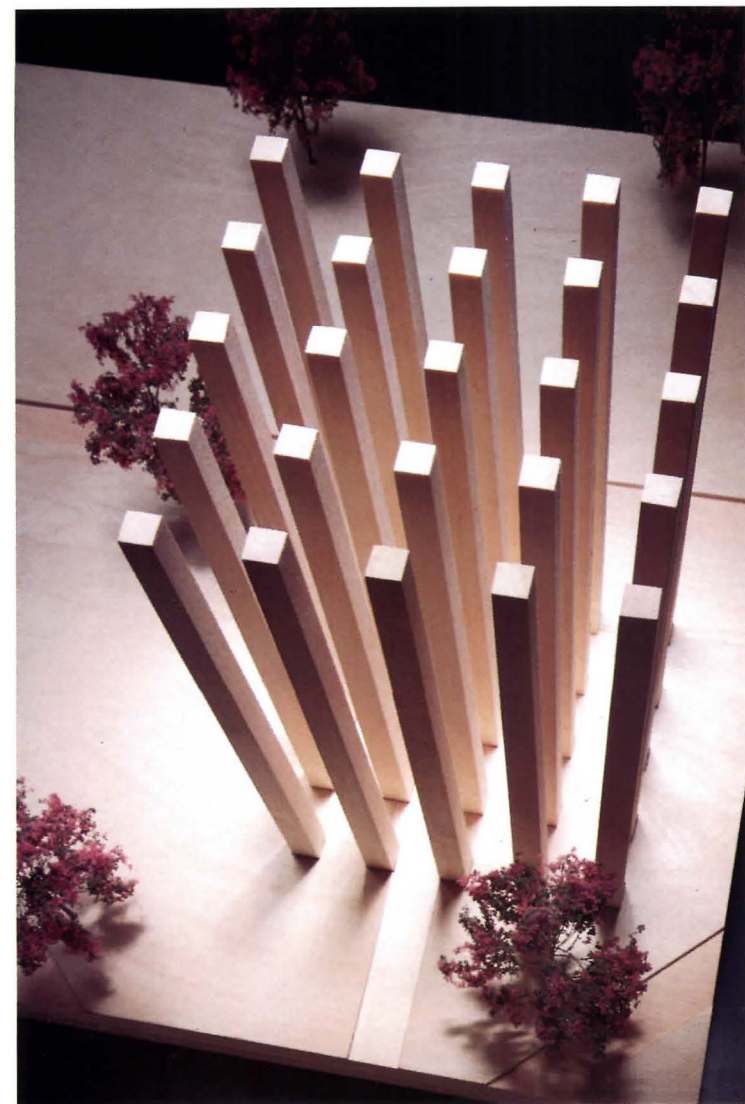


Florida Gulf Coast Art Center
Bellair, Florida

For a 45,000-square-foot community arts center sited within an 80-acre botanical garden in central Florida, Thompson and Rose devised a long, covered, colonnaded walkway that groups studios for painting, ceramics, glassblowing, sculpture, fiber arts, and woodworking with offices and a public gallery devoted to the work of Florida artists. The colonnade's lead-coated copper roof is oriented toward views of the garden and waterway to the west. An auditorium and restaurant are positioned on a terraced slope overlooking the waterway. The art center's landscape design is by Michael Van Valkenburgh.

CHARLES MAYER PHOTOS

FACING PAGE: Principals Maryann Thompson and Charles Rose.
LEFT: Curving colonnade organizes Florida Gulf Coast Art Center.



**Bartholomew County
Veterans' Memorial**
Columbus, Indiana

In a memorial to be completed later this year, 25 limestone columns are engraved with letters from soldiers killed in 20th-century wars from World War I to the Gulf War. A grove of redbuds flanks the columns, which lie adjacent to a walkway to Columbus's historic courthouse.

LEFT: Letters are engraved in outer columns; inner columns bear official notification of those killed in battle.
ABOVE: Columns adjoin courthouse.

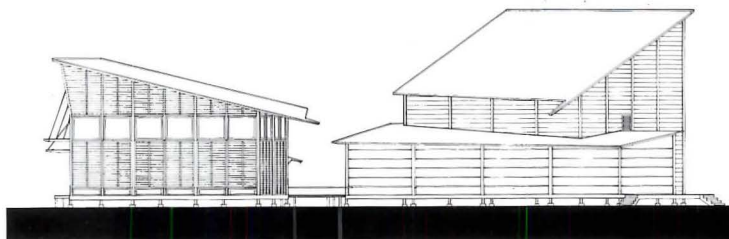
Leeper Studio Complex
Atlantic Center for the Arts
New Smyrna Beach, Florida

“Dappled light filters through the trees; dynamic torrential rainstorms sweep through the site. The experience is one of total immersion in the phenomena of the natural world.” This is how Maryann Thompson and Charles Rose describe the 60-acre site of the Atlantic Center for the Arts, a residential study center for artists built on an estuary of Florida’s east coast.

Inspired by the site’s dense, jungle-like vegetation, Thompson and Rose convinced their client to arrange new painting, music, dance, and sculpture studios, a theater, and a library as separate structures connected by a winding boardwalk. Their motive was to infiltrate the site with buildings, creating architecture hovering above the floodplain. “We loved being on the boardwalk, with the plants growing around it so tightly that you felt very delicately inserted,” Thompson explains.

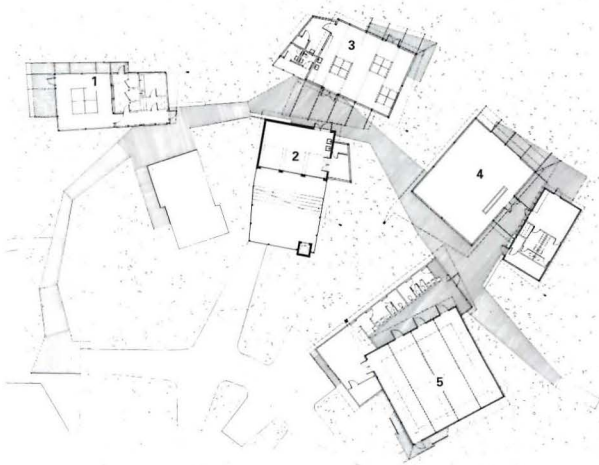
The buildings’ loose geometry, integrated with the landscape, produces a plan wherein a visitor never understands the entire scheme at once. “We sought to create little moments,” Thompson continues. “The plan is about surprise and views through to other buildings and the landscape. We defer to the original experience of the site.”

The architects also viewed the center, in which writers, painters, sculptors, and dancers study intensively with a well-known artist in their field, as an opportunity to explore their appreciation for symbolism. For sculptors, the architects designed the only concrete studio within the complex, symbolic of sculpture’s earthy materials—metal, stone, and clay. The sculpture studio is also the only building that is not raised on concrete piers above the floodplain, but is solidly grounded in the earth. In contrast, the painting studio, sited directly across the boardwalk, celebrates light and air with a louvered top and towering light wells. A similar duality is expressed by the solid, cedar-sided black-box theater, sited directly opposite the light-filled dance studio surrounded by a halo of sandblasted windows. “The dance studio is a very bright room, and the theater is very black,” explains Thompson. “You get the idea of opposites in life: darkness and light.”



WEST ELEVATION OF DANCE STUDIO AND THEATER

1/23/7m



SITE PLAN

1/23/7m

- 1 MUSIC STUDIO
- 2 SCULPTURE STUDIO
- 3 PAINTING STUDIO
- 4 DANCE STUDIO
- 5 THEATER



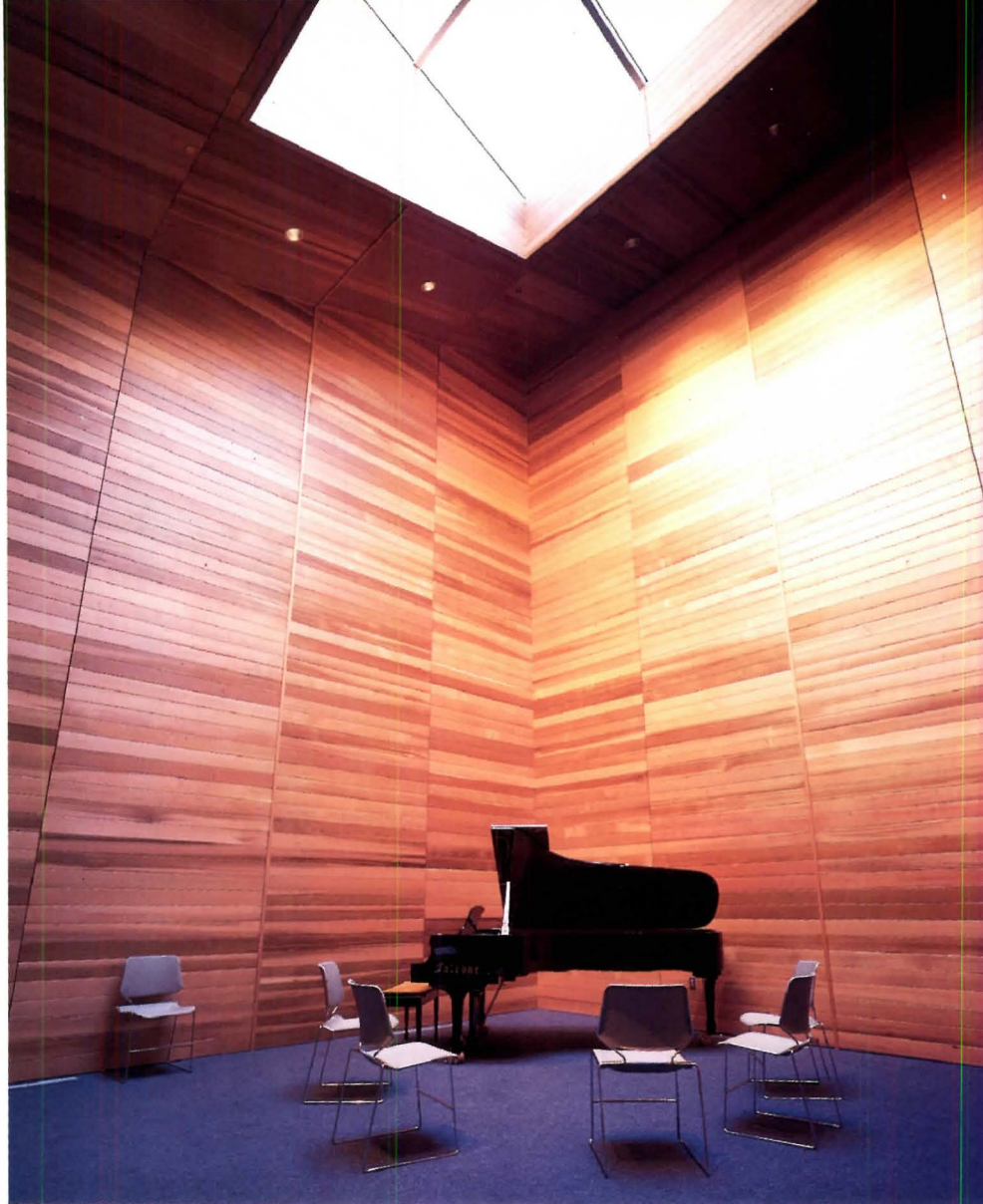
ELEVATION: Dance studio addresses black-box theater across boardwalk.
BELOW: Louvered top of cedar-clad painting studio aids ventilation; lead-coated copper towers form light wells.
PLAN: Buildings are arranged on two sides of meandering boardwalk.
BOTTOM RIGHT: Elongated roof monitor brings light into music studio.
FACING PAGE: Stair affords access to lighting grid in black-box theater.



RIGHT: Towerlike music studio is clad in cedar and acoustical panels. Ceiling reaches skyward with tall roof monitor to admit daylight.

BELOW: Inside painting studio, steel cables anchor truss-supported roof against racking caused by severe winds. Louvers admit light and air.

FACING PAGE: At night, visitors to studio complex first encounter glazed gallery at theater entrance (left). Further along boardwalk, painting studio glows through louvered top.



**LEEPER STUDIO COMPLEX
ATLANTIC CENTER FOR THE ARTS
NEW SMYRNA BEACH, FLORIDA**

ARCHITECT: Thompson and Rose Architects, Cambridge, Massachusetts—Charles Rose, Maryann Thompson (principals-in-charge); Michael Grant, Joseph MacDonald, David Martin, Warren Van Wees, Michael Brean, Francisco Theband, Carrie Alice Johnson, Lisa Iwamoto, Tim Downing (project team)

ENGINEERS: Ocmulgee Associates (structural); Jerry K. Finley (civil); M-Engineering (mechanical/electrical);

CONSULTANTS: PSI-Jammal Associates (geotechnical); Cambridge Acoustical (acoustics)

GENERAL CONTRACTOR: Epoch Properties

PHOTOGRAPHER: Peter Vanderwarker





DON WONG

The Andersen Group Architects

From a modest second-story office overlooking an expressway west of Minneapolis, Gail and Dave Andersen are quietly changing the world of ecologically threatened regions. Dave, 44, studied architecture at Iowa State University and met Gail, 40, a graduate of the University of Minnesota's architecture program, while working for a rival Minneapolis firm in the same building. Successful but unfulfilled, they opened their own office, The Andersen Group, in 1984. Based on a traditional diet of developer-driven work, the firm expanded to 20 people, but the savings and loan crisis, coupled with the contracting economy of the late 1980s, forced the Andersens to carefully reevaluate their firm's work and direction.

Over the last five years, the partners have shifted the focus of the practice—now a streamlined four-person operation—to become an internationally recognized expert on the architecture and planning of ecotourism. Concerned with the natural history of an area and its cultures, the ecotourism movement had no physical planners when The Andersen Group first began the master plan for the Lapa Rios Resort in Costa Rica. The firm has had to juggle the interests of biologists, geologists, anthropologists, travel agents, conservation groups, international organizations, and the governments of Panama, Guyana, Belize, Hawaii, and Oregon.

Dave Andersen begins each project by researching the "indigenous knowledge" of the region or culture. Particularly in less-

developed locales, he says, "tourism is the greatest benefit and threat to these people." The Andersens do not mimic the platitudes of many who preach "sustainable" design. "There is no such thing as sustainability," Dave admits, explaining that "as human beings, we have an impact on everything we do." The firm's designs are guided by a philosophy that seeks to minimize this effect through responsible choices. The Lapa Rios Resort, for example, was originally planned as a two-phase, 20-unit development, but the architects and the client collaboratively decided that the present 14-unit complex should not be expanded.

While Dave's work takes him to far-flung locales, Gail generally stays close to their Minneapolis base, directing the office's day-to-day operations and designing for more traditional clients, including local banks and retailers. Her contributions to the ecotourism projects have been hindered by cultural constraints. "There's no real role for me on most of Dave's trips," she explains. "These cultures tend to be very macho, and a small blonde woman is not particularly safe there. I've attended meetings where answers to my questions were directed to Dave, not me."

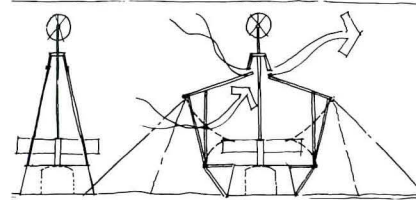
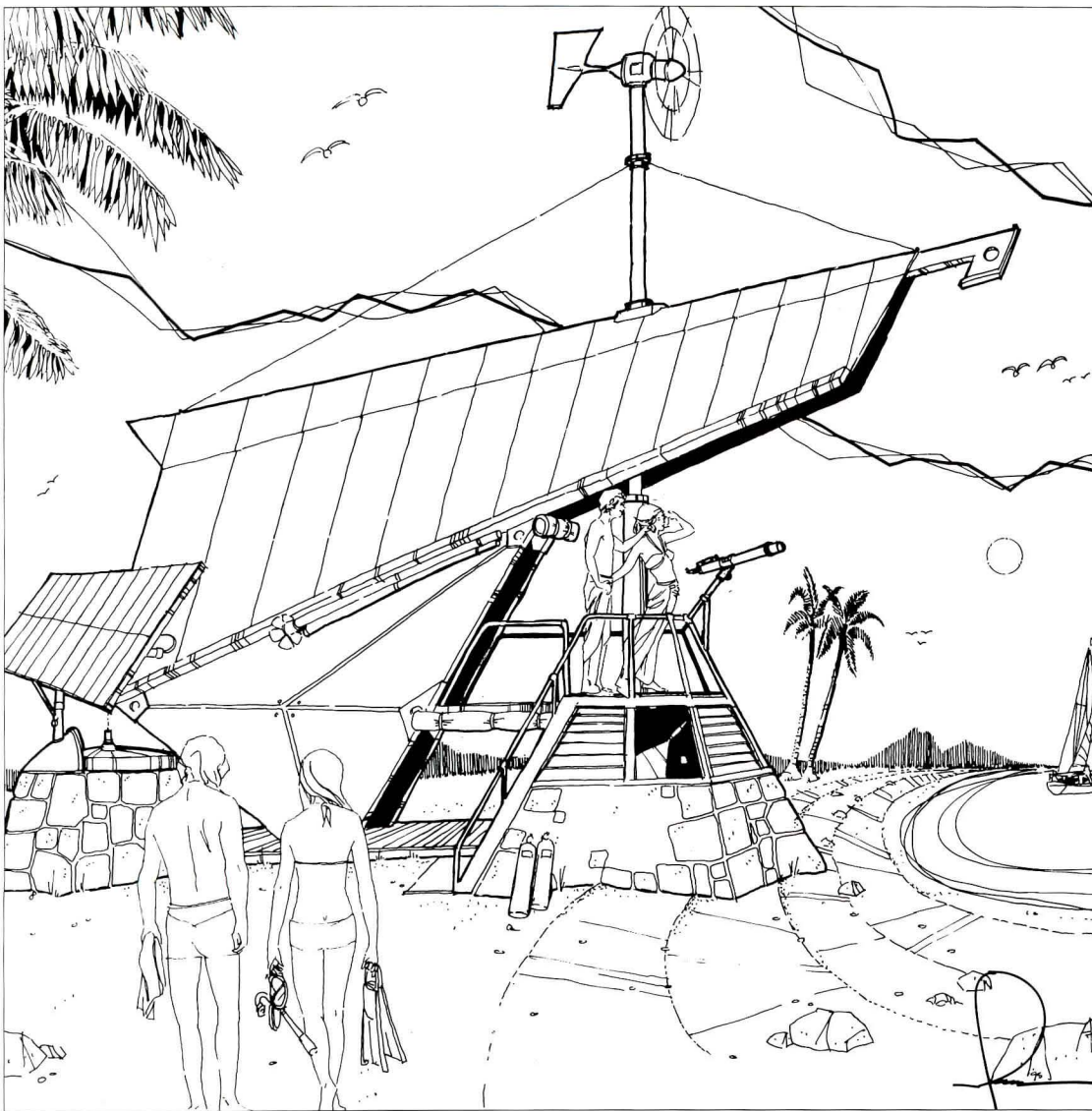
There is no neat division between private and professional lives for the Andersens. Describing the quizzical looks their two children cast when dinnertime conversation suddenly turns to architectural inspiration, Gail acknowledges that "this is more than just a profession."—*Edward Keegan*

**Sand Creek Retreat
Belize**

“The mobile home is a missed opportunity,” says Dave Andersen, describing how his beloved Volkswagen camper offered design inspiration for this prototypical divers’ retreat off the coast of Belize. Wind, solar, and tent technologies are combined with romantic nautical images in this “ecological machine,” which offers living, sleeping, and toilet facilities for visiting shell divers. The tent structure can be opened and closed according to occupant needs. Power is provided by mast-mounted turbine and solar panels that rotate to follow the wind and sun. The mast is detachable, leaving only the bathroom module and cistern as permanent structures. Andersen describes the overall design as “high tech, yet low impact.”

LEFT: Folding fabric roof of nautically inspired shelter protects sleeping and living platforms while diverting rain-water to cistern at rear.

SECTION, BELOW: Open and closed roof configurations show ventilation.



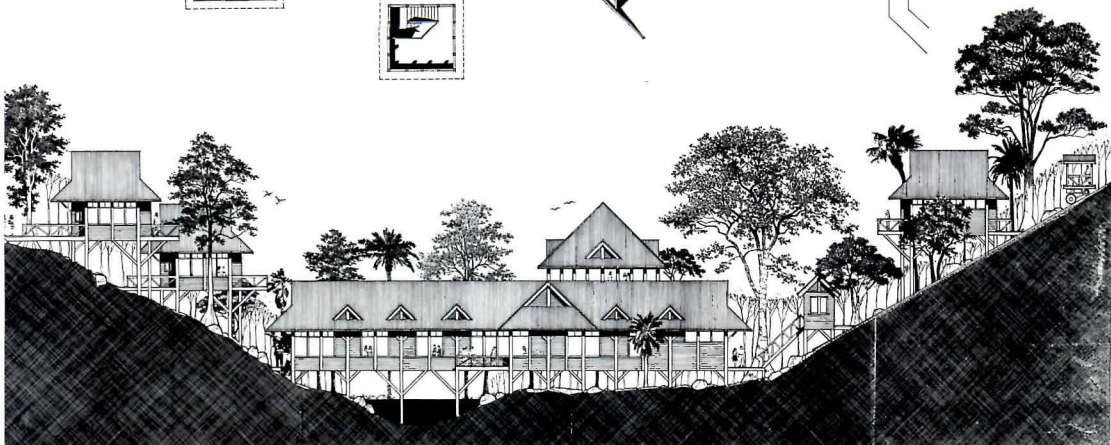
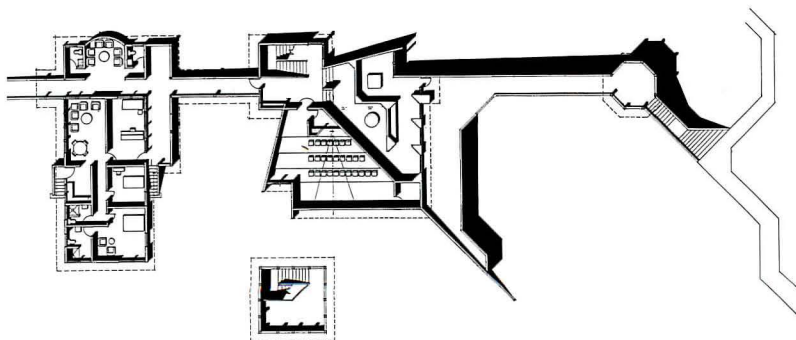
**Visitors' Center
and Korume Creek Lodge
Republic of Guyana**

The Andersen Group's projects for Kaieteur National Park are part of a plan for ecotourism development produced by the Organization of American States with Guyana. The visitors' center and lodge adjoin Kaieteur Falls, the world's highest single-drop waterfall. Paths are defined by boardwalks that protect the fragile rainforest soil from erosion and cleverly conceal utility lines. The design is based on indigenous Amerindian notions that value the space between buildings more than the buildings themselves.

FACING PAGE: Principals Gail and Dave Andersen.

PLAN: Boardwalk system leads visitors to waterfall overlooks.

ELEVATION: Main lodge, spanning creek, is surrounded by guest villas.





LARRY FRANK

Shim-Sutcliffe

Brigitte Shim and Howard Sutcliffe have known large projects in large offices, but neither believes bigger is better. This husband-and-wife team is content to stay small, with a project or two each year—that way, they can attend to every client and detail. As Sutcliffe says, “We’re pretty efficient. We can crank out more work in a short time than a lot of larger outfits.”

They don’t divide up responsibilities, but view themselves as collaborators from different ethnic backgrounds—she’s Chinese, he’s a WASP—with a shared frame of reference. “We’ve seen and traveled a lot together,” says Shim. “We draw from the same well.” The two share a respect for landscape, a feel for downtown, and an appreciation of craft and culture, taking inspiration from Carlo Scarpa, Alvar Aalto, the de Stijl group, and traditional Japanese construction.

