

ARCHITECTURE

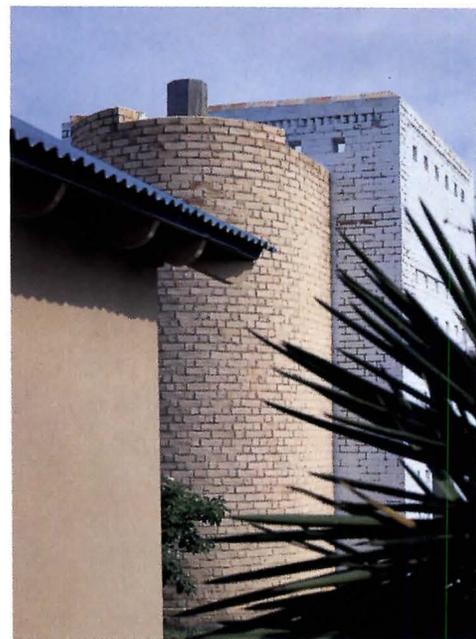
AUGUST 1991



PAGE 52



PAGE 64



PAGE 70

DESIGN

- 51 **OUT OF THE SOUTHWEST** Architects based in Texas, New Mexico, and Arizona shun regionalist clichés to explore new design territories within and without the Southwest.
- 52 **ARTFUL BALANCE** Abstract forms are combined with local building traditions to produce an artist's studio in Monterrey, Mexico, designed by Mayeux/Rangel Architects.
BY RAY DON TILLEY
- 58 **BORDER CROSSINGS** Albuquerque architect Antoine Predock extends his range with new cultural and institutional projects in California, Nevada, and Spain.
BY DAVID DILLON
- 64 **DRAWN FROM NATURE** Bart Prince of Albuquerque designs unusual houses that echo the colors, textures, and shadows of their Western surroundings.
BY MICHAEL J. CROSBIE
- 70 **LOCAL TRADITION** A collage of existing forms and new structures designed by Lake/Flato Architects anchors a ranch house to its South Texas prairie.
BY RAY DON TILLEY
- 74 **REVISED EDITION** On Phoenix's flourishing commercial strip, local architect William P. Bruder enlivens an existing library with sculptural diversity.
BY LYNN NESMITH
- 78 **BEYOND ADOBE** Forgoing Santa Fe's traditional styles, Jeff Harnar creates a new Southwestern idiom with strong spaces rendered in indigenous materials.
BY MICHAEL J. CROSBIE

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TECHNOLOGY & PRACTICE

91 BREAKING INTO NEW MARKETS

Advice from architects about securing commissions for new building types and broadening firm portfolios.

BY ANDREA OPPENHEIMER DEAN

97 CADD HOLDOUTS

Why some architects refuse to design on computers, and what software developments are needed to attract them.

BY B.J. NOVITSKI

101 METALLIC REFINEMENTS

Three projects highlight a renewed interest in exterior applications of aluminum, steel, and more exotic metals.

BY NANCY B. SOLOMON

109 SEISMICALLY SAFE DESIGN

A panel of experts outlines ways architects can better develop buildings that will withstand earthquake damage.

BY MARC S. HARRIMAN

113 PLOT LINES

Faster computer output devices, such as plotters and laser printers, offer more capabilities for enhancing architects' efficiency and creativity.

BY B.J. NOVITSKI

DEPARTMENTS

13 EDITOR'S PAGE

16 LETTERS & EVENTS

21 NEWS

41 ON THE BOARDS

47 AWARDS

89 INFO

117 PRODUCTS

128 NEAT FILE

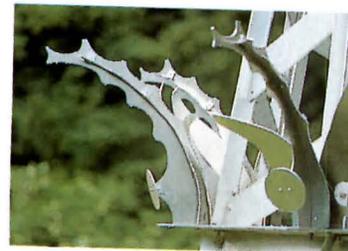
COVER: NEXT MONTH'S ISSUE:

Milmo Studio,
Monterrey, Mexico, designed by
Mayeux/Rangel Architects (page 52).
Photograph by BlackmonWintersKuhner

New civic and cultural identities in California
Wood detailing
Design-build ventures
Reader survey evaluation



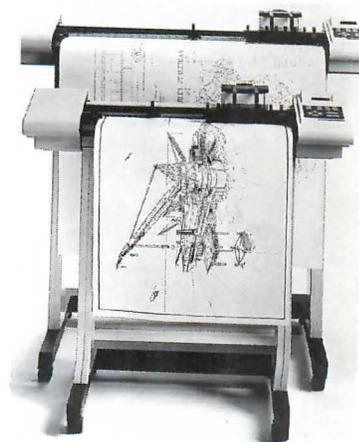
PAGE 91



PAGE 101



PAGE 109



PAGE 113

Raw power in its m



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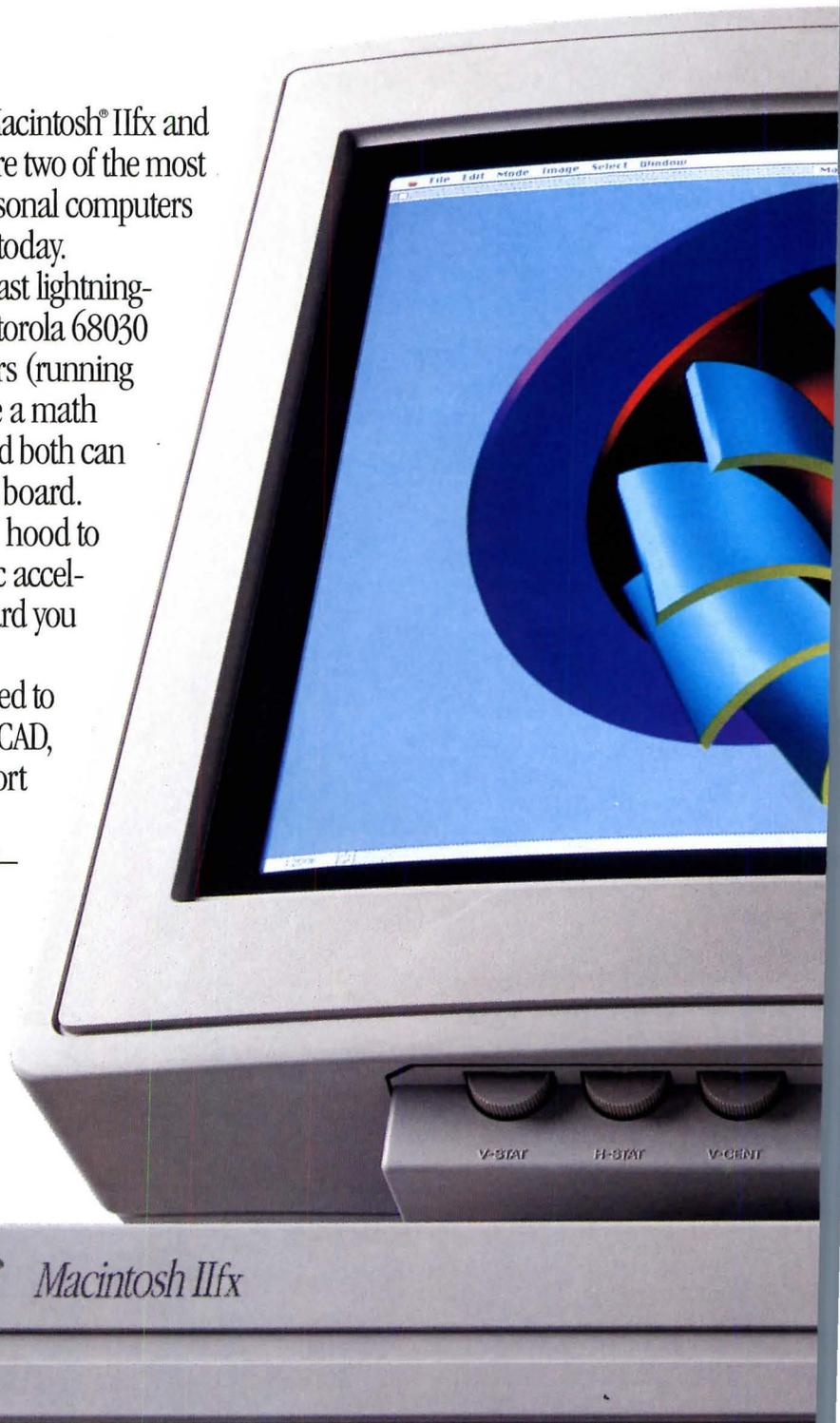
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Regionalism Lost and Found

MUCH LIP SERVICE IS GIVEN THESE DAYS TO REGIONALISM, loosely defined as a sensitivity to the particulars of place. In recent years, the term has lost its meaning as so-called regionalist design is marketed as a saleable image rather than a fundamental approach to architecture. Local traditions have increasingly wandered from their rightful origins—shopping centers in northern California and Florida, for example, are commonly designed to resemble Southwestern adobe missions. In other cases, regionalism has become a convenient catchall for superficial cribbing of a local vernacular, producing architecture that borders on kitsch.

An example of such regionalist abuse occurred when Philip Johnson announced to the press in the mid-1980s that his design for the Crescent in Dallas was “early Texas” and it would “look funny in Dayton, Ohio, but would not look funny to anyone who knows Texas.” Covered by mansard roofs, lacy metalwork, and limestone curtain walls, the complex nonetheless wound up looking funny to Texans and non-Texans alike—more like an ersatz 18th-century Paris hotel than a contemporary version of the modest, sun-shaded structures built by Lone Star settlers.

As a result of such superficiality, architects who seriously regard themselves as regionalists now resent the very word. “No more Mr. Adobe,” quips Albuquerque architect Antoine Predock whenever he is questioned about the influence of the Southwestern vernacular on his work. Now designing projects throughout the West and abroad (above and pages 58-63), Predock is representative of numerous architects searching for designs appropriate to sites outside their own locales. But if an architect's office is located in

one region and a project in another, how can a practitioner create appropriate buildings that don't end up looking like regionalist cartoons?

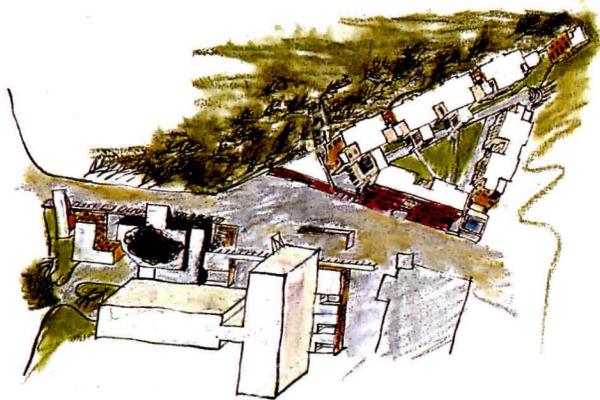
As revealed by the projects in this issue, architects can avoid the carpetbagger stereotype by carefully studying the physical, cultural, and even spiritual qualities of new locales. Eschewing painstaking, quaint references to local traditions, the best regionalists understand a site's topography, culture, climate, light, and indigenous materials. They

share many of the same goals as environmentalists, respecting the Earth through site-sensitive design solutions. For many architects, especially those of a younger generation, regionalism serves as a means of anchoring a building to its surroundings without resorting to overt historicism. Architects such as W.G. Clark in Charleston and James Cutler in Seattle, for example, draw upon local traditions, but create designs that are thoroughly unsentimental and uncompromisingly spare. In the

broadest sense, good regionalism possesses many of the same virtues as good Modernism—economy of means, honesty of expression, and simplicity of form.

Unfortunately in many parts of the country, some clients and communities are attempting to legislate design codes specifying so-called “regionalist” styles, resulting in architecture that is as artificial as a stage set. They, and many architects, need to be reminded that regionalism is not a strict doctrine, but encourages esthetic diversity and ecological sensitivity. Rooted in site and circumstance, true regional design ultimately transcends the strictures of place. ■

—DEBORAH K. DIETSCH



Albuquerque architect Antoine Predock's scheme for new student housing at the University of California at Los Angeles (above), due to be completed this fall.

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LETTERS & EVENTS

Green Architecture

I was surprised and honored to find my 1970 office among the “then” examples of a green architecture (May 1991, pages 61-63), and I am delighted to see a whole issue devoted to lowering our impact on the land. But the issue also showed me how very far we all have yet to go.

Most “green” buildings are in fact little more than lower-environment-damage architecture, built for the welfare of but a single transient species, far from a place on the green side of the world’s ledger. There may be ways for above-ground buildings and their ancillary paving to get on the right side of The Great Book, but it takes a more arcane kind of rationalizing than any I can manage to see how they might do it. I hate to sound like a true believer, but as far as I can see, the entire surface of the Earth is meant to be green.

*Malcolm Wells, Architect
The Underground Gallery
Brewster, Massachusetts*

Fat-Man Style

Building design classification has traditionally been capable of descriptive connotation. The term “Postmodern” conjures no useful vision about the design classification it references—it is a catchall term for work completed during a specific block of time.

Michael Graves’ Team Disney Building (June 1991, pages 80-89) offers some relief from this dilemma. The building clearly stands out as one of the very best examples of the Fat-Man Style. Pages 86-89 are perfect expressions of exactly what one might visualize when thinking about a 500-pound, Hawaiian-shirted, suntanned tourist complete with his plastic bag of souvenirs.

I believe that I may also have an appropriate classification for Eisenman Architects’ Nunotani Headquarters in Tokyo (June 1991, page 49). Wright’s Fallingwater is not a useful name for that fine design, since it applies to an environmental aspect. Keeping it simple, I shall therefore borrow part of it, and call it the Falling-Down School.

Perhaps you might invite architects and laypersons to submit names for their favorite examples of what’s hot, what’s really “in,” in the world of design.

*R.J. Reynolds, AIA
The Reynolds Group
Haddonfield, New Jersey*

Post Mickey Mouse

The cover of your June issue, for lack of a more appropriate word, looks “dopey.” I assume that your usage of such an absurd photograph was in part tongue in cheek. Eisner did make a prophetic statement when he said “If you make a bad building, it sits there for the rest of your life.” He certainly hit the nail on the head—unfortunately, they don’t always tear it down when the architect dies. The exterior of the building appears to be a poor man’s excuse for Postmodern, but the overall effect is “Post Mickey Mouse.” The interior is better, but not anything we haven’t seen in the last 10 years.

I respect the right of a client to purchase design that is in bad taste, as well as the right of the architect to design a bad building. However, for a serious journal to support this effort is almost as much as an affront to me and this profession as [Eisenman’s] earthquake-damaged abortion shown on page 49 of the same edition. This is an example of total disorder and chaos, and requires no talent but only a deranged mind to conceive.

I will admit you finally got my attention; after 32 years of practice, this is my first letter to an architectural journal.

*Lowell Shoemaker, AIA
Shoemaker, Colbert, Brodnax, Architects
Shreveport, Louisiana*

New York Planners

In your news article on the New York planning forum (June 1991, page 28), the author incorrectly identified Lewis Mumford, Clarence Stein, and Benton MacKaye as members of the Regional Plan Association of New York. The three men in question were founders of the Regional Planning Association of America, a rival group that advocated the decentralization of urban areas through the establishment of smaller, regionally based garden cities. Conversely, the Regional Plan Association, headed by Thomas Adams, sought to ameliorate existing urban ills through careful, centralized planning within the existing boundaries of metropolitan New York. The two groups were often at loggerheads during the 1920s because of this fundamental philosophical difference.

*Robert Wojtowicz
Assistant Professor of Art History
Old Dominion University
Norfolk, Virginia*

August 12-14: The 24th Annual National Conference of States on Building Codes & Standards in Alexandria, Virginia. Contact: Debbie Baillargeon (703) 481-2012.

August 22-24: “Form, Function, Fantasy: Learning From Los Angeles.” The Society of Environmental Graphic Designers national conference in Pasadena, California. Contact: (617) 577-8225.

September 14-15: New York Landmarks Conservancy’s architectural cast-iron restoration workshop in New York City. Contact: Kim Lovejoy (212) 995-5260.

September 15-18: “Improved Safety and Reliability Through Nondestructive Testing” conference in Boston, Massachusetts. Contact: Barbara Runyon (614) 274-6003.

September 25-26: Capital Design Week, the 8th annual symposium on architecture and interior design, at the Washington Design Center in Washington, D.C. Contact: David Drury (202) 554-5053.

September 25-29: The 109th Annual National Association of Plumbing-Heating-Cooling Contractors Convention in San Francisco. Contact: (800) 533-7427.

September 28: The 4th Annual CAD Conference in Denver, Colorado, featuring demonstrations, workshops, and seminars for all levels. Contact: (303) 894-8610.

September 28-November 17: “What Modern Was,” a design exhibit at the Toledo Museum of Art, Toledo, Ohio. Contact: Barbara Van Vleet (419) 255-8000.

October 16-18: 1991 MetalCon International conference and exhibition in Washington, D.C. Contact: Claire Kilcoyne (800) 526-5455.

October 16-18: 1991 Conference and Exposition of Accessibility at the Washington, D.C., Convention Center. Contact: Art Kerley (203) 775-0422.

October 17-19: Designer’s Saturday, at the International Design Center New York and throughout Manhattan. The week will focus on “The Greening of Design” and other environment-related issues. Contact: (718) 937-7474.

October 18-19: “Historic Buildings... Modern Codes,” an AIA program to discuss the impact of building codes and standards on historic preservation, in Savannah, Georgia. Contact: Kristine Dombrowski (202) 626-7452.

NEWS

Eco-Cities in L.A. ■ Disney's New Town ■ Aspen's Bare Bones ■ Neocon Ecology ■ Boston Holocaust Memorial

R/UDAT Examines New York's Penn Yards

IN THE 29 YEARS SINCE NEW YORK CENTRAL RAILROADS WENT BANKRUPT, A SLEW OF DEVELOPERS and city organizations has proposed ways of weaving the Penn Yards, on Manhattan's West Side, into the city's fabric. Aside from the raised, rapidly decaying north-south West Side Highway that shuttles commuters along the Hudson River, the Donald Trump-owned 76-acre expanse stretching from 59th Street to 72nd Street still remains vacant. Faced with strained financial resources, deteriorating physical infrastructure, and public sensitivity, the city recently called upon the AIA's Regional/Urban Design Assistance Team (R/UDAT) process to review the latest concept—an 8.3 million-square-foot scheme conceived originally by a team of six civic organizations with volunteer architect Paul Willen of Daniel Pang & Associates and consulting engineer Dan Gutman.



It wasn't until 1986, when members of the surrounding community began a crusade to block approval of Trump's 15-million-square-foot Television City project, designed by Helmut Jahn, that the civic groups began working on an alternative scheme. Faced with increasing public concern, Trump agreed to withdraw his subsequent 14.5-million-square-foot Trump City proposal, and in May joined the six groups to form the Riverside South Planning Corporation. The corporation subsequently commissioned Skidmore, Owings & Merrill's New York office to work alongside Willen.



"Such a complex project needs the impartiality and dispassion of out-of-town experts," notes architect Lance Brown, who coordinated the 4-day charrette. Although the Penn Yards review marks the first time a R/UDAT has been convened to critique a scheme in progress, the city followed the standard R/UDAT format. Eleven invited professionals interviewed a range of local representatives, reviewed the Willen/SOM drawings, and presented their recommendations to Manhattan Borough President Ruth Messinger, Community Board 7, and the Riverside South Planning Corporation.

At the end of four days, the review team produced a 90-page document that favors a 16 percent decrease in development density from the current Riverside South scheme. The team supports the idea of relocating the West Side Highway to open up the waterfront and advocates covering a segment of a proposed ground-level highway to provide park areas at the street level. Expressing a sensitivity to the West Side's formal and spatial character, team members lowered the base heights of proposed residential buildings and redistributed towers to preserve views of the Hudson River from buildings to the east. The team also reduced a large-scale television studio to fit a standard block, allowing 60th Street to extend to the future park edge. Additional recommendations encourage the city to create land-based stormwater treatment facilities, initiate improvements to public transportation, and continue public participation throughout future planning of the site.

—KAREN SALMON

A R/UDAT sketch (top) portrays a lower density project than the most recently proposed scheme for the Penn Yards site. R/UDAT leader Michael Pittas (above, left) addresses prominent players (left to right): Manhattan Borough President Ruth Messinger, Community Board 7 representative Ethel Sheffer, developer Donald Trump, and president of the New York City Chapter AIA, Frances Halsband.

A I A B R I E F S

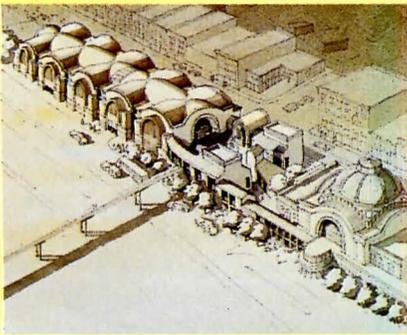
At this year's AIA convention, the institute resolved to develop and promote the concept of a single model building code for the United States. Recognizing inconsistencies among the three existing model codes and their adoption at the state and local level, the institute seeks to simplify the practice of architecture and stresses that the profession must lead the industry in creating a one-code document. Currently, a task group is being assembled to plan a strategy for fulfilling the new resolution, and is looking to experts for advice.

Despite resistance by some architects, engineers, and code writers to the single code concept, the AIA remains optimistic that the technical and organizational information for buildings can be unified, based on its view that the building industry has begun moving toward simplifying existing codes.

Yet according to the Council of American Building Officials (CABO) President Richard Kuchnicki, achieving a one-code system "would accomplish little." He asserts that competition among the three model code organizations—ICBO, BOCA, and SBCCI—ensures that model codes keep abreast of latest technology and innovations. Since 1975, the CABO-sponsored Board for the Coordination of Model Codes (BCMC) has met regularly to address areas of conflict within the three model codes and related standards such as the National Fire Protection Association (NFPA) Life Safety Code. BCMC includes two representatives from each of the model code organizations as well as two NFPA officials. Kuchnicki cites the misunderstanding among architects on how to use the model codes, and a need for improved code enforcement as more pressing concerns than the issue of writing a single code.

D E T A I L S

The New York Chapter of the AIA selected **Gerard Vasisko** of **Gruzen Samton Steinglass** to receive its 1991 President's Award for his affordable housing. The New York City Chapter's recently elected president, **Frances Halsband** of **R.M. Kliment Frances Halsband Architects**, has been named dean of the School of Architecture at Pratt Institute. **Terence Riley** of **Keenan Riley Architects** has been appointed curator of the Department of Architecture and Design at New York's Museum of Modern Art. **Henry Cobb** of **Pei Cobb Freed & Partners** has been selected to design a new 400,000-square-foot federal courthouse in Boston. After two decades of planning, the San Diego City Council authorized groundbreaking for the city's 200,000-square-foot Center for the Arts designed by **Moore Ruble Yudell** of Santa Monica. The Los Angeles office of **LPA** has merged with the **NBBJ Group** in Seattle. Ground-breaking for Wellesley College's Davis Museum and Cultural Center took place at the end of May. Scheduled for completion in 1993, the \$150 million project is Spanish architect **Rafael Moneo's** first U.S. commission. British architect **Norman Foster** of **Foster Associates** received the Gold Medal of the French Academy of Architecture in June. **Moore/Andersson Architects** of Austin, Texas, won a design competition in May for the 96,000-square-foot Washington State Historical Society Museum in Takoma (below) over **Erickson Associates**, **Michael Graves**, and **Hammond Beeby & Babka**.



Joe Smyth's ecological proposal (left) for a overhauling a run-down Anaheim mall (right).

Eco-Cities Conference Held in Los Angeles

THE FIRST LOS ANGELES ECOLOGICAL CITIES Conference, held on the University of California, Los Angeles campus in June, was a throwback to the heyday of Vietnam protests, hippies, and campus unrest. Fruit juices, natural sodas, and vegetarian lunches were served; keynote speeches were delivered from a stage softened by a veritable forest of potted trees, shrubs, and colorful flowers; and dialogue flowed with the commitment, urgency, and emotion of a peace rally. Along with retro-60s atmosphere, the conference offered genuine hope for improving existing cities and building new "Eco-Cities."

Keynote speeches and smaller focus groups covered myriad topics ranging from recycling, water conservation, renewable energy options, and urban agriculture to transportation, waste management, air quality, city planning policies, and taxation and lending rules as they relate to conservation.

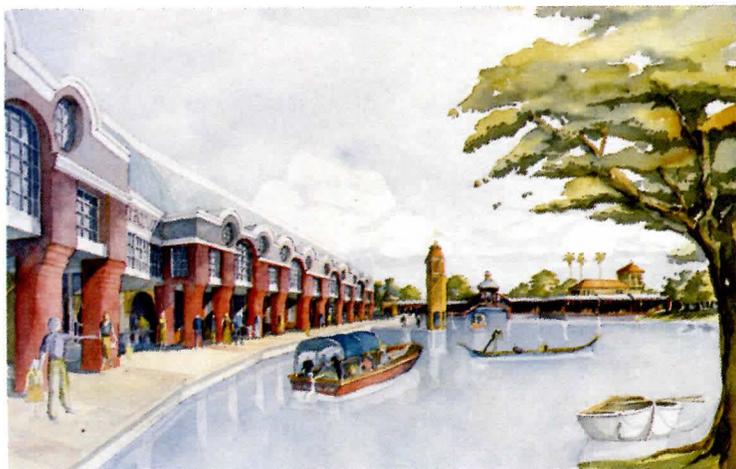
Featured speakers included such longtime eco-warriors as architect Sim Van der Ryn, a pioneer in the field of self-sustaining communities (ARCHITECTURE, May 1991, pages 102-103) and Ernest Callenbach, author of the classic environmental novel *Ecotopia*. But there were also mainstreamers like Jane Blumenfeld, a planning adviser to Los Angeles Mayor Tom Bradley; mixed-use/mass transit advocate Peter Calthorpe, a consultant on several real-world projects; and David Mogavero, who led the rewrite of the general plan for Sacramento County, California, emphasizing pedestrian- and transit-oriented mixed-use development. The audience, too, represented diverse interests, and included architects, planners, attorneys, and developers.

The automobile was repeatedly cited as the number-one enemy of ecologically sound

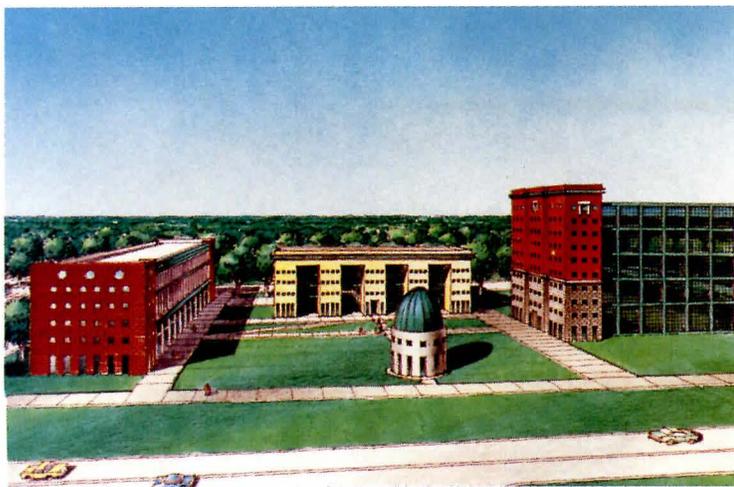
cities. Mixed-use communities close to mass transit, rather than electric cars or more stringent EPA emissions standards, were portrayed as the most likely heroes. Several ecologically sound community plans were presented, including the 1,000-acre Playa Vista in Los Angeles, an example of both good ecological planning and urban design through community consensus. Other projects included the proposed 800-acre Tucson Solar Village in Arizona; developer Joe Smyth's plan for replacing a run-down regional mall in Anaheim with a mixed-use, ecological project around a parklike open space; and several of Calthorpe's current efforts.

The Ecological Cities Conference was organized by two Los Angeles women. Julia Phillips began redesigning her home during the mid-1970s so that it would be an ecologically sound place for raising kids. Today, her "Eco-Home," a laboratory for ideas ranging from xeriscaping to composting and recycling, is open to the public two days a week. Eleven years ago Lois Arkin founded the Co-operative Resources and Services Project, a clearing house of information on co-ops of many varieties. Phillips and Arkin view the conference as an essential step in bringing influential people together with state-of-the-art ecological information. In the wake of the conference, they hope diverse interests will band together to further the cause of ecological cities. Phillips and Arkin are currently coordinating the formation of a Los Angeles Council on Eco-City Development. Already, 150 of 400 conference attendees have signed up as interested participants. —DIRK SUTRO

Dirk Sutro is the architecture critic for the San Diego edition of the Los Angeles Times.



In the planning stages for the new town of Celebration is the Disney Institute (above) conceived by Charles Moore. One of the institute buildings is the Atrium (top), a galleria designed by Moore and his associates with rounded windows near the cornice line that resemble a series of abstracted mouse ears. The Aldo Rossi-designed office complex (bottom) will be the first completed phase of the new town.



Disney Unveils New Town

IN THE EARLY 1950s, IRWIN MILLER OF THE CUMMINS ENGINE FOUNDATION set out to turn Columbus, Indiana, into an architectural mecca by providing funds for the town to hire top architects for key civic commissions. Today, the Disney Development Company is launching Celebration, a new town for 20,000 residents near Orlando, Florida, with the same concept. If all goes as scheduled, residents and visitors will soon be able to work in an office park designed by Aldo Rossi, shop at a retail center designed by Helmut Jahn, and meet at the Disney Institute, a "learning resort" to entertain, educate, and revitalize guests, to be master-planned by AIA Gold Medalist Charles Moore.

Earlier this year, Disney commissioned Rossi to design the 240,000-square-foot Enterprise Park. The business center will be the first phase of an office park that will contain up to 3 million square feet of leasable office space. To select the architects for two other projects on the 3,800-acre tract adjacent to Walt Disney World, Disney held limited design competitions: Murphy/Jahn was awarded the commission over Robert A.M. Stern Architects and Arquitectonica for the 2 million-square-foot international shopping district, called Celebration Center; and Charles Moore, in conjunction with his two offices, Moore/Andersson and Moore Ruble Yudell, was selected as master planner for the learning resort over Morphosis and Kohn Pedersen Fox Associates. HOH Associates of Alexandria, Virginia, is responsible for land planning.

Rossi's complex is likely to be the first phase of Celebration to be completed, followed by Jahn's shopping district and Moore's Disney Institute. Still to be commissioned are a medical and health center; environmental center; up to 8,000 single and multifamily residences in four villages; and schools for local residents. In all, Disney's investment is expected to total \$2 billion over the next 15 to 20 years.

Disney Development Company Senior Vice President Todd Mansfield says Disney will continue to seek out the "most innovative" architects for different phases of the town. He adds that the work will be different from some of the so-called "entertainment architecture" Disney has commissioned for its theme parks. "This is a real-world environment," Mansfield contends. "People will live here. It's not a fantasy environment."

Disney is also exploring plans to build a second major theme park in Southern California to augment 36-year-old Disneyland, but planners still haven't decided on a site. One contender is a 350-acre waterfront parcel in Long Beach, where Disney has proposed a \$2.7 billion ocean-oriented theme park and destination resort called Port Disney, complete with an attraction called DisneySea. Ehrenkrantz & Eckstut Architects is planning that project, which would also include five resort hotels, shopping, restaurants, and a cruise ship terminal.

The second contender is a 470-acre parcel in Anaheim adjacent to the Disneyland property, where Disney would build a \$3 billion complex called Disneyland Resort. In addition to a theme park called WESTCOT Center—inspired by Disney's EPCOT Center in Orlando—the project would include a new hotel, retail, dining and entertainment facilities, as well as an expansion of Disneyland's attractions. Cooper Robertson & Partners is currently planning that project. Disney officials say that although both projects are undergoing detailed reviews, only one is likely to be built. They hope to have a final decision by the end of 1991.

—EDWARD GUNTS

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W H A T

Trimming Down at Aspen

THE 41ST INTERNATIONAL DESIGN CONFERENCE in Aspen (IDCA), held June 16-21, has long been on the cutting edge: in the '60s, hippies and antiwar philosophers were in evidence; during the '70s, feminism filled the air; and in the '80s, burgeoning-economy exuberance abounded. This year's theme, "Bare Bones: Making More with Less," again foretold the future of design, and influenced the organization of the conference.

"All design disciplines and their clients have felt the pinch," claimed IDCA president Milton Glaser. Thus the "Bare Bones" theme was created to allow designers to probe ways to maintain creative vitality during tough economic times. The IDCA board of directors also saw the opportunity to restructure the conference so that each section of the event was more finely focused. While fewer speakers were invited, for instance, each led a variety of highly participatory workshops and seminars. Formal evening seminars were shortened, but informal groups met far into the night in hands-on sessions with key industry leaders.

Throughout the week, the open-air "Cafe Voltaire" served as a springboard for impromptu conversations led by invited speakers and attendees alike. In past conferences, attendees were swept up in the chaos of multidimensional philosophical lectures, running to attend as many as possible, breathless at week's end. In this stripped-down version, however, the atmosphere was more personal and relaxed than at past conferences, and more learning took place. All were reminded that less can also be more.

The conference annually pulls together an eclectic mix of speakers, but this year their talks all underscored the problem at hand. James Autry, president of Meredith Corporation Magazine Group, remarked "In tough times, the only real expandable resource a company has is its people. If they are not treated more humanely, then companies will have a tougher time succeeding in the fu-



DAVID HISEK, PHOTOGRAPHER/ASPEN

Surrounded by oversized puppets (below left), participants gathered at Cafe Voltaire (above) for the unstructured exchange of ideas. More formal presentations were made by Tony Palladino (center left).



LEE BIEL

ture." Anthropologist Kenneth Brecher took his middle-American audience into the world of primitive cultures to demonstrate how a society unites toward common goals. Industrial designer Bill Stumpf decried the overpackaging of society and the wasting of Earth's resources, and Danish Design Council director Jens Bernsen demonstrated economic product design and use in his homeland. Yuri Soloviev, founder of the Society of Soviet Designers and the International Council of Societies of Industrial Design (ICSID), offered hopeful words concerning the future of Soviet design.

The 23 workshops included Saul Bass's experiments with low-budget video; Ralph Caplan and Michael Crichton's "Visual Problem Solving"; and Gianfranco Zaccai on "De-

sign for Innovation." Event designer Renny Reynolds wowed the audience with slides of his most opulent and successful bashes, then demonstrated how to create the same style on a limited budget, while communications consultant Sonya Hamlin was her own best example as she spoke to an overflow crowd on "Presenting Your Ideas and Yourself." Evocative photographer Duane Michals held a one-man show at the Aspen Art Museum, while architect Richard Saul Wurman, originator of the *Access* guidebook series, forecast that the coming decades will see a great need for people who can "demystify" complex information. And in one lively workshop, graphic designers Ivan Chermayeff and Tony Palladino presided over a thrift-shop classroom where students created collages from found objects.

At week's end, attendees agreed that "Bare Bones" really worked. The simpler format sacrificed no energy, but allowed a more intimate playground of ideas. The IDCA had come full circle to its smaller, humbler beginnings—at least until the economy improves.

