ARCHITECTURE

JUNE 1991

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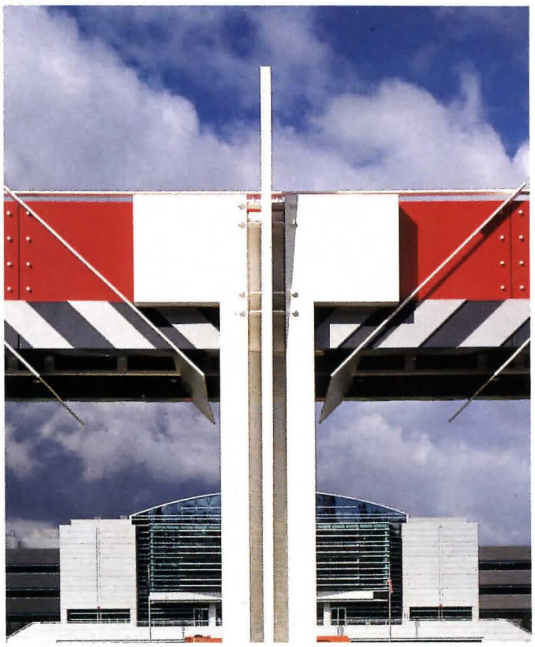

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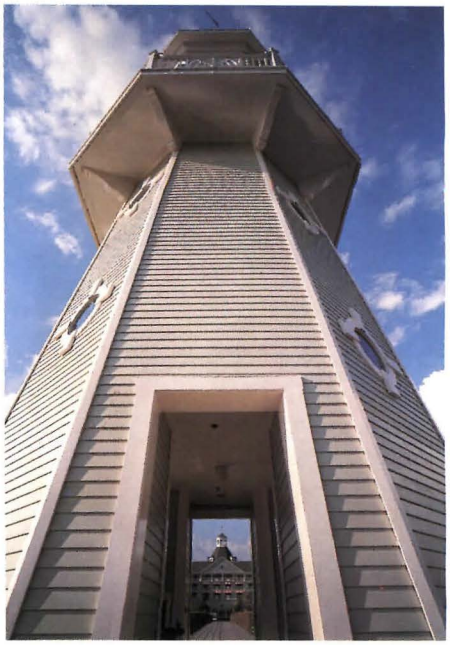

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DESIGN

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TECHNOLOGY & PRACTICE

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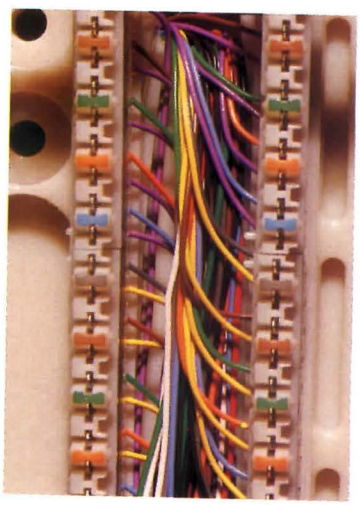

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DEPARTMENTS

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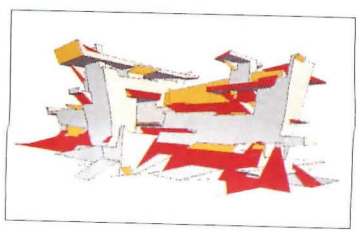

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COVER:

Team Disney Building, Burbank, California, designed by Michael Graves, Architect (page 80). Photograph by Jeff Goldberg / Esto

NEXT MONTH'S ISSUE:

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Housing Policy: AIA Helps

IN APRIL, A TEAM OF EXPERTS IN HOUSING, FINANCE, AND community development spent four days in Washington helping Mayor Sharon Pratt Dixon to address D.C.'s housing crisis. After interviewing over 200 community and business leaders and inspecting public and private housing stock in the nation's capital, the 11-member group handed the mayor a 31-page book of recommendations. The task force not only advocated short-range solutions, such as the rehabilitation of existing owner-occupied and vacant units and modifications of the zoning code, but more basic management strategies such as the creation of a D.C. Planning Commission and a Mayor's Development Cabinet to instill housing and development agencies with a coordinated sense of purpose.

Sponsored by the D.C./AIA and the Washington Architectural Forum, the four-day charette represents the first step by the AIA to influence housing policy in cities across the country. The National Housing Assistance Team of D.C. HOME (Housing Opportunity Management Effort) is modeled on the AIA's Regional/Urban Design Assistance Team (R/UDAT) process, which has been successfully implemented in 110 communities over the past 24 years. But unlike R/UDATs, which target specific improvements to urban neighborhoods, the new housing initiative is aimed at involving architects in city-wide policy-making. "In the real world of housing politics, our profession is rarely considered a player," maintains AIA Search for Shelter director Charles Buki, who helped organized the D.C. HOME workshop. "We want to change that by bringing architects to the negotiating table."

The D.C. assistance team included two architects—Michael Stepner, city architect of San Diego, who cochaired the task force, and Richard Bradfield of Atlanta, current chairman of the AIA Housing Committee and a member of the AIA's three-year-old affordable housing task group—who joined bankers, developers, and housing advocates in devising the housing policy recommendations. As Bradfield points out, architects' involvement at the policy level will result in better designed housing. "We know that smaller units work and huge projects don't," he asserts. "We can do a lot to eliminate crime and drugs through more humane environments."

JOANNA MURPHY

Washington, D.C., Mayor Sharon Pratt Dixon addresses the AIA-sponsored D.C. HOME delegation in April.

The D.C. HOME workshop will also help Washington qualify for federal dollars under the 1990 National Affordable Housing Act, passed by Congress last fall. To receive government assistance under this act, cities are required to explain how public policies and institutional structures will affect the creation and improvement of affordable housing. The law also requires state and local governments to draw from as many voices as possible in generating these strategies. Following this mandate, the AIA orchestrated a mix of public and private organizations and various disciplines to participate in the workshop, providing a sound model for other city governments to follow suit. (A videotape of the charette, published recommendations, and 80-page briefing by the local steering committee are available from AIA national headquarters.)

Although the site of the next housing workshop has yet to be announced, plans are underway to replicate the D.C. effort in communities across the country. For the profession, the National Housing Assistance Team process offers a rare opportunity to participate at the community level in setting a future agenda for a critical social problem. It is now up to architects to prove themselves vital to the process. ■

—DEBORAH K. DIETSCH

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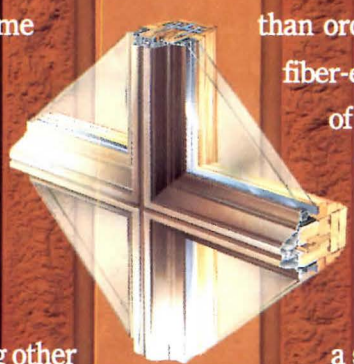

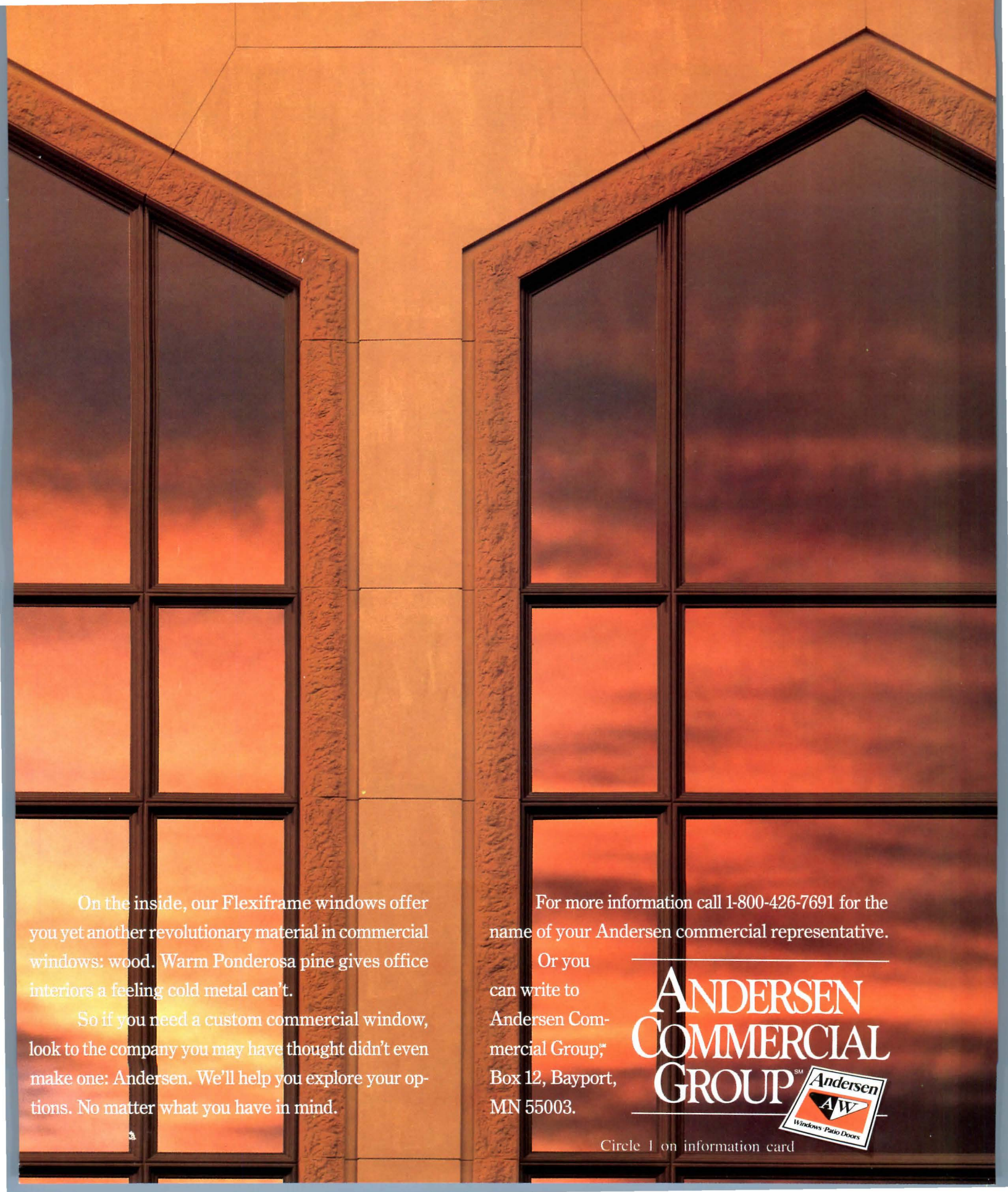

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LETTERS & EVENTS

On-the-job Experience

Your March issue quotes Charles Gwathmey as saying, "We don't hire anyone who has just graduated. We tell interns to go work elsewhere and then come back. Having the experience of a building behind you is critical." The article (pages 139-142) also points out, "A majority of the top design firms do not see themselves as the first place bright graduates should work after coming out of school."

If ever a profession deserved the denigrating classification of elitism, quotes and descriptions of "signature" architecture firms certainly encourage such thinking. Where are these firms' responsibilities to the profession...is it not the young graduates that are the lifeblood of our following? Is it because it takes a certain amount of nonremunerative time to train graduates that these premiated firms opt to let someone else do the training?

I own a small, nonaward-winning firm that I think represents the grass roots of the AIA, without prestige commissions and the remuneration that is commensurate with such commissions. Yet I find the time, and am willing to forgo, the bottom-line profit motive, to hire nonregistered architects and shepherd them through their apprenticeship.

So long as prestigious firms are willing to let others do the groundwork and serve as a farm system for their elite offices, my respect for such firms will be at or below grade level. Shame on these icons of the profession.

Marvin J. Cantor, AIA
Architectural Offices
Fairfax, Virginia

Even after 35 years as a practicing architect, I can readily recall the seemingly impossible hurdle of obtaining my initial architectural experience after graduation. How well I remember that continual "we don't hire new graduates because you have no experience, not enough experience, not the right experience—come back later" as expressed in "Organizing for Excellence" (March 1991, pages 139-142). How well I remember, with particular fondness, those initial firms that gave me a chance. And how well I recall, after becoming experienced, how I no longer had to concern myself with those firms not inclined to give young people their first chance in the "real world" of architecture.

Arthur K. Olsen, Architect
Salt Lake City, Utah

Drawing Notes

I appreciated seeing Allen Boemer's article "Improving Working Drawings" (March 1991, pages 153-154). I do not feel that enough attention is paid to making these documents serve all the needs required of them.

With regard to reviewing drawings submitted with a building-permit application, many firms strive to simplify the drawings by placing as much information as possible in the specifications. Complications arise because building departments generally approve only drawings, not specifications. Consequently, we frequently ask that notes be added to the drawings to guarantee minimum code compliance.

For instance, glazing options are now much more complex with low-emissivity coatings and argon gas fillings to add to the wide range of shading coefficients. For projects with small glazing areas, it is adequate to indicate double glazing with a $\frac{1}{2}$-inch air space on the drawings. For projects with large glazing areas, however, it is necessary to list the maximum allowed U-value for the glass and the material of the frame, or, ideally, the U-value for the entire glazing assembly, including the frame. There are similar categories of information that need be included in drawings for building, mechanical, and electrical code compliance.

As the author suggests, keep the references to specific building products and quality standards in the specifications. However, provide notes on the drawings for the performance requirements in the codes. Merely including these few additional notes on the working drawings would make the code review of the building permit application proceed more smoothly.

John Hogan, AIA
Major Projects Energy Analyst
Seattle Department of Construction and Land Use
Seattle, Washington

Corrections

The design of the residence halls at the University of Nevada Las Vegas (March 1991, page 55) was a joint venture between JMA Architects and HSA Architects.

The firm of Edward Harrison Bernstein and Associates was contracted by Bell Atlantic Properties as architectural consultant on the Bell Atlantic Tower (March 1991, pages 104-107).

June 7: "Washington: Symbol and City," opening at the National Building Museum in Washington, D.C., chronicles how Washington, D.C. has evolved as a symbol for the nation and the world. Contact: Donna Anderson, (202) 272-3606.
June 11-14: NEOCON 23, an international exposition on new products and design at the Merchandise Mart in Chicago, Illinois. Contact: (312) 527-7553.
June 13-15: A joint meeting of the AIA Committee on Design and the Regional & Urban Design Committee will examine the Northwest landscape and North American urban design traditions, in Vancouver, British Columbia. Contact: Pete McCall, (202) 626-7465.
June 20-21: "Using Design to Enhance Productivity & Therapeutic Outcomes Within the Healthcare Environment," a conference for healthcare senior management and design professionals in Carlsbad, California. Contact: (415) 370-0345.
June 21-22: "Urban Growth and the Environment: Forging a Partnership for Our Future" is the theme of the First Ecological Cities Conference, to be held at UCLA. Contact: Jan Brown, (818) 994-2502.
June 24: Deadline for entries to Round Three of the Presidential Design Awards, administered by the National Endowment for the Arts. Works must have been completed between January 1981 and January 1991. Contact: Thomas Grooms, (202) 682-5437.
June 29-July 3: "Best of Southwest Design and Craft Show," sponsored by the Dallas Market Center, continues the tradition of displaying the finest in Southwest art and design, in Dallas, Texas. Contact: Kathryn Chamberlain, (214) 655-6163.
July 31: Deadline for nominations for Round Two: President's Historic Preservation Awards, National Historic Preservation Awards, honoring excellence in privately and federally assisted preservation. Contact: (202) 786-0503.
Through August 18: "McKim, Mead & White's New York," an exhibition inaugurating the New York Historical Society's curatorial department of architectural collections, at the New York Historical Society. Contact: Nancy Donner, (212) 873-3400, ext. 223.

NEWS

Planning New York ▪ Holl at the Walker ▪ Young Californians ▪ Urbanism at the Smithsonian

Game Plans: Atlanta Prepares for the 1996 Olympics

LAST SEPTEMBER, ATLANTA, GEORGIA, WON the right to host the 1996 summer Olympics over Athens, Greece; Belgrade, Yugoslavia; Manchester, England; Melbourne, Australia; and Toronto, Canada. Nine months later, the competition is gearing up for selecting an architectural programming firm and design teams for master planning and individual projects.

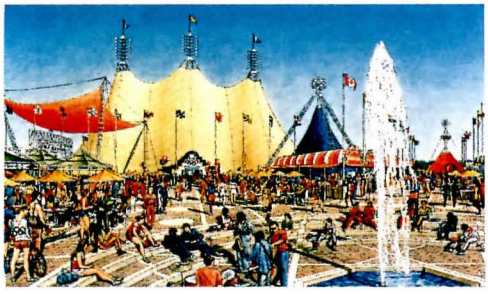
A newly created private corporation, called the Atlanta Committee for the Olympic Games (ACOG), is coordinating both games and the building program. Sixteen architectural offices responded to ACOG's call for a firm to develop a master program for the Olympics, and the committee is expected to name the winning firm this month. The designated firm will oversee programming, scheduling, and budgeting of the design and construction for all the Olympic components, including housing, a festival area, an 85,000-seat stadium, and other sports facilities. The winner is expected to complete all work by December 20 1991, and will not be allowed to submit design proposals for individual Olympic projects.

Although no architects have been selected, major structures for the Olympics were spelled out in Atlanta's bid to host the games. The city's proposal calls for two venue clusters. The Olympic Ring, a concentrated geographical area that includes the heart of the city, will encompass a new Olympic Stadium, Olympic Center, family hotel, and Olympic Village. An Olympic Park, a 3,200-acre complex to accommodate seven additional events, will be located approximately 15 miles east of downtown Atlanta.

The Olympic Village, housing approximately 15,500 athletes and officials, will be situated on 200 acres on the Georgia Tech campus. After the games, the housing will be converted into dormitories for Georgia Tech and, possibly, housing for Georgia State University and the colleges of the Atlanta University system. Earlier this spring, Georgia Tech commissioned Sasaki Associates to develop a 25-year master plan for its campus.

In an attempt to influence the selection of architects and raise urban issues, the local chapter of the AIA has established two task forces related to the Olympics. Atlanta architect Cecil Alexander chairs a five-member committee on Olympic architecture, and H. Randall Roark, director of the undergraduate architecture program at Georgia Tech, heads the urban design committee.

At this point, how and to whom the Olympic commissions will be awarded is still to be determined. Meanwhile, heated debate continues over whether the ACOG should hire out-of-town "star" architects or local firms to design the anticipated $315 million worth of projects expected to be constructed over the next five years. —LYNN NESMITH



Hypothetical schemes for the festival village (above left) and Atlanta University's renovated Herndon stadium (above right) were submitted to the International Olympic Committee.

AIA BRIEFS

"Federal transportation policies must be changed for the sake of our communities," asserted Douglas Korves, president of the New York State Association of Architects, in testimony on April 10 before the U.S. House of Representatives' Subcommittee on Surface Transportation. Korves's testimony is part of the AIA's lobbying efforts to enact the Transportation for Livable Communities Act of 1991, a measure intended to create a framework for a comprehensive national transportation policy.

The proposed legislation, introduced in April by Representatives Dick Swett, AIA (D-N.H.), and Sherwood Boehlert (R-N.Y.), would amend existing federal highway laws to strengthen the link between local or state community planning and transportation decisions; establish a new category of transportation enhancement activities; create a national scenic and historic highway system; and transfer controls on billboards to state and local authorities.

Under the bill's transportation enhancement section, funding would be provided for traveler information and education facilities; acquisition of scenic, recreational, and historic areas; preservation of abandoned rail corridors and their conversion to pedestrian and bicycle trails; and rehabilitation of historic transportation structures.

AIA also supports the Senate's version, introduced on April 25 by Senator Daniel Patrick Moynihan (D-N.Y.), which includes the enhancement and planning provisions of the House bill. Since these proposals would fundamentally alter current highway and surface transportation legislation, a tough fight is expected, particularly with regard to the billboard provisions. *However, all sides agree that more* planning is the key to nationwide transportation improvements.

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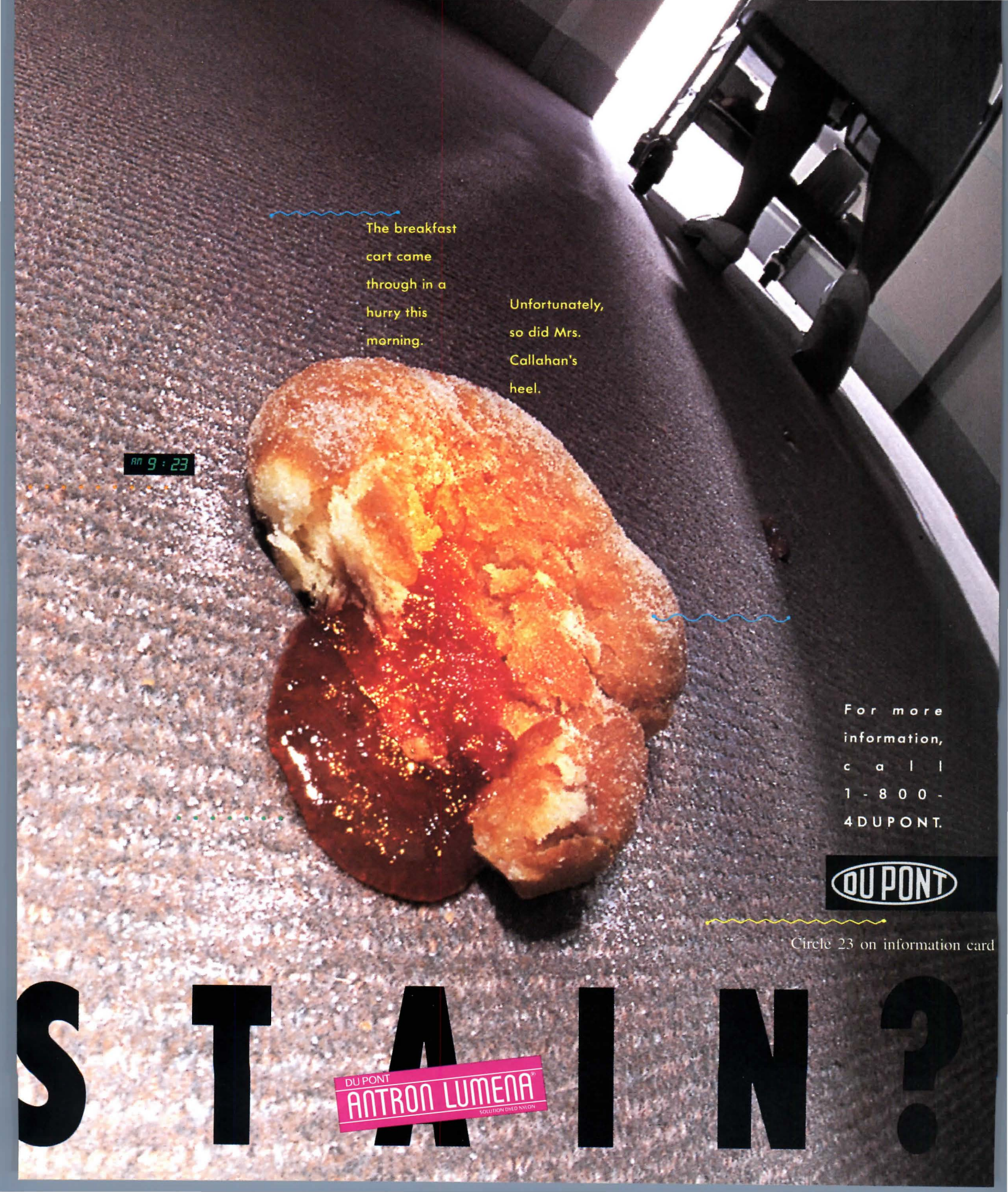
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DETAILS

Arata Isozaki is working on a preliminary scheme for a branch of the Solomon R. Guggenheim Museum to be located in New York City's SoHo district.

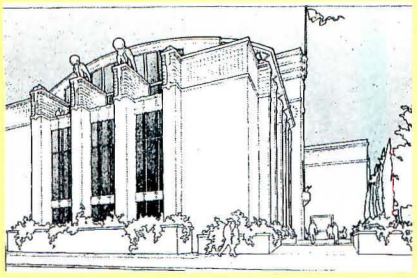
Patricia Conway, a founding partner of Kohn Pedersen Fox Associates and principal of the interior architecture firm Kohn Pedersen Fox Conway Associates, was named dean of the Graduate School of Fine Arts at the University of Pennsylvania.

Venturi, Scott Brown & Associates has been selected to develop a master plan and architectural program requirements for the new National Museum of the American Indian on the Mall in Washington, D.C. The firm will also develop requirements for a $44 million storage and conservation center for the Smithsonian Institution, to be built in Suitland, Maryland.

Canadian architect Peter Rose has been named adjunct professor of architecture at the Harvard University Graduate School of Design. Michael Van Valkenburgh will chair the department of landscape architecture.

The New York City Health and Hospitals Corporation has commissioned Robert Traynham Coles, Architect and URS Consultants to design a new $31 million ambulatory care facility at Harlem Hospital in New York City.

***Philadelphia* architect Joseph Powell won a national competition for a $23 million public library for Evanston, Illinois. Powell's winning scheme (below) was cited by the jury for presenting an "inviting and yet grand exterior" and for the "highly intelligent way in which it gives internal definition to specific program spaces."**



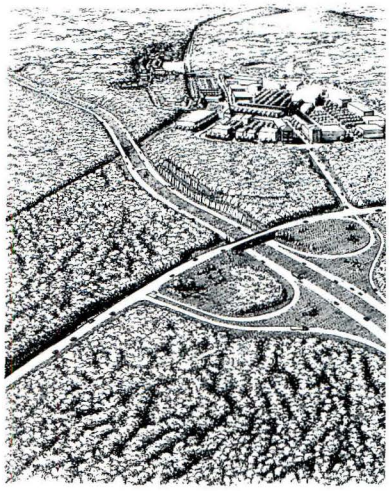
Forum Addresses New York Regional Plans

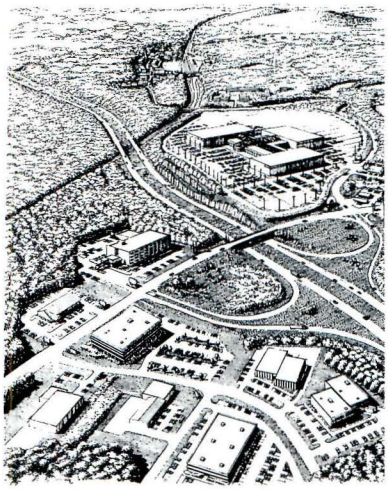
"BEAUTIFUL" WAS USED UNABASHEDLY AND "plan" was more than a four-letter word for over 1,000 participants in an April 11 forum of the Regional Plan Association (RPA) in New York. The agency is seeking a new plan for New York, New Jersey, and Connecticut, to change good design from a "happy accident to the norm," says Robert D. Yaro, senior vice president. Planners advocate denser communities around mass transit and an end to rural sprawl. To achieve this, they want to renew bypassed inner cities, and shape strips and suburban centers into towns.

Their concerns resonate with memories of the RPA's 1923 founders—Lewis Mumford, Clarence Stein, and Benton MacKaye. Fearing the loss of forest and farm, their first plan advocated compact villages surrounded by greenbelts. The highway age undermined the infrastructure of mass transit and parkways, but the congenial housing of Sunnyside, New York, and Radburn, New Jersey, remains.

Even in the sprawling '60s, the second plan employed transit as an "access tree" for "satellite cities." Though Manhattan's overscaled World Trade Center and Citicorp Tower were mere commercial monuments, Mumford's "centers of gravity" appear in improved mass transit and Battery Park City.

How will Plan Three "shape the region tomorrow," the conferees asked? The team of planner Yaro, architect Robert Geddes, urban designer Jonathan Barnett, and landscape architect Harry Dotson focused on new models for suburban infill along with urban or rural relief. Supporters maintained that the overarching structure must coincide with fine-grained details to change our cloverleaf culture, reinforced by a forthcoming book—again an RPA tradition—to enhance their powers of persuasion. Some critics complained that the attending power elite did not express a grass roots, community-based approach. Geddes is more optimistic. Such planning constitutes a new chance for architects to "participate in large-scale formmaking," he says. "The message to architects," Gedes adds, "is responsibility for the landscape."





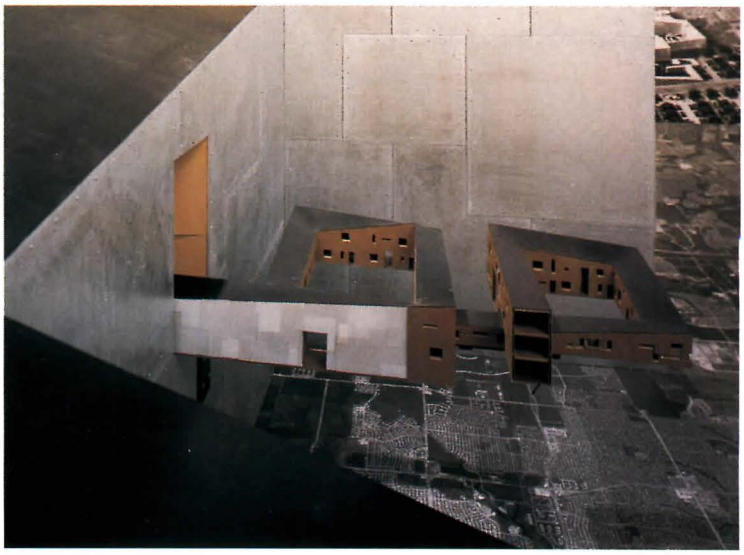
Typical highway development (above) drains business from a nearby village. Alternative plan (top) creates a new town center.

Similarly reflecting a post-Trump time for thought, an April 12-13 symposium on "Density and the City" launched the Columbia University graduate school of architecture's Center for New York City's Future. Columbia's speakers debated growth: "Should New York still be a city in the making?" asked Dean Bernard Tschumi. How and for whom should Manhattan be shaped? RPA President Richard Anderson reiterated his complaints about the city's pattern of development, in which a scant population increase of 4 or 5 percent consumes 60 percent more land.

Architects at both conferences shared a wish to reverse that pattern. And, as the pace of sprawl slows down, they have the enforced leisure of a recession to orchestrate that wish. They can look backward to the eco-based, self-contained communities dreamed by their 1920s predecessors, and forward to the compact visions of their 2020s followers.

—JANE HOLTZ KAY

Holl Explores City's Edge at the Walker

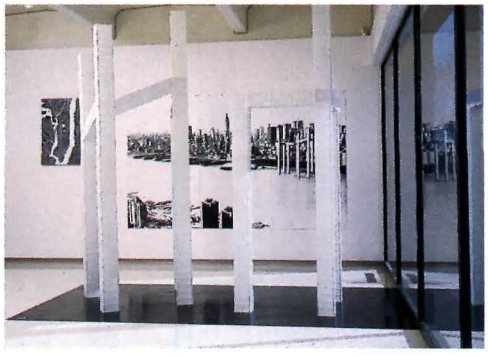


THE EDGE OF A CITY IS ARGUABLY THE MOST bespoiled of American landscapes, neither dense enough to be categorized as urban nor untouched enough to be rural. And the current runaway pace of suburban sprawl will devour even more of the natural environment if allowed to continue unchecked. But architect Steven Holl, a professor at Columbia University and principal of New York-based Steven Holl Architects, believes this chaotic zone can be replaced with an "intensified urban realm" composed of multifunction hybrid buildings that order growth while mediating between city and country.

As the sixth and final exhibitor in the Architecture Tomorrow series sponsored by the Walker Art Center, Holl designed proposals for countering sprawl at the periphery of six cities: Cleveland; New York; Milan; Phoenix; Dallas; and Fukuoka, Japan. Through the exhibition's drawings, maps, photo murals, models, and watercolors, the architect argues for replacing the suburban norm of low-rise, single-use buildings with more complex "social condensers" that combine living, working, recreational, and cultural facilities. With these developments, planners can delineate the boundary between urban and rural, liberate the remaining natural landscape, and protect habitats of plants and animals now threatened with extinction.

"I've always felt that there was a huge gap between architecture and city planning and issues of the environment, and I'm not sure it can be crossed," Holl explained in a lecture on the opening day of his "Edge of a City" exhibit in April. "We've tried to make a leap with this exhibit. One has to think about the landscape in a different way."

In Holl's proposal for Cleveland, giant Xs mark the spot where city and country meet, "stitches" that contain hotels, cinemas, and gymnasiums on the city edge and gardens on the rural side. For the Trump City site on New York City's West Side, all of the land is converted to a public park and ultra-thin towers rise out of the Hudson River like piers turned on their ends. For Milan, Holl envisions a new outer ring of density and intensity—an updated version of urban edges formed by Europe's ancient city walls.



Steven Holl's "Edge of a City" exhibit features proposals for hybrid buildings, including workers' housing between Dallas and Fort Worth (top left and right). Ultra-thin towers connected by diagonal cross-members rise from the Hudson River in New York (above).

One of the most haunting of the architect's visions is for Phoenix, where Holl proposes a chain of "space retaining bars" to divide city from desert. Besides serving as a Space Age adobe village, with ground level courtyards for gathering and loftlike live/work spaces above, these constructions pay homage to the lost Hohokum Indian civilization, which built 250 miles of canals in the area before disappearing mysteriously. Holl stipulates that the undersides of the giant bars be polished to a high gloss so that they reflect the red desert sun at dawn and dusk, creating a hanging apparition of the light once reflected by the canals.

For a 28-unit apartment complex in Fukuoka—the only built project on display—Holl carves out a series of "void courts" with shallow reflecting pools that internalize the landscape while extending the spatial sense of the living areas inside. He then increases the variety of interior layouts by creating pivoting walls that allow occupants to open or close off rooms to suit the changing activities of daily life. For Dallas, he proposes a series of coiling, snakelike armatures that would be positioned like sentries to bracket a "clarified Texas prairie," signalling that it is off limits to development.

Although they differ in form, Holl's proposals embody a number of common themes that guide the architect's work and set him apart from many of today's practitioners. Influenced by philosopher Edmund Husserl,

Continued on page 34

Holl at Walker *continued from page 33*

the father of phenomenology, a movement that focuses on the experiential, Holl eschews approaches to the design of cities that draw from urban typologies or historical precedents as points of departure. He strives instead to create form out of the direct experience of place—the sights, sounds, smells, and feelings of an area.

Holl is concerned with buildings as formers of space, rather than objects in themselves. He believes in semiautomatic programming, in which form is not always dictated by function and some of the final users are determined only after a building begins to take shape. He chooses construction materials with the same kind of richness and surface intensity that he wants the city edge to express, with tactile qualities and detailing that arouse the emotive side of human nature and thus trigger an emotional tie to the experience of architecture. He argues that today's city is experienced not just at street level but from the air as well, and that planners should take a three-dimensional approach that gives primary importance to perceptions of moving through space vertically as well as horizontally.

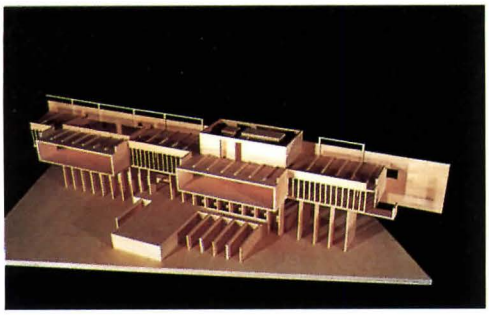
This emphasis on the phenomenological and experimental realm of architecture may be particularly appropriate for the edge of a city, which has little of the fabric and character of a mature metropolis. Holl's approach is made all the more convincing by his arresting photo collages, watercolors, and models, which make these visionary ideas seem eminently realizable.

The underlying message of his work is that there can and should be an alternative to the bleak homogeneity of suburban sprawl. "Traditional planning methods are no longer adequate," Holl maintains. "I'm not sure I have the solution," he admits, "Just to raise the question is enough for me."

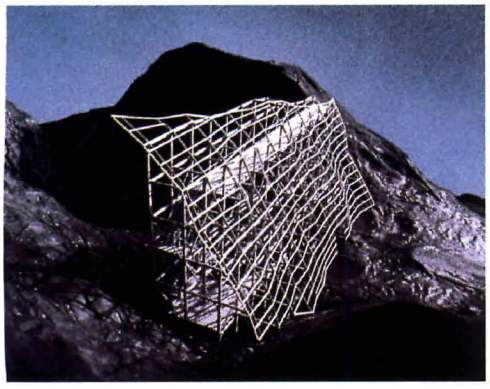
After it closes on June 23, "Edge of a City" will travel to the University of Washington in Holl's hometown of Seattle, where it will be expanded to include more of the architect's work. —EDWARD GUNTS

In his Dallas proposal (above), Holl experimented with alternative construction techniques, building a self-supporting wall of high-density particleboard without studs or sheetrock.

