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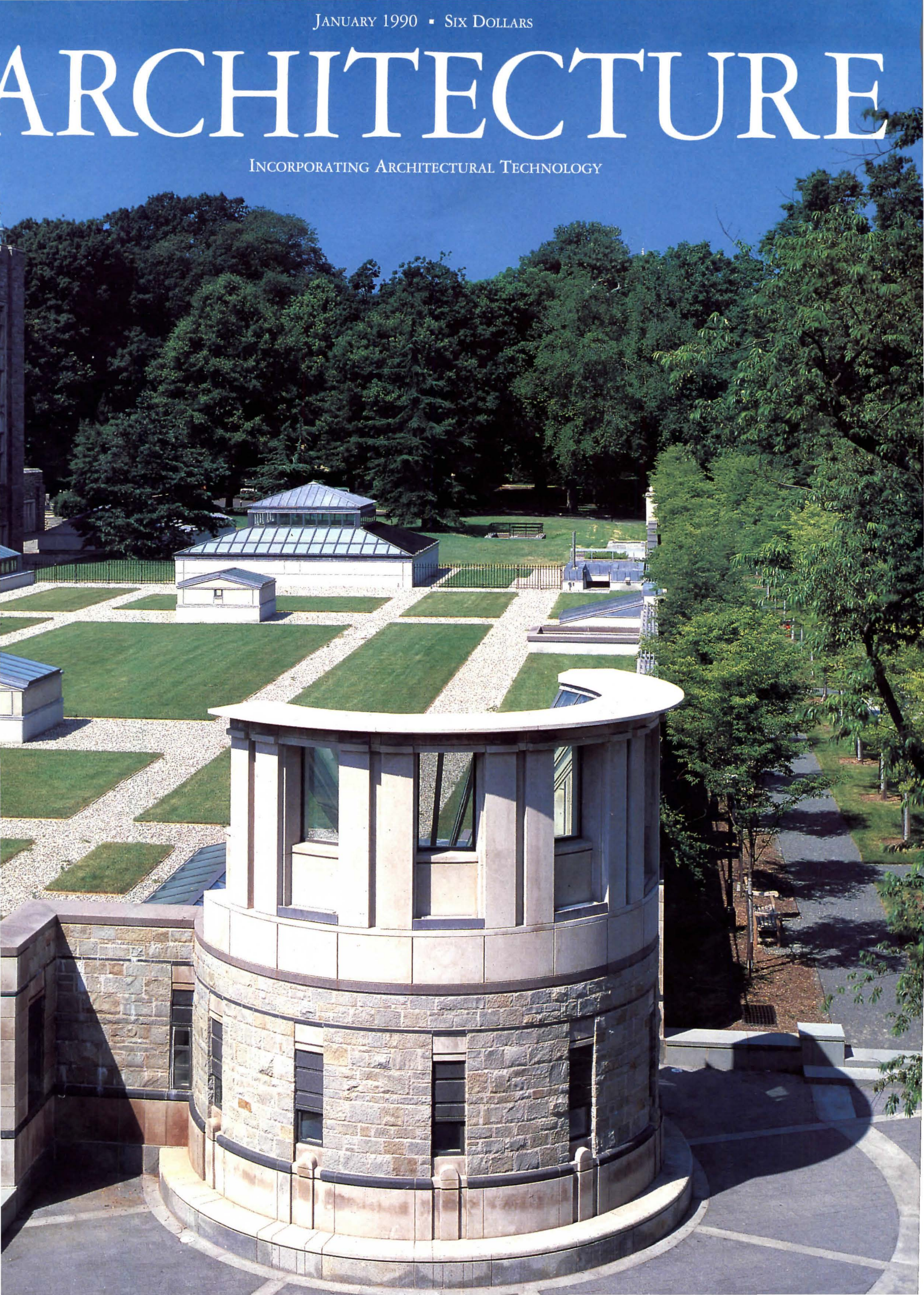

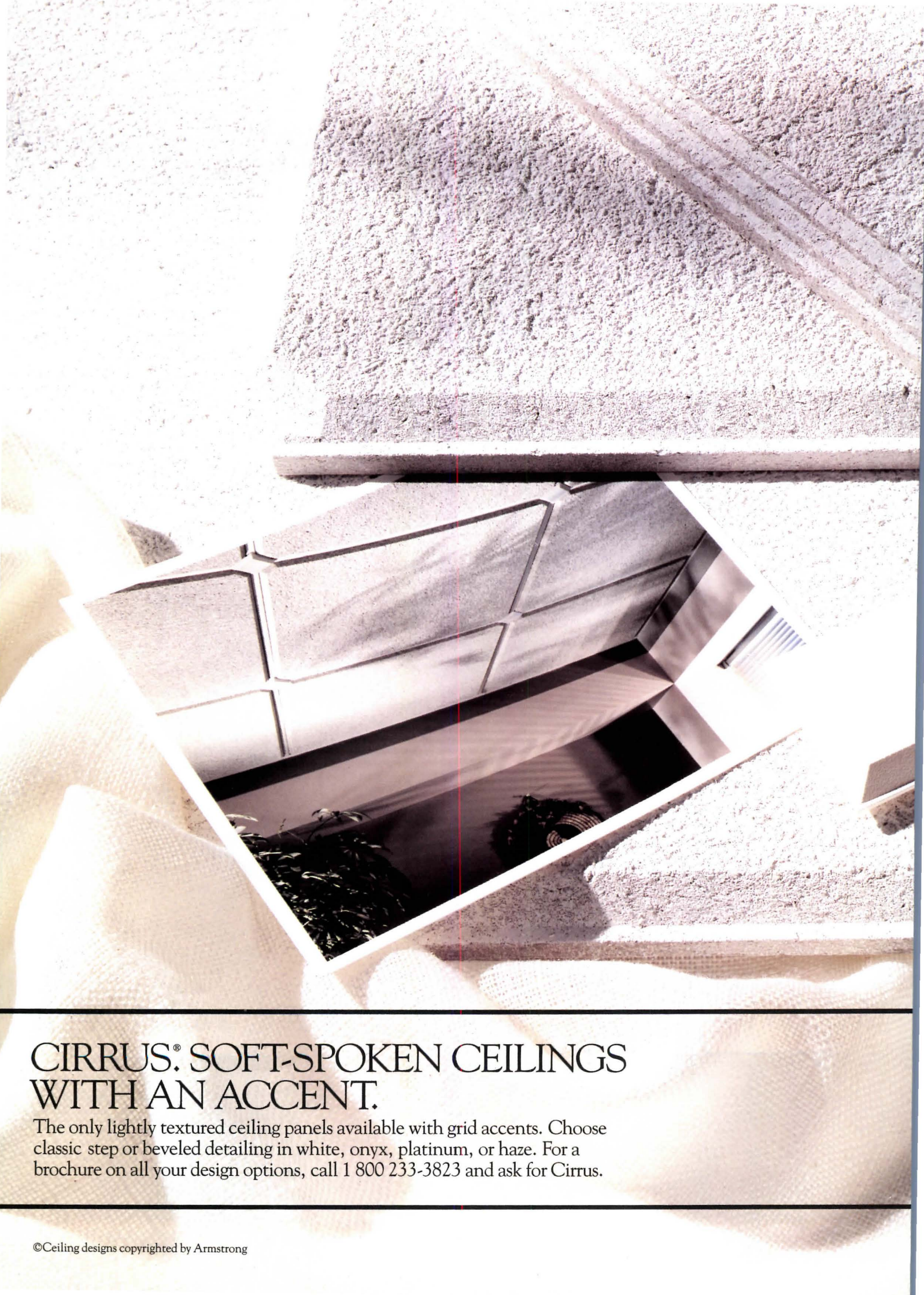

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LETTERS & EVENTS

Jan. 13-April 8: Exhibition of original Frank Lloyd Wright drawings on loan from the FLW Archives at Taliesin West. Phoenix Art Museum, 1625 N. Central Ave., Phoenix, Ariz. 85004, (602)257-1222

Jan. 17-March 7: Eight-session course, "Architecture and Design—Toward More Enlightened Environments," Washington, D.C. Cosponsored by ARCHITECTURE magazine with Beverly Russell, coordinator/moderator. Contact: The Smithsonian Institution, Washington, D.C., (202)357-3030.

Feb. 1-2: Workshop on Land Use Law for Planners and Lawyers, Salt Lake City. Contact:American Inst. of Certified Planners, 1313 E. 60th St., Chicago, Ill. 60637.

Feb. 1-March 15: Exhibition, "New Schools for New York," a design study project for small public schools, evaluated by a committee of architects and designers. New York City. Sponsored by the Architectural League of New York and Public Education Association. Contact: Anne Rieselbach, the Architectural League of New York, 457 Madison Ave., New York, N.Y. 10022.

Feb. 2-4: Symposium, "The Role of the Architect in Historic Preservation: Past, Present, and Future," sponsored by the AIA Committee on Historic Resources. Washington, D.C. Contact: Bruce Kriviskey, AIA, (202) 626-7452.

Feb. 5-9: Course on Construction Management Techniques and Procedures. Madison, Wisc. Contact: Philip M. Bennett, Dept. of Engineering Professional Development, University of Wisconsin-Madison, 432 N. Lake St., Madison, Wis. 53706.

Feb. 17: Deadline call for entry. Ninth Annual Young Architects Competition 1990, "Out of Site," sponsored by the Architectural League of New York. Open to architects, designers, and planners out of school 10 years or less; students not eligible. Contact: Anne Rieselbach, the Architectural League of New York, 457 Madison Ave., New York, N.Y. 10022.

Feb. 22: Deadline call for entry. Postcard Competition, sponsored by Architects, Designers, and Planners for Social Responsibility/New York Contact: ADPSR/NY, 225 Lafayette Pl., New York, N.Y. 10012, (212) 334-8104.

Fallingwater Article All Washed Up

In a publication such as ARCHITECTURE, I feel there is an obligation on the editor to at least review articles for some degree of validity before printing takes place. Even the title ("Fixing Fallingwater's Flaws") is a blatant attempt at Wright-bashing, as are several of the items in the text. Almost every dreamed-up story of roof leaks is repeated or implied, and to state that sag in the cantilevers was "exacerbated by the fact that the main floor beams were overloaded with extra-heavy reinforcing rods" is ludicrous.

With the lack of continuous and adequate upkeep on the home, there are, of course, some instances of water damage and some trellis damage from falling trees (not trellis "failure" as [the author] states). Also I wonder about her research before writing the article, for example, Edgar Kaufmann Jr., statements in his writing on the house telling of the flooding stream flowing through the living room (12 to 15 feet up on the building) while heavy log scaffolding was hanging from the ends of the cantilevers and being swung about by the flood with no cantilever damage!

Robert C. Douglas, Emeritus AIA
Portland, Ore.

Times Square Opposition

The scheme by John Burgee Architects (with Philip Johnson as design consultant) that "Attempts to Capture Times Square Vitality" (News, October 1989), is an embarrassment to the practice of architecture and has no business being presented as such.

Mr. Johnson has had undeniable influence on the perception of architecture and modern art. Through his patronage of the MoMA and of America's best painters of the last several generations, his influence has been extremely valuable.

In terms of architecture, however, it is essential to defuse the often misguided and overweening influence that he has brought upon the profession for decades. Ever since he and Henry-Russell Hitchcock imported modern European architecture as an "International Style," a formalistic perception of modern work has driven much of the public's (and the boardroom's) perception of what architecture is all about.

The original proposal for Times Square is a classic example of how trite high-rise design has become in this country. Wallpaper at best, the vacuous and histrionic "historicism" of the scheme add insult to the true injury of the scale of this project and its suffocating impact in the current bludgeoning "hotelization" of Times Square.

Now we are given a new "new modern" proposal, which is a pathetic pastiche and a serious insult to all architects who believe that there is any meaning in what we do. In particular, it denigrates deconstructivists: having given them this moniker as co-curator of a recent MOMA show, Johnson/Burgee now ape their forms in this latest pattern of wallpaper-as-architecture. "I'm told this represents a broad new chapter in 20th-century architecture," says Ed Koch helplessly. Why do we continue to tolerate—from one of our profession's most conspicuous "practitioners"—the masquerade of facadism as responsive, responsible architecture? Mr. Johnson, it is time to look in the mirror and put your clothes on.

As for ARCHITECTURE, I realize that it has a journalistic responsibility to present the "news." I think that the article did a good job of presenting an impartial point of view and even opened up the question of propriety. Somehow, on this one, I question if this is even enough. Please provide us more information on the project.

Robert Luchetti
Robert Luchetti Associates Inc.
Cambridge, Mass.

Corrections

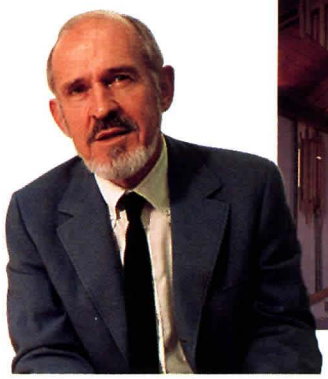
The design for the interior and exterior for the Fabulous Fifties Cafe (May 1989), along with the associated graphics, signage, logo, and menu, were by the Dunlavey Studio Inc., Michael Dunlavey heading the project. Architect of record on the project was Niiya, Calpo, Hom, Dong Inc.

The project architects for the Performing Arts Center at Cornell University in Ithaca, New York, were James Stirling, Michael Wilford and Associates in London in association with Wank Adams Slavin Associates Architects and Engineers in New York City. The building's design as developed by Stirling, Wilford and Associates was translated into contract documents by Wank Adams Slavin Associates. The responsibility for monitoring the contractor's work was shared by both firms.

NEWS

GOLD MEDAL ▪ MEMORIALS ▪ SOVIET ARCHITECTURE ▪ HOUSING ▪ KAHN CONTROVERSY ▪ ON THE BOARDS

Gold medalist Fay Jones (below) and his recently completed Worship Center (right) near Thorncrown Chapel.



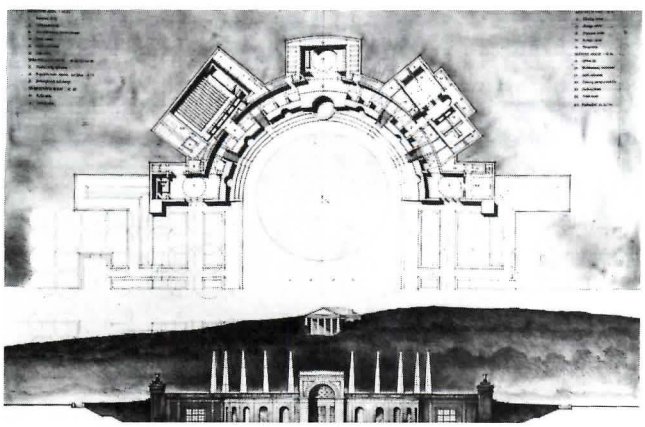
E. Fay Jones Presented Institute's Highest Honor

THE AIA HAS AWARDED THIS YEAR'S gold medal to Euine Fay Jones, FAIA, of Fayetteville, Arkansas, who is known for skillfully crafted houses and serene chapels integrated into the landscape. Practicing in the foothills of the Ozark mountains, Jones draws from vernacular traditions without relying on regional clichés to create elegantly simple buildings. In the nomination, architect Vernon Reed, director of the AIA's central states region, said of Jones, "His buildings epitomize an ability to order every element and material into a magical web in which functional, technical, and esthetic solutions intertwine into a single brilliant work of art."

Born in 1921, Jones attended the University of Arkansas before serving in the Navy during the war. He returned to Arkansas to join the inaugural class at a new architecture department, graduating in 1950. A year later, he received his master's degree from Rice University. After a brief but influential apprenticeship under Frank Lloyd Wright in 1953, Jones founded his office in Fayetteville and joined the faculty at University of Arkansas, where he taught for 35 years and served briefly as dean.

Beginning with his own house in 1955, Jones found residential projects the perfect outlet for his personal views about design. Many of his buildings owe a debt to the Wrightian tradition, but each is remarkably faithful to Jones's enduring vision, rather than a current design fashion. While Thorncrown Chapel introduced much of the world to the work of Jones, as the awards commendation stated, "That magnificent jewel in the woods is but one of many in a long sequence of buildings that express a pure architectural thought." ■

–LYNN NESMITH



A winner has been selected in the design competition for a memorial to commemorate women in military service. Crowned by 39 ft.-high skylights, the controversial design might be met with resistance in Washington, D.C.'s strict design approval process (see page 28).

AIA BRIEFS

For those clients who don't understand the intricacies of architecture, send them to Washington, D.C. next month for an education. "Accent on Architecture," a four-day event sponsored by the AIA, is geared towards raising the public's consciousness to the values of architecture. "Accent" will open in royal style, with Britain's Prince Charles delivering the keynote address during a gala presentation on February 22. The presentation includes a reception and dinner honoring the receipients of three prestigious AIA awards —the Twenty-Five Year Award, Honor Award, and the Gold Medal. Grassroots '90, the Institute's annual leadership training conference for local component members, will be held in conjunction with "Accent," Feb. 18-21.

AIA's Search for Shelter community assistance program, founded in 1986, has grown into a national effort to design, fund, and build shelters for the country's homeless. Now it is getting a boost from Hurd Millwork Company. Hurd's "Window of Hope" program will donate, for one year, fifty cents for every wood window and patio door specified from the company when reported by AIA-member architects.

Christopher Arnold, AIA, has been appointed by the Governor of California to a board investigating the collapse of the Cypress Section of the I-880 viaduct and the Bay Bridge that was damaged during the Oct. 17 San Francisco earthquake. Arnold, President of Building Systems Development in San Mateo, has been involved in research on architectural aspects of earthquake problems for over a decade.

The Minnesota Society of Architects awarded its 1989 Twenty-Five Year Award in November to Leonard Parker Associates, Architects of Minneapolis, for the 1964 design of the Jewish Community Center located in St. Paul, Minnesota.

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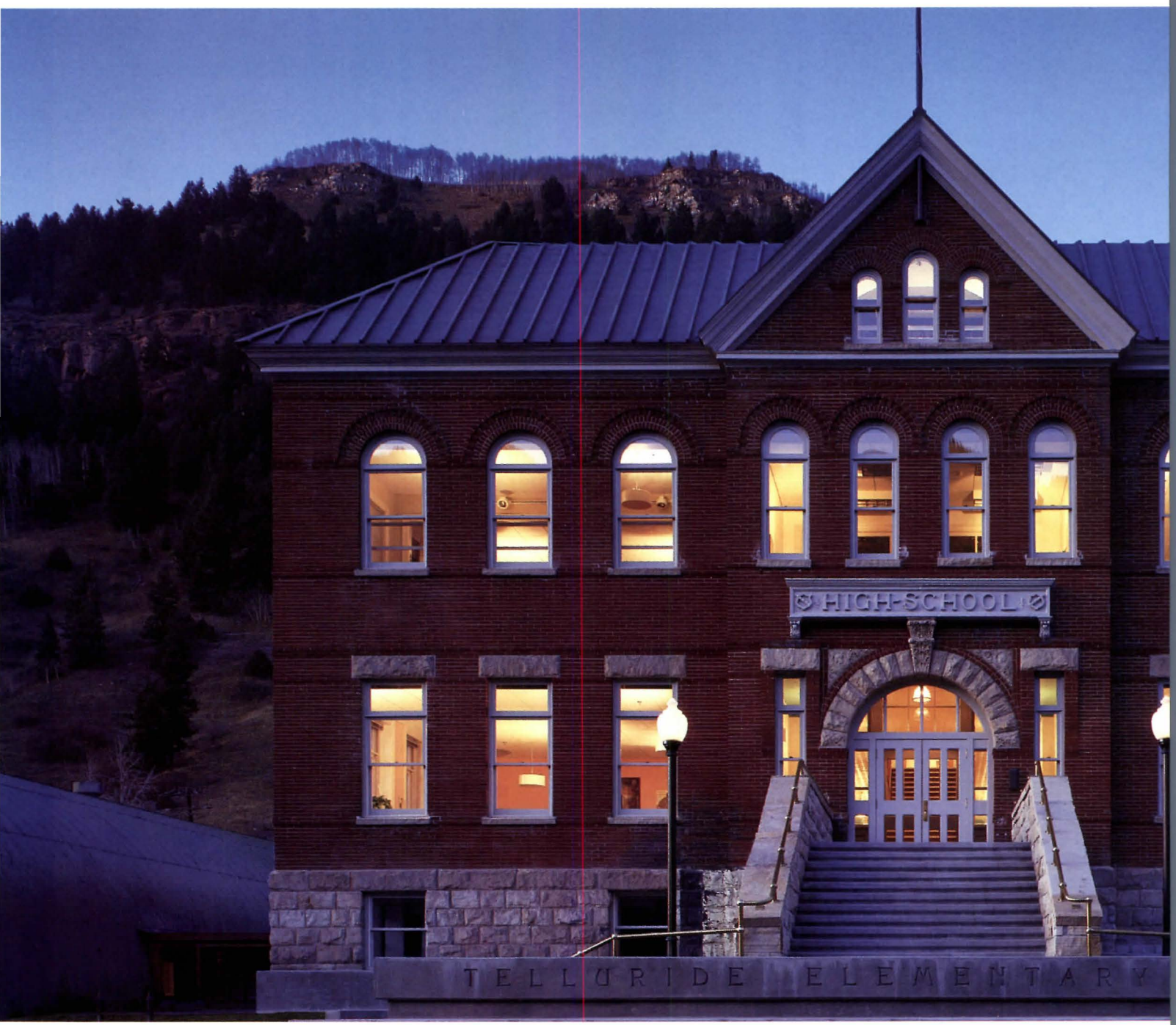

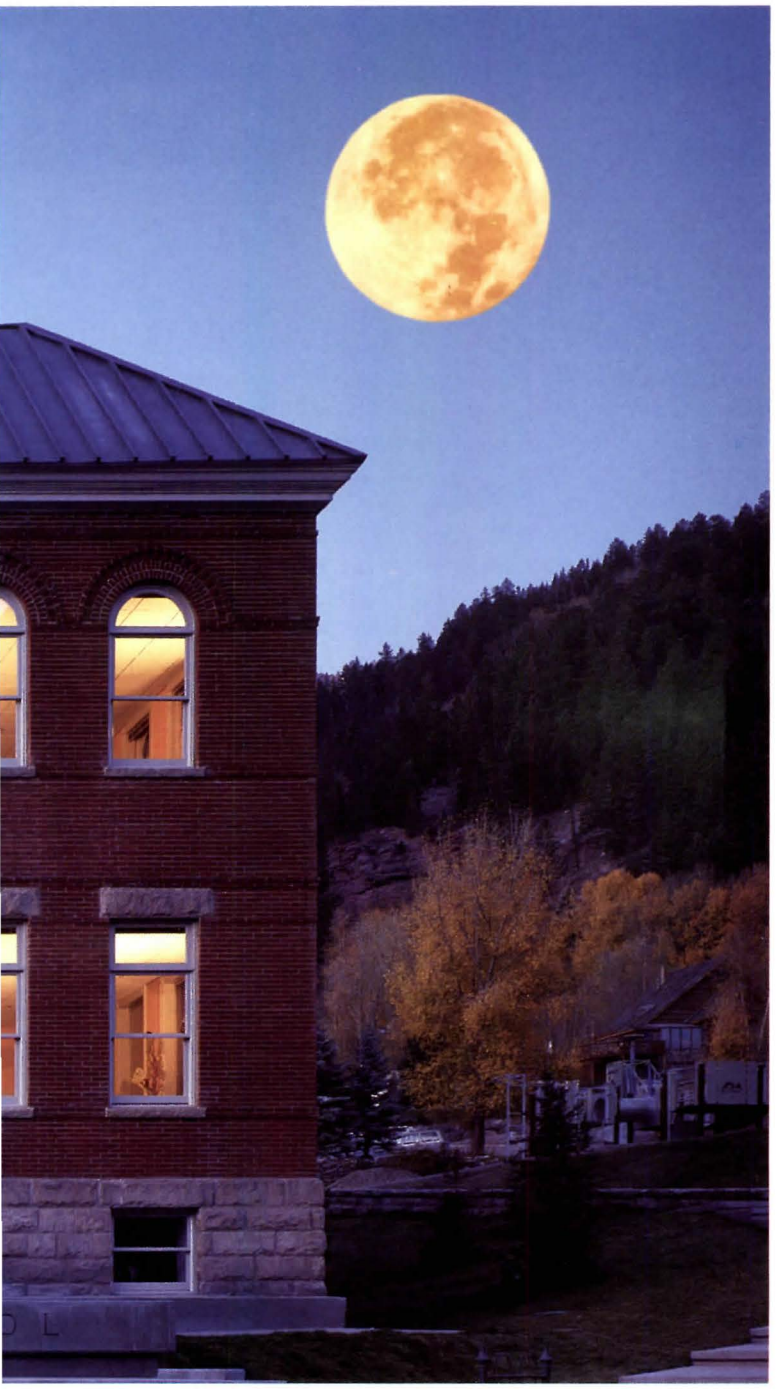

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NEWS

Military Women's Memorial Winner Announced




Above from left to right: Manfredi/Weiss's winning scheme; second place by Teresa Norton of Savannah, Georgia, and Cleve Harp of New York City featuring 49 bronze trees surrounded by the hemicycle; a ring of statues by Gregory A. Galford and Maria L. Antonis of Philadelphia; a recessed circular space by Stephen D. Seigle and Margaret Derwent of Chicago.

THE WOMEN IN MILITARY SERVICE FOR America Memorial Foundation announced in November the winners of its eight-month design competition for a memorial at the entrance to Arlington National Cemetery. The winning design by Michael A. Manfredi, AIA, and Marion Gail Weiss will restore the 1932 McKim, Mead and White-designed hemicycle at the cemetery entrance and add 10 tetrahedral skylights, stairways penetrating the hemicycle to contemplative gardens on the upper level, and an underground educational center that will include a directory of women veterans.

Manfredi, of Brooklyn Heights, N.Y., and Weiss, of Washington, D.C., entered the competition because, they say, it "presented an opportunity to create a timeless place commemorating the contributions of an often overlooked group of women." Manfredi's mother served as a nurse in the Army.

Weiss explains that the 10 glass prisms, each 39 feet high, illuminate a below-grade educational center, and an auditorium; the prisms symbolize outstretched fingers, an allegory derived from the helping-hands tradition of women in service. The spires frame views of Washington, the Kennedy grave sites, and the Custis-Lee Mansion, adhering to the axis of monumental Washington as required by the competition.

Criticism of the winning design has focused on the spires. Sen. John Warner (R-Va.) told reporters he was "jolted" by the design and predicts "rough seas ahead" for it. Charles Atherton, secretary of the Fine Arts Commission, has "very strong reservations" about the effect of the spires on the view of the cemetery from the Lincoln Memorial. And Frank Constanzo, superintendent of Arlington Cemetery, believes the design "changes the whole gate into something it never was meant to be."

Groups that still must approve the design are the Capital Historical Monument Commission, National Park Service, U.S. Commission of Fine Arts, and Virginia Commission for Historic Preservation.

With the selection of a winning design, the Women in Military Service for America Memorial Foundation now faces the task of raising funds for construction, predicted to cost $25 million. Already the foundation has raised $750,000, including in-kind donations, such as computer equipment donated by Apple. By law, the foundation must raise $15 million by November 6, 1991, to begin the project. "That's almost $20,000 a day between now and then," one memorial supporter points out. ■

—DOUGLAS E. GORDON

Civil Rights Memorial Dedicated in Montgomery

WATER AND STONE PROVOKE MEMORY AND CONTEMPLATION AT THE CIVIL RIGHTS Memorial, which was dedicated November 5 in Montgomery, Alabama. Designed by architect Maya Lin, the memorial frames the entry plaza of an office building in the city known as the birthplace of the American civil rights movement.

Like the architect's Vietnam Veterans Memorial in Washington, D.C., the Civil Rights Memorial is minimalist yet deeply emotive. Two dark abstract objects set against a lighter landscape form the ensemble: a curving black granite wall bathed in water and highlighted by one of Martin Luther King Jr.'s Biblical quotations, and, beside the wall, an inverted cone sliced to form a flat disk. Water flowing up from within the lightly balanced conical object washes its surface and drips to the plaza surface.

Lin imbued the abstract cone with a deeper dimension by inscribing the names of people killed pursuing the goals of the civil rights struggle. Forty names, with significant dates and places (from *Brown v. the Board of Education* to the assassination of King), are engraved like the minutes of a sundial, to be read clockwise around the object.

Unlike the Vietnam Veterans Memorial, this is not a work set apart in the landscape. The adjacent building, headquarters of the Southern Poverty Law Center, already existed, and its plaza is small. The civil rights movement seems important enough to demand a larger monument, but Lin's quiet achievement in Montgomery is significant, given the constraints of scale and site. Once again, the architect has created a work of art that involves the viewer, if only in brief passage. The abstracted elegance of the "table" and "wall" creates a tandem beauty enriched by the sounds of falling water, with its elemental symbolism of memory, grief, and continuously welling life source.

Alone or in groups, visitors approach the plaza, look up at the wall, find the list of fallen heroes, read, and run their fingers across the wet surface of the circular table. Before leaving they inevitably bond with the memorial. They touch the larger wall as they read King's words, which inspired Lin's design and find literal expression in its fabric: "[We will not be satisfied] until justice rolls down like waters and righteousness like a mighty stream." ■

—ROBERT A. IVY

NEWS

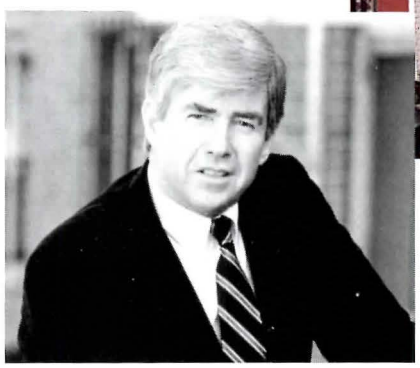
Kemp Addresses Homeless Conference

HOUSING DEVELOPERS, ARCHITECTS, SERVICE PROVIDERS, AND GOVERNMENT officials gathered last November in Arlington, Virginia, to explore the creation of housing alternatives for the homeless. Sponsored by the National Alliance to End Homelessness, the conference addressed the development and operation of single room/efficiency housing for the general population, people with AIDS, substance abusers, the chronically mentally ill, and transitional housing for families. Keynote speaker Jack Kemp, Secretary of HUD described his efforts to reform the agency and his commitment to bring together nonprofits and corporate America to help those in need. "Affordable housing is only one component of the homeless problem," said Kemp, "we must rebuild families and opportunities for these people."

In his address, Kemp also outlined his goals for homeownership opportunities and entrepreneurial housing activities in distressed urban and rural communities. He pledged his department's assistance in redefining regulations to allow the FHA to insure SRO projects and the creation of tax credits that will provide incentives to encourage the private sector to construct and rehabilitate low-income rental housing.

Two weeks after the conference, President Bush announced his administration's initiative to increase homeownership and to create jobs. The major components of the plan include a $2.1 billion matching grant program to encourage resident ownership of low-income housing; a program to combine housing resources and social services for the long-term homeless; and a proposal to allow the use of tax-deferred IRAs as downpayments by first-time homebuyers. ■

—LYNN NESMITH



HUD Secretary Jack Kemp (left). Samaritan House, a transitional residence for 10 families in Brooklyn, was renovated by Conrad Levenson of Levenson Meltzer Neuringer Architects (above).

Dallas Saves WPA Housing Project

THE HISTORIC CEDAR SPRINGS PUBLIC HOUSING PROJECT IN Dallas will be rehabilitated, not razed, according to a recent ruling by the Texas Historical Commission. The apartments were designed by a consortium of Dallas architects and constructed by the Works Progress Administration in 1937 as one of 51 federal housing demonstration projects of the New Deal.

The Dallas Housing Authority (DHA) recently applied to the Texas Historical Commission for permission to demolish the seriously deteriorated 28-building complex. Because funds from the U.S. Department of Housing and Urban Development were slated for the demolition and subsequent new construction, approval of the state commission was required under federal historic preservation regulations. The commission, however, refused to approve the DHA's proposed action, on the basis of the housing project's architectural and historical significance. "This is one of the first public housing projects in Texas, and evocative of the early International Style of design, another Texas first," says Stan Graves, deputy state historic preservation officer. "We felt the buildings were eligible for the National Register."

Recent view of the Cedar Springs public housing complex.

The Cedar Springs complex is composed of two-story apartment buildings and adjacent one-story blocks placed symmetrically around an open mall. "The original designers modeled the project on Austrian and German public housing prototypes," explains Ron Emrich, Dallas city historic preservation officer.

Although structurally sound, the stucco buildings now are considered substandard. Years of water penetration damaged exterior and interior finishes, and mechanical systems fell into disrepair. The apartments are considered too small by modern standards; some efficiencies total only 326 square feet. Had the buildings been demolished, DHA planned to construct more densely arranged public housing on the site, with larger units.

Under the current historic preservation requirements, the original number of dwelling units must be retained in the renovation of Cedar Springs apartments, but HUD insists on increasing the substandard unit sizes. To accommodate these conflicting requirements, DHA plans to add second stories to some of the single-level structures to make room for new apartments while consolidating others. Virtually every floor plan will be reconfigured to increase unit sizes, mostly with two- and three-bedroom units for families. A few one-bedroom units will be retained for singles and elderly tenants who presently live in the efficiency units. The original concept of a stepped roof design will be retained by massing the two-story construction near the center of the complex. DHA estimates the rehabilitation will begin in early 1991 and cost about $10 million. ■

—ELENA MARCHESO MORENO

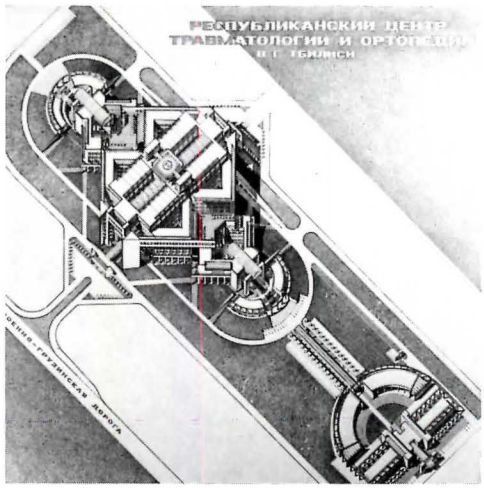
NEWS

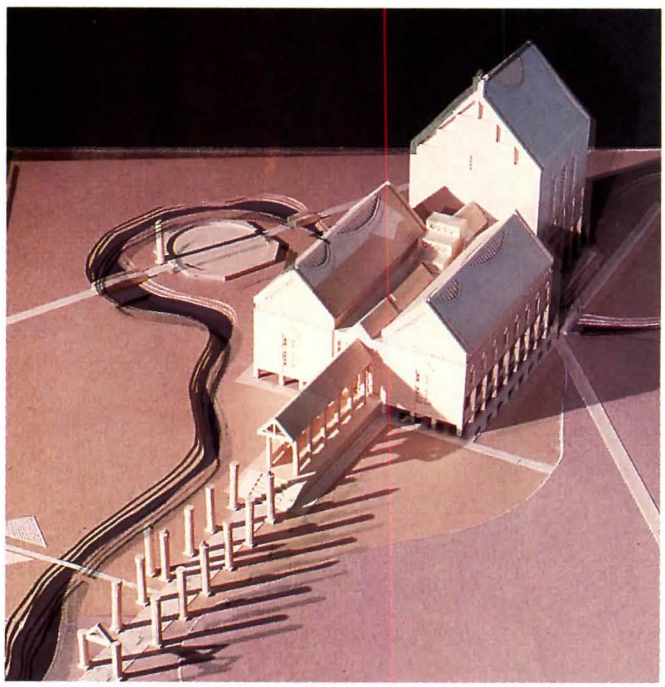
Back In The U.S.S.R.

ARCHITECTS, PLANNERS, AND HISTORIans from 16 nations experienced the real meaning of *glasnost* at the first international architecture conference held in the Soviet Union in decades. "Reconstruction of Cities: Planning and Building Experience," sponsored by the Georgian Polytechnic Institute and Georgian State Committee for Construction, drew Soviet, European, and American professionals to Tbilisi, Georgia in late September for a week of lectures and tours. The 32 presentations ranged from community-sponsored architecture in Great Britain and the restoration of the University of Vienna to the reconstruction of historic areas in Tbilisi and the Ukraine.

Although the conference officially addressed preservation, informal discussions focused on current developments in Soviet architecture and politics. Like Western architects, Georgian practitioners are interested in interpreting local traditions through contemporary means, a search for a meaningful regionalism that is tied to the republic's growing nationalist movement. (Visitors were reminded by their hosts that only last April, 19 demonstrators were killed in Tbilisi by the Soviet Union army.) While interested in reviving architectural forms of the past, Georgian architects certainly are not looking to the classicism of Moscow or Leningrad.

Most architects in the U.S.S.R. work for state agencies, but under *perestroika*, many are forming private cooperatives to pursue small-scale commissions, mostly residential projects. The development of private practices, however, is overshadowed by the Soviet Union's deeply troubled economy (severe gasoline shortages were particularly apparent in Georgia) and substandard construction methods, as evidenced by the poor condition of even recently completed buildings.





Like their American counterparts, Soviet Georgian architects are translating regional traditions into contemporary forms. Vakhtang Davitaia's design for a mathematics school (above) recalls the clustered houses of Georgian villages. A hospital designed by Lado Khmaladze and Zurab Nemsadze for the Georgian Ministry of Public Health (top) is planned as a small town with courtyard "squares" and "streets" based on historic prototypes in Tbilisi.

For the 50 conference attendees, the week-long event provided a rare opportunity to travel to sites of historic and political importance throughout Georgia, such as the Early Christian settlement of Mtskheta and Stalin's birthplace in Gori, one of the few cities in the U.S.S.R. where the former leader is still honored. But it was the generous outpouring of Georgian hospitality that the foreign guests will remember most, the many toasts to peace and continuing political change. ■

—DEBORAH K. DIETSCH

Strategies for Profits

CRIES FOR BETTER LEADERSHIP BY DEsign professionals have resonated lately in the halls of our societies, in our industry literature, and in our boardrooms, usually with the lament that architects are losing clout. Improving the future requires strategies for achieving our ideals.

In San Francisco this past fall, those strategies were assembled into a holistic picture entitled "Perspectives in Leadership: People, Performance and Profits." The setting was the annual conference of PSMA, the Professional Services Management Association. Like the quake-rocked city where 150 design firm managers gathered, PSMA is mounting a comeback, and this meeting proved the organization is on track.

Princeton's Robert Gutman and the Wyatt Company's Jane Ginsburg talked about "the new careerists" who want to work on a whole project and have more time to deal with family concerns. External training, Gutman observed, must be selected to fit these individuals' career plans and must be followed by job assignments that reinforce the knowledge. Internally, project evaluations can be effective learning vehicles, and there must be some work on the "total person"—to educate him or her about the world in which we practice, to promote ethics and business values, and to inculcate the firm's culture.

More likely to succeed was Art Gensler's approach to training. The size of the bonuses given to his firm's senior staff members is in part a function of whether and how well they train others in the firm. Similar leadership strategies were restated and emphasized by Doug Morehouse, chairman of Woodward Cycle. Unlike Gensler, Morehouse pushes a disciplined approach to planning. His firm is just completing its objectives for 1995, starting with social forces and legislation, "listening to society and then clients."

At the other end of the success spectrum, consultant John Carlsen led a small but emotionally wired workshop audience through the tales of two bankruptcies. As each practioner talked, Carlsen quietly underscored the "signs of trouble" evident in their comments and provided clues to their recoveries.

On the last day, PSMA called on SOM's John Merrill to discuss the joys of retirement

continued on page 36

NEWS

Giurgola's Kimbell Addition Draws Fire

ROMALDO GIURGOLA'S EXPANSION PLANS FOR LOUIS I. KAHN'S Kimbell Art Museum, Fort Worth, announced last July, have been the target of increasing criticism by prominent figures in the architectural world. While many of Giurgola's colleagues were reluctant to publicly comment when his plan was first announced, the response has been growing more vocal. Letters from Kahn's family, his former associates, academics, and well-known architects have been directed to the Kimbell's director Edmund Pillsbury, its board of directors, and Giurgola. The criticism leveled at Giurgola's plan to replicate the vaults of the original museum focuses on the blurring of authorship between the Kahn and Giurgola sections, the impact of the new addition on the classical tripartite scheme and the site, and the difficulty of duplicating the high quality of the original construction.

Kimbell Museum as it appeared in October 1972.

One of the most strongly-worded letters sent to Kimbell trustees in November was drafted by Richard Meier and Kenneth Frampton, who collected signatures for their letter from a stellar sampling of architects and museum directors. Signees included Arata Isozaki; James Stirling; Philip Johnson; James Freed; Phyllis Lambert, Director of the Canadian Centre for Architecture; and Kurt Forster, Director of the Getty Center for the History of Art and the Humanities, Los Angeles. Frank Gehry's signature arrived one day too late to be included with the original letter. Robert Venturi and Henry Cobb were approached for signatures but chose to write personal letters instead. I.M. Pei could not be reached.

The Meier/Frampton letter vigorously attacked Giurgola's proposal to append additional cycloid vaults to the north and south ends of Kahn's building, denouncing this scheme as "a mimicry of the most simple-minded character. If executed, the existing building will not only lose its intrinsic purity but also its very delicate placement on the site." While acknowledging the need for expansion, the letter calls for a reconsideration of the current proposal, concluding: "We are convinced it would be preferable to preserve the present museum and create an entirely new structure in some adjacent position."

The Meier/Frampton letter followed reviews of the scheme by Paul Goldberger in the September 24 *New York Times*, and David Dillon in the October 29 *Dallas Morning News*. Goldberger refrained from strong criticism, but Dillon rejected Giurgola's plan, citing the pitfalls inherent in the simulation of the original building. *Oculus*, the independently-minded organ of AIA's New York chapter, also

continued on page 36

NEWS

Kimbell *from page 35*

included critical commentary and letters in its November issue.

Kahn's daughter, Sue Ann Kahn, launched her critical salvo in the form of a blistering letter published in the October 15 *New York Times*. Esther I. Kahn, the architect's widow, also added her voice to the opposition. She recalled in her November 26 letter to the *Times* that "Lou rarely spoke of his finished works, but he truly loved the Kimbell, for he felt he had created something that was perfect." In an interview, she described the current scheme as "a masterpiece sandwiched between two fakes."

In Philadelphia, where both Kahn and Giurgola taught and maintained offices, members of the architectural and academic community expressed dismay over the proposal.

Absent from the new design team is Philadelphia architect Marshall D. Meyers, who worked with Kahn as the project architect for the Kimbell Art Museum, and whose subsequently established firm, Pellecchia and Meyers, won in 1978 an AIA Honor Award for its completion of the Yale Center for British Art following Kahn's sudden death. Meyers was not consulted in regard to the Kimbell expansion plan which he opposed in a letter to the museum's trustees.

Few of the plan's critics suggest that the Kimbell should not expand. Their concerns are that the trustees have not exhausted all of the design possibilities. In an interview, David Brownlee, a professor in art history at the University of Pennsylvania, stated that "the decision is fairly simple at this point. Close the door on a contiguous extension, and ask the architect to explore other options...It was simply a curious kind of perceptual mistake that the building became thought of as a modular structure that could be extended indefinitely."

Pillsbury and Giurgola gambled that by repeating Kahn's forms, the addition would sympathetically defer to its progenitor. The preliminary volleys between critics and the museum suggest that the current approach may in the end prove to be most offensive to admirers of the Kimbell. ■

—BARBARA L. KOERBLE

Barbara Koerble is an art historian and freelance writer based in Fort Worth.

Strategies *from page 32*

and how the firm's ownership transition plan promotes financial tranquility. A new partner at SOM is assigned a number of partnership "units"—the basis for profit participation—depending upon the partner's role in the firm, and the number of units is reviewed every two years. Each year a specific sum based on the units is credited to the partner's retirement account. Upon retirement, the partner is paid the amount accrued in equal installments over a 10-year period.

Walter Hoadley, Hoover Institute economist, predicted an emphasis on "quality of life, a new sensitivity to things you can't measure by statistics," and added, "if you're not involved, your competitors, including those from overseas, will clobber you."

The audience took the challenge gracefully. It was really all the leadership counsel they needed to clarify a powerful vision for their practices. How will they map the strategies to realize the vision? That's PSMA's next challenge. ■

—LOU MARINES

Former AIA EVP, Lou Marines is a consultant and educator in Corte Madera, California.

BOOKS

Gordon Bunshaft of Skidmore, Owings and Merrill.
Carol Herselle Krinsky. (The Architectural History Foundation, MIT Press, $50.)

Wallace K. Harrison, Architect.
Victoria Newhouse. (Rizzoli, $45.00 hardback, $29.95 paperback.)

Wallace Harrison created many Modern New York icons, such as the United Nations.

THE LIVES OF GORDON BUNSHAFT AND Wallace K. Harrison are stories of the architectural establishment, revolving around that particular American brand of the International Style called "corporate" or "bureaucratic" Modernism. In the 1930s and 1940s, Skidmore, Owings & Merrill (SOM) and Harrison & Abramovitz were avidly pursued by the architectural press and their buildings won many awards. The architects also won their share of personal glory—Harrison received the AIA gold medal in 1967, and Bunshaft the Pritzker prize in 1988. These awards reflect the great approbation that greeted their early work, such as the United Nations and Lever House.

With their sparkling walls of glass, juxtaposed vertical slabs and horizontal bases, and explicit rejection of anything faintly reminiscent of the past, these buildings seemed like blasts of fresh air, proclamations of a brilliant new world. While the marble skin of the U.N. Secretariat has tarnished (along with its political hopes), Lever House still stands as bright and clean as the day it was completed—and the products it once represented.

Some of the Modern duo's later work, however, did not inspire such applause. Harrison's Albany Mall and Bunshaft's Hirshhorn Museum have been criticized as insensitive, too dominant, and too rigorous in their minimalist geometry. Yet both, especially when experienced firsthand, exert a compelling presence, even a grandeur of form and accomplishment.

Corporate Modernism is so much a part of present-day architectural culture that we often forget how recently it originated, as well as the role Harrison and Bunshaft had in forming it. Daniel Burnham and McKim, Mead & White pioneered the large-scale, corporate architectural office around 1900. These firms and their many imitators worked on a national, or in some cases international, scale and turned out high-quality but stylistically safe designs. Such a firm depended not on the design skills of a lonely genius—a Wright or Graves—but on the management of a large group of individuals who designed and marketed the product. These firms were corporations, with all the ethos of the type. Their clients were of course large businesses and governments, and the buildings were correspondingly big: offices, museums, factories, and retail centers. Small projects such as houses were seldom accepted (Bunshaft apparently designed only one residence, his own country house, and Harrison completed eight houses, most of them for his principal corporate clients, the Rockefellers). While the corporate client was nominally the large organization, the studies of Victoria Newhouse and Carol Krinsky clearly show the role of individuals —presidents such as Frazar B. Wilde at Connecticut General Life Insurance, for Bunshaft, and politicians such as Nelson Rockefeller, for Harrison. Both positively and negatively, these corporate leaders affected the architecture.

To the culture of corporate architecture, Harrison and Bunshaft contributed two elements: Modernism as a style and an adventurous spirit of design. While both architects were born too late (Harrison in 1895 and Bunshaft in 1909) to be among the pioneers of American Modernism, they converted early and became leaders. They exemplify practitioners who learned the historical styles of a Beaux-Arts approach and finally rejected them. Harrison, for example, shifted from the soft, decorative Modernism of Rockefeller Center to the no-holds-barred minimalism of the Trylon and Perisphere for the 1939 New York World's Fair. Likewise, Bunshaft, who in 1936 was measuring and drawing ancient European monuments, designed the stark steel and glass Venezuelan Pavilion the following year for the same World's Fair. Both architects came to stand publicly and privately for an uncompromising Modernism that became the standard for corporate architecture. They never deviated and never, even for the wealthiest of clients, agreed to any sort of a historicist design. They did, however, retain certain elements of Beaux-Arts planning and organization in their buildings.

In addition to helping to create the image of corporate Modernism, Bunshaft and Harrison went beyond accepting and reproducing the standards of the marketplace in producing adventurous designs that broke new ground in form, materials, and image. Certainly both architects produced some staid, if not boring, designs, such as Harrison's Sixth Avenue expansion of Rockefeller Center and Bunshaft's One Main Place in Dallas, but they also made radical departures, such as Harrison's sculptural First Presbyterian Church in Stamford, Connecticut, and Bunshaft's great tent, the Haj Terminal in Jeddah, Saudi Arabia.

Books *continued on page 50*

BOOKS

Books *from page 49*

While the work of Bunshaft and Harrison shared similarities, it also exhibited many differences; so do the books by Krinsky and Newhouse. As a package, the Bunshaft book is exceedingly well produced. It's like a building by SOM, and no wonder, for the book was designed by Bunshaft himself. My only complaint is that the generous illustrations—many of which are in color—are almost all by Ezra Stoller or Hedrich-Blessing. While the photographs, like the buildings, are period pieces, as illustrations they will be familiar to anybody who knows the other books on the firm.

Krinsky's book on Bunshaft is more a study of the architect's built works than a biography. The author remarks upon Bunshaft's crusty personality as well as his sometimes imperious attitude toward the people who would use his buildings, yet he remains a somewhat shadowy figure in the book. Since Bunshaft is still very much with us, this attention to his buildings and not himself is undoubtedly what he wanted.

Writing from the perspective of recent Postmodernist criticism of Bunshaft's approach, Krinsky displays at times a certain defensiveness of tone. Yet she makes the perceptive observation that Bunshaft's best work was completed after the advent of Postmodernism, when the architectural press quit publishing his work. The author concentrates on 38 buildings and investigates in detail their programmatic, formal, and technical qualities. She recognizes and constantly comments on lighting and other features that frequently are ignored.

A few references are made to designs by Bunshaft's contemporaries, such as Eero Saarinen, but there is little attention to what must have been many unrealized projects by the SOM partner and the role they might have played. Moreover, Bunshaft was not the only personality at SOM who helped develop corporate architecture in the 1940s, and the early story of SOM and its offices remains to be told.

Newhouse's book on Harrison is more of a biography, although she pays close attention to some of the mammoth projects, such as Rockefeller Center, the United Nations, Lincoln Center, and the Albany Mall. What comes through the maze of political maneuvering, countless designs, construction details, and fiascos is a poignant and, in the end, very sad story. For here is the archetypal Horatio Alger tale, of the poor kid who rose to the top with talent, personality, and savvy. But the ending differs: Harrison became so compromised by his relationships with those who made him, particularly Nelson Rockefeller, who was both patron and friend, that he seemed to have no center left, no will to resist outrageous demands. He apparently disliked both his Opera House at Lincoln Center and the Albany Mall, but went along with them. There is an anomaly to Harrison, for he had an apparent toughness and resilience early in his career—such as with the United Nations—that seems at odds with his later performance.

Harrison helped create modern New York City and designed buildings across the nation and abroad; he assisted in making and exporting corporate Modernism as the midcentury American image. And yet, when all is said and done, he probably wasn't a great designer. He had a romantic side—Newhouse cites a few of his houses and the sculptural church in Stamford as examples—but this had little effect on his larger work. He seemed to excel at handling people, running meetings, and reconciling—up to a point—divergent designs. He wanted to build big and was willing to give up personal standards for the chance. But the private romantic and the public corporate Modernist were never reconciled. ■

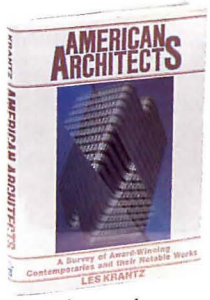
—RICHARD GUY WILSON

Richard Guy Wilson is a professor of architectural history at the University of Virginia.

American Architects.

Les Krantz. (Facts on File, $40.)

LES KRANTZ, WHO HAS WRITTEN A number of general reference books, presents here a compendium of profiles of 400 architects now practicing in the United States. Each entry lists the architect's address, date of birth, education, awards, and notable works, followed by a short description of the architect's design philosophy and projects illustrating the architect's ideas. Some of the buildings are pictured.

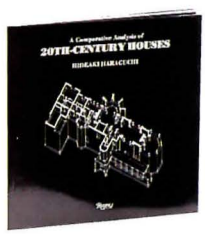


As you might expect of any catalog of 400 architects, even a casual reading of the entries yields some surprising information: Hugh Hardy and Charles Moore are 90 years old, and Thomas Beeby's alias is William Beeby Jr. Despite occasional mistakes, though, the book is a handy reference and is cross-indexed to list architects by specialty and region.

A Comparative Analysis of 20th Century Houses.

Hideaki Haraguchi. (Rizzoli, $29.95).

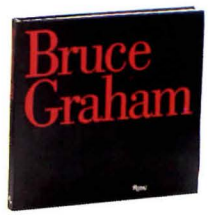
JAPANESE ENGINEER HIDEAKI Haraguchi traces the development of the single-family detached house in this century, focusing on its spatial qualities and how architects define enclosure. His comparisons are based on detailed axonometric drawings that vertically extend the plans of the featured works into volumetric studies. Houses designed by nearly 50 architects, among them Edwin Lutyens, Frank Lloyd Wright, Bruce Goff, Alvar Aalto, Richard Meier, and Aldo Rossi, are presented. The drawings, rendered as white lines on black backgrounds, are beautifully reproduced and accompanied by short essays by Haraguchi explaining the significant spatial compositions represented in each house.



Bruce Graham of SOM.

Introduction by Stanley Tigerman. (Rizzoli, $45.)

"THE MAGNITUDE OF THE ARCHITECture produced by Skidmore, Owings & Merrill...far exceeds that of any contemporary firm," writes Stanley Tigerman in this personal portfolio, which spans more than three decades. "At the moment of this writing, SOM and Bruce Graham are, for all practical purposes, indistinguishable. But who is Bruce Graham, and for that matter, who is SOM, anyway?"



If architects are understood through their

continued on page 142

SCHOOLS OF THOUGHT

"A UNIVERSITY SHOULD NOT BE A HOUSE BUT A VILLAGE," SAID THOMAS JEFFERSON OF his model campus, the University of Virginia in Charlottesville. Reflecting Jefferson's sentiment, each of the academic projects in this issue responds to its "village," whether the campus is a Neoclassical quadrangle in the Northeast, a sprawling megalopolis in Southern California, or a busy street in upper Manhattan.

We begin the issue with an overview of campus planning written by Richard Bender, dean emeritus of the University of California at Berkeley, who theorizes that the recent boom in college construction reflects the influence of academic entrepreneurs more than planners. On some campuses, he points out, "form follows fund-raising."

Portfolios of work at two large state universities—the University of California at Irvine and Arizona State University—illustrate diverse approaches to the current cycle of academic building. John Parman's evaluation of UC Irvine traces the history of the campus and questions the future of its master plan, conceived in the 1960s by the late William Pereira. Although the plan continues to be revised with new construction, the campus retains much of Pereira's original vision of an ideal community—urban in name but suburban in deed. At ASU, Contributing Editor Lawrence Cheek evaluates three buildings that infuse the postwar campus with distinctive architectural precedents.

In addition to the broad view of campus planning, this issue looks closely at several academic building types. Two of the projects shown on the following pages are underground libraries, designed as coherent spatial sequences linked to their respective surroundings. Campus living is represented by Gruzen Samton Steinglass's dormitory at Columbia University and Woo & Williams's Harvard faculty housing, a pair of off-campus residential accommodations that take opposite approaches. A third building type is the college arts center—those at ASU and Lawrence University achieve immediate landmark status within two very different contexts.

In our technology and practice section this month, we focus on the more pragmatic aspects of academic buildings, beginning with a fabric-roofed sports complex that creates a strong new image for a small college in rural Maryland. Making campuses more accessible to the disabled is the goal of the University of Arizona's "sensitivity-enhancement" exercise, which makes architecture students more aware of physical barriers in the environment. Finally, a case study of a small campus in Florida details how careful programming resulted in a successful mix of residential and institutional activities.

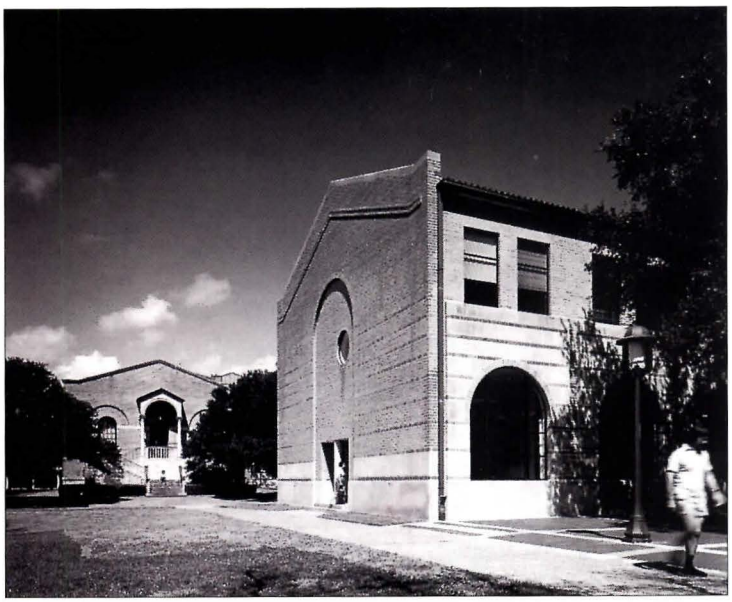
The diverse academic buildings on our pages illustrate a range of appropriate, site-specific solutions to the campus "village." Each of their architects strived to attain Jefferson's ideal without succumbing to the demons of progress or the ghosts of history. ■

—LYNN NESMITH

BOOM AND REVERBERATION

A new crop of academic buildings considers context and campus life.

BY RICHARD BENDER



The 1960s heroicism of Paul Rudolph's art and architecture building at Yale University (left) counters the 1980s contextualism of Stirling Wilford's school of architecture at Rice University (right).

A NEW CYCLE OF UNIVERSITY BUILDING IS UNDER WAY as the children of the baby boom begin to enter college. But demographics is only one reason for the resurgence of campus growth. Academic institutions with stable or declining student populations also are building—to replace outdated, ugly, or unsafe facilities and to accommodate new disciplines and activities. Administrative staff, postdoctoral students, and research teams are expanding, even where the undergraduate population is not. Work spaces are squeezed by new equipment until it seems that every desk or workstation has a computer terminal and fax machine on it. Young adults who have come to expect a certain quality of life are demanding on-campus apartments, rather than dormitories, and many of the same social and cultural amenities they enjoy in their communities. They also need roads, parking, playing fields, utilities, expanded police and fire protection, and other services. To understand how this boom differs from the one of the 1960s, it may be useful to look at the years from 1970 to the second half of the '80s, when the present growth began in earnest.

Demographics and the drying up of public and private funding in the 1970s did not end campus construction but slowed its pace. Given the slack demand and tight budgets for new buildings, many colleges and universities saw little reason to conserve available land. The result was relatively unplanned, low-density development. For example, Muir College at the University of California, San Diego (facing page, top right), was built in the '60s as a compact cluster of tall buildings, anticipating population growth. The university's Third College (facing page, right), built in the '70s, is a sprawling, suburban-style development with one-third the density called for in the campus's original master plan of 1963.

In the '70s and early '80s, plentiful land and a slow pace of construction—on average only one new building every two or three years—relegated detailed campus planning to a low priority. College deans, department chairmen, and building committees encountered little opposition when they began to shape their buildings after their own parochial interests, with little or no concern for where the buildings were placed or how they might relate to neighboring structures.

At the same time, many colleges and universities were reviving interest in their history as institutions and as physical settings. The old belief that the quality of the institution's setting was intrinsic to its academic quality was coming back into vogue. So, too, was preservation. By the late '70s, many campus administrators had begun to document their best buildings, landscape features, and outdoor spaces. In the process, they were beginning to understand why many of their newer buildings and plazas failed to provide the qualities they valued. Today, on some campuses, additions and renovations are being used to soften or enrich starkly Modern or Brutalist buildings, such as Columbia University's Uris Hall, whose character was altered by architect Peter Gluck's addition (facing page, bottom). This interest in preservation and growing distaste for Modern buildings and settings paralleled the situation in many American cities.

The revival of campus construction has been fueled by a new generation of academic entrepreneurs.

By the time of the 1980s boom in campus construction, many former activists, who in the '60s were promoting public participation in design, now held senior positions at their colleges and universities. Ironically, these institutions, often exempt from local regulations, were almost the only organizations left that saw no special necessity to involve the larger community in their development.

The revival of campus construction has been fueled by a new generation of academic entrepreneurs skilled at attracting public and private money. Not surprisingly, many recent campus buildings re-

flect the interests of these ambitious deans and researchers—and those of their patrons. New science buildings are the most frequent results, but the professions—business, law, and engineering—are right behind them. Campus administrators have learned also that art museums and theaters are bankable with alumni and corporate donors. The buildings that pay their own way—including student centers that function like shopping malls or residential developments—are preferred over facilities for less favored departments, such as liberal arts, and over necessary but unglamorous improvements such as upgrading landscaping, infrastructure, and utilities.

The fund-raisers, the new barons of academia, left their mark on many campuses during the early years of the boom. While some were attentive to the character and quality of the larger setting, many were not. As their programs swelled with the surge of funds, the buildings themselves grew monolithic, often too big for their sites and sometimes profoundly insensitive. They also began to change the character of their campuses in ways not anticipated by their planners.

These planners, now acutely aware of their institutions' histories and traditions, are coming to a painful awareness of how recent additions to campuses have failed to measure up to the standards of the past. Yet many administrators still review proposed buildings with less care and lower standards of excellence than they give to incoming students or untenured faculty. For campus leaders who have begun to address new development more carefully, it has taken a generation of placeless, characterless, and coldly (and sometimes falsely) utilitarian buildings and spaces to make them value the successful older ones. The number of recent university projects that have an appropriate character and quality is cause for optimism, if only because they demonstrate to others that success is possible.

If internal pressures are causing administrators to take more care about development, so are pressures from the encroaching world outside. Universities and colleges that once were located in the suburbs or the country now find themselves enveloped by the city. While these institutions benefit their communities in terms of employment and cultural opportunities, their development can have a negative impact on local traffic, housing costs, and services, and their rapid growth can make universities seem like predators. As the new boom has gained steam, cities have demanded that campus administrations provide statements of their intentions and abide by the same rules imposed on other large property owners.

These twin pressures, to preserve the campus setting and limit expansion into the community, have led some institutions to shift certain activities off campus, limit growth, create satellite campuses, and even sell off urban sites and use the proceeds to move to new locations with more room and fewer obstacles for growth.

Peter Gluck's frontispiece softens Columbia's Uris Hall.

The University of San Diego's campus reflects a decade of campus planning trends. Muir College's cluster of high-density structures (above) was built in anticipation of population growth. Ten years later, Third College emulates the low scale of the suburbs (right).

The academic campus is one of the few remaining places that expresses a purposeful public order. Whether state-supported or private, universities and colleges have (and their leaders increasingly feel) an obligation to do more than simply build. Administrations have begun to recognize that the settings they create are part of their educational mission, establishing patterns of social and collegial exchange that are essential to academic functioning and that reflect equally on the institution and the larger culture. If campus development is being taken more seriously these days, it is because of a growing sense of larger purpose.

At the heart of this new attitude is the old idea of stewardship—that each generation must answer to the next for the campus entrusted to its care. Colleges and universities are protecting their natural settings by developing existing built areas at higher densities. Institutions such as Rice (facing page) and Princeton (page 60) are pushing their architects to consider the campus at large and to emulate old buildings and settings that work better—and are better loved—than those of the immediate past. ■

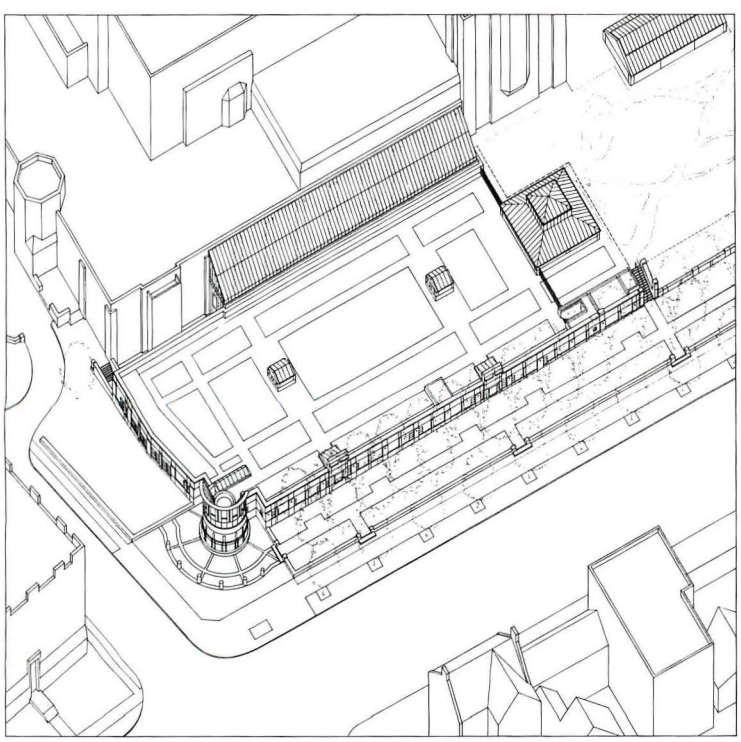
Richard Bender is a professor of architecture and dean emeritus at the University of California, Berkeley, and director of its campus planning study group. He also has been an active participant in the planning of three University of California campuses.

Harvey S. Firestone Library Expansion
Princeton University
Princeton, New Jersey
Koetter, Kim & Associates, Architects

BURIED TREASURE

An underground addition at Princeton expands a university library and complements its landscaped setting.

Koetter, Kim & Associates defined an underground library at the corner of Princeton's main street with a landscaped rooftop (above) and a stone turret (facing page).



IN ANSWERING PRINCETON UNIVERSITY'S SIMPLE PROGRAMmatic request for a library addition in which to shelve books, Koetter, Kim & Associates designed an exceptional spatial experience under a blanket of earth and behind a romantic garden wall. The addition expands the Harvey S. Firestone Memorial Library, the largest open-shelf library in the world.

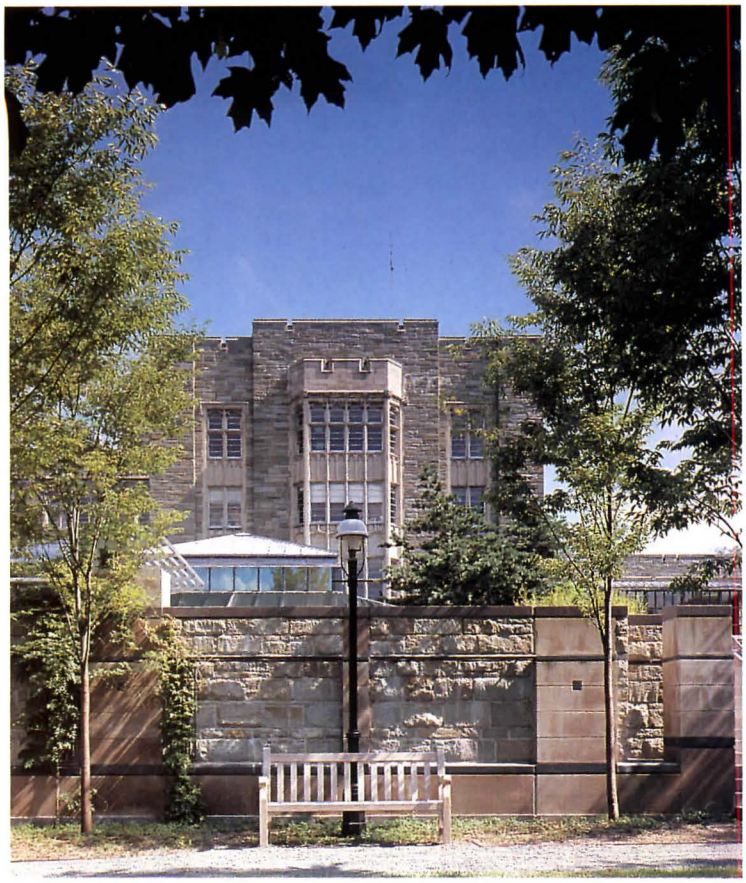
The Firestone Library is a bulky Neo-Gothic pile designed by O'Connor & Kilham, on the northern edge of the campus. Facing south toward Ralph Cram's Princeton Chapel, the 1948 building is set back 110 feet from the low-scale commercial buildings along Nassau Street, to which it presents a massive rear elevation. In the early 1970s, an underground, two-story addition was built behind the library; Koetter, Kim's 55,000-square-foot structure extends both floors of the earlier addition eastward to Washington Road.

For the strip of land that runs parallel to Nassau Street behind the library, Koetter, Kim and landscape architect Hanna/Olin designed a linear park consisting of a gravel walk flanked by rows of closely spaced zelkova trees and lined with wood benches facing the street. The architect fronted the previous addition with a low wall that rises a third of the way down the block to about seven feet. It constitutes the principal elevation of the new addition and continues with an unbroken capstone to the corner.

Koetter, Kim articulated the facade in limestone and granite in a variety of finishes: a gray granite footstone, a smooth limestone base and piers, charcoal granite moldings, inserts of rough-hewn limestone called grapple, and a cap of red granite. Vertical trellises are spotted along the wall, a horizontal metal tube runs about a foot down from the top, and linear metal trellises run above the capstone. Wisteria planted in front of the vertical trellis gives promise of green panels and a halo of vines. Fenestration within the wall is limited to small punched windows with dark mullions, which seem incidental and appear more as void than as glazing.

The wall steps back at its eastern end, sets a corner turret in relief, and continues south in line with the east facade of the 1948 library. In contrast to the rhythmic elements of the wall, the turret's limestone facade, rising from pavers and unsoftened by greenery, is monolithic in character. The bottom half is rough-hewn, the upper half is smooth, and each is ringed by evenly spaced fenestration. The intriguing aspect of the turret as viewed from the street is its appearance of incompleteness: the top ring is sliced away on the side opposite the intersecting streets. This treatment de-emphasizes the turret's role as a functional element, implying its use as no more than a stair tower, without diminishing the structure's visual impact.

During design schematics, the architects considered the turret for several purposes in various sizes and configurations, according to principal Susie Kim and project architect Roger Haigh. The most interesting alternatives were to utilize its freestanding form as a flower shop or a two-story bookstore. But the university decided against commercial use, which would have enlivened the corner considerably. As built, the turret is a strong, if oddly mute, landmark.

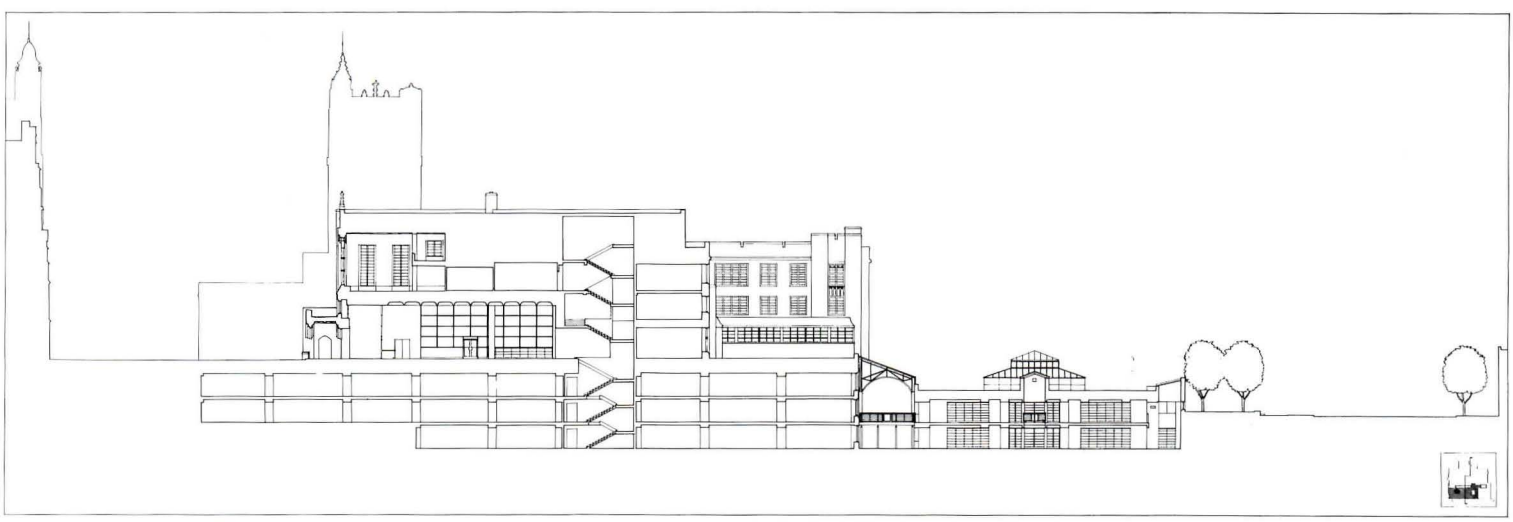


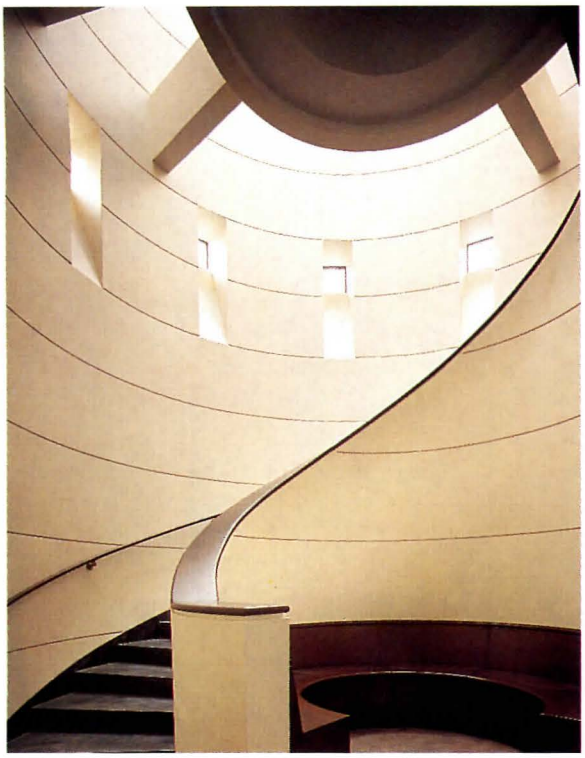
Within the turret's notch is a skylight that diagonally slices across the flat roof. Rising from the rim of a small drum, the skylight is the flamboyant member among a collection of 10 light monitors. The other nine are rectilinear—gabled and shed forms that pop out of the roof's flat carpet of gravel paths and grass or lean against the old library facade or against the parapet wall at the edge of the new addition. The landscaped rooftop is not visible from the street, and the university has fenced it off to prevent vandalism, so the pattern of grass and gravel serves mainly to enhance the view from the upper floors of the old library. (However, the structure is designed to support up to three additional floors with zoning setbacks provided along the street.)

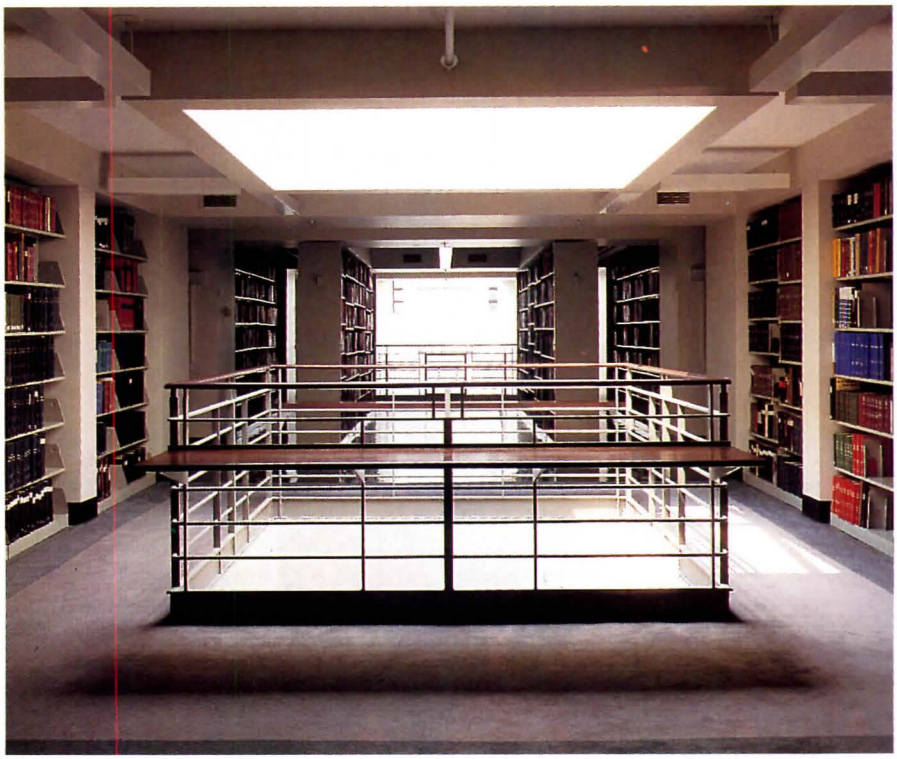
The two floors of the new addition extend the second and third basements of the Firstone Library and the two underground levels of the previous addition. When the 1948 building was constructed, earth was moved back to form a berm behind the north elevation, exposing the stone facade finished down to the lowest basement level. Koetter, Kim set the south elevation of the addition 20 feet away from this wall and glazed over the resulting slot to enclose a long, two-story, skylighted reading room. It is a handsome space framed by the old stone facade facing open bays of the addition. The architects spanned the narrow room with graceful metal arches to support the glass shed roof, and two pedestrian bridges that link old with new. In addition to custom light fixtures and furnishings, subtly integrated acoustic wall panels and code-required fire shutters that automatically drop to close the open bays meet necessary functional requirements.

Koetter, Kim created two more glazed-over reading rooms, one

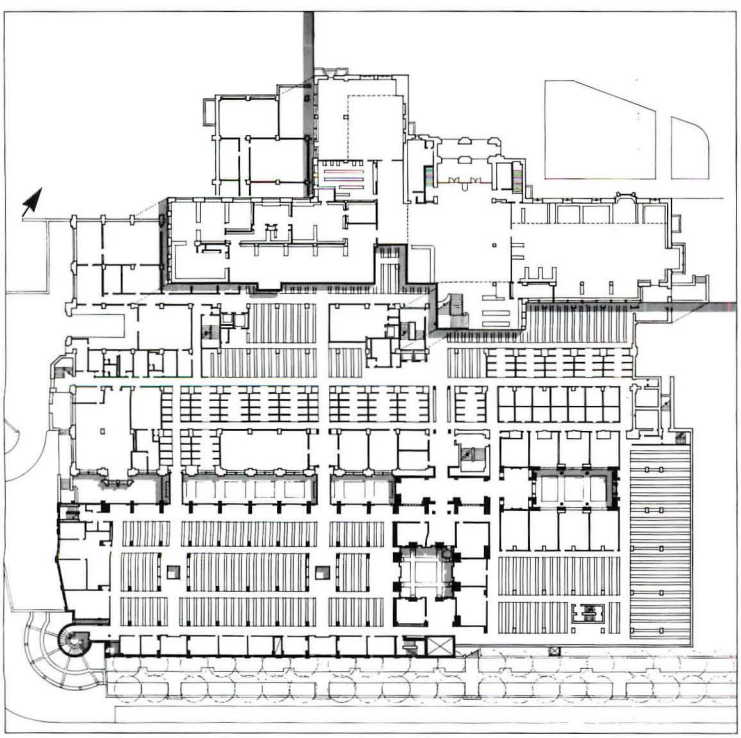
The architects treated the library's principal elevation on Nassau Street as a garden wall, articulating its surfaces with rhythmic compositions of limestone and granite in a variety of finishes (above), and wisteria-planted vertical trellises (facing page, top). They sliced the top of the turret (facing page, bottom) with a skylight to admit daylight.







In extending two levels of basement space in Princeton's Firestone Library (top of plan), Koetter, Kim added a reading room onto the original exterior wall of the older structure, framing the narrow space with glazed steel arches (facing page). The architects connected old and new with pedestrian bridges and linked the two floors of the new structure with a toplighted spiral staircase housed in the turret (above). At the center of the building, 10 monitors and light wells cut into the upper level (right) admit daylight to the book stacks, which are bordered by offices and conference rooms at the perimeter of the underground space (plan).



square and the other rectangular, out of open light courts in the previous addition. All three are distinguished by high ceilings and handsome detailing. The clear glass skylights are supported by closely spaced rows of white metal tubing that shade daylight by 50 percent and at night provide a reflective surface for wall-mounted uplights, which suffuse the space with an even ambient light.

Most of the new addition houses book stacks, but offices and conference rooms line the northern and eastern walls and study carrels border the long reading room. Koetter, Kim extended the axes of the two reading room bridges, placed skylights over each aisle, and inserted light wells to illuminate the level directly under them. The architects effectively defined their newly created spaces by allowing daylight to penetrate the building at points midway across the shorter dimension and along the long facade. At the northeast corner, a spiral staircase swirls up the turret, its simple form set off by dark wood rails and soft, indirect daylight. Koetter, Kim reworked the interior of the 1970s addition as well, extending its long axes and installing flooring and light fixtures that echo those of their own design.

The great success of Koetter, Kim's addition, says Glen Odell, deputy librarian, is that you don't feel that you are in an underground building. "Students flocked in on the day it opened," he says. "They have abandoned the old building. This is now the place to go to study." ■

—ALLEN FREEMAN

HARVEY S. FIRESTONE LIBRARY EXPANSION
PRINCETON UNIVERSITY
PRINCETON, NEW JERSEY

ARCHITECT: Koetter, Kim & Associates, Boston
Fred Koetter, project architect; Susie Kim, Craig Spangler, Mark Chen, design team; Jack Dobson, project manager; C. Roger Haigh, job captain; Carol Nott, Don Semler, William Loftus, Frank Chirico, team.
LANDSCAPE ARCHITECT: Hanna/Olin Ltd.
ENGINEERS: LeMessurier Associates (structural); R.G. Vanderweil Engineers (mechanical and electrical); Van Note-Harvey (civil)
CONSULTANTS: Powell Lighting Design (lighting); McPhail Associates (geotechnical engineer); Tim Johnson (energy); Todisco Associates (specificiations)
PHOTOGRAPHER: Jeff Goldberg/ESTO

Irvine Medical Plaza
Coleman Caskey Architects

Satelite Food Facility
Rebecca L. Binder and
Widom Wein Cohen, Architects

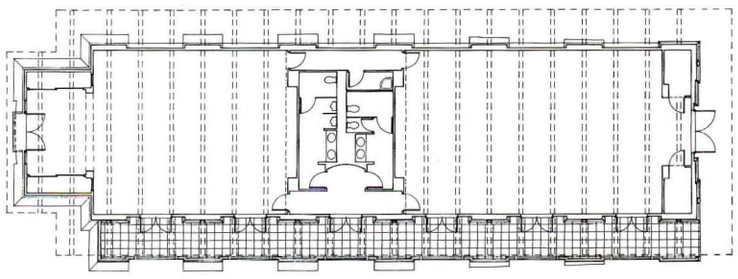
Information/Computer Sciences
Engineering Research Facility
Frank O. Gehry and Associates

Grad Student Housing
Fisher Friedman Associates

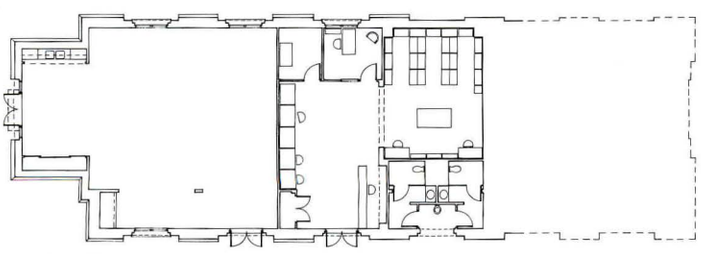
UTOPIA REVISED

Fine Arts Building
Robert A.M. Stern Architects
with S.W.A. Group

PHOTOGRAPHY © RICHARD BRYANT/ARCAID



MAIN LEVEL



LOWER LEVEL

EAST BECOMES WEST

ITS SHALLOW ROOF WITH DEEP OVERHANGS, tipped eaves, and tiles extending beyond the fascia recalls Oriental architecture. Its stucco, red tile, and arched openings fit the Southern California context. Yet UCI's new fine arts building is also redolent of East Coast architecture. And little wonder. For in designing the 13,000-square-foot building, New York architect Robert A.M. Stern sought inspiration from such West Coast architects as William Wurster and Greene & Greene, themselves enamored of Japanese and Arts and Crafts esthetics.

Sited amid tomblike concrete neighbors, Stern's lighthearted building transforms the rear of the existing fine arts complex into a front door. It faces a major campus road to the north and carves out a new south-facing plaza and an amphitheater to the building's east.

The two-story structure completes the first phase of a master plan by Stern and the S.W.A. Group of Laguna Beach that will guide expansion of UCI's fine arts complex through the year 2010. The next phase will double the length of Stern's building to accommodate a new art gallery.

The architect managed to keep construction costs below $1 million by using light frame steel and industrial building techniques. A sloping site permitted him to insert grade-level entrances at upper and lower levels (left), obviating the need for stairs and providing wheelchair access without use of ramps or elevators. And a maximum of loft space opens directly to the outdoors, eliminating the need for interior corridors. Double-height dance and rehearsal rooms occupy the upper level; a design studio and slide library are located below.

Stern invested this minimal building with distinctive regional character, composure, and charm. He established a new architectural vocabulary for the university's arts and humanities program through specifying real stucco and Spanish barrel tile, Mexican limestone for sills and paving, and colorful detailing.

—ANDREA OPPENHEIMER DEAN

Student Services Addition
Siegel Diamond Architects

ADDING ON

FOR ANY ARCHITECT, DESIGNING AN ADDITION IS tricky, especially when the addition must function independently but be integrated with its older neighbor. Siegel Diamond Architects' addition to UC Irvine's Student Services Center forms a new entrance for the original building—a bland, beige box divided by a heavy, projected second story—and mimics the existing structure where they meet. But the architects presented a distinctly different appearance at the new entrance behind a small plaza off the campus ring mall. They announced their addition with a central two-and-a-half story volume framed by a pair of one-story blocks (above). Inside the large vertical structure, which houses offices for UC's academic support services and education abroad program, an airy hall containing a freestanding elevator tower echoes the stucco of the exterior. An open staircase and bridge slice through the space, which is lighted by small square windows punched into a high volume (right). At the rear of the addition, rooms screened by a porch open onto the university's central park.

—JUDITH SHEINE

Graduate School of Management and Campus Office Building
Venturi, Scott Brown and Associates with Bissell Architects

OFFICES WITH CLASS

IT IS, ESSENTIALLY, A SMALL OFFICE BUILDING. Though the first floor has teaching and student services spaces, the upper three stories contain mainly offices and conference rooms. While the arcade along the north and south facades and the red tile roof recall Southern California predecessors, Venturi's principal design source, as for many of his recent academic buildings, was the loft buildings of New England's mill tradition. His inexpensive barnlike building of repetitive elements attains institutional stature and a quiet sense of composure through its scale—underscored by generous, almost industrial-size windows—and through its arcade, which, along with well-crafted oak doors and other openings, is attentively detailed.

—A.O.D.

Information and Computer Sciences/Engineering Research Facility
Frank O. Gehry and Associates, Architects

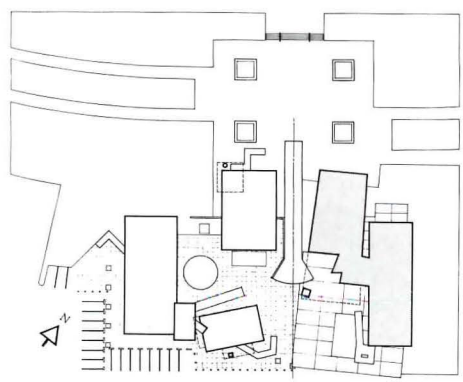
ENGINEERED REFINEMENTS

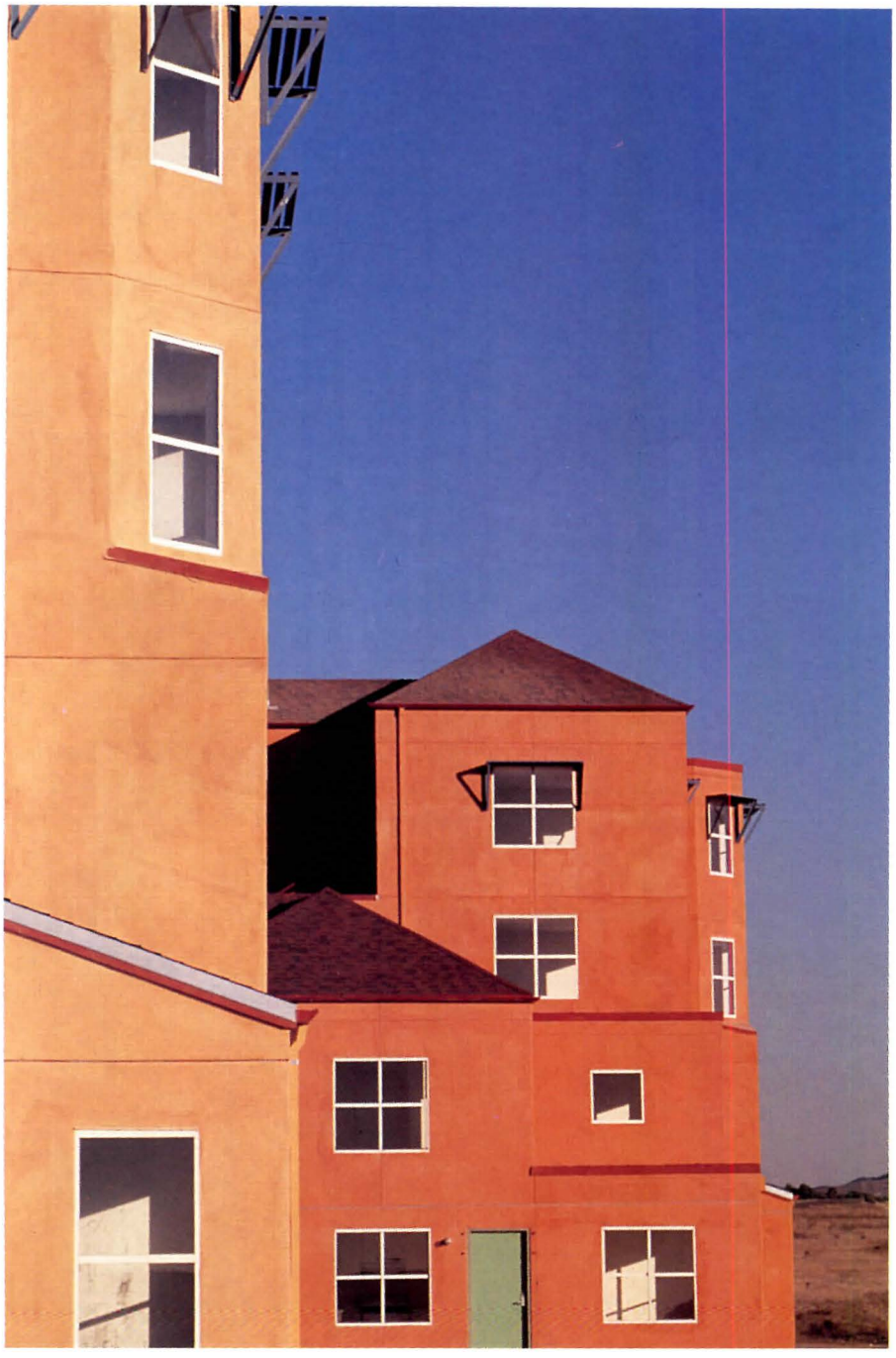
FRANK GEHRY'S ADDITION TO HIS ICS/ERF COMPLEX AT UC IRVINE CONtinues an axial progression of engineering buildings leading from the edge of the central park. The new building frames a courtyard at the heart of the complex, which acts as the entry to the facility's various structures. Gehry's recently completed building balances his previous design with an auditorium, designed as a low mass adjacent to the ramp, and the Rockwell Engineering Center, a taller, three-story volume with large punched windows, which forms a boundary to the complex. As in his design for the Phase I laboratory and administration buildings, Gehry joined the two new volumes with a bold stair tower.

The architect's new ensemble, however, reflects a different sensibility from his earlier UC project. With its copper-clad roof and canopy, brick exterior, and plywood-paneled interior, the auditorium lends a solidity and elegance to the entire complex that should challenge the perception that Gehry uses only cheap, common materials unsuitable for institutional buildings. The auditorium actually functions as a conference center, and its copper-covered canopy defines an indoor-outdoor space for luncheons and other social activities. Another difference between the two phases of the complex is seen in Gehry's treatment of the exterior stairs. While both sculptural elements contrast with their simple building masses, the newer staircase is sheathed in sheet metal panels lapped to resemble scales, as on the tower linking the auditorium and the engineering center. Instead of pipe rails and exposed concrete treads, the details of the recently completed staircase appear similar to the heavier fish and reptile forms lately favored by the architect. Gehry has controlled the rawness of Phase I with a firm hand.

One less successful distinction from the earlier ensemble is that the two large volumes of Phase II facing the ring mall stand uncomfortably close together, forming an awkward slot between them. Here, too, the blank rear elevation of the auditorium presents a rather forbidding face to the campus. These drawbacks are tempered, however, by a prominent platform on the engineering center that extends toward the mall. In an appropriate ceremonial gesture, Gehry projected the balcony from the office of the dean.

—JUDITH SHEINE





Graduate Student Apartments
Fisher Friedman Associates

VILLAGE LIVING

THE PALETTE IS BERNARD MAYBECK'S—rich ochres, reds, pale yellows. The configuration of staggered, unadorned, repetitive forms with varied rooflines and an occasional tower forms a vigorous skyline and recalls Italian hill towns. The charm of Fisher Friedman's graduate student housing lies in the massing.

The complex of 204 walk-up apartments on a 9.5-acre site creates two "villages," each with a separate entry drive, a central green, laundry, recreation building, and tower (it's just symbolic). Each small cluster is composed of three or four buildings grouped around parking courts. (Forty percent of parking is tucked below grade to reduce visual clutter; the remainder is relegated to the courtyards to keep the perimeter tidy.)

Most of the housing is centered on a four-story block, flanked by two-story apartments with metal shades to decrease sun absorption. Agile students, reasoned the architect, would climb for fine views enhanced by oversized windows. The resulting arrangement increased densities and thereby reduced costs. Apartments accessible to wheelchair users are included at ground level.

In response to a user survey, most units have two bedrooms, some with extra large sleeping areas and smaller living areas for roomates' privacy—one among many appealing characteristics of the graduate student apartment complex.

—A.O.D.

Irvine Medical Plaza
Coleman Caskey Architects

DOCTORS' ORDER

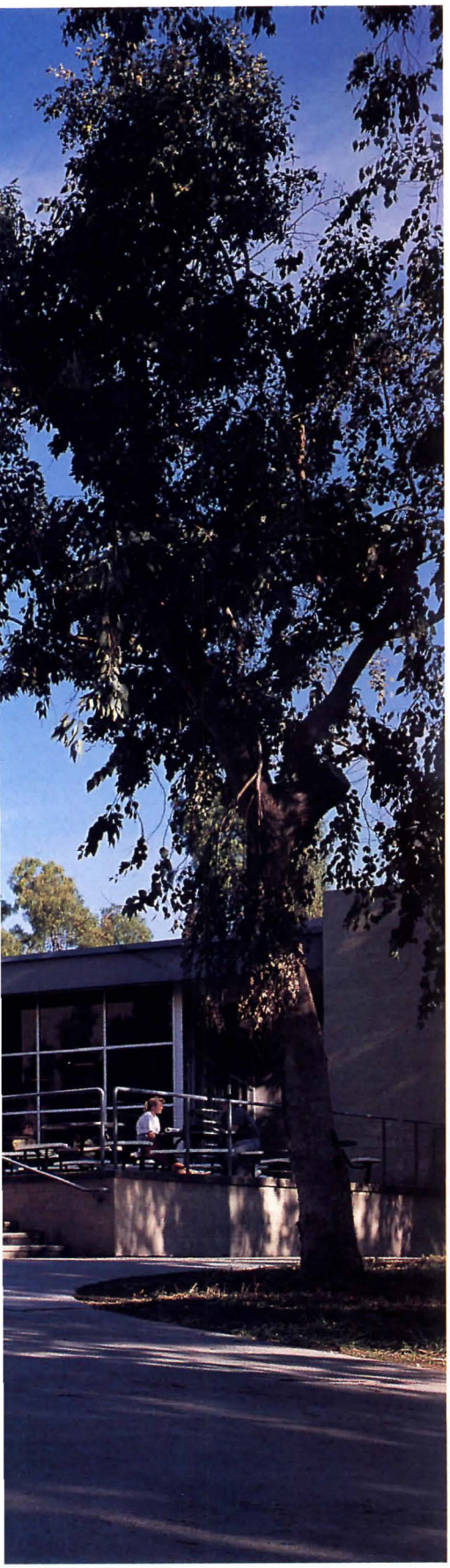
TO ATTRACT PRIVATE PHYSICIANS AND patients from the Irvine area, the university commissioned Coleman Caskey Architects to create an appealing hillside clinic at the entrance of its expanding medical campus. Many local doctors, especially specialists, now use the clinic on a time-share basis some for just two or three hours a week.

The architects liken the organization of the 28,000-square-foot first phase of the two-story building to a shopping mall. The clinics are on either side of a central, skylighted galley that simulates outdoors with abundant plants, tile, slate, and marble paving and siding. This atriumlike space serves as a secondary waiting area, with "safe haven" waiting spaces closer to examination rooms.

The exterior, covered in five-foot-square white steel trowel-finished cement plaster panels, was conceived as a factorylike, prefabricated container for the clinics. In contrast to this utilitarianism, a curved pharmacy and a sculptural exposed staircase enliven the building envelope.

—A.O.D.

Satellite Food Facility
R.L. Binder Architecture and Planning
Widom Wein Cohen, Associate Architects



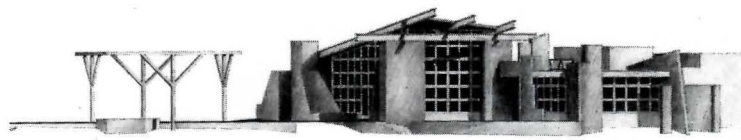
THOUGHT FOR FOOD

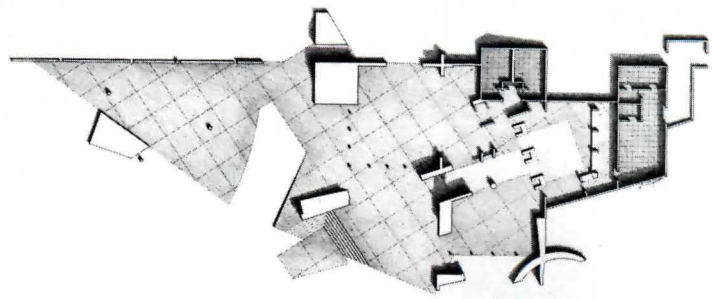
REBECCA BINDER'S CHALLENGE AT IRVINE WAS TO FIT AN inviting, yet contextual, 5,800-square foot cafeteria among clunky '50s and '60s buildings at a pivotal site within the campus. A magnet for students, it would be the only building to penetrate the perimeter of the university's lush, innermost park.

The architect's response was to create a triangular, crisply outlined eatery by marking the radial geometries of UC's master plan in exposed concrete and angled overhanging steel beams. The most prominent feature of the resulting design is a dramatic roofline that points upward into the center of the park. Binder likens her project to and archaeological excavation of the campus, its structural members to found objects, its roof to "a modern intrusion to the existing monuments at Irvine." Another emblem of the building's modernity is its floor-to-roof glazing, framed in a grid of anodized aluminum. These glass walls reveal activity within the building, contrast dramatically with impenetrable, neighboring building facades, and create a beacon, especially at night. The cafeteria's prowlike form serves as a tree house for up to 180 diners; there is additional seating for 200 outdoors.

Binder designed all interior furniture and fixtures, including idiosyncratically tall, armaturelike cashier stands that accentuate the verticality of the space and, the architect claims, "relate to the trees beyond the servery." ■

—A.O.D

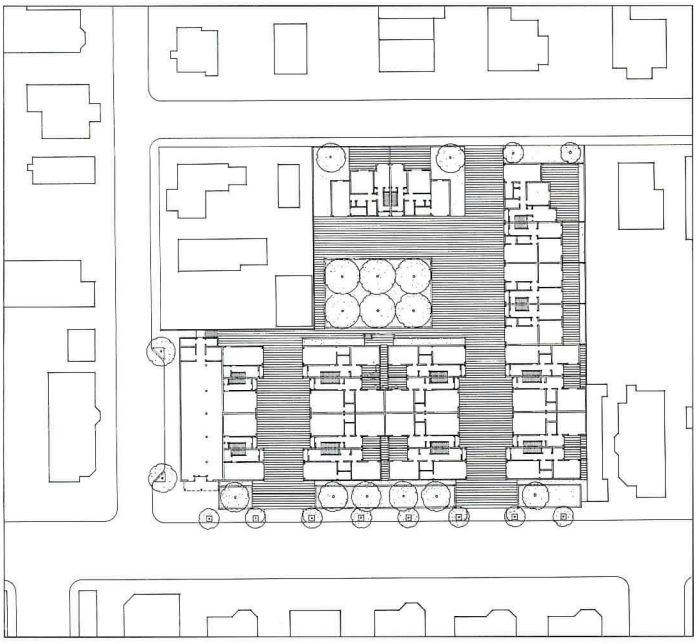




Harvard Faculty Housing
Cambridge, Massachusetts
Woo & Williams, Architects

UNCOMMON DWELLINGS

Harvard's new town houses, at the top of their class, blend sophistication with respect for their elders.



LIKE NEW BUDS ON AN OLD BRANCH, TWENTY-TWO yellow town houses, just built by Harvard University, have the freshness and promise of spring while clearly belonging to the same species as their older, grayer neighbors. Called Observatory Commons, after the nearby Harvard Smithsonian Astrophysical Observatory, the cluster is designed by Woo & Williams of Cambridge. The architects achieved sudden recognition two years ago when they won a competition for the mammoth Seoul Olympic Village, a minicity of some 6,000 apartments and a community center (ARCHITECTURE, March 1989, page 68).

Observatory Commons is as small and delicate as Seoul was big and imposing. Ever-expanding Harvard hasn't always been noted for architectural good manners when thrusting new buildings into old neighborhoods. But here the deed has been done right, with tact but no timidity.

The houses are three stories tall and clad in yellow-painted clapboard on their upper levels and flat, gray-painted shiplap siding at the ground floor (most of which is garage). Circular windows and arched parapets relieve the generally square-cut shapes, and at the roofline cornices curve forward in a cove shape. The fiberglass cove

The Bostonian triple-decker style of Observatory Commons echoes the rhythm established by its neighbors (right). The units are clustered around a brick courtyard (site plan and facing page). Arched parapets and cove-shaped cornices break rectilinear monotony (facing page).

gently echoes the wooden brackets of nearby houses but also looks, in another direction, at a common motif of James Stirling. It becomes a kind of signature shape for Observatory Commons as a whole.

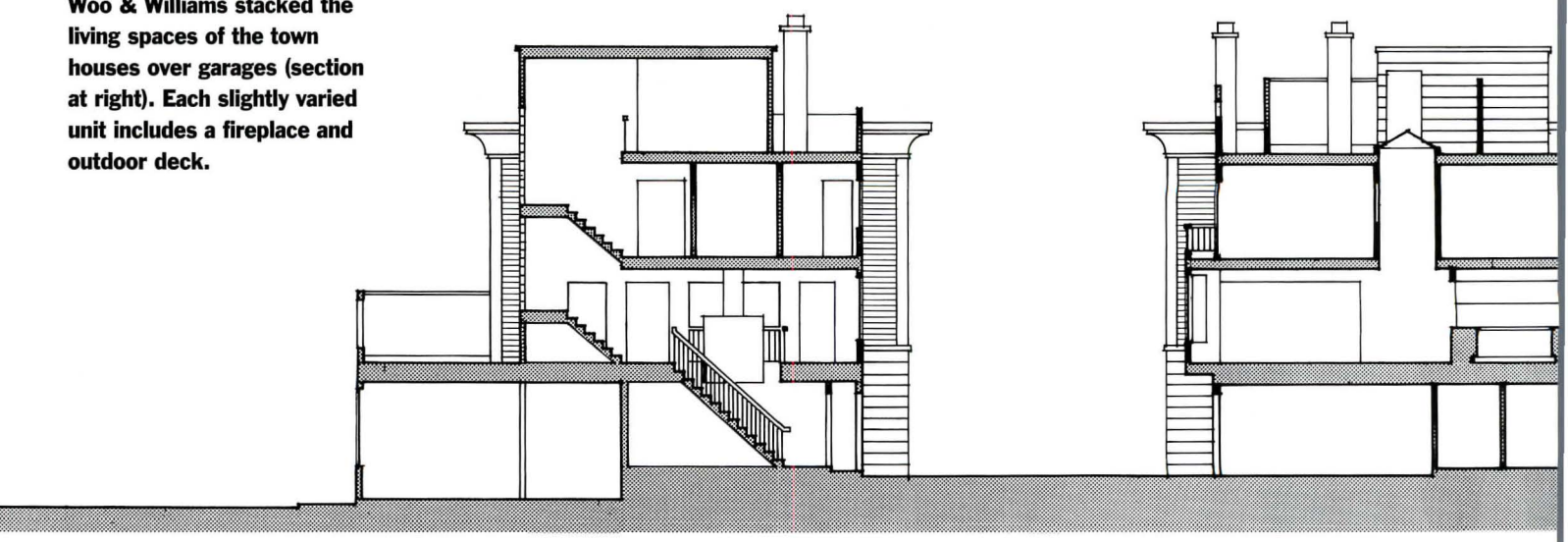
The houses vary slightly inside. Each unit has a fireplace and at least one outdoor deck, and most have two bedrooms and a small study. All are airy, bright, and delightful. There's ingenious use of glass block and of skylighting to preserve both daylight and privacy. Outdoors, old trees have been carefully saved, and visitor parking is accommodated with a brick-paved courtyard, part of a handsome landscape treatment.

The Observatory Commons houses were built to be bought by junior faculty, in an effort by Harvard to solve a crisis in faculty recruitment. Housing costs in Cambridge rose so fast in the 1980s that the university hasn't found it easy to attract or retain top young faculty in competition with less costly rivals. Therefore, the town houses are being sold at 25 to 40 percent below market rate, with most going for around $200,000.

From a wider perspective, Observatory Commons can be thought of as a response to the recent call for an architecture that can be at once local and global—an architecture that respects the continuities of local place and local history yet still belongs confidently to the global culture that we all, like it or not, are part of today. An architecture, in other words, that's regional without looking like a revivalist stage set.

Observatory Commons succeeds at walking that fine line. Up and down Concord Avenue, the street it fronts, are examples of a building type known to Bostonians as the triple-decker, a sandwich of three dwellings on three floors. The new housing, though recollecting the flat roofs, bay windows, and strong cornice lines of the triple-

Woo & Williams stacked the living spaces of the town houses over garages (section at right). Each slightly varied unit includes a fireplace and outdoor deck.



Although Woo & Williams acknowledge the surrounding neighborhood, the firm's design for Observatory Commons is not timid. Round windows counter hard lines and right angles (facing page, left). Glass block and latticework emphasize the geometry of the complex and admit light to the units while maintaining occupants' privacy (facing page, right). The open, daylighted interiors of the economical units exhibit an early Modern order (left), a comfortable sophistication that appeals to the young professors Harvard would like to attract and keep (below).

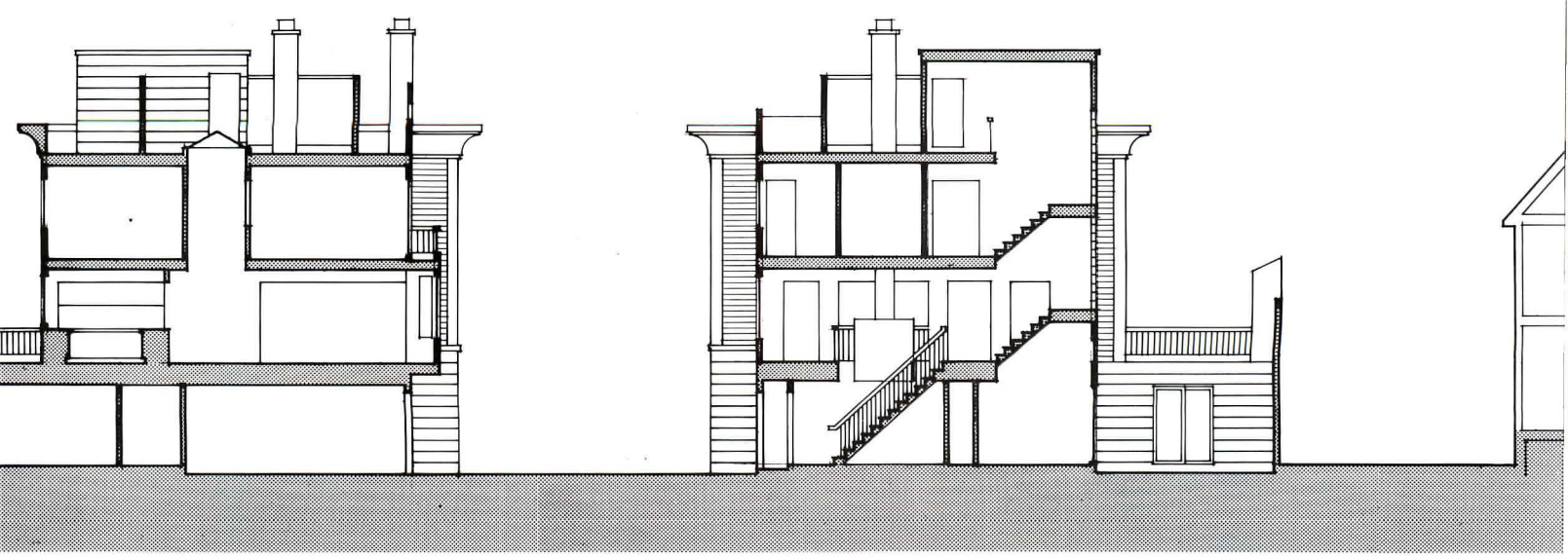
decker, is rendered in the crisp, modular cubism of the early Modern movement, with a glance at more recent models such as Stirling. The houses of Observatory Commons seem anxious to please their neighbors on the street yet are fully aware of belonging to a wider culture.

Good as Observatory Commons is, it does share one drawback with virtually all other new housing in Cambridge and most of the rest of the country: the quality of exterior detailing and construction falls far short of the standards of the past. It seems likely that it will take much maintenance to keep these fine houses from looking shabby in a generation or so. But, despite minor drawbacks, Observatory Commons is a rare success. This is architecture that harmonizes old with new and charms the public without boring the sophisticate. ■

—ROBERT CAMPBELL

OBSERVATORY COMMONS
HARVARD UNIVERSITY
CAMBRIDGE, MASSACHUSETTS

ARCHITECT: Woo & Williams, Cambridge, Massachusetts
Kyu Sung Woo and John G. Williams, principals-in-charge;
Du Nam Choi and James Wilson, project team
LANDSCAPE ARCHITECT: Woo & Williams
ENGINEERS: Tsiang Engineering Inc. (structural);
SAR Engineers (mechanical and electrical)
GENERAL CONTRACTOR: Congress Construction Company
COST: $82/square foot
PHOTOGRAPHER: Steve Rosenthal



Balfour-Hood Campus Center
Wheaton College
Norton, Massachusetts
Amsler Hagenah MacLean Architects with Robert Neiley Architects

A Mending Wall

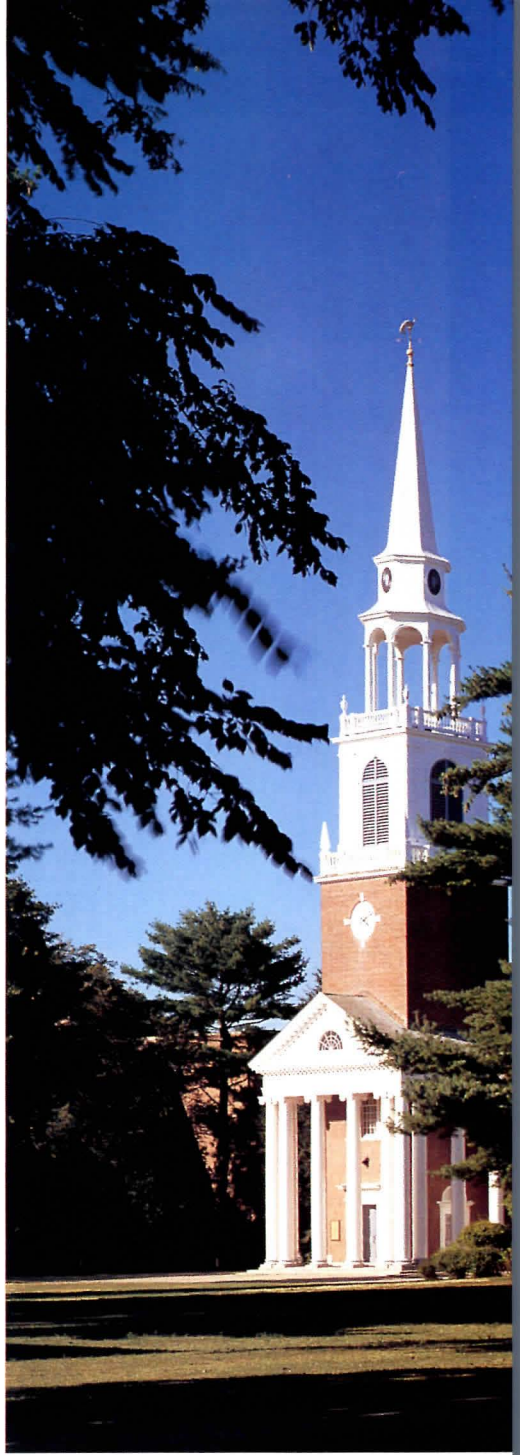
A long brick facade smooths a jagged corner and restores order to a New England quadrangle.

THE HEART OF WHEATON COLLEGE IS A TEXTBOOK example of the academic quadrangle. White-trimmed red brick buildings enclose a long greensward centered on a steepled chapel, in typical New England fashion. At the southeast corner of the quad, however, the campus geometry is broken by an L-shaped building of 1940s vintage that houses student recreational activities; it is sited down a steep hill and at a 45-degree angle. The Boston firm of Amsler Hagenah MacLean Architects, in joint venture with Robert Neiley Architects, designed a new campus center that envelops the older building, mends the quadrangle's wall, and links together the college's upper and lower campuses.

The architects accomplished this connection with one bold stroke: a 250-foot-long brick wall punctuated by square windows that stretches east to west and screens the older structure. At the quadrangle end of the new building, a cornice matches the height of its neighbors and extends unbroken as the base steps down grade. It gives the wall a presence that terminates the north end of a playing field on the lower campus, an area which also serves as the site for graduations.

A generous, glazed entry at the lower end of the center leads to a multilevel social gallery, defined by the brick walls of the older building, incorporated by Amsler Hagenah MacLean as new interior walls. The architects knitted the 1940s center into their new design by renovating the older interiors into student and administrative offices and extending a white, daylighted spine, which adjoins various student activity spaces, such as a convenience store, cafe, and meeting rooms. The spine terminates at the western edge of the linear building in a temple-like steel and glass canopy that echoes the scale and proportion of the adjacent chapel's white portico. (The canopy's exact location was determined by moving a full-scale mock-up on tracks). On the south side of this open structure, a sunny deck provides outdoor seating for the cafe. Resolved with clarity and economy, Amsler Hagenah MacLean's student center is a surprisingly simple solution to a complex site. ■

—MICHAEL J. CROSBIE



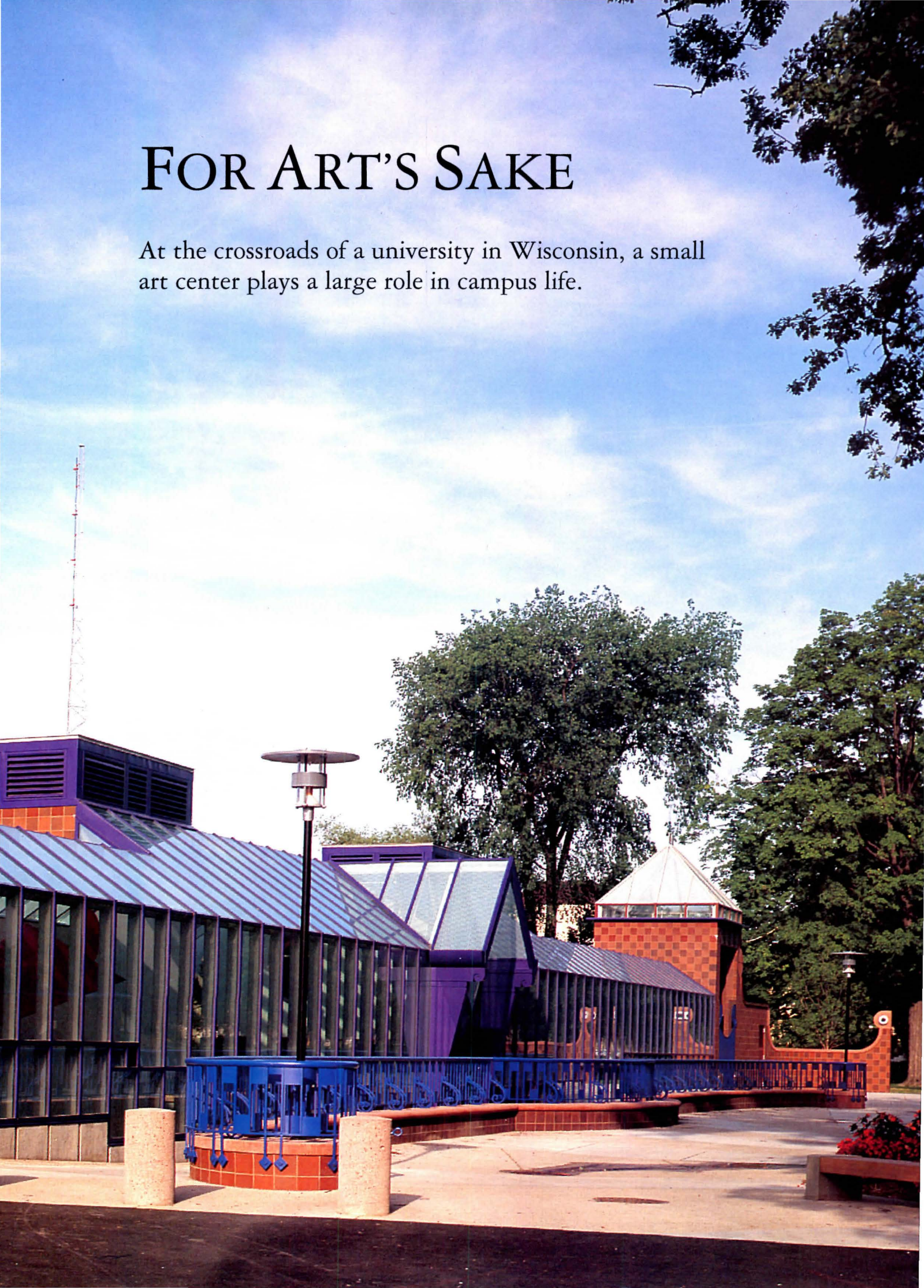
Wheaton's new student center pays homage to a steepled chapel (right) with a steel-framed portico. Its brick elevation (facing page) screens a 1940s recreational facility, whose wall frames a gallery (right).

ARCHITECT: Joint venture of Amsler Hagenah MacLean Architects Inc., Boston, and Robert G. Neiley Architects
LANDSCAPE ARCHITECT: Carol R. Johnson & Associates Inc.
ENGINEERS: Souza True & Partners Inc. (structural); Fitzemeyer & Tocci Inc. (mechanical); Lottero & Mason Associates (electrical)
CONSULTANTS: Berg/Howland Associates (lighting); Crabtree-McGrath Associates (food service)
GENERAL CONSTRACTOR: Sullivan-Foster Inc.
COST: $3.2 million—$73/square foot
PHOTOGRAPHER: Steve Rosenthal

Wriston Art Center
Lawrence University
Appleton, Wisconsin
Centerbrook Architects

For Art's Sake

At the crossroads of a university in Wisconsin, a small art center plays a large role in campus life.



ALTHOUGH SMALL IN STATURE, THE Wriston Art Center is the liveliest landmark on the Lawrence University campus. Designed by Jefferson B. Riley of Centerbrook Architects, the building hugs the ground, creating a garden wall backdrop to the campus green. Yet beyond its brick walls is a virtually transparent structure that invites passersby to peer into the studios with the ease and delight of a window shopper. And its skylighted turrets accent the roofline of this low building like a series of exclamation points.

The art center is located at the crossroads of three main pedestrian paths, tucked on a tight site between an imposing six-story library to the north and a mundane 20-foot-high student union dating from the 1950s to the south. Riley chose a palette of dark red brick splashed with bold blue metal detailing, setting the art center apart from the surrounding campus buildings built almost entirely of beige-colored brick, stone, and clapboard.

Fronting the main campus green, the building's eight-foot-high brick wall is emblazoned with a checkerboard pattern of alternating glazed and unglazed finishes and anchored at either end by a curling gateway. Yet beyond the garden wall the expansive glass facades open up the center to the rest of the campus. The resulting effect is as if the building were supported by two pairs of matching, back-to-back, bookends—one pair brick and the other glass. As Lawrence University President Richard Warch explains, "The building beckons us not only on behalf of itself, but on behalf of what goes on inside it."

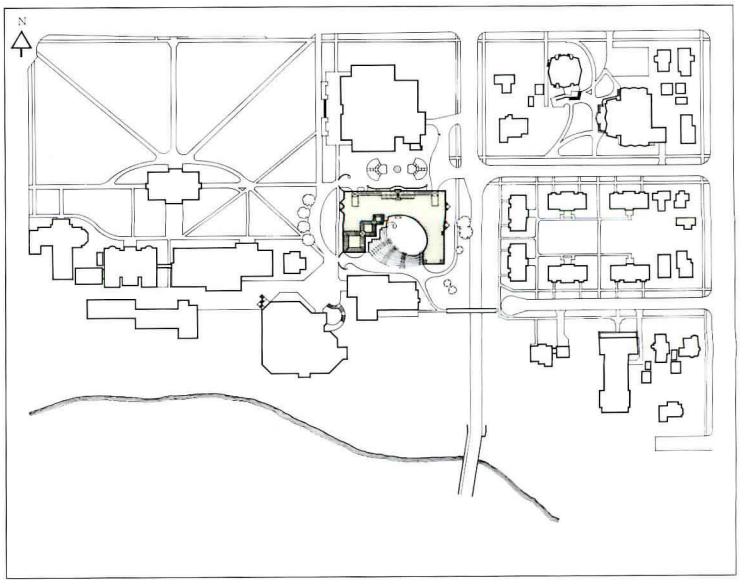
To the north, Riley created a small garden plaza centered on a fountain fronting the entry to the upper level. On the two corners, a pair of towers contains the loading docks for the facility, which Riley has coined "Porta d'a Materia Prima," for the delivery of art materials, and "Porta d'Arte," for the delivery of works of art. The architect screened their doorways with bright blue gates using his signature curve. Running the length of this facade, a glazed wall provides open views through the building and down below to the studios, and an inclined walkway parallel to the window wall leads to a slightly reccessed entry terrace.

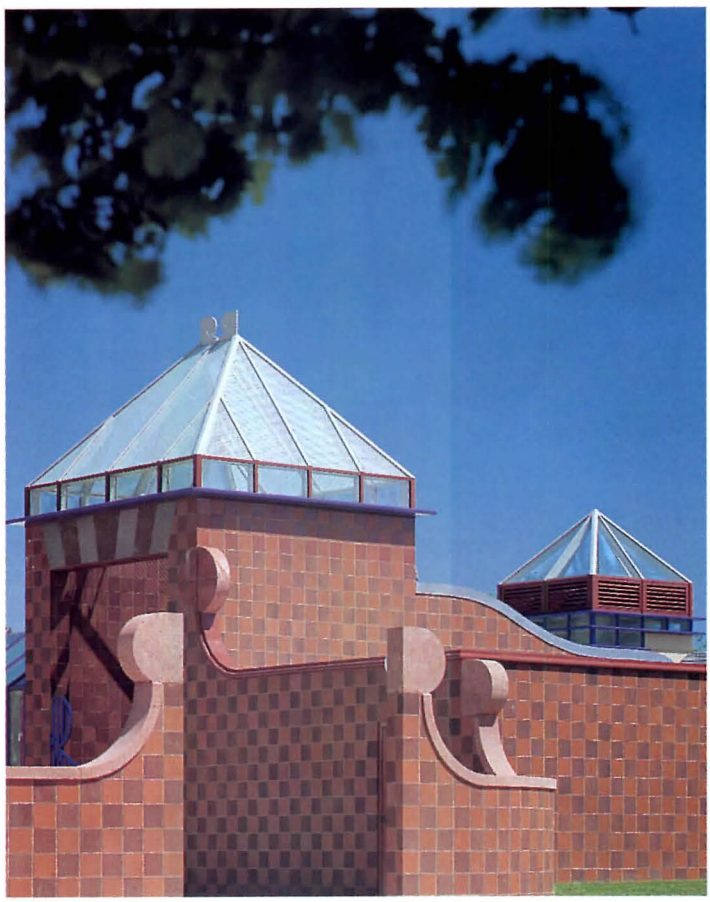
The south-facing elevation opens onto a recessed amphitheater that descends to a sunken plaza, providing an informal gathering place off the student union and a formal setting for concerts and performances. The sweeping curves of the amphitheater are echoed by windows wrapping the building, which bathe the lower-level studios with daylight.

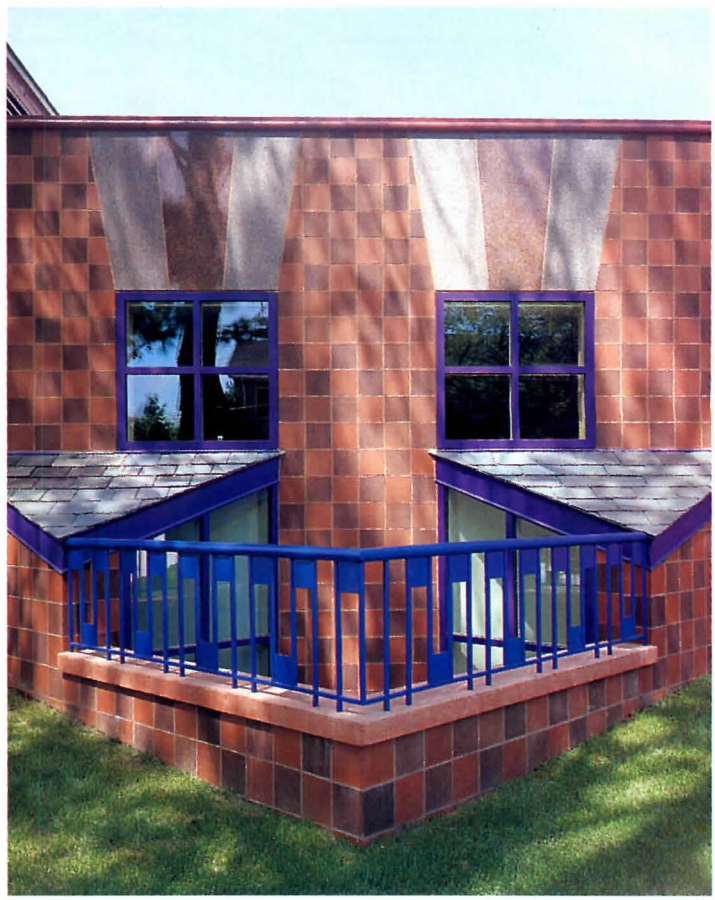
The brick-clad elevation along Lawe Street to the east is punctuated with square windows defined with blue mullions and capped with oversized granite keystones. A cluster of small towers forms the facade as the street drops down to the Fox River; although it is the least inviting facade, it creates the illusion of a medieval hill town within the walled confines of this diminutive building.

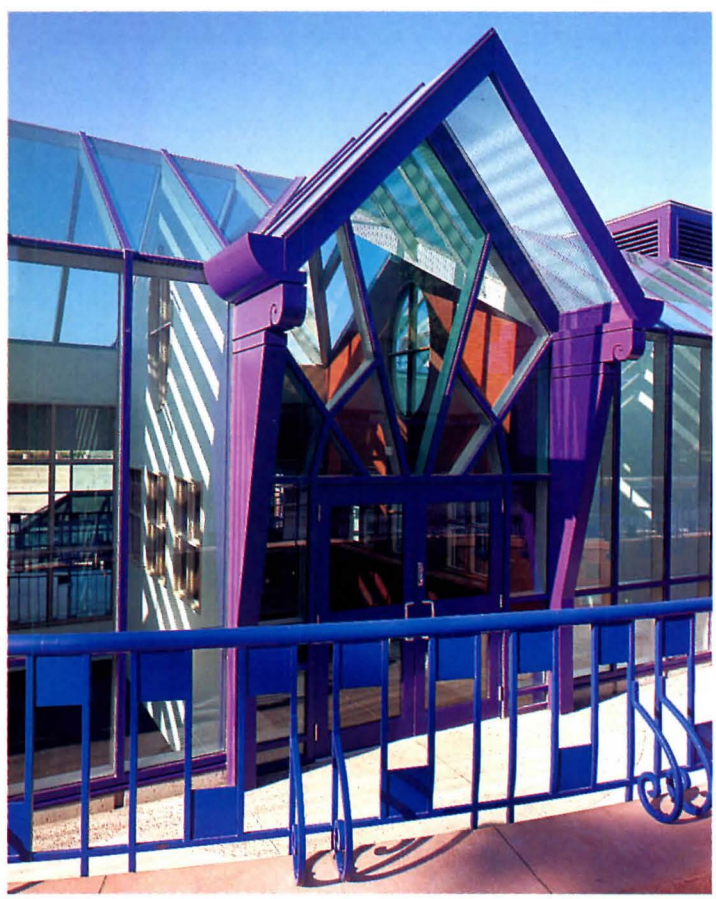
Inside, the new 38,000-square-foot art center is devoted to the display, creation, and study of art. The entrance to the upper level is marked with a gabled portico leading to a bridge that bisects the glass enclosure to

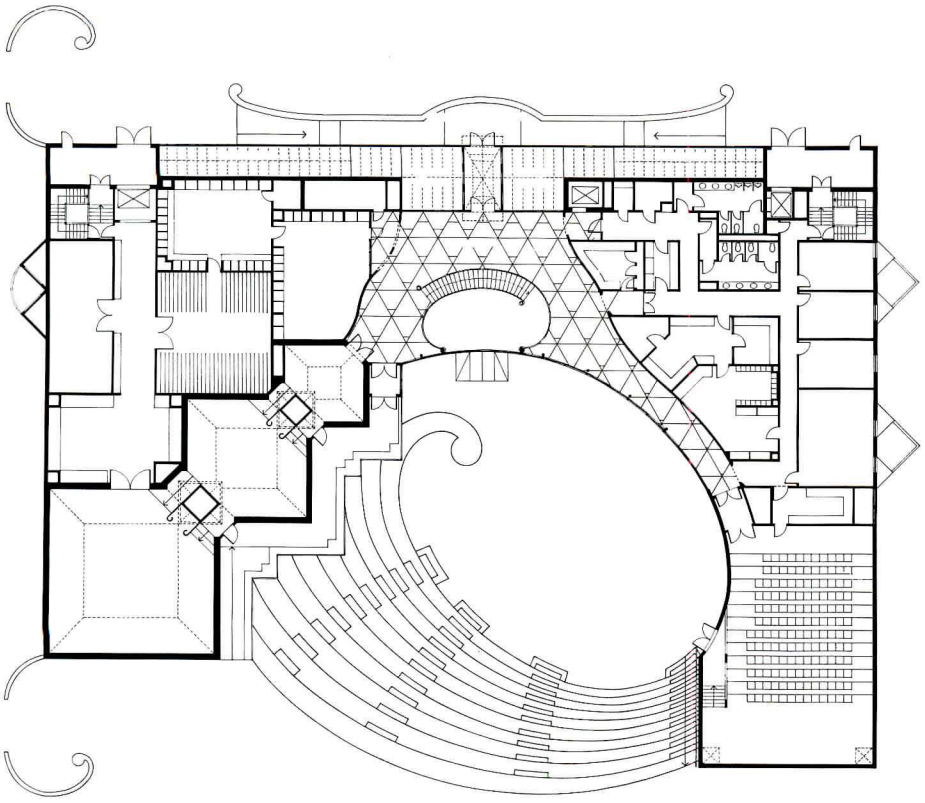
Centerbrook's art center presents an expansive glass wall to the north (preceeding pages) and a sunny amphitheater to the south (bottom left). A curving brick gateway and skylighted towers announce the building at the crossroads of a major campus path (facing page, top left); recessed bay windows provide light to offices on the lower level (top right); gabled entrances and railings punctuate the transparent elevations (bottom left and right).





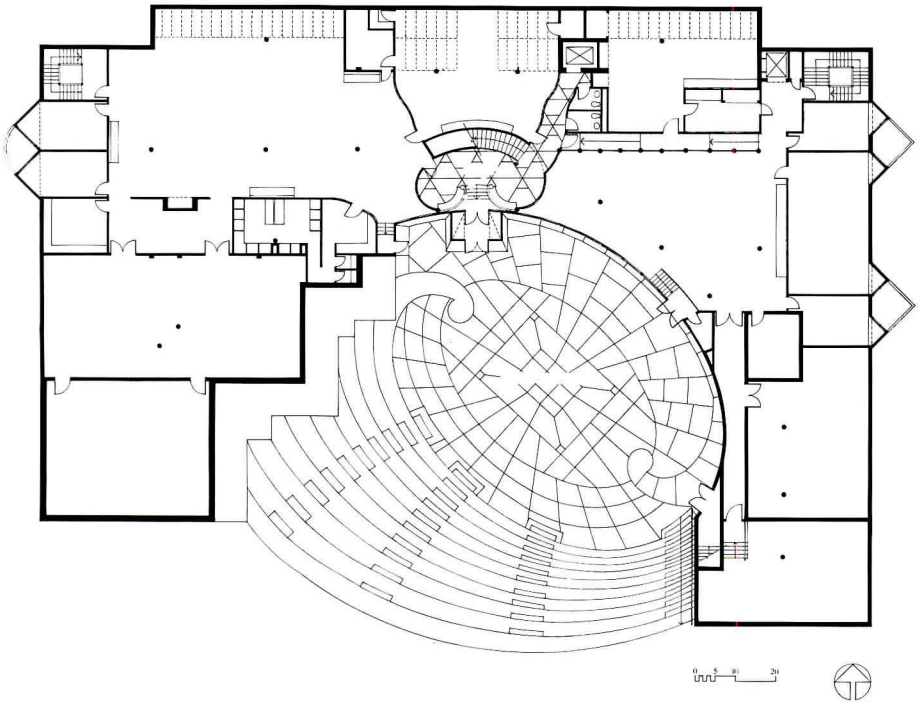






UPPER LEVEL

At the northwest corner of the art center, a flexible open space is used for painting, drawing, and printmaking (facing page, top left). Skylights brighten three of the studios with daylight from a northern exposure. The Wriston Center's three galleries comprise an enfilade at the southwest corner of the building (left of top plan), including the Kohler Gallery (top right). A serpentine galleria at the perimeter (facing page, bottom) houses displays of study reproductions and temporary exhibitions.



LOWER LEVEL

provide another vantage through residential-scaled windows down to the studios. The public circulation paths and lobby spaces are light, airy, and finished in terrazzo flooring throughout. The architect decorated the floors in a triangular pattern of various sizes that is highlighted by interesting shadows cast by light filtered through tinted glass panes.

From the lobby, a curved staircase opens onto the studio complex, which contains a large, flexible area for painting, drawing, and printmaking, a multipurpose studio, a photography suite, and a studio for sculpture, metalwork, and ceramics.

The upper level of the arts center houses a 150-seat auditorium, administrative space, classrooms, a serpentine galleria for informal displays along the curving glass wall, and three galleries of ascending size. Their volumes progressively increase and are separated by small hallways. Darker and lower than the galleries, the corridors contribute to a mysterious "Alice in Wonderland" illusion—instead of the rooms becoming larger, the visitor seems to shrink.

Although the galleries encompass only a small percentage of the new art center in terms of square footage, the exhibition spaces are integral to Lawrence University's long-standing ambition to make the fine arts an integral part of campus life. (The college owns an impressive array of German Expressionist art, the La Vera Pohl collection, which constituted the center's inaugural exhibition.)

Centerbrook's fine arts center is a deliberate break from the monotony of the neutral-colored campus. And its forms, details, multilevel spaces, and "smiling" facades recall some of the architect's award-winning houses, as well as his student center at Colby College. But even more important, says Riley, a Lawrence alumnus, was the goal of making "a building that is extraordinary not because it looks different but because it makes a difference in the daily lives of the students." ■

—LYNN NESMITH

WRISTON ART CENTER
LAWRENCE UNIVERSITY
APPLETON, WISCONSIN

ARCHITECT: Centerbrook Architects, Essex, Connecticut—Jefferson B. Riley, partner-in-charge; D. Michael Hellinghausen, project manager; Walker Burns, designer
LANDSCAPE ARCHITECT: Centerbrook Architects
ENGINEERS: Besier, Ribble, Norden (structural); John L. Altieri Consulting Engineers (mechanical and electrical); Martensen & Bisole Inc. (civil)
GENERAL CONTRACTOR: O.J. Boldt Construction Company
COST: $5.8 million—$153/square foot
PHOTOGRAPHER: Paul Warchol


EXIT
EXIT


PARTY
MAKE

Morris A. Schapiro Residence Hall
Columbia University, New York City
Gruzen Samton Steinglass Architects

WEST SIDE STUDY

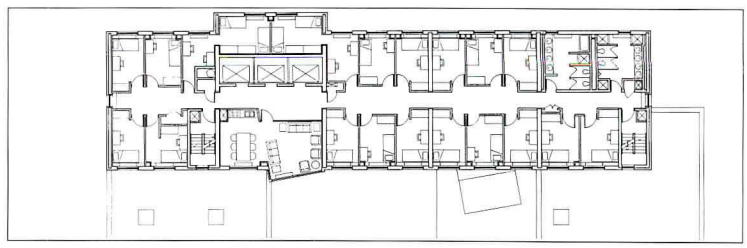
Columbia University's first off-campus facility is a traditional dormitory setting and a neighborly addition to its street.

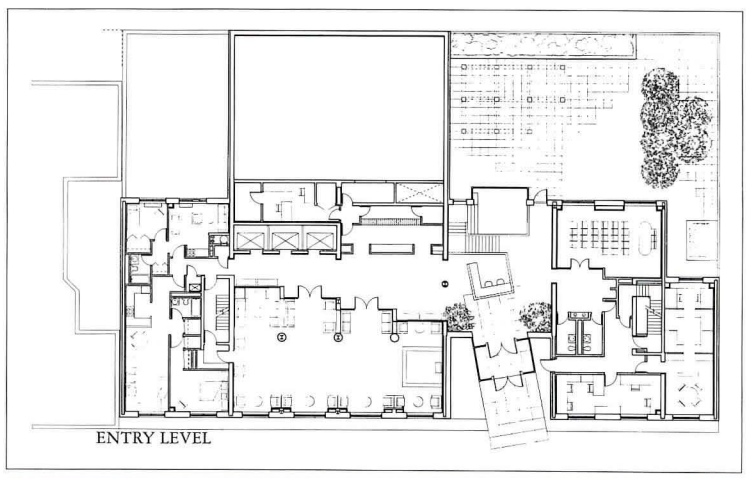
ONCE RENOWNED FOR THEIR RADICALISM, STUDENTS at Columbia University have grown conservative in domestic matters. In the 1970s, Columbia reconfigured its dormitories into clustered suites where students ate, slept, and studied with the same neighbors, and complained about their lack of privacy. Dissatisfaction with this arrangement prompted the university to commission Gruzen Samton Steinglass to design Schapiro Hall in a traditional spirit on a street near the campus on Manhattan's Upper West Side. The 420-student dormitory harks back to the days when students welcomed the social structure that institutions —and architecture—can offer.

Principal designer Scott Keller, a Columbia graduate, returned to a model whereby students intermingle in the corridors yet can retreat to their own cells to study. Every aspect of the design celebrates the fundamentals of student life: hanging out, cooperative living, and earnest study. From a plinth at street level to a sky lounge, circulation is arranged in a zigzag pattern to maximize personal contact.

While the interior caters to its residents, the exterior was designed under pressure from a vocal community group that accused Columbia University of running roughshod over the neighborhood. Given the midblock site, the architects broke the building mass into a slim, 17-story tower, leaving considerable air space at the rear, and a nine-story wing that maintains the street wall and is friendlier in scale. The architects sought to relate Columbia University's first off-campus project to McKim Mead & White's red brick and limestone campus. The university vocabulary is invoked in the color scheme, granite base, and herringbone sidewalk border. Realized in modern materials and forms, it avoids overt literalness and a monotonous image. Given the tight budget, Schapiro Hall is remarkably detailed and thoughtfully planned. The new dormitory has been a great success among the students, who require privacy within a crowd, and has satisfied a neighborhood that feared the worst and got instead a design sensitive to its urban context. ■

—ROSANNA G. LIEBMAN





ARCHITECT: Gruzen Samton Steinglass Architects, New York City
Peter Samton, partner-in-charge; Scott Keller, project designer; George Yourke, project manager; Irving Leong, Halina Starewicz, Paul Laux, Jasper Cornett, Nicholas Lombardo, Gabriella Teodor, Susanna Stere, Steve McQueen, Jennifer Krogh, Jennifer Kish
ENGINEERS: Robert Rosenwasser (structural); Cosentini Associates (mechanical and electrical)
CONSULTANTS: Construction Consulting Associates (codes); Amis Construction & Consulting (cost)
PHOTOGRAPHER: Jeff Goldberg/ESTO

Shapiro Hall presents a variegated profile at its entrance (facing page) and a slender 17-story tower to the rear (right).

DESERT BLOOMS

A trio of engaging buildings breaks Arizona State University's arid architectural tradition.

FOR MOST OF ITS FIRST CENTURY, THE LITTLE STATE COLLEGE IN TEMPE, Arizona, languished in the shadow of its more prestigious Tucson rival, the University of Arizona. Both were founded in 1885, 27 years before Arizona became a state, but it wasn't until 1958 that the Tempe school became a university. Even then, Arizona State University's reputation grew more slowly than its enrollment; only in the 1980s did people began to think of this enormous campus—now 43,500 students—as anything more than an undergraduate mill to service Phoenix's exploding population.

ASU's second-drawer status is easily recognized in its architecture. At the historic core of the campus is a huddle of Romanesque and Neoclassical buildings dating from the 1890s to 1930, some of which have been defaced by modern additions of appalling insensitivity. When the university began to boom, there was no tradition of architectural excellence to build upon, nor was there money from the Arizona legislature to begin one. As a result, ASU was a campus with just one landmark building: Frank Lloyd Wright's Gammage Auditorium, originally designed as an opera house for Baghdad and translated to the Arizona desert. The rest of the campus was an open-air museum of movements in postwar architecture, such as the Bauhaus-inspired engineering center (1956) and the overdecorated, pavilion-style Hayden Library (1964). Whatever the style, the buildings all share common failings: none of their interiors stimulates the emotions or challenges the imagination, and all their designs ignore regional issues, particularly climate.

In 1989, however, with the legislature as niggardly as ever, three unconventional new buildings opened on campus: the Nelson Fine Arts Center, by Antoine Predock, FAIA; the Hayden Library addition, by Sasaki Associates; and the college of architecture and environmental design, by the Hillier Group. Although they don't merit lavish praise, each is a welcome departure from the parade of stale monoliths that preceded them.

Predock's fine arts center stands out because it was the result of the first design competition ever staged for a university building in Arizona. It's also unique on campus in that it invites varying interpretations; it's a playground for daydreamers. Some visitors say it reminds them of an abstract sphinx crouching at the campus edge; others think its massing recalls a Middle Eastern town. University art museum director Rudy Turk, looking over its colliding boxes, plazas, and stairways, says, "I would love someone to make a film out here. Imagine Arnold Schwarzenegger throwing people off these walls."

Predock's own conception of the center is even more elaborate, a product of what he calls his "Joycean stream of consciousness." The architect explains that he imagined the

ARIZONA STATE UNIVERSITY

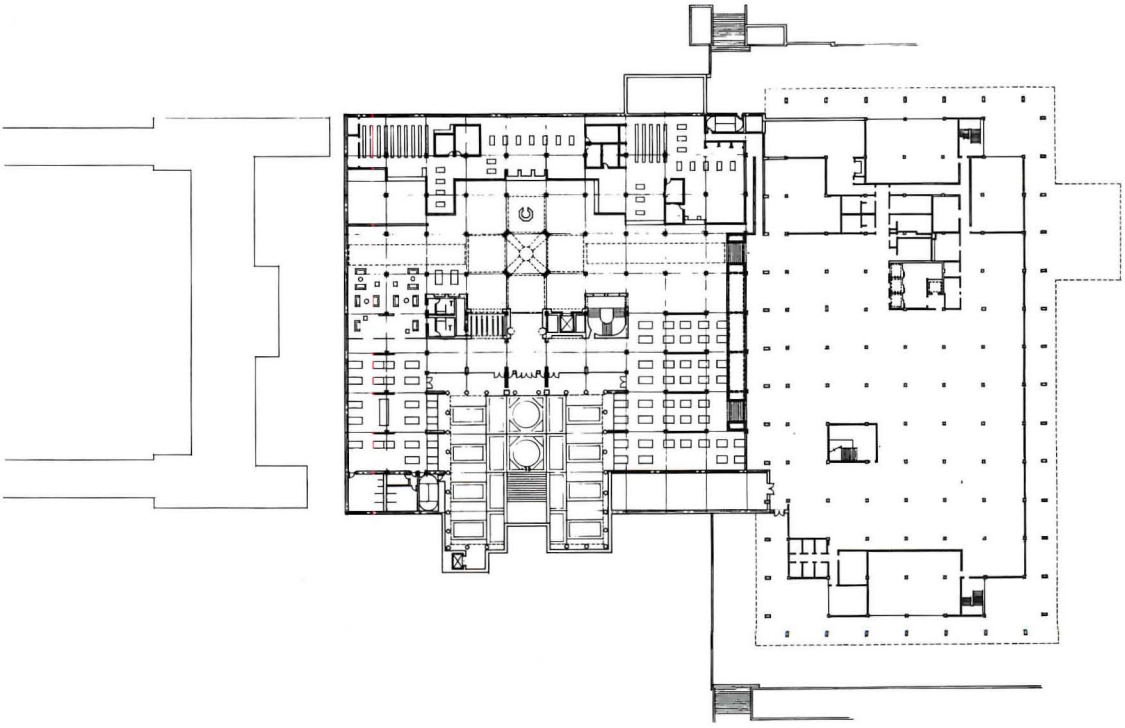
Fine Arts Center
Antoine Predock Architect

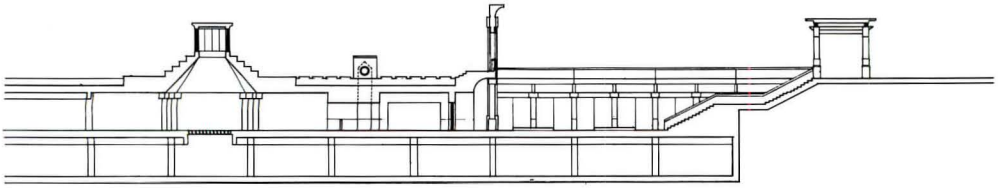
Antoine Predock's controversial fine arts center (left in site plan and facing page), the result of ASU's first design competition, is a welcome addition to the undistinguished postwar campus (left).

ILLUSTRATION BY DWIGHT MCNEILL

PHOTOGRAPHY © BOB FREUND

To reach Sasaki Associates' underground addition to ASU's Hayden Library, visitors descend a grand staircase and walk across a sunken plaza (above). The building's central lobby is skylighted by a lantern (section).





building as an archaeological cross-section of the site: below grade, the design recalls the irrigation canals of the prehistoric Hohokam Indians; poking into the sky is a vanishing artifact of our time, the drive-in movie screen. Predock introduced the Spanish concept of starkly contrasted *sol y sombra* (sun and shadow) and considered the way the mountain ranges of the Sonoran Desert ride the landscape, with massing and color that shifts with the angle and intensity of the sun.

In the desert's light, Predock says, "A big, blank wall is complete architecture. It connects earth and sky. It doesn't have to have a cornice or string courses or banding that might be important in other climates where the light isn't so intense, and you look to articulation to create an intensity." The fine arts center, he says, is "naked architecture."

Underneath that bare skin, however, lies a complex program. The center's 119,000 square feet contain the university art museum, dance and theater departments, and the 496-seat Galvin Playhouse. The museum, the most public of the facilities, is appropriately the most dramatic. Five galleries and four sculpture courts are stacked on three levels. Stairwells are finished in the same lavender stucco as the exterior and are lighted unevenly from small clerestory windows, frequently to haunting effect. Slices of the campus appear in other windows. For example, although the music building next door is an object of frequent derision (imagine a five-story drum in pink cake frosting), by editing its elements into fragments glimpsed through tiny windows, Predock displays the resulting composition as intriguing geometry.

Perhaps because of its complex imagery and circulation (it's easy to get lost inside), not everyone is in love with Predock's building, especially students. Letters and columns in the campus newspaper called it "ugly as sin" and "a monstrous above-ground fallout shelter." John Meunier, dean of the college of architecture and environmental design, replied by claiming the center is "a connoisseur's building, and in our egalitarian society that takes some accepting." In the opinion of this reviewer, Predock's fine arts center is the most intellectually and emotionally engaging building in Arizona since Taliesin West.

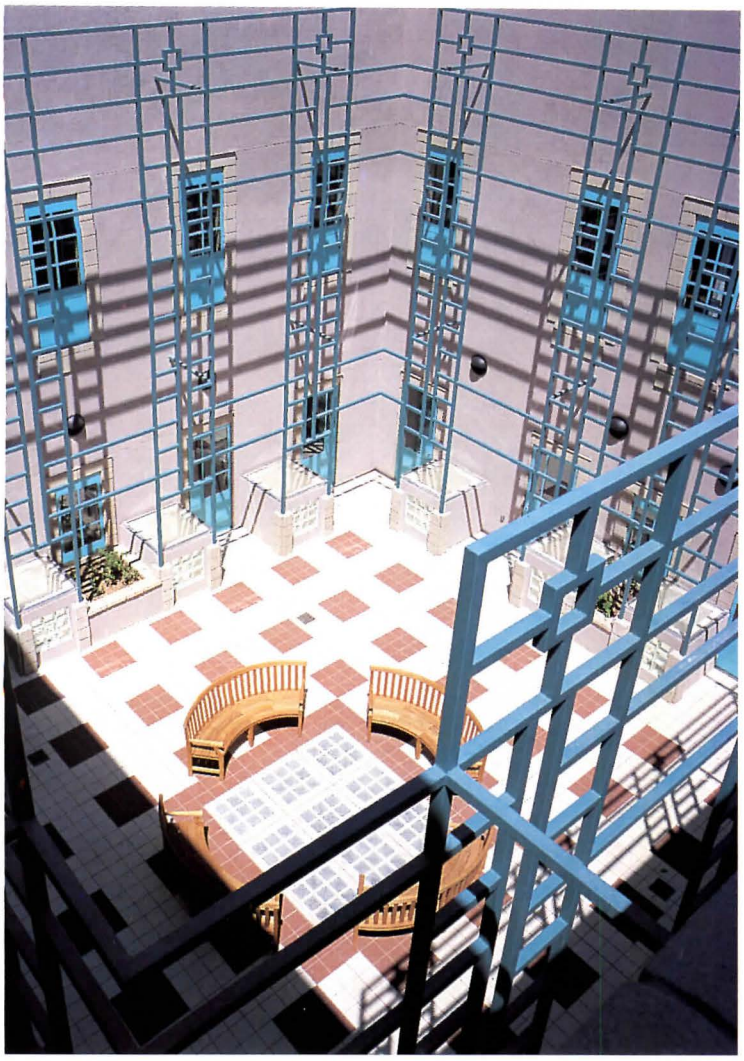
OF ASU'S TRIO OF NEW BUILDINGS, THE HAYDEN LIBRARY ADDITION has been the least controversial, in part because its 99,700 square feet are below grade, as a site study recommended. However, in designing the underground building, the architects faced a fundamental contradiction. Sasaki's Nelson Scott Smith, AIA, explains: "You have to go underground into one of the most important buildings on campus, and that suggests you're going the wrong way. We were dealing with a real quandary."

The architects sealed off the entrance to the adjacent 1964 library building and sunk a new entry court on its west side 15 feet below grade. A pergola attracts students to the stairway with the promise of shade, and a fussy balustrade surrounds the sunken plaza to keep wayward students from falling in. An oversized portal, vaguely classical at door level and reminiscent of a giant gunsight above

ARIZONA STATE UNIVERSITY

Hayden Library Expansion
Sasaki Associates, Architects

The architects defined the south end of the plaza with a pergola, which frames the stairway (right), and the north end with an oversized portal (middle right and top). Vaguely classical, the towering portal announces the presence of the new underground library on campus.



grade, gives the library some presence on the campus landscape. Behind the portal is a "lantern" that emits light into the library lobby by day and glows like a lighthouse beacon at night.

The sunken courtyard could have been a delightful place, but, as realized, it serves as a concrete apron people scurry across, especially during the five-month Phoenix summer. Once inside, library patrons are greeted by a perfunctory and institutional lobby. The swatch of daylight from the lantern unimaginatively highlights a copper ASU seal on the floor. From this glum space, students either negotiate a passage to the old library or descend to periodical stacks on a lower level. Nowhere is there any space that suggests this is the heart of the university, a church of reason, or even an inviting place to spend an evening reading.

HILLIER'S COLLEGE OF ARCHITECTURE AND ENVIRONMENTAL design, like the fine arts center, is the result of a competition. Unlike Sasaki's library, the building suffers from *too* much architecture: too many elements, too many textures, too many decorations. The eye roams fitfully over it, like a fly in a barn, wondering what element to alight upon.

The exterior is constructed of a grid of handsome 18-by-24-inch concrete block, inspired by Wright's textile block at the Arizona Biltmore Hotel. Project architects Alan Chimacoff, AIA, and Gerard F.X. Geier, AIA, also point out that the material formed an appropriate mediating scale between the monolithic poured concrete of the older (1970) architecture building next door and the brick veneer of other ASU buildings. Controversy over the design stems from all the additional features, in particular the steel window grates, which act as sunscreens and which some passersby grumble look like prison bars.

The program of the college, however, points in a positive direction for ASU. The building is rich with varied spaces: a three-story entry atrium, a second-floor outdoor cafe, and a stack of indoor and outdoor courtyards. The idea, says Geier, was to help create a community encompassing students, faculty, and staff.

The lecture rooms are organized around a square two-story lobby, a sound plan for any academic building. As Geier says, "The thought of dumping 400 students into an eight-foot corridor was not very appealing." Its acoustics are intentionally lively to create a sense of hubbub, as in a train station. Upstairs, however, an open-roofed faculty court is decidedly unappealing; airconditioning exhaust noise and high surrounding walls make it uncomfortably noisy and confining.

Meunier believes these buildings, along with a campus design review board created in 1982, will raise the expectations for future architecture on campus. It's unfortunate for Arizona that it has taken so long. ASU's past practice of enclosing maximum space at minimum cost accommodated its galloping enrollment, but without much grace, imagination, or resolution of critical regional issues. If a public university doesn't assume the responsibility of supporting architecture that makes people think, who will? ■

—LAWRENCE W. CHEEK

ARIZONA STATE UNIVERSITY

College of Architecture and Environmental Design
Hillier Group, Architects

Inspired by Wright's Biltmore Hotel, the Hillier Group designed ASU's architecture college in concrete block (facing page, top) with an atrium (facing page, right), outdoor courtyard (top), and screened cafe (left).

Tent Revival

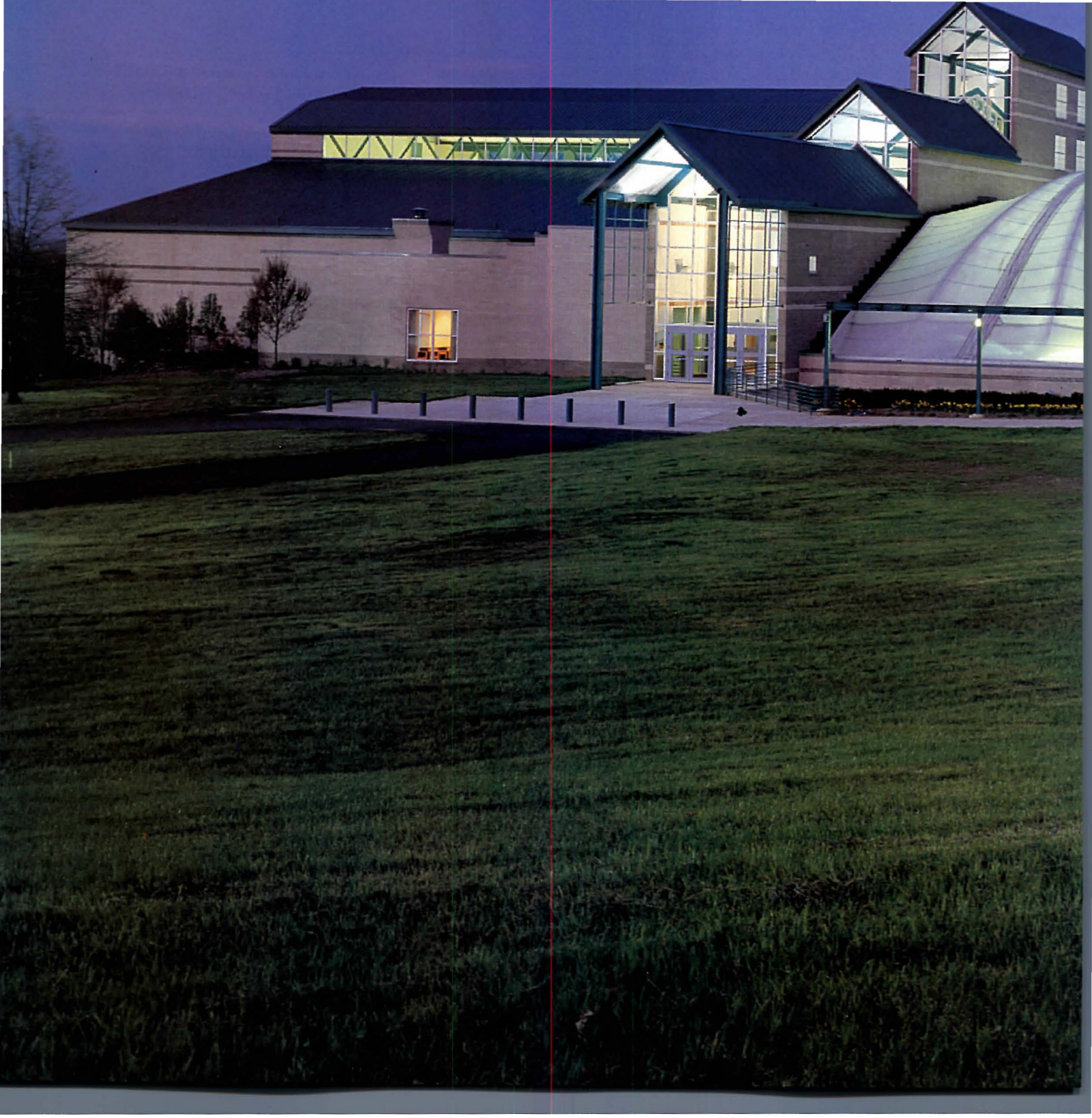
SITED ON A CAMPUS IN RURAL MARYLAND, THE 105,000-SQUARE-foot Knott Athletic Recreation/Convocation Complex incorporates an innovative fabric roof technology to create a new identity for the United States' oldest (founded 1808) independent Catholic college.

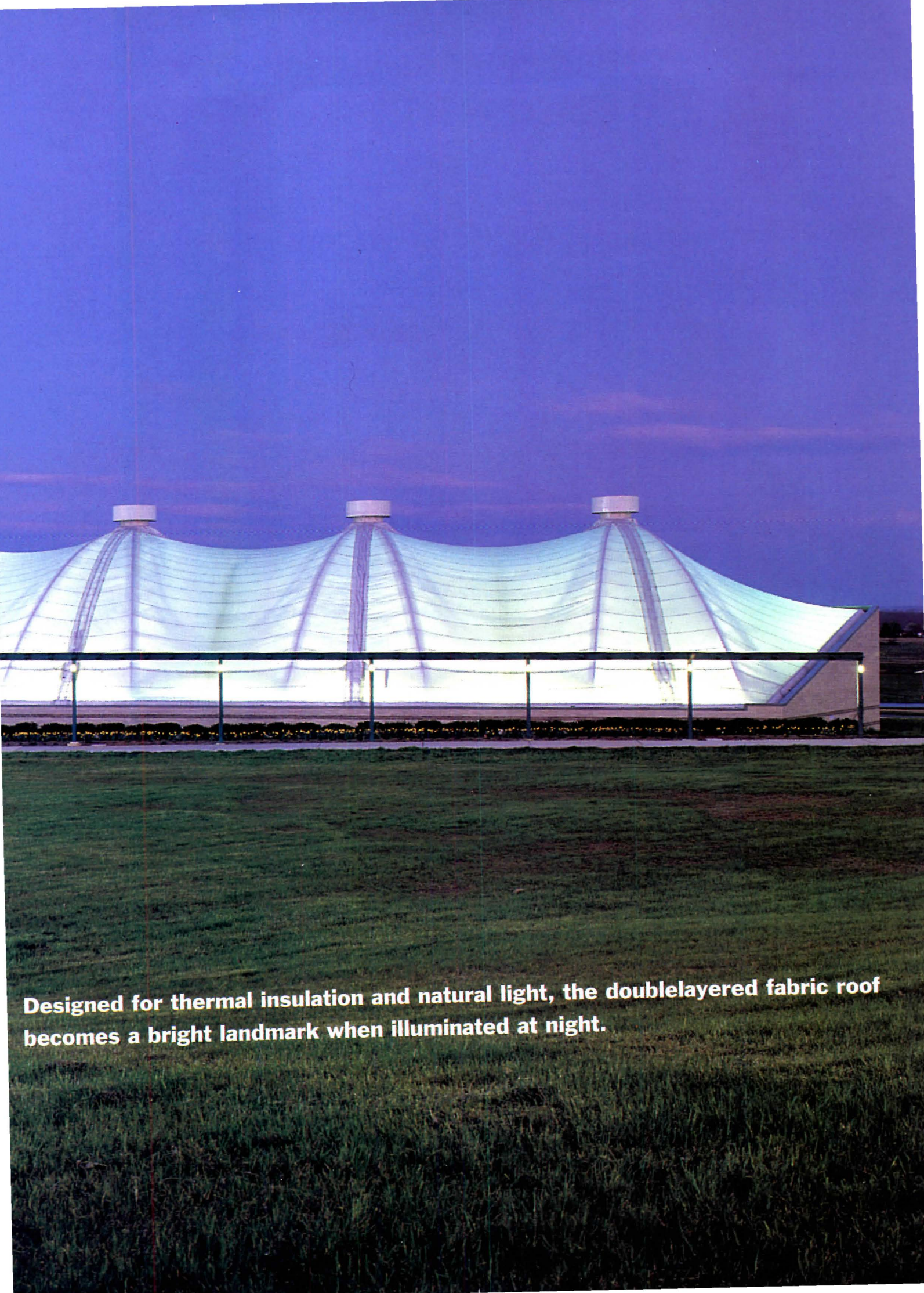
The Philadelphia office of Bohlin Powell Larkin Cynwinski developed the new complex in three parts—a field house, an auditorium/convocation center, and a circulation spine. It manifests a strong parti of linkage and procession for existing academic buildings to the north and playing fields to the south. The recreational and administrative functions of the complex are connected by a three-story, peaked-roof hall, which crosses the length of the complex and washes the interior with daylight. "One of our goals was to allow visitors to participate visually in the sports," says project architect Dan Hayden, AIA. "It's quite a challenge to achieve clarity of circulation and to tie large spaces together in recreational buildings. An added benefit is that the community has sponsored all kinds of events in the concourse, from blood bank drives to banquets."

The athletic complex provides space for varsity and intramural sports for the 1,800 students and further attracts community participation by offering shared spaces, such as an auditorium that converts into a 5,000-seat convocation center and a special-occasion hospitality room that opens to an outside garden. Because the Knott Complex was financed by alumni and community contributions, potential for future additions with increased funding and flexible spaces were important design criteria.

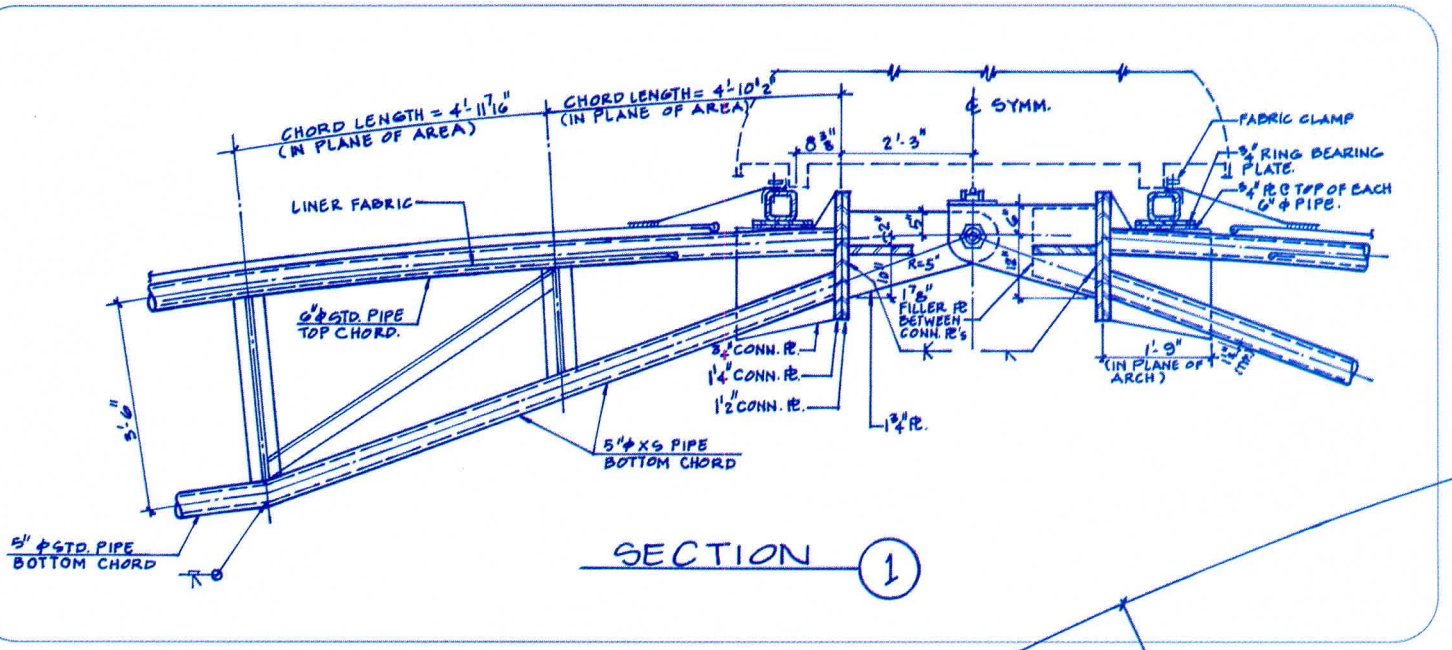
No doubt the most striking part of Bohlin Powell Larkin Cynwinski's complex, in terms of form and image, is the tension-structured fabric roof. Designed by structural engineer Horst Berger Partners to conserve energy, the double-layered roof consists of a silicone-coated fiberglass, an air space, and an ethylene propylene diene monomer (EPDM) fabric liner, for thermal insulation and almost exclusive use of natural light during the day. Conversely, the

A three-tiered glass-fronted circulation spine mediates between the brick auditorium and the fabric-roofed field house.





Designed for thermal insulation and natural light, the doublelayered fabric roof becomes a bright landmark when illuminated at night.



SECTION 1

7 EQUAL CHORD SECTIONS @ 5'-11 5/8" = 41'-9 3/8"

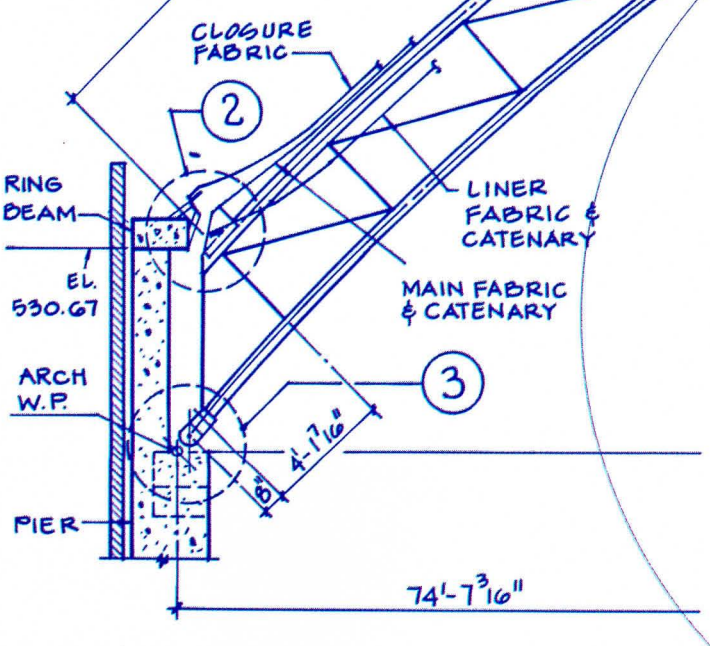
℄ SPLICE

R = 97'-11 3/32"

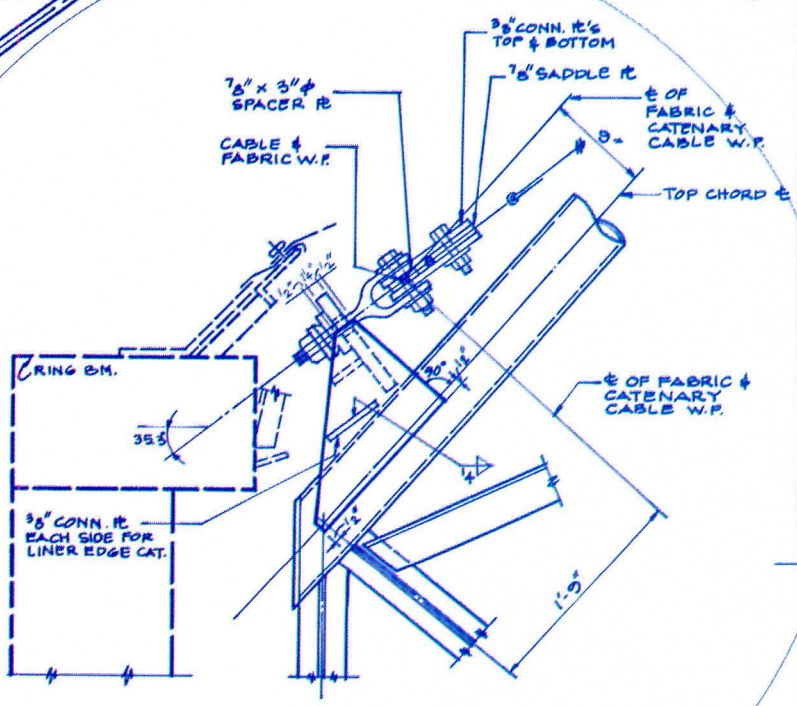
R = 94'-5 27/32"

L3 1/2 x 3 x 1/4" (TYP. U.O.N.)

WT 3 x 7.5 (TYP. U.O.N.)

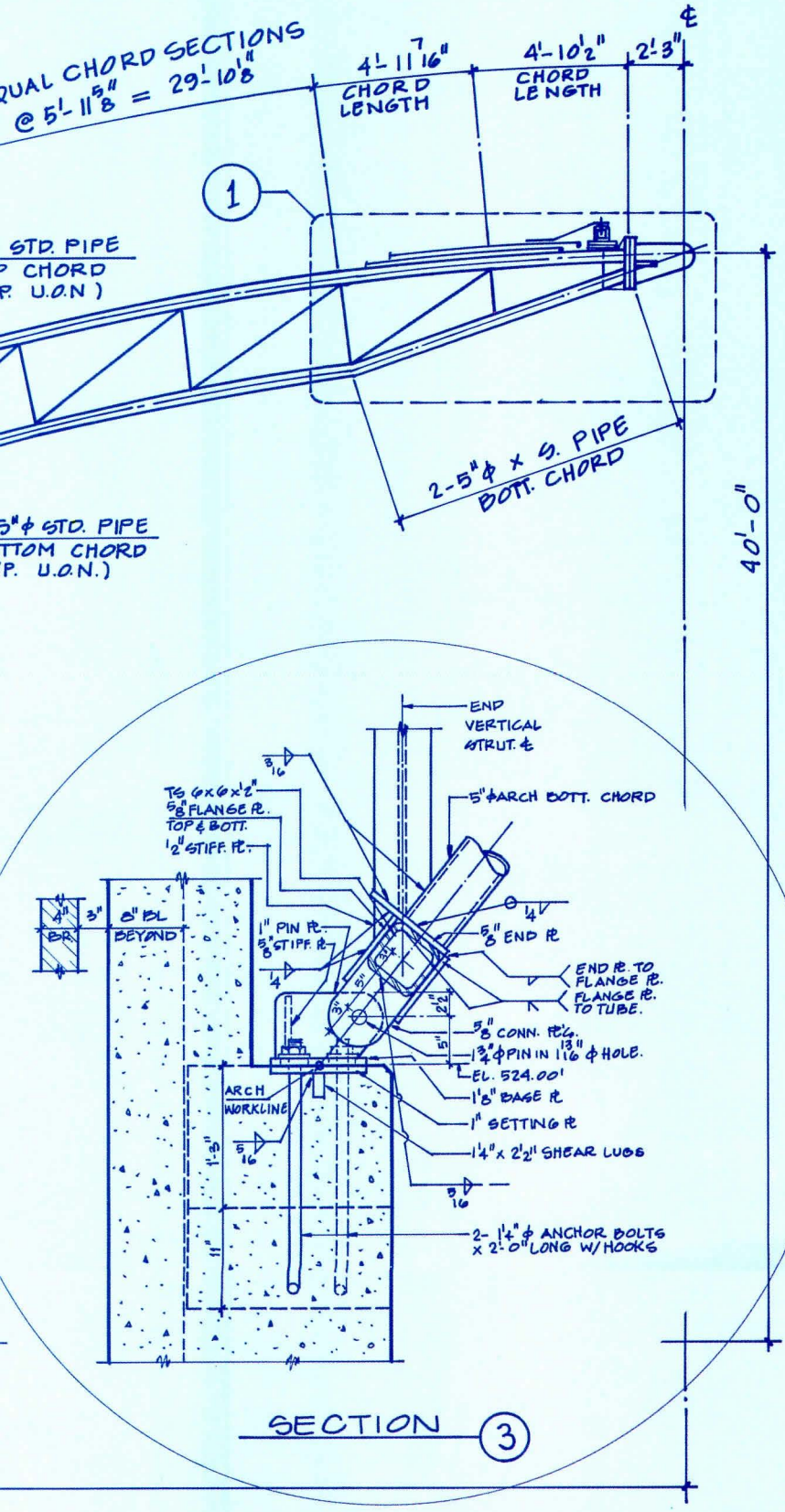


ARCH ELEVATION



SECTION 2

Four pairs of trussed arches span 150 feet to support the field house roof (left, center). The arches are symmetrical about a bolted connection (facing page, top). Turnbuckles stabilize the fabric and anchor it to the concrete piers (facing page, bottom). The piers also support the bases of the arches (this page, bottom). The finished result glows with natural light.



fabric roof becomes a bright landmark when illuminated at night. Its double-layer construction also dampens the noise generated by multiple court sports played simultaneously in the 30,000-square-foot field house.

Able to support a 30-pound snow load, the fabric is carried in tension over four pairs of steel-trussed arches that span the 150-foot width of the field house. Concrete piers anchor the trusses and stabilize the fabric via turnbuckles. Rising to a height of 40 feet, the arches are topped with gravity ventilators that facilitate generous air changes and enhance the structure's tentlike appearance.

Sections of the white, silicone-coated cloth are connected on the exterior with 3/8-inch cables laced up like tennis shoes through rollers and clamped at the seams. Where the fabric rests on the structure, it is protected by silicone rubber gaskets to prevent damage from friction. The interior EPDM liner sections are connected with zippers. The roof construction is strong and rigid enough to support workers walking on its surface, as well as an industrial-size floor-washing machine that keeps the fabric sparkling white.

The architects balanced the bulk of the fabric-roofed field house by depressing it into the existing grade. For this reason, the structure complements rather than overwhelms the remainder of the complex and still presents an exciting profile, from the campus as well as from a nearby highway. ■

—M. Stephanie Stubbs

Breaking Down Barriers

JUST FIVE MINUTES INTO A SENSITIVITY-ENHANCEMENT exercise conducted at the University of Arizona's college of architecture, and already the students are wide-eyed in alarm or scowling with aggravation. A steep driveway cutting across a sidewalk nearly sends one student's wheelchair careening into a busy Tucson streets, pitching him into a pothole in an unpaved parking lot and breaking a wheel. "This is hell!" He's sensitized.

The student stands up and decides to return the wheelchair and exchange it for crutches—an option open to him because he isn't actually paraplegic. This is, after all, a simulation. Of the five students in the group, two are on crutches, one is sightless, another deaf, and the fifth has fingers wrapped in tape. At afternoon's end, they all will shed these disabilities and return to campus life with full use of their limbs and faculties. Or, more precisely, they will have acquired a new sense: what it's like to deal with an urban environment when you're disabled.

A "blind" student in the previous semester's exercise reported, "My interaction with my surroundings was totally different. I was afraid of everything, like a child in the dark and alone for the first time." Added another student, "A small, invisible circle with a diameter of about five feet around me was what was left of my world....Buildings were just masses of cold material where one could possibly hurt oneself....I would become very lost and bitter."

Another "blind" student said, "The longer I was blind, the more I felt new sensations and ways of experiencing my environment. I think this is a potential means of alienation. As your perceptions of the world change and grow in a different direction, the less others without disabilities can relate. Everyday frustrations would strengthen the feeling of being different. Loneliness, at least occasionally, would be a basic fact of life."

After spending the afternoon in a wheelchair, another recounted, "I was afraid of tipping over on steep ramps and curb cuts. Some of these ramps were so steep and long I wouldn't have been able to get up if I had wanted to....[They] served as quite effective 'keep out' signs. Not being allowed to use the front entrance made me feel like an outcast."

What is encouraging about the students' reactions is their acknowledgement of not only the physical barriers encountered in an urban setting but also the consequent emotional pain. Words of distress weave through their reports: "claustrophobia," "apprehension," "vulnerability," "victimization," "social isolation." This is precisely the reaction the architecture faculty seeks, because it suggests that, in designing real buildings, the students may develop more than a perfunctory, just-check-the-codes response to barrier-free design.

"I started conducting these exercises when I was at Arizona State University several

LAWRENCE W. CHEEK

Architecture students discover the museum on campus is inaccessible.

years ago," explains Robert Hershberger, AIA, now dean of the University of Arizona college of architecture. "I brought in films that covered handicapped access, but it never seemed to work—you'd see the same insensitivity come out in design projects over and over again. I finally concluded that the only way to be sensitized to things you normally never experience is to go out and experience them yourself."

Prof. Ellery Green, AIA, continues: "The codes can be incomprehensible, they may not be enforced locally, or they may even be wrong. If you don't understand what the dimensions in the codes mean, you can make some gross mistakes. For example, when the Uniform Building Code first issued a requirement for a handicapped rest room stall, it was supposed to be 42 inches wide and six feet deep. Everybody religiously built stalls to that specification—and then the disabled people themselves had to come forward and explain that these dimensions only solve the problem for half the handicapped population, those who wheel up to face the toilet. If you have to wheel up beside it and dismount, you need a stall at least five feet wide."

There may be wider benefits to the University of Arizona's role-playing exercise. As faculty members point out with some chagrin, architecture students are a remarkably homogeneous group: mostly young, white, able-bodied, and from middle- to upper-middle-class families and neighborhoods. Unless they're forcibly introduced to the needs of other users and cultures, they tend to design buildings and environments that are most comfortable for themselves.

Now two semesters old, the disabled-access exercise involves talking, walking (and wheeling), and evaluating. It begins as the students gather at the Disability Resource Center, a federally funded office a block from campus. "This is an experience where you're going to be frustrated by an environment," warns program coordinator Charlotte Wade. Wade outfits the students with an assortment of devices to simulate disabilities: wheelchairs, splints and crutches, hand bandages, opaque eye patches, and ear cups that duplicate the effect of a 60-decibel hearing loss. In each group of five or six students, one is supplied with only a minor disability and is warned to watch out for all the others; Wade and the faculty members are genuinely concerned about the chance of injury to a disoriented student—and about their possible liability. So far, the worst accidents have been overturned wheelchairs.

The student's runaway wheelchair hits a pothole and breaks a wheel. "This is hell!" He's sensitized.

Disability Resource Center

The starting point and awareness training ground for the architecture students at the University of Arizona is the Disability Resource Center of Tuscon. The building functions in everyday life as a training and counselling center for the handicapped. Staff members also act as advocates of rights for the disabled and are delighted to help future architects learn how disabled people experience the environment.

The resource center, an exemplar of accessible design on a cost-conscious budget, was designed by local architect Richard Giachetti, AIA. The wide corridors, rounded and textured walls, and placement of shelves and handrails are customized to suit handicapped users (top left).

Each group has to cross a five-lane arterial street twice, shop at a convenience mart, negotiate a parking garage, buy a snack in one of the campus cafeterias, check their mailboxes in the basement of the student union, try to use an automatic teller machine, and make their way along several hazardous blocks off campus featuring badly maintained sidewalks, desultory curb cuts, and traffic swarming among apartments and fraternity houses. An able-bodied person could manage the route and all the stops in about 45 minutes, but it will take these students closer to two hours. And they'll be sweating. It's 98 degrees this afternoon, and a person in a wheelchair can use up to three times the energy of a pedestrian. The DRC staff doesn't apologize to the students for their plight. In fact, the staff is happy that the students will understand the design implications of this under less-than-benign conditions.

The students tackle the exercise willingly. There's no complaining of embarrassment, and some valuable observations emerge. In the university's student union, a 1961 building retrofitted for accessibility, a "blind" student observes that a handrail doesn't stretch the full length of a stairway. The computer science building's outdoor handrails are stainless steel, and they're too hot to touch on a summer afternoon. The tunnel-like ramp into a 1981 classroom building's below-grade entrance is long, steep, and appallingly grim in appearance. Off campus, the students are newly aware of thoughtless impediments such as bus benches on sidewalks that force wheelchairs to detour into the dirt.

"I really push hard on this esthetic issue in my classes," says Green. "It's an opportunity, not a burden. A ramp can be exciting. You can think of it as a movement sequence and make it special. Too many architects look at codes as the enemy."

The students also evaluate half a dozen buildings scattered around the city that have been nominated for hospitality awards from the Tucson Commission on Disability Issues. Their reports will figure into the commission's judging. They not only measure hallway widths and rest room stalls but also ask pointed questions of the managers of the businesses they visit: Do you hire disabled people? Do you train your staff to assist people with disabilities? Do you have a braille menu?

The training consumes three afternoons in a fourth-year studio, and faculty members feel it's worth the high cost in time. Says Prof. Harris Sobin, AIA, "Design for accessibility is a relatively recent concern, and these students may well turn out to be more sensitive than their elders." Adds Hershberger, "I've found that many students come back from this exercise as outspoken advocates for the disabled."

Green offers an analogy that neatly summarizes the value of disabled role-playing. "An editor at the University of Arizona Press once told me it's easier to write if you tack a picture of the typical reader you're writing for over your desk. I think it's the same with design. Architects have an easier time designing when they can imagine the user." ■

—Lawrence W. Cheek

Waterfront views at Palm Beach Atlantic College (foreground) are enhanced for students housed on the upper levels of the campus buildings.

Live and Learn

THE CHALLENGE FACING PALM BEACH ATLANTIC COLLEGE EIGHT years ago was to build a new campus from scratch on an irregular 24-acre tract abutting the Inland Waterway in downtown West Palm Beach, Florida. The development had to be planned in stages according to the college's ability to purchase land, ultimately providing functions for 1,200 students. The given site posed difficulties from the outset. It was bisected by Route 1 and embedded in a decaying neighborhood, making security an important consideration, and a city moratorium on high-rise construction further restrained expansion. The college's board of trustees, however, was clear in its directives. The board required the planners—James T. Biehle, AIA, and H. Stewart Thompson, AIA—to integrate the students and faculty in a campus setting that would reflect the spiritual mission of the 20-year-old Christian college, integrate the surrounding community, and respect the architectural heritage of Palm Beach.

By spring 1983, project manager Biehle and project designer Thompson were camping out in borrowed faculty and quarters to conduct exhaustive preliminary research. They held intensive one-on-one interviews with key members of the college community, in a structured analytical process Thompson has developed over many years. "Architects always say they listen," Thompson observes. "With our needs analysis, though, we hold a magnifying glass over every micro-component of the college organism."

The architects categorized data in three groups: attitudinal or qualitative (how an environment feels); quantitative (how much area is available and how much the client expects to need); and operational (how the client needs an environment to perform and relate to other environments). Responses were recorded on forms specially made for collecting and encoding all relevant information. The partners also held forums for departments and activity groups, which explored the roles of academic divisions, administrative clusters, student residences, and support functions (such as library, classroom, and maintenance).

As information was tabulated and summarized, a program began to emerge. "The data generated the plans," Biehle explains. "We've found that you can't shortcut the process. There's some magic about professionals interacting with users in an objective, nonthreatening way that you lose as soon as you try to send out a questionnaire."

During Thompson's analysis of needs, Biehle conducted an evaluation of existing buildings, a classroom utilization study, and a parking analysis. The partners prepared a comprehensive site inventory. They assembled a summary—a "college in a notebook," Biehle calls it—from which they prepared the master plan.

Thompson treated the plan as a schematic diagram depicting optimal relationships among all functions on the campus. Then he added existing realities and warped the diagram to fit the site limitations while retaining its optimal configuration. In his final task, he mapped out building locations, sized according to their programmed area requirements. "When you do this kind of investigation," Thompson says, "the master plan is more than just a series of white boxes. It's possible to begin shaping buildings even at this very early conceptual stage, taking into account such things as vehicular service and storage and pedestrian movement."

The master plan the partners presented to the board of trustees calls for an unusual but practical arrangement in which the college buildings, all under five stories, define the campus perimeter and shield a generous interior sanctuary as a private park and pedestrian zone. The plan keeps vehicular traffic out of the campus interior, and the

walkway system segues from large and small public gathering spaces to semiprivate courtyards and private doorways. To accommodate the trustees' budgeting strategy, which requires that capital be raised before construction, the architects planned for the campus to be built in 16 phases.

The trustees enthusiastically adopted Biehle's and Thompson's campus design. College President Claude Rhea says, "It evidenced an uncommonly creative approach to an understanding of our needs. The total master plan took the architects about 18 months to complete, including living with us for several months." Rhea reports that the first phase cost approximately $10 million, and sufficient money has been raised to begin construction on the second.

The first phase, recently completed, is a 78,000-square-foot complex housing administration, classrooms, and residences. The complex falls within 2 percent of the square footage programmed in the master plan, despite two major changes after construction began—elimination of the school's nursing program and relegation of the education department to a later phase.

Biehle worked with the city of West Palm Beach to designate the campus as a public/semipublic planned unit development, which freed the architects from certain regulations that might have hindered the project. "Other code restrictions were handled with materials," Biehle says. "For instance, the dormitory towers are protected by a two-hour fire separation built into the walls. We also gave the school extra security provisions." The completed women's dormitory spaces (men's dorms are scheduled in the second phase) have tight security. Students enter the dorm through a courtyard, and separate, locked elevator entrances also provide security.

Initially, the board of trustees had rejected a different mixed-use concept the architects proposed. But the trustees appreciated the confines of the site and, after reviewing the architects' programming analysis and admiring a nearby Mediterranean-style mixed-use project, they reconsidered putting dormitory space above some of the classroom and administrative buildings. The advantage would be on-campus student housing that would enhance rather than interfere with a layout for optimal adjacency.

We hold a magnifying glass over every micro-component of the college.

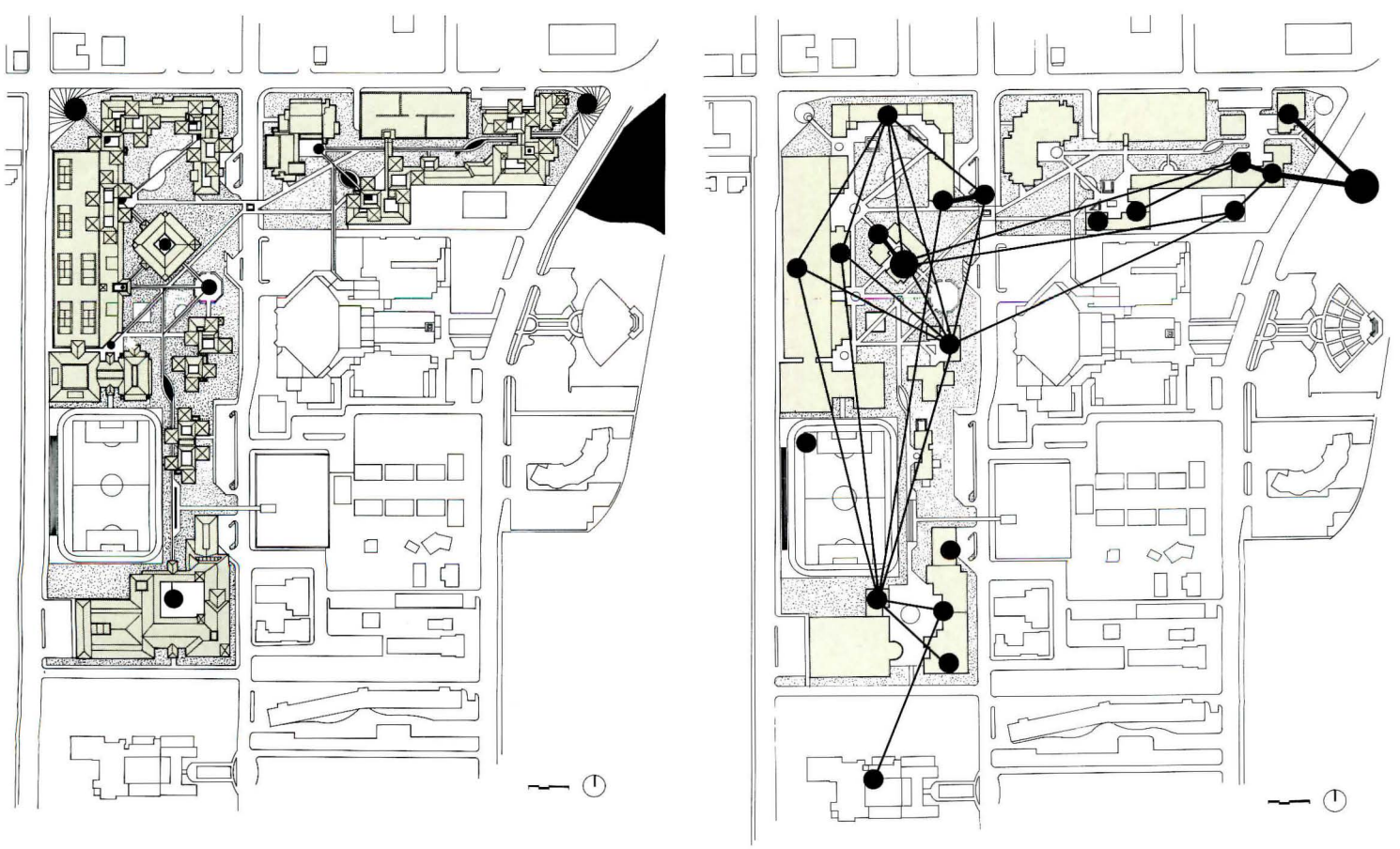
"With the students living just above the classrooms and administration buildings, there is a natural interface among faculty, staff, and students," Rhea says. "Having student housing on the campus also was important because housing in this area is extremely expensive. We keep our dormitory fees competitive with other colleges—well below market rate in this area—and yet the students enjoy fifth-floor balcony views."

The mixed-use arrangement is only one of several ideas that resulted from the intensive predesign process. In the administration building, for example, the frequency of student interaction with various departments—made apparent by the optimal adjacency study—served as the organizing principle for the building design. Offices for student development, admissions, and financial aid are close to the main entrance. The registrar sits behind a teller's window accessible from outside, so that a student's inaugural visit takes place in a pleasant, shaded courtyard beside a fountain. Other administrative departments are more remote. "You discover very quickly that the organizational chart holds no clues to the ideal adjacency chart," Thompson says.

The project architect takes pride in the accuracy and flexibility of the college design. "Community life—the live people—they *are* the college," he insists. "So why shouldn't *they* be the shape and access generators of the buildings?" ■

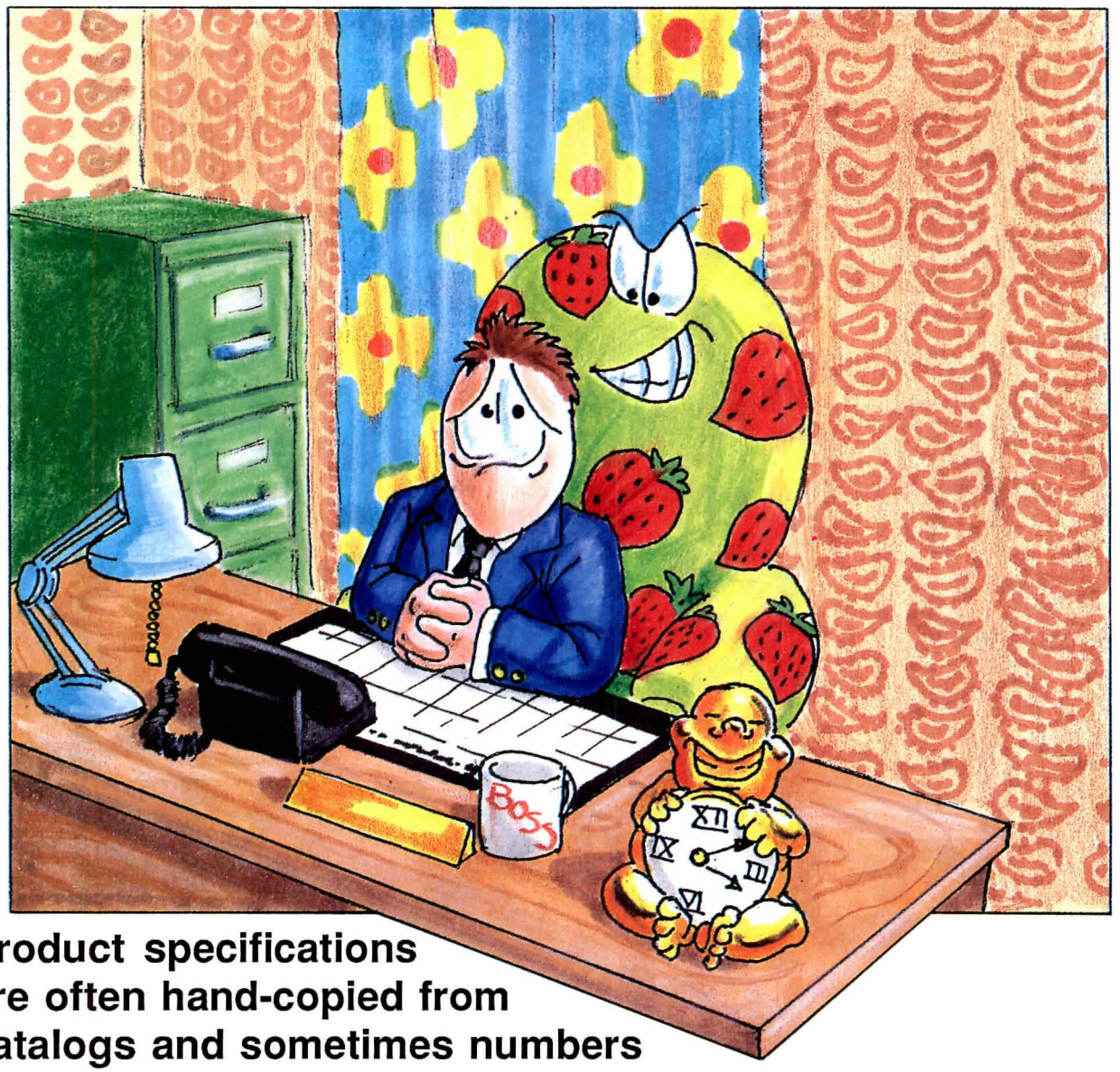
—JOYCE DUTSON

Joyce Dutson is a St. Louis-based writer.



The college was built on 24 acres in downtown West Palm Beach (left). Extensive interviews and observations led to an adjacency diagram that the architects warped to retain optimal use of the site (right).

Ever get a haunting feeling that some of your office furnishing got there by misteak: misstake? accident?



Product specifications are often hand-copied from catalogs and sometimes numbers are transposed. BUT! It doesn't have to be that way.

Eclat's IntelliFile™, an electronic CD-ROM library of furniture products, and QuickSpec™, a menu-driven, easy-to-use software tool, help eliminate costly mistakes. For more information on how to increase speed and accuracy in your furniture specifications contact:

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Software for Specifications

A new and diverse class of computer software promises to narrow the gap between design and specifying.

THE TEDIOUS TASK OF WRITING DETAILED SPECIFICATION DOCuments has caught the attention of desktop computer software developers. A handful have created systems that actually produce a complete specification, based on automated question-and-answer sessions with the architect. Many others, mostly building product manufacturers, offer proprietary details for direct inclusion in CADD drawings. They also are taking advantage of the information-processing capabilities of major CADD programs to allow architects to generate automatic schedules of materials from computerized product catalogs. Still others offer software that tests product performance.

Most major PC-CADD systems have libraries of symbols for materials, systems, equipment, and furniture that designers can drop right into their computer-aided drawings. Such features save time, since they eliminate the need for repetitious redrawing of commonly used symbols. Most CADD systems also keep track of information the user electronically attaches to symbols, such as price, vendor, order number, and dimensions. The computer can create discrete reports from these symbol attributes. An automatically derived schedule of doors, for example, can track total cost as well as ordering information for each type of door. Because the symbols are generic, attributes must be keyed in individually.

Product manufacturers are taking advantage of this CADD capability by offering libraries of proprietary symbols to which they attach information specific to their product. The symbols are accurate representations of the size, shape, and color of the manufacturer's product and often are tagged with ordering information. Users generally can add their own tags as well. Some manufacturers also offer predrawn details, ready for insertion into the CADD drawing.

Other vendors focus on improving text specifications. They may accept some graphic input, but their output is written. Users answer questions about what they want, and the computer program assembles the relevant text and verifies that all information has been provided and that it is internally consistent. Some vendors require that the completed checklist be sent over phone lines via modem to a host computer. Another type of software is made to help designers perform an analysis. The user answers questions about design criteria, and the computer presents options that will satisfy the requirements. Armed with this information, a designer can quickly prepare a written specification.

Despite the promise of computer-assisted specifying, questions remain about the usefulness of these programs. To understand more about the software, ARCHITECTURE assembled 14 architects in the Chicago area and asked them to try 20 programs on actual jobs in their offices. The architects then met to discuss their findings. Their consensus was that the software generally was worth using, although they doubted that any program would cause them to specify one manufacturer over another. Satisfied overall, the evaluators expressed these concerns:

Fourteen architects explain how 20 software packages help in needs analysis, product selection, and documents

COMPUTER. Virtually all the programs require IBM or compatible microcomputers. Support for Intergraph or Macintosh computers is rare.

CADD PROGRAM. Most symbols libraries require Autocad. Users of other CADD programs will find it difficult to take advantage of this software.

LIABILITY. It is uncertain whether all the information provided is free from error.

COST OF THE SOFTWARE. Although most programs are free, the price of some can exceed $10,000.

DISK STORAGE SPACE. Some programs consume mammoth amounts of memory. Four to six megabytes is not unusual. Although some vendors claim that their data can be accessed from floppy disks, finding a drawing can be very difficult. Other vendors use file compression techniques that prohibit direct access from the floppies. Some vendors require a compact disk player.

INSTALLATION TECHNIQUE. Few programs offer a choice of system installation, and most vendors have not solved the problems of installing the program on a network.

DATA RETRIEVAL METHODS. Some vendors send all the necessary information on disks. Others maintain a data base on their own office computers. The evaluators could not agree on which technique is preferable. The former takes up expensive storage space on your computer. The latter requires you to buy telecommunication equipment.

DRAWING TECHNIQUE. The quality of drawing produced by the programs generally parallels catalog drawings, but it may not be the same. The ease with which a drawing may be edited to office standards or special situations must be considered. Some programs use parametric drawing techniques, others build their symbols from a library of components, and a few supply a separate symbol for each product. Several require a template on a digitizing tablet, and still others work from menus on the screen.

PRICE REPORTING. The ability to compare design decisions to a budget may be an important consideration. Although several manufacturers claim price is the most frequently requested attribute, legal considerations prohibit some companies from making it available on disk. Keeping prices current is a problem in systems that depend on mailing update disks to customers.

CLOSED VERSUS OPEN SPECIFICATIONS. Every manufacturer would like to garner a job early, but some situations—notably government buildings—require competition. Are these specifying aids encouraging closed specs? Generally no, say the evaluators, but the situation bears watching.

JUDGMENT. As helpful as computer aids are, they have not eliminated the need for the high standards of professional judgment.

—OLIVER WITTE

ANDERSEN WINDOWS

CADD-I, AS ANDERSEN CALLS ITS SOFTware, provides symbols and details in 2D and 3D and a text-based specification package for its line of windows, patio doors, and accessories. The symbols and details are intended for Datacad and Autocad. A DXF version, for architects with other DOS- or Macintosh-based CADD programs, was released in September, but it provides only 2D drawings. The text-based package works with word processors and does not require a CADD program.

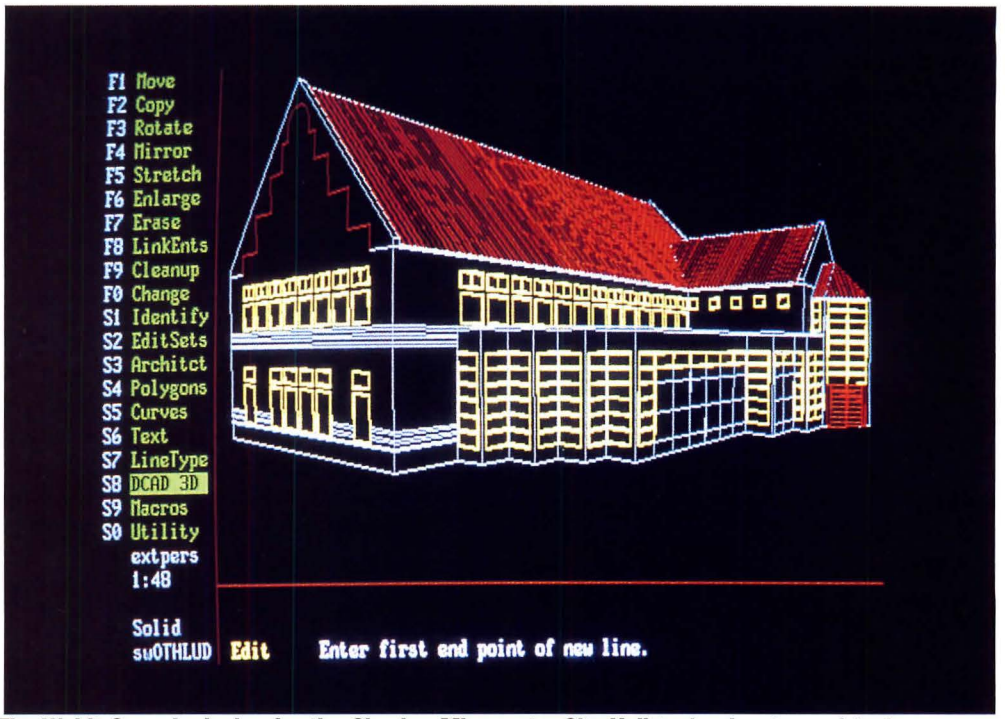
The plan views come preset with reasonable values, which can be reset to match office standards. Details for head, jamb, and sill are defined for each window type. They are well drawn and complete. Andersen provides graphics only for its window parts and leaves the detailing of surrounding building construction to the architect.

Both the Datacad and Autocad versions use parametric modeling techniques. The architect answers a few questions that define the design parameters, and the program completes the symbol or detail. Error trapping prevents calling for a window that Andersen does not make, unless custom design is selected. Data base operations are fairly complete. Window schedules and quantity takeoffs may be extracted easily.

This software is a credible window drawing aid for either preliminary design or construction documents. The 3D capabilities are useful in modeling studies.

—EDWARD W. WENZLER, AIA

Edward W. Wenzler, AIA, is vice president of the seven-member firm William Wenzler & Associates, Milwaukee, that uses Datacad.



The Weidt Group's design for the Chaska, Minnesota, City Hall took advantage of Andersen Window's CADD-I detailing.

DRYVIT

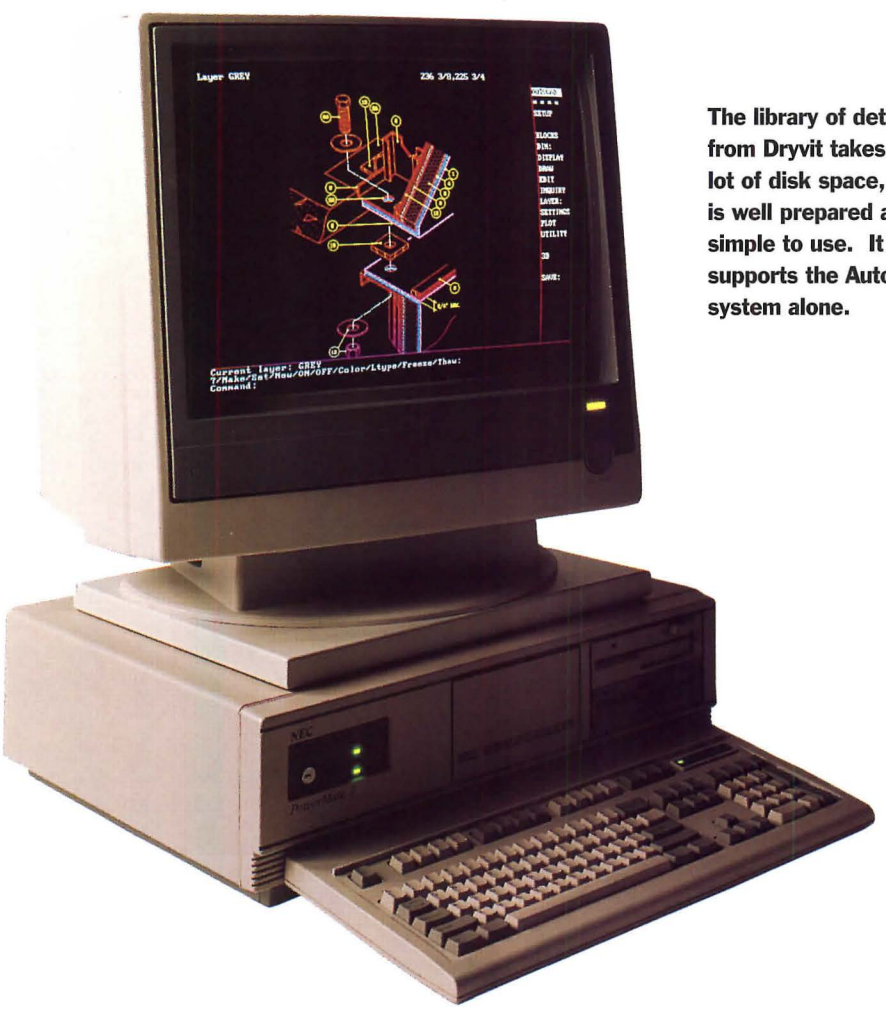
THE DRYVIT LIBRARY, CALLED CADRY, consists of orthographic and isometric details of critical areas of construction that can be used only with Autocad. No DXF format is available. All details for Dryvit exterior surface and insulation come on seven high-density diskettes, which consume five megabytes of space on a hard disk drive (we saved hard disk space by labeling the floppy diskettes with the detail numbers so we could find the ones we wanted).

No manual is provided—or needed. A card included with the diskettes explains how to load and use the drawings. The diskettes come with two large binders of catalogue material, one showing photographics of buildings with Dryvit and the other reproducing plots of the details. Details in the binders are keyed to details on disk, speeding selection. Some of the details are not pertinent to architects, but most are quite helpful and well prepared. We have already put them to use in a building under design.

Cadry details are easily edited with Autocad commands. Notes are keyed into a series of general notes, though, requiring the awkward step of referring to the printed binder for the words. Just as it is unwise to copy a detail straight from a catalogue, information from Cadry should be thoroughly investigated and adapted for a project. (Altered drawings can be sent to Dryvit's technical support department for review and comment.)

—WALTER HAINSFURTHER, AIA, AND ROBERT C. ROBICSEK, AIA

Walter Hainsfurther, AIA, is president of Orville I. Kurtz & Associates, Des Plaines, Ill. Robert C. Robicsek, AIA, is vice president of Environ, a 22-member firm in Chicago that uses Autocad.



The library of details from Dryvit takes a lot of disk space, but is well prepared and simple to use. It supports the Autocad system alone.

SUPERSPEC

SUPERSPEC PRODUCES A TEXT SPECification with no electronic connection to symbols, details, or a CADD program. Users fill out a checklist and send it to Jacksonville, Fla., where it is processed through the company's computer and returned to the user as a complete specification document. Communication is either by a modem that supports the new Microcom Networking Protocol or by mail. The system costs $250, including modem, software, and the first five specification sections. If the user already has an appropriate modem, the cost is $200 including software and the first 10 sections (SuperSpec charges $20 per section thereafter). The advantage of tapping into a central computer is that it can be kept continuously updated. The disadvantages are delay and the risk of trusting distant, unseen experts.

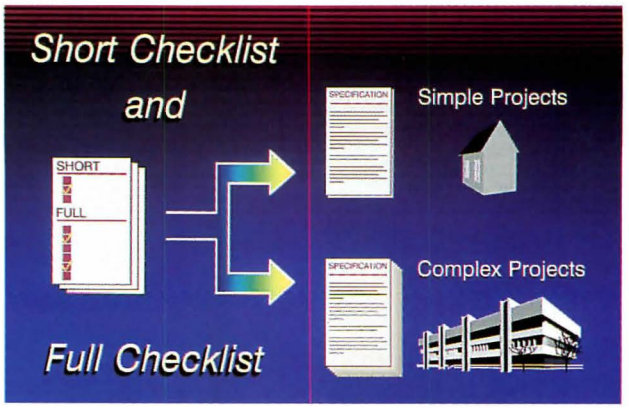
The SuperSpec interface tolerates only CSI's specification format, and producing unformatted ASCII files is frustratingly difficult. Menus are well reasoned, though, and the program recognizes mistakes and points the user to the right path. Switching from screen to screen introduces small inconsistencies created by the sluggish CD-ROM reader. The software resides on a hard disk, so it's fast. Although SuperSpec system crashes are not infrequent, they usually don't lose data.

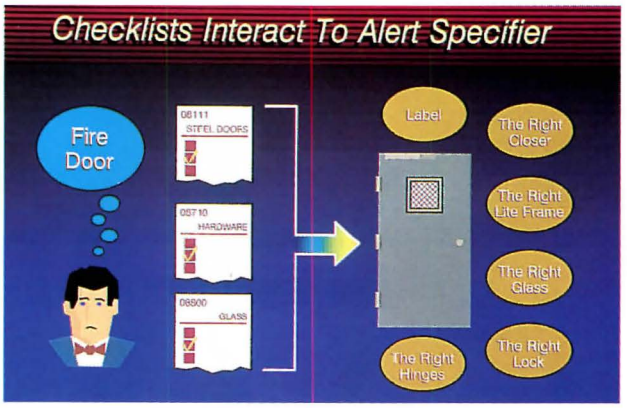
SuperSpec documentation guides the writer through the approved sequence: answer the checklist questions, check for consistency within and between sections with the Checklist Validation feature, and send the checklist through the Jacksonville computer. SuperSpec allows the specification writer to edit the resulting section on his or her own PC using the built-in editor. Support from the company is excellent and timely.

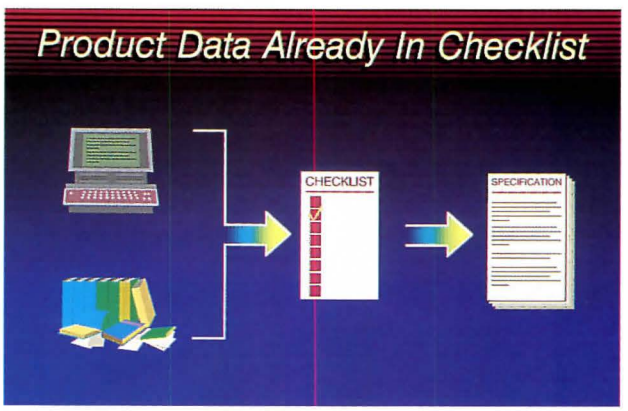
SuperSpec, like SweetSpec, retains control of documents produced with its system. Sections developed and produced for one project cannot simply be edited for another. The charge for specifications for your next project will be the same as for your last project.

—JOHN C. VOOSEN AIA

John C. Voosen, AIA, is president of John C. Voosen Architects, a six-member firm in Chicago that uses Autocad.







SuperScrip derives specifications from checklists completed by subscribers. Well-reasoned menus guide the user in correctly completing the checklist, which SuperSpec's computer processes into a specification section for final editing.

AMERICAN STANDARD

AMERICAN STANDARD HAS FOR AUTOcad users a complete library of symbols, in 2D plan and elevation and in 3D, of its line of plumbing fixtures. The value of this library is that it uses Autocad's attribute feature to connect to symbols information such as catalog number, color, finish, and trim. Autocad's attribution extraction feature permits the user to create reports from the attribute information. Furthermore, the symbols are dimensionally accurate; this is helpful if American Standard fixtures are to be specified.

Users can load the symbols onto the hard disk or, if they don't have room for large resident libraries, select symbols from floppy disks. Anyone who knows how to use Autocad's block command will find the symbols easy to incorporate with the insert command. Symbol attributes are easy to customize. The preset fixture color, for example, is white but the user can change it during symbol insertion. When a symbol is inserted, the user also is prompted to enter the manufacturer's catalog number for the fixture. The American Standard number is preset as the default answer, but the user can replace it with the name and number of another manufacturer's product.

Symbols cannot be edited or altered. A positive feature is that each symbol has a clearly marked insertion point and the scale of all blocks is 1:1 (1 inch equals 1 drawing unit). This is a good package—well designed and helpful for the architect. I would use it, but, because I use the plumbing fixture symbols on Autocad's AEC template, I don't think I would pay additionally for the American Standard library. American Standard charges $29 for its 2D symbols and $125 for its 3D symbols. Technical support is free, but the user must pay for the call.

—ROBERT C. ROBICSEK, AIA

COMPUTER AIDED PLANNING

THE CAP SOFTWARE FOR SPECIFYing contract furniture has impressive breadth and depth, but it is not for the faint of heart. The software package equips the user to design, specify, order, and inventory virtually any contract furniture job. It is shipped on a compact disk with 240 megabytes of drawings and catalogs (including options and costs) from 25 contract furniture manufacturers, plus a generic set of drawings and data. Firms that do a large amount of tenant work and space planning will find that the system saves them time and produces more accurate ordering lists.

The cost for CAP is $10,500 (which includes a copy of Autocad or Cadvance, the only CADD programs CAP supports) plus $500 for a compact disk player, $950 a year for maintenance and technical support, and $1,500 a year for updates after the first year. We recommend that new users take the $200-a-day training course, which lasts two to five days, depending on familiarity with CADD.

The six internal programs (without a CADD program) cost $10,000 combined, and manufacturers' catalogs are available for $750 each plus $600 a year for updates. The six programs are Cataloger (for product information, $1,500), Specifier (for selecting options, $2,500), Order Writer (to produce the order, $1,000), Organizer (for budgeting and scheduling, $2,000), Manager (for inventory control, $1,500) and a CADD overlay (for symbol handling, $1,500). The programs interact concurrently under an operating environment, such as Desqview. The catch is that you might want to add random-access memory, perhaps up to four megabytes. Symbol libraries are provided for

each manufacturer. The user assigns quantity and product number tags to the symbols and adds information later from the manufacturer's catalogs.

CAP is the most comprehensive software we have tested. The Manager program compares lists of existing furniture to required furniture and then lists what is reusable, what must be purchased, and what is not needed. Attribute tags can include information about furniture to be relocated, turning the program into a true asset-tracking tool. The program appears to have everything —possibly too much even for dealers, not to mention architects. Users must learn not only the CAP system but also each manufacturer's system, a CADD program, and the Desqview system.

There are a few glitches. The CADD mirroring command can't be used with CAP because it tends to double the attributes. The automatic installation program scrambles existing Autocad and DOS files that users rely on to organize their computers. Two megabytes of data are written to the hard disk just for bookkeeping purposes. The manual, although well written and concise, has not quite kept up to date with commands in the program. Because so many manufacturers are involved, the CAP system lacks a consistent interface. For instance, symbols from Herman Miller and Steelcase come with attributes attached; those from most other manufacturers are placed before the attributes are attached. Although new compact disks are shipped every month, they are unavoidably a couple of months behind. Once a change is announced, new symbols must be drawn, worked into the CAP system, and shipped to users.

—DAVID J. ENGELKE, AIA, AND FRANK E. HEITZMAN, AIA

David J. Engelke, AIA, is vice president of Potter Lawson Architects, a 38-member firm in Madison, Wis. The firm's primary CADD programs are Autocad, MegaModel, and Solid Vision.
Frank E. Heitzman, AIA, ASID, heads his own three-member firm in Oak Park, Ill.

HOLOPHANE

FINALLY, SOMEONE HAS TRANSLATED ALL the photometric data in a large technical manual into PC-speak, has developed a number cruncher, and has added a report generator. Holophane's Computer-Aided Lighting Analysis (CALA) program is a universal graphic lighting design and analysis program suitable for most indoor and outdoor lighting applications. It costs $595, including first-year updates and technical support by toll-free phone. The program can use any manufacturer's photometric data as long as it is formatted according to IES rules. Holophane's own data occupies six megabytes of hard disk space.

The word "graphic" is used generously. Only the most elementary, diagrammatic representations of the lighting situations are supported (or needed). Graphic reports on paper are limited to Epson FX or LQ printers. An attempt to print a graphic report to an HP LaserJet II hangs the system. Several other printers will work for text and numeric reports.

Because the number-crunching load is so heavy, the most desirable CALA computer would include a fast 80386 processor, math coprocessor, 640K memory, fixed disk with 15 megabytes free space, and a floppy disk drive. Curiously, Holophane restricts the user's data to floppy disks.

A better user interface would improve CALA. Versions 6.5 and 7.0 (experimental) are awkward and installation is challenging. The keyboard is easier and more accurate than the mouse. Menus are bewildering and cursor keys scroll through selections in one direction only. Version 7.0 claims to import and export DXF files, but I have yet to succeed. The intent is to bring into CALA a CADD geometry and to export the calculated iso-footcandle diagram at the same scale as the imported geometry.

CALA can recognize and process only one lighting environment at a time, be it a room or a parking lot. Other environments related to the same building or project are "old jobs" to CALA and must be organized on floppy diskettes.

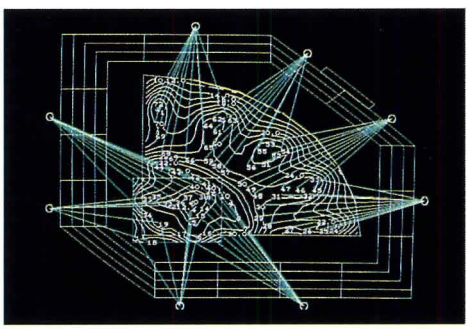
In spite of all its problems, I use CALA. It should be in every serious architectural designer's toolbox as soon as Holophane provides a clear and communicative front-end, support for sophisticated output devices, reasonable disk storage organization, routines that would help a designer select appropriate luminaires, and improved graphics.

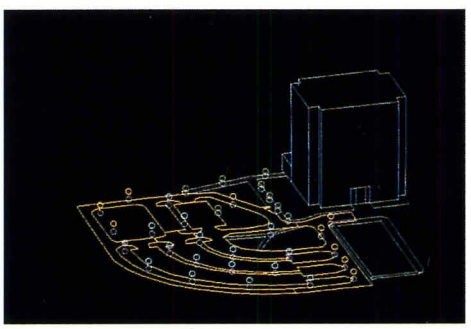
—JOHN C. VOOSEN, AIA

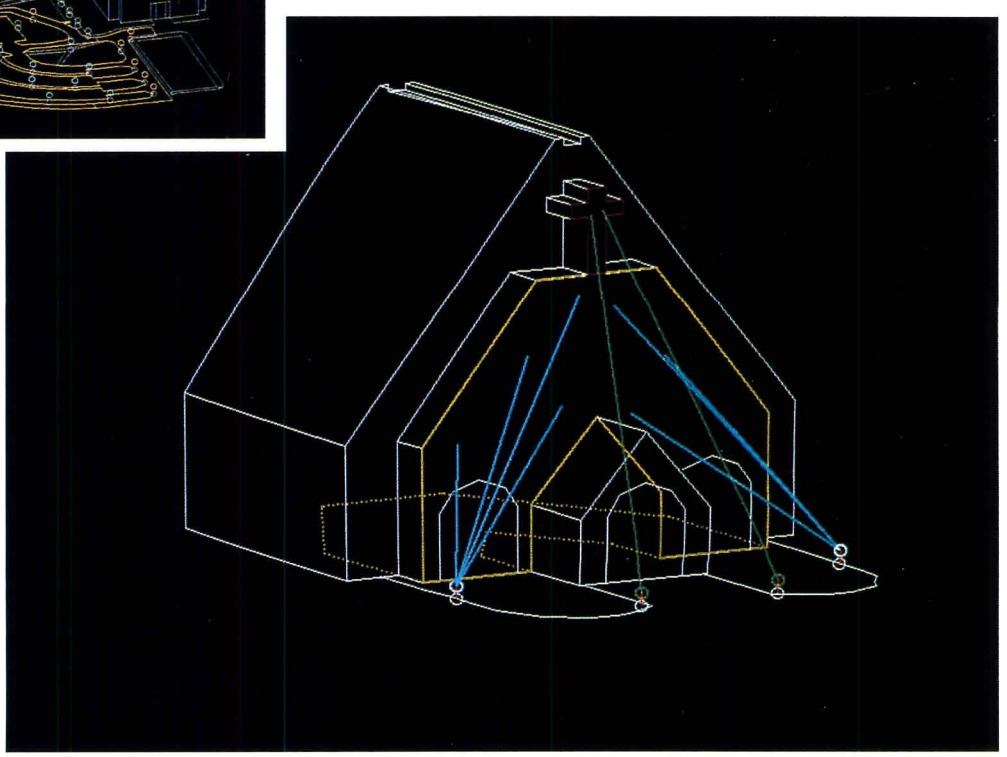
ECLAT INTELLIGENT SYSTEMS

ECLAT HAS TWO PRODUCTS, WHICH ARE meant to be used together: IntelliFile, a library of catalogs from 65 manufacturers of contract furniture, and QuickSpec, for product selection. Eclat supports Autocad, Cadvance, and Versacad but does not require a CADD system.

IntelliFile is supplied free on a compact







Holophane's Computer-Aided Lighting Analysis provides basic graphic representation of proposed lighting arrays and iso-footcandle diagrams. The exterior-light studies use photometric data for Holophane products, although the program processes any manufacturer's data presented in IES format.

disk and is updated quarterly. Its cost is paid by manufacturers who buy space on the disk. With VGA monitors, it can display product pictures in color. The compact disk also contains the SuperSpec checklists.

QuickSpec, for $2,500 a year, provides a means to format the data supplied by the manufacturers and export it to other systems. Eclat describes QuickSpec as a specification management system that can generate workstation typicals, comparisons of prices and features, bills of materials, schedules, and orders. A QuickSpec user can look up information in an IntelliFile catalog either by typing in the product number, browsing through a table of contents organized by product type, or looking up product options such as color and finish.

From IntelliFile, a user typically would obtain libraries of furniture symbols that have been tagged with attributes and that can be inserted into a CADD drawing. When the drawing is complete, QuickSpec queries the attributes to provide information such as quantity, price, and catalog number for each type of furnishing. This scenario works well with manufacturers that supply both catalog and symbol information. However, if the manufacturer supplies only catalog information on IntelliFile, the symbol library must be obtained from the manufacturer.

QuickSpec and IntelliFile can improve productivity, although extensive knowledge of each manufacturer's product line is required for optimum efficiency. To address this problem, Eclat provides a displayable picture file format as an option for manufacturers.

These products improve client relations by smoothing the flow of work during construction and installation phases. The program is not complex and comes with a good tutorial, so it is easy to learn and to access.

—TERRILL W. JANSSEN

Terrill Janssen is director of computer services at Loebl Schlossman & Hackl in Chicago. Drawbase is the firm's primary CADD program.

HAWORTH

Although Haworth distributes its furniture catalog electronically through both Computer Aided Planning and Eclat, it also makes the same data available at no cost through its own distribution channels under the name Cadvantage III. Installation and operation of the Haworth package is much simpler than under the CAP system. No computer expertise or training is required. The manual is short, well written, and attractive. Prices and options for all components are included, and selection is easy and intuitive. The entire Haworth catalog takes eight megabytes on the hard disk, but it is possible to load one product line at a time.

To make a furniture selection, the user may fill out an on-screen questionnaire or invoke the catalog for assistance. When a furnishing is selected, its price is added automatically to the file. When quantities and discount are added, the program performs the math to show selling price, purchase price, and profit margin. The list can be printed, but the format is fixed and not very good (there are no top, bottom, or side margins). One of the most interesting qualities of the program, which supports Autocad and Cadvance, is its ability to extract information automatically from furniture symbols in a CADD drawing file.

I tried a test version of symbols of the most frequently specified parts from Haworth's Unigroup product line. They had been drawn with Autocad Release 9 as 2D blocks and assigned attributes. The automatic process of extracting attribute information from symbols I inserted in an Autocad drawing worked quickly and well.

—FRANK E. HEITZMAN, AIA

HECKMANN BUILDING PRODUCTS

Heckmann's software consists of 742 isometric anchoring system details drawn with Autocad. The details are drawn exactly as they appear in Heckmann's catalog, although they provide no specifications or other text. The drawings do have catalog numbers, making it easy to choose the

Software at a Glance

	AM. STAN.	ANDERSEN	CAP	DRYVIT	ECLAT	HAWORTH	HECKMAN	HOLOPHANE	MARVIN	MCQUAY
Introduced	1988	1987	1978	1988	1987	1989	1989	1987	1988	1985
Version	1.0	(3)	4.0	1.0	1.1	1.1	1.0	6.5.5	10	3.4
Initial Price	$29/$135	Free	$10,500	Free	$500/year	Free	Free	$595	Free	Free
Other costs	No	No	Yes	No	No	No	No	No	No	No
Category	CAD	CAD/Text	Catalog	CAD	Catalog	Pricing	Details	Analysis	CAD/Text	Analysis
Installations	900	5,700	1,000	1,000	400	100	75	680	3,000	1,700
% to architects	80%	80%	25%	95%	<50%	10%	100%	10%	80%	10%
Manual	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes (2)	Yes (2)
Tutorial	No	Yes	Yes	No	Yes	No	No	Yes	Yes	No
Newsletter	No	No	4/a	No	3/a	No	No	4/a	No	No
Is CAD required	Yes	No	No	Yes	No	Yes	No	Yes	Yes	No
Is CAD useful	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Symbols/Details	Symbols	Both	Both	Details	Both	No	No	No	Both	No
2D or 3D	Both	Both	Both	2D	Both	$2^1/_2$D	2D	N/A	2D	N/A
Attribute tags	Yes	Yes	Yes	No	Yes	Yes	No	N/A	Yes	N/A
Price among tags	No	No	Yes	N/A	No	Yes	No	N/A	No	N/A
Special hardware	No	No	CD Player	No	CD Player	No	No	No	No	No
Disk file size	2.5MB	2-3.5MB	240MB	>7MB	350MB	8MB	1.3MB	*6MB*	1.8MB	1MB
Updates per year	1	1	12	0	4/a	4/a	0	1	1	<1
Udate price	Free	Free	$1,500	N/A	Free	$995/year	N/A	$95	Free	Free
Menu driven	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	Yes
Toll-free support	No	No	No	800-556-7752	800-359-3252	No	800-621-4140	800-338-1331	800-346-3363	Yes(1)
Self-contained	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Proprietary	Yes	Yes	Most	No	Yes	Yes	No	No	No	Yes
On 360K disks	No	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes
Copy protected	No	No(4)	Yes	No	No	No	No	No(1)	Yes(4)	No(1)

NOTES: 1. User's name is coded into the disk. 2. No index. 3. Varies. More than one CAD program is supported. 4. Lisp routines are protected. 5. From regional sales offices. 6. Call collect 612-553-5142

appropriate detail by referring to the catalog.

An architect initially inserts a detail as a block onto layer "0" of an Autocad drawing (Release 9 or 10) for easy transfer to whatever layer is more appropriate. No operational instructions are provided, but an experienced Autocad user will recognize immediately how to use the drawings. Details were drawn with no rational scale in mind. Isometric views are only a 2D rendering and cannot be rotated. It would be helpful to have an elevation view that could be inserted directly in a masonry wall section.

File sizes of the details range from 2.5 kilobytes to 25 kilobytes, so inserting a lot of large anchor details into a CADD drawing could slow regeneration time considerably.

—MARSHALL F. HJERTSTEDT, AIA, AND DAVID G. PATTON, AIA

Marshall Hjertstedt heads MFH Associates in Chicago, which specializes in commercial design using AutoCAD, Arris, and VersaCAD. David Patton is project manager for the 11-person firm of Phillips Swager Associates in Naperville, Ill.

MARVIN WINDOWS

The strengths of this program are its data base generator and its window details. A product schedule can be generated as an Autocad block without having to exit the program. I was successful in passing this information to Lotus 123 and then to Word Perfect 5.0 for a specification.

The data base is only one-way and not interactive with the graphic file. Deleting a window in plan view will delete the window from the data base, but deleting a window in the data base will not remove it from the floor plan. Adding to the possibility of error, the details are separate from the plan-and-elevation portions of the program, requiring the designer to remember the type of window being used.

Full-scale, cross-sectional window details, which I used to draw by hand, are easy to create with Marvin's software. Menus enable head, jamb, and sill details to be generated at various scales for insertion into a wall. Editing can be done at whatever level of detail the designer wishes, from showing just the size and area to modifying the size of the head, jamb, and sill. Marvin provides window elevations for vertical walls, but they do not work if the wall is angled back, as in an octagon configuration. For an angled elevation, the designer must create a custom window, an option the program permits.

I used an experimental version of the program intended to work with Autocad Release 10. It was easy to learn and use, and it reduced the time it takes me to prepare window and door details and specifications. An automatic installation routine modifies the computer's "acad.lsp" and "acad.hlp" files and creates a separate directory to store files. As with any test release, frequent saving of the file was necessary because the program can get lost or confused; however, very few bugs remain. The same settings for Autocad's AEC Architectural template will work with the Marvin program. Marvin has bridged the gap in preparing details and schedules for working drawings. Previously, to work on a schedule I had to leave Autocad. With Marvin, it all can be done internally. I recommend the program.

—PAUL ZINNI, AIA

Paul Zinni is a Chicago architect familiar with several CADD programs.

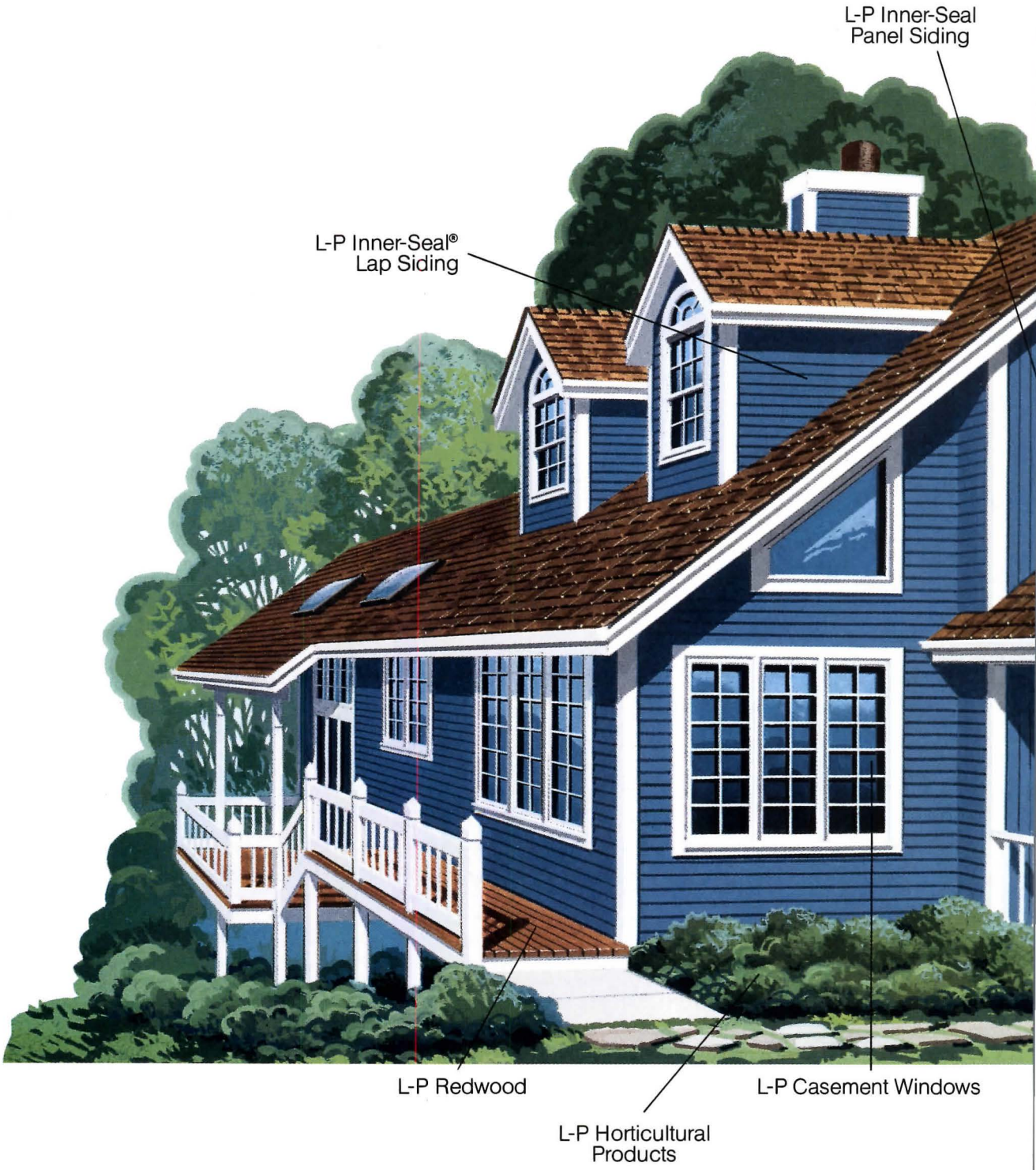
MCQUAY

McQuay's MS-85 program is an excellent tool for selecting heating and cooling coils and air-handling units. Although a mechanical engineer should input the design conditions, options are presented in a multiple-choice or fill-in-the-blank format, making data entry fairly easy. After data entry, an overview is provided on the monitor, allowing the user to review and correct. For each option, actual operating conditions are provided for review by the engineer.

Coils are separated into categories such as most economical, coils with more rows than

CADD continued on page 139

H. MILLER	MONSANTO	NELSON ELEC	PEACHTREE	PELLA	SPEC-WRITER	STEELCASE	SUPERSPEC	SWEETSPEC	US GYPSUM
1986	1988	1989	1988	1987	1985	1983	1988	1989	1989
4.0	2.0	3.0	1.0	2.0 beta	1.06	11.0	5.2	1989-2	1.0
Free	Free	Free	$75	Free(5)	$595	Free(5)	$200	$24/section	Free
No	No	No	No	No	Yes	No	Yes	Yes	No
Symbols	Analysis	Analysis	CAD	CAD/Text	Text	CAD	Text	Text	Text
1,000	>10,000	68	360	4,000	300	1,160	200	1,700	1,300
<50%	40%	60%	80%	95%	65%	85%	90%	95%	90%
Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
No	No	No	No	No	Yes	Yes	Yes	Yes	No
No	No	No	No	No	No	No	4/a	No	No
Yes	No	No	Yes	Yes	No	Yes	No	No	No
Yes	No	Yes	Yes	Yes	No	Yes	N/A	N/A	N/A
Symbols	No	Details	Details	Both	No	Symbols	N/A	N/A	N/A
2D	N/A	2D	2D	2D/3D	N/A	2D	N/A	N/A	N/A
Yes	N/A	No	No	Yes	N/A	Yes	N/A	N/A	N/A
No	N/A	N/A	N/A	No	N/A	No	N/A	N/A	N/A
Digitizer	No	No	Digitizer	No	No	No	MNP Modem	Modem and CD	No
14MB	1MB	3MB	5MB	2MB	13MB	8MB	2.5MB	5MB	1MB
2	1	2	1	1	1	2	4	2	1
Free	Free	Free	Free	Free	to $150	Free	Free	Free	Free
Yes	Yes	Yes	Template	Yes	Yes	Yes	Yes	Yes	No
No	800-325-4330	800-331-7325	Yes	No	800-876-7732	800-227-0038	800-252-7732	800-848-9002	No
Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Yes	No	Yes	No	Yes	No	No	No	No	Yes
Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	No	Yes
No	Yes	No	No(4)	No(4)	No	No(4)	Yes	Yes	No



L-P PRODUCTS A

Even if you're already one of our many satisfied customers, you may not realize just how complete our product line is. Our innovative, affordable products are at work and out-performing their competitors all through the house, all through the industry, and all over the world. And that's the big picture.

Warning: Your Firm May Be Hazardous To Your Health

A $10,000 FINE AND SIX MONTHS IN PRISON IS WHAT ARCHITECTS MAY FACE if they don't meet a newly revised federal regulation governing their offices. The Hazard Communication Standard (HCS 52 FR 31852) originally affected only manufacturing industries when it was legislated, but it was updated two years ago to regulate exposure to hazardous chemicals in nonmanufacturing businesses, including offices.

Such standards once were opposed by most industries. But, faced with a growing patchwork of state regulations, private businesses reversed their stand and began pushing for a single, uniform federal regulation.

Unlike most regulations from the Occupational Safety and Health Administration, the HCS covers a broad spectrum of hazardous chemicals in the workplace. In addition, the HCS provides performance goals rather than compliance regulations: employers are required to meet the new regulations in whatever way best suits their firms.

Moreover, the entire responsibility for the safety of the workplace does not fall on the employer's shoulders. Manufacturers and/or importers are required to determine the hazard of each of their products and to pass along that information and protective measures to the buyer. The information usually takes the form of product labels and material safety data sheets and must include hazards to health, such as an evaluation of suspected or confirmed carcinogens, as well as physical hazards, such as flammability.

In architecture firms, the most common hazardous chemicals are those contained in blueprint machines, photocopy machines, and eradicators. Large, high-volume blueprint machines usually require outside venting to eliminate fumes, but they are found in fewer than 10 percent of architecture offices. More common are tabletop blueprint machines that don't require outside venting but use absorbers to contain the ammonia fumes in a closed system. Ammonia, easily recognized by its odor, is not the only hazardous chemical found in blueprint machines; liquid and powder activators also are considered hazardous. Copy machines contribute their share of dangers to the office, too. OSHA considers the toners, developers, fuser oil, and agents used in these machines to be

hazardous. Finally, almost every architecture firm employee uses liquid "white-out" at some time. Though seemingly innocent, these small bottles contain hazardous materials.

Even if the firm employs only one person in the office, in order to comply with the HCS an architect must draw up an inventory of all chemicals used in the office, excluding "consumer products," and keep that inventory up to date. Employees must have access to the material safety data sheet provided by the chemical supplier, and be provided with additional data sheets on request. The first section of the sheet should include the manufacturer's name, address, emergency phone numbers, and other basic information. The sections following should list the chemical's hazardous components, fire and explosion factors, reactive data, as well as precautions for safe handling and control measures.

The firm is responsible for labeling all chemical products and posting warnings in the work areas. Each employee must be trained to recognize and understand the warning labels and the information on the material safety sheets. The training should include methods used to detect the presence or release of dangerous substances, as well as their physical and health hazards. Employees must be schooled in proper procedures for handling chemicals.

If your firm is planning to conduct this employee training, a Training Guidelines Publication (Number 2254) is available from your regional or state OSHA office. Even if an organization such as a trade association, union, or college trains your employees, keep in mind that your company is still responsible for their safety.

Most importantly, the architect/employer must produce a written hazard communication program. This report must be a comprehensive record clearly outlining the procedures for handling, labeling, and storing hazardous chemicals. It also must outline procedures for training employees when they initially are assigned to work with such chemicals, as well as when new chemicals are introduced. The program should designate the person(s) responsible for training and the methods used (audiovisuals, classroom instruction, etc.), which must conform to the requirements outlined in paragraph (h) of the HCS.

Some larger architecture firms contract drawing reproduction work with companies that supply equipment, supplies, and personnel to be used within their offices. Although the firm is not responsible for outside contractors, it still must provide its employees with a written report regarding the hazardous chemicals being used in the office.

According to OSHA, the intent of the HCS program and the training is "to ensure that employees are aware that they are exposed to hazardous chemicals, that they know how to read and use labels and material safety data sheets, and that, as a consequence of learning this information, they are following the appropriate protective measures established by the employer."

For basic information about chemical hazard communication, OSHA provides two booklets free of charge: "Hazard Communication Guidelines for Compliance" (OSHA 3111) and "Chemical Hazard Communication" (OSHA 3084). The short booklets are easily read in less than an hour. Although some of the material contained in both publications overlaps, the information is clear and to the point. ■

—TIMOTHY B. MACDONALD

Martin Tampa of Michlin Seminars contributed to this article.

Light-Filled Heavy Metal

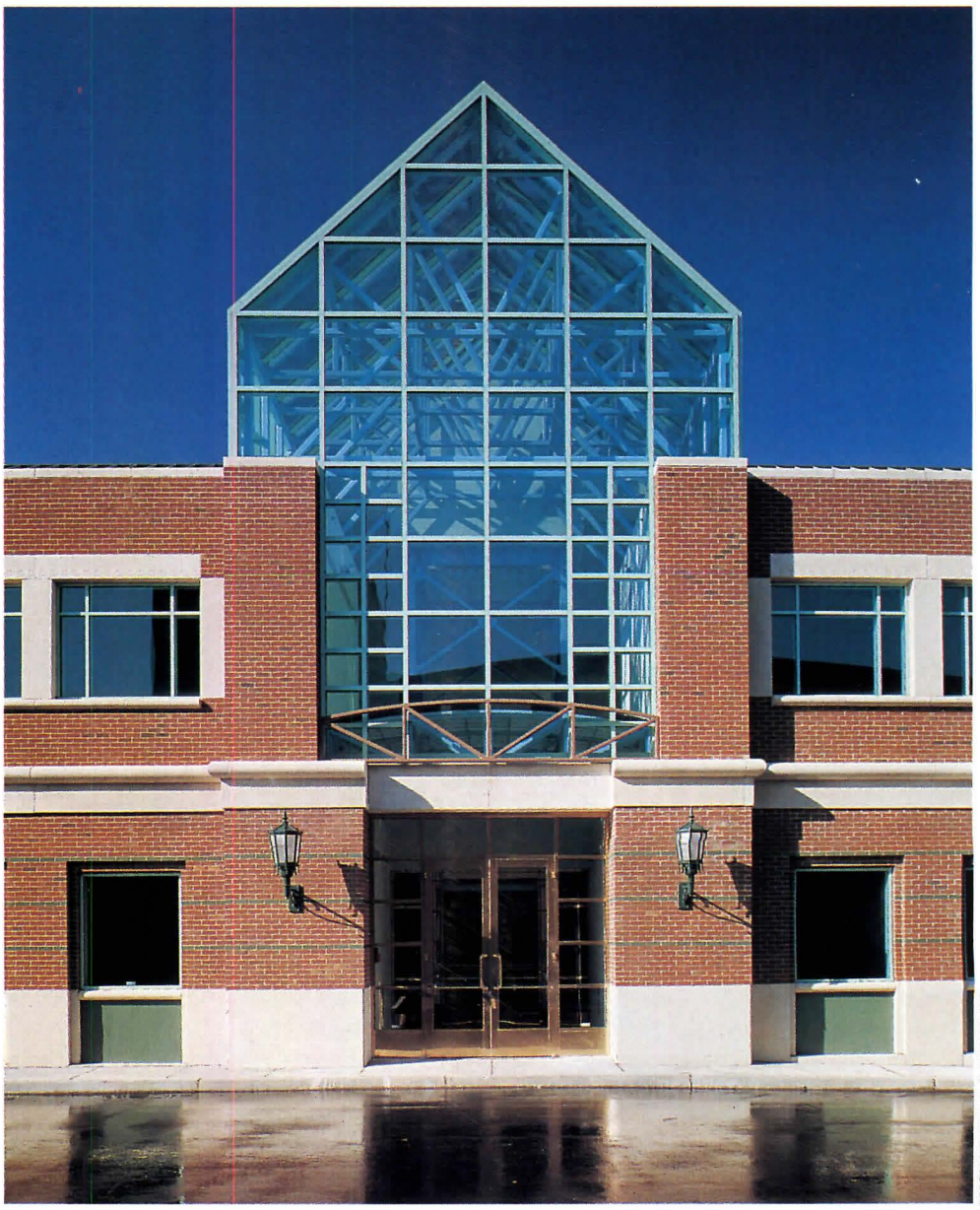
THE BRIGHTNESS AND WARMTH OF DAYLIGHT REACHES EVEN to the basement and the far corners of a 20,000-square-foot professional services building near Newark, New Jersey. On a narrow lot in an inner-city neighborhood, Ronald Schmidt & Associates used four different kinds of skylights and window-exposed steel to celebrate the union members' livelihood and to evoke neighborhood images of surrounding factories and nearby lift bridges spanning the Passaic River.

The centered, pitched-roof skylight with its clerestory front spans 24 feet and defines the entrance to the building. The pitched portion sandwiches energy-conserving 1-inch insulating units with a solar green reflective surface on the outside, a 1/2-inch air space, and 1/4-inch clear glass panels on the inside. One-inch glass, tinted the same green without a reflective coating, forms the clerestory portion of the assembly, the better to reveal the interior's exposed steel trusses to the outside. "The frame of the skylight could have structurally supported itself," says project manager Jody Schornstein, "but we wanted to bring the feeling of heavy steel into the project to reflect the kind of work the union members do."

Directly behind the pitched entryway and on the corners of the main facade, pyramid skylights, each spanning 12 feet, punctuate the brick building envelope and flood the lobby and stairwells with daylight. Each pyramid has the same insulated construction as the pitched skylight for energy conservation; and each is composed of a shop-fabricated frame delivered in one piece and glass assembled in the field. A heavy metal motif reigns throughout the building—exposed steel, unnecessary for skylight support, skirts down the light towers and the lobby.

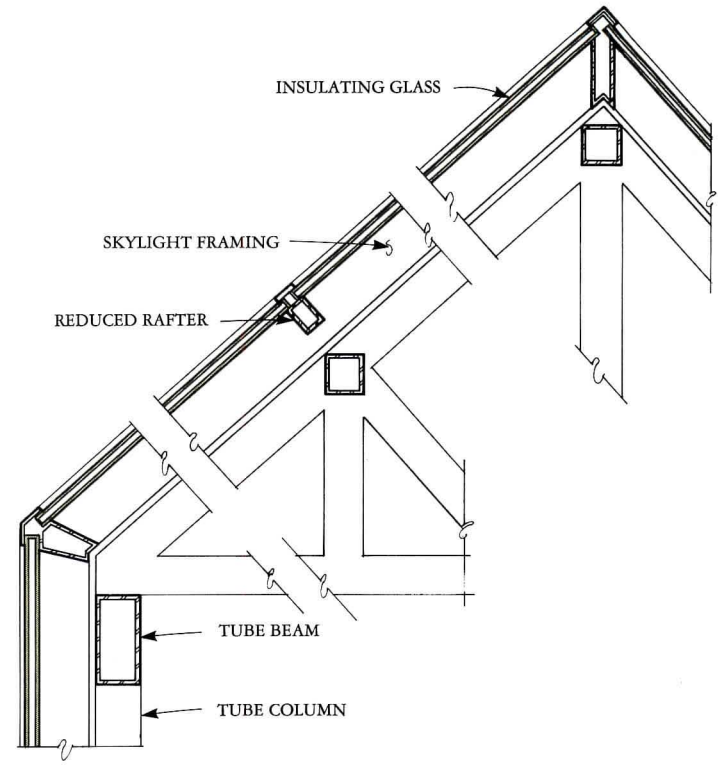
Plastic also plays its part in the skylight design of this building, according to designer Ronald H. Schmidt. At the entrance, the architect created a separation between the actual atrium and the vestibule with a curved truss topped by two layers of translucent fiberglass. In the lobby under the central glass pyramid, a more transparent interior skylight forms a more gently sloping pyramid. In this application, the fiberglass allows visual connection between floor levels while creating a physical separation between the lobby and basement spaces that are used as classrooms at night. ■

—M. STEPHANIE STUBBS

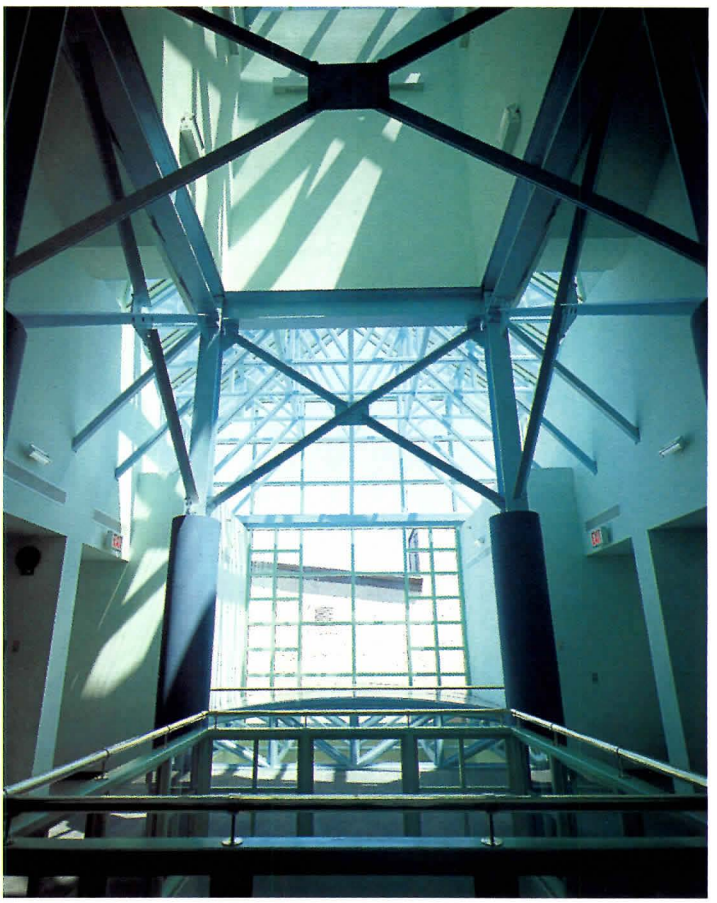


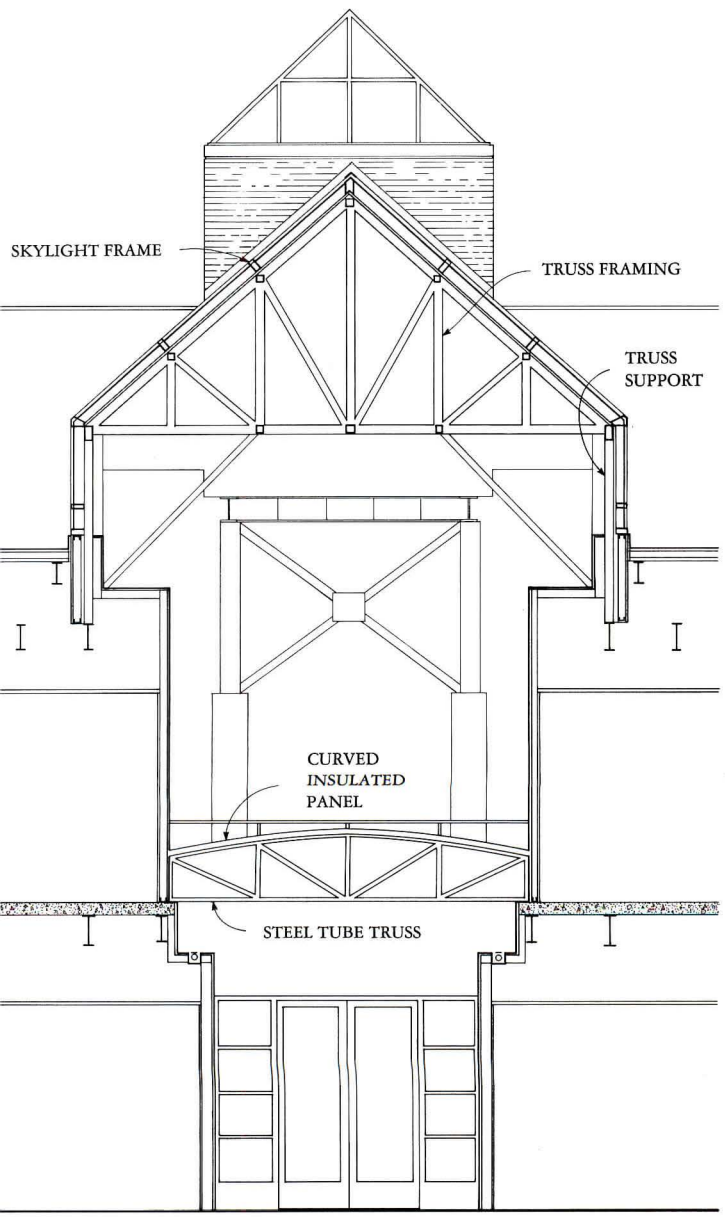
Pyramidal corner skylights punctuate the labor union's massing (left). A pitched-roof, insulated-glass skylight marks the entrance and exposes the building's steel frame (below).

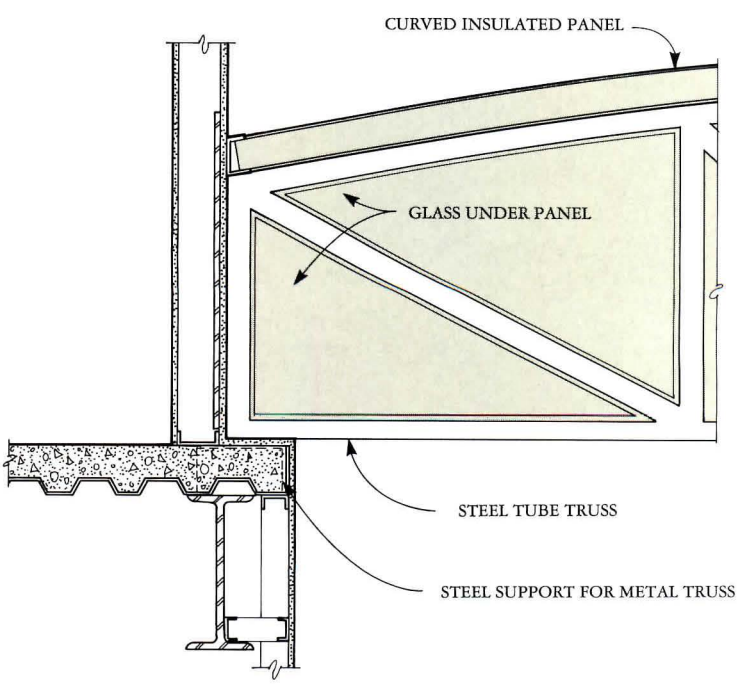
PHOTOGRAPHY © OTTO BAITZ



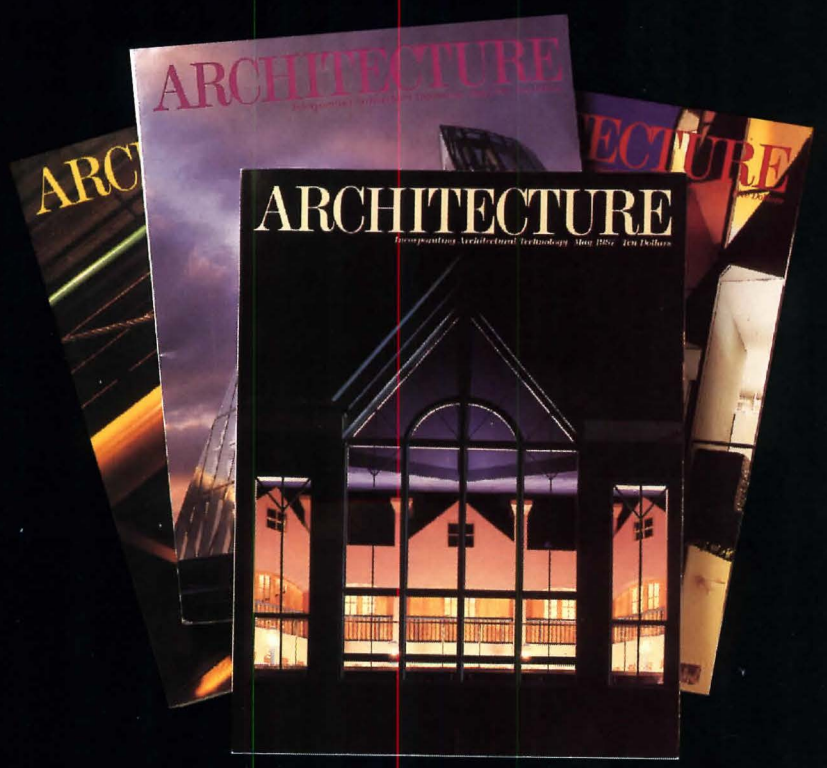
Three types of exterior skylights illuminate the building, as revealed in section (bottom left): a steel-braced glass pyramid, which tops a railing-encircled interior fiberglass skylight (below); a curved truss, fiberglass entryway skylight (bottom); and the insulated-glass panel and steel frame construction of the pitched roof (left).







Architects Agree there's no Equal*



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

PRODUCTS

1

1. Exterior of Tamarac's Municipal Complex. The large skylighted hall to the right is a popular gathering spot for lobbyists and a setting for concerts and events.
2. A vaulted skylight spine connects government offices.
3. Outdoor skylight on the left side of the entrance shields front entry to semidetached auditorium.
Kalwall
Circle 401 on information card

2

3

BLUE SKY YONDER

THE TAMARAC MUNICIPAL COMPLEX, designed in the vernacular of its Florida setting, was carefully scaled to a residential neighborhood by the local firm of Miller, Meier, Kenyon, Cooper, Architects and Engineers Inc. The two-story, 62,000-square-foot building centers on a covered daylighted indoor court, topped by a triangular frame of Kalwall. At either end of the courtyard, a vertical curtain wall system provides additional light.

The designers chose translucent Kalwall for the 20,000-square-foot skylight and combined the material with glass to create a curtainwall system. Designer Craig Kenyon explains that Kalwall was selected for its design performance and ability to conform to surrounding sloping residential roof lines. The material is a structural composite panel formed by bonding reinforced, translucent fiberglass sheets to a gridded core constructed of interlocking extruded structural aluminum I-beams. The fiberglass sheets are of uniform thickness and are designed to be weather-resistant and maintenance-free. Panels are available in flat or curved sections. The complete panel is two inches thick and weighs under two pounds per square foot. Panels can be fitted with an insert of translucent fiberglass insulation. The density of this insulation can be changed to increase the total insulation of the panel to provide a wide range of insulating factor options.

—AMY GRAY LIGHT

7. Skylights are constructed of double-insulated tempered glass.
Velux America Inc.
Circle 407 on information card
8. Class System is self-supporting up to 8-by-16 feet.
Wasco Products Inc.
Circle 408 on information card
9. Venting roof window opens to many positions using a lever at the base.
Andersen Corp.
Circle 409 on information card
10. The Sun Shade II's roller shade blocks solar gain up to 70 percent.
Ventarama Skylight Corp.
Circle 410 on information card
11. Pella's Ice and Weather Shield tape seals without sealants or caulking
Pella/Rolscreen Company
Circle 411 on information card
12. SunPlus4 transmits light and controls solar gain.
Kenergy Skylights
Circle 412 on information card

7

8

HOUSES OF LIGHT

SKYLIGHTING PARTICULAR AREAS OF A house is an easy and effective way to reinforce spatial character by bringing daylight indoors. New developments in residential skylighting provide a wide variety of spacing energy-efficient systems that harmonize with architectural styles. Designer VacLav Homolka ganged Velux FSF-1 fixed skylights with venetian blinds to enhance the breakfast room of his residence in Brookfield, Wisconsin. Wasco Products Inc.'s Class System single-pitched, sloped skylight features low-emissivity insulating glass, thermalized sills, and dark-bronze anodized frames. Andersen venting and stationary roof windows adapt to any size of room and can be installed at every angle from nine to 80 degrees. The Ventarama Skylight Corp.'s Sunshade II for insulated glass and acrylic skylights features an adjustable roller shade. Pella skylights have a one-piece molded rubber boot that seals to the roof. Kenergy paired its Sun Plus4 glass with its Standing Seam Skylight for a leak-resistant skylight that combines standing seam and step flashing roofing systems.

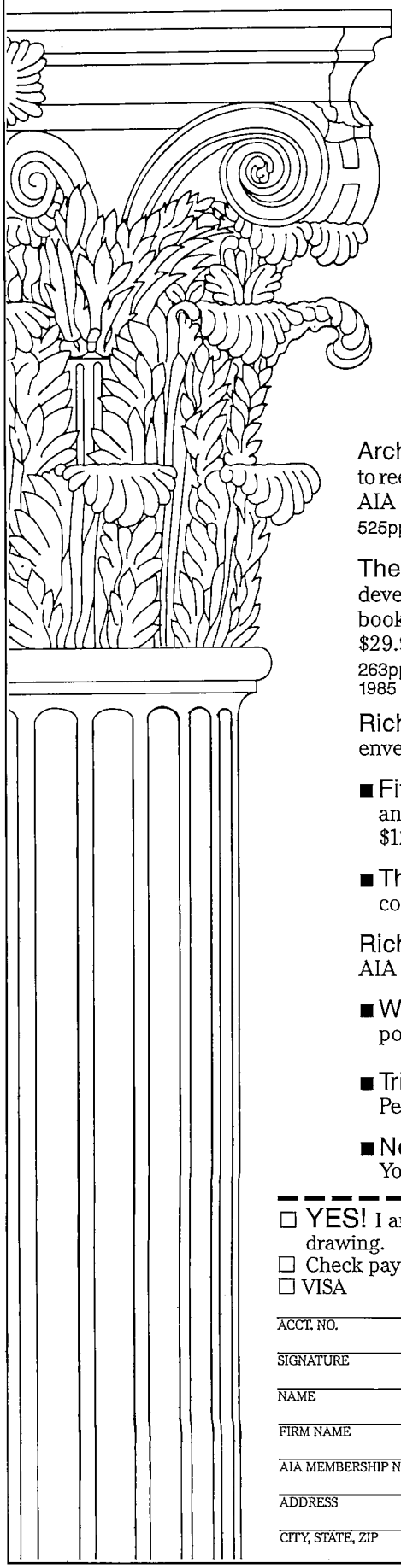
9

10

11

12

The AIA Bookstore



Four Centuries of Great Architectural Drawing

(NEW) Sir Christopher Wren. This volume contains Sir Christopher Wren's previously unpublished drawings for the design and construction of St. Paul's Cathedral, one of the most remarkable buildings in Great Britain and the world. $39.95 ($35.95 AIA members).

190 pp. R751 1989 AIA Press

Architectural Drawings of the Old Executive Office Building. One of the nation's finest examples of French Second Empire style is studied in this engrossing catalog celebrating the centennial of the OEOB's completion. $19.95 ($17.95 AIA members).

72pp. R740 1988 AIA Press

Architecture of the Ecole des Beaux-Arts. This opulent book offers the opportunity to reexamine the philosophy of a school that spanned the 19th and 20th centuries. $65 ($61.75 AIA members).

525pp. R543 1977 MIT Press

The Architect and the British Country House: 1620-1920. The style, character, and development of Britain's architectural heritage is presented in this beautifully illustrated book with 95 main drawings, 31 color plates, and 150 black-and-white prints. Hardcover $29.95 ($26.95 AIA members), softcover $19.95 ($17.95 AIA members).

263pp. 1985 Hardcover-R341H Softcover-R341P AIA Press/ Trefoil

Richard Morris Hunt Notecards. Full-color reproductions, 4⅝ × 6¼″ blank cards with envelopes.

- **Fifth Avenue Houses.** Set of 8 cards depicting the residences of Mrs. William Astor and John Jacob Astor IV, Elbridge T. Gerry, and William K. Vanderbilt (2 of each subject). $12.95 ($11.75 AIA members) R587
- **Theater for a Small City.** Set of 5 cards depicting an Ecole des Beaux-Arts ink and watercolor elevation. $9.95 ($8.95 AIA members). R588

Richard Morris Hunt Posters. 23 ×38″ full-color reproductions. $19.95 each ($17.95 AIA members).

- **World's Columbian Exposition Administration Building.** Chicago 1891-1893 (temporary building destroyed by fire). Blue line print with watercolor and gouache on paper. R585
- **Tribune Building.** Nassau and Spring Streets, New York City, 1873-1876 (demolished). Pencil and wash on paper. R586
- **New York Stock Exchange.** Pen and ink and watercolor facade design for the New York Stock Exchange building (1880). R599

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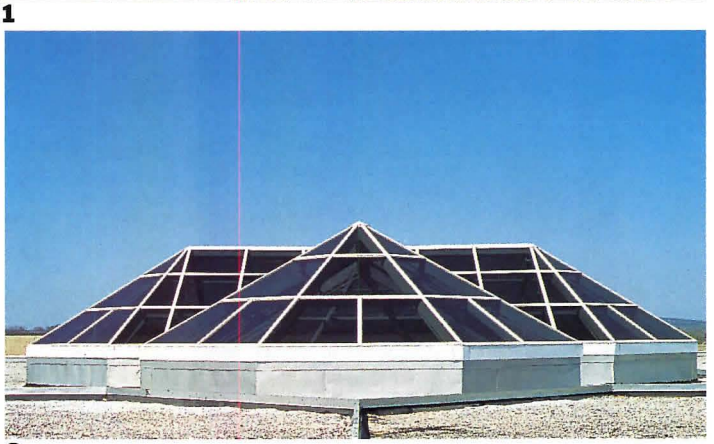
A10

NEW TECHNOLOGIES IN GLASS

A round up of six new installations using the latest glass technologies inspire sophisticated design

FOR THE MINNESOTA WORLD TRADE Center in St. Paul, the Webb Zerafa Menkes Housden Partnership and Winsor/Faricy Architects designed a 63-foot superdome, fixed at the top with an underlying steel framework. Expansion allowance was detailed at the bottom of the frame. The design firm worked with the in-house CADD/CAM design team at Super Sky Products Inc. to engineer the dome. In New Jersey, a newly remodeled Abraham & Straus department store by New York City's Turkel Collaborative Architects was crowned with a double-pitched skylight by Skytech Systems that covers an area of 2,520 square feet. The custom skylight floods the interior with sunlight penetrating three floors. It is faceted with 20 different planar surfaces and glazed with 132 glass lights of varying sizes and shapes. A hip-ridged skylight was used in the restoration of a building listed on the National Register of Historic Places in Coos Bay, Oregon, which now serves as offices for a bank. The design firm, Samuel & Clay Architects and Planners, worked with the Regal Manufacturing Company's Solarview 2500 system, which eliminates the need for framing or support at the head or sill. Law Kingdom Architects in Tennessee chose a barrel-vaulted Naturalite skylight for installation in the Belks Department Store in Chattanooga. Wasco Product Inc.'s Excel-10 Skywindow is step-flashed, and its wood curb rests completely on the roof deck, leaving no gap between curb and roof.

1



2

1. The Minnesota World Trade Center in St. Paul is topped with a grand 63-foot dome skylight, fabricated by Super Sky Products Inc.
Circle 402 on information card
2. The Skytech System used in the Abraham & Straus store in New Jersey is available in pre-engineered and pre-fabricated models. Skytech Systems.
Circle 403 on information card
3. An Oregon historic landmark is lighted with a Solarview 2500 skylight by Regal Manufacturing.
Circle 404 on information card
4. Belks Department store in Chattanooga focuses on a skylighted atrium fabricated of Naturalite.
Circle 405 on information card
5. and 6. The Excel-10 combines a wood curb with vinyl features. Wasco Products Inc.
Circle 406 on information card

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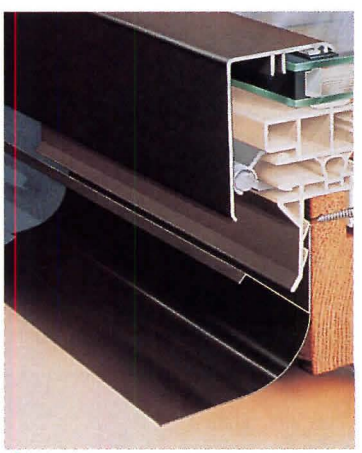

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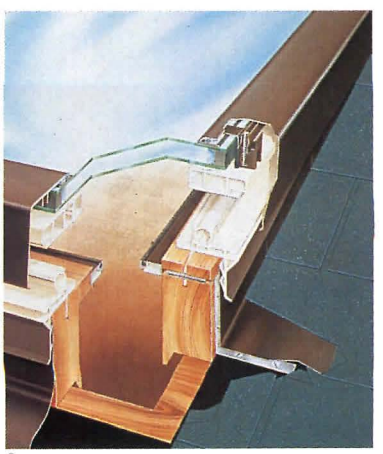

6

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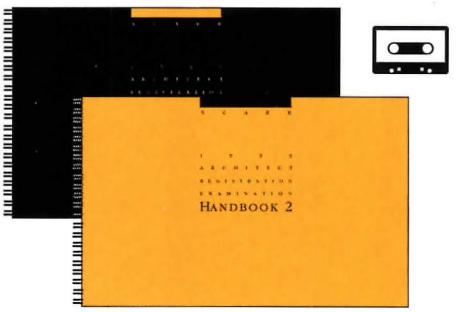

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1

LEARNING LESSONS

SCHOOL DESIGN IS CHANGING RAPIDLY. New facilities are being designed for a growing population of older students, and college students are demanding more for their tuition. Quality design is being reflected in elementary and high schools, with spacious activity areas and landscaped courtyards. Despite this movement to upgrade existing institutions, cost-cutting still is paramount, and architects and clients expect to incorporate new amenities within a reasonable budget. Products specified for education facilities must be cost-efficient and practical, able to withstand constant use in heavily trafficked areas. Building components designed with these criteria in mind are offered by increasing numbers of manufacturers, as shown on this page.

1. Hewi thermoplastic nylon railings and balustrades are designed with clean lines and concealed fastenings that help prevent dirt accumulation.
W&W Ltd.
Circle 413 on information card
2. and 3. Dull, Olson + Weeks of Portland, Oregon, architects of the Sexton Elementary School in Beaverton, specified *Weyerhauser* Architectural Panel 15 on exterior walls. The FRP panel (bottom right) is intended for interior applications and meets various performance standards for use in food service areas, locker rooms, and rest rooms.
Weyerhauser
Circle 414 on information card
4. Paneline/Panicguard entrance doors are detailed with a recessed lock mechanism that is protected by pull handles for security. They provide emergency egress through an exit panel housed within the door.
Kawneer
Circle 415 on information card
5. Horizontal and vertical classroom unit air-conditioners feature mounted and factory-furnished digital computerized controls.
The Trane Company
Circle 416 on information card
6. The manufacturer's line of lockers ranges from full-height styles to more compact space-saving configurations.
Kemmlit/W&W Sales Ltd.
Circle 417 on information card
7. Olde Towne quarry tile and paving bricks are ideal for finishing rugged surfaces indoors and outdoors, and can be arranged to establish traffic directions and define activity areas.
Summitville Tiles Inc.
Circle 418 on information card

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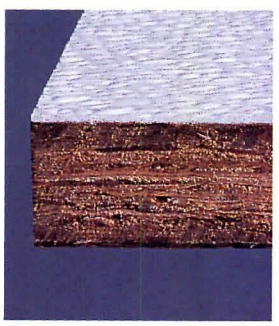

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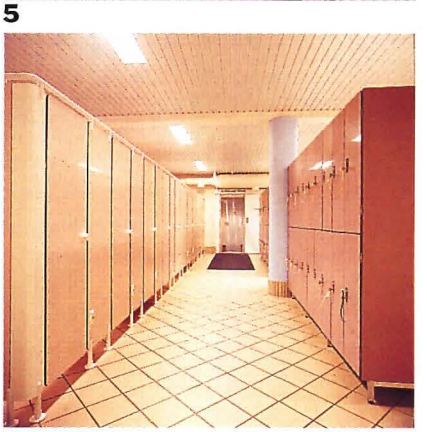

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specified and meeting design conditions, coils falling below specifications, coils with greater water-pressure drop than specified, coils with greater water flow than specified, and coils having the specified number of fins and rows. For the final coil selection, the engineer has the full range of options, including actual entering and leaving conditions, total and sensible cooling capacities for coils, and connection sizes.

The software is proprietary, but it does make the selection of ventilation equipment much easier than sifting through volumes of manuals and running numerous calculations to adjust for actual operating conditions. As with all technical programs, the software is not intended to replace judgment and experience. It does take tedium out of the designer's work.

—CHARLES R. NEWMAN, AIA

Charles Newman heads his own office in Naperville, Ill. The 10-member firm uses VersaCAD.

HERMAN MILLER

This product is a library of symbols, tagged with attributes and offered in plan and elevation views, for five lines of office furniture by Herman Miller. Each product line has its own set of options that can be selected from a template placed on either an Autocad or a Cadvance digitizing tablet. Symbols also are supplied for Arris and in DXF format for other CADD programs, but architects must use on-screen menus or, if they prefer a digitizer, build their own templates.

Herman Miller ties five attribute tags to its symbols to facilitate ordering and creation of inventories and schedules. Two tags are left open for the architect to use, and three (product number, general description category, and plan or elevation) are assigned by Herman Miller and may not be altered. With the tags, the designer can extract information such as the number of credenzas of a certain type in plan view. Symbols are only in 2D; the omission of 3D is unfortunate. Price information is not included in the attribute tags.

The symbols and attributes occupy 14 megabytes. Because the data comes in a compressed format to reduce the number of floppy disks it consumes, the program cannot be run from diskettes. The dilemma is whether to take up a lot of permanent hard disk space or spend the time loading the program every time it is used.

The manual is well written, with clear installation instruction, complete lists of all symbol blocks, one of the best explanations of how to use attributes, and a depiction of all blocks indicating insertion points. The manual clearly explains the disk space required for each product line. The range is from 800K for the Newhouse Group to 4.4 megabytes for Ethospace.

—ROBERT C. ROBICSEK, AIA

MONSANTO

Monsanto has two programs that help users select laminated or monolithic glass based on acoustical or structural criteria: "Acoustical Glazing Design Program" and "Design Program for the Structural Performance of Laminated Architectural Glass." Both are easy to install and use. Step-by-step menus guide the user, so the instructional manual is not required during operation. Output is to the screen or a one-page printed report that summarizes input criteria and shows glass selection. The programs do not produce a written specification section. Architectural specification information is available, but it is limited to notes.

The acoustical program allows input of design criteria for interior noise level, exterior noise sources, and exterior wall construction. Variables within the program's data base are limited, but the range covers most conditions, including airport noise. Based on the user's design criteria, the program selects glass configurations that meet the interior noise criterion. The 37 available glass configurations range from one-quarter-inch monolithic to double-laminated insulated. Compared with manual methods, the computer program is faster and can analyze separate interior octave band sound levels for conformity with the interior noise criterion.

The structural program calculates the behavior of monolithic and laminated glass based on tests and ASTM recommendations. The user selects single or insulated glass, enters project identification information and wind and snow loads, and picks glass type and treatment from the program's data base. The program then analyzes design performance, giving approximate deflection and stating whether the design is acceptable. If not (for instance, if predicted breakage exceeds eight per 1,000 lights), a new glass design can be selected and tested. When a more economical design is available, the program advises the designer.

Unlike the acoustical design program, which selects from the data base all glass designs meeting input criteria, the structural program has a trial-and-error approach requiring the user to test one selection at a time. The structural program could be improved by changing the trial-by-error approach and providing human impact parameters.

—JAMES C. JANKOWSKI, AIA

James Jankowski is vice president of Ross Barney +Jankowski, a 13-person firm in Chicago that uses Cadvance.

NELSON ELECTRIC

To operate the "Firestop Systems Selection Guide," Version 3.0, by Hevi-Duty/Nelson, the architect or engineer selects the specific construction from a menu and describes the required fire rating at a penetration. The software, which comes on a single floppy disk, quickly presents the systems that meet the criteria.

The instructions for the guide contain 64 details that are said to be available "at a nominal charge" in Autocad format. Since we operate Versacad, the symbols were not provided to us. Beyond that limitation, the software does not allow designers to modify details to meet actual construction conditions and does not include a legend for notes. The details included in the instructions show only circled numbers without a description. This product is easy enough to use and useful enough that it should be in most architects' and engineers' offices.

—CHARLES R. NEWMAN, AIA

PEACHTREE DOORS

Peachtree for Autocad runs inside Autocad and provides 2D sections and elevations from the company's Ariel line of double-hung windows. The drawings are accessed by picking them with a stylus or puck from the template provided. No keyboard or mouse input is required. The program requires five megabytes of hard disk space. Sections and elevations are assembled from a library of fully drawn components, not parametrically. Attributes may be assigned by the user, but none is supplied by Peachtree.

Although instructions are sparse, the software is easy for any architect familiar with Autocad and Peachtree's product line. A big help, but not shipped with the software, would be the Peachtree catalog. Peachtree charges $75, which is a little expensive for a manufacturer-specific symbol library, although it does furnish toll-free telephone support.

The software would work better if it operated as a pull-down menu or an expansion to the Autocad AEC Architectural template. Switching templates during design is tedious and awkward.

—KEVIN S. CAMPBELL, AIA

Kevin Campbell is a chief designer at Architechnology, a five-member firm in Chicago.

PELLA

The Pella Designer allows the user to select plan views, elevations, and cross-sections of all the window sizes and types available from Pella from its own Autocad menu. Windows can be placed in plan or elevation. The newest version (2.0) includes 3D lines and

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faces that can be integrated directly into a 3D drawing. It also features a kind of schematic design tool that enables windows to be placed crudely but quickly. Once the architect is satisfied with the size and placement, the windows can be converted automatically to a final detailed drawing. Installing the program took 30 minutes from the time I opened the box, and it required about two megabytes of hard disk space.

One benefit of the intelligent attributes provided with the window 3D drawings is that they can appear on either the plan or elevation view. The tags help the designer remember what attributes were selected without having to leave the program. A built-in attribute extraction utility produces an ASCII text file that generates a window schedule, should it be necessary for a large project. A wide range of window details also is available for large-scale sections or details. A companion symbols library in DXF format, Pella Selector, is accessed from diskettes.

—FRANK E. HEITZMAN, AIA

SPEC-WRITER

Spec-Writer is a computer word processor streamlined specifically for construction specification documents. It has a pull-down-menu interface and includes features such as automatic paragraph numbering, printing multiple sections in sequence, and switching among MasterSpec, CSI, and legal-page formats. Compared with Word Perfect 5.0 and a mouse, Spec-Writer was easier to learn but was less flexible in its finished product. For the novice requiring a simple set of contract documents, Spec-Writer would be our recommendation because it's simple and goof-proof. But it costs three times more than Word Perfect and does half as much.

—CHARLES GRANT PEDERSEN, AIA, AND PAUL ZINNI, AIA

Charles Pedersen heads his own three-member firm located in Hillside, Ill. and is the former president of the Northeast Illinois Chapter of the AIA.

STEELCASE

The Furniture Symbols Library is a comprehensive, dimensionally accurate graphic file of Steelcase's product line. It provides plan view symbols (with attribute information, not including price) and elevations (without attributes) in 2D. Steelcase supports Autocad, Cadvance, Versacad, Microstation, and Intergraph. Software, technical support (including the phone call), and updates are free. Steelcase's regional offices distribute the software. Steelcase also supplies its catalog through Computer Aided Planning, which

adds pricing information, 3D symbols in Autocad, and other advantages, and through Eclat's IntelliFile, which also has prices.

The program is accompanied by two intimidatingly thick binders that contain long lists of product numbers and symbols. Appearance aside, they give a good, straightforward explanation of how to install the software. Since we don't use most of the files in the program, it would be helpful if we could delete from a subdirectory. The plan views alone require 2.5 megabytes.

Printouts of attribute extraction do not have margins, and there seems to be no way to eliminate a blank second page, a strange glitch some other programs share. Running the program from Autocad is labor-intensive, since the standard Steelcase menu has no pop-ups or dialogue boxes and there is no way to toggle back to the original menu.

Steelcase does not guide the designer through the specifying process, nor is there any error checking. Using this library requires an extensive knowledge of the Steelcase product line, an expertise usually reserved for furniture dealers. From an architect's standpoint, it is too tedious to check all the detail. There is no question that this is valuable data, but for a large office it is not the best solution.

—FRANK E. HEITZMAN, AIA, AND TERRILL W. JANSSEN

SWEETSPEC

SweetSpec is a text specification writing system based on MasterSpec (see April '89, pages 105 and 107). The process is additive—that is, the system builds the specification as the specifier answers questions about intent. The system requires a compact disk player, which costs about $500, and a modem with which to send the completed checklist to a host computer in Atlanta for production of the written specification. It takes about two minutes to send the checklist and receive the completed specification. No CADD system is required, nor is electronic interaction with the drawing. The compact disk is supplied free with the Sweets catalogs, but users pay $24 per section used. A parallel program, SweetSearch, looks up the availability of products.

We found the toll-free connection by modem to the main computer to be trouble free, and we received completed specifications—formatted, organized, and spelled properly—in a quarter of the time it normally takes. The system also offers preliminary and short language versions of the most used sections at no charge. The tutorials are excellent. Printed out, they make a very good technical manual of specification and construction information.

—FRANK E. HEITZMAN, AIA, AND CHARLES GRANT PEDERSEN, AIA

U.S. GYPSUM

The program from U.S. Gypsum works exclusively with text, making no use of a CADD program. It's good, it's free, and there's even a toll-free support number. The program has four sections: Durock interior tile backer board, Durock exterior cement board systems, H-spline wall systems, and steel stud/resilient drywall systems. These are unique USG systems, made up of several component products. Users get a complete MasterSpec-format text specification on paper and on diskette.

The software supports most popular word processing programs, so sections may be copied or altered easily at the user's discretion. It would be difficult to substitute products by other manufacturers, since the proprietary systems in this package have been rated by standards-setting groups such as Underwriters Laboratory and Fire Mutual.

USG is experimenting with computer bulletin boards as a distribution medium. Another experiment would allow modems to transmit completed versions of the specification to USG's technical staff for review and comment. ■

—CHARLES GRANT PEDERSEN, AIA, AND ROBERT C. ROBICSEK, AIA

Kristen Fox also contributed to this article.

Carson Pirie Scott: Louis Sullivan and the Chicago Department Store.

Joseph Siry (University of Chicago Press, $39.95.) Louis H. Sullivan: The Banks. Lauren S. Weingarden. (MIT Press, $30.00)

IN THE FOREWORD TO LAUREN Weingarden's book on Louis Sullivan's bank buildings, Kenneth Frampton writes that "no matter how much scholarship is devoted to the figure of Louis Sullivan, the enigma of his life and work seems inexhaustible." Both Joseph Siry's and Lauren Weingarden's books confirm that statement, and both amplify the significance of Sullivan in American architectural studies. Although these books focus on Sullivan at different times in his career, they document his resilience and the resonance of his work within the culture of his time.

Weingarden's study of Sullivan's banks began with an exhibition, and the current volume has an exhibition format—an introductory essay on the historical framework of the bank commissions, followed by well-detailed entries for each building. Sandwiched between these sections is a portfolio of color plates, all but two are the work of architect Crombie Taylor. Weingarden's overall purpose is "to restore the original integrity of Sullivan's designs for rural banks." She succeeds in doing this by combining vintage photographs by Chicagoan Henry Fuermann, a friend of Sullivan, who photographed each bank immediately before occupancy, with contemporary newspaper accounts and bank records. Taken altogether, these documents allow Weingarden to reconstruct each bank's as-built condition. To deepen our understanding of the buildings in their own time, Weingarden plays Sullivan's "artistic procedures" against the actual bank designs and reinforces her argument with commentary from three critics of the period—Montgomery Schuyler, A.N. Ribori, and Thomas Tallmadge.

The heart of Weingarden's own assessment of Sullivan's banks lies in the prefatory essay, in which she addresses six themes: Sullivan's theory and practice and his understanding of color theory; the evolution of the "democratic plan" for banks; Sullivan's intellectual shift from transcendental idealism to pragmatic realism; his use of arts and crafts design and his technical and lighting solutions; how his concern for civic design communicated his democratic meanings to ordinary people; and how each bank stood on its own and yet "harmonized with the townscape."

In documenting each bank, Weingarden highlights a different facet of Sullivan's approach to the Midwestern rural town bank. She locates each design within

Sullivan's overall philosophy and within the entire sequence of bank solutions. Essentially, the National Farmers' Bank in Owatonna, Minnesota, is the prime object and the rest are variations. Weingarden is very good at explaining how Sullivan was able to achieve monumental effects through abstraction, despite limited sites and budgets. Moreover, his building forms—symbolic treatments of geometry and nature—were rationally tied to his so-called democratic plans, each being an "overtly functional layout that made visible all banking activities." Furthermore, each bank has a rich contextual response built into the exterior figure, as Sullivan derived abstract compositional patterns from commercial facades in the vicinity of the banks and from the texture, colors, and massing of nearby civic monuments.

Weingarden determines that Sullivan generated a new style by joining "modern artistic materials, building techniques, and social programs with the abstract universal principles of design embodied in historical stylistic forms." The same logic holds true for the Carson Pirie & Scott department store.

Of the two books, Siry's is the more ambitious. As part of the University of Chicago Press's Chicago Architecture and Urbanism Series, Siry's study focuses on a broader context. His subjects include the history of Chicago retailing, Sullivan's design theory, the evolution of the Loop and State Street, and an indepth analysis of the department store itself. In brief, Siry's premise is that Carson Pirie & Scott is "a monument characteristic of a place and time, as well as the work of a remarkable architect." Siry clarifies the origins of the building with discussions of its urban setting, the story of its design and construction, its character as a department store, and Sullivan's intentions for it as a work of architecture. Thus Carson Pirie & Scott is a point of entry into questions about the commercial and urban development of Chicago, about the culture of shopping along the city's major mercantile street, and about the array of aspirations that Sullivan brought to his art. As a social historian, Siry reconstructs the condition and intentions that overlaid the building's original form. This point is the crux of the matter for Siry, because he relies on his discussion of Sullivan's organic theory as applied to civilization to carry the day. The department store, like Sullivan's other buildings (including the banks), has a vitality of expression derived from new conditions of society; the building grew "naturally out of its conditions logically and poetically." The building is both a record of those conditions and a force that helped to define them.

Both the department store and the banks were progressive models of society. They were buildings that reflected an impending move toward a consumption-oriented society. In the case of Carson Pirie & Scott, even the building type—the department store—represents a shift away from an architecture tied to production and toward an architecture tied to consumption. Sullivan's contribution was to make the building accessible to all, just as the merchant promoted equality in dress and other material-culture items. Other aspects of this economic change were Carson Pirie & Scott's labor-saving devices for handling State Street crowds and with many conveniences and accommodations for customers. Both the department store and the banks went out of their way to appeal to women.

In his discussion of the design of the building, Siry argues that the logic of the ordering principles is extended to the materials. For example, the manner in which steel was used permitted large and open sales floors and accommodated the need to increase the size of the building. Concluding his argument on structure, Siry writes that "the frame was thus a response to conditions of use, and the resulting skeleton of steel became the constructive fact out of which Sullivan ought to make a work of architecture." On the exterior, Sullivan

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employed an economy of materials, a wall of windows set within a tectonic outline, terra-cotta cladding as a continuous envelope, plasticity in the materials, and an organic system of ornamentation, all composed within a tripartite scheme: base (first two stories), shaft (upper floors), and crowning colonnade. Thus, Sullivan applied a principle of classical architecture to modern conditions.

There is much continuity between these books. They both are thoughtful, well written, and persuasive. They are in remarkable agreement about Sullivan's design process and the relevance of his thinking to the development of commercial architecture. Both authors argue convincingly that Louis Sullivan gave the world progressive, authentic American art forms. As Weingarden puts it, "in addition to beautifying utility, he realigned the mechanical arts with nature, making architecture a fine art and, consequently, a means for realigning humanity with nature." Sullivan accomplished that, Siry reminds us, by defining modern conditions through a rhetoric appropriate to his times. Such is the challenge of the moment. ■

—Herbert Gottfried

Herbert Gottfried teaches in the architecture department of Iowa State University.

American Urban Architecture: Catalysts in the Design of Cities.
Wayne Attoe and Donn Logan. (Univeristy of California Press, 1989, $39.95.)

IN THEIR PREFACE, ATTOE AND LOGAN assert that "an appropriate urbanism for America must grow out of the inherent characteristics and conditions of American cities, not out of theories derived from an alien experience." In this respect, American Urban Architecture initially apprears to be a welcome, and indeed refreshing, look at American urban design at a time when foreign, European, and old are being flaunted as the American "new." It is, however, debatable whether American urbanism "has derived more often from theory," as the authors assert, because much of the American urban design that does take place today is the product of very complex processes that are often of an ad hoc, a political, and most certainly, a capitalistic nature. It also is questionable whether many of the generalizations in the book can be derived from Milwaukee as the primary case study for a theory of urban design that applies to all American cities.

In addition to the book's preface and afterward, there are five chapters. These seven parts form the analysis and

presentation of the authors' thesis relative to urban catalysts and their importance to urban design in America today.

Chapter 1, titled "Urban Design Theory, European Style," presents the authors' interpretation of the four modes of 20th—century European urbanistic inclinations, predepositions, or directions. These four stances, the authors claim, are the functionalist (the Bauhaus, Le Corbusier, Doxiadis, etc.), the humanist (Kenneth Browne, Gordon Cullen, and Thomas Sharp), the systemic (Yona Friedman and Kenzo Tange), and the formalist (the Beaux-Arts planners). Indeed, they do represent a useful typology for classifying the various European approaches to urban design that have emerged over the last century.

While it is understood that this chapter deals with the European influences on American urbanism, it should be pointed out that there have been significant American influences on European developments as well. The most significant is an environmental attitude advanced over the last several decades by such landscape architects as Philip Lewis, Ian McHarg, John Simmonds, and others who have affected various projects in U.S. cities over the past two to three decades.

The European typology set forth by the authors is used as a tool to analyze the various ill-fated urban renewal efforts in Milwaukee. The authors paint an interesting picture of Milwaukee as a city that tried all four approaches to urban design and failed miserably: "The ineffective efforts at solving Milwaukee's center city problems suggest that the guiding ideas borrowed from Europe were inadequate to the American context and circumstances and that insufficient attention was paid to other, more dynamic, mechanism of revitalization."

This sweeping assertion by the authors lacks the detailed analyses to sufficiently back it up. For instance, the success of the urban design schemes tried by Milwaukee was tied to economics. However, the authors present no analysis relative to the fiscal implications of each project and how these influenced each project's outcome. The racial composition of Milwaukee also was changing rapidly during the period in which these designs emerged. From a political standpoint, Milwaukee's longtime mayor during these decades alientated all the surrounding suburban municipalities. These issues also have important implications to the success of any urban projects advanced in Milwaukee's city center. The authors neglect some of Milwaukee's notable design successes that did take place during this period, including the construction of the First Wisconsin Center (responsible for bringing hundreds of jobs to downtown Milwaukee), the new Milwaukee Public Museum (responsible for attracting a greater number of tourists to downtown), and the addition to the Milwaukee Art Museum located on the shores of Lake Michigan.

The authors set forth eight points that characterize urban design catalysts. Some of these points seem contradictory. For instance, one states that "the chemistry of all catalytic reactions is not predetermined," while another states that "catalytic design is strategic. Change occurs not from simple intervention but through careful calculation to influence future urban form step by step..." Later, the authors state that "catalytic urban design is based on formulas and programs, not specific plans and designs." But then they concede that "new zoning restrictions...are intended to direct the impact of new development strategically...design guidelines or development controls should be part of a city's strategy for shaping itself." Zoning and design guidelines typically do indeed predetermine land use type and intensity of an area. And from both a professional planning and legal standpoint, there must be a direct linkage between plans and the implementing zoning ordinances in order for a community to avoid being deemed arbitrary and capricious by a court of law if the approval of development proposal is

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challenge. While it is recognized that zoning laws can be properly tailored to accommodate various forms of urban development through tools such as planned unit development districts, the analogy made by the authors of relating this "semideterminate process to that of a pinball machine" is both troublesome and misleading.

In fact, the concept of the urban "catalyst," as presented by the authors of this book, is not that different than the concept of synergism used by retail developers to develop large retail complexes in the suburbs. Unlike synergism from a retail developer's perspective, however, the authors state that, relative to urban catalysts: "Our concern is that of architects, so we will speak to the architectural aspects of urban catalists and we will focus on the building blocks, the structures that stimulate and sustain urban chemistry."

The authors discuss how the concept of urban catalysts has been used in other cities in the United States to promote, from an urban design standpoint,, the success of central city urban design projects—cities as diverse in area, size, and population as Kalamazoo, Michigan; Phoenix; Washington; Portland, Oregon; and Glendale, California.

The authors present elements that they term "proven ingredients" necessary for revitalizing city centers, such as the maintenance of a hierarchy of movement, boulevards, main streets, transit malls, housing precincts, pedestrian malls, monuments, and nature in the city. It is interesting to note how many of the "proven ingredients," by the authors' own admission, are European: hierarchy of movement, promenades, galleria, superblocks, etc. In this respect, there is a major contradiction between the author's "proven ingredients" and the limited analysis of the many failures of European imported urban design elements.

The book, however, does present its ideas and concepts well, with 138 illustrations, including photographs and drawings of American urban design and architecture. Through the significant illustrative material presented, a good overview of urban design in the American city center over the last several decades is documented despite the fact that the rationale for the concepts presented by the text are somewhat disappointing.

As the title of the book implies, the authors discuss the urban design of American cities. The book's major concentration is clearly on the modern American city center, or downtown, and its immediately adjacent areas. In this respect, and in particular relative to the recent Euroopean infusion of foreign and archaic forms, styles, and historic precents into the American landscape, even with its numerous flaws the book represents an alternative way of looking at the urban design of American city center from a somewhat simplistic urban design point of view.

Much American city design today takes place in the rapidly growing suburban areas of this country. Unfortunately, growth and development from a suburban perspective only rarely has been the subject matter for books on design. The design of exurban and rural countryside areas around cities is an even rarer topic for publication. A comprehensive look at the design of the total city—including its suburban, exurban, and, perhaps, even its rural countryside—still is needed. ■

Patrick J. Meehan, AIA, AICP

Patrick Meehan, an architect and urban planner, is an associate of Lane Jendig, Inc., a Chicago metropolitan area urban planning consulting firm.

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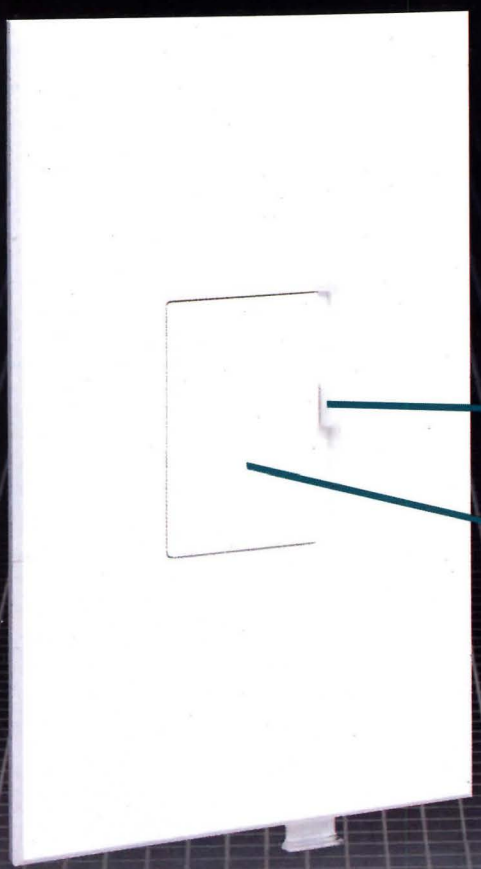

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