—SHERRY GUEST

Sherry Guest is an Aspen-based freelance writer.



OCTOBER 17-19, 1991

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Ecological Design at Neocon

ALTHOUGH ATTENDANCE WAS DOWN AT this year's Neocon, environmental awareness reached a peak at Chicago's Merchandise Mart. Showrooms spotlighted new policies on the use of tropical hardwoods or, at the very least, sported potted plants and piles of bananas. Trying to keep pace with a worldwide "Earth first" mentality, the contract design industry event revealed products with replenishable woods and natural colors, and advocated cleaning up indoor air to humanize technology-driven workspaces.

Despite publicity that over 90 percent of exhibitors were introducing "new" products for the June contract furnishings show, many manufacturers' introductions were in the form of a new finish or feature for an older line. As in past markets, ergonomics remained at the forefront of Neocon 23. This year, a few manufacturers demonstrated ways of softening office environments by incorporating sweeping lines and colorful surface materials into workstations. Allsteel's Aurora system, with its multiple-radii edging, hidden wiring, and a mid-range price tag, was designed by Otto Zapf to lend a "residential" character to the office cubicle. Herman Miller devoted the center of its showroom to a new workstation prototype that drew heavily upon curved forms, earth colors, and wood. Developed by the company's research and design vice president Rob Harvey, in conjunction with designers Tom Newhouse and Don Shepherd, the office concept attempted to establish an individualized, flexible working environment and demonstrate an efficient use of communal space.

Showrooms that did not exhibit variations on ergonomic chairs and workstations displayed idiosyncratic, stylized versions of traditional seating. Brueton Industries' Embrace line of lounge chairs and HBF's Harvard series offered new twists to club chairs. Vitra, Luminaire, and Palazzetti exhibited Italian-designed chairs and sofas in highly sculptural, Modern forms.

Other showrooms focused on the natural environment through color. Forest green, gold, and rust were popular colors for contract textiles and wallcoverings. And despite the rain, Robert Kennedy, Jr., led a 3-mile walk through downtown Chicago to benefit the Natural Resources Defense Council.

—K.S.

Herman Miller's model workspace (top right) and Allsteel's Aurora system (below right) reveal curved edges and natural color combinations of new systems furniture. Steelcase introduced the ergonomic Rally Chair (below) with a no-front-rise feature.



Allora lounge chair (right), designed by Victor Dziekiewicz for Brueton Industries, reflects stylized refinements to traditional club chairs.





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Boston Holocaust Memorial Awarded

"SIX TOWERS OF SPIRIT, SIX CHAMBERS OF gas, six towers of ice melting into the city, six exhausters of life, six pillars of breath" is California architect Stanley Saitowitz's description of his competition-winning design for the New England Holocaust Memorial to be built in Boston. The design, which comprises six illuminated glass towers linked by a black granite path, was chosen last June from a field of 520 entrants by a jury among whose members were architect Frank Gehry and architectural historian and critic Rosemarie Bletter. "The design employs symbolism which is appropriate and evocative and which creates powerful associates with Jewish culture," commented the jury. The memorial is to be built in Union Street Park on Boston's historic Freedom Trail near Quincy Market, a site 16 million people pass each year.

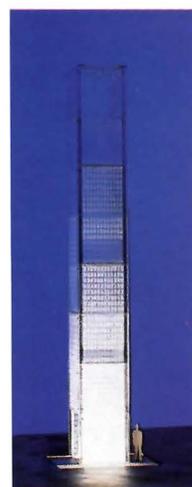
Each of the six towers will measure 8 feet square and 60 feet tall, its frame constructed of 6-inch-diameter tubular stainless steel. Attached to the frame of each tower will be 30 panels of armor plate glass, etched with a



PETER VANDERWARKER

million numerals. The towers together will contain 6 million numerals, representing the number of Jews murdered in the Holocaust.

Each tower will be constructed over a black granite-lined pit, at the bottom of which will be electrically heated lava rock. A steel grate will cover the pit but the towers will be open



Stanley Saitowitz's design for Boston's holocaust memorial (far left), to be built in a park near Quincy Market, comprises six glass towers (left) arranged along a granite path, each illuminated from above and below.

on two sides to allow visitors to walk over the pits. Saitowitz says that in traversing through the towers, "you will feel warm air rising from each like a breath." Privately funded, the construction cost is estimated at \$1 million, with groundbreaking scheduled for spring 1992. —MICHAEL J. CROSBIE

University Architecture Conference at Yale

"DIVERSITY AND CONTEXT" WAS THE theme of a conference on campus architecture at Yale University in New Haven, Connecticut, sponsored by the Association of University Architects. Practitioners Cesar Pelli, Robert Venturi, Billie Tsien, and John Gamble Rogers III spoke in June about the design of campuses and university buildings, not only at Yale but across the country. The session was moderated by architect and Yale Architecture School Dean Thomas Beeby.

Rogers, the grandson of Yale's campus architect of the early 20th century, John Gamble Rogers, observed that architects designing buildings on the campus today cannot help but respond in their designs to the pressure of the university's building boom in the first third of this century. Rogers began designing buildings for Yale in 1913, and undertook nearly 20 separate commissions. "He established an architectural foundation for this university," said Rogers of his grandfather's work, "that allowed architectural pioneers who came after him, such as Kahn, Saarinen, and Rudolph, to design individual buildings that could fit into this environment without compromising the whole."



LISA OULNER

Discussing campus architecture last June were (left to right): Yale architecture school dean Thomas Beeby, Robert Venturi, Billie Tsien, John Gamble Rogers III, and Cesar Pelli.

Venturi traced his interest in designing within the context of university campuses to his senior design problem at Princeton in the late 1940s, for which he designed an experimental theater inserted within the Princeton campus. "At that time," said Venturi, "you ignored context. You were supposed to create your own context through your building, which was Modern."

Pelli surveyed his campus work for such institutions as Rice, Yale, Vassar, and Wake Forest, and stressed the importance of each building's placement in complementing the campus. "You should have reverence for what's there," maintained Pelli, who noted

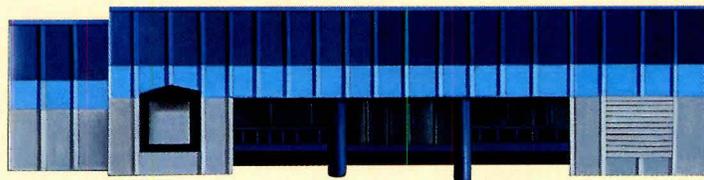
that during the 1960s and 1970s, campuses were "subjected to a great amount of architectural abuse, much of it irreparable."

The impact of Yale's campus on the design of a new building for the university's Graduate School of Nursing by Tod Williams and Billie Tsien was noted by Tsien, who characterized Yale as being made up of centers, edges, and density. "Yale's courtyards provide a strong sense of center and a powerful sense of place," she stated. Yale's edges "are sometimes the walls of an impenetrable fortress," she recalled, while the density of the campus arises from its "compact, urban richness." As a result, the design of the nursing school on a site south of the medical school complex features a courtyard and taut walls.

The panel discussion addressed literal contextualism and abstract treatment of context, "to understand the heart and soul of a place, not just its skin," remarked Tsien. The wisdom of bashing buildings of the 1960s and 1970s was questioned by Venturi, who called for tolerance. "Modernism is now part of the historical vocabulary," he pointed out, and deserves preservation. ■

—M.J.C.

Everybody knows what a steel joist building looks like.

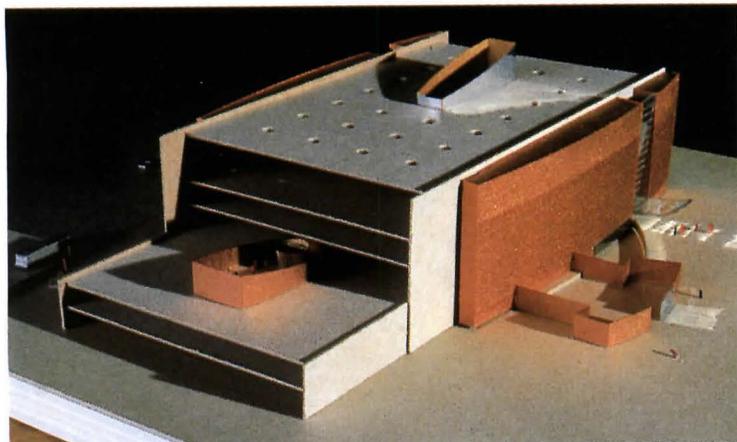


Surprise.
If you're only looking for us
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at the warehouse, look again.
All over town.
We're that handsome new
condo going up on the west

side. That dramatic new
corporate headquarters in the
office park. The community's
new hospital-clinic. A
church. Motel. An airplane
hangar, maybe. Even New
York's World Trade Center,
believe it or not.

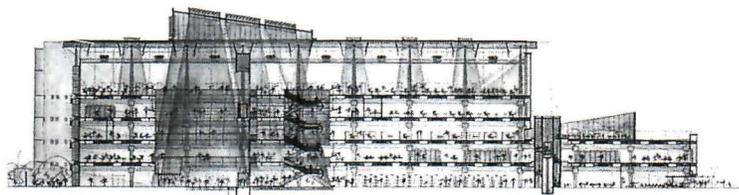
The point is, steel joist
construction is an idea whos
time has come — an idea
that's catching on everywhere
And no wonder. Steel joist
construction is a great time-
saver, a weather-beater, too.

New Phoenix Libraries



Phoenix Central Library
William P. Bruder and DWL, Architects

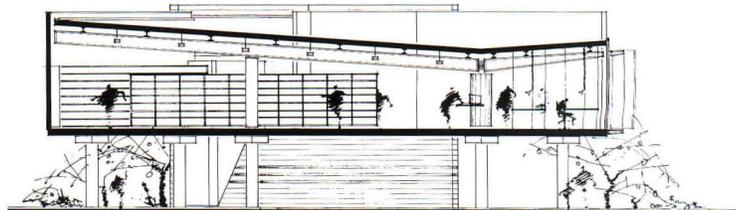
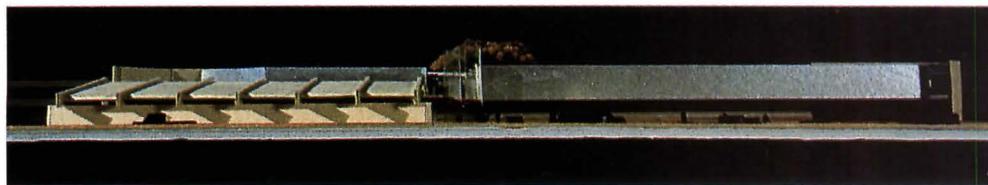
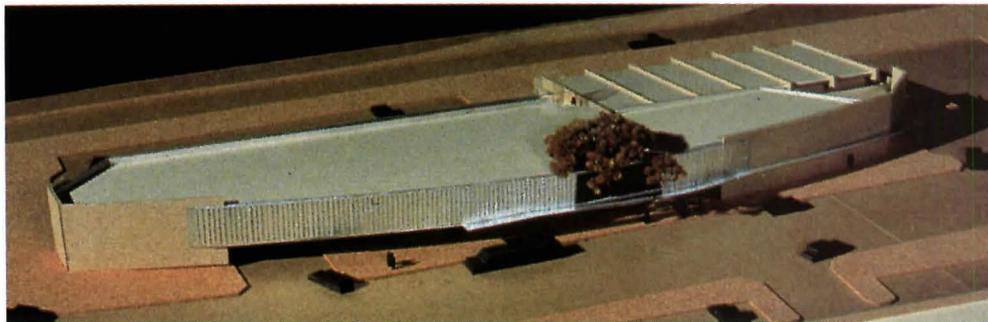
A NEW 280,000-SQUARE-FOOT MAIN LIBRARY will anchor the southern portion of Phoenix's proposed arts district, which will also include a major addition to the city's art museum by Tod Williams, Billie Tsien & Associates. The five-story library's east and west elevations will be dominated by copper-clad "saddlebags" housing mechanical, electrical, and plumbing systems (top left). Into these curved forms Bruder inserted 30-foot-wide slots of stainless steel plates to announce entries along the east and west elevations. On the north and south elevations, the architect designed glazed walls; solar gain will be controlled by an automated screening system. An atrium crowned by a sloped sun scoop (section, left) will house a grand stairway. Exposed precast concrete walls will incorporate crushed Arizona red sandstone. Construction is scheduled to begin early next year.



Mesquite Branch Library
William P. Bruder, Architect

LIKE BRUDER'S CHOLLA BRANCH LIBRARY (pages 74-77), the existing Mesquite Branch needed more space to support its dramatic increase in book circulation. Located within 60 feet of the recently expanded Paradise Valley Mall, the original 10,000-square-foot building designed by Bruder in 1979 will be enlarged to 30,000 square feet. Its structure is defined by a 350-foot-long, shallow sweeping arc (top right) elevated above parking. The main portion of the arc houses a 175-foot-long reading room; fiction and nonfiction collections are located in the southern portion where the gently sloped ceiling is the highest (section, bottom). Located at the midpoint of the new linear plan, a glass cube serves as a pivotal juncture between old and new (center right) and will house the entrance, a grand staircase, and glass elevator. The exterior will be finished in sandblasted concrete block articulated with strips of heavy aggregate block and natural brushed aluminum siding. A floor-to-ceiling glazed curtain wall will clad the north elevation. Construction is scheduled to begin in late 1992.

—L.N.



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Southwestern Living Arrangements



House Near Bishop's Lodge
Santa Fe, New Mexico
Lake/Flato Architects

COMPETING AGAINST ARCHITECTS FROM SANTA FE AND Houston, Lake/Flato won the commission for this 5,000-square-foot home north of Santa Fe. Set on a steep, 4-acre site above an arroyo, the house will accommodate a Houston couple and their three children. Rather than amassing the variety of required spaces in a single structure, Lake/Flato broke the plan into cubic and cylindrical rooms (left) that tumble down the site and attach across trellised walkways. The assemblage sits low on the east-facing site, with a central courtyard that permits scenic views to the east, north, and south. Construction will be completed in fall 1992.

Tandy-Wagner Retreat
Comal County, Texas
OAD/Osgood & Associates, Architects

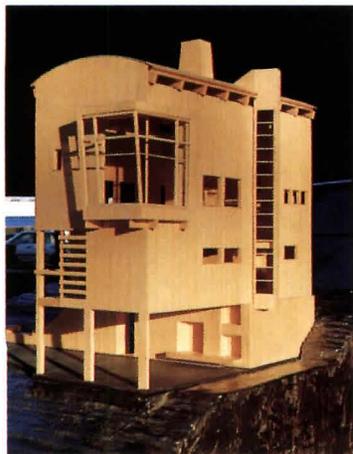
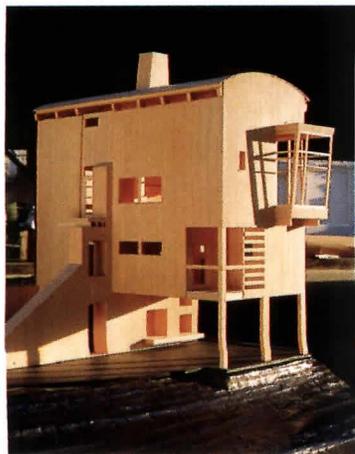
THIS 1,850-SQUARE-FOOT HILL COUNTRY RETREAT JUST north of San Antonio (bottom), designed by OAD/Osgood & Associates of Houston, is a simple rectangular container bisected by a limestone wall that ascends a rocky limestone site along the Guadalupe River. The wall frames the entry and divides the building's interior into open public spaces and enclosed private quarters, then tapers to become a chimney as it punctures the roof line. From the entry, a flight of stairs leads past an angled, vertical band of windows (bottom right) and into a double-height room that looks out above cedar and mesquite trees. A tilted, projecting corner window (bottom left), balconies, and punched openings break up the cedar-sided enclosure. A gently vaulted metal roof uplifts interior spaces and softens the animated facades. Construction will begin this fall.



Casa Torre
La Madera, New Mexico
Kramer E. Woodard, Architect

DESIGNED FOR A COUPLE THAT WORKS IN ALBUQUERQUE, Casa Torre (above) is intended by Albuquerque architect Kramer Woodard as a processional retreat from urban life to a natural setting. The 2,200-square foot house (above) is located on a hilly site above the former mining village of La Madera. A library and lookout tower mark the house's man-made presence, while a bridge and stairs off the master bedroom reach out to the landscape and connect to a 20-foot-deep arroyo below. Inside, partition walls create a strong sense of protected enclosure, while predominantly south-facing window-walls introduce daylight. The window-walls are paired with punched north openings to create *natural ventilation*. Construction of the wood-framed, stucco-finished, and metal-roofed building will begin this September. ■

—RAY DON TILLEY



Long after everything else has gone to ruins,
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a monumental impression.



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aluminum entrance systems,
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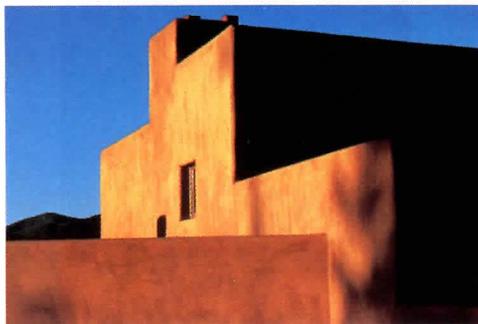
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The designer's element.

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AWARDS

1990 Texas Society of Architects Design Awards

JURORS FOR THE TEXAS SOCIETY OF ARCHITECTS' design awards—Frank Israel, Barton Myers, and John M.Y. Lee—selected projects that creatively transcended program and paid attention to details and materials. Three office buildings—Alcon Administration Center, MCI Telecommunications Building, and Park Center 12—were cited for their crisply expressed structural frames. St. Mark's Church and Adobe House drew from regional historical precedents to anchor well-organized plans. The jury lauded the West Lynn Cafe for transforming a gas station into a minimalist sculpture; the Olson House for incorporating a series of outdoor spaces; and a long-term-care facility for Incarnate Word for mediating the demands of a complex campus-wide program. Capital Bank, "the most disciplined entry," won the sole interiors award. ■



BILL KENNEDY

Adobe House
Santa Fe, New Mexico
Lake/Flato Architects



R. GREG HURSELY

Sisters of Charity of the Incarnate Word
San Antonio, Texas
JonesKell Architects



JAMES F. WILSON

Park Center 12
Dallas, Texas
Cunningham Architects



BLACKMON WINTERS

MCI Telecommunications Building
Richardson, Texas
Hellmuth, Obata & Kassabaum



NICK MERRICK

Capital Bank
Miami, Texas
Gensler & Associates



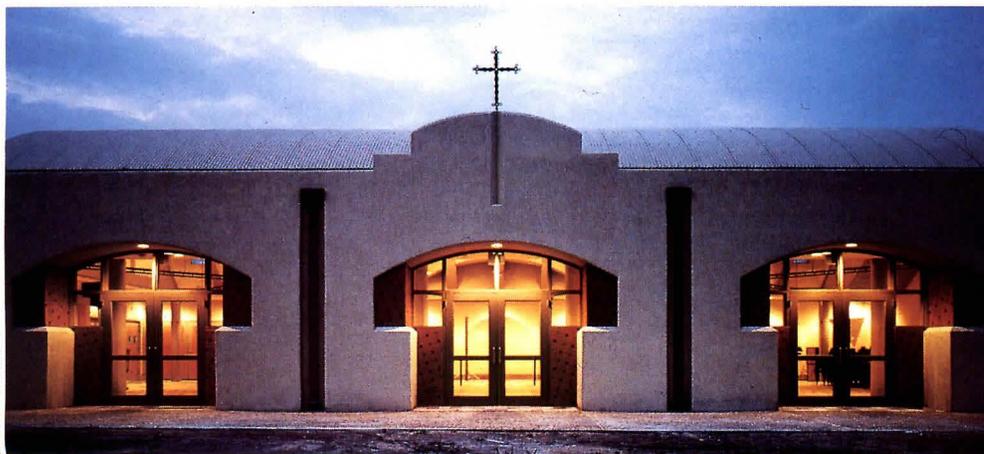
CRAIG KUHNER

Alcon Administration Center
Fort Worth, Texas
Omniplan, Architects



PAUL WARCHOL

Olson House
Nevis, West Indies
Taft Architects



DAVID R. RICHTER

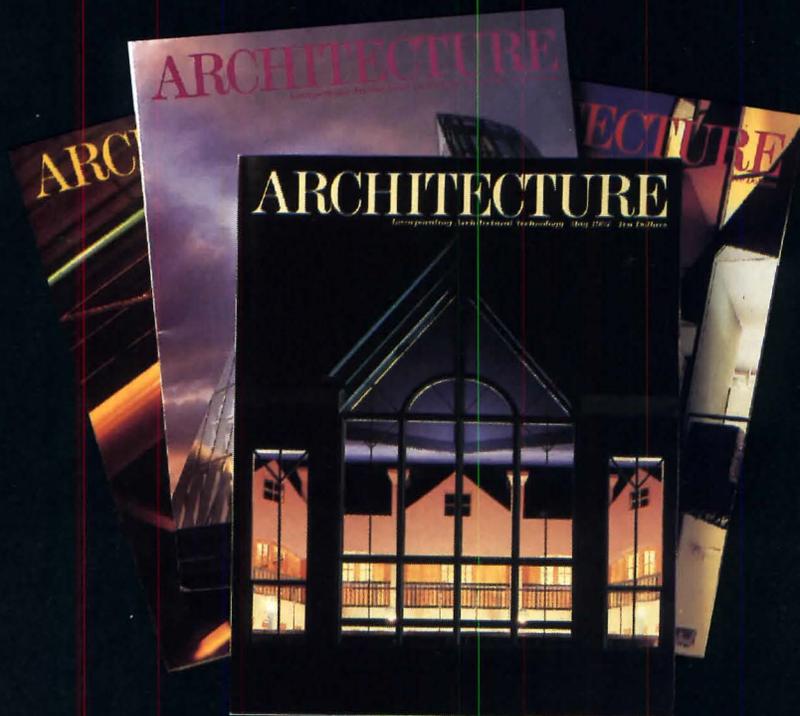
St. Mark's Episcopal Church
Corpus Christi, Texas
Kipp Richter & Associates, Architects



PAUL LAMB

West Lynn Cafe
Austin, Texas
Mell Lawrence, Architect

Architects Agree there's no Equal*



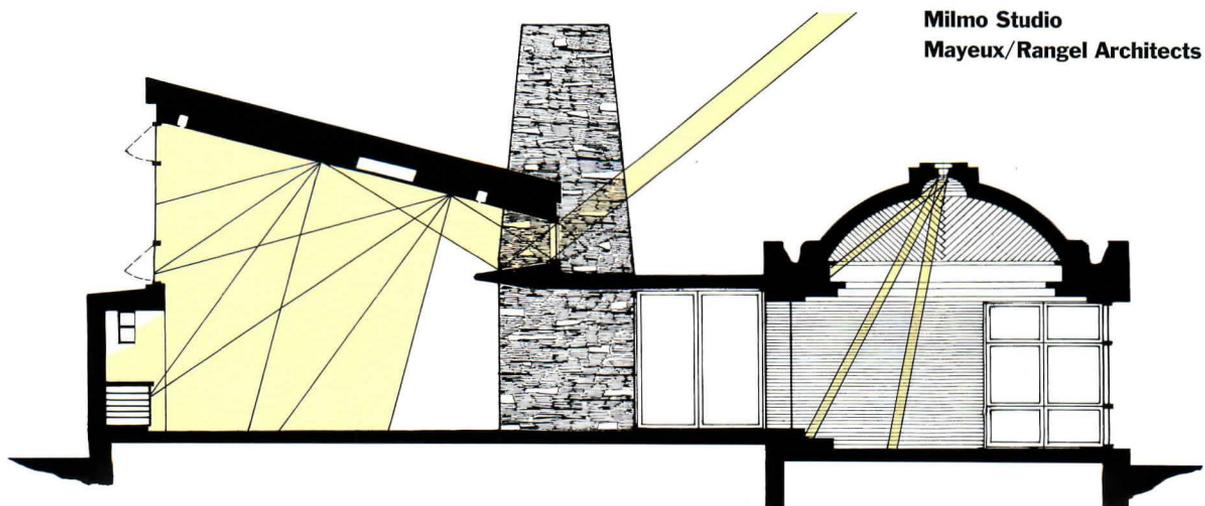
*Based on the results of the Fifth Annual Study of U.S. Architects conducted by Readex[®], Inc., an independent research company.

Out of the Southwest

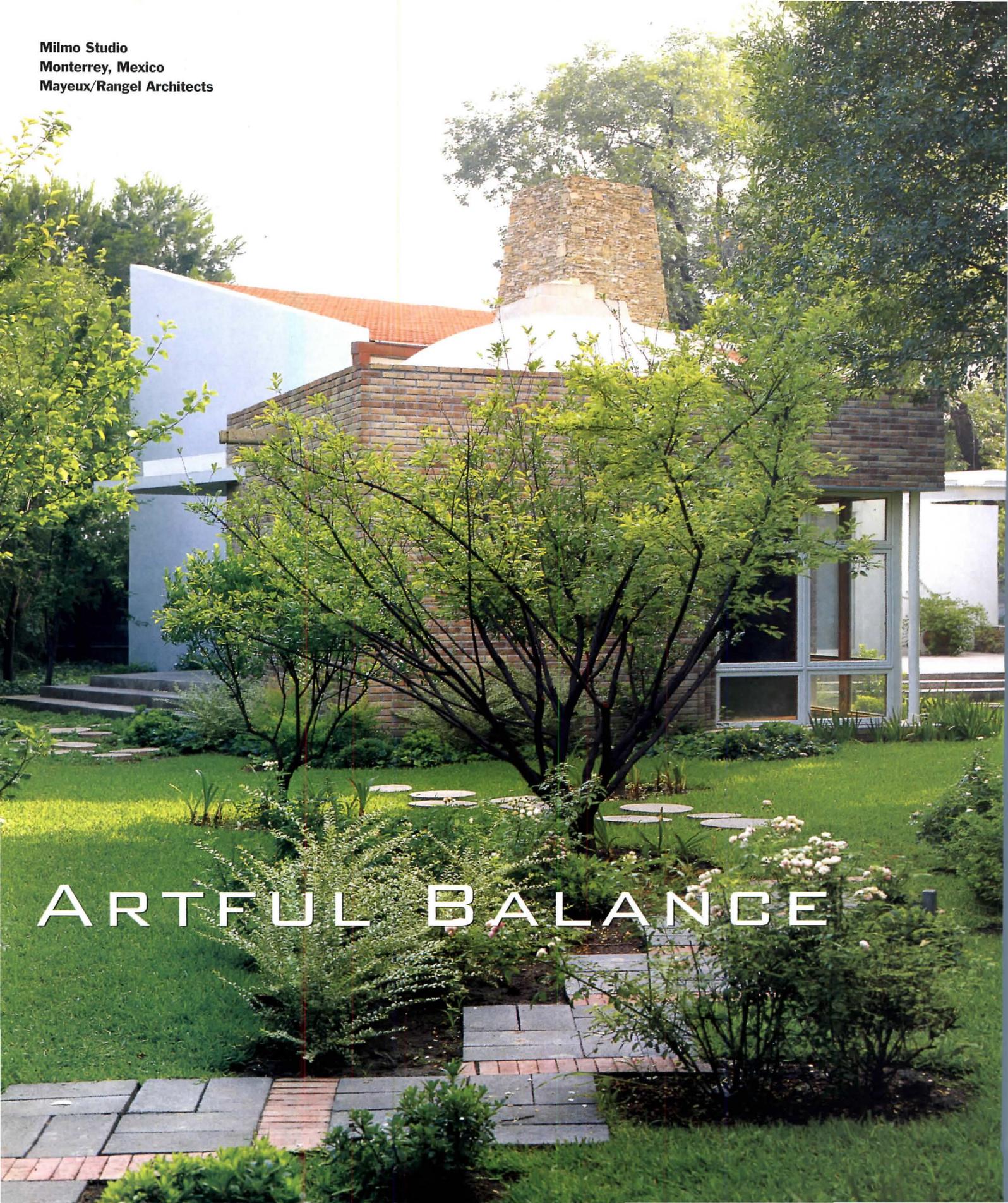
NO REGION IN THE U.S. HAS BEEN AS FERTILE ground for regionalism as the Southwest. The stark landscape, intense light, tactile native materials, and varied building traditions inspired 20th-century architects such as John Gaw Meem in New Mexico and O'Neil Ford in Texas to create potent architecture based on indigenous forms. In 1938, the "sharp, savage" Arizona desert site of Taliesin West aroused a new design language for Frank Lloyd Wright. Meaningful allusions to history and site, however, have been watered down in recent years as popular but clichéd decoration. The so-called "Santa Fe style" has been exacerbated, ironically, by the New Mexico capital itself, where strict design guidelines have fostered quaint but uninspired buildings.

The architects featured in this issue are moving beyond such stereotypes. Santa Fe architect Jeff Harnar rejects imitations of local precursors with inventive spaces true to the spirit of early adobe builders. Phoenix architect William P. Bruder, trained as a sculptor, injects new life into previously mundane buildings, like the renovated library he designed in

Phoenix. Delving deeper into sculptural potential with a house in Idaho, Albuquerque architect Bart Prince honors Wright and Bruce Goff through colors and forms derived from the surrounding landscape. In Texas, Lake/Flato Architects forges a regionalism that follows from O'Neil Ford's legacy with projects such as the Funk Ranch House, which seamlessly blends in with historical structures in a Texas border town. Formerly Austin-based architects James Mayeux and Cecilia Rangel acknowledge the climate, craftsmanship, and character of Monterrey, Mexico, in an artist's studio (below) that reflects the city's growing cultural awakening. Antoine Predock has also crossed the Southwest's borders, striding purposefully, like the architects featured in our practice section, into new markets and new locales to find regionalist inspiration from the West Coast, Las Vegas, and Seville, Spain, for institutional and cultural projects. Predock and other architects in this issue reflect the fundamental, site-specific nature of regionalism. Sensitive, not sentimental, their architecture transcends the Southwest to capture universal values. ■



Milmo Studio
Monterrey, Mexico
Mayeux/Rangel Architects



ARTFUL BALANCE



MONTERREY IS A RAPIDLY CHANGING INDUSTRIAL city in Mexico, struggling to embrace cultural pursuits. The city's first contemporary arts museum has just opened, designed by Mexican architect Ricardo Legorreta. The country's largest, but now defunct, steel mill is being reborn as an international trade, cultural, and recreational center. An advocate of Monterrey's fledgling transformation is arts promoter Romelia Milmo. Works by Diego Rivera and other renowned Latin American artists hang in Milmo's home, and her new studio, designed by Austin, Texas, architects James Thomas Mayeux and Cecilia Rangel, reflects her desire for solitude.

The architects designed the 1,500-square-foot project while in Austin, where they practiced until December 1990. The husband and wife team then moved their firm to Monterrey, working first out of Rangel's family home and now in a studio that is part of an apartment the couple recently renovated.

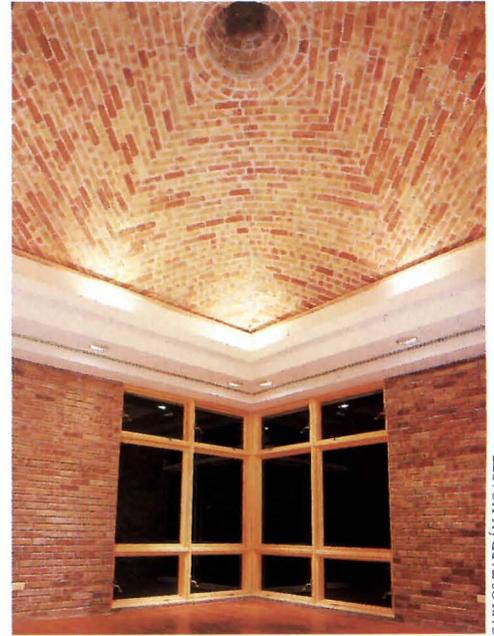
The architects' design for the Milmo Studio began as a model study in clay, a medium that defies complexity and intricate detail. Milmo required only two major spaces: a painting and drawing studio, and a library. Rendered in clay, the two functions were initially expressed as a pair of simple volumes

connected by an airy passageway and outdoor terrace, the composition pivoting on a limestone-faced central tower. The studio, as constructed, is a pristine white-plastered and marble-floored counterpart to the inwardly focused brick-and-wood library.

The resulting complex is isolated as sculpture in the heavily landscaped rear of a linear, 2-acre residential lot. Visitors approach the structure across a broad lawn behind Milmo's tile-roofed, ranch-style house to glimpse the variegated forms of the new building above a barrier of flowers, shrubs, and a variety of trees. A narrow corner gateway breaks through the foliage, offering a choice of informal paths around the brick library cube—either toward the west entrance, called out by a cantilevered concrete canopy, or to the east, defined by a generous, terraced entrance screened by jutting steel beams. Along either path, the composition of the building shifts, changing constantly against the surrounding vegetation and the dramatic limestone mountain ranges that encircle Monterrey.

Set in a dense garden (left) in the shadow of the mountains around Monterrey, Mexico (above), the forms of artist Romelia Milmo's studio present constantly shifting views.

Studio and library are connected by a skewed passageway (axonometric, bottom). The cubic library is faced in warm brick (below left); rain spouts (below center), and an oculus (below) track the sun. Marble steps lead to a view across the passage to the studio's north wall (facing page).

