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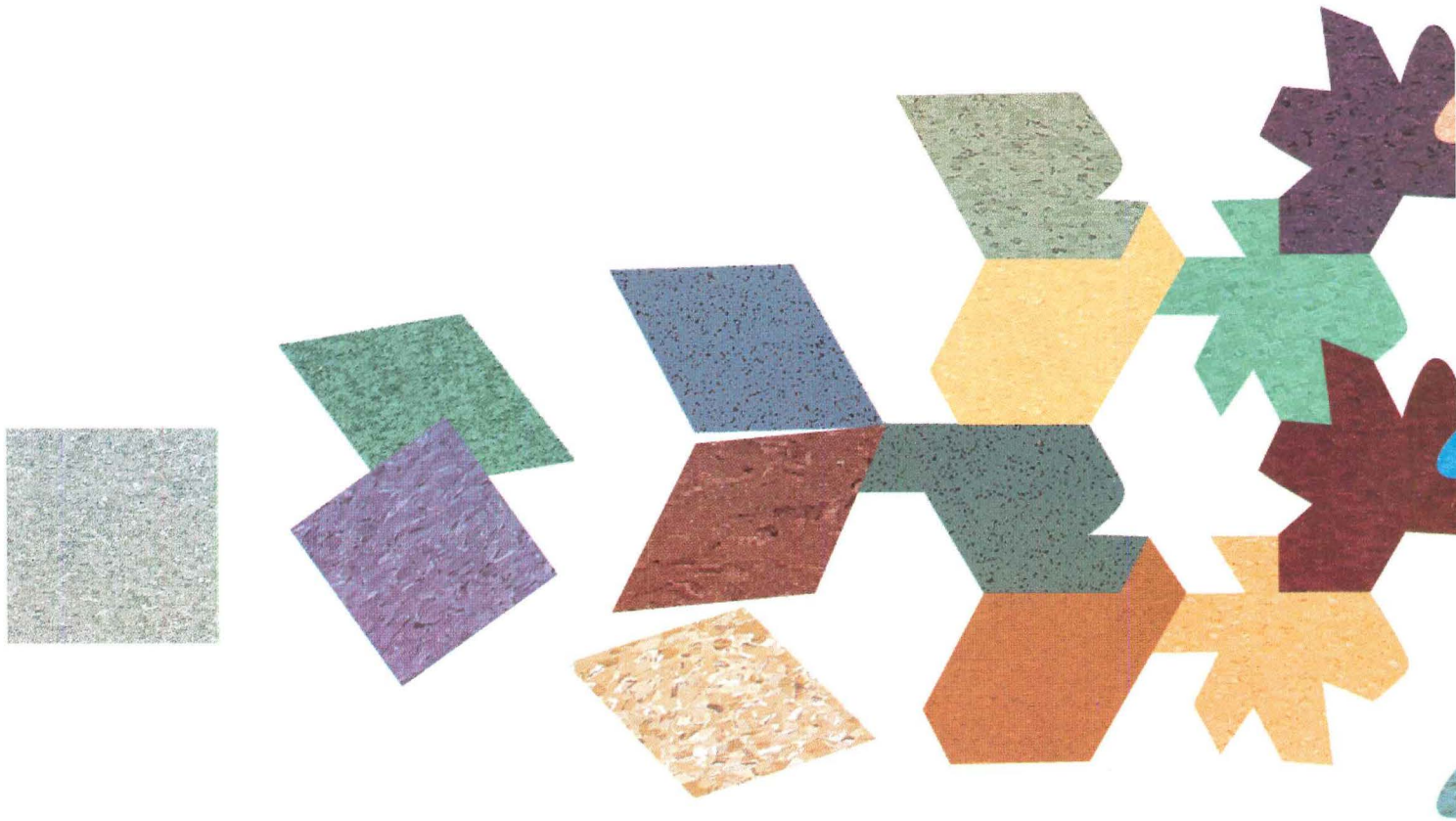
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In last fall's hit movie, *Pleasantville*, two contemporary teenagers find themselves magically transported into the *Father Knows Best* world of a 1950s television sitcom, a place where nothing ever goes wrong and nothing ever changes. Only when color is suddenly introduced to the black-and-white simplicity of the eponymous town does its oppressive order begin to break down, a process the film documents with engaging humor and sympathy.

Pleasantville's talented writer and director Gary Ross could just as well have made a film about architectural practice over the last 50 years (though somehow I suspect it wouldn't have had quite the same general appeal of a movie about television culture). With the brief exception of the postmodern interlude,

With the movement forever tarred by its preoccupation with historicism, most leading critics viewed the polychromatic mastery of Charles Moore and Michael Graves as little more than an interesting sideshow, nothing serious. Piazza d'Italia in New Orleans, his own house in Austin, Texas, and a host of other colorful projects notwithstanding, Moore didn't even rate a mention in the Los Angeles Museum of Contemporary Art's recent exhibition and catalogue on the 20th century's most important design influences (*Architecture*, September 1998, pages 43-47).

Not all Modernists towed the color line, either. Cesar Pelli's slender Carnegie Hall Tower in New York City (1990) is the best skyscraper of the last 20 years, precisely because

Architects make their lives more colorful.

By Reed Kroloff

the thought of coloring buildings has been anathema to most architects. For leading postwar practitioners, the only permissible colors have been those inherent to building materials: black, gray, beige, and brown. The only exception was white, the holy writ of Modernist scripture. Any applied color was merely frivolous decoration. And as everyone knew from historians' truncation of Adolph Loos' early writings, ornament was equal to criminal behavior; in short, depravity.

Ornamentation and color became the domain of decorating, a pursuit considered only slightly less than criminal by most architects. Not coincidentally, architects stereotyped decorators as women, homosexuals, and other exotics whose presence in the professional workplace might challenge their control, to say nothing of the status quo. Princeton University historian and theoretician Mark Wigley (page 59, this issue), in his book *White Walls, Designer Dresses*, develops this theme even further, linking color, sensuality, and sexuality in an unholy trinity of impulsiveness from which buttoned-down, T-squared architects instinctively recoiled.

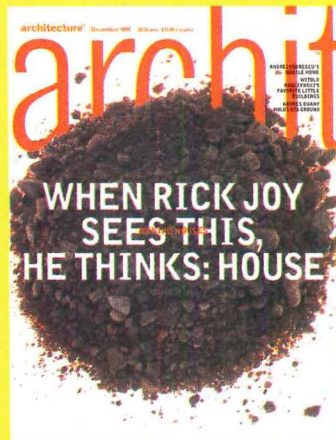
Even the wild spasm of postmodernism couldn't shake the profession's puritanism.

of its rich, sophisticated palette. Peter Eisenman regularly collaborates with color theorist and artist Robert Slutzky, coding the structure, program, and cultural context of his buildings with unorthodox, even unpleasant, color combinations (*Architecture*, May 1993, pages 52-63). Color was at the heart of Luis Barragán's architecture—and fame. Even Le Corbusier, despite his role in fostering white architecture, never abandoned his painter's love of vibrant color: It was black-and-white photography, and the selective reporting of historians, that leached the color from his earliest works and downplayed it in the later ones (pages 88-91, this issue).

Properly handled, color can improve workplace performance, psychological well-being, and visual perception, to say nothing of its capacity to make the world brighter. Yet it continues to make many contemporary architects uncomfortable. They may borrow color from a reflection, a sunset, or a cut stone, but they rarely embrace it. This issue begins by asking why that is still true, then follows with a group of projects that demonstrate why it needn't be. Color ultimately liberates Pleasantville in the movie. It can do the same for architecture in real life. ■



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Jacks-of-all-trades?

I was a little insulted and confused by Reed Kroloff's editorial, "On the Market" (*Architecture*, December 1998, page 11). I have been designing production housing for 17 years. The work is challenging, rewarding, and important. I am proud of what I've accomplished; it is neither "dirty" nor "secret".

Is Kroloff seriously suggesting that architects reclaim the production housing market by becoming developers? Project approval, financing, and development is much more complicated than it was 50 years ago. And why do some architects think they have to do their job and everyone else's? I've heard arguments that architects have to be engineers, painters, sculptors, lawyers, and now developers. I think it is difficult enough just to be a good architect.

Stephen Wallet
Starck Architecture + Planning
San Diego

Eye for detail

I appreciated your December 1998 issue and the editorial and graphic direction it represents. For years, technical concerns and construction details—when mentioned at all—have been either treated as an occasional feature or relegated to the back of the magazine like a vitamin pill on the dessert tray. Integrating craft issues into the body of the

magazine is a huge step forward and long overdue. The full pages of wall sections and technical commentary are an effective move, adding visual richness and reaffirming the importance of craftsmanship in a profession that has too often ignored it.

Brad Bellows
Brad Bellows Architects
Cambridge, Massachusetts

The real thing

While I enjoyed your essays by Alex Krieger (*Architecture*, November 1998, pages 73-77) and Andres Duany (*Architecture*, December 1998, pages 37-40), the debate over New Urbanism has missed an important point. When you think about it, there is little reason to consider New Urbanism remarkable. We all have seen beautiful towns; why should duplicating the physical product through an esthetic code be considered notable? What is notable is when ordinary citizens, through their everyday actions, produce beautiful places. A society that does so is superior to and more democratic than one that achieves beauty through formal mandate.

The question America must face, and which the New Urbanists continue to skirt, is whether we wish to have a well-functioning culture or merely look like we do. If we only want the latter, New Urbanism may well suffice. But if we want the real thing, let's discard the cosmetic Band-Aids and get down to figuring out why Americans do not choose to live in a manner that produces beautiful, functional places. As we grapple with that, let's be sure to put our own houses in order.

Matthew Frederick
Frederick Design Studio
Cambridge, Massachusetts

The bottom line

As a project architect on another developer's proposal for Columbus Circle, I would like to respond to Peter Blake's protest

(*Architecture*, November 1998, page 95). Although I agree with Blake's points regarding the building's massing and surface articulation, I believe that he is unaware that this was not an architectural competition, nor was it ever intended to be. The developer competition was done in the interest of producing the highest land price for the site. Therefore, the criteria from the clients, the city, and the various community groups were primarily the project's economic viability, its impact on [New York City's] economy, and the credentials of the development team. Esthetic and design issues were discussed as supporting evidence to the primary financial goals of the competition and as the vehicle to achieve these goals. It is easy for Blake to criticize the final outcome without fully understanding what it takes to make a billion-dollar project become reality.

Juan J. Alayo
Alayo Consulting Architects
New York City

CORRECTIONS

The principals involved in designing the four terminal facilities at Houston International Airport (*Architecture*, December 1998, page 108) were Earle Alexander, Mario Bolullo, Harry Golemon, and George Pierce.

Smith Dalia Architects is the architect of five Phase II buildings in the Fulton Cotton Mills project (*Architecture*, December 1998, pages 112-116), including the building depicted in the upper left photo on page 116.

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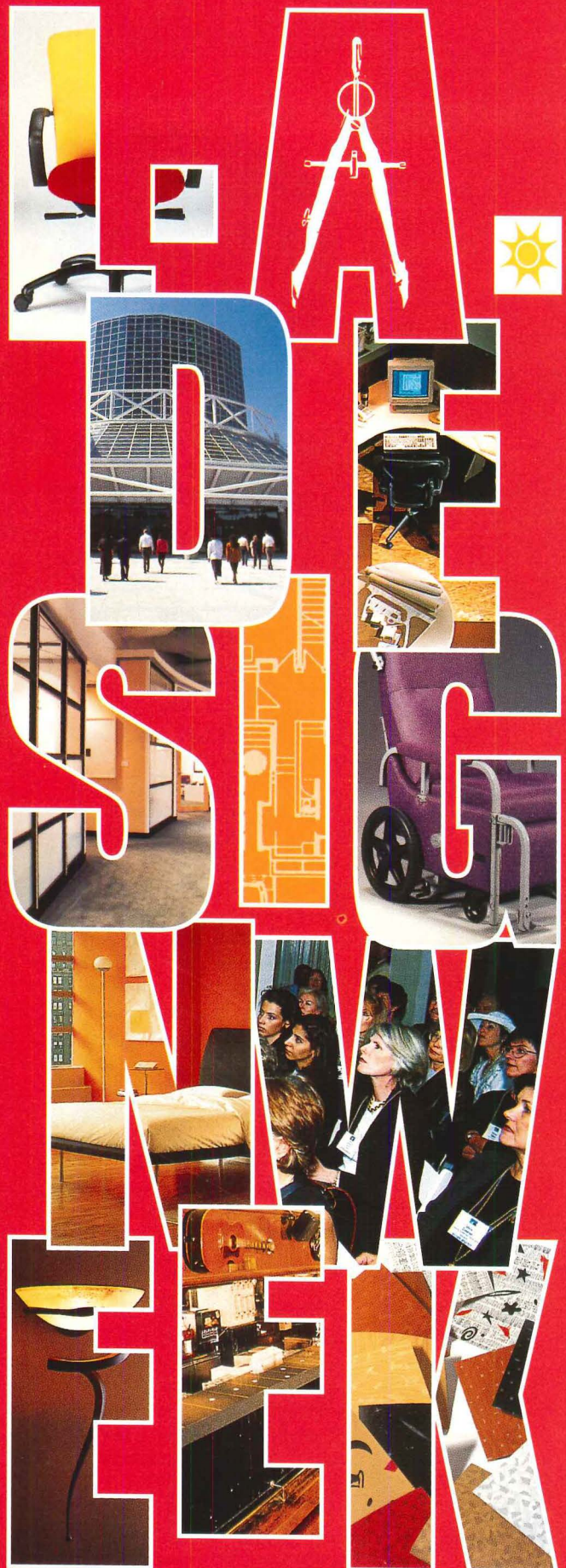
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exhibitions

city	dates	exhibition	contact
Glasgow, Scotland	through April 11	Frank Lloyd Wright and the Living City at the Art Gallery and Museum at Kelvingrove	(44)(141) 287-7346
Montreal	through April 25	Photography and Transformations of the Contemporary City: Venezia-Marghera at the Canadian Centre for Architecture	(514) 939-7026
New York City	through March 21	Unlimited by Design at the Cooper-Hewitt, National Design Museum	(212) 849-8300
San Francisco	March 19- June 15	Archigram: Experimental Architecture 1961-1974 at the San Francisco Museum of Modern Art <i>Air-Hab Nomad (1967) by Ron Herron is among vibrant images in SFMOMA's Archigram exhibition.</i>	(415) 357-4000
Washington, D.C.	through March 29	El Nuevo Mundo: The Landscape of Latino Los Angeles at the National Building Museum	(202) 272-2448



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conferences

city	dates	conference	contact
Dallas	May 6-9	The 1999 AIA National Convention and Expo	(617) 572-3553
Los Angeles	March 8-14	L.A. DesignWeek 1999 incorporates WestWeek 99, NeoCon West, Senior Living Design Expo, Design Show Los Angeles, and CAD/FM Systems	(800) 677-6278
Milwaukee	June 3-6	Congress for the New Urbanism VII	(415) 495-2255
St. Augustine, Florida	March 8-12	International Making Cities Livable Conference	(408) 626-9080
Tampa, Florida	March 17-19	1999 International Conference and Exhibition on Health Facility Planning, Design and Construction	(312) 422-3807
Washington, D.C.	April 20	Washington Beyond the Year 2000 , cosponsored by the Urban Land institute and the National Building Museum Urban planners at Washington Beyond the Year 2000 will study Queens, New York's controlled suburban sprawl of 1940s.	(800) 321-5011



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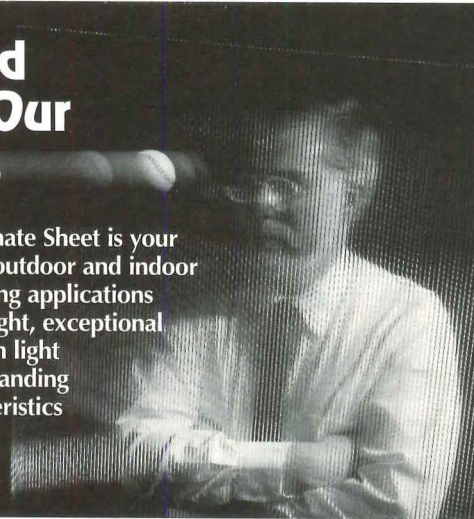
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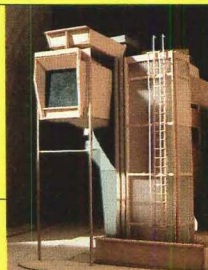
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competitions

competition	deadline	contact
New Strategies for the Undercrowded Baltimore Neighborhood: Encouraging Neighborhoods of Choice and Diversity , sponsored by Neighborhood Design Center and the Historic East Baltimore Community Action Coalition	February 15	(410) 233-9686
New York State Council on the Arts is offering \$10,000 grants to architects in New York State to realize specific projects that advance the field	March 1	(212) 387-7013
DuPont Benedictus Awards for innovation in architectural laminated glass	March 8	(202) 393-5247
Presidential Design Awards 2000 , sponsored by the U.S. General Services Administration, to recognize federal design projects	April 8	(202) 501-1888
Van Alen Institute Dinkeloo Fellowship "Green Portfolio" Competition for the Year 2000	May 7	(212) 924-7000
What Is Shelter? Resort Concept Competition for an environmentally sensitive portable tent village	May 15	(415) 276-5958



Rhett Russo, last year's Dinkeloo Fellow, designed live-work photography studio and gallery that incorporates rooftop rainwater cistern.

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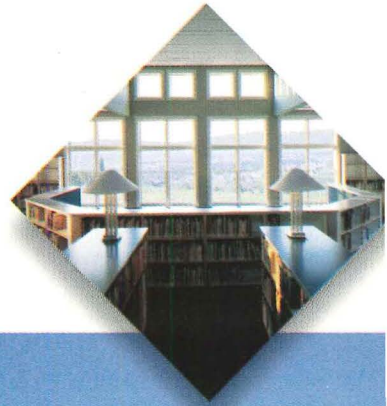
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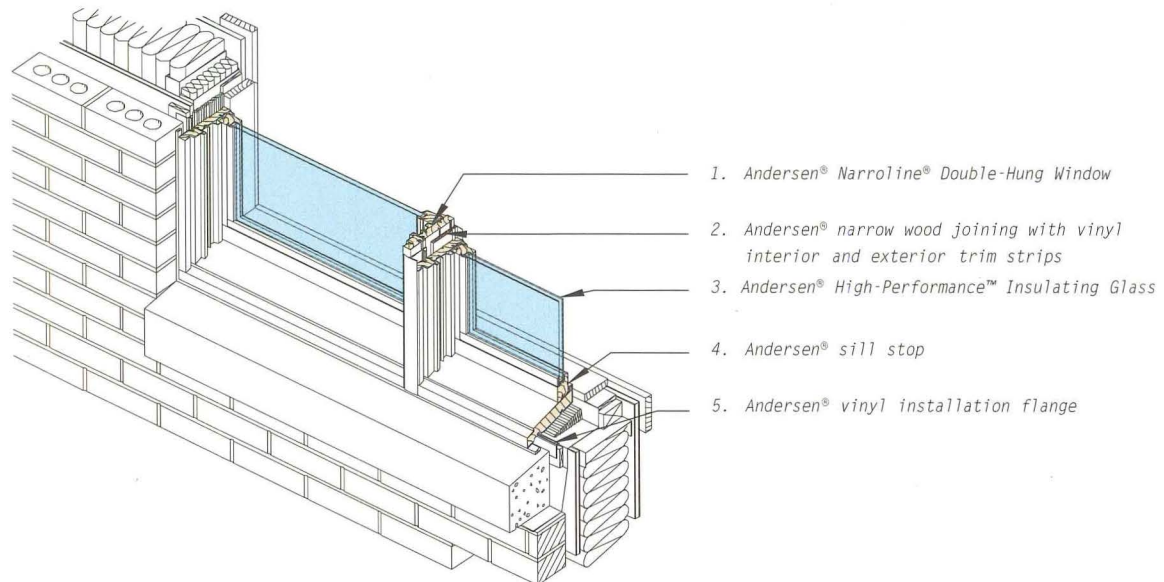
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HUMAN RESOURCES

Upheaval at the Institute

AIA Sacks CEO Hurwitz

The board of directors of the American Institute of Architects (AIA) has abruptly fired Mark Hurwitz after only one year of his four-year contract as executive vice president/chief executive officer (EVP/CEO) of the Institute.

Hurwitz took over in January 1998, several months after his predecessor, Terrence M. McDermott, left the position. On January 13, an AIA spokesperson handed out token compliments in recognition of Hurwitz's efforts in the areas of government affairs, technology, and communication, but emphasized that "key conditions in our contract with Mark were not fulfilled." At press time, however, spokespersons refused to elaborate on those conditions.

Longtime American Architectural Foundation President Norman L. Koonce, an architect, will serve as interim EVP/CEO until a search committee comprised of AIA board members and component executives finds a replacement. *Eric Adams*

GOVERNMENT

TEA-21 Offers Architects Opportunities Nationwide

When Congress passed the Transportation Equity Act of the 21st Century (TEA-21) last June, many architects smelled work. TEA-21 is the second iteration of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA), a billion-dollar federal funding program that created a mini-boom in the government building sector in the early 1990s. Congress has allocated \$217 billion in TEA-21 funds to construct new and improve existing transportation facilities in each of the 50 states. A coast-to-coast sampling of the 1,850 projects the U.S. Department of Transportation has identified as high-priority follows. *Joelle Byrer*

Alabama \$1.01 million for the Eastern Shore Trail project in Fairhope **Alaska** \$4.5 million to improve intermodal freight and passenger facilities servicing the Alaska Marine Highway **Arizona** \$10 million to replace U.S. 93 Hoover Dam Bridge **Arkansas** \$225,000 to study and construct intermodal facility in Van Buren **California** \$2.1 million to install Silicon Valley Smart Corridor project along I-880; **Colorado** \$3 million for the Broadway Viaduct in Denver **Connecticut** \$6.3 million to extend the Greenmanville Avenue streetscape and conduct feasibility study in towns of Groton, Stonington, and Mystic **Delaware** \$8.6 million for high-priority highway and bridge projects **Florida** \$27.75 million to build Wonderwood connector from Mayport to Arlington in Duval County **Georgia** \$12 million to build multimodal passenger terminal in Atlanta **Hawaii** \$750,000 to replace Sand Island Bridge **Idaho** \$7.5 million for interchanges and grade crossings on U.S. 20 between Idaho Falls and Chester **Illinois** \$4.7 million to rehabilitate WPA-era streets in Chicago **Iowa** \$3.4 million to construct overpass to eliminate railroad crossing in Burlington **Kansas** \$7.56 million to construct interchange at Antioch and I-435 **Kentucky** \$1.5 million to reconstruct the Louisville Trolley Barn **Louisiana** \$2.7 million to expand Harding Road from Scenic Highway to the Mississippi River and construct an information center **Maine** \$3.94 million to rehabilitate Piscataqua River bridges in Kittery **Maryland** \$1.5 million to construct pedestrian and bicycle bridge across the Susquehanna River between Havre and Perryville **Massachusetts** \$6 million to construct bikeway between Blackstone and Worcester **Michigan** \$18 million for an intermodal freight terminal in Wayne County **Minnesota** \$2.25 million for a bicycle and pedestrian facility at Mesabi Trail in St. Louis County **Mississippi** \$1 million to replace the Greenville River Bridge in Washington County **Missouri** \$3.75 million to build a ground transportation terminal for Springfield/Branson Airport and an intermodal facility in Springfield

SPACE

Rios's Big Entrance

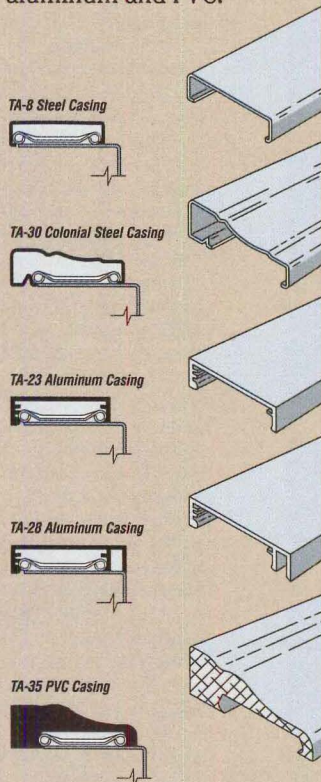
The new entrance to Rios Associates' Los Angeles office is a riot of oranges, pinks, and reds, with a soupçon of cyan. The colorful pattern is a study, with painter Smiley Quick for a much larger commission with a palette of more than 160 colors. *Sara Hart*

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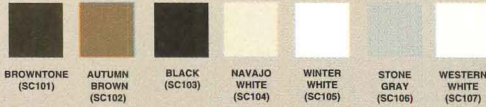
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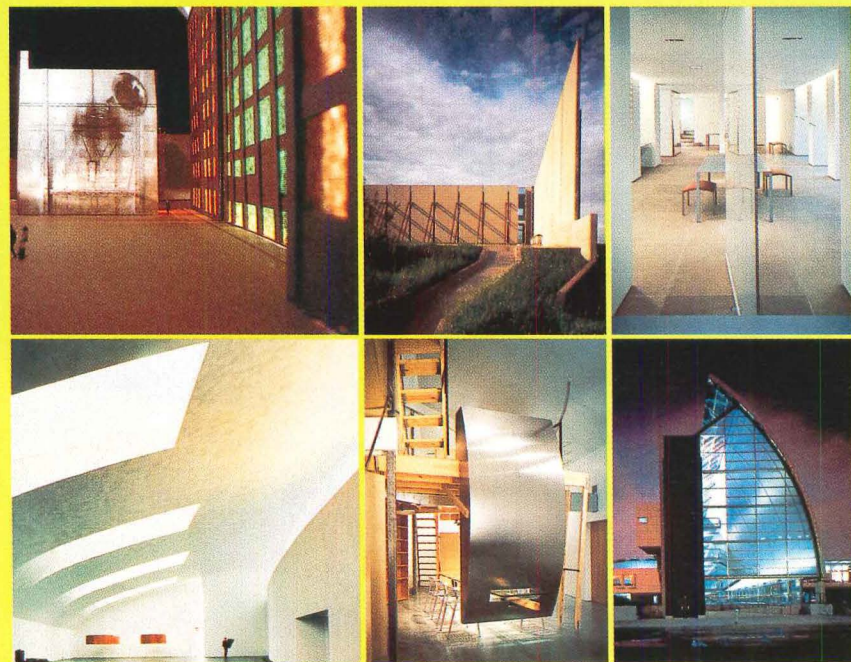
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AWARDS

1999 AIA National Honor Awards

The 50th cycle of the American Institute of Architects (AIA) Honor Awards recognizes 29 projects (almost half of which have already been featured in this magazine) in architecture, interiors, and urban design. The projects encompass a variety of scales, from a single-family home to the revitalization of New York City's 42nd Street. Winners will receive their 1999 Honor Awards in May at the AIA's national convention in Dallas. *Joelle Byrer*



This year's AIA National Honor Award winners in architecture, interiors, and urban design include (clockwise from top left): Theater District Streetscape Master Plan, Boston, Kennedy & Violich Architecture; K.J. McNitt Construction, Oklahoma City, Elliott + Associates Architects; Jil Sander Showroom, Hamburg, Germany, Gabellini Associates; Inventure Place, Akron, Ohio, Polshek and Partners; Studio/Residence, Omaha, Nebraska, Randy Brown Architects; and Kiasma: Museum of Contemporary Art, Helsinki, Finland, Steven Holl Architects.

Montana \$19.9 million to conduct environmental review, planning, design, and construction of Beartooth Highway **Nebraska** \$3 million for a bridge in Newcastle **Nevada** \$5.25 million to renovate the Canamex Corridor in Henderson **New Hampshire** \$650,000 to rehabilitate and reconstruct the Bath-Haverville Bridge **New York** \$40 million to convert James A. Farley Post Office into a new Amtrak Station in New York City **New Mexico** \$650,000 to extend Unser Boulevard in Albuquerque **New Jersey** \$1 million for a light-rail station in Newark and a pedestrian access facility at Joseph G. Minish Waterfront Park over Route 21 to the New Jersey Performing Arts Center **North Carolina** \$2.65 million to construct the Elizabeth City Bypass on U.S. 117 in Pasquotank County **North Dakota** \$1.8 million to upgrade U.S. Route 52 between Donnybrook and U.S. Route 2 **Ohio** \$3.45 million for a Black River intermodal transportation center **Oregon** \$2 million to renovate facility for intermodal transportation center in Eugene **Pennsylvania** \$3 million to construct access road and parking facilities in Valley Forge National Historic Park **Rhode Island** \$5.85 million for the Rhode Island Greenways and Bikeways project

ECONOMICS

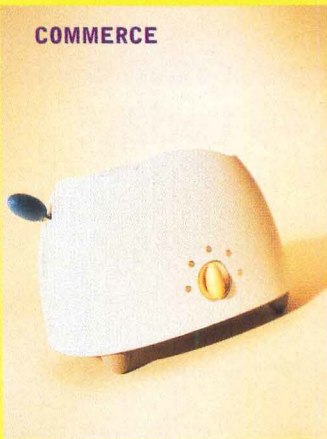
Guggenheim Stokes Basque Economy

Now that architecture critics have quieted down about Frank Gehry's Guggenheim Museum Bilbao, it's time for the opinions that really count: the accountants'. According to an economic impact report conducted by KPMG Peat Marwick, 79 percent of the visitors who traveled to the city in 1997 did so exclusively to visit the museum, fulfilling Spanish and American Guggenheim officials' expectations that Gehry's great swirl of titanium would act as an economic catalyst for Bilbao. Guggenheim groupies spent almost \$217 million—almost 1/2 percent of the region's gross domestic product. *Ned Cramer*

COMMERCE

Graves Hits Target

Minneapolis-based Target Stores has recruited Princeton, New Jersey, architect Michael Graves in its quest to inject a shot of glamour into affordable shopping. Target's magazine ads adorn their \$10 T-shirts with such everyday items as feather dusters and paper clips. Target hopes their clientele will associate the Graves collection with luxury. More than 200 products, including a neo-Egyptian alarm clock (\$14.99), a cuddly toaster (\$39.99, left), and high-tech kitchen utensils (\$3.99 each) are now available in Target outlets nationwide. *Michael J. O'Connor*

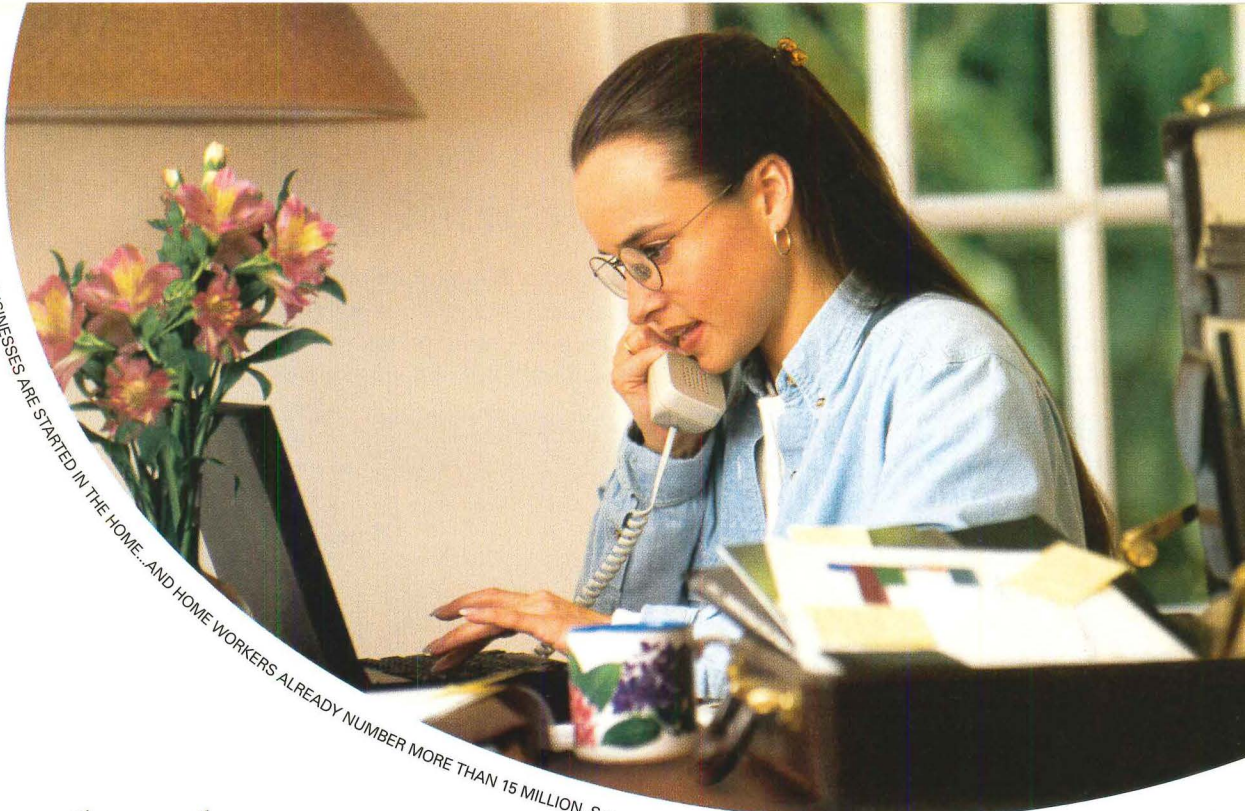


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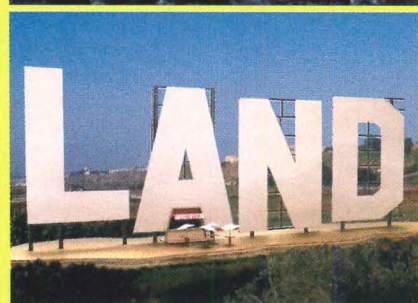
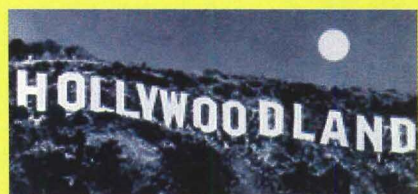
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Architecture introduces a feature that examines the glut of theoretical proposals for our built environment. Some deserve serious consideration; some are just plain nutty. But each represents a singular vision and a passion for design. Send your speculative proposal to: "What If?" *Architecture*, 1515 Broadway, New York, NY 10036.

WHAT IF?

This Land Could Be Your Land

Hollywood's iconic sign began its life as an oversized billboard for Hollywoodland, a 1920s Beachwood Canyon subdivision. When the city's Chamber of Commerce assumed stewardship of the faded 45-foot-high landmark in 1949, they removed the last four letters, changing a relic of commerce into a monument considered stately only amidst Los Angeles's unique landscape. Angeleno artist John Marshall pays homage to the Hollywood sign's origins in his proposal to resurrect the lost "land" somewhere in the city. (He has his eye on the Playa Vista mixed-use complex in the Ballona wetlands.) A more urban version of the proposal includes a clever café—à la Tail o' the Pup—nestled snugly beneath the A. M.J.O.

South Carolina \$9 million to widen North Main Street in Columbia **South Dakota \$500,000** to preserve Skyline Drive Scenic Ridgetop in Rapid City **Tennessee \$12 million** for intermodal centers for Nashville/Middle Tennessee Commuter Rail in Nashville **Texas \$3.75 million** for the redevelopment of Kelly Air Force Base in San Antonio **Utah \$5.25 million** for the Cache Valley Highway in Logan **Vermont \$9.1 million** to upgrade and improve the publicly owned Vermont Rail infrastructure from Bennington to Burlington **Virginia \$2.7 million** for an access road and related facilities for Fisher Peak Mountain Music Interpretive Center on Blue Ridge Parkway **Washington \$1 million** to construct pedestrian access on Deception Pass Bridge in Deception Pass State Park **West Virginia \$15 million** to construct I-73/74 corridor in Mercer County **Wisconsin \$6 million** to construct the Eau Claire Bypass project **Wyoming \$1.5 million** to construct Jackson-Teton Pathway

GOVERNMENT

Gore Announces White House Livability Agenda

Last month, Vice President Al Gore announced the Clinton-Gore Livability Agenda, a White House proposal that aims to improve the livability of the nation's communities. This billion-dollar effort earmarks federal support for preserving green spaces, easing traffic congestion, encouraging local planning, and enhancing economic competitiveness. The Livability Agenda will appear in President Clinton's Fiscal Year 2000 budget. *M.J.O.*

AIA Debuts TV Spots in March

MEDIA

Though it probably won't inject the phrases "Got architect?" or "the other construction manager" into the popular lexicon, a \$9 million television advertising campaign developed by the American Institute of Architects (AIA) might, its creators hope, improve the perception of architects.

Two commercials, which were filmed in Chicago and aim to show effective architect-client relationships, will debut next month, appearing during major network news programs and CNN's *Larry King Live*. The ads are the product of Baltimore advertising agency Richardson, Myers, and Donofrio and Dutch filmmaker Paul Vos, who has worked for Volkswagen in Europe. To finance the pricey effort, which was too expensive for normal budgetary allocations, the AIA has to squeeze an additional \$50 out of each of its members for the next three years. Convincing the membership to get on board took a good year, culminating in a promise to track and evaluate the effectiveness of the ads before the campaign is renewed.

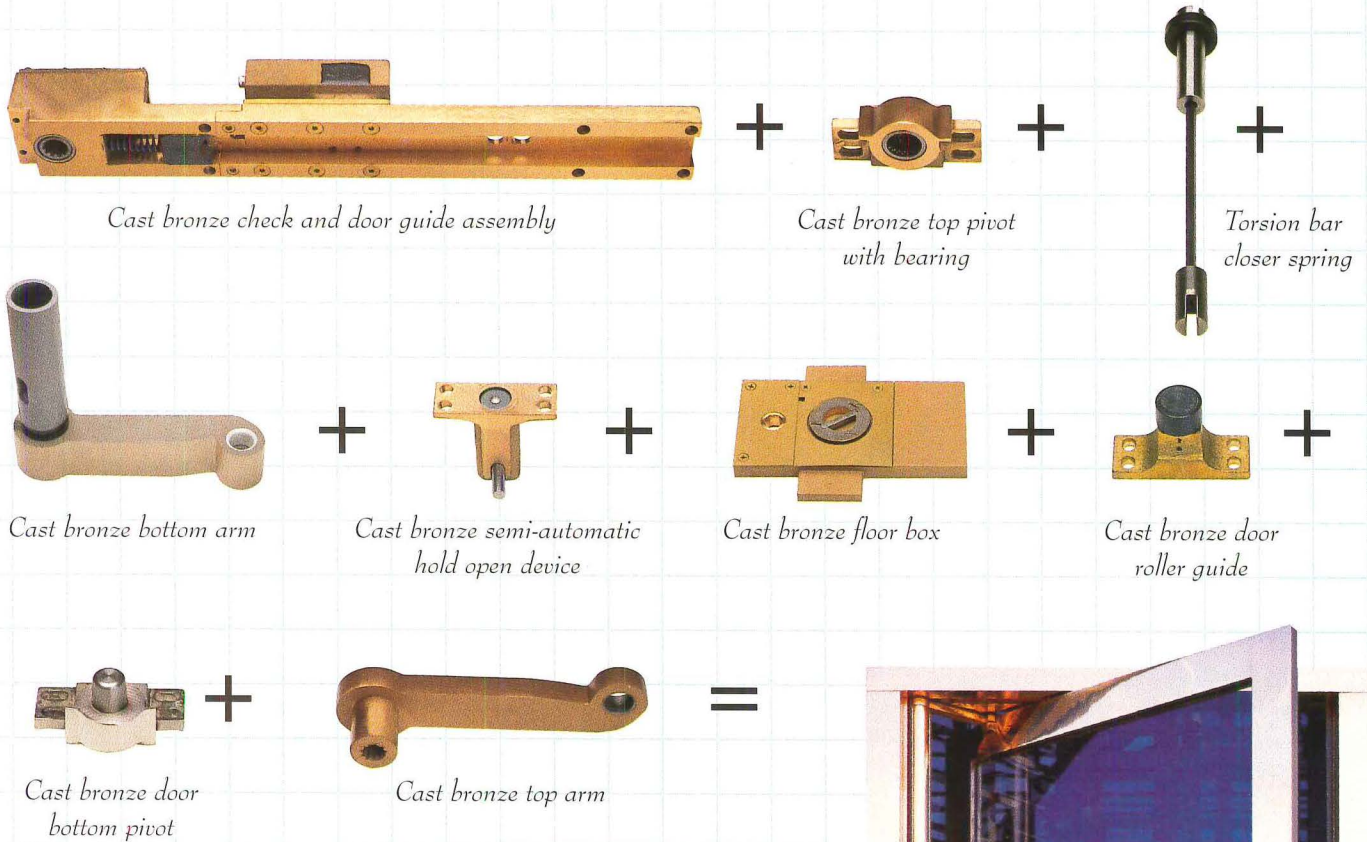
The television effort initiates a shift in target audience. "We're focusing more on architects' broadest client base, which is at the community level: public and private board members, schools, institutions, places of worship, private organizations, and public officials at the local level," explains Charles E. Hamlin, the AIA's public affairs director. *E.A.*

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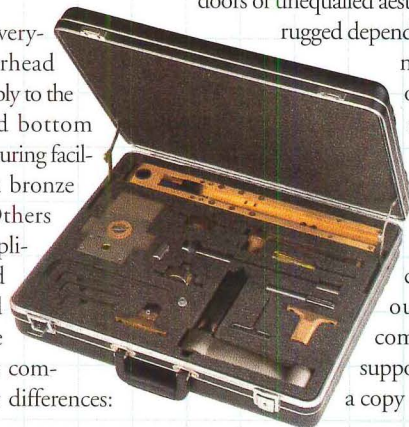
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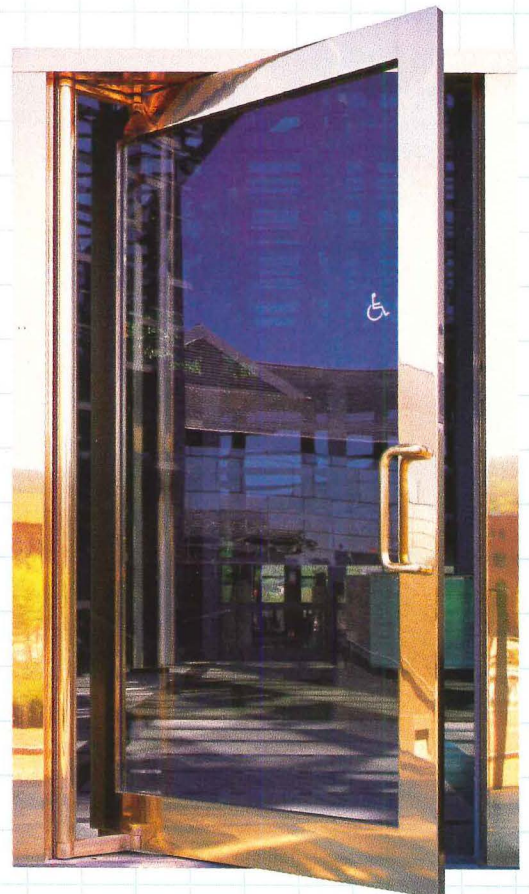
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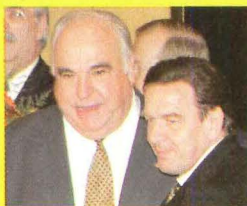
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POLITICS

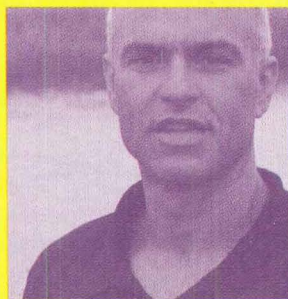
German Officials and Eisenman Reach New Compromise on Holocaust Museum

Last month, Michael Naumann, Germany's minister of culture, announced plans to construct a scaled-back version of Peter Eisenman's design for a Holocaust memorial museum in Berlin. This decision puts to rest a decade of acrimony that came to a head during last fall's elections for chancellor, in which Gerhard Schröder (below, at right) defeated incumbent Helmut Kohl (below, at left)—and, in effect, Eisenman's original memorial scheme, which had been championed by Kohl. But Eisenman and Naumann have agreed to reduce the field of 2,700 columns to 1,800 and add a 100,000-



square-foot "House of Remembrance" that will include 20,000 square feet of exhibition space, a 1 million-volume book archive, a 200-seat auditorium, a research center, and offices.