Both Shim, 37, and Sutcliffe, 38, graduated in 1983 from the University of Waterloo School of Architecture in southern Ontario. Shim promptly joined the Toronto firm of Baird/Sampson Architects, where she worked for five years under George Baird. Meanwhile, Sutcliffe signed on with Ron Thom, who stood for harmony of building and landscape. Two years later, he joined Barton Myers, a rigorous urbanist. When Myers left in 1987, Sutcliffe remained with the partnership formed by four Myers protégés, Kuwabara Payne McKenna Blumberg (KPMB).

By the time they married in 1989, Shim and Sutcliffe had collaborated on many ob-

jects and furniture, “as a way to explore ideas and source materials,” recalls Shim. Even when clients began appearing, Sutcliffe hung on to his day job at KPMB. (He’s currently on leave of absence.) Shim took a teaching position at the University of Toronto School of Architecture, which she still holds.

A turning point was their own house in 1993 (page 127), which became a manifesto of all they stand for, especially determination. First, they had to amalgamate three tiny inner-city lots into a site; once the bureaucratic hurdles were overcome, they erected a low, walled house enclosing an exquisite water garden. Only 1,350 square feet in size, the structure is nevertheless spatially complex and sensuous in detail, with materials ranging from concrete block and stucco to Douglas fir and Italian plaster.

“We feel fortunate that we’re in Toronto, where craftsmanship is alive and well,” offers Shim. Having joined forces with plasterers, metalworkers, and millworkers, when the two draw furniture, fittings, or brick garden walls, they often have particular makers in mind.

Charles and Ray Eames have become role models. “They’re the only two people who seem to have had a lot of fun,” explains the laconic Sutcliffe, while Shim admires their range: “They weren’t typed. They took on anything. A lot of people do good design, but don’t have a life. We do.”—*Adele Freedman*

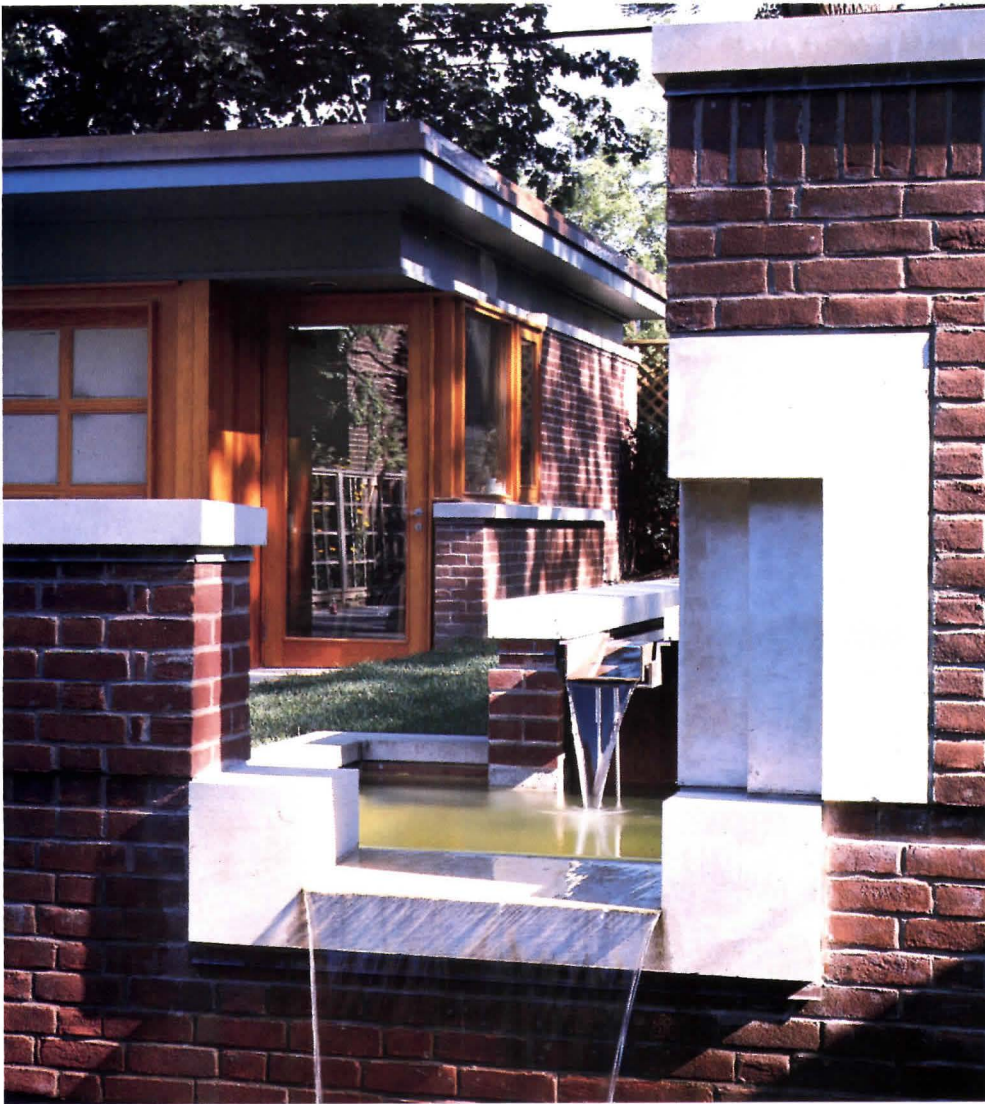
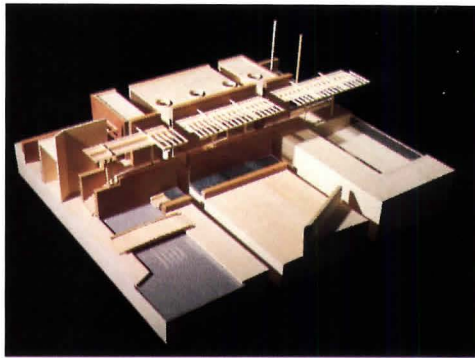
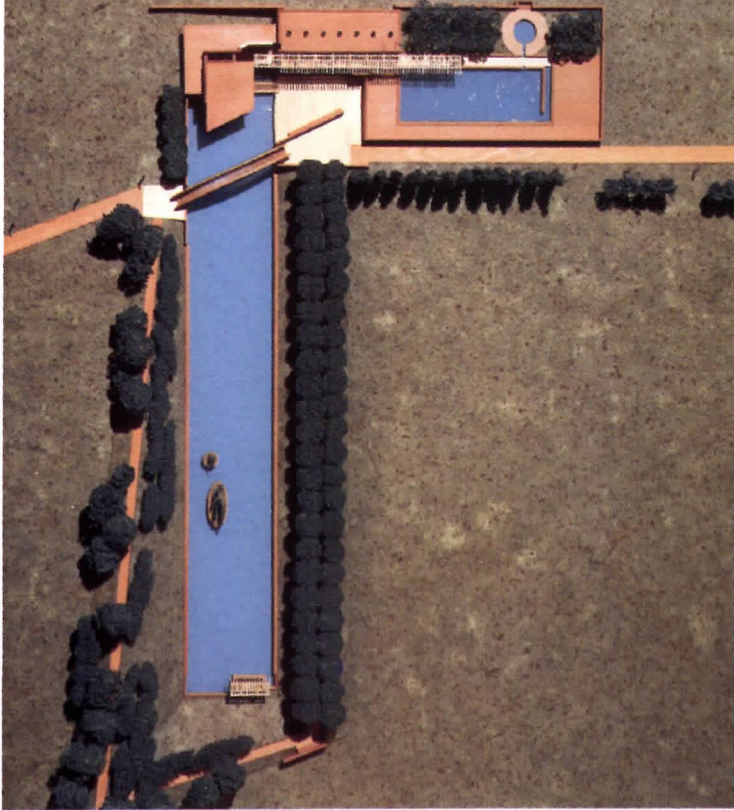
Adele Freedman is a Toronto-based architect and design critic.

Ledbury Park North York, Ontario

Shim-Sutcliffe's first public project is a city park designed with community consultation. The main element is a long reflecting pool that will become a skating rink in winter.

FACING PAGE: Principals Brigitte Shim and Howard Sutcliffe.

LEFT AND MODEL BELOW: Plaza divides rink from swimming pool.



Pavilion Addition and Garden Toronto, Ontario

After designing an addition to an old brick house in a leafy downtown neighborhood, Shim and Sutcliffe tackled the backyard. Adopting the local palette of red brick, limestone, copper, and greenery, they erected brick walls of various heights to create a formal landscape near the house and a more rugged garden behind. The interconnected outdoor rooms are terraced to provide topographical character. A new garage, detailed in brick, Douglas fir, and copper, shapes and anchors the composition. The introduction of water was viewed as essential to transforming a typically long and narrow city lot into a tranquil oasis.

LEFT: Water pours past garage (left) into reflecting pool near house.

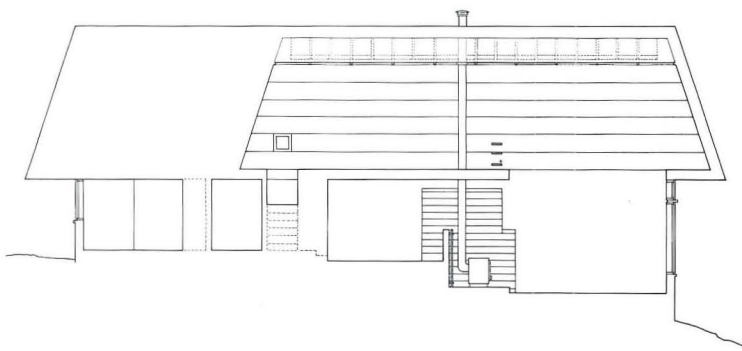
ABOVE: Crafted concrete trough channels water course.



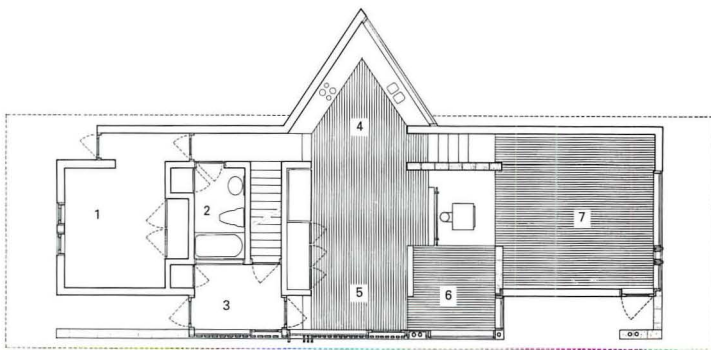
**House on Horse Lake
Haliburton, Ontario**

Built on a lake surrounded by 60 wooded acres, this award-winning house in northern Ontario shows how Shim-Sutcliffe's sensitivity to landscape verges on reverence. Echoing the rural vernacular, the steeply pitched roof purposely belies a Modern interior. Concrete block, stucco, and plywood were applied inside as well as out for economy and continuity; carefully composed granite, oak, stripped maple, and painted drywall inject warmth. Views and glimpses are precisely framed. The house operates on alternative energy from a wood stove, propane-powered generator, and solar panels.

LEFT AND SECTION: Sloping roof of cedar shingles suggests enclosure.
BELOW: Inglenook symbolizes hearth.
PLAN: Floorboards vary to define kitchen, inglenook, and living room.



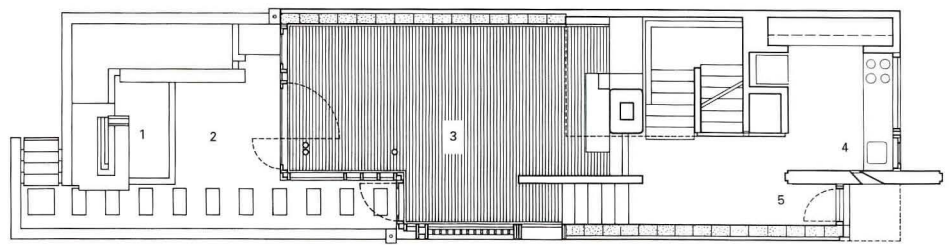
NORTH-SOUTH SECTION



GROUND-FLOOR PLAN

- 1 BEDROOM
- 2 BATHROOM
- 3 MUD ROOM ENTRANCE
- 4 KITCHEN
- 5 DINING ROOM
- 6 INGLENOK
- 7 LIVING ROOM





GROUND-FLOOR PLAN

Laneway House
Toronto, Ontario

The site of Shim and Sutcliffe's own house was once a repository for wrecked cars. Dramatizing a narrow lot, the couple designed a two-story refuge clad in stucco and fir battens. The interplay of raw and rich animates the interior, which pivots around a stair incorporating a fireplace flue finished in Italian plaster. Varied floor levels and freestanding walls of mahogany, oak, and painted drywall make for spatial verve.

ABOVE AND PLAN: Stuccoed wall encloses pool and garden.

LEFT: Exterior details, including vertical Douglas fir battens, mahogany window screens, concrete overhang and sills, and Japanese-inspired rainwater chain, recall Frank Lloyd Wright.

- 1 REFLECTING POOL
- 2 COURTYARD GARDEN
- 3 LIVING AND DINING ROOM
- 4 KITCHEN
- 5 ENTRANCE

BELOW: Plywood-clad tower's vertical battens and fins abstract local board-and-batten vernacular.

SECTIONS: Staircase marks transition between public and private spaces.

PLANS: Architects preserved apple orchard grid; only one tree was removed.

FACING PAGE: Nearing completion, house addresses landscape, from earth to sky. Tower is vertically clad in painted plywood; lower building will be topped by sodded roof and clad in local rough-hewn limestone.

**ORCHARD HOUSE
SLABTOWN, ONTARIO**

ARCHITECT: Shim-Sutcliffe, Toronto, Ontario—Brigitte Shim, Howard Sutcliffe (principals-in-charge); Donald Chong (project team)

CLIENT: Pamela Leeb

ENGINEER: Raymond Van Groll (structural)

CONSULTANT: Margaret Priest (color)

GENERAL CONTRACTOR: Andrew Duffy Construction

PHOTOGRAPHER: Michael Awad



**Orchard House
Slabtown, Ontario**

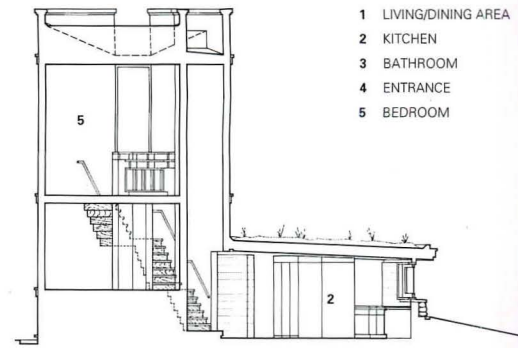
Shim and Sutcliffe's newest project is a house for a social worker who anticipated her recent retirement by purchasing a rectangular lot lying within a mature apple orchard. Responding to the rolling southern Ontario landscape and their client's lifelong fascination with military fortifications and medieval structures, the architect couple came up with a two-part scheme consisting of a low, bermed building and a delicate, triangular tower.

Under construction on a knoll of a gentle hill, these sharply articulated fragments, which share a common wall, are unified and protected by a stone-walled courtyard that will embrace a gnarled apple tree. The earthbound building, which houses the living room, dining room, and kitchen, is formed of concrete block and will be clad in dry-laid local

limestone. Topped by a sodded roof, the lower building is geared to intimacy, security, and close-up views.

The tower, containing two bedrooms and a study, stands higher up the hill. Constructed of 2-by-6 framing and clad in red-stained plywood that recalls the color of apple crates, the tower is a marker on the landscape, modest yet present. Sutcliffe refers to it as "a wooden cabinet" because of its precision. Slot windows, emphasizing the building's verticality, are set flush to maintain a taut surface; the tower's windows afford a long view over hill, dale, village, and treetop.

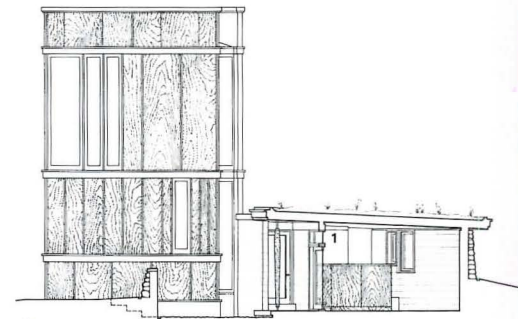
Amounting to only 1,100 square feet in all, and being constructed for the American equivalent of \$95,000—including roadwork, well, septic tank, and hydro hook-up—the Orchard House is spatially diverse and exquisitely tuned to its surroundings. It is Shim and Sutcliffe's finest accomplishment yet.



- 1 LIVING/DINING AREA
- 2 KITCHEN
- 3 BATHROOM
- 4 ENTRANCE
- 5 BEDROOM

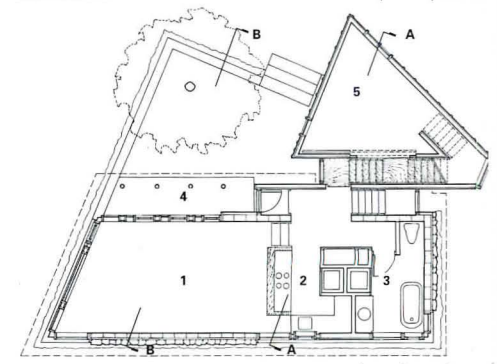
SECTION A-A

6'/1.75m



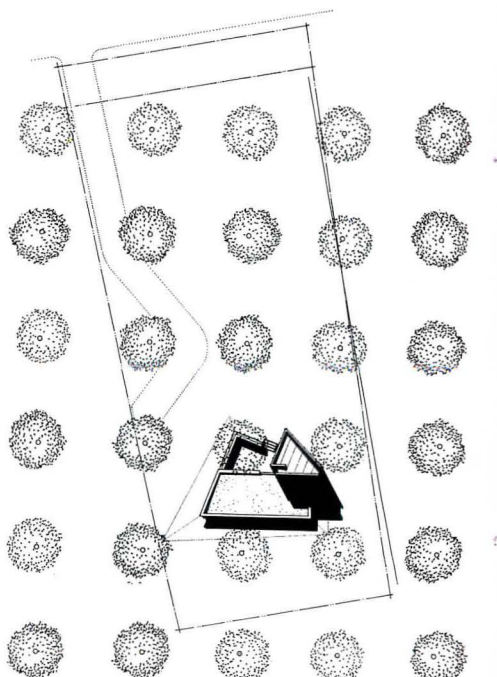
SECTION B-B

6'/1.75m



GROUND-FLOOR PLAN

10'/6m



SITE PLAN

25'/7.5m





Deadline for Submissions: July 1, 1996

Judging will take place in July 1996. Public announcement of the winners will be made in November 1996, and winning entries will be featured in the November 1996 issue of ARCHITECTURE.

Awards for Architectural Research

ARCHITECTURE, in collaboration with the American Institute for Architectural Research, announces its first awards program for architectural research.

AIA Research supports architectural research and design excellence by identifying the architectural discipline's research needs, by encouraging research activities to meet those needs, and by disseminating results that aid the design and construction of inspiring buildings and sustainable communities. The purpose of this awards competition is to recognize outstanding research in architecture and urban design, and to publicize it for use by the profession.

Awards and citations will be designated by a jury drawn from academia and the profession. Decisions will be based on the study's overall excellence, innovation, rigor, and usefulness to the practice of architecture and urban design. The jury will consider the degree to which the research addresses compelling social needs, extends traditional architectural expertise, demonstrates ways to integrate research and design, and utilizes multidisciplinary problem-solving techniques.

Research methodology appropriate to the nature of the inquiry should be made explicit, as should the application or applicability of the research. Doctoral dissertations and applied research are welcome.

Entrants will be judged in one of three broad categories of research: **Energy and Sustainable Design**, **Behavioral and Social Science**, or **Technology and Materials**. Entrants should interpret the call for outstanding research as broadly as possible to include the subdisciplines of architecture as well as diverse modes of inquiry. *See reverse for entry form and rules.*

Jury

Martha Welborne, FAIA (Chair)

Associate Partner
Skidmore, Owings & Merrill
Los Angeles

William J. Mitchell, FRAIA

Dean, School of Architecture
and Planning
Massachusetts Institute
of Technology
Cambridge

Sherry Ahrentzen, Ph.D.

Professor of Architecture
Department of Architecture
University of Wisconsin
Milwaukee

Entry Form: Awards for Architectural Research

Please complete and submit all parts intact with each entry (see paragraph 9 of instructions). Photocopies of this form may be used.

ENTRANT:
ADDRESS:

CREDIT(S) FOR PUBLICATION (attach additional sheet if necessary):

ENTRANT PHONE NUMBER:
ENTRANT FAX NUMBER:
PROJECT:
CLIENT OR FUNDING AGENCY:
CLIENT PHONE NUMBER:
CATEGORY:

ENTRANT:
ADDRESS:

PROJECT:

I certify that the submitted research was done by the parties credited and meets all eligibility requirements. I understand that any entry that fails to meet submission guidelines may be disqualified. Signer must be authorized to represent those credited.

SIGNATURE:
NAME (typed or printed):

FEE(S): \$110 per entry

RESEARCH AWARDS EDITOR/ARCHITECTURE MAGAZINE
1130 Connecticut Avenue, N.W., Suite 625, Washington, D.C. 20036

PROJECT:
Your submission has been received and assigned number _____
(ARCHITECTURE will fill in this number and return this receipt.
Please retain it for reference.)

ENTRANT:
ADDRESS:

(RECEIPT)

RESEARCH AWARDS EDITOR/ARCHITECTURE MAGAZINE
1130 Connecticut Avenue, N.W., Suite 625, Washington, D.C. 20036

ENTRANT:
ADDRESS:

(RETURN LABEL)

Eligibility

1 WHO CAN ENTER: Architects, environmental design professionals, academics, and students conducting research and working in the U.S., Mexico, or Canada may enter one or more submissions. Research may be focused on any location, but the work must have been directed and substantially executed in the U.S., Mexico, or Canada not more than five years ago.

2 SUBSTANTIVE PROJECTS: Entries may include funded research, reports accepted by clients for implementation, or studies undertaken by entrants who have marketed or applied their results. Applied research, in which existing research findings are used or tested in the field (resulting in new knowledge gained from application), and doctoral dissertations are also eligible. Basis of eligibility as well as the date of the study should be explained in the submission. ARCHITECTURE may contact any of the parties involved to verify eligibility.

Publication Agreement

3 PROVIDING ADDITIONAL MATERIALS: If the submission should win, the entrant agrees to make available further information and graphic material as needed by ARCHITECTURE.

4 PUBLICATION: ARCHITECTURE is granted the first opportunity among U.S. architecture magazines for first publication of the study. Prior publication does not affect eligibility. AIA Research reserves the right to publish entries not selected for the November 1996 issue of ARCHITECTURE.

Submission Requirements

5 PROJECT FACTS PAGE: To ensure the jury's clear understanding, each entry must contain a page that lists, in English, the research project facts under the following headings: Project Title; Research Category; Client or Source of Funding; Budget; Start and Finish Dates; Name and Location of Client; Research Setting; Form of Final Products; Basis of Eligibility; Bibliographic References. Ten copies of this page must be submitted.

6 NARRATIVE: Entries must contain a three- to five-page synopsis of the project that includes the following section headings: Purpose/Objectives of

the Project; Research Design and Methods Used in Research; Data and Analysis Procedures; Major Findings and Results; Significance and Uses of Results. Ten copies of the narrative must be submitted.

7 ADDITIONAL MATERIALS: One copy of supplementary graphic or written material may be submitted, in 8¹/₂-inch by 11-inch format and firmly bound in binders. No slides, original drawings, videotapes, or unbound materials will be reviewed.

8 ANONYMITY: To ensure anonymity in judging, no names of entrants or collaborators may appear on any part of the submission except on entry forms. Credits may be concealed by tape.