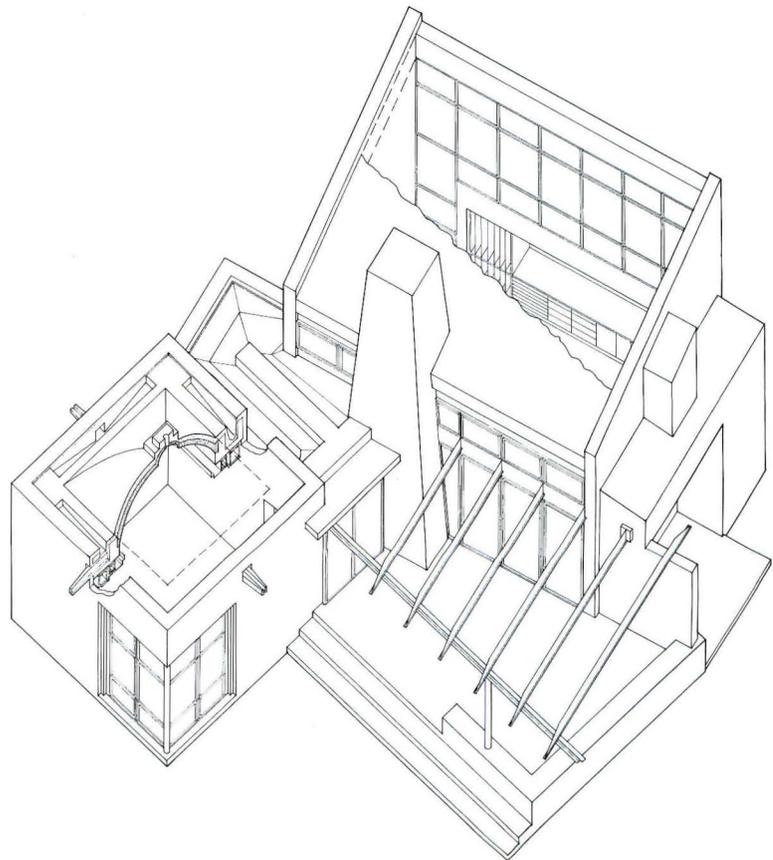


CARLOS TARDÁN-UGARTE

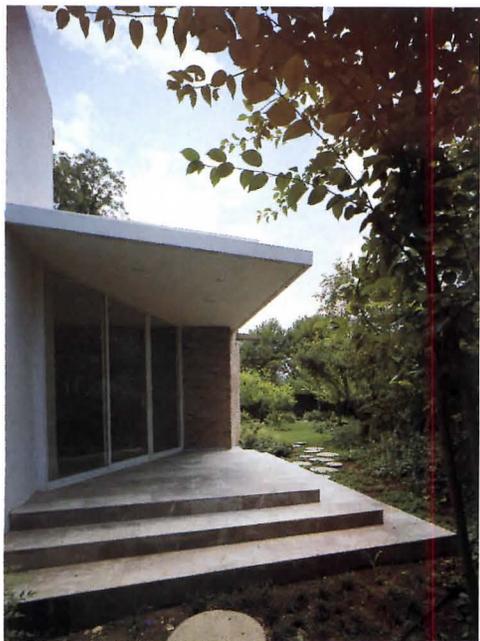
Inside the building, Mayeux calculated an evocative play of light. The rectangular studio presents a 19-foot-high window-wall to the north, emitting warm, oblique morning and evening light at midsummer, but only cool, indirect daylight at other times of the day and year. A clerestory and light shelf along the southern face bounce sunlight into the space from fall to spring, taking advantage of the sun's lower trajectory before and after summer. To the southeast, sunlight rakes across the trellis beams reaching out across the terrace into the hallway between the studio and the library.

In contrast to the studio, the 15-by-15-foot-square library remains somber much of the day, under a brick dome punctuated by an oculus, which transmits a pure shaft of sunlight that tracks the sun's journey across the floor. The source of this light remains mysterious, however. A *boveda*, or shallow brick dome built by construction techniques passed down through a few Mexican families, conceals the oculus from view, except when standing in the room's center, directly beneath it.

Mayeux's delight in exploiting the symbolic potential of building orientation and uses of sunlight has evolved into a valuable service in Monterrey. He has provided sun studies for







GREG HURSLEY



GREG HURSLEY



GREG HURSLEY

A cantilevered canopy marks the west entrance (below left). The studio's true north facade admits soft, painterly daylight (below center and facing page, top); its south clerestory bounces light off a wedge-shaped baffle (below). Steel canopy frames terrace adjacent to studio (facing page, bottom).

a local equestrian club, and is developing a campus plan for the local university that emphasizes daylighting and natural ventilation.

In constructing the studio, Mayeux and Rangel married current American passive thermal controls with predominant Mexican building systems. "They use concrete [construction] here the way we use wood-frame in the U.S.," says Mayeux. A typical studio wall consists of concrete masonry laid up quickly in sections, usually about 8 feet wide and 8 feet high, with spaces between and above. These 1-foot-wide gaps are later filled with reinforced concrete poured into minimal forms that are tacked onto the masonry. According to Mayeux, "Concrete here has a much lower strength than we are used to in the U.S. It tends to be around 2,000 p.s.i." With such a rating, any concrete spans quickly become massive. Although the contractor wanted to build the 25-foot-span studio roof of reinforced concrete, the 4-foot beam depth was unacceptable. Instead, open-web steel joists support a tile roof and create an air cavity. As air in the heavily insulated roof plenum heats up, it follows the roof slope upward and out.

Construction of the library's *boveda* was as sublime as the walls were crude. Starting at

each corner where walls met, bricks were laid in straight lines that run diagonal to the corner, creating a herringbone-patterned seam at the center of each wall. Self-supporting even during its construction, the brick dome required no guide beyond a specified finish height and the eye of the bricklayer, sighting each course from the last.

As drawn in pen and ink, the Milmo Studio seems like a precise machine that manipulates light and air. As built, however, the structure is pleasantly imperfect. No two Mexican bricks are the exact same size, and their corners and surfaces seem weathered even though construction has only recently been completed. The tile roof ripples with irregularity. And the pivotal chimney, faced in slivers of limestone quarried nearby, twists slightly at the roofline. Its color shifts from tan to orange or gray with changes in stone.

This collision of singular forms and highly personal, even messy, craftsmanship infuses the Milmo Studio with alluring personification. Half-hidden by a garden, the building gathers light, sometimes flaunting, sometimes shielding the sun. Magical and mysterious, it challenges the growing artistic spirit of Monterrey. ■

—RAY DON TILLEY

**MILMO STUDIO
MONTERREY, MEXICO**

- CLIENT:** Romelia Milmo
- ARCHITECT:** Mayeux/Rangel Architects, Austin, Texas—James Mayeux, Cecilia Rangel (design team)
- ENGINEERS:** Mack Stoeltje, Austin; Montemayor y Romero, Mexico (structural); Equipos y Servicios de Confort (mechanical)
- GENERAL CONTRACTOR:** Arq. Alejandro Belden, Adolfo Alfaro
- PHOTOGRAPHER:** BlackmonWintersKuhner, except as noted



BORDER CROSSINGS

THE WORK OF ALBUQUERQUE ARCHITECT Antoine Predock has become larger in scale, more complex and scenographic. It has also crossed the borders of New Mexico into California, Arizona, Nevada, Wyoming, and Texas, not to mention Disney's domains in Florida and Paris. The four-person office that created La Luz apartments in the late 1960s has grown to 35, with an outpost in Los Angeles. Over the last five years, the firm has won half a dozen major design competitions, and Predock has become a fixture on the national lecture and design jury circuit.

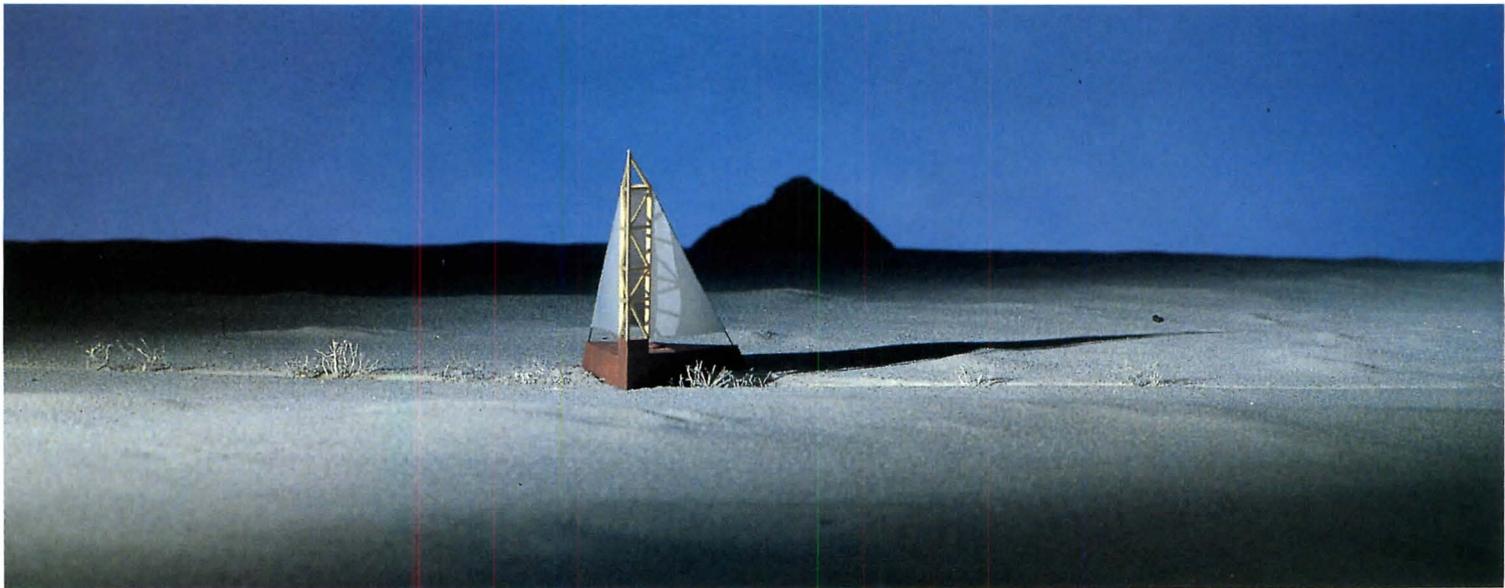
Yet the 55-year-old architect insists that his leap from small houses in New Mexico to museums and cultural centers has been less traumatic than he expected. "I was afraid of what might happen when my buildings got above 100,000 square feet," Predock recalls. "And the answer is that there is no difference at all. The way of thinking about the building is the same. There's the site, its emanations, the specifics of place, all of which work their way through the building independent

of scale. And what you get in return are expanded opportunities for the processional and choreographic elements of architecture."

Predock's recent projects extend and refine his previous work rather than radically depart from its intentions. The architect built his early reputation on modest houses and institutional buildings that blended comfortably with the prevailing Southwest vernacular. Although he regularly abstracted, extruded, and even subverted these regional prototypes, he didn't fully transcend them until designing the Fuller House outside Phoenix. Completed in 1986, it marked the emergence of a bolder, more diagrammatic idiom in which the conventional procession from room to room was transformed into a procession from season to season, earth to sky, and matter to spirit. The house is a collection of pyramids, plazas, and pavilions, from which the owners watch the sun rise and set over the desert. It is more mystical and more overtly theatrical than Predock's previous houses, and it set the stage for later projects.

The Nelson Fine Arts Center at Arizona State University in Tempe, for example, completed in 1989, was laid out as a ceremonial procession through a miniaturized desert landscape, with peaks, valleys, and oases. The winning competition entry for the U.S. pavilion for Expo '92 in Seville, Spain (page 63), is more emphatically a landscape of the imagination, in which visitors travel across "fruited plains" and "amber waves of grain" to discover America the Beautiful. Both projects combine architecture with theater and cinema, engaging all the senses.

Although Predock broke out of the narrow regionalist box years ago ("no more Mr. Adobe" is his motto), he acknowledges that Albuquerque is still the key to his architectural development. It is a vigorous, tacky, low-rider American city surrounded by Indian ruins and sacred mountains, a place where the mundane and the transcendent happily coexist. And it is also a place where climate and topography simply cannot be ignored. Architects who design west-facing





Ship of the Desert
Mojave Desert

THE SHIP OF THE DESERT (THESE PAGES), A 15,000-square-foot sales office and information center, was planned for a new town in the Mojave Desert southwest of Las Vegas. Visitors approach the structure by walking up a controlled dry wash, which allows for "psychological deacceleration," according to Predock, as well as a dramatic new perspective on the desert terrain. They enter the concrete base of the building, ascend to a sandstone-covered reception and exhibit area showcasing the new community, then proceed to an upper-level observation deck offering panoramic views of the surrounding landscape. Unfortunately, the project was recently cancelled, as was development of the new community.

windows or forget which way the sand blows in the spring court disaster. "There's a determinism that rules decisions about building here," Predock explains. "Growing up with that all-pervasive mandate has focused me, and made me pay attention to site wherever I am. Even in Europe, I go to my understanding of site based on the realities that vernacular builders have always incorporated into their buildings."

In his recent projects, these conceptual excavations of site have gone even deeper. The plan for the new Social Sciences and Humanities Building at the University of California at Davis (facing page), for instance, is based on the geology of California's Central Valley, starting with evocations of fields and streams at the base of the structure, and ending with suggestions of the massive deformations that produce mountain ranges. The Ship of the Desert (pages 58-59), an information center southwest of Las Vegas, is layered like a road cut, and marks the desert landscape in a powerfully symbolic way, as though a mesa had metamorphosed into a building. And Predock's design for the American Heritage Center and Art Museum in Laramie, Wyoming, scheduled to open in 1993, focuses on a gigantic abstract cone that rises from a mesa of books and artifacts the way real mountains in Wyoming continue to rise from the plain. This primal shape—part teepee, part earth mound—is intended to make a direct visceral connection to the experience of the real Western landscape, where there is no middle distance, or middle scale, only near and far, little and big. Such a relationship is what "fitting in" means in the West. "If you think about the Anglo occupation of a site in New Mexico," Predock explains, "and listen to what the client tells you about zoning and development strategies, it's nothing compared with the vast sense of a past informing the present."

Predock's jumps in scale and complexity have been accompanied by a corresponding growth in his material vocabulary. Having started out as an engineer and worked summers at aircraft assembly plants, he has never been sentimental about using adobe and stone in the desert. The Mandell Weiss Forum Theater in San Diego, which opened in June, features a 230-foot-long mirrored glass wall that reflects the site and also allows theater patrons to observe themselves coming and going. And the Ship of the Desert features a stainless steel prow and a Teflon-coated fiberglass sail. Predock has also designed a prototype lifeguard station made of



Music Building University of California at Santa Cruz

A NEW 35,000-SQUARE-FOOT FACILITY (ABOVE) will sit on the edge of a meadow that overlooks Santa Cruz and Monterey Bay. Predock sketched the site many times before deciding to center his composition on a solitary oak tree that marks an entry court. In deference to the site and neighboring buildings, the structure is bermed into the meadow (left), which will penetrate it at various points with long, green fingers. As the terrain falls away, the complex will decompose into smaller pieces to create a pleasing village scale while preserving views of the coast. When completed in 1993, the \$12 million facility will house the school's entire music education program, including offices, classrooms, practice rooms, and a 400-seat recital hall. A larger, 1,500-seat concert hall is planned for a later phase.



**Social Sciences and Humanities Building
University of California, Davis**

U.C. DAVIS STARTED OUT AS AN AGRICULTURE school, then broadened its focus to include all major disciplines. The forms of Predock's building are designed to reflect three ecosystems that created California's Central Valley. The first level (right), located below grade, symbolizes an agricultural plain featuring exterior courtyards. Offices and classrooms line serpentine paths that extend to the main crossroads of campus and town. A second stratum of offices and classrooms rises above this level (above), while the third floor consists of two long, linear blocks of faculty offices (bottom) that span the complex like mountain ridges. Within this varied architectural landscape, each department will have its own identity, expressed through different materials: concrete and stucco on the lower levels, metal higher up. The \$21 million building will open in 1994.



Kevlar mesh and tubular steel.

The only problem with Predock's expansion and experimentation is that occasionally a project becomes overloaded with ideas and shifting images. The Fine Arts Center at Arizona State, although compelling, sometimes becomes too ingenious for its own good. The Las Vegas Library and Children's Museum features a science tower that is more a compositional success than a practical one. Likewise, the details of these buildings are not always as crafted as they should be.

These are hardly new problems for rapidly expanding firms, but Predock insists that he has no intention of letting his office get away from him. "I'm still the designer of every project. The impetus comes from me," he explains. "I can't control or even see everything the way I did when the office was smaller. But the trade-off is loaded immensely toward what can be accomplished. If I were a purist I couldn't have done [the Fine Arts Center at] ASU. But I did it, and I'm glad it's out there in the world."

In a lecture several years ago, Predock jokingly referred to himself as a "cosmic Modernist," a remark he would like to take back because it has created the impression of a white-haired Trekkie who happens to practice architecture. Yet in the joke lies at least a half-truth. One of Predock's special strengths is the ability to balance a fascination with American pop culture—Route 66, B-movies, wrestling—with an acute sensitivity to the deeper stirrings of place. Albuquerque serves as a paradigm of his architecture—it's a tough place to be a purist.

Los Angeles and Southern California, where Predock now has seven major commissions, may turn out to be equally resonant. His projects there include the nearly completed, \$13 million dormitory for the University of California at Los Angeles, set into a hillside but turned in on itself to form a courtyard for sunbathing and Frisbee. A new house on Venice Beach looks out on earth, water, and sky, while its back, covered in reflective glass, mirrors the neighborhood—permanence and transience in a single building. "I see Los Angeles as a place with a powerful landscape that goes unnoticed because of all the ephemera," Predock asserts. "So when I'm there, I try to remind myself of the original place—the Great Basin and the snowcapped mountains. I enjoy those polarities, the tension they set up, although ultimately I lean toward expression of the timeless and the universal."

—DAVID DILLON



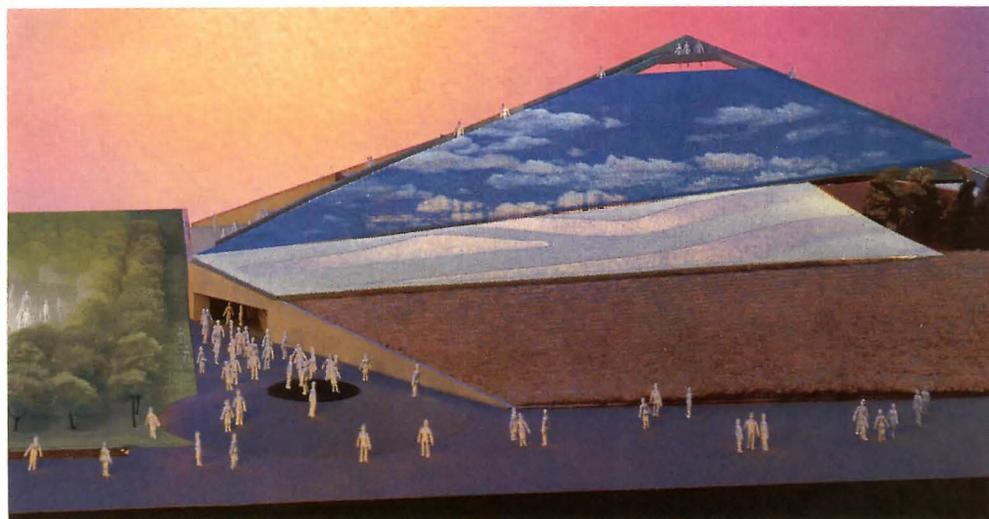
Mesa Public Library Los Alamos, New Mexico

THE ALPINE ENVIRONMENT IN THE HIGH desert of northern New Mexico inspired Predock to create the provocative new Mesa Public Library (above) in Los Alamos. The semicircular sweep of the reading room (left) mimics the soft contours of the nearby Jemez Mountains, while the wedge-shaped volume slashing through the center of the building (bottom)—reminiscent of a similar form in his Las Vegas Library—evokes the solid, cellular quality of an Indian cliff dwelling. A courtyard is located where wedge and curve meet, and the building materials underscore the hard-soft dichotomy of the design. The radial reading room will be topped by a lightweight truss and sheathed in wood, while the wedge, which houses the lobby, bookstore, and offices, will be covered in stone or concrete block. This \$3.4 million facility is scheduled to open in 1993.

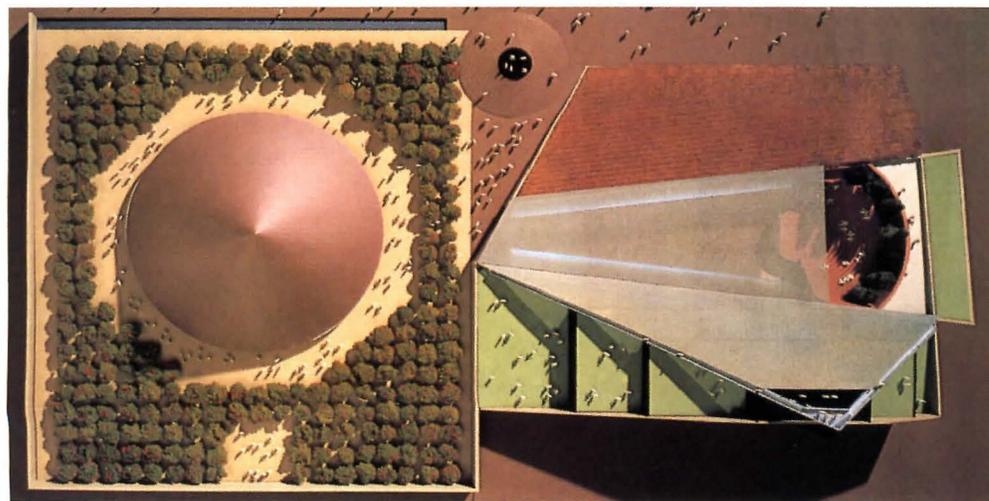




**United States Pavilion
1992 World Exposition
Seville, Spain**



PREDOCK'S COMPETITION-WINNING DESIGN for Expo '92 (bottom left) is an architectural rendition of "America the Beautiful." Visitors arrive at a "fruited plain" of apple trees, beyond which lies a hydraulically levitated cone (above)—a "purple mountain" that can be raised and lowered for lectures and performances. They exit through large, sloping water walls, the "sea to shining sea," and head for the "amber waves of grain" that cover the special exhibition galleries. A huge theatrical scrim (left)—"spacious skies"—serves as an outdoor movie screen, behind which are located various state and corporate exhibits. A restaurant occupies the roof of this structure. Although Predock won the original competition, the new director of the United States Information Service awarded the commission to Los Angeles architect Barton Myers. ■



Henry Whiting House
Sun Valley, Idaho
Bart Prince Architect

DRAWN FROM NATURE



TO EXPERIENCE A HOUSE DESIGNED BY BART Prince is to encounter an architecture of sculptural intricacy and spatial complexity. Never at rest, the forms of Prince's structures contort, tangle, arch, rotate, slither, explode. The interiors play tricks on one's sense of direction, questioning conventional definitions of walls, floors, ceilings. Often, the plans of Prince houses look like sections, sections like plans. Strangely enough, the effect is not disorienting—moving through a Prince creation invokes the power of architecture to enclose, direct, shelter, inspire.

Prince's design for a house in Sun Valley, Idaho (facing page), conveys all of these attributes. The client, Henry Whiting, is a nephew of the late architect and Frank Lloyd Wright disciple Alden Dow. Whiting studied landscape architecture at the University of Wisconsin, Madison, and lives in a Wright-designed house in Bliss, Idaho. He lectures on the "Organic School" of architecture, is writing a book on the subject, and describes himself as an "architectural entrepreneur." In 1988 he commissioned Prince to design a spec vacation house in Idaho's premier recreational region, and provided the architect with a five-page program. To make the house attractive to vacationers, Whiting requested a design that would accommodate both the owners and their inevitable weekend guests, offering each their own private realms. Entertainment spaces would be shared, and outdoor areas would provide places for enjoying the rolling foothills of the Sawtooth Mountains. Seeking a combination of tightly enclosed, low spaces, and soaring, light-filled ones, Whiting mandated the house's formal derivation: "The design is to come from the surrounding landscape, not from any historical precedent."

Prince's major achievement is how well this 3,000-square-foot house responds to the client's program, alluding to the landscape in form and color. The plan is elongated, a series of curving walls sliding past one another in yin-yang fashion, creating pockets of space. The architect separated each function, placing the master bedroom at the north end, living spaces in the center, and guest rooms at the south. "I decided that the house shouldn't be a compact form," explains

Prince. "It ought to spread out, move out into the landscape."

The architect specified split-faced, honey-colored concrete block and a shingle roof, materials that replicate the color, texture, and shadows of the surrounding hills. At the top of each curved block wall, a triangular, faceted plexiglass window alludes to the crystalline rock outcroppings scattered on the hillsides. The low walls and ramps that curve around the base of the house are the color of the sagebrush growing right next to it.

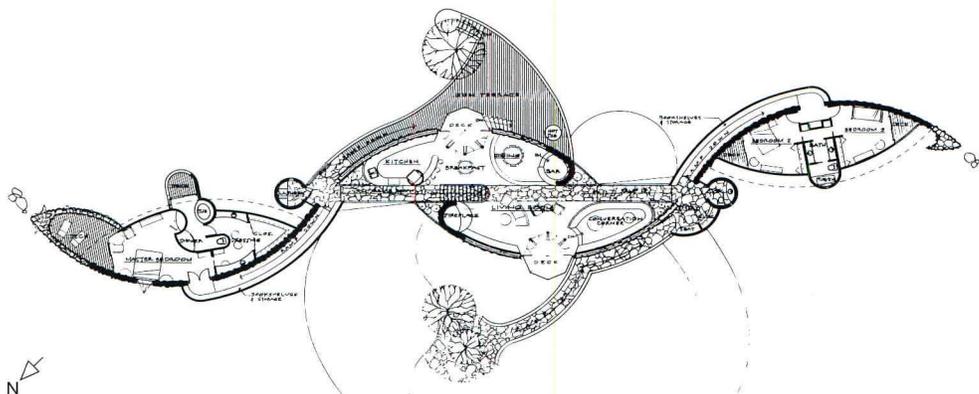
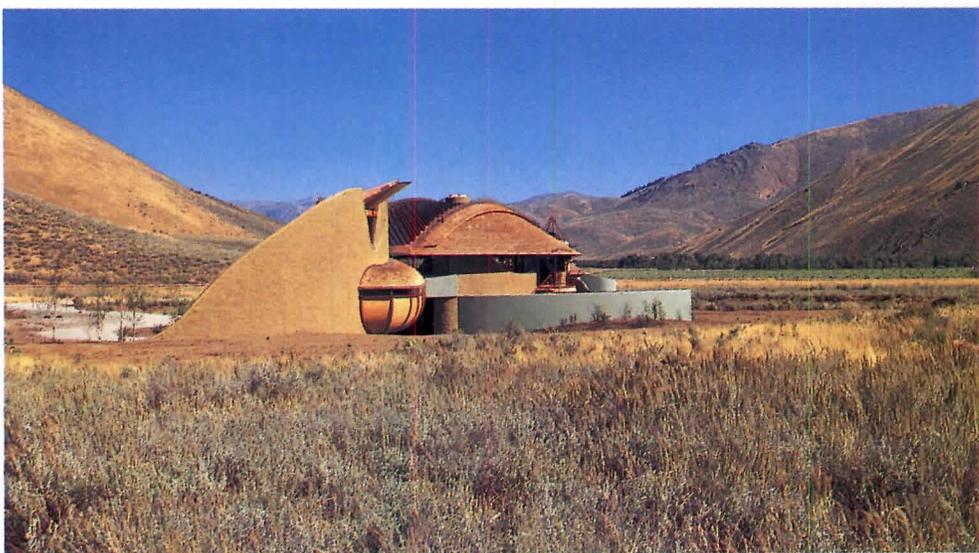
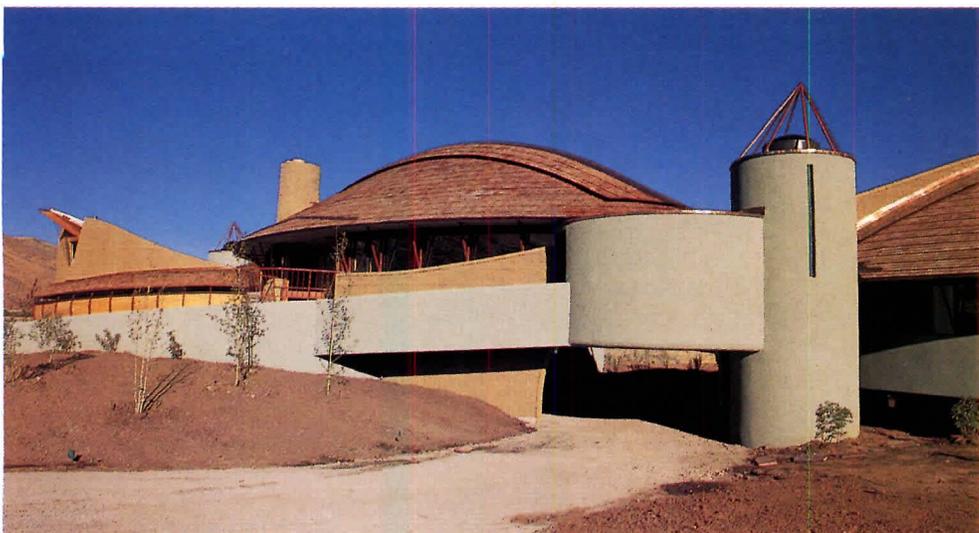
Because of the hefty snowfalls in Sun Valley, Prince raised the house so that the main level is approximately 5 feet above grade, and located a two-car garage underneath the house. "I didn't want to see the garages," says Prince, who adds that they would have provided clues to the scale of the house—clues he didn't want to give, so that the building remains mysterious.

The house is entered through a small, low, dimly lit foyer, reminiscent of the entrances to many of Wright's houses. This space acts as a compression chamber, preparation for the dramatic expanse of space and sunlight that is revealed just around the corner. The foyer is located on the house's main circulation axis, over which a skylight tumbles and spans two massive, curved glue-laminated beams that arch up and past one another. The beams define the ridges of the two shingle roofs that slide past each other at the house's midsection, linked by the skylight. The axis' sunlit path, its paving stones covered with tiny prehistoric fossils, leads to the main living spaces. Sheltering roofs, the twisting skylight, intricate light patterns, and carefully framed views provide a visual feast.

Of the main living spaces, the most successful is the conversation area in the southwest corner of the plan. For the seated observer, Prince's irregularly shaped windows capture and frame the full sweep of the valley and the hills to the east and west. The conversation area is also a good vantage point for viewing the house's structure. Although the building appears complicated from the exterior, the interior's exposed structural system is quite simple and economical.

In addition to the pair of glulam beams

Prince's design of the Whiting House echoes the contours and texture of foothills (previous pages) that surround it. To shroud the building's scale, Prince hid the two-car garage beneath the house (top). Triangular volume of concrete block (at left in bottom photo) contains master bedroom.



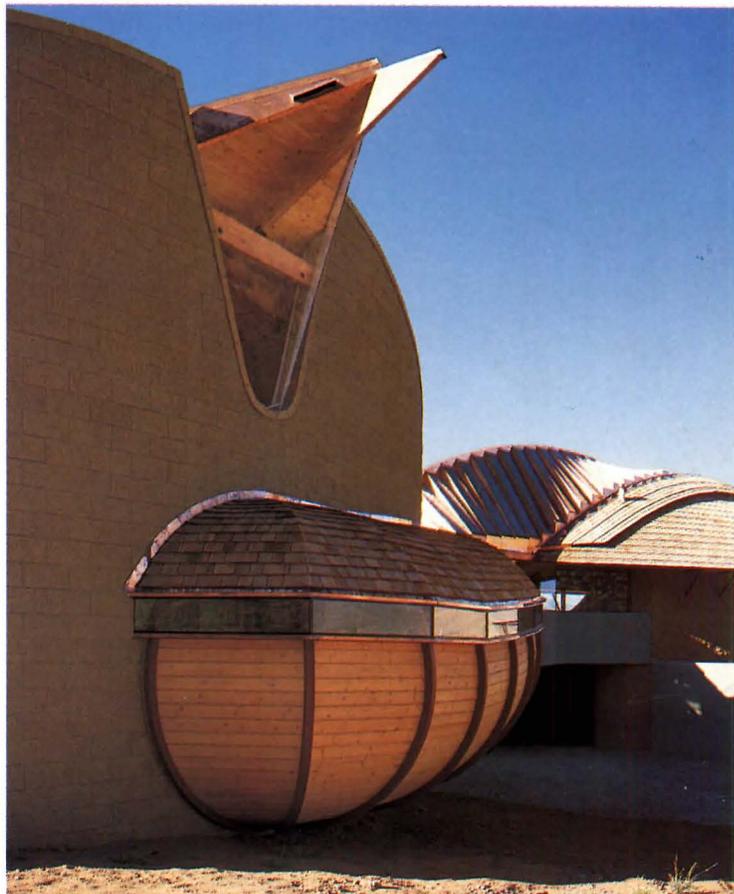
that define the roofs, Prince created curved soffits beneath the shingle roofs with glulam elements, transforming the prefabricated beams into plates by laying them on their sides. "The glulam manufacturer said that he'd never seen a curved beam used as a plate before," muses Prince, "but there's no reason you can't do it." The beams and plates are framed together with rafters. The bedroom wings are constructed of curved walls enclosed with curved shed roofs that rest on curved glulam plates. The deep beams and soffits were critical in providing enough space for an air pocket in the roof structure (referred to in the region as a "cold roof") for added insulation and to prevent excessive snowmelt caused by interior heat.

The master bedroom suite and guest bedrooms are pushed to the farthest ends of the plan and are hidden from one another by the entertainment spaces at the center of the house. The guest bedrooms are easily accessible from the front door without moving through the rest of the house. All bedrooms are reached by curved passageways that hug the exterior of the concrete block wall like a chrysalis, heightening their sense of separation and privacy. The master bedroom affords privacy and views from its deck, but its space seems top-heavy, contained by a shed roof that is two stories high at its apex—a tall space for its area. The guest rooms, by contrast, seem cozier, more humanly scaled. Extreme care was taken on the part of the builders—the house resembles a fine piece of furniture, so attentive is its craftsmanship.