Naumann has reported a preliminary timetable for the project: Pending parliamentary approval, the museum should be under way by next summer. Naumann hopes the new museum—taking cues from Washington, D.C.'s U.S. National Holocaust Memorial Museum and possibly incorporating filmmaker Steven Spielberg's Shoah Foundation film library—will utilize technology to not only memorialize the 6 million Jews killed during World War II, but will apply the lessons learned to present-day conflicts. A recent poll of German teenagers underscored the need for a more educational venue: 31 percent could not answer the question, "What was Auschwitz-Birkenau?" *M.J.O.*



MOVES

Robbins Leaves Wexner to Become NEA's Design Chief

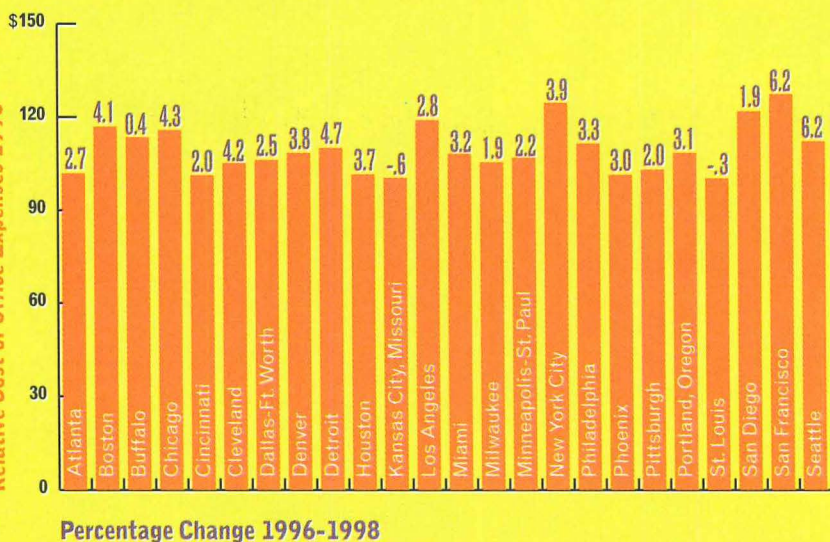
National Endowment for the Arts (NEA) Chairman Bill Ivey has appointed Mark Robbins, curator of architecture at Columbus, Ohio's Wexner Center for the Arts since 1993, to the position of design director of the NEA. Robbins' appointment is effective this month; he replaces Samina Quraeshi, who left the NEA this past summer to join the University of Miami as its first Henry R. Luce Professor in Family and Community.

In the 1980s and early 1990s, Robbins worked for several well-known architecture firms, including Skidmore, Owings & Merrill; James Stewart Polshek and Partners; and Emilio Ambasz Architect. He has been honored with fellowships from the American Academy in Rome, the New York Foundation for the Arts, the Graham Foundation, and the state arts councils of New York and Ohio. *M.J.O.*

VITALS

At What Cost Architecture?

Design Firm Management & Administration Report shows the rising costs of operating an architecture firm in 25 cities nationwide. The survey includes such expenses as rent, equipment, support personnel, stationery, and insurance. Using a base of \$100 (the national average at the time of the first survey), the chart shows the rate of inflation and deflation over the past year. For example, goods and services that cost \$99.50 in Atlanta in 1996 now cost \$102.20.



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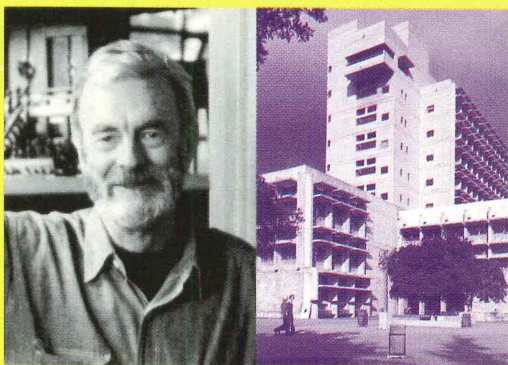


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TRIBUTE



Esherick, Bay Area School Proponent, Dies

With the death of **Joseph Esherick** in December, the Bay Area Style may have come to an end. Born in 1914 in Philadelphia and educated at the University of Pennsylvania, Esherick opened his own firm, Esherick Homsey Dodge and Davis (EHDD), in 1947. EHDD designed the Sea Ranch condominiums, seven subway stations for BART (Bay Area Rapid Transit System), San Francisco's Cannery shopping center (1966), and the University of California at Berkeley's Wurster Hall (left). Esherick was the chair of Berkeley's architecture department for several years starting in 1977. He won the industry's highest award for teaching, the AIA's Topaz Medallion, in 1982. *Aaron Betsky*

BUZZ

In December, First Lady **Hillary Rodham Clinton** announced a \$1.1 million grant from the **Getty Trust** to help fund the White House Millennium Council's Save America's Treasures program (*Architecture*, September 1998, page 162).

Port Elizabeth, South Africa, will build a \$25 million, 50,000-square-foot Apartheid Museum by South African architect **Jo Noero**, who is currently teaching at Washington University in St. Louis.

In Mesa, Arizona, **BOORA Architects** and **DWL Architects + Planners** will design a new \$55 million arts center. The shortlist for a Mission Bay community center in San Francisco comprises **Michael Graves**, **Robert A.M. Stern**, **Ricardo Legorreta**, and **Cesar Pelli**. Pelli is also competing with Stern and other firms for a new lab on a new campus development for the University of California, Los Angeles.

Swiss Modernists **Herzog & de Meuron Architects** has won the commission to rebuild the M.H. deYoung Memorial Museum in San Francisco's Golden Gate Park.

Architect **Frank Lupo** has joined **Perkins + Will** as design director of the New York City office. **Elizabeth Smith** is leaving the **Museum of Contemporary Art in Los Angeles** to become the chief curator at **Chicago's Museum of Contemporary Art**.

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Community Commitment

Admidst anti-high-rise thinking in the world of public housing, New York City concentrates on upgrading its community centers.

Agrest & Gandelsonas Architects,

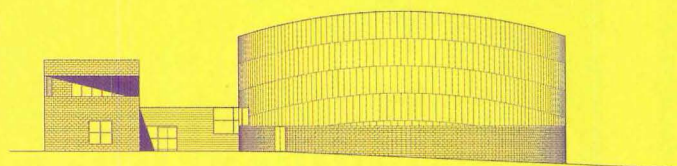
Bronx South Community Center at Melrose Houses, Bronx, New York

Hanrahan-Meyers Architects,

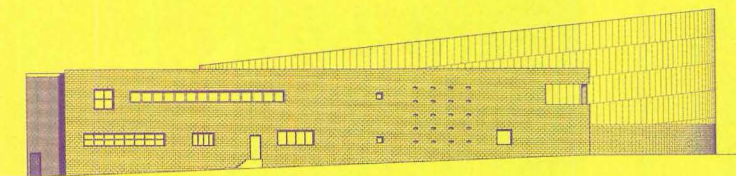
Latimer Gardens Community Center, Queens, New York

Pasanella + Klein Stolzman + Berg Architects,

Williamsburg Community Center, Brooklyn, New York

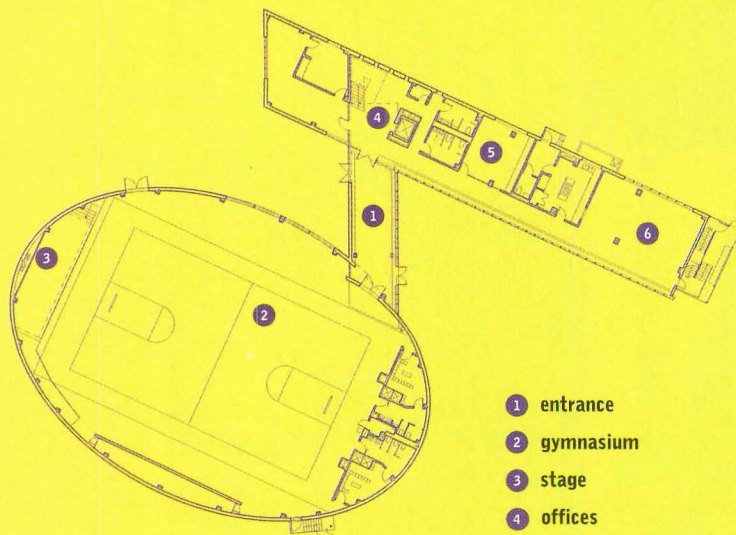


West elevation



North elevation

West elevation (top) of Bronx community center reveals bipartite division of center's recreation and administrative functions. **Ovoid form** addresses residential towers on three sides. **Sloping north elevation** (above) is contrasting composition of concrete block-clad bar building and metal-paneled gymnasium. **Central entrance hall** (below, in plan) connects two volumes and will double as gallery space.



- 1 entrance
- 2 gymnasium
- 3 stage
- 4 offices
- 5 audiovisual center
- 6 multipurpose room

Plan 1"=23'7m

The new buzzword in public housing is low-scale. HOPE VI, a 1994 initiative of the U.S. Department of Housing and Urban Development, regularly levels the high-rise behemoths of the 1960s, replacing them with more intimately scaled rowhouses that embrace traditional urbanism.

But New York City, as with many things, is the exception: New Yorkers feel no cultural stigma about high-rise living. Thus, officials in the New York City Housing Authority (NYCHA) use their federal funding to improve the public housing system's attendant features—playgrounds, police stations, parking lots, and community centers—rather than build suburban-style housing alternatives.

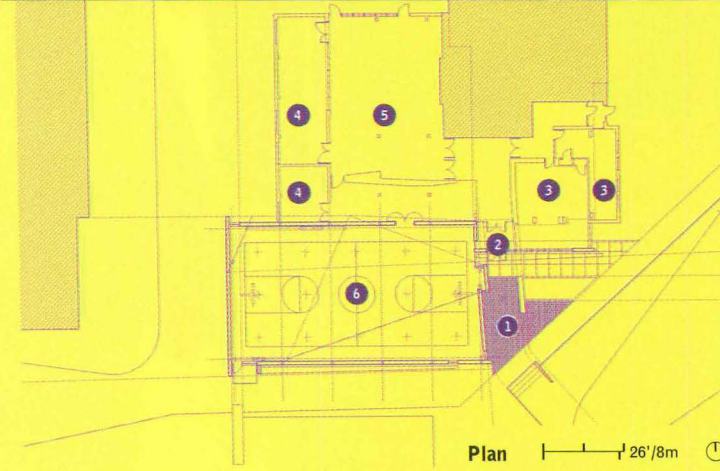
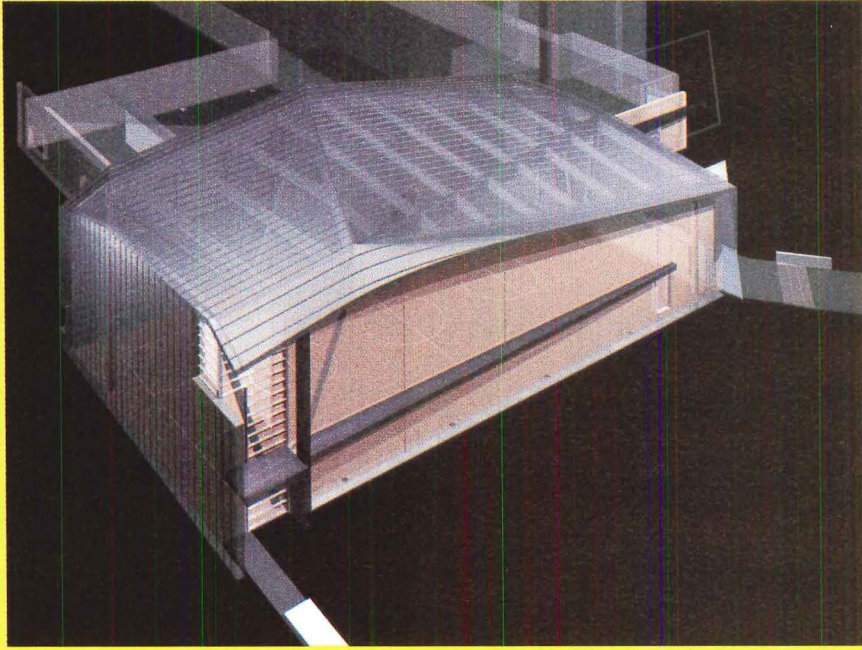
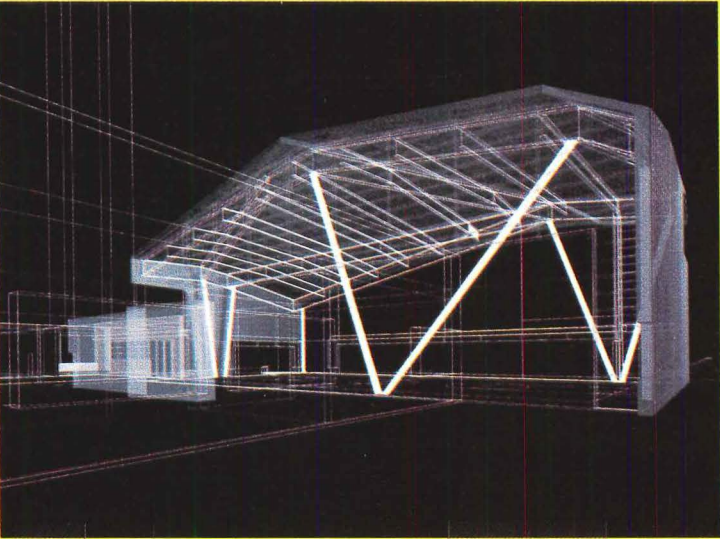
A \$113 million-plus agenda called the Community Center Capital Improvement and Expansion Program is upgrading or replacing all 102 NYCHA-run centers. David Burney, NYCHA's director of design, turned to Manhattan's Modernists (three of their projects are shown here) to enliven the uniformity of public housing's brick towers. All architects received their commissions through open competitions over the past year.

Agrest & Gandelsonas Architects crafted a 20,000-

square-foot bipartite pavilion in the South Bronx that houses their center's teen-focused program. A 10,000-square-foot oval gymnasium, which also serves as an auditorium, connects to a bar building that houses offices. An exterior video screen corresponds with the center's audiovisual center. The building will open in December.

For the Latimer Gardens housing project in Queens, Hanrahan-Meyers Architects has created a boxy 4,500-square-foot gymnasium and theater that complements an existing community center, which the firm will renovate. Seen from above, the new center's stainless steel-paneled, wavelike roof folds down to form the building's east and west elevations. Construction begins this month; completion is set for June 2000.

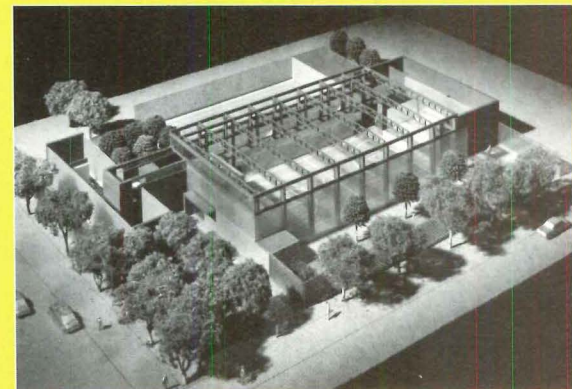
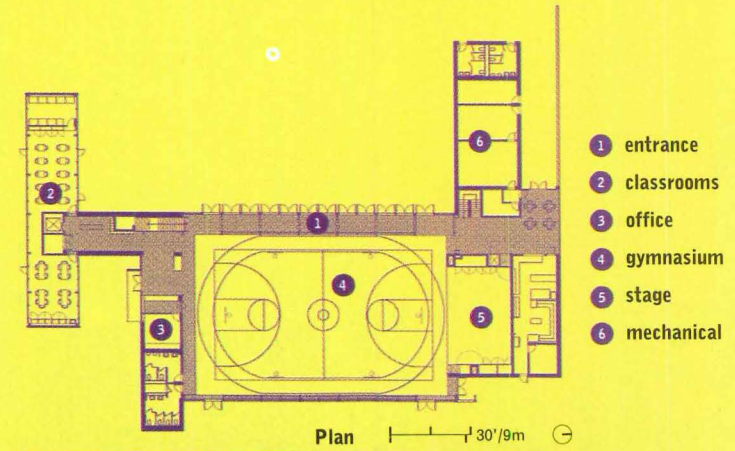
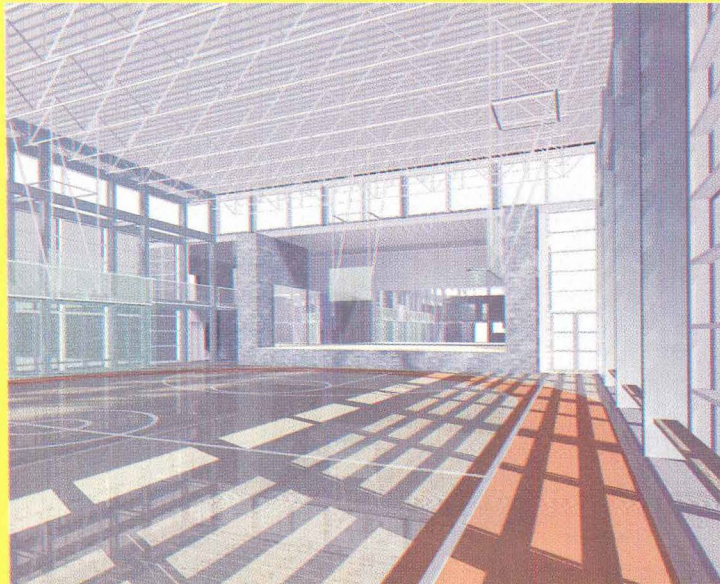
NYCHA charged Pasanella + Klein Stolzman + Berg Architects with designing a multipurpose center for Brooklyn's Williamsburg neighborhood. The architects proposed a 20,500-square-foot, steel-framed concrete box that uses broad, operable window walls (as in airport hangars), wire-reinforced glazing, and glass block to create varying levels of permeability. The center will open in January 2001. *Michael J. O'Connor*



Wire-frame perspective (above left) of Hanrahan-Meyers' project in Queens shows diagonal interest of exposed steel trusses in gymnasium that supports roof's angular profile. Architect designed **wavelike roof** (above) to impart sense of flow to constricted urban site when viewed from neighboring high-rises.

- 1 plaza
- 2 entrance
- 3 office
- 4 classroom
- 5 cafeteria
- 6 gymnasium

Window mullions and overhead steel trusses create rhythmic patterns in **light-soaked gymnasium** (below). Solid classroom, office, and **mechanical blocks** extend like appendages from rectilinear structural envelope of gymnasium (below right).



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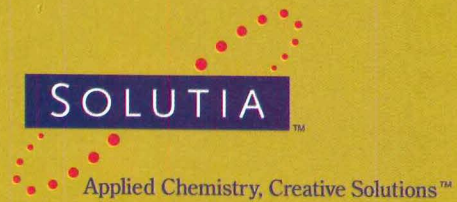
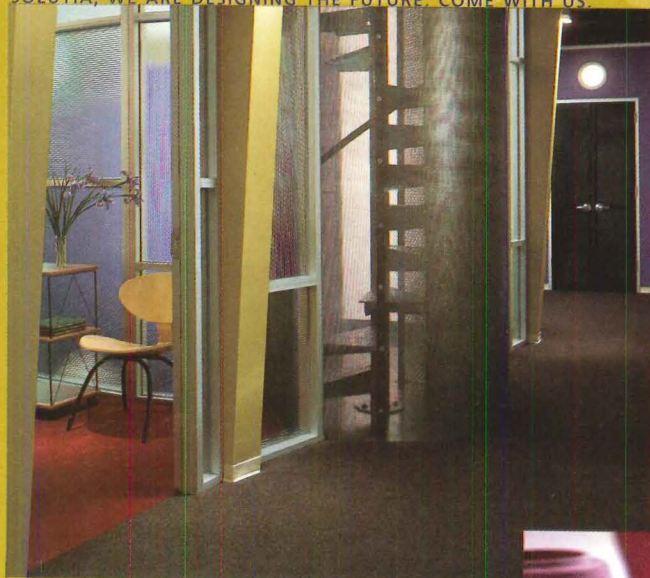
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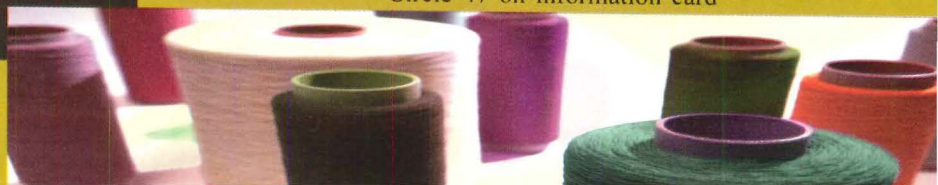
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Exhibition curator
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popular Pittsburgh
landmarks, such
as local bar
(right) and beauty
salon (below),
to portray
Art Deco's changing
stylistic trends.



Demystifying Deco

By Ned Cramer

In the novel *Brideshead Revisited*, British author Evelyn Waugh sends his narrator, an architectural painter with old-school tastes, across a tempestuous Atlantic on a nameless 1930s ocean liner. Waugh disparages the Art Deco interiors of the ship as “huge without any splendor.” He particularly loathes the lounge’s great doors: “vast bronze gates whose ornament was like the trade mark of a cake of soap which had been used once or twice.” As the storm grows, the doors break free and swing out of control—the esthetic threat of modernity turned physical.

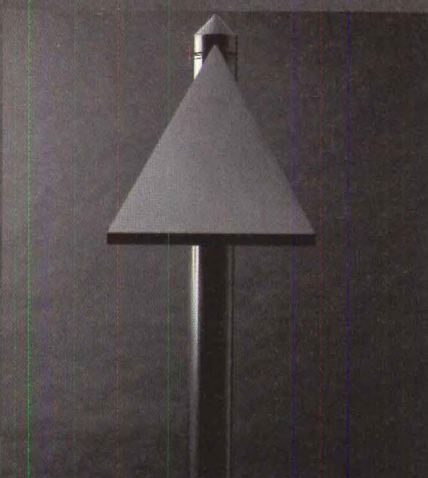
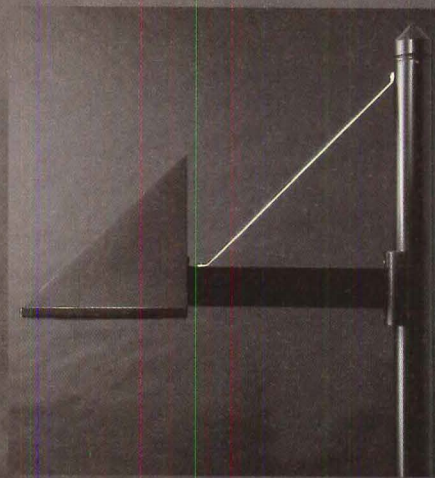
In November, Pittsburgh’s Carnegie Museum of Art unveiled a newly acquired Art Deco masterpiece, *The Chariot of Aurora* (1935). The French painter Jean Dupas, Swiss sculptor Jean Dunand, and French architect Roger-Henri Expert created this 18-by-26-foot bas-relief as a monumental doorway for the lounge of the French ship *Normandie*. Modernism seems to have mellowed in the 50-odd years since Waugh’s novel: The sumptuous gilded and lacquered carved-plaster *Aurora* panels evoke the same response in present-day viewers as Baroque colonnades and Chinoiserie parlors did in Waugh’s hero. “You can throw any superlative you want at it, and it will stick,” says the Carnegie Museum’s Assistant Curator Tracy Myers.

To herald the artwork’s installation, the museum has staged several related events, including Myers’ curatorial debut, the exhibition

The Carnegie Museum of Art uses haute and homespun examples to demonstrate Art Deco’s far-ranging influence.

MITRE

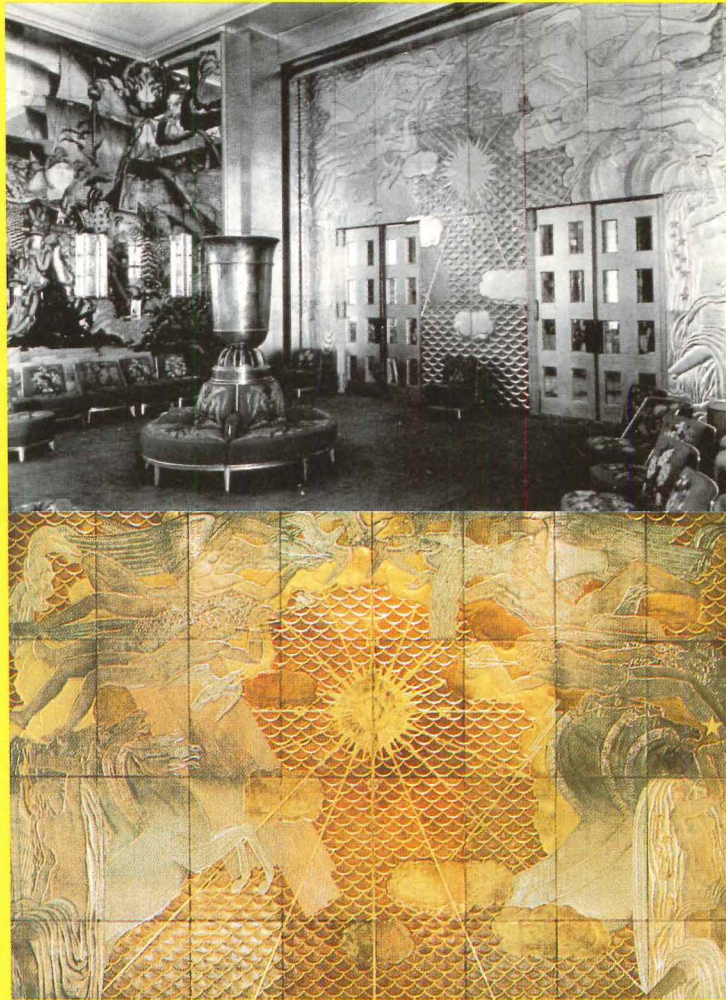
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As installed on French Art Deco ocean liner *Normandie* (left), several of *The Chariot of Aurora's* 32 gilded lacquer panels (below left) slid back to reveal doorways.

Zigzags and Speed Stripes: The Art Deco Style, which is on view at the Carnegie Museum's Heinz Architectural Center through March 28. Myers includes a handful of watershed works, such as period photos of the 1925 *Exposition Internationale des Arts Décoratifs et Industriels Modernes* in Paris and a book of Hugh Ferriss's seminal, shadowy skyscraper drawings. But for the most part, this didactic show introduces Pittsburgh's museum-goers to Art Deco through familiar, hometown examples. At first glance, perjoratives—unoriginal, or gaudy—stick to these modest local designs in the same way *The Chariot of Aurora's* superlatives apply. But Myers' avoidance of famous buildings ultimately allows the show to convey richer, deeper ideas.

The exhibition's local gas stations and storefronts wield as much, if not more, nostalgic power as downtown Pittsburgh's not-quite-the-Chrysler-Building office towers. Specially commissioned photographs by Edward Massery reveal the magic of diners and beauty parlors. On a public school exterior, garish terra-cotta portrait medallions of Asian, African, and European youths celebrate the student body's diversity.

It's ironic that Waugh used an Art Deco interior as a metaphor for the perils of modernity, for even today many Modern purists disdain the style as a commercialized aberration. However, between *The Chariot of Aurora's* highbrow glamour and the lowbrow fun of *Zigzags and Speed Stripes* it's clear that the movement fulfilled the populist agenda that Modernism abandoned for corporate acceptance. ■

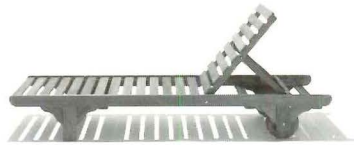
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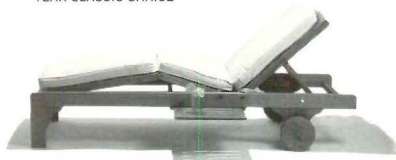
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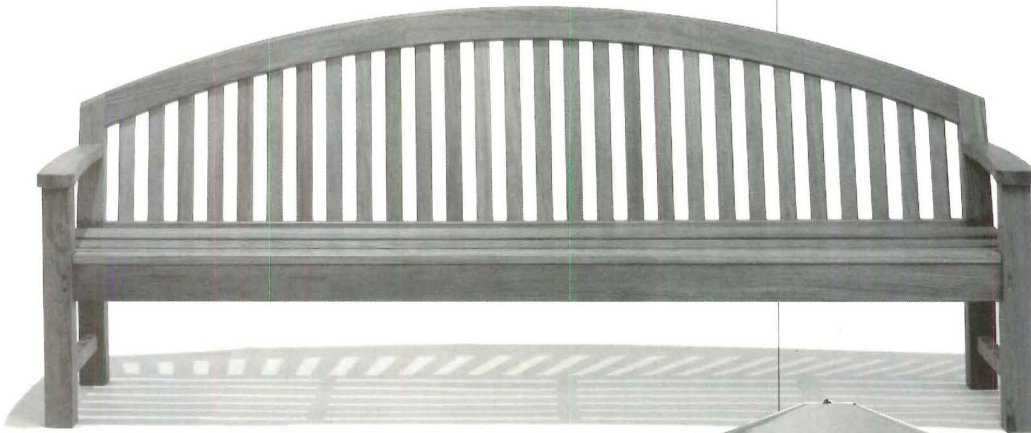


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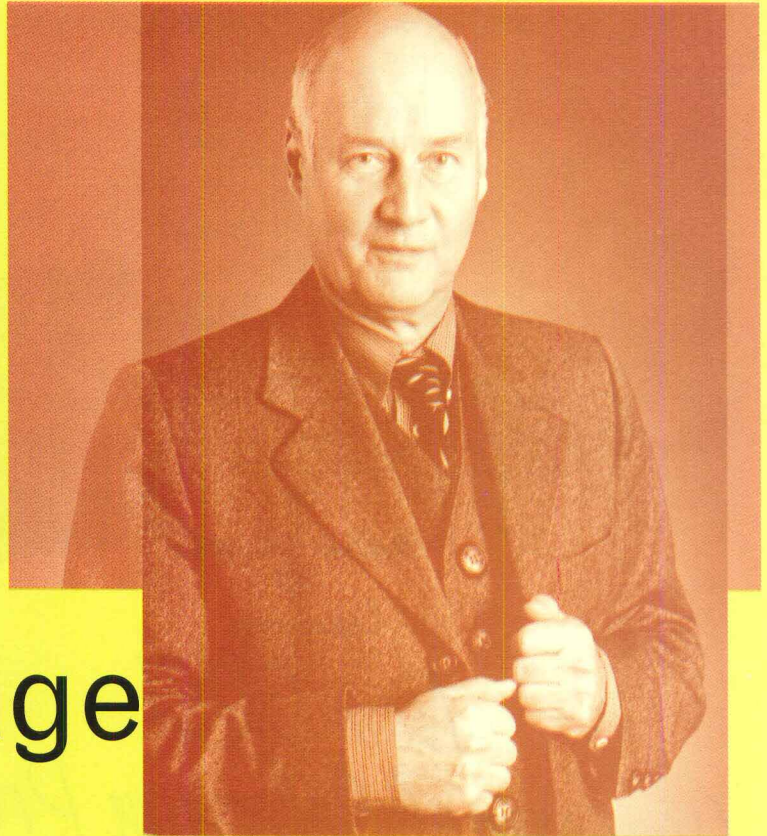
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Kurt W. Forster explains the perils and privileges of succeeding Phyllis Lambert as director of Montreal's Canadian Centre for Architecture.

Centre Sage



Interview by Joseph Giovannini

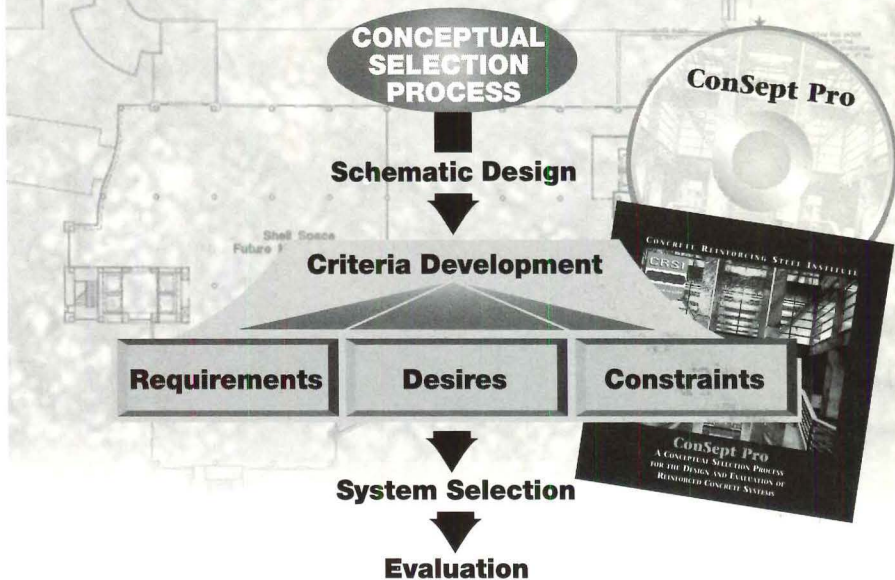
Few institutions are as directly identified with an individual as the Canadian Centre for Architecture (CCA) in Montreal is with its founding director, Phyllis Lambert. So while the recent announcement of the Seagrams heiress's resignation has museum insiders wondering about a post-Lambert CCA, they are reassured about its future intellectual direction, thanks to the appointment of Swiss-born scholar Kurt W. Forster as director. (Lambert remains chairman of the CCA board of trustees.) Forster's credentials are impeccable: He is currently chair of the Department of the History of Art and Architecture at the Federal Institute of Technology in Zurich; he has written books and curated exhibitions on a wide variety of subjects, ranging from the Italian Mannerist painter Pontormo to architect Frank O. Gehry; and he was founding director of the Getty Center for the History of Art and the Humanities.

JOSEPH GIOVANNINI: After heading the Getty Center, what drew you to the position of CCA director?

KURT W. FORSTER: The CCA has extraordinarily firm focus, whereas at the moment it seems to be anybody's guess what the real purpose of the Getty Trust is actually going to be. This institution is such a wonderful opportunity, but it's an extreme challenge because its resources give one the confidence to really accomplish something. There won't be any excuses: You can't say you didn't have the right conditions, means, and people that you need. Here they are, so now let's see what we can do with them. I don't have to repeat all the mistakes I made at the Getty, where I had to start from scratch.

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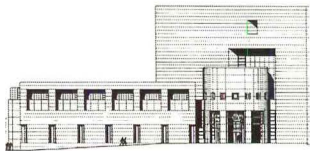
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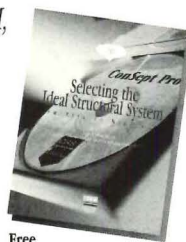
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Why do you think the CCA was interested in you?

The CCA is not a small place. One needs considerable experience in building institutions and trying to hone them to their purposes. They also need somebody who is not a specialist, but is naturally interested in a wide range of fields and phenomena, and has a natural appetite to learn about things they don't know.

So it requires an encyclopedic mind.

I'm not claiming any kind of encyclopedic competence; it's more a matter of attitude, disposition, and temperament. One needs to have a roving eye to be useful to an institution of this kind. At the same time, one to have commitment to a field with developed interests in several areas, so that one has some sort of judgment and perception.

Is the CCA encyclopedic as architectural museums and institutions go?

It's a pretty unique combination of different institutional facets. You have a museum, a research library, important archives, one of the largest collections of photography—a center of scholarship. It's unique. There are other libraries that are richer. Other archives may be just as rich, but they are not built by deliberate collecting so much as they are repositories.

How can the CCA, in this new period, affect the field?

If you think about the role of the Institute for Architecture and Urban Studies—with their journal *Oppositions* and a range of exhibitions, books, and periodicals, and debates with other institutions—about what all of that did in the 1970s in New York City, nothing has really taken its place. If you look at what the Museum of Modern Art is trying to do—and I'm not criticizing, it's just a fact—it would be exaggerated to say that they're

really the forum of architectural debate. So I think the CCA has at least the potential, and fulfills many of the fundamental requirements, for real discussion.

Are you quaking as you follow in Phyllis Lambert's footsteps?

There's nothing that'll keep me from quaking. But I have known Phyllis for a long time and I think I have a very good relationship with her. We have some very different opinions and sometimes, to our surprise, extremely congruent views. I certainly think that an institution that has been invented, sustained, funded, and defined by a person of Phyllis's strength could not simply be handed over to another person.

You need her.

Yes.

Will the CCA continue to be financially backed by Lambert?

Yes, but it isn't like somebody's vanity press or vanity institution. It is very substantially supported by the Province of Quebec, the City of Montreal, and various State agencies.

So it's much more than a proprietary institution.

To the tune of \$2 million a year. This is not some little trickle of support; this is serious recognition. You can't find a cab driver in Montreal who doesn't know where it is.

That's \$2 million out of a budget of how much?

It's complex, but it is certainly several times that amount. The budget is not the same every year, and it's difficult to divide it up since some parts of this budget are separate.

So her money is pivotal to the Centre, but not exclusive.

Yes, of course. Clearly.

Will you retain your position on the faculty in Zurich?

I have a history of being reckless. I mean, I gave up my tenure at the Massachusetts Institute of Technology when I went to the Getty, and that was a shot in the dark. I don't think one ought to make a decision like that with a kind of insurance. One needs to give all one has in the first and second year to make an institution like the CCA fly.

Let's say you stay at the CCA for 25 years.

[laughs] I think you'd have to see my insurance policy.

What would you want people to say about what you'd accomplished at the CCA?

That I'd done something for architecture, poured oil into the fire of the architectural debate. That I did the best I could to make the collections significant, because even in the future it captures today's issues, preoccupations, and anxieties. I have to make sure I get the best out of the opportunities that I have. Phyllis and I have asked ourselves, "What would bring this one notch higher?" And in most instances it is by being less willing to accept things that aren't what I wanted. I want to tighten the screws. ■

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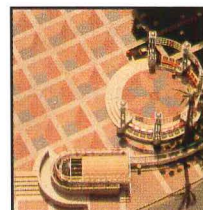
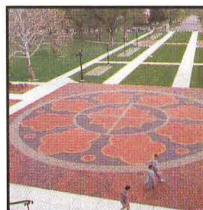


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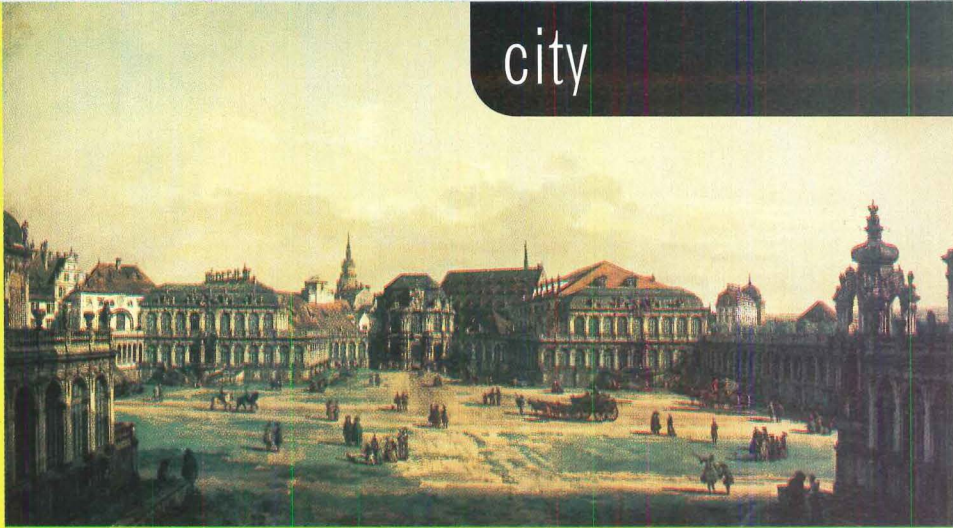
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Inspired by such Baroque showpieces as Matthäus Daniel Pöppelmann's **Zwinger palace** (above), seen in 1753 view by Canaletto, planners today are commissioning expressive **modern centerpieces** such as Gunther Behnisch's 1996 school (right) to enliven surrounding neighborhoods.



The Once and Future Dresden

Dresden's planners build a new city around fragments of the old.

By Joseph Giovannini

World War II was ending, Germany was losing, and the citizens of Dresden thought they just might squeak by. Bombing the princely city, the most beautiful in Germany, offered the Allies no strategic advantage in a war whose end was already a foregone conclusion. But on the night of February 13, 1945, guided by three flares that marked the target area, Allied planes carpet-bombed historic Dresden in a triangle of destruction that killed tens of thousands and wiped out one of the most spectacular architectural ensembles in the Western world. It was one of the heaviest attacks on a German town—6 square miles lay in ruins after the planes left in the early morning—in a war that had already leveled many other major European cities.