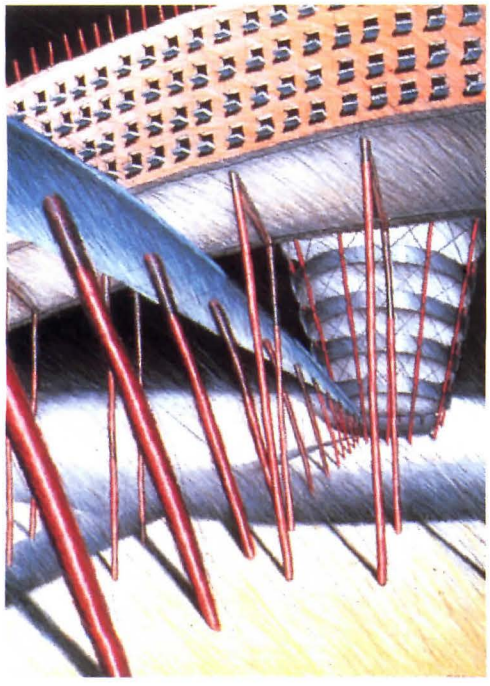
Young California Architects Exhibit in San Francisco



Michael Bell's "Berlin, Germany, No Man's Land Between Now Defunct Wall" (above).



Cameron McNall's "Artpark Proposal, Model of Artificial Mountain Face" (above).



Thom Faulders' "23x33 Oil Pastel" (above).

3x3+9 IS AN EXHIBITION FULL OF CLEVER arithmetic conceits that don't quite add up. The competition and exhibition, sponsored by the Architectural Foundation of San Francisco, started out with that touch of architectural neatness that comes from too many years of training with a T-square and triangle. Three architects from San Francisco were to be selected and exhibited alongside three from Los Angeles. Nine other entrants would receive honorable mentions. All competitors were asked to submit a 339-word statement together with 10 slides. Extending the symmetry of the conceit, the winners were given $999 to create an installation of their work in a 9x9x9-foot space.

A day-long session was devoted to evaluating more than 80 submissions from all over California by a jury comprising Adele Santos, dean of the School of Architecture at the University of California at San Diego; Los Angeles architect Eric Owen Moss, and San Francisco architect William Stout.

In selecting four projects by young San Francisco architects Michael Bell, Ted Mahl, Thom Faulders, Yung-Ho Chang, and one by Los Angeles-based Cameron McNall, the jurors altered the equation. Twenty-four additional projects were chosen by the sponsors to provide a context for the jury's selection. While the final arithmetic, 4x1+24, more accurately reflects the quality of what was submitted, it definitely lacks the punch of the original title.

The five winning entries were evaluated in response to the competition's search for work that investigates alternative conceptions of architecture. "We wanted projects that were departures from what we already knew," explains Moss.

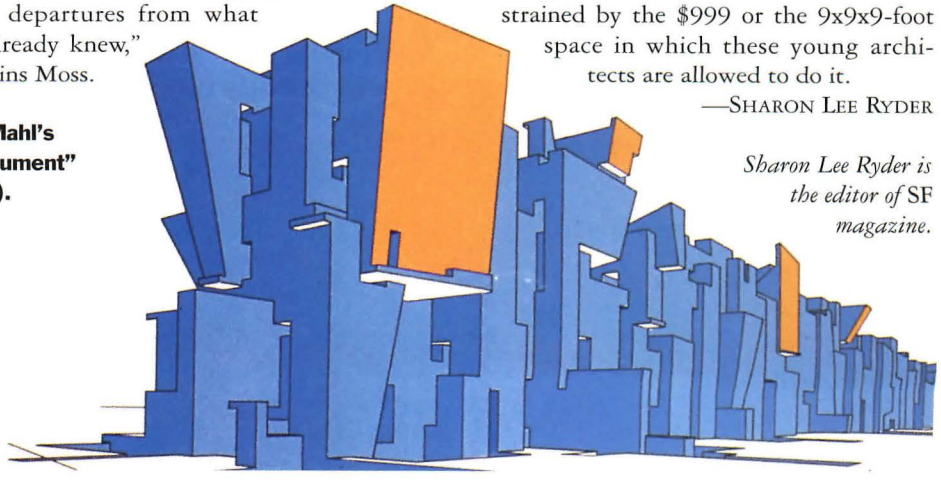
The winning projects represent a diverse set of ideas about the process of thinking about architecture. They range from a sculptural piece that McNall uses to test the relationships between art and architecture, order and randomness, natural and manmade, to Thom Faulders' pastel drawings that combine images of the primitive hut with those of the modern metropolis as a way of depicting man's constant struggle to impose order on nature. Also exhibited is Michael Bell's theoretical search for the void within the void in his cubist house compositions; Ted Mahl's more formalist concerns with color and geometry and their potential to achieve built forms not yet manifest; and Yung-Ho Chang's notions of the fourth dimension—time—in creating architecture as narrative.

The ideas contained in the projects are compelling, even if they leave one wondering whether such conjecture has any relevance for, or impact on, the building process. Some jurors struggled with the validity of architecture becoming art. "A lot of it isn't translatable into architecture," claims Moss. "These architects are attributing qualities to buildings that buildings can't have."

Some of the winners would disagree; they have a clear sense of the relationship between their theoretical work and their pursuit of architecture as real buildings. If this exhibition succeeds in simply exploring this issue, it will lead us to better understand the impact of theory on day-to-day practice. The exhibition, on display at San Francisco's Contract Design Center through June 28, reveals how far the winners can take their ideas. Neither our imaginations nor theirs have been constrained by the $999 or the 9x9x9-foot space in which these young architects are allowed to do it.

—SHARON LEE RYDER

Sharon Lee Ryder is the editor of SF *magazine.*



Ted Mahl's "Monument" (right).

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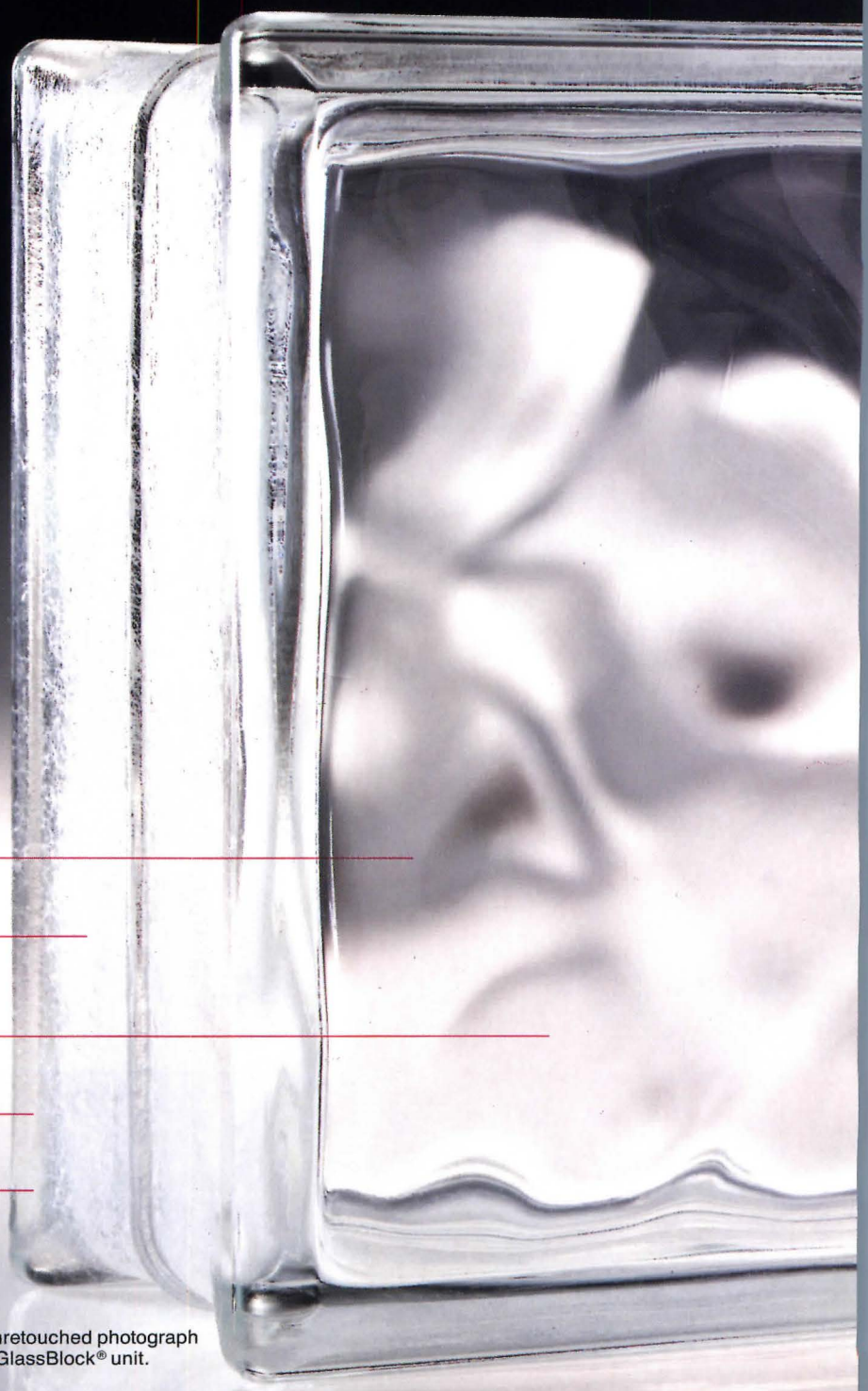

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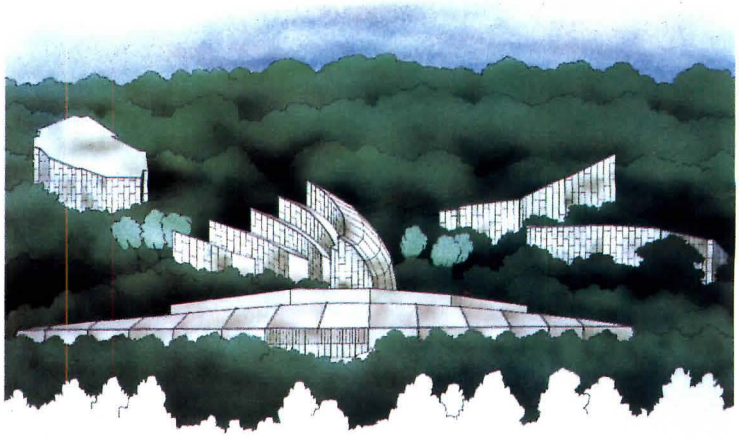
Urban Sparks in D.C.

A TWO-DAY SYMPOSIUM HELD AT THE Smithsonian Institution in April was entitled "Building the City: Where Nature and the City Meet." But with participants ranging from Leon Krier and Andres Duany to Lawrence Speck and Diana Agrest, the discussion soon turned into a lively debate that might better have been labeled "Where Traditionalism and Modernism Meet."

The traditionalist point of view was aired first, with Krier, University of Maryland architecture school Dean Steven Hurtt, and University of Virginia architectural historian Carroll William Westfall. They soundly thrashed Modernism and extolled the virtues of Savannah, Alexandria, and Washington, whose gridded layouts and clear hierarchy of buildings reflect the political values of America's founding fathers. "Everybody knows what a good town is when they see it," Krier asserted. "One fundamental is streets and squares. You must have a mix of uses at very close quarters."

But Krier's view was refuted by a second group of speakers who scrutinized alternatives to traditional town planning methods and argued for a more pluralistic American urbanism. They questioned whether planning methods that grew out of the horse-and-buggy era are appropriate for an age in which the shopping center has replaced the public square and the television set has replaced the town pump. Austin, Texas-based architect Lawrence Speck, for example, believes there are many different kinds of urbanism "desperately trying to find a mature

Lawrence Speck's design for a Texas Botanical Garden (below) was developed as part of a master plan for downtown Austin, Texas. Speck is also the design architect for the Austin Convention Center, now under construction.



An aerial perspective (above) reveals intimacy of Haymount, a neotraditional town planned by Andres Duany and Elizabeth Plater-Zyberk for a 1,600-acre parcel outside of Fredericksburg, Virginia. Haymount was designed for developers John A. Clark Company, one of the symposium's sponsors.

expression," including the Brickell Avenue district of Miami and the Galleria area of Houston. "What bothers me is this Anytown formula," Speck lamented. "America has an extremely heterogeneous, conflicted culture, and if we're going to have cities that express our culture, then we're going to have heterogeneous, conflicted cities. And quite frankly, there's something rather genuine, real, authentic, satisfying about that to me."

Catholic University architecture school chair Stanley Hallet echoed Speck in his comments from the audience. "Not only should we look at Miami, but we ought to have another look at Tyson's Corner, Virginia, because these are the models that are being emulated whether we like it or not," he maintained. "We have a market that is quite willing to make the mall its town square."

The conference was organized by Washington architects Dhiru Thadani, Philip Eagleburger, Glenn MacCullough, W. William Hutchins, Thomas Johnson, and Hobson Crow as part of a series commemorating the 200th anniversary of L'Enfant's 1791 plan for Washington. Other speakers, including architects Patrick Pinnell, Steven Peterson, and Diana Agrest, focused on new approaches to urban design—from Frank Lloyd Wright's plan for Broadacre City to redevelopment plans for Montreal and Des Moines.

Although all parties held their ground in a spirited wrap-up session, no one took issue with the parting admonition from Westfall, who urged architects and planners to "be citizens first" as they left the meeting and went back to the business of redesigning America's cities.

—EDWARD GUNTS

We borrowed one o
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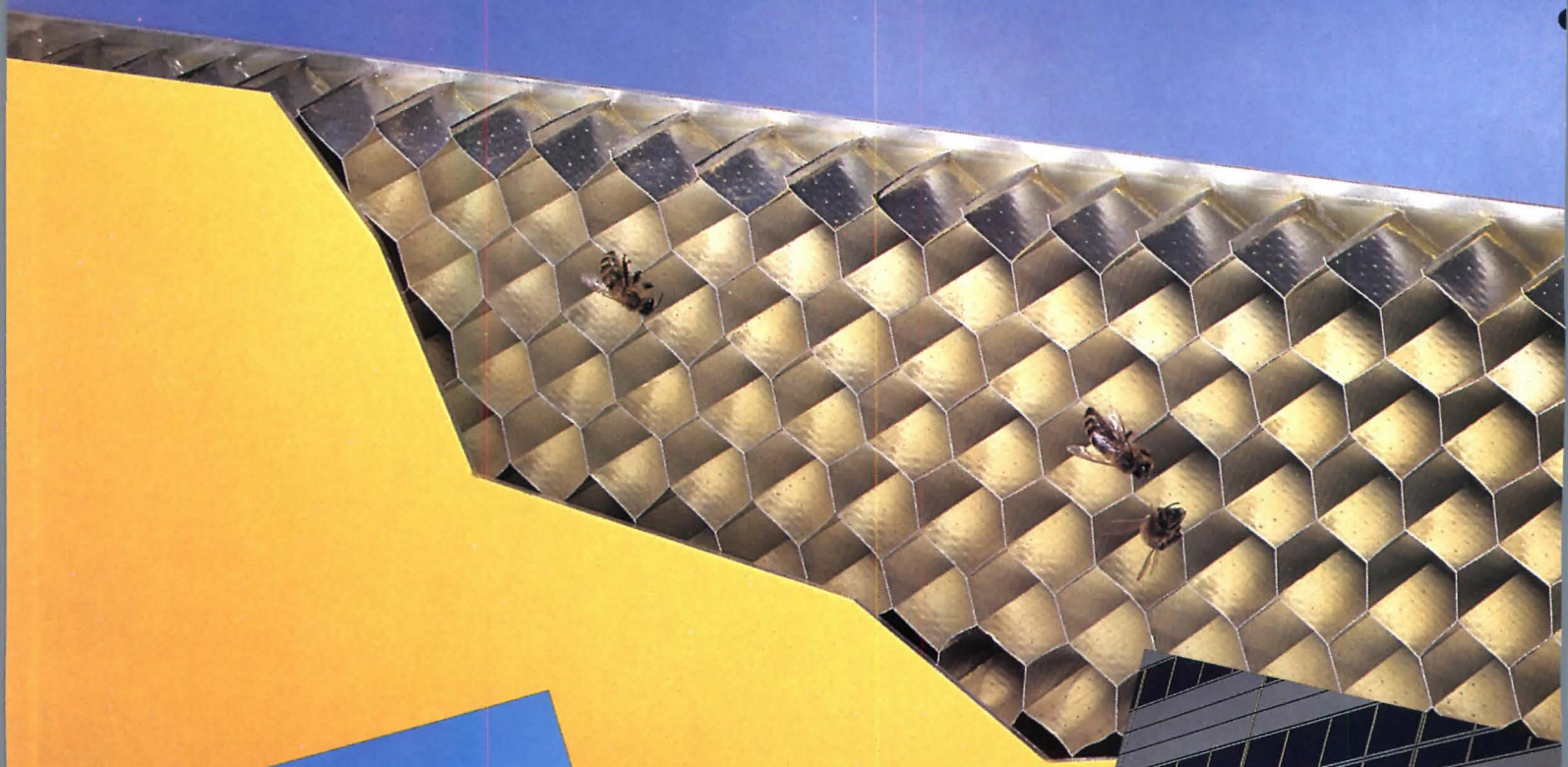


Ecology Winner Announced

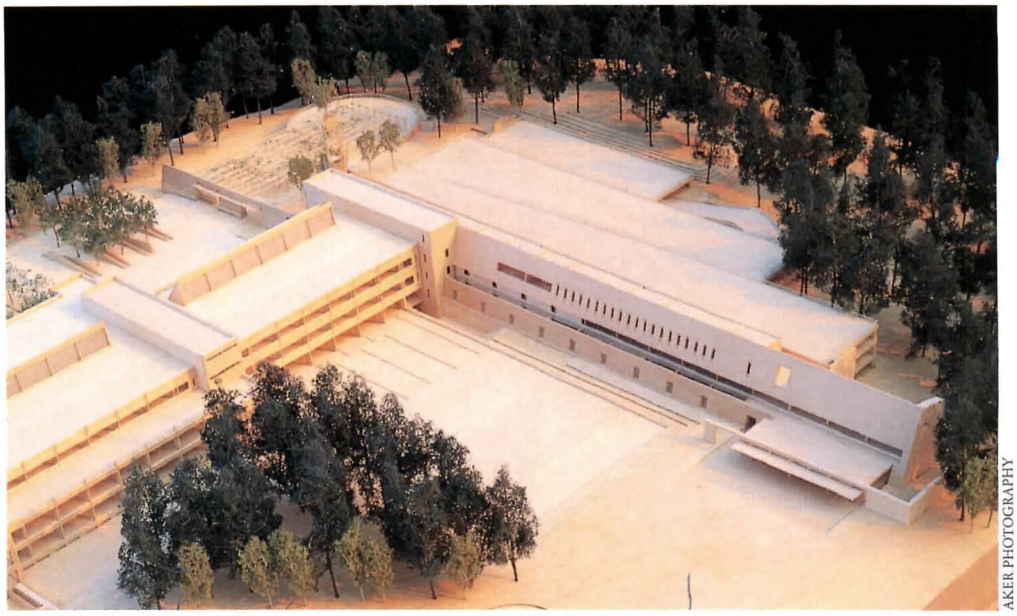
ON APRIL 26, A 10-MEMBER JURY OF ARCHITECTS, landscape architects, and state and local representatives selected Keating Mann Jernigan Rottet of Los Angeles as the winner of a competition to design Washington state's Department of Ecology Headquarters. Located six miles east of downtown Olympia, the 312,000-square-foot building will unite 19 government offices now scattered throughout Thurston County.

According to juror Cathy Simon of Simon Martin-Vegue Winkelstein Moris and Edward C. Wundram, project director and professional advisor to the competition, the KMJR scheme most satisfies the needs of the Department of Ecology—a young, evolving state agency. By creating a unified complex, the architects established an environment more conducive to communication than the clusters of separate structures designed by the two competitors.

In addition to presenting the smallest footprint, KMJR positioned the building on the north edge of the site to allow for maximum sunlight and reduce energy costs, and to preserve an expansive meadow to the south. "The building has no aggressive movements," notes design architect Richard Keating. For example, a parking structure is concealed by the eastern wing and the roofline falls well below tree level.

The new headquarters will occupy 27 acres in an area formerly owned by Saint Martin's Abbey. Out of respect for the Abbey, which continues to own and maintain the surrounding 200 acres, the architects created a "pastoral" south facade that embraces a rectangular lawn, providing a transition between building and meadow edge. The $53 million project will break ground in June and reach completion by September 1993. ■

—KAREN SALMON



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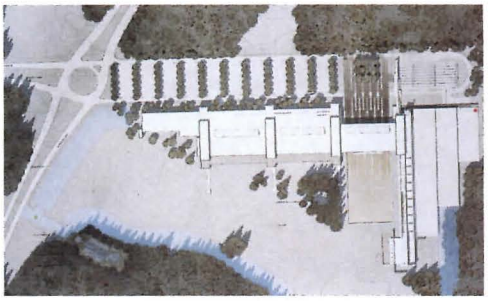
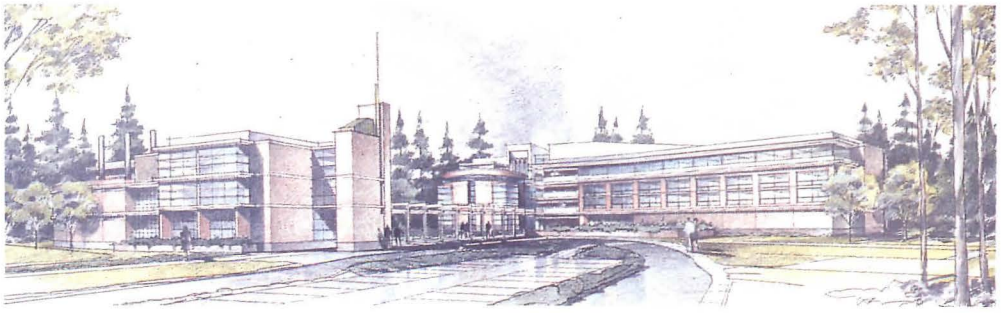
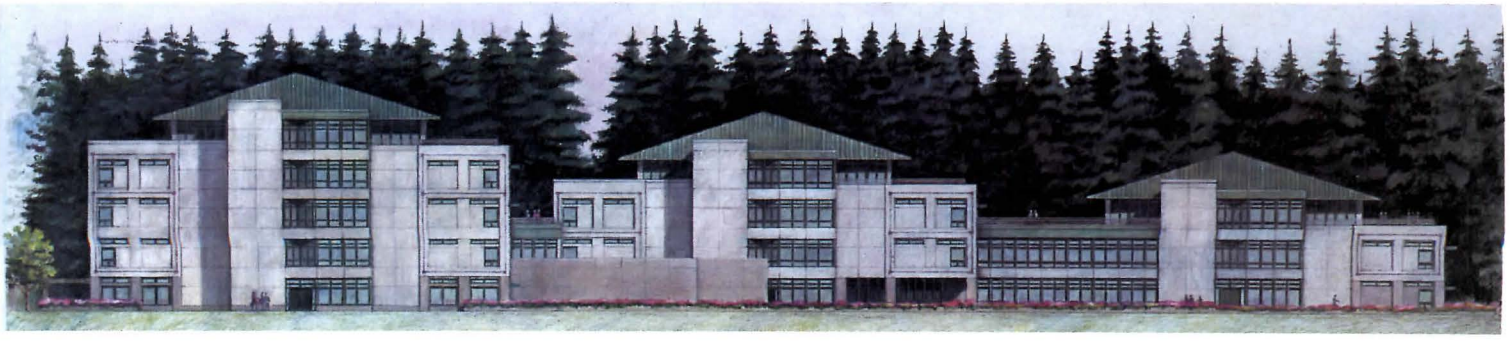
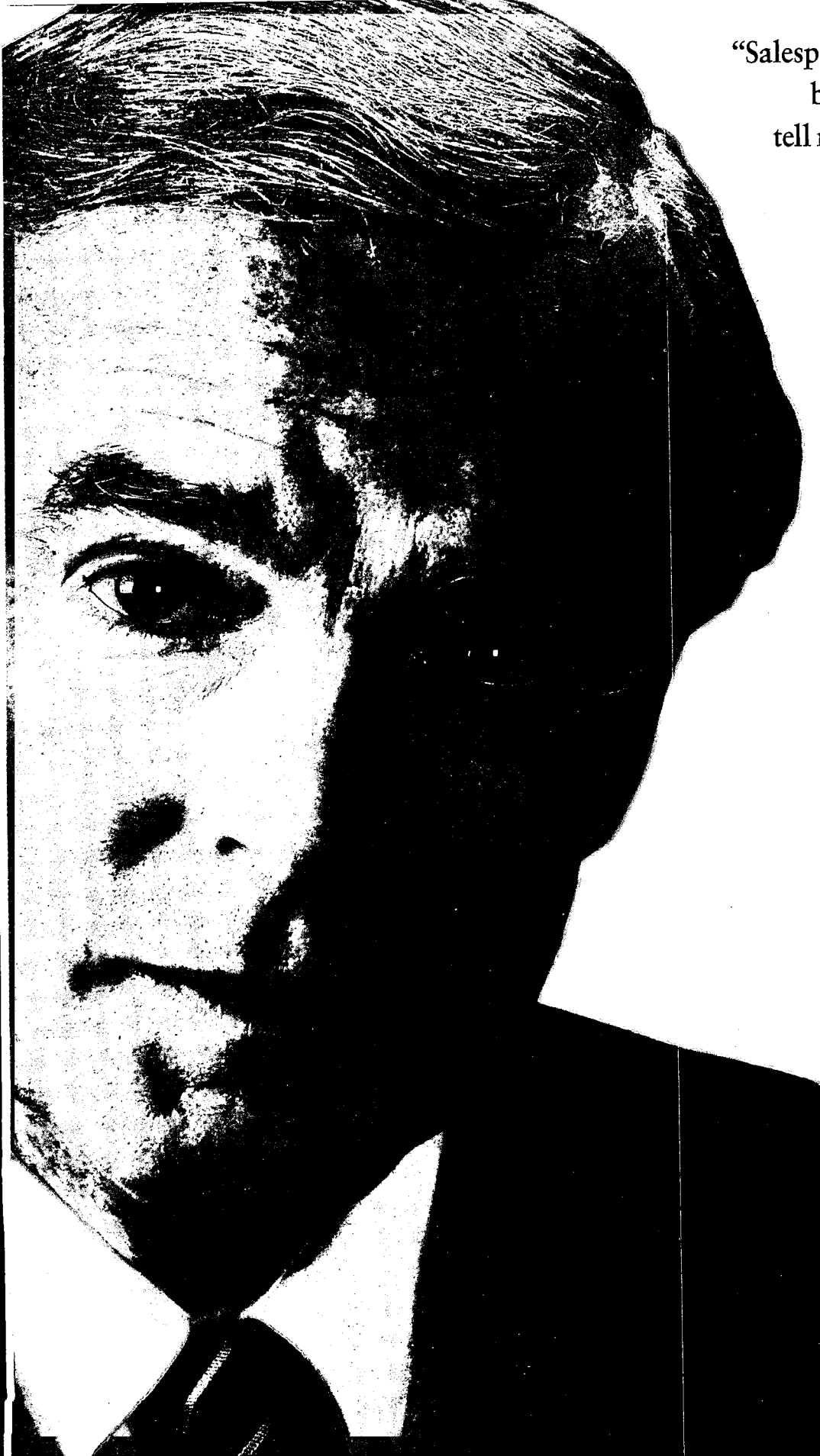


The winning scheme (above), by KMJR of Los Angeles, was selected for its "humble" relationship to the site's natural features and uninterrupted plan (left). Entries by Thompson Vaivoda & Associates of Portland (below) and Integrus Architecture of Seattle (bottom) comprise multilevel campuses with distinct volumes that make use of interstitial space between buildings, but offer less useable space than the winning design.







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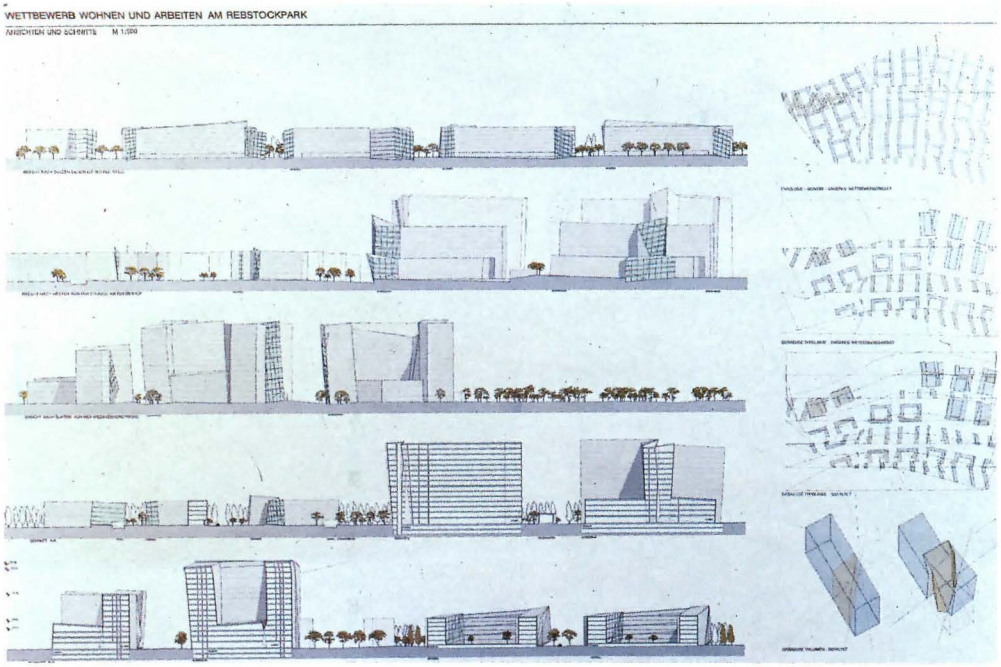
Projects by Eisenman Architects

Rebstockpark
Frankfurt, Germany

THE MASTER PLAN FOR A 5-MILLION-SQUARE-foot housing/commercial development and park between Frankfurt's historic city center and international airport was selected through a design competition held by the city in March. Eisenman's winning scheme (right) consists of 2.65 million square feet of housing and commercial buildings on the northeast quarter of the site.

To combat the "static" nature of modern cities, the architect superimposed a rectilinear grid over the entire site, and then compressed it to fit within the site boundary. He repeated this method, squeezing a smaller grid within the perimeter of the actual construction area. Through computer modeling, the architect generated an intricate grid or "web" that appears to fold and overlap on itself. Eisenman's intent was to break away from section and plan as two separate, formal entities in order to arrive at a scheme more "pliable" than traditional Cartesian grids.

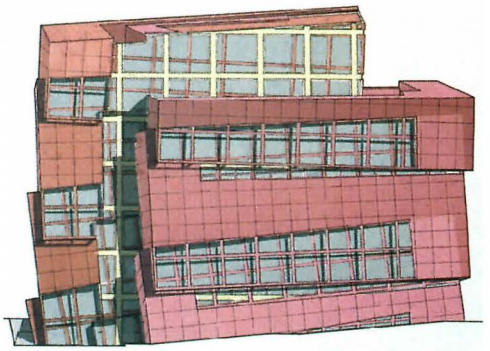
On a broader level, the folding grid responds to the city's request for a model of low-income housing that reflects a "new urbanism." Rather than start from scratch, the architects created an index of building typologies (bottom, right in elevations) from existing and historic regional housing patterns. These typologies include the 18th-century courtyard plan; the "H" form, in which the inner courtyard begins to disintegrate following the 19th-century introduction of grand boulevards; and the "bar," derived in part from Ernst May's Siedlung housing of the 1920s. Eisenman developed the final building footprints by superimposing the computer-generated grid onto the three typologies to achieve fractured solids (bottom right corner of elevations). In addition, Eisenman's folding grid dictates the grade and contour of the proposed landscape. Subject to city planning approval, Rebstockpark will begin construction late in 1992.

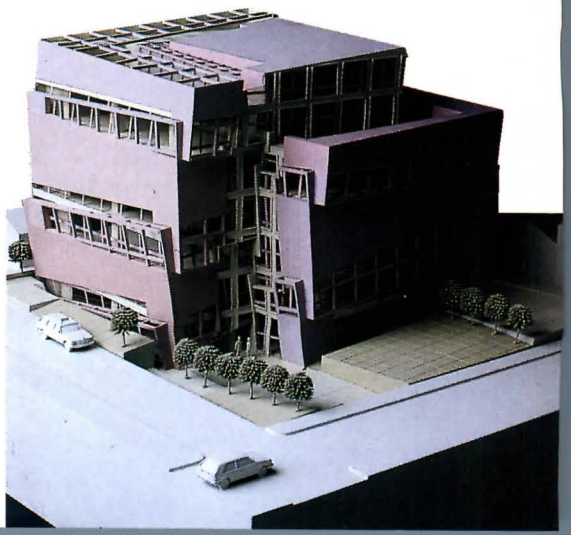


Nunotani Headquarters
Tokyo, Japan

RESPONDING TO THE CLIENT'S DESIRE FOR A headquarters that relates to our "problematic" times, the architects sidestepped traditional monolithic iconography in favor of "weak" form; the 10-story building appears to be falling down (bottom). "Symbolically, the structure is no longer phallocentric," explains Eisenman. Designed for a magazine publishing and commercial design company, the headquarters is intended to metaphorically record Japan's earthquakes, while undermining the "rigid" structure of the urban high rise.

Eisenman achieves the illusion of movement and instability by superimposing vertically compressed concrete plates on a simple concrete frame. The design evolved out of Eisenman's Koizumi Sangyo Building (ARCHITECTURE, September 1990, pages 80-85), which introduced the notion of breaking up rigid form through fractured cubes (below). Construction began in April, and the project will be completed next summer. —K.S.





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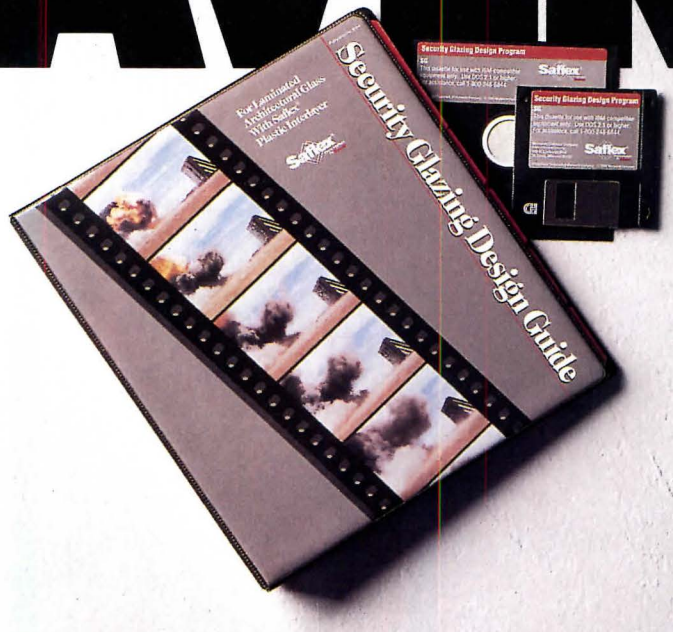

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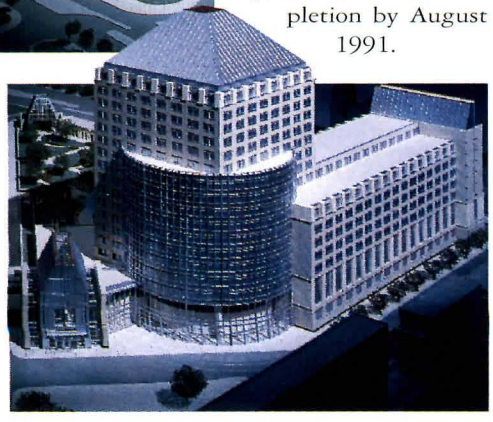
Corporate Designs

St. Paul Companies Headquarters
St. Paul, Minnesota
Kohn Pedersen Fox and Associates

PRESENTED WITH A LARGELY UNDEFINED triangle of land in downtown St. Paul (below), the architects developed a conglomeration of volumes to reknit the urban fabric and respond to a surrounding "village of forms." In response to the client's desire for a prominent skyline, Kohn Pedersen Fox planted a 17-story tower capped by an aluminum pyramid next to a horizontal block of offices (bottom).

The emerging cylindrical volume extends tower office space, while acting as a hinge between the two distinct, orthogonal volumes. Employees enter the new building through a sloped-roof pavilion which provides access to an existing 500,000-square-foot office building via a bridge on the second level. To infuse social activity into the formerly derelict block, the architects buried two levels of the four-story parking garage below grade, and created a roof garden at the second level. The site includes a 625-seat cafeteria on axis with a twin-towered church across the street, a 13,000-square-foot child-care center, and a street-level garden and playground.

Clad in limestone and granite, the facade includes stainless steel infill, and reflective glass applied to the cylinder and in punched windows above the pedestrian level. Construction of the $72 million complex will reach completion by August 1991.