9 ENTRY FORMS: Each submission must be accompanied by a signed entry form, to be found on this page. Reproductions of the form are acceptable. Fill out the entry form and insert it intact into an unsealed envelope labeled "Entry Form" to be included with the submission.

10 ENTRY FEES: Entry fees must accompany each submission. Fee is \$110. Make check or money order payable to ARCHITECTURE. Canadian and Mexican entrants must send drafts in U.S. dollars. Fee must be inserted in unsealed envelope with entry form (see 9 above).

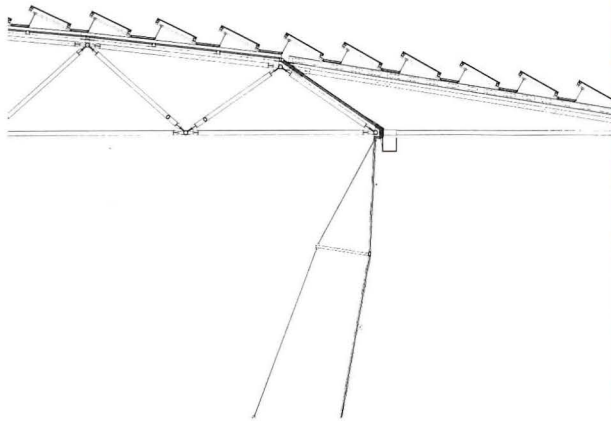
11 ENTRY RECEIPTS: ARCHITECTURE will send a receipt by July 15, which will indicate an entry number to save for the entrant's reference.

12 RETURN OF ENTRIES: Entrants wishing return of submission materials should include a self-addressed, stamped envelope. Copies of project facts and narratives may not be returned.

13 ENTRY DEADLINE: Deadline for sending entries is July 1, 1996. All entries must show a postage mark as evidence of being in the carrier's hands by that date. Hand-delivered entries must arrive at ARCHITECTURE's offices by 5 p.m., July 1. To ensure timely arrival, ARCHITECTURE recommends using a carrier that guarantees delivery within a specified number of days.

Address entries to:
ARCHITECTURE Awards Program
for Architectural Research
ARCHITECTURE
1130 Connecticut Avenue, N.W.
Washington, D.C. 20036

**Deadline: July 1, 1996
Strictly Enforced**



Lasting marriages are rooted in strong foundations, as this month's Technology & Practice section attests. Our featured house, for example, reveals how husband-and-wife architects Marc Angélil and Sarah Graham joined their design (above right) to its Topanga Canyon site with a minimalist, steel-and-concrete structure. The seemingly ethereal roof will incorporate a practical photovoltaic array to take advantage of the strong Southern California sunlight, and the architects' treatment of the landscape anticipates fire and erosion.

Our practice article on recent mergers and acquisitions among architectural firms, however, reports on why not every marriage is meant to be. When two firms such as Perkins & Will of Chicago and Nix Mann & Associates of Atlanta throw their lots in together, as numerous others have in recent years, it's a risk that could mean magic or misery—depending on their cultural compatibility.

Among CAD experts, compatibility of computer systems has become the Holy Grail, as our computer feature details. With the CAD industry entering its second decade, computer systems specialists are rallying around a second edition of electronic file standards, fine-tuned by a multidisciplinary AIA task force, that govern the layering and identifying of CAD files. The AIA's CAD guidelines are being developed in close cooperation with major international standards organizations in the hope of producing universally accepted CAD conventions.

A recent competition for integrating photovoltaic technologies into building components (above left) also shows how greater acceptance and accessibility of technology can benefit practitioners and the profession. Cosponsored by ARCHITECTURE; the National Renewable Energy Laboratory; the U.S. Department of Energy; and Cooper-Hewitt, National Design Museum of the Smithsonian Institution, the competition recognizes designs that wed the environmentally sound technology of photovoltaics to building components, bolstering energy performance. This marriage between energy and material efficiency works because it is based on a relationship that constantly recharges itself.

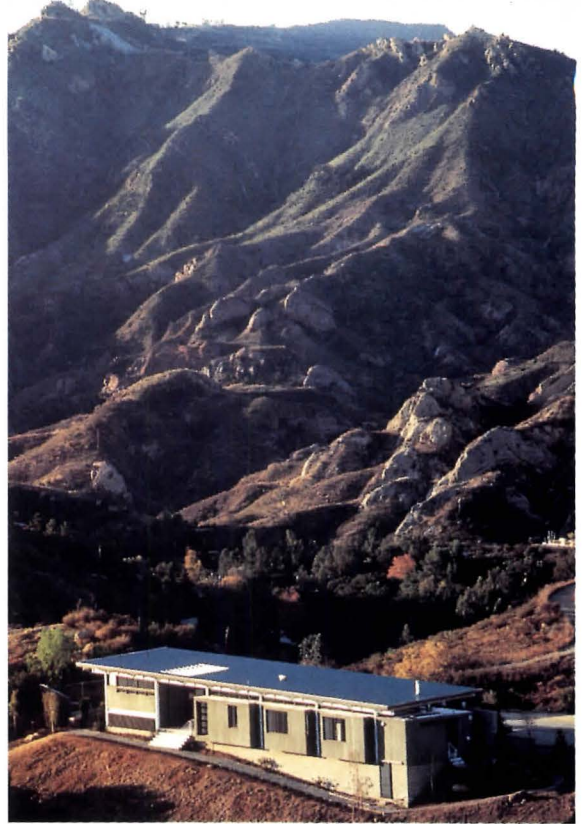
SUPPORT CAN



Arched chord joists, Brown & Root employee center, Houston.



Framing the Canyon



Angélil/Graham crafts a climate-sensitive house in the Santa Monica Mountains.

ABOVE RIGHT: Corrugated metal roof and rough-sawn, $\frac{3}{4}$ -inch plywood exterior sheathing echo rugged landscape.

When friends asked Los Angeles architects Marc Angélil and Sarah Graham to design an environmentally sensitive weekend house overlooking Topanga Canyon in Southern California, the husband-and-wife team pushed a strategy similar to that employed in their own home (ARCHITECTURE, April 1994, pages 50-59). Angélil/Graham's visceral attitude toward materials is unchanged, but their tough structural expressiveness is softened. The design is informed by a keen but commonsense attitude to climatic demands, resulting in a house that hovers above its site while being utterly rooted.

The site, a strip of land hugging a curve in the road, generated the parti, a grid formed by two long parallel lines linking five structural bays, each 20 feet on center and $15\frac{1}{2}$ feet deep. The one-story main house is separated from a two-story volume to the south, containing a guest room above the garage, by an outdoor room created by an open bay in the steel frame. Although the 1,750-square-foot main building follows the hill's spine downward, the line of the corrugated-metal roof is maintained as an unbroken stroke of minimalism. Steel wide-flange columns support the 113-foot-long roof membrane, completely raising it off the wood infill walls. A 9-foot overhang minimizes solar gain on the west, and operable metal clerestories ringing the perimeter ensure generous daylighting and cross-ventilation.

Exposed steel beams connect to the columns to create a single moment frame; steel braced frames concealed within interior wood-framed walls provide lateral stability in the east-west direction. Inside the main building, the master bedroom, living room, and kitchen form a linear sequence of rooms, each of which spans the frame's shallow depth. On the west side of the house, storage space is created from a thickened wall of wood framing that projects beyond the steel frame. Graham explains that "the lines of circulation are kept clear," thus sustaining a visual fluidity throughout the house.—*Barbara Lamprecht*

Barbara Lamprecht is a designer and journalist based in Los Angeles.



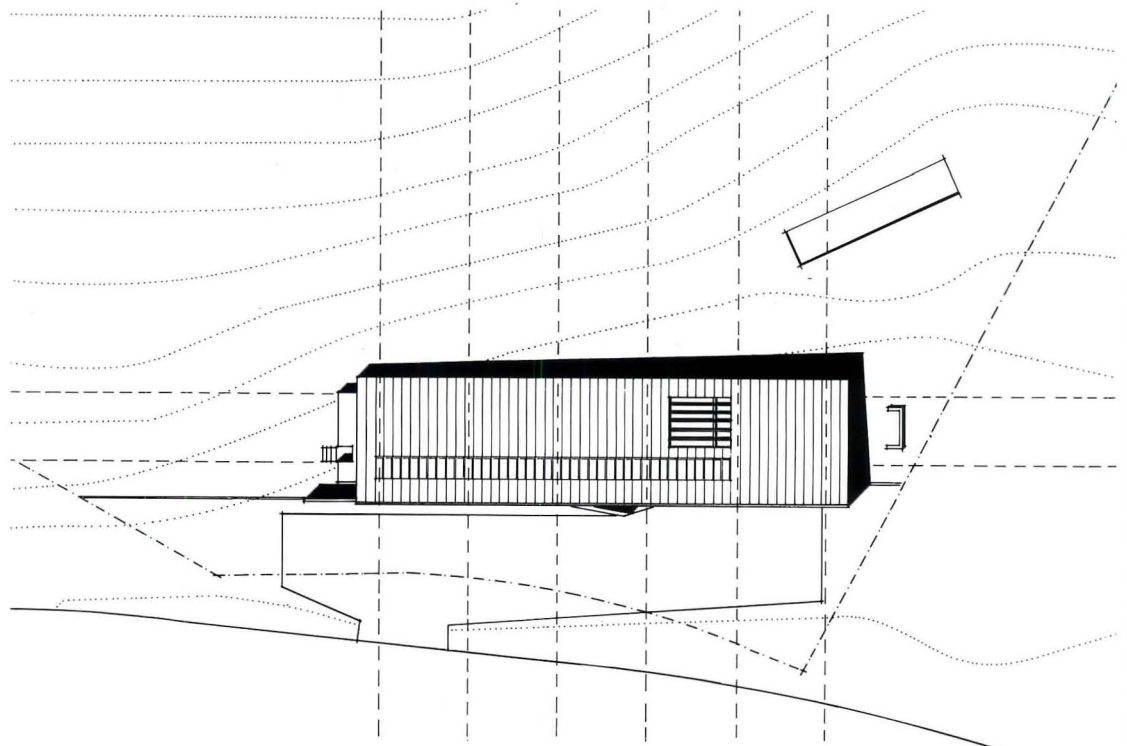
ABOVE: Splayed concrete-block wall provides privacy; wall cutouts frame views of boulder formations beyond.

SITE PLAN: Following bend in road, linear structure is oriented to hillside falling away to east.

FACING PAGE, LEFT: Supported by steel armature, roof appears to float above 2-by-6 wood-framed infill walls.

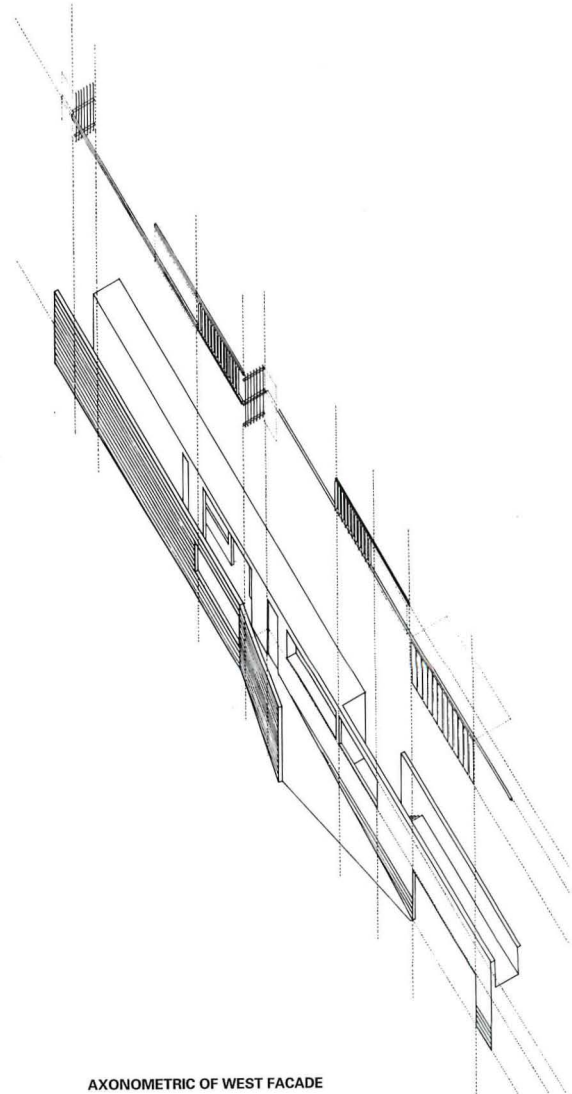
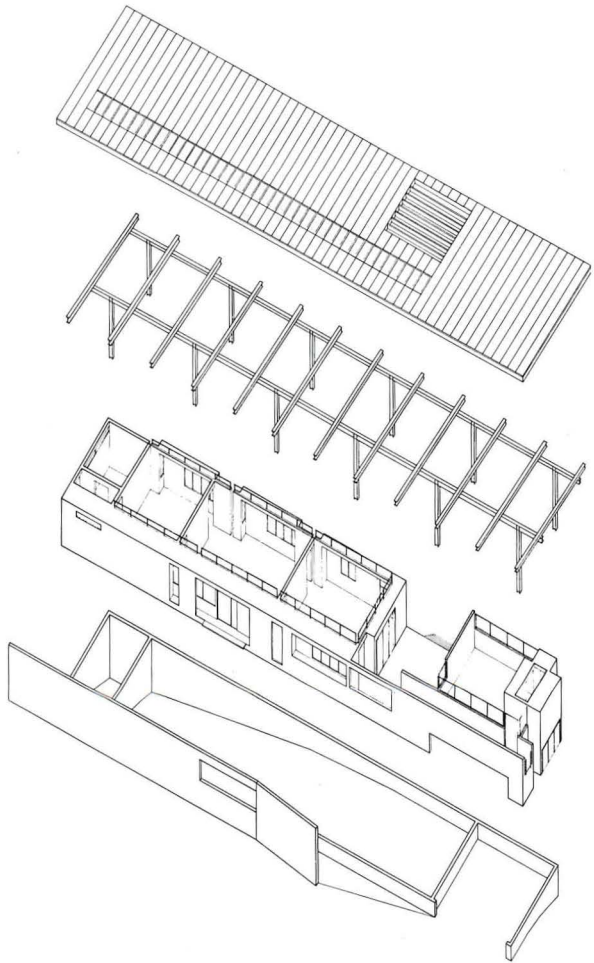
FACING PAGE, RIGHT: Hill was hydro-sprayed to yield low-growing, drought-tolerant plants, lowering fire hazards and retarding erosion.

FACING PAGE, AXONOMETRICS: House is constructed of concrete block sub-structure, plywood enclosure, steel moment frame, and corrugated metal roof, which will incorporate photovoltaic panels; west facade's steel louvers ventilate garage, provide security, and protect against afternoon sun.



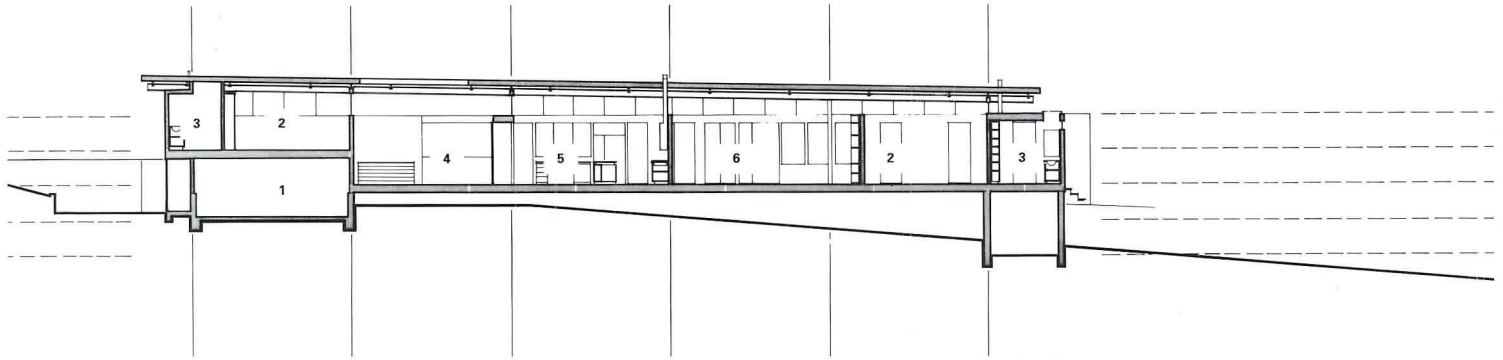
SITE PLAN

15'6"/4.5m



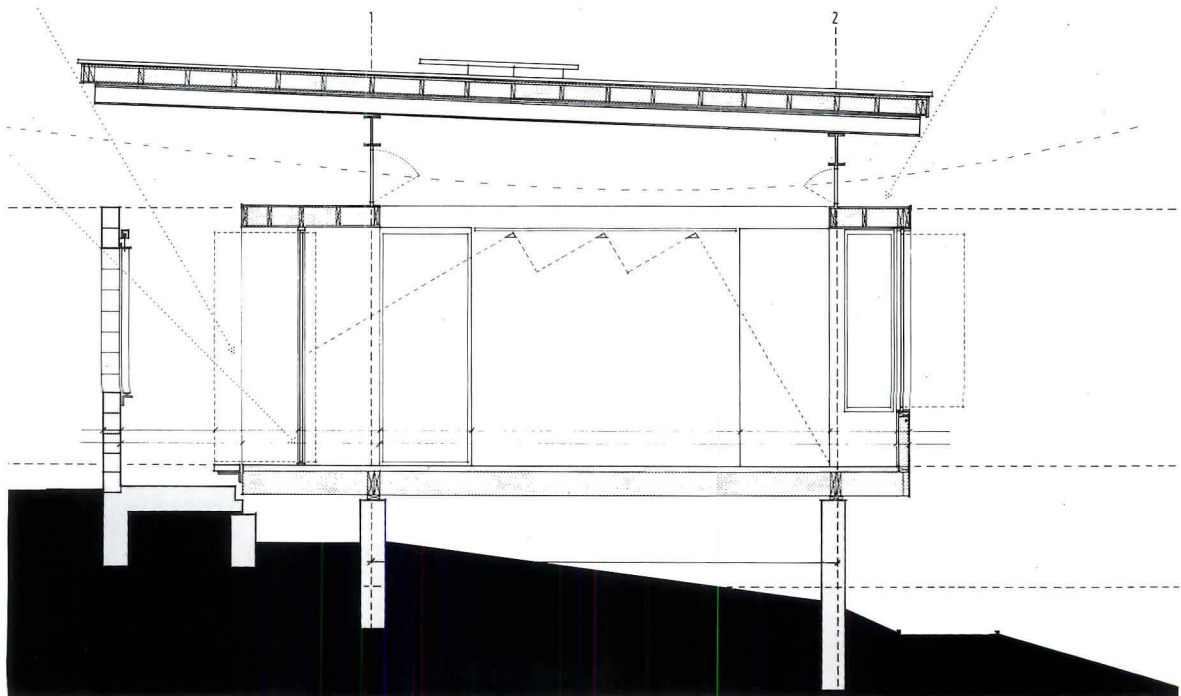
AXONOMETRIC OF STRUCTURE

AXONOMETRIC OF WEST FACADE



SOUTH-NORTH SECTION

- 1 GARAGE
- 2 BEDROOM
- 3 BATHROOM
- 4 TERRACE
- 5 LIVING ROOM
- 6 KITCHEN



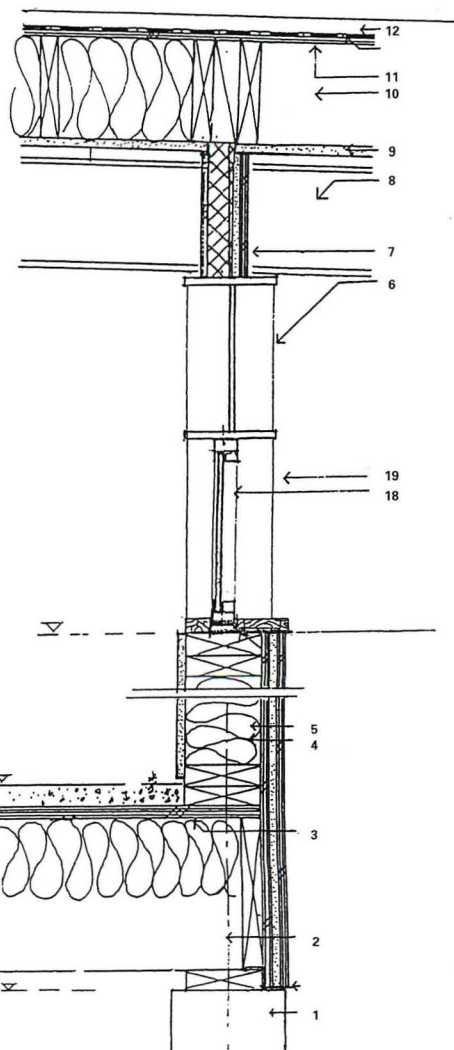
WEST-EAST SECTION THROUGH LIVING ROOM



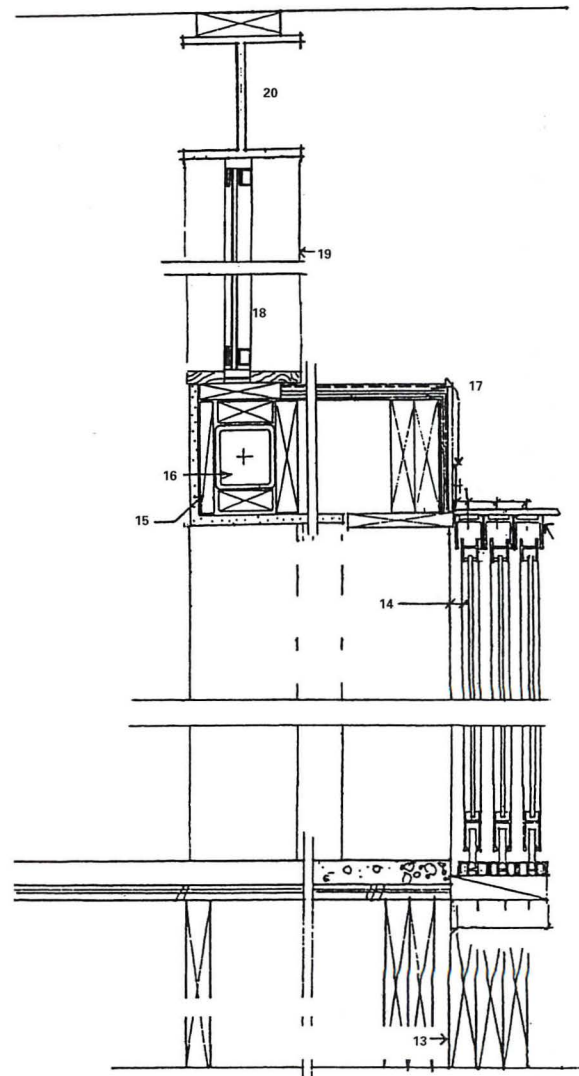
FACING PAGE, LEFT: Floors of main volume are matte-finished concrete.
FACING PAGE, RIGHT: East-facing casement windows overlook canyon.
FACING PAGE, SECTIONS: Concrete block foundations support house over slope.
LEFT: Operable clerestory windows fill space between steel moment frame and wood infill walls.
SECTIONS, BELOW: Standing seam roof is supported by steel structure. Slider windows project beyond clerestory.