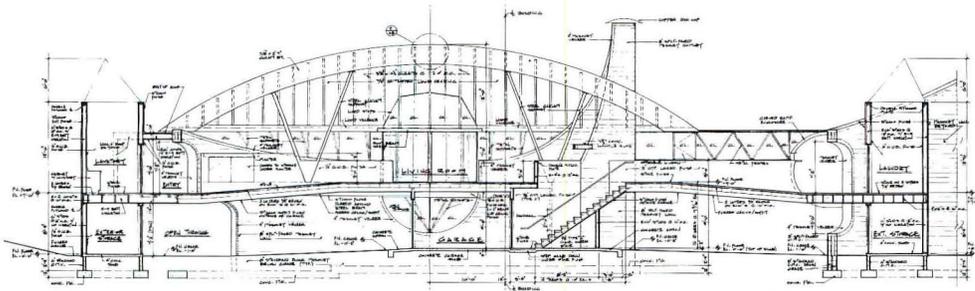
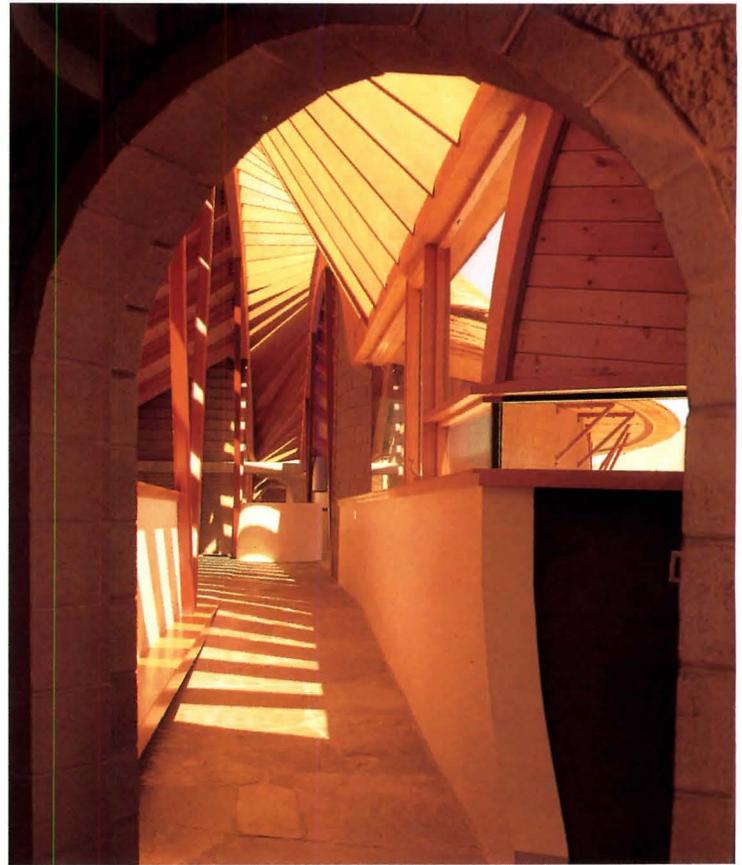
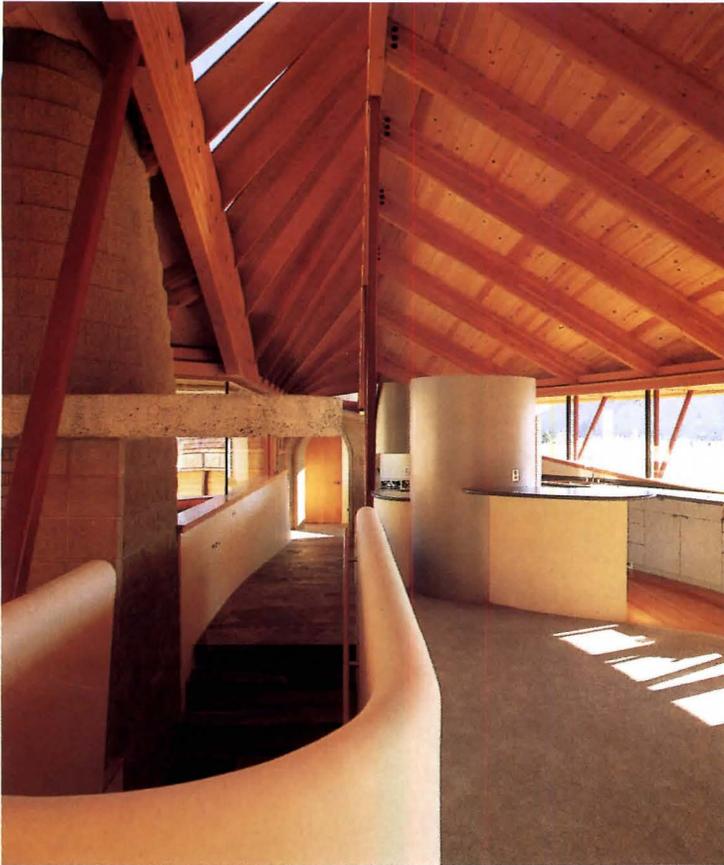
Prince's esthetic reflects that of Bruce Goff, with whom he apprenticed, but his work is more refined—Prince has yet to glue feathers to a ceiling, as did his mentor. The Albuquerque architect's buildings, like those of Goff and other "organic" practitioners such as John Lautner and Herb Greene, are never "about" other buildings. Instead, Prince's architecture may exude the color and texture of the landscape, suggest local plant and animal life, or wildly express a structural system. The designs of Bart Prince are always site-specific and, as the Whiting House demonstrates, remarkably regional. ■

—MICHAEL J. CROSBIE

Sagebrush-colored, ramped entry is located under sheltering roof (top left); site-built skylight appears as glistening spine (bottom left); deep overhangs frame landscape views (bottom right); above bedroom passageway, light scoop with emerging beam appears as bald eagle soaring in flight (top right).



The house's most dramatic space is an entertainment area, marked by a twisting skylight (below right) that illuminates the main axis, framed by arch of small, dark foyer. High-tech kitchen contrasts with warm wood interior (below left). Low curved wall contains stairs down to garage.



SECTION LOOKING NORTHWEST

**HENRY WHITING HOUSE
SUN VALLEY, IDAHO**

ARCHITECTS: Bart Prince Architect, Albuquerque, New Mexico—Bart Prince (principal-in-charge); Martin Grummer (project foreman)

ENGINEERS: Engineering Associates (structural)

GENERAL CONTRACTOR: The McNamara Company; Jack McNamara (contractor); Steve Deffe, Reid Dowdle, Verlon Herndon, Rick Kugler, Jeff Niwa, Gary Sawyer, George Thompson (carpenters); Paul Bates (custom woodwork and light fixtures)

PHOTOGRAPHER: Alan Weintraub

The sculptural qualities of the Whiting House are captured in the southwest corner where windows, light, and structure converge in a conversational seating area (below). Arched portion of section (facing page) shows one of two glulam beams, supported by V-braces, that define ridge shell roof.

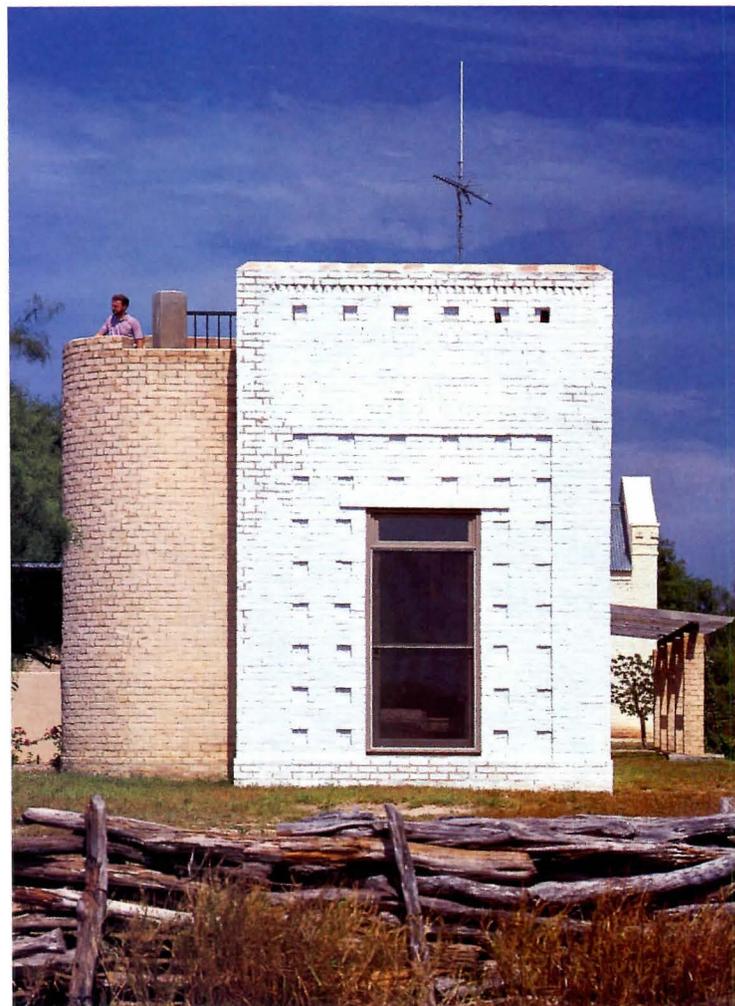


Funk Ranch House
Roma, Texas
Lake/Flato Architects



LOCAL TRADITION

A windmill, a cistern, and a fence of stacked, recycled fence posts frame the eastern entrance to the Funk Ranch House (facing page). The northeast (below left) and southwest (bottom left) facades collage new and existing structures, punctuated by a stair tower at the southwest corner (below right).



GREG HURSEY

THE FUNK RANCH HOUSE IS THE MOST THOROUGHLY regionalist design of David Lake and Ted Flato. For the San Antonio architects, the house brings together local building traditions, materials, crafts, and details, and softens the harsh South Texas environment. Lake/Flato, however, regards regionalism with some distance. "I don't call myself a regionalist," says principal David Lake. "The term is used too loosely these days. To me, regionalist design responds to the local environment and entails an understanding of cultural and historical precedents. Crafts and materials are central to capturing the region in a building. They make it specific and give it solidity."

The forms used in the Funk Ranch House have been around since the late 1800s in nearby border towns. "I told David I wanted the house to look like it's been around 100 years" explains owner Tommy Funk. Funk had commissioned a handful of other architects to design his house, but was dissatisfied with their schemes. He insisted Lake visit nearby Roma and Rio Grande City to look at buildings from the 1880s and 1890s designed by German-immigrant architect Heinrich Portscheller. As a longtime rancher and businessman in the border area, Funk had grown to admire their lively brick details and visual strength. Lake had studied and

sketched the same buildings under mentor and former employer O'Neil Ford, who held them up as "real" architecture, in keeping with Ford's own regionalist philosophy.

The Lake/Flato scheme retains and improves a main house and guest quarters built in the 1970s and adds a game room, a guest extension, and a master bedroom, all united by a covered porch around a grassy courtyard with four gnarled, mature mesquite trees. The form of the resulting complex is not the only aspect of the project derived from the immediate area. Lake/Flato designed walls built with soft, irregular Mexican brick and applied hand-formed pavers to porches. The



bricks were painted with now-faded Mexican pigments that wash to near white in midday sun and glow with surreal warmth at sunrise and sunset. Flooring in the master suite is constructed from mesquite harvested on the site. Cut into strips and aged for a year, the wood was installed as construction of the compound was completed.

Climate also influenced Lake/Flato's design. Hot, dusty winds are common from mid-spring to mid-fall in the Texas plains around Roma, and rain is always scarce. To bring relief, the architects designed deep porches, ample cross-ventilation between buildings, and a thick brick wall to enclose the

unbuilt side of the courtyard and block dust.

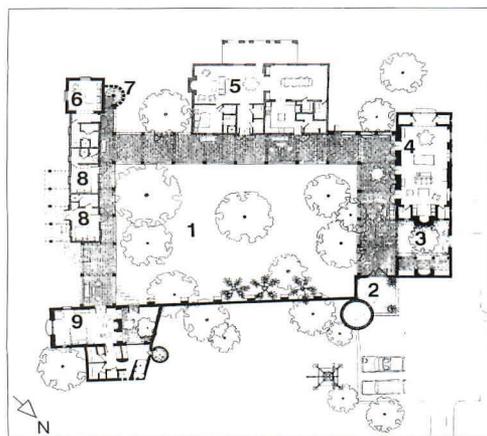
Project architect Graham Martin punched portraits of native plants and animals and the ranch's namesake star ("La Estrella") into galvanized aluminum luminaires that punctuate the porches and illuminate the courtyard wall at night. His largest piece, a cactus-and-birds composition, infills the rough-hewn main doors. Lake and Martin also designed a collection of wooden furniture, all of it sturdy and simple, built by craftsmen in San Miguel de Allende, Mexico.

Lake's most poetic addition to the existing ranch is a grand guest extension attached at the southwest corner of the site. Detailed af-

ter the historic La Borde House hotel in Rio Grande City, it is topped by a mirador, or low-walled roof terrace. A constricted, brick-enclosed spiral stairway leads to this mirador, severing continuity with the earthen plain. It is here that Lake/Flato's regionalist response becomes sublime. The small tower looks out over the vast ranch that stretches in all directions and the tight cluster of brick buildings below. It connects with the sky, bridging the dry, hot ground to a gentle breeze that drifts in over the trees, and firmly anchors the Funk Ranch House to the Rio Grand Valley that spreads out below. ■

—RAY DON TILLEY

Organized around a mesquite-shaded courtyard (below and plan, bottom), the ranch buildings are connected by an ample porch (facing page, top left). Game room (facing page, bottom) and master bedroom (facing page, right) feature finishes and furniture from the Texas-Mexico border region.



- 1 COURTYARD
- 2 ENTRANCE
- 3 BARBECUE AREA
- 4 GAME ROOM
- 5 MAIN HOUSE (EXISTING)
- 6 GUEST ROOM
- 7 OBSERVATION DECK
- 8 GUEST ROOM (EXISTING)
- 9 MASTER BEDROOM

**FUNK RANCH HOUSE
ROMA, TEXAS**

CLIENT: Tommy Funk

ARCHITECT: Lake/Flato Architects, San Antonio, Texas—David Lake (principal in charge); Graham Martin (project architect)

STRUCTURAL ENGINEER: Richard Chetter

GENERAL CONTRACTOR: Charles Scott

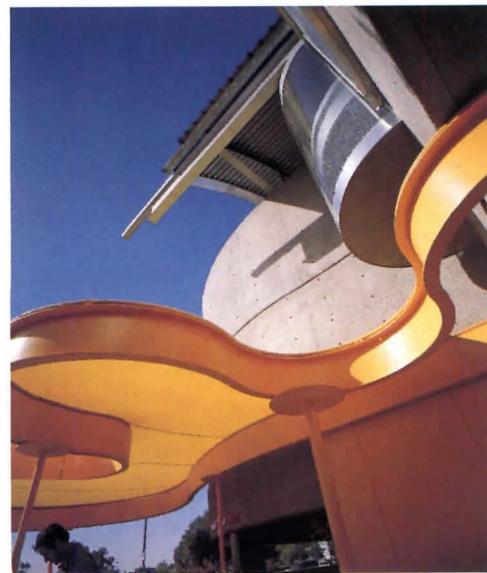
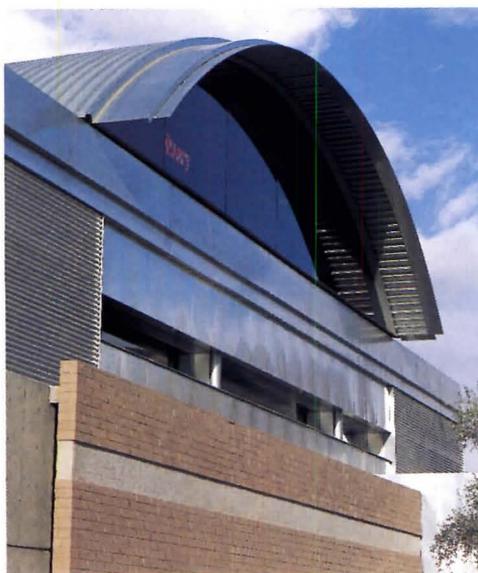
PHOTOGRAPHER: BlackmonWintersKuhner, except as noted

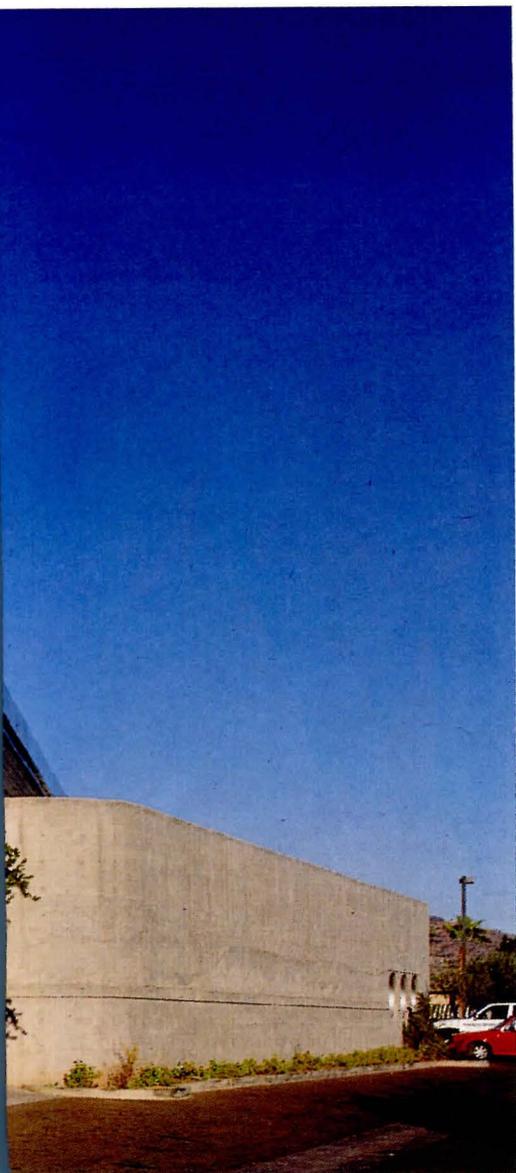
Cholla Branch Library
Phoenix, Arizona
William P. Bruder, Architect

REVISED EDITION



Bruder enlivened the library's rectangular enclosure with curvilinear spaces (facing page plan) and barrel-vaulted roofs (right). He defined the west elevation with a curved concrete wall (above) punctuated by a bright yellow entrance canopy (far right).





FORMALLY TRAINED AS A SCULPTOR RATHER than an architect, William P. Bruder designs buildings that illustrate a sculptural manipulation of mundane materials and deep sensitivity toward structure. The 44-year-old architect apprenticed with Gunnar Birkerts and Paolo Soleri, and worked as a carpenter with the materials he now so deftly incorporates into his designs. In addition, Bruder readily acknowledges the inspiration of Carlo Scarpa, Frank Lloyd Wright, Bruce Goff, former Carnegie-Mellon dean Paul Schwikher, and Australian architect Glenn Murcutt, but he synthesizes these influences into his own idiom, rather than expressing them as direct quotations or allusions.

Bruder's 17-year-old, Phoenix-based practice has recently diversified from houses to commercial and institutional projects. Likewise, the context for his buildings has become increasingly diverse, from the Sonoran Desert to more urban sites. Working within Phoenix's sprawling suburbs, for example, Bruder relishes the challenge of creating appropriate buildings for the less than inspiring commercial strip (ARCHITECTURE, October 1990, pages 56-57).

The Phoenix Public Library system has also become sensitive to the city's recent development patterns. In the early 1970s, the library system began expanding into the suburbs with branch facilities, many located next to major shopping malls. The Cholla Branch Library, completed in 1974 and built on an expansive parking lot adjacent to the massive Metro Center Mall, is one example of this construction program. Bruder's transformation of Cholla's 10,000-square-foot modest brick structure into a state-of-the-art regional branch library is not the local architect's first job for the Phoenix library system, nor his last. In 1979, Bruder designed the Mesquite facility, now poised for a major renovation, and construction will begin early next year on his 280,000-square-foot Central Library (see page 41).

Bruder encompassed the library's existing structure within an envelope of sandblasted concrete, galvanized sheet metal, and glass to create a new 30,000-square-foot facility that meets the needs of the growing library and

creates a strong visual presence next to the mall. Along the north and east elevations, the architect exposed fragments of the original brick wall to remind visitors of the building's more modest predecessor, and announced the main entrance with a boldly undulated marquee. Echoing the curves of this canopy, a perforated galvanized steel fence along the southeast corner of the site reinforces the entrance and defines a small cactus garden containing examples of the library's eponymous species.

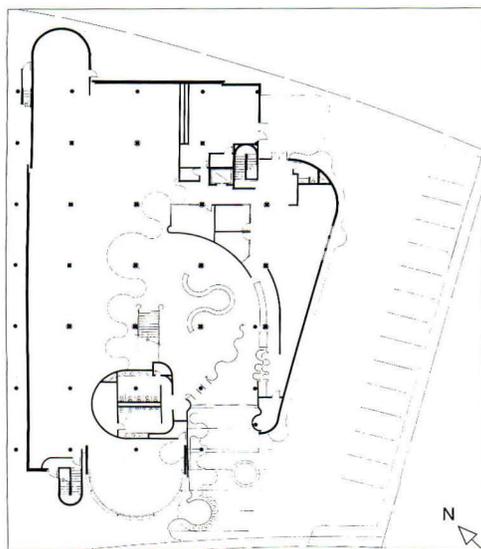
Bruder capitalized on the building's free-standing site to provide a robust composition of interlocking forms. However, the library's exterior appearance as a hermetic, slightly heavy-handed assemblage of utilitarian materials does not prepare the visitor for the drama and sophistication of the interior spaces.

The architect broke the monotony of the basic rectangular footprint by projecting a series of circular alcoves along the east and west facades and defining the southern wall with a curving concrete wall. Along the front of the building, the largest alcove houses a children's reading room with a horizontal window, placed at child's-eye level. Inspired by local warehouse construction, Bruder set the library's main reading room on the second level beneath a corrugated, galvanized metal, barrel-vaulted roof supported by exposed steel bowstring trusses. An elegantly crafted stairway of poured-in-place concrete and perforated stainless steel provides an appropriate procession to this lofty space.

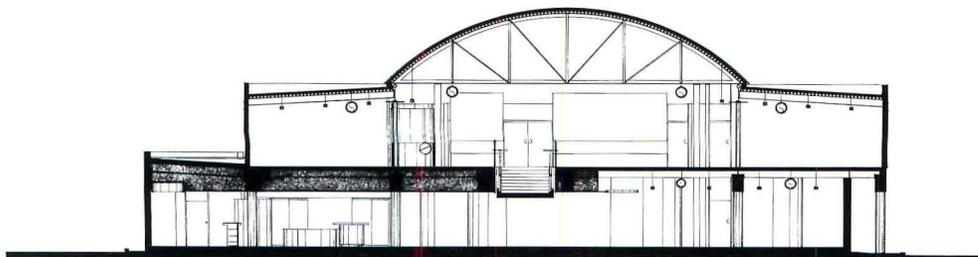
In the library's main reception space, Bruder added curving walls of concrete, a partition of perforated metal, kiosks, and cylindrical, polished oak book drops. Repeating Bruder's penchant for curves, an undulated pattern of bright yellow floor pavers provides a playful indication of where to queue for a pair of circular check-out desks.

The Cholla Library stands in contrast with its retail neighbors, and Bruder is aware that some may find his building too eccentric. "I like to take things to the edge," he insists. "Intellectual challenge is important to a community, and nowhere is that more appropriate than at the public library." ■

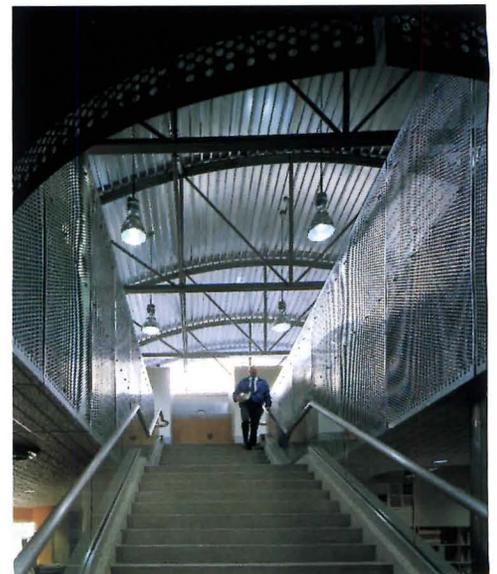
—LYNN NESMITH



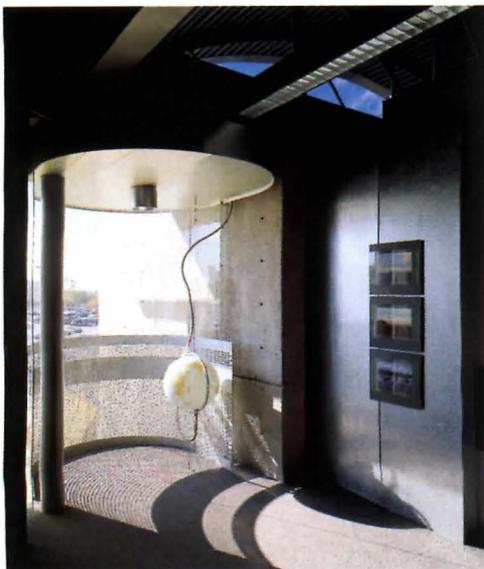
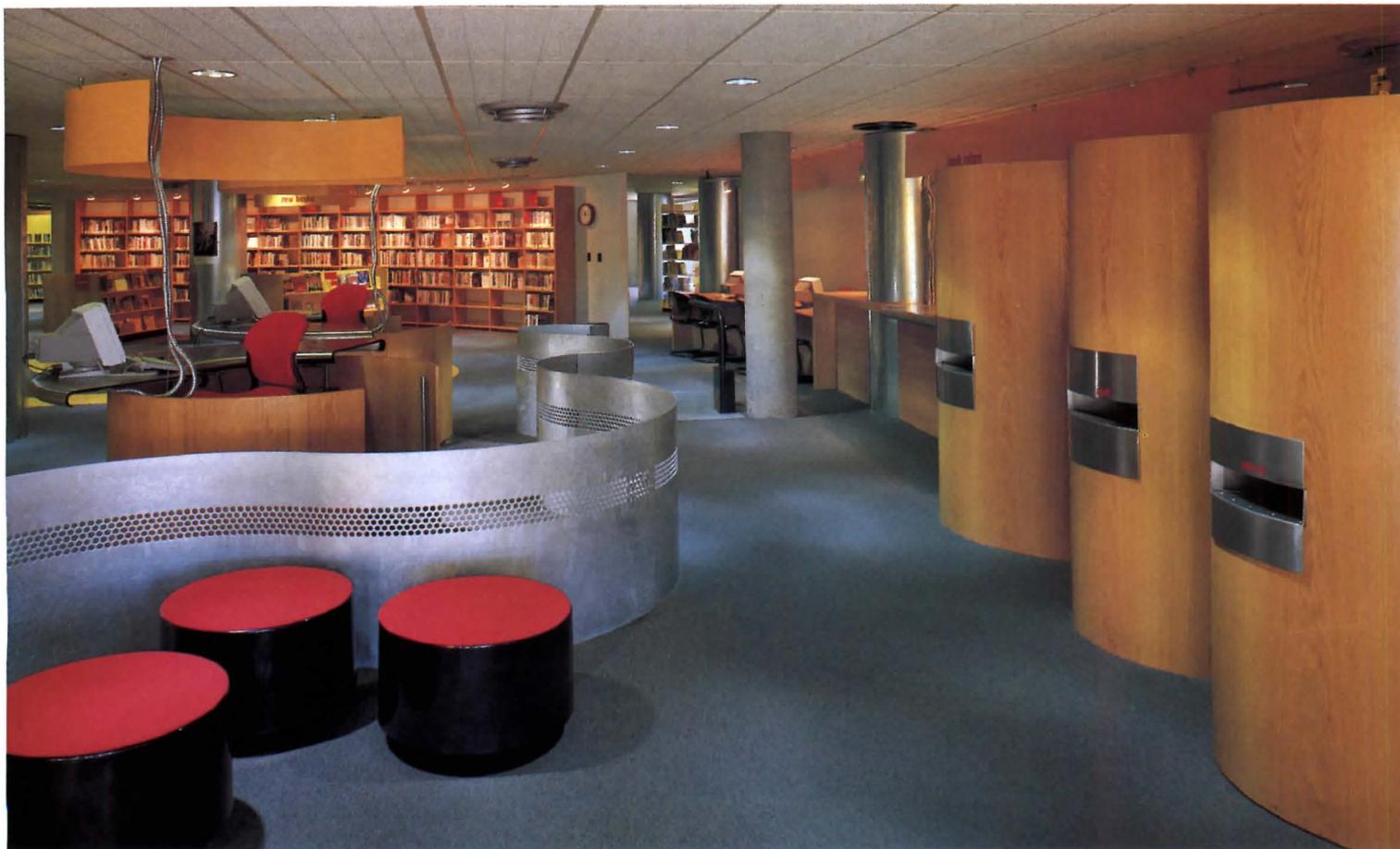
GROUND FLOOR PLAN



SECTION THROUGH LOBBY AND VAULTED READING ROOM



Partitions in the foyer lead patrons past cylindrical book drops (below). A grand concrete and steel stairway (facing page, bottom) draws visitors to the vaulted second-level main reading room (facing page, top) and staff lounge (bottom right). A second-floor oriel (bottom left) overlooks the entrance.



**CHOLLA BRANCH LIBRARY
PHOENIX, ARIZONA**

ARCHITECTS: William P. Bruder, Architect, New River, Arizona—William P. Bruder (project designer); Wendell Burnette (project architect); Tyler S. Green (field architect); Robert Adams, Laurie Clark, Karen King, Peter Rott (design team)

LANDSCAPE ARCHITECTS: Steve Martino & Associates

ENGINEERS: Robin E. Parke & Associates (structural); Raymond McNulty & Associates (mechanical); CA Energy Design (electrical); William J. Norman (civil)

GENERAL CONTRACTOR: Layton Southwest

COST: \$1.8 million—\$63/square foot

PHOTOGRAPHER: Timothy Hursley/The Arkansas Office

ALTHOUGH SANTA FE IS A MECCA FOR painters, potters, jewelers, and sculptors, the New Mexican capital is hardly congenial to the flowering of bright young architects. The so-called "Santa Fe Style" dictates the look of buildings, new and old, within the city's sizable historic district. Design regulations are written to perpetuate an idealized version of Santa Fe's architectural heritage: brown adobe walls, protruding wood beams called *vigas*, decorative grillwork, and small windows. This esthetic is applied to every conceivable building type, from posh hotels to parking garages. Although these design regulations govern architecture only in Santa Fe's historic core, their effect on the entire city is pervasive; most of the city's building stock appears to have been designed by rote in the Santa Fe style.

"What's going on here are imitations of architecture," maintains Santa Fe architect Jeff Harnar, "and it's not what I want to do." The Albuquerque native studied architecture at Arizona State University, and has been practicing in Santa Fe since 1986. What irritates Harnar most about the design regulations is that they freeze architecture at an arbitrary moment in history, focusing on only one or two of its salient features, and ignore the diversity of Santa Fe's true architectural heritage. The architect explains that New Mexico's most famous regional architect of the early 20th century, John Gaw Meem, was instrumental in formulating the design guidelines. "Meem and the local residents decided that adobe was the style of Santa Fe, and they ignored the great Victorian architecture here, and the buildings built by the railroad," he says. In fact, several of Santa Fe's decorative wood and brick landmarks of the 19th and 20th centuries were later covered up to look like adobe. So much for preserving the past.

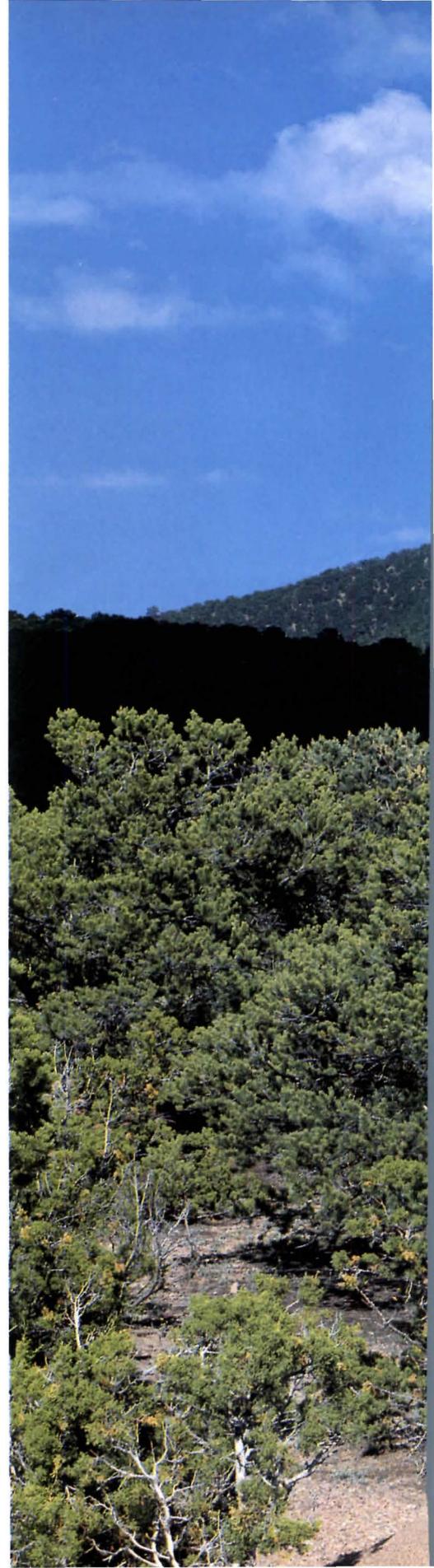
Harnar continually fights against Santa Fe's architectural conservatism, designing buildings that are fresh and colorful interpretations of the region's history and culture rather than dry reproductions. He points out that the original adobe builders masterfully constructed with the available materials and technology. "If the original adobe builders

were alive today," he maintains, "they probably wouldn't be building with adobe. They'd be trying out new materials and techniques." Harnar believes that architects today should design in the spirit of the adobe builders, instead of copying their forms. Thus, he tries to match the demands of each site, each client, each program, and each budget with a design and the physical means that will serve it best. Any visitor to a century-old adobe dwelling (of the type in which Harnar himself lives) is immediately impressed by how well they stand the test of time, unlike their contemporary knockoffs. This, too, is one of Harnar's priorities: designing and building architecture of permanence.

In New Mexico, the desert and its vegetation, geological forms, and brilliant range of color offer a constant, varied source from which to draw architectural inspiration. Harnar is ever-mindful of the desert light, and infuses his buildings with it. "Here, natural light is almost like a building material," he says. The Santa Fe architect also alludes to the desert landscape in his work, such as in the Barbero Studio, where walls and balconies assume the presence of mountains and clouds. In the Giovando residence (facing page), the architect orders the spaces with thick, immovable walls that appear to have emerged from the rocky site, anchoring the building to the hilltop. His juxtapositions of architectural elements such as stairs and walls often create false perspectives, focusing attention on what must be considered another plentiful desert building element: space itself.

Harnar is carving out a place for his architecture within the "paint it brown" mentality of Santa Fe. His current projects include the Doyle/Michaels house in Santa Fe, which fans out into the landscape to capture desert views; the Henningsen house in Taos, which composes forced perspectives and then shatters them; and a Santa Fe restaurant, which reveals his preoccupation with spatial compression and release. Rather than an affront to the past, the 37-year-old architect's work appears faithful to the spirit of those who built here 100 or more years ago. Like his predecessors, Jeff Harnar takes his risks.

—MICHAEL J. CROSBIE



BEYOND ADOBE



Giovando Residence
Santa Fe, New Mexico

FOR HARNAR, THE GIOVANDO RESIDENCE was an exercise in transforming traditional building materials of Santa Fe into universal forms. In this house for a woman and her two daughters, Harnar applied a traditional palette of adobe and stone to meld the house to its neighborhood, which includes early-20th-century adobe structures. But the plan reveals that traditional New Mexican architecture was not what Harnar had in mind. "My influences in this house are Frank Lloyd Wright and Luis Barragan," says Harnar, with the latter dominating his design.

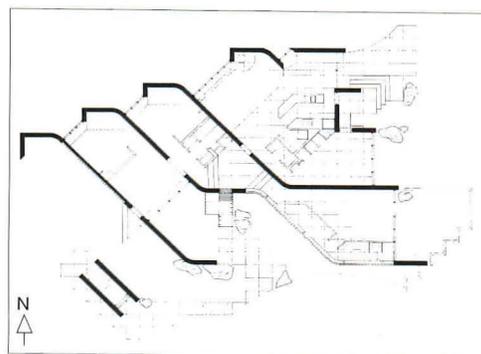
Harnar takes advantage of the granular surface of adobe walls to create constantly changing textures as a series of parallel walls twist and snake their way through the site to reflect light at different angles. This manipulation is the architect's way of calling attention to the sunlight and its intensity. On the west elevations, Harnar exposes structure that is not adobe, such as concrete beams that span the windows from wall to wall. Large concrete scuppers poke out over the beams—obvious homages to Barragan.

