


ARCHITECTURAL RECORD

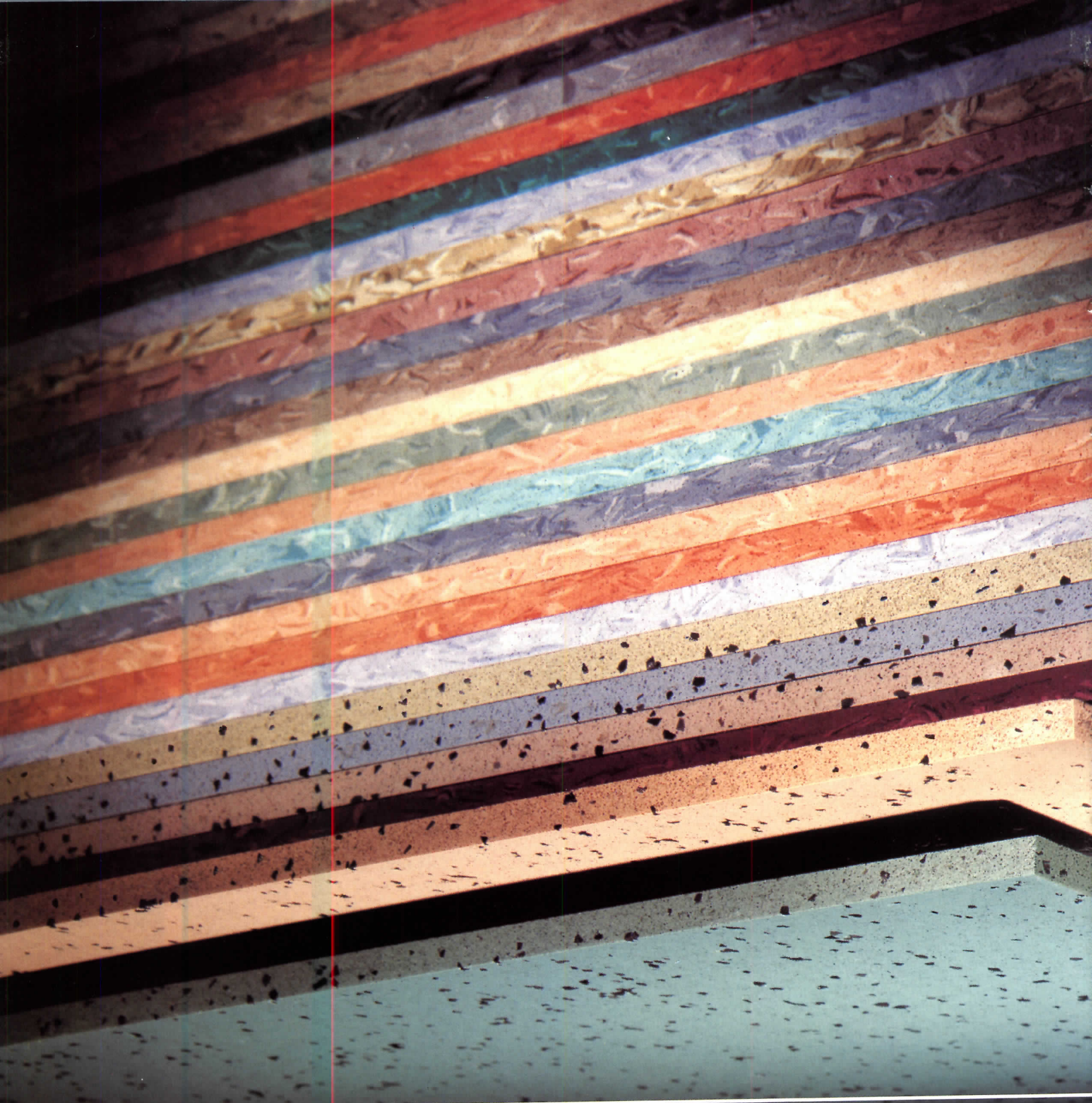
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I was very pleased with the recent article by Carl Sapers [RECORD, August 1990, pages 43-44]. It's high time that the designer's side as well as the owner's side of CM was told in blunt terms. We have known for many years that GMP really stands for "guaranteed minimum price," and that the "profligate architect" is usually to blame for almost everything. There are a few magnificent exceptions, but Mr. Sapers's article summarized our experiences beautifully.

DONALD B. ALTEMEYER
Boyd/Sobieray Associates, Inc.
Indianapolis

I have just finished reading your editorial "No Pencils Allowed?" [RECORD, August 1990, page 53]. Somehow I thought the publication must be several years old, because we have already taken drafting pencils off our shopping list and most of our parallel bars are inoperative.

It seems to me that the future you describe is with us now, at least in our office. Yes, we still have drawing boards, but only for yellow trace to block out ideas and for checking shop drawings. Here, ideas are word-processed or line-processed.

The most evident change—one which is not written about at all—is the change in employment practices. One can't simply hire up and staff down when every architect must have a computer on his desk. Perhaps the computer will be a stabilizing force in the way we staff. The challenge in staffing is to find the young architect who is comfortable using a computer, as we once considered that a new person should be comfortable using earlier tools of the trade.

RALPH GILLIS
Gillis Associates, Architects
New York City

As a manufacturer of glass fiber reinforced plastic (GFRP), I was gratified to see the article entitled "GFRP Molds History" [RECORD, July 1990, pages 95-97]. Contrary to your comments, however, there is in fact a trade organization of manufacturers. Actually, there are two: the FFA (Fiberglass Fabrication Association) and the SPI (Society of the Plastics Industry.)

At present, a recommended practice and guide specification is being drafted and should be available to architects early next year. The purpose of the publication, as with similar publications, will be to help the architect evaluate and properly use this versatile material. Your article was correct to point out that not all fiberglass fabricators are equipped to deal with the idiosyncracies of the construction industry vis-à-vis engineering, coordination with other trades, submittals, etc. Still, there are several that are, and with the rapidly growing acceptance of this proven and mature technology by architects, the numbers of applications will continue to increase.

WILLIAM KREYSLER,
PRESIDENT
William Kreysler & Associates, Inc.
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Your editorial in the June 1990 issue of ARCHITECTURAL RECORD [pages 56-57] is to be commended. As a practicing architect within a nonarchitectural corporation, I continually find myself defending my profession. My defense is continually eroded by awards to or public recognition of projects which in most cases have no relevance to the realistic practice of architecture.

CHARLES M. OLSON
Foundation Project Management
Mayo Clinic
Rochester, Minnesota

Corrections

In RECORD's July 1990 issue, photographs of the offices designed by Kuwabara Payne McKenna Blumberg should have been credited as follows: on page 60, Steven Evans, Toronto; on page 61, Wolfgang Hoyt, New York City; on page 62 at left, Wolfgang Hoyt, and at right, Ron Baxter-Smith, Toronto; and on page 63, Wolfgang Hoyt.

The Los Angeles organization Friends of the Arts of Mexico were cosponsors of the symposium "Mexican Architecture: New Directions" [RECORD, May 1990, page 59 et seq.].

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DESIGN

L.A. Ousts Arts Advocate

The recent forced resignation of Merry Norris as president of the Los Angeles Cultural Affairs Commission raises troubling questions about that city's commitment to civic architecture. In her four years as president, Norris persuaded Mayor Tom Bradley to support the founding of the Museum of Contemporary Art as part of the vast Bunker Hill development, fought hard to maintain the architectural integrity of such local landmarks as Bertram Goodhue's Public Library, and established the mayor's design advisory committee.

Norris was asked to resign by Mayor Bradley because of pres-

sure from both developers and the powerful heads of city agencies, according to City Hall sources. Her replacement, public-relations executive David Simon, has no background in architecture or the visual arts.

"It was a real slap in the face," says Kurt Meyer, an influential local architect.

The resignation of Norris comes at the same time as severe budget cuts at the Los Angeles Endowment, an arts-support fund set up two years ago with proceeds from a new tax on real estate and hotel occupancy.

"A brief dream is over," claims architect Michael Ro-

tondi, who is a member of the city's design advisory committee and a founder of the architecture firm Morphosis. "In general, Los Angeles is a city without a tradition of civic-mindedness. But for a brief time we thought we could extend the vision of what the city could be, beyond the supermarket of special interests."

Though Norris hopes the commission will "maintain the high standards we set for ourselves" after she leaves, it seems likely that civic architecture in Los Angeles will continue to suffer from bureaucratic neglect. "We should have buildings that are a reflection of how we regard our city," states Alan Sieroty, a cul-

tural affairs commissioner and Norris ally. "We did it in the 1920s, but we lost it."

Many local architects have given up on civic government as a source of inspiration. "This city will never produce a great civic building," lamented one young designer. Rather than looking to the city government for help, Rotondi proposes using architecture schools as the "research and development division of our communities." The schools are one place where architectural experiments in civic form can be conducted outside of the economic and social pressures of government.

AARON BETSKY
Los Angeles

KPF Twin Peaks
To Rise in Chicago

In the 1980s Kohn Pedersen Fox's 333 Wacker Drive and 900 North Michigan Avenue became staples of the Chicago skyline. Now the firm's Chicago Title and Trust Center, twin 50-story office towers situated in the North Loop, promises an equally strong architectural presence on the city's profile, though in a much subtler way.

"We've used materials that allow the towers to be more delicate and subtle shades that make for a lighter palette," remarks David Leventhal, KPF's partner-in-charge. Front facades of white metal panels and reflective glass, topped by sculptural glass and metal crowns, give the buildings a somewhat diaphanous quality, according to Leventhal.

The verticality of the buildings is emphasized by glass corners that step back from the central facade as the towers rise. Side facades are finished in Sardinian white granite.

The office complex is rising on the once-seedy site of the old Greyhound bus terminal (since relocated to a southwest corner

of downtown). While the new center was designed as a speculative office project, the Chicago Title and Trust Company subsequently leased 250,000 square feet of what will eventually comprise 2.4 million square feet.

The company will occupy the 13-story central block and have its own entrance. Each of the towers will also have separate entrances. A skylit retail gallery will connect the three lobbies.

"One of our main intentions architecturally was to relate the towers to the character and



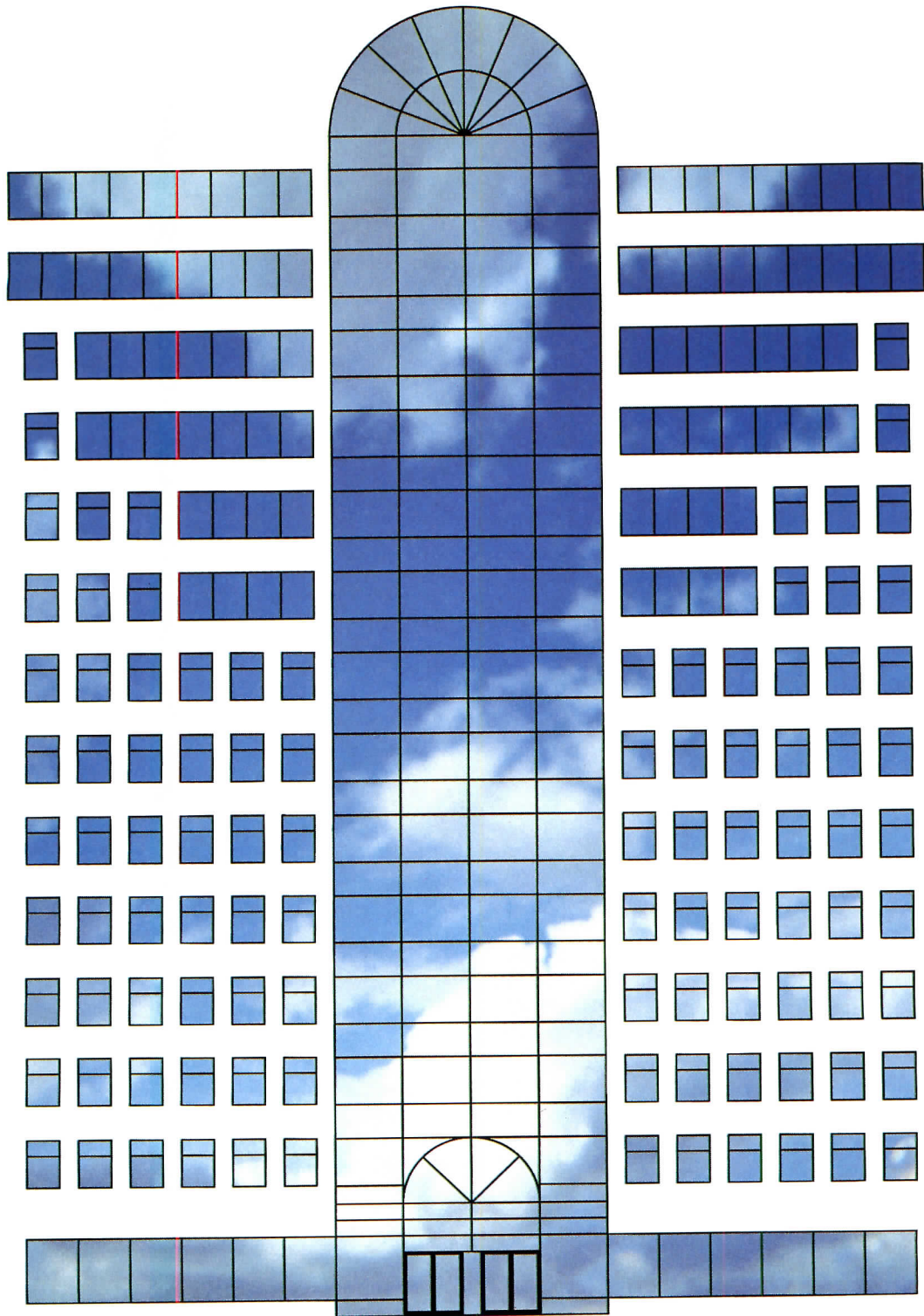
MARK SEGAL PHOTOS

scale of the City-County Building just to the west," says Leventhal, referring to the 200-foot-tall Neoclassical landmark structure by Holabird and Roche. KPF scaled the Title Center's block-long base to match the relatively low height of the City-County Building and Murphy/Jahn's nearby State of Illinois Center.

A common cornice line will tie the center to other buildings in the area. Moreover, KPF designed the Chicago Title and Trust Center so the middle sections of its towers are the same height as the adjacent Daley Center, designed by C. F. Murphy Associates and Skidmore Owings & Merrill in 1965.

DAVID MASELLO





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Briefs

The largest amphitheater in the Detroit area, a 17,000-seat facility with 42 luxury corporate suites, is planned for Auburn Hills, Mich. Called the Palace Gardens, the performance center has been designed by Rossetti Associates, architects of the adjacent Palace, home of the National Basketball Association's Detroit Pistons since 1988. The theater, which will cost \$30 million, will have 9,500 fixed seats under a pavilion roof, with lawn seating capable of accommodating 7,500.

Sacramento's booming downtown skyline continues to change with two new office towers scheduled for completion in early 1992. The Wells Fargo Center, designed by Hellmuth, Obata & Kassabaum, San Francisco, is a 30-story, 991,000-square-foot facility including office and retail space, a museum, and a restaurant. Construction also has begun on Plaza Park Tower, a 24-story, 415,000-square-foot office building designed by Kaplan/McLaughlin/Diaz, San Francisco.

In Nevada, Las Vegas has hit the jackpot as the state's business center. Hellmuth, Obata & Kassabaum's Los Angeles office has designed the 37-story Minami Tower, the state's tallest building. The project will contain offices, retail spaces, and a restaurant.

The Seattle suburb of Bellevue is getting its own convention center. Howard Needles Tammen & Bergendoff is the principal architect for the 285,000-square-foot facility. Kohn Pedersen Fox Associates of New York is acting as design consultant, and Landry & Bogan of Palo Alto, California, is the theater consultant. Situated on a sloping downtown site, the complex will contain meeting halls, exhibition spaces, a theater, and multilevel parking. The center is scheduled to open in 1993.

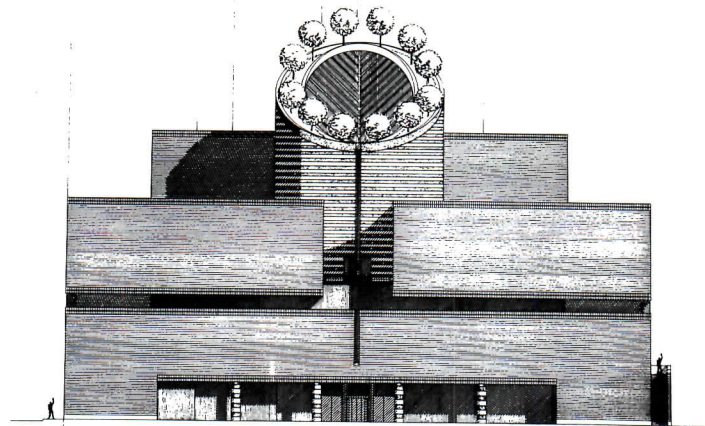
Sandy & Babcock, San Francisco, is designing the Kannabe Resort Hotel in Japan. The 400-room hotel/condominium project will comprise a 22-story condominium tower and a series of low-rise hotel structures with resort amenities clustered at their base.

Botta Designs His First Museum in S. F.

After decades of being housed in tight quarters, the San Francisco Museum of Modern Art unveiled its design for an \$85-

million facility by Swiss architect Mario Botta. The project is Botta's first museum.

Located in the city's South of

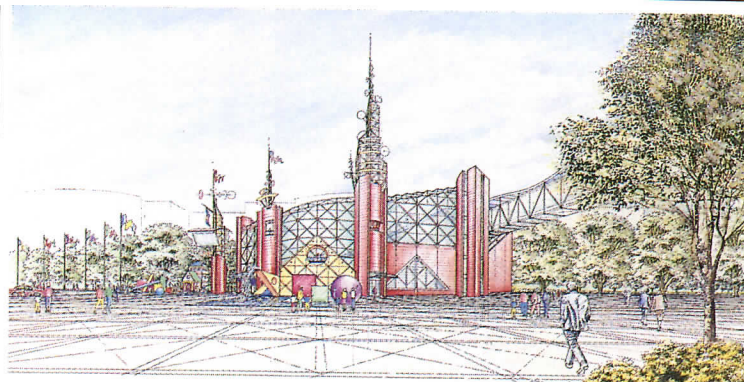


Market area and acting as the anchor for the mixed-use Yerba Buena Center, the 200,000-square-foot museum features a three-level stepped-back stone facade of seemingly separate boxes. A massive cylinder, sliced off at an angle and ringed by trees, rises from the center, while a four-story block houses administrative offices in the rear. In his trademark fashion, Botta has clad the cylinder in contrasting bands of light and dark stone, while the rest of the structure is dressed in a lighter, more muted tone. Skylit roofing will bathe most exhibition areas in natural light. Indeed, Botta envisions the sunny central atrium taking on all of the animation of an Italian piazza.

Design for Children Promotes Healing

At first glance, the Starbright Pavilion in Los Angeles looks like a mix of tinker toys and Lego blocks. Designed to serve as a facility for seriously ill children, the building seemed to demand a certain whimsical touch. "The initial concepts for the project came from the imagery and bright palette of children's toys," explains Bill Roger, project architect at Kaplan/McLaughlin/Diaz, Los Angeles.

A key feature of the 112,700-square-foot facility is that there is nothing medical within it, nothing that causes pain. Instead the concept of psycho-



neuroimmunology, or positive mental-health activities (play), is employed to promote healing.

Plans call for the \$58-million pavilion to be linked to the adjacent L. A. County + USC Medical Center. On entering Starbright, children will see giant

toys that are seats, and corridors whose walls are street-scapes. A variety of inviting spaces, including classrooms, libraries, playrooms, a theater, and an enclosed roof garden, will prove perhaps the best medicine.

Music Room with a View

DRAWING BY F. M. CONSTANTINO



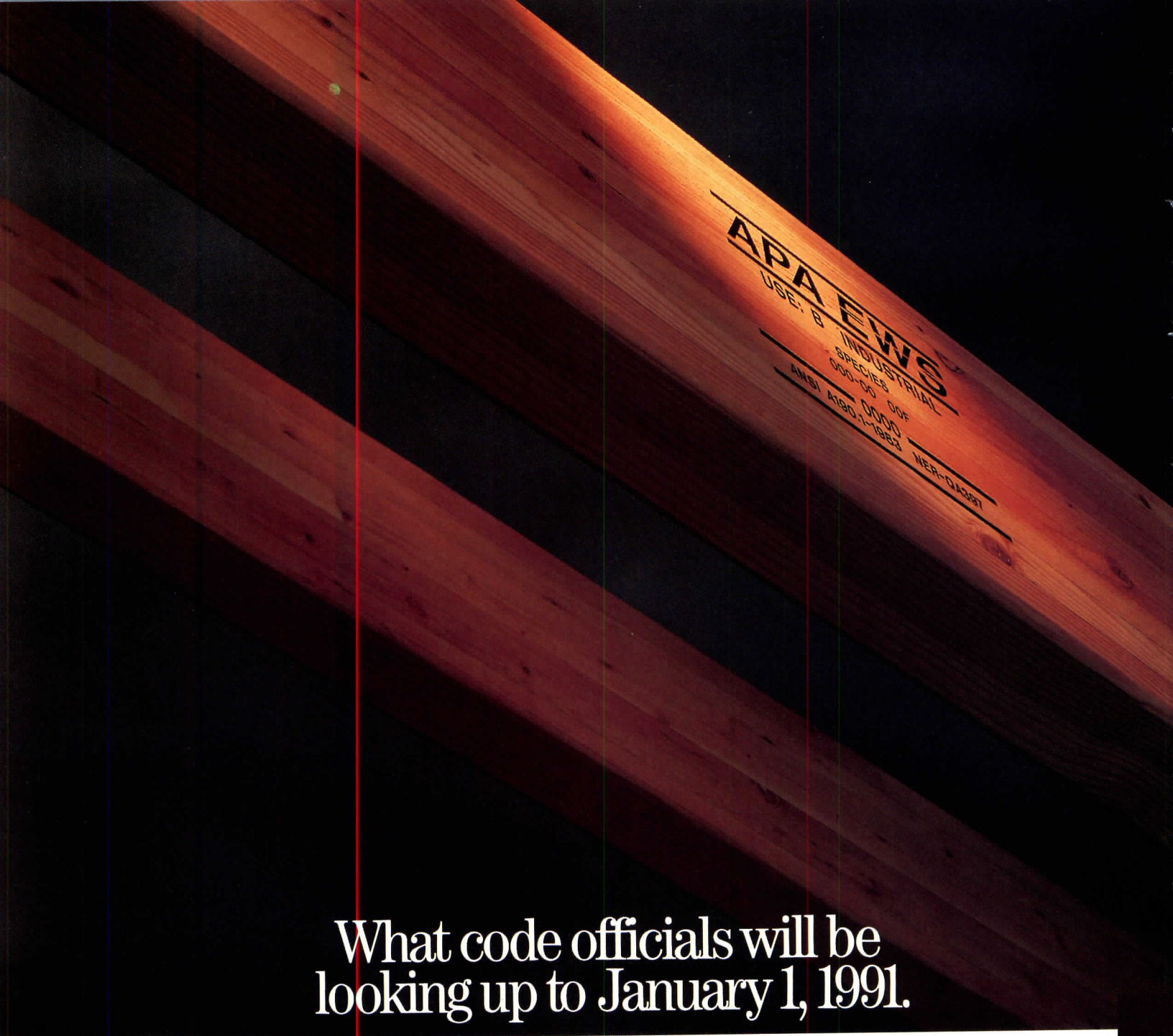
Eero Saarinen's sweeping Shed and quirky, barnlike Theater/Concert Hall have long defined Tanglewood, the Berkshire Hills summer home of the Boston Symphony Orchestra. But Saari-

nen's concert hall, crammed with 1,100 seats, can no longer accommodate demand. So William Rawn Associates, along with acoustics designer Lawrence Kirkegaard & Associates,

has been hired to design a new \$8-million concert hall on an adjacent site. Theater Projects Consultants of New York is the theater consultant.

When complete, the concert hall will seat 1,200 on a main floor and two wraparound balconies. Another 500 visitors on the lawn will have direct views of the stage through an opening created by two sliding doors.

The rectangular hall measures just 69 by 138 feet, with a 50-foot-high ceiling. According to project architect Alan Joslin, "Our intent was to create a true music room, with acoustics suitable for recording." Among the hall's most conspicuous features are its many windows, through which audiences can gaze at the surrounding scenery.



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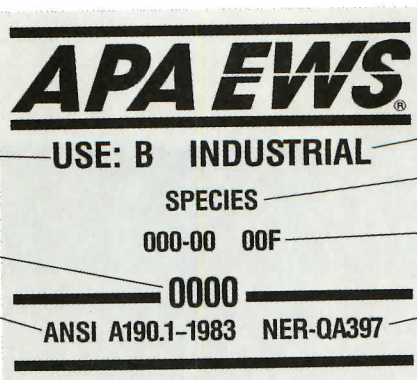
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Competition Calendar

- Sponsors of the 9th International Conference on Making Cities Livable, scheduled for February 26-March 2, 1991 in San Francisco, invite papers. One-hundred-word abstracts are due November 1 and completed papers November 15. Contact Suzanne Lennard, 408/626-9080.

- The Vietnam Women's Memorial Project announces a competition for a monument at the Vietnam Veterans Memorial in Washington, D.C. Winners will receive prizes of \$20,000, \$10,000, and \$1,000. Registration deadline is October 29 and requires a \$50 fee; entry deadline is October 31. For information: Michael John Pittas, Vietnam Women's Memorial Project, 2001 S Street, NW, Suite 302, Washington, D.C. 20009.

- The 1991 Andrea Palladio International Prize for Architecture, which promotes the work of architects under 40, is accepting entries. Projects must be built by January 1, 1991. A prize of 70 million lire (about \$60,000) is awarded at a ceremony in Palladio's Teatro Olimpico in Vicenza. For information: Promosso dalla Caoduro spa., Via Chiappese 36010, Carvazzale Vicenza, Italy (Tel: 0444/595900).

- In an effort to transform Peachtree Street and Auburn Avenue into models of urban vitality, the City of Atlanta and Central Atlanta Progress have announced a two-stage design competition. Registration deadline is October 31; Stage I entries are due December 21. Cash prizes will total \$120,000. For information: Peachtree/Auburn Design Competition, c/o Central Atlanta Progress, 50 Hurt Plaza, Atlanta, Georgia 30303.

- The American Academy in Rome announces the 1991-92 Rome Prize Fellowship Competition in Fine Arts and Humanities. Winners receive a stipend, as well as travel allowances, housing, and meals at the Academy. Fellowships range from six months to two years. Application deadline is November 15. For information: Fellowships Coordinator, American Academy in Rome, 41 East 65th Street, New York, New York 10021 (212/517-4200).

White House to Have a New Neighbor



Given Washington, D.C.'s, rigid 130-foot height limit and its industry of federal bureaucracy, it is no wonder the city's commercial architecture is seldom dis-

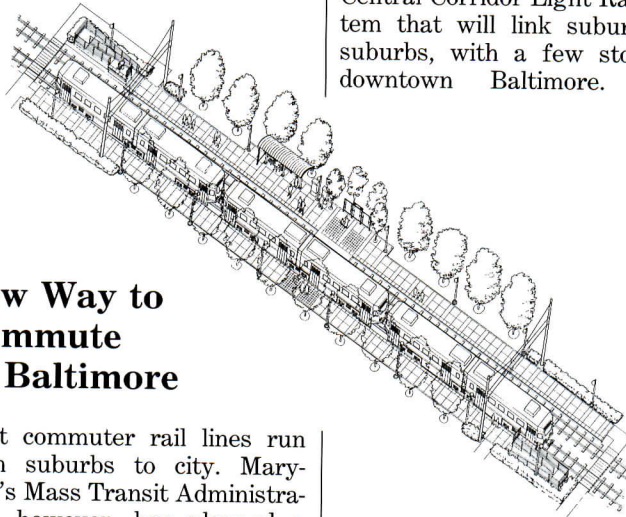
tinctive. Keyes Condon Florence's design for 800 Connecticut Avenue, a speculative office building on Lafayette Square near The White House,

however, is another matter.

"Our intent is for this project not to look like the typical speculative office building that lines Connecticut Avenue," explains Thomas Eichbaum, KCF's partner-in-charge. "We wanted the building to reflect the diversity of historic buildings that surround Lafayette Square."

The 12-story structure has a prominent corner site on the historic square. From certain floors, tenants will be able to look down on The White House, the Mall, and other Washington landmarks.

A series of setbacks allows for offices with balconies and a roof deck on the fifth floor. The structure's Chiampo Rosatto marble facade has a soft gray-white hue that reflects the tones of the historic structures bordering the square.



Central Corridor Light Rail system that will link suburbs to suburbs, with a few stops in downtown Baltimore. Cho,

Wilks & Benn has been hired to design 22 station stops along a 22-mile line that stretches from Baltimore County through the city into Anne Arundel County. "Our design goal is to have consistency throughout the system," states Klaus Philipsen, project manager.

Working with Parsons Brinkerhoff Morrison Knudsen Engineers, Cho, Wilks & Benn had to deal with a tight budget and myriad community and environmental concerns. The designs call for module units 25 feet long and 8.5 feet wide. Each stop is marked by a shed, covered by a curved metal roof and bracketed with glass windscreens.

New Way to Commute In Baltimore

Most commuter rail lines run from suburbs to city. Maryland's Mass Transit Administration, however, has planned a

Birkerts Designs Turin Tower

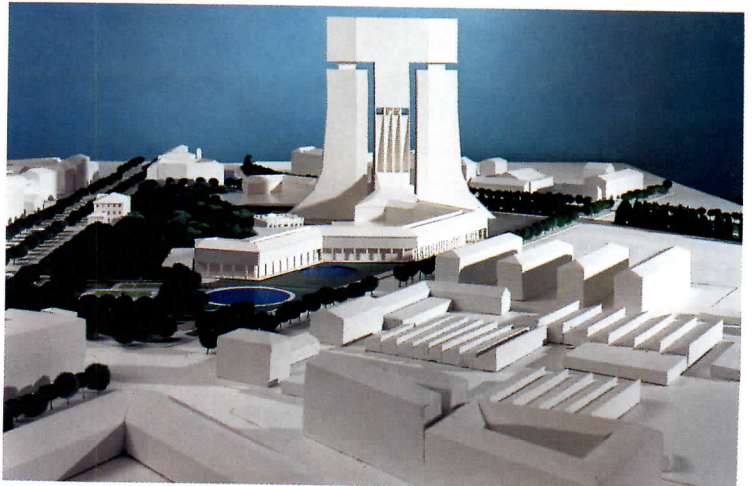
Though Turin is home to Fiat and other major companies, the Italian city is short of new office buildings. To meet the demand for new commercial space while maintaining the fabric of the largely Baroque city, Turin has hired Gunnar Birkerts to design a 35-story office tower and an adjacent mixed-use commercial/residential complex.

Birkerts designed the 344-foot-high tower as three separate facilities, each with its own entrance and major tenant.

Low-rise buildings at the tower's base will incorporate arcades, intricate roofs, and other

features evocative of the historic city. "I think of the project as a microcosm of the city and its history," says Birkerts. "The

project expresses the city of Turin from its medieval development through the Baroque, and into the industrial."



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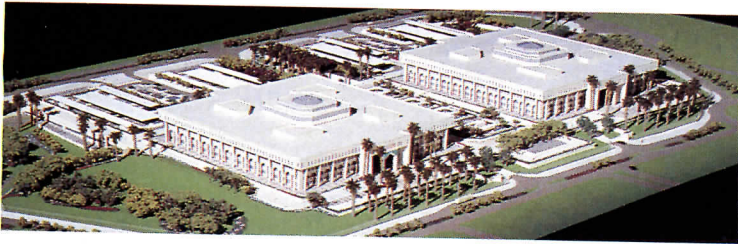
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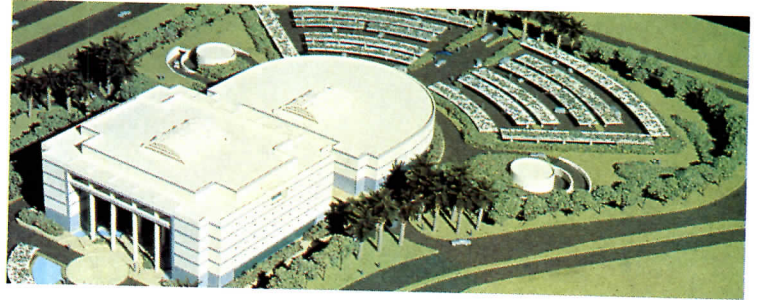


PRACTICE

The Mideast: Architects Feel the Heat



Among TAC's Kuwait projects that went on hold: civil-information building, right, scheduled for completion in 1991 (\$42 million) and, left, first phase of ministries



complex, 1993 (\$115 million). Other projects include the central postal complex, 1992 (\$42.3 million); and the Council of Ministers, 1992 (\$270 million).

Of the U. S. architectural firms with work halted by the Mideast crisis, one of the hardest hit was TAC, with some four million square feet of new buildings in or about to enter construction in Kuwait. While the firm's office

in Kuwait City maintained a presence after the invasion, staffed by two Indians and a Canadian, the government that is the client for almost all major projects had to go. TAC's tactic: "wait and see."

Ironically, TAC made its debut in the Mideast in the mid-'50s with the master plan for the University of Baghdad, but went on to build its large Mideast practice in other countries. Its one near casualty in the cri-

sis was Moncef Eladhari, who had gone to Baghdad shortly before to close down TAC's office there and try to collect back fees. He made headlines after escaping to Jordan by hailing a taxi.
C. K. H.

How (and Why) Americans Set Up Shop in London

Architects are crossing the Atlantic in ever greater numbers [RECORD, September 1990, pages 37-39]. Those who want to get into the European market soon learn the advantages of opening an office there. Often, the city of choice is London.

As Swanke Hayden Connell's Richard Hayden explains, "London is our European office—our foothold for 1992." Having opened its London office in the summer of 1987, the firm is now exploiting its British contacts to get work across the Channel.

Many firms are already there. Those with European track records will have a jump on others trying to set up shop after 1992, says Tad Tucker, who heads HOK's London office.

Looking before you leap

Opening an office in a foreign country is expensive, warns Hayden. Initial capital expenditures for equipment, furniture, computers, and supplies can be high for a new company unfamiliar with local suppliers.



Richard Hayden

"You don't know how to get phones installed or where to get blueprints," says James Allen, who set up Perkins & Will's London office last year. Differences in standard sizes mean you either have to bring over your own paper, binders, and other supplies or adjust to the new norm. "Small things can drive you crazy." Allen hired a British office manager, a strategy that he strongly recommends.

Jerry Li, a principal of Clark Tribble Harris & Li, which now operates a London office with about 120 employees, estimates that it costs between \$250,000 and \$1 million to set up over there. Even then, top personnel shuttle back and forth from one

country to another, requiring heavy travel and entertainment expenses. Three years after CTHL began practicing in England, Li flies over four times a year, down from eight for the first two years of operation.

Most firms set up foreign offices only after getting a large project abroad. A client may require it for consultation and supervision or the architect seizes the opportunity to expand into a new market.

"If we wanted the project, we had to open an office in London," says Koetter, Kim & Associates' Fred Koetter of his firm's involvement in the masterplanning of Phase II of Canary Wharf. Probably the smallest firm to set up shop in London, Koetter, Kim started with a five-person staff—four Americans and one Briton—in early 1989. Today the office has 25 employees (five more than at home base in Boston) and a decreasing percentage of Americans.

The unusual approach

At the opposite end of the spectrum, CTHL acquired an existing British firm, Covell Matthews Wheatley Architects, in 1987. To fund this acquisition, CTHL went

public, offering \$3.5 million in stock in the new British-American firm on the London Stock Exchange. The offering went smoothly, says Li, but would be a much more difficult sell today because of the weaker London stock market.

Why take such an unusual tack? "We didn't want to just transport Americans to Lon-



Jerry Li

don," says Li. "We felt we needed indigenous British expertise, particularly in the production end." Why Covell Matthews Wheatley? "We looked for a British firm that was as close to our mirror image as possible," answers Li. Like CTHL, Covell Matthews Wheatley was a service-oriented firm that special-

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James Allen

ized in commercial projects.

Ironically, the American cachet is so strong among some British developers that CTHL uses both its American and British names when marketing in England. The company runs two separate firms out of the same offices and with the same management. "Most acquisitions fail," says Li, "because the culture of each firm is lost. We didn't want to make that mistake so we've maintained the culture of each practice."

Diversifying

After setting up shop in London, most American firms slowly phase in the various services they offer back home. In its first year of operation, Perkins & Will's British office has offered only architecture. "Next we'll add interior design and then we might slide into engineering," explains Allen. HOK, in England since mid-1988, now offers interior design, facilities programming, landscape design, and planning services. The firm plans to add graphic design eventually, says Tad Tucker, but probably not engineering.

Competition is stiff in engineering with a number of high-quality British firms plus an influx of many large American firms, including Cosentini Associates and Irwin Cantor.

Adjusting to local ways

Registration is currently a hot issue for American architects working in England. Until February, the U. K. Architectural Registration Council recognized U. S. credentials and required only a brief oral exam to earn a British license. Termination of the 18-year-old reciprocity agreement between American

and British registration boards, however, now forces at least one American "director" to take a full battery of written and oral exams for the firm to qualify as "architectural."

Practicing architecture in England requires a certain amount of adjusting. "The design process is not much different," says Richard Hayden, "but contracting is." Instead of the American cost-estimating process, the British rely on quantity surveyors who work separately from

RICHARD PASLEY



Fred Koetter

architects and are often brought into a project even before an architect is hired. Most of the North American developers working in London, however, are using the methods they employ back home.

Building codes in England, of course, are different from the ones Americans know. "Their codes tend to be more conservative than American codes," says Perkin & Will's Allen. Fast-tracking projects is still new to most British developers, who also require a greater number of drawings before construction can begin. While Americans and Britons think they speak the same language, they often use different words. In England a "program" is a "brief" and "tabling" an issue is putting it up for discussion (not aside).

Work abroad is even paying dividends at home. "Two of our British clients have asked us to do work in the U. S.," reports Hayden. **CLIFFORD A. PEARSON**

For more information, *The Architect Overseas: Practice Standards*, published by NCARB with the assistance of the U. S. Department of Commerce in 1986, covers 33 different countries and is being revised this year (202/783-6500).

Assessing Current Earthquake Bills

Two bills are currently up for consideration by the House of Representatives. Under H. R. 4915, the federal government would establish an earthquake insurance program safeguarding private insurers from catastrophic losses in the event of a major earthquake. The covered insurance would apply only to properties that follow local and state laws regulating the location and construction of buildings in earthquake-prone zones. The bill would withhold federal assistance from states and communities that fail to enact and enforce such laws.

A second bill, H. R. 4480, the "Federal Earthquake Insurance and Reinsurance Act," makes insurance available to residential properties regardless. This bill, say critics, is more concerned with ensuring the continued viability of the insurance industry and would promote, but not require, development of mitigation plans only after the insurance program is in place. "It may even encourage the construction of buildings that are ill-suited in earthquake-prone zones," asserted architect Christopher Arnold in recent testimony to Congress on behalf of the AIA, which strongly endorses 4915 over 4480.

The two bills are the latest version of bills proposed after the October 1989 earthquake in San Francisco [RECORD, January 1990, page 14]. The greatest worry among promoters of either bill is the urgency of earthquake legislation losing momentum. Is there an earthquake danger? "Most people don't believe the catastrophe will happen to them," said Arnold.

Even in California, fewer than 10 percent of property owners carry earthquake insurance. "The main problem in developing a seismic-design strategy is persuading people there is a serious danger," he observed. "For residents of Missouri and South Carolina, the idea that the earth will shake and that their home or business will collapse is just not a realistic threat."

Yet, the historical evidence is starkly to the contrary. Since 1700, 3,500 earthquakes have been recorded east of the Mississippi. America's largest earth-

quakes, in 1811-12, took place in the Missouri/Tennessee area along a line following the New Madrid Fault.

Closer to our time, in 1886, Charleston, South Carolina, suffered an earthquake that damaged every building in town, killed 60 to 100 people, and sent tremors as far away as Boston and Cuba. Frightened residents of Milwaukee and Chicago ran into the streets, and those sitting in the galleries of the Opera House in Terre Haute, Indiana, panicked.

PETER HOFFMAN
Washington, D. C.

An End to Those NAAGing Contracts

The National Association of Attorneys General has scrapped its controversial proposed model contracts for owner-architect and owner-contractor agreements [RECORD, February 1990, page 11]. This will come as a great relief to architects who could have been saddled with greatly increased liability and responsibilities, and ends a battle by eight professional groups, including the AIA, representing architects, builders, and their liability insurers.

Life-Cycle Cost Guide Available

The American Society for Testing and Materials has just published *Building Economics*, a guide to standard practices for measuring life-cycle costs, benefit-to-cost and savings-to-investment ratios, internal rates of return, net benefits, and payback for investments in buildings and in building systems. Aimed primarily at the evaluation of existing systems, the book is also useful in understanding the financial implications of decisions on new construction. For more information, contact the ASTM at 1916 Race St., Philadelphia, Pa. 19103. □



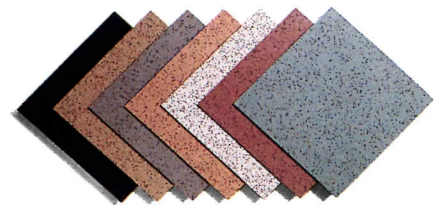
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MAKING PRACTICE COURSES RELEVANT

A plan to ignite student interest in a dull (?) but vital topic.

By Robert Gutman

The professional-practice course is now a standard feature of architecture-school curriculums. It is usually offered for one semester, although sometimes it continues into a second. The typical syllabus covers a range of technical subjects relevant to running a practice and carrying buildings to completion. Topics include registration procedures, how to get employment or set up practice, some principles of office management, financial aspects of practice, contracts, building regulations, building documentation, and site supervision.

A very timely subject is the responsibility of architects as defined by law, which, in turn, leads to the troubling question of professional-liability insurance. Some courses include marketing and public relations, the problems of specialized practice, and relations with consultants. Four to five thousand students in the U.S. and Canada take courses like this each year.

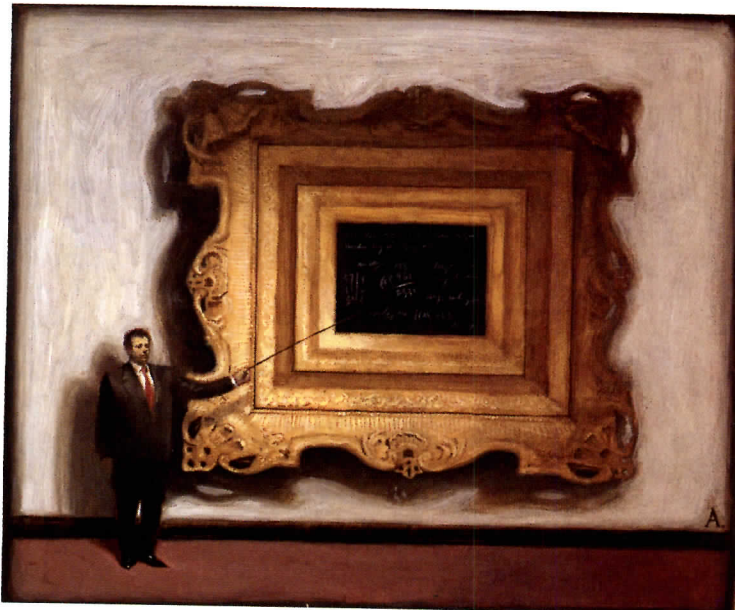
Why professional-practice courses as now taught often fail in their mission

In many schools a majority of students see professional-practice courses as dull and boring. However, it does not follow that practice courses are expendable. Their importance in the educational process often is not appreciated until the students graduate and begin their careers.

There are many different reasons why students look down on the standard course in professional practice. Of prime concern:

1. To make the material more appealing, the instructor spices it up with illustrations from his own experience. Although the approach attracts some students, the contrast is obvious between it and the theoretical cohesiveness and rigor of courses in technical and historical subjects. As a result, the professional-practice course ends up being viewed as inferior.

2. Teachers are criticized for lackluster qualifications. Because the subject matter has generally not been made an academic discipline, faculty recruiting is difficult.



DANIEL ADEL

3. Possibly the principal source of student distress is the lack of fit between the idealized image of the profession assumed in studio work and the message about practice conveyed in these courses. Many design-studio projects are conceived without the constraints of building projects. Very often, the limits imposed by structural and mechanical systems are ignored. Most conspicuously lacking are construction costs and building maintenance. The student cannot reconcile the idealized image with the portrait of an embattled, vulnerable professional that inevitably comes across in the practice courses.

The lack of fit between studio and practice courses has been widened in recent years by the return of the history/theory courses to a central place in the curriculum. The new prominence of theory is generally a welcome development, and has helped relate architecture to other disciplines. But the particular versions of history/theory that are popular make it more difficult for the average student or teacher to seriously examine practice issues. How can one take office management seriously when one has just learned from Tafuri's *Architecture and Utopia* that the existential condition of architects under capitalism has already destroyed the profession?

Is one really supposed to think that more scrupulous attention to the fine print in contracts can reverse the demands on architecture that, according to remarks by Peter Eisenman, are the consequence of the Holocaust and the invention of the nuclear bomb? Why bother to learn zoning and building codes when Leon Krier has written that they are the primary cause of the disintegration of cities and have robbed architects of the opportunity to build?

Faculties who inhabit these different realms of discourse often cope with the lack of fit by not talking to each other. But the student does not enjoy this luxury and has to take sides on the issues to find answers. Depending on the school and the student, one or the other

discourse will be given greater weight and the practice courses usually lose out in the competition for attention.

Several steps can be taken to address the problems. I have experimented with some of them in my teaching and can report on their feasibility and usefulness. Others are more hypothetical, but form a potential solution to student concerns.

Dealing with intellectual shortcomings

I have tried two different approaches. One is to recast some of the issues of practice in historical perspective by examining the procedures used by prominent U.S. firms to design their buildings. The advantage of the historical approach to the study of practice is that it makes the subject continuous with the student's experience of courses in architectural history or in the theory of architecture. It thus provides a familiar context for understanding present-day dilemmas.

Firms that the Princeton students and I examined included the offices of Richardson, Post, Burnham, Adler and Sullivan, Wright, McKim Mead and White, Cram and Goodhue, the Kahns (Albert and Louis), Hood, Skidmore Owings & Merrill, Pei, Johnson and Burgee, Venturi Rauch and Scott-Brown, and Kohn Pedersen Fox. A

standard protocol was applied to each firm: what kinds of buildings it designed, how it got the jobs, what its role was in each project, how the office was organized to carry out the work, and what its relations were with the building trades. When the class came to dealing with contemporary offices, we often went directly to them and talked with firm members.

The big problem in teaching the course was the lack of adequate documentation. Extensive archival material exists on the practices of each of the firms we studied, but very little of it has been treated by professional historians—even though all of those we studied were Americans who practiced after the Civil War when the concept of the office had already developed.

Despite the narrow focus of these monographs, they allowed the class to classify commissions and compare the building types designed. Information on getting jobs was sparse, but inferences could be made. The topics that proved most difficult to report on were relations with contractors and the building industry, and questions of office management.

The good news is that professional historians are increasingly interested in the history of practice. Recent books such as *The Architect*, edited by Spiro Kostof, and *The Image of the Architect* by Andrew Saint are examples of the new emphasis. The Society of Architectural Historians has begun to care. I chaired a session on the history of the profession at the 1987 annual meeting. The papers dealt with the practice of Wright at the time he built the Larkin building, the Eero Saarinen firm at various stages of his career, and the organization of SOM under the late Gordon Bunshaft.

Making practice courses relevant

My second approach with courses was to relate architectural practice to other disciplines in which the study of problems may be more advanced. Three social sciences have traditions of analysis—economics, political science, and sociology.

Recent research in economics has examined the propriety and effectiveness of professional regulation as a means of circumventing the market mechanism. Political-science studies have seen the professions as special-interest groups trying to advance their own power in competition with others. Sociology has developed the largest literature and also includes the most active scholars interested in the professions. Sociologists have examined how professions achieve power, their relative success in achieving autonomy, the conditions that enhance or thwart professional effectiveness, and their positive and negative contributions to social order and harmony.

To make sense of what is happening in professional practice today, one has to examine architecture as a culture industry

along with understanding its role as a service industry. This culture industry is made up of individuals, groups, and companies that make money by creating, producing, and distributing images, ideas, and belief systems. In architecture, this includes not only architects and their firms, but critics, magazines, museums, television producers, public-relations consultants, advertisers, historians, and educators. The motives of these individuals and groups is the clue to many of the features of contemporary architecture that we associate with Postmodernism.

Although courses on the history of the profession and examination from the perspective of other disciplines sometimes work, they still fail to address the principal

To make sense out of what is happening in architecture today, one has to examine architecture as a culture industry.

obstacle in getting students to think about practice issues. The challenge remains to somehow bridge the gap between the strongly polemical, adversarial, and ideological view of architecture presented by theorists, and ordinary questions of professional responsibility, management, and profitability that offices encounter daily. New perspectives are needed.

Examining the critics

Useful knowledge can come from reversing the standard relationship between the critical tradition and practice. Instead of feeling self-conscious and embarrassed about the weight given to pragmatic issues, instructors in practice courses should examine the means of support that enable polemical theorists to get so much attention. The instructor can raise questions such as, how do architects like Eisenman, Krier, and Tafuri support themselves? Who are their clients? What services make clients willing to reward them? In what form do they get their rewards?

Many polemicists support themselves by teaching, writing, and giving lectures—a new form of practice. Their clients are not clients in the usual sense, but prominent members of the culture industry: publishers, publicists, editors, and media entrepreneurs in the business of encouraging the public's consumption of culture. Some theorists do conduct conventional practices. Interestingly, however—like many

other avant-garde architects in the history of the profession—their building production is of uneven quality. Some buildings are designed to illustrate their theories. Others, more routine, are the ones that earn most of their fees and enable their offices to survive.

The instructor's aim in such courses would not be to puncture the romance of students about being architects. It would be rather to get students (who otherwise are inclined to ignore the practical influences on contemporary practice) to consider them seriously. They would see how their critic-heroes' ideas and work are shaped by many of the same forces that influence the ordinary professional.

How practice can free creativity

While we look at practical realities, we owe it to the polemical tradition to take it seriously. Instructors could include in the professional-practice courses some discussion on ways of conducting a critical practice.

This means a type of practice that allows principals to explore design and construction approaches that go beyond the normal constraints by the building industry and clients. Many of our best graduates are looking for jobs that offer something more than just the prospect of honing skills or meeting prospective clients. They are looking for ways to be architects, to make a good living, but also to be innovative.

For many, innovation means new formal and stylistic ideas. For many others, however, it means new uses for materials, cheaper, more-efficient types of fabrication, or ways to provide housing and other facilities for groups (e.g., the homeless) not served by the private market. If the professional-practice courses can embrace such innovation, it will be another way of getting student interest.

We should be doing this in any case. After all, instructors of professional practice are supposed to be more familiar than other faculty members with how the building industry is organized, how building designs are arrived at, what gives developers and real-estate interests their clout, how laws and regulations are passed, and the economic constraints under which architecture is produced. If we cannot come up with good proposals for reforming many aspects of this system and allowing a new architecture to flourish, who can? Taught intelligently and with insight, the professional-practice courses offer the best hope for introducing into the schools' curriculum a greater sense of realism about architecture. □

Mr. Gutman holds professorships at both Rutgers and Princeton universities, is the author of Architectural Practice, A Critical View, and advises firms on training and development issues.

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WORKING WITH PHOTOGRAPHERS

Photographing your project is a serious investment. Make sure it's done right. By Nicholas Polites



Romance and transparency for a utilitarian structure: Becton Dickinson headquarters; Kallmann, McKinnell & Wood, architects.



Hard-edged transparency for a muscular complex: Bond University; Arata Isozaki, architect.

It's important. As architecture becomes more competitive, photography ends up helping marketing, public relations, and finding clients.

For those working with architectural photographers for the first time, here are some pointers:

Know what you want

Before contacting photographers, think through all the actual or potential uses you might put photographs to: brochures, offprints, slide shows, professional publications, business publications, client mailings, the popular press, etc. This will give you a better idea of the type of photography you need. And it will help you rationalize your photography budget.

Spend time going through the architecture and design publications, noting the approaches that various photographers take in their work, and evaluate which approach seems most compatible with your project and aims. Some photographers work in a purely documentary style, making a literal record of buildings most suitable to archives or historic surveys. At the

opposite extreme, many photographers, especially when shooting interiors, take a theatrical approach, treating the space as a stage set. These are more suitable to the popular press.

Then there are presentation photos that address the needs of potential clients, juries, and professional journals. They are well-composed and technically competent, and they tell the story of the building so that, when put together—in a slide-show, magazine layout, brochure, or booklet—the viewer sees how the building works and what the designer intended to accomplish. By studying the plan with the photographs, one can understand the spaces and how they relate to one another.

If you want the animation of people in the photos, keep this in mind when evaluating photographers' work. Shooting a gymnasium during a game or a plaza while people are milling about requires a photographer who has the patience to wait for the right shot and the flexibility to work fast when it comes.

If the assignment is to shoot architectural models, bear in mind that there are pho-

tographers who are specialists and have elaborate studio set-ups for taking high-quality model photography. This becomes critical if the project has to pass through public approvals based on photographs of the model.

Getting the right interview

Select likely candidates and ask for interviews. Ask photographers to bring a complete set of one project's photographs as well as the normal range of varied photographs from their portfolios.

"It's very easy," explains photographer Steve Rosenthal, "to put together a dazzling portfolio of eye-catching photographs. But really what you are doing here is being assured that all the photographs are going to be useful in one way or another—not just one or two from a shoot of 20 or so. We try to put together a story on a building. We try to make the building understandable to somebody who hasn't seen it—to bring the architectural world to life for a lot of people who know buildings only through magazines and books."



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Top, careful composition for a geometric effect: Cornell University; Gwathmey Siegel, architects. Crisp objects on a landscape: Shapleigh House; Graham, Gund, architect.

Top, using the mists to effect: Dumbarton Oaks; Hartman Cox, architects. An interior full of activity: Museum of Fine Arts, Boston; I. M. Pei & Partners, architects.

Working with the photographer

Tell the photographer about the design of your project and how you are planning to use the photographs. Erica Stoller, who heads up ESTO, the organization founded by her father Ezra Stoller (which today represents several leading architectural photographers), recommends going a step further—to the shoot itself. “In the best shoots,” she says, “everybody knows it is going to work out from the beginning. The architect is there explaining what he intended, why this works and that doesn’t, and the photographer understands. The photographer is not just someone brought in to take pictures.”

Generally, photographers first take Polaroid views to determine the final views for the finished work. At the end of this phase, the architect or photographer may decide that more or different views are required. Again, Stoller points to the importance of the architect being on site to make that decision.

Whereas photographers can do a lot to bring buildings to life in two dimensions, they can’t perform miracles. Photographer

Paul Warchol, for example, admits finding himself happiest when the architect’s view of his work dovetails with his own. He says that some clients seem to expect that, because his work is widely published, any building he photographs will automatically make it into the magazines. Not so, he warns: “If the project is not good enough, it’s just not going to make it.”

Getting the right conditions to shoot

Some variables you can control, some not. Weather, of course, is paramount in all exterior photography. When travel is involved, professional photographers will check local weather bureaus for conditions, but there are no guarantees.

Photographers can often compensate for less-than-ideal weather. For example, they can get up early and work late to catch any favorable variations in the light. While waiting for a break in the weather, they can scout out and monitor the best shots. Working with a well-trained assistant, they can set up quickly so that, even if there are only a few hours of sun in a whole week, they can capture something.

Sometimes, a photographer can work against the weather. A dramatic sky, for example, may be an appropriate backdrop for some buildings. (It is an old cliché that Venice photographs beautifully in the rain.) Almost hopeless for contemporary architecture, however, is the bright, overcast, hazy, or smoggy day more and more typical of summer weather in big cities. The air often turns a dirty yellowish green, and the entire sky becomes a light source. Shadow nuance and depth are obliterated. All a photographer can do is wait, or give up and return at a later date. Under such circumstances, some photographers will lower their day rate and share the loss with the client. But these are individual practices, not rules. Most photographers remain optimistic that, over the course of a shoot, they will get enough good weather to produce good results.

What you can and must control are site conditions. Do not schedule photography until you know construction is complete, debris removed, the site landscaped, and the lawn mowed. Make sure the occupants

Continued on page 138

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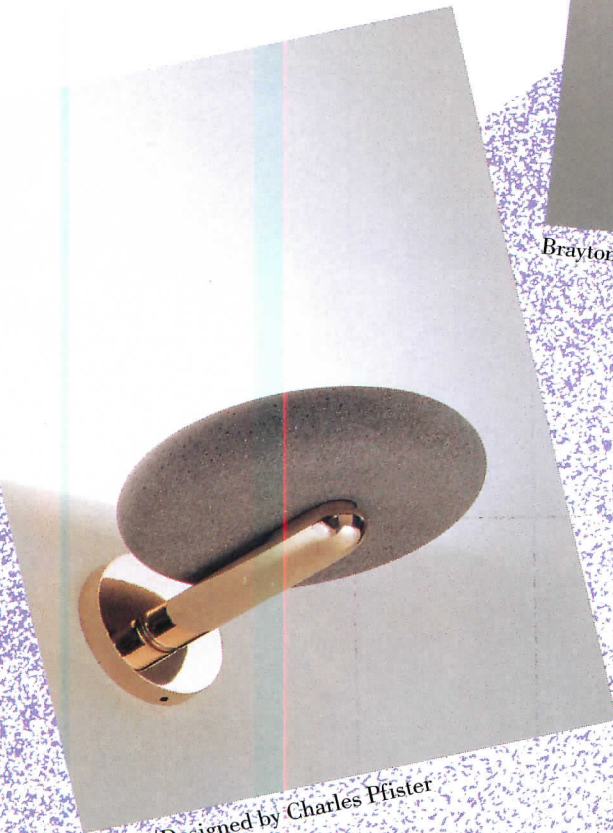
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Part two of a series shows young firms how to go from inception to maturity. By Bradford Perkins



Bradford Perkins: "Each new firm has to find its own way to build a solid practice."

"A new practice that is successful and achieves its founders' basic goals is one of the most satisfying ways to pursue a career in architecture," says Bradford Perkins, a veteran of starting his own practice, in the first part of his article [RECORD, September 1990, pages 37-39]. In that premiere of a series on small firms, he revealed ways his and other young firms employed to get started.

In this second and final part of his article, he answers the question: Now that I've gotten off the ground, how do I fly?

C. K. H.

Having finally obtained work, each new firm has to find its own way to build a solid practice. In this, there are differences among the firms I've interviewed.

Ways of running a new firm range from a corporate structure to a collaboration to principals working in isolation

Acheson, Thornton and Doyle collaborate. All three principals are project architects and designers by background and they have a balance of skills. On a given project, one takes the lead and the other two supply crits, support, and work. Their balance of skills means that one provides quick ideas and superior presentations, one is thorough and analytical, and the

third is the risk taker in design ideas. Two spend more time outside getting business and the third has assumed the lead in running the office. Still, all three are designers and project architects "on the boards."

In another firm, the two principals share staff but work separately on their own projects. They share a design vocabulary, but prefer to work designs on their own.

A few firms—generally spinoffs from larger firms and those formed from older firms—formally divide

up the major roles among the principals. At Johnson, Fain and Pereira, Bill Fain took over general management and the firm's large urban-design and planning practice while Scott Johnson acts as the director of design for the architectural practice. Theirs is the more formal structure of a large office that does large projects.

Principals of most new firms attempt to find some means of collaboration while one principal takes the design lead on each project.

A willingness to promote is common to all new firms

Having done a thing, few successful young firms are shy about promoting it. As in any business, it is far easier for established firms doing major projects to be published and obtain other such forms of public recognition. Merit alone is rarely enough—especially when achieved on the

obscure types of projects that new firms typically get.

As a result, many of the best known design firms devote a disproportionate share of their limited resources in early years to promoting their work and design reputation. Morphosis is a particularly successful example of a firm for which this worked. Principals Thom Mayne and Michael Rotundi invested the time, money, and effort for the necessary drawings, models, and photography that won them many design awards and established their reputation.

Successful young firms often have trouble establishing design credibility. One firm's members were concerned that their growing workload was coming from a "can-do" image. Maintaining design quality is toughest when clients see them as a cooperative, service-oriented young firm.

Successful new firms establish their image early. For some, it starts by making sure they look like a going concern. It is easier to convince clients that you are real if they see an office, business cards, and some of the other basic trappings. But do not invest so heavily in image that you have no resources left for the substance.

Acheson, Thornton and Doyle quickly moved to real quarters after a few months working in one principal's apartment—a



DARRYL ESTRINE

Thom Mayne: Not worrying about creating the image of an established firm.

move all three feel helped their success.

But Morphosis started in Thom Mayne's house and was still in an old open warehouse in its 10th year.

First, conquer accounting

While early projects were hard, they were even harder to turn into income. Few new firms are founded by people with business training, but, even with a business background, it is seldom easy to make money on the types of projects a new firm gets to do. Fees tend to be tighter, the workload more uneven, and clients less credit-worthy than those of more established firms. Moreover, the structured business techniques learned in large firms do not help them very much in this situation.

In new firms, a business foundation must be established to support survival in the short term and growth in the future. But it can be just the foundation, not a complete business structure.

The most pressing problem is cash flow. I will always remember a large client payment we received midway in my firm's second year. It finally gave us the cash to breathe between payrolls. I taped a copy of the check in my sketch book with the caption: "Free at last!" The whole financial system can typically be limited to:

- A set of books maintained by a part-time bookkeeper. (A better system is to use the basic parts of a packaged automated system to allow for growth.)

- A six- or 12-month projection of fees to be earned each month and the costs of running the practice. Because of the narrow profit margin, it is important to achieve some profit virtually every month. In architecture it is possible to lose in one month more than you can make in six months of "normal" profits. Learning how to even out the peaks and valleys in the upcoming workload and properly matching it with expenses is an essential skill.

- A monthly (or even biweekly) projection of income expected and expenses that must be paid. This should be supported by a monthly update of those clients who owe you money and your payables incurred.

- An efficient billing procedure and an efficient follow-up practice for collections. Too

few clients pay promptly without a nudge.

- A simple early-warning system if expenses are being incurred out of proportion to the fee or if fees are being billed faster than work is done, creating a drought later. Because the principals are usually directly involved in all projects of a new firm, monitoring does not need a complex system.

- A periodic (three or six months) review of profit or loss (on both a cash and an accrual basis) to show where you are.

Always keep overhead low—well under 100 percent of technical salaries. This is quite easy because the office is spartan and the principals are all working on projects. The 150-percent overheads of established offices will strangle most startups.

Set up legal systems early

These include a proper legal structure created with advice of an experienced attorney, an insurance package also set up with professional advice, a basic personnel record-keeping system, a basic filing and record-keeping system to accommodate growth, and the skills to write proposals and negotiate the most advantageous contracts.

Most crucial is setting up a proper legal structure. Each state's laws differ sharply, but common issues are:

- A professional corporation has the advantage of some limitation on business—but not professional—liabilities.

- A dual structure (a partnership and a drafting corporation) allows tax savings on the capital built to finance the firm's operations, but it can complicate accounting.

- A partnership is easy to form but not easy to modify unless the power to do so is clearly structured. It also leaves all general partners exposed to unlimited business as well as professional liabilities.

No two firms are the same, so this issue should be checked with an experienced attorney and tax adviser.

All architects interviewed learned many business skills by trial and error, and all agreed that practice took up too much time. You cannot focus on design when you are dealing with a cash-flow problem or trying to negotiate a contract. All have sought advice from other architects who had faced the same issues they were facing.

In spite of the thin early years, the hard work, and the promise of more of the same, all of the principals of these new firms felt strongly that they had made the right decision. □

Mr. Perkins founded his firm, Perkins Geddis Eastman, in 1983. It has grown to 55 people, with a varied practice largely based in the eastern U. S.



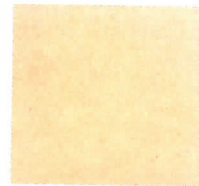
William Fain and R. Scott Johnson (above): Working with the structure of a large-firm. Michael Doyle, Thomas Thornton, and David Acheson (below): Establishing an image of success early.



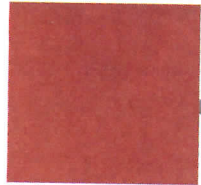
JOHN BLACK

Many firms devote a disproportionate share of limited resources in early years to promoting their design reputation.

Summitville Quarry



66 Palomino



10 Summitville Red



64 Bone



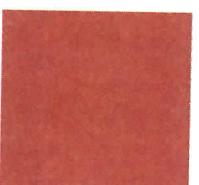
10 Summitville Red Flashed



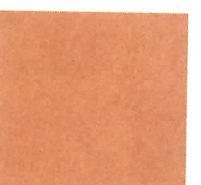
44 Oxford Gray



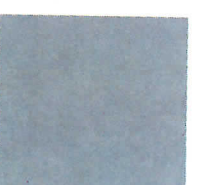
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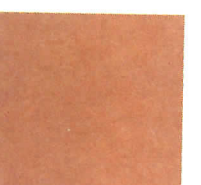
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