TOPANGA CANYON HOUSE
TOPANGA, CALIFORNIA

ARCHITECT: Angéllil/Graham Architecture, Los Angeles—Marc Angéllil, Sarah Graham (partners); Matt Baran, Richard Douglas, Bruce Fullerton, Scott Hudgins, Willima Paluch, Anthony Paradowski (design team)
ENGINEER: Michael Ishler (structural)
CONSULTANTS: Steel Art, John McCoy (steel fabrication)
GENERAL CONTRACTOR: Angéllil/Graham Architecture
PHOTOGRAPHER: Michael Arden



- 1 8" CONCRETE-BLOCK WALL
- 2 2x12 FLOOR FRAMING
- 3 1½" LIGHTWEIGHT CONCRETE FLOOR
- 4 ½" PLYWOOD SHEATHING
- 5 2x6 STUD WALL
- 6 W12 STEEL BEAM
- 7 PAINTED PLYWOOD W/ 2" RIGID INSULATION
- 8 W 8x8" STEEL BEAM
- 9 ½" EXTERIOR GYPSUM WALLBOARD, PAINTED
- 10 2x8 WOOD FRAMING
- 11 ½" PLYWOOD
- 12 STANDING-SEAM METAL ROOF
- 13 SOUNDBLOCKING UNDER DOOR
- 14 SLIDER DOOR UNIT
- 15 WOOD BLOCKING
- 16 4x4" STEEL TUBE
- 17 SURFACE-MOUNTED STEEL ANGLE
- 18 ALUMINUM WINDOW
- 19 STEEL COLUMN
- 20 W8 STEEL BEAM

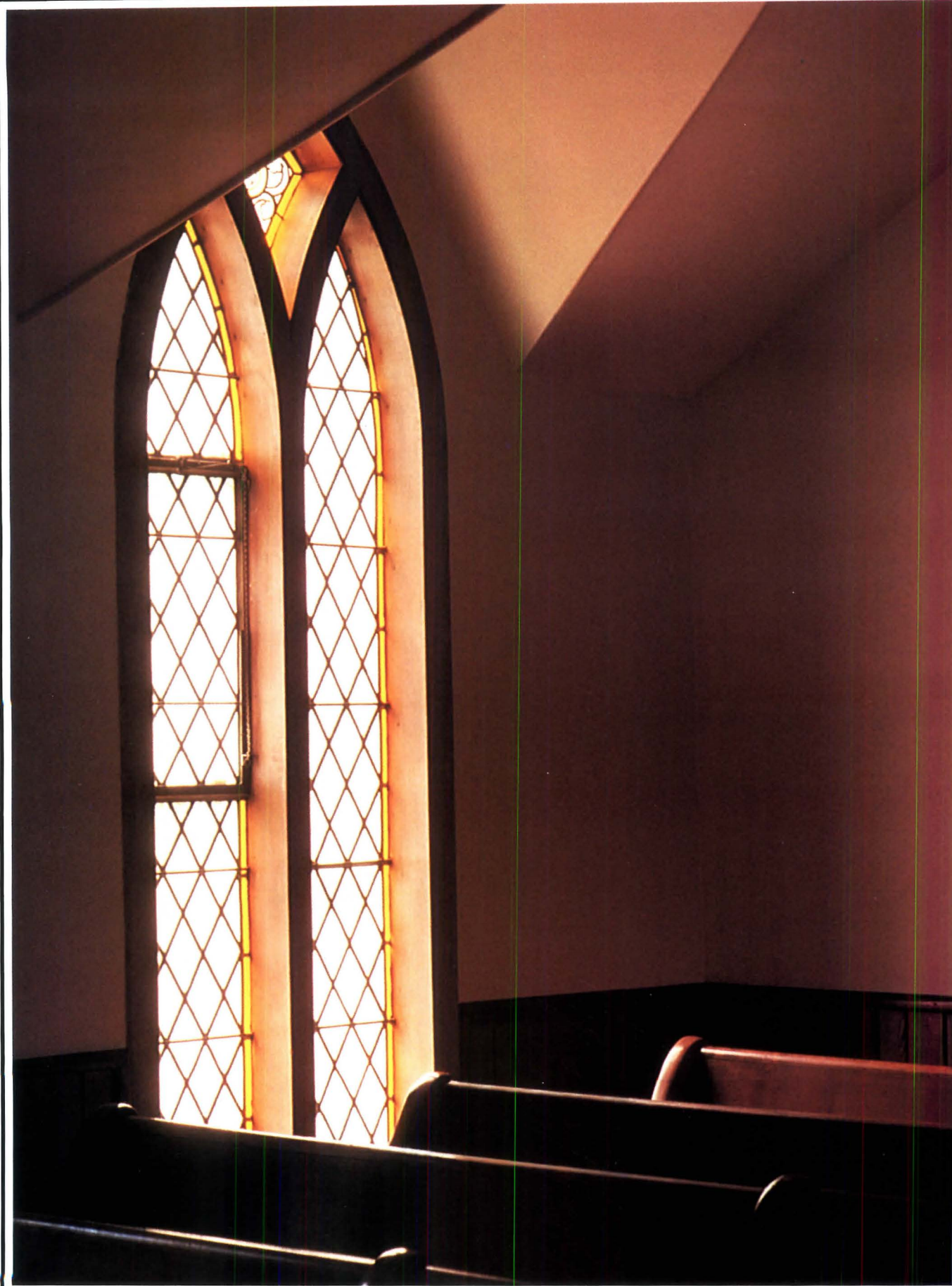


EAST WALL SECTION

8'/0.2m

SOUTH WALL SECTION

6'/0.15m





Merger Mania

When two firms tie the knot, can principals expect marketing miracles, or culture clashes?

A fever for mergers and acquisitions has spread throughout the architectural community over the past two years, resulting in arranged marriages among some of the profession's most prominent players—Hellmuth, Obata & Kassabaum, Perkins & Will, and Anderson DeBartolo Pan, to name a few. This wave of merger activity closely parallels the recent surge in corporate consolidations between such giants as Walt Disney and ABC, Time Warner and Turner Broadcasting, and Chemical Bank and Chase Manhattan. In architecture, as in the rest of business, such couplings are typically born of convenience or desperation rather than true love.

The seeds of divorce are usually sown before the honeymoon even begins. During good economic times, consultants for architects report, 70 percent of architectural firm mergers and acquisitions fail; in a recession, 90 percent end unhappily. The reasons? Principals set high expectations for performance, but pay too little attention to the transaction's cultural dynamics—how one firm will assume the other's ways, if at all, and how that will affect the corporate culture.

Architectural firms have little to leverage apart from the strength of their staff; if much of the talent walks out the door disaffected, the merger becomes moot because the firm loses its key resource. "The success of a merger really comes down to compatibility of the people, because architecture is a service business," maintains William Mandel, a San Francisco-based attorney specializing in architectural firm mergers.

Yet, consultants report, firm principals have grown smarter about mergers in recent years, achieving greater success than in the past. One pivotal factor is that the lending community eyes mergers much more critically than it did a decade ago, ensuring principals enter such deals only for the soundest motives.

Traditionally, firms claim that their mergers or acquisitions are undertaken to gain bigger shares of target markets. Perkins & Will of Chicago acquired Nix

Hellmuth, Obata & Kassabaum

Merging firms: Hellmuth, Obata & Kassabaum; CRSS Architects; Cecil Denny Highton and Partners (CDH)

Date of acquisition: CRSS, July 1994; CDH, November 1995

Value: \$6.8 million

Staff: HOK, 1,200; CRSS, 225; CDH, 75

Offices: 20

Fee volume: HOK, \$83 million; CRSS, \$23.5 million (1993); CDH, \$5 million (1994)

Markets: Both firms have built multidisciplinary practices on commercial and public projects, and share expertise in schools and research-and-development facilities.

History: CRSS founded in 1946 as Caudill Rowlett Scott in Bryan, Texas; firm went public in 1970; entered independent power plant business in 1983. HOK founded in 1955 in St. Louis; formed \$22 million strategic alliance with Kajima USA in 1990; in 1992, Kajima converted one-half its original loan to 15 percent of HOK's outstanding stock.

Reason for sale: Capitalization woes. CRSS Architects' operating income fell by more than two-thirds between 1991 and 1993.

RIGHT: HOK Executive Director Larry D. Self (center); former CRSS principals Thomas Robson and James R. Whitley.

FAR RIGHT: Cecil Denny Highton partners John Denny and Michael Highton with HOK's Larry Self.



JOHN RUBIN PHOTOS



Mann & Associates of Atlanta last October as part of its push to expand in new regional arenas, maintains Perkins & Will's President James M. Stevenson. The newly formed Nix Mann Perkins & Will is pursuing the Southeastern healthcare market—healthcare constitutes 40 percent of Perkins & Will's work and 75 percent of Nix Mann's.

Apart from strategic expansion, however, the likelier reason for mergers among architects is ineffective succession planning combined with poor capitalization of the practice. "In many cases, the partners are too old and have not nurtured their successors internally," asserts consultant Hugh Hochberg of the Seattle-based Coxe Group, "or they're in deep financial holes and looking for help."

Such was the case last July, when 250-person Anderson DeBartolo Pan (ADP) of Tucson, Arizona, among the Southwest's most prosperous firms, was bought by Fluor Daniel, a subsidiary of Fluor Corporation of Irvine, California. And two months ago, the new ADP Fluor Daniel completed the acquisition of Phoenix-based hospitality architects Allen & Philip. Jack DeBartolo, who started ADP in 1975 with Richard Anderson and Solomon Pan, explains that he and his co-founders sold the firm to Fluor Daniel because it was one of the only ways they could retire with their financial interests intact.

The three ADP partners began transition planning in 1979, naming engineer Dale Harman as their first nonfounding principal. Fifteen years later, the three founders had expanded ownership to eight other principals, but the trio still owned 75 percent of their firm. This arrangement made it impossible for any internal successor to buy ADP in terms that proved acceptable to the bank and secure for the partners. "We couldn't sell the firm among ourselves—we didn't like the terms, because they didn't provide long-term guarantees," maintains DeBartolo, 57, who has set up an independent practice in Phoenix; Anderson and Pan remain with the firm in Tucson. With Fluor Daniel, he adds, "the terms were very clean and simple."

Valuation methods differ for buyers inside and outside the firm: Insiders generally pay a price based on the accrued value of the firm's assets. Such a sum amounts to less than the price paid by outside buyers, who base their purchase price on the firm's earnings. Baseline valuations for an average, stable firm with a reasonable backlog of projects start at 40 percent to 60 percent of net revenue, or two-and-a-half times net worth. Exceptionally strong firms, however, may fetch as much as three to six times net worth. But to avoid crushing disappointments, consultants urge principals to focus on maximizing

Nix Mann Perkins & Will

Merging firms: Perkins & Will; Nix Mann & Associates

Date of merger: October 1995

Value: Not disclosed

Staff: Perkins & Will, 290; Nix Mann, 96

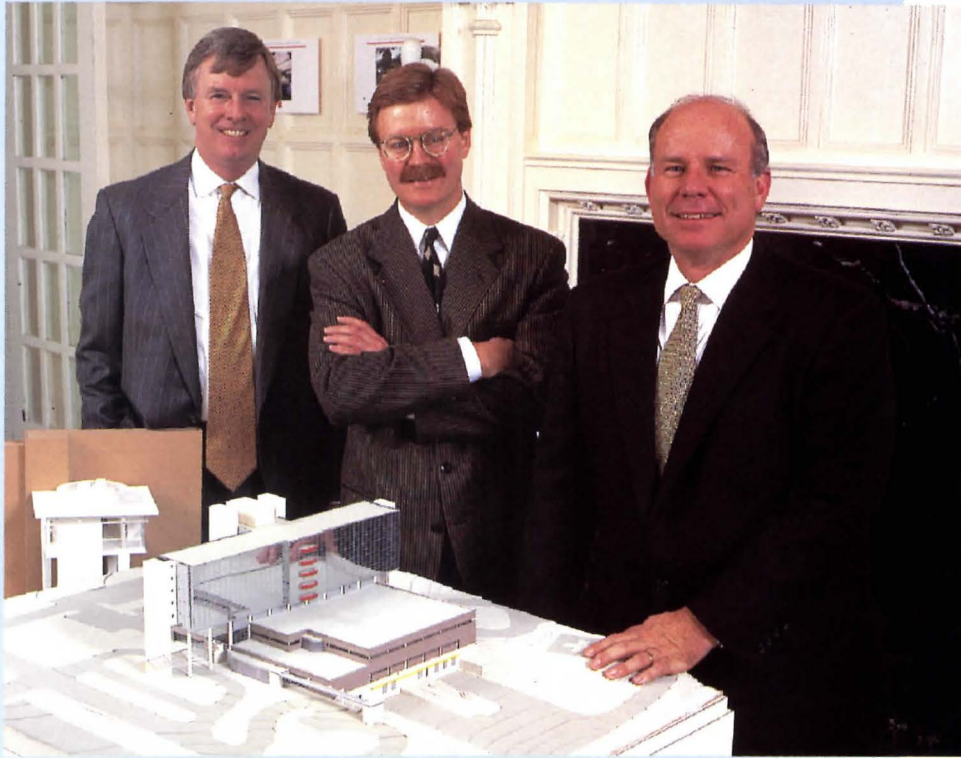
Offices: Six

Fee volume: Perkins & Will, \$30 million; Nix Mann, \$13.5 million

Markets: Perkins & Will's practice focuses on healthcare and education; Nix Mann practices primarily in the healthcare arena.

History: Perkins & Will founded in 1935 in Chicago; in 1985 acquired by Dar Al Handasah, a Lebanese engineering conglomerate. Nix Mann opened in Atlanta in 1977. In 1993, Perkins & Will restructured management to stem losses running as high as 20 percent of gross revenues; restructuring succeeded—by 1995, Perkins & Will realized 5 percent profit.

Reason for merger: Expansion into new regional markets. Perkins & Will is targeting the healthcare market in the Southeast, where an expanding, increasingly elderly population promises high demand in coming years. In 1995, Perkins & Will ranked sixth in the national healthcare market; Nix Mann ranked 21st. The newly merged firm ranks fourth.



JOE STEWARDSON

LEFT: Principal Henry A. Mann, CEO James M. "Sandy" Stevenson, and Principal I. Lewis Nix.

their firm's earnings, not its selling price. "The biggest problem I have with new clients selling or merging their firm," Mandel remarks, "is dispelling this notion that there is tremendous value in their firm and that it will sell high, when principals are mostly selling cash flow."

Like several recent mergers, the ADP Fluor Daniel deal brings an architectural firm under the mantle of a publicly traded company. Yet Robert Fratti, ADP Fluor Daniel's director of commercial and institutional practice, says the \$9.8 billion Fluor is taking a "hands-off" attitude toward its new \$30 million subsidiary. The division largely runs itself, Fratti contends: "We've been able to keep our identity and do things the way we did them before the acquisition."

Even when the buyer presumably adopts a policy of noninterference toward its acquisition, consultants question whether an architectural firm fits into a publicly owned concern. Architectural practice is labor-intensive; many firms barely manage to make cash flow smoothly. "To expect quarterly profits and dividends on an architectural practice is tough, unless the buyer has surplus cash," argues Frank Stasiowski, a frequent merger consultant and president of PSMJ Resources in Newton, Massachusetts. Indeed, shortly after the ADP Fluor Daniel merger was completed, the firm closed ADP's San Fran-

cisco office, laying off a dozen employees owing to "inability to survive and sustain any stable profit," according to a firm spokeswoman. ADP Fluor Daniel will serve the West Coast from its Phoenix office.

Such pressure to perform for common shareholders prompted the July 1994 megasale of CRSS Architects of Houston to St. Louis-based Hellmuth, Obata & Kassabaum (HOK), which ranks among the nation's largest firms. By the mid-1980s, CRSS, founded as Caudill Rowlett Scott in 1946, had gone public and diversified, moving from architecture to developing electrical cogeneration plants.

CRSS's architecture division soon ran well behind the less cyclical, more profitable energy business. Revenues of CRSS's services group, of which architecture was a part, plunged from \$21.3 million in 1991 to \$6.9 million in 1993. The power company's income, meanwhile, nearly doubled in the same period. In 1993, CRSS President Bruce Wilkinson approached the board of directors seeking to sell the design and construction division. Jacobs Engineering bought CRSS's engineering division, while the four architectural offices, employing 225 people, were sold to HOK in July 1994. And last November, HOK expanded its European practice by buying the London-based firm of Cecil Denny Highton and Partners, adding 75 people.

The Ratcliff Architects

Merging firms: The Ratcliff Architects; Crosby Helmich Architects

Date of merger: February 1996

Value: Not disclosed

Staff: Ratcliff Architects, 49; Crosby Helmich Architects, 30

Offices: Three

Fee volume: \$10 million (combined)

Markets: Ratcliff focuses heavily on public, institutional, and healthcare; current projects include renovation of U.C. Berkeley's Law School and a medical campus for Kaiser in Fresno. Crosby Helmich works typically in commercial, residential, and institutional fields; recent projects include a new corporate headquarters for Packard Bell.

History: The Ratcliff Architects was opened in Oakland in 1906 by Walter Ratcliff, who was succeeded by his son, Robert Ratcliff, and grandson, current principal Christopher P. "Kit" Ratcliff. Crosby Helmich Yandel and Drake, founded in San Francisco in 1965, later changed to Crosby Helmich Architects, led by Don Crosby and Pamela Pence Helmich at time of merger.

Reason for merger: Mutual expansion. By combining expertise and economies of scale, these two mid-sized firms expect to grow in the Northern California region and throughout the West.

RIGHT: Principals Pamela Pence Helmich and Christopher P. "Kit" Ratcliff.



LINDA SUE SCOTT

CRSS indemnified HOK for all of CRSS's work prior to the sale date. Therefore, the greatest risks in the acquisition were cultural, asserts HOK Chairman Jerome J. Sincoff. For the past two years, HOK has analyzed the two firms' processes in search of greater productivity. For instance, HOK's Facilities Consulting Group has melded with CRS Advance Planning, well known for its programming methodology, to form HOK's new consulting group. HOK set up an integration team to address procedural issues such as consolidating offices and operational styles. And HOK's human-resource managers descended upon the CRSS offices to provide information on employee benefits, and to jump-start promotions for CRSS employees that had been stalled as the company sat in limbo. When the former CRS Group bought the engineering firm J.E. Sirrine in 1983, "it was a tremendous clash of cultures," recalls James R. Whitley, now managing principal of HOK's Atlanta and Greenville offices. "That has not been the case with HOK."

When merging two entrepreneurial cultures, consultants recommend that the firms first work together as part of a joint venture to reveal how well their concerns connect. Also, Stasiowski suggests, architects negotiating a merger should nail down the terms of a deal, then set it aside to focus on fusing the cultures, as well as reconciling

the respective professional agendas of the employees on each side.

In 1994, 60-person Keating Mann Jernigan Rottet (KMJR) of Los Angeles merged with the 1,250-person Daniel Mann Johnson Mendenhall (DMJM) to form DMJM Keating and DMJM Rottet, an interiors practice, as divisions of DMJM. KMJR partners Robert Jernigan and Michael Mann continue in key design roles within DMJM Keating. The firms joined hands, avers Principal Richard C. Keating, in part so that his firm could pump up DMJM's design, which was largely engineering-driven, but also because KMJR found it too tough to design urban high-rises in Asia on its own. "I was sensing a lot of disruption in our future," contends Keating, who directs DMJM Keating's design. DMJM Principal Robert Newsom directs the architectural practice, and DMJM's Raymond W. Holdsworth serves as CEO. "There's nobody I have to report to about architecture beyond [Newsom and Holdsworth], so there's no bureaucracy," Keating says. The two firms have had to adapt their vastly different sizes and styles: DMJM houses high-overhead support departments, whereas KMJR's operation was more stripped-down. "We confront that cultural difference rather frequently," Keating confirms, "but it doesn't stand in our way."

Some firms, meanwhile, choose not to merge physically, instead

DMJM Keating

Merging firms: Keating Mann Jernigan Rottet; Daniel Mann Johnson Mendenhall

Date of merger: October 1994

Value: Not disclosed

Staff: KMJR, 50; DMJM, 1,250

Offices: 15

Fee volume: KMJR, \$5 million;

DMJM, \$150 million

Markets: KMJR brings experience in high-rise commercial and corporate work to DMJM's engineering-intensive mix of infrastructure and other public projects. Current projects include a 12 million-square-foot mixed-use center in Bangkok and a high-rise renovation in Houston.

History: KMJR opened in 1990 in Los Angeles as a breakaway partnership from Skidmore, Owings & Merrill. DMJM opened in 1946 in Los Angeles. Simultaneously with the DMJM Keating merger, DMJM formed DMJM Rottet, a new interiors division with former KMJR partner Lauren Rottet.

Reason for merger: Improving design profile and economies of scale. Since high-rise commercial market has largely shifted to Asia, Keating sought a more sound financial platform from which to practice, while DMJM sought design expertise to expand into architectural markets.

LEFT: President and CEO Raymond W. Holdsworth, Principal Robert Newsom, and Principal Richard C. Keating.



PATRICIA LANZA

working at arm's length from each other. For example, when Perkins & Will merged with Nix Mann, the two firms elected to remain operationally distinct by forming a holding company to which each reports. "We didn't want to mesh operations with Nix Mann," remarks Perkins & Will's Stevenson. "It happens to be a well-run firm." Some acquisitive firms go "bottom fishing" to buy a troubled firm at a discount price, yet Perkins & Will determined not to waste time on a turnaround. As Perkins & Will searched for merger partners, it scrutinized candidates according to more than a dozen criteria, including quality of design and service, long-range market strength, leadership and design talent, backlog of work, and profit potential. Nix Mann, for its part, was not seeking a merger before Perkins & Will approached. "It was the furthest thing from our minds," assures Partner Henry A. Mann. In considering the offer, Mann and Partner I. Lewis Nix wanted assurances that their firm's own succession plan could continue; after 17 years of sustained growth, the founders recently had named two junior partners in their 30s.

Principals must approach such crucial staff matters gingerly, letting employees know their stake in the process. In February, 30-person Crosby Helmich Architects of San Francisco moved across

the Bay to join the 49-person Ratcliff Architects in Emeryville. While filling out The Ratcliff Architects' office space in a former egg warehouse, the combined firm is adapting to new management methods that come largely from Crosby Helmich. Christopher P. "Kit" Ratcliff and Pamela Pence Helmich, however, lay claim to similar goals. They hope to combine their midsized regional firms to pursue larger and more complex jobs. The joining was complete and unconditional: On February 1, the merger's effective date, both offices' receivables fell into one pot. "Our problems became each other's," Helmich asserts, and neither firm could look back. Helmich adds that the merger has "rejuvenated some staff and proved hard for others."

The coming months are likely to bring more such pairings in the profession as the move toward specialization continues, and as midsized practices reckon with their limited economies of scale. Strategically minded firms, to keep up with the demands of increasingly sophisticated clients, find themselves turning into veritable brokerages of consulting and services beyond bricks and mortar. When the pressure is on principals to offer new, more competitive specialties in today's protean marketplace, it's usually cheaper to buy the expertise than to build it from scratch.—Bradford McKee

Come see us at A/E/C Systems '96 • June 17-20
Anaheim Convention Center, Anaheim, CA
Booth #1803

Build
the way
you
think.

Introducing
MicroStation
TriForma.

Design in 3D,
get 2D instantly.

Build your designs the way you envision them. With new MicroStation TriForma. It's an architectural modeler with instant 2D drawings. What it does is make work flow more intuitively. So you can concentrate on the creative side. Whether you are designing or drafting, work is faster, easier and more productive.



Bentley Systems, Inc., 690 Pennsylvania Drive, Exton, PA 19341
610-458-5000 • 800-BENTLEY • FAX: 610-458-1060
Internet: family@bentley.com • WWW: <http://www.bentley.com/>

MicroStation is a registered trademark and MicroStation TriForma, MicroStation MasterPiece and the "B" Bentley logo are trademarks of Bentley Systems, Incorporated. © 1996 Bentley Systems, Incorporated

MicroStation TriForma will deal with the details. Plans, sections, elevations, bills of materials, specifications are done quickly, automatically. As for your clients, they'll be able to view and have a better understanding of the end results. And then everyone will see eye-to-eye.