One might expect the same rough texture of walls to be carried through from the exterior, but inside, the angled surfaces are finished in an Italian frieze plaster, making them appear ancient, as if Harnar had found them in a ruin and designed the house around them. These solid walls define sleeping, eating, and entertainment spaces. Harnar abutted secondary partitions such as closets and low walls to the massive adobe walls, using thin, rounded reveals that make these elements appear as if they never touch the primary adobe walls—a detail that Wright employed at Fallingwater and in his later work. Other surfaces in the house are finished in raw materials: concrete stone floors, concrete lintels, and fossil-like Mexican sandstone tile.

Almost every room features a hidden clerestory, which bathes the plaster walls in natural light, highlighting their variegated surfaces. The quality of light, as it plays upon the wall surfaces, transforms the house into a constantly changing canvas.



Thick walls constitute the primary spatial elements of the house, and are clearly evident from the northeast (facing page, top) and west elevations (bottom). Exposed concrete and scuppers span windows on west elevations (facing page, bottom). From the south, walls meld the house to its site (below).



GROUND FLOOR PLAN

**GIOVANDO RESIDENCE
SANTA FE, NEW MEXICO**

ARCHITECTS: Jeff Harnar, Architect, Santa Fe, New Mexico—Jeff Harnar (principal-in-charge); Bernie Romero, Annette Vigil (project team)

ENGINEERS: HKS Engineering (structural); Ed Ortiz (electrical); Edy Keeler (lighting)

GENERAL CONTRACTOR: Blue Raven Construction

COST: \$85,000

PHOTOGRAPHER: Douglas Kahn



Santa Fe Children's Museum
Santa Fe, New Mexico

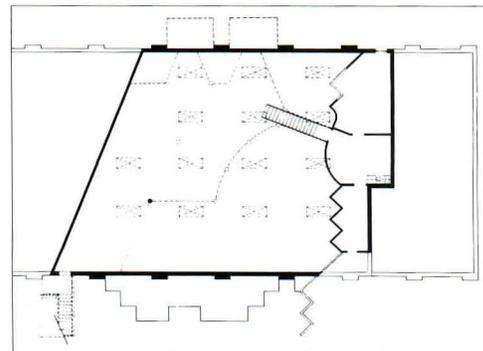
BRIGHT COLORS, BOLD FORMS, AND SENSITIVELY scaled elements create a world geared to kids at the Santa Fe Children's Museum. A serrated concrete wall at the entrance and a greenhouse that looks like a gigantic climbing sculpture immediately identify this building as out-of-the-ordinary—and fun. "I wanted to break the building down to the scale of the kids," says Harnar. At the entrance, young visitors find a small door, no taller than 4 feet, through which only they can enter. "The little door immediately makes the space their own," says Harnar, "as soon as they walk in." Harnar explains that he wanted the museum to be playful, and, when he occasionally got stuck for ideas during its design, "I borrowed some kids from my friends and asked them questions."

The Children's Museum was created from an existing National Guard Armory, essentially a warehouse of masonry construction. The museum shares part of this space with the New Mexico Repertory Theater, so Harnar divided the interior with an angled wall that plays off the rectilinear nature of the exposed bow-truss structure. To give this space variety, the architect combined ceiling heights and freestanding elements. He excavated part of the original concrete floor to create a sunken area devoted to water exhibits—bubble-making machines and a water course that flows from the upper to lower levels. The greenhouse interior, which can be seen from anywhere within the museum, incorporates an assortment of high spaces for tall-growing plants, and small cozy spaces for story reading and group discussions.

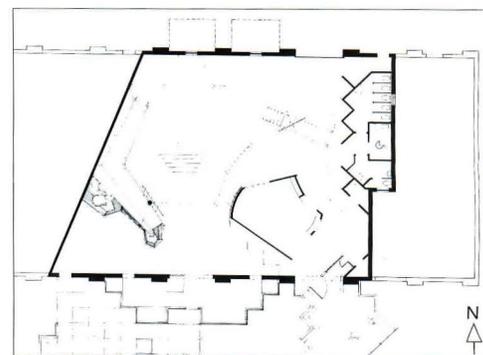
Harnar chose bright, sophisticated colors (not primaries) for the museum interior, and he believes that the building itself should be instructional. All the structure has been left exposed and colorfully painted, and where possible the building's utilities, such as the plumbing, are visible. Museum codirector Londi Carbajal says that the museum's young visitors "feel as though they have instant ownership. They feel safe here, and it's the architecture that makes it that way."



Greenhouse (facing page, top) draws visitors to museum entrance, near zigzag concrete wall (facing page, bottom), where small door leads to vestibule (facing page, bottom right). Colorful "events" (below) allow interior to be visible for child safety. Greenhouse grid invades museum interior (bottom right).



SECOND FLOOR PLAN



FIRST FLOOR PLAN



**SANTA FE CHILDREN'S MUSEUM
SANTA FE, NEW MEXICO**

ARCHITECTS: Jeff Harnar, Architect, Santa Fe, New Mexico—Jeff Harnar (principal-in-charge); Charles Jordan, Bernie Romero (project team)

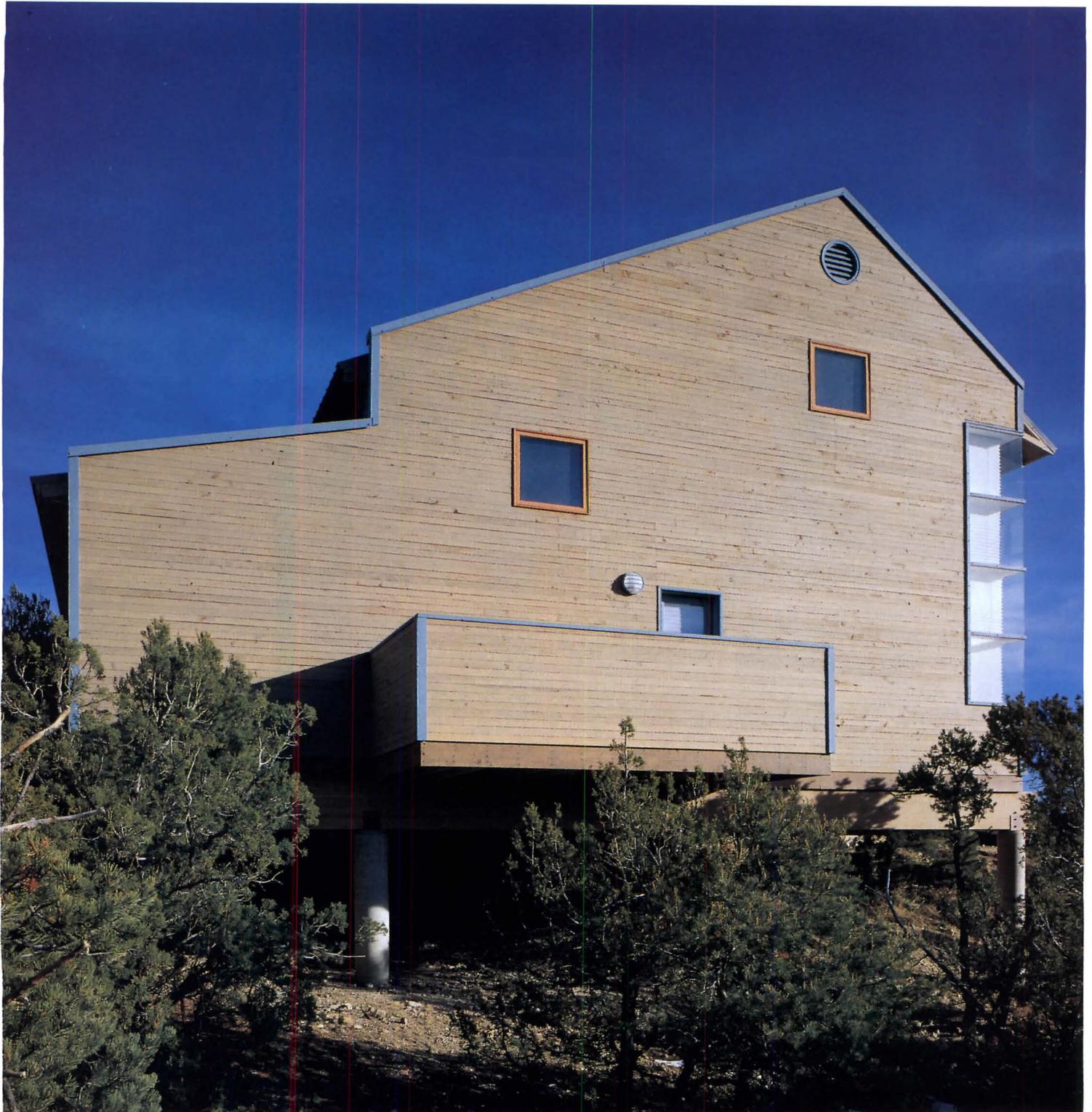
ENGINEERS: HKS Engineering (structural); AEC (mechanical); Telcon Engineering (electrical)

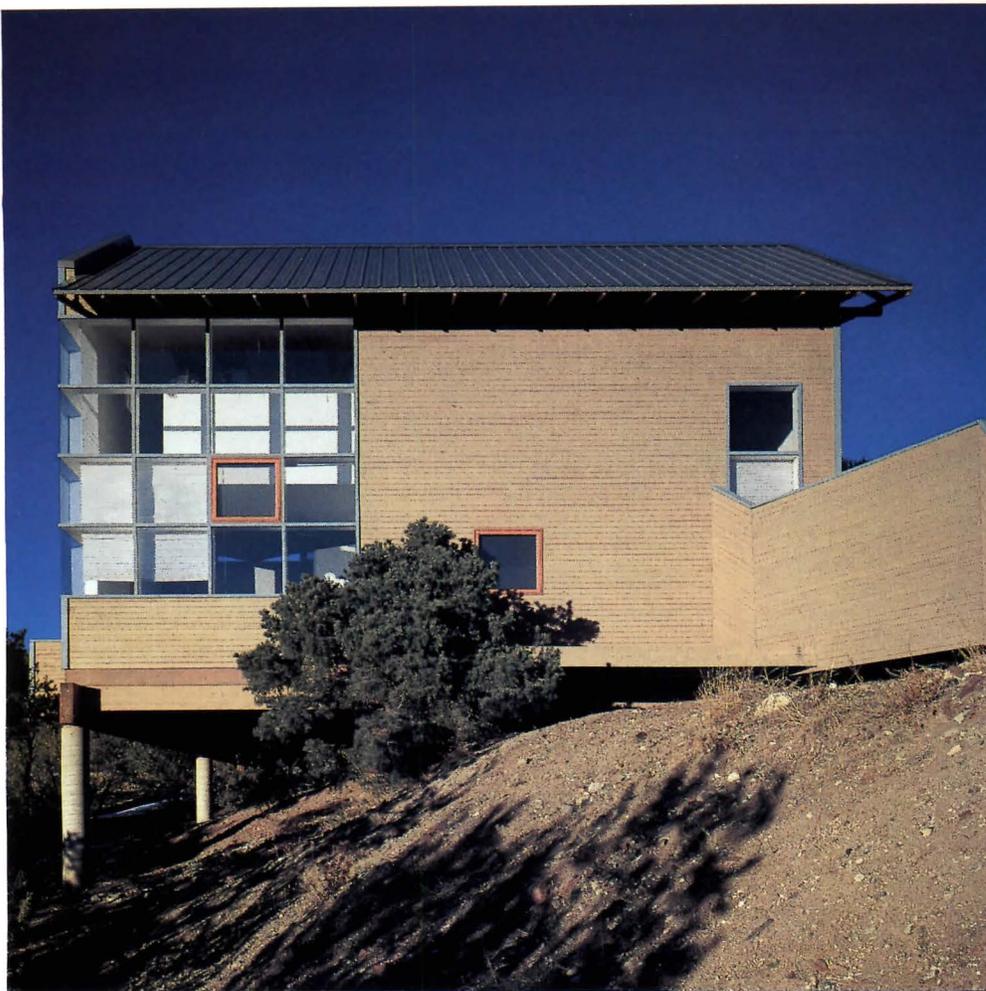
GENERAL CONTRACTOR: Davis and Associates

COST: \$350,000

PHOTOGRAPHER: Douglas Kahn

Barbero Studio's roofline (below) echoes profile of trusses, one of which was left exposed on east elevation (facing page, bottom). Paint colors were chosen by the artist-client. Rather than alter the terrain, Harnar raised studio's timber structure above it on concrete columns (facing page, top).



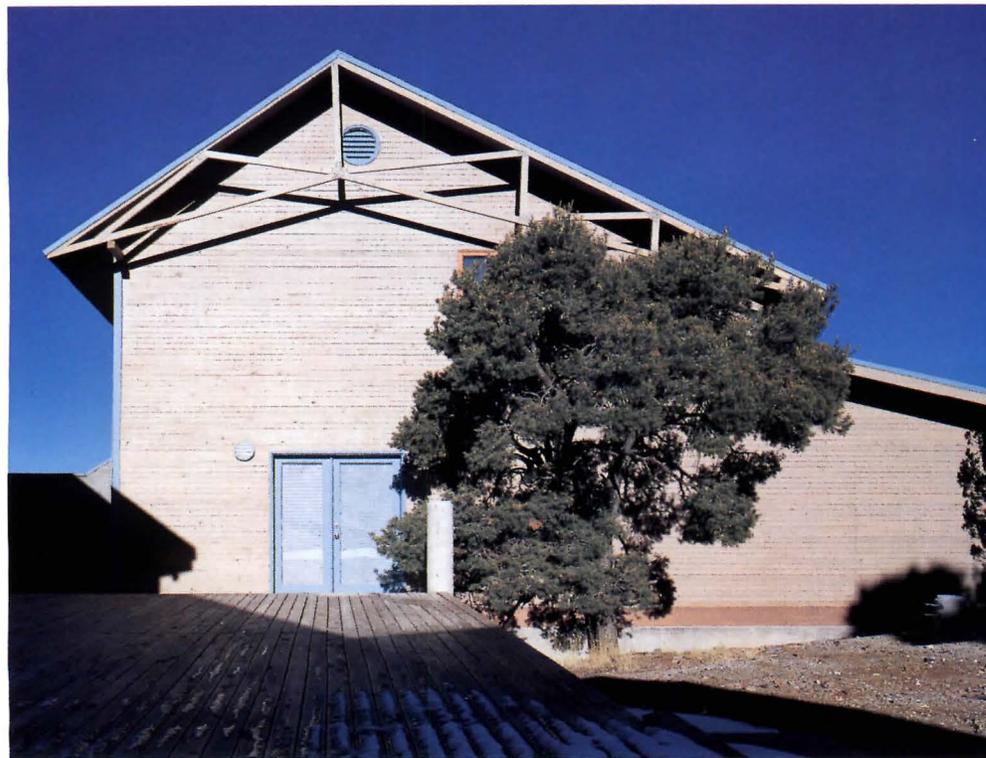


Barbero Studio
Santa Fe, New Mexico

THE BARBERO STUDIO IN SANTA FE SURMOUNTS a steeply sloped, wooded site overlooking the Arroyo Hondo Valley. For its design, Harnar drew from a number of sources: the existing wood-frame house to which the studio is connected by a deck; and the simple wooden forms and metal roofs of mining structures built around the turn of the century. The client for the studio, New Mexico landscape painter David Barbero, wanted a retreat from his living quarters in which to work, without having to rent studio space in downtown Santa Fe. And, important to a landscape painter, the new studio captures views of the valley and the mountains which are a constant source of inspiration.

"We raised the studio up so that it wouldn't interfere with the site," explains Harnar, and in doing so exposed the building's timber framing, lending the design a certain Japanese quality. The architect tightly wrapped the house in a skin of horizontal cedar siding, with a small number of square windows punched into the west and east walls. On the southwest corner, the studio's enclosure is punctuated and filled with a latticework of glazed openings, offering views out onto the valley below. The architect asked the artist to choose exterior colors, and Barbero's selection reinforces the colors of the soil and plants growing near the studio, as well as the desert sky.

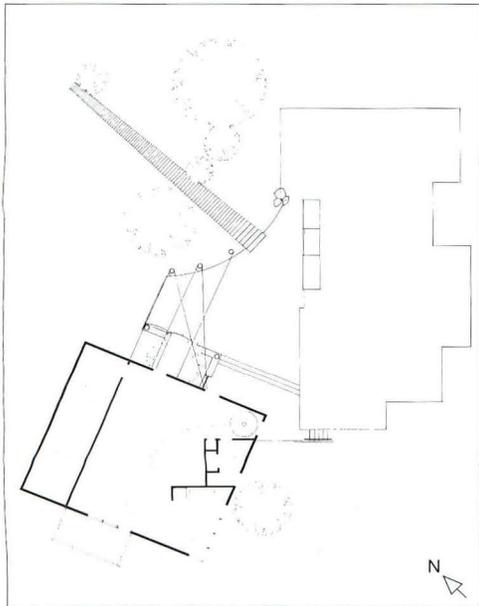
The building's simple exterior form markedly contrasts its interior. Here, Harnar has created a nearly mystical space into which northern light is filtered through four trapezoid-shaped skylights. Hovering over the studio space is a loft, "David's cloud," as Harnar describes it, a free-form, secluded space into which Barbero can retreat to read, listen to music, or view his paintings in progress from different vantage points. The cloud floats above Harnar's interpretation of a mountain range: an angled wall on which paintings are displayed. For such a utilitarian space, the studio possesses a lyrical quality in its views of the surrounding landscape and allusions to nature. ■



In contrast to exterior's sharp edges, interior features curved forms; balcony (below) hovers over studio like a cloud. Located behind north wall (bottom) is painting storage. Windows balance northern light admitted through splayed skylights (right). Beam is only naturally finished wood in interior.

BARBERO STUDIO
SANTA FE, NEW MEXICO

ARCHITECTS: Jeff Harnar, Architect, Santa Fe, New Mexico—Jeff Harnar (principal-in-charge); Bernie Romero, Annette Vigil (project team)
ENGINEERS: HRS Engineering (structural); AEC (mechanical)
GENERAL CONTRACTOR: J.M. Evans Construction
COST: \$300,000
PHOTOGRAPHER: Douglas Kahn



SITE PLAN





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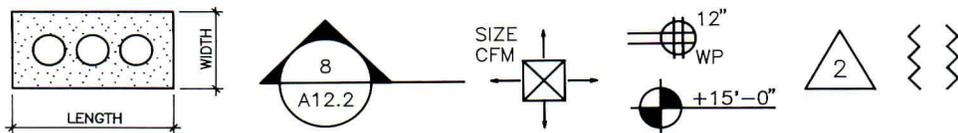
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INFO

TECHNOLOGY & PRACTICE



CSI Convention and Exhibit Held in San Diego

REFLECTING THE CURRENT ECONOMIC slowdown, few of the 555 exhibitors at the 35th annual convention of the Construction Specification Institute (CSI) presented new products. However, many manufacturers at the June event offered improvements to existing lines, particularly in the preparation of specifications.

CSI, in conjunction with San Francisco-based Vertex Design Systems, introduced two software packages—one that runs with AutoCad and another that operates within a CADD-less, DOS environment—containing standardized drawing symbols (above) that CSI originally published in June 1990. The

new symbols were developed for clarity and to encourage greater uniformity within the graphic language of construction documents, and to improve communication throughout the industry.

Topics covered in the education programs ranged from high-tech coatings and fire-rated glazings to federal accessibility laws and interpretation of contract documents. The drive for quality was a frequently recurring theme—particularly in the many management seminars that outlined ways to make architecture firms as shipshape as the naval vessels docked in plain view across San Diego Bay. —N.B.S.

Building Systems Automation/Integration Symposium

INTERNATIONAL LEADERS DEVELOPING computer applications for architects and engineers met in June in Madison, Wisconsin, at the first annual Building Systems Automation/Integration Symposium. The consensus among participants is that computers have the potential to radically alter—and improve—the way the AEC industry produces buildings. However, the future of this technology must be integrated and defined by its users rather than by hardware and software vendors.

Currently, most information is passed between design disciplines on paper, even if architects, engineers, and contractors have automated their own procedures. Ideally, all steps in a building's development—from financial planning through design and construction drawings, specifications, and even demolition drawings—could be coordinated through an integrated set of data bases. Today, dissimilar CADD programs, graphic languages, and hardware platforms present enormous barriers to such coordination.

Researchers have so far been successful in improving integration between individual components. For example, building-code-

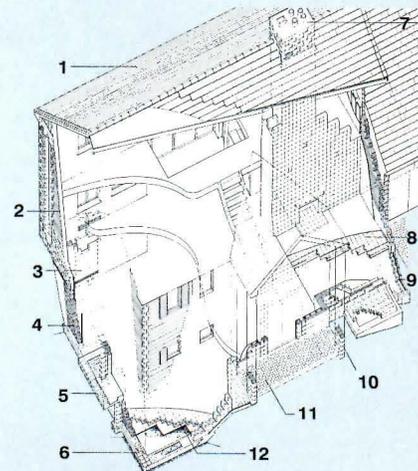
checking software can "read" a graphic CADD file and compile a list of code violations. But whenever any two functions are integrated, another dozen are excluded. For example, a graphic symbol for a wall that indicates only its product specifications neglects the calculation of the wall's structural loads, graphic information about surface texture, and a description of its thermal storage capacity.

A leader in the integration field is Varkie Thomas, associate partner of Skidmore, Owings & Merrill and codirector of the symposium. In Thomas's model, electronic information generated by one work group is passed on to others, including an important loop from post-occupancy evaluations back to planners. Making this model work will require not only a mastery of existing technologies but a preparation to adopt future ones, and architects will need to take an active role in determining the direction of this work. The second annual Automation/Integration Symposium will be held in Dallas, Texas, in early June 1992, in conjunction with the A/E/C Systems Show. ■

—B.J.N.

Concrete House

Innovative concrete masonry products will be featured in the Lifestyle 2000 Home, a joint venture between the National Concrete Masonry Association (NCMA) and the National Association of Homebuilders (NAHB). The 2,300-square-foot house (below) is designed by NCMA architect Jorge Pardo to demonstrate the adaptability of concrete masonry materials to residential design through a variety of structural and finish applications. It is intended to generate widespread interest in residential applications of concrete masonry—a material not typically associated with small-scale housing in the U.S. The project, currently under construction in NAHB's Research Home Park in Bowie, Maryland, is scheduled for completion this fall and will be open to the public in early 1992.



- 1 CONCRETE ROOF SHINGLES
- 2 LOAD-BEARING CONCRETE BLOCK (SIDING FINISH)
- 3 TROMBE WALL
- 4 GROUTLESS POST-TENSIONED BASEMENT WALL
- 5 LIGHT WELLS
- 6 INTERLOCKING FOOTINGS
- 7 VENTILATION SYSTEM
- 8 STRUCTURAL FLOOR SYSTEM
- 9 CONCRETE FORMING SYSTEM
- 10 ARCHITECTURAL CONCRETE BLOCK
- 11 INTERLOCKING CONCRETE PAVERS
- 12 CONCRETE BLOCK WITH MULTIPLE OPENINGS



Top: Credit Agricole, San Francisco, California
 Architect: Michael Marx & Associates
 Glazing Contractor: Cobbletick-Kibbe Glass Co.



Above: Bunny Davis Gallery, Atlanta, Georgia
 Architect: Smallwood, Reynolds, Stewart & Stewart

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Breaking Into New Markets

Tackling new building types requires strategies for diversification.

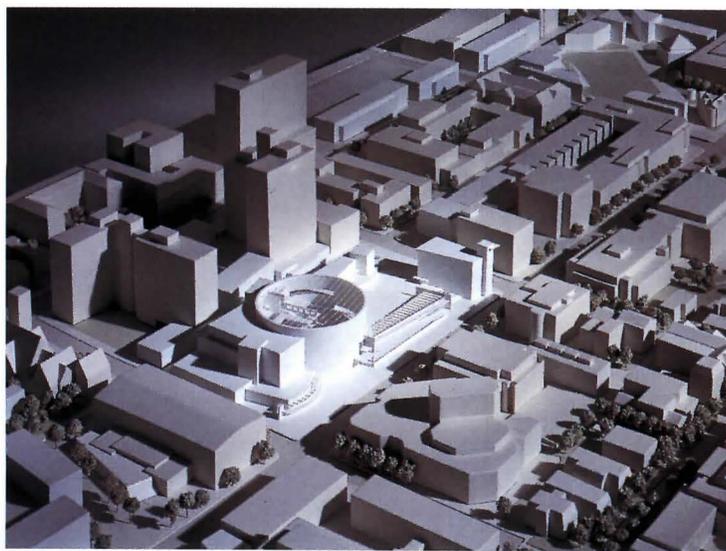
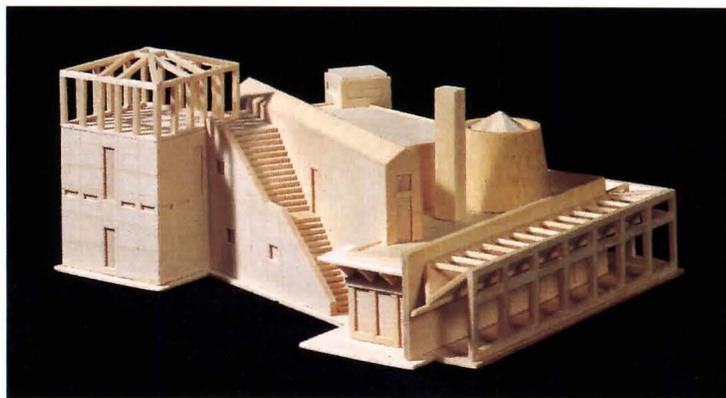
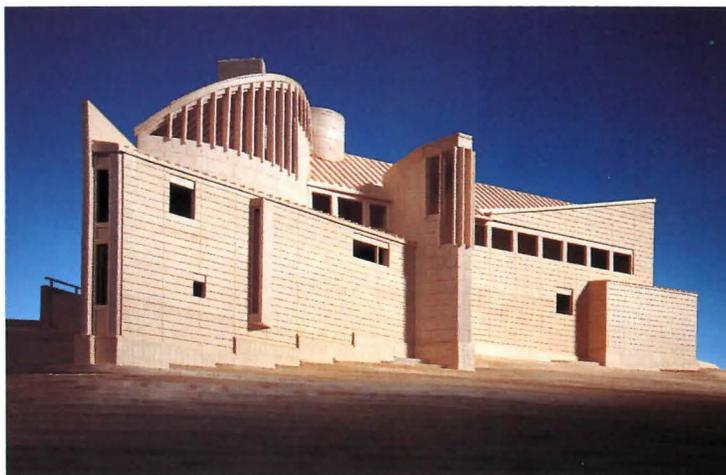
WITH COMMERCIAL REAL ESTATE SHOWING few signs of revival and forecasters predicting a continued slowdown in commercial construction, architects nationwide are trying to penetrate new markets. The fundamental strategies for breaking into new areas consist of identifying economic and societal trends and markets they will benefit; selecting a market and targeting clients; and making yourself credible.

Identifying markets

THE FIRST STEP IN SUCH A PROCESS IS MARKET research. Weld Coxe, of the Philadelphia-based Coxe Group of management consultants, opposes farming out market research to specialized consultants in most cases, arguing that to successfully pursue and serve clients requires knowing a lot about their business. However, undertaking marketing research isn't as daunting as it may seem, Coxe maintains.

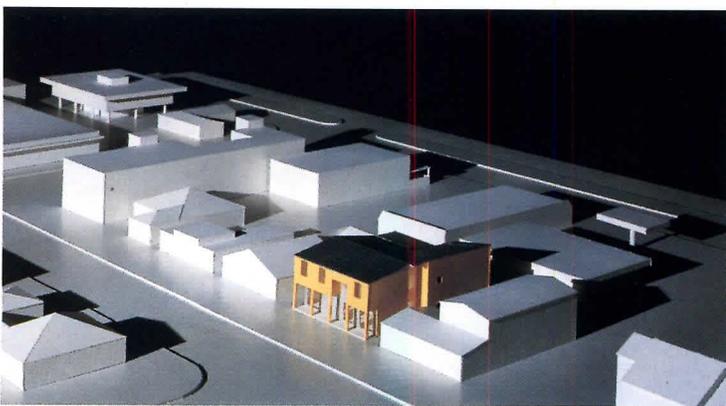
Market surveys begin with identifying economic, demographic, and other social trends, which invariably point up potential new sources of work. Stuart Rose, executive director of Professional Development Resources, a management consulting firm in Alexandria, Virginia, notes that the graying of our society will prompt the building of retirement communities, adult day-care centers, nursing homes, and golf courses, while the current baby boomlet will heighten demand for day-care centers, schools, buildings for the manufacture and sale of children's clothing, and toy stores. To determine growing markets, Frank Stasiowski, President of Practice Management Associates in Newton, Massachusetts, recommends reading material from the Department of Commerce on economic trends and such publications as *American Demographics* and *The One List*, which keep tabs on the Fortune 500 companies and identify key organizations buying architectural and engineering services.

The point of such research is to anticipate markets rather than to simply recognize current or near-term needs. "The most successful firms are continually planting seeds



The first two houses in Kohn Pedersen Fox Associates' portfolio are the 5,200-square-foot Carwill residence in Stratton, Vermont, (top left), and the 3,500-square-foot Bedell Mills residence at the water's edge on Shelter Island, New York (center left). The firm's 200,000-square-foot University of Pennsylvania Campus Center (bottom left) virtually constitutes a new building type. KPF partner Gene Kohn explains that breaking into new markets takes "a lot of time, effort, creativity, and enthusiasm."

JOCK POTTLE/ISTO PHOTOS



Lynn Goode Gallery
Houston, Texas
Carlos Jimenez, Architect

Jimenez was commissioned to design this 4,500-square-foot, two-story gallery (above) on the recommendation of two previous clients—an owner of a fine arts press and an art collector—for whom he had designed a house. Because the Lynn Goode is located amid other galleries and residences, its scale is domestic, constructed of stucco with steel roofing panels. To save three existing large oak trees, the building is configured in an L, with filtered natural light filling the interior.

that will take root two or three years later,” notes Gene Kohn, of Kohn Pedersen Fox Associates, a firm renowned for spec office towers that is broadening its purview to include commissions for universities and museums. Kohn warns other architects that breaking into new markets takes “a lot of time, effort, creativity, and enthusiasm.”

In order to choose among potential markets, Rose recommends that architects carefully assess their firms for their technical strengths and personal relationships with potential clients. For example, Keating Mann Jernigan Rottet, a young Los Angeles firm with a reputation for commercial building design, is working on its first institutional building—for the state of Washington’s Department of Ecology (ARCHITECTURE, June 1991, page 47). Principal Rick Keating explains that “we began by taking a good, hard look at our capabilities and trying to build on what we know best.” Keating is shifting the firm’s focus from developers to corporate clients and from new office construction to renovation of existing commercial buildings and their interiors. Similarly, Hartman Cox Architects of Washington, D.C., is designing its first arts center for Tulane University’s Sophie Newcomb College and undertaking

preservation work on the Lincoln and Jefferson Memorials in Washington, D.C., based on its experience in closely related areas such as museum design and adaptive reuse.

Targeting clients

“IN THIS ECONOMY, EVERY PROJECT THAT gets away from you is a lost opportunity,” Kohn points out. While building projects will at some point come to an end, satisfied clients can become an unending source of work. In the long run, therefore, a plan that focuses on capturing individual commissions will bear less fruit than one aimed at winning the confidence of clients.

What do clients want? Architects’ answers will depend on their recent experience. New York architect James Polshek, who this year lost a competition for a performing arts center in Cincinnati to Cesar Pelli & Associates, a firm with a growing track record of such cultural facilities, claims that clients want “predictability.” Nevertheless, Polshek’s firm has recently broadened its reach to secure commissions for science museums, master plans for cultural districts, and environment-related buildings.” In the experience of George Heery, whose prodigious marketing skills helped build the two firms Heery & Heery and Heery International, both headquartered in Atlanta; “If a client sees that a firm has done very good work, is responsive, and the chemistry’s good, that can count for more than identical prior experience.”

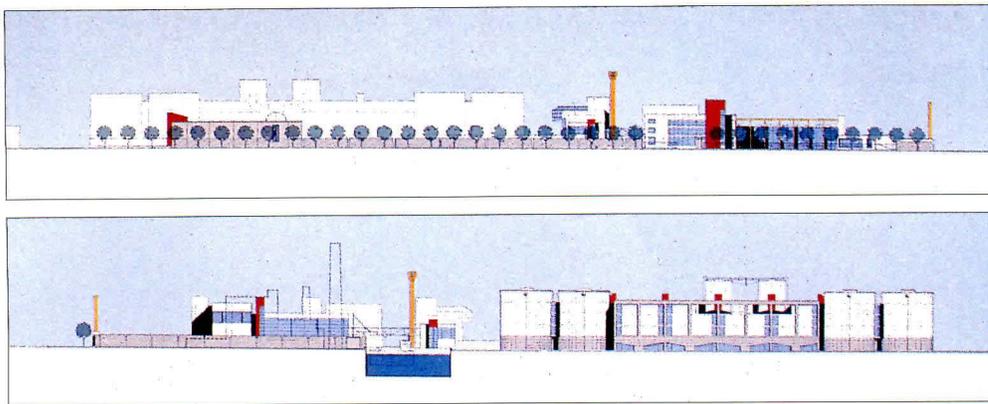
Fred Schwartz, of Anderson/Schwartz Architects in New York City, takes Heery’s argument one step further. Schwartz contends that his firm was commissioned to create a spring training facility for a major league baseball team because it could demonstrate a “proven ability to design everything from teacups to master plans.” He claims that diversity can be a major selling point, proving that the architect can handle any client’s problem. A number of different approaches

can, apparently, appeal to different clients if expertly implemented and tailored to the client’s needs and predilections.

Experts in marketing view clients’ needs somewhat differently from architects. They stress an overriding need for architects to provide more and better services beyond design. Corporate and institutional clients, for instance, are telling Trina Duncan, CEO of Professional Development Resources in Alexandria, Virginia, that they want help in complying with ever-increasing new government regulations, such as the Clean Air Act and the new Americans with Disabilities Act; with facilities management; and with auditing existing buildings to find more efficient ways to use space and avoid having to construct new additions. Coxe, meanwhile, stresses that “no matter how wonderful a design looks, clients won’t feel good about you unless you treat them with sensitivity and provide them with good service.” In his experience, clients demand good programming skills from architects: the ability to ask the right questions and listen; a willingness to accept responsibility—to take charge; and an understanding of the budget.