K.K. Nakazato Headquarters
Tokyo, Japan
Kaplan McLaughlin Diaz

TOKYO'S HISTORIC CANAL TRANSPORT SYSTEM inspired the shiplike form of the central offices and showroom for a Japanese distributor of hotel and restaurant equipment, linens, and tableware. The 35,000-square-foot glass and aluminum building sits on a three-sided site in the Shibaura district. The south facade (above, right in photo) overlooks the street and side canal, while the west side faces an empty lot. The flat east facade abuts neighboring buildings. According to the architects, the curved glass curtain wall with descending roofline represents an unfurled sail, and the seven-story core symbolizes the mast. To enter the company's showroom, the visitor crosses a garden moat via a staircase or "gangplank," connected to the building by steel cables. The stair handrails represent a ship's pipe railings.

By creating a gap in the curtain wall to allow for a balcony at the seventh floor, the architects took advantage of Tokyo's unlimited height specification for signage. Without this break in the facade, the extended glass membrane would surpass the city's building height regulations.

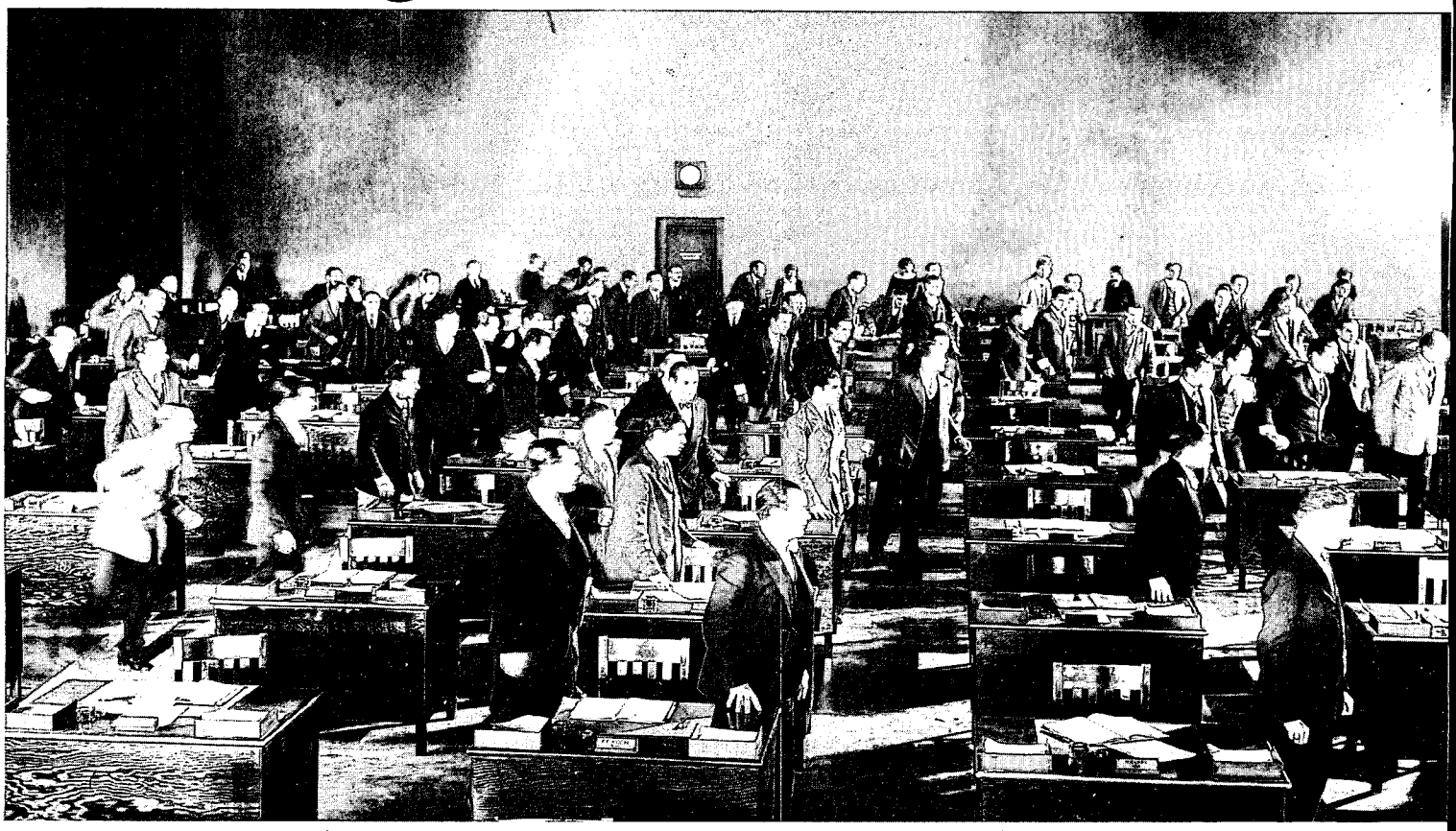
The $19 million headquarters is part of a long-range plan to upgrade waterfront properties in the Shibaura district, and is scheduled for completion in April, 1992.

Banco Santander U.S. Headquarters
New York City
Rogers, Burgun, Shahine and Deschler and Clark Tribble Harris & Li Architects

THE 110,000-SQUARE-FOOT TOWER, WHICH will house the U.S. offices of the fourth largest Spanish bank, is located on East 53rd Street in an architecturally rich area of Manhattan. Directly east of the site is Skidmore Owings & Merrill's 1952 Lever House (bottom), McKim Mead & White's 1918 New York Racquet and Tennis Club is to the south, and the 1957 Seagram Building is across Park Avenue.

Since the 20-story building can be viewed from 53rd Street and Park Avenue, the architects designed two distinct facades. Granite piers at the corners acknowledge the stepped facade of an office building to the west. Seen from Park Avenue, the slightly curved curtain wall, echoing the tinted green glass of the Lever House, is interrupted by an ornamental steel circle, divided vertically by a steel mast. Construction began in November 1988, and the project is scheduled for completion in December. —K.S.

"The time has come, the moment is right, let's all go to Eimu 91".



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Nike Conference Center
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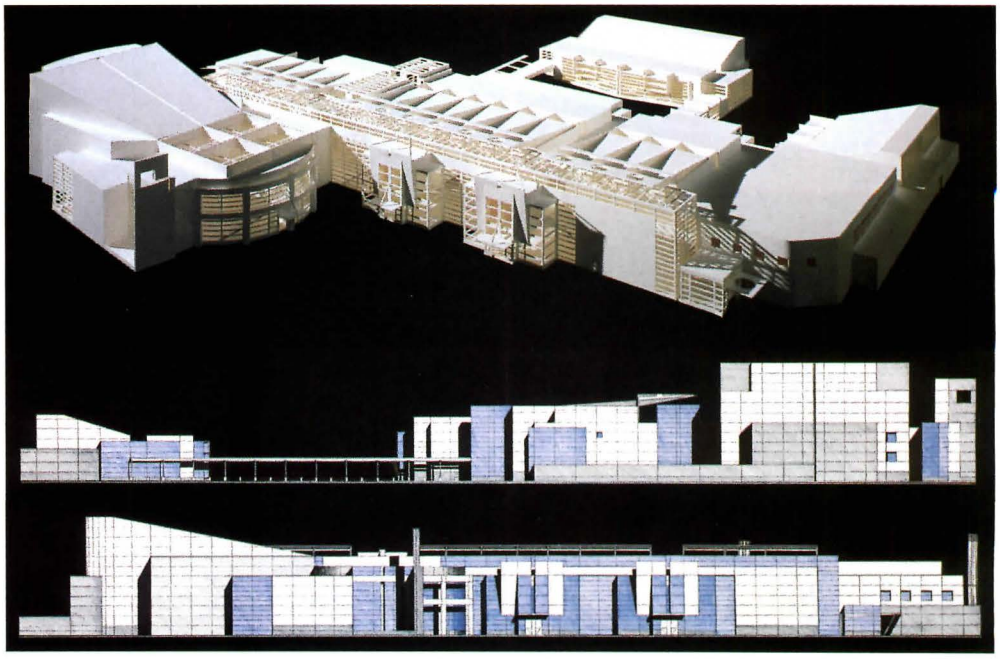
Thompson Vaivoda & Associates

A NEW 115,000-SQUARE-FOOT CONFERENCE facility will join eight existing buildings on the Nike World Campus (pages 58-65). The conference will be situated to the southwest of the main office complex (see site plan, page 59) on the 74-acre site outside Portland. A 180-foot-long glass and steel circulation spine (center elevation) connects adjustable meeting rooms that seat from 12 to 300 people, a 630-seat auditorium (top right, left in model), office space, and a 450-seat cafeteria. The architects exposed the steel columns and ceiling structure to achieve a flexible and open environment. Exterior materials include white precast concrete with pale green tinted glass (bottom elevation). Currently in schematic phase, the project will be completed in the fall of 1993. —K.S.



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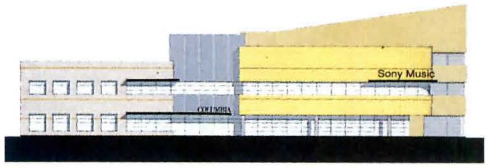
Sony Music Entertainment Building
Santa Monica, California
Steven Ehrlich, Architects

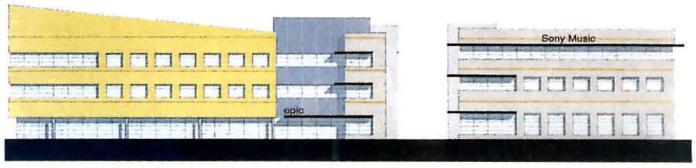
A 78,000-SQUARE-FOOT HEADQUARTERS FOR Sony Music will constitute the first phase of the Arboretum, a 13-acre mixed-use complex sited at Colorado Avenue and Olympic Boulevard. Local architect Steven Ehrlich designed the building as three components (model, below) to reinforce an identity for the company's Columbia and Epic record labels, as well as Sony's international and publishing divisions. The Sony complex will house offices, a recording studio, performance space, and indoor/outdoor dining areas.

Reminiscent of streamlined, Art Moderne architecture that flourished in Santa Monica in the 1930s, the assemblage is positioned to create a strong presence on the street, taking advantage of natural daylighting and Pacific breezes. The three-story buildings (elevations, right) are clad in a mix of white and gray bricks accented with metal panels; truncated skylights interrupt the roof. Citing Ehrlich's proposal for embodying a "spirit of innovation and synergy," Sony Music President Thomas D. Mottola anticipates that the company's "creative enterprises will flourish in this specially designed environment."

In addition to Sony's west coast headquarters, the Arboretum complex will include a five-story tower and a pair of six-story office towers (designed by Gensler Associates), a nine-story hotel, and other small-scale office structures. Construction is scheduled to begin this year, and the Sony building should be completed by September 1992. ■

—LYNN NESMITH





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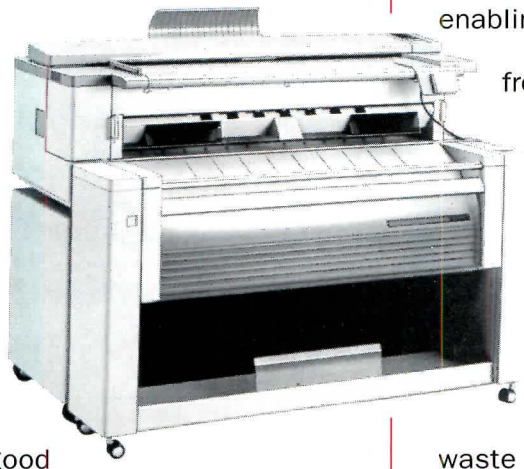

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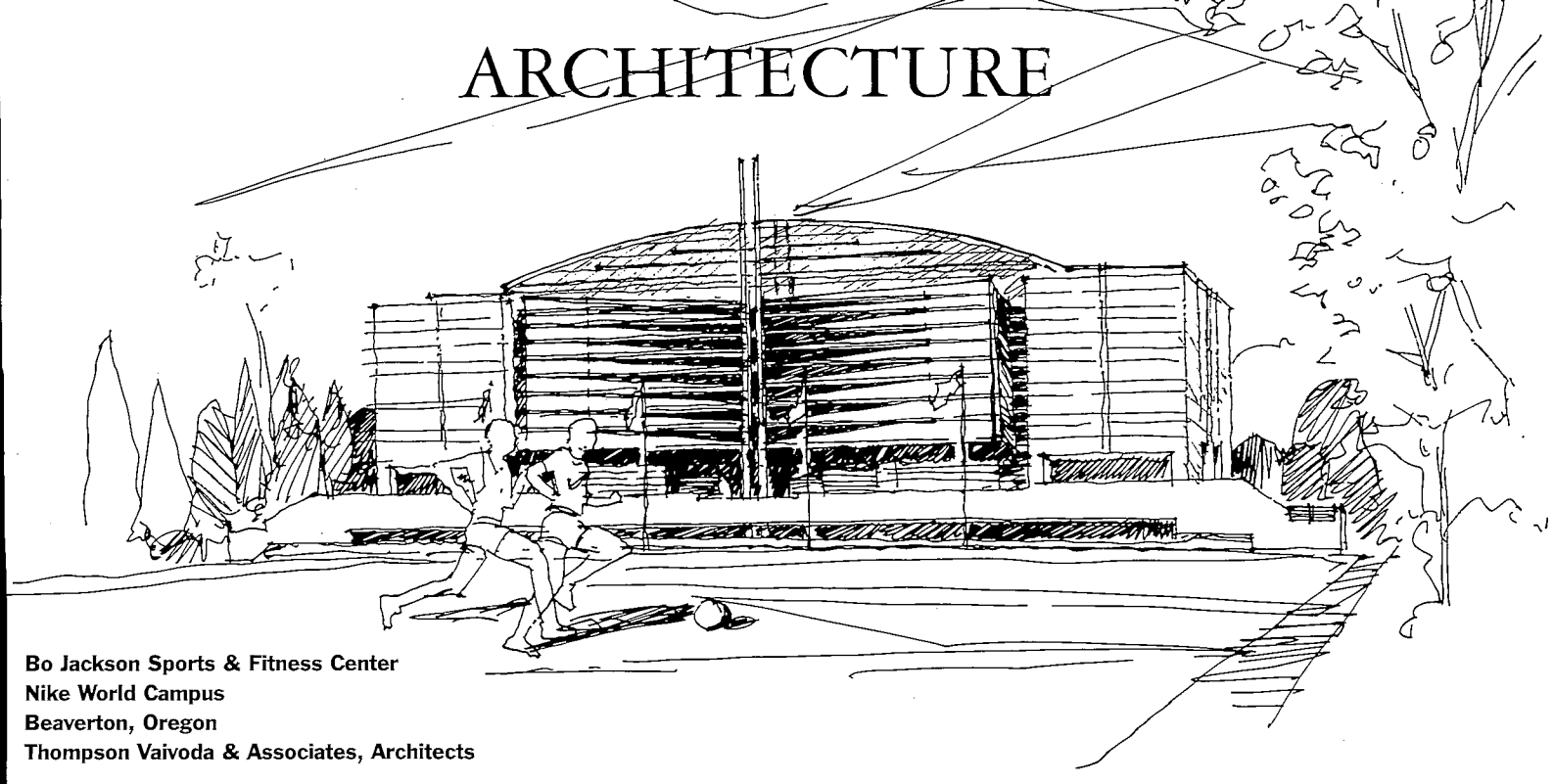
ARCHITECTURE



Bo Jackson Sports & Fitness Center
Nike World Campus
Beaverton, Oregon
Thompson Vaivoda & Associates, Architects

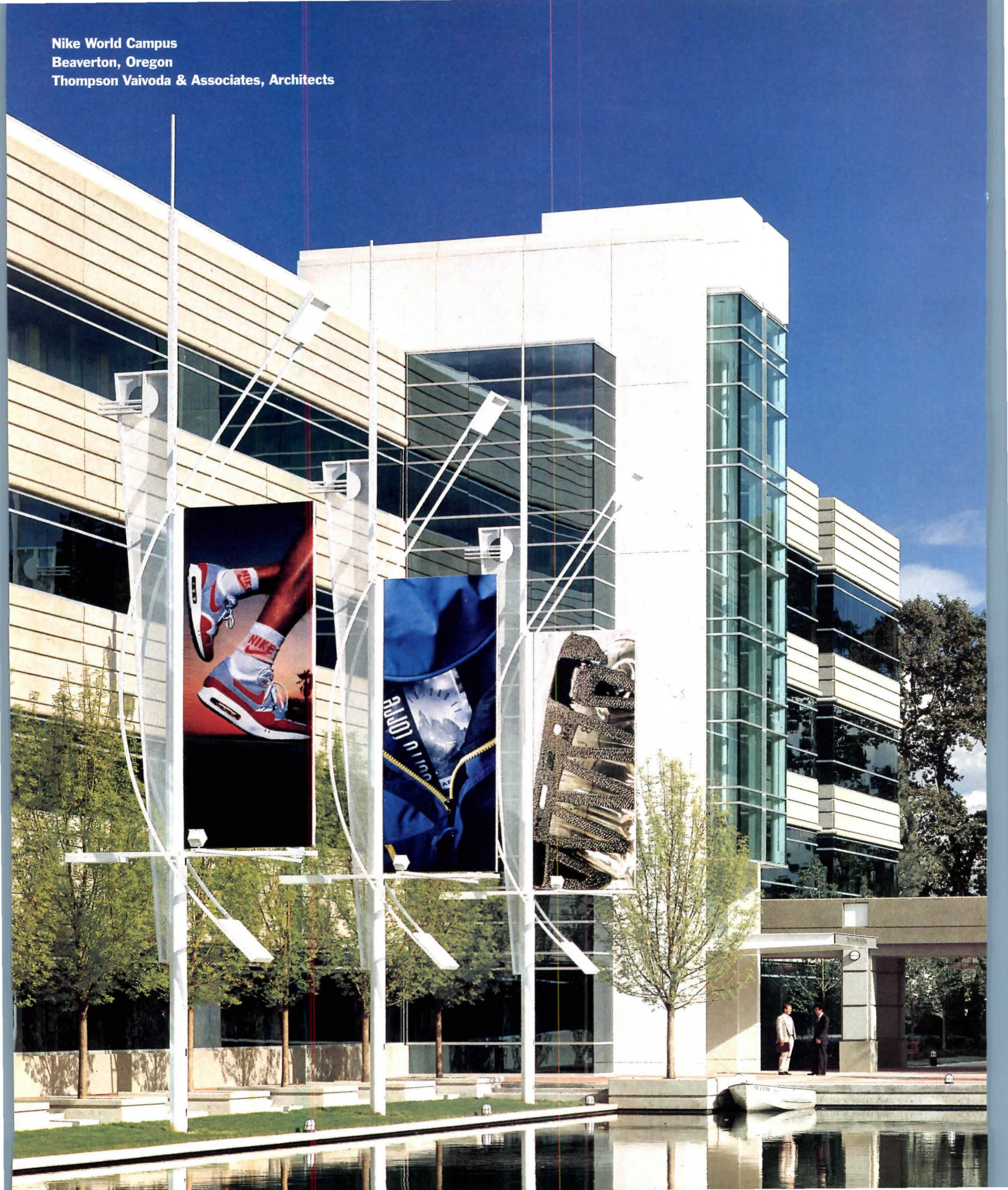
Corporate Incentives

IN 1945, WHEN EERO SAARINEN JOINED HIS FATHER IN designing the General Motors Corporation Technical Center in Warren, Michigan, he forged a new role for architects in shaping American corporations. General Motors, with its low, Miesian buildings and manmade lake, was a catalyst for the suburban office park, heralding a postwar period in which a growing number of CEOs, disenchanted with the skyscraper, moved their company headquarters out of town. These villas of the 20th century proliferated in the 1950s and 1960s—Saarinen's Deere and Company Administrative Center in Moline, Illinois (1957-64); SOM's IBM Headquarters in Armonk, New York (1964); Roche Dinkeloo and Associates' College Life Insurance Company of America in Indianapolis, Indiana (1967)—and they spawned a flood of office parks, with a burgeoning network of commercial strips and residential enclaves to serve and staff them. The face of America was irrevocably changed.

The corporate facilities featured in this issue are also catalysts, but of a different order. When Spartan Foods needed new headquarters, the fast-food conglomerate commissioned Clark Tribble Harris & Li to build a skyscraper in the heart of Spartanburg, South Carolina. The building towers above two-story Main Street like a vision of the sleepy textile town's revival, and its public plaza already contributes to Spartanburg's public realm. Tigerman McCurry's elegant office building for the Chicago Bar Association similarly sets the stage for redevelopment of Chicago's South Loop, a scruffy commercial neighborhood in the shadow of the city's new public library. In Manhattan, where new skyscrapers hardly seem remarkable, Cesar Pelli's Carnegie Hall Tower sports a colorful brick pattern and distinct aluminum crown. Standing 60 stories high but with the slimmest of profiles, it ushers in a new era of state-of-the-art concrete structural systems.

Nike headquarters in Beaverton, Oregon, provides a model of 1990s corporate culture, with many employee amenities, including a fitness center and child-care facility, on the campus. A portfolio of the newest Disney-commissioned architecture reveals Michael Graves's headquarters for the entertainment company in Burbank, California, which transforms a 1950s-era studio lot, as well as Robert Stern's themed hotels where CEOs and employees alike can enjoy the luxury of East Coast resorts.

Our technology and practice section analyzes today's corporate workplace inside and out, from "smart" electronic systems to curtain wall dynamics. And, once a new office tower is up, architects and clients can ease its operations by tapping into new facility management software. ■



Nike World Campus
Beaverton, Oregon
Thompson Vaivoda & Associates, Architects

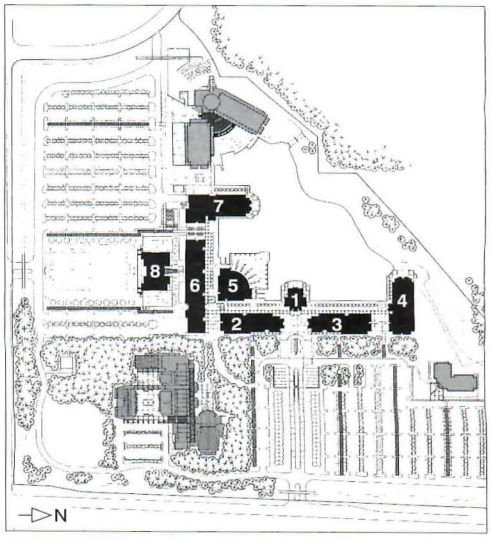
Competitive Edge

An Oregon firm shapes Nike's campus into a model of corporate fitness.

"JUST DO IT." THAT NO-FRILLS SLOGAN IS SYNonymous with a company that over the past two decades has built a multimillion-dollar business on the backs—and feet—of athletes. Nike, Inc., prides itself on not only aggressive marketing but on its hands-on approach to the apparel and footwear it sells: "jocks in business" is how some employees characterize their corporate culture. Indeed, the company was founded in 1964 by two athletes: Phil Knight, a middle-distance runner for the University of Oregon, and his coach, Bill Bowerman, who, in 1972, poured rubber into a waffle iron to form a lightweight sole and revolutionized the design of running shoes.

The waffle iron and Waffle-soled shoe are now on permanent display in the skylit rotunda of a reception center named after Steve Prefontaine—the first track star to wear Nike shoes—on the corporation's 74.2-acre campus in Beaverton, Oregon. Prefontaine Hall is a visitor's first introduction to Nike's new headquarters, an eight-building complex created by a young Portland firm, Thompson Vaivoda & Associates, to reflect the company's identification with physical fitness and progressive design.

The $65 million headquarters also represents Nike's coming-of-age as a corporation that nearly quadrupled its growth over the last four years, netted $243 million in income last year, and now boasts 4,500 employees worldwide. Seeking to improve communications between the company's growing divisions, Knight decided four years ago to establish a unified setting that would consolidate Nike's numerous leased office locations in Beaverton and Portland, and offer more on-site amenities to employees. "We wanted to bring a sense of the Pacific Northwest indoors," the 53-year-old CEO explains. In addition to light-filled offices and planted



1 STEVE PREFONTAINE HALL (RECEPTION)
2 JOHN McENROE BUILDING (EXECUTIVE OFFICES)
3 ALBERTO SALAZAR BUILDING (OFFICES)
4 DAN FOUTS BUILDING (OFFICES)
5 JOAN BENOIT SAMUELSON BUILDING (FOOD SERVICE)
6 MICHAEL JORDAN BUILDING (DESIGN / R&D)
7 MIKE SCHMIDT BUILDING (DATA PROCESSING)
8 BO JACKSON SPORTS & FITNESS CENTER

Nike campus includes five office buildings clad in concrete and glass (facing page), reception center (top left), and terraced food-service facility (top right) on a lake. Future additions (gray in site plan) include office block and child-care and conference centers.

Visitors enter the campus under an elevated running track (right) and proceed through a landscaped forecourt (bottom) to approach Steve Prefontaine Hall (above).

courtyards, the headquarters boasts a 65,000-square-foot fitness club, a Nike products store, a gift shop, a hair salon, a deli, dining rooms, and of course, a jogging trail.

But institutionalizing its operations within a comfortable corporate headquarters isn't easily accepted by Nike, which prides itself on an entrepreneurial spirit and a "laid-back intensity," in the words of one staff member. In fact, the original program handed to Thompson Vaivoda & Associates was to create a group of spec office buildings that could be leased in the future as a multi-tenant office park, should Nike decide to relocate. The architects complied by designing five four-story office blocks and three separate communal facilities, which eventually convinced Nike to stay. Economically clad in precast concrete and glass, the buildings serve as a neutral backdrop to the corporation's brightly colored products and pristine, natural surroundings. "Nike didn't want us to base the buildings on the style of their products, but on the essence of the company," notes principal Robert Thompson. That identity is not only equated with sports and physical fitness, but a competitive business edge—Nike, after all, was named after the Greek goddess of victory—and the architects managed to capture both qualities by designing the architecture and the landscape.

Scaled and detailed to emphasize sleek, horizontal lines, the L-shaped arrangement of buildings is cupped on the eastern edge of a 7-acre manmade lake formed from an existing wetland. Grassy berms shield the headquarters from adjacent Bowerman Drive (and the prying eyes of corporate competitors) and support a 1.25-mile running track that encircles the entire site. At the points where the elevated track meets public and staff entrances, the architects spanned the driveways with metal bridges that double as streamlined gateways to the headquarters.

From these entrances, Nike presents a sur-

RICHARD STRODE / STRODE ECKERT

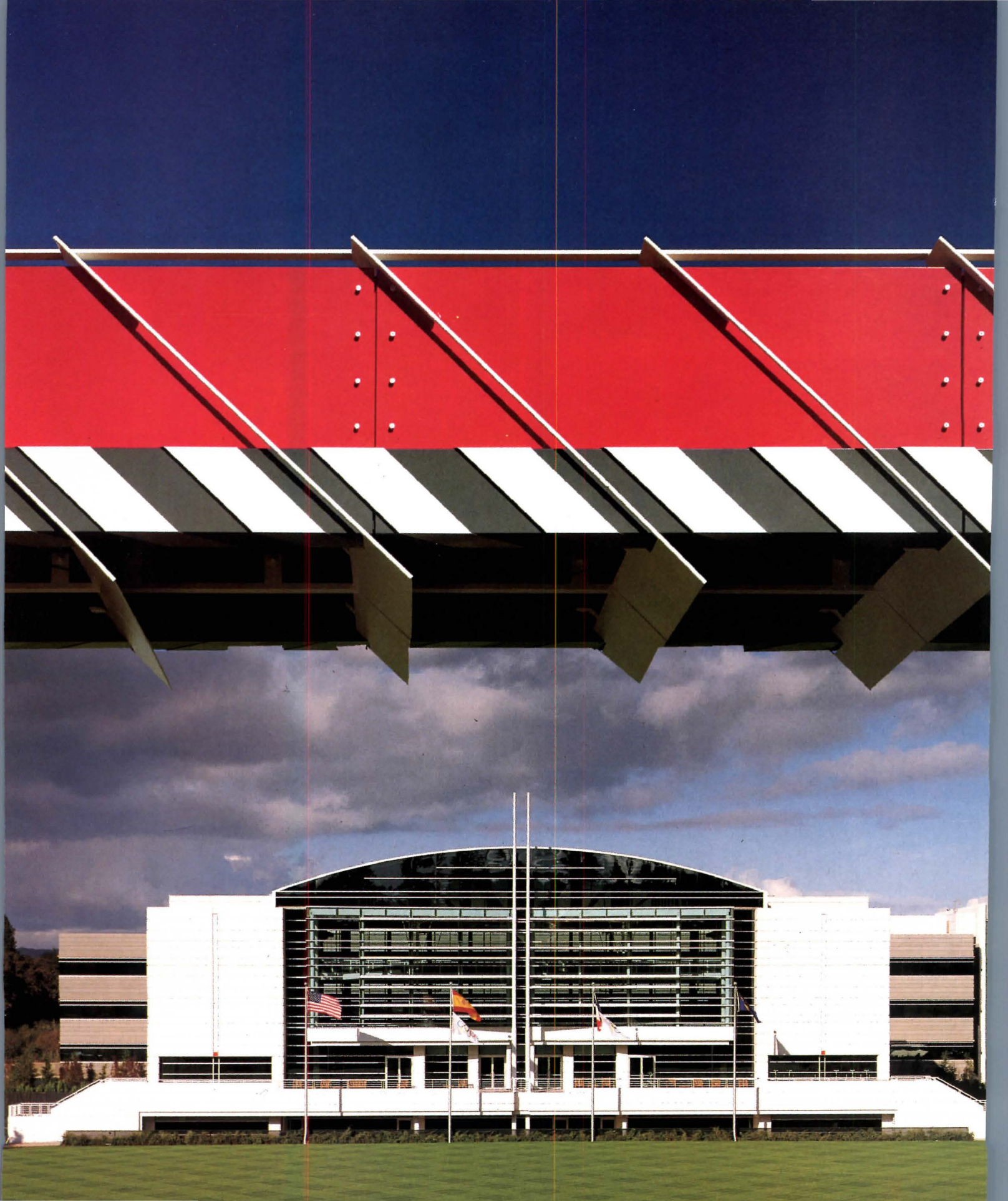
Office buildings are landscaped with trees and banners flanking the lake (top left), brick-paved courtyards (above left), and a reflecting pool at the public entrance (top right).

prisingly formal face. Visitors pass under a jogging bridge (the only place where the architects were allowed to plant a discreet Nike Swoosh), proceed up an allée, and cross a reflecting pool to reach the front door of Prefontaine Hall, a one-story pavilion symmetrically flanked by the John McEnroe and Alberto Salazar buildings. Similarly, staff members drive under another jogging bridge—rendered in signature Nike red and black—on axis with a playing field and the Bo Jackson Sports and Fitness Center. Crowned by a vaulted roof, this bold, steel and glass structure is clearly Thompson Vaivoda's most skillfully designed building on the campus—a logical outcome, given that the fitness center was tailored to a more specific program than the office buildings. It not only provides company employees and their families a place to exercise (for a $30 per month fee), but serves as a laboratory for testing Nike products.

Inside the corporate precinct, the architects countered the formal symmetry of the entranceways with a more intimately scaled setting. They paid careful attention to the interstitial spaces between the buildings by interconnecting the office blocks with arcades, courtyards, and gardens to "form a richness at ground plane," according to Thompson. Parking for 1,800 cars is similarly treated, screened by rows of trees and connected to the main complex by simple, covered walkways. Thompson Vaivoda differentiated the public realm from the private by rendering the communal facilities in white precast with Classical overtones—the cafeteria, for example, is crowned by a Pantheonlike dome with a skylit oculus. The entrance lobbies and circulation cores of the office blocks are similarly clad in light-colored precast, while their adjacent masses are clad in a more recessive, tan-colored concrete. The overall effect is a tightly knit, manicured, and tranquil setting, interrupted only by colorful Nike banners hanging from arcing steel spires that march around the lakeside.

Like the exteriors, Thompson Vaivoda rendered the public interiors of the buildings in a neutral palette and introduced daylight wherever possible through skylights and clerestories. Punctuated by black furnishings and slate floors, the four-story lobbies that project from each office block are organized to support a core of open stairways, conference rooms, and services. The offices, designed by Wyatt Architects of Seattle, allude to Nike's links to sports and the Pacific Rim (80 percent of its products are manufactured in Asia). Walls, stairs, floors, and workstation panels are finished in white maple, a material which interior architect Scott Wyatt points out is associated with basketball courts. Rice paper-covered light fixtures, gridded furnishings, and shoji-like skylights evoke Japanese design. "The Eastern influence is my idea," claims Knight. "I like a sense of peace in a world of chaos," he laughs.

The peaceful atmosphere of the Nike World Campus, however, will soon be dis-



RICHARD BARNES

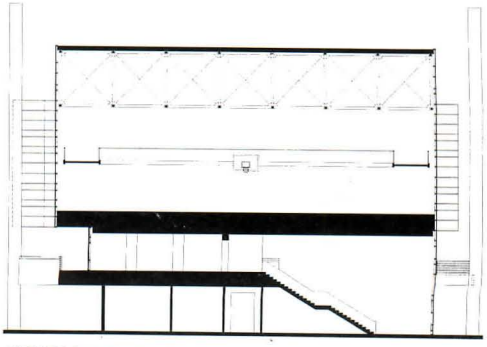
RICHARD BARNES

turbed by the sounds of new building construction. Although the headquarters has improved communications within Nike and "people dress a little better," according to Knight, the company has already outgrown its new facilities since moving in last fall. As a result, Nike has commissioned Thompson Vaivoda to design several more buildings on the campus. Construction of a new office building will begin in a few months, and a 115,000-square-foot conference center is currently on the boards (page 53). Nearing completion on the north edge of the site is a 12,000-square-foot child-care center that will open later this summer. And further to the north of the campus, Nike has purchased 104 acres for future development. The new commissions have allowed Thompson Vaivoda to move away from the spec image of the headquarters' office buildings toward a further refinement of their signature abstraction, best expressed by the company's fitness center. For the architects, Nike's other slogan may apply: "There is no finish line." ■

—DEBORAH K. DIETSCH

RICHARD BARNES

Sited at the southern end of the campus, the Bo Jackson Sports and Fitness Center (facing page) fronts a playing field and employees' driveway, located under an elevated running track. At the heart of the building, a gymnasium (left and section) is shaded from direct sunlight by an angled glass wall with sunscreens (top right). Stairway (top left) leads to second-floor lounge and exercise rooms.



FITNESS CENTER SECTION

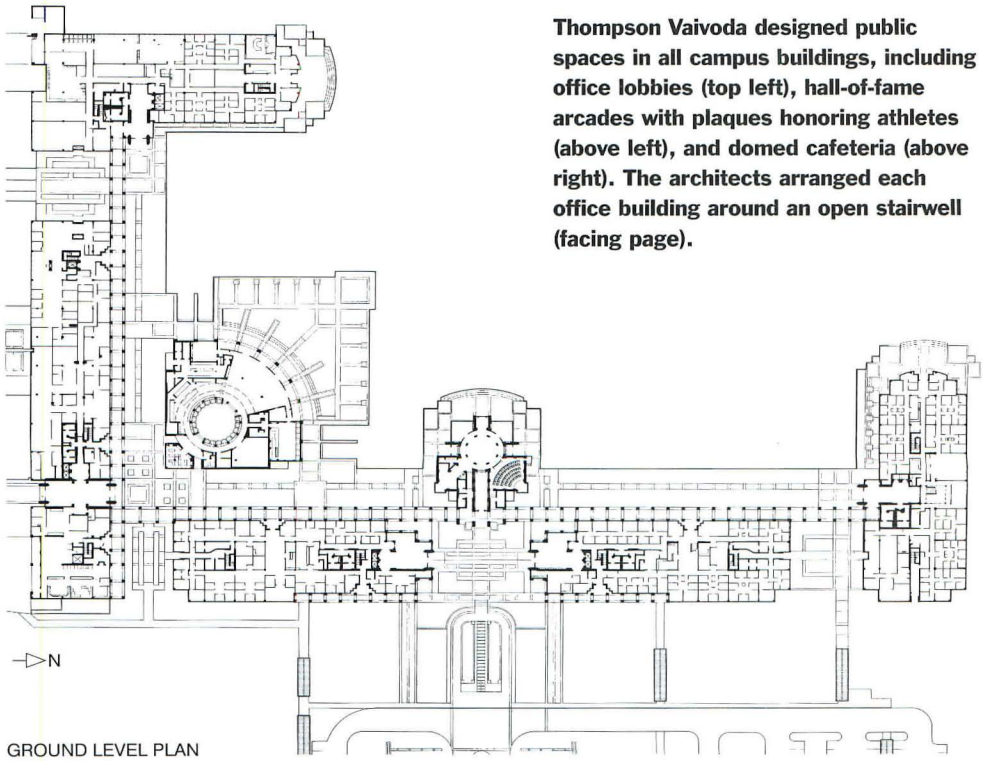
STRODE ECKERT

RICHARD BARNES

Thompson Vaivoda designed public spaces in all campus buildings, including office lobbies (top left), hall-of-fame arcades with plaques honoring athletes (above left), and domed cafeteria (above right). The architects arranged each office building around an open stairwell (facing page).