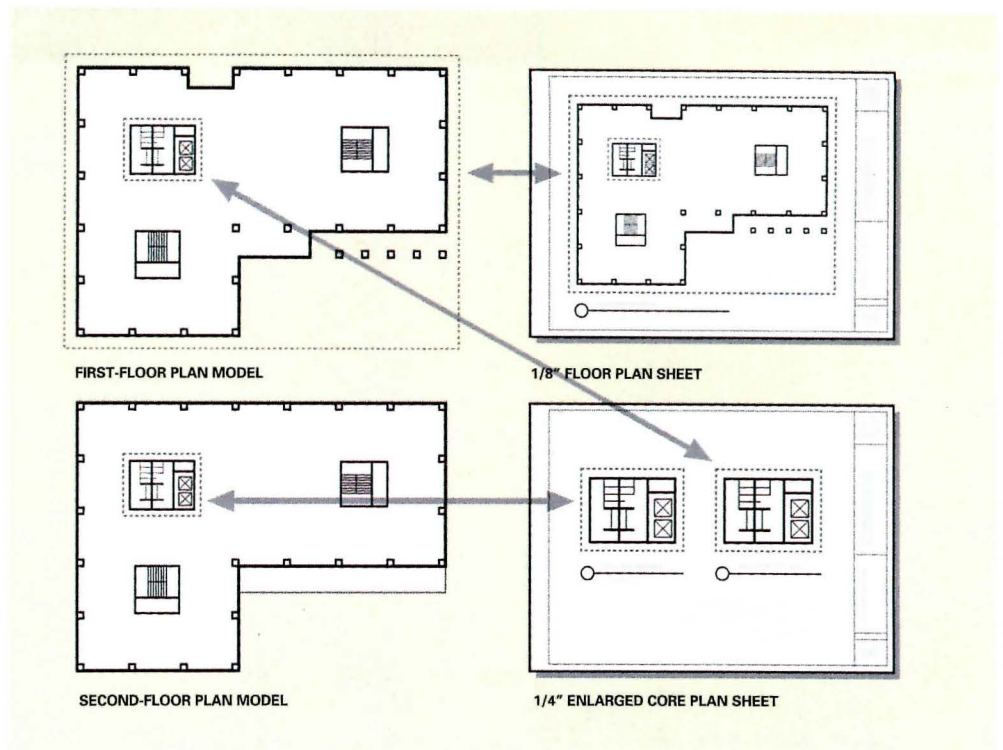
Don't drudge through 2D anymore. Build models and get drawings instantly. Go straight to reality. With new MicroStation TriForma.

Call 1-800-BENTLEY for your FREE demo CD.



MicroStation®
TriForma™

Standardizing CAD Files



The AIA's updated CAD guidelines help architects share data with consultants and clients.

ABOVE RIGHT: CAD files are organized into two types, models and sheets. The two are typically linked through reference files or blocks.

Desktop computer-aided design (CAD) is more than a decade old, but the promise of sharing data easily between product manufacturers, architects, consultants, and clients is still far from reality. Thousands of different CAD layer standards, file-naming conventions, and other organizational dialects respond to one organization's specific needs, but are often of little practical value to others.

A popular standard, AutoCAD's DWG file format, is supported today by many CAD programs, but the DWG format is not enough to ensure the seamless transport and reuse of CAD drawings. Many clients now understand that the digital data they receive from different architects, even if stored in DWG format, is not immediately useful if inconsistently organized. As a result, CAD organizational specifications are often included within owner/architect agreements. Unfortunately, supporting multiple standards for multiple clients can exact a toll on an architect's overall CAD productivity, a toll eventually passed on to clients through lower-quality work or higher fees.

Many practitioners are realizing that a single public standard for organizing digital data would benefit all who create, edit, and reuse CAD information. Over the past five years, the *AIA CAD Layer Guidelines* has enjoyed growing support as a public standard for organizing CAD drawings. Published in 1990, the guidelines were authored by an AIA-sponsored multidisciplinary task force of architects, consulting engineers, and facilities managers. In 1995, a new task force funded by the AIA's Computer-Aided-Practice Professional Interest Area (CAP/PIA) was assembled to produce a second edition of the guidelines.

This updated version includes several minor modifications to the first edition's layer list, many of which were generated from user feedback, such as providing two layers for HVAC ductwork (supply and return) instead of just one. Other improvements to the second edition are seven new major layer groups;

revised short layer names that comply with those established by the International Organization for Standardization (ISO), a federation of standards bodies from over 90 countries; and a new file-naming convention for organizing CAD files that distinguishes between models and sheets.

The second edition reflects how professional practice—and the world—has changed since the first edition was published. CAD is no longer a specialty of professional practice, but a mainstream business tool for documenting and managing the built environment. It is now the rule, not the exception.

As such, CAD standards have attracted the strong interest of the Construction Specifications Institute (CSI), National Institute of

Building Sciences (NIBS), and the American National Standards Institute (ANSI). Support for international data standards, such as ISO's, has also emerged as a key issue for a growing number of architects involved in international practice and for building owners whose real estate assets span the globe. As a result, the AIA's task force is working closely with other national and international standards organizations, including CSI, NIBS, ANSI, and ISO.

A three-month public review of the second edition of *AIA CAD Layer Guidelines* is currently in progress. The final version will be placed in the public domain by the AIA, and will be free of copyright restrictions for those who wish to reproduce it on a not-for-sale basis. Scheduled for publication this fall, a handbook containing the guidelines and examples of its use will be produced and distributed by the AIA Press.

The new file-naming convention of the second edition recognizes the two primary types of CAD files: models and sheets. This conceptual framework has long been an efficient way to organize CAD files. Models contain the full-size geometry of a building and its components (two-dimensional, three-dimensional, or both), while sheets contain scaled views of the models, arranged within a border and title block. Using a conventional database analogy, the models are the data and the sheets are the reports of the data: models are always referenced by other files, but sheets never are. (Models may also include annotations, such as dimensions, notes, and targets, which are generally easier to coordinate and revise when they are included in the model.)

In some cases, models and sheets coexist in the same project file—for example, interior elevations, details, or other drawings that contain no model data shared by any other drawing. In other cases, such as floor plans, ceiling plans, and enlarged plans, the models and sheets are contained in separate files. The method used for sharing information between models and sheets varies with the CAD system. Most architects who use a system that supports reference files will tap that feature for sharing data, although some users of AutoCAD may prefer to use blocks instead.

Some technology evangelists contend that the emergence of objects and object-oriented software will soon diminish the importance of layers as a basic organizational structure. For example, the Industry Alliance for Interoperability (IAI), originally sponsored by Autodesk and now embraced by other CAD

Layer Groups

In the second edition of *AIA CAD Layer Guidelines*, the prefix to each layer name is more closely associated with the originator of the data. Seven new major layer groups are added in the second edition (below): contractor-supplied data layers are prefixed with "Z," for example, while product information is prefixed with a hyphen. These conventions allow architects to keep better track of the sources of the external data contained within their CAD drawings.

| First Edition Layer Groups | | Second Edition Layer Groups | |
|----------------------------|-----------------|-----------------------------|--------------------------------|
| | | — | Product Manufacturer |
| A | Architectural | A | Architectural |
| C | Civil | C | Civil |
| E | Electrical | E | Electrical |
| F | Fire Protection | F | Fire Protection |
| | | G | Geographic Information Systems |
| | | I | Interior Design |
| L | Landscape | L | Landscape |
| M | Mechanical | M | Mechanical |
| | | O | Other Consultants |
| P | Plumbing | P | Plumbing |
| | | Q | Equipment Consultant |
| S | Structural | S | Structural |
| | | T | Telecommunications |
| | | Z | Contractor Data |

software developers, is currently developing object-oriented standards to organize digital data for the built environment.

Will the emergence of objects make layers obsolete? Absolutely not. Layers are an abstract organizational structure that allows users to selectively filter, display, share, and plot subsets of digital information on demand. Although the term “layer” is something of a misnomer—the term was invented to provide a familiar analogy to overlay draft-

this comprehensiveness. The CADD Council, a public/private consortium sponsored by the NIBS, is also working toward the development of a national CAD standard.

It remains to be seen when and if these initiatives result in standards that will be widely adopted by the building industry. Significantly, the IAI, CSI, and CADD Council have each publicly stated their support for *AIA CAD Layer Guidelines* as a de facto industry standard. Ultimately, the value of seamless

Format Names

Abbreviations assigned to building elements within *AIA CAD Layer Guidelines* have been changed in the second edition to conform to the ISO 13567 International CAD Layer Standard. The long format naming convention remains the same. Examples are listed below.

| Layer Description | Long Format Name (First and Second Editions) | Short Format Name (First Edition) | Short Format Name (Second Edition) |
|------------------------------------------|-------------------------------------------------|--------------------------------------|---------------------------------------|
| Full Height Walls, Stair and Shaft Walls | A-WALL-FULL | AWAFU | A-WALFU |
| Wall-Mounted Casework | A-ELEV-CASE | AELCA | A-ELVCA |
| Structural Floor Deck | S-FRAM-DECK | SFRDE | S-FRMDE |
| Exhaust System Ductwork | M-EXHS-DUCT | MEXDU | M-EXHDU |
| Sanitary Piping | P-SANR-PIPE | PSAPI | P-SANPI |
| Sprinkler Piping | F-SPRN-PIPE | FSPPI | F-SPRPI |
| Ceiling-mounted Lighting | E-LITE-CLGN | ELICL | E-LITCL |
| Existing Contour Lines to Remain | C-TOPO-EXST | CTOEX | C-TOPEX |
| Play Structures | L-SITE-PLAY | LSIPL | L-SITPL |

ing—the value of layers as a basic organizational structure for CAD drawings has not diminished. In future object-oriented systems, in fact, one of the many attributes of an object will simply be its layer. The likely change is that users will not have to explicitly interact with layers in the same way—for example, new door objects will automatically be defined with the correct layers, inherited from a generic door object.

Others argue that to truly enable plug-and-play data sharing, CAD standards must not only include layers, file names, and common attributes of objects, but also define the internal structure and layout of construction documents, such as sheet sequence, title block layout, dimensioning conventions, targeting standards, and notation methodology. The CSI's new *Uniform Drawing System*, to be published this year, is one attempt to provide

data transfer—whether upstream (receiving data from product manufacturers), mid-stream (sharing data with consultants), or downstream (delivering data to clients)—should outweigh the value of proprietary organizational conventions for the majority of architects.—*Ken Sanders*

Ken Sanders is an associate partner of Zimmer Gunsul Frasca Partnership and a member of the AIA's CAD Layer Guidelines Task Force.

For more information

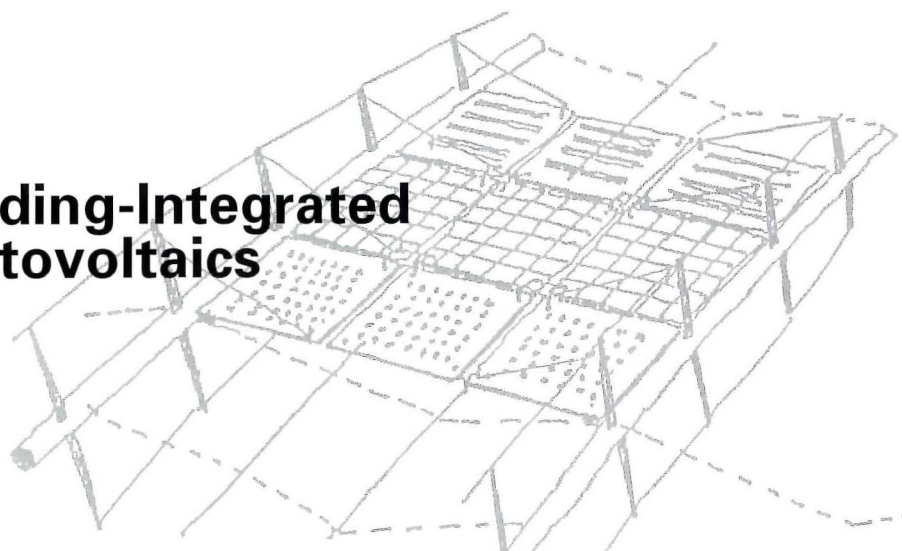
To obtain a copy of the proposed second edition of *AIA CAD Layer Guidelines*, contact the AIA at (202) 626-7300.

Architects with access to the Internet's World Wide Web can review or download the proposed second edition from the AIA's home page at <http://www.aia.org>.

THE OBJECT OF ART I



Building-Integrated Photovoltaics



Architects rise to the challenge of melding solar electric technology into buildings.

ABOVE: Photovoltaic roof panels energize and diffuse daylight in winning pavilion by Scott + Donnelly.
ABOVE RIGHT: Jurors (left to right) Peter Bohlin, Christopher Nash, Donald Prowler, and Steven Strong reviewed 80 submissions.

Recent developments in photovoltaic technology, which converts sunlight directly into electricity through semiconducting silicon cells, have significantly lowered photovoltaic systems' costs and improved their flexibility. New products that incorporate thin-film, amorphous silicon modules, such as shingles and spandrel panels, are encouraging architects to turn roofs, curtain walls, canopies, and other static elements into electricity-generating surfaces.

To foster innovation in photovoltaic applications, AIA Research held a competition this winter soliciting technically feasible new approaches to building-integrated photovoltaics. The competition was cosponsored by ARCHITECTURE; the Buildings & Energy Systems Division of the National Renewable Energy Laboratory, supported by the U.S. Department of Energy's Office of Building Technologies; and Cooper-Hewitt, National Design Museum of the Smithsonian.

Architects were invited to submit photovoltaic projects in two categories: designs for a visitors' pavilion in Washington, D.C., in honor of the 1996 Summer Olympics, or new and in-progress projects and research. Submissions were judged by Peter Bohlin, principal of Bohlin Cywinski Jackson; Christopher Nash, director of Nicholas Grimshaw & Partners; Donald Prowler of Donald Prowler & Associates; and Steven Strong, president of Solar Design Associates. "The competition provides an exciting glimpse into the future of solar electric architecture," asserts Strong. "Architects can shape this emerging industry by using their creativity to help product developers envision new building materials."

Entries ranged from a handrail fitted with a slender photovoltaic strip to a strategy placing photovoltaic modules on high-rise facades and highway barriers. Two visitors' pavilions were singled out for \$3,000 citations. Of the seven projects selected from the open submissions category, two won \$3,000 citations and five received \$1,500 merit awards. The winning projects were exhibited at the AIA convention in Minneapolis from May 10 to 12.—*Ann C. Sullivan*

CITATION AWARD

Visitors' Pavilion

Washington, D.C.

Andrew Scott + Paul Donnelly,
Architects

The award-winning pavilion by Boston architects Andrew Scott and Paul Donnelly generates electricity through photovoltaic sheathing and, with its vaulted fabric roof, encourages natural ventilation. The sculptural form stood out among the entries for its seamless integration of photovoltaics, refined detailing, and thorough technical analysis.

The 7,620-square-foot photovoltaic array is suspended by cables over the Teflon-coated fiberglass membrane of the steel structure. A utility-interactive system, the array incorporates 177 thin-film panels bonded onto a frameless, tensile glass assembly, and is oriented southward with an average tilt of 37 degrees. A varying density of photovoltaic cells on each module, creating a pattern similar to that of fritted glass, selectively filters light through the fabric membrane.

The roof configuration is designed to maintain a continuous passage of air through the pavilion. A cavity between the photovoltaic panels and the membrane allows air to flow between the two surfaces, reducing heat buildup and increasing the photovoltaics' effectiveness. Negative wind pressure generated on the north side of the building draws the prevailing summer winds through the south end of the pavilion and along the underside of the roof membrane. The project team, which is made up of Andrew Scott, Paul J. Donnelly, Chih-Jen Yeh, Karl Daubmann, and Natasha Sandmeier, employed computational fluid dynamics—a method of digitally modeling air flow in a volume—to test this concept.

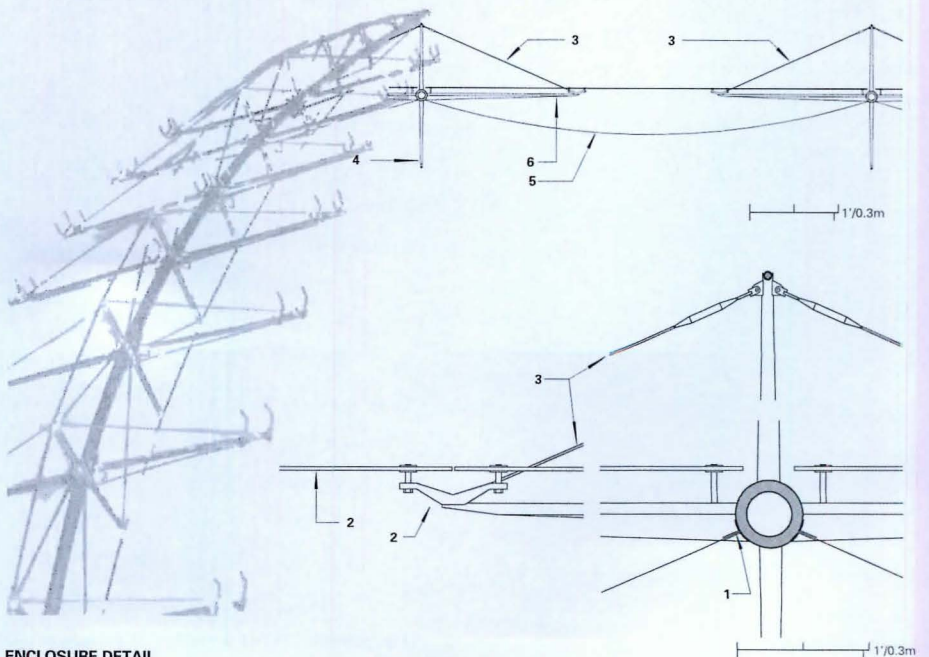
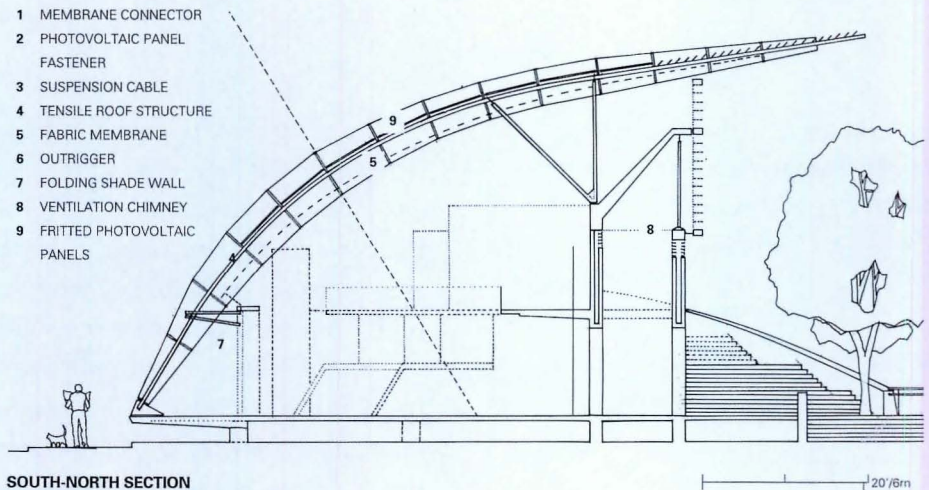
Jury comments

Christopher Nash: It's a simple form, stunning in its execution.

Peter Bohlin: The elegant roof structure also serves as an armature for the photovoltaics.

Steven Strong: There are elements above the array that will shade the photovoltaics, which is not optimal, but could be defended. I like the concept of the diffuse light.

Donald Prowler: It's one of the few entries in which the architecture and the technical analysis are equally compelling and sophisticated.



CITATION AWARD
Visitors' Pavilion
 Washington, D.C.
 Paul Sterner

The second winning visitors' pavilion combines a 2,800-square-foot photovoltaics-clad canopy for electricity with solar thermal panels on the roof of the main building for hot water. Divided into five bays, the canopy is supported by six 35-foot-high steel columns. Each column splits at a height of 14 feet into two members to support a pair of canopies. To the north, thin-film photovoltaic modules extend at a 38-degree angle, calculated according to the latitude of Washington, D.C., to maximize power collection. To the south, canvas awnings shelter visitors. Tension rods fastened at the canopy's top and to steel plates embedded in the ground stabilize each structural support.

Small triangular volumes, interspersed beneath the south side of the canopy among the steel columns, contain a café and storage areas. Kiosks positioned outside these volumes host multilingual interactive video screens displaying sporting news and information about solar technology advances.

A two-story volume, housing public rest rooms and support spaces, anchors the southwest corner of the irregular site. To reinforce the pavilion's Olympic-inspired mission, a segment of a running track cutting through the plaza directs circulation, while a torch burns over a reflecting pool on the southwest corner. To emphasize public education, a sun tower in the center of the site is topped by a solar-powered disk that rotates according to the amount of light energy collected by the photovoltaic array.

Overall, the jury appreciated the integration of solar electric and solar thermal technologies, but lamented the unsophisticated detailing.

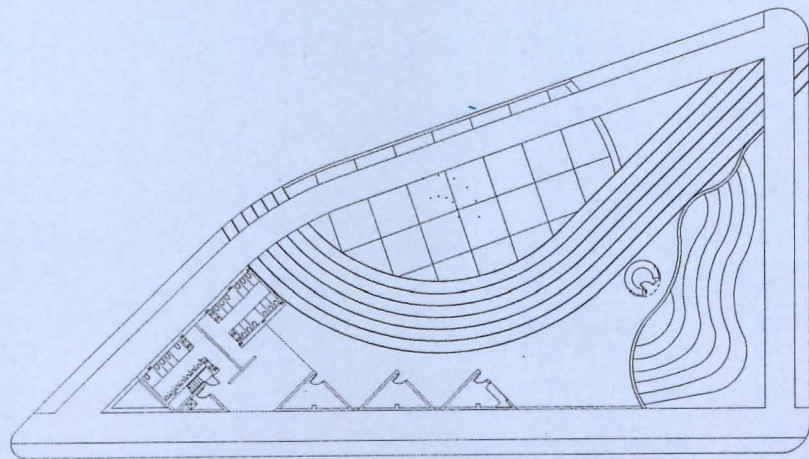
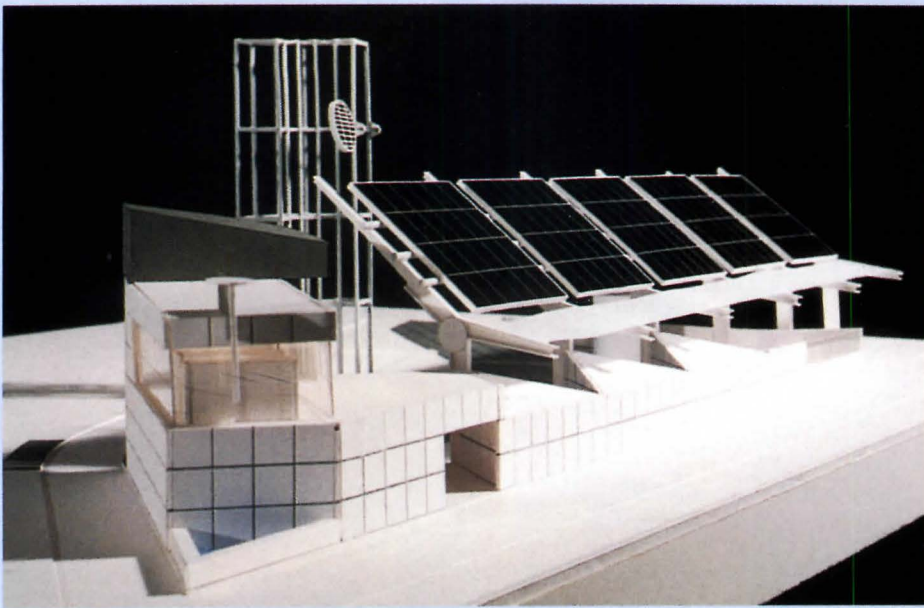
Sterner led the project team of Deerfield, Illinois-based OWP&P employees Barney Mansavage, Mike Czyrka, and Mark Rawlins.