The raid was a deep blow to architectural history. For many centuries, the Saxon princes had shaped a city center by extending the activities of their palace toward the Elbe, which defined a public realm of gardens, galleries, and theaters in a riverside esplanade inspired by the Piazza San Marco on Venice's Grand Canal. The stately, mostly Baroque facades, made of a golden Elbe sandstone weathered to a rich patina, formed a linear acropolis lining a riverbank that continued on page 52

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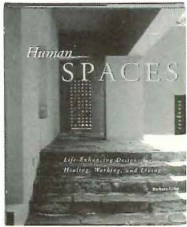
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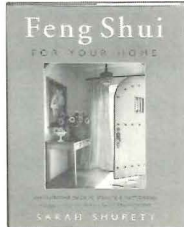
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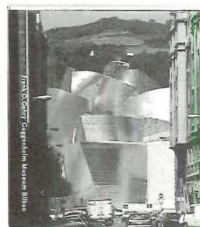
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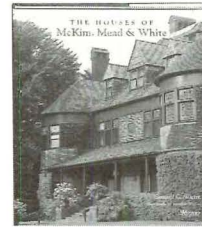
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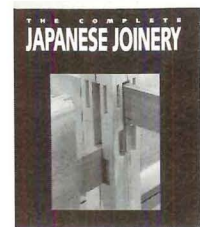
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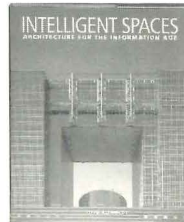
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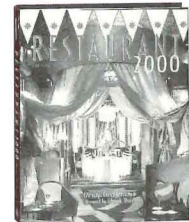
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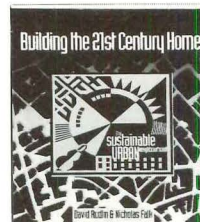
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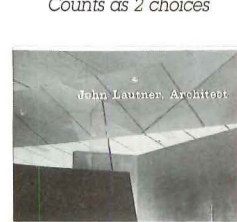
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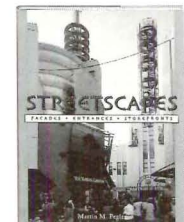
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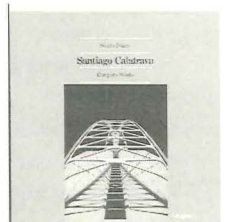
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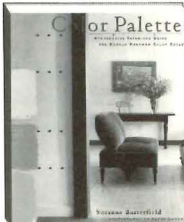
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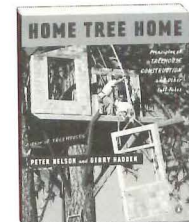
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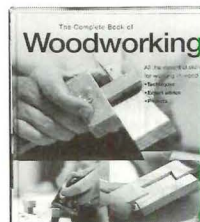
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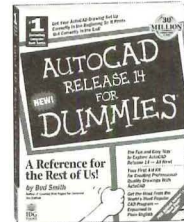
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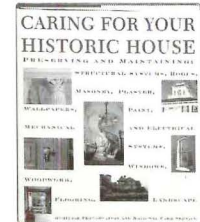
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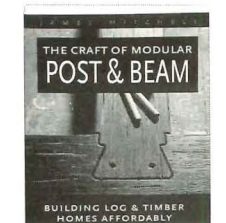
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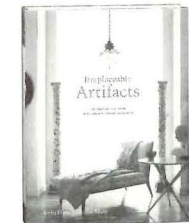
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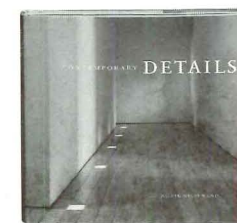
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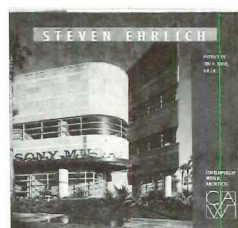
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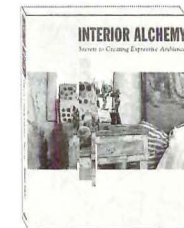
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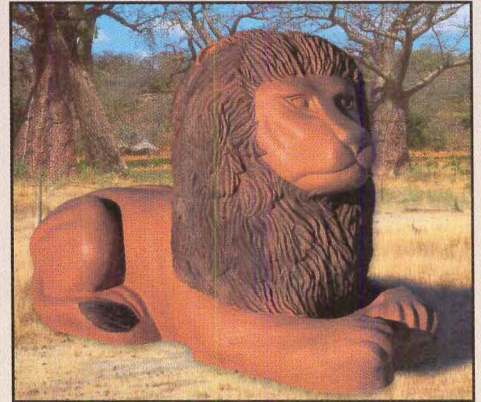
served as a stage for fireworks, gondola regattas, and reenacted sea battles. Reciprocal Baroque palaces were built across the river. Dresden was a vision.

What the bombs didn't destroy fell to Communist planners after the war. There were enough surviving buildings, or remnants of buildings and street infrastructure, with which to reconstruct the traditional character and scale of the city. But intent on building a new utopian socialist city, planners erased many of the buildings that had tiptoed through the bombs. On the new tabula rasa, they built a politically correct field of banality that celebrated collectivity.

Dresden's reconstruction has differed from Berlin's (*Architecture*, September 1998, pages 50-55). While East Berlin politicians decided to demolish the surviving royal palace in the historic center, just after the war Dresden held a referendum in which citizens voted to effectively re-create the fabled and fabulous Zwinger palace (1722). With a classically balanced plan that nonetheless negotiates a hilly topography at the edge of a moat, the Zwinger is Matthäus Daniel Pöppelmann's masterpiece: Baroque forms boldly intertwine with complex spaces. Statues, escutcheons, and garlands that encrust the arcaded one- and two-story garden pavilions dematerialize walls already made mostly of glass. Grand but intimate, and Classical in posture but comic in sculptural detail, this palace and garden of princely delight was restored in 1962.

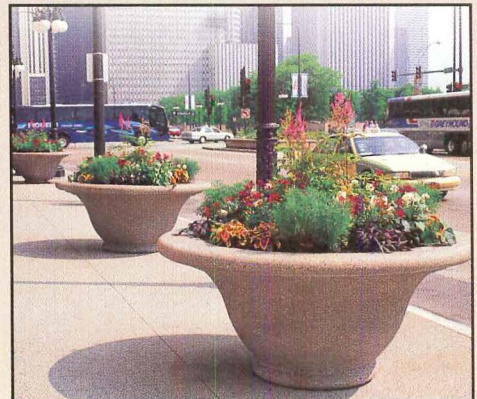
The popular success of the Zwinger encouraged the socialist regime, even as it was building its own colossi back from the river toward the railway station, to undertake a combined re-creation and restoration of the rest of Dresden's historic urban ensemble, suggesting a both-and, rather than either-or overall urbanism. (Laws enacted around 1950 had heretofore protected the remnants of the major monuments.) Progress was glacial, but by 1967, in the historic core, the monument-by-monument restoration of historic Dresden emerged as part of an overall plan. The policy received a major vote of official approval when then-president Erich Honecker declared Gottfried Semper's Opera House (1878) on Theaterplatz a top cultural priority of the German Democratic Republic. The government finished the eight-year restora-

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tion in 1985. Ironically, the policy toward the restoration of singular historic monuments has confirmed a de facto policy of supporting contemporary monuments of comparable singularity in zones just outside the old urban core, such as a school by Günter Behnisch and a cinema by Coop Himmelblau (*Architecture*, August 1998, pages 52-61). While Berlin, post-Wall, has been captive to its urban past, Dresden's urban attitude allows the coexistence of past and future in a more relaxed present.

Some 30 years after Berlin razed its royal palace, Dresden took the opposite path, and the hole at the center of the growing ensemble finally started to fill in. Completion of the sprawling Residenzschloss (1471), with a Gothic core that was renovated in the 16th century in Italian Renaissance style and successively through 1901, will be completed by the city's 800th anniversary in the year 2008 (The decision on how to restore the interiors has yet to be made). The large Düsseldorf firm Heinrich Petschnig and Partners is executing the restoration.

After the unification of East and West Germany, the resolve to restore the historic core's major monuments deepened with the decision to rebuild the much lamented Frauenkirche (1726-1743). The most important Protestant church in Germany, built by George Bahr, had a dome that looked like a stone bell on the skyline. Blocks from the church are now numbered and stored on steel racks, awaiting their call. IPRO, a large Dresden office, is restoring the Frauenkirche, which will also be finished in 2008.

Beyond the scenographic magnificence, there is a high level of architectural excellence, both in the individual buildings and in the ensemble: Each is an exemplary specimen of its period and philosophical persuasion. But rather than being simply a collection, the buildings form a grouping that defines a fluid and processional civic realm. Through the centuries, each architect cooperated with his predecessors in creating what became a Baroque whole. "The buildings are singular, but the important thing is how they react to each other," says Joern Walter, Dresden's chief city planner. "While the kings of Prussia invested in the military, the kings of Saxony built up their art collection and galleries. The grouping is unique in Western Europe." Karl Friedrich Schinkel, the defining spirit of 19th-century Berlin architecture, built a fine example of Prussian Classicism in historic Dresden—the Hauptwache, or old city police station (1836)—but it looks stiff compared to the Zwinger.

"Dresden is a Baroque city, and we never had an important Classical period," says Walter. "Our view of the city follows a model that comes from our history. Dresden has much more contact with the landscape and open areas, and it has had a strong impulse toward art."

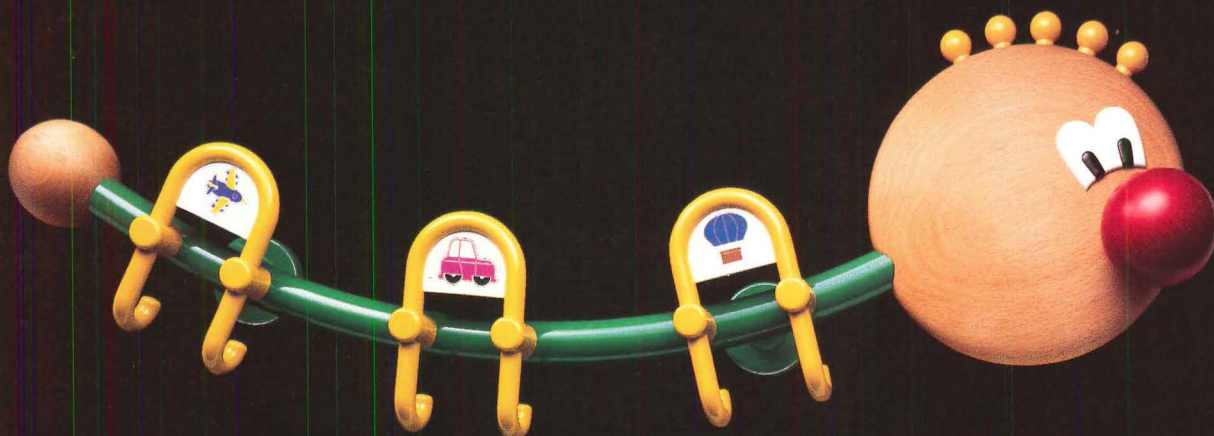
Dresden planners are encouraging background urban fabric around the important monuments, or what Walter calls "a normal, well-built architecture in the inner city area, with quality detail. But this does not mean that we don't have other places where we're very interested in some new highlights." These new monuments take up the case of architectural singularity so convincingly established in the historic core.

Dresden, for example, disallowed a humdrum design for the first school, proposed by the Catholic Church, to be built after reunification. "We decided this new school must set an example as an extraordinary building for a new time," says Walter. A competition resulted in a geometrically liberated building by Gunter Behnisch that redefines its immediate neighborhood with an informal jumble of elevated gar-

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den terraces, which give the classrooms in the five-story building a sense of direct contact with the outdoors.

The use of large expanses of glass in historic areas is a major issue in current German architectural debates about representation and symbolism, and Dresden allowed a largely glass parliament building (the Sächsischer Landtag) on the banks of the Elbe. This new structure, by Peter Kulka, declares the openness of democracy with walls of glass that allow the public to see the debating and voting. And in Coop Himmelblau's cinema on the Pragerstraße, a socialist showcase, the Viennese architects take glass in the direction of opacity rather than transparency by treating it as a crystal.

"There is no way to look back to the way the city was before World War II, to re-create a 19th-century city in the area around the cinema," says Walter, referring to the socialist zone of monolithic spaces and structures. "When you find a completely different kind of city planning, as in the 1950s and 1960s, you need another way to build. Looking at architecture of the 1960s, [Viennese architect] Wolf Prix [of Coop Himmelblau] has gone forward with something that didn't exist before."

Prix himself credits the literally conservative nature of the restoration projects in the historic district with prompting the city to be more adventuresome in other areas: "They don't want to be perceived as reactionary," says Prix. Mixing design messages, then, amounts to a de facto policy for creating, overall, a heterogeneous city. The new library for the state of Saxony by Ortner and Ortner—now under construction and scheduled for completion in two years—promises with a bold volumetric deployment of its stacks to be another building whose presence will redefine rather than merely comply with its immediate context. The mix of old and new, the heterogeneity of the mix, and above all the glorious patina on the Elbe stone, which imparts a sense of age, prevents the Disneyfication of Dresden.

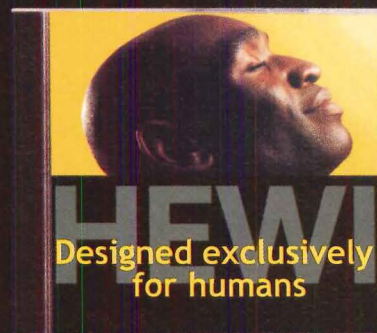
Walter says the city is following a policy of "critical reconstruction," an approach that prompts planners to find solutions tailored to the character of different areas. On the Pragerstraße, the city, in a public-private partnership, has built office and shopping blocks that reduce the width of the pedestrian mall from 264 to 198 feet. Between the Frauenkirche and the castle, planners are resisting the impulse to consolidate parcels into large building sites, and are looking to re-create an urban tissue at an intimate scale—small buildings on small parcels.

"We are looking for a new scale," says Walter. "It's important for the public to come to an understanding of smaller scale, but we have to realize it won't work the way it worked in the last century. Very different economic situations create different urbanisms."

There are still many holes in the city, particularly where the over-scaled, traffic-engineered boulevards of the socialist regime cut wide swaths through the urban fabric. But the new policy suggests the outline of what can be expected. Featured structures with a radiant influence in the cityscape do not prevent background structures that are mending the rent fabric, and vice versa. The city's planning policy is open and intelligently permissive rather than restrictively structured, as in Berlin, whose urban reconstruction policy since 1989 has been exclusionary and reactionary, as though there were only a single correct way to rebuild a European city.

Tour buses now aim at Dresden's historic center, but in a few years there will also be routes to the new monuments. Dresden's future lies in its past and in its future. This is a city of both. ■

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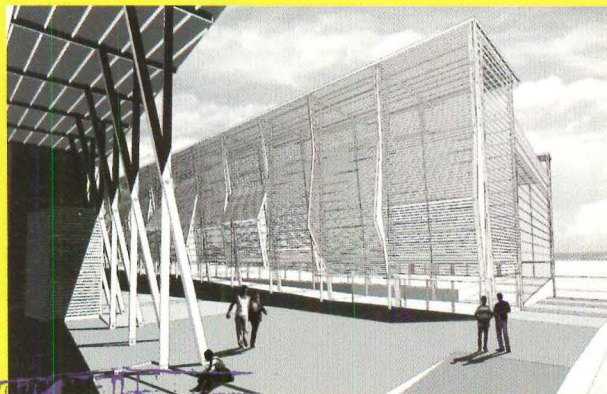
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Why won't Congress pay for America's contribution to next year's World Expo in Hannover, Germany? By Peter Blake



Barkow Leibinger's media-driven Modernist design for **U.S. pavilion at Hannover 2000 World Expo** (above) replaces SITE's patchwork quilt-inspired scheme (above left).

World's (Un)Fair

Over the past 150 years or so, exhibition pavilions have been some of the most impressive works of architecture—in particular, pavilions sponsored by nations wishing to impress the rest of the human race at world's fairs and similar events. It is quite possible to tell the story of modern architecture with these marvelous buildings: Joseph Paxton's 1851 Crystal Palace in London; Louis Sullivan's Transportation Pavilion for Chicago's great fair of 1893; the pavilions built in the 1920s and 1930s by Le Corbusier in Paris and Ludwig Mies van der Rohe in Barcelona, Spain; and those postwar efforts by Edward Durell Stone in Brussels, Belgium, and Buckminster Fuller in Montreal and Moscow.

America's pavilions for world's fairs and similar celebrations are commissioned by the U.S. government—specifically by the U.S. Information Agency (USIA)—and designed by American architects. Among the truly outstanding structures of the past century was the huge, air-supported pavilion designed by the late David Geiger, a brilliant engineer working with the architects Davis, Brody & Associates at Osaka, Japan, in 1970. Very few people had heard of Geiger, I guess, but those of us who saw that fantastic bubble will never forget it.

That was then, and we are now entering a new century. And judging by what people in Washington, D.C., are saying about the upcoming world's fair 2000 in Hannover, Germany, we may be entering a century of severe boredom. During the past several years, the U.S. Congress has relinquished financial stewardship of the World's Fair pavilion in Hannover, which will instead be funded by private donations. And USIA staff for the fair has been drastically cut—a far cry from the glory days of talented Director of Design Jack Masey and collaborators Ivan Chermayeff and Thomas Geismar. President Clinton appointed the well-connected William D. Rollnick, a member of Mattel Toys' board of directors, commissioner general of the U.S. pavilion for Hannover 2000. In


addition to being responsible for fundraising, Rollnick and his deputy commissioner, wife Nancy Ellison Rollnick, chose James Wines of New York City-based SITE to design the U.S. pavilion.

Now, SITE is an interesting group. Wines is an interesting man, and while SITE may not be everybody's idea of American architecture at its most distinguished, they are certainly not boring—at least, not very. Alas, the Rollnicks had second thoughts. Three or four months ago, they fired SITE, whose work came in way over budget, and held an invited competition to pick a new design team from three nominees: two German architects and an American-German husband-and-wife team. The winners were the latter, Frank Barkow and Regine Leibinger (*Architecture*, April 1998, pages 90-91), Harvard-educated architects who practice in Berlin. The Rollnicks also selected a German contractor to build whatever the winners came up with.

The whole thing is more than a trifle peculiar. Those even vaguely aware of the present state of American architecture cannot believe that this collection of close relatives represents the very best talent the United States is capable of presenting to the world. The whole affair to date is embarrassing. There are a few architects who might have been asked to compete—Frank Gehry, I.M. Pei, Philip Johnson, and several thousand others come to mind—and who might have come up with something fairly distinguished, even in the eyes of the Rollnicks.

Since Congress has effectively eliminated the USIA, nobody with any design qualifications seems to be in charge. And there really isn't any time to design a fine building, spectacular exhibits, or anything else that wouldn't embarrass the United States in the eyes of the world. ■

Architect Peter Blake is the former editor of Architectural Forum and the author of such books as God's Own Junkyard and No Place Like Utopia.



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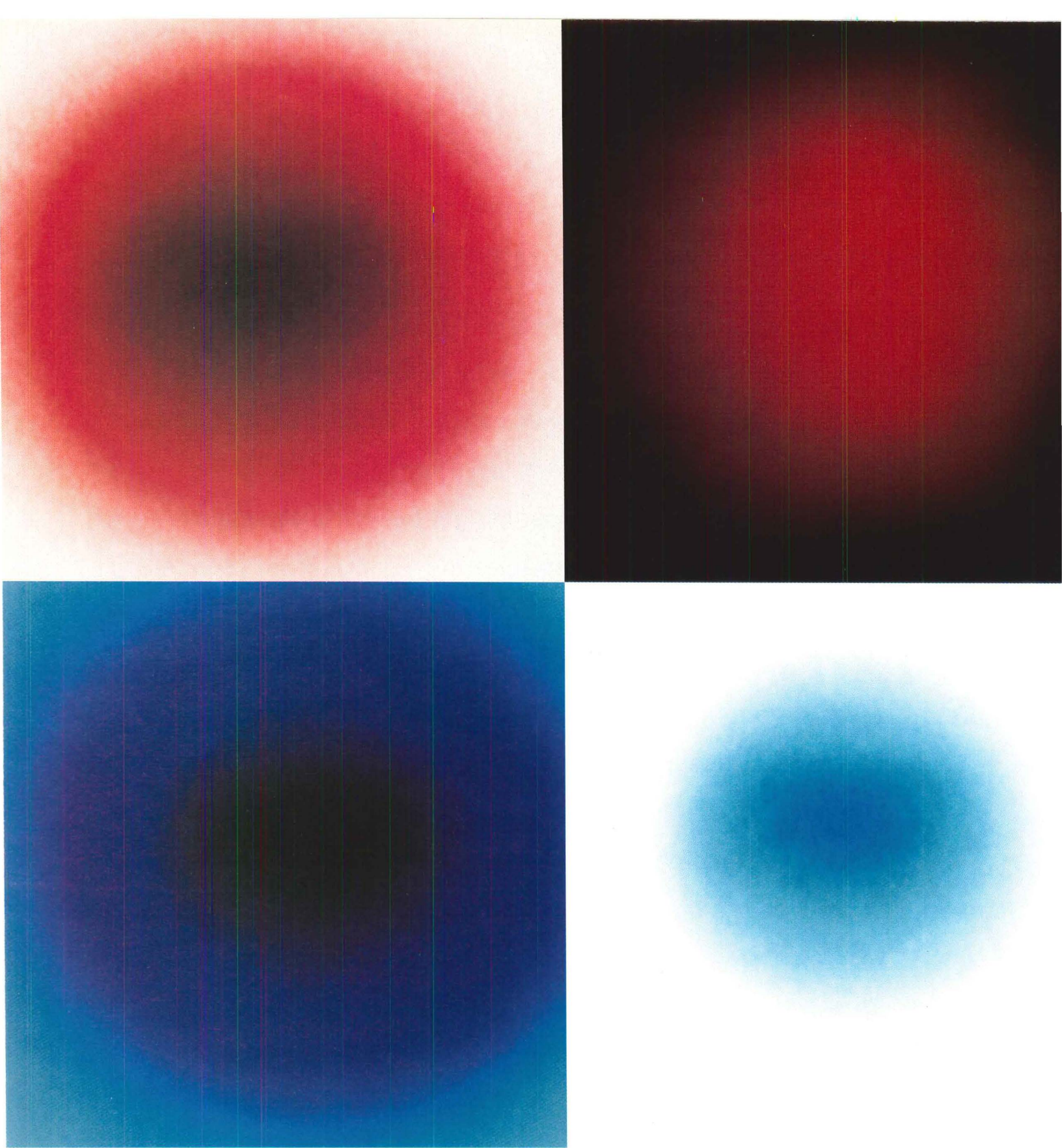
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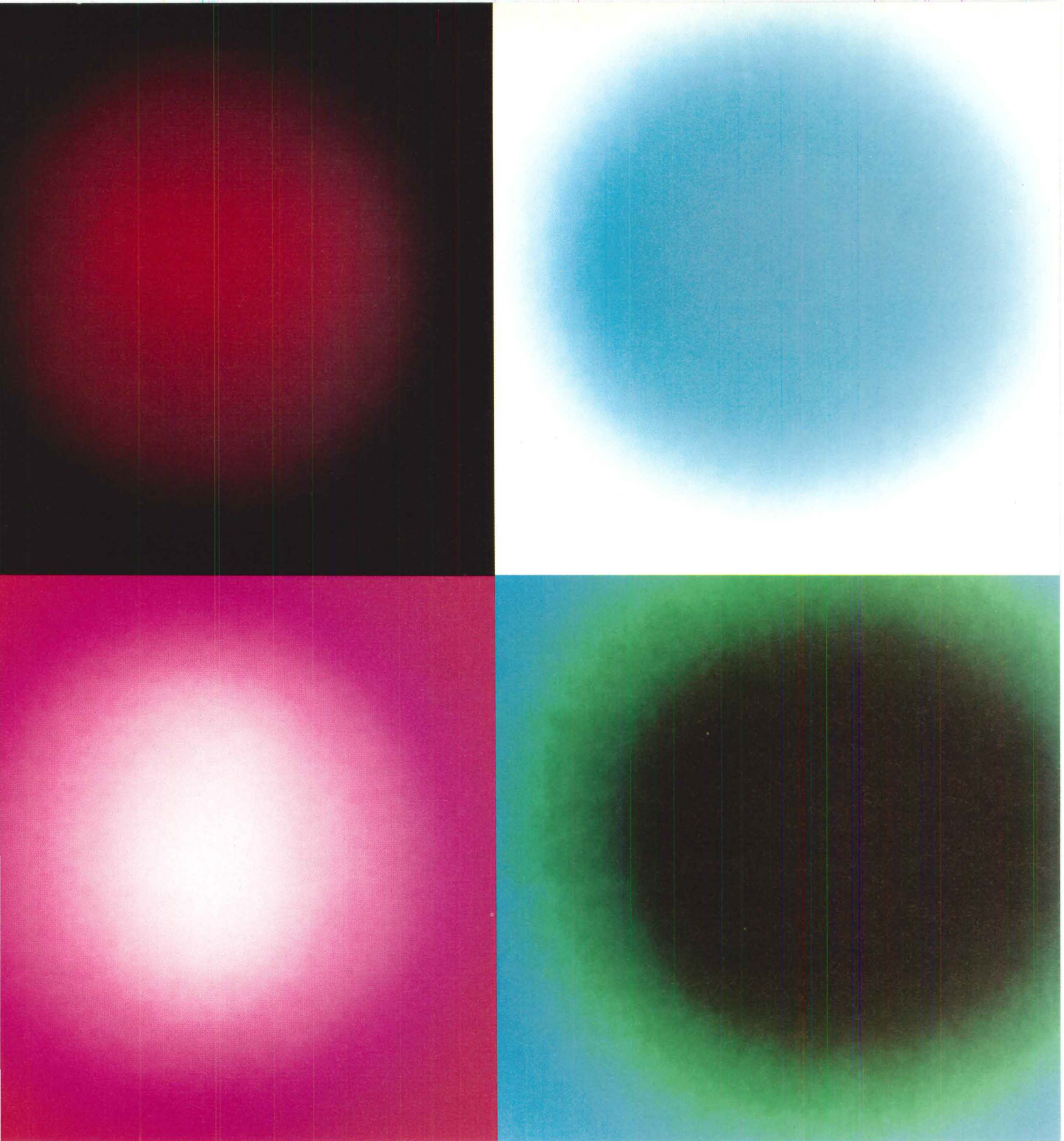
Architecture is inseparable from color. All architects—from vernacular regionalists to technophiles—are color experts, ready to discuss the implications of the most subtle nuances of hue and value. Studios are filled with color charts; computers eagerly offer millions of tonal variations. But color is also a threat. It might run amok, blurring or dissolving a project's carefully planned logic. For centuries, color has been associated with the illicit pleasures of seductive surfaces: sensuality, sexuality, femininity. Architects find their intense love of color embarrassing. Reluctant to admit that they are fetishists, they pretend to be heroic figures that tame the earthy dangers of color in the name of abstract virtues like order, structure, form, or space. They insist that color is only a secondary element—in the face of glaringly contradictory evidence. The history of the discipline is a history of stubborn denials. The remarkable myth that Modern architecture was white is but the latest in a long line of fallacies. Whole systems of drawing technique, formal analysis, criticism, and training have been developed to keep color in its place. But behind this resilient facade, architecture is awash with unspeakable pleasure. *Mark Wigley*

Mark Wigley is associate professor of Architecture at Princeton University, and author of White Walls, Designer Dresses.



Are architects afraid of color?

“Architects would do well to take Josef Albers’ course on the interaction of color: They are not trained in perceiving color the way they ought to be. It’s a rich area that has yet to be addressed by schools. As a result, architects are anxious because they realize color adds a dimension to their work that may enhance or detract from it. They like to excite the eye, but lack the experience to use color in a pictorial way and apply it to volumetrics.”—**Robert Slutzky, painter and color theorist** “The majority of architects are tight asses. On a rationalized, as opposed to rational



Facing page, clockwise from top left: *C12, I5, C14, C3*; above, clockwise from top left: *I4, C19, C2, I2*

level, it's because color is not intrinsic to exterior building materials. And their fear is that it'll look artificial; it dulls in the sun. They aren't willing to experiment, even if the color is integral to the materials. So on one hand, there's a general reluctance to do color, because of the threat of something looking artificial. On the other hand, having said that, they're still tight asses."—**Stanley Tigerman, architect** "Color is an invitation, a temptation, a seduction. I was photographing Pierre Koenig's own house in the late 1980s, and it was very gray in tones—in the walls and the furni-



ture. I asked Pierre why he and his wife didn't add a few throw pillows or plants for some color, since we were photographing it in both black and white and color. He said, 'No, let's keep the gray tones. We don't want any flashes of color to compete with the architecture.' It is sensual, literally coating the forms and substance of a structure nondimensionally. Architects don't want the interference."—**Julius Shulman, photographer** "For me, color is information. It's intellectual structure and coded messages as well as poetics. But at the end of the 19th century it all got to be too much. Then all the architects poured in Aztec, Antique, Indonesian, everything. The poor old Antique just crumbled and collapsed. When they found out about



Facing page: **B6**; above: **A9**

the Greek temples—conjectural restorations published in the 1850s, all in revolting color—they blew a fuse, and said, ‘truth to materials,’ which is a kind of untruth, because what the public wants out of buildings is an intellectual landscape, a conceptual landscape.”—**John Outram, architect**
“Architects are afraid of color for a couple of reasons. The first is our fairly well-justified fear of fashion. Who wants a building that turns out to be like an avocado refrigerator, the equivalent of permanent bell-bottoms? The second reason is the unjustified belief that color is not critical. Not enough architects approach color in an intellectual way; we are trained that the ideas are in the lines.”—**Terence Riley, architect and curator**

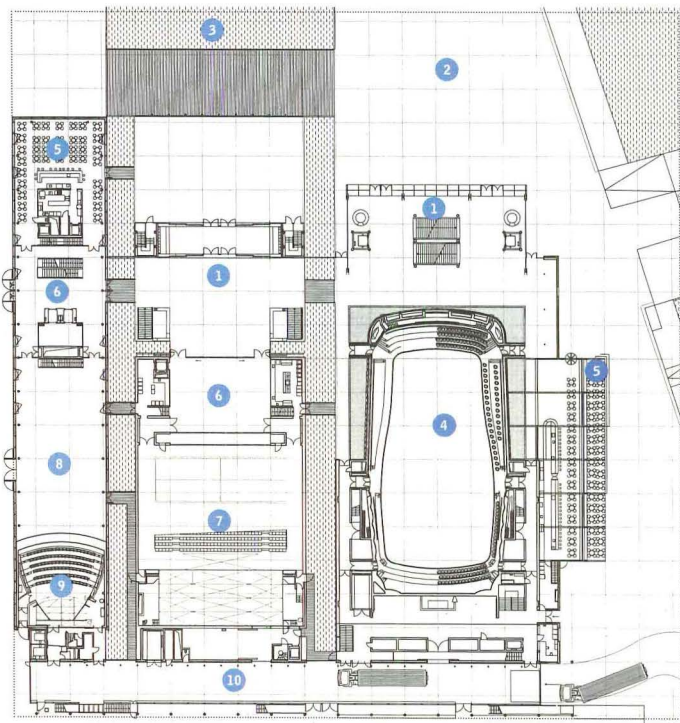


Tonal Quality

Despite its huge scale, bowed, oxidized copper roof of cultural center (this page) fits seamlessly into low-lying scale of town, between Alpine peak of Mount Pilatus and south shore of Lake Lucerne. Immediately to west of complex is train station by Santiago Calatrava (at center). Tinted glass of theater entrance wall (facing page) reflects public entrance plaza and cityscape beyond. Recessed windows set into painted steel panels frame views from second- and third-floor lobbies leading to concert hall. Shadows cast by sweeping roof overhang transform rich bottle green tint of cladding.

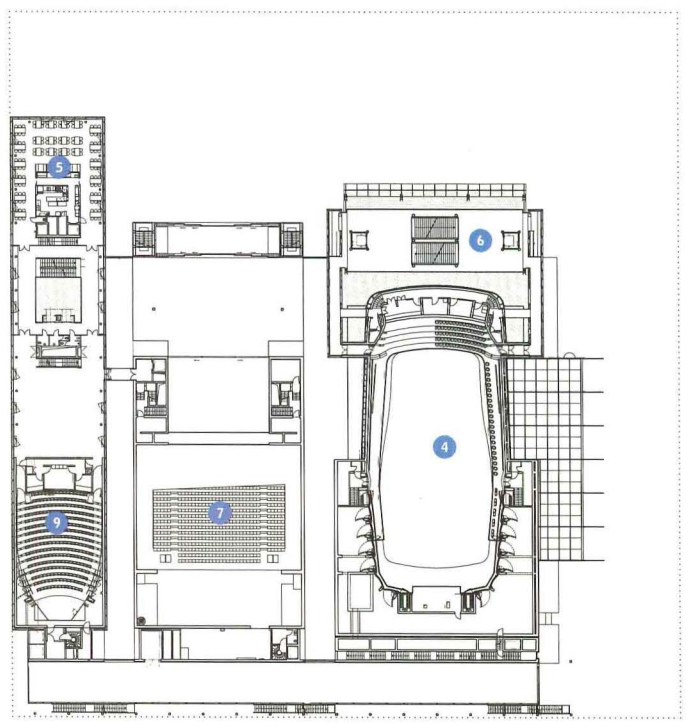


Jean Nouvel washes a lakeside cultural center in Switzerland with moody monochrome.
By Raul A. Barreneche

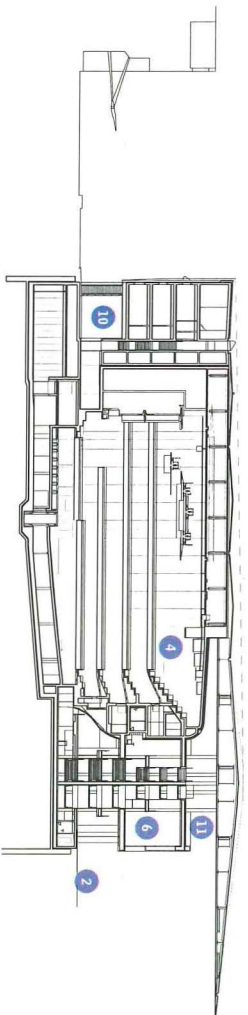


Ground-floor plan

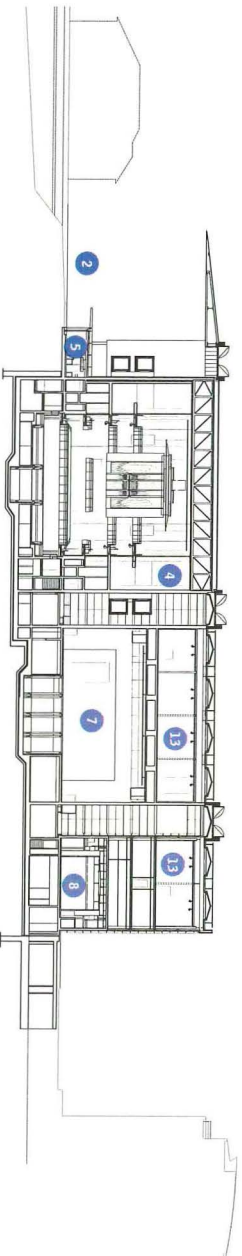
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Second-floor plan

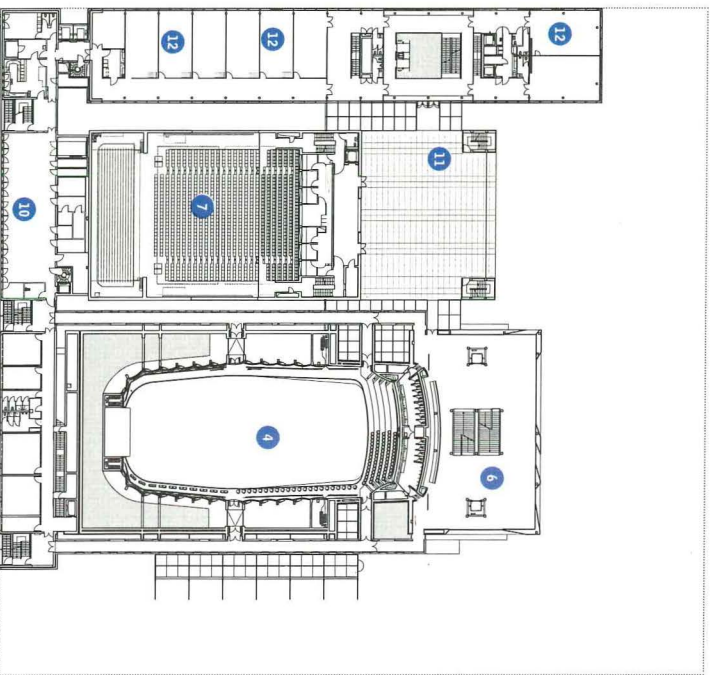


North-south section



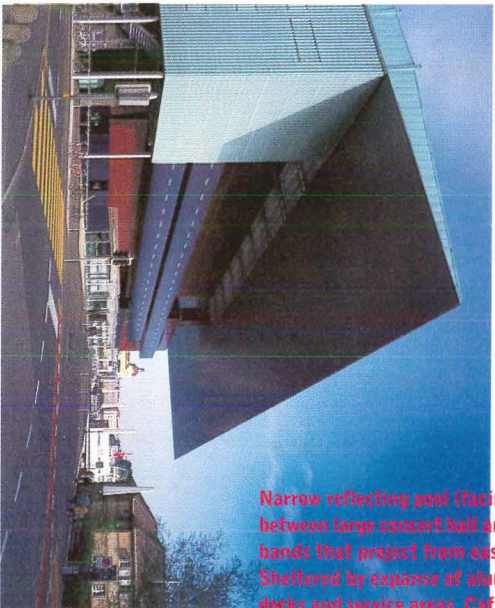
East-west section

- 1 entrance lobby
- 2 plaza
- 3 basin
- 4 large concert hall
- 5 café
- 6 foyer
- 7 multipurpose auditorium
- 8 exposition hall
- 9 small auditorium
- 10 service wing
- 11 terrace
- 12 office
- 13 museum



Third-floor plan

PAUL RAFTERY / ARCAID



Narrow reflecting pool (facing page, top, and plans) flows alongside theater lobby from entrance plaza into building. Sheltered by six-story atrium, pool creates boundary between large concert hall and future theater and museum wing. Northeast corner of building (facing page, above) reveals rich, deep palette of subtle tones. Slim, horizontal bands that project from east face of concert hall house corridors leading to hall; slotted windows that punctuate length of cantilevered volumes offer glimpses of lake. Sheltered by expanse of aluminum-plated roof, lakeside plaza feels like urban-scaled anteroom. Metal mesh clads southern flank of complex (left), which house loading docks and service areas. Café that faces lake is beneath solid horizontal bands of eastern facade, shaded by roof cantilever.



Walt Disney loved the picturesque Alpine town of Lucerne, Switzerland. Legend has it that the confectionery buildings of this hamlet, which curls around the tip of Lake Lucerne, inspired the fairy-tale architecture of Disney's first theme park in Southern California. Lucerne's newest landmark looks downright alien compared with the medieval belfries and idyllic chalets that enchanted Disney. Parisian architect Jean Nouvel's Culture and Congress Center seems to have run aground on the shore of Lake Lucerne with all the subtlety of a glacier; yet despite its hulking size and broad, angular strokes, Nouvel's building feels like a natural part of this landscape of pastry shops, clocktowers, and mountain peaks.

The \$147.2 million center, known locally by the acronym of its German name, Kultur- und Kongresszentrum Luzern, or KKL, contains a curious and complex program. At the heart of the 35,000-square-meter building is a 1,840-seat concert hall, the new home of Lucerne's renowned international music festival. The hall made its debut during the festival last August and September and received rave reviews from a star-studded roster of conductors and musicians. Although the shell of Nouvel's building is complete, other programmatic interior components are still to come: a second, smaller auditorium, a convention hall, and the Lucerne Museum of Fine Arts, all of which will open by the end of this year.

The KKL occupies a prominent site on the south shore of the lake on the site of the music festival's former home next to Santiago Calatrava's rail station (1989). Nouvel

Narrow atrium between theater wings (above) demonstrates Nouvel's mysterious interplay of light, color, and shadow: Daylight that washes concrete dividing wall creates optical illusions as it reflects against surface of reflecting pool and undersides of cantilevered walkways. Small bridge that spans narrow pool will connect large theater wing to smaller hall and museum when opened later this year. Startlingly saturated corridor that links large concert hall (these pages) offers peeks of town and lake through narrow, recessed windows. Nouvel developed tint of acrylic paint with color specialist Alain Bony. Waxy finish lends reflective sheen to mottled walls.



first proposed sheltering the existing concert hall under a huge roof and thrusting a new auditorium into the lake—ideas that helped him win a 1989 competition sponsored by the city. Lucerne's city council, however, changed its mind and decided that the shore must be left intact, and dropped Nouvel from the project. They later recommissioned him in 1992 on the condition that he not build into the lake. But Nouvel's strategy was inextricably tied to that focal point of the city. "If I cannot go to the water," the architect declared, "the water shall come to me."

Nouvel's new solution was to anchor the building firmly on land and extend pools of water to it. Linear pools slice into the building, dividing the enormous structure into thirds: the main concert hall and a café to the east; the future lecture hall and museum at the center; and the smaller concert hall, also still incomplete, in the eastern third of the building. Nouvel crowns these aquatic bands with soaring atria punctured by catwalks.

The KKL is in essence a large box topped by a gargantuan roof, but Nouvel eliminates any monolithic sensibility. The south and west elevations, orthogonal to the city grid, are flat planes wrapped in grids of gossamer glass and brilliant green metal mesh. The gently peaked, oxidized copper-clad roof extends flush to the edge of these facades. On the north and east sides, facing the lake, however, the building is an assemblage of richly colored and sharply textured blocks. The roof cantilevers an astounding 115 feet beyond the edge of the building, creating an exhilarating, urban-scaled anteroom seven stories tall.

Nouvel is fond of defining buildings with a single abstract gesture: the huge barrel vault of the Lyon opera house (*Architecture*, September 1993, pages 74-75), for instance, or the mysterious glass wall that shields Chateaubriand's cedar tree at the Cartier Foundation in Paris (*Architecture*, September 1994, pages 64-69). In Lucerne, the roof is that defining gesture. Seen from across the water, it strikes a balance between the broad scale and icy colors of the lake and mountains, and the surrounding cityscape. Looking back at the city from beneath the sweeping plane, the canopy frames long, horizontal vistas of nature and the city. Its smooth aluminum surface reflects the motion of boats across the water by day and the lights of the city at night. "Like Narcissus,

Lucerne looks at itself as the roof captures the image of the city," Nouvel suggests.