Stasiowski goes so far as to say that architects should think of themselves first as problem solvers and consultants offering services, rather than designers producing a product. “And for consultants with a niche, there’s plenty of work out there,” Stasiowski maintains. “Personal relations and the ability to provide personalized services are the name of the game in marketing these days,” concludes Heery. He observes that, as a result, a large firm is often at a disadvantage if it doesn’t break itself down into smaller units.

Though small and large firms can apply the same strategies for assessing new markets and winning over clients, each has advantages to sell and deficits to overcome. Since both often compete for the same jobs during hard times, the challenge for small firms is



**Newtown Creek Wastewater Treatment Plant
New York City**
James Stewart Polshek and Partners

Polshek, who finds that "85 percent of our projects come from people in allied professions," was asked by the engineering firm in charge to replace and humanize this 1.5 million-square-foot site (above). Perimeter green spaces buffer it from the street, while exterior elements, level changes, and color serve as ordering devices. Polshek is involved in other such ecology-minded projects, and points out that environmentally sensitive buildings are a growing market.

"to explain why they can do it better, while large firms must explain why they are doing it at all," Stasiowski reasons. Large firms can often market total services and experience, and can more easily weather economic storms. Small practices frequently have the advantage of being able to move faster, be more flexible, keep a tighter lid on overhead, and offer more personal services.

Heery suggests studying a market to find out how clients feel they have been failed by architects, what they see as the shortcomings of the professional services they are offered, and what problems they have that "you can help them with even if the client hasn't thought of the profession as a source for solving the problem." Coxe advises contacting prospective clients by mail, telling them you're doing research into their market, and that you would like an hour to pick their brains. "So long as you're not trying to sell anything, 19 out of 20 people are willing to give you expert advice," contends Coxe. What the architect needs to learn from this interview, he adds, is how the market works and what features of a particular building type clients consider important. His rule of thumb is that "when you have three similar sets of answers from three different sources,

you've conducted enough research."

As important as reading up on the market and contacting clients directly is networking to meet clients or learn about them in a less formal setting than an office meeting. "Join associations affiliated with the industry you're trying to tap into, such as the American Hospital Association and the International School Facilities Planners," suggests Trina Duncan. Attending clients' association meetings is at least as important as going to architectural conferences. Another good potential source of information and introductions is suppliers, contractors, and consultants. Polshek adds that his firm obtains lists of a prospective client's board of directors "to see if we know anyone, where they went to school, what their disciplines are, whether they've built anything before, and if they've had horrible experiences with architects."

Making your firm credible

ONCE YOU KNOW YOUR CLIENTS, YOU HAVE to make yourself seem credible to them. One approach is to form a joint venture with a firm that specializes in the specific market you're trying to break into; another is to collaborate with consultants and contractors who have the right credentials (ARCHITECTURE, July 1991, pages 90-91). To gain entrance into the science and technology field, for instance, Gene Mackey of Mackey Associates in St. Louis joined with Payette Associates of Boston to create a master plan and laboratory building for the University of Missouri in Kansas City.

Collaboration is, of course, also a way to gain entrance to new geographic areas, which constitute new markets for locally or regionally based firms. Another route is to open branch offices, as Mackey has done in Kansas City. Since there are broad regional variations in the economy, widening the geographic net has protected such large firms as Swanke Hayden Connell Associates from regional

Future Markets

ALL INDICATIONS SUGGEST THAT THE strongest markets for architects will be institutional buildings, many of which will be funded by government or public-private partnerships. Universities and hospitals are proceeding with building programs that were significantly higher than they are now. The most substantial numbers of commissions are for correctional and educational facilities and the environmental markets, where projects range from site assessments to renovation work.

Leisure and cultural facilities are on the rise, and theme parks and amusement parks are expected to boom throughout the world. In addition, the expansion and modernization of airport facilities such as parking garages, terminals, cargo facilities, and runways will continue to be a sound market.

In the retail industry, older shopping malls are updating their outmoded facilities to survive, while regional malls are being renovated and adding housing, offices, and recreational and entertainment facilities to become "regional destination centers."

Overall, architects who are helping their clients solve a range of problems on a consulting basis or are working on small projects are doing better than those in design/build. Among active smaller scale markets are "bread and butter" niches such as building remodeling and renovation, retrofitting for the elderly and handicapped, and street improvement projects.

The three top areas that will lure A/E firms toward the end of the 1990s will be rehabilitation of the nation's dangerously disintegrating infrastructure of dams, bridges, wiring, roads, water supply, and water treatment facilities; updating or retrofitting the huge inventory of government and corporate office and production facilities; and coping with the list, growing each year, of hazardous conditions in which people live, work, and have fun.

—FRANK STASIOWSKI

Frank Stasiowski is the president of Practice Management Associates in Newton, Massachusetts.

construction slumps. After the recession of the 1970s, Swanke opened offices in London, Miami, and Chicago, which, as headquarters for the nation's manufacturing base, has hardly felt the current recession, observes Swanke's managing partner Richard Hayden.

Once the groundwork has been laid "you have to go through the painful process of visits, letters, phone calls. You have to be persistent," advises Kohn. The San Francisco firm Holt Hinshaw Pfau Jones, for example, recently completed an astronauts' memorial at the Kennedy Space Center, among other unusual projects in its current portfolio. In partner Mark Hinshaw's experience, "most of the time a cold letter doesn't work out, but sometimes it does." Hinshaw will include the principals' resumes, a list of 10 significant projects that show the firm's diversity—which he regards as its strong suit—and a few key publications profiling the firm's work.

The rule for written materials, believes Coxe, is that less is more. A well-placed, one-page letter including references for character and credibility can attract potential clients' attention, because there's nothing to turn down, he asserts. Neither Coxe nor Duncan favor brochures, unless they are tai-

lored to the particular client. In fact, it's been Heery's experience that written materials more often lose a commission than secure it.

Design competitions are an excellent way to pursue new markets. They provide automatic entry into a market for firms without prior experience and often produce invitations for unknown architects to participate in subsequent competitions. Before putting in the required time and energy, however, most architects recommend checking out the jury. Polshek, for instance, won't enter a competition that doesn't have at least two architects on the jury, and many designers shun competitions if they think a jury might be hostile to their esthetic.

Sometimes commissions come in through the back door. "Frequently, we'll find something in our experience that a new client might need. Sometimes it's a little landscape job. Then the client will ask 'what else can you do?' And all of a sudden we're doing the whole thing," recounts Gene Mackey. Although some practitioners will take on marginally profitable work in an effort to cultivate a client, many object to this practice, feeling architects are already underpaid, that accepting such projects will further de-

press fees, and that a client will expect to be able to get the same discount the next time.

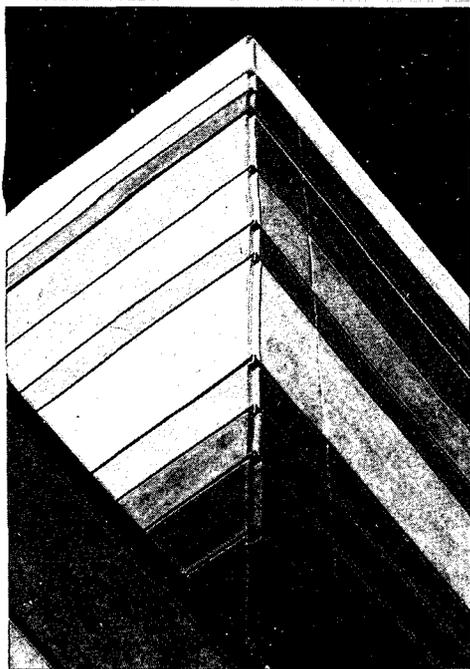
What needs to come through in a presentation or interview is an architect's "sincerity, personality, and dedication, since your competitors will usually be good designers," claims Hayden. Kohn adds, "you have to think about what makes you different from the competition. Unless you have something new and better to offer, why should the client bother?"

Stasiowski counsels designers to treat the presentation as they would a first job meeting. "Presume you have the job and start working. What clients don't want to see is a lot of slides." He concludes that the biggest mistake is to focus on your past work rather than on your client's needs.

Coxe has seen numerous clients welcome new faces if they show that they have done their research, have visited several similar buildings, and have put together an expert team. He insists that negatives don't sell. "Don't walk in saying we haven't done one of these and you should hire us. If you can tell them why they should hire you, the negatives will lose importance."

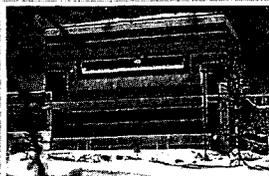
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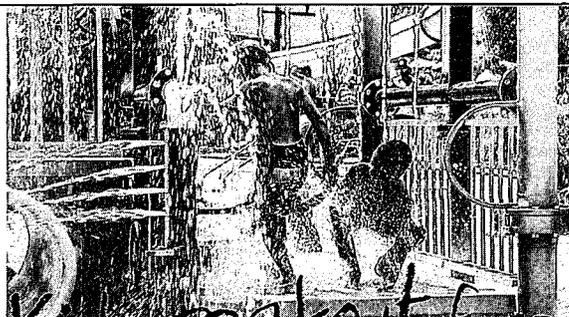


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CADD Holdouts

Why some architects refuse to jump on the computer bandwagon.

AS MANY ARCHITECTS, PRESSURED BY CLIENTS and competitive marketing, rush to embrace computers, others are holding back. There are countless reasons for their hesitation, including cost, comfortable habits, and the suspicion that machines and design creativity are a fundamental mismatch. Examining why some architects still haven't automated their design processes provides clues about the hardware and software improvements that will be necessary before computer technology is universally accepted by the profession.

Many of the objections to CADD voiced 10 years ago have been solved: hardware and software costs have plummeted, alternatives to slow plotters have alleviated the output bottleneck, and systems are easier to use. Meanwhile, statistics imply that CADD-using firms are more profitable, and young architects are entering firms better trained in computer technology and less intimidated by the equipment. Yet resistance to computers remains. Indeed, as the technology becomes more sophisticated, so do the reasons for resisting it. One long-lasting concern common among computer holdouts is that the act of

Clemson University students learn from traditional methods (watercolor, top right) to develop computer painting techniques (center right). Washington University drawing of Erich Mendelsohn's Labor Hall (bottom left) was generated by a precision plotter fitted with a loose pen (bottom right), conveying the image of a preliminary design sketch.

drawing by hand stimulates architectural creativity in a number of ways that a mechanical intermediary simply can not.

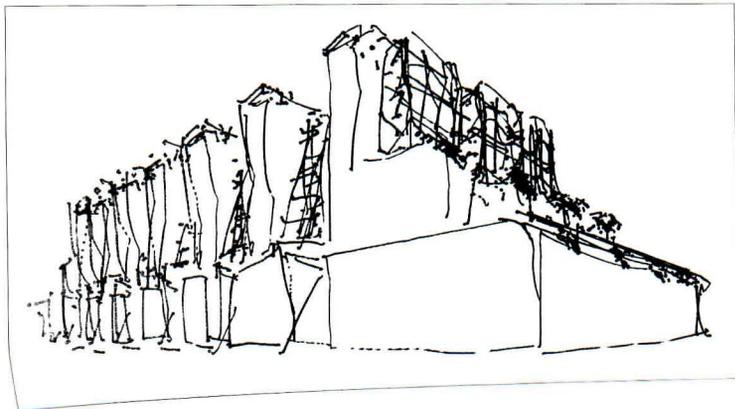
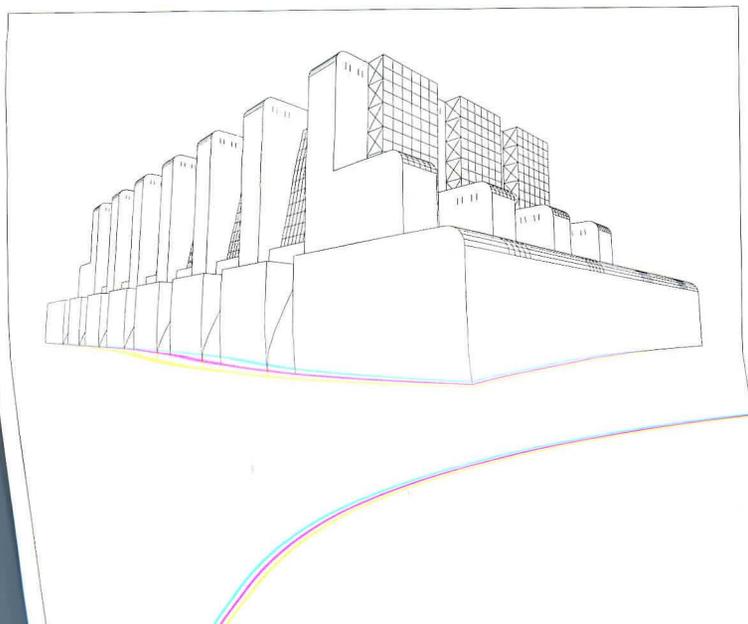
Architects have the most difficulty using computers to replace traditional methods in the creation of schematic study drawings. But some architects also complain about the inappropriate appearance of the computer's output for design development and working drawings. Presentation drawings may appear to clients to be overly developed, and some contractors mistrust working drawings that look machine-made. Some architects claim that improved productivity promised by computer-aided drafting is possible only for firms that undertake repetitive projects or large buildings with repetitive elements.

In a nonscientific sampling of architects around the country, both computer users and true holdouts were asked which aspects of design are most resistant to automation. Collectively, their answers indicate areas in which computers are not yet serving the profession well and suggest ways architects can be selective when deciding which design processes to automate.

Study drawings

POSSIBLY THE MOST COMMON COMPLAINT IS that computers, with their precise, straight lines, cannot replace the internal communication that traditionally engages architects working with paper and soft pencils during schematic design. Many architects have developed a creative working style that depends on this communication as strongly as it depends on their knowledge and experience. Daniel Herbert, a professor of architecture at the University of Oregon, has been investigating the nature of study drawings with a grant from the National Endowment for the Arts. On the basis of interviews with well-known architects, he has characterized the sketches made in the initial, exploratory stages of their work. These drawings, primarily intended for

an audience of one, are quick, metaphorical, and personal. Such sketches appear abstract and spontaneous, but contain underlying structures that reveal some preliminary organization of knowledge about a design problem. Their ambiguity animates the architect's thinking and allows increasingly complex



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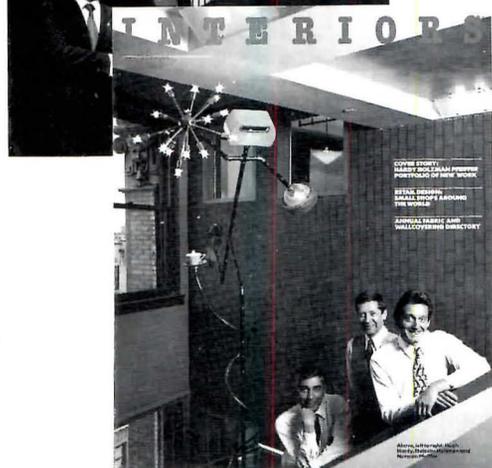
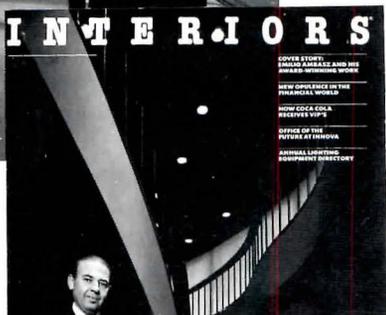
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Metallic Refinements

From filigree to kit of parts, architects experiment with aluminum and steel.

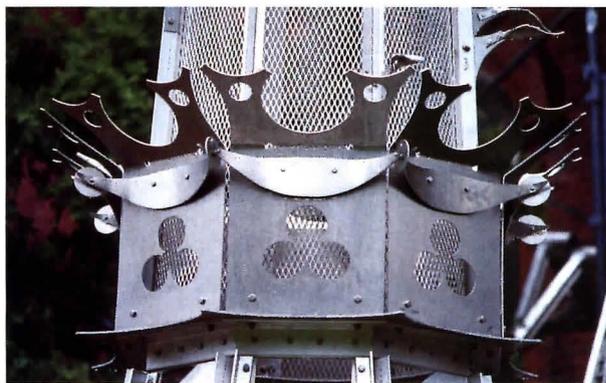
UNLIKE THEIR STRUCTURAL COUNTERPARTS, metals applied as cladding and ornamentation have swung in and out of architectural fashion. Exotic metals, such as nickles and bronzes, were elaborately integrated into masonry buildings of the 1930s, while steel and aluminum were applied with greater frequency as primary cladding components after World War II. As Postmodernism gained popularity during the 1980s, decorative metal resurfaced and metal cladding was essentially relegated to industrial and retail applications.

As more architects experiment with abstract compositions, metal is currently regaining favor as a major surface treatment. And practitioners are pleased to find that the technology has matured to assist them. Composite panels, for instance, now allow for truly flat, unribbed surfaces without the threat of oil-canning, or distortions caused by thermal expansion and contraction. These wall panels consist of an inner core, providing structural rigidity, sandwiched between aluminum or steel sheets. Steel-faced panels, requiring greater bracing than aluminum-faced alternatives, typically measure 2 inches thick and are filled with foam, which doubles as thermal insulation. Aluminum-faced panels are typically 1 inch thick and surround a honeycomb of aluminum. Other systems are also available, including an aluminum-covered thermoplastic core as thin as $\frac{1}{8}$ inch.

Standing-seam metal roofing is also gaining popularity. According to Dean Grant, president of the Metal Construction Association, this increase is attributed to a renewed interest in conservation. A steel roof, he explains, can accommodate more insulation than other low-sloped roof options—an advantage during these energy-conscious times. Steel also provides environmentally sensitive clients with a recyclable product. Metal roofing has been in such demand over the past few years that the National Roofing Contractors Association recently published a descriptive brochure entitled *Report on Metal Roofing*, and the American Iron and Steel Institute is now developing a manual of typical metal roof details, which will be available by year's end.

Some architects, however, are demanding more from manufacturers' offerings. "Many designers are orienting metal panels horizontally and diagonally, instead of vertically," observes Jamie Berdine, marketing coordinator of Steelite, a Pittsburgh-based manufacturer of metal products. "And curved shapes are being specified at an increasing rate to form rounded corners," she adds.

Other architects are prominently exposing metals traditionally hidden from view—such as lead-coated copper, usually found in gutters and flashing, and corrugated steel decking—as major design elements. And a few architects are going beyond the standard forms and lengths into which manufacturers typically fabricate metal. "I rarely use an angle, I-beam, or T-section in its original state," confesses James Kimo Griggs of Kimo Architects in Somerville, Massachusetts. "Instead, I cut, hammer, or shape it to serve my needs." A Gothic spire (right) designed by Griggs



and architect Kent Bloomer of New Haven, Connecticut, and the three projects that follow, illustrate just a few of the many types and applications of metal.

Recognizing the great variety and versatility of the material, the Metal Construction Association has organized a trade show that, for the first time, will combine all aspects of metal construction under one roof. Dubbed MetalCon International '91, the convention will be held in Washington, D.C., in October. Call (800) 526-5455 for more information.

—NANCY B. SOLOMON

Metal provides creative freedom, as revealed by a spire (right and below), designed by James Kimo Griggs and Kent Bloomer for the Church of St. Therese in Wilson, North Carolina.



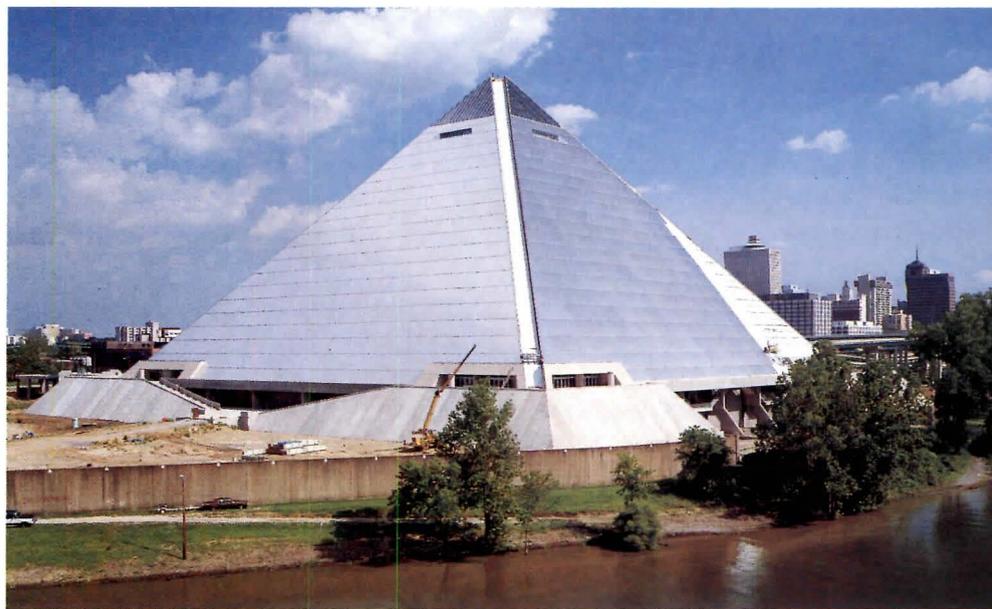
Great American Pyramid
Memphis, Tennessee
Rosser Fabrap International

"OUR CHARGE WAS NOT TO REPLICATE THE Egyptian pyramids along the Nile River near ancient Memphis," notes project principal Henry Teague of Atlanta-based Rosser Fabrap International (RFI), "but to reinterpret them on a site along the Mississippi River in Memphis, Tennessee." While the sports arena's proportions are similar to its progenitors', the new structure measures only 290 feet from plaza entry to apex, and its base is only 450 feet square—less than two-thirds the size of the Great Pyramid of Cheops.

The initial design team, formed through a speculative joint venture between RFI and Indianapolis-based contractor Huber, Hunt & Nichols (HHN), agreed that this high-tech pyramid should not try to imitate the material of the ancient originals. Instead, the team favored metal as the primary cladding because it is durable, easy to maintain, and lightweight, eliminating the need for an expensive supporting structure. The steel-framed sports facility sits on a concrete base and culminates in a glazed observatory deck.

Local government officials, who eventually contracted HHN and RFI to execute the project, nonetheless required that the final skin be selected only after a thorough review of all potential materials and systems. These alternatives were submitted by fabricators across the country in accordance with performance design criteria established by RFI. The chosen system, fabricated by E.G. Smith of Pittsburgh, is actually a double skin—an exposed layer of insulated steel panels applied over a substrate of corrugated galvanized steel.

The building's geometry justifies this double-layered system. "The diagonal skin acts as both a wall and roof," explains project manager Ron Mitchell. In a typical project, a flat or inclined roof would be detailed differently than a vertical wall to guard against water penetration. Although the smooth ex-



JEFFREY JACOBS/ALAN MIMS PHOTOS

terior panels of the pyramid act as the primary line of defense, the backup deck assures that, should a leak develop in the outer layer, the inner layer can collect water and channel it to the gutter below.

The 30-inch-wide by 15-foot-tall panels of the outer skin consist of a 2-inch-thick sandwich of 20-gauge metal on the exterior and insulation within. The exposed exterior surface is of brushed stainless steel, which the architects determined would provide the most durable finish with the least maintenance. The protected surface that faces the building interior consists of galvanized steel. The two metal sheets are crimped together along the long edges of the panel to form complementary seams that lock together during installation. The panels are set in rows along ribbons of Z-shaped flashing and screwed into steel furring channels below. The channels and underlying corrugated deck are attached to a system of steel joists, beams, and trusses that horizontally spans diagonal box trusses at the pyramid's four corners.

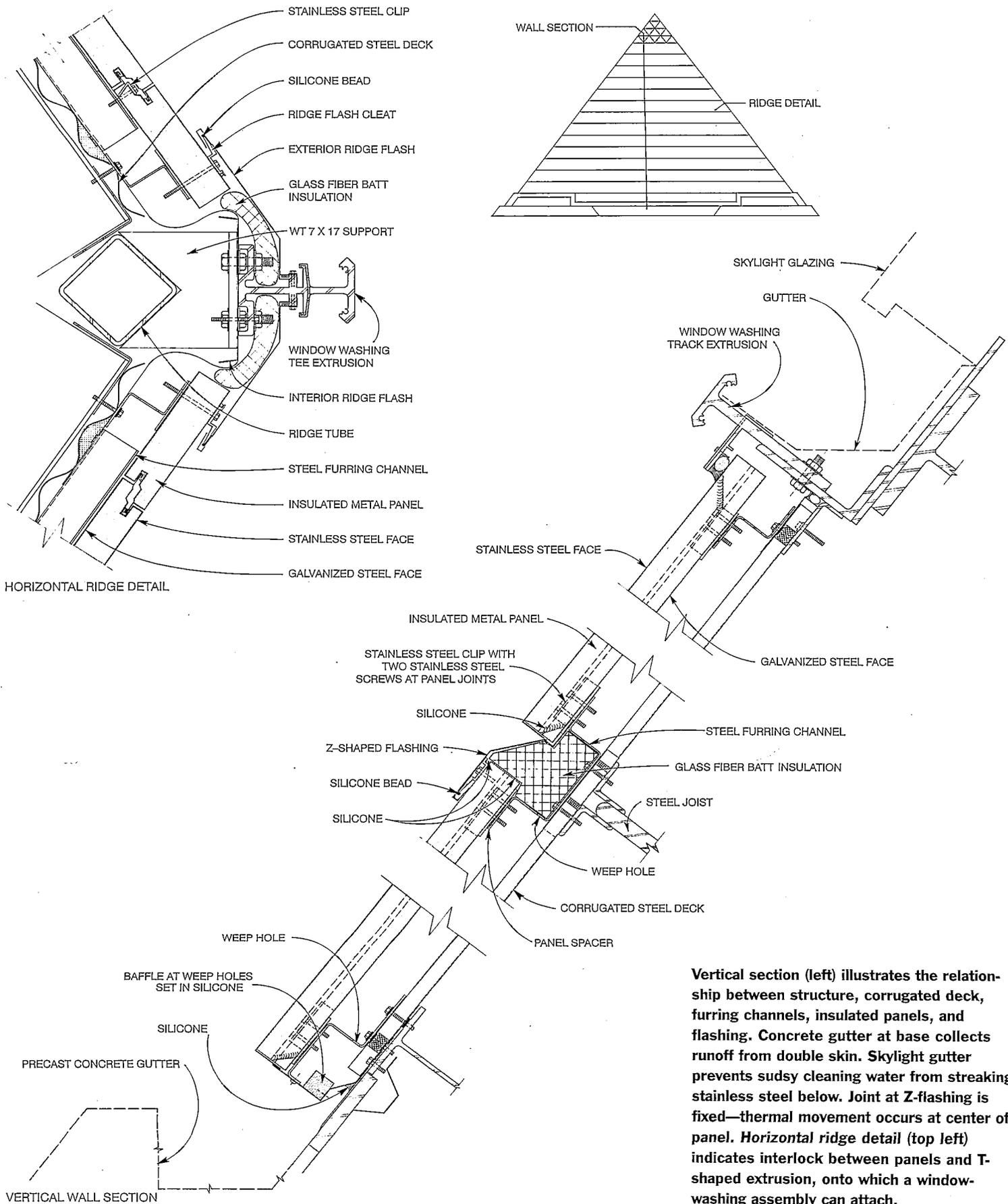
In addition to preventing water penetration, the horizontal bands of Z-flashing con-

trol the rate at which the skin sheds water and ice. They also reflect light when the arena is illuminated at night, imbuing the pyramid's vast profile with a sense of scale.

Concerned about maintenance, the client required an exterior mount from which a wall-washing company could hang a cleaning apparatus. Working with E.G. Smith, the architects detailed a heavy-gauged, extruded aluminum T-shape to attach to the structure at each corner ridge. These spines have already been put to the test—a platform was hung from them to install all 7.4 acres of stainless steel paneling. —N.B.S.

Sited along the Mississippi River in Memphis (top), the metal-clad pyramid will be completed this fall. Insulated panels are installed with the aid of a platform (below, far left) that hangs from a T-shaped extrusion at each corner ridge. The top edge of each row of panels (below, left center) is overlapped by Z-shaped, horizontal flashing (below, right center) to prevent water penetration. The 2-inch-thick panels (below) are fabricated with interlocking seams on either edge.





Vertical section (left) illustrates the relationship between structure, corrugated deck, furring channels, insulated panels, and flashing. Concrete gutter at base collects runoff from double skin. Skylight gutter prevents sudsy cleaning water from streaking stainless steel below. Joint at Z-flashing is fixed—thermal movement occurs at center of panel. Horizontal ridge detail (top left) indicates interlock between panels and T-shaped extrusion, onto which a window-washing assembly can attach.

Epson America
Torrance, California
Gensler and Associates, Architects

THE MATERIALS FOR EPSON AMERICA'S NEW corporate headquarters in Torrance, California, were chosen and detailed by Gensler and Associates to reflect the client's interest in Japanese architecture. The architects' interpretation of Epson-Seiko's request for a simple and straightforward expression was to limit the exterior palette and leave the chosen materials in a "natural" state: tinted, but not reflective, glass; precast concrete panels; and metal features. Most prominent of the metal-finished elements are the front entrance canopy, 50-foot-high curved "blade" walls, and light shelves.

The complex consists of four buildings connected by glazed passageways that are intersected by "blade" walls. These walls, supported by structural steel studs, are clad in 1/4-inch steel-faced, honeycombed aluminum. The metal is detailed to resist oil-canning and promote a taut, finished appearance, very different from the galvanized sheet metal Frank Gehry has widely popularized in Southern California.

To relieve the oppressive horizontality of large floors, the architects extended the ceiling height to 10 feet, which created problems in shading lower portions of the high windows, even though the glazing is pulled back 3 1/2 feet from the edge of the building. To satisfy California's Title XXIV energy requirements, light shelves shade the windows and bounce light back into the interior, reducing the need for internal perimeter lighting. In the interest of visual unity, Gensler applied the same shelf to every facade, regardless of orientation.

The entrance canopy assumes a different expression than the aluminum-clad walls and light shelves, which, like the computers and printers manufactured by Epson, hide their inner structure within a smooth skin. The canopy's steel structure is displayed without cladding, but like the aluminum window mullions, is treated with a high performance paint in a silver finish. Although this "unnatural" finish departs from the architects' material intention, a more "natural" finish, such as anodized aluminum, tends to corrode in the sea air of Torrance, so Gensler decided to paint all exterior metal. This decision, like the building's appearance, is a pragmatic, American interpretation for the Japanese company's new home in Southern California.

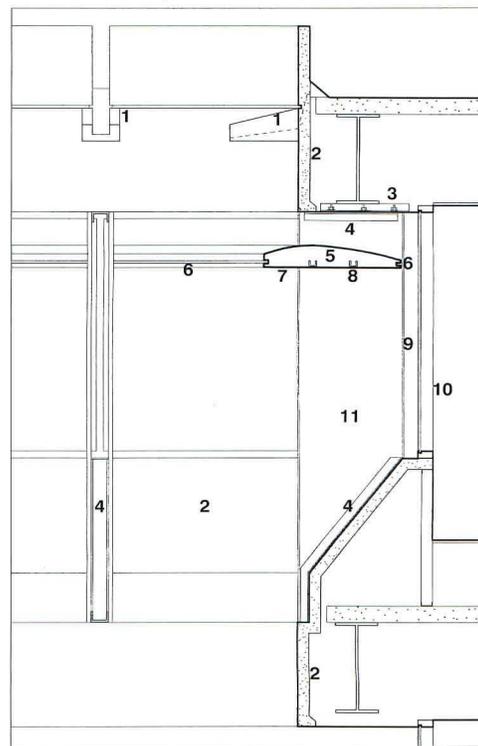
—JUDITH SHEINE



MICHAEL ARDEN



MICHAEL ARDEN



The metal features of Epson's headquarters include the main entrance canopy (top), daylighting shelves (detail, above right), and 50-foot-high "blade" walls (above left), which announce the secondary entrances and recall tokonomas inside Japanese houses. The profile of the light shelves was derived from a computer analysis determining how to bounce daylight as far inside as possible. The calculated optimal profile, a series of angles, was transformed into a curve for ease of fabrication and water runoff. The shelves are constructed of steel sheets spanning parallel aluminum extrusions.

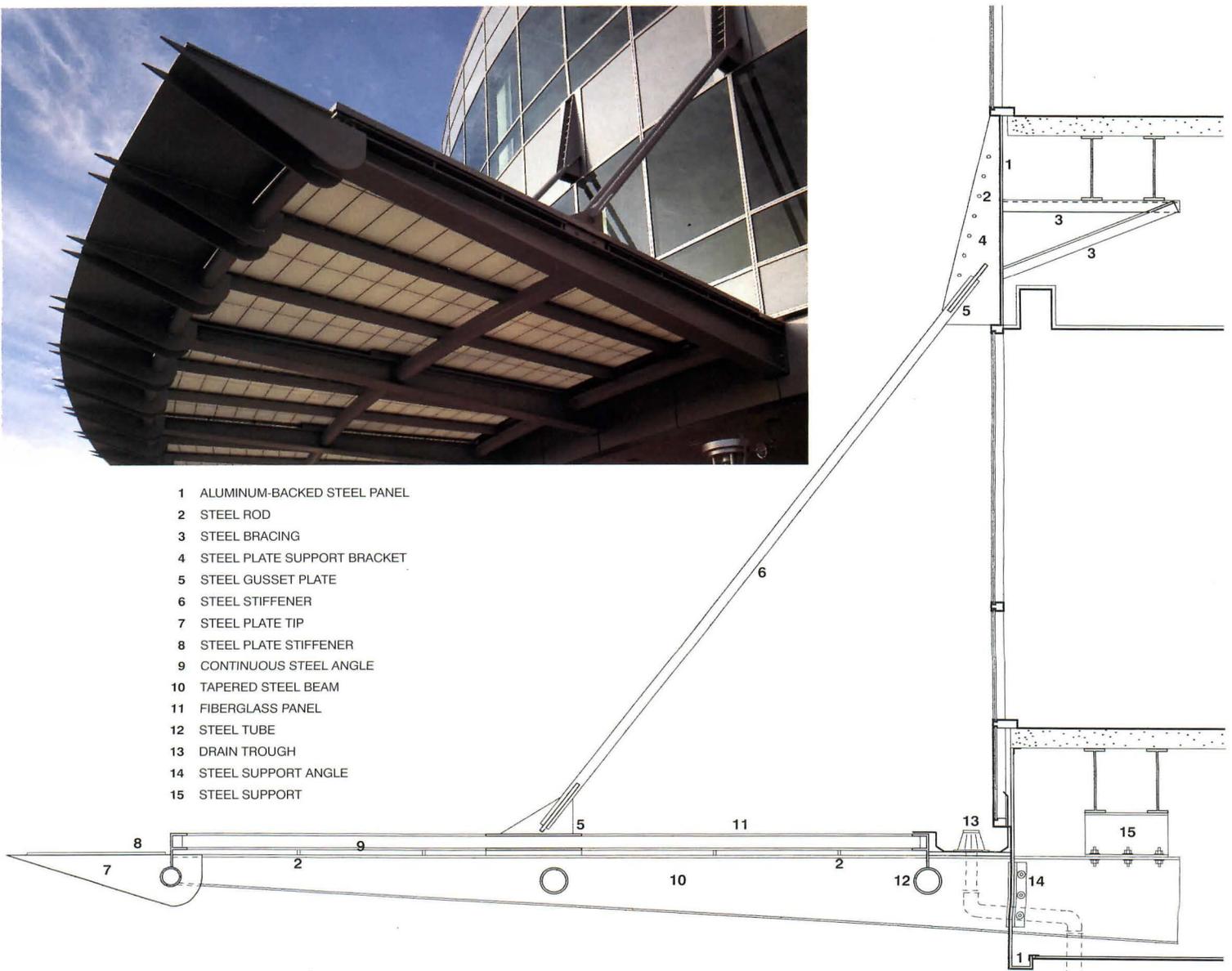
- 1 PRECAST CONCRETE OVERFLOW SCUPPER
- 2 4" PRECAST CONCRETE PANEL
- 3 STRUCTURAL STEEL ANGLE
- 4 1 1/2" x 6" ALUMINUM CHANNEL
- 5 VERTICAL ALUMINUM RIB
- 6 ALUMINUM EXTRUSION
- 7 20-GAUGE STEEL SHEET
- 8 HORIZONTAL ALUMINUM REINFORCING
- 9 1/4" TEMPERED GREEN-TINTED GLASS
- 10 ALUMINUM MULLION SYSTEM
- 11 20-GAUGE STEEL PANEL



Steel beams in the cantilevered, fiberglass-covered canopy (left, top and below) radiate from a point in the center of the interior atrium. They were economically fabricated by diagonally cutting a standard I-beam to obtain two beams, and welding a bottom flange back on. Evoking the cutting point of a samurai sword, the steel tips are visual, not structural, extensions of the cantilever. Diagonal steel struts (detail, bottom) reduce the length of the cantilevered beams, but primarily serve to counteract wind uplift.



- 1 ALUMINUM-BACKED STEEL PANEL
- 2 STEEL ROD
- 3 STEEL BRACING
- 4 STEEL PLATE SUPPORT BRACKET
- 5 STEEL GUSSET PLATE
- 6 STEEL STIFFENER
- 7 STEEL PLATE TIP
- 8 STEEL PLATE STIFFENER
- 9 CONTINUOUS STEEL ANGLE
- 10 TAPERED STEEL BEAM
- 11 FIBERGLASS PANEL
- 12 STEEL TUBE
- 13 DRAIN TROUGH
- 14 STEEL SUPPORT ANGLE
- 15 STEEL SUPPORT



**Hewlett-Packard Support Material
Organization Facility**
Roseville, California
HED Architects

ELECTRONICS GIANT HEWLETT-PACKARD requested that HED Architects of Port of Redwood City, California, develop a flexible building type for one of their manufacturing, storage, and office facilities in Roseville, California. As a result, the 275,000-square-foot distribution facility has been designed to expand incrementally—25,000 square feet at a time—to a total capacity of 1 million square feet. The flexibility of the plan, however, was only part of the equation. Clients and architects sought an economical prototype with more visual amenities than industrial environments typically offer.

To meet this goal, the architects developed an assemblage of standard metal structural and cladding elements. Steel tubes and trusses form the basic structure of the 26-foot-high workspace modules and the 17-foot-high circulation spines. Off-the-shelf facade components, including steel decking, flat steel panels, tube steel beams, fixed and movable sunscreen grilles, and aluminum window frames, are intended to be easily dismantled and reassembled for module expansions and additions.

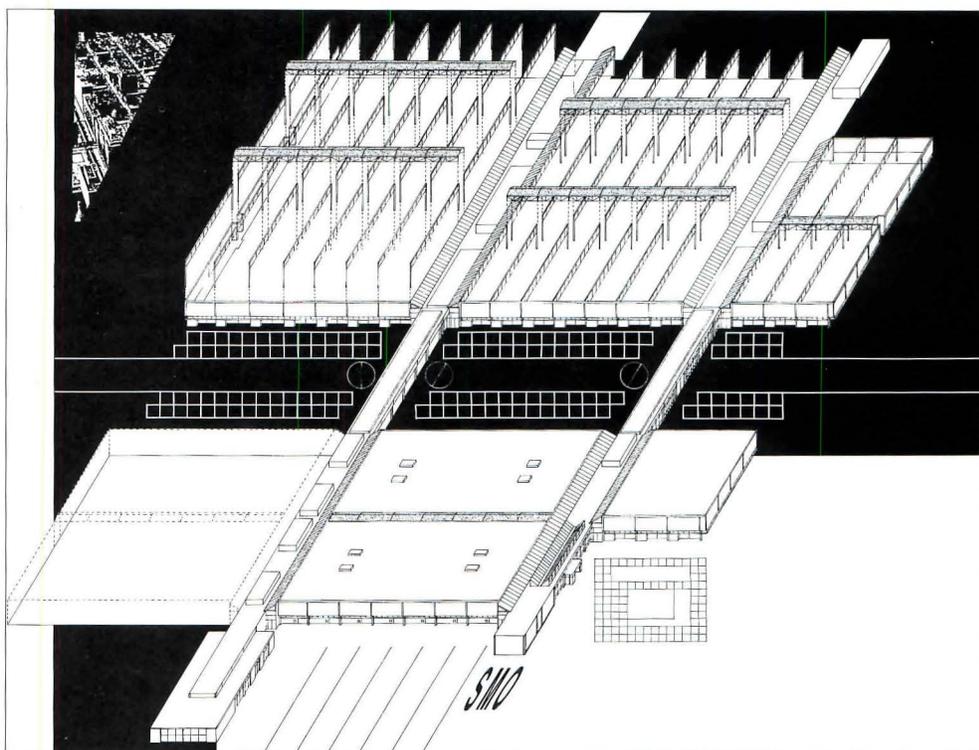
While the exterior elements may be standard, HED's application certainly is not. Along the top half of the facade, the architects spanned partially exposed, wide-flanged columns with horizontal panels of structural steel decking—typically installed as part of a concrete floor system. By running the deck's fluting horizontally, HED design principal John Duvivier reasons that "the building becomes visually disconnected from common warehouses, which are most often sheathed with vertical siding."

In addition, by spanning the decking horizontally, the architects did not need to support the upper panels' bottom edge with a beam. The lower, recessed portion of the elevation, therefore, could more easily accept a variety of cladding options in response to particular site and programmatic conditions. Views from offices to a landscaped exterior courtyard, for example, were accommodated by inserting a double-glazed window with integral miniblinds or a single-glazed window with an external, sliding aluminum sunscreen. If privacy was desired, an opaque metal panel, similar to those on the top portion of the elevation, could be installed. ■

—N.B.S.



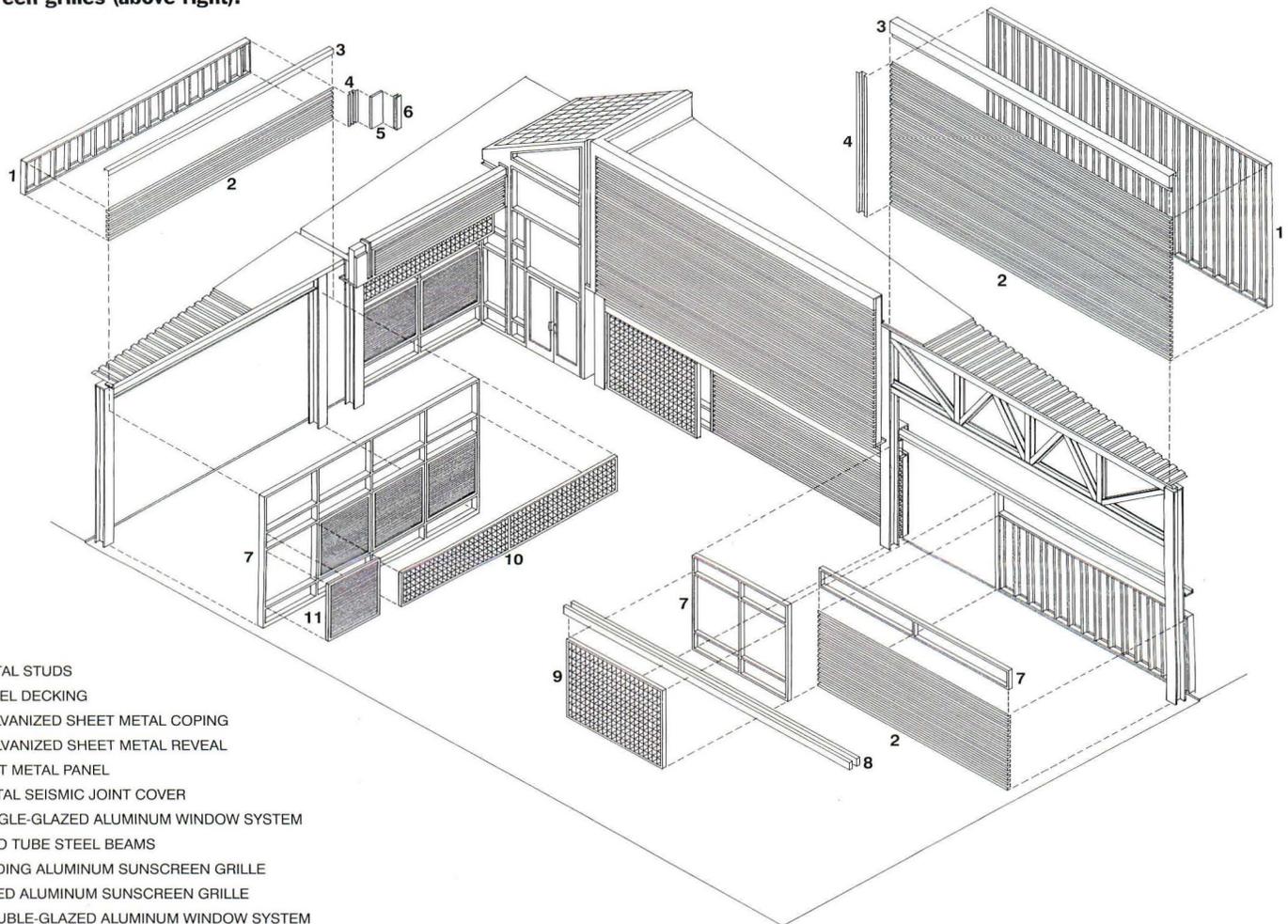
SHARON RISEDORPH



The distribution facility for Hewlett-Packard's Support Materials Organization is built up of clear-span modules and linear spines. Workspace modules can be enlarged and circulation spines added (axonometric, above) as the operation expands. Vertical covers accommodate expansion and seismic joints, and provide visual relief from the continuous, horizontal fluting on the top half of the facade (top). All exposed metal components have been finished with a coating based on a polyvinylidene fluoride resin. The project is intended as a prototype for future Hewlett-Packard facilities across the country.



HED's kit of parts (axonometric below) generates diverse elevations. Components include metal casings for light fixtures (above left); fixed sunscreen grilles and triple vertical covers at seismic joints (above center); and double tube steel bands and sliding sunscreen grilles (above right).



- 1 METAL STUDS
- 2 STEEL DECKING
- 3 GALVANIZED SHEET METAL COPING
- 4 GALVANIZED SHEET METAL REVEAL
- 5 FLAT METAL PANEL
- 6 METAL SEISMIC JOINT COVER
- 7 SINGLE-GLAZED ALUMINUM WINDOW SYSTEM
- 8 TWO TUBE STEEL BEAMS
- 9 SLIDING ALUMINUM SUNSCREEN GRILLE
- 10 FIXED ALUMINUM SUNSCREEN GRILLE
- 11 DOUBLE-GLAZED ALUMINUM WINDOW SYSTEM

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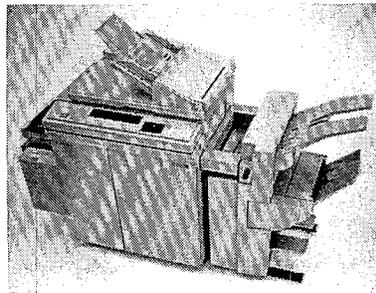
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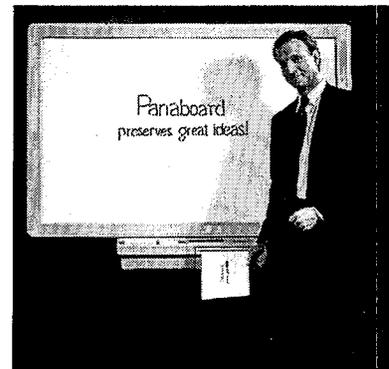
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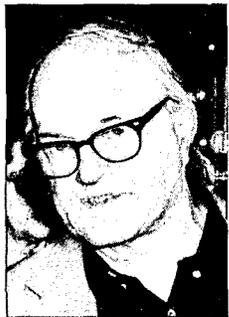
Seismically Safe Design

Experts discuss the architect's role in designing earthquake-resistant buildings.

THE DISCOVERY OF INCREASED EARTHQUAKE risk in the Pacific Northwest and the Midwest, coupled with pending legislation for a seismic building code in New York City, are dispelling the fallacy that earthquakes are exclusively a "California problem." Since 1987, the AIA/ACSA Council on Architectural Research—with sponsorship from the Federal Emergency Management Agency (FEMA)—has conducted a series of workshops for architects in vulnerable regions where seismic design might be unfamiliar or previously neglected. This June in San Francisco, workshop staff and representatives of various AIA committees gathered for a roundtable, entitled "Buildings at Risk: the Architect's Role in

Shifting Expectations

LED BY DEANE EVANS, DIRECTOR OF THE AIA/ACSA Council on Architectural Research, discussion among the 18 roundtable participants focused on the workshop staff's presentations in their respective fields of expertise. Workshop faculty member Richard Eisner, an Oakland-based urban planner and architect, pointed out that the true severity of an earthquake is not measured by its magnitude on the Richter scale, but rather by the time and money affected communities must spend for recovery and reconstruction. San Mateo-based seismic design expert and researcher Christopher Arnold noted that after northern California's Loma Prieta earthquake in



Christopher Arnold is president of Building Dynamic Systems in San Mateo, California, and has been involved with seismic design for over 20 years.



With 12 years experience in seismic hazard mitigation, Richard K. Eisner is director of the Bay Area Regional Earthquake Preparedness Project.



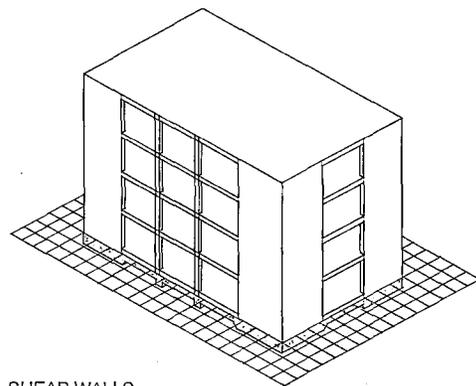
Structural engineer Eric Elsesser, president of Forell/Elsesser Engineers in San Francisco, has 30 years experience in seismic design and code criteria.



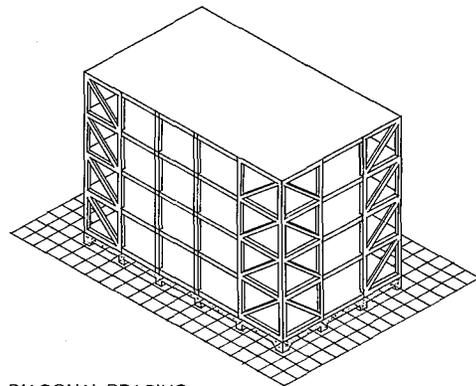
Deane Evans is director of the AIA/ACSA Council on Architectural Research and has been involved in seismic analysis and design for over 10 years.

Designing Seismically Safe Buildings," to discuss seismic technology and its application to specific building types. Their conclusions will serve as the basis for a reference guide on seismic design for architects, to be jointly published by the AIA and FEMA in 1993. The day before the conference, an earthquake measuring 6.2 on the Richter scale inflicted major damage to more than 80 structures in Pasadena and Sierra Madre, serving as a dramatic reminder of the urgent need for seismically safe design.

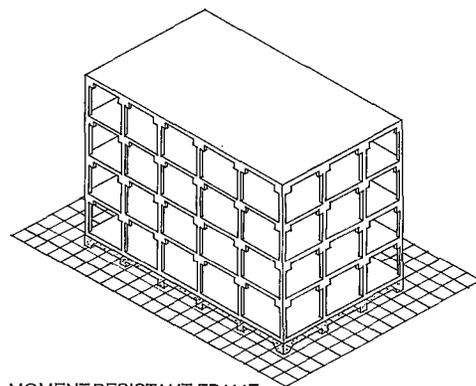
October 1989, the business community discovered that its buildings survived, but owners were surprised to find many of them unusable for several months—sometimes at the expense of businesses—even though the structures sufficiently met seismic code design requirements. Today, abandoned, damaged structures and lots left vacant from the subsequent demolition of buildings beyond repair still remain in San Francisco, Oakland, and San Jose as evidence of the cost of the earthquake.



SHEAR WALLS



DIAGONAL BRACING



MOMENT-RESISTANT FRAME

Shear walls (top), diagonal bracing (above center), and rigid connections at joints (above) serve as the principle structural elements for providing lateral resistance to seismic forces. Preliminary design decisions regarding building form determine which system is the most appropriate solution.

Code Limitations

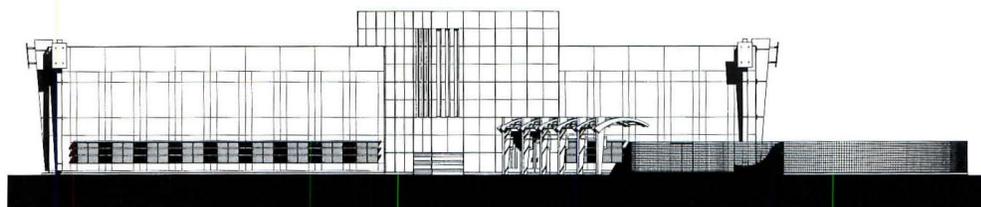
ALTHOUGH CALIFORNIA CODE PROVISIONS are rigid in comparison with those for the rest of the country, structural and nonstructural types of damage are considered acceptable, as long as they do not jeopardize safety. Even under California's standards, seismic forces often exceed code-level design loads. The codes provide very little guidance regarding compliance, and do not address the issues of designing to desired performance. But, as structural engineer and workshop faculty member Eric Elsesser points out, design professionals are just beginning to wrestle with performance issues and relate them to specific design criteria. Clients are beginning to ask questions about proposed and existing buildings' anticipated condition after an earthquake, rather than simply accepting code compliance. And they are looking to architects for the answers.

Arnold recommends that, during the initial stages of the design process, architects elicit a clear indication of clients' expectations and requirements for acceptable structural and nonstructural damage, and allowable downtime. The associated design, construction, and cost implications should then be explored and discussed.

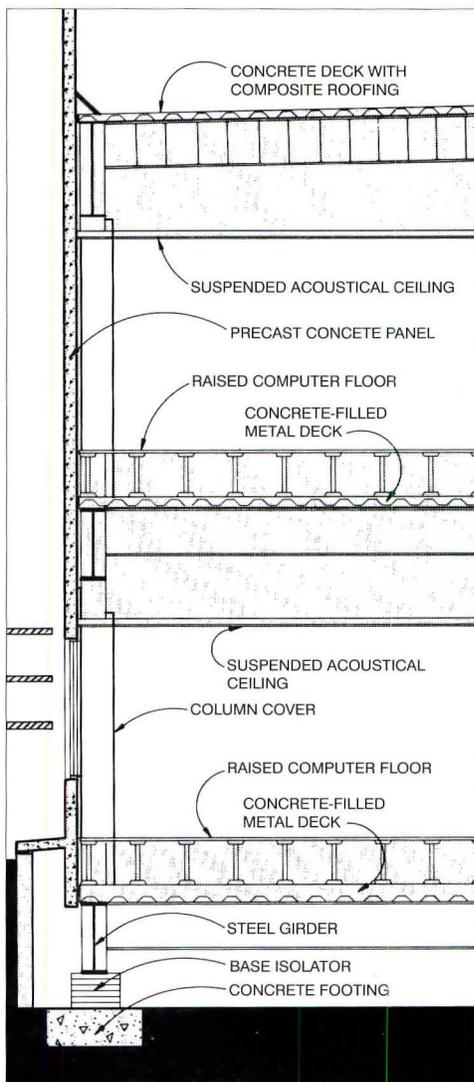
Comprehensive Analysis

A FREQUENT MISCONCEPTION AMONG ARCHITECTS and owners is that a well-designed building will be fine after an earthquake. Eisner indicated that site analysis does not end at the property line. In reality, occupants are frequently left stranded without power and water, and are physically isolated due to damaged highways restricting access. Provisions for self-sufficiency, such as uninterrupted power supply, should be considered if a building's services are to remain in operation. While roundtable participants agreed that site selection is often dictated by the real estate market, analysis of site conditions, such as soil type, provides valuable preliminary design information. This data, in turn, should influence decisions as to the most appropriate building height for the site.

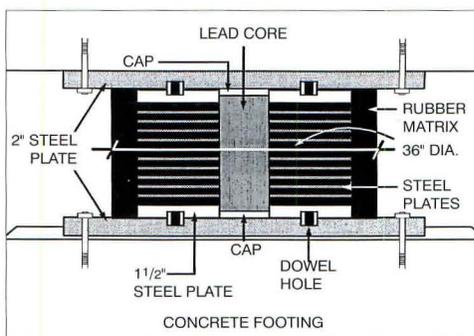
Arnold stressed that architects can exercise the greatest influence on seismic safety by determining a building's configuration. As he noted, designers control the overall size and shape of the building envelope, the size and location of structural elements, and the size and location of nonstructural elements, such as stairs, cladding, and heavy equipment, all of which affect seismic performance. Roundtable participants explained that archi-



SOUTH ELEVATION



WALL SECTION



BASE ISOLATOR

Data Processing and Telecommunications Center Corona, California Widom Wein Cohen, Architects

NOW UNDER CONSTRUCTION AND SCHEDULED for completion in December 1992, Kaiser Permanente's computer center (above), must not only survive a major earthquake, but remain able to provide hospitals throughout Southern California with emergency patient and management information. Such demanding seismic performance criteria, along with the need to protect valuable data-processing equipment, led Widom Wein Cohen to design a base-isolation system for the 120,000-square-foot structure.

Elevated on a foundation of rubber and steel plate bearings that absorb ground motion (bottom left), the building configuration and construction materials were determined according to the support structure. The dead weight needed to stabilize the isolators led the architects to create two regularly formed, stacked floor plans and a precast concrete shell (section, left). To allow for movement between ground and structure, a space, or "moat," is provided around the building perimeter, as are flexible joints where utilities enter the building.

The facility, designed to withstand the worst ground motion predicted to occur in the area, exceeds seismic code design values by one-and-a-half times. Although occupants, structure, and contents should survive unharmed, the architects anticipate that local utilities could be disrupted for several days. Therefore, water storage tanks are positioned between the ground and elevated first floor to provide a six-day reserve. The facility will also be equipped to provide six days of self-sufficient electrical power generation.

Base isolation is unfamiliar to U.S. building-code officials—only four such new structures have been completed in the country. The architects therefore coordinated a city-approved peer review process of the base isolation and foundation system between structural engineering consultants Taylor & Gaines and Englekirk, Hart and Sabol.

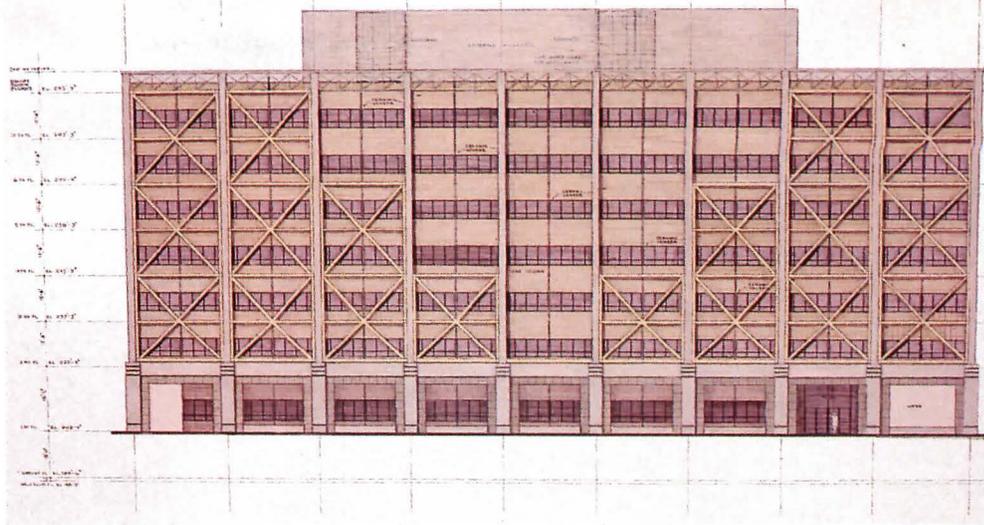
misconception that the resulting form can be “retrofitted” to conform to seismic design criteria. Instead, they maintained, seismic considerations should be treated as a fundamental design issue. Building configuration alone, regardless of material choices or the quality of construction, plays a critical role in determining a building’s seismic safety and dictates how structural engineering solutions are later applied to the design to remedy deficient conditions.

Existing problems and new opportunities

PANELISTS REMARKED THAT IN TERMS OF saving life and property, the dangers of earthquakes reside in the huge inventory of existing buildings in this country, rather than in the 1 or 2 percent of new buildings constructed every year. As Elsesser pointed out, the concept of ductility (the ability of a material to dissipate earthquake energy through permanent structural distortion without causing collapse) represents a relatively recent shift in thinking, breaking with traditional engineering principles of rigid resistance to seismic forces. Buildings do not have to be very old to pose seismic risks. Many mid-rise public buildings constructed in the 1960s and early 1970s, for example, are now outdated with regard to earthquake-resistant construction criteria. Since 1950, Eisner noted, more than 90 percent of the deaths in California earthquakes can be attributed to nonductile concrete frame structures. As for upgrading historic buildings, Elsesser commented, “conflicts between preservation and seismic upgrading requirements are open to negotiation.”

The participants noted that much retrofit and repair work is regarded by the public as purely a structural problem, to be remedied by contractors without concern for design issues. Architects are often completely absent from the process. Lee Schwaber, a representative of AIA’s California Council, concluded, “Architects have to stand up and say to their clients and the public, ‘we know what we are talking about on seismic issues, and we know how to address them.’” In choosing a reactive role, practitioners relinquish their position as an essential coordinator of the building process. Now that rehabilitation of existing buildings comprises an increasing percentage of architects’ work, and the risk of earthquakes is increasingly recognized as a nationwide concern, architects have greater opportunities and responsibilities in determining seismically safe design solutions.

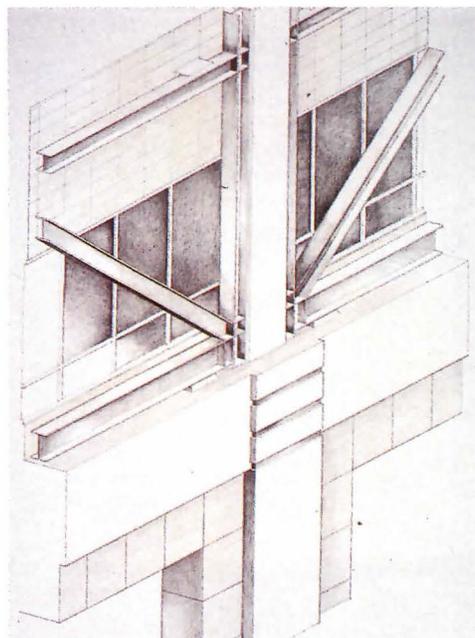
—MARC S. HARRIMAN



EAST ELEVATION



EXISTING BUILDING



BRACED FRAME AND SHEAR WALL JUNCTURE

University Hall University of California, Berkeley Hansen Murakami Eshima, Architects

COMPLETED IN 1957, UNIVERSITY HALL (CENTER left) is similar in construction to many of its mid-rise, office building contemporaries in need of seismic upgrading. Located within a mile of the active Hayward fault, the original seven-story, nonductile, reinforced concrete structural frame posed a danger to life safety, risking collapse during a major earthquake. The exterior concrete columns, unless adequately braced, could fail to support the upper floors. As a result, the building was rehabilitated as part of the University of California’s \$50 million program to upgrade its existing buildings after the 1989 Loma Prieta earthquake. Completed in July, the \$8.2 million project now meets California’s current and most rigid seismic code criteria.

Although the architects considered constructing interior shear walls or forming larger piers with steel bracing around the existing columns, they found a more economical solution that was also the least disruptive to the occupants, while offering the greatest opportunity to enhance the exterior facades. Developed in conjunction with structural engineers H.J. Degenkolb Associates, a screen of stacked, two-story-tall, structural steel X-braces was anchored to the columns on the upper floors (top) to provide them with added lateral reinforcement. A new concrete colonnade stiffens the lower story and serves to articulate a visually stronger base while transferring seismic shear forces from the braces to the foundation (bottom left).

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Plot Lines

Speed and flexibility mark recent progress in output devices.

NOT TOO LONG AGO, ARCHITECTS HAD LITTLE choice in large-format output devices. The technology was dominated by the pen plotter, with one or several pens that moved mechanically over paper to create lines much the same way as a draftsman draws. The first pen plotters were slow, noisy, and monochromatic. They were idiosyncratic in behavior, required constant attention, and primarily produced final construction drawings.

Now, pen plotters are faster, sport multiple writing instruments, and require little supervision. They are increasingly compatible with a variety of design software and can be operated on networks. Yet they are also still relatively slow and unable to do justice to full-color CADD renderings.

Recently, pen plotters have begun to share the output burden with other technologies such as high-speed electrostatic and laser plotters, and thermal printers that are broadening opportunities

Drawings from two Calcomp plotters reveal differences: the DrawingMaster Plus direct thermal plotter draws fine lines at 406 dpi (below left); the ColorMaster Plus thermal transfer printer prints only 300 dpi but offers black and white (below right) and full color options.

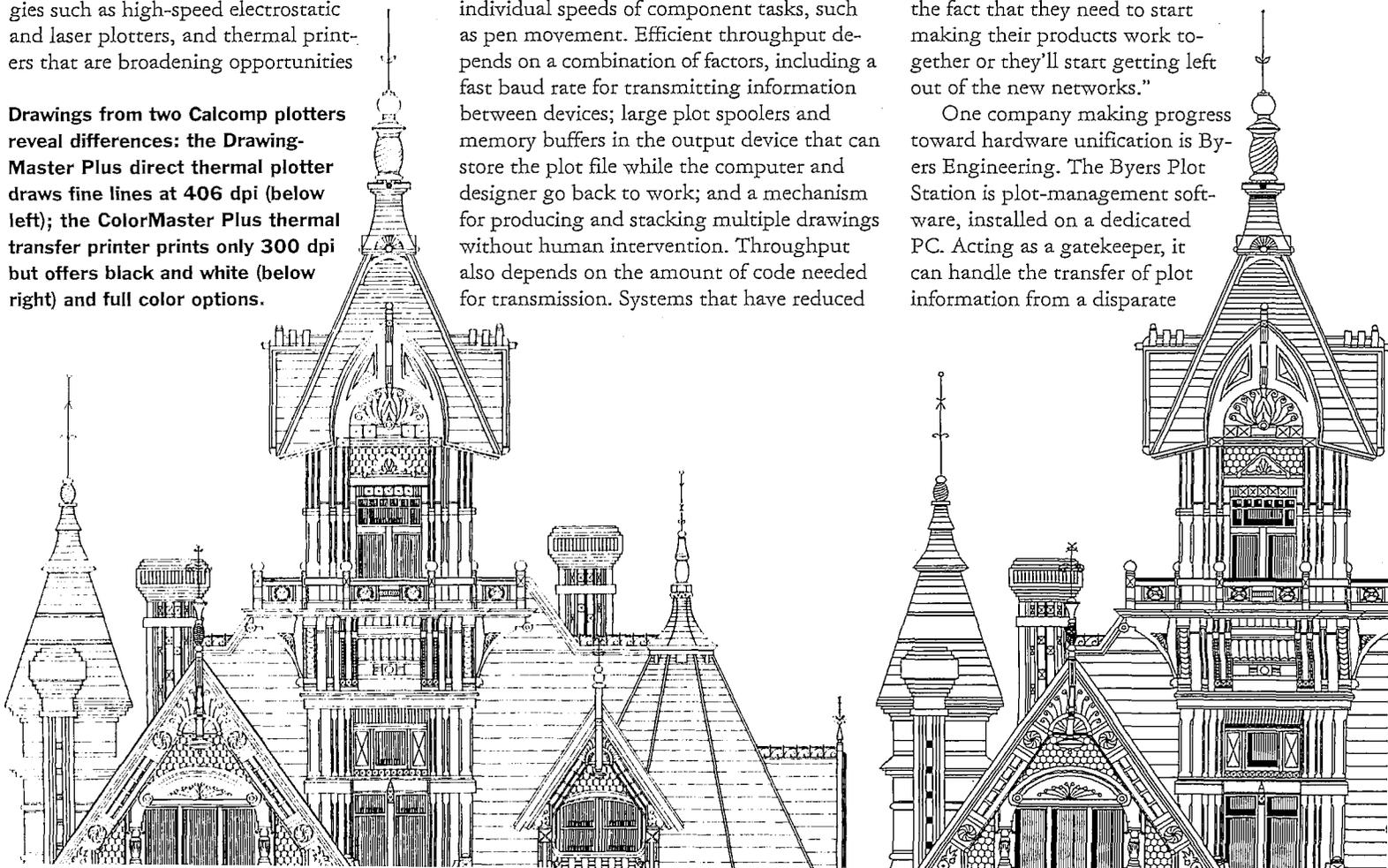
for documenting on paper virtually any image that can be generated on screen. Despite early promises of "paper-free" automated offices, this technology is continually devising ways for architects to generate more paper at faster rates. Some companies, like Hewlett-Packard, supply a wide spectrum of plotters and printers, while other companies focus on a specialized niche. All of them are trying to overcome the output bottleneck in CADD document production.

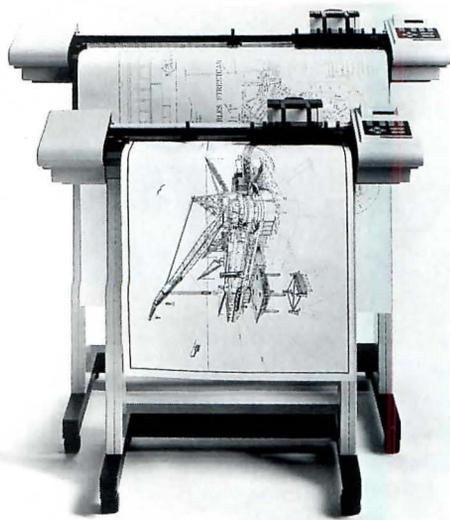
In fact, a term has been coined to reflect the need to churn out more paper faster. "Throughput" refers to the overall rate of generating drawings, from when they are first sent from the CADD workstation to when they land—collated and stapled—on an architect's desk. The overall throughput rate is now recognized as more significant than the individual speeds of component tasks, such as pen movement. Efficient throughput depends on a combination of factors, including a fast baud rate for transmitting information between devices; large plot spoolers and memory buffers in the output device that can store the plot file while the computer and designer go back to work; and a mechanism for producing and stacking multiple drawings without human intervention. Throughput also depends on the amount of code needed for transmission. Systems that have reduced

this amount by switching from the widely used HP-GL (Hewlett-Packard Graphics Language) to the newer HP-GL/2 have increased transmission speeds as much as fivefold. This concern for faster throughput, which has been growing over the past several years, benefits design production.

But many architects are exploring ways computers can assist in other aspects of design, and plotter manufacturers are beginning to take notice. Dan Miller, a senior industry analyst with Dataquest, a high-tech market research firm based in San Jose, California, explains, "Plotter manufacturers are realizing that architects don't just want to automate drafting. They want output devices to support the entire design process. Users tend to have heterogeneous collections of equipment, and manufacturers are waking up to the fact that they need to start making their products work together or they'll start getting left out of the new networks."

One company making progress toward hardware unification is Byers Engineering. The Byers Plot Station is plot-management software, installed on a dedicated PC. Acting as a gatekeeper, it can handle the transfer of plot information from a disparate





Eight-pen plotters in the DMP-60 DL Series from Houston Instrument (top) boast throughput three times that of the competition. They can plot up to E-size. Ioline's Signature 5000 large-format pen plotter (above center) accepts any size cut sheets or rolls up to 37 inches wide and supports up to 25 pens. It also supports a tangentially controlled knife for cutting vinyl. Mutoh America's new iP-210 B-size flatbed Personal Plotter (above) includes optional memory card buffers up to 512 kilobytes in capacity.

assortment of CADD workstations and networks to a similarly motley array of output devices. For example, it can receive plot files from a Unix workstation, a PC, or a Macintosh, then transfer those files to a pen, electrostatic, thermal, or laser plotter without the user having to worry about variations in protocols. Plot Station also includes capabilities for manipulating plot files, reassigning pen and color attributes, highlighting the most recent changes in a drawing, and maintaining detailed plot logs. This ability to connect virtually any computer to any plotter offers efficiency and flexibility to firms with a mix of hardware on a network.

Increased attention to networking, cost reductions, and efficiency in plotting have made CADD more attractive to many architects. However, according to Miller, progress in hardware technology over the past year, with a few exceptions, has been evolutionary rather than revolutionary.

Pen plotters

PEN PLOTTERS, BECAUSE OF THEIR RELATIVELY low cost and high quality output, are still probably the most common type of plotter in architecture firms today. They are considered by many to be the reliable workhorse of the small firm, and they continue to improve and thrive in spite of competition from other technologies. Noise levels have declined, pen speeds have increased, and built-in software has minimized pen movement and pen changes. Most of these plotters now have accessible control panels for adjusting pen speed, pressure, and protocol selection.

Pen manufacturers have cooperated with plotter manufacturers to develop pens that last longer and don't skip or run out of ink as frequently as conventional technical pens. Freestanding drum plotters (in which the pen moves in one dimension and the paper in the other) are still the most common. Some of these also have roll feeders, so that paper doesn't have to be fed in by hand, one sheet at a time. Flatbed plotters are regaining popularity because they permit greater precision, can take a variety of media—including illustration board—and the drawing can extend to the edge of the paper. The paper is held in place electrostatically, resulting in less shift than with drum plotters, which hold paper by friction. Most large flatbed plotters can be adjusted to sit at an angle (even vertically) so they take up less floor space.

For many years, as new plotter technologies emerged, experts have predicted the imminent demise of the pen plotter, but the

workhorse appears to be holding its own. Dataquest's Miller believes that, although sales rates are declining, pen plotters will continue to survive for the foreseeable future because the performance per price is still very attractive, and because existing units are sturdy and long-lived.

In fact, this plotter technology is continually expanding. Pencil plotters, which have long been popular in Japan, are gradually gaining acceptance in this country for check plots. They can draw on inexpensive bond paper and can run longer without supervision and faster than pen plotters. As the lead gets low, it can be automatically replaced, eliminating the problem of pens running out of ink. Pencil plotters also enable the architect to make last-minute changes by hand without replotting. In some plotters, pens and pencils can be used together in the same drawing. Thus, aspects of the drawing that have been finalized can be drawn in ink while tentative design decisions can be drawn in pencil. Although they produce acceptable blueline prints, the resulting images are not as strong as from ink drawings. Some plotters support knives for cutting vinyl for signage and paper for physical models. A microcontroller automatically pivots the cutting blade so it is always aligned with the direction of movement.

Direct thermal imaging

DIRECT THERMAL PRINTERS PRODUCE IMAGES by applying heat to special papers. Instead of drawing lines, or vectors, as pen plotters do, these printers print dots, or rasters. When a vector-based CADD file is sent to a thermal printer, a vector-to-raster conversion is computed. In addition, raster input from scanned images or rendering programs can be accepted directly. The higher the number of dots per inch (dpi), the finer the grain and the less jagged the curves and diagonal lines appear. Direct thermal plotters can be very fast, plotting one or two colors with resolutions above 400 dpi, with the added advantage of not requiring ink or toner. In the past, with lower resolutions (100 or 200 dpi) and limited paper options, they were most popular for check plots. Now, plotting on vellum and film, they are suitable for final construction documents. Unlike common facsimile paper, these materials, if properly stored, will retain their original color, strength, and image for about seven years. For longer storage requirements, thermal drawings can be photocopied onto plain paper with large-format copiers.

printers. Unlike the dot-matrix color printers of a few years ago that produced colors that appear faded, these printers create vivid colors, some with Pantone certification. Mostly A- and B-size, they provide a hard copy of the brilliantly rendered models that designers can create on screen. However, this technology is still new, and these color printers are relatively slow and require special papers.

Electrostatic plotters

THESE PLOTTERS ARE RELATIVELY EXPENSIVE, but they are fast and produce high resolution (up to 400 dpi). As much as 36 inches wide, they produce images with liquid toner on treated media. They tend to require considerable maintenance, and environmental concerns have been expressed over the toxicity of their toners. Available now in color as well as black and white, such plotters perform well for presentation as well as construction drawings, and are suitable for offices that generate large quantities of output. Recent advances include increased speed (up to 2 inches of final drawing per second), built-in fill patterns and line types, increased data storage, and smaller footprints.

Laser plotters

LASER PRINTERS, NOW COMMON OFFICE equipment, are also available in large formats and are found increasingly in CADD networks. They are fast, high in resolution, but expensive. A new plotter from HCS/Savin can produce an E-size drawing in an astonishing five seconds for anyone willing to spend six figures. According to Dataquest's Dan Miller, this plotter has brought technology to a new plateau. "This was a multilevel leap in terms of performance capability that we didn't predict," he says. "But its high price tells us that it's early in its life cycle; it's not ready for a broad market yet."

Considering that electronics prices tend to decrease with time, popular preferences may eventually shift from pen to laser technology. Because the increasing resolutions of laser plotters make the output more attractive than old-fashioned dot-matrix printing, architects' preferences for vector drawings may soon disappear. With an unknown upper limit processing speed (contrasted with the finite and possibly already realized ceiling on mechanical pen speed), these laser plotters will only get faster.

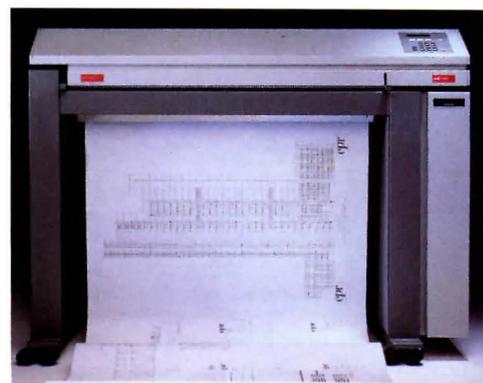
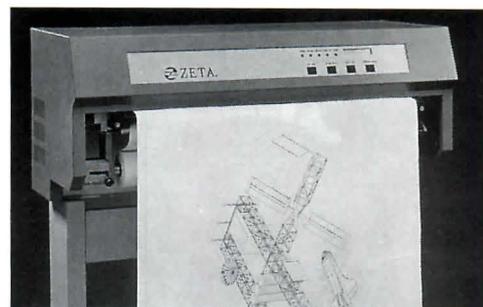
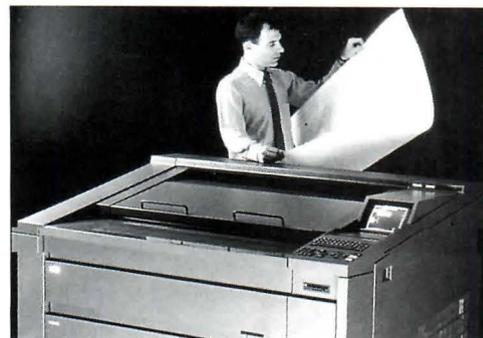
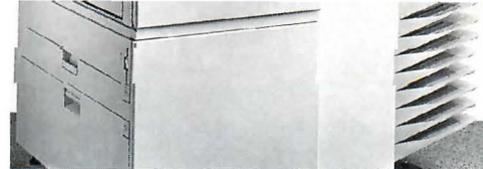
These companies may be on the verge of a breakthrough technology that combines all these functions in one machine. The term "digital reprographics" is being heard more and more now that the distinctions between printing, plotting, copying, mass-reproducing, and transmitting are breaking down. In the not-too-distant future, an architect will be able to send a D-size drawing directly from a CADD workstation to any fax machine in the world, or to a local service bureau, which could then mass-produce high-resolution, plain-paper drawing sets without concerns about CADD software compatibility. Although these machines will be very expensive, especially at first, an intriguing aspect is that small offices, by electronically transmitting drawings to contractors, clients, and printing houses, may be able to bypass plotting technology altogether. This could be what is meant by a "paper-free" office.

According to W.I. Pittman, president of Xerox Engineering Systems (XES), that promise may never be kept. "People like to end up with a product they can hold in their hands," he claims. His company's explicit goal is the integration of the now confusing variety of media—from paper and microfilm to digitally stored images. "With all these systems surviving in a state of awkward coexistence, and the supporting technologies changing on a daily basis," Pittman observes, "a revolution in document management has been brewing for some time."

Rather than try to suppress the revolution by insisting on a single technology, XES has taken the approach of developing hybrid systems (like combination plotter/copiers) to accommodate a document throughout its life and to ease the transition of professionals from traditional media to digital. "A big advantage of hybrid products," Pittman explains, "is that they can adapt to new technologies. For example, by plugging into a network, a scanned image could be sent into a network's data storage or for transmission to the other side of the world. Hybrids make transitions easier and more manageable."

If Pittman is right, and if other plotter manufacturers follow this pattern of focusing on the document rather than the hardware, architects in the near future may find it easier to manage, but not reduce, the overwhelming quantity of paper around them. ■

—B.J. NOVITSKI



Called a "graphics printing system," the D-size Xerox 8840-D (top) can accept plot files from CADD systems but is also a large-format copier. Capable of producing a 400 dpi, E-size drawing in five seconds, the HCS 536-XL (second from top) is considered the fastest in the world. Zeta Graphics' new 2400P (third from top) is a monochromatic direct thermal plotter that prints 200 dpi at 4 inches per second. The new G9800 Series direct imaging plotters from Océ Graphics (above) feature 406 dpi resolution.

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Cover Story

Wallcoverings with an environmental conscience.

SINCE THE PAINT INDUSTRY ACCOUNTS FOR AN ESTIMATED 20 percent of harmful volatile organic compound (VOC) emissions in the United States, covering a wall with fabric or paper rather than painting it should minimize harmful indoor pollution—or does it?

Sparked by the EPA's 1990 announcement that it would investigate indoor-air-quality standards, along with national concern about the environment, the wallcovering industry has begun to examine its practices. Currently, the Chemical Film and Fabric Association (CFFA) is investigating the environmental properties of stain-resistant chemicals, as well as biocides that protect wallcoverings and adhesives against mildew and bacterial growth. Yet according to CFFA representative Chris Devor, environmental awareness is still "a very new issue" in the wallcovering industry. Some visible changes in the industry's practices over the past year include the elimination of mercury and other heavy metals from biocides. In addition, manufacturers have recently paid more attention to smoke-toxicity levels to comply with

New York State regulations. Because wallcovering

designers are unwilling to sacrifice color and texture in their quest to produce safe products, some companies are seeking ways of replacing synthetic dyes and inks with equally vibrant, all-natural pigments.

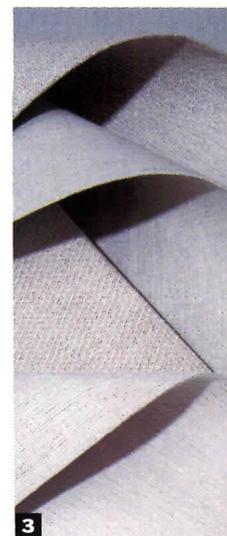
—KAREN SALMON



1



2



3

1. Columbus Coated Fabrics offers its Guard Sakai line of 20-ounce textured vinyl wallcoverings in 15 colors. Circle 401 on information card.

2. Koroseal's contract wallcovering emits a nontoxic, odorless, colorless vapor that triggers an ionization smoke alarm when the material is heated to 300° F. Circle 402 on information card.

3. Emulating the appearance of European woven wallcoverings, J.M. Lynne's American Naturals Collection presents 60 color and pattern combinations at a lower price than imported designs. Circle 403 on information card.

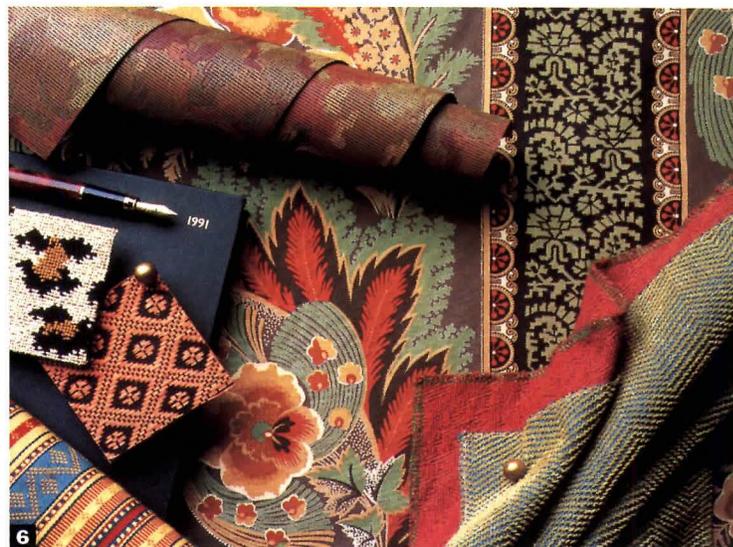
4. Fashion designer Karl Lagerfeld draws upon 18th-century European themes in his 40-pattern wallpaper and fabric collection for Gramercy. Circle 404 on information card.

5. Clestra Hauserman has added a steel finish option to its movable floor-to-ceiling wall system. The textured surface is offered in a wide variety of customized colors. Circle 405 on information card.

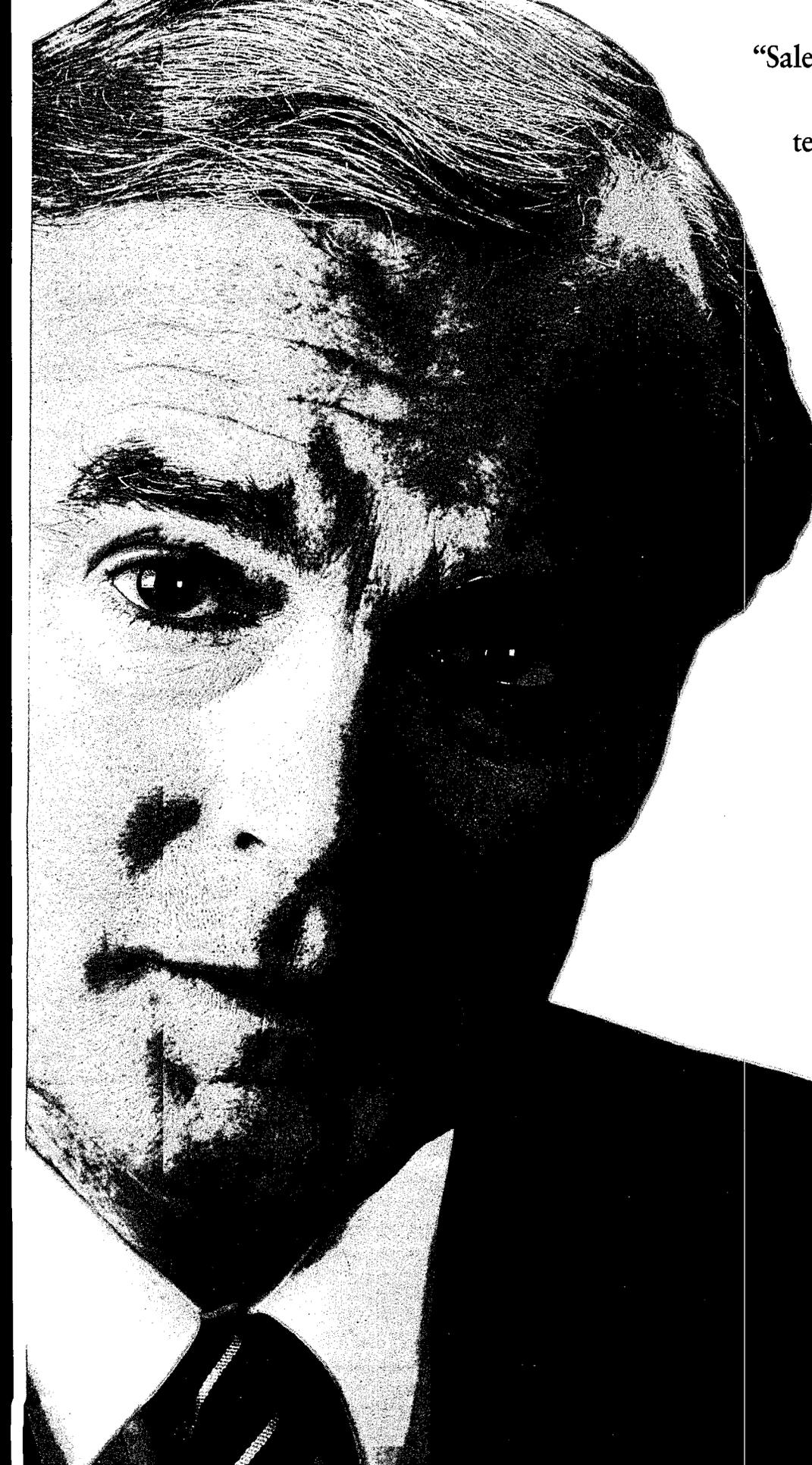
6. Foret Foliage wallpaper (top) by Brunschwig & Fils joins the Swiss textile collection introduced this spring. Circle 406 on information card.



5



6



“Salespeople are often helpful,
but my industry publications
tell me more of what
I need to know.”

Your salespeople can be effective when they get to see a customer or prospect. But, on a day-to-day basis, the buying influences you need to reach turn to specialized industry publications for more of the important information that helps them make buying decisions. A recent study, conducted by the Forsyth Group, proves it.

In the study, 9,823 business and professional buying influences were asked what sources they find most useful in providing information about the products and services they purchase for their companies. The results were somewhat surprising. Overall, specialized business publications emerged as the source business people turn to first. In other words, trade magazines are where business goes shopping.

Many other sources of information, including sales representatives, direct mail and trade shows, have their place in the total marketing mix. But if you want to reach the highest number of qualified buyers at the lowest cost, specialized business publications are clearly the best choice.

For a free copy of the study, please write to American Business Press, 675 Third Avenue, Suite 400, New York, NY 10017.

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Paint it Green

Coatings manufacturers aim to clean up the air.

THE FEDERAL GOVERNMENT IS SLOWLY TAKING STEPS TO REDUCE the harmful effects of architectural paints and coatings. The 1990 Clean Air Act amendments require the EPA to examine consumer and commercial products with respect to volatile organic compound (VOC) emission levels. Legislation passed last December has already forced paint manufacturers to cross mercury off their ingredients lists. Still, questions remain as to what constitutes a safe product.

In the 1970s, paint manufacturers complied with emissions standards set forth in the original Clean Air Act by replacing organic solvents with water. According to paint distributor Eugen Dunlap, these waterborne and latex products were a cheap, quick way to meet the new federal requirements. In his view, adding water and a host of new synthetics in place of oil-based solvents "bought time" for the industry, leaving scientists guessing at the new products' long-term effects.

Sinan, Dunlap's U.S. division of the German-based Auro company, is the only paint distributor in the country to promote water-based and oil-based coatings made entirely without synthetic and crude oil elements. Sinan is also the only paint company to provide a full listing of product ingredients. Livos PlantChemistry, imported by Eco Design, manufactures natural products made from renewable sources; some of Livos's coatings contain a nonaromatic, synthetic solvent for those who are chemically sensitive to natural resins. —K.S.



1. According to the manufacturer, Tremec's water-based Enviro-crete protective coating penetrates a building's exterior, forming a flexible membrane on concrete, plaster, brick, and stucco. Circle 407 on information card.

2. The Sinan Company imports German-made paints, glues, varnishes, lacquers, and polishes made from all-natural, noncrude-oil-based ingredients. Auro coatings are purportedly equal in durability to synthetic paints. Circle 408 on information card.

3. Sto Corp.'s revised 391-color system applies to any Sto paint or coating, including its new line of emulsion-based coatings for

masonry applications. Circle 409 on information card.

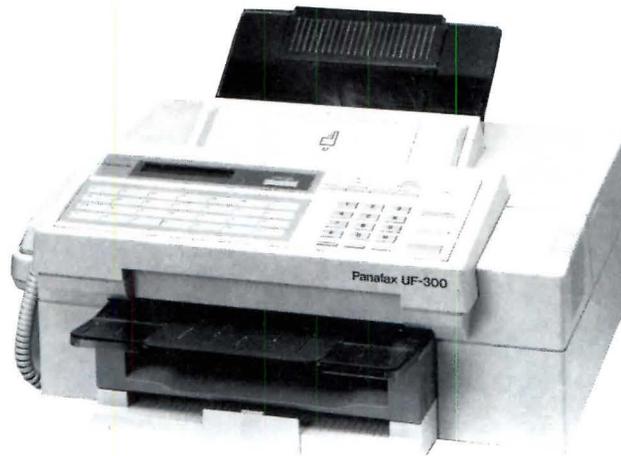
4. ProMar 200, Sherwin Williams's interior painting system, includes both latex and alkyd primers, and top coatings in a variety of finishes. The synthetic-based alkyd is described as faster drying and harder in finish than oil-based paints. Circle 410 on information card.

5. Eco Design Company imports a low-toxic interior wall paint by Livos PlantChemistry in Germany; Dubron is a water-based emulsion of natural plant resins and oils that matches the longevity of conventional latex paints, according to the manufacturer. Circle 411 on information card.

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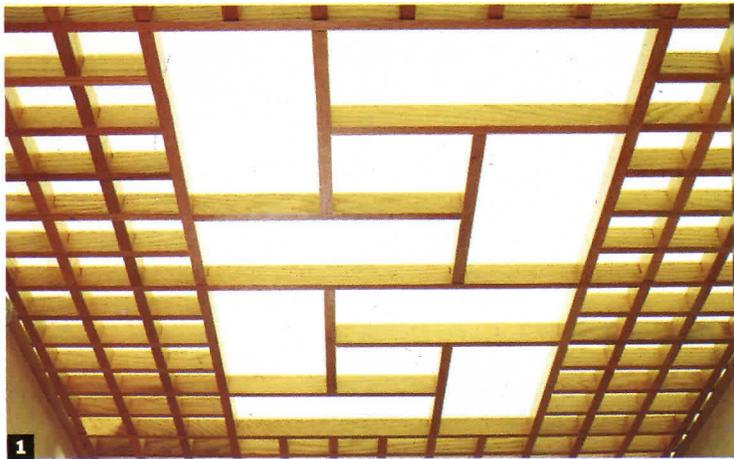


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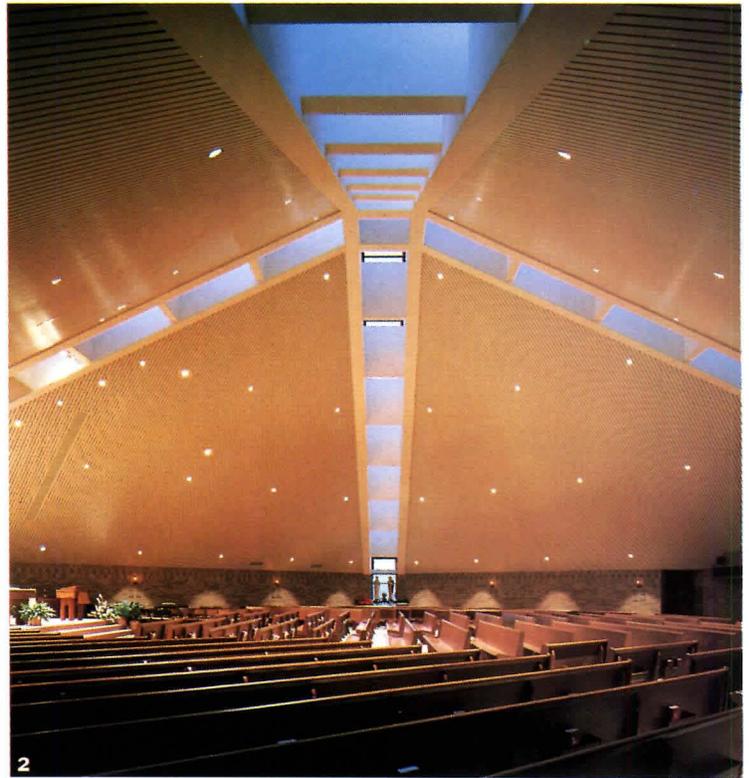
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Looking Up

New dimensions in ceiling systems.

DESPITE DWINDLING BUDGETS FOR NEW CONSTRUCTION, ARCHITECTS are increasingly interested in departing from conventional drop-in, acoustical panels in order to create distinctive ceilings for their clients. Manufacturers have responded to requests for customized ceilings by designing modular systems intended to add design interest without significantly expanding project budgets. While acoustical panels must be cut to allow for high-hat lighting fixtures and sprinkler heads, open-cell designs readily accommodate sprinkler, lighting and HVAC systems, at the same time providing ready access to plenum chambers. Constructed of narrow metal strips, linear slat ceilings demonstrate a high fire-rating and resistance to dirt buildup. Designed to fit different suspension systems, all of the described ceilings present danger during an earthquake if not installed correctly. A committee sponsored by the Ceilings and Interior Systems Construction Association (CISCA) is currently examining what happens at the perimeter of a suspended ceiling during an earthquake. The committee will publish guidelines for suspended ceiling installation according to the country's regional seismic activity sometime this summer.

—K.S.



2

1. Norton Industries' louvered system is available in different cell sizes, designs, wood species, and finishes. Circle 412 on information card.

2. Manufactured in aluminum or steel, Chicago Metallic's beam ceiling components meet interior and exterior specifications. Circle 413 on information card.

3. Alcan developed the Magna-grid 14-T drop-in, open-cell ceiling system to fit any standard 9/16-inch T-bar grid. Circle 414 on information card.

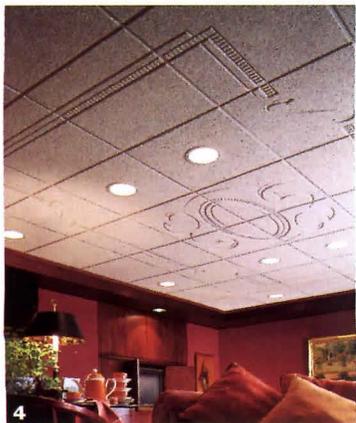
4. Armstrong's precut panels allow for detailing around light fixtures and HVAC openings. Circle 415 on information card.

5. USG Interiors offers the Eclipse acoustical ceiling panel, which is foil-backed to limit sound transmission. Circle 416 on information card.

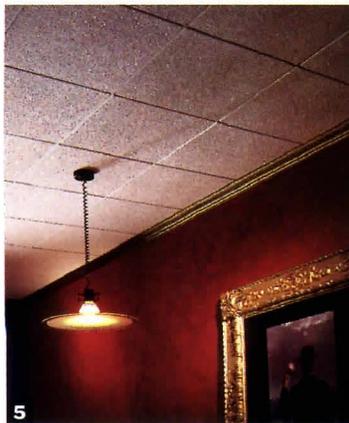
6. ECS resurfaces existing tiles and panels to reduce costs and save on natural resources. Circle 417 on information card.



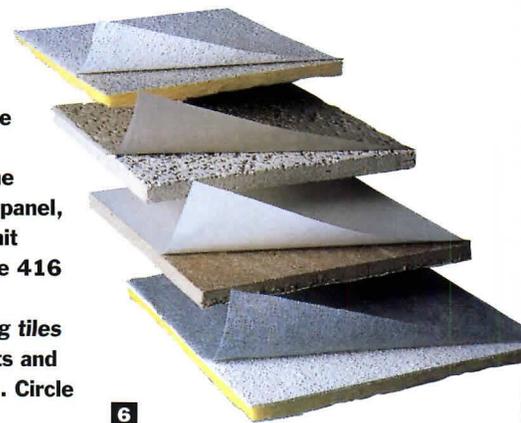
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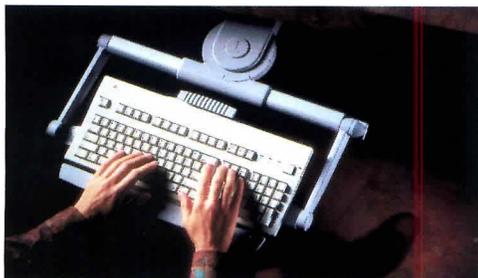
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PRODUCTS

Keyboard Convenience

A HIGHLY-ADJUSTABLE KEYBOARD SUPPORT (below) from Details is intended to help minimize the muscle stress associated with computer usage. The support stand swivels 180 degrees and provides vertical and lateral mobility. Requiring a minimum depth of 20 inches, the product attaches to almost any worksurface, taking up less than 4 inches of space when stored. Details also recently introduced freestanding palm rests for use with keyboards up to 22 inches long.

Circle 418 on information card.



Electric Table

INJURIES ASSOCIATED WITH PROLONGED computer use are becoming increasingly common, and Haworth has developed the electrically operated Trakker table to alleviate such stress injuries. The table is divided into two surfaces: one to hold computer equipment, and one that is independently adjustable to sitting or standing height.

Circle 419 on information card.

Air Cleaner

TO COMBAT "SICK BUILDING SYNDROME," CentreCore developed Airflow 2000, an air filtration system intended to remove dust, tobacco smoke, bacteria, pollen, viruses, and other contaminants from office environments. The three-stage filter system, which is housed in the cylindrical core of a 4-person workstation, employs cleanroom technology in an attempt to improve air quality in offices with low-efficiency building filtration.

Circle 420 on information card.

Seating Introductions

THIS YEAR AT NEOCON, KIMBALL OFFICE Furniture introduced Collage, a conference seating collection available in seven different models and a variety of finishes and fabrics. The mid-priced chair (below) comes in different back and arm styles to fit contemporary or traditional settings. Kimball also introduced the mid-priced Mitre desk series, a

contemporary system with

16 coordinating office

components, includ-

ing lateral files,

bookcases, cre-

denzas, and

conference ta-

bles. The desk

also comes in a

cherry veneer

with three fin-

ishes. Circle

421 on informa-

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GEARED TO THE HOSPITALITY AND RESIDENTIAL market, the stackable Vikter chair comes with a curved cherry wood back in a satin finish and welded steel legs. The seat is offered in wood or molded foam. Both the seat and the back can be leather-wrapped in a variety of colors.

Circle 422 on information card.

American Esthetic

WITH THE STATED GOAL OF INTRODUCING A new, contemporary line of furniture in a time of economic recession and conservatism in the industry, Palazzetti has assembled an eclectic team of designers from all over the world to create the Maverick line. Intended for contract and residential applications, the wide-ranging collection includes seating, tables, and lighting that attempt to capture a distinctly American, rather than European, esthetic.

Circle 423 on information card.



(above), is constructed of Antron Legacy for increased durability.

Circle 424 on information card.

Flooring Upgrades

MILLIKEN CARPETS RECENTLY INTRODUCED their Invisible Seams Collection. According to the manufacturer, the modular carpet tiles avoid the visibility of seams between tiles when properly installed.

Circle 425 on information card.

High Fiber Content

DUPONT'S ANTRON Legacy nylon, a fiber designed for superior soil resistance and wearability, is available in more than 60 styles of commercial carpeting. The Firenze Premier Collection, for example, by Bentley Mills

Stain-Resistant Carpet

THREE COMMERCIAL CARPETS FROM BLUE Ridge Carpet Mills (below) incorporate BASF Carpet Fiber's line of tufted, solution-dyed nylon, and are performance-certified by BASF for durability. BASF recently entered the upholstery industry with the introduction of its Zeftron solution-dyed nylon filament in a finer yarn count than its carpet fiber. Zeftron 200 is described as a high performance, fade-resistant product used in 100 percent nylon or nylon/wool blend fabrics appropriate for upholstery contract seating.

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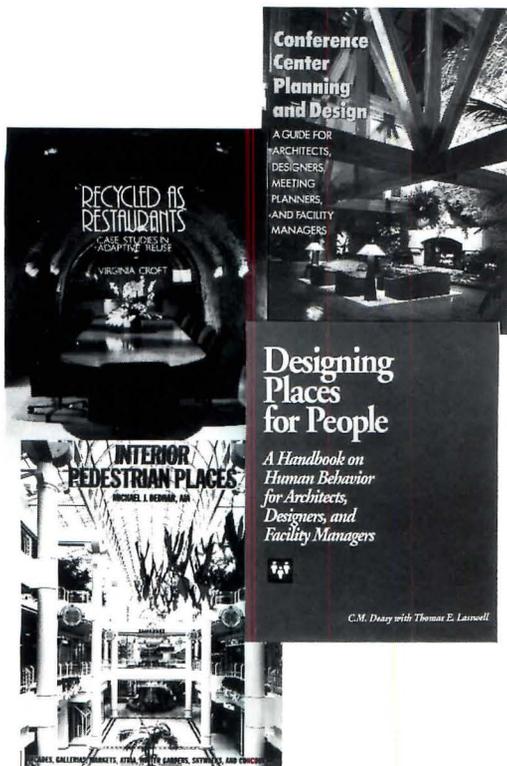
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