Jury comments

Prowler: This scheme is simple, but sufficiently rich.

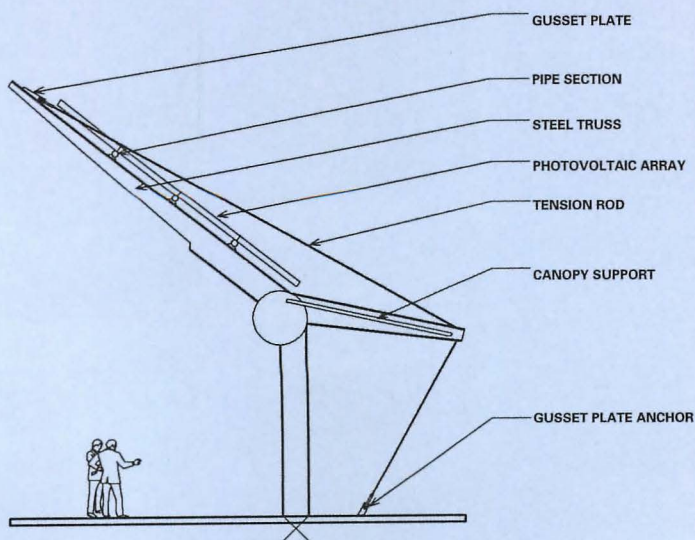
Boblin: One of its values is that the structures holding the array are somewhat monumental.

Nash: Its scale is right for the size of the project, but I'm disappointed in the execution of the detail.



GROUND-FLOOR PLAN

20/8m



NORTH-SOUTH CANOPY SECTION

10/3m

CITATION AWARD

Office Building Recladding
Hamburg, Germany
Kiss + Cathcart Architects

Kiss + Cathcart Architects' photovoltaic curtain wall, draped over a 1960s office building, drew positive comments for its innovative solution to the problem posed by aging curtain walls. The new skin is designed not only to generate electricity and improve the building's thermal performance, but also to create a new inhabitable space for an atrium, café, and retail.

The photovoltaic array consists of thin-film modules laminated onto 12-millimeter-thick tempered spandrel and vision glass. On the lower levels, where the new skin pulls away from the existing facade to shape the atrium, the panels are suspended from cables and connected by hollow tension rods to the existing building. The new atrium skin is not sealed in order to provide natural ventilation.

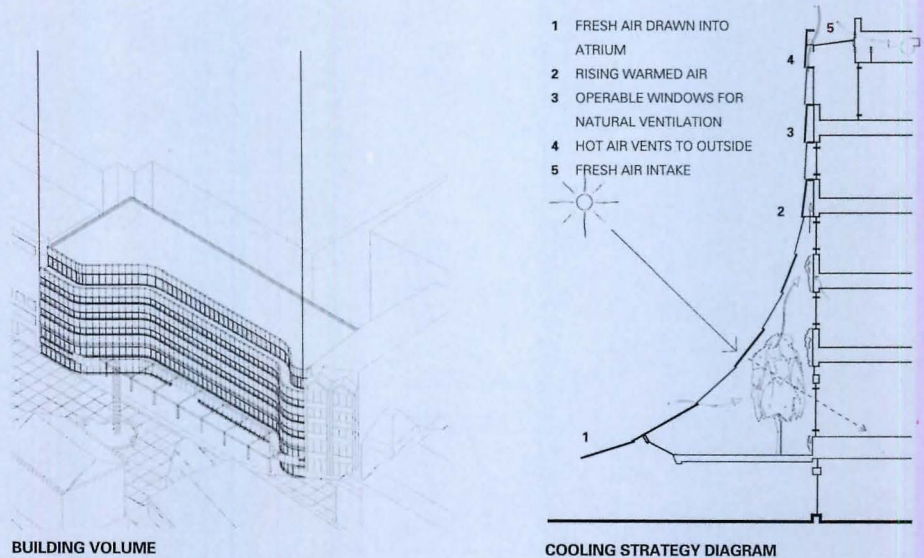
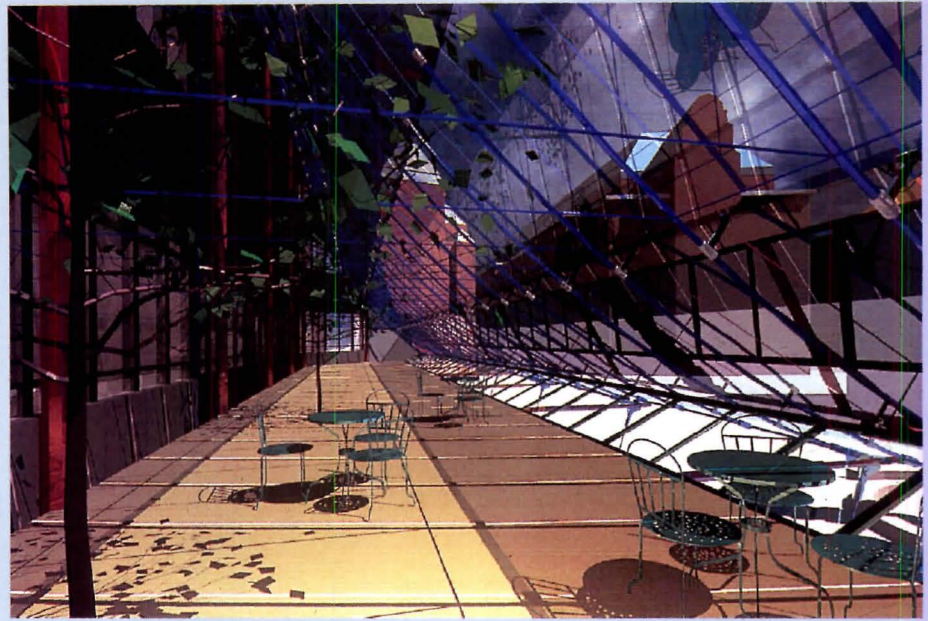
On the upper levels, the new curtain wall is supported by aluminum stick framing and separated from the existing facade by a 20-centimeter-wide cavity. The new glazing is sealed to allow for thermal convection: warm air rises to the top and is either exhausted or directed into the air-handling system. Operable windows in alternating bays in the old and new layers align. Working with engineer Ove Arup & Partners, the architect predicts that the photovoltaic facade will reduce the building's annual power consumption by 48 percent.

The winning team comprises Gregory Kiss, Jennifer Kinkead, Bethune D'Souza, Dave Richards, Lutz Weisser, and Kurt Hanzlik.

Jury comments

Nash: Retrofitting leaking office buildings is a common problem. This project suggests a positive way to do that and create a usable new space. There's a very careful choice of materials and filtering of light. **Strong:** It improves the building dramatically.

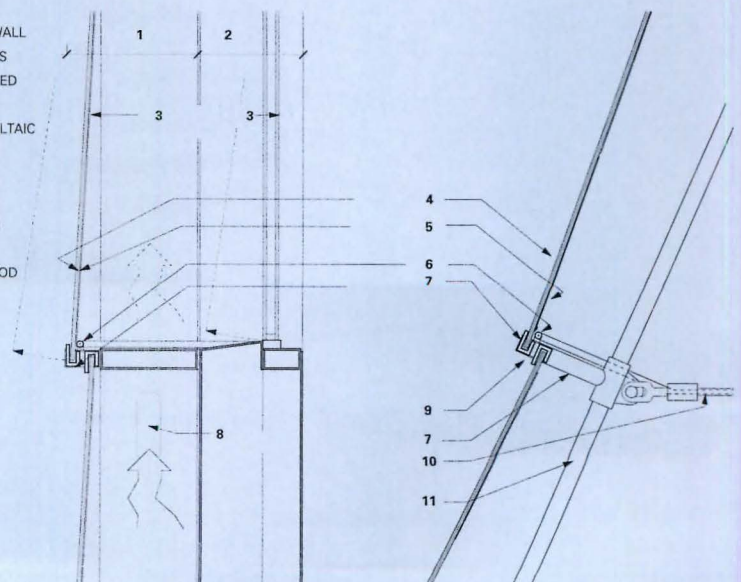
Prowler: The one disappointment I have is that the new curtain wall mimics the old one, with the same kind of layering of windows and spandrels. This is a curtain wall that doesn't have to meet up with the floor slabs and accept the order of the building. It could be more of a true curtain, rather than a wall.



BUILDING VOLUME

COOLING STRATEGY DIAGRAM

- 1 NEW CURTAIN WALL
- 2 EXISTING CURTAIN WALL
- 3 OPERABLE WINDOWS
- 4 LAMINATED TEMPERED GLASS PANEL
- 5 THIN-FILM PHOTOVOLTAIC LAMINATE
- 6 CONDUIT
- 7 CLIP SUPPORT
- 8 AIR INTAKE OPENING
- 9 VENTILATION GAP
- 10 HOLLOW TENSION ROD
- 11 50mm STEEL CABLE



GLAZING DETAIL

CITATION AWARD
Charging Station
Santa Monica, California
Anthony Loui Design
Amy A. Alper, Architect

Amy Alper and Anthony Loui's photovoltaic-powered charging station in Santa Monica, California, marries two environmentally friendly resources: a nontoxic, renewable power source and electric cars.

The photovoltaic system is integrated into the roof of a canopy that shades seven carports for electric recharging. The 550-square-foot array consists of 42 thin-film, amorphous silicon photovoltaic panels oriented at 22 degrees. The electricity generated is converted to alternating current and fed to 110-volt and 240-volt charging ports.

The jury liked the educational role of the charging station, which occupies a highly visible site between Santa Monica City Hall and the Los Angeles County Courthouse. Translucent glass panels, silk-screened with text and graphics and mounted between the structural bays, explain the function of the facility and its sustainable attributes.

Engineered by Santa Monica-based Pugh + Scarpa, the station is available to the public for free. Excess electrical output generated will be applied toward city hall's demand.

The designers anticipate that between 60,000 and 80,000 liters of gasoline will be saved, and more than 2,700 pounds of carbon monoxide emissions will be avoided because of this facility's operation.

Members of the winning project team are Amy Alper, Anthony Loui, John G. Ingersoll, Craig A. Perkins, and Scott Godfrey.

Jury comments

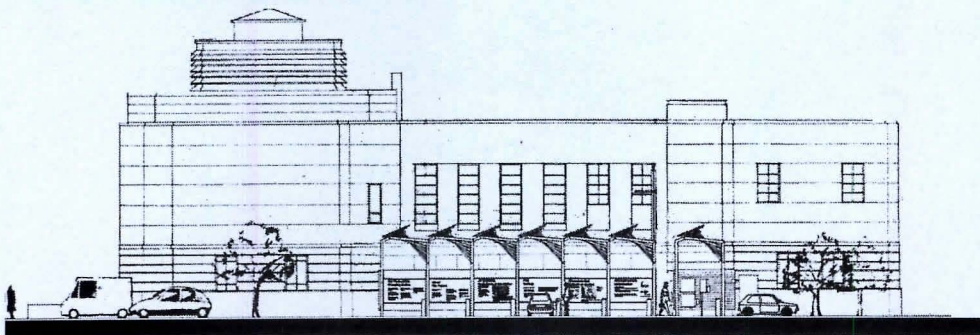
Strong: Photovoltaics and electric vehicles offer a very compelling synergy in the future. Electric cars alone don't solve the problem of fossil-fuel pollution, they just displace the burning of fossil fuels from the internal combustion automobile to the power plant. If we can integrate photovoltaics into the built environment where cars are and provide daytime charging, we have the makings of a sustainable transportation system.

Nash: I like the educational aspects of this project and the rhythm of the structure.

Boblin: One of the nice things about this design is that it isn't pompous.

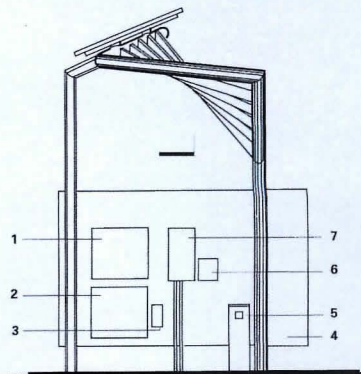


CHARLES GARO ENJUAN

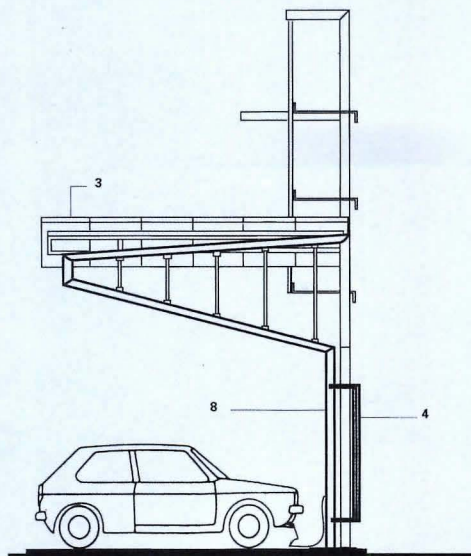


SOUTH ELEVATION

- | | |
|---------------------------------|-----------------------------|
| 1 COMBINER BOX | 5 CONDUCTIVE CHARGING PORTS |
| 2 POWER INVERTER | 6 TRANSDUCER/MONITOR |
| 3 THIN-FILM PHOTOVOLTAIC MODULE | 7 ELECTRICAL PANEL |
| 4 TRANSLUCENT SIGNAGE PANEL | 8 STEEL MOMENT FRAME |



GLAZING DETAIL



EAST ELEVATION

MERIT AWARD

Urban Infrastructure

Los Angeles, California

Angéllil/Graham Architecture

Multiple power sources close to their points of use offer the most economical means of distributing electricity, since remote sources can lose as much as 25 percent of electricity in transmission. Angéllil/Graham's submission offers an urban solution to power proximity by equipping highways, parking lots, outdoor plazas, building rooftops, and facades with solar electric modules.

The team proposes photovoltaic sunscreens mounted onto building facades not only to generate electricity but also to lower a building's energy demand by cooling its exterior skin. Additionally, highway barriers covered with photovoltaic panels are designed to transform banal traffic dividers into energy-generating surfaces that will augment the city's overtaxed electrical grid.

For the rooftops of schools, factories, and office buildings, Angéllil/Graham, with Ove Arup & Partners, devised lightweight structural frames with flexible photovoltaic modules that act as giant umbrellas, easing the electrical load. Between buildings, similar temporary structures, erected with prefabricated steel sections and adjusted on site, bring power to the urban landscape without invasive infrastructure.

The team also envisions public plazas tiled with photovoltaic modules. However, the jury warned that pedestrian traffic would quickly scratch and dirty the glass surfaces underfoot, reducing the photovoltaics' effectiveness.

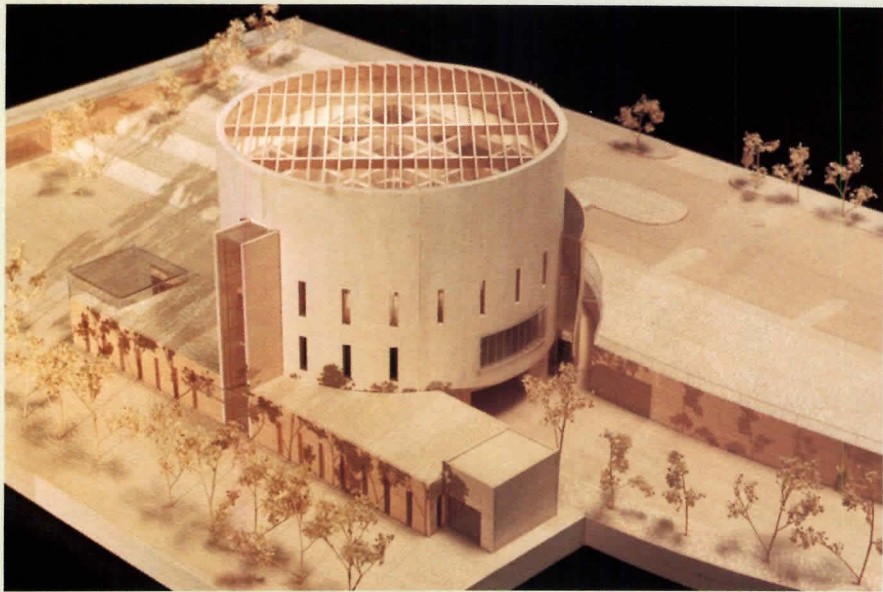
In general, the jury commended the team of architects for the comprehensiveness of their urban design investigation. Marc Angéllil, Sarah Graham, Manuel Scholl, Reto Pfenniger, Anthony Paradowski, Mark Adams, and Jim Woolum worked on the submission.

Jury comments

Prowler: This proposal is more compelling for its research perspective than for any of its specific individual applications. They took photovoltaics, smeared it over the city, and this is what came out.

Strong: Some of the schemes are valid and in practice today. Photovoltaic highway barriers, for example, have been built in Austria, Switzerland, and the Netherlands.





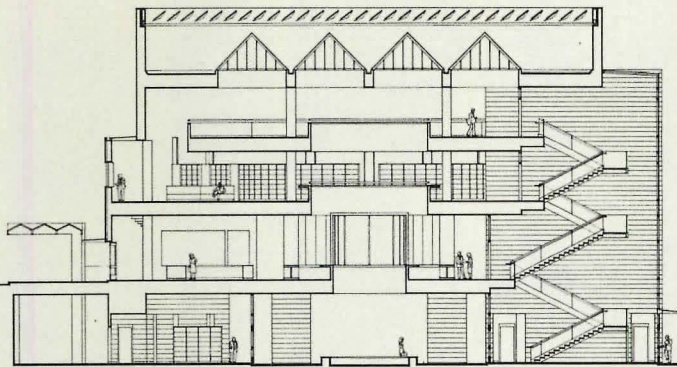
DOUGLAS SLOVE

MERIT AWARD
Montgomery-Floyd
Regional Library
Blacksburg, Virginia
Paul Murdoch Architects

Los Angeles architect Paul Allan Murdoch and team member Paul Goodenough's 30,000-square-foot cylindrical library, to be located in Blacksburg, Virginia, proposes a kinetic response to the sun's changing orientation. The library's photovoltaic-clad roof structure rotates on two axes to follow the sun's movements. From a design standpoint, the jury liked the way this giant oculus functions as both an energy collector and a control mechanism for daylighting. But as a mechanical device, pointed out the jury, the revolving roof requires an enormous expenditure of energy to track the sun, which will compromise the effectiveness of the photovoltaic array as an energy generator.

The roof panels consist of parallel rows of 30-inch-high translucent photovoltaic modules mounted on 3-foot-high shading lamellas that adjust to the sun's angle of incidence. These louvers shade the skylights below, and control the amount of indirect light reflected to the interior. In addition, the entire roof assembly rotates like a large disk on motorized rollers at the perimeter of the circle.

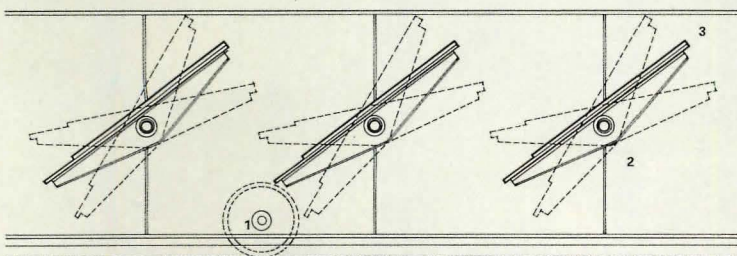
Photovoltaic panels are incorporated on the southeast segment of the library's curtain wall, as well as on the laminated-glass entrance canopy. The combined photovoltaic modules will purportedly power the mechanical components of the oculus and all of the building's estimated artificial lighting loads.



SOUTH-NORTH SECTION

16'/4.75m

- 1 ROLLING ASSEMBLY
- 2 SHADING LAMELLA
- 3 PHOTOVOLTAIC MODULE



ROOF ARRAY DETAIL

1'/0.3m

Jury comments

Nash: Of all the projects submitted that indicated a mechanical response to the changing orientation of the sun, this one seems to be the most elegantly achieved.

Prowler: It's right on the cusp between being very naive and a fairly sophisticated reference to traditional photovoltaic technology, with a circular single-crystal cell reinterpreted as a monumental roof system.

Strong: You could never justify this moving photovoltaic array from an engineering analysis. It has to be justified as a design element.

Bohlin: In the tradition of great library drums, this building is powerful architecture.

MERIT AWARD
Vertical Movie Theater
New York, New York
Giorgio Colussi

A 1996 graduate of the Pratt Institute's architecture master's program, Giorgio Colussi designed a photovoltaic facade for a movie theater that serves as a huge, inhabitable billboard powered by the sun's energy. The urban screen is animated by the people moving inside a circulation zone and by computer-generated images. The jury was intrigued by the prospect of seeing electricity collected, then watching it spent.

The partially transparent facade reveals the building's quadruple-layered structural system: the interior steel and concrete of the theater; a two-sided video screen; a circulation zone that doubles as a thermal buffer; and the photovoltaic curtain wall. Openings at the bottom of the facade admit fresh air, which travels up through the thermal cavity. In the winter, the air is warmed by the sun and the thermal mass of the theater. Ventilators placed in the lower part of the thermal buffer zone will cool the air in the cavity during the summer.

The photovoltaic array consists of 9,400 square feet of thin-film, amorphous silicon curtain-wall panels; 8,280 square feet of rooftop polycrystalline panels; and 3,450 square feet of amorphous silicon modules that double as vertical louvers to shade the theater's lower levels. The rooftop panels and louvers can be adjusted between 9 degrees and 53 degrees in order to maximize the production of electricity.

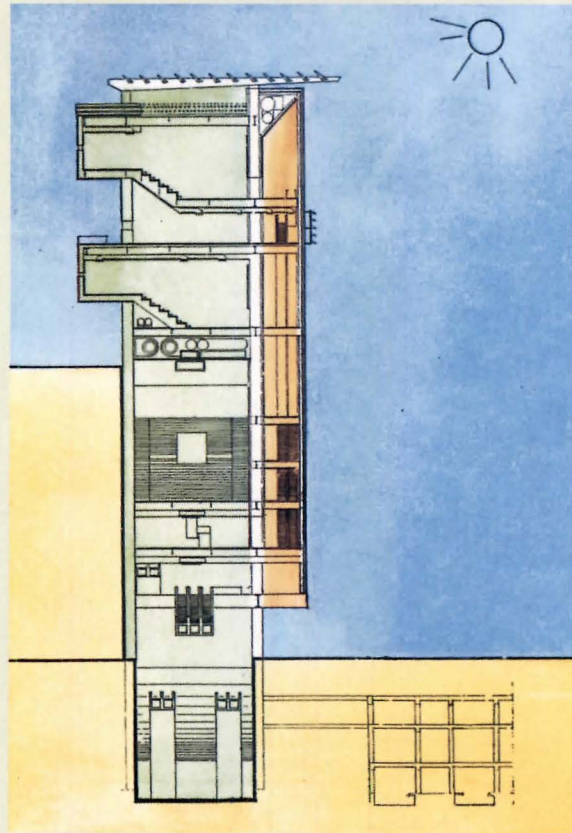
Colussi estimates that the amount of energy generated by the array could partially power the screens of the video wall, or offset approximately 20 percent of the building's annual power consumption.