Color, on its own, is atypical in Nouvel's oeuvre, but his manipulation of colored surfaces and textures to achieve sensory effects is not. According to project architect Brigitte Métra, the rich red, bottle green, and midnight blue exteriors that Nouvel and artist and color specialist Alain Bony chose for the exterior of the main concert hall resonate with the "cozy, plush atmosphere of a classical music concert." Nouvel told Bony to create a paint that would match the rich, velvety hue of a glass of red Bordeaux wine as well as the subtle modulations of light and shadow one observes in a goblet. Bony then picked accompanying shades of green and blue to harmonize with the burgundy. These solid, monochromatic planes shaded by the roof's great overhang play against glazed surfaces that take on the watery reflections of the lake and mountains. The shadows hum with energy, clouding the building's true hues: "Sometimes you're not sure what color the exterior is," points out Métra. Nouvel's moody monochromes continue inside, revealing themselves in the lobbies and walkways that encircle the concert hall. The saturation of waxed acrylic paint on the walls is intense, lending a soigné yet carnivalesque atmosphere to an evening at the symphony: Dr. Caligari goes to the opera.

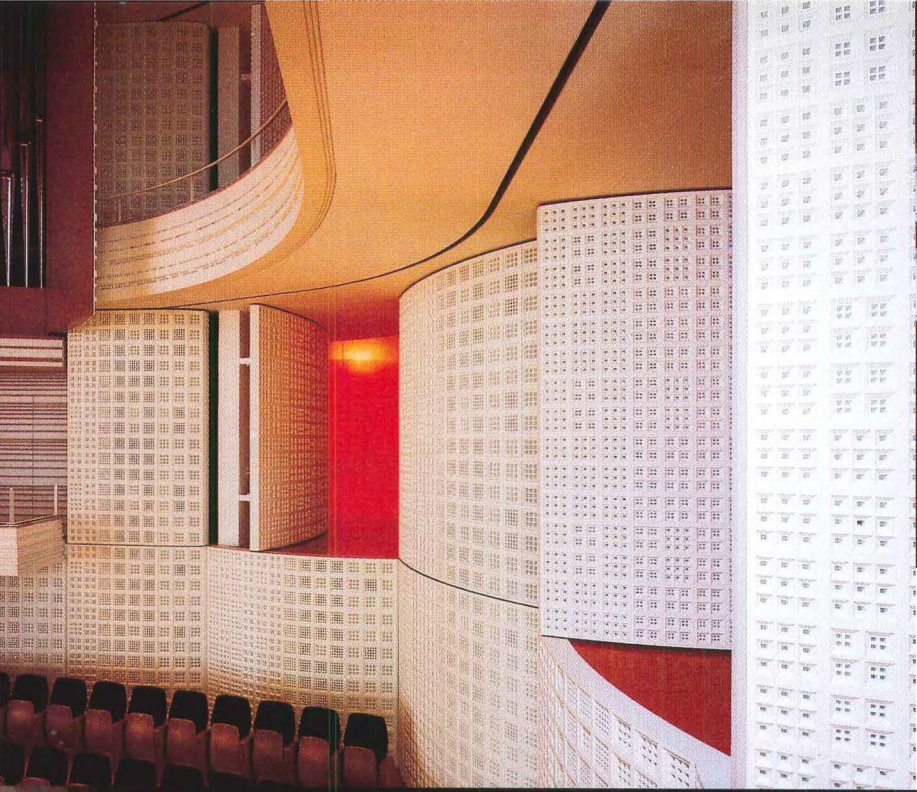
These color-drenched lobbies and corridors lead to the cool white interior of the large hall. Crowning the space is a cherry wood acoustic shell designed by acoustician Russel Johnson of New York City-based ARTEC Consultants. Ringing the room is a series of curved, gypsum plaster panels that swing open to reveal a reverberation chamber on three sides of the hall. The chamber is painted a deep crimson and illuminated by red lights; depending on the aperture of the curved panels, the audience sees different saturations of red around them. Violet strip lights on the undersides of the balconies and boxes combine with the red echo chamber and a starry field of ceiling lights to infuse the hall with a touch of frivolity.

The KKL is both a polite neighbor and a seductress that lures one in with its acrobatic forms, material sleight of hand, and smooth, saturated colors. The building is not the architecture of fairy tales or theme parks, but it unleashes its own mix of mystery and magic. ■

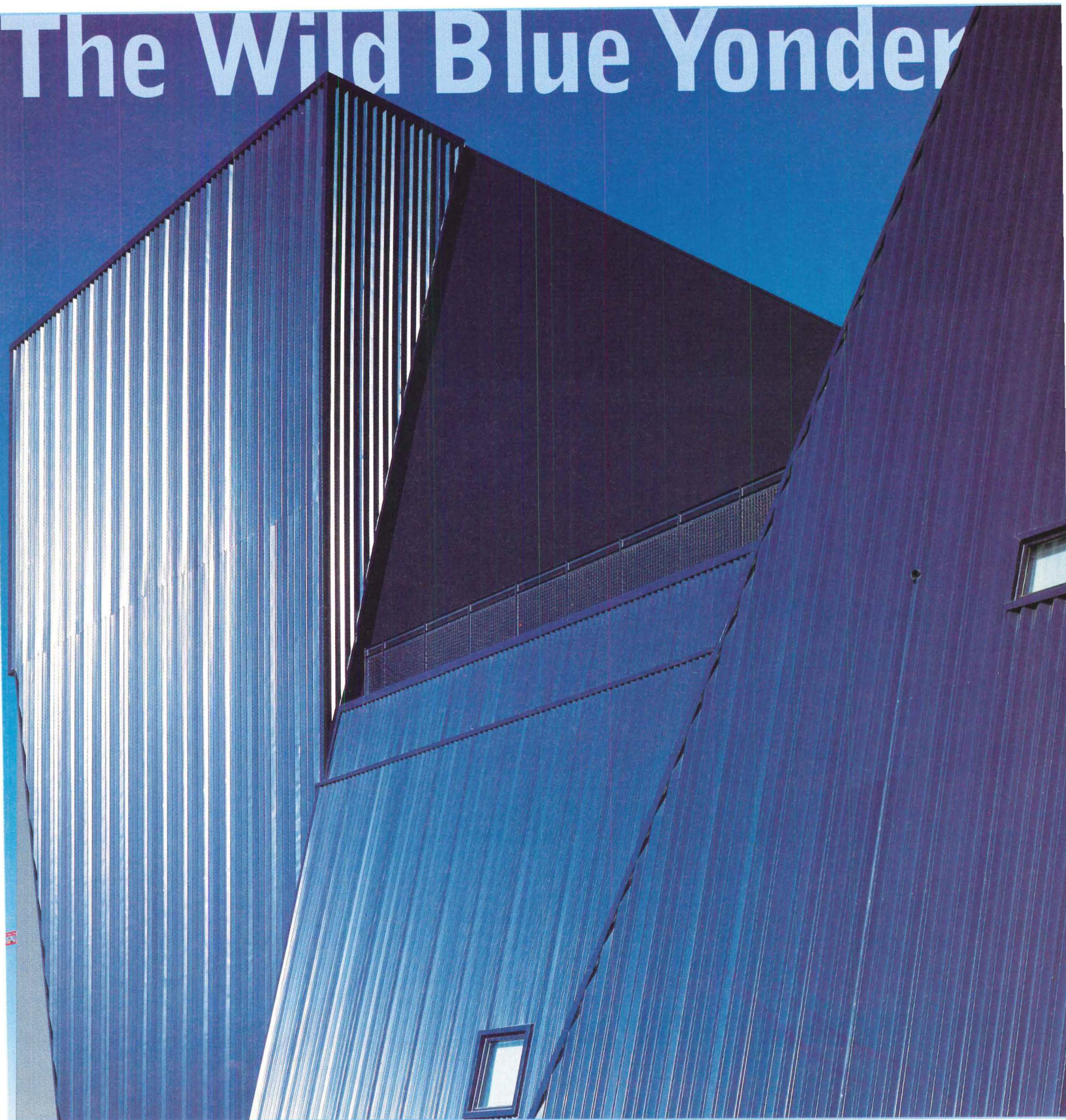
CULTURE AND CONGRESS CENTER, LUCERNE, SWITZERLAND

CLIENT: Lucerne Culture and Convention Center Foundation **ARCHITECT:** Jean Nouvel Architectures, Paris—Jean Nouvel (principal), Brigitte Métra (project manager), Joëlle Achache, Marie-Hélène Baldran, Didier Brault, Sandro Carbone, Günther Domenig, Xavier Lagurgue, Denis Laurent, Philippe Mathieu, Eric Nespoulous, Julie Parmentier, Matthias Raasch, Francis Revolta, Markus Röthlisberger, Beth Weinstein, Stefan Zopp (design team) **ENGINEERS:** Electrowatt Engineering, Plüss+Meyer Engineers (structural); Aicher, De Martin, Zweng; Balduin-Weisser (mechanical); Scherler (electrical) **CONSULTANTS:** ARTEC (acoustics); Jacques Le Marquet (scenography); Alain Bony; Henri Labiole (paint colors); Vincent Lafont (renderings); Etienne Follenfant (model) **GENERAL CONTRACTORS:** Electrowatt Engineering; Göhner Merkur **COST:** \$147.2 million **PHOTOGRAPHER:** Christian Richters, except as noted

Curved acoustical panels (facing page, below right and bottom right) that envelope front and sides of concert hall adjust to reveal echo chamber. Pivoting panels are composed of gypsum plaster finished tiles, scored with wafflelike grid of variable squares reminiscent of skin of Nouvel's Arab World Institute (1987) in Paris. Panels open for organ or choral recitals (facing page, bottom right), and close during spoken performances. Crimson rear walls of echo chamber, illuminated by red lights, create luminous halo behind pristine white walls. Custom-designed, circular acoustic shell (facing page, below left) that crowns 1,840-seat hall rises and lowers according to acoustical needs of performance.



The Wild Blue Yonder

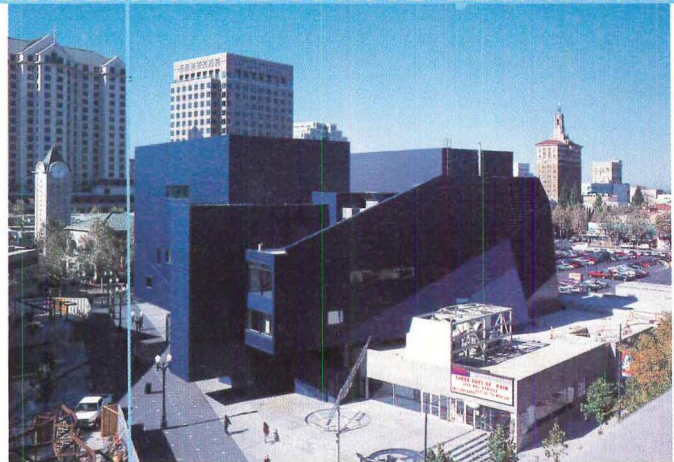


Holt Hinshaw boxes up San Jose's theater scene. By Aaron Betsky

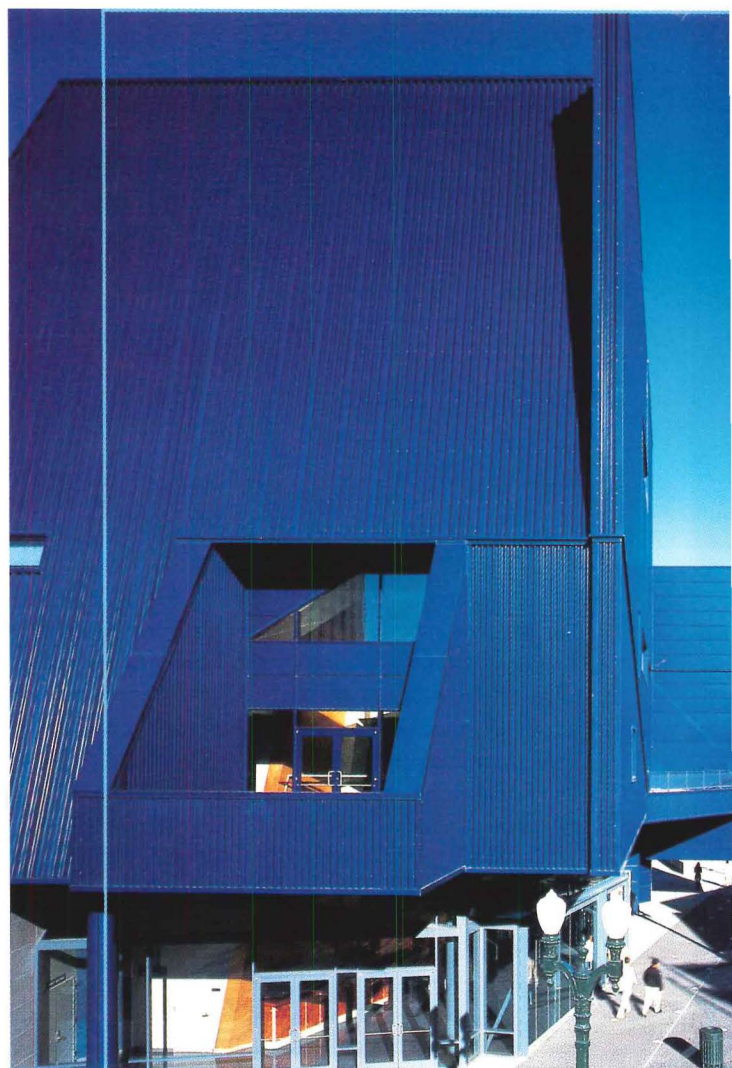
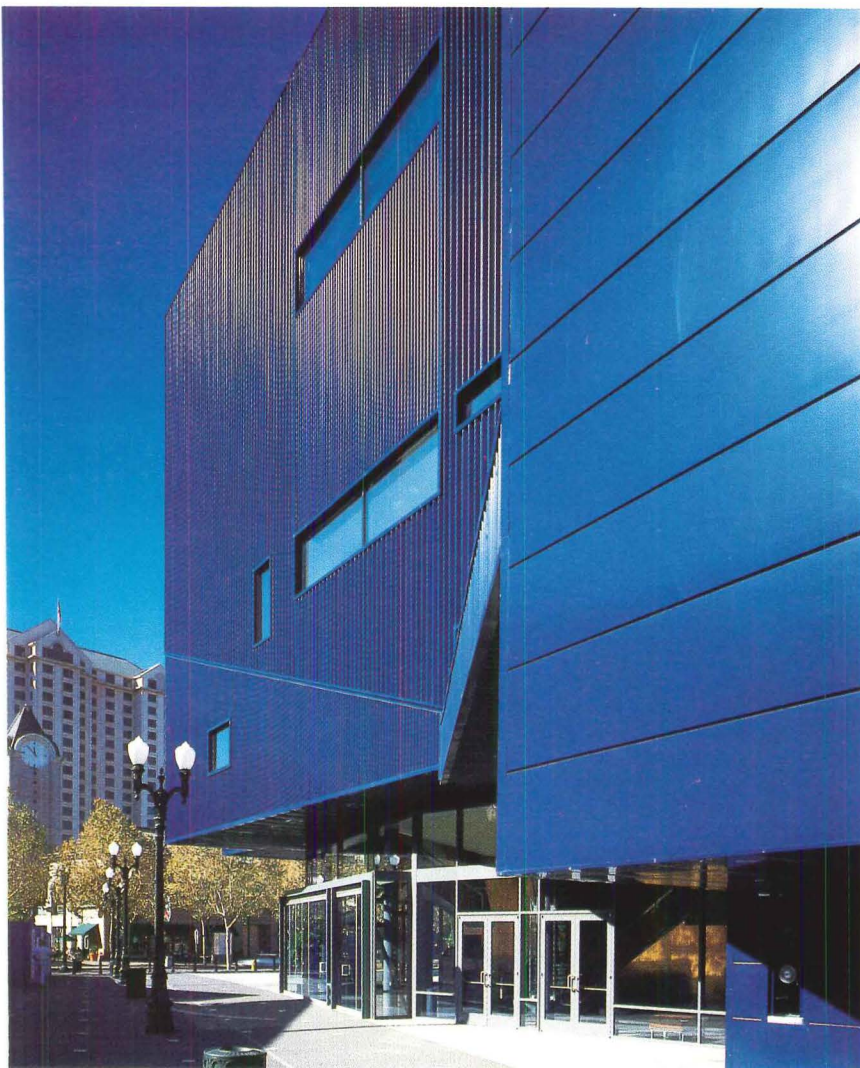
The San Jose Repertory Theatre conjures itself up like a magic trick. Its blue metal skin shines brightly during the day, then takes on a mysterious presence at night. The building is also a transformer: It converts urban energy into a spectacle of form; fuses the technology of lighting, sound, and performance into theater; and transforms an odd site at the edge of a once-dying downtown into a hub of urban activity.

Designed by the San Francisco-based firm Holt Hinshaw Architects in 1992 on the site of a former office tower plaza in downtown San Jose, California, the architect conceived the building as a transition between the low scale of buildings to the east and south and a set of proposed office towers, which have yet to be built, to the north. The process of designing the Rep, as the building is known, was as torturous as the building's forms appear, but the result was equally successful. In the middle of the design process, the client reduced the program's scope—removing retail shops only to add them back later—and asked Holt Hinshaw to redesign the building's skin. At one point, plans for a bright blue exterior came under close civic scrutiny: During the preparation of working drawings, city officials suggested that the architect paint the building a deep red in response to the region's Mexican-American building traditions. In the end, however, Holt Hinshaw's brilliant blue color scheme prevailed.

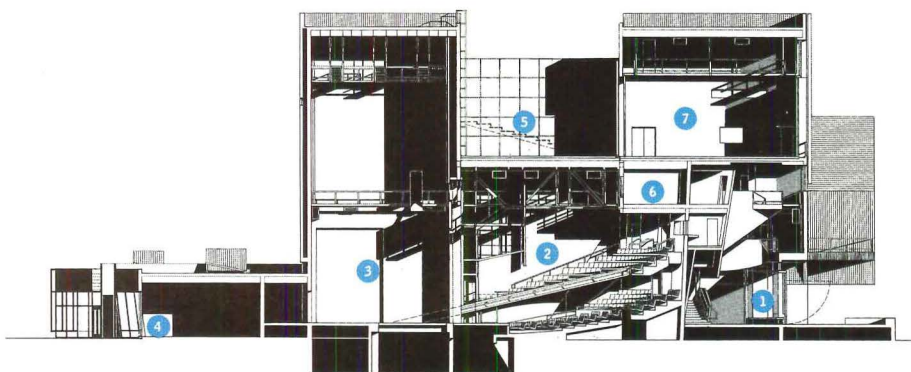
At the heart of Holt Hinshaw's design for the 58,000-square-foot, 529-seat theater is the metaphor of a magic box. The architects conceived of the \$21 million building as a



Canted planes of fly tower (facing page, at left) and rehearsal hall (at right) frame rooftop terrace above auditorium. Clear resin finish on corrugated skin's metallic paint increases sheen on theater exterior. Theater's boxy, muscular masses (above right) align with skewed angles of downtown grid and pedestrian promenade. Soaring, narrow lobby (right) extends along south flank of theater.

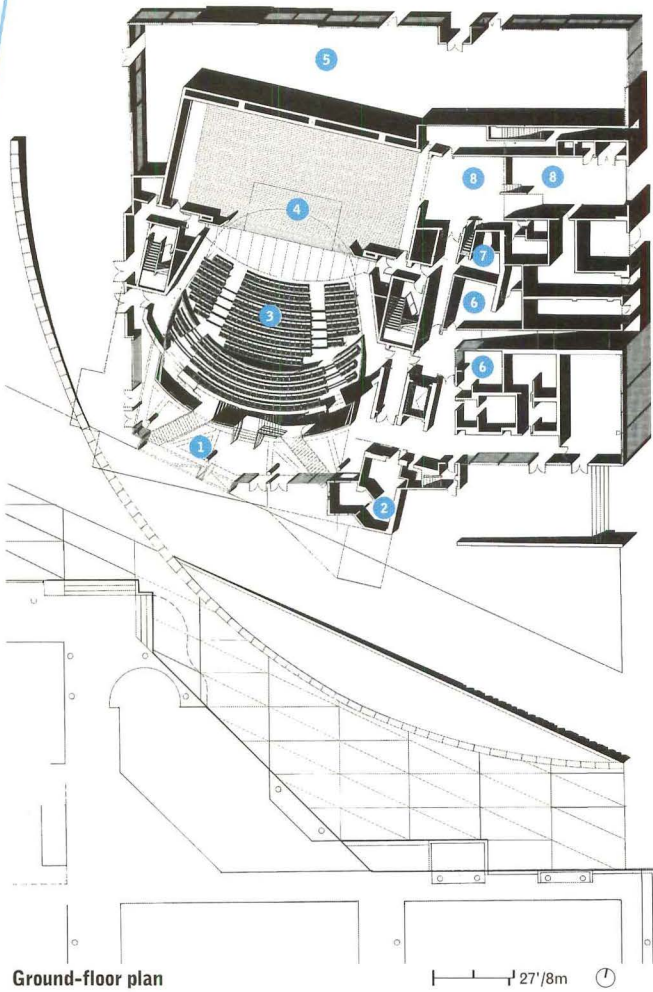


Wrapped in bright blue corrugated steel, fractured volumes above glass-enclosed lobby (above left) play against saturated blue of California sky. Small balcony facing downtown San Jose (above right) punctuates otherwise solid plane of west facade. Balcony (facing page, bottom) projects from corner of second-floor lobby, beneath rehearsal hall on top floor.

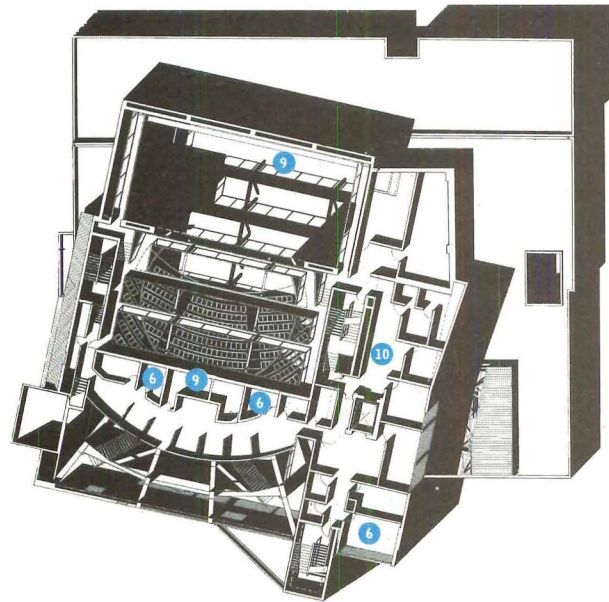


- ① entrance lobby
- ② auditorium
- ③ stage
- ④ retail space
- ⑤ terrace
- ⑥ office
- ⑦ rehearsal hall

North-south section | 17/5m

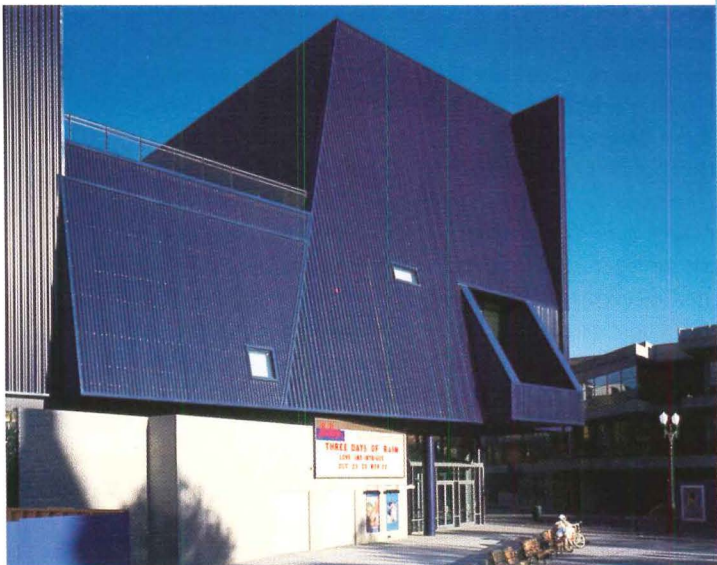


Ground-floor plan



- | | |
|------------------|---------------------------|
| 1 entrance lobby | 6 office |
| 2 box office | 7 dressing room |
| 3 auditorium | 8 loading and scene docks |
| 4 stage | 9 catwalks |
| 5 retail space | 10 costume shop |

Third-floor plan



SAN JOSE REPERTORY THEATRE, SAN JOSE, CALIFORNIA
CLIENT: San Jose Redevelopment Agency
ARCHITECT: Holt Hinshaw Architects, San Francisco—Mark Hinshaw, Paul Holt (partners-in-charge), Dwight Ashdown (project architect), Ken Bishop, Jane Cee, Richard Curl, Chris Downey, Douglas Gauthier, Dulcie Horwitz, Darin Johnstone, Wes Jones, Phil Kaefer, Conrado Lopez, Ben Parco, Chris Palumbo, Randy Ruiz, Bob Shepherd, Robin Sevrns, Russell Sherman, Wright Sherman, Joanna Walker, David Willett, Ladd Woodland, David Yama, Robert Yue (project team) **LANDSCAPE ARCHITECT:** Cottong and Taniguchi **ENGINEERS:** Structural Design Engineers (structural); Takahashi Consulting Engineers (mechanical); Silverman & Light (electrical); Sandis, Humber, Jones (civil) **CONSULTANTS:** Theatre Projects Consultants (theater); Charles M. Salter Associates (acoustics) **GENERAL CONTRACTOR:** Dennis J. Amoroso Construction **COST:** \$21 million **PHOTOGRAPHER:** Richard Barnes

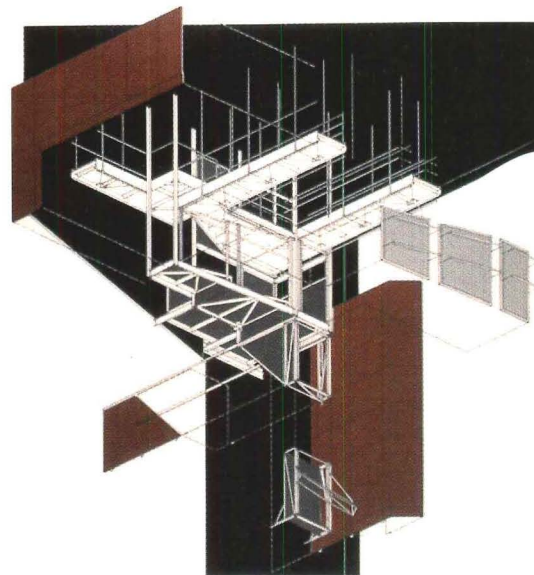
slightly open container, so that a sense of the magic would seep out and distort views of the torqued forms with dazzling light. Magic is that moment in theater where the community of viewers suspends disbelief; the building encloses this moment in a shell-like fashion. There isn't much to the Rep: It contains a stage and backstage, and an auditorium. Only the thinnest section of service spaces to the rear (north) and public lobbies to the south behind the entrance facade come between and support the moment of wonder and its revelation to the world outside.

The theater's interior is where the nature of the building is most clearly revealed. Artistic director Timothy Near agreed with Principal Paul Holt that theater "produces artifice through technology." She wanted to enable audiences to share in that experience by "lifting the scrim and letting them in," as Holt suggests. Instead of theater as an abstract performance, Near wanted something that involved the audience.

To achieve closeness and revelation, the hall is intimate: No seat is more than 58 feet from the stage, and the second proscenium that acts as scaffolding for lighting and sound equipment surrounds viewers with the mechanics of production. To make the interior feel casual, the architects avoided the traditional red color scheme of grand old theaters and chose green as their dominant palette. They laid down bright green carpet over the theater's concrete floors and upholstered the chairs in a deep green that stands out against the rich, burnt-orange, Bobinga-wood acoustical panels and balcony baffles. "The wood seems to be on fire," says Near.

The architects then attempted to force the sense of performance generated by the building's exposed equipment, the actors, and the audience into the world outside. The Rep's lobby is a mere sliver, no more than 20 feet deep, so audiences must exit the theater during intermissions—re-creating the activity of spilling out into the courtyard of the theater's former Spanish Colonial-style home nearby. Visitors are forced to engage the city, and the city has the opportunity to observe the crowd at intermission.

While the theatrical experience generated the building's interiors, its outside appearance attempts to reconcile the inherent form of a stage, stage tower, and an auditorium with the Rep's surroundings. The pedestrian promenade that runs along the theater's south flank bends in front of the theater, and the building acts as a pivot between the central business district to the west and residential areas and the San Jose State University campus to the east. In response, the building's exterior skin, stretched and fragmented over lobbies, offices, and theater services spaces, appears as a series of planes that fold in front of each other in order to respond to different external geometries, while the central volumes remain squarely within the overall orthogonal grid of the city. The spaces between these shapes form windows through which the two worlds leak into each other, as if the blue cloak was revealing naked flesh underneath.



Auditorium interior (facing page) breaks from color palette of traditional theaters: Orange hues of wooden proscenium and balcony fronts contrast with green mohair seats. Proscenium (exploded axonometric, above) frames catwalks and scaffolding for lighting and sound equipment.

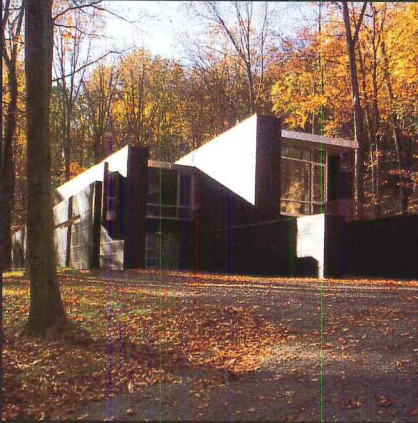
The rotations of the lobbies and service areas that hide the city's grid behind metal plates enhance the sense of the structure as a node. The fly-tower that peeks up above this active composition reestablishes a relationship to the surrounding blocks and the nearby towers. The building's overall urban response is still incomplete, as Holt points out, since the office towers that would align with the theater's northern flank are not yet built.

Holt wanted a structure that gleams during the day and retains an air of mystery at night, when the magic of the theater takes over. The architects felt that the blue steel panels "could merge the building with the clear California sky during the day," according to Holt. At night, the deep blue tint makes the building disappear. Thus, the clear resin coat and the blue metallic pigment beneath it accomplishes a double phenomenon of merging with both light and dark.

The Rep appears like a piece of stage-set machinery ready for a performance. At night, its gestures, which seem frozen during the day, come alive as the metal panels seem to defy gravity. In either state, the enigmatic presence of the convoluted geometries condenses into a frozen performance. ■



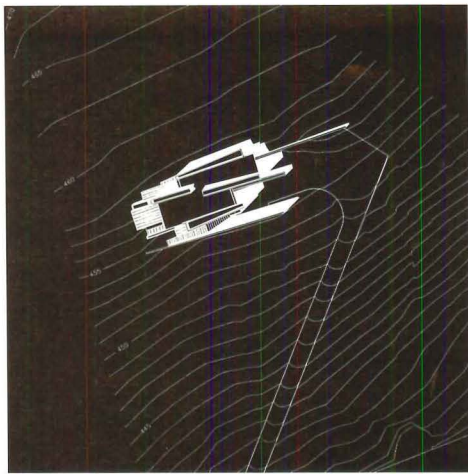
Paint It Black



A house by Kramer Woodard in Highbridge,
New Jersey, draws in
light and landscape. By Ned Cramer

From south, staggered walls (below) clad in black-stained fiberboard cement panels recall site's former use as a strip mine. On east side of house, exterior stair alongside garage (facing page) leads to entrance.





Site plan

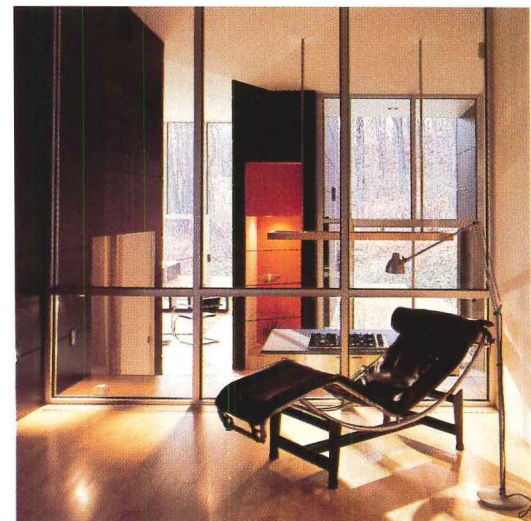
40' / 12m

- 1 entrance
- 2 living room
- 3 dining room
- 4 kitchen
- 5 master bedroom
- 6 bedroom
- 7 deck
- 8 garage

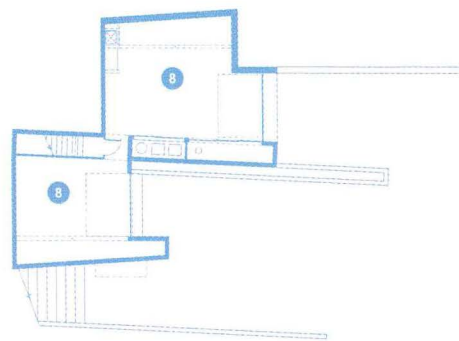
From a distance, it's hard to make out the new house Kramer Woodard has designed in the woods of northern New Jersey: It's as black as pitch. Move closer, however, and a series of hard-edged planes gradually appears amidst the trees. Like giant schist shards or cliffs of iron ore, the walls' planar forms and dark coloration reference the hillside site's previous use as a strip mine.

Circulation into the 2,200-square-foot house weaves around these staggered, not-quite-parallel walls in a switchback path that traces the contours of the hill. The spaces created by this hairpin entrance sequence expand on the interior of the split-level house as a sinuous interplay of three floor levels, sloped ceilings, and offset walls. The west-facing kitchen and living and dining areas occupy the intermediate level. East-facing bedrooms sit above the garage, and are separated from the public spaces they overlook by the same aluminum-frame storefront windows used to enclose the voids between the walls along the exterior. The resulting transparency opens views clear through the length of the house, framed by the recurring black walls. Explains the Albuquerque, New Mexico-based architect, "The house weaves the landscape inside and outside of itself."

Before staining the concrete fiberboard cladding from its virgin color of cream to black, Woodard explains, the house "looked like a Greek temple." His colleagues "freaked out," he recalls, when they learned of his plans to stain the pristine walls: "How can you make this beautiful thing black?" they asked. The dark hue could have burdened the building with a somber mood. But surprisingly, experiencing it has a more positive effect: The black operates in a delicate balance of visual assertion and reticence. By effectively supporting Woodard's landscape metaphor, the use of black is an unexpected act of harmony.

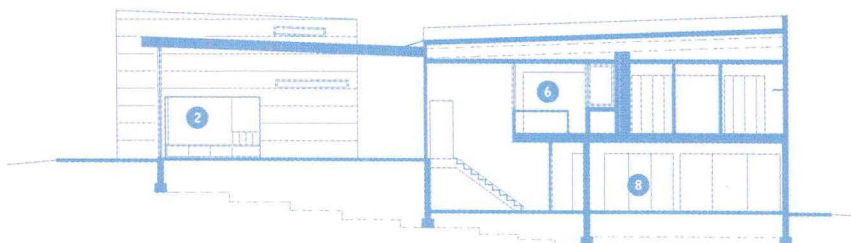


Second-floor plan



First-floor plan

10' / 3m



East-west section

7' / 2m



HIGHBRIDGE HOUSE, HIGHBRIDGE, NEW JERSEY

CLIENT: Barbara Yannì **ARCHITECT:** Kramer E. Woodard Architects, Albuquerque, New Mexico—Kramer Woodard (principal), Natalie Kólsch (project manager), James Horn, Pavan Stephenson, Amit Upadhe, Sergio Verillo (project team) **ARCHITECT OF RECORD:** Andrew Pressman **LANDSCAPE ARCHITECT:** Edith Katz **ENGINEERS:** Chavez Grieves Consulting Engineers (structural, civil) **CONSULTANTS:** Rosenbaum Sollohub Architects (land acquisition); Frank Dominguez; Jerry Jenson (CAD) **GENERAL CONTRACTOR:** R. Faucett Construction **COST:** withheld at owners' request **PHOTOGRAPHER:** Catherine Tighe Bogert, except as noted

Living room walls (above) extend into landscape, blocking neighboring houses from west-facing view. Woodard strategically cracks smooth wall surfaces open to reveal, like geodes, painted, tiled, or wood-paneled services such as fireplace and cabinets. Standard aluminum storefront windows span voids between walls, minimizing distinctions between interior and exterior. Within house, windows screen upper-level bedrooms (facing page, foreground) from kitchen, living, and dining areas below (background).

When one gets right down to it, it's the white of a Richard Meier building that one notices first. The white is the field against which everything else in the composition plays—the datum. The plasticity and the rigor take more time to comprehend; they come later. The white is right there, immediate, in your face.

The white ultimately makes Meier's buildings self-referential, despite their sophisticated readings of context: They are elegant yet startling objects, no matter how politely the architect inserts them into the landscape. For instance, Meier's new office building on Viaduktstraße in Basel, Switzerland, negotiates a topographically and urbanistically difficult site with aplomb: It caps a breaking grade on one side, then races long and low along the busy thoroughfare on another, whipping around and cracking open an important pedestrian corner, only to stop ever-so-gently against the building next door. Meier slips this large, 36,800-square-meter building into Basel's diminutive urban scale without overwhelming it. Yet, even in the snowbound Swiss winter, the white building is a powerful presence. Its dazzling brightness and watchwork complexity have no equal in Basel's traditional, reserved architecture.

Locals and tenants alike have taken to Meier's office building with an enthusiasm normally reserved for less commercial enterprises: A new poster that touts Basel's cultural riches features the Viaduktstraße project prominently alongside Renzo Piano's Beyeler Art Museum (1998). Piano's

museum is a quiet, ruddy, almost Miesian pavilion-in-a-park at the edge of town. Meier's gleaming, sculptural composition, by contrast, sits at an intersection that marks the entrance to Basel's storybook historic center, across from a market hall, and within view of the old railroad station. The building is up to the task: Its handsome, monumental presence elevates the intersection to a significant portal in Basel's urban fabric.

Formally, the Viaduktstraße building is familiar territory for Meier. Driven in part by Swiss lighting and energy requirements—all workers must have direct access to sunlight—the \$53 million building's plan resembles an elongated, lower-case *b*; an appendage at the back of the *b* fills out the oddly configured site. Meier sets the composition in motion with a cylindrical volume that defines the entrance court and an elaborate, highly articulated brise-soleil that wraps the public facades.

Meier pulls the brise-soleil 60 centimeters from the curtain wall; he then cantilevers from them horizontal rows of knife-edged, milky glass sunshades, which are stacked every 90 centimeters along the southwest exposure. The glittering play of light off these shades and onto the white porcelain enamel panels and the clear curtain wall behind dematerializes the building and breaks down a building mass that for Meier is already remarkably transparent. In most of his buildings, there is intense play between solid and void, opaque and transparent: The curtain wall typically hides behind a slotted frontal screen. Here, the screen is considerably lighter and more delicate, opening the building generously to the street. "There was a deliberate attempt to let the glazing be the facade," Meier explains of his effort to draw sunlight deep into the constricted site.

The strategy works a bit too well: Workers report that on certain summer days, despite translucent roll-down shades, they've had to wear sunglasses to work. After dark, the process reverses, when the Viaduktstraße building is illuminated from within as if it were returning the solar radiation it had consumed during the day. As one of only a handful of buildings allowed by the city to expend energy in this fashion, it becomes a glowing symbol of Basel's commercial vitality.

Meier claims he doesn't "think of this building as a beacon," but the quality of the architecture and its impossible whiteness ensure that it is: They light up this corner of the city, day and night. The Viaduktstraße building doesn't overwhelm its context; it transcends it. ■

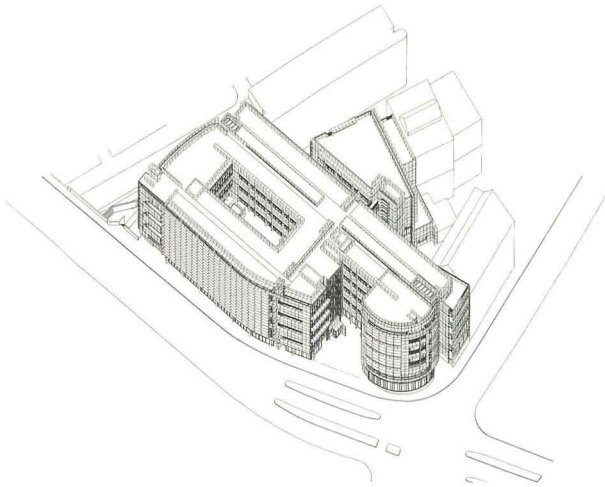


Alpine White

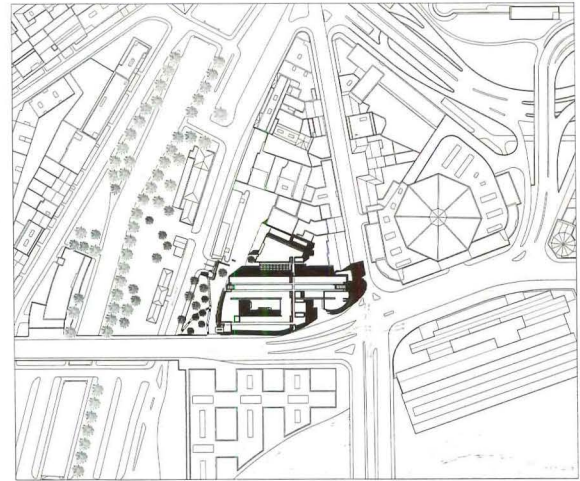
A new office building by Richard Meier enlightens an important crossroad in Basel, Switzerland. By Reed Kroloff



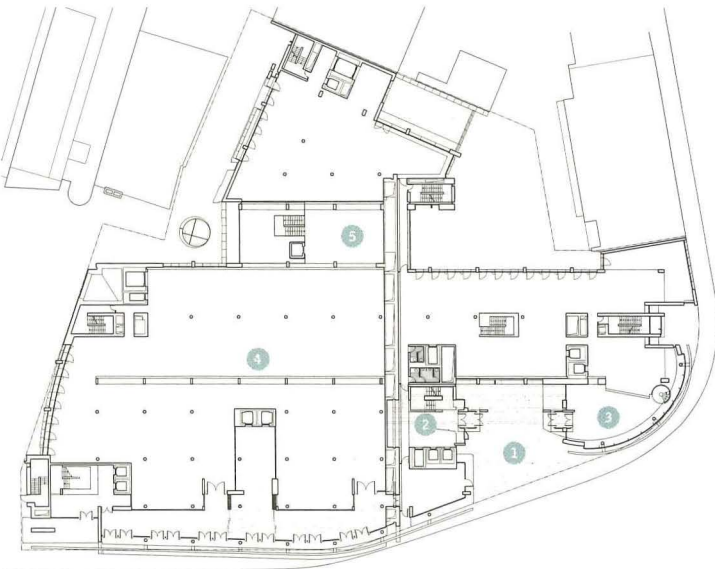
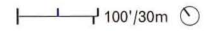
- ① entrance
- ② lobby
- ③ showroom office
- ④ proposed retail
- ⑤ atrium
- ⑥ typical office configuration



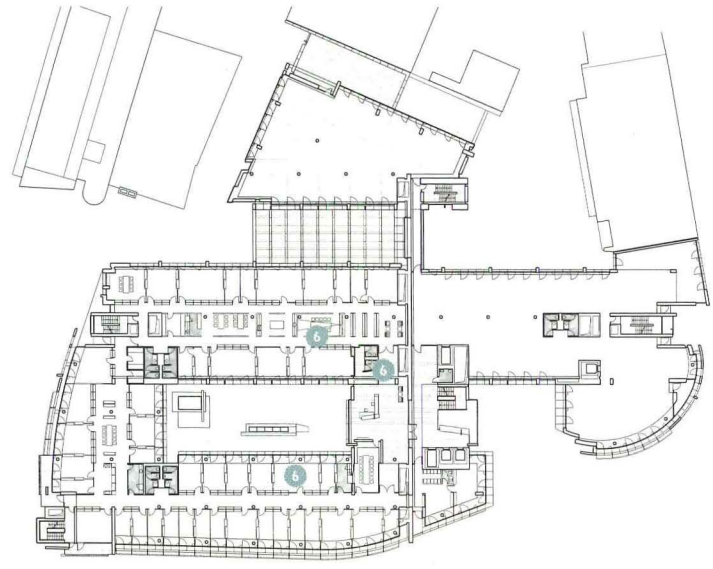
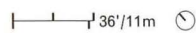
Axonometric



Site plan



Ground-level plan



Second-floor plan

Beveled, translucent laminated glass sunscreens project from brise-soleil at 90 centimeter intervals along southwest facade (preceding page). Northwest elevation towers over garage tucked into hilly site (facing page, above left). Sweeping horizontal facade along Viadukstraße responds to curve of street. Stair tower and balconies (facing page, above right) articulate corner. Cylindrical form marks entrance to Basel city center and Viadukstraße complex (facing page, below right). Facade becomes more solid at intersection to adjoining building (facing page, below left).



**OFFICE BUILDING, VIADUKTSTRASSE,
BASEL, SWITZERLAND**

CLIENT: Credit Suisse, Zurich, Switzerland **ARCHITECT:** Richard Meier & Partners, New York City—Richard Meier (principal), Bernhard Karpf (project architect), Maria Alataris, Amy Donohue, Timothy Collins Douglas, Jeffrey King, Knut Luscher, Richard Manna, Brian Messana, Alex Nussbaumer, Ana O'Brien, Matthias Oppliger, Jennifer Stevenson, Michael Thanner (project team) **ENGINEERS:** Gruner (structural); Waldhauser Haustechnik; Koch Ingenieurbüro (mechanical); Kriegel & Schaffner (electrical) **Consultants:** Haldemann (plumbing); Steiner Industries (facade); Fisher Marantz Renfro Stone (lighting); R. Keller (traffic) **GENERAL CONTRACTOR:** Göhner-Merkur **COST:** \$53 million **PHOTOGRAPHER:** Richard Bryant / ESTO

Even in the snowbound Swiss winter, the white building is a powerful presence. Its dazzling brightness and watchwork complexity have no equal in Basel.



Viadukstraße complex, like all Meier buildings, responds evocatively to changing light, from early morning through evening (facing page, top to bottom). Meier designed interiors only for building's public spaces, such as lobby (above right), and Birkhauser Books conference room (above left).



It Was Never White, Anyway

Despite his reputation as the godfather of white architecture, Le Corbusier developed complex ideas about color.

No one really speaks of Le Corbusier and color in the same breath, though he incorporated chromatic flashes in such late works as the Unité d'Habitation and the La Tourette monastery. Corb even painted the ground level of his Villa Savoye (1931) a dark green, yet history persists in remembering the architect as the principal advocate of International Style white. However, the architect was also a painter. The Purist principles he explored on canvas also apply to his iconic villas of the late 1920s: Reductivist still life equals minimalist facade. Since he saturated those paintings with a rich palette of pastels, earth tones, and primaries, why assume that the buildings were any different?

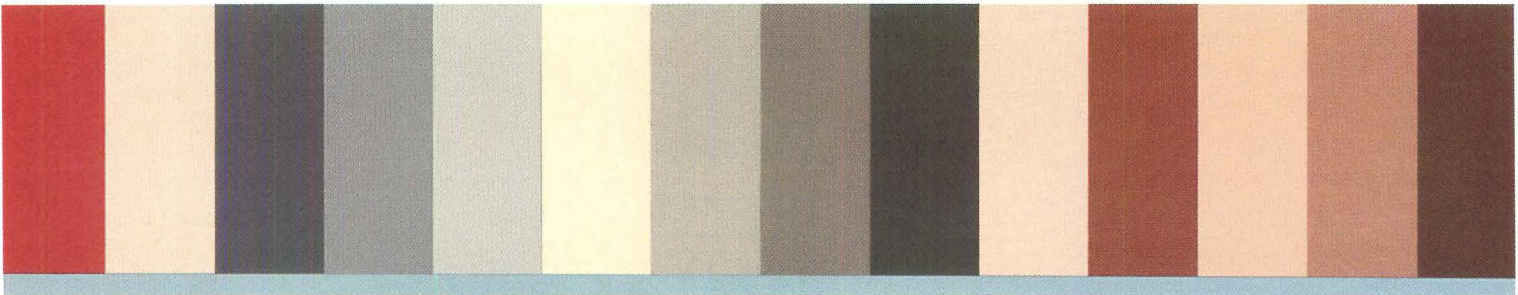
To defend a reductivist take on Modernism, architectural historians like Sigfried Giedion and Henry-Russell Hitchcock edited the color out of their critiques of Le Corbusier's work. Decades of black-and-white photography

supported such revisionism. And finally, Le Corbusier himself seemed to waver on the topic of color. But twice—in 1931 and 1959—Corb felt enough conviction to develop sets of largely monochromatic wallpapers that effectively constitute sophisticated treatises on color. They've been forgotten for years, but in 1998, Swiss historian Arthur Rüegg collaborated with the wallpaper's original manufacturer, Salubria, to release a three-volume book on the subject: *Le Corbusier—Polychromie Architecturale* (Birkhäuser). The collection includes a historical introduction, as well as lush sample books of Le Corbusier's complex color selections. An essay by Le Corbusier that accompanies Rüegg's book reveals the architect's systematized interest in color's symbolic associations, and in its psychological and visual effects: "The search for space, for light, for joy, for strength, for serenity," he wrote, "invites us to call for color, daughter of light." *Ned Cramer*

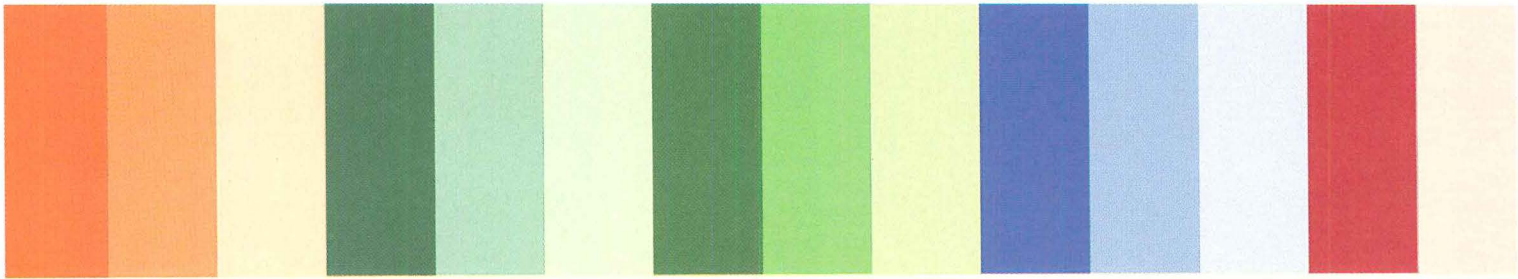


Original, black-and-white photos of Le Corbusier's Villa Savoye (facing page) obscured project's complex color scheme. By advent of color photography in 1940s, when critic Peter Blake photographed decaying house (left), colors were already fading. Highly controversial

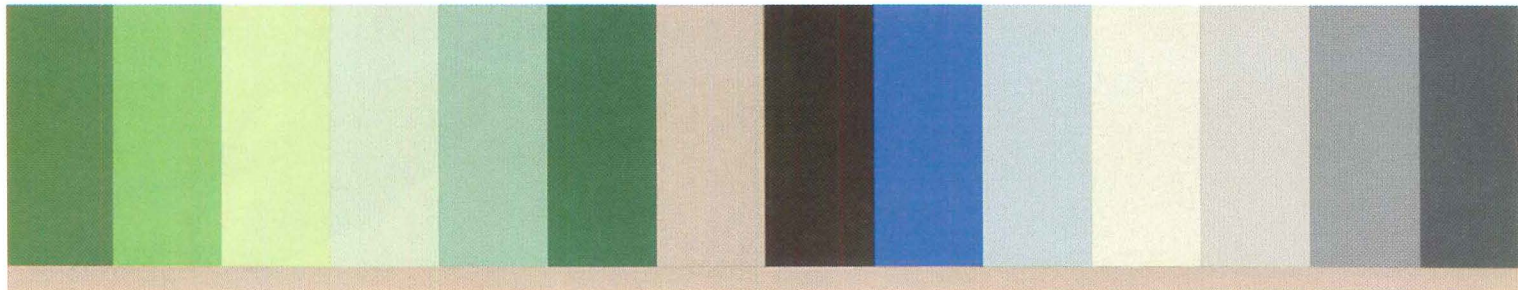
1980s restoration (above) restored villa to as close to its intended color scheme as was archaeologically possible, stripping away more recent layers of paint to determine original colors.



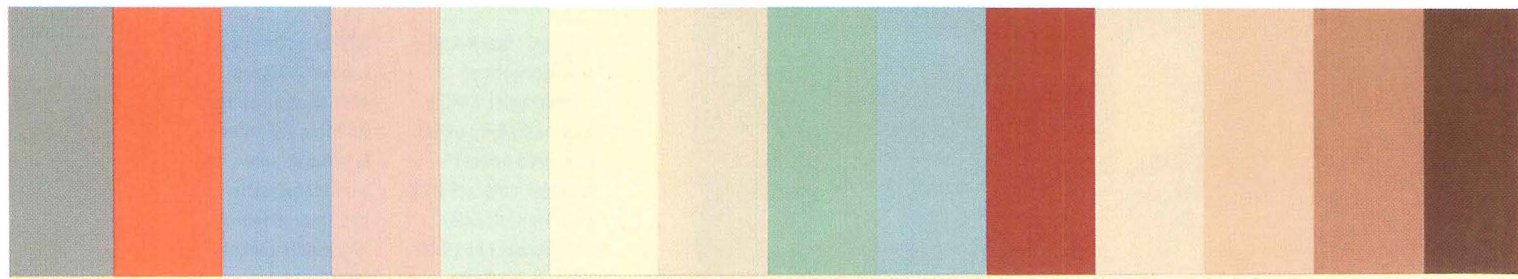
2 Sky



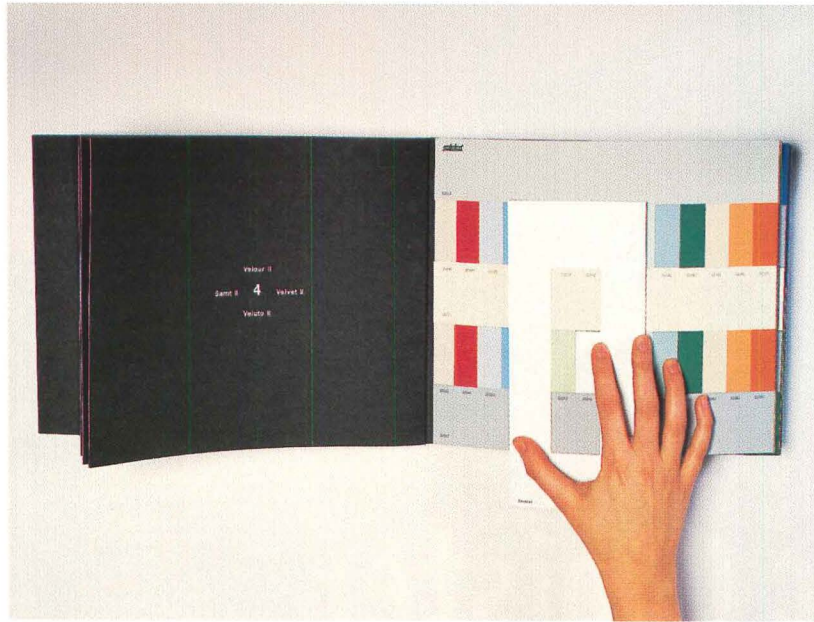
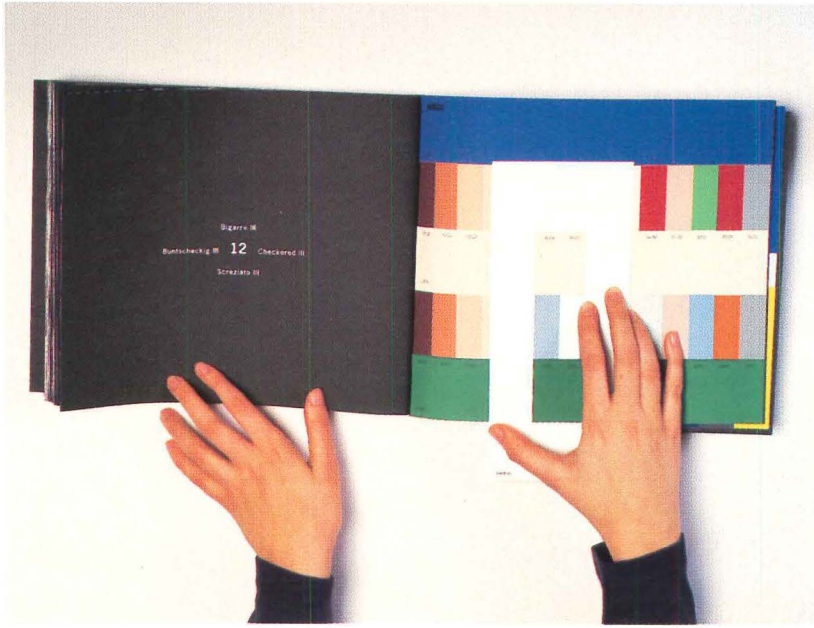
4 Velvet II



7 Sand I



12 Checkered III

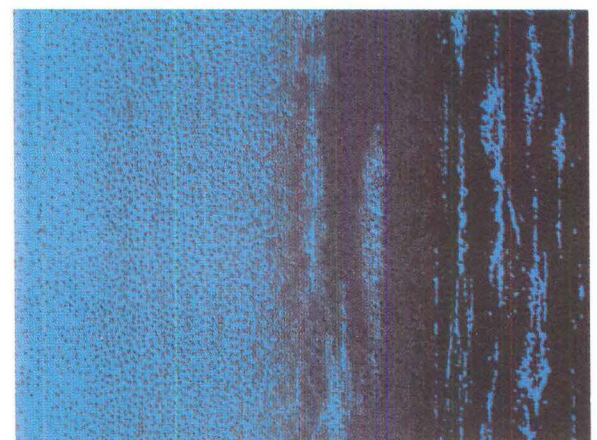
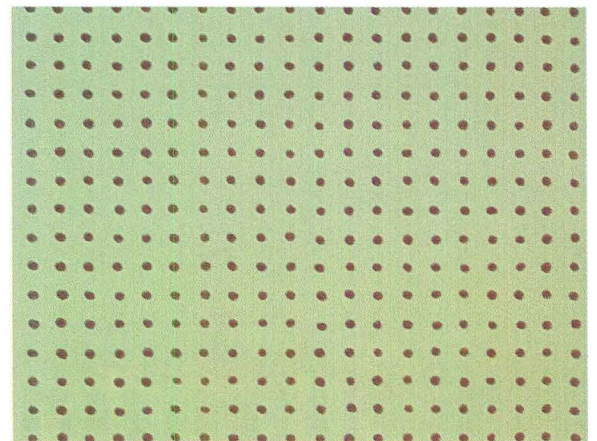
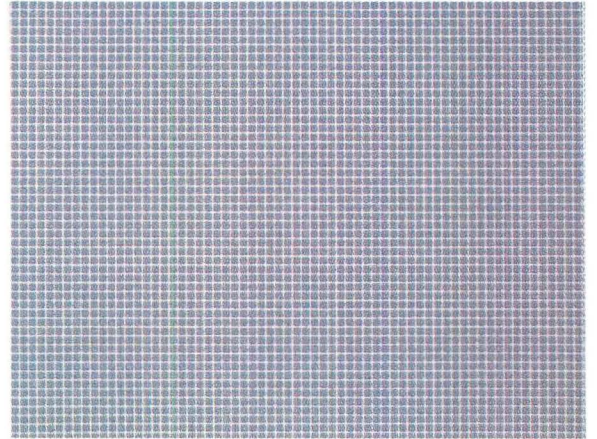


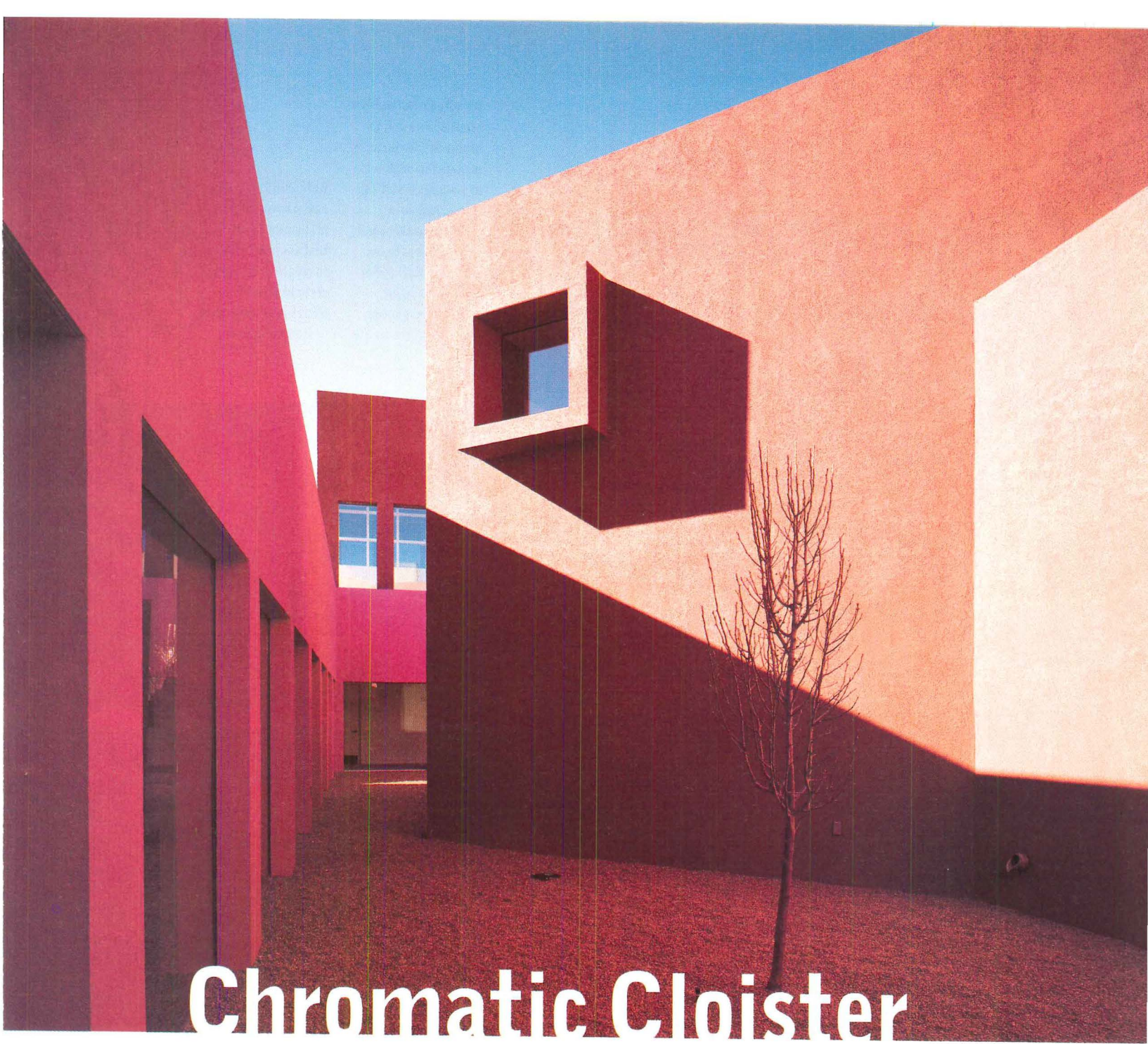
Le Corbusier's 1931 wallpaper system for Salubria comprised 43 colors grouped in 12 families intended to evoke different moods and materials (examples, facing page). Corb organized each family into color keyboards (above and top) with broad bands of

typically quiet colors at top, center, and bottom of page intended to cover large surface areas. He reserved contrasting colors, shown in two bands of smaller samples, for details. To assist customers, Corb included card viewers that isolate and identify different potential color combinations on pages of catalog.

Despite Le Corbusier's reputed aversion to ornament, he included patterns in both sets of wallpaper that can be overlaid onto different background colors. Dot pattern (below center) dates from 1931; Grid (below) and Marble (bottom) patterns are

from 1959. Marble pattern was sold in horizontal strips that could be aligned to create continuous vertical veining patterns or alternated in staggered grid.





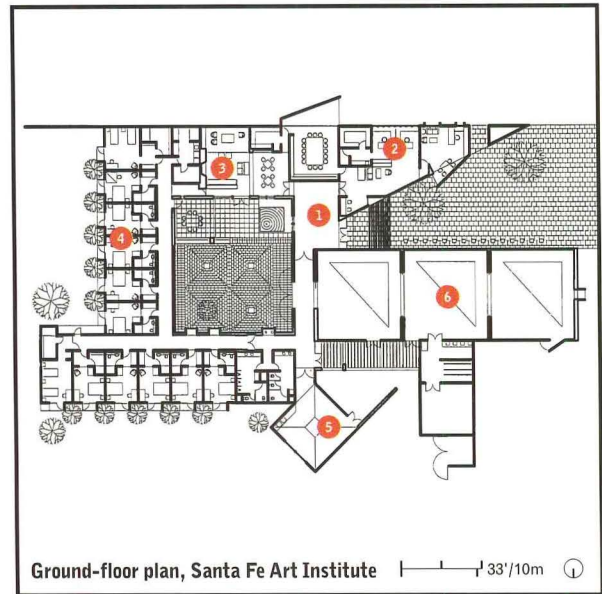
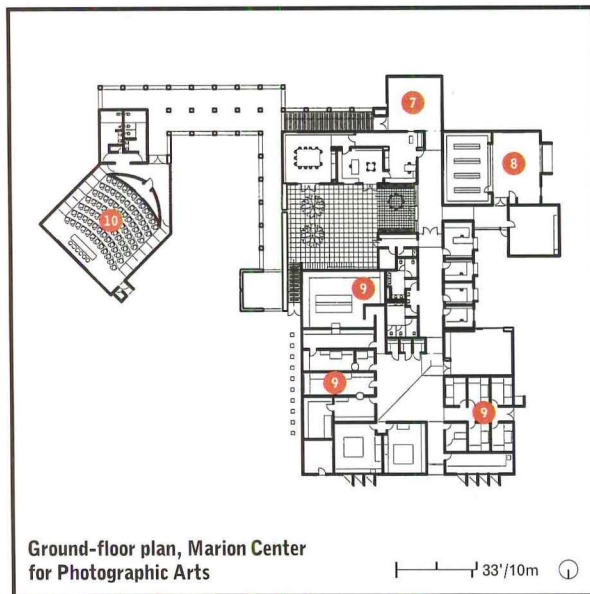
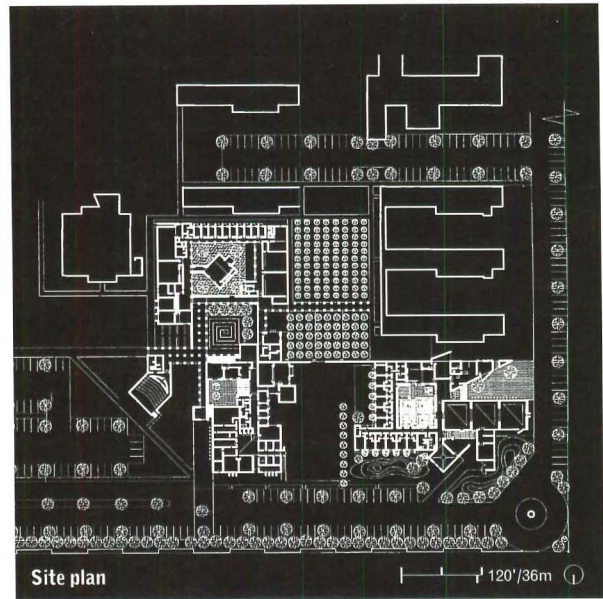
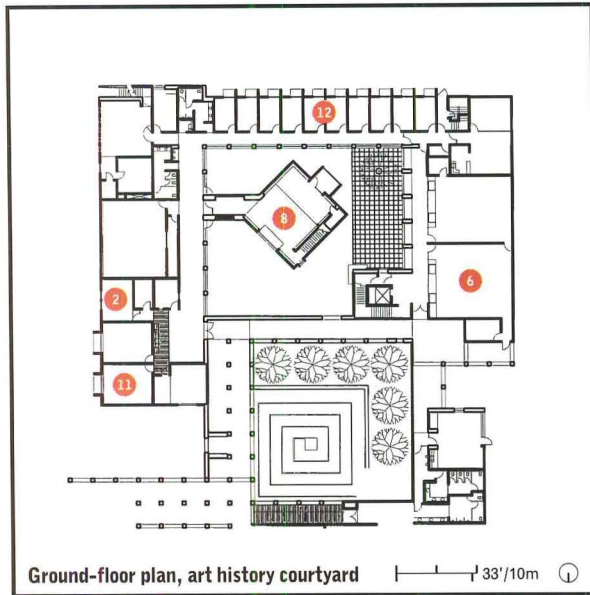
Chromatic Cloister

**Ricardo Legorreta
designs chambers
of color for
a new arts center
in Sante Fe.**

**By
Philip Arcidi**



Arcade of fuchsia (facing page) encircles gravel courtyard, in which stands red art history library. Cantilevered window (top) marks landing of stair to second-floor studios on edge of courtyard. In hall adjacent to stair (above left), 4-foot-long columns bracket view of library's bay window. Red arcade (above right) lines neighboring courtyard that, like entire arts complex, is clad in synthetic stucco.



- | | | | | | |
|------------------|---------------|----------------------------|-----------|-----------------|-----------------|
| 1 entrance | 3 common area | 5 resident artist's studio | 7 gallery | 9 darkrooms | 11 seminar room |
| 2 administration | 4 dormitory | 6 studio | 8 library | 10 lecture hall | 12 office |

In Santa Fe, New Mexico, Ricardo Legorreta let a little color go a long way. His impressive new arts center, which opens at The College of Santa Fe this spring, is an exercise in restraint, with facades painted deep orange and red, inspired by desert rocks. Legorreta's vibrant fuchsia, lavender, and purple are reserved for the arts center's courtyards, where one is surrounded by oases of color within a monochromatic suite of buildings.

Legorreta, who practices in Mexico City, has given the college, located outside Santa Fe's historic core, its best work of architecture, a rambling complex that reinterprets the quadrangles of a medieval university. His courtyards are an introverted response to a campus where parking lots are as prominently sited as buildings. Legorreta oriented his most articulate facade away from the academic core, but his center may become more integral to the college when its second phase is built: A large new gallery will anchor the campus lawn and consolidate the master plan prepared for the college by Lloyd and Tryk, the Santa Fe architects who associated with Legorreta for this project. In the mean-

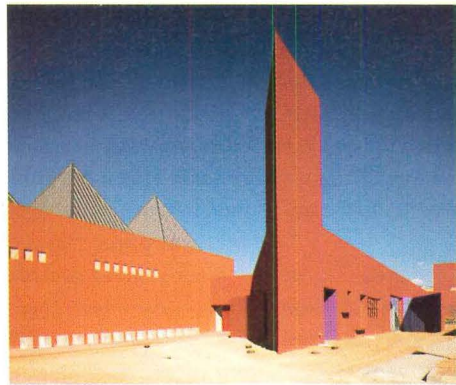
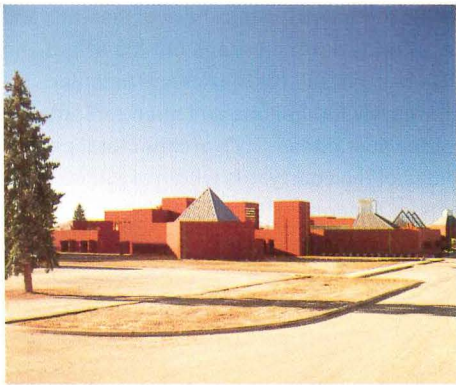
time, Legorreta gave the college an incentive to make its art department as strong as the buildings it will occupy.

The 60,000-square-foot arts center accommodates two institutions: the college's undergraduate art history and studio departments and the Santa Fe Art Institute, an independent foundation that invites prominent artists for short-term residencies. The art institute has the most striking entrance in Legorreta's complex, a front door framed by a foursquare studio building and an elegant, three-sided tower. In the late afternoon sun, the tower is a chromatic apparition of saturated red and blue, with a litheness and depth not evident elsewhere in Legorreta's stout forms and high-contrast palette. Within the art institute, living quarters and studios, painted white, surround a purple-blue courtyard. One glimpses blue on a far wall of the courtyard or in the jambs of a window, where reflection intensifies the hue and highlights the thickness of the wall.

The college's Marion Center for Photographic Arts, a separate building north of the art institute, features state-of-the-art darkrooms, an



Ambient light renders lecture hall lobby (above) color-drenched chamber; only curved wall to right is painted yellow. Approach to arts center from campus entrance (below left) provides view of pyramid-roofed lecture hall, cupola of Marion Center for Photographic Arts, and triangular skylights of Santa Fe Art Institute. Three-sided tower (below right) provides art institute an iconic entrance, distinct from more massive forms of arts center.



**THE COLLEGE OF SANTA FE VISUAL ARTS CENTER,
SANTA FE, NEW MEXICO**

CLIENT: The College of Santa Fe

ARCHITECT: Legorreta Arquitectos, Mexico City—Ricardo Legorreta (lead designer), Victor Legoretta (design principal), Noe Castro (management principal), Miguel Almaraz (project manager), Benjamin Gonzalez (design team), Javier Ten (project architect) **ARCHITECT OF RECORD:** Lloyd and Tryk, Santa Fe, New Mexico—Wayne Lloyd (principal), Lorn Tryk (principal-in-charge), Antonio Pares (project manager), Jamie Blosser (project architect)

LANDSCAPE ARCHITECT: Design Workshop

ENGINEERS: Red Mountain Engineers (structural, civil); Bridges and Paxton (mechanical, electrical)

CONSULTANTS: Wiever Nelson Design (graphics); AV Systems (audiovisual); Bailis (cost estimating)

GENERAL CONTRACTOR: Bradbury and Stamm

COST: \$8 million **PHOTOGRAPHER:** Robert Reck



important rare book collection, and a sensitively daylight gallery. Its lavender courtyard flanks a white hall that extends from the gallery, where one enters the photography center, to a 26-foot-high atrium surrounded by darkrooms. The gallery, hall, and atrium comprise a beautifully modulated interior, the best in the arts center. The space has affinities with Latin American Baroque churches: A pair of gridded steel doors resemble a rood screen that divides a nave; daylight from clerestories and a cupola dramatize the section, whose variegated proportions give the hall ceremonial stature.

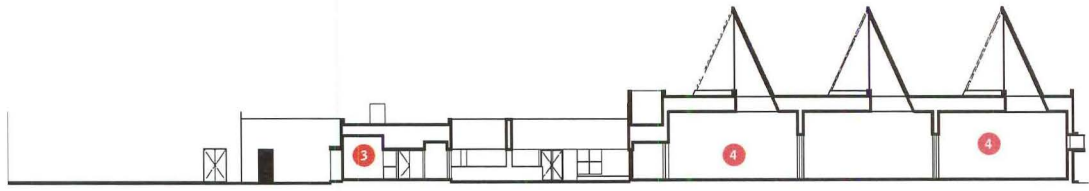
The deep red of the arts center's peripheral walls extends into an arcaded courtyard adjacent to the Marion Center. This red courtyard has an 8-foot-wide opening in its south wall; it reveals a fuchsia-colored arcade in the distance, which lines Legorreta's fourth courtyard, an outdoor room for the college's art historians. This courtyard's arcade is glazed and lined with faculty offices and study spaces; a 32-foot-square, two-floor library, painted red and rotated in plan, stands in the court's center. Two floors of studios are stacked on the west side of the court-

yard, accessed by a stair with a cantilevered, butt-glazed window at its midpoint. Minimalist detailing accentuates the thickness of the walls and colonnade; Legorreta's execution is contemporary, but his effect—an architecture of massive walls—has roots in the Mexican vernacular.

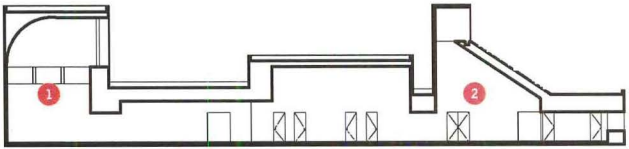
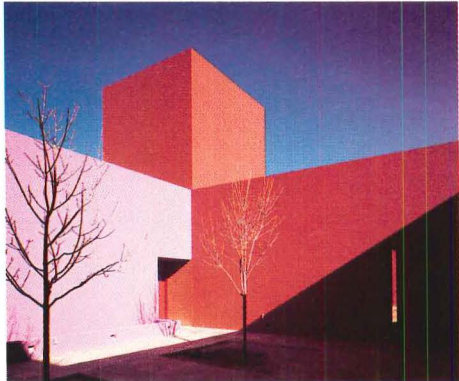
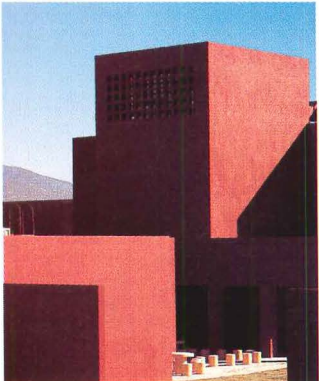
Legorreta's colors are alternately indigenous and alien to Santa Fe. His deep red and orange facades sustain the city's architectural palette of earth tones; the brilliant hues of the courtyards within are more common in Mexico, but exotic here in America. These colors are more than willful gestures: They create outdoor rooms where, in Legorreta's terms, "color becomes part of the space." In these chambers, one seems intentionally divorced from the city: Fuchsia and purple invoke a surprising sense of serenity, and the insularity of the courtyards gives respite from the sprawl of a modern campus and the retail strip that flanks the site. Legorreta's design makes an illuminating proposition: Color offers a legitimate way for a contemporary architect to be a Romantic. He takes us from a less-than-bucolic setting to a realm more abstract than referential and renders color a moving experience. ■



Lavender courtyard of Marion Center (facing page, left and below right) opens to white hall, divided by gridded doors, that extends length of building. Hall leads from silhouetted doors to atrium (facing page, right) lit by cupola and lined by darkrooms and workspaces. Skylit *en filade* studios of Santa Fe Art Institute (above left) frame view of slits in wall of deep blue courtyard. Slits are compressed arcade (above right) in institute's dormitory hall. Tower in red courtyard (below left) houses air conditioning system and accentuates arts center's sense of enclosure.



Section through Santa Fe Art Institute



20'6m

Section through Marion Center

- 1 gallery
- 2 atrium
- 3 dormitory
- 4 studio

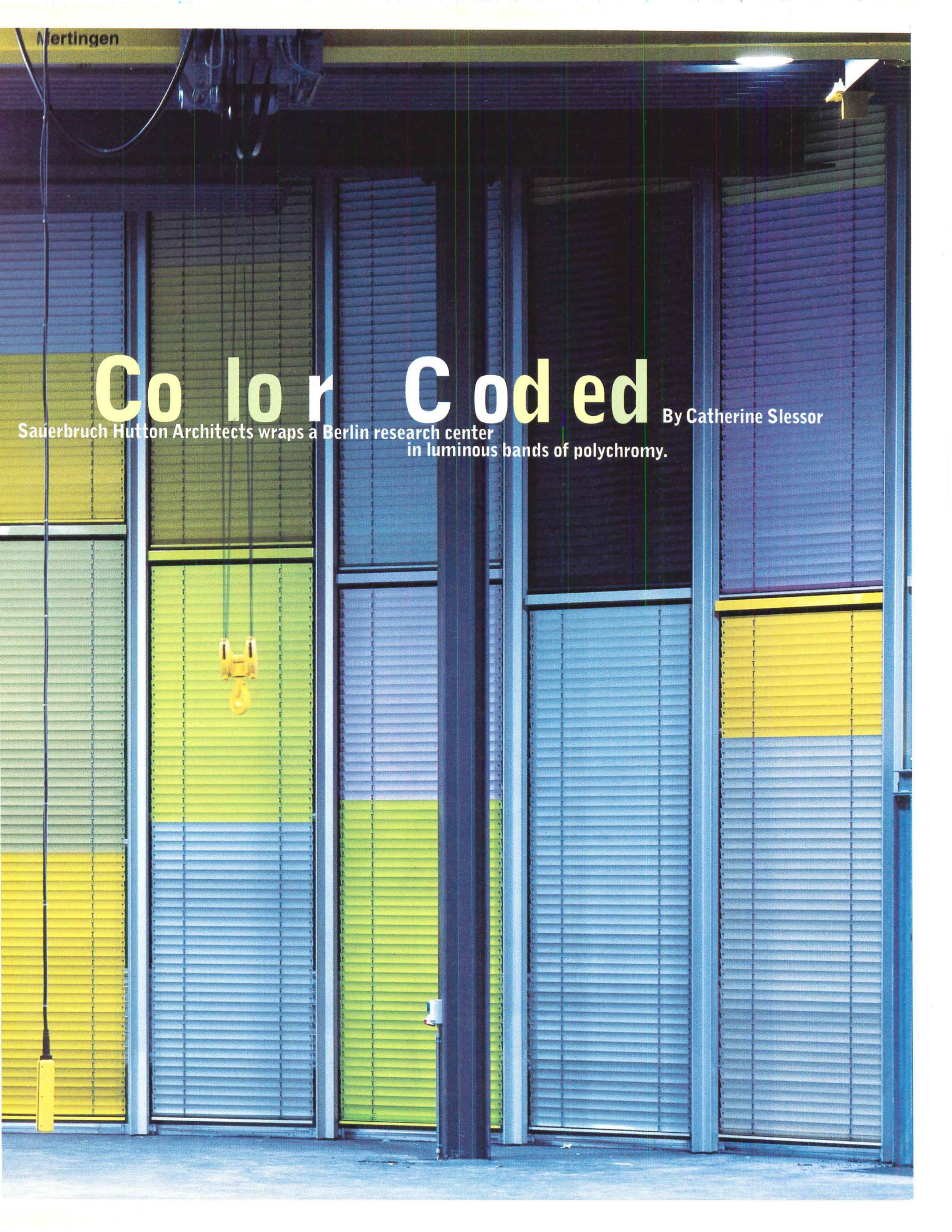


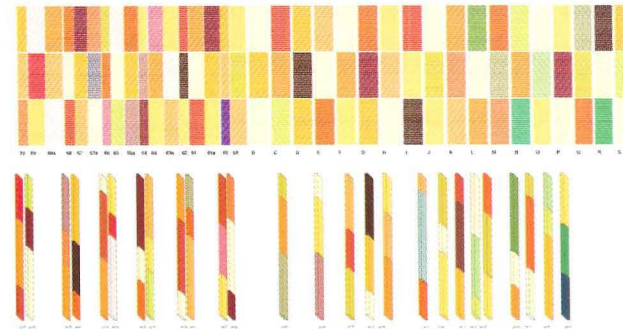
Mertingen

Color Coded

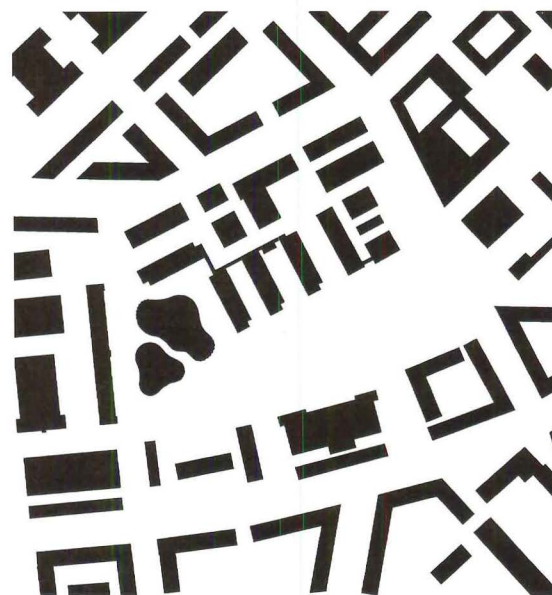
By Catherine Slessor

Sauerbruch Hutton Architects wraps a Berlin research center
in luminous bands of polychromy.

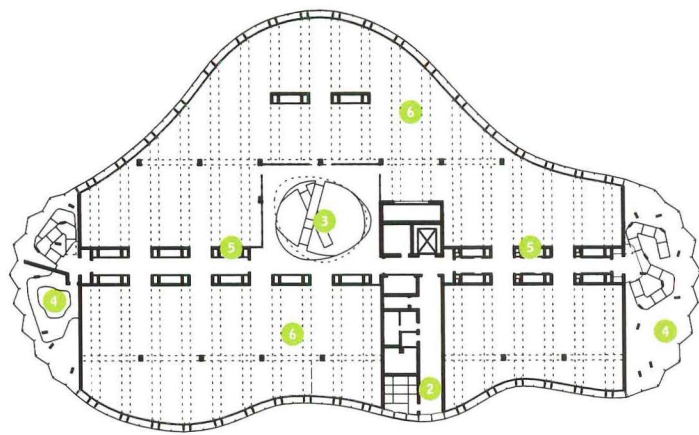




Site plan | 220' / 66m



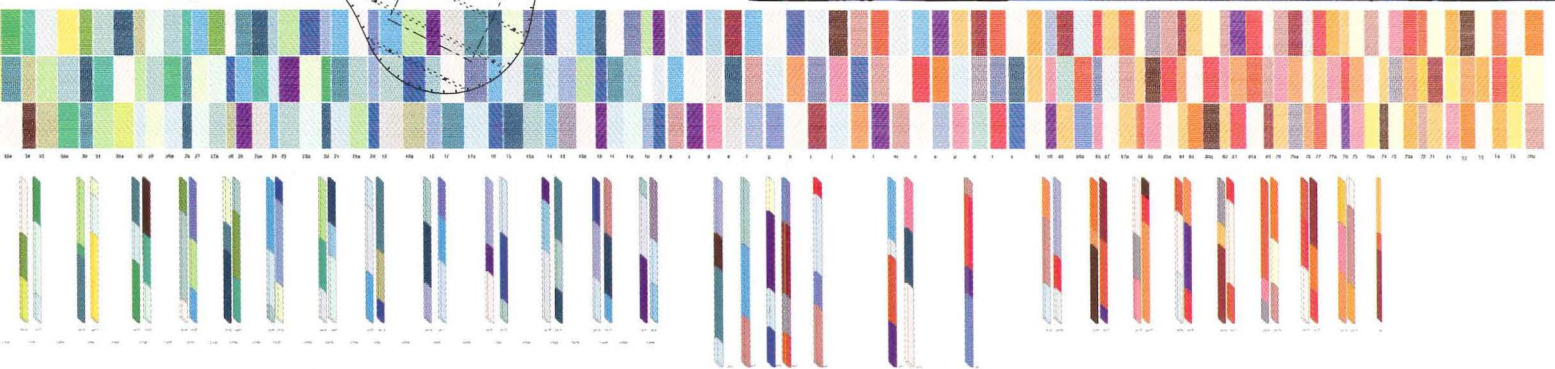
Venetian blinds in Photonic Center workspace (previous pages) create wall of color that can be recomposed at will; movable hoist on yellow beam is provided for tenant's large-scale optical experiments. Center comprises two buildings linked underground (top left); striped concrete columns in three-floor building are revealed when blinds are lifted. Stair in three-floor lobby (top right) is cantilevered from forest of banded columns. Stair in middle of building (facing page) extends across skylit atrium with blue bands of color. In aerial view (above right), Photonic Center's curves stand out in Adlershof research park. The architect's computer-drafted studies (these pages, following pages) map color progression across center's glazed walls.



- 1 workspace
- 2 entrance
- 3 atrium
- 4 lobby
- 5 utilities
- 6 laboratory

Ground-floor plan

30'/9m



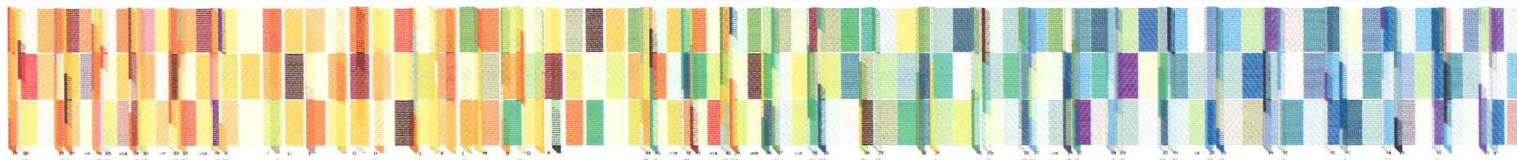
Once a wilderness of decrepit laboratories, wind tunnels, and aircraft hangars, Adlershof, located beside an obsolete airfield on the far southeast edge of Berlin, is becoming Europe's largest international business and technology park. It also features two of the brightest antidotes to the city's midwinter gloom: a pair of glass buildings with peacocklike intensity that comprise a new Photonics Center for tenants researching optics, opto-electronics, and laser technology. The German-Anglo architectural partnership of Matthias Sauerbruch and Louisa Hutton proposed the two buildings in a 1995 competition sponsored by WISTA, a German federal agency that is rehabilitating Adlershof. Sauerbruch Hutton clad the buildings in walls of clear glass; within this enclosure, multicolored venetian blinds and striped concrete columns render the Photonics Center a study of the color spectrum.

Color is more than a cosmetic tint on the buildings; the facades give both focus and order to the new Adlershof. By wrapping their curvilinear, glazed structures in high-contrast colors, the architects rendered them "swimming islands" whose shape and polychromy almost imply that the pair are a changeable

entity tethered to their triangular site. This is a paradoxically well-mannered intervention: The Photonics Center sustains the density of its environs without resorting to nondescript massing and neutral tones. The architects built to the street edge and then colored it.

The Photonics Center houses laboratory and research facilities in two buildings detached above ground but connected at basement level: The smaller, single-story building provides a flexible, 25-foot-high container for large-scale experiments; its three-story counterpart houses optical laboratories and offices. The program inspired the architects to emulate the color spectrum in a succession of sketches, models, and collages. The strongest impression is in the smaller building where the venetian blinds, raised and lowered electrically, create an infinitely variable kaleidoscope of 36 different colors. In the three-story block, the architects painted broad horizontal bands of color on paired concrete columns along the building's periphery. Occupants raise the venetian blinds to reveal this second layer of color to passersby; the banded columns seem to diminish the building's mass, much like camouflage painted on battleships did during World War II. The banded concrete columns stand between two layers of glass and demarcate solar chimneys that ventilate the interior naturally.

The amorphous building plans prove to be well-suited for the rigorous infrastructure of an optical laboratory. Minimal circulation and the need for large zones without daylight gave rise to a deep plan. In the three-floor building, each level has a conventional laboratory plan with a 24-foot struc-

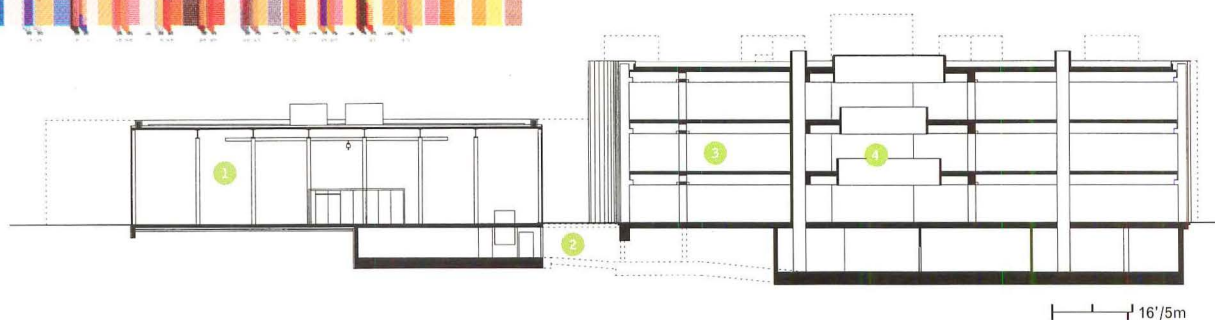


Sun that filters through venetian blinds (above left) resembles stained glass in column-free workspace; orange and yellow palette is specific to southern building exposure. In evening view (facing page), Photonics Center appears as pair of giant multicolored lamps; blinds progress from warm to cool hues from south to north sides of buildings.

tural module: An axial corridor lined with service space is flanked by two rows of laboratories. Free-form staircases hang from clusters of vividly colored columns at each end of the circulation spine. These stairs occupy lobbies as tall as the building; here the glass walls are folded, imparting a crystalline quality to the facade. Gouged into the heart of the building is a three-floor atrium. Blue bands on the walls enliven this circular, daylit core, which is spanned by two steel staircases.

Sauerbruch and Hutton claim they sustain the modern instinct of “wanting to make reality work,” while

exploring the sensuous properties of materials and color. This underscores their two-fold design strategy: The deliberate contrast between functional laboratories and kaleidoscopic skin and circulation areas seems to pair the rational with the Romantic. But this is not the only dichotomy that interests the young architects. Their painted columns generate an ambiguity between the visual and the physical: Seen in parallax, the striped columns resemble an undulated multicolored screen. On closer inspection, one can differentiate their surface effects and their structural role. But initially, polychromy blurs distinctions between what a column is and what it appears to be: Color momentarily captivates us with its visual delights. ■



North-south section

- 1 workspace
- 2 underground hall
- 3 laboratory
- 4 atrium

PHOTONICS CENTER, BERLIN

CLIENT: WISTA Management, Berlin **ARCHITECT:** Sauerbruch Hutton Architects, Berlin / London—Louisa Hutton, Matthias Sauerbruch (principals-in-charge), Klaus de Winder (project architect), Holger Frielingsdorf, Annikka Meier, Markus Pfändler, Amir Rothkegel, Jitse van den Berg, Camilla Wilkinson (design team) **Landscape Architect:** Büro Schrickel **ENGINEERS:** Krebs & Kiefer Beratende Structural Engineers (structural); Zibell Willner & Partner Engineers (environmental) **CONSULTANTS:** Michael Lange Engineers (facades); Fraunhofer Management (project management); Harms & Partner (cost estimates and site supervision) **GENERAL CONTRACTORS:** C. Baresel; Radeburger Fensterbau **COST:** \$28.6 million **PHOTOGRAPHER:** Bitter Bredt Photography, except as noted

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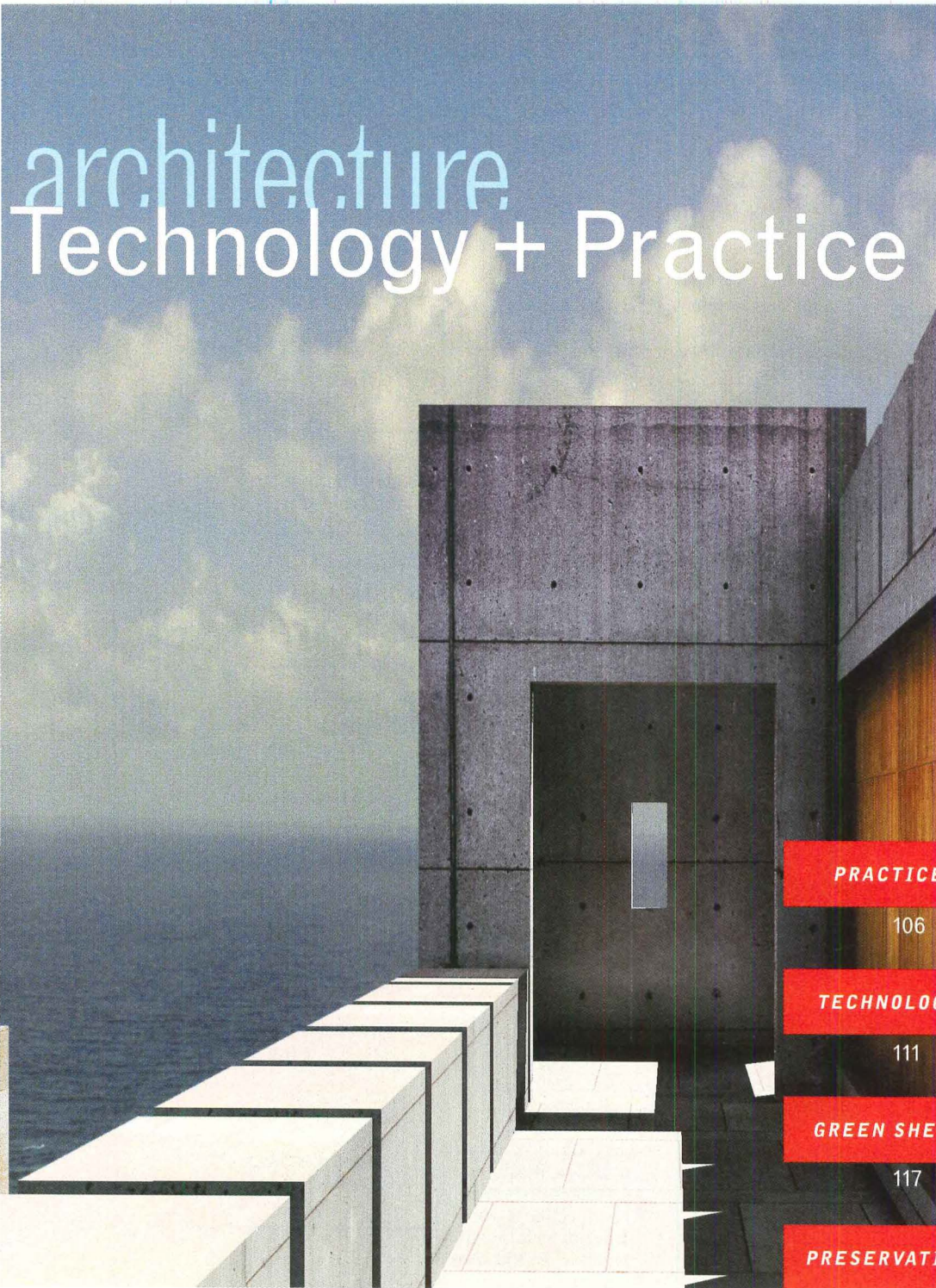
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Kent Larson's **computer renderings** give form and texture to Louis I. Kahn's unbuilt meeting house at Salk Institute for Biological Studies.

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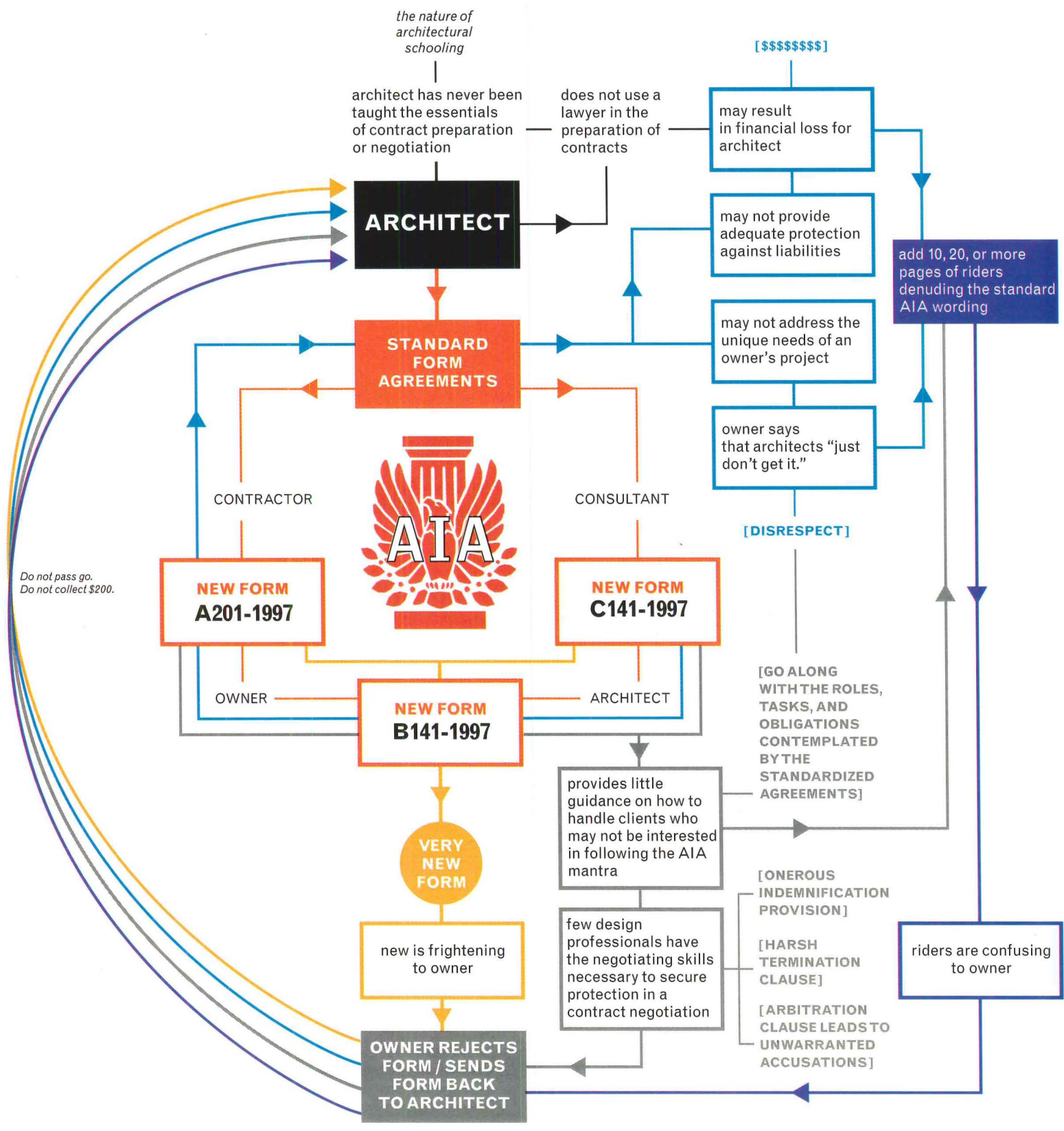
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Contract negotiation, AIA-style.

Riders in a Storm

Though well-intentioned, the AIA's new standard agreements can result in webs of conflicts and revisions—and place architects in jeopardy. The AIA, and the profession, need to wake up to these dangers and make changes. **By Barry B. LePatner**

In 1997, the American Institute of Architects (AIA) issued new versions of its widely accepted standard agreements, most notably the standard architect-owner agreement, form B141-1997; the standard owner-contractor agreement, form A201-1997; and the standard architect-consultant agreement, form C141-1997. Despite soliciting widespread input from a variety of professionals, the AIA's efforts have once again failed to steer its members toward a more constructive relationship with their clients. In today's highly competitive marketplace, standard form agreements, which are not individualized enough to meet specific business goals established by the client, face increasing resistance from owners and contractors. Architects who submit them to clients often send the message that their provided services are generic.

Specifically, the contracts make broad and potentially dangerous assumptions about the scope of work for each project, the willingness of clients and contractors to accept their terms, and the need for legal counsel when modifying the documents. On a pragmatic level, the contracts contain specific clauses (which will be discussed in detail in next month's article) that place architects in considerable jeopardy in cases of, among other things, termination, dispute, and mediation and arbitration.

Worthwhile, but insufficient

The AIA's intentions are laudable: Standardized agreements can serve architects. "Standard forms provide a decent platform with which we begin a contractual relationship," says Timothy Reedy, administrative director of New York City-based Hardy Holzman Pfeiffer Associates. "They save a substantial amount of time in the preparation of boilerplate material for every project we begin."

In addition, most architects in this country work alone or in small firms with limited resources. They face a serious challenge: either spend the time and money to create

a workable framework for agreements on a project or take the chance that standard agreements may not address unique project needs or provide adequate protection against liabilities. For most architects, standard forms become, by default, the contract of choice.

Architects today serve more sophisticated owners who use contract formats that reflect their most effective project delivery methods and that define the chosen project team members they require—qualities they find nowhere in the AIA documents. As a result, standardized forms only position the architect further from consideration as an integral member of the owner's team. In fact, sophisticated owners rarely employ AIA standardized agreements, choosing only to adapt some of the more well-known provisions that are common to all projects.

The new AIA standard agreements are often cited by experienced corporate officials and construction counsels as one reason why owners and the construction industry in general don't respect architects: The failure of standard agreements to address the client's business goals often leads owners and their counsel to say that architects "just don't get it." This disrespect is further manifested during negotiation of the design contracts and throughout the course of the project by minimizing the architect's role. Moreover, owners and their counsel believe that standardized agreements favor the architect by emphasizing limitations on the professional's role and seeking to limit liability. Thus, owners' counsel and governmental attorneys routinely include additional pages of riders denuding the standard AIA wording.

Architects and their lawyers, too, view the new contracts as problematic: The 1997 version, explains Reedy, is new, and new frightens clients. "We have had clients send the new form back because they were unfamiliar with them," Reedy says. Many architects find that by forwarding clients a standard AIA form agreement, they ini-

tiate a process that often goes from bad to worse as negotiations proceed. “In theory, it is supposed to be a fair agreement that represents both the architect and the client,” says Gerald Weisbach, a partner with San Francisco law firm Long & Levit, whose clients include architecture firms Gensler and Anshen + Allen. “But the reality is that every client considers it an architect-biased agreement, and negotiates down from there so that one ends up with a weakened compromise agreement.” Weisbach, who began his career as an architect and practiced until 1975, advises his clients to avoid the AIA’s

The failure of standard agreements to address the client’s business goals often leads owners and their counsel to say that architects “just don’t get it.”

standard agreements. “They are vanilla contracts, and obviously there are no vanilla projects anymore,” he says.

Flawed assumptions

At the heart of the AIA’s program is the notion that, by using standard agreements, architects can minimize the time and expense necessary for negotiating the requisite business and legal provisions of an agreement for uniform services. At the same time, the documents assume that owners will choose to proceed with a similar mindset and adopt for themselves the narrative description of the design and construction processes set out in these forms. According to the instructional booklet that accompanies AIA form B141-1997: “This new format is intended to clarify the assumptions, roles, responsibilities, and obligations of the parties, to provide clear narrative descriptions of services, and to facilitate, strengthen, and maintain the working and contractual relationships between the parties to the agreement.”

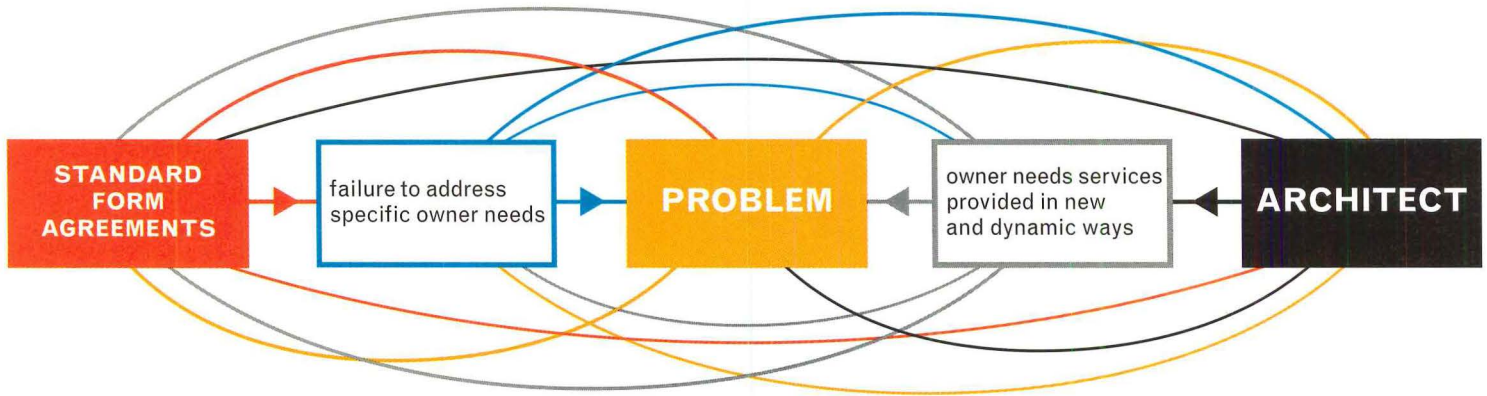
The underlying assumption here is that such roles, responsibilities, obligations, and services are uniform, unvarying, and easily codified, regardless of the circumstances of a particular project. Under the AIA agreements, architects apparently expect to provide their services in essentially the same manner regardless of the building type, method of construction delivery, or the unique business imperatives that shape each project.

While the AIA contracts purport to encourage “greater interaction and communication” with the client, there is little guidance on how the design professional should handle simple, let alone more complex, responses from owners and their attorneys who may be considerably less interested in following the AIA mantra. This is reflected in comments from owners’ attorneys: “We have come to realize that our real estate and financing expertise has little carryover in the preparation of specialized design and construction projects,” explains Robert Ivanhoe, a lawyer and partner in the New York City office of law firm Greenberg Traurig. “We often recommend that our clients retain counsel who specialize in the unique legal and business needs of each project.”

Architects must recognize that before retaining the services of an architect, owners are likely to have completed such complex legal transactions as the purchase or lease of the premises to be built upon or renovated; the negotiation of a building loan agreement that will fund the design and construction of the project; and the finalization of a long-term permanent loan that will replace the construction loan on completion. In each of these situations, the owner will have spent hundreds, if not thousands, of hours as well as considerable legal and accounting fees to ensure that their interest is protected through careful negotiation of the documents underlying these transactions.

Another underlying assumption of the AIA documents is that contractors are also willing to go along with the obligations contemplated by the standardized agreements. This is presumptuous—and often wrong. In most cases, the architect is the first member of the project team retained by the owner: All too frequently, the terms of the owner-architect agreement remain open to negotiation at the time the contractor or construction manager is retained. And by that point, owners have little incentive to see things from the architect’s perspective.

Further, contractors generally insist that contracts be fully negotiated before work on the project begins, whereas architects frequently begin work without having finalized the contract. As a result, specific provisions that relate to construction activities, incorporated as a result of the owner-contractor negotiations, rarely extend to a renegotiation of the architect’s agreement. This creates a host of problems for many architects—from gaps in the services to be provided by different team members, to terms used in the owner-contractor agreement that



differ from those used in the owner-architect agreement. Owners invest more time and effort negotiating the construction contract than the architect's agreement because the business and legal underpinnings of the construction contract more directly affect subjects such as the construction budget and time of completion.

Architects are highly sensitized to the fact that many owners do not believe there is any significant difference in selecting one architect over another. As a result, they have perpetuated the belief that there is always a competitor prepared to step forward and accept a lower fee—or an onerous contract provision—if they do not accept each of the proposed terms: They see themselves as fungible. Sophisticated owners have picked up on this and recognize it as a club with which architects can be bullied into agreeing to constraints and modifications with only a modest amount of pressure during negotiation.

More assumptions

The AIA also subtly encourages the idea that by using standardized agreements, architects generally do not require a lawyer to assist in negotiations and contract preparation. The front page of each AIA form merely includes a fine-print notice that seems to absolve the AIA of any liability: "This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification." The soft pedaling, combined with architects'—and others'—natural disinclination toward lawyers makes it easy to rationalize avoiding them. "The cost of preparing a project-specific contract would be significant," HHPA's Reedy posits. "The costs of attorney review would add up quickly if we were to customize a contract for every project we begin." Ironically, such concerns about legal fees exist even where, increasingly, architect fees for a project can readily amount to hundreds of thousands, if not millions, of dollars for many large-scale projects, and where a single claim can cost a firm a substantial portion of their hard-earned fees.

Both the standardized agreement forms and the AIA-drafted supporting documentation contain few warnings about the pitfalls of entering into agreements that rou-

tinely create legal liability totaling millions of dollars—far more than that covered by standard professional liability policies, which are issued on an annual aggregate basis. Such pitfalls range from the liability that arises from the requirement to turn over design documents to the owner if the architect is terminated before construction is complete, to the resolution of disputes with the owner without the joinder (required participation) of other parties. This is even more disturbing considering that many design professionals face unlimited personal liability as licensed professionals and have, as a whole, routinely failed to protect their personal assets from losses arising out of their professional activities.

Very few design professionals have the negotiating skills necessary to secure adequate protections in a contract negotiation with a skilled attorney that represents the owner. How can architects become aware of a harsh termination clause that leaves them without rights, or an arbitration clause that precludes them from obtaining needed project documents in the owner's or contractor's files to defend themselves from unwarranted accusations? Where in the AIA's standardized agreements literature is there tutelage on how an architecture firm is to protect its business interests during these negotiations?

There is an art to structuring a contract that starts off looking and reading as a fair recital of the respective parties' intentions, and that is what is needed. In today's design marketplace, owners are increasingly asking design professionals to provide services and manage their relationships in new and dynamic ways. Standard form agreements that fail to address specific owner needs will continue to be a burden until the design profession recognizes the long-awaited need for change. ■

Construction law specialist Barry B. LePatner is the founding principal of Barry B. LePatner & Associates (www.bblesq.com) in New York City.

Next month:

LePatner suggests ways to improve contracts and highlights key provisions of the AIA agreements that should be carefully considered before submission to clients.



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Oceanfront house on Great Cranberry Island, Maine, completed in 1986 by architect Peter Forbes, is built of cedar, teak, mahogany, and fir—rot-resistant woods that have withstood continuous exposure to moisture.

TECHNOLOGY



Down by the Sea

Wind, sand, salt, and even fog can make oceanfront buildings crumble. To protect your clients' new homes, choose your materials wisely. By Elizabeth Padjen

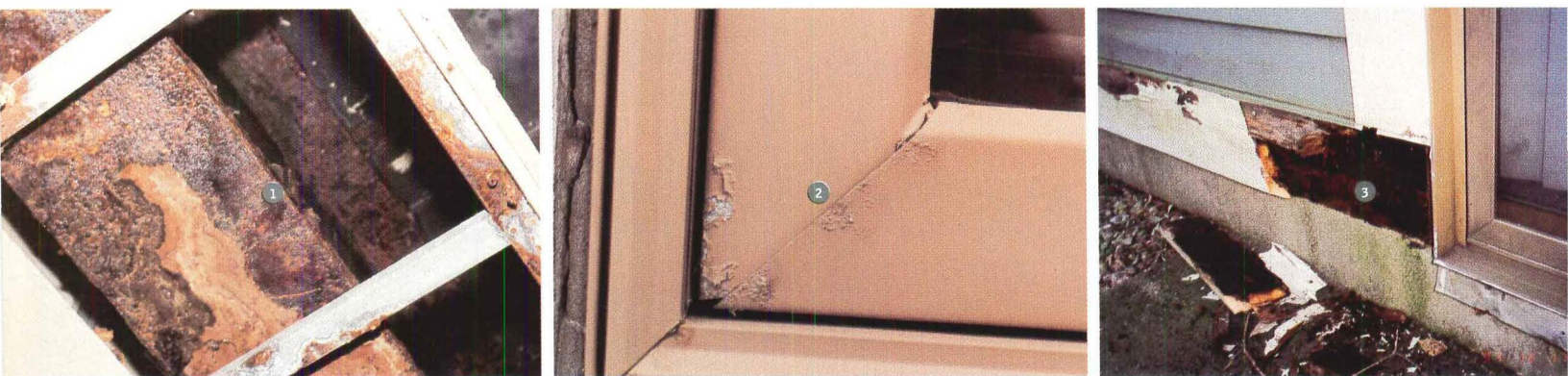
Designing a house by the sea may be a dream commission, but underestimating the technical challenges of the coastal environment can lead to many sleepless nights. Architects who are experienced in seaside projects understand that destructive coastal forces are not limited to violent hurricanes and waterfront erosion. Salt spray, wind, sand, ultraviolet light, and fog can demolish a structure more insidiously, but just as effectively.

Inspired by the inherent drama of coastal sites and encouraged by clients looking for trophy houses, architects frequently view these buildings as a chance to

experiment with form and material. But a more conservative attitude—at least in terms of technical issues—may be the more prudent approach. “The oceanfront is the harshest environment in which to build. People underestimate how severe it can be,” observes Peter Forbes, an architect in Boston and Southwest Harbor, Maine, whose minimalist Modern houses on the New England coast belie a surprisingly orthodox view toward construction: “Use no materials you wouldn’t use on a boat.”

Architects working along the coast must examine all the assumptions that they bring from inland construction

Driven by multidirectional winds, water saturates walls; seemingly benign sunshine can hasten ultraviolet deterioration; materials that are considered durable in other conditions can corrode, crumble, or rot in just a few years.



Examples of Simpson Gumpertz & Heger study of damage to oceanfront structures: **1** Saltwater, leaking through nonwaterproofed patio deck above, rusts steel beam of parking garage roof structure. **2** Only a few years after installation, paint blisters at corner of aluminum-clad, baked enamel-finished window. Paints that form better bond to aluminum resist severe thermal, wetting, and drying cycles that cause such damage. **3** Cedar siding in Cape Cod, Massachusetts, house decays because wood wasn't primed on both sides; there was also no cavity behind cedar to allow drying.

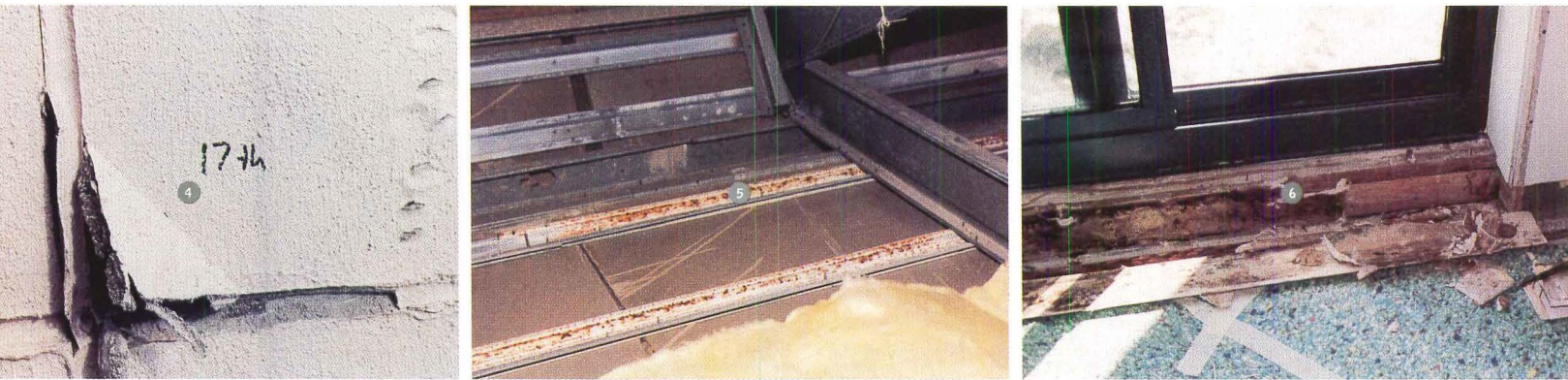
experience. The simplest laws of nature can be literally turned upside down: Driven by multidirectional winds, water saturates walls; seemingly benign sunshine can hasten ultraviolet deterioration; materials that are considered durable in other conditions can corrode, crumble, or rot in the space of just a few years. "Details that succeed in standard applications 10 miles from the coast may not work in this environment," notes Dean Rutila, an engineer with Arlington, Massachusetts-based Simpson Gumpertz & Heger, who has conducted failure investigations for coastal projects in Florida, New Jersey, and Massachusetts. "People shouldn't build with the same expectations."

Ridge vents are one example. Some seacoast designers feel that including ridge vents is riskier than omitting them. "Wind-driven rain can be more deleterious than condensation," cautions Forbes, who has known 6 feet of snow to blow into an attic through a ridge vent. Some architects report success with Roll Vent, manufactured by Benjamin Obdyke Incorporated, which includes a nylon-polyester fabric that acts as a weather barrier. Wind-driven rain can also find its way up through weep holes and soffit vents; these details should carefully consider ventilation requirements, orientation to prevailing storms, and the inclusion of infiltration barriers.

Choose Carefully

Vernacular buildings can provide clues to materials and details that work well. Wood shingles and clapboards, for example, shed water but also breathe. Cedar and cypress, which survive in buildings that are more than a century old, are still a good choice; mahogany and teak contain resins that make them naturally resistant to decay. Other types of wood can lead to maintenance headaches. "In my early days, I used pine, which was a big mistake," notes Donald Cooper of Cooper Johnson Smith in Tampa, Florida, who finished his own cottage with pine siding that was vulnerable to rot. "We repaint the cottage every four years, and each time we replace more of the pine with cedar, so eventually the entire structure will be cedar." He now specifies cedar or cypress for exteriors, with some pressure-treated pine for trim.

Cypress availability has grown in the last decade, and although it is commonly associated with the Southeast, it also can be found in 19th-century New England Shingle houses. Often specified as siding, its hardness and insect resistance also make it appropriate for decking and porches. White and red cedar are common in siding and roofing, and each has its advantages. Red cedar, a native Pacific Coast species that weathers to dark gray or black, is readily available and may be more cost-com-



4 Cracking cement stucco on Florida house was adhered directly to concrete masonry and covered with waterproof paint. To prevent leaks that cause cracking, stucco should be applied over waterproofing material and flash at penetrations. **5 Though venting** is desirable in most cases, in this oceanfront attic, venting allows penetration of salty fog that quickly rusts galvanized steel. **6 Decay and mildew**, caused by leaks at inadequate perimeter seal, form around high-performance window.

petitive. White cedar, which naturally weathers to a silver-gray color often associated with traditional New England structures, is preferred by some architects who feel it performs better in coastal environments.

But even these relatively durable materials require special attention in some situations. “We have so much rain that high humidity is a problem,” notes Saul Zaik, a principal in Zaik/Miller Associates in Portland, Oregon. In his ocean front projects, Zaik typically specifies red cedar with CCA (chromated copper arsenate) pressure treatment for longer wear; he describes the color that results as “slightly more tawny”. The Cedar Shake and Shingle Bureau, a trade association, recommends pressure treatment for hot and humid parts of the Southeast with a U.S. Department of Agriculture Forest Service climate index rating of 65 or more.

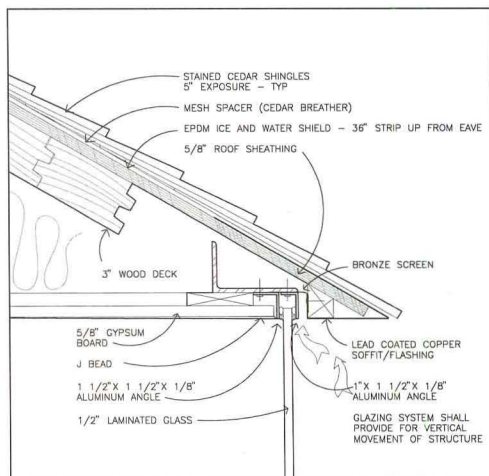
Although both red and white cedar are often left to weather naturally, they can be stained or treated with a bleaching oil to extend their useful life. Solid or heavy-bodied stains offer the greatest protection and will last longer than transparent stains, but they look more like paint and tend to obscure the graining of the wood; a compromise is semisolid or semitransparent stain. Painting cedar can lead to more difficult prep work in the future: Even power washing can damage the wood.

Cypress can be stained or left to weather, but its tight grain also takes paint well.

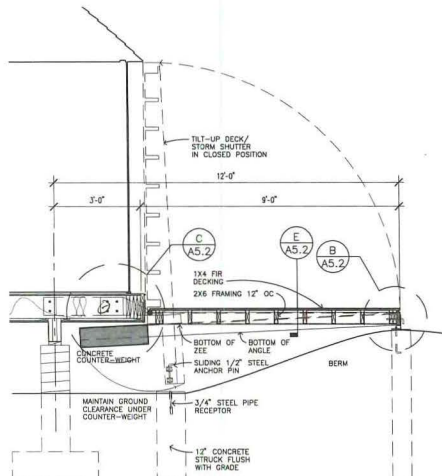
However, the choice of siding and its finish won’t matter if it is badly detailed and installed. Zaik has found that water can blow through Tyvek, the common building wrap, and prefers to specify 25-pound felt on the walls, sometimes in addition to Tyvek. Ron Da Silva, a builder in Nantucket, Massachusetts, advises against over-reliance on caulking and sealants; he has observed situations where caulking holds water when wood shrinks. “I’d rather make things fit well,” he notes. “Caulking can create more problems than it solves.”

Even nails and fasteners require attention because corrosion can cause a range of problems from cosmetic stains to catastrophic failure of building assemblies. Hot-dipped galvanized fasteners are one solution, although the galvanized coating is vulnerable, especially in nail guns. “Galvanizing will not last long in a coastal area,” notes Rutila. “The environment consumes the zinc in a few years and then the heads rust.” Forbes specifies stainless steel, silicon bronze, or copper, depending upon weather conditions, and requires noncorroding fasteners throughout his projects, including interiors. “I don’t even buy [ordinary] steel nails anymore,” Da Silva comments, “because someone will end up using them by

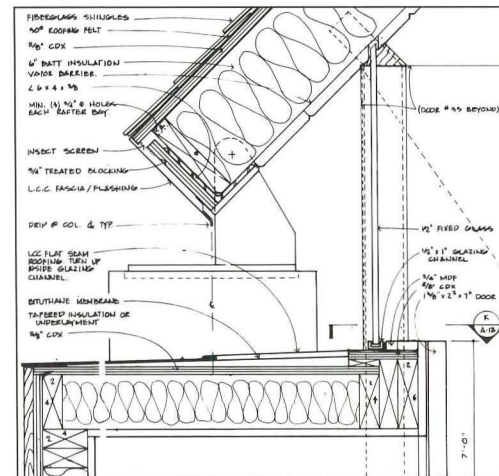
Metals pose one of the greatest challenges to architects working on the coast, where the naturally corrosive environment can be exacerbated by the presence of industrial pollution and sulfuric acid.



Eave detail



Tilt-up deck



Clerestory window eave

mistake.” Da Silva feels that galvanized nails are adequate for framing, but prefers stainless steel elsewhere.

Type 304 stainless steel is most common, but Bart Swan, of Swan Secure Products in Baltimore, manufacturers of stainless and nonferrous fasteners, recommends 316 stainless steel for better corrosion resistance. “With 304, fasteners can develop a reddish oxide, which is surface rust,” he notes. “It rubs off, but it can be a problem.” He also notes that the zinc in galvanized nails can react with tannins in cedar and redwood, causing black stains. Tannins may also bleed out from fastener holes, leaving a tobacco-brown stain—a condition due to the presence of moisture in the wood. Swan recommends that all wood should be kiln-dried and kept covered; cutting a few inches from the ends of boards before installation is also good preventive practice.

Heavy metal

Metals pose one of the greatest challenges to architects working on the coast, where the naturally corrosive environment can be exacerbated by the presence of industrial pollution and sulfuric acid. Aluminum is highly susceptible to pitting and corrosion, although newer resin coatings such as Kynar 500 are more durable and offer good ultraviolet resistance. Steel should be galva-

nized. Howard Levine, of Duncan Galvanizing in Everett, Massachusetts, recommends hot-dipped galvanizing in accordance with ASTM standard A123, with a thickness of 3½ to 6 millimeters. Levine also recommends duplex coating, a factory-applied epoxy primer and finish that in some situations can double the expected life of the galvanizing, as well as provide a better appearance.

Metal flashing can actually disintegrate. The Cedar Shake and Shingle Bureau does not recommend copper, usually considered a high-quality material, in saltwater regions. Lead-coated copper offers greater protection, but it is vulnerable at bending points and can fail over time. Forbes specifies pure lead chimney flashing to counter the doubly corrosive effect of salt air and salts that may be present in mortar. Despite its expense, stainless steel flashing can provide the greatest peace of mind, although it is less malleable. Corrosion and tarnish are also factors in hardware and light fixture specifications.

Window cladding

Windows remain the great dilemma for architects designing coastal residences. Perhaps more than other building product manufacturers, window manufacturers for this environment can draw customers on the basis of their warranties, service quality, and replacement policies. The



Peter Forbes-designed house (above) in Surry, Maine, completed in 1996, features fiberglass roof shingles, attic ventilation at roof peak, and cedar siding. Clerestory windows are protected by concrete pillar-supported overhanging eaves (matching detail, facing page, left). Forbes house under construction in Cape Cod, Massachusetts, includes tilt-up decks to protect windows (facing page, center) and (facing page, far left) and eave-ventilated attic.

narrow-sightline aluminum windows favored by many designers 30 years ago proved to be highly susceptible to pitting and corrosion, resulting in some cases in holes in the frames. Clad-wood windows, which have greater energy efficiency, are the new standard, although the cladding material itself is the subject of debate. “There’s good room for discussion,” acknowledges Dean Rutila of Simpson Gumpertz & Heger. Although he prefers aluminum cladding, he admits, “Lifespan in aluminum is dictated by your tolerance for what it looks like.”

The improved longevity of Kynar-coated aluminum has won many advocates, but some architects still distrust the metal, preferring the salt resistance of vinyl for long-term wear and appearance. Vinyl, however, is susceptible to much greater thermal expansion and contraction than aluminum, which can make some joints more vulnerable. Zaik, who favors vinyl cladding, sees promise in the new fiberglass cladding available in the Marvin “Integrity” line, although the product line doesn’t yet include a seacoast hardware package or custom sizing and configurations. Even so, some architects remain skeptical of cladding. “I have never found a clad window that holds up,” observes Forbes, who prefers stained, custom wood windows, usually with teak or mahogany exteriors and oak or mahogany interiors. Don Cooper

also prefers mahogany, noting that windows in Florida must also meet hurricane standards.

Oceans always win

Ultimately, building by the sea requires some fundamental changes in attitude—for both the client and the architect. Maintenance and monitoring of the building condition are crucial. “Let the client know that some things don’t last by the ocean,” advises Rutila. Basic lessons of siting and designing for nature take on renewed significance. “The forms of coastal houses often require manipulation to capture views and accommodate small lots,” notes Zaik, “but I’m going back to simpler forms, avoiding things like dormers and valleys.” Don Cooper appreciates the wisdom of vernacular features: “Wide overhangs, porches, and shutters help control the sun and the heat, but they also protect windows and doors.”

Good materials are expensive, and clients frequently suffer sticker shock. But experienced architects know that initially cutting corners to please a cost-sensitive client can result in an angry client later on. “You’re better off adjusting the square footage in order to have enough money for the best materials,” advises Cooper. “Cut a corner in this environment, and it will fail,” Forbes agrees. “The ocean always wins.” ■

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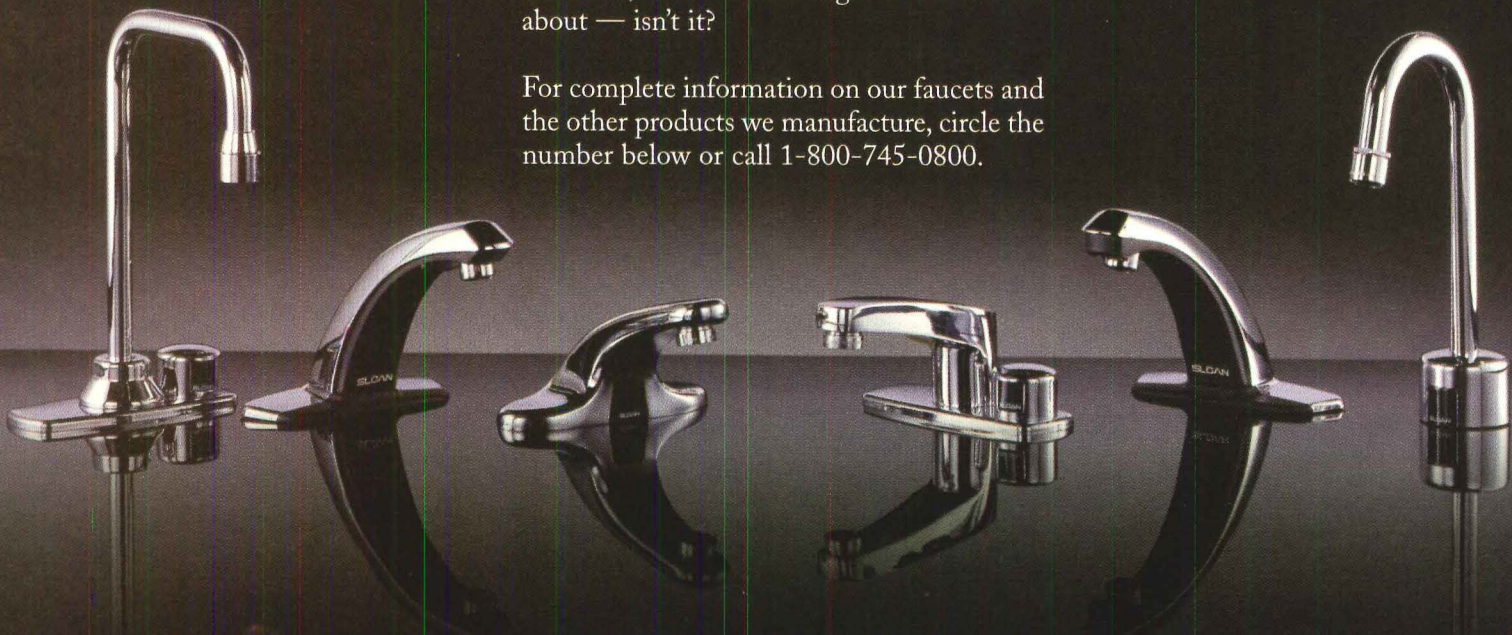
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Green Building Challenge

International design teams bring case studies to Vancouver in the first effort at global sustainability. *By Gail A. Lindsey*

In 1996, Nils Larsson, program manager of the Buildings Group at Natural Resources Canada, the government's environmental agency, and Raymond Cole, professor of architecture at the University of British Columbia, formed a committee of international building industry professionals to consolidate efforts to reduce global warming and increase market demand for green buildings. Fourteen countries (the United States, Canada, the United Kingdom, France, Germany, Austria, Poland, Norway, Sweden, Denmark, Finland, Japan, the Netherlands, and Switzerland) accepted their invitation to be founding members of an International Framework Committee (IFC).

Larsson asked architect Woytek Kujawski, president of INPOL Consulting, a Canadian developer of relational databases for the construction and alternative fuels industries, to develop an international program—the Green Building Assessment Tool (GBTool)—that all countries could use to assess and evaluate the energy and environmental performance of three building types: schools, multifamily residences, and small-scale office buildings. Member countries agreed to spend two years conducting case studies using the GBTool in an experiment called the Green Building Challenge '98 (GBC '98).

In October 1998, 600 representatives from the 14 national teams and other interested nations convened in Vancouver to view the results. The teams presented 34 case studies detailing their respective countries'

Screen for inputting assessment values (right) for resource consumption in energy category. Teams assign scores according to information in modified values field. Scores for assessments made in various categories are summarized in bar chart (below) with values from -2 to 5. Reference number of 0 reflects regional norms and regulations.

The screenshot displays the GBTool interface. The top window, titled 'Resource Consumption Assessment', shows the 'R1 ENERGY' category. It includes a 'Background' section with 'CATEGORY: R1 ENERGY', 'CRITERION: R1.1 Embodied energy for initial building production', and 'SUBCRITERION:'. A 'Score' field is set to 0.00. Below this is a 'Modified values' section with several text-based criteria and their corresponding scores. The bottom window shows a bar chart titled 'GBC '98 Assessment of CCM and SCM How?' with a y-axis from -2 to 5 and a legend for various assessment categories.

greenest buildings in the three categories. Most participants acknowledged frustration at the amount of time and data the tool required. Throughout the two-year assessment period, participants wrestled with a program requiring input in over 4,000 fields relating to resource consumption and indoor air quality, to name two. A reasonable building assessment consumed at least three weeks. Kujawski has already begun to simplify and streamline the tool to reduce the fields to fewer than 1,900 and make it compatible with other analytical software.

The lack of objective data is a more troubling issue. Does a building perform to a specified level of energy consumption? What was the amount and content of the solid waste produced by construction? What percentage of materials specified contained recycled content? "Teams spent most of the effort, in terms of time and money, searching for information about the characteristics of buildings," laments Larsson, GBC '98 technical coordinator. "Designers and owners are not accustomed to handling this kind of data."

Next month the IFC will meet in Toledo, Spain, to discuss these issues and plan for the next GBC, tentatively scheduled for Amsterdam in October 2000. Its goal is to deliver a reengineered GBTool: a preconstruction manual for specification and building that will reduce the effects of a data-deficient industry. ■

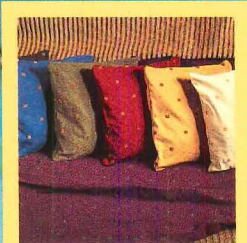
Additional information on the conference is available from the GBC '98 Secretariat, Ottawa, Canada: 613-769-1242, or www.greenbuildings.ca.

Gail A. Lindsey is a Wake Forest, North Carolina-based architect and chair of the American Institute of Architecture's Committee on the Environment.

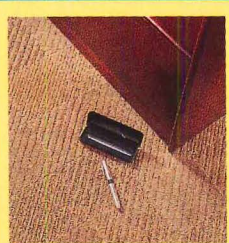
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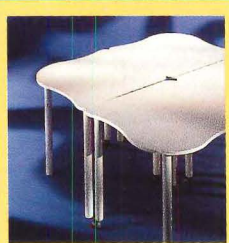
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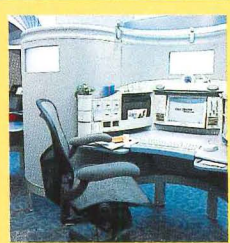
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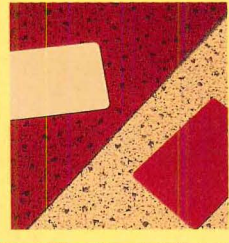
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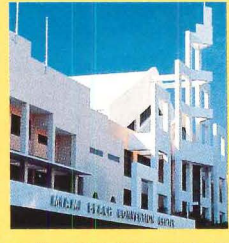
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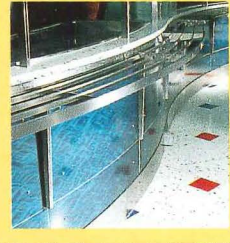
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Observing the Past

Like astronomy itself, the Detroit Observatory, carefully restored by Quinn Evans/ Architects, offers a glimpse of how things used to be.
By Eric Adams



The architect realized early on that the observatory is an unusual building type, in that the functionality of the instruments contained within the structure is directly linked to design and material characteristics.

One of the first things astronomers have to accept is that they are always studying the past. For example, when they examine the relatively nearby star Betelgeuse in the Orion constellation, they're actually seeing it as it was 1,400 years ago. That, simply, is how long it takes the star's light to traverse the 840 trillion miles between it and us.

Considerably closer to home, the 144-year-old Detroit Observatory in Ann Arbor, Michigan, offers a similar—and more humanly scaled—look into the past, this time of astronomy itself and the architecture that serves it. A meticulous \$900,000 restoration by Ann Arbor-based Quinn Evans/Architects recently transformed this tiny, long-ignored nationally registered structure, with its hand-rotated dome, Greek Revival and Italianate styling, and massive central telescope pier that never touches the rest of the structure, into a historically accurate museum of the tools and facilities of 19th-century astronomy.

In addition to bringing the building into compliance with modern codes, the architects refurbished interior

woodwork, repaired and restored interior and exterior finishes, replaced missing details, installed a new, more durable roof that matches the old one, and created a mechanism to keep birds and insects out of the dome—a recurring problem throughout the building's life.

The architect realized early on that the observatory is an unusual building type, in that the functionality of the instruments contained within the structure is directly linked to design and material characteristics. Every layer of the dome's construction affects the telescope's performance, and every operable hatch facilitates nighttime observations. "Our focus was to make the spaces that house the astronomical instruments appropriate to the period they were installed, and to make them operational," explains architect Ilene Tyler, whose team collaborated with Patricia Whitesell, the observatory director, to establish the restoration criteria. "The building's hatches and its dome all have pulleys and mechanicals, and they all had to look right and work properly."

Long neglect

The 3,300-square-foot observatory—the only one from its era in the world that still possesses its original telescope—was built by the University of Michigan's first President, Henry Philip Tappan. It contributed to American astronomy as a training ground for numerous noted scientists and a research facility responsible for many significant discoveries. But by the early 1960s, the telescope had grown obsolete and the observatory's urban location on the University of Michigan campus too bright. Further, the astronomy department had new, technologically superior facilities located ideally in Chile and Arizona, plus a local outpost outside of Ann Arbor. The university demoted the old observatory to service as an office, then library space; it was eventually vacated in 1970. A major 1908 addition, containing an additional dome and office space, was demolished in 1976. In the 1970s, the building suffered neglect and vandalism, mostly in the form of graffiti from students who unofficially occupied the building, that continued until the school regained control in the mid-1980s. From there, it became a storage building for old scientific equipment.

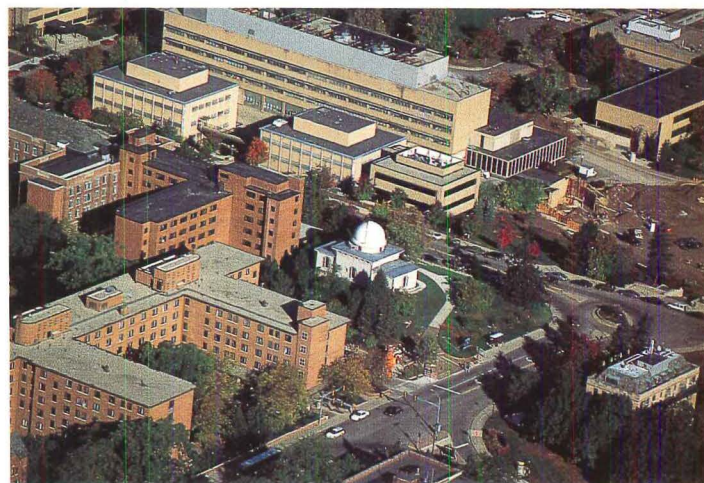
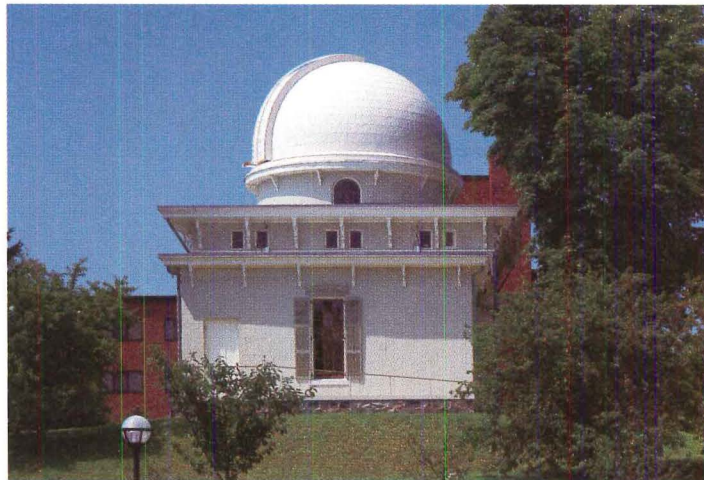
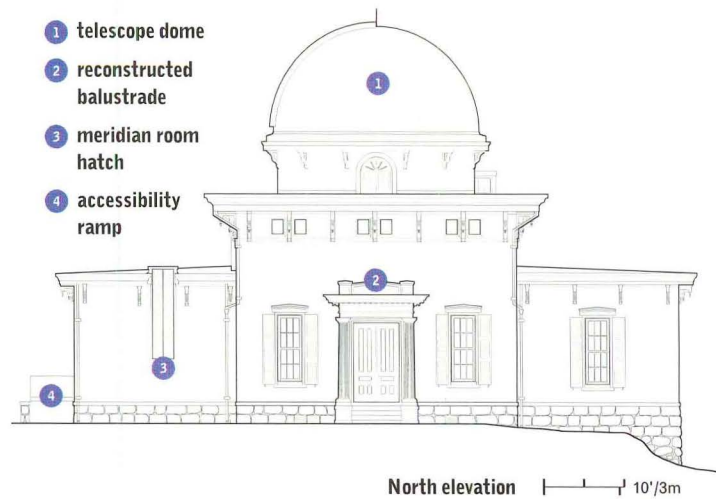
In 1994, the university turned the observatory over to Homer Neal, a physicist who is the school's vice president for research. Two years later, he and Whitesell, then his assistant, hired Quinn Evans to study the building and prepare a proposal for its restoration. Shortly after receiving the report later that year, the university retained Quinn Evans to execute the work and help convert the observatory to a museum. Firm founder David Evans, who died in August, two months before work concluded, was principal-in-charge and directed much of the work.

Exterior repairs

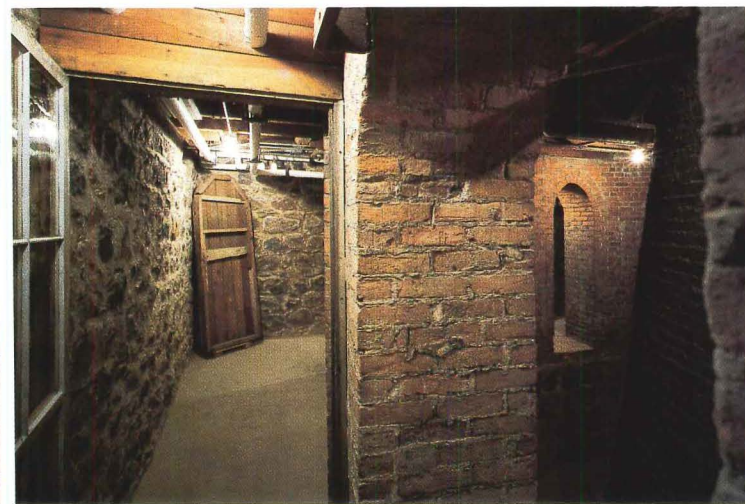
Fortunately, with the exception of a sinking foundation and some inactive termite damage, the observatory was in remarkably sound condition structurally, suffering little over the years from minor modifications or the larger addition. The roof, however, needed replacement. The project's general contractor, J.C. Beal Construction, removed a modern single-ply roofing system that had been installed over a tin roof and replaced both with a more durable lead-coated copper roof. Its standing seams match the original design, and the architect replicated the roof's original built-in gutter.

On the front porch, the design team sought to replicate a balustrade that appeared in early photographs of the building but had since vanished and been replaced with a flat roof. They stripped the roof to bare wood, installed sheet metal covering, then rebuilt the balustrade with wood that was capped with sheet metal to prevent water damage.

Elsewhere on the exterior, the team inserted a disabled accessibility ramp designed to blend in with the foundation when viewed straight-on at the east elevation; inserted a new door to provide basement access; and



New horizontal strips of cotton canvas and paper, which enhance structure's breathability, replace deteriorated originals on observatory dome's interior surface (preceding pages). Telescope restoration occurred concurrently with work on dome. **Craftsmen replicated** long-removed balustrade above entrance porch (facing page) as well as numerous shutters and drop finials missing from below cornice. Team painted exterior walls gray and details white, as per original scheme. **To minimize** prominence of new accessibility ramp at building's east elevation (top), architect converted existing window to door and matched ramp appearance to foundation. As University of Michigan campus (above) encroached on once-isolated observatory, building and roadway lights illuminated sky and gradually diminished telescope's effectiveness.



To left of newly refinished **observer's chair** (above left), hand-operated rope and pulley mechanism rotates dome. Room that contains **meridian telescope** (top right) includes new limestone clock pier (at right) lowered into place through ceiling hatch. In basement (above right), workers repointed masonry walls and telescope pier base (at right). During construction, team discovered **original wood form** (background) used to create basement and first-floor arches.

restored cosmetic details. Workers patched stucco and repainted it gray in accordance with how the building appeared in the 1870s—the period in which the building reached its peak of astronomical activity. They also stripped up to 21 layers of paint from the porch columns

Because telescopes are so susceptible to vibration, the original architect designed the pier to remain independent from the building.

and much of the wood trim and painted them their original white. To cap off the exterior restoration, the university's woodworking shop replicated several missing shutters and drop finials.

Peerless piers

The observatory's first floor contains the library and meridian telescope room on either side of the main hall, which is dominated by the massive telescope pier. This

brick pier begins 15 feet below grade and rises 30 feet to the dome room above, where it supports the observatory's 16-foot-long refracting telescope. Because telescopes are so susceptible to vibration, the original architect designed the pier to remain independent from the building. On each level—the second floor contains offices—a 1-inch space between pier and floor is visible. The only work necessary for restoring this structure was repainting at the basement level, where water had leaked in, as well as replastering on the floors above.

Around the pier in the main hall, the architect refurbished bookcases, adding glass doors to protect museum objects, and restored the original color scheme, which analysis determined was a rich yellow. In the adjacent library, workers reinstalled the original bookcase configuration and removed carpeting.

In addition to increasing the bathroom's dimensions to accommodate a wheelchair, most of the rest of the restoration efforts conducted on the first floor centered on the room containing the observatory's meridian telescope. This telescope moves only north to south and

observes through a pully-operated hatch that runs the length of the ceiling and down the north and south walls. This hatch had been covered with roofing materials, which were removed during the roof replacement. The architect also repaired plaster around the frame that was water damaged.

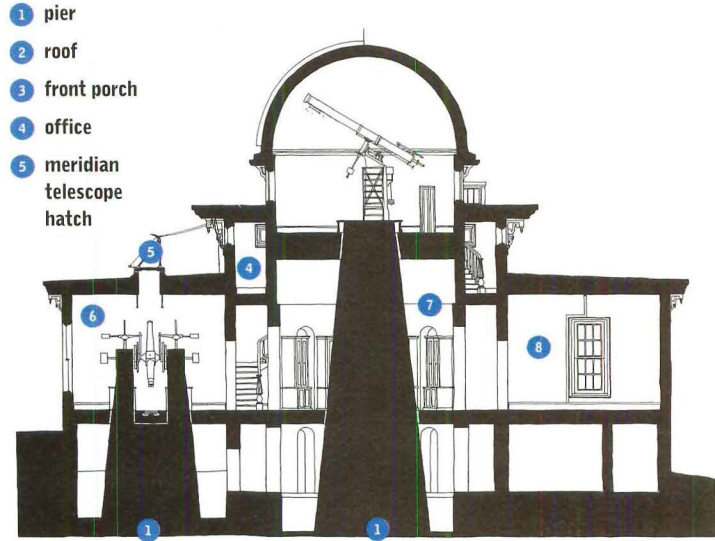
The meridian telescope rests on two enormous limestone piers, and an additional pier, removed in 1908, once held an astronomical clock. The university wanted to restore this missing configuration, but that proved a considerable challenge. First, they had to locate and shape a 2-ton piece of limestone; then they had to get it into the room. After determining that a plan to bring the stone in through a door was too risky, J.C. Beal developed a way to lower it in through the hatch with a crane. "That was harder than it sounds," Tyler explains. "The pier is not directly below the hatch, so the contractor had to build a slide to guide it into the room. When it came in, it had only 1 inch of clearance. But it landed cleanly right in its hole. The contractor put a vertical level on it and it was absolutely perfect the first try, which is great because they weren't about to try it again."

Dome room

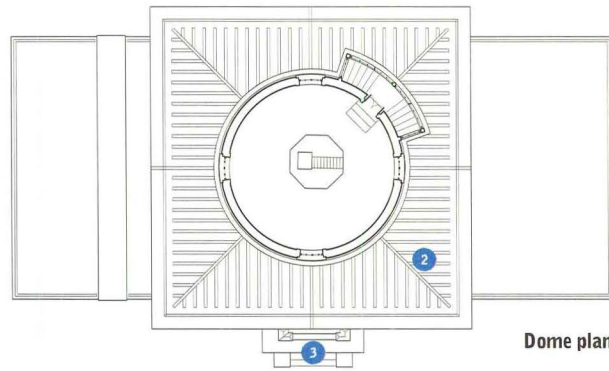
The 23-foot-diameter dome that caps the observatory and provides much of its character also provided one of the project's biggest unknowns. "This was something that no one in the team had experience with," Whitesell explains. "We didn't know precisely how it was constructed until we pulled it apart, and that meant stopping construction occasionally to evaluate what we found."

Though there was no serious damage to the dome, the interior surface was stained and discolored, so the restoration team decided to replace the affected materials. The dome was light enough so that it could be rotated by hand, and permeable enough so that inside and outside temperatures could equalize (temperature disparities disturb the telescope's optics, so the room is unheated). The architect had to get the dome's new materials to match its original construction to preserve these effects. While they knew that the dome had a sheet metal exterior over wood sheathing and wood ribs, they were uncertain about the layers of materials inside. Removal and analysis revealed that cotton canvas and paper covered extremely thin, curved wood panels. Craftsmen created matching replacements for the canvas and paper, applied them in overlapping horizontal strips 6 feet long and 7 inches wide, and then painted the interior white, as per the original.

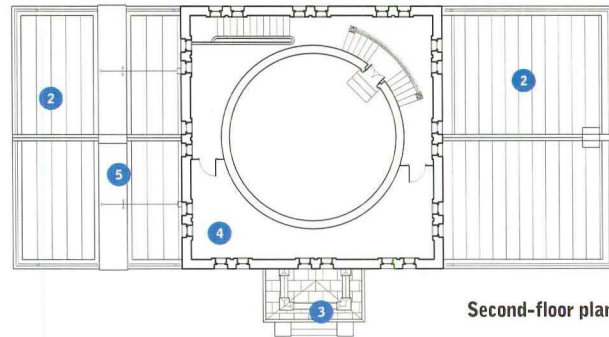
At the dome's base, the architect devised a system to keep birds and insects out: a modified door sweep attached to the base perimeter that brushes against the sheet metal-covered wall on which the dome rests. The door sweep is supplemented by a perforated metal mesh that provides additional screening. Inside the dome, craftsmen refinished the wooden observer's chair, an adjustable, wheeled platform that follows the telescope



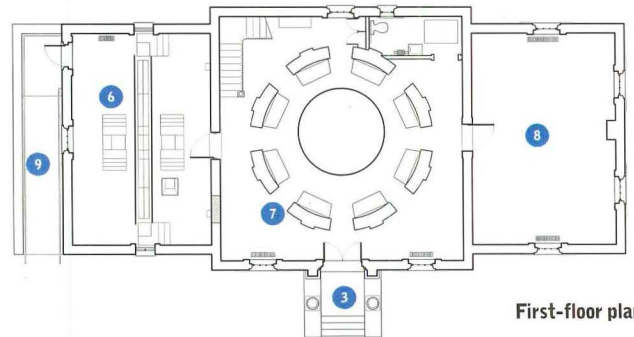
North-south section



Dome plan



Second-floor plan



First-floor plan

- 6 meridian room
- 7 main hall
- 8 library
- 9 accessibility ramp

10' / 3m

A specialist disassembled and restored the powerful refracting telescope over several months as work in the dome room continued around him.

around the room, and finally, a specialist disassembled and restored the powerful refracting telescope, which has a lens diameter of 37 1/2 inches, over several months as the rest of the work in the dome room continued around him.

Near-perfection

The observatory was the university's first pure restoration effort. Because none of the construction managers, facility planners, contractors, or subcontractors had experience on such projects, Whitesell, Tyler, and Lloyd Baldwin, Quinn Evans' field representative, found themselves stressing how such work differs from new construction or rehabilitation. "It was practically a total change in their

way of thinking," Whitesell explains. "You don't want a historic building to look perfect, but construction managers are used to having perfection as their prime objective."

She cites as an example how the construction manager wanted to put a skim coat of plaster over the rough plaster on the building's walls. "That wouldn't have been appropriate for this project," Whitesell recalls. "A skim coat would cover up a lot of the scars that give clues to the building's history—where the stovepipe came through the wall, where the clock was mounted, where a door used to be."

Eventually, though, the groups reached a common understanding, and the work they conducted helped ensure that the building's early history remains visible. And while the observatory and its telescope no longer serve science directly, they now ably document how their particular science evolved. ■

DETROIT OBSERVATORY, ANN ARBOR, MICHIGAN

CLIENT: The Regents of the University of Michigan **ARCHITECT:** Quinn Evans/Architects, Ann Arbor, Michigan—David S. Evans (principal-in-charge), Ilene R. Tyler (project manager), Margaret McInnis, Michelle L. Smay (project architects), Michael A. Campbell (project team) **LANDSCAPE ARCHITECT:** JJR **ENGINEERS:** Fitzpatrick Structural Engineering (structural); SWS Engineering (mechanical, electrical), JJR (civil) **CONSULTANT:** Frank S. Welsh (historic paint color) **GENERAL CONTRACTOR:** J.C. Beal Construction **COST:** \$900,000 **PHOTOGRAPHER:** Stephen Graham Photography

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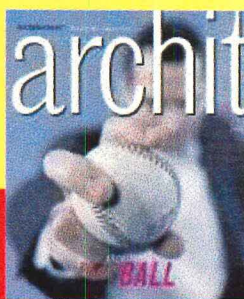
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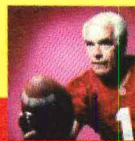
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Guiding Light to Energy Efficiency

The building industry's indifference to inefficient electrical infrastructure threatens to leave everyone in the dark. But knowledgeable specifiers can help keep the lights on. **By Jack Klein**

According to the U.S. Department of Energy, artificial lighting costs about \$75 billion annually, or about one-fourth of the nation's annual electric bill. Office buildings, department stores, warehouses, and other commercial properties comprise about one-third of the cost. Yet studies show that the opportunity to upgrade the electrical infrastructure within the 5 million-plus U.S. commercial and institutional buildings has been largely ignored.

"Energy-efficient electrical product upgrades are still the exception despite the proven end-user benefits that they accrue, including 30 to 50 percent reductions in energy costs and purification of the environment," marvels Jack Briody, chairman of the Energy Cost Savings Council (ECSC), a Washington, D.C.-based group of lighting manufacturers and industry associations that, in partnership with the Department of Energy and the U.S. Environmental Protection Agency, is promoting energy conservation in commercial buildings.

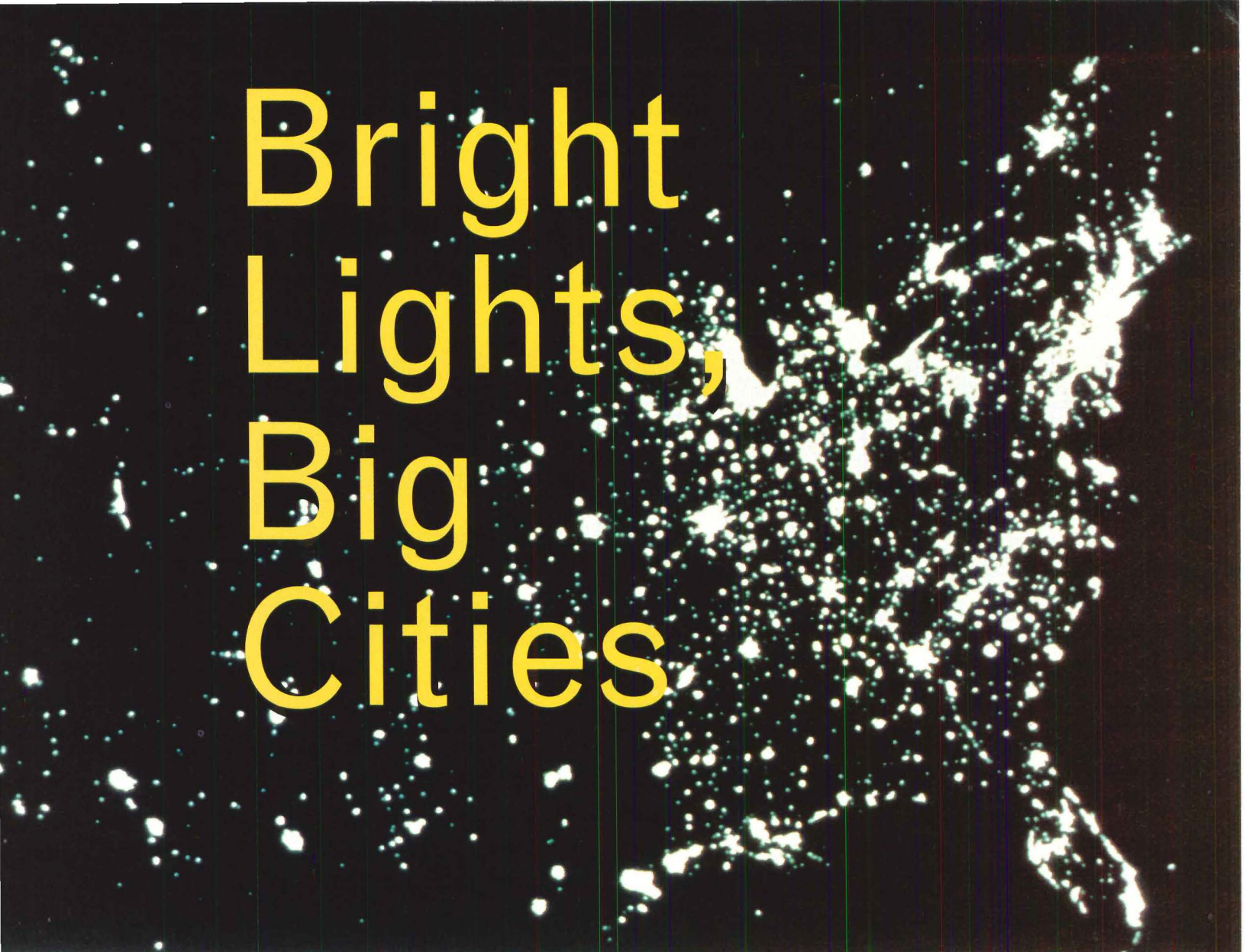
The most common upgrade is converting old T12 lamps and magnetic ballasts to T8 lamps with electronic ballasts. T8 lamps (8-foot lamps) use less current than T12 lamps (12-foot lamps) yet produce the same amount of light. Ballasts provide the initial high-voltage output required for starting gas-discharge light sources in fluorescent lamps and regulate lamp current during operation. Standard electromagnetic ballasts (also called "core and coil" because of their steel core and copper or aluminum coils) require 16 watts to operate two 40-watt T12 lamps (96 watts total). Newer solid state (electronic) ballasts operate the same fixture for a total of 72 watts while losing a minimal amount of light output. They operate at a much higher frequency and reduce the flicker and hum associated with core and coil ballasts.

Specifying more energy-efficient compact fluorescent lights (CFLs) to replace incandescents can result in significant cost savings: Incandescent downlights ranging from 75 watts to 100 watts may be upgraded by installing CFLs that use only 15 to 18 watts each for comparable illumination. However, reducing wattage is only half of the equation when it comes to saving on lighting expenditures. Cutting overall operating hours is the other half. Occupancy sensors, which ensure lights are energized only when occupants are present, are a cost-effective solution in less-frequently used areas, such as conference rooms and restrooms.

Regardless of the methods eventually decided on for saving on lighting energy costs, the first, and perhaps most critical, step in the retrofit process is a thorough analysis of existing lighting. "Before we can specify any lighting product, we take a complete inventory of lamps, ballasts, and fixtures that are in place," says David Williams, president of Dixie Lighting and Electrical in Mobile, Alabama. Williams also takes foot-candle readings to determine whether an area needs more or less illumination, and analyzes traffic patterns to determine which areas are used the most and least. Williams stresses the importance of onsite evaluation. "Buildings have a tendency to be altered from the original blueprints," he says. "Working strictly from blueprints may lead to inaccurate calculations."

ECSC hopes its efforts will motivate building owners and managers to upgrade to more energy-efficient products. This, in turn, will place higher expectations on lighting specifiers to choose carefully among the expanding options that rapidly developing technologies will bring. ■

Jack Klein is a Tampa, Florida-based freelance writer.



Bright Lights, Big Cities

Specifying bad outdoor lighting can waste energy, create glare, keep neighbors awake, and contribute to urban glow that erases the night sky.

By Eric Adams

Nighttime in urban areas is different from nighttime in the country. In New York City, for example, so much light is projected upwards that when you see an airplane flying overhead at night, you actually see the airplane—not just its blinking lights. But it's not the same just a few hours north in rural upstate. There, miles from any urban center, airplanes vanish against a background of stars.

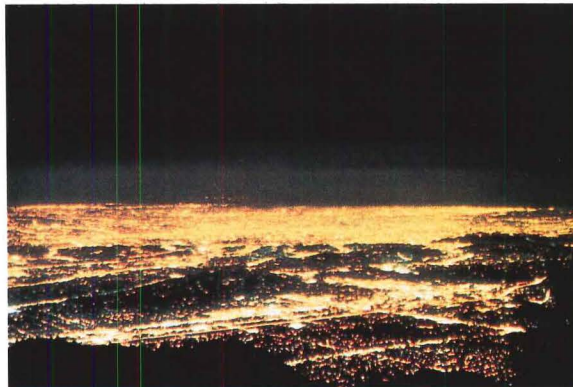
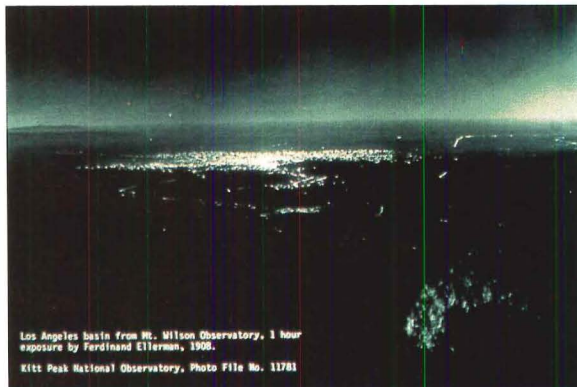
Indeed, light pollution is a largely uncontrolled and, until recently, virtually ignored consequence of 20th-century technology and urban growth. And although New York City may be an extreme example, it does illustrate the cumulative effect—in cities everywhere—of street, parking, security, and architectural lighting that floods the environment with poorly directed, often excessively bright light.

Through little more than the thoughtful selection of outdoor lighting, architectural specifiers can reduce night-

time glare dramatically as well as vastly improve security and low-light vision conditions.

The main culprits in this problem are outdoor fixtures—usually the higher-wattage drop-lens, “cobra head” variety and unshaded wall-mounted units—that shed light in all directions rather than straight down where it is needed. “These fixtures put a lot of light directly up into the sky, causing the urban skyglow,” explains David Crawford, a professional astronomer who founded the International Dark-Sky Association (IDA) in 1987 to combat light pollution by promoting public awareness and establishing lighting recommendations. “It also creates glare for drivers and pedestrians, wastes energy through inefficient light distribution, and generally creates a cluttered and trashy nighttime look.” Finally, he continues, bad lighting creates “light trespass,” the unwanted illumination of neighboring properties, especially residences, and it makes astronomical observations in all

In 1979 satellite image of United States (above), urban centers and national boundaries are clearly visible, indicating degree of misdirected outdoor lighting.

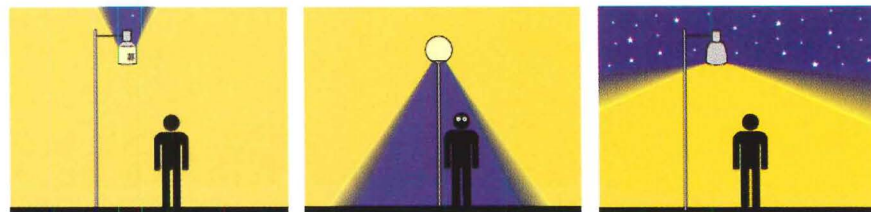


but the most remote locations virtually impossible. (This, not surprisingly, was the original reason for the IDA's formation.)

But Crawford, an astronomer at Kitt Peak Observatory outside Tucson, Arizona, and his organization argue that these problems can be avoided easily if specifiers select fixtures that focus light down, where it is useful. This is usually achieved with full or partial cutoff shading that limits horizontal projection, and in turn permits lower wattage lights to provide the same illumination. The IDA's Web site (www.darksky.org) lists many systems that do this well, including ones manufactured by General Electric, Ruud, McGraw-Edison, Hubbell, and McPhilben. Hubbell even sells an attachment, Sky Cap, that converts standard National Electrical Manufacturers Association head fixtures into non-polluting, full-cutoff lights.

Light pollution combatants also stress that property owners must shut lights off when they aren't needed, and that designers and specifiers should use rational lighting levels and avoid overkill. "The most egregious stuff is roadway lighting, but almost as bad is security lighting and canopy lighting for convenience stores and gas stations," says Mark Schuyler, a Charlottesville, Virginia-based lighting designer. "There's a perception that a lot of light actually helps security. But it's much more difficult to see what is a potentially difficult situation with excessively bright, glary lighting than lighting that is well-directed," Schuyler explains. "And with canopies, the owners all want to be more visible than their competitors, so they install lighting arrays with 88- to 90-foot candles, which is the same amount of light you need on a surgical tray in an operating suite."

Getting people to understand these factors and adopt different standards is the challenge. But the IDA says that different groups have been responsive and often largely



International Dark-Sky Association estimates that United States loses \$2 billion each year from **wasted light**. As Los Angeles grew from 1908 (top left) to 1988 (top right), **light pollution** caused by uncontrolled and unregulated lighting grew exponentially. Unshaded outdoor lighting (above left) directs light horizontally and upwards and bulb lighting (above center) directs it everywhere but downward. Lighting that features full-cutoff shading (above right), however, directs light down and to sides as needed, **reduces glare**, and minimizes light trespass onto neighboring properties.

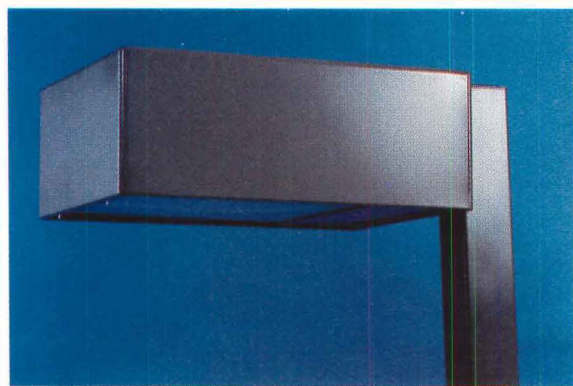
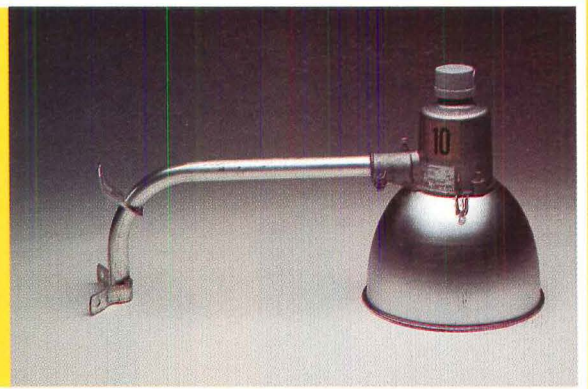
self-motivated: Designers and specifiers appreciate the importance of the changes; manufacturers have been gradually producing more carefully designed fixtures; local governments—from the City of Los Angeles to small towns across the country—are beginning to mandate these fixtures; and building owners are appreciating the bottom-line sensibility of the effort. "The interesting thing about the movement towards cutoff fixtures is that there really are no economic tradeoffs," says Chris Walker, a Reston, Virginia-based commercial property developer who has become a local proponent of low light pollution lighting. "They generally cost less, and the environmental and esthetic benefits are an extra."

The problem still seems monumental—no one expects New York City to dim down considerably any time soon—but as Schuyler points out, if things do improve, it won't be the first time that awareness and action will produce large-scale results: "All you have to do is look at other areas, such as automobile pollution, asbestos, and CFCs," he says. "It's amazing how much can happen in only 10 years." ■

Right Lighting

New products save energy, minimize light pollution. **By Eric Adams**

Cut-off package Hubbell Lighting's Skycap area lighting package employs standard NEMA fixtures and virtually eliminates glare and light trespass. Skycap is available as an aluminum assembly that latches onto standard NEMA fixtures as well as in complete 100-watt, high-pressure sodium, and 175-watt mercury vapor units. Package includes 24-inch arm and photocontrol. *Circle 293 on reader service card.*

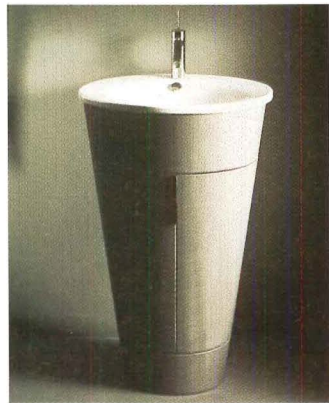


Glare reduction The full-cutoff optics of General Electric's Decashield III Luminaire help minimize glare and light pollution in residential and commercial outdoor applications. The flat heat- and impact-resistant tempered glass lens works with a reflector system that focuses light downward instead of horizontally. Standard IP55 system is available in dark bronze, black, and white. *Circle 294 on reader service card.*

Mercury-free Addressing an often forgotten side of lighting's environmental impact—product disposal—Osram Sylvania introduces new mercury- and lead-free lighting products that minimize environmental pollution. The Ecologic line includes Lumalux, a high-pressure sodium lamp that incorporates lead-free borosilicate glass, newly reformulated chemical ingredients, and ceramic components to eliminate the need for mercury in high-pressure sodium lamps. *Circle 295 on reader service card.*



Better ballast Striving for better lighting that consumes less energy, Advanced Lighting introduces Venture Uni-Form, a 350-watt metal halide system that provides higher lumen output and greater efficiency than other 400-watt systems. When installed with a 277-volt reactor ballast, the lamp saves approximately 80 watts per fixture, or \$128 over the 20,000-hour lamp life. Its high-voltage pulse ignition system improves starting reliability and provides faster hot-restart times. *Circle 296 on reader service card.*



Scale and Structure

CLOCKWISE FROM TOP LEFT: **Better Than a Bucket** German-based Duravit introduces a line of bathroom accessories by Philippe Starck that reflect his philosophy that designs should appear familiar yet new. The sink, reminiscent of Greek amphoras, comprises a round porcelain basin with a barrel-shaped, wood-veneer pedestal that conceals piping. The line includes alternative sink designs, toilets, and bidets. *Circle 297 on information card.* **Good Form** ALU introduces Pylon, a visual merchandising system that is more cost-effective than custom-built units because it features modular components yet has a permanent look. The 30-component collection consists of cabinets, suspended shelves, floor-to-ceiling panels, bars, and lamps with aluminum and wood veneers. *Circle 298 on information card.* **Wired** A strategic partnership between the California companies Mode Office Systems and Unicom Global Systems has created the SMART Panel, flexible information and voice-data connections for office cubicles. A modular system of preinstalled wiring kits rests in the base of a partition, and provides connections for up to eight workstations within a workgroup. The system can be connected by a backbone cable to a larger network group. The SMART Panel reportedly saves as much as one-third of initial cabling costs and up to 75 percent of these costs over the life of the panel. *Circle 299 on information card.* **Glass Mosaic Tile** Italian glass mosaic tile manufacturer Bisazza introduces its newest collection of terrazzo tiles, Logos. Similar to traditional terrazzo, Logos is produced from glass granules embedded within a clear or white resin composite. This preformed tile is thinner and lighter than traditional terrazzo, making it ideal for high-traffic surfaces such as bathrooms and kitchens. Logos can be applied over existing floors and surfaces, and is available in seven sizes and 30 colors. *Circle 300 on information card.*

Compiled by Joelle Byrer

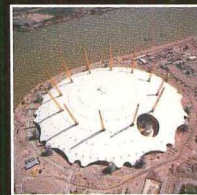
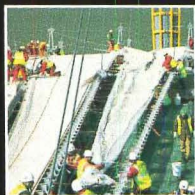


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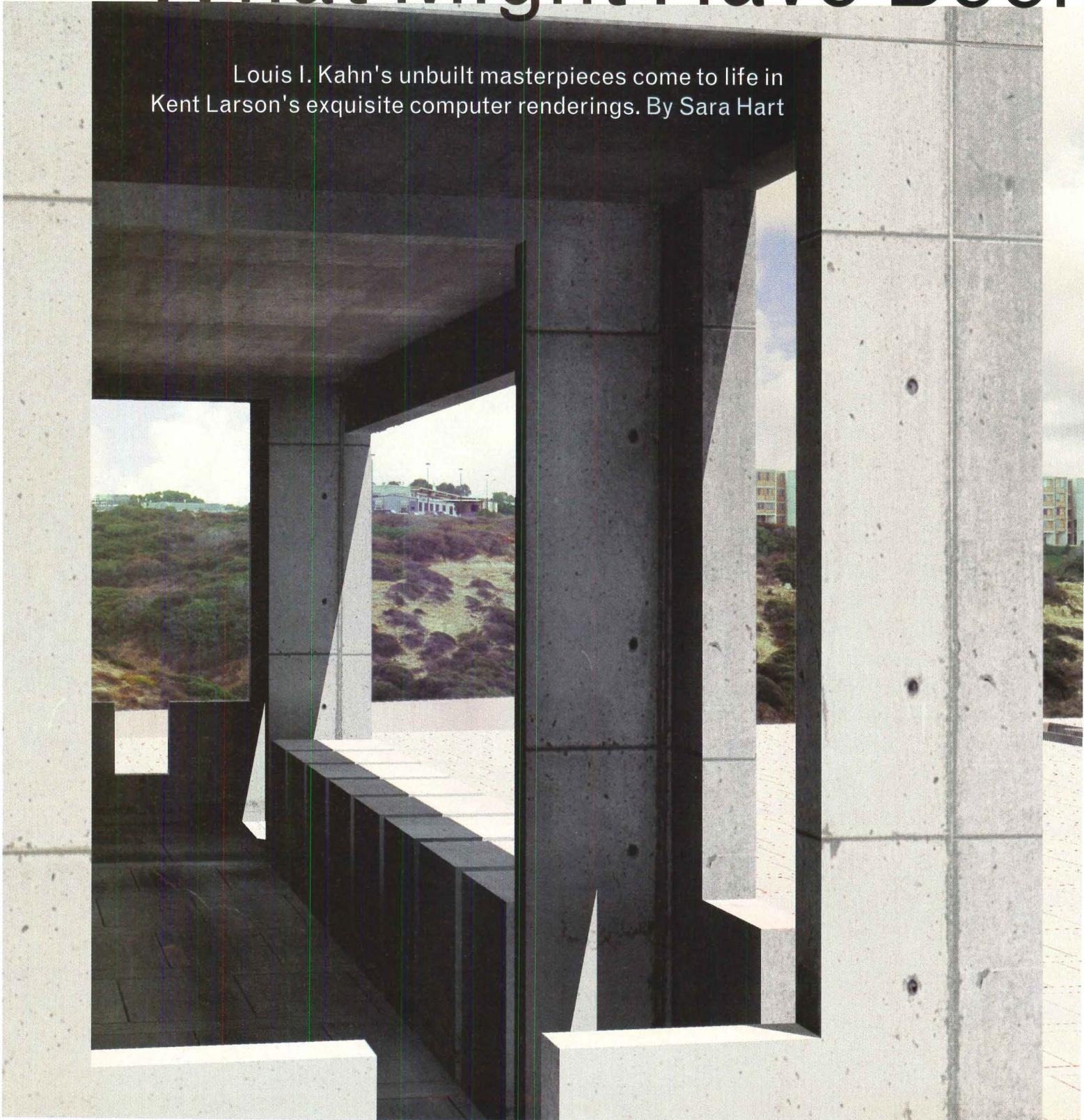


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What Might Have Been

Louis I. Kahn's unbuilt masterpieces come to life in Kent Larson's exquisite computer renderings. By Sara Hart



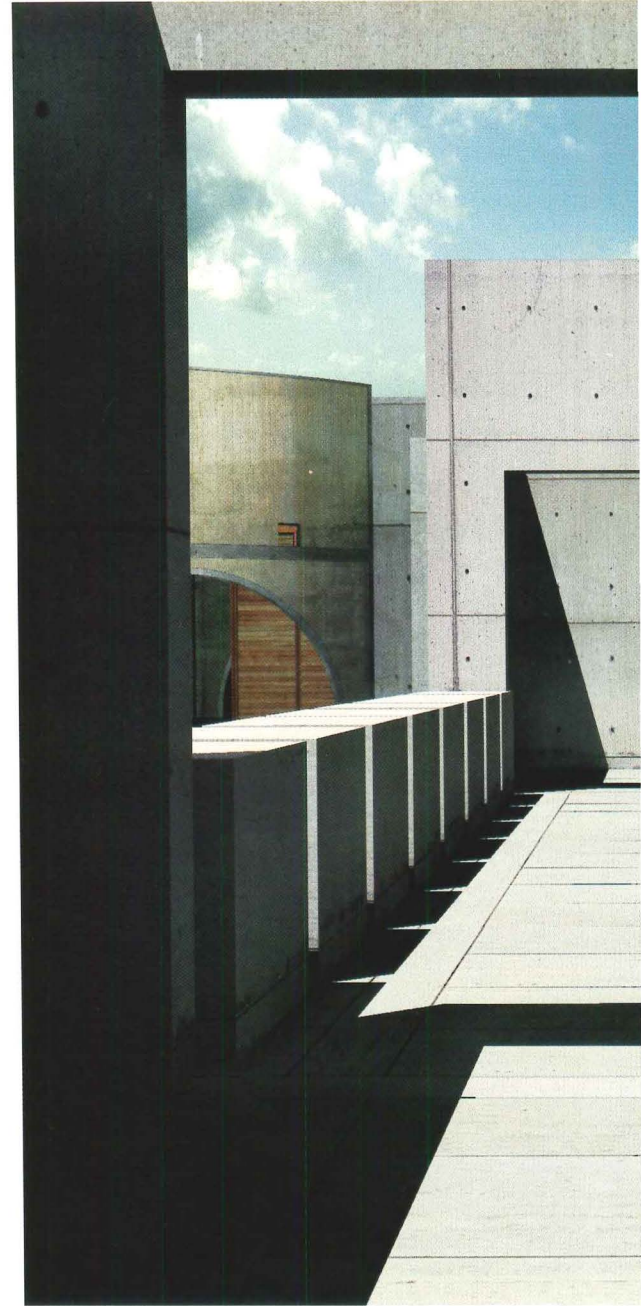
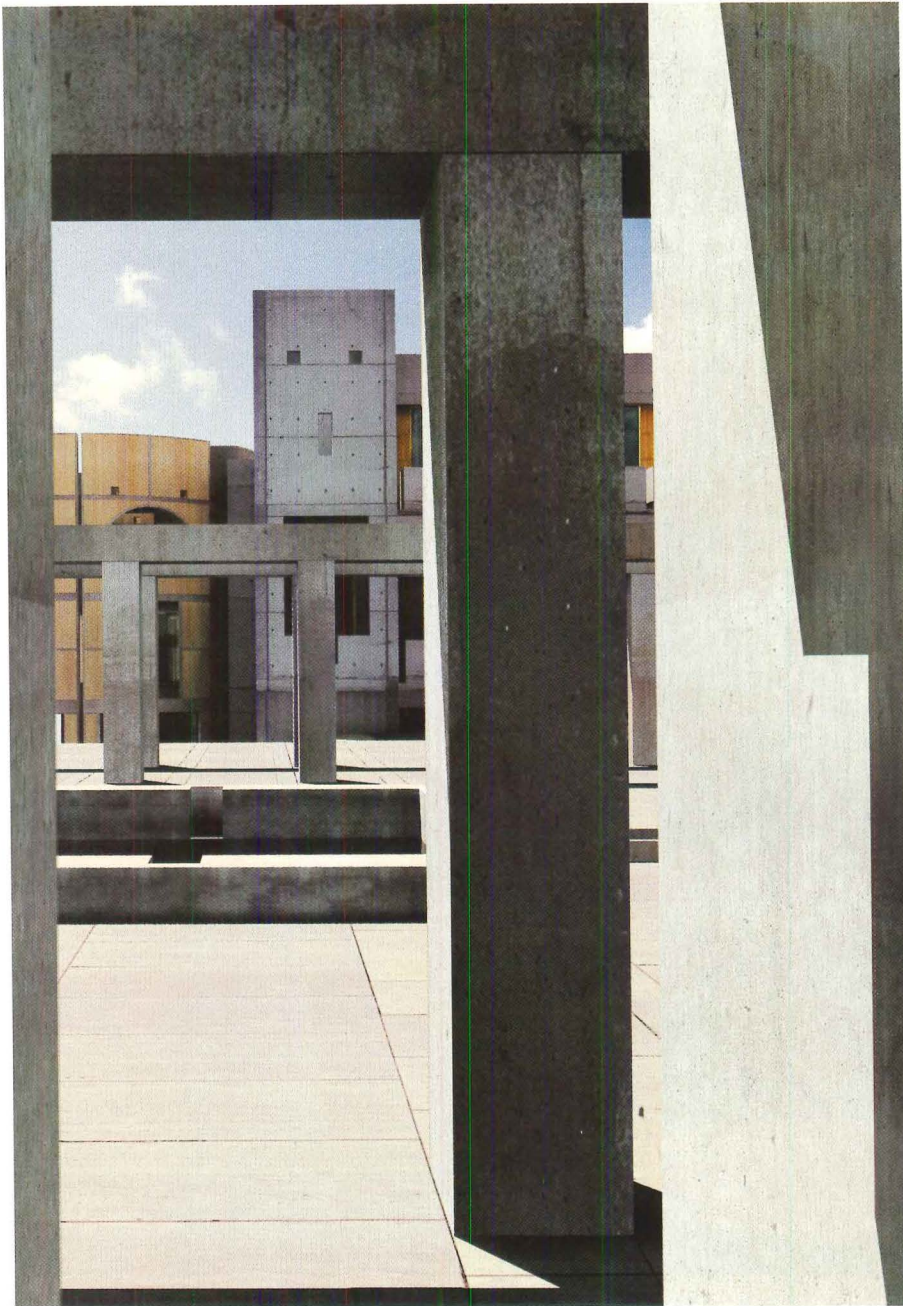


View from lower-level terrace of **virtual residence** (facing page) looks east toward built laboratories. **Northeast view** shows residence and library (above).

Every student of 20th-century architecture has studied the masterpieces of Louis I. Kahn: the Kimbell Art Museum, Phillips Exeter Academy library, Yale Center for British Art and Studies, Salk Institute for Biological Studies laboratory buildings, and several monumental works on the Indian subcontinent. Kahn died in 1974 at the height of his career, leaving several significant commissions unfinished. A vast archive exists of documents related to these projects, including a portfolio of plans, details, and sketches, as well as Kahn's writings, letters to and from clients, and interview transcripts.

Architect Kent Larson, research scientist and director of the Digital Design Lab at the Massachusetts Institute of Technology (MIT), has been on what he calls an archaeological dig into this archive since 1993, immersing himself in the master's design methodology and searching for

clues to what might have been had Kahn lived. Using advanced computer technology, Larson has "built" eight of Kahn's unfinished works in a virtual world of intricately rendered digital models: the U.S. Consulate in Luanda, Angola (1959-61), Philadelphia's Mikveh Israel Synagogue (1961-72), Memorial to Six Million Jewish Martyrs in New York City (1966-72), Palazzo dei Congressi in Venice, Italy (1968-74), three proposals for the Hurva Synagogue in Jerusalem (1967-68, 1969, and 1973), and the Salk Institute for Biological Studies meeting house in La Jolla, California (1959-65). His efforts are gathered in *Louis I. Kahn: Unbuilt Masterworks*, to be published this spring by Monacelli Press. One hundred color plates and eight essays make up the ambitious project, which is anchored with a preface by Kahn scholar and historian Vincent Scully and an afterword by William Mitchell, dean of



MIT's School of Architecture and Planning and professor of Media Arts and Sciences at the Media Lab.

The Salk Institute is one of the most studied and acclaimed examples of modern architecture. Kahn worked to give form to Jonas Salk's vision of an inspiring, humanist sanctuary for artists and scientists. The master plan called for a laboratory, a meeting house, and residences for fellows. Larson's research reveals that both client and architect considered the meeting house to be "the humanist soul of the institute." Although only the celebrated laboratory facility was built, Kahn's sketches and writings reveal a special attachment to the meeting house.

An assiduous investigator, Larson focused his attention only on those parts of the meeting house with the most documentation, which were those spaces closest to

the water: a multipurpose hall surrounded by a library, dining rooms, lecture hall, gymnasium, and apartments. "I spent a lot of time studying the drawings at the archives and reading the correspondence associated with the project," he explains. "The building was not fully designed so there were a lot of fragments of design studies and details." Taking on the objective role of archaeologist, Larson asked himself, "On what do I place a higher value? A freehand sketch by Kahn or what the draftsman actually drew? In most cases, I went with what the draftsman drew because of the way Kahn worked. He discussed issues with the person in charge. Then he'd go on a trip, return, and revise what the draftsman had drawn."

Larson discovered that the meeting house design stopped between schematics and design development.



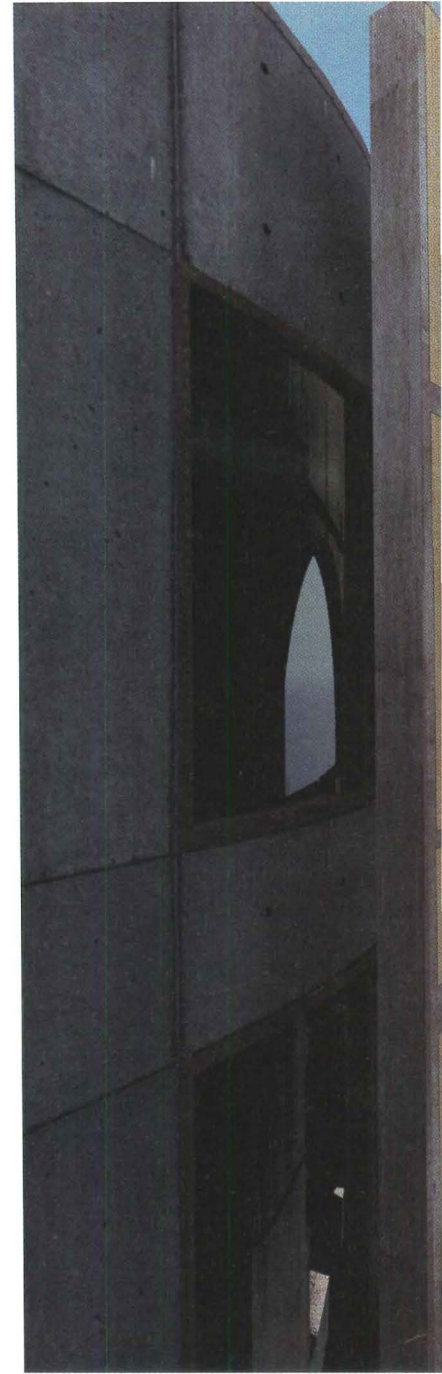
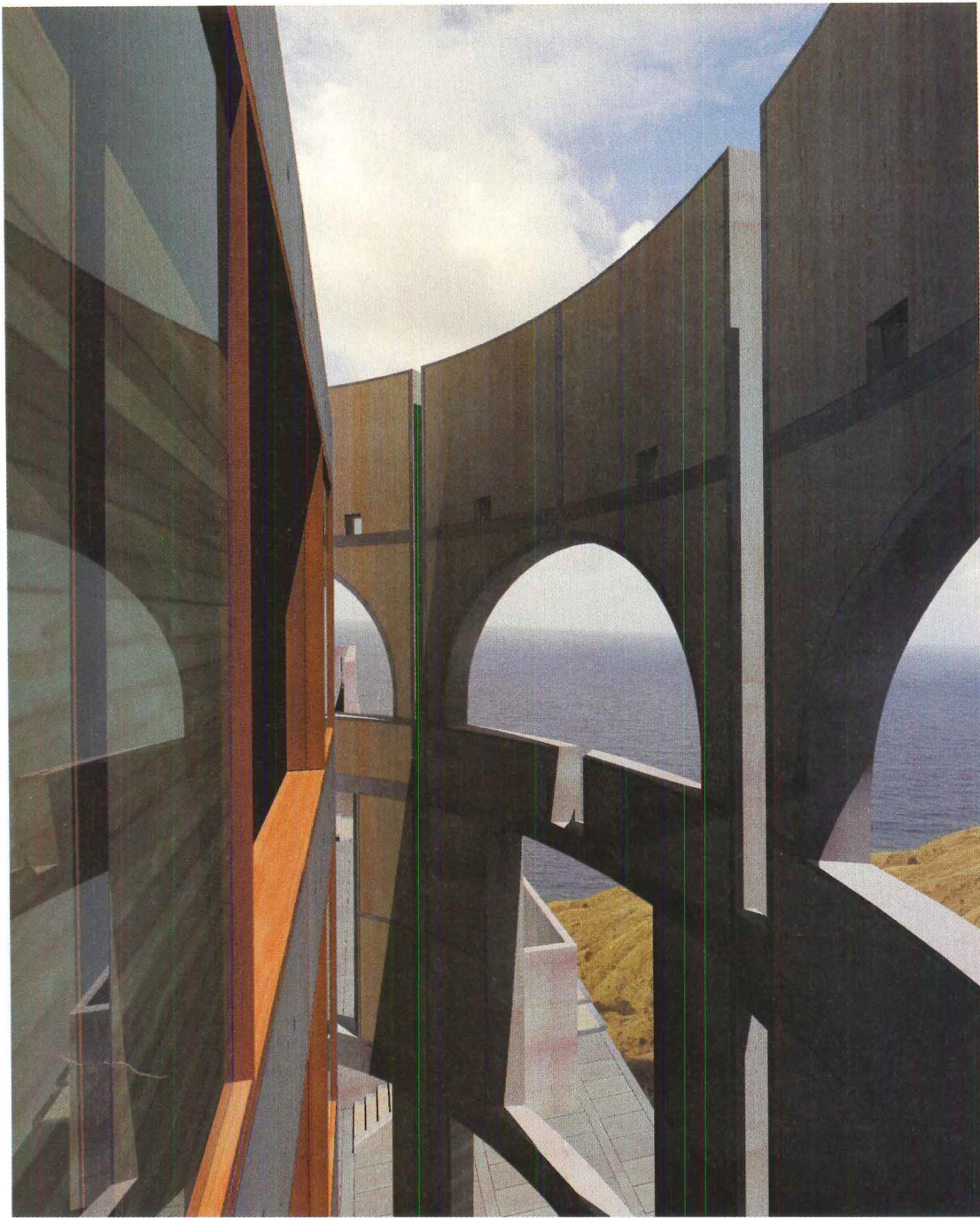
Quiet Fountain (left) sits in foreground of residence and library. **View from residence** (center) looks west toward library. **Upper-level terrace** looks west (right) at residence.

“The documentation is filled with ambiguities, logical inconsistencies, and missing information, as is the case with most projects at this stage,” he admits. “Exterior elevations, for example, do not precisely coincide with wall sections or detail studies.” Having trained as an architect in the graphite era, Larson decided to complete the final design phase for selected portions of the meeting house on paper. “This involved resolving how the structural frame was expressed, developing a system for delineating materials, and detailing the concrete formwork joints and ties,” he explains.

Larson moved to the computer to investigate Kahn’s preoccupation with the mysteries of light and the language of material. He began by photographing the exposed concrete frame and stone infill that make up the

institute’s laboratory complex, then used those images to build photographic montages. From these, Larson created complex two-dimensional texture maps, which he applied to the three-dimensional geometries he created with CAD software. At this point the archaeologist became a digital artisan. William Mitchell explains the complex mechanics of this process in his afterword: “Texture patterns must be correctly scaled and aligned. Curvature distortions must be avoided. Joints must be made seamlessly. Implausible repetitions must not be allowed. Getting all this exactly right requires a close knowledge of actual materials, fabrication processes, and construction practices.”

Although Larson could capture and reproduce surface treatments in a realistic manner, the other essential ele-



View outside library window (left) looks southwest over **Pacific Ocean**. View from dining room (right) looks northwest past **reflecting pool** on terrace.

ment of Kahn's material palette—natural light—proved more daunting. Ever shifting, refracting, and reflecting, this ethereal ingredient gave Kahn's spaces their mystical quality. No visual representation of the work could be valid without both an intellectual grasp of his intentions and the sophisticated tools to explore them. "I tried to understand what Kahn did with light in those in-between spaces that he used to moderate glare, that very soft light that bounces around," Larson explains. Today, complex computational tools exist—ray-tracing and radiosity, for example (see sidebar, facing page)—to simulate the behavior of light in dramatic, photo-realistic ways. Larson realized, though, that verisimilitude depends on a realistic view-

point and believable environmental conditions as much as it does sophisticated software. He became an architectural photographer, "walking around a building, looking for those views that really capture the building." Larson took this judicial selection process a step further. In his modeling, he carefully sited the meeting house where Kahn's site plans show it. "All the images you see beyond the building are real photographs taken precisely where the meeting house would have been built," he insists.

But no matter how much information exists about the meeting house, its design is incomplete. Unforeseen material inadequacies or structural difficulties that Kahn would have resolved in the field and would have altered



Archaeology of the Unbuilt: The Process of Creating the Salk Institute for Biological Studies Meeting House

Kent Larson began studying the archival documents contained in the Kahn Collection at the Architectural Archives of the University of Pennsylvania. After resolving the incomplete design for the building portions to be visualized, Larson crafted three-dimensional digital stage sets using both Arris by Sigma Design and FormZ by auto-des-sys. Simultaneously, he created a separate high-resolution texture montage for each unique building plane from digital photographs of the Salk laboratories, Phillips Exeter library, and the Yale Center for British Art and Studies.

Essential to the interpretation of unbuilt architecture—particularly a building by Louis Kahn—is the physically accurate treatment of light. To capture complex interreflections of ambient light at the Salk meeting house, Larson developed a global illumination solution rediosity for each position of the sun using Light from Discreet Logic; he studied other unbuilt works using Radiance and software by Integra Visual Computing. As in the real world, when simulated sunlight strikes a surface of Larson’s model, it scatters in directions determined by its position in space, the angle of incidence of the rays, and the texture of the surface it strikes. This diffused light continues to bounce from surface to surface until the energy becomes negligible. Shadows become softer and more luminous as diffuse interreflections fill in darkness. Surfaces that receive no direct light are brightest when they are adjacent to those that do. This involves dividing each surface of the model into a fine mesh and calculating the illumination value for each of the mesh vertices after thousands of iterations.

In the final stage, he created a photographic essay by capturing the building’s key moments. This was analogous to an architectural photographer dragging a view camera around a site, except that many more variables can be manipulated: Sun position can be revised; inconvenient obstacles can be removed; very fine adjustments in exposure, latitude, and contrast can be made; and illumination effects can be artificially enhanced. Each view undergoes ray-tracing to provide ambient lighting effects for surfaces that don’t receive direct light. In this step, each ray of light is traced from the eye through a pixel in the view plane and intersects with three-dimensional objects to correctly render textures, calculate refraction, simulate specularly, and resolve the edges of direct sunlight rays. This process is repeated for each pixel.

the building’s final outcome will remain unknown. Mitchell warns in his afterword that a scholarly, dispassionate investigation can deduce only what is plausible and probable from the myriad of infinite possibilities.

What, then, is the point of such arduous exercises? Larson, who readily admits his speculations may indeed “fall short of Kahn’s ideal,” believes that the architect’s evolving ideas deserve a richer understanding than that provided by archival materials alone. Further, Larson pioneers a new use for advanced computer technology in architectural research. “In Kahn’s day, computers could not do anything for architects that Kahn found at all useful. With great difficulty, they could make simple draw-

ings more easily created by hand, or they could do the kind of detailed programmatic analysis that Kahn found irrelevant,” speculates Larson. “I imagine that Kahn would have appreciated any tool that would have helped him predict the complex play of light and materials in space, but I doubt that computation would have changed his built work in any significant way.” ■

Kent Larson’s research was made possible by grants from the Graham Foundation for Advanced Studies in the Fine Arts and support from Intel’s Technology for Education 2000 program, Silicon Graphics, Lightscape, Adobe, and LVT. Daniel J. Brick assisted in the modeling.

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Boston	137.30	136.79	103.92	103.75	122.24	118.89
Chicago	130.47	129.87	98.76	97.16	116.17	110.97
Dallas	102.00	101.49	77.21	75.99	90.82	86.95
Kansas City	114.12	111.95	86.38	83.81	101.61	95.78
Los Angeles	130.52	130.31	98.49	98.29	115.85	112.77
New York City	157.53	157.29	119.64	118.89	140.26	136.15
Phoenix	106.12	105.26	80.32	79.81	94.48	91.59
St. Louis	120.83	119.90	91.45	89.87	107.58	102.78
San Francisco	146.12	145.84	110.60	109.99	130.10	126.20
Seattle	123.76	123.59	93.15	92.48	109.57	106.03
Washington, D.C.	112.94	111.98	85.49	83.90	100.56	96.88

Each month Architecture takes a snapshot of U.S. construction – looking at average costs and upcoming projects for different building types. News on projects is provided by Construction Market Data and cost information by R.S. Means – both CMD Group companies.

NOTE: Cost comparisons shown here are for the basic building without site work, development, land, specialty finishes or equipment. Actual square foot costs vary significantly from project to project based on quality, complexity and local economy.

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UPCOMING PROJECTS

Hot Springs Country Club

Location: Country Club Drive, Hot Springs, Garland County, AR

Project Value: \$4.5 million

Size: 1 floor above grade, 2 structures

Contract Type: Negotiated

Current Project Stage: Planning; Working Drawings

Status: Working Drawings 75% Complete; GC to Take Subbids 02/99

Owner's Representative & Architect: David French Architects; David French; 801 Central Avenue, Suite 33; Hot Springs, AR 71901
Phone: 501.623.6604; **Fax:** 501.623.8524

Blue Ridge Country Club Clubhouse

Location: Fireline Road; Towamensing Township, Carbon County, PA

Project Value: \$3 million

Size: 24,000 sq ft, 2 floors above grade, 1 structure

Contract Type: Negotiated

Current Project Stage: Planning; Design Development

Status: Design Development in Progress; CM to Take Subbid 01/99

Project Scope: New Clubhouse with Club & Bar, Pro Shop, Locker Rooms, Storage and Banquet Facility

Owner: Blue Ridge Country Club; Terry Steinmetz; 2230 Fireline Road; Lower Towamensing Township; Palmerton, PA 18071

Phone: 610.826.7051; **Fax:** 610.826.7050

Architect: Breslin Ridyard Fadero; Michael Bell; 1226 Union Boulevard; Allentown, PA 18103

Phone: 610.437.9626 **Fax:** 610.437.4769

Saint Julien Partners New Hotel

Location: Boulder, Boulder County, CO

Project Value: \$30 million

Size: 140,000 sq ft, 4 floors above grade, 2 floors below grade, 1 structure, 670 parking spaces

Contract Type: Invited Bidders

Current Project Stage: Planning; Architect Selection Underway

Status: Architect Selection Underway

Project Scope: Restaurant, Swimming Pool, Fitness Center, Laundry Facility, Below Grade Parking Garage

Owner: St. Julien Partners; Bruce Porcelli; 1401 Pearl Street, Suite 200; Boulder, CO 80302

Phone: 303.545.0205; **Fax:** 303.413.5183

Vineyards Casino

Location: Warm Springs Road & Gibson, Henderson, Clark County, NV

Project Value: \$70 million

Size: 7 floors above grade, 8 structures

Contract Type: Negotiated

Current Project Stage: Planning; Design Development

Status: Design Development in Progress; Subbids Schedule Not Set

Project Scope: Themed Restaurant, Hotel, 2 Casinos, Office Tower, Gaming Complex

Developer: The Dunn Company; Denise Pullen; 128 Sunset Way, Suite 218; Henderson, NV 89014

Phone: 702.458.6579

Architect: WLB Group; 2551 N Green Valley Parkway, Suite A; Henderson, NV 89014

Phone: 702.458.2551; **Fax:** 702.434.0491

Franciscan University Science Building

Location: University Boulevard, Steubenville, Jefferson County, OH

Project Value: \$4 - \$4.5 million

Size: 40,000 sq ft, 4 floors above grade, 1 structure

Contract Type: Invited Bidders

Current Project Stage: Planning; Preliminary Plans

Status: Preliminary Plans in Progress; Bid Schedule Not Set

Project Scope: Classrooms, Laboratories for Biology, Chemistry, Engineering Science, Math and Computer Science

Owner: Franciscan University; Joe McGum; Franciscan Way; Steubenville, OH 43952

Phone: 740.283.6278

Architect: MacLachlan Cornelius & Filoney; Albert Filone; 200 Bank Tower; Pittsburgh, PA 15222

Phone: 412.281.6568; **Fax:** 412.288.2439

Auburn University Science Lab Ceneter

Location: Auburn, Lee County, AL

Project Value: \$19.5 million

Size: 115,000 sq ft, 1 structure

Contract Type: Open Bidding

Current Project Stage: Planning; Architect Selection Underway

Status: Architect Selection Underway

Owner: Auburn University Facilities; Gregory Parsons; Samford Avenue, Division One; Auburn University, AL 36849

Phone: 334.844.9450; **Fax:** 334.844.9458

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Color can enlighten societies,
and turn pessimists into optimists.
By Andrei Codrescu

Empires and Sausages

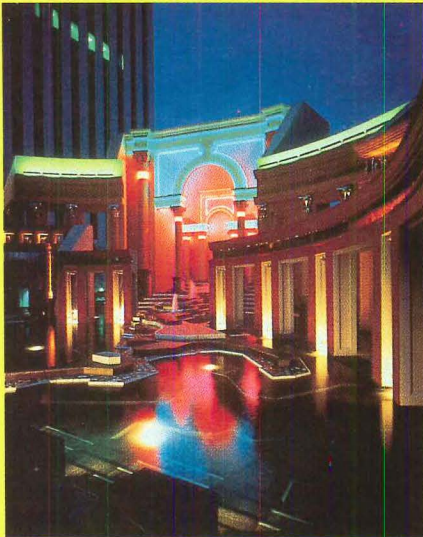
I grew up in a fortified medieval town, a dense jumble of high-gated, thick-walled houses crowded around a square used for hangings, witch-burnings, and, in my day, huge demonstrations honoring pudgy dictators. The mightiest civic edifice was Baron von Bruckenthal's 17th-century baronial manse, filled with Flemish paintings. The baron's house was decidedly less gloomy than my own 15th-century house, for the simple reason that two centuries later the Austro-Hungarian Empire was secure, and the baron, a product of the Enlightenment, allowed both air and space into his palace. Nonetheless, by the time of my adolescence, the crud of ages had accrued on the baron's paintings and dampness had eaten whatever exterior color there may have been, and I grew up pessimistic. Imagine my surprise when I returned two years ago and found the dark Flemish landscapes and forlorn burghers of Von Eyck and Rembrandt looking like comic book illustrations. I had built my entire life orientation on a mistaken premise. I could have been an optimist!

I did become an optimist later in America, a country where the necessity to defend cities from Turks and other invaders was considerably less important. For that reason, I have developed a distinct

preference for playful and open buildings, as opposed to scary, monumental, self-important, and official ones. Even though America itself needs no fortifications, most corporate and official buildings are still founded on intimidation and defensiveness. Particularly egregious to me are structures like the Federal Building in Baltimore, an architectural reflection of the Nixon-Mitchell era, when (imaginary) terrorists could be found hiding in every bush.

On the other hand, I am fond of colorful and relaxed toy boxes like Charles W. Moore's Piazza d'Italia in New Orleans, which has been allowed to fall into awful neglect. The few mentions the Piazza merits in local architectural books refer to it as a "grand folly," and it's precisely that that makes its whimsical fountains, warped classical columns, and terraces a lovely place to feel innocent. Moore himself described it in 1981 as "Italian, with a Delicatessen Order that we thought could resemble sausages hanging in a shop window, thus illustrating its transalpine location." Now, that definitely assures me that the Turks are not coming.

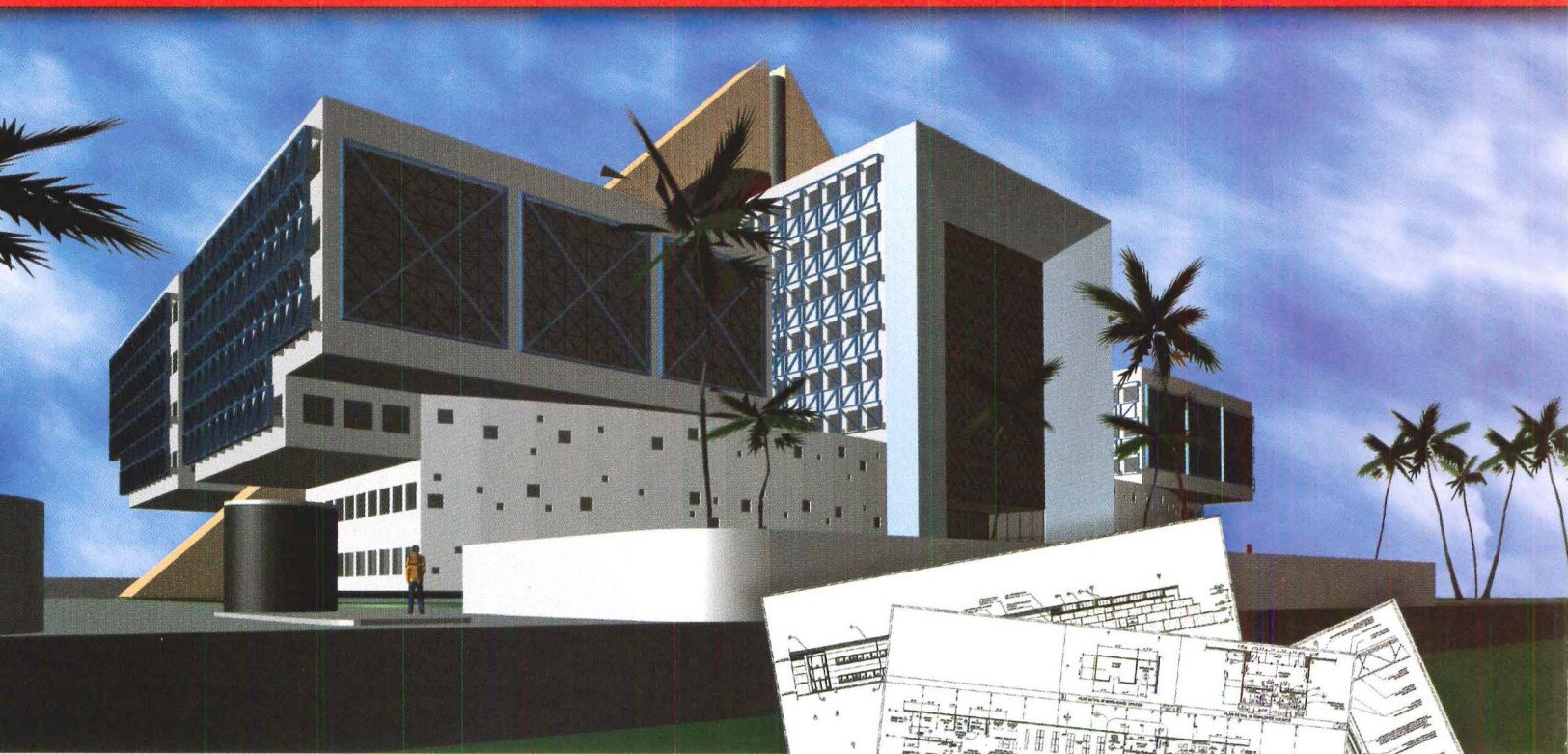
Where Moore could make an urban splotch of color, other places intended for the enjoyment of the masses, like the Getty Center in Los Angeles, scare the bejesus out of me. The Getty is a hilltop fortress just begging to be stormed, notwithstanding the flowered courtyards and open walkways within. Architect Richard Meier made an earnest effort to escape the pure white buildings for which he is known, so there are hints of color in the beige panels and the cleft travertine, but the overwhelming feeling is still that of a high temple crossed with a spanking-clean German pharmaceutical company. Empires are neither playful nor colorful, and neither are bureaucracies. When spots of color appear in history, like the unbegrimed Renaissance that surprises us today or Moore's "folly," we ought to doff our dunce caps. ■



Charles W. Moore's Piazza d'Italia brings a toylike innocence to the architecture of New Orleans.

NORMAN MCGRATH / ESTO

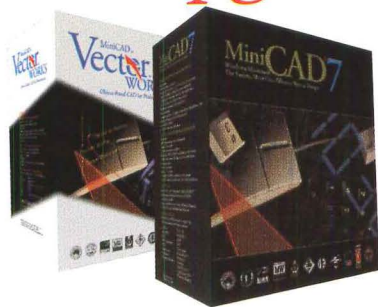
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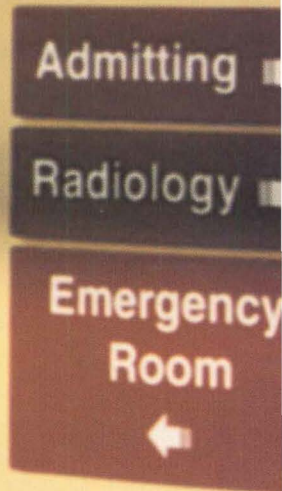
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