NIKE WORLD CAMPUS
BEAVERTON, OREGON

CLIENT/OWNER: Nike, Inc.
ARCHITECT: Thompson Vaivoda & Associates, Architects; Portland, Oregon—Robert L. Thompson (partner in charge of design); Gregory L. Miller (project architect); Marc Labadie, Greg Mitchell (project managers); Edward Vaivoda, David Gellos, Kurt Schultz, Allen Norris, Tracy Nichols, Dan Gates, Randy Williams, Tom Ellicott, Kevin Gernhart, Mark Annen, Gordon Gillan, Paul Smith, Skip Brown, Robert Roy, Eric Gamer (design team)
INTERIOR ARCHITECTS: Thompson Vaivoda & Associates, Architects (public spaces); Wyatt Architects (offices)—Scott Wyatt, Rodney Bauch, Bruce Stock, Randy Benedict, Franz Goebel, Anita Lehmann, Jamie Stone, Nancy O'Brien, Susan Skaret-Walker, Steve Shiver, Laurence Glasser, Barry Gehl, Shelly Clark
ENGINEERS: KPFF Consulting Engineers (structural); Interface Engineering (mechanical/electrical); Waker & Associates (civil)
CONSULTANTS: OTAK (landscape); Design Partnership (graphics); Phillips Consulting (food service)
GENERAL CONTRACTOR: Koll Construction Company
COST: $65 million—$100/sq. ft.
PHOTOGRAPHER: Jeff Goldberg/Esto, except as noted



GROUND LEVEL PLAN

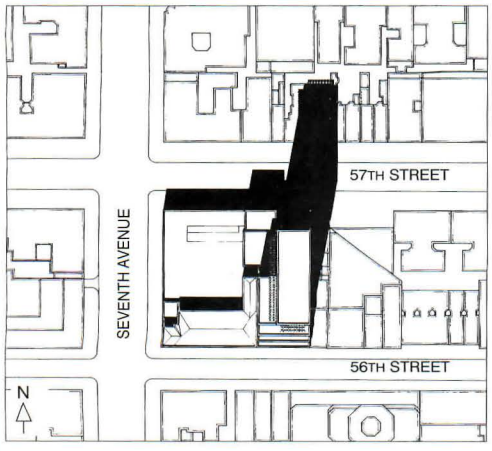
Carnegie Hall Tower
New York City
Cesar Pelli & Associates
Brennan Beer Gorman,
Associate Architects

Harmonious Neighbor

Cesar Pelli's new tower pays tribute to a 100-year-old New York landmark.

LOUIS SULLIVAN ONCE DESCRIBED A TRUE skyscraper as "a proud and soaring thing," and he would no doubt appraise Cesar Pelli & Associates' new 60-story office building in New York City in just that way. Pelli has taken some of his design cues from Sullivan, combined them with his own trademark surface treatment, and deferred to Carnegie Hall, the tower's centenarian neighbor. As a result, Carnegie Hall Tower is probably Pelli's most contextual building to date.

The statuesque presence of the new high rise is due primarily to its geometry. At 757 feet tall, the tower is only 50 feet wide as it faces 57th Street, making it one of the most slender buildings ever constructed. Squeezed between seven-story Carnegie Hall to the west and the five-story Russian Tea Room townhouse to the east, Pelli's building achieves what many recently completed New York high rises fail to accomplish: a colorful, memorable landmark on the Manhattan skyline that minds its streetside manners and maintains the texture of the existing street wall.

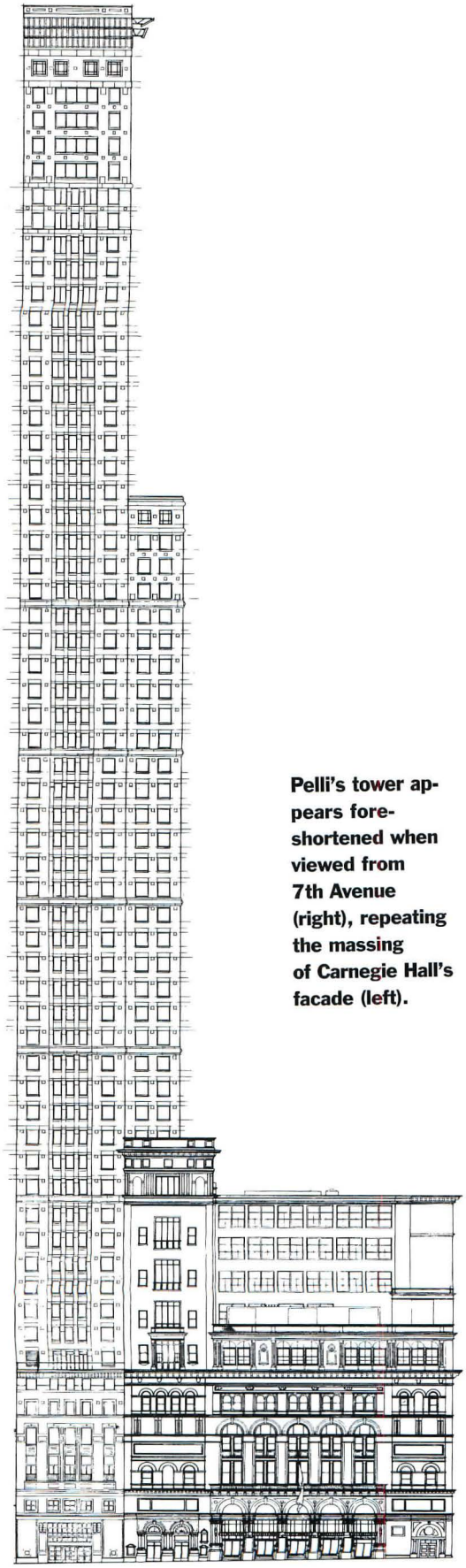


The broad face of the Pelli-designed tower looms over Carnegie Hall (facing page), but the 60-story high rise reveals slender profiles from Central Park (top right) and 56th Street (bottom right). Multicolored brick exterior distinguishes the new high rise from nearby glass towers.

The tower was constructed on a narrow parcel leased from the city, which Carnegie Hall Corporation chose to develop under a transference of the concert hall's air rights. As is not usually the case, the building's program and developer changed several times while Pelli remained the architect. Carnegie first considered a hotel, then apartments, and finally proceeded with an office tower developed by Rockrose Corporation, which provided the organization with 25,000 square feet of office and support space. At each turn, Pelli developed a new scheme, but his sensitivity to the 1891 Italianate structure was evident throughout. "Carnegie Hall is not architecturally distinguished," the architect explains. "But it has a lot of character, history, and a presence in New York—an iconic presence that you can't ignore."

Pelli therefore arranged his new tower with a series of setbacks that echo Carnegie Hall's massing, allowing the older building's campanile to remain at center stage. Above the setbacks of the lower levels, the building is L-shaped in plan through its 42nd floor. From the 43rd story up, it forms a slender rectangle 50 feet wide and 140 feet deep. Compositionally, the mass that constitutes the intermediate volume appears in foreshortened views from the street as a miniature version of the taller tower behind it.

On the tower's 57th Street facade, Pelli paid close attention to the older building's exterior brick and terra-cotta banding, as well as its window configuration. The architect interpreted and stretched the existing building's horizontal moldings across the tower's seven-story streetside facade, which reaches no higher than Carnegie's heavy cornice. Pelli achieved a smooth transition between some junctures of old and new, such as a second-story molding that extends across the 57th Street facade to meet the Russian Tea Room. Less successful is a band that abuts Carnegie Hall's ornate fifth-story terra-cotta frieze, then disintegrates into a bank of windows. A terra-cotta-colored aluminum



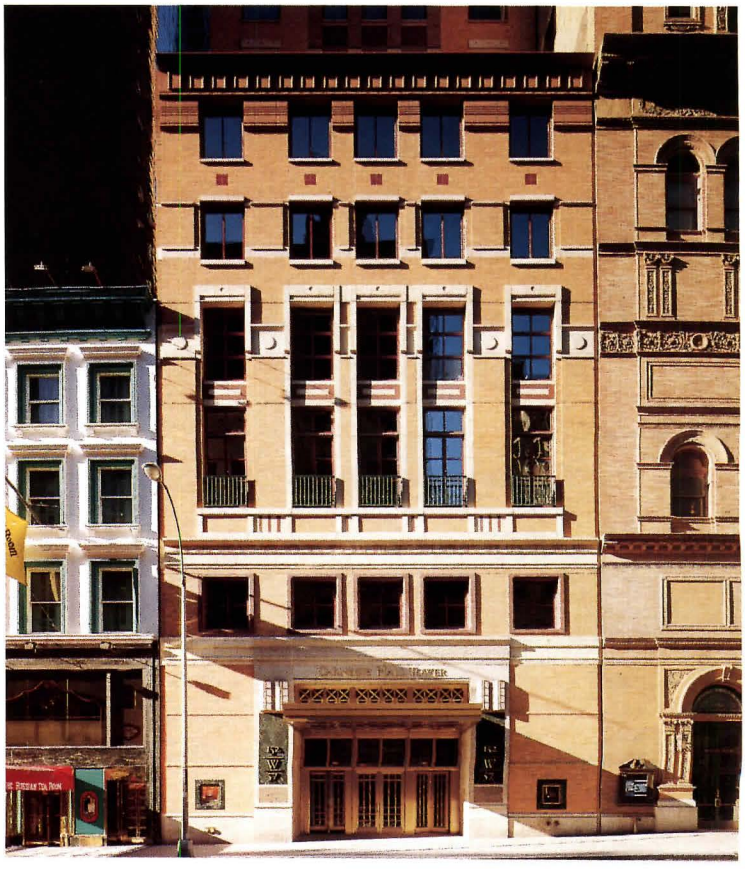
Pelli's tower appears foreshortened when viewed from 7th Avenue (right), repeating the massing of Carnegie Hall's facade (left).

molding tops the new facade, attempting to match the depth of Carnegie Hall's cornice, but instead comes off looking like vinyl siding. More successful is the striking aluminum structure of I-beam sections that extends 10 feet from the face of the tower's top floor. Like other elements of the new building, this cornice was inspired by the architecture of its older neighbor. From certain angles, the steel fretwork appears solid, from others it nearly disappears. "It is recognizable as a cornice, but it's transparent," Pelli notes.

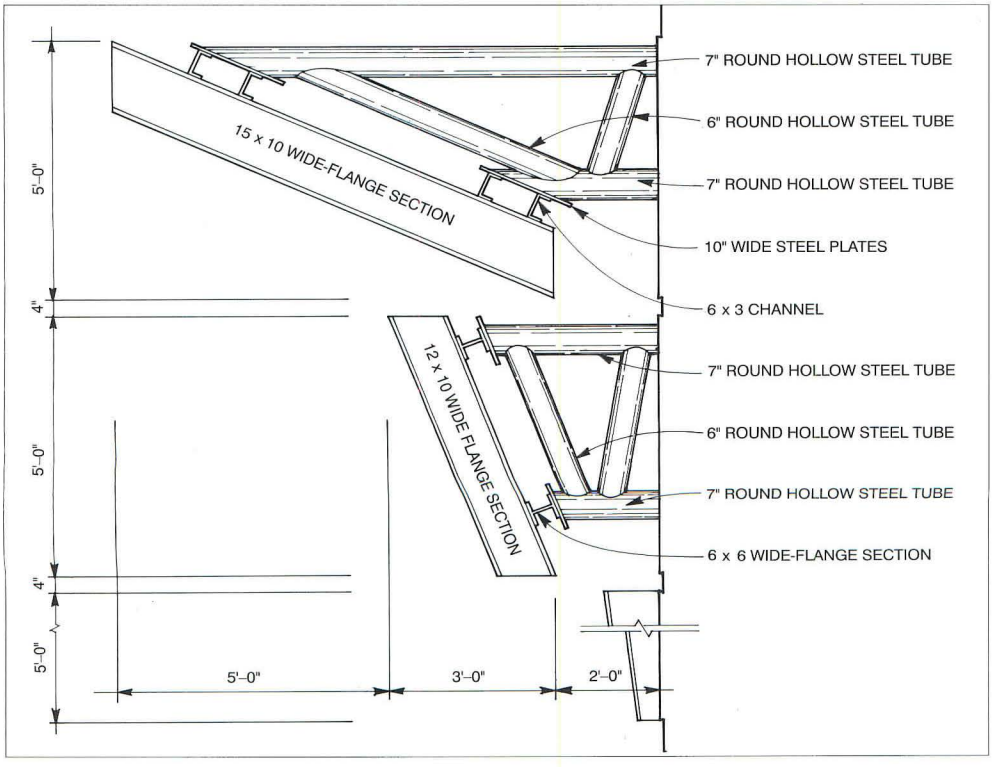
The skin of the new building nearly matches Carnegie Hall's honey-colored Roman brick. The architects considered brick fired in the same way as that used in the concert hall's recent restoration, but discovered it was prohibitively expensive. They nevertheless managed to replicate the old brick's peppery surface, but not its dimensions. The new building's seven-story facade on 57th Street is constructed of a standard-size brick with three courses in 8 inches—a masonry unit that project architect Malcolm Roberts describes as "humanly scaled to passersby." On the upper stories, a larger brick with two courses in 8 inches was specified, primarily because it could be erected more quickly. Pelli specified 11 colors of brick in the tower, among them dark greens and vibrant reds, which he studied with paper mock-ups. "It was like painting a canvas," he observes. The resulting colors and banding recall the Sullivanesque tradition of base, middle, and top.

The major accomplishment of the new facade, however, is the way it captures and translates the essence of light and shadow exhibited by its 19th-century neighbor—what the tower lacks in detail, it more than makes up in the sum of its parts. Midtown Manhattan office high rises are not usually noted for vibrant, warm materials, and that's where Carnegie Hall Tower breaks the mold. "If you fly over New York, the visual impression is that it's a study in grays," notes Pelli. "We chose a variety of brick, not only to relate the tower to Carnegie Hall, but to pop this building out on the skyline." Vantage points around the city verify how the slender brick tower does just that. From Central Park, Pelli's structure is immediately recognizable, particularly in contrast to the gray glass tower located just to the east of it. The tower clearly stands out on the skyline when viewed from the west side of the Hudson River.

The irony of Carnegie Hall Tower, which bears the name of a man who built his fortune in steel, is its concrete structure. It is the second tallest concrete building in New



The tower's tallest volume is set back 31 feet from 57th Street (top right), allowing the base to harmonize with its neighbors—Carnegie Hall to the west, Russian Tea Room to the east (bottom right).



CORNICE DETAIL

Profile of tower's decorative cornice (left and detail below) is recalled in the design of wall sconces in ground-floor, through-block lobby (facing page). Plans (facing page) reveal two concrete tubes (colored lines) that intersect in the center of the building.

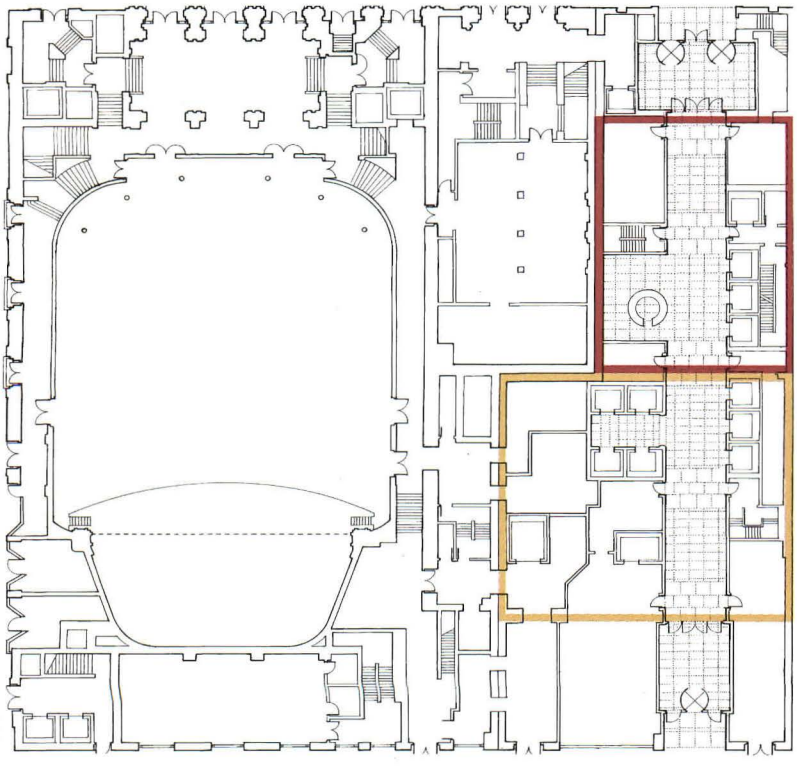
York City, and the eighth tallest in the world, according to Jacob Grossman, a partner of structural engineers Robert Rosenwasser Associates. Grossman's analysis of the tower's slender geometry indicated that perception of the building's sway would be reduced with a concrete, rather than steel, structure. The fundamental period of a concrete building—its cycle of motion due to wind loads—is longer than that of a steel building because of its greater weight. Longer periods reduce the acceleration of movement in the building, decreasing the sensation of sway. The structure was therefore formed as two interlocking tubes of concrete, joined at the center of the building, with spandrel beams running east-west to form a web for added stiffness. The engineer also left room at the building's top for a damper, should the need arise.

Carnegie Hall Tower may have a deeper connection to the architecture of Louis Sullivan than simply the expression of its skin. As Sullivan's buildings heralded the new age in steel construction, Carnegie Hall Tower may mark a turning point in high-rise construction. Grossman believes that concrete will be the material of choice for high rises in the next century—in a period of diminishing resources and tighter budgets. "Concrete requires less energy to produce, and allows flexibility in adjusting the design, virtually day to day," he maintains. "You don't have to wait six months to order a new beam, as you do with steel." ■

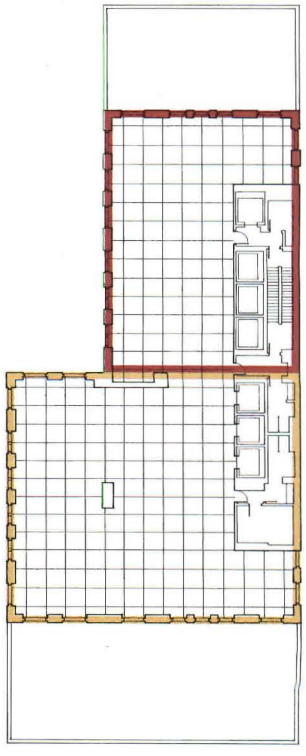
—MICHAEL J. CROSBIE

CARNEGIE HALL TOWER
NEW YORK CITY

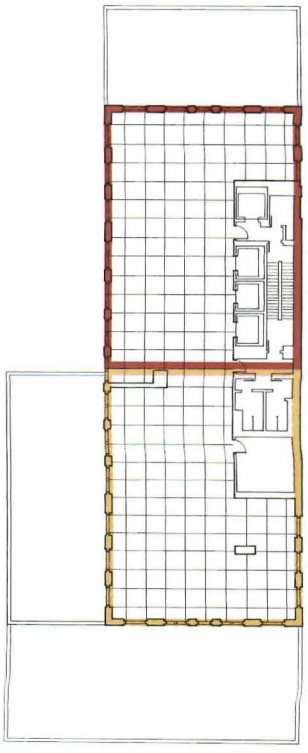
CLIENT: Rockrose Development Corporation
ARCHITECTS: Cesar Pelli & Associates, New Haven, Connecticut—Cesar Pelli (principal for design); Kevin E. Hart (design team leader); Malcolm Roberts (project architect); Mitchell A. Hirsch, Robert Bostwick (senior designers); Lisa A. Winkelmann, Mihaly Turbucz, Timothy Paxton, Douglas A. MacIntosh (design team)
ASSOCIATE ARCHITECTS: Brennan Beer Gorman, New York City—Frank LaSusa (principal-in-charge); Landis Dooley (project architect)
ENGINEERS: Robert Rosenwasser Associates (structural); Cosentini Associates (MEP); Mesh & Juul, Inc. (lighting)
CONSTRUCTION MANAGER: HRH Construction
PHOTOGRAPHER: Jeff Goldberg/Esto



GROUND FLOOR PLAN



TYPICAL FLOOR (2ND–42ND)



TYPICAL FLOOR (43RD–60TH)

Chicago Bar Association Building
Chicago, Illinois
Tigerman McCurry Architects

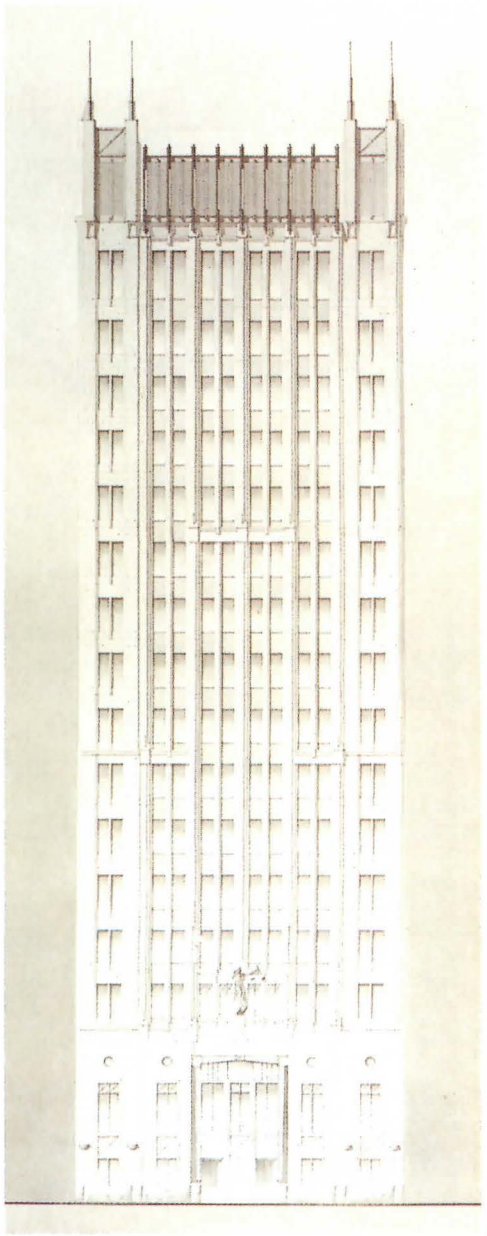
American Gothic

A slender office tower sets the stage for redevelopment in the Loop.

TIGERMAN McCURRY'S FIRST OFFICE BUILDING occupies a site in Chicago's South Loop, where it watches over Hammond Beeby and Babka's massive Harold Washington Library. The 16-story tower also shares the neighborhood with such important architectural landmarks as Burnham and Root's Monadnock Building and the Rookery (currently undergoing restoration), Burnham's Gothically inspired Fisher Building, and, just a block away, Mies van der Rohe's Federal Center. The immediate vicinity of the CBA Building, however, is a city redevelopment project that has been designated "Block One," an ominous term signalling that most of its other occupants, with the exception of Pond and Pond's John Marshall Law School building, will be razed to make way for new office and retail development. Tigerman McCurry's building is therefore an exceedingly important project, for it sets the stage for the type of architecture that will link the new public library with Chicago's busy downtown.

The 115,000-square-foot structure serves as headquarters for the Chicago Bar Association in its lower seven stories; upper floors house office condominiums that co-client Miglin-Beitler Developments will temporarily lease to other tenants, with the ultimate goal of selling them to the Bar Association as it needs more space. The original design was conceived by Margaret McCurry and completed in a week for the lawyer/developer clients who were dissatisfied with the progress of another architect/developer team. (As befits a building for attorneys, a lawsuit is still pending over the dismissal of the first group.) "They wanted a traditional building," McCurry recalls. "There's a preconception that attorneys all graduated from the ivy league, so a soaring Gothic tower seemed appropriate." The bar association accepted McCurry's scheme after a half-hour presentation. Tigerman, who happened to be away that week, returned to find his office working on what was for him a new building type; without hesitation, he began to simplify and

The CBA Building stands in the shadow of Mies's Federal Center (bottom left); a two-story building borders it on the south (top left). Sculpture of justice above entrance (facing page) is by Illinois artist Mary Block.




THE
CHICAGO BAR
ASSOCIATION
321

STEVE HALL/HEDRICH-BLESSING

JON MILLER/HEDRICH-BLESSING

update McCurry's first scheme.

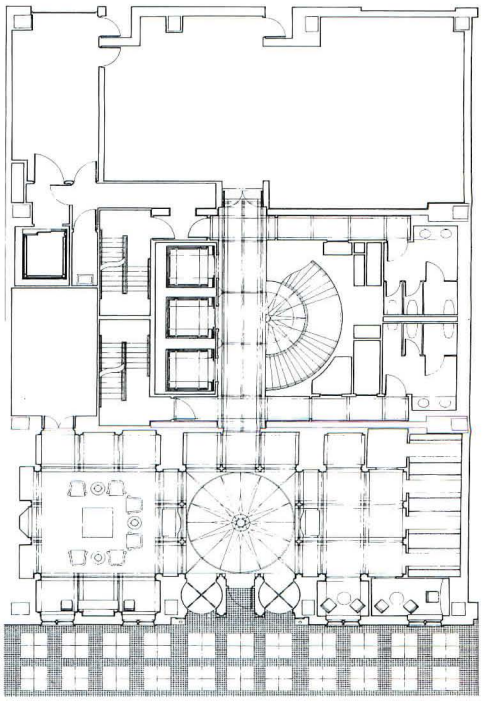
"We tried to relate it to Mies, to his Federal Center, and to his Neo-Gothic Promontory Apartments," Tigerman explains. Complementing its dual program, the architects sought to create a hybrid building, "between Gothic and absolute, hard-core, Miesian Modernism." The result is a tower that shares with its distinguished colleagues in the Loop a sense of stability and permanence, manifested in the detailing and materials of its powerful street facade. There is no question that this building, with its split-face granite base and stainless steel doors, will last, as Tigerman says "as long as there are attorneys." At the same time, the tower's 16 rooftop spires achieve signature Tigerman trompe l'oeil, making this slender building appear larger than it really is as the stainless steel pinnacles reach heavenward.

Unlike the high rises designed by out-of-town architects that have recently been completed in the Loop, Tigerman McCurry's building is innately Chicagoan, taking cues from the architects' favorite buildings as well as from its historic context. The 1951 Promontory building has a more articulated curtain wall than Mies's later projects, in which he carried the Neo-Gothic idiom to its most abstract level. Considered in relation to this evolution, the CBA Building is "pre-Promontory," McCurry explains, "somewhere between the Tribune Tower and Promontory." At three points in the facade, shallow changes in depth create shadow lines that correspond to the cornices of the tower's two adjacent buildings: Binyon's Restaurant to the south (which will inexplicably survive Block One's redevelopment), and John Marshall Law School to the north. The louvered top of the building reflects the abstraction of Mies's later work, evident in the 1963 Federal Center nearby.

In 1891, John Wellborn Root wrote that his Monadnock Building, just a block away on Federal Street, stood among "hurrying, busy, thousands of men." While Chicago's street life has changed since then (the CBA has 22,000 members, of whom almost 25 percent are women and a female is president), the nature of the neighborhood has not. Root thought these bustling streets required buildings that "by their mass and proportion conveyed...an idea of the great, stable, conserving forces of modern civilization." Stanley Tigerman might laugh at that notion, since he jokes that his office was lucky to get the project that will trigger Block One's redevelopment on the threshold of a recession. But like Root's Monadnock, Tigerman McCurry's Chicago Bar Association tower is one building that will endure—to the turn of the next century and beyond. ■

—HEIDI LANDECKER

Domed lobby ceiling (above left) is surrounded by custom light fixtures; bronze elevator doors (facing page, top left) are etched in similar mysterious symbols. Chicago interior designer Greg Landahl widened the openings of circular windows in second-floor dining area (above). Below the compass in the lobby floor (facing page, top right) is a time capsule. Lavanto marble forms the base of mahogany columns (facing page, bottom left) and clads a two-story staircase (facing page, bottom right).



GROUND FLOOR PLAN N

CHICAGO BAR ASSOCIATION BUILDING
CHICAGO, ILLINOIS

ARCHITECTS: Tigerman McCurry Architects, Chicago, Illinois—Margaret McCurry, Stanley Tigerman (principals-in-charge); Paul Gates (project architect); Richard Dragosic, Julie Evans, Michael Pierry (project team)
ENGINEERS: Cohen-Barreto-Marchertas (structural); ESD, Inc. (mechanical)
PRIVATE CBA INTERIORS: Greg Landahl
GENERAL CONTRACTOR: Schall Construction
COST: $20 million
PHOTOGRAPHY: Bruce Van Inwegen Photography, except as noted

Spartan Food Systems Plaza
Spartanburg, South Carolina
Clark Tribble Harris & Li Architects

Urban Catalyst

A soaring tower on Main Street fosters a town's revitalization.

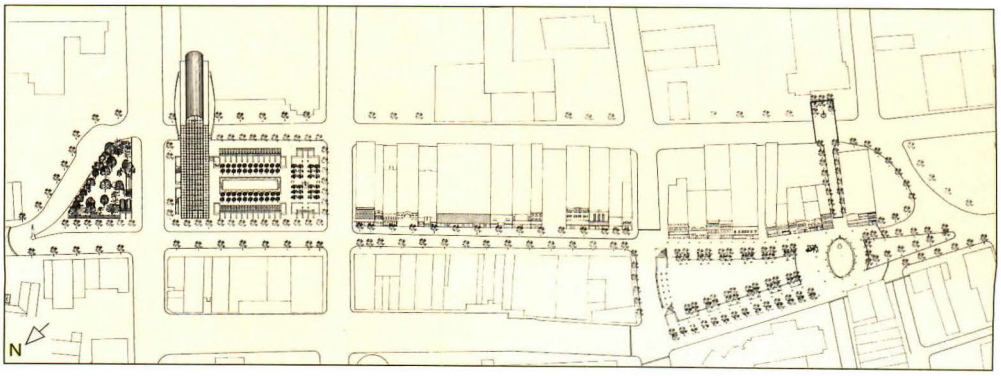
THE LONG VIEW IS STUNNING: A SLENDER concrete tower rising from a cluster of two- and three-story brick buildings. The setting is Spartanburg, South Carolina, a sleepy textile manufacturing town notably short on architectural drama. The tower is the new Spartan Food Systems Plaza, headquarters for Hardee's, Denny's, and several other national restaurant chains. The urban vision for the 19-story building began with Jerry Richardson, a former wide receiver for the Baltimore Colts and now CEO of TW Services, the corporate parent of Spartan Food Systems. Richardson's ties to Spartanburg date back to the late 1950s, when he was catching passes at Wofford College. After graduation, he and a partner opened the first Hardee's franchise only six blocks from the site of the new headquarters. The enterprise flourished, and, by the mid-1980s, Spartan Foods had outgrown its campus on Interstate 85. Instead of staying in the suburbs, the company chose to relocate in downtown Spartanburg. "The town has been tremendously loyal to us," Richardson explains. "It loaned us money, educated our kids, and bought our products. We wanted to give something back." The city also made Richardson's decision easier by dramatically discounting the price of the building site and constructing a $4.5 million parking garage across the street.

The commission for the new headquarters was awarded to Clark Tribble Harris & Li of Charlotte, North Carolina. According to design architect David Wagner, Richardson shunned Postmodern flash in favor of clean, Modern forms that would project an image of restraint and stability. He also insisted that the building include a plaza and a public park to enhance Spartanburg's meager public realm.

Crisply delineated, the tower features a grid of deep windows set in a concrete frame and a dramatically vaulted top. Floors measure only 65 feet wide (10,000 square feet), resulting in a remarkably compact and airy building. All offices are arranged around the perimeter, providing panoramic views of the nearby hills. The executive floor is flanked by two arcing balconies clearly inspired by Michael Graves's Humana building. By placing the mechanical and elevator cores at the ends of the tower, the architects created a large, transparent, ground-floor lobby, currently occupied by BB&T bank.

But several of Spartan Plaza's most distinctive features have more to do with corporate philosophy than architecture. A 200-seat auditorium is located on the top floor, beneath the vaulted roof, and is equipped with a fly-loft stage and sophisticated audiovisual

Spartan Food Systems Plaza features 19 stories of precast concrete and glass (facing page) towering above a three-story downtown (below). Spartanburg hopes that the project will revitalize the city and provide new public spaces, including restoration of Daniel Morgan Square (bottom right in site plan).



equipment. When not needed by the company, the auditorium is donated to Kiwanians, the March of Dimes, and other civic groups for meetings and fund-raisers. Even more surprising, the building contains no restaurant or cafeteria. Instead, Spartan encourages its employees to patronize downtown merchants, thereby strengthening ties between the corporation and the community.

The park and the plaza surrounding the building were designed by Peter Schaudt of Clark Tribble Harris & Li. The plaza is a rectangular room with a pergola along Main Street, soldierly rows of crepe myrtles, fountains, and a tapis vert at the center. The formal gardens of Richard Morris Hunt's Biltmore Estate, Hadrian's Villa at Tivoli, and the work of Vermont landscape architect Dan Kiley all inspired the design without dominating its simplicity. The public park provides a soft counterpoint to the plaza's corporate formality. Benches, a fountain, and a wrought-iron fence create an ingratiating, small-town atmosphere, like a piece of historic Spartanburg brought back to life.

The only criticism of Spartan Plaza has been that, architecturally and urbanistically, the tower has little to do with its surroundings. But in this case, *the lack of contextualism* is largely irrelevant, since downtown Spartanburg has been declining for years, and is presently struggling to develop a new identity and a sense of place. Jerry Richardson and others are betting that their bold new stroke is just what the city needs to accomplish this goal.

And there are signs that Richardson may be correct. A new office and retail complex called Broadwalk is about to open across from Spartan Plaza. The city is negotiating for a downtown hotel, and planning is under way for a convention center and a performing arts facility. David Wagner, now a principal of Wagner Murray Architects in Charlotte, is completing a master plan for downtown that includes the restoration of historic Daniel Morgan Square at the western end of Main Street. "People are beginning to be concerned about the exteriors of their buildings, and that's a start," says Richardson. "The big department stores won't move back, but perhaps we can attract other businesses downtown."

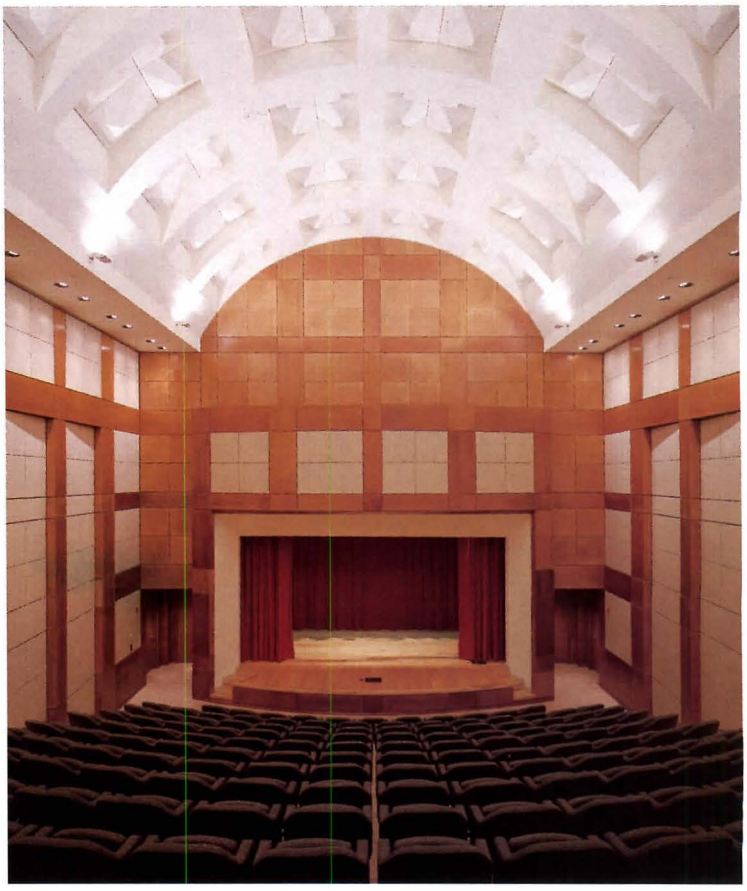
The role of catalyst is the larger significance of Spartan Food Systems Plaza. A sophisticated piece of architecture and urban design, it is also helping to rekindle the civic spirit of an entire community. ■

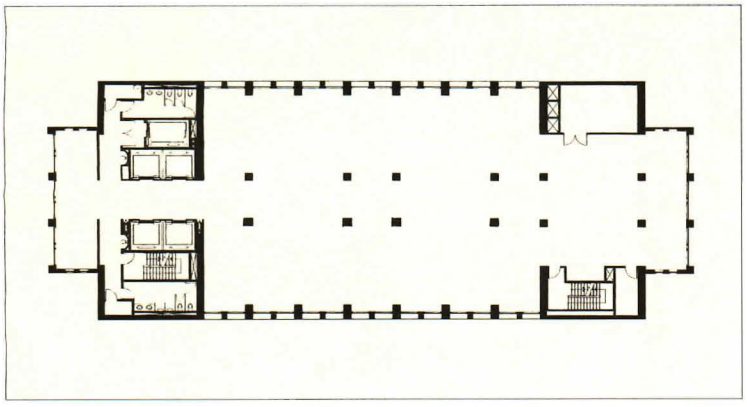
—DAVID DILLON

The Spartan tower opens onto a formal plaza (above left), framed by a pergola along Main Street and including rows of crepe myrtles, fountains, and a central tapis vert (above, top and bottom). The dramatic vaulted roof covers elegant reception areas and a fully equipped auditorium (facing page, top right). The floors are narrow and open (facing page, plans) for maximum natural light (facing page, top left).

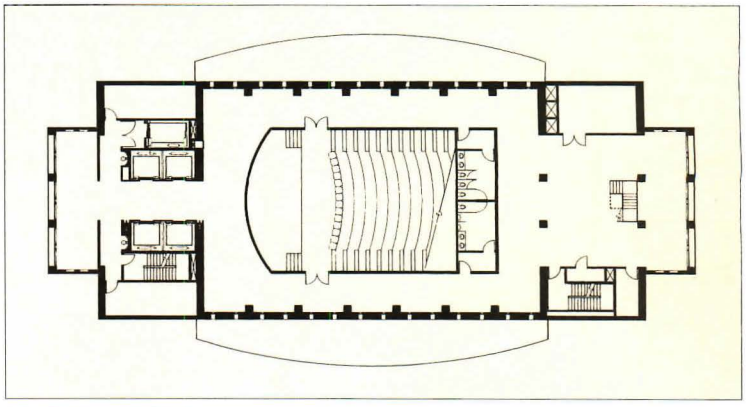
SPARTAN FOOD SYSTEMS PLAZA
SPARTANBURG, SOUTH CAROLINA

ARCHITECTS: Clark Tribble Harris & Li Architects, Charlotte, North Carolina—Michael Tribble, AIA, RIBA (principal-in-charge), David K. Wagner (principal); Patterson Campbell (project designer); Christopher Ions, AIA (project architect); Peter Schaudt, ASLA (landscape architect); Susan Dudley, Leslie Poteet (interior designers)
ENGINEERS: Robert L. Hudson Associates (structural); Lockwood Greene, Inc. (mechanical/electrical, civil)
CONSULTANTS: Cape Dixon Associates (acoustical); Francis Krahe & Associates (lighting)
GENERAL CONTRACTOR: Fluor Daniel, Inc.
PHOTOGRAPHER: Gordon H. Schenck, Jr.

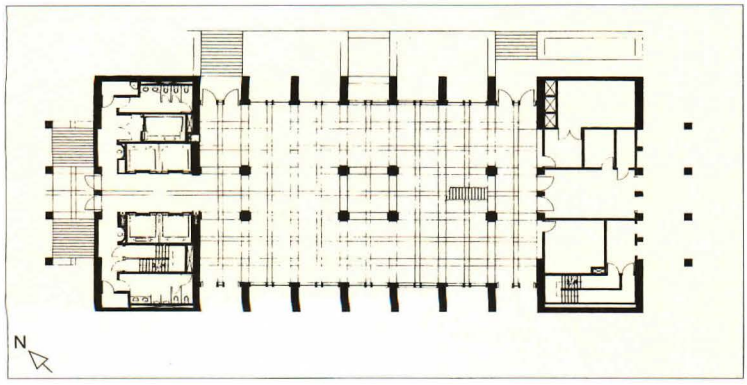




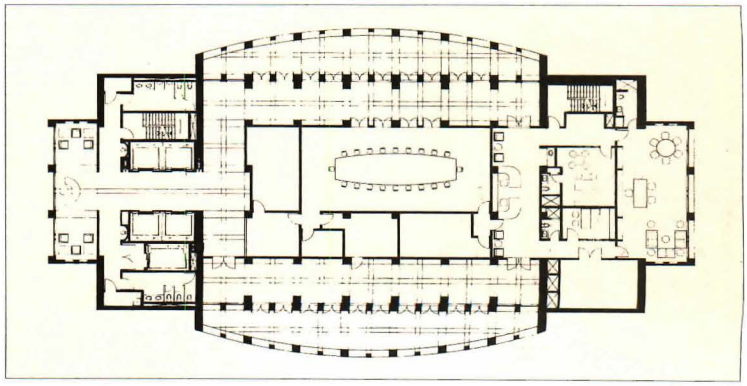
TYPICAL FLOOR



AUDITORIUM FLOOR



GROUND FLOOR



BALCONY FLOOR

Team Disney Building
Burbank, California
Michael Graves, Architect

Classical Animation

Disney's Burbank headquarters is the latest addition to the company's growing design portfolio.

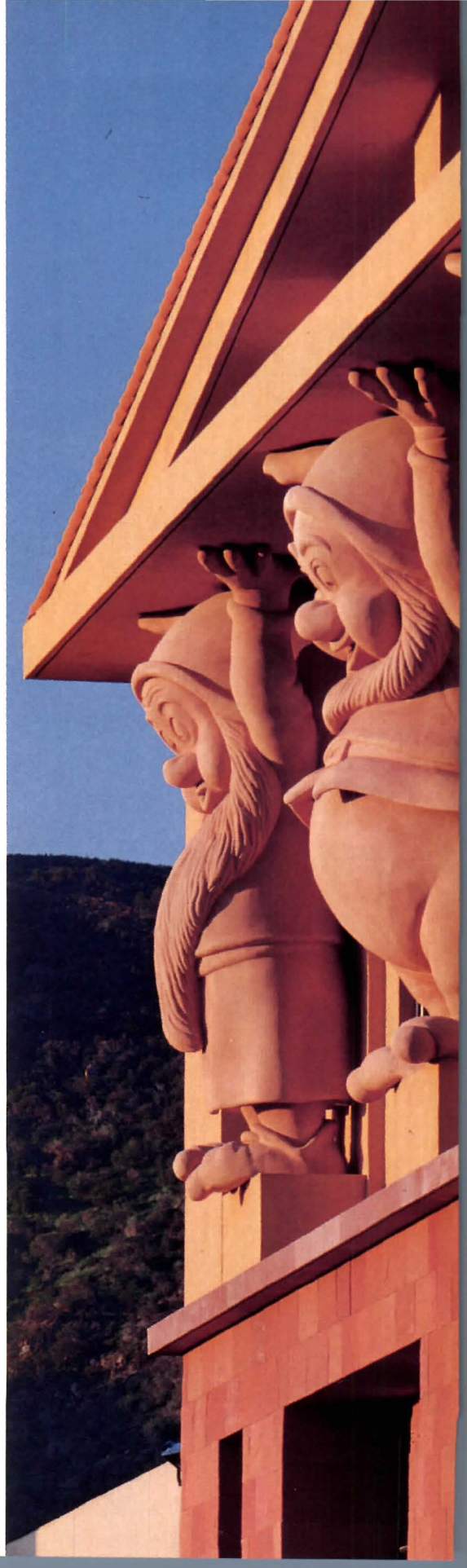
NEW BUILDINGS DESIGNED FOR DISNEY BY Michael Graves and other leading architects have sparked lively debate. Can architecture that incorporates themed fantasy imagery maintain credibility? Can it function as entertainment while exploring weightier design issues and meeting basic programmatic needs? If Disney World's Graves-designed Dolphin and Swan hotels in Orlando, Florida, with their towering statuary and superficial graphic decoration, cross the fine line between architecture and cartoon, Graves's new Team Disney Building on the Disney lot in Burbank, California, strikes a more delicate balance.

Yes, this building features seven 19-foot-tall dwarfs, cast from thin-shell glass fiber reinforced concrete (GFRC). But unlike the swan and dolphin sculptures that adorn the architect's hotels, these dwarfs are fitting contemporary counterparts to ancient caryatids—they appear to support a pediment, giving at least the illusion of a functional purpose. And while the barrel-vaulted roofs over the 330,000-square-foot headquarters' most prominent corner vaguely resemble film reels or a certain mouse's ears, Graves claims he had no such symbolism in mind.

"I wanted to design a corporate office building for a serious company engaged in entertainment," he says. "It happens, of course, that they are identified with cartoon characters, and that's how Disney started. 'Snow White and the Seven Dwarfs' was their first full-length animated feature, so the dwarfs seemed an appropriate symbol for both the company's beginning and the new beginning with Michael Eisner and the new board."

Under Eisner, who took over the company's reins as CEO in 1984, Disney has grown into a diversified entertainment conglomerate that generated $5.8 million in revenues last year. More remarkably, Eisner has an enlightened view of architecture as an equal among other arts. "It's as important to have a good piece of architecture as a good piece of music or a good movie," the 48-year-old executive maintains. "If you make a bad record or television show, you hide it and no-

A reflecting pool flanked by twin pergolas aligns with the Disney headquarters' main entrance (facing page). The seven dwarfs (right) are cast from thin-shell GFRC by Dura-Art Stone of Fontana, California.

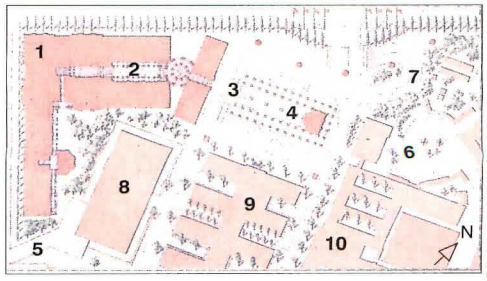


Surrounding terrain consists of low, rolling hills (top left). A pool pavilion is spare (center left), but the north elevation is a bold composition of contrasting volumes (bottom left). The building turns 20 degrees to align with Burbank's street grid (facing page).

body sees it. If you make a bad building, it sits there for the rest of your life."

When Eisner began reshaping Disney during the mid-1980s, Graves was the first "star" architect he recruited. Before Eisner brought Graves to the 44-acre Burbank campus, the complex was a hodgepodge of undistinguished buildings constructed in the 50 years since the company acquired the property, strung along pedestrian promenades lined with oaks, elms, sweet gums, and laurels. Located across from the Team Disney Building is the 1940 brick Animation Building, painted in earthy hues Graves says influenced his own choice of colors. In the crook of the new building lies the brutal concrete 1976 Roy O. Disney Building, designed by Burke Nicolais & Archuleta of Los Angeles. Scattered to the south are one-story stucco and wood buildings that resemble 1950s elementary schools. As a newcomer, Graves's headquarters doesn't attempt to harmonize. Instead, it is a bold interloper that looks to the future and additional signature buildings scheduled to be built over the next decade.

Completed in March 1991, the Team Disney Building was designed in 1986 and was Graves's first commission for the company. It is a contemporary of his other recent southern California project, the Aventine, a mixed-use complex in La Jolla including a 400-room Hyatt Hotel, an office building, and several restaurants, designed in 1985 and completed in 1990 (ARCHITECTURE, August 1990, pages 66-71). Both projects are located in suburbs that developed rapidly—



SITE PLAN

1	TEAM DISNEY BUILDING	6	BACK LOT
2	COURTYARD	7	RAMP TO GARAGE
3	PLAZA	8	ROY O. DISNEY BUILDING
4	REFLECTING POOL	9	ANIMATION BUILDING
5	STUDIO GATE	10	INK AND PAINT BUILDING

but not always gracefully—during the 1980s with anonymous, economical spec buildings. Both are the boldest architectural statements in their neighborhoods. Both seem at home in the Mediterranean-like light and terrain of southern California, with bases of hard-edged red Indian sandstone tethering them to Earth and upper walls of pale stucco that float against the sky. And both celebrate the warm climate with important outdoor spaces.

Housing about 700 people, the Team Disney Building hugs the highly visible northwest corner of the studio lot at the intersection of two busy streets, its wings running north-south and east-west, conforming to the city's grid. As in his recent Crown American Corporation headquarters in Johnstown, Pennsylvania, the new headquarters shows how gracefully Graves can handle urban edges to identify a corporation's solid presence.

For Disney, Graves was far more restrained than usual in his expression of classical volumes. The west elevation, for example, is practically placid. An octagonal tower grafted to the building's backside is not visible from the west, where tall, narrow bays of small-paned windows lend a calm, rhythmic effect. Three-story red sandstone columns topped by GFRC lintels help call attention to the six-story volume at the prominent northwest corner of the lot. The north elevation, however, is livelier: a six-story corner volume drops to a four-story office wing that runs into a taller, flat-roofed, cylindrical drum. Graves hinged the cylinder to the pedimented entry building, which he canted away from the street grid by 20 degrees to mesh with the grid of the Disney lot.

Movement through the main building is a carefully ordered procession, through the foyer and elevator lobby in the wide, shallow entry building to a contrasting rotunda ringed by columns that rise to a dramatic 25-foot ceiling. Beyond the rotunda, a long courtyard slices through the center of the north office wing, flanked by banks of circulation colonnades.

Graves paid finicky attention to the interiors. He designed custom furniture, including Mickey-ized versions of his well-known Oculus chairs and a long maple table with tiny Mickey inlays in the executive boardroom, as

A central courtyard brings natural light to offices (top left). Similar colonnades organize outdoor corridors into Classical proportions (facing page). Executive offices are located in the tallest volumes, including an octagonal tower (bottom left).

well as lighting, carpeting, and china for the executive dining room.

Materials and craftmanship earn high marks. Exterior columns and sills are constructed of smooth-finished stucco and GFRC. Honed bands of red sandstone on exterior walls subtly define each floor. Authentic clay tile roofs cover the four-story wings, while the six-story corner volume's vaulted roofs are clad in copper. Imported stones pave the most visible outdoor areas.

Overall, the feeling at the headquarters is rich, but Graves claims the budget was not. "Anytime you're working for Disney, you're working in a very frugal atmosphere," he says. "The Disney staff conducted a survey of the cost of recent corporate buildings in the Burbank area and told us somewhere in the middle would be appropriate for their building."

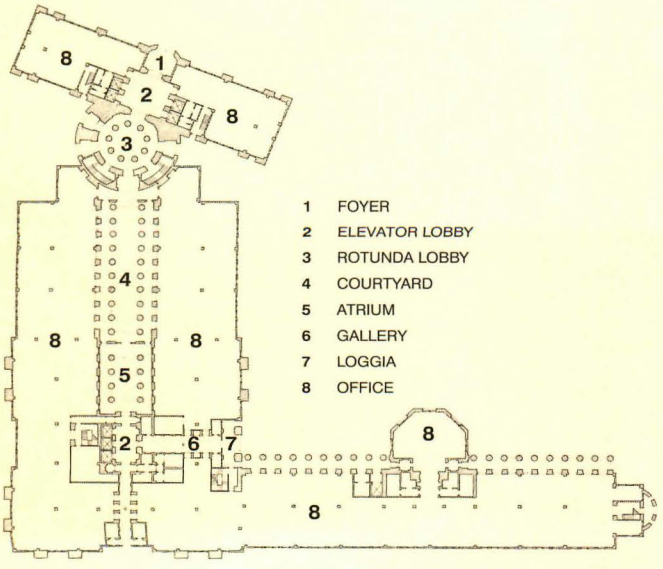
Despite its many graceful gestures, both grand and fine-grained, the Team Disney Building exhibits some of the weaknesses that have marked Graves's work in the past. From the outside, the colliding, Classically-derived volumes aren't joined in an altogether graceful manner. In elevation drawings, the radiused ends of the barrel-vaulted roofs atop the complex's six-story corner block, for example, read as logical, symmetrical resolutions of the west and north facades. But from a distance, these roof forms give a cluttered impression. Detail-less stucco columns lining outdoor colonnades trigger memories of both Classical orders and modern pilotis, creating an interesting tension, but these orders are so prevalent that they become dogmatic.

Even with its flaws, the Team Disney headquarters sets an upbeat direction for new construction on the lot. Arata Isozaki is at work on a building, and Disney has reportedly talked with Aldo Rossi about another. Graves's fourth building for Disney, a hotel at the new Euro Disneyland in Paris, is due to open late next year. And in his office, Eisner displays the new, Rizzoli-published Morphosis monograph, indicating that he may eventually commission a younger generation of architectural talent. ■

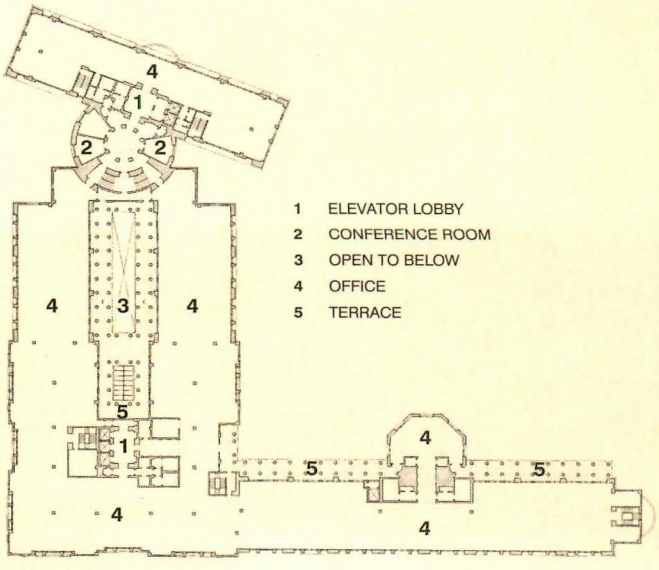
—DIRK SUTRO

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

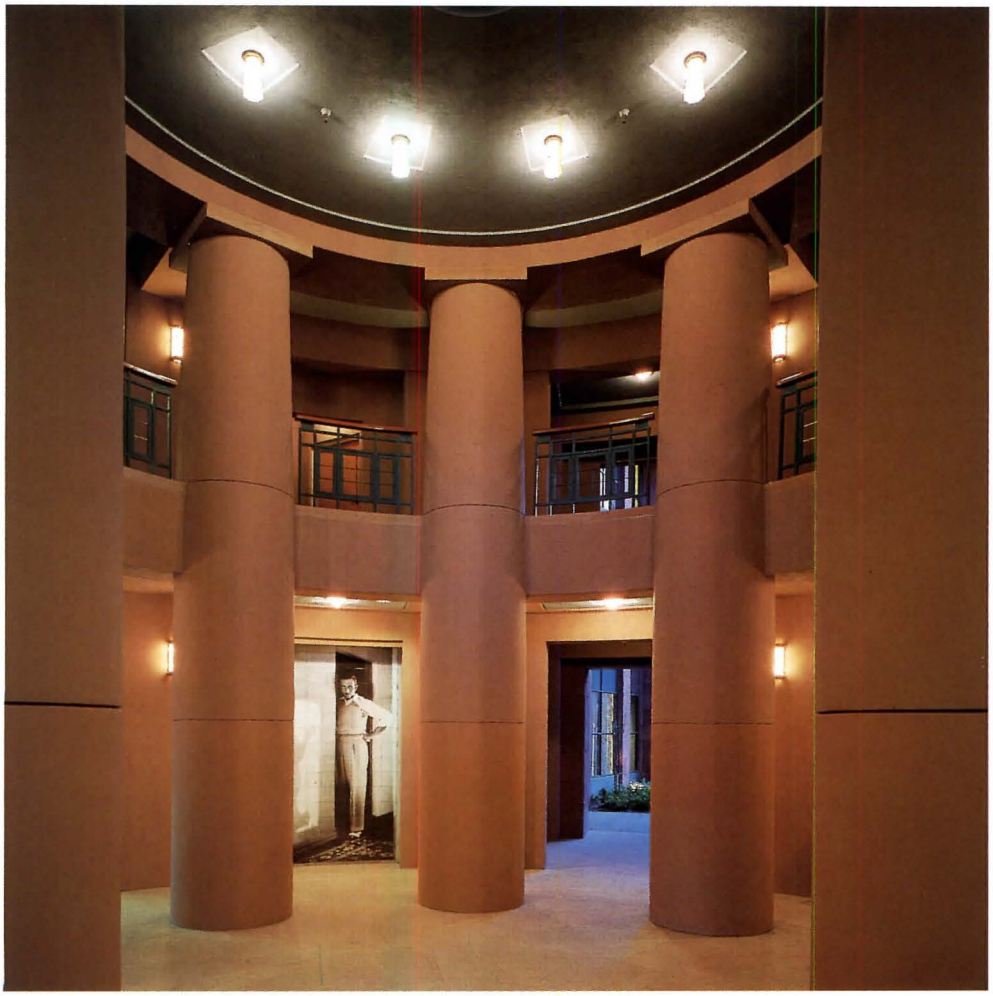
Graves designed furnishings in executive offices, including chairs (top and bottom left) and maple cabinets (facing page, top). Unifying inside and out, the architect extended exterior elements such as vaults and columns throughout the office interiors.



GROUND FLOOR



FOURTH FLOOR



Acting like a cylindrical hinge, the rotunda (top left) connects the front lobby to the courtyard. The building contains four screening rooms (bottom left) to review "dailies" from Disney films. Graves was selected to design the executive dining room mural (facing page), following a competition among Disney artists held by Eisner.

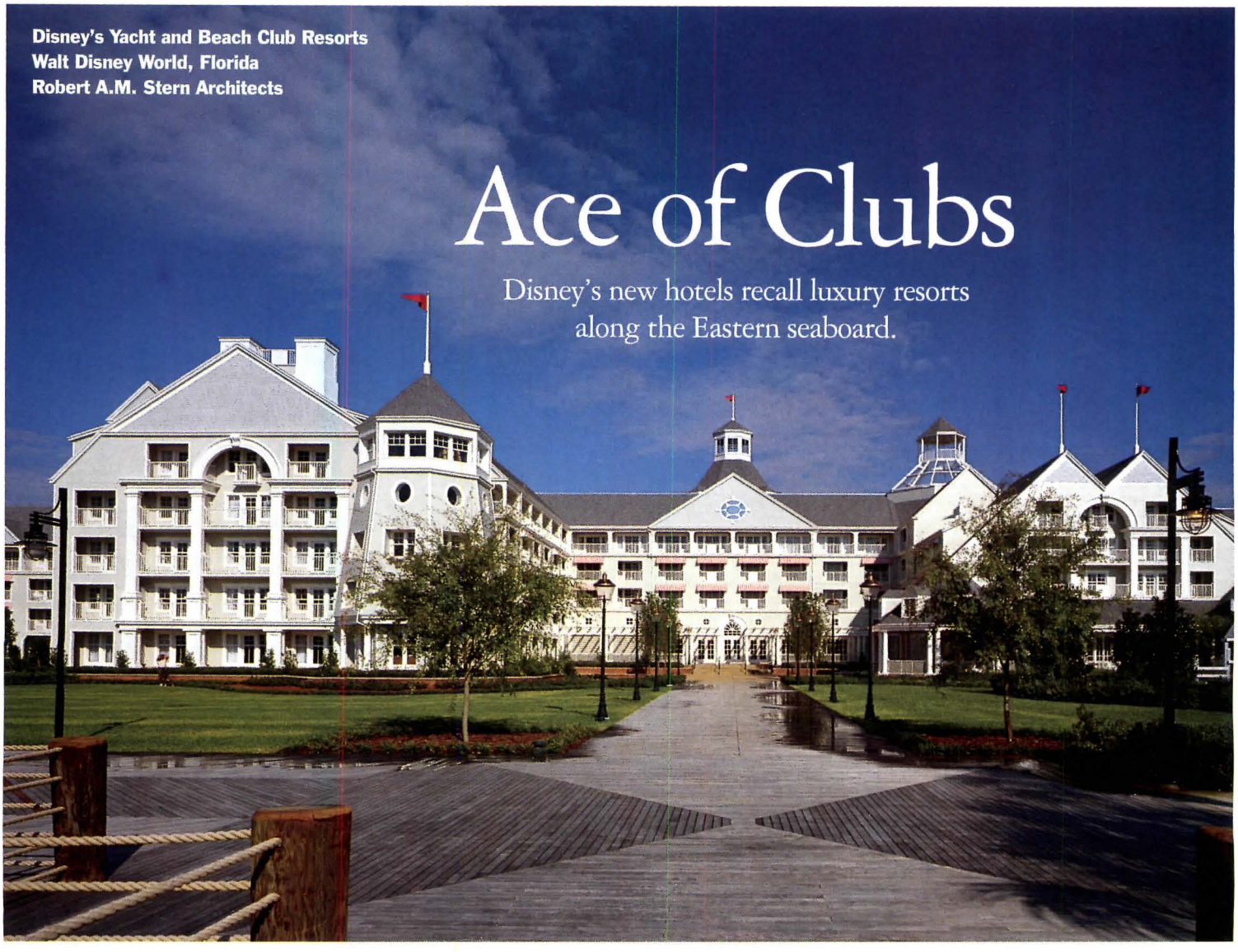
TEAM DISNEY BUILDING
BURBANK, CALIFORNIA

OWNER/DEVELOPER: Disney Development Company
ARCHITECT: Michael Graves, Architect; Princeton, New Jersey—Michael Graves (principal); Karen Nichols (senior associate); Mike Crackel, Tyler Holmes, Eric Regh, Terrence Smith, Craig Thomson (associates-in-charge); Wendy Bradford, Peter Neilson, Dan Shepperd, Tony Wilson (job captains); David Yuguchi (field representative); Ellee Wynn-Briscoe, Susan Pikaart Bristol, Amy Forsyth, Jose Garcia, Kiran Kipatdia, Mary Mead, Steve Panzarino, James Saywell, Roger Smith, Vincent Snyder, Mary Yun (designers); Michele Stivelman-Leach, Charlyn Rainville (interiors team); Stephanie Magdziak, Alex Lee, Donald Strum
ASSOCIATE ARCHITECT: Gruen Associates, Los Angeles, California—Allen M. Rubenstein, Robert Barnett, Jay Boothe, Ashok Vanmali
ASSOCIATE INTERIOR DESIGNERS: ISD, Inc.; Los Angeles, California—Mel Hamilton, Jan Belson (principals in charge); Nancy Jones (design director); Pamela Blew (design manager); Sasan Amini-Sam, Jim Daniel, Sue Khim, Linda Retzlaff, Drew Goodman, Noel Carriere, Michael Bloyd (project team)
LANDSCAPE ARCHITECT: POD, Inc., Plantscaping by Jody
ENGINEERS: John A. Martin Associates (structural); Flack & Kurtz (mechanical/electrical/fire protection); Paller-Roberts (civil)
CONSULTANTS: Charles M. Salter Associates, Inc., Shen Milson & Wilke, Inc. (acoustics); Childs and Scholze (lighting); McKinney Technical Services (audio-visual); Clevenger Associates (kitchen); Skidmore, Owings & Merrill (graphics); Nancy Rosen Incorporated (art); Office Matrix (furniture installation); Craftwood (furniture); Gavin De Becker (security)
GENERAL CONTRACTOR: HCB Contractor
MURALIST: Bill Anderson
STYLIST: Hilary Green
PHOTOGRAPHER: Jeff Goldberg/Esto

Disney's Yacht and Beach Club Resorts
Walt Disney World, Florida
Robert A.M. Stern Architects

Ace of Clubs

Disney's new hotels recall luxury resorts along the Eastern seaboard.



ROBERT A.M. STERN LOUNGES ON A LEATHER couch in the lobby of the Yacht Club Resort, one of two hotels built side by side that he designed for Walt Disney World. "This is like a dream come true," says Stern as he gazes around the lobby at its beamed ceiling, pickled woodwork, gleaming oak floors. "This is the living room I've always wanted."

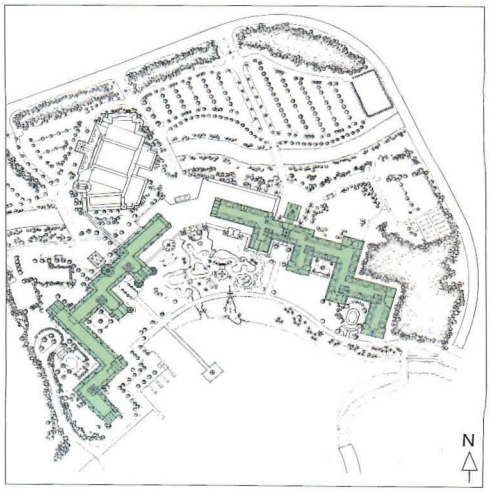
The Yacht Club and its sister Beach Club Resort are grand, comfortable havens of leisure, full of intimate, human scale and perfectly composed vignettes. If you are looking for bold, angst-ridden grids whose collision reveals some dark, subterranean architectural agenda, you will not find them here. According to the official brochure for the hotel: "Disney's Yacht and Beach Club Resorts are reminiscent of gracious summer living along the craggy Eastern Seaboard. Although separate, the two distinctive resorts blend like a watercolor into one shared impression." You're on vacation. Relax.

Together, the Yacht and Beach, as they are collectively known, comprise 1,200 rooms on five floors. In plan, the pair creates the impression of outstretched arms embracing a manmade lake, the foreground of which is a 35,000-square-foot "fantasy pool," complete with shipwreck and windmill. In fact, the plans are nearly mirror images of one another—Siamese twins joined at the kitchen—each with its own distinct restaurant, lobby, bar, and gift shop. The distinction between the two hotels lies in their Disney "themeing." Le Corbusier might have said that the plan is the generator of form, but he never visited Walt Disney World in Orlando, Florida. Here, the theme is the generator of form—and everything else.

"Within the 120 acres of the Magic Kingdom," says Wing Chao, senior vice president for master planning, architecture, and design at the Disney Development Company, which oversees the design and construction of Disney projects such as the Yacht and Beach, "you have Victorian architecture on Main Street, Adventureland, Fantasyland, Tomorrowland, Frontierland—each representing different imagery, a different three-dimensional movie experience. Our guests will spend about six to eight hours a day in the theme park, and at night, when they go back to their hotel, it shouldn't be just a box. We want to create a memorable experience here, too, at the hotel."

Chao explains that the Disney imagineers, the development company, and Disney Chairman Michael Eisner, the guardian of it all, batted theme ideas around for what would become the Yacht and Beach. A German, French, or Japanese hotel, picking up on the international theme of nearby Epcot Center, seemed like a natural, but would have been prohibitively expensive to pull off.

The Yacht and Beach face a manmade lake (site plan) and are located to the northeast of the Michael Graves-designed Swan and Dolphin hotels (top). Entry to the Yacht Club (facing page, top) is through a central gable with oval window, while wings offer Neo-Tudor flair (facing page, bottom). Vehicular approach to the Yacht Club (above right) is placed off-axis, in classic Disney fashion, focusing on a tower. Porte cochere (above left) is big enough to accommodate a bus.



A sand-castle hotel was another idea, says Chao, "but Michael said the guests would feel like sand crabs—too hot, too sandy—what do you do with the interiors? Then somebody asked, 'What about a Beach Club?' which was on the mark with our marketing, and the Yacht Club followed naturally."

Disney already had a footprint for the hotel. "We had the bones, but no meat and skin," says Chao. Enter Robert Stern, who had just finished Disney's Casting Center (the company's employment office) and, with other Disney commissions in hand, is on his way to becoming an honorary imagineer. Never have architect and "theme" been so perfectly matched, steeped as Stern is in the architecture of America's Neo-Gilded Age. Stern conceived the Yacht Club as a re-creation of the rambling, Shingle Style resorts that dot the East Coast in communities such as Newport, Bar Harbor, and Marblehead. It is, however, without shingles, clad in clapboards made of Werzalite, a synthetic material of glued sawdust that is impervious to Orlando's humidity. Most of the hotel's glistening white cornices, columns, railings, and trim are constructed of fiberglass, but some wood trim surrounds doors and windows.

The Beach Club, on the other hand, is meant to recall Stick Style architecture found in resorts such as Cape May, New Jersey. Of the two, the Beach Club seems more at home with the Florida sun and palm trees. The slender, arched verandahs, exposed rafter tails on dormers, and wooden brackets all serve to enliven and animate the Beach Club, casting deep shadows on its walls. The sky-blue color is festive and friendly.

The only dark cloud on the shimmering horizon at the Yacht and Beach is their next-door neighbor. If you threw a Frisbee from one of the gracious balconies in the Yacht Club's west wing, you could probably hit the wall of Michael Graves's infamous Walt Disney World Dolphin. Chao admits that the two hotels are too close to one another, even for Disney World, where the landscape is chock full of surreal juxtapositions. "We're constrained by roads and Epcot Center, but we need to build a certain number of hotel rooms to amortize our infrastructure investment," Chao maintains.

Stern, however, remains unfazed by the site constraints. "Being so close to Flipper doesn't bother me," he says of Graves's Dolphin. In fact, the proximity seems to be working to the Yacht Club's advantage. During a walk around the building, a Disney hotel management executive hailed Stern, shook his hand, and then told him that a few Dolphin guests had been known to pack their bags and check into the Yacht Club. Stern merely smiled. ■

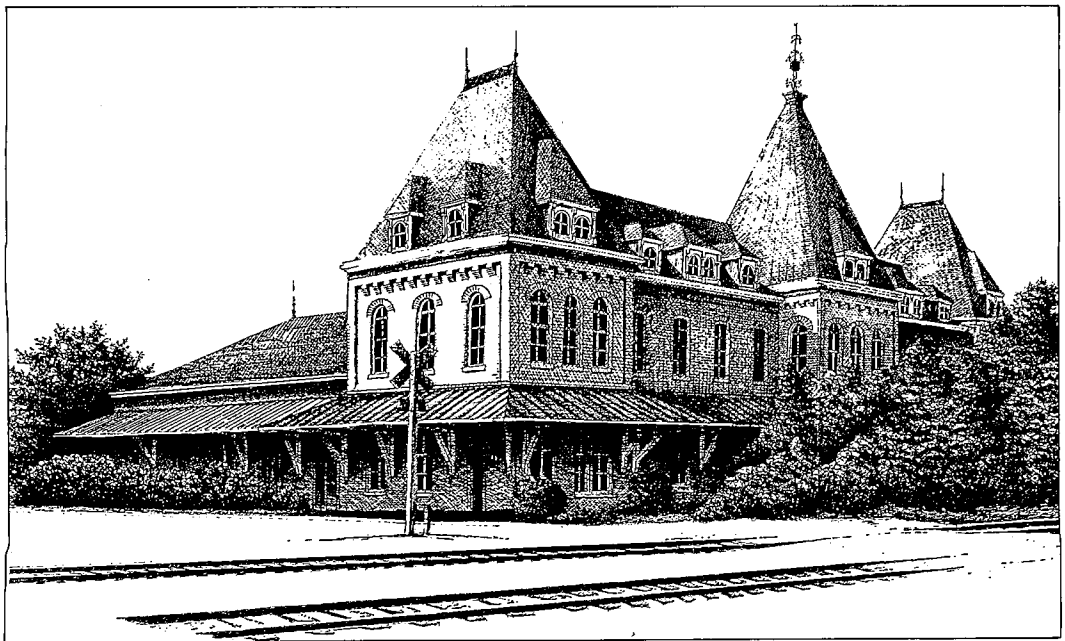
—MICHAEL J. CROSBIE

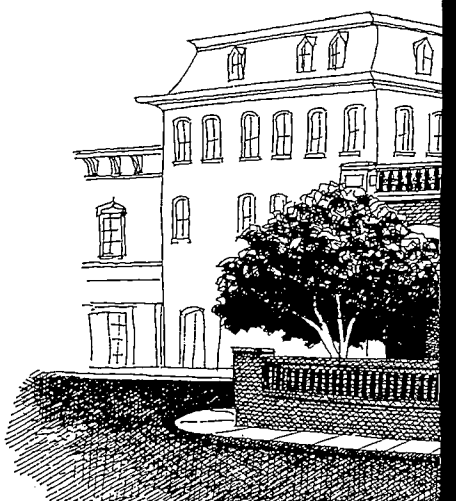
The Beach Club feels more relaxed than its sister hotel; guest wings are articulated by wooden tracery, and various facades show intricate shadow play (above). Highest element in elevations (above left) identifies the lobby. Entry lobby from colorful waterside (top) is approached on axis (facing page).

DISNEY'S YACHT AND BEACH CLUB RESORTS
WALT DISNEY WORLD, FLORIDA

CLIENT: Disney Development Company
ARCHITECTS: Robert A.M. Stern Architects, New York City—Alexander Lamis (architect-in-charge); Chris Blake, David Dwight, Richard Economakis, Robert Ermerins, Stephen T.B. Falatko, Alexis O. Fernandez, Preston J. Gumberich, Timothy E. Lenahan, John S. Mason, Thai Nguyen, Anthony Poon, Barry Rice, Jamshid Sepheri, Mary Ellen Stenger, Pat Tine, Lynn Wang, Paul Williger (design team)
ARCHITECT OF RECORD: VOA Associates, Inc., Orlando, Florida—Bob Kelley, AIA (project manager); Ted Fery, AIA (principal-in-charge); John Awsumb, AIA (project director); Calvin Peck, AIA, Ron Pedonti, Marc VanSteenlandt (project team)
ENGINEERS: Allan & Conrad (structural); Dalla Rizza & Associates (mechanical/electrical); Lochrane Engineering (civil); Dames & Moore (soils); Greiner Engineering (site)
SCHEMATIC HOTEL PLANNING: Frizzell Hill Moorhouse
LANDSCAPE ARCHITECT: Peridian Group
INTERIOR DESIGN: Design Continuum, Inc.
LIGHTING DESIGN: C.M. Kling & Associates
GENERAL CONTRACTOR: Enterprise Building Corp.
PHOTOGRAPHER: Peter Aaron / Esto

RAPIDOGRAPH





INFO

TECHNOLOGY & PRACTICE

Philadelphia Fire Analyzed

ON FEBRUARY 23, THE NATION'S MOST DEVastating high-rise fire in a decade broke out in One Meridian Plaza (right), a 38-story office tower in downtown Philadelphia. In April, a report was released outlining the seriousness of damage to the building's steel frame and granite-faced exterior, and the measures being taken to repair the structure.

TOM BERNARD

The analysis was prepared by the Kling-Lindquist Partnership of Philadelphia, the successor to Vincent G. Kling & Associates, the firm that designed One Meridian Plaza. It concludes that the 1972 building is "not in danger of general structural collapse," but remains, however, "dangerous for general occupancy and, in some instances, dangerous for workers implementing the required remedial procedures." According to E/R Associates, owners of One Meridian Plaza, "The Kling-Lindquist Partnership was retained based on positive past relationships, a nationally recognized reputation, and the notable talents and experience of the engineers."

The building's steel frame was highly damaged; in one case, a 14-inch filler beam deflected 18 inches. Buckling was also found in a number of filler and moment beams. Kling-Lindquist determined that perhaps 80 percent of the filler beams and 20 percent of the moment beams on the fire floors would need replacement. Emergency shoring of the structure is now complete, according to the report, and general shoring is underway. Detailed physical testing through material samples was scheduled to begin in late April. Computer modeling will be used to help determine whether the building can be salvaged.

Severely damaged stone facing panels have already been stabilized by wrapping them with nylon fiber straps, while the tower has been wrapped in nylon netting to prevent small pieces of the facade from falling.

The cause of the fire is believed to have been improperly stored linseed oil-soaked rags, which were subject to spontaneous combustion. The fire started on the 22nd floor and burned through to the 30th, where it was stopped by the building's sprinkler system. Sprinklers were installed in the building's top nine floors only, as required by code when the building was constructed. Failure of the emergency electrical generators, water pumps, and improper settings on the building's pressure reduction valves hampered firefighters, three of whom were killed. While fire sprinklers are not required in all high-rise office buildings, their installation is mandatory in all new office buildings. —M.J.C.

Where is the Profession Headed?

LEADING ARCHITECTURAL CONSULTANTS, practitioners, and educators gathered in Cincinnati in April to address "Emerging Forms of Architectural Practice," a symposium sponsored by the University of Cincinnati's Center for the Study of the Practice of Architecture. Establishing an agenda for further research, they asked more questions than they could answer in discussing trends that will influence the future of the profession. Keynote speaker Robert Gutman, author of *Architectural Practice: A Critical View*, began the proceedings by suggesting that the profession is stratifying into three distinct groups: the intelligentsia (a select few who design); the administrators; and the rank and file (those who execute production).

Are traditional, full-service firms diminishing in numbers, allowing a few signature architects to design the nation's buildings and pass them on to associate firms for production—possibly sacrificing design development? Or, in an era of specialization, can better buildings be created by obtaining the best design and technical expertise from separate firms? These and other questions regarding the division of architects' responsibilities were continually raised. Another practice alternative—design-build—was generally perceived as a niche for temporary developer-architect teams formed in response to increasing public sector competitions requiring such services for individual projects.

The symposium also examined managing resources within a firm. Adding to earlier observations, participants surmised that the most successful practices will be those that separate the responsibility for business and design while guided by a managing principal, nurture a diversity of styles, and be responsive to the career development of the "rank and file." ■

—M.S.H.

Sociologist and Princeton Visiting Professor Robert Gutman (right), University of Cincinnati Professor David Lee Smith (left), and other leading authorities on architectural practice gathered to discuss the future of the profession.

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Haws

$H_2Ohhhhhhh.$

Circle 67 on information card

Lighting the Office

Illuminating workstations in an open plan requires careful orchestration.

IN 1988, RESEARCHERS FROM CORNELL UNIversity's Department of Design and Environmental Analysis, with funding from the Berkeley-based lighting manufacturer Peerless Lighting Corporation, began a study of lighting in the computerized office. They compared what were considered the two best systems to be installed in such settings: a 2-by-4-foot parabolic downlight manufactured by Lithonia Lighting of Conyers, Georgia, and a linear pendant uplight by Peerless. The two systems were arranged in separate zones of the working laboratory—a windowless office building occupied by Xerox Corporation in Webster, New York.

After sitting under these lighting systems for a year, most workers in both test groups preferred the uplighting over the downlights. Investigators returning to the site in 1990 reconfirmed their initial findings. The parabolic users reported a significantly greater loss in productivity due to lighting-related problems, including direct glare from fixtures, reflective glare from reading material, and ambient lighting that was deemed too bright. Nearly half of the 164 parabolic fixtures had been adjusted by users in an attempt to improve lighting conditions; only one person in the indirectly illuminated environment tried to make similar adjustments.

To many architects and lighting designers, the results of this study come as no surprise. Their own experience in designing office environments, especially as desktop computers have proliferated over the last decade, indicates that white-collar workers prefer the shadowless ambient illumination provided by an indirect system. Such lighting incorporates the ceiling plane as a reflector to bounce rays back into the room. This diffuse light greatly reduces the potential for either direct or indirect glare; both resulting from sharp contrasts in lighting.

Glare is more often associated with direct lighting systems, or downlights. If designed incorrectly, the noticeable difference between a bright, recessed ceiling fixture and an adjacent, unlighted ceiling tile may be perceived directly by computer operators who face forward when working on vertical screens of video display terminals (VDTs). The same contrast may be seen indirectly on the screen itself, a glossy magazine, and other highly reflective work surfaces. Screen reflection can be very disruptive. It reduces contrast between light letters and dark background, resulting in blurred text. It strains the eye by forcing the viewer to continually readjust from a primary focal point (the display) to a secondary, more distant focal point (the offending luminaire). And movement behind the operator can momentarily block the reflection, thereby causing further distraction.

Like most aspects of design, the success of a specific open-plan lighting solution is determined by a complex set of factors. A poorly designed indirect system that generates uneven light distribution on the ceiling can cause the same glare problems that are usually attributed to recessed downlights. And a well-designed direct lighting system can provide a very pleasing work environment with minimal glare. In addition, many architects are experimenting with systems that combine indirect and direct light sources, capitalizing on both the softness of the former and the intensity of the latter. No matter which option is selected, most applications will require localized light sources—to illuminate a particular task or a prominent wall—as a supplement to an ambient system.

Direct systems

THE INTRODUCTION OF THE COMPUTER HAS transformed the primary work area from the desk—a horizontal, matte plane—to the video display—a vertical, reflective surface. As a result, the once ubiquitous fluorescent light fixture with a prismatic lens shield became an inadequate light source because it exerts little control over the direction of its light and, therefore, generates a significant amount of glare within VDT environments.

More advanced parabolic diffusers are deeper than older lens fixtures and are equipped with louvers for better control of the angle of light, and thus direct rays downward rather than out. These vertically oriented

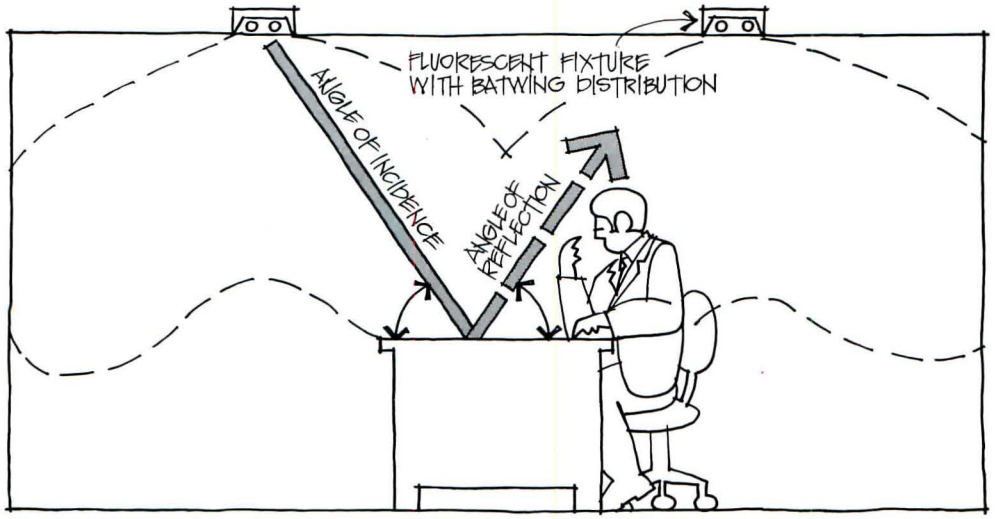
INDIRECT

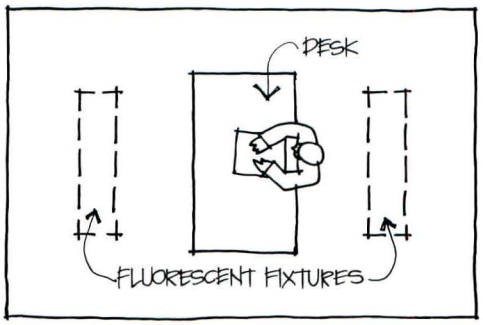
DIRECT–INDIRECT

DIRECT

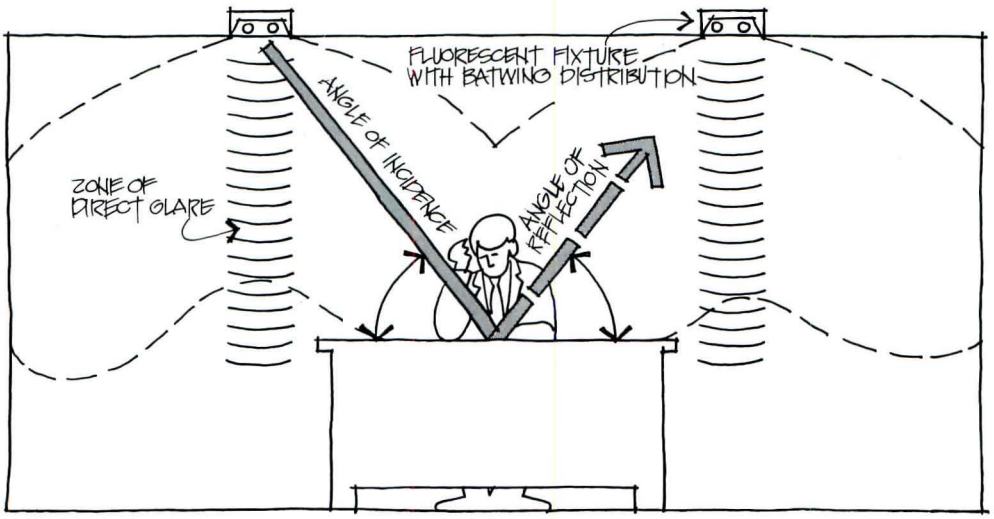
PETER HOEY ILLUSTRATIONS

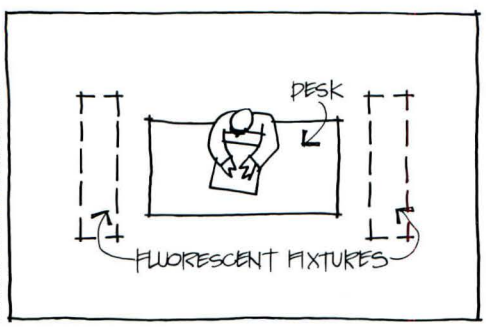
When correctly applied, any of three major types of lighting systems (above) can successfully illuminate the open-plan office to reduce glare on computer screens.





When clients require recessed downlights and uniformly arranged desks, lighting designer Jules Horton minimizes glare through rows of 1-by-4-foot parabolics with "bat-wing" distribution. The fixtures are perpendicular to the desks, though not directly above a chair (bottom left and photo). Light illuminates the work surface and reflects away from a reader (below). If reversed (left and above), light will bounce off a task and toward a worker as reflected glare.





DWIGHT McNEILL ILLUSTRATIONS

JAIME ARDILES – ARCE

light rays are less often perceived as direct glare by workers sitting at a distance, and they are unlikely to fall onto a vertical screen to produce indirect glare. Although a tremendous improvement over earlier alternatives, these fixtures must be selected and arranged appropriately.

When a project requires direct light above low-partitioned workstations, for example, Jules G. Horton, principal of Horton Lees Lighting in New York City, prefers 1-by-4-foot, two-lamp parabolics with bat-wing light distribution. These fixtures are optically designed so that most of their light is angled 30 degrees on either side of the vertical, beyond which there is an abrupt cutoff. Horton lays these recessed luminaires end to end in long rows that extend along either side of a work area and run in the direction of the task. Desks within this area, therefore, must be oriented perpendicularly to the fixtures and directly in line with one another. Light from the fixture strikes a task and bounces up and away from the worker.

According to Gary R. Steffy of Gary Steffy Lighting Design in Ann Arbor, Michigan, "The use of many small luminaires, each emitting only a small amount of light, rather than fewer large luminaires with numerous lamps, is the key to good direct lighting in the office." By creating a uniform level of illumination across a space, the potential for contrasts, and therefore glare, is eliminated. But other, more subjective design issues must also be addressed. A direct lighting system, for instance, may be perceived as dark or "cave-like" even though a light meter indicates an adequate quantity of light is reaching the horizontal work surface. To counteract this visual perception, fixtures that wash vertical wall planes with light should be located strategically throughout the office.

"A lot of architects like to jump to the easy, cheap solution," maintains Steffy. "They buy few light fixtures, stuff a bunch of lamps in each one, spread them way far apart, and their calculations show 50 or 70 footcandles. This method does not work." As Steffy points out, these installations can result in all types of glare and negative, subjective impressions, such as the claustrophobic feeling of a confining space. Steffy believes direct lighting can be successfully applied, but argues that such an installation will be as expensive as an indirect system.

If the budget does not justify a direct system, what factors do? The geometry of the room, for one. If the ceiling height is low, a direct system is a logical choice, though

PHILLIP ENNIS

VAN INWEGEN PHOTOGRAPHY

Modular, pendant-mounted uplights incorporating compact fluorescent biaxial lamps were manufactured by Peerless and specified by lighting designer Gary Steffy for Lands End's corporate offices (top left) in Dodgeville, Wisconsin. For A.C. Nielson's interior in Chicago (bottom left), principal Barbara Cianci of Horton Lees Lighting modified a furniture system's standard indirect fixture to accept several biaxial lamps, each of which emit more light per square inch than earlier generations and offer high color rendition. The finished ceiling height measures only 8 feet 6 inches. In renovating the American International Group's National Union office in New York City (above), Gensler and Associates Architects mounted direct-indirect pendant fixtures by Linear Lighting above the workstations. Perkins & Will designed an indirect system for the Fishman & Merrick project in Chicago (bottom) to clearly delineate each station.

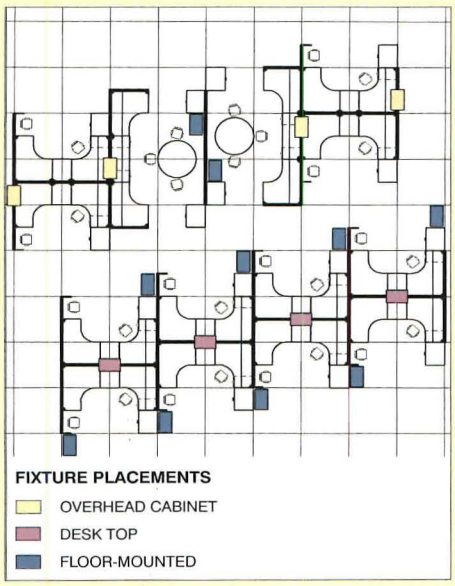
New Lighting for Workstations

PEERLESS LIGHTING CORPORATION HAS joined forces with Steelcase to create an innovative indirect lighting system for the workplace. Called the Furniture Integrated Ambient Lighting System with Softshine Optics, this new fixture consists of a die-cast aluminum luminaire and five mountings that attach to Context (below), Steelcase's two-year-old, open-plan office furniture system. The lighting component will be introduced this month at Neocon in Chicago.

The indirect lighting system provides high-quality illumination with maximum flexibility. Applying sophisticated optical engineering, designers at Peerless incorporated compact fluorescent biaxial lamps with high color rendition into a small casing. The resulting fixture can be affixed to an overhead cabinet, shelf, desk top, floor, or adjacent wall of a workstation to provide an even distribution of light for a variety of configurations (right).

The Peerless ambient lighting system represents an advancement from uplights traditionally associated with system furniture, which are typically bulky in shape, restricted in placement, and frequently faulted for irregular ceiling illumination. The new product also retains many of the advantages of furniture-based lighting: the fixtures can be installed in rooms of average height; convenient access makes maintenance easier; and the unobstructed ceiling offers maximum visual clarity.

As an illustration of its flexibility, lighting designer Gary Steffy developed five distinct lighting scenarios, all offering optimum illumination, for the prescribed Context furniture layout at the Steelcase showroom in Chicago. Neocon attendees are invited to visit the selected arrangement, on display at the Merchandise Mart from June 11 to 14. —N.B.S.



RICHARD SEXTON

improved indirect systems are making gains in such situations. Steffy also finds that some clients—lawyers and bankers in particular—actually prefer the look of the parabolic system. "It's a more conservative, softer, quiet appearance—because it's dimmer—and they often like that," he notes.

Indirect systems

UPLIGHTING IN THE OPEN OFFICE HAS TRADITIONALLY been associated with spaces of sizable height because an adequate distance from fixture to ceiling is required to assure a widespread, even distribution across the ceiling. The resulting atmosphere within the room is diffused, shadowless, and glareless. With indirect lighting, Steffy finds that he can almost always meet most performance criteria for a glare-free working environment. Such criteria—brightness ratios, maximum brightnesses, and light level requirements, for example—are stipulated in *Recommended Practice for Lighting Offices Containing Computer Visual Display Terminals*, published in 1990 by the Illuminating Engineering Society of North America. Indirect lighting satisfies subjective design criteria as well—avoiding the perceptions of dark or confining spaces, for instance. In addition, its uniformity of illumination provides greater flexibility in space planning.

Light levels for an indirect system should be fairly low, with additional illumination provided by task lighting. "An intense light is often needed at the work surface to read, draw, concentrate," explains Gregory Shunick, associate architect of Gensler and Associates Architects in New York City. "If this intensity was attained with uplighting alone, the ceiling would look like it was on fire."

Even though a direct view of a light source can be uncomfortable, the indication of the light's origin is psychologically important. In fact, a room lit by a totally indirect system seems darker than one whose fixtures are optically designed to reveal a glimmer of light. An architect should also keep in mind that a room without shadows and accents—the appealing characteristics of indirect lighting—may appear undramatic.

Due to improved technology and products, indirect systems are not always restricted to rooms of generous height. As lamps become increasingly compact—approaching a theoretical point or line source—reflectors can be incorporated into fixtures to control the light more precisely, decreasing the required distance between luminaire and ceiling.

Continued on page 133

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Managing Small Firm Finances

Tips for directing cash flow to gain profits and more time for design.

IT IS FASHIONABLE FOR THE PROFESSION, FOR *clients*, and especially for bankers currently denying credit to deride the financial management abilities of architects. This assessment is not only false, but unfair. Although architects' financial performance may not be optimal, practitioners deserve considerable respect for their management skills.

The eight "star" designers represented at the April 1989 AIA Signature Firms Research Roundtable I (ARCHITECTURE, March 1991, pages 139-144) report that 75 to 95 percent of their time is directly chargeable to projects or clients. They state very bluntly that they are project oriented, not business oriented. In workshops and seminars across the country, a broad cross-section of the profession—more than 1,000 architects—report to the AIA that they devote, on average, only slightly less time to projects than do the "stars." Architects place their primary attention on completing good projects, on serving their clients and society. These practitioners' second focus, some 20 percent of their time, is spent on the business of practice. And that percentage includes management of office and staff as well as financial matters.

Yet architects are constantly compared to developers and bankers who aggressively focus on little other than financial management. In the sense that architects compete in the business world—and succeed as well as statistics reveal—most architects actually have considerable financial-management expertise.

Criticizing them is analogous to ridiculing the ability of a group of Indianapolis 500 drivers, each of whom races with only the left hand on the steering wheel. They don't come in first, but they stay well up in the pack. They choose to drive left-handed because they have more important things to do with their right hands. Depending on their own value systems, observers can well ridicule the choice, but never the ability.

For proof, consider the performance of those architects who have broadened their value system enough to develop a two-fisted swing at the business side of architecture—say, a Peter Piven, FAIA, *partner of The Coxe* Group in Philadelphia, or a Chuck Thompsen, FAIA, president of 3D/International in Houston, Texas. They're pros at financial management and have published books and articles to show other architects how to become pros, too. Thompsen's *Managing Brainpower, Book Two: Measuring* (AIA Press) is especially cogent.

But if an architect's practice and value system only allow one fifth of his or her time and attention to be spent running the business, smaller financial rewards are understandable. Reporting, monitoring, and reacting to all the key ratios that pros such as Piven and Thompsen explain so comprehensively can be very time-intensive.

Don't let dollar signs whisper "spendable." Noncash items such as depreciation, taxes, and accounts receivable reflect only anticipated money.

Alternatively, the following tips can help a small firm manage its finances more efficiently, taking minimum time away from projects and design.

Follow the money

WATCH THE CASH FLOW, OR, IN THE IMMORtal words of Deep Throat in *All The President's Men*, "follow the money." For a three-person firm, this first step may mean little more than balancing the checkbook. Some small practitioners report that they operate strictly on a cash basis; that checkbook and bank statements are the only documents that represent their financial system. For a mid-size firm, cash management can also involve obtaining cash statements from bookkeepers and accountants in addition to regularly prepared balance sheets and income statements. The exact management procedure depends on firm size and complexity.

Financial reports are required in the same way that a rear-view mirror is required for driving a car: you need to know if something is gaining on you, but most of what you see is just history. To get a view of where you're headed, keep at least a rudimentary cash-flow projection. Balancing your checkbook at least a month or two in advance is an easy first step. Flip back through your stubs to get a list of the recurring expenses and typical monthly amounts of each, taking into account variations due to project crunches and shifts in work load. Based on your backlog of projects (James A. Greene, FAIA, of Oviedo, Florida, calls it his "frontlog," since it's work coming up), estimate each of the routine expenses you'll need to pay out.

Now itemize such things as registration fees, taxes, insurance, deferred auto repair—everything you can anticipate as a cash requirement for the period ahead. It's a good idea to add in a fudge factor, say 15 percent, to cover things you can't anticipate or guessed wrong about.

Now add in the percentage you promised yourself for profit this year, and balance the whole thing against the fees you'll collect, keeping in mind when those payments will be made. When you get to the point where you can do this with fair reliability for as much as three months in advance, updating it every month, you'll be able to anticipate needed emphasis on collections or marketing, and to feel more secure when paying bills or deciding to make purchases.

But don't get thrown off track by your accountant's balance sheet or income (profit and loss) statement. Not only are both of them history, they typically include noncash items such as depreciation, deferred taxes, owner's equity, and especially accounts receivable. Don't let dollar signs whisper "spendable" to you. These items reflect only anticipated, not real, money. Look for spendable cash versus payments promised.

Know the value

KNOW WHAT MONEY MEANS TO YOU. ON the issue of spending habits, some young practitioners stress the importance of acting as though they don't have money, even when they do. That rule of thumb, however, is not likely to work very well when staff or sales reps urge acquisitions such as a CADD system, an office car, or a mammoth photocopier. So try this: knowing that "discretionary funds" is just another name for profit, calculate the construction cost of the profit you're being tempted to spend.

For instance, if your average profit is 20 percent on a fee of 6 percent, every $1,000 of discretionary spending represents an $83,333 project. It certainly stiffens sales resistance to realize that the $6,000 computer you're tempted to buy is the equivalent of marketing, negotiating, and providing full services for, in this example, a $500,000 project.

Follow ratios

"MONITOR KEY RATIOS" IS JUST A FANCY VERsion of the old adage "what gets measured, gets done." Your cash-flow projection provides a scorecard against which to measure monthly performance. Goals should be set on an annual, as well as a quarterly, basis. This process can range from full-blown profit planning to just deciding how much you deserve to have above break-even at the end of the year—and jotting down a rough idea of how many projects you must market, secure, and provide services for in order to earn it.

However you set a profit goal, think of it as far more than just what you get to take home. Fred A. Stitt, of the Orinda, California-based architectural consulting firm Guidelines, advises viewing profit as if it were just another business expense. "It's the money you can't do without when a client goes bankrupt, when you really do have to buy that $6,000 computer, or when you don't want to lay off the staff you've recruited, trained, and rely on," Stitt explains.

A good primer on profit planning is written by William H. Haire, AIA, of Oklahoma State University, and is summarized in *Current Practices in Small-Firm Management: An Architect's Notebook* (AIA). It shows how to use the profit plan to set your break-even multiplier, your hourly billing rates, and how to monitor a project's financial performance.

Though the pros might monitor as many as a dozen "key indicators," the ratio most architects seem to watch most consistently is what Thompsen calls "percent billable"; Haire terms the "efficiency ratio"; Piven dubs "payroll utilization"; and others call the "chargeable ratio" or the "utilization rate."

By any name, the figure is equal to direct job labor cost divided by total labor cost. It tells you what percentage of total labor cost is being spent on revenue-generating work—the higher the percentage, the greater your earning potential. Many firms monitor a chargeable ratio periodically and take corrective action when it drops below 65 percent.

Chargeable ratios reported at AIA workshops range from 55 to 85 percent. There's no "right" number to aim for. You simply monitor it over time, learn what works, and react quickly to fluctuations. That's because by the time you learn of any deviation, you're already late with the praise, rewards, or corrective action. Because the chargeable ratio is a key factor in setting profit plans and fees, experts advise that for firm management, you compute your chargeable ratio on the basis of dollars rather than hours.

Because the chargeable ratio determines profit plans and fees, experts advise that you compute the ratio on the basis of dollars rather than hours.

Actually, your chargeable ratio is useful when expressed in terms of both dollars and hours. An active way to use this tool is to negotiate personal chargeable ratio goals as part of staff performance appraisal. This is one of the few management tactics that can be based upon quantification.

As staff fill out their time sheets, they can monitor their own efficiency rate by dividing their chargeable hours by the total hours worked in that pay period. Being personally committed to meet an agreed-upon target can be a compelling incentive for staff; especially when they know you're monitoring the firm-wide ratio as an indicator of earning power.

Bill early and often

THERE ARE AT LEAST THREE GOOD REASONS to urge you to take this tip literally:

- It helps smooth out the cash-flow roller coaster experienced by small firms billing on a phase-of-services basis.
- It's an early-warning indicator of difficulties the client may be experiencing with financing, with the project, or with your services. You need to know about and deal with any or all of these before your emotional and financial investment in the project becomes deeper than necessary.
- Architects who bill on a monthly (even biweekly) basis report that it is easier for their clients to write checks on a routine, small-figure basis than for them to pay out infrequent, large-scale chunks of money that come as surprises.

Learn client process

MINDING THE CASH FLOW AND COLLECtions are each integral to the other, and both are most effectively accomplished as ongoing processes. For many architects who are successful at financial management, the essential step in collections happens before the work ever starts. They agree with the owner on a schedule and format for invoices; many provide a cash-flow projection for the entire project, indicating all of the anticipated costs the owner will pay to them, the contractor, and to anyone else connected with the project.

These architects learn the client's process for review and approval of payments and meet those involved, so that when delays occur later, they know whom to call or see. As the work progresses, they discuss with the client each invoice before it is sent, then follow up on a weekly basis until it is paid. These follow-ups start as simple telephone inquiries to confirm receipt and clarity of the invoice; later, they progress to requests for information about timing of payment. If payments are late, these architects inquire whether delay of payment reflects any perceived problems with the project or with their services. Answers are noted for the project file, and the calls continue weekly with growing pressure. At some point, a meeting is requested. Some architects may draft a letter to be paraphrased, signed, and sent by their lawyers.

The point is to never lose the calm assurance and professional strength with which you controlled the design of the project and maintained an open-handed, one-on-one relationship. Over time, however, that same strength is gradually translated into a two-fisted command of the issue that demands respect, and of course, payment.

—JAMES R. FRANKLIN

James R. Franklin, FAIA, is a resident fellow of the American Institute of Architects.

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Buildings Get Smarter

Communications systems are raising the intelligence of office designs.

IN THE LATE 1970s, HEATING, VENTILATION, and air-conditioning systems were the first building systems to be electronically enhanced. Computer chips allowed these systems to be controlled by localized sensors, enabling faster and more precise response to changing environmental conditions. In the early 1980s, the automation of life-safety, security, and lighting systems soon followed, with refinements in the response and coordination of components within individual systems. During the past decade, the term "building intelligence" was coined to describe state-of-the-art electronic systems that controlled building features ranging from air-conditioning to lighting. As each of these systems has progressed in sophistication, so has the potential to integrate their control.

Promise of integration

WHILE STILL PHYSICALLY ISOLATED, THE individual control of these systems can be regulated by a central computer to optimize their performance in relation to one another. A fire alarm system linked to security systems can unlock automatic doors to provide the shortest and quickest route for evacuation. Merged with HVAC control, dampers can regulate air flow to prohibit the spread of flames. Energy-management systems can regulate the balance between natural light and electric light, solar heating, and mechanical systems to limit power consumption.

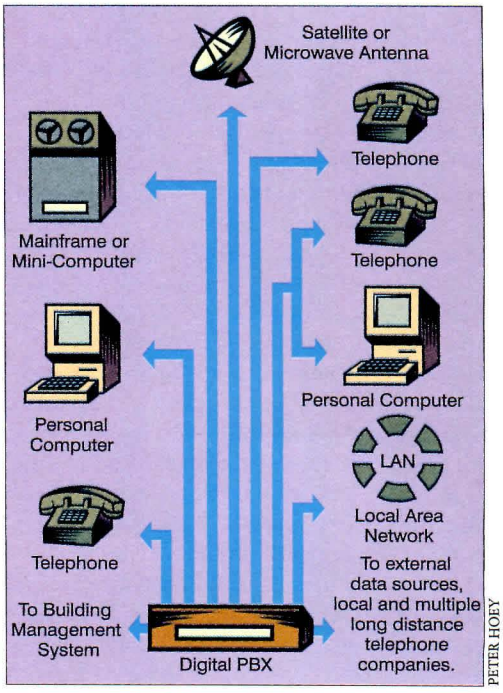
Taking full advantage of the potential for integration, however, requires compatibility between systems and equipment. To expand the options for building systems, government agencies, organizations such as the Intelligent Buildings Institute in Washington D.C., and the building-control, telephone, and computer industries are trying to develop "open protocol"—a common language through which separate manufacturers and different generations of equipment can all communicate. Currently, however, no solution to achieve such integration has emerged.

But as building systems are increasingly relying on digital electronics to receive status reports and send commands—even over a touch-tone telephone—the method for sending such information, and facilitating interaction between controls, has merged with developments in voice and data communications.

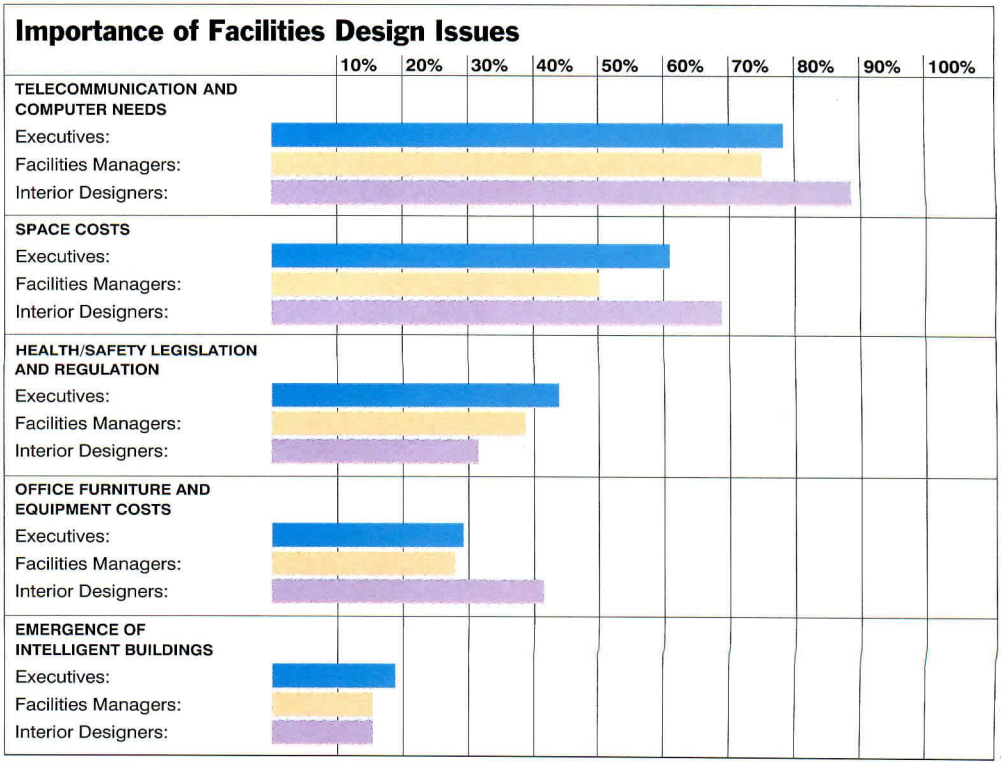
Spatial implications

OTHER REVOLUTIONS IN THE WORKPLACE—the emergence of the personal computer and the deregulation of the telephone industry in the 1980s—have profoundly effected not only how offices conduct business, but how they must be designed in the "information age" of the '90s. Therefore, the definition of an intelligent building has expanded, as both occupants and building systems have become increasingly dependent on electronic com-

Voice and data communications are projected to be a primary concern for building design over the next five years (chart below). Such systems can be transmitted over the same cable and centrally rerouted to limit the impact of equipment (top right).



PETER HOEY

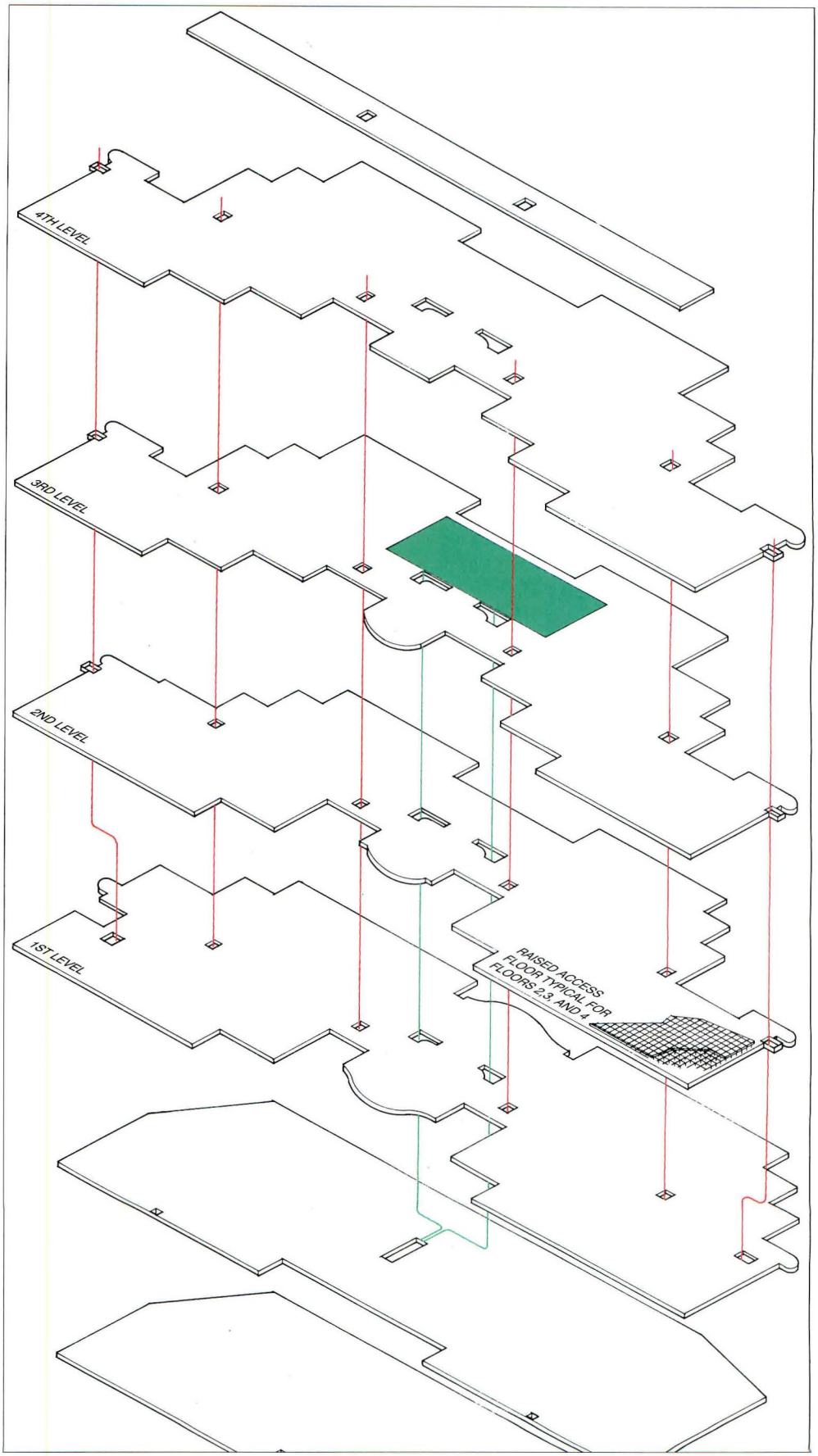


Source: Steelcase, IBD, and IFMA "Office Environment Index: 1989 Summary Report"

munication. Once considered the responsibility of the tenant and AT&T, and designed, installed, and controlled independently of building systems, voice and data communications are now expected to be provided as an integral part of an office building, according to polls of those who occupy, design, and manage such facilities (see chart, previous page).

As a result of growing tenant demands, mechanical and electrical engineering consulting firms have added the ability to address communication needs as a part of their services. "Electronic systems must now be considered as part of the building, not something placed in it," observes Jack Caloz, president of Electronics Systems Associates, a telecommunications and consulting subsidiary of the New York mechanical and electrical engineering firm Syska and Hennessey.

While architects need not specify particular systems, they must increasingly consider the spatial and functional implications of cabling and communication equipment support rooms, which have become as important as plumbing and HVAC systems in office buildings. For example, with the distribution of intelligence to each desk top, raised floors that provide space and access to wiring have spread from central computer rooms to entire open offices. Such floors influence total building height and require early planning to avoid awkward transitions between rooms where elevated floors are unnecessary. Furthermore, simply meeting today's electronic and communication systems requirements is insufficient. Voice and data systems not only have a shorter life expectancy than the buildings in which they are installed, but are also often obsolete within three to five years. In other words, from the time it takes to design and construct a building, original specifications can lag a generation behind current systems before the building is occupied. Architects must also consider providing an infrastructure that can support upgrading and relocating services in response to the dynamics of corporate culture and restructuring space and personnel; it is not unusual for an American business to relocate 30 percent or more of its employees a year.

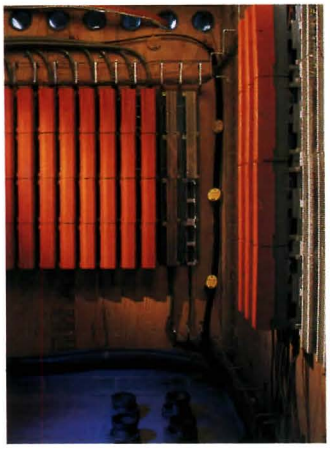


Cable distribution and networks

THE TREND IN OFFICE AUTOMATION SYSTEMS is away from single-purpose terminals solely reliant on a central mainframe computer. In order to meet the demands for flexibility in tailoring unique voice and data communication systems around specific needs, local area networks (LAN) have emerged (AR-

Federal Home Loan Mortgage Headquarters
Fairfax, Virginia

THE FOUR-STORY "FREDDIE MAC" BUILDING outside Washington, D.C., demonstrates how data and communications systems are integral to building design. Two copper and fiber-optic service risers (facing page, green in schematic) ensure continuous service if one line is cut and transmit data and telecommunications from outside lines to a centrally located room on the third floor (top, far right). To prevent the loss of critical on-line data, trading rooms, spaces for telecommunications, and a data equipment room are grouped together on the third floor (plan below), and placed adjacent to an uninterrupted power supply room that provides back-up electrical service during power outages. Cables branch into separate distribution risers (top center) to reach vertically aligned communication closets on each floor (red in facing page schematic and plan below). Anticipating future needs for cabling in addition to current requirements, the architects left fiber optic lines "dark"—installed but not operating—to communications closets where they provided extra space for expansion (above left). Cables extend laterally to information outlets at each modular workstation (red in plan)—equipped with concealed, coiled, spare cable, and interchangeable adaptors to support a diversity of desktop equipment (right).



MAXWELL MACKENZIE

1 TELECOMUNICATIONS EQUIPMENT ROOM
2 UNINTERRUPTED POWER SUPPLY ROOM
3 TRADING ROOM
4 COMMUNICATIONS CLOSET
5 WORKSTATION

THIRD FLOOR PLAN

CHITECTURE, September 1990, pages 117-121). They are composed of computers that can either function independently or have shared access to a central file server within a building or campus environment. LANs are flexible, temporary configurations, requiring new connections as employees move.

The accuracy and speed of data transmitted within a LAN is currently limited to the distance it can travel over commonly installed twisted-pair copper telephone wires. Fiber optic cables, which are less subject to electrical interference and virtually unaffected by cable lengths within a building, are expected to be installed for individual workstations as they increase their capacity for information processing. Fiber optics is already an option in the main risers that form the central nervous system of a building's communication system. For architects, the location of pathways and the amount of space they occupy must be anticipated in the schematic phase to accommodate future wiring installations.

Adopting new standards

FORMING LANS WITH DATA AND VOICE COMmunications equipment from separate manufacturers—each with their own cables dedicated to a single application and serving a single product—has made cable installation by tenants on an ad hoc basis increasingly unrealistic. A choice of long distance carriers, even multiple companies servicing the same building at one time, is exacerbating the situation even further. However, matching proprietary cables specific to one device can be avoided. Initiating a consensus among separate vendors, the Electronic Industries Association (EIA) and the Telecommunications Industries Association (TIA) have jointly devised the first standards for cable management. Recognized by the industry, they are still awaiting adoption by American National Standards Institute (ANSI).

Instead of proprietary wiring matching each piece of communications equipment, components instead conform to a "universal cable" compatible with adaptable terminals. This system limits rewiring, and therefore the disruption caused by relocating or upgrading equipment. Less space is required to provide room for abandoned proprietary cables that eventually choke raceways and airspace in ceiling plenums. Predicated on the first standard, a second guideline outlines pathways and the appropriate number, size, and spacing of communications closets for the universal cable. When aligned on each floor of a building, such closets provide vertical pathways for riser cables. Placement of horizontal cable pathways from communications closets and the spacing of information outlets can also be determined.

Implementing cabling and pathway standards early in the design process provides the basis for a structure virtually independent of the information processing systems. Later selection and changes to communication systems can be made with minimal impact on the initial building configuration.

Flexibility for the future

FINANCIAL INSTITUTIONS THAT PLACE A PREmium on the fast and flexible distribution of telecommunications and data services have been the quickest to adopt the new standards. For example, the ability to quickly reconfigure workstations while maintaining their cabling connections to a mainframe computer, LANs, and office automation systems influenced the design of the Fairfax, Virginia-based Federal Home Loan Mortgage Headquarters, fully occupied last month. Since the department sizes of "Freddie Mac" change constantly in response to fluctuating rates for the residential mortgage market, approximately 300 of the company's 1,118 employees are expected to move each year within 405,000 square feet of offices.

Data and communication systems must now be considered an integral part of the building, not something placed in it.

Architects Hellmuth Obata and Kassabaum, interior designer Architectural Interiors, and telecommunications consultants Flack and Kurtz worked with Freddie Mac representatives to ensure that structure and division of spaces coincided with the need for flexibility in rerouting and upgrading communications and data systems. As a result, cafeteria, conference rooms, and health center are grouped together on the ground level of the four-story building, while spaces with more extensive requirements for information processing are located above. On the second, third, and fourth floors, eight-inch-high raised access flooring is installed throughout the offices, and distribution lines are placed along central corridors for the easiest access and least disruption to workstations.

The project team developed a universal wiring plan to provide an infrastructure for supporting every potential point in the building anticipated to transmit or receive electronic information. Since distance is a factor in the speed and accuracy of transmitted data, the architects regularly spaced communication closets to minimize cable lengths throughout Freddie Mac's large, open-office plan, which spans more than 100 feet between the building's perimeter and core. Each cable has a specific address and route that are tracked and maintained in a cable management data base, allowing access to information from any equipment within the building by simply patching new connections in the closest communications closet, eliminating point-to-point rewiring.

Neglecting such considerations can elicit a high price. But such extensive planning represents only a small portion of buildings, even for those with savvy clients. Describing building tenants who feel robbed by leased office space that fails to meet their communications needs, Caloz asserts, "crime is not a very big issue until you get mugged." He relates the recent experience of a New York brokerage house that demanded up-to-the-minute news on developments in the Iraq war, which could affect its market interests. Requesting a cable link to receive CNN coverage, the firm discovered that its existing communications infrastructure was insufficient to support the additional dedicated lines necessary for cable television. Although an extreme case, the brokerage house dilemma underscores the need for architects to anticipate future cabling requirements.

While advances in electronic building systems continue to develop, it is clear that tenants are looking beyond integration at the microchip level—still desiring sophisticated hardware, but in a space which responds to how they use it on a daily basis. Requiring access to the latest technologies to boost productivity and remain competitive, they are fed up with new offices that are rendered inflexible within a few months. They are communicating the message to architects that voice mail and a place to plug in their computers must be integrally designed with the workplace. Only when a building meets the flexible criteria of the contemporary office, can it truly be called intelligent. ■

—MARC S. HARRIMAN

Houses Get Smarter

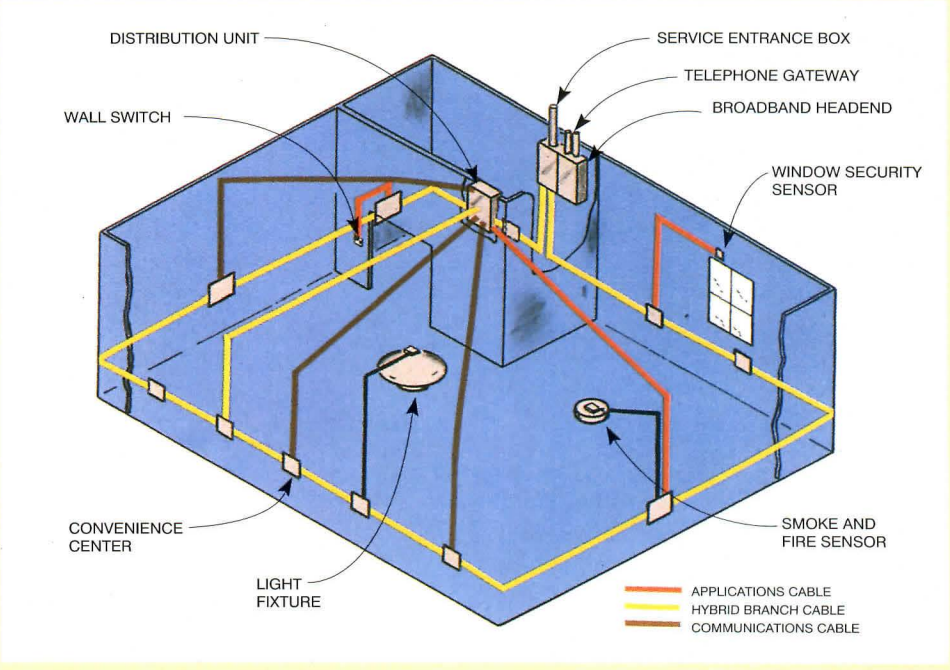
JUDGING FROM DEVELOPMENTS BY A growing home automation consortium, the housing industry may soon begin to outsmart high-rise office technology. While commercial and industrial buildings are increasingly incorporating digitized security systems, sensor-controlled HVAC systems, and fiber-optic communications systems, even the most intelligent structure lacks full-system integration. In August, Smart House, a research group based in Upper Marlboro, Maryland, will introduce the first phase of its "behind-the-wall" hardware—technology that could shut off the vacuum cleaner when the doorbell rings.

The system's initial hardware will eventually operate in conjunction with programmable control switches, multifunctional outlets, and specially designed software that will integrate electrical, gas, telephone, television, and communications subsystems and home appliances. The brain of the system is the Smart House system controller—a microprocessor that synthesizes electrical wiring and gas piping with electronic communications networks to allow home appliances and services to "talk" to one another.

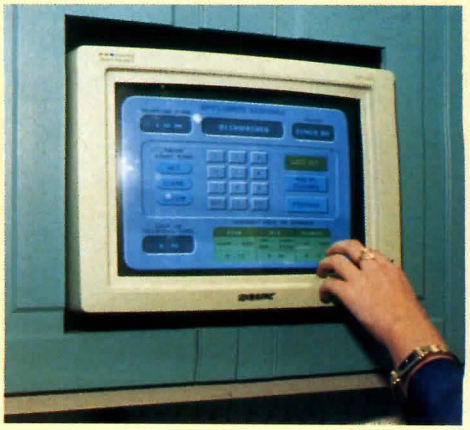
Chief Executive Officer Leon Weiner describes Smart House as simply "bringing 20th-century technology into the home." The system works by receiving and transmitting electronic signals through three newly developed cable types to designated outlets. The "communications" cable distributes internally and externally generated audio, video, and telephone signals to these outlets. The "hybrid branch" cable distributes 120-volt A.C. power and electronic instructions to appliances throughout the house, while the "applications" cable services low-voltage devices (such as security sensors and smoke detectors) with 12-volt D.C. power, thereby reducing overall energy consumption.

While Smart House technology provides an infrastructure for integrated operations, the system depends upon affiliated manufacturers to make it perform. So far, the seven-year-old company has arranged research and licensing agreements with companies such as AT&T and Westinghouse Electric, and sparked the interest of several others, including Apple Computer, Black & Decker, and General Electric.

Weiner claims that Smart House will be the first of its kind to reach the middle-income home buyer. "At the moment, [Smart House] is not for affordable or low-income housing, but like everything else good in housing, that will get better," he states. Despite the apparent complexity of Smart House capabilities, Weiner maintains that the system will be no more difficult to operate than a home computer, and less complicated than the latest VCR. —K.S.



Smart House wiring system (right) incorporates three new cable types (below left) carrying power, telephone, video, and control signals to "convenience centers" (below center). House functions can be programmed remotely by telephone or through touch-screen monitor (below right).



Curtain Wall Dynamics

Flexible structures require carefully calculated tolerances in cladding details.

RECENT ADVANCES IN STRUCTURAL ENGINEERING are producing slender steel and concrete buildings and pushing them closer to their ultimate strength resistance. As a result, today's buildings flex more than those previously constructed under more conservative specifications. But because of the variable nature of floor loading, once a building is occupied it is difficult to determine a precise slab deflection according to conventional calculations based on anticipated occupancy. In the past, the inaccuracies of these rough estimates were not a concern for the architect, since wind and seismic stresses dictated the design of most curtain walls. Additional deflections caused by floor slabs were within the margin of error for construction tolerances. As slabs have become thinner and column spacing has widened, however, increased tolerance for larger floor deflections is becoming a more important factor in designing curtain walls. Calculating such tolerances in advance of construction may prevent dislodging or breaking weatherproofing sealants and even glass spandrels.

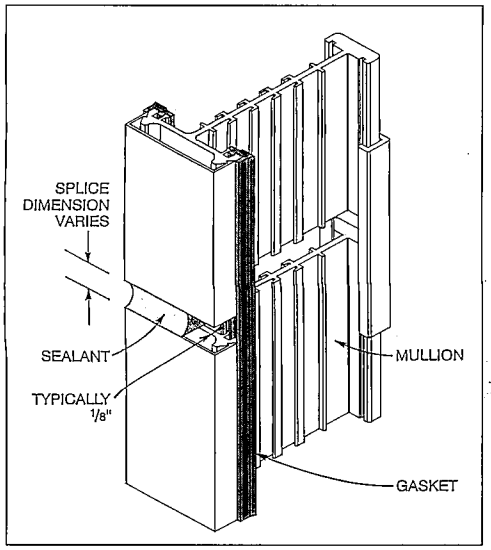
Vertical mullions of a curtain wall are limited to lengths that can be easily transported and constructed. As a result, they are typically spliced together every two stories with anchors at each floor slab. One anchor is fixed to transfer the curtain wall's dead and wind loads to the main structure. The other is slotted to accommodate thermal, wind, or seismic live loads. The slotted connection allows the main structure to move independently of the curtain wall. The fixed connection causes the curtain wall to move as the slab deflects, allowing lower expansion joints to compress while upper ones expand.

The elastic properties of sealants between mullions control joint size. Joints are typically designed to expand by 50 percent and contract by 50 percent from their installed or "neutral length." For example, a sealant joint $\frac{1}{2}$-inch high can accommodate $\frac{1}{4}$-inch of movement, expanding to $\frac{3}{4}$ of an inch and compressing $\frac{1}{4}$ of an inch.

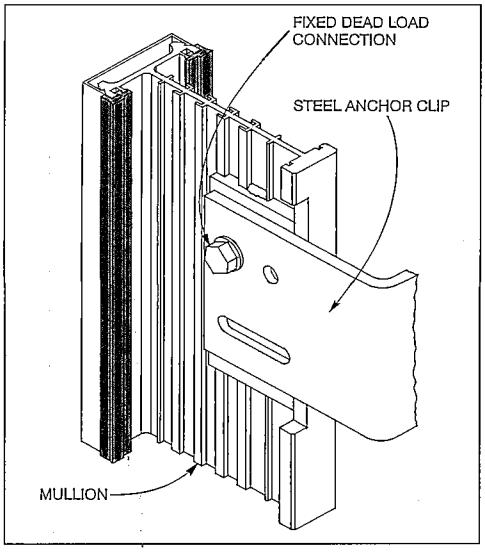
Another variable in the curtain wall equation is mullion proportion. The "neutral" length of a splice should not exceed twice its depth. The typical mullion flange is only $\frac{1}{8}$-inch thick, allowing only a $\frac{1}{4}$-inch height, so the flange must be deeper to allow the sealant greater depth. Each manufacturer typically engineers its own solution to this problem. In terms of esthetics, the greater the splice length, the greater its visual prominence.

As a slab deflects, movement must also be accommodated by horizontal mullions. The distance between horizontal mullions of a spandrel at the joint below a deflecting slab will decrease, while the spandrel at the joint two floors above will expand by the same amount. As the affected spandrels open and close, the difference is accounted for in the top mullion's lower pocket. The pocket is sized to provide space for a bite (the amount the glass overlaps the mullion frame) that is deep enough to prevent the top of the glass from dropping below gaskets when the daylight opening increases and to avoid hitting the mullion web when it closes.

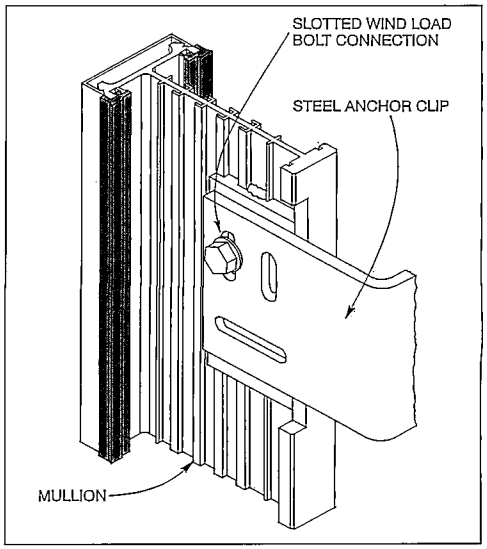
For example, the recommended allowable deflection for a floor slab is $\frac{1}{360}$ of its span. With a 24-foot column spacing, that amounts to $\frac{4}{5}$ of an inch of movement, resulting in a $1\frac{3}{5}$-inch space to account for glass movement in both directions within the mullion pocket. A minimum recommended glass bite of $\frac{1}{4}$ inch must also be provided. The upper mullion pocket requires a $1\frac{1}{8}$-inch space for a glass bite and water head—the depth required to contain penetrating water and condensation, allowing it sufficient time to drain through weep holes and/or evaporate. With additional space for thermal movement and mullion web thickness, a mullion



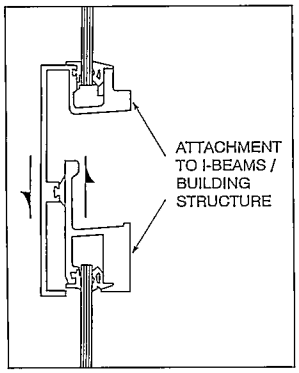
MULLION SPLICE



DEAD-LOAD ANCHOR



WIND-LOAD ANCHOR



HORIZONTAL MULLION SECTION

ISOMETRIC WALL SECTION

would have to be $3^2/_5$ inches high.

The typical mullion measures between $2^1/_2$ inches and 3 inches in height, responding to architects' overwhelming preference for a thin profile. To specify a 3-inch mullion profile, the column spacing would have to be less than 18 feet. From this hypothetical case, the design implications and the need to review additional alternatives are clear.

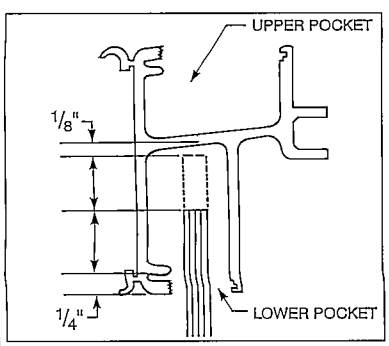
A curtain wall must also be designed to prevent building movements from breaking sealants and disengaging gaskets, permitting moisture and air infiltration. For spandrels within a conventional curtain wall, the installation of a sponge on the exterior and a wedged gasket on the interior of the horizontal mullions creates a seal. This wedge and sponge combination must be sufficiently compressed to prevent water from entering the wall. As the system moves, the wedge may become dislodged. Mock-up testing is the only way to validate how much movement will cause the wedge to become disengaged.

Standard curtain wall systems can, however, be modified to allow for increased live-load deflections without increasing the size of splices or mullions. A split horizontal mullion of standard dimensions can contract or expand in response to building movements while the glass remains secure. Live-load deflections are removed from the glazing pockets, avoiding problems associated with glass clearance and gasket dislodgement. Since otherwise standard curtain wall components are used, no special installation is required.

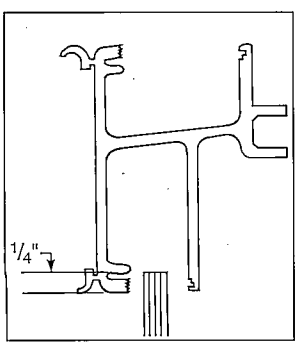
As structures and curtain walls become more refined, the relationship between these two building systems deserves closer study. With structures becoming increasingly flexible, architects must pay more attention to the interaction of floor and wall systems and identify live-load deflections in specifications. Communication with structural engineers will ensure that the esthetic decisions regarding mullion size and spacing will be capable of handling anticipated deflections. ■

—BILL MORRISON

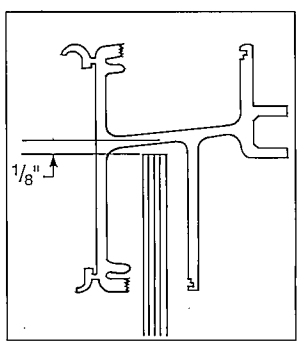
Bill Morrison is an engineer based in Terrell, Texas.



NOMINAL POSITION



OPEN POSITION



CLOSED POSITION

Facility Management Software

Responding to changing buildings and businesses requires hybrid tools.

A FACILITY MANAGER USED TO BE A WIZENED building superintendent who knew where to pound on a recalcitrant furnace and whose only data base was an impeccable memory. Over the past decade, this stereotype has transformed into a smart, often architecture-trained, computer-dependent professional who oversees building operations ranging from window-washing schedules to real estate purchases five years in the future.

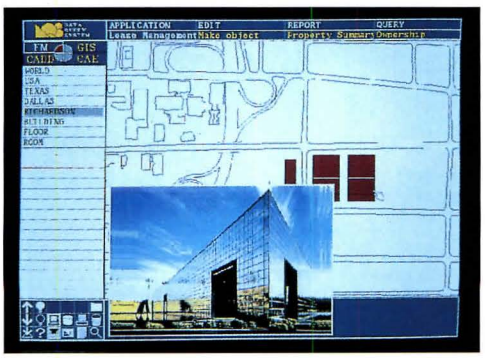
One reason for this change has been a growing appreciation of real property as a valuable business asset that can increase profits, or at least reduce expenses, if managed efficiently. Another force for change has been computers, which have expanded the complex range of facility management (FM) activities that are now possible.

Businesses in this country change dramatically these days, due to mergers, takeovers, automation, and the current recession. The national average "churn rate" (personnel moves or space changes within a facility) is higher than 30 percent every year. Ensuring that these moves occur smoothly and new spaces provide satisfactory work environments is essential to the efficient day-to-day operation of a business. At the same time, the escalating costs of land and new construction encourage businesses to make use of existing space more effectively. To optimize the fit between a building and its occupants, a facility manager must be equally skilled in business and space planning, as comfortable in the boardroom as in the utility closet.

Increasingly sophisticated computer-aided facility management (CAFM) software is now helping facility managers balance those responsibilities. Assuming the role of a designer one moment and an economist the next requires a wide assortment of software tools that range from CADD to nongraphic data-base management systems (DBMS).

The CADD drawings in a CAFM system are often the construction documents generated by the building's architect. Or, because facility managers require less detail, the drawings may be produced in-house. In either case, these mathematically based vector drawings are easily changed and possess "intelligence" when linked to data bases. For buildings that have not been electronically documented in a vector format, conventional paper drawings may be scanned into a computer as raster images (composed of dot patterns). To endow these raster images with intelligence, a CADD operator must trace over them with vector lines, symbols, and text (ARCHITECTURE, October 1990, pages 101-104).

In CAFM Space stacking diagrams (above), departmental groups are assigned to floors according to their adjacency and space requirements. The connecting lines shown on the plan indicate departmental affinities. Interactive editing allows designers to fine-tune the results.



DQS is a data query system from Graphic Systems that integrates diverse graphic and nongraphic data bases, which may reside on unrelated but networked hardware systems. Clicking on a map (above) brings up an image of a building that meets specified criteria, such as size and type.

Nongraphic data bases are collections of alphanumeric information about buildings, occupants, furnishings, equipment, and anything else a facility manager needs to track. To link data bases of varying size, content, and form, CAFM software works with relational data bases. These are dissimilar data bases that can be electronically merged, in effect, as long as they share one common variable. For example, a data base of employee information could be linked with a data base of furniture inventory if they both had a variable representing room number. With Structured Query Language (SQL), which is common to many data base systems, users can select items of specified criteria.

Some software systems link information in CADD and DBMS systems. A drawing of an office layout may connect symbols for furniture to a data base of information such as chair types and costs. A search through a nongraphic data base for objects conforming to facility management criteria (all chairs of type X scheduled for reupholstering in July 1991, for example) might produce a plan with those objects highlighted. Another CAFM software function, known as "stack and block," arranges spaces graphically (in section and plan, respectively) according to user-defined statistics describing available area on each floor, square footage requirements within departments, and adjacency relationships between departments. CAFM software programs work in one of two ways: they either integrate the graphic and the nongraphic in a unified package; or they provide strong links between CADD and DBMS software so that data from each can be easily exchanged.

Some CAFM systems are highly integrated, with CADD, DBMS, and stack and block all together in one package. The user need therefore learn only one system and deal with only one vendor. Other systems rely instead on the strength of links to a variety of unrelated software. This approach allows facility managers to manipulate data from a variety of sources and communicate with a wider range of systems.

Even systems that are completely inte-

grated require occasional communication with other systems. Unfortunately, there is no universal standard for translating graphic information. The de facto standard is the Drawing Exchange Format (DXF), developed by Autodesk. Although an imperfect solution because it translates only the lowest common denominators, it provides an important link between a variety of software systems and hardware platforms.

To pull together many of these aspects of CAFM software, Cambridge-based FM consultant Eric Teicholz, author of *A Manager's Guide to Facility Management Automation*, has been developing data-query-system software called DQS. This system recognizes that data sources are dispersed and that users do not want to bother with the complicated technical aspects of how data is stored electronically. According to Teicholz, "The top-down, monolithic approach is no longer appropriate because there are so many islands of automation in industry. It's been demonstrated time and time again that centralizing these systems doesn't work." In contrast to a centralized system, DQS is a "shell" that draws data from any kind of hardware, integrates a variety of graphic and nongraphic data bases, and therefore protects the user from having to understand its inner workings. Teicholz's system also provides an intuitive navigation system that matches the kinds of queries that most interest FM users.

Some architects believe that offering FM is a way to add value to their client services. They may find the reality of facility management humbling if they believe that bid documents represent a complete and final building. In fact, as soon as a building is occupied, it begins to change incrementally. Many changes involve so little floor area and must be done so quickly that facility managers don't bother to call in the original designer. As a result, a building can gradually change over time without the architect being informed or the "as-builts" being updated. An architect interested in becoming involved in FM should be prepared for an ongoing interaction with clients.

Untraditional architectural services may take the form of contract documents on disk, or "electronic deliverables." The facility manager can combine these electronic drawings and specifications with other graphic and nongraphic data bases. CADD drawings that conform to the client's layering standards are particularly welcome.

Ronald Wooldridge, vice president for information systems of New York-based engineers Syska & Hennessy, describes another form of electronic deliverables his firm has begun offering clients. The firm produces owner's manuals for new buildings, providing operating and maintenance information in an accessible format. "We used to combine text and schematic diagrams in big, unwieldy documents that too often ended up on the shelf," Wooldridge explains. "Now, we go to the site and make a video of someone actually performing the procedures. Then, with a PC equipped with a frame-capture board, we grab still images and place them in a profusely illustrated maintenance data base. It's easy to use and easy to produce, a categorically different kind of client service."

After realizing that bid documents are only the beginning of a building's evolution, the architect's next hurdle may be persuading the clients that a CAFM system is a worthwhile investment. "These services will save the client money in the long run, but they are not as urgent as making sure the electricity is working," notes FM consultant Peter S. Kimmel of Bethesda, Maryland. "And clients have to face the high initial costs of hardware, software, and data collection." He stresses that the way architects and facility managers work with a CAFM product is at least as important as the products they select. This involves developing customized procedures manuals that document the client's day-to-day operations with the software.

Kimmel recommends that architects expand their design services to include space-related FM functions that are akin to services they already offer. In addition to designing ongoing renovations, these include long-term space planning, developing space and furniture standards, maintaining drawings, developing space-use reports, generating recommendations for improved space utilization, providing furniture-inventory management services, and blocking out space allocations. One way to break into this work, he says, is by using every new building design as an opportunity to get that client started with CAFM. To accomplish this goal, the architect must use a CADD system that will be compatible with the client's choice of software.

In the following sections, eight architects and facility managers discuss the merits of their chosen CAFM systems, covering a range of hardware platforms (see sources, right). These experienced users offer helpful tips regarding their software's strengths and weaknesses, and they explain how their respective system assists them in the job.

—B.J. NOVITSKI

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A Review of FM Systems

Arris

THE MINNESOTA COMMUNITY COLLEGE SYSTEM comprises 18 campuses throughout the state, representing about 3 million square feet. Over the last 6 years, student enrollment in the entire system has increased 10 percent per year. Spurred by a commitment to maintaining an open-door policy, this tremendous growth has created many challenges to the community college's facilities unit in the areas of maintenance, repair, new construction, remodeling, budgeting, and space utilization.

Three years ago, we implemented a facilities information system to address these varied challenges. The system integrates graphic, tabular, and photographic information in an easy-to-manage, all-inclusive computer data base. We chose Arris, a UNIX-based integrated system from Sigma Design, as our graphics software because we were impressed by its architectural CADD capabilities, integrated data base, and ability to translate information from various CADD software sources. Its multitasking capability also maximizes the efficiency of our computer equipment and staff time.

Information for the 18 campuses can be viewed on the system by campus, building, floor, or room. The campus layouts connect nongraphic attribute information to graphics for tracking and calculating square footages and identifying room types, names, and changes. The graphics are tied to a facilities model that determines space requirements and usage based on current enrollment. This information has been useful at the main office and at each campus.

One application example is roof management. After a roof is surveyed, graphic and nongraphic information is stored showing the age of the roof and a projected replacement date. By querying the system about a certain part of the roof, we can review tabular information including roof type, R-value, insulation type, original installation date, warranty date, contractor, and consultant. This data improves planning, budgeting, and reporting. Other applications include parking lot management, carpet replacement, and painting schedules.

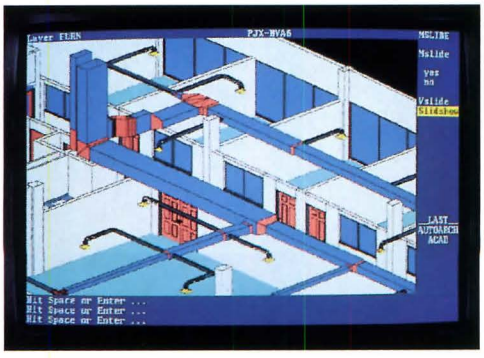
Arris allows us to provide consulting architects and engineers with accurate as-built information. The combination of graphic and tabular information provides our state legislature with a comprehensive picture of funding requests and building conditions. The benefits of this system are increased efficiency of facilities operation and lower costs for design, construction, and repair.

Bill Olson
Assistant Director of Facilities
Minnesota Community College System
St. Paul, Minnesota

Auto-Architect

KAMAN AEROSPACE CORPORATION COMPRISES more than 1,000,000 square feet of facility space. We manufacture helicopters and aircraft components for government and commercial customers. Manufacturing contracts usually last several years, after which we need to reallocate space for different manufacturing processes. Building modifications also occur during a contract, when existing processes and personnel are relocated to accommodate new business opportunities.

In Arris' facility management software from Sigma Design, quantitative data about building elements, such as furniture and partitions, is linked to 2D and 3D representations (above). This facilitates the design of employee workstation layout.



Auto-Architect, from DCA Softdesk, adds architectural and engineering modules to AutoCad. The HVAC module (above) allows designers to size, lay out, and visualize piping and ductwork in three dimensions in their architectural context.

The Kaman facilities and properties department, responsible for space utilization, is staffed by mechanical, electrical, civil, and facilities engineers who design modifications to existing buildings to support dynamic manufacturing environments. Each design considers personnel, product flow, cost, existing site conditions, and utilities.

About three years ago, to lower costs by reducing the time required for creating and editing drawings, we bought Auto-Architect. This AutoCad supplement from DCA Softdesk provides architectural, HVAC, plumbing, and electrical applications. We may not save time on the initial drawings, but changes and modifications are several times faster with the system. To accelerate the original start-up with Auto-Architect, we scanned baseline drawings into our CADD system. Now, we continually revise as-built drawings, updating as many building features as possible at each project site.

Auto-Architect includes standard architectural and engineering symbol libraries. In addition, it features a standardized layering scheme for new drawings, automatic dimensioning, and extensive editing capabilities. DCA Softdesk provides upgrades that parallel AutoCad's upgrades, and they are responsive to our requests for new features.

Occasionally, Kaman consults with outside architectural engineering firms. Those with AutoCad or DXF-compatible CADD systems sometimes deliver drawings on disk. We prefer this because we can easily edit them on site for future projects requiring space allocation. We are currently considering networking our stand-alone CADD workstations and buying the new DCA Facilities software for space planning with links to external data bases.

Gregory Maynard
Group Leader, Facilities & Properties Department
Kaman Aerospace Corporation
Bloomfield, Connecticut

Cadvance

ABOUT 25 PERCENT OF OUR BUSINESS IS IN assisting corporate clients with maintenance and inventory of their existing facilities. For instance, for the 160,000-square-foot British

Airways headquarters in New York, we conducted extensive field surveys and developed drawings using a catalog of furniture symbols we created for the client. When British Airways needs to reconfigure an area, we propose a design by rearranging the parts, allowing us to quickly produce accurate working drawings. By comparing the old parts list with the new one, we know how many additional parts to order. Although we haven't had a client request this yet, Cadvance's link to dBase allows the attachment of nongraphic attributes to each symbol—price, fabric color, and catalog number—and provides printed summaries and a cost estimate of the new configuration.

We chose Isicad's PC-based Cadvance for drafting about three-and-a-half years ago because it seemed closest to the way architects work. In about six months, a Cadvance user can be more efficient with this software than with manual production methods. The software is much faster than AutoCad and has certain features for which AutoCad depends on third-party software. Although it's not easy for third parties to write supplements for Cadvance, the base system is so flexible there's little need for add-ons.

Cadvance is pretty good for facilities management functions where you don't have to exchange files with an engineer, but it gets complicated for a multidisciplinary team. Most of our firm's engineers use AutoCad because of the available third-party HVAC, plumbing, and structural applications. Unfortunately, translating Cadvance files to and from DXF is a time-consuming process. In addition, you lose elements in the translation, which is a real drawback.

With PC-based programs, more than one person cannot work on a file at a time. But with Cadvance's "reference filing," drawings can be split among several files. This arrangement allows different people on a network to work on different aspects of the drawing at the same time while each retains a full image of the complete drawing. Reference filing reduces the amount of a drawing we need to translate for engineers, and also eliminates having huge files.

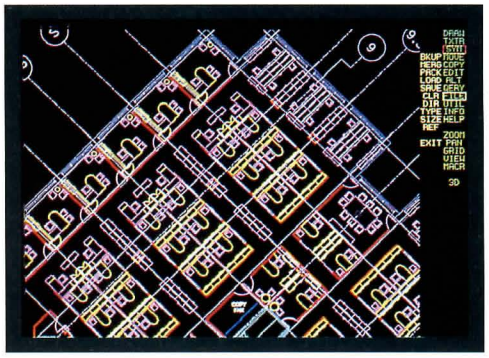
I believe the trend in business and industry is to reduce in-house facilities departments and rely more on specialized consultants. This direction is a good opportunity for architects to expand their services, but it's only possible with CADD.

Michael Rapp
Rapp & Byrne Architects
New York, New York

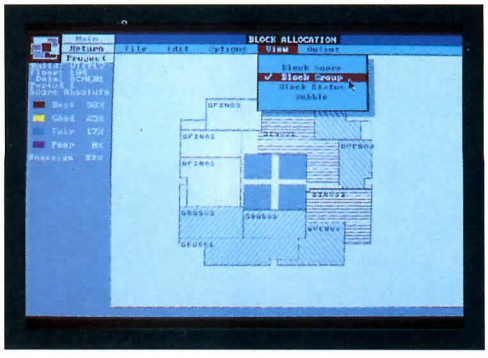
CAFM Space

AT METROPOLITAN LIFE, WE'RE STARTING TO use CAFM Space for two projects: refurbishing our existing premises, and planning a possible future relocation to a different building. These represent two different approaches to space planning, and they are facilitated by CAFM Space's stack and block analysis and its links to CADD systems.

Refurbishing an occupied space is like a shell game. First we have to renovate the "swing" space, then move people into that area, thereby vacating more space to work on, gradually covering the whole building. As we plan these personnel moves, we have to maintain proper adjacencies, make sure the employees can continue working, and try to hit the moving target of constant organizational changes. If we had to plan this process by hand, it would take far more time, especially if the occupants changed their minds



Information about the modular furniture in an office plan (above) can be linked from Cadvance, the CADD software from Isicad, to data base management systems. This can facilitate furniture inventory checking and order preparation.



After departments have been allocated to floors in a stacking procedure, block diagrams from CAFM Works (above) arrange groups within a floor according to their relative affinities and space needs. Editing features allow further fine tuning.

about their needs. With the software, if any data changes, it's simple to specify new adjacency criteria and generate new results.

A relocation project is completely different. When you start from scratch in a vacant building, you've got more leeway because you're not trying to maneuver within occupied space. You start with information gathered from the organizational units: how much space each group requires, how many people they have, who they should be near, who they shouldn't be near. Laying out the stack and block analysis is where the software is extremely valuable. If you lay out the stacking criteria properly, the software will generate a pretty good initial stack. Then you can manipulate it further if necessary. After you make decisions based on results from CAFM Space, you can export layouts to a CADD system for further design. We haven't tried the link to CADD yet; you can do a lot of planning without it.

Experienced PC users required about two weeks to learn CAFM Space; the software was a little unfriendly at first. Anyone not familiar with PCs would have difficulties, and links between the data bases should be improved. But the software is relatively new, and CAFM Works is listening to customer comments about enhancements. Learning time also depends on one's experience in space planning. You have to understand the basic concepts before you know what the software can do for you.

Cathy Cook
Facilities Coordinator
Metropolitan Life
Ottawa, Ontario
Canada

Drawbase

OUR FIRM USES DRAWBASE AS A DRAFTING tool. And because of its data base capabilities, we can offer clients drawing files with the data base attached, so they can continue using them for facilities management.

Before we started with Drawbase, we worked on a minicomputer but wanted to switch to a PC-based system. We looked at a lot of systems and found that Drawbase had the best data base capabilities without requiring a lot of add-on programs. It seemed easier to purchase a system that was totally integrated and self-contained. We haven't found any limits to it yet; you're only limited by the amount of memory and disk space in your machine.

As a 2D CADD program, Drawbase is easy

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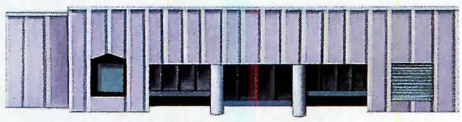

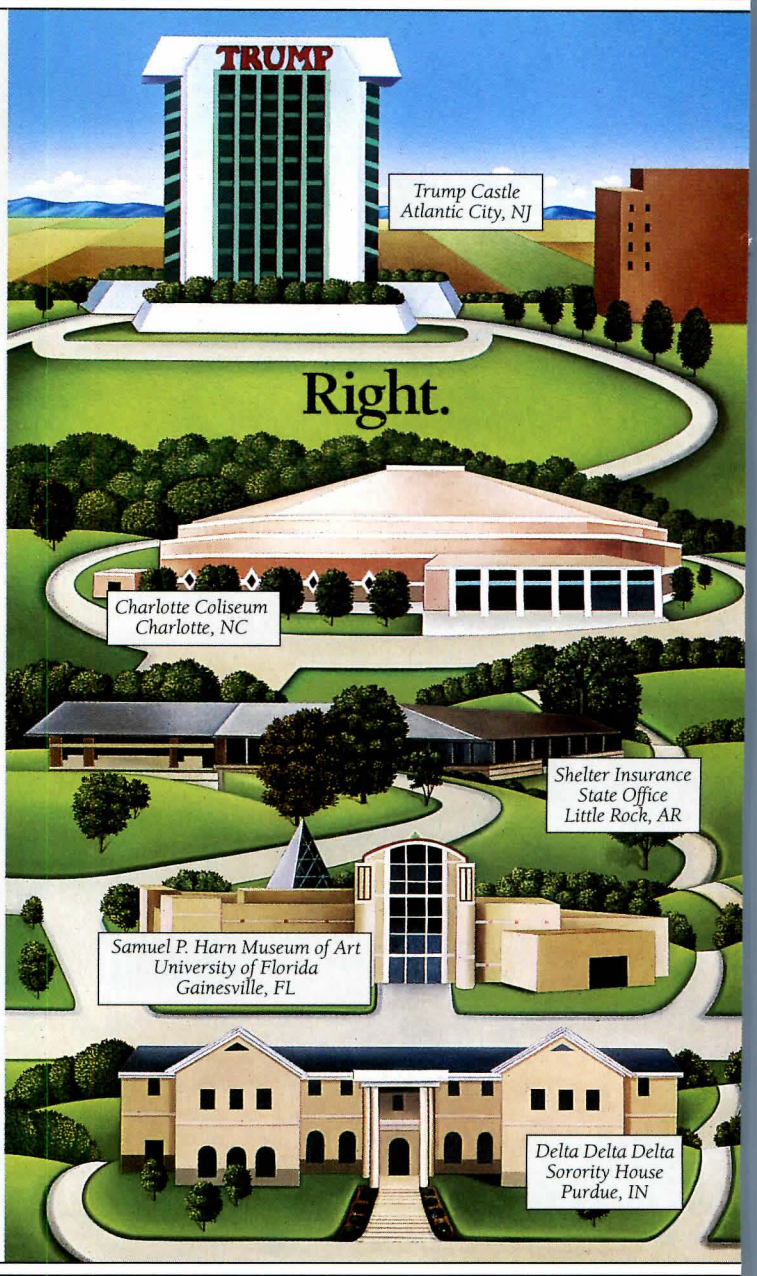

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to use. It's cumbersome for 3D modeling, but workable for presentation drawings. We create wire-frame perspectives as underlays for watercolor renderings. For someone who has already used another PC-based CADD program, it takes three months to get up to speed. To learn the full data base capability requires another three months. Architects without previous computer experience will probably need nine months before they're proficient at it.

One advantage of Drawbase is that it's compatible with other systems. We constantly exchange plans and data with our consulting engineers who use Cadvance and AutoCad. It's also easy for facility managers to move data to Paradox and Lotus 1-2-3. These days, if a piece of software can't be linked to other systems, you're really in trouble. You want to be able to get in and out of different systems that are designed specifically for your application.

One of the ways we go about marketing is to tell our clients we can provide them with electronic deliverables at the end of the project. Instead of having only paper drawings, they get something they can work with and constantly update on their own. This service gives us a competitive advantage.

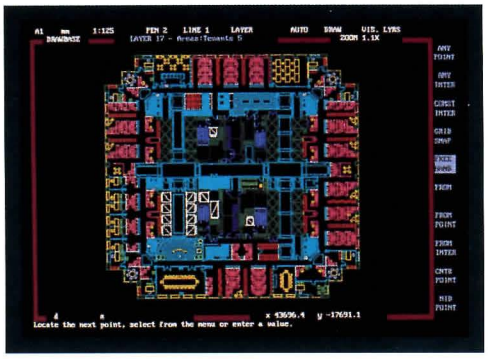
Bob Leason, CADD Manager
Dyer/Brown Associates
Boston, Massachusetts

FM:Space-Management

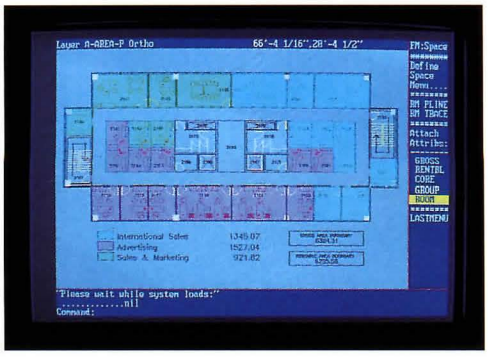
MUCH OF THE WORK OF THE HOUSTON office of Gensler and Associates is interior architecture. Space programming includes organizing client information, preparing calculations and forecast reports for head count and square footage, and analysis of potential locations of departments in alternative schemes. Fifteen years ago we accomplished this by hand, but since the early 1980s, we've seen progressive software improvements. FM:Space-Management, PC-based software from FM:Systems, has a variety of facility management functions and links to AutoCad and Cadvance. It is suited for our practice because it expedites many of these tasks. It's easy to learn, and it's fast, portable, and flexible. It allows us to spend our time productively even though clients have differing requirements for organization, accounting procedures, and space standards. One of the best features is the system's virtually unlimited capacity for contextual notes that are so important to both client and designer.

Depending on the accuracy of the client's input, we can reliably forecast the square footage that will be needed and how it can be properly stacked in a building. FM:Space-Management quickly converts statistics into interactive stack diagrams. Departments can be assigned to trial floors and moved from one floor to another while the computer keeps track of total areas. The designer can quickly look at two to five projection periods to determine the results of growth or shrinkage over time.

It's a fallacy that software can stack buildings by mathematical formulas. That is a human, analytical process that can't be done by computers. Software often produces unexpected results on its own. We used to spend time trying to figure out what the computer did and how the adjacency information should be changed to obtain better results. Now we determine the trial stacks ourselves and use the computer as a rapid-display tool.



Color-coded plans give Drawbase users an overview of space use. This typical floor in The Tower at Canary Wharf in London (above) was designed by DBJ, Ltd., an interior architecture subsidiary of Dyer Brown & Associates, Architects.



FM:Space-Management, the space inventory module from FM:Systems, creates CADD occupancy diagrams (above) of departments, areas, and furniture layouts. Summaries can be used to identify space surpluses or areas of overcrowding.

If you know the basics of MS-DOS, it only takes a day to learn FM:Space-Management. However, you still need to rely on your own expertise. If you don't know how to do space planning without a computer, the computer's not going to help. I'd like to see FM:Space-Management with a Macintosh interface so the learning time would be even shorter, the entry quicker, and the graphics improved. Now, we have the option to convert our reports to Macintosh format or retain MS-DOS format for editing and further study.

The role of architects in FM is increasing. I think those who don't acknowledge that growth will see their work dropping off. Our firm's stability during the recent Houston downturn has partly to do with our ongoing involvement in facilities management.

David Wyckoff, Senior Associate
Gensler and Associates
Houston, Texas

Intergraph

WHEN I HELPED JOHN HANCOCK'S SPACE planning group start with facilities management a few years ago, Intergraph was the only available system that could handle a building 60 stories tall. Now, the insurance group relies on the same system for planning moves between departments. They record wall and door locations and produce drawings that show which partitions are to be removed or added. They track standardized workstation furniture and electronic installations so they can tell what is needed where. In addition, the company does a lot of CADD modeling and strategic planning.

Earlier versions of Intergraph didn't graphically distinguish between walls to be removed and walls to be added. We had to develop procedures to show those differing wall symbols. The software didn't include a clean procedure for having as-builts on the computer at the same time as working drawings; nor did it allow several people to work simultaneously on the same drawing. Now, unlike many other systems, Intergraph has good methods for document management. Intergraph Corporation understands what FM really is, that users need to continually reuse drawings, cut and paste between them, and translate files between versions, without having to hire a software guru.

UNIX-based Intergraph is more expensive than most other systems, but offers a tremendous amount of flexibility. You may only take advantage of 75 percent of the options, but the 75 percent you use are exactly what

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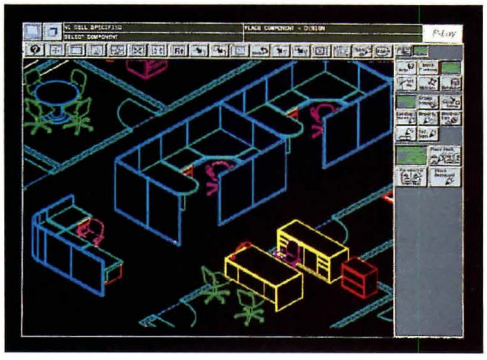
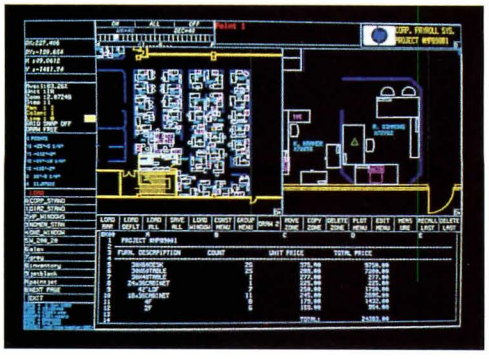
you want. With other systems, you may need additional application packages, and you always want a little bit more. Intergraph offers one-stop shopping.

I sometimes recommend other systems for facilities less than 100,000 square feet or for facility managers just starting out. PC-based FM systems have less flexibility but more standard procedures, so they limit the options for those new to the facilities profession. Later, it's easy to convert up to Intergraph if you outgrow the small system. But for managing a large facility, you need a system with major computing horsepower and memory to sort through all that data. I don't think there's anything out there that's more powerful than Intergraph.

Karin Harriman
CADD Management Consultant
Harriman Group, Inc.
Boston, Massachusetts



Project Layout, from Intergraph, enables a facility manager to create basic 2D office layouts of furniture, fixtures, and equipment (above). The layout can be projected into 3D for examining design relationships or creating presentations.



Hewlett-Packard's corporate space planners use MountainTop from Accugraph to track the costs and locations of workstation furniture (above). This UNIX-based integrated software combines CADD with DBMS in a variety of architectural applications.

MountainTop

I'M RESPONSIBLE FOR MANAGING ABOUT 1,000,000 square feet of space in the corporate division of Hewlett-Packard (HP). My job requires knowing exactly where and how everything is being used and how much it costs to manage that space. We forecast four times a year, which means I'm continually forecasting space utilization and project expenditures. MountainTop allows me to tabulate information in different ways, to produce the time lines, costs, and square footages that the project groups need to know.

MountainTop's CADD program holds the base drawings of a building. We can categorize spaces and compare our results with other companies to find out how well we are using space. We use the system to calculate varying charge-backs, because some spaces use more energy or require more security. One symbol on a drawing gives me every piece of information I need and relates to a spreadsheet that I can manipulate into any type of graphic form or report. All of our CADD and information management functions are completely integrated.

MountainTop is one of the most complete and powerful systems I've ever seen. It's particularly suitable for HP because we are so large and so spread out worldwide. Also, as a computer manufacturer, we're probably more advanced than other companies in using the system. We use it for drafting but more often for reporting space use from a business point of view.

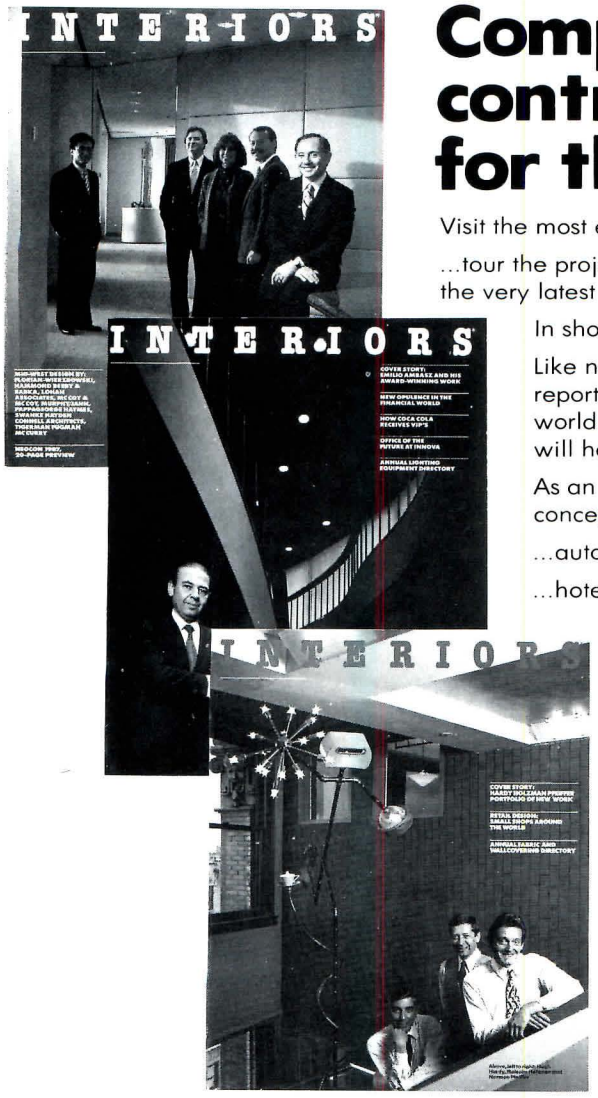
We hire architectural firms that use AutoCad or other CADD programs, and we transfer their files back into our system through DXF. We have it installed on an HP UNIX workstation, which is more powerful than PCs commonly used by architects. It's possible to use MountainTop on a PC, but that system is slower and drawings are less clear due to the smaller screen.

Soon, I'm going to start scanning line drawings into the data base. Then I'll put them into MountainTop and digitize over the parts that need intelligence. Scanning tools have really advanced in the last year. I think next year we'll see a scanner that can add intelligence without a lot of editing.

I have enjoyed working with this system. MountainTop is less cumbersome than others I've worked with, producing the most data for the least amount of input. ■

Nancyjo Riekse-Terres
Design and Engineering Manager
Hewlett-Packard
Palo Alto, California

I N T E R I O R S



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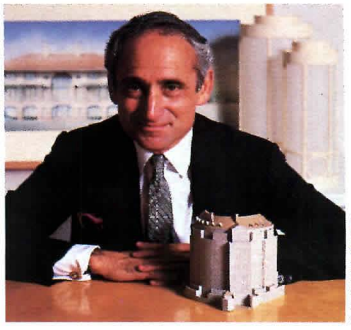
Woven from the Past

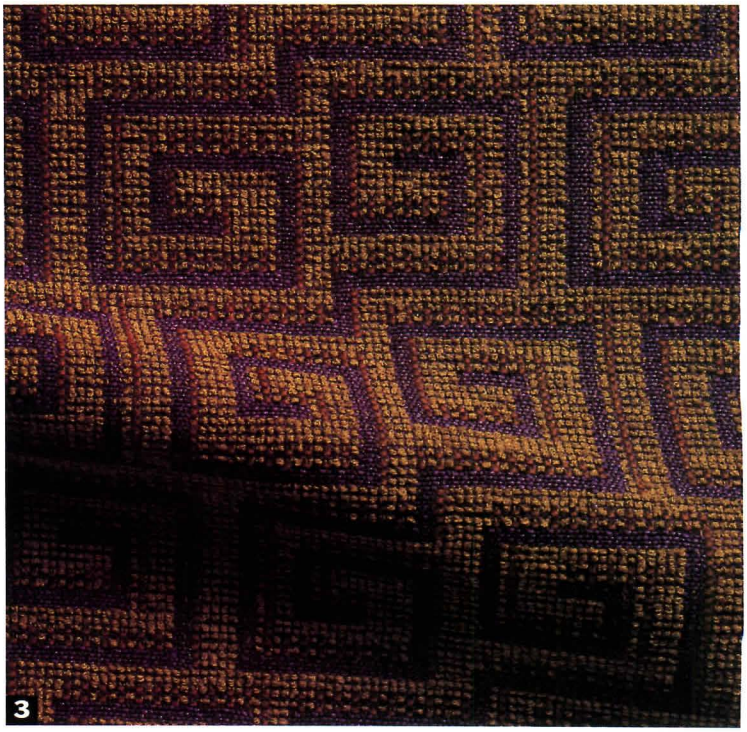
Robert A.M. Stern's textiles evoke historical patterns.

EXPANDING ITS RANGE AS A LEADING MANUFACTURER OF CONTRACT furniture and textiles, Hickory Business Furniture (HBF) will introduce a collection of textiles designed by New York architect Robert A.M. Stern later this month at Neocon. The series of fabrics is the first such collection designed by Stern, two years after his furniture series for HBF (ARCHITECTURE, December 1989, pages 112-113). Creating fabrics to complement his furniture was a logical progression, Stern notes, "but we certainly don't want to limit their application to only our designs. There's a world of upholstered furniture that must be 'clothed.' " Stern worked with HBF textile designer Kristie Strasen to create traditional fabrics with modern reinventions. "I wanted to design beautiful and luxurious fabrics that evoke distinct architectural periods," the architect explains. Emblazoned with crisp geometries, some of Stern's fabrics recall early 20th-century Viennese designs, while others are inspired by Secessionist, Art Deco, and International Moderne styles. The collection is produced in a variety of constructions. Stern's multifaceted patterns are best interpreted in jacquards, and the rhythm and clarity of his designs are captured in a variety of woven effects. —AMY GRAY LIGHT



BARBARA WALZ

1. Stern gives an unexpected twist to a traditional floral damask in his Empire line by superimposing the pattern on an undulated ribbon stripe.
2. Ferronnerie (top) emphasizes how Stern's designs include motifs that repeat themselves and evolve through the pattern. The waves of the tight crepe weave display a formal rhythm and create a balanced interplay of shadow and light. Dionysa's whimsical triangular design (center) resembles devil's tails. Both are produced in cotton jacquard. Volute (bottom), a dimensional weave of cotton and wool, echoes the curvature of Ionic capitals.
3. Meander, a cotton blend, is patterned after a Greek key motif. The architect intended the fabrics to express a textured surface, adding an unusual element of construction. All the textiles are durable and affordable, and harmonize with Stern's furniture line for HBF. Circle 401 on information card.



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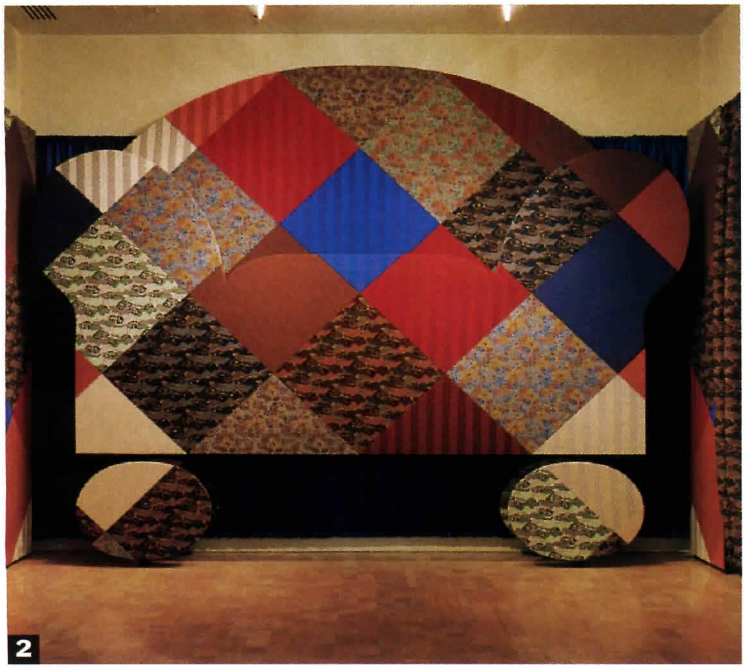
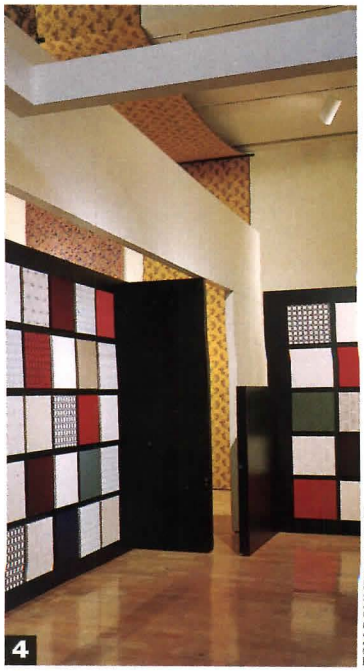
Fabrics by Architects

WestWeek highlights new trends in textiles.

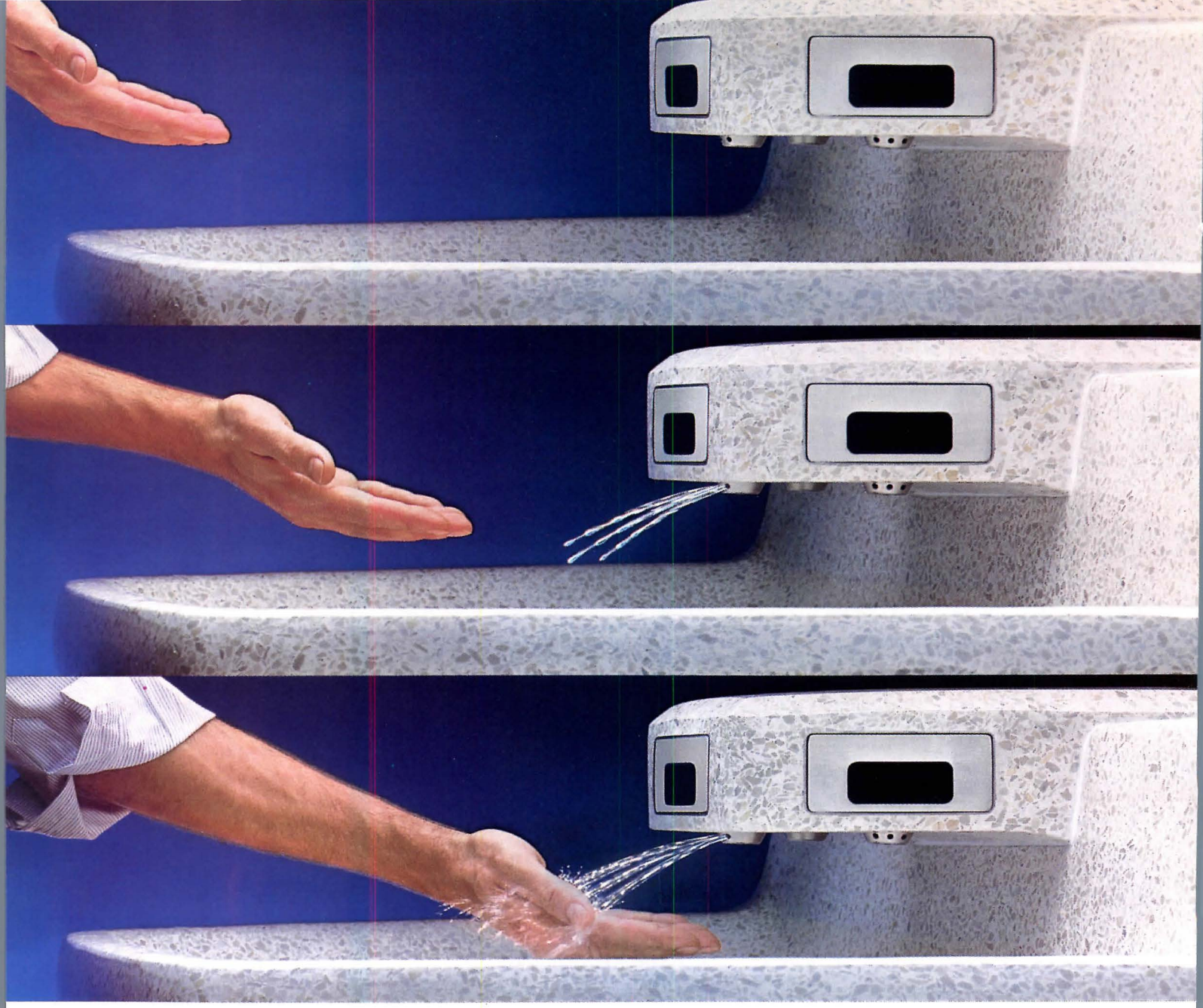
AMERICAN ARCHITECT-DESIGNED TEXTILES ARE CERTAINLY NOT new—Frank Lloyd Wright created fabrics for Schumacher in the early 1950s—but today they are back in the spotlight, as leading contemporary architects turn from designing furniture to fabrics. The trend revived in the mid-1980s, when San Francisco architect Andrew Belschner designed upholstery fabric for the Metropolitan Furniture Corporation and Donghia Textiles. He and partner Joseph Vincent are currently discussing new fabric designs with Schumacher and Japanese manufacturers. New York architects who have recently created textile collections include Robert A.M. Stern for HBF (page 123), and Peter Eisenman for KnollTextiles. Launched during WestWeek in March, Eisenman's upholstery designs mark the first time an architect has designed fabric for Knoll. Eisenman created five geometric patterns for his "Snakes and Ladders" collection, which is characterized by the same complex grid systems that structure his architecture. DesignTex has also commissioned architects to create a new line of fabrics, which was unveiled at WestWeek. The Portfolio Collection features designs by Pritzker Prize-winners Richard Meier, Aldo Rossi, and Robert Venturi, who collaborated with his partner Denise Scott Brown. During WestWeek, the fabrics were displayed in the Murray Feldman Gallery in an exhibition designed by the architects and cosponsored by the Steelcase Design Partnership. Meier's fabrics reflect his interest in the articulation of surface through the use of grids. Rossi's fabrics are colorfully vibrant and echo the architecture of his buildings. Venturi and Scott Brown draw upon familiar fabric elements such as the stripe, checkerboard, and polka dot to explore extremes of scale. —A.G.L.

1. Peter Eisenman-designed Cobra and Diamond Back textiles are 100 percent wool jacquards. Eisenman's Steppes and Lattice patterns evolved from his Wexner Center for the Visual Arts at Ohio State University. Sidewinder, a cotton tapestry, is inspired by Boolean geometry. KnollTextiles. Circle 402 on information card.
2. Venturi and Scott Brown's WestWeek pavilion displayed Gingham Floral and Japanese-inspired Yukata, Raku, and Staccato patterns. DesignTex. Circle 403 on information card.
3. Aldo Rossi exhibited Italian Garden and Marco Polo fabrics, along with architectural sketches. DesignTex. Circle 404 on information card.
4. Richard Meier's collection of geometric fabric patterns are called Atlante, Analog, and Abacus. DesignTex. Circle 405 on information card.





TOM BONNER PHOTOS



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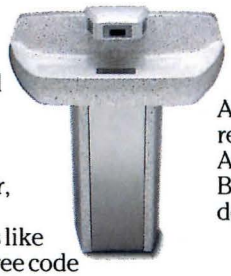

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PRODUCTS

Paving Renovation

COMPLETED IN 1980 FOR WHEATON COLLEGE in Wheaton, Illinois, the Billy Graham Center's 10,000-square-foot plaza of poured concrete slabs and mortar-set clay pavers showed signs of decay after only two years (top). The College consulted with LPS Pavement Company, which installed its Century System modular paving method (above). Constructed of clay compressed to twice the density of standard units, the Century System pavers are laid in a mortarless, hand-tight arrangement. LPS Pavement Company.

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Circle 407 on information card.

Improved Specifications

IN A JOINT VENTURE, SUPERSPEC AND ASG announced an expert system for generating a complete set of written specifications from a CADD drawing file. Producing the specifications in CSI Masterformat, complete with applicable standards, delivery, and installation instructions, the system determines whether additional information is required and prompts the user for missing data. Manufacturers' information and detail drawings will be included in the CAD/CAS system.

Circle 408 on information card.

Sophisticated Faucets

CHICAGO FAUCETS' RENAISSANCE COLLECtion Model 200 series is available with a traditional, high-arch spout or a long, angular spigot. The 200 series' extra-tall nozzle eases filling large vessels, and because the model incorporates swing spouts, is suggested for use with side-by-side sinks. Manufactured of solid brass, the Renaissance Collection is offered in an assortment of finishes, including coated or uncoated polished brass and plated chrome. Coordinated trim rings are offered to highlight each faucet.

Circle 409 on information card.

Updated Catalog

FRANKE INTRODUCES AN UPDATED CATALOG for its International Collection of sinks and faucets. The 20-page booklet also features a revised line of water-dispensing systems and custom-fitted, color-coordinated accessories, including teak cutting boards, grid drainers, soap dispensers, and pop-up strainer systems.

Circle 410 on information card.

Lighting Introduction

SPI LIGHTING HAS INTRODUCED THE ECHO series of indirect, asymmetrical fixtures (above) that provide an even wash of light across surfaces. Beam spread can be precisely controlled with mechanical adjustments to the fixture, which houses a contour reflector for optimal efficiency of 73.5 percent, according to the manufacturer. The fixture accommodates metal halide, high-pressure sodium, or quartz lamps ranging from 50 to 1,000 watts. *Circle 411 on information card.* ■

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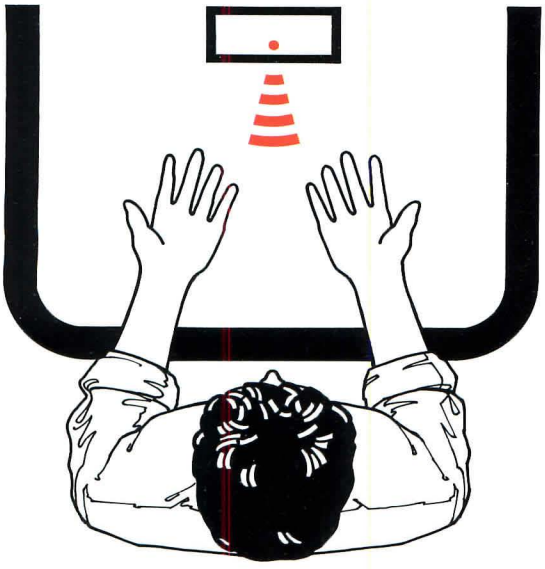

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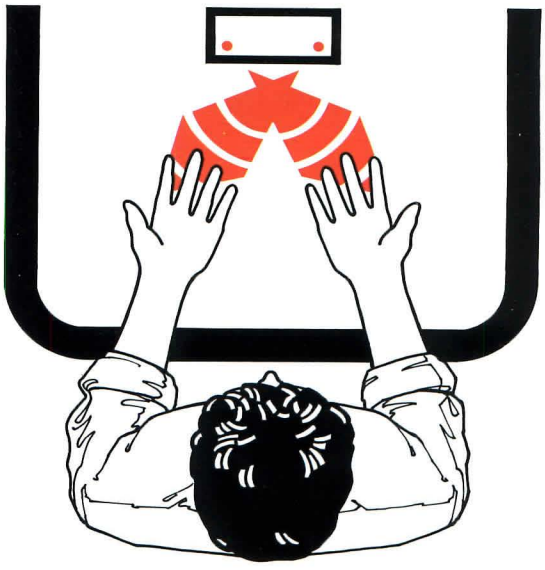

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