Jury comments

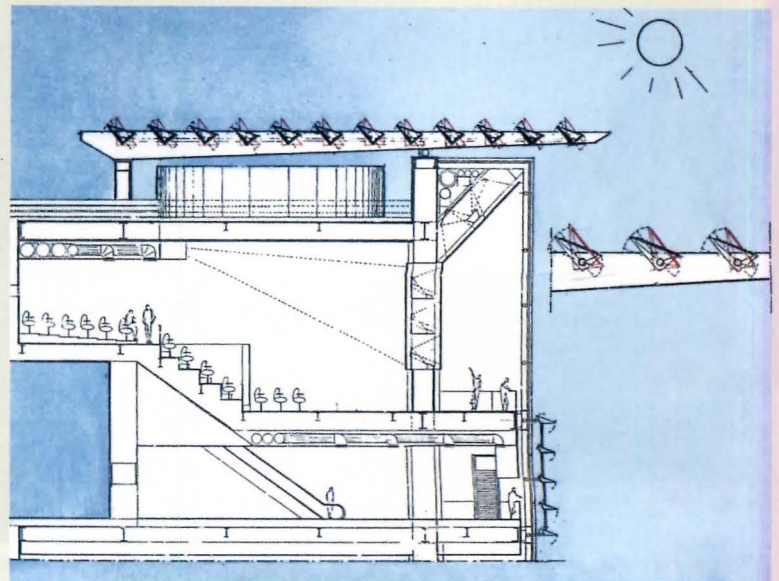
Prowler: In the grand tradition of Times Square and Broadway, the building becomes a sign—in this case, a self-powered sign.

Boblin: This is a powerful reminder that photovoltaics may have applications beyond that of collecting energy, in this case to display a world of entertainment. It's compelling.

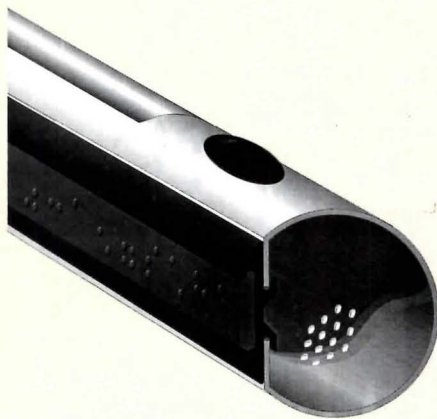
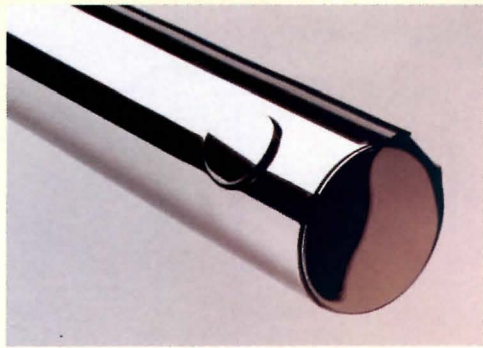
Strong: In concept it could work, although the technology doesn't yet exist to get resolution for a picture in the same plane that you're trying to collect energy from.



NORTH-SOUTH SECTION



SECTION DETAIL



MERIT AWARD

Raynes Rail

Coco Raynes Associates

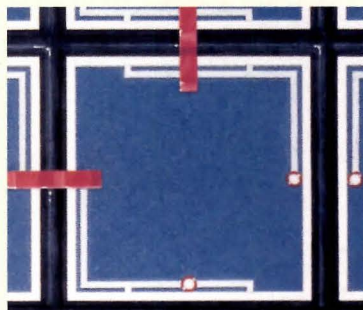
Coco Raynes Associates is equipping its 1993 Braille-and-audio handrail—designed to guide the blind and visually impaired through buildings—with small photovoltaic modules to facilitate its installation in remote areas, or inside historic buildings where finishes cannot be disturbed. This model will run on electricity generated by sunlight and artificial light sources.

Coco Raynes and team member Seth Londergan suggested installing the handrail inside a French sculpture gallery and a New York City subway station. The jury applauded the application of photovoltaics to industrial design, but was critical of the interior case studies submitted.

Jury comments

Boblin: It's interesting that you can power something that easily right off internal illumination.

Strong: I'm sure it can work, but it's difficult to justify the photovoltaics in a building with electricity all around. It wants to be outdoors.



PHOTOVOLTAIC TILE MOCKUP

MERIT AWARD

Suncatchers

Jacques Vink, Maarten den Hartog

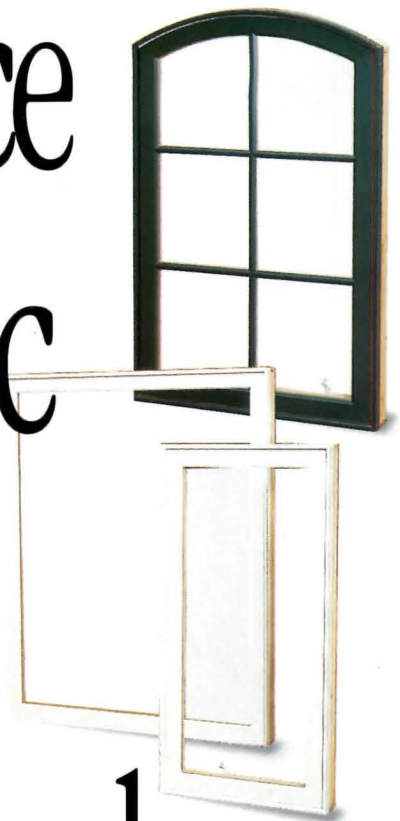
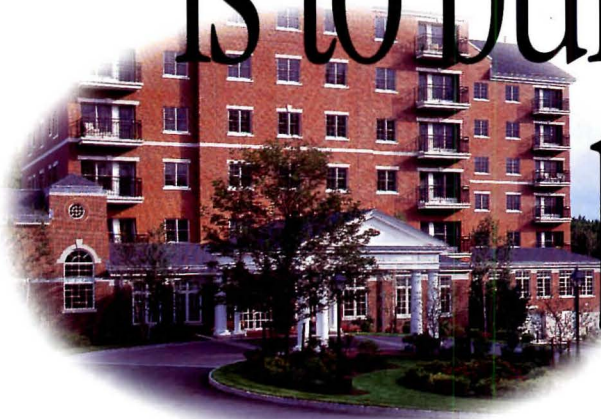
To provide a temporary power source at an outdoor event, Dutch architect Jacques Vink and industrial designer Maarten den Hartog devised a portable structure that provides shelter as well as generates electricity for lighting, audiovisual presentations, or music. The 64-foot-diameter canopies are fabricated from thick crystal photovoltaic cells molded in resin and fastened to a rubber skin. Three adjustable steel cranes support the flexible screens and contain batteries to store electricity. The weight of the lead-acid batteries helps anchor the canopies. Electrical outlets are located on each of the armatures.

Jury comments

Prowler: This could be an excellent application for photovoltaics in movable, temporary applications, where the support structure doubles as an armature for battery storage.

Strong: Conceptually it's interesting, but it's not really practical because of the fragile nature of thick-crystal photovoltaic cells.

Our best chance to earn your spec is to build the best window.



Your standards are high. So we set ours even higher. Our goal is to build the best possible window for you and your customers. And we've reached it with a window that offers the ultimate in structural integrity, beauty and performance.

With their modular design, EAGLE® windows give you the flexibility to create striking, coordinated window systems for any design concept. And EAGLE offers a comprehensive array of window styles and options – from Designer Colors™ to Modern Divided Lights® to Decorelle™ glass – to set every project you design apart from all the rest.

EAGLE. The best choice.



1. Strength and energy efficiency are ensured with solid wood construction, with interiors that come prefinished or ready to paint or stain.

2. Low-maintenance beauty and structural integrity are preserved with patented extruded aluminum exteriors that are several times stronger than thinner, roll-formed aluminum styles.

3. Year-round energy savings and a clear, untinted view are provided with Low-E Maximizer Plus™ glass. Optional custom glazing is also available.

4. Air and water infiltration are virtually eliminated with high-performance weatherstripping.

Years of trouble-free performance and effortless operation are ensured with high-quality hardware.



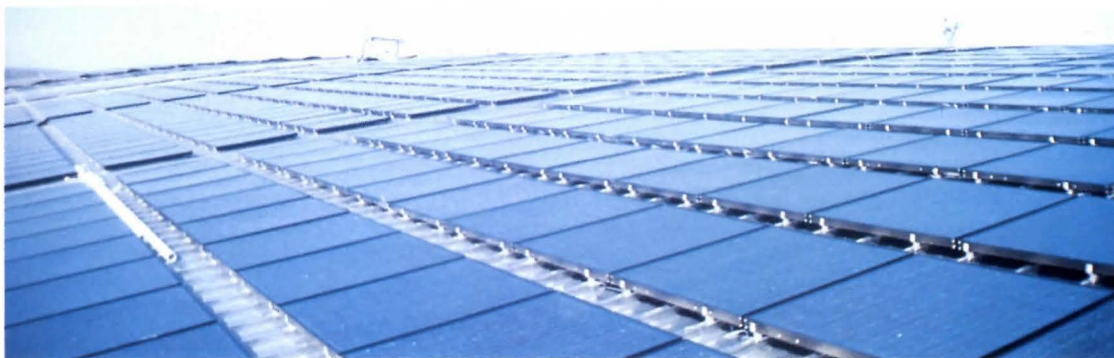
P.O. Box 1072 • 375 East 9th St. • Dubuque, IA 52004-1072

1-800-453-3633

Circle 65 on information card

Products

New photovoltaic panels streamline applications of solar electric technology.



TOP: Photovoltaic panels manufactured by Atlantis Energy Systems double as sunscreens and energy producers on a Swiss office building (pictured) designed by Hostettler & Partner. Installed at a 45-degree angle over the windows, the panels capture maximum sunlight for electricity to power the building. Atlantis manufactures photovoltaic panels as large as 5 by 6½ feet; edges are sealed, allowing units to be installed without a framing system. *Circle 401 on information card.*

ABOVE: The world's largest photovoltaic installation in a single building to date occupies the roof of the Aquatic Center for the 1996 Olympic Games (pictured), designed by Atlanta firms Stanley, Love-Stanley and Smallwood, Reynolds, Stewart, Stewart, & Associates. The manufacturing process for photovoltaic modules has dramatically improved in recent years: the Atlanta panels

took less than a week to produce.

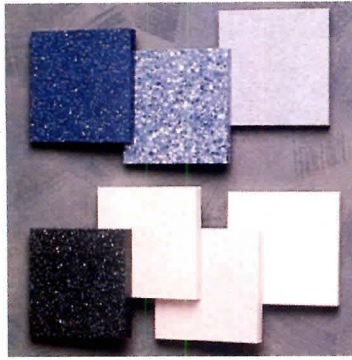
Solarex, working with curtain wall manufacturer Kawneer and Solar Design Associates, produced the photovoltaic array. For standard applications, Solarex has introduced the PowerWall, a standardized, photovoltaic-paneled curtain wall that streamlines the technology for commercial building projects. The ¼-inch thick modules can be specified as large as 53 by 87 inches. *Circle 402 on information card.*

TOP RIGHT: Photovoltaic panels from United Solar Systems can be seamlessly substituted for conventional standing seam, batten seam, and shingle roofing. They make solar electric technology accessible for standard residential applications. The panels provide 25 watt-hours per square foot in average daily energy output. The 1-by-10-foot waterproof shingle panels (pictured) are installed in the same fashion as

conventional overlapping asphalt shingles. Wiring for each unit passes through the roof decking. *Circle 403 on information card.*

ABOVE CENTER: PowerGuard photovoltaic panels from PowerLight form an integrated system for flat and sloping roofs (pictured). The panels are installed over a 2- to 3-inch-thick layer of insulation that rests directly on the roofing membrane. Each array is edged with weatherproof PowerCurb housing for wiring. Areas not clad in photovoltaic panels are covered with Lightguard pavers, ¼-inch-thick concrete panels glued to the insulation. Other photovoltaic products offered by PowerLight include PowerShade, a canopy system for outdoor structures; PowerTraker, which tilts to follow the movement of the sun; and PowerGlaze, integrated photovoltaic cladding and skylights. *Circle 404 on information card.*

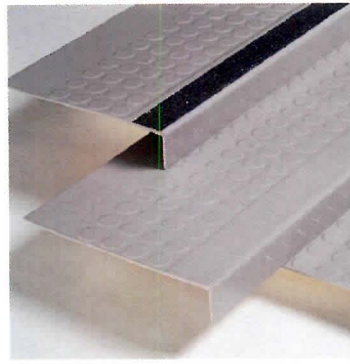
Products



New colors and textures enliven familiar lines of fabrics and finishes.

Corian's new colors

DuPont has introduced 10 new colors to its Corian line of solid surfacing: solid pink and solid green; pink sprinkled with white and rose; light green dotted with white and dark green; beige intermingled with tan, white, and dark brown; and lavender interspersed with white and purple. Other new colors are black flecked with white; deep blue brightened with white; blue speckled with white and pink; and dark green sprinkled with white and brown. *Circle 405 on information card.*



ADA-compliant treads

Johnsonite's Roundel rubber stair treads have been revised to meet ADA standards. The treads now include a 2-inch hinged nosing that lessens the possibility of tripping on sharp corners. Additionally, a 2-inch-deep contrasting color band can be installed on the tread to assist the visually impaired. The 12 $\frac{1}{4}$ -inch-deep treads are available in widths of 3, 3 $\frac{1}{2}$, 4, 4 $\frac{1}{2}$, 5, and 6 feet, and in 30 colors with raised round and square patterns. *Circle 406 on information card.*



Leather upholstery

DesignTex's new leather upholstery collection is available in three grades and 102 colors. Aniline-grade leather is treated with a dye that does not change the leather's natural quality, but protects against dirt. Semi-aniline leather is better protected from wear for public applications. Corrected leather is smoother and firmer than other grades; pores and irregularities in the leather are filled in with color pigment, making the material easier to clean. *Circle 407 on information card.*

MUSSON

DISC-O-TILE™ Safety rubber flooring & DISC-O-TRED™ Safety stair treads

No. 788



The unique raised circular disc design allows drainage, easy cleaning. Durable; stain-resistant; fire-retardant (Meets ASTM-E84 Flame Spread Rating of 25 or less); non-fading and non-slip. Ideal for shopping malls, airport terminals, schools, hospitals, heavy traffic areas. TILES are 24" sq. TREDs 1/4" thick; standard lengths. COLORS: Brick Red, Brown, Gray, Sand, Blue, Dk. Chocolate, Black, Dk. Green, Slate and Mauve.

Meets ASTM-E84 flame spread rating of 25 or less

For Free Brochure & Samples, write:

MUSSON RUBBER CO.

P.O. Box 7038 • Akron, OH 44306 • 1-800-321-2381

No. 787

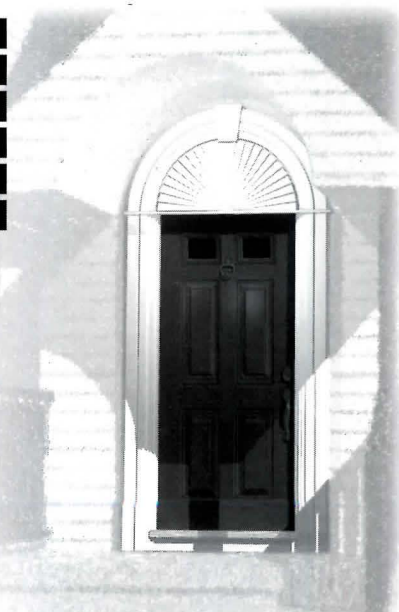



Circle 43 on information card

CREATE AN IMAGE!

with Moulded Architectural Accents™

- Louvers
- Entrance Trim
- Mouldings
- Decorative Millwork
- Window Trim
- Balustrade Systems



High density urethane millwork is impervious to moisture and resists cracking, peeling or decaying.

Thousands of interior and exterior products.

- Registered Product Specifications Manual
- .DXF product drawings
- Custom designs available
- Fire rated material available

Call 800/446-3040.




Style-Mark, Inc., 960 W. Barre Rd., Archbold, OH 43502
Moulded Architectural Accents™ and We Make Homes Unforgettable™ are trademarks and Architectural Accents™ is a registered trademark of Style-Mark Inc. © 1996 Style-Mark, Inc.

Circle 45 on information card



Textured fabric

Jhane Barnes designed the new 54-inch-wide Honeycomb upholstery fabric for Knoll Textiles in a highly textured grid pattern. A polyester blend, Honeycomb is available in four mixed neutral shades as well as seven solid colors. Also new from Knoll Textiles is the Resolution line of polyester fabric. The fabric is environmentally friendly because it avoids the dye bath process: mineral colorants are added to the polymer as it is extruded into yarn.

Circle 408 on information card.



Clay roof tile

Ludowici Roof Tile has introduced the XL Series, a line of interlocking, oversized clay roof tiles. Each tile measures 10⁷/₈ inches by 16 inches; when installed, the area of exposed tile measures 10¹/₈ inches by 13¹/₄ inches. The XL Series is available in four styles: smooth-surfaced Classic (pictured); scored Williamsburg; and textured Lanai and Americana. Ludowici has also introduced an oversized, 18-inch version of its standard curved roof tile.

Circle 409 on information card.



Vinyl soffit

The Ironmax vinyl soffit from CertainTeed is distinguished by its purported rigidity and strength. The soffit is manufactured of 0.046-inch-thick vinyl with internal bracing; because of its stiffness, the panel requires fewer nails per linear foot for installation. Each panel measures 5 inches deep and ⁵/₈ of an inch high. Ironmax has a wood-grain texture, is offered in 11 colors, and can also be installed as vertical siding and in porch ceilings.

Circle 410 on information card.



Abstract laminate

Touchstone is the newest pattern available in the Continental Collection of decorative laminates from the Chicago-based manufacturer Laminart. A small, nondirectional design of mottled color, Touchstone is manufactured in 4-by-10-foot, 0.04-inch-thick sheets, and is available in maroon, blue, beige, and brown. The Continental Collection offers more than 30 patterns, including solid, wood grain, and metallic finishes.

Circle 411 on information card.

Important Information About Schuller Phenolic Foam Roof Insulation and Possible Steel Deck Corrosion

From January 1989 to February 1992, we produced UltraGard® Premier, a glass mat faced phenolic foam roof insulation, which is no longer manufactured by us.

Recent observations suggest that phenolic foam roof insulation contributes to the corrosion of steel roof decks. In extreme conditions, where insulation is wet or damaged, the corrosion reaction could progress to a point which could weaken or penetrate an area in the metal deck.

Therefore, where evidence of wet or damaged phenolic insulation exists, or severe deck corrosion is observed, care should be taken in operating equipment, moving heavy loads and walking across the roof.

If you have Schuller* Phenolic Foam Insulation on your roof, please call us at
1-800-345-9602

SCHULLER

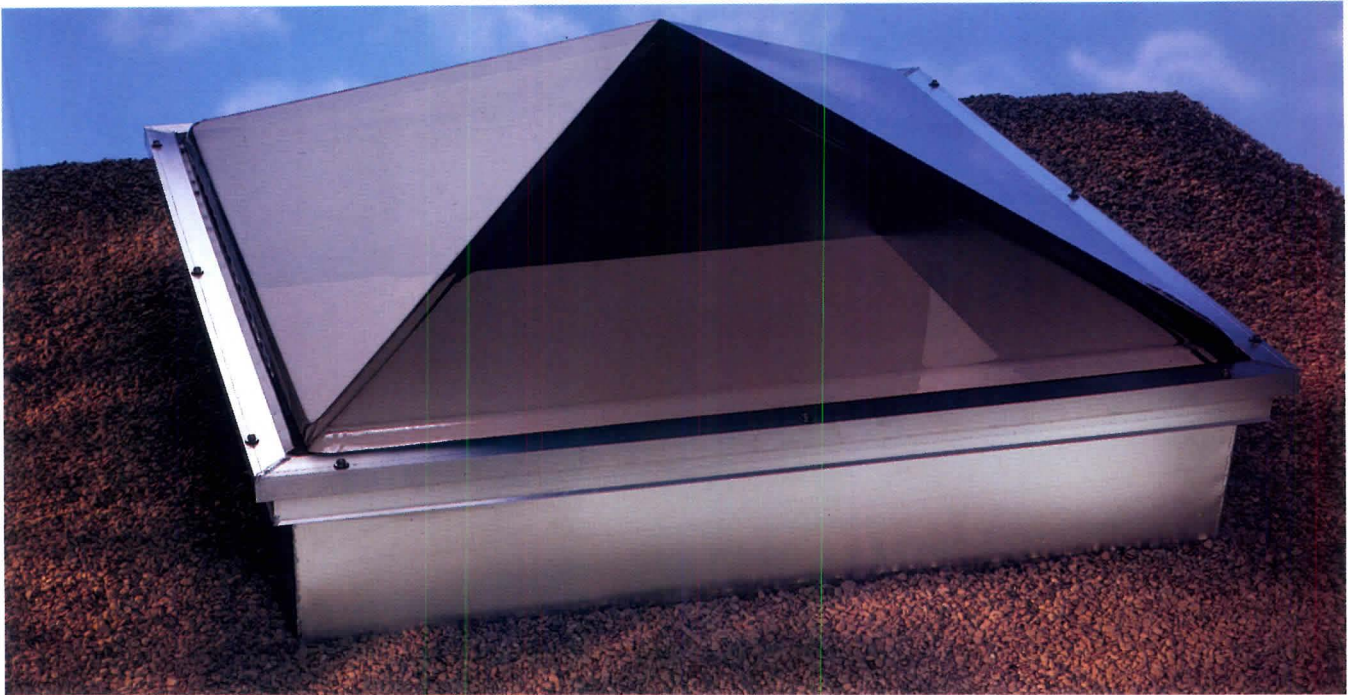
Roofing Systems Division
Schuller International, Inc.
P.O. Box 5108, Denver, CO 80217

1-800-345-9602

Monday through Friday
9:00 a.m. to 3:00 p.m. (Mountain Time)

*Schuller phenolic foam insulation was formerly manufactured and marketed by Manville® Roofing Systems.

Naturalite/EPI Presents a Non-Breakthrough in Skylight Glazing.



Introducing Vertex™ Skylights

Now, you can have a secure, thermally improved, impact resistant, and safe skylight. Naturalite/EPI introduces the innovative Vertex™ skylight.

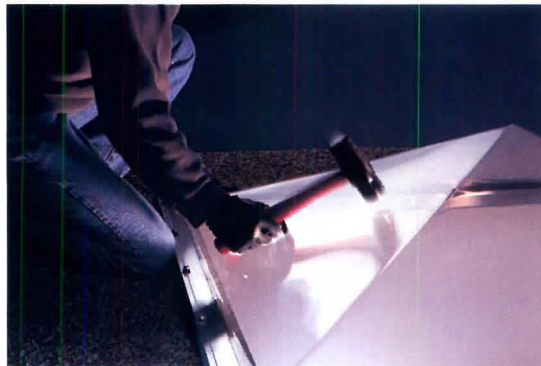
Vertex skylights feature Lexan® polycarbonate pyramids. This material from GE Plastics provides impact resistance up to 250 times greater than glass and 30 times greater than acrylic.

UV resistant coating prevents Vertex domes from deteriorating. The unique, thermalized construction provides virtually zero air and water infil-

tration which building owners and operators demand in a skylight today.

Vertex skylights provide outstanding light transmission, increased security, a low burn rate (CC-1), and excellent weatherability, making them a smart choice for applications such as schools and retail spaces to offices, and detention centers.

Contact Naturalite/EPI today, and learn how Vertex skylights can lower your fall protection costs — and improve the quality of your natural daylight areas.



NATURALITE · EPI
SKYLIGHT SYSTEMS

The Vistawall, Naturalite/EPI and Skywall Group
Butler Manufacturing Company

750 Airport Road Terrell, TX 75160, P. O. Box 629, Terrell, TX 75160
Call toll free 1-800-527-4018, • (214) 551-6400 • Fax (214) 551-6420

© Registered Trademark of
General Electric Company

A productive workplace is
the goal of many different professions.

Only one event brings them all together...

World Workplace '96



Architecture
Building Management
Engineering
Facility Management
Interior Design
Real Estate

PREPARING YOU FOR THE WORKPLACE OF TODAY... AND TOMORROW.

Sunday, Oct. 6 - Tuesday, Oct. 8 • Salt Lake City, Utah, USA

A World of Education...

Choose from 90 educational sessions and 18 round table discussions covering issues such as: new technologies, environmental concerns, building techniques, health and safety standards, financial strategies, productivity and communication tactics.

More Than an Exposition...

Expand on the information you receive during the educational sessions in World Workplace's Learning Center, where hundreds of companies and their representatives are on-hand to answer your specific questions.

An Intense Exchange of Ideas...

Network with your peers from across the globe as you prepare to better plan, develop and manage your workplace.

For more information call: 1-713-62-WORLD (1-713-629-6753)

Last Chance

Did you miss valuable information offered by advertisers in last month's issue of ARCHITECTURE?

The manufacturers listed below were advertisers in last month's issue. They are anxious to provide you with their latest product information and literature for your planning needs. To receive this information, circle the appropriate numbers on the self-addressed, postage-paid response card. For product literature from advertisers in this issue, circle the appropriate numbers shown on the advertisements.

Act-Mathys

Find out why we're the leader in waterborne acrylic coatings. *Circle No. 188*

Advance Lifts, Inc.

Send for details on our versatile Advance Superdok. *Circle No. 64*

American Olean Tile

Find out more about Colorways™, our new computerized design system. *Circle No. 82*

Andersen Windows

In today's designs, it's the brand that helps architects take value to new heights.

Architectural Area Lighting

Find out more about our pedestrian-scale site lighting. *Circle No. 230*

Armstrong World Industries

Get the facts on our Ultima RH90 ceiling system. *Circle No. 70*

A-T-I

Find out why Alucobond® material is always the smart solution. *Circle No. 248*

Balance Systems

Send for facts on the balance for tilt window systems and swinging door hinges. *Circle No. 204*

Bentley Systems

Get information about MicroStation® 95. *Circle No. 254*

Birkhauser

Send for Architecture & Design new and recent titles. *Circle No. 56*

Bobrick Washroom Equipment

Call or write for more information on our Classic Series. *Circle No. 96*

Bonneville Power/AIA Portland

Announcing the 1996 Call for Entries. *Circle No. 186*

Bose Corporation

Send for facts on our new Auditor™ audio demonstrator. *Circle No. 104*

Bradley Corporation

Find out more about our Bradley Express®. *Circle No. 114*

Brickstone Studio

Find out more about the art of brick sculpture. *Circle No. 26*

Calcomp, Inc.

Send for details on TecJET® color inkjet series. *Circle No. 122*

Case Window & Door

Find out more about our Tuscan casement. *Circle No. 196*

CNA Insurance

Send for details on Commitment Plus®, our universal profit-sharing plan. *Circle No. 110*

Cornell Iron Works

Contact us for specs and drawings, or to receive literature. *Circle No. 54*

CRSI

Call or fax us for your copy of our latest issue of "Reinforcing Concrete Design." *Circle No. 58*

C/S Group

Contact us for more information on our louvers. *Circle No. 92*

Dal-Tile

Send for quick product samples, literature, and technical information. *Circle No. 228*

Dictionary of Art

Find out why we're the new standard for all the visual arts. *Circle No. 60*

DuPont Antron

Get the facts on why Antron has no equal. *Circle No. 106*

DuPont Corian

Send for details on how Corian will work for you. *Circle No. 182*

Eagle Window & Door

Get the details on our comprehensive array of window styles and options. *Circle No. 198*

EFCO Corporation

Send for information on our storefronts and other aluminum glazing systems. *Circle No. 94*

Eliason Corporation

Send for information on our Easy Swing® doors. *Circle No. 44*

Endicott Clay Products

Send for samples, literature, and the name of a distributor in your area. *Circle No. 84*

Follansbee Steel

Contact us for additional information on TCS. *Circle No. 214*

Formglas Interiors

Get the facts about QuarryCast® molded stone. *Circle No. 270*

Georgia Pacific

Send for more information on our Dens-Glass® Gold sheathing. *Circle No. 266*

Georgia Pacific

Call or write for details about G-P wood I-beam joists and headers. *Circle No. 268*

Graphisoft

Find out more about ArchiCAD seminars near you. *Circle No. 46*

Graphisoft

Send for information on ArchiCAD software. *Circle No. 120*

Graphisoft

Find out how ArchiCAD connects with the information age. *Circle No. 126*

Graphisoft

Get more information on the Graphisoft® alliance for architects. *Circle No. 178*

Greek Trade Commission

Send for your copy of our "Marble from Greece" directory. *Circle No. 90*

Haws Drinking Faucet

Find out more about our environmentally safe drinking fountains. *Circle No. 100*

Hewi, Inc.

Send for more information on our Mortise Locksets. *Circle No. 78*

Hewlett Packard

Send for information on our DesignJet 330 and 350C. *Circle No. 128*

Holophane

Find out more about our Polestar system of lighting. *Circle No. 184*

Hurd Millwork

Send for your free FineTuning brochure and video. *Circle No. 194*

JDL Ltd.

Contact us for a free video demo and a copy of the 4000E-II plotter review. *Circle No. 176*

Kim Lighting

Send for the facts on our Entablature™ outdoor luminaire. *Circle No. 74*

Kolbe & Kolbe Millwork

Contact us for information on K-Kron, our high-performance finish. *Circle No. 202*

LCN Closers

Send for a brochure on our Electric Auto-Equalizer Automatic Operator. *Circle No. 234*

Levolor Corporation

Send for complete details on Sheer-view™ horizontal blinds. *Circle No. 240*

Lightscape

Send for information on our Visualization System and what it can do for you. *Circle No. 124*

Louisiana Pacific

Send for Fiberbond specs and product samples. *Circle No. 16*



The University of Lethbridge
Students' Union Building
Watson Horton Ferrari Architects

TIMELESS BEAUTY
TIMELY SUPPORT



Get both when you build with architectural copper. Just call 800-CDA-DATA and tap into a complete network of support services — including professional design assistance. ♦ There's also CDA's comprehensive *Copper in Architecture Handbook*. It features design details and specifications — in hard copy and in AutoCAD®/ WordPerfect® files* — for nearly any application. ♦ A six-part videotape series examines the functions, forms and details of different copper roofing styles. ♦ A 72-minute video installation guide covers all copper roofing systems. ♦ You also get access to CDA's databases, publications, training programs, manufacturers and local supplier/contractor listings. They're all part of CDA's "Copper in Architecture Program" — providing the assistance needed to put copper's timeless beauty and dependability to work in your next project. For a free copy of our brochure, *Copper in Architecture* call **800-CDA-DATA**. And visit us at <http://www.copper.org>.



AutoCAD is a registered trademark of Autodesk, Inc.
WordPerfect is a registered trademark of Corel Corporation.
* On 3 1/2" IBM-compatible disks.

Marley Floors

Get the details on our Multitone Xtra resilient sheet and tile flooring. *Circle No. 262*

Marlite

Contact us to bring yourself up to date on our Marlite Plank Stratos™ series. *Circle No. 62*

Marvin Windows

Send for a free catalog on our entire line of windows and doors. *Circle No. 118*

Mitsubishi Chemical

Get the facts on Alpollic® aluminum composite material. *Circle No. 112*

Mockett, Doug Company

Send for a free color catalog showing our unique line of hardware for furniture. *Circle No. 34*

Monsanto Contract Fibers

Get the facts on our Ultron® VIP FiberSet® nylon. *Circle No. 76*

Mortar Net USA

Send for The Mortar Net™ technical data and a free sample kit. *Circle No. 66*

NAAMM

We're your one-stop resource for metal products spec and technical information. *Circle No. 50*

Nalsa, Inc.

Get details on Archiflash®...the only architectural flashcard study system. *Circle No. 68*

National Gypsum

Find out how to access our home page of user-friendly information on the Internet. *Circle No. 224*

NEC Technologies

Get more information on our MultiSync XP21 Monitor. *Circle No. 88*

Nevamar

Find out about our two new products—LamMates and ARmored Protection™ Plus. *Circle No. 80*

Nixalite of America

Get details on our needle-strip architectural bird barriers. *Circle No. 14*

NT Hartmann Sanders

Ask about our wide choice of designs, styles, and materials. *Circle No. 40*

Nucor Vulcraft Division

Find out more about our nonstandard joists. *Circle No. 72*

Oce USA

Send for details on our Oce 7050 family of copiers. *Circle No. 206*

Parex

Send for more information on our EIFS I-C Gold®. *Circle No. 108*

Pavestone Company

Find out why we're the largest manufacturer of patio, retaining wall, and paving systems. *Circle No. 244*

Pella Corporation

Call or write for free literature on our windows and doors. *Circle No. 190*

Pemko Products

Find out more about our ADA-compliant modular ramp system. *Circle No. 24*

Petersen Aluminum

Get the facts on SNAP-CLAD™ metal roofing panels. *Circle No. 236*

Pittsburgh Corning

Send for additional information on Vistabrik® solid glass block. *Circle No. 238*

Plume, G.R.

Send for more information and a brochure on our products. *Circle No. 48*

Polygal USA

Call or write for our free designer's kit and samples. *Circle No. 22*

Poulsen Lighting

Send for details on our complete line of lighting fixtures. *Circle No. 222*

ProSoCo, Inc.

Find out more about SureKlean® masonry stain remover. *Circle No. 42*

Raynor Garage Doors

Send for details on our SureTest™ Fire Protection System. *Circle No. 250*

Rejuvenation Lamp

Send for our free 68-page catalog of lighting products. *Circle No. 52*

Roppe Corporation

Send for details on all of our flooring products. *Circle No. 208*

Sara Systems

Find out more about how we hand-draft your drawings into CAD. *Circle No. 20*

Schlage Lock Company

Send for information on our new AL-Series standard duty keyed levers. *Circle No. 258*

Schuller Roofing

Get details on Phenolic Foam Roof Insulation and possible steel-deck corrosion. *Circle No. 30*

Siedle Communication

Get the facts about Siedle Video—new concept, new price. *Circle No. 98*

Simpson Strong-Tie

Contact us for a catalog or answers to connector design questions. *Circle No. 18*

Sloan Valve Company

Send for details on our Optima Flushometers. *Circle No. 36*

Sloan Valve Company

Contact us for more information on any of our water-conservation products. *Circle No. 272*

SoftCAD, USA

Send for information or a working demo of our ArchiTECH.PC™ software. *Circle No. 38*

Softdesk, Inc.

Contact us for a free CD containing three free AutoCAD®-based products. *Circle No. 256*

Spacesaver Corporation

Send for details on our high-density mobile system. *Circle Nos. 2, 4, 6, 8, 10, 12*

Spring City Electrical Mfg.

Send for details on our lighting products. *Circle No. 210*

Sternberg Lighting

Contact us for information on our vintage-style exterior lighting fixtures. *Circle No. 216*

Sto Corporation

Get the facts on our Sto Signature System™. *Circle No. 260*

Structures Unlimited

Get the details on our 100-foot clearspan skylight system. *Circle No. 32*

3M Specialty Chemicals

Learn more about our TacFast Carpet. *Circle No. 246*

Truebro, Inc.

Before you specify another job, order our free Specification Guide today. *Circle No. 116*

USG Interiors

Get the straight talk about our exterior systems. *Circle No. 242*

USG Interiors

Send for more information on our ULTRACODE Core. *Circle No. 274*

Versico, Inc.

Contact us for details on our Versi-weld Premier. *Circle No. 252*

Vistawall Arch. Products

Contact us for more information on all of our architectural products. *Circle No. 264*

Von Duprin, Inc.

Get more information on our re-designed Model 98/99 exit device. *Circle No. 226*

VT Industries

Find out why we continue to set the standards for innovative door design and services. *Circle No. 200*

Weather Shield Mfg., Inc.

Find out more about our Value R10 premier glazing option. *Circle No. 212*

Weyerhaeuser Door Division

Send for information on our fire-rated architectural doors. *Circle No. 192*

Williamette Industries

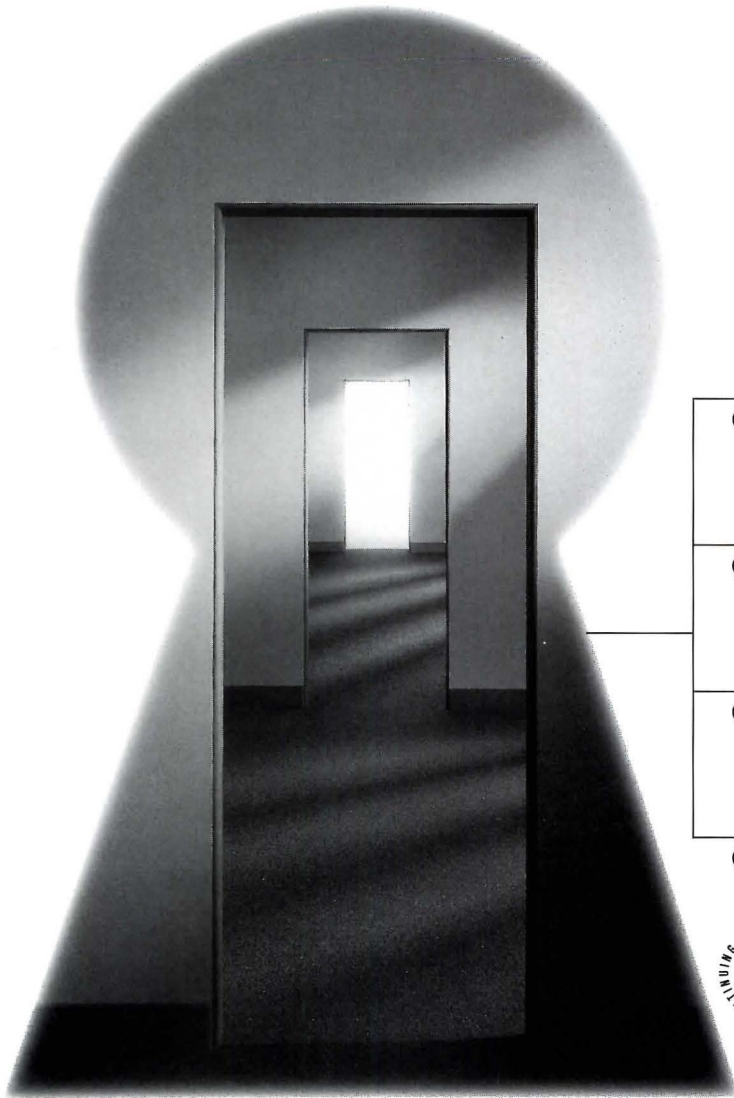
Send for information on our engineered wood beams. *Circle No. 232*





Wood Products Promo Council

Send for a brochure to learn more about the advantages of wood. *Circle No. 28*

Zero U.S. Corporation

Send for details on our modular systems for display and exhibitions. *Circle No. 102*



-  *You can choose a course that doesn't just fit your learning needs, it fits into your schedule as well.*
-  *Courses are available on all Autodesk products, including AutoCAD®, Mechanical Desktop™, AutoCAD Data Extension™ (ADE) and 3D Studio®.*
-  *Courses on third-party products cover all major disciplines such as mechanical design, manufacturing, architecture, and facilities management.*
-  *Classes are standardized across the entire ATCs network and feature training on all levels.*



Autodesk Training Centers are registered as Premier providers with the American Institute of Architect Continuing Education System (AIA/CES). They are committed to offering quality education in accordance with the AIA/CES criteria.

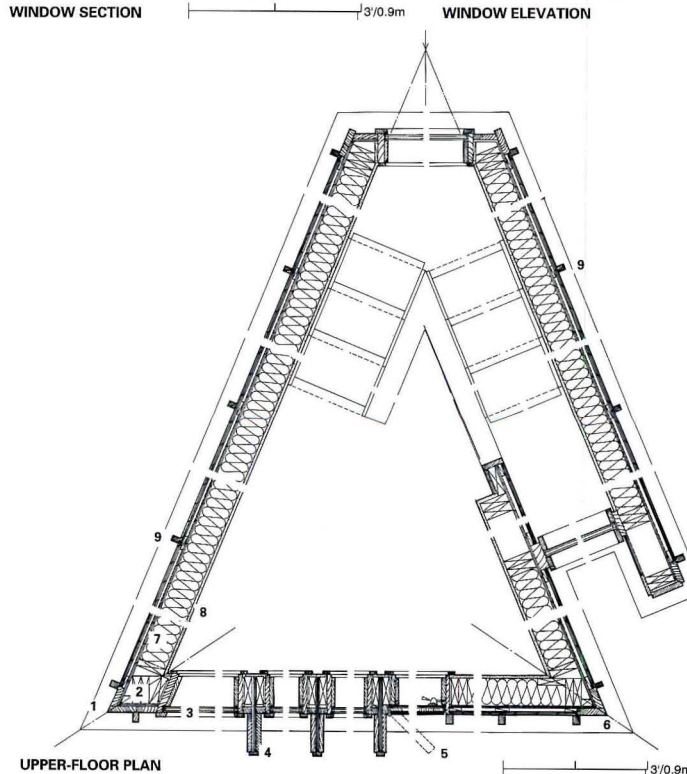
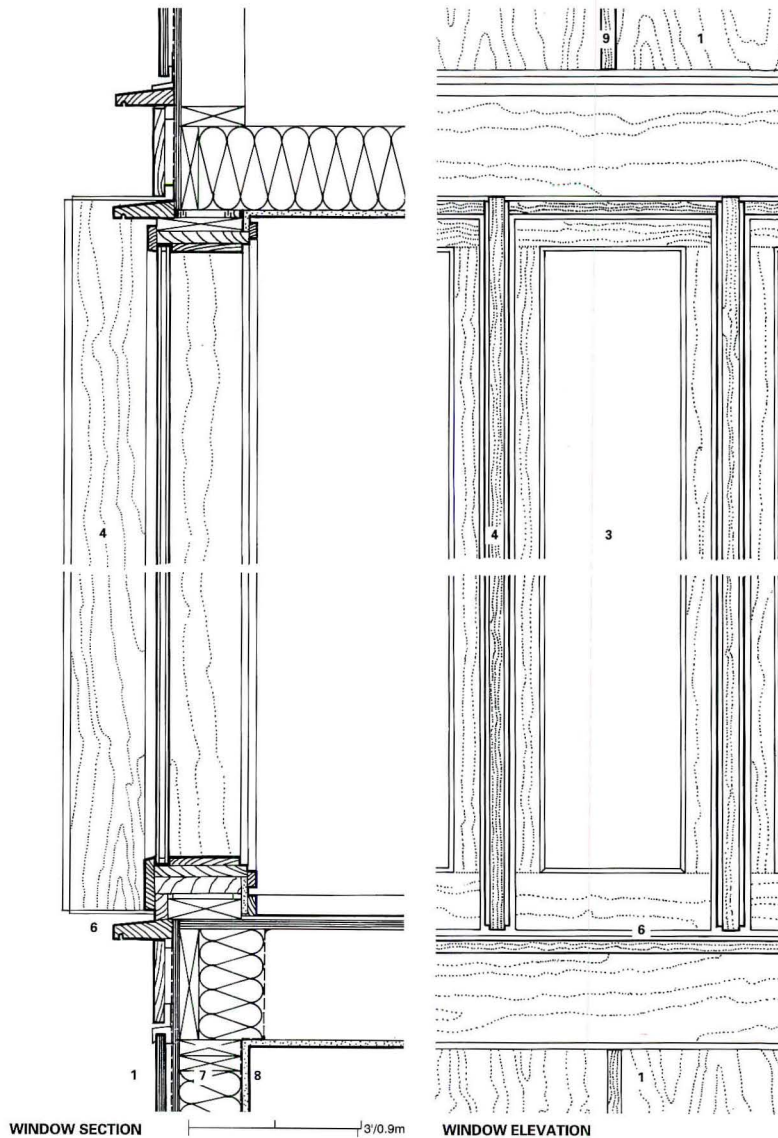
Step into an Autodesk Training Center for 24 hours and you'll come out six months ahead.

We're talking about learning AutoCAD® fast. And learning it right. We're talking about Autodesk Training Centers (ATC®), places where taking a course can really mean something to your job and your future. And since these centers can customize training according to your needs, we've created a free AutoCAD self-evaluation disk to show you what you know and what you don't. It'll even help you identify the course that's right for you. So call us and we'll send you this disk absolutely free. Think about it. Six months of learning in 24 hours. Talk about getting ahead.

CALL 800-964-6432 AND ASK FOR DEMOPAK T537
TO RECEIVE A FREE AUTOCAD SELF EVALUATION DISK.

 Autodesk®

Shim-Sutcliffe clad an Ontario house facade with plywood panels and fins.



Orchard House Slabtown, Ontario Shim-Sutcliffe

Brigitte Shim and Howard Sutcliffe contemporize traditional board-and-batten construction in their house for a retiring social worker in Slabtown, Ontario (pages 128-129). Sited in an apple orchard, the house is clad in sheets of 1/2-inch-thick Douglas fir plywood. Overscaled vertical 1 1/4-by-1 3/4-inch battens conceal the seams between panels.

Slot windows that draw light into the house's two-story triangular tower are placed flush with the plywood cladding. They are divided by plywood fins that project 7 1/2 inches from the building face. The stationary windows are fabricated from two sheets of 5-millimeter-thick tempered glass panels, which are separated by a 1/2-inch cavity. Fresh air is admitted to the tower's interior by operable plywood panels located on the east and southwest facades. Reminiscent of the cottage style typical in this agricultural region, the panels are fastened with simple butt hinges, a metal latch, and a basic weather gasket.

The insulated exterior walls are framed in 2-by-6-inch wood sections. In a low-tech adaptation of rainscreen construction, a continuous, pressure-equalized air barrier in the walls diverts water that infiltrates the plywood cladding away from the interior.—A. C. S.

- 1 1/2" DOUGLAS FIR PLYWOOD
- 2 2x6" WOOD FRAMING
- 3 FIXED DOUBLE GLAZING
- 4 PLYWOOD FIN
- 5 OPERABLE PLYWOOD PANEL
- 6 PROJECTING SILL AT FLOOR LINE
- 7 BATT INSULATION
- 8 1/2" GYPSUM BOARD
- 9 1 1/4x1 3/4" VERTICAL BATTEN

Limited Only By Your Imagination

Wausau Tile's Precast Terrazzo Tile offers the ultimate in design flexibility. Use the square edge tile along with the tight installation and create a monolithic floor with the durability of other hardsurface flooring coupled with the majestic look of terrazzo.

Our ground and polished method of finishing the installed floor, allows for the placement of intricate designs and patterns, as well as, creating a smooth floor with blended, low visible grout joints.

Choose from a palette of 30 standard colors, styles or surface finishes or select any of the NTMA colors.



Accentuate your Terrazzo floor with precast accessories from Wausau Tile. We have an extensive offering of stairs, treads, risers, landings, cove and column covers to complete your project.

WAUSAU TILE

Terra-Paving Division
P.O. Box 1520
Wausau, WI 54402-1520
800-388-8728
715-359-3121
FAX 715-359-7456



Circle 151 on information card



Does the price of your shaft wall include peace of mind?

It's ironic, but the same elevator shaft responsible for the safe passage of people, power and communications lines, can also turn into a deadly conduit for fire and smoke.

Which brings us to this safety point: While you can find shaft wall component manufacturers that claim savings on labor and materials, only the USG Cavity Shaft Wall System claims performance certification under actual on-site conditions.

In fact, the USG System is the only cavity shaft wall system to pass UL smoke and

fire damper tests. The only system that offers continuous edge support of liner panels for air-tight, smoke-tight, rattle-free performance. The only system tested at UL by every major elevator door manufacturer.

The USG Cavity Shaft Wall System is also the only system subjected to one million full oscillation flexing cycles, to ensure longevity under positive and negative pressure loads of high-speed elevators.

No other cavity shaft wall system can make all these claims. And because the USG System was the very first cavity

shaft wall ever installed, no other company can top the experience and refined installation techniques that we can bring to virtually any job site.

For the ultimate in fire protection and life-safety. For a very competitive price. There is no *equal* for the USG Cavity Shaft Wall System. For more information, see us in Sweet's File 09250/UNH, or call (800) USG-4YOU.

United States Gypsum Company
P.O. Box 806278, Chicago, IL 60680-4124

Circle 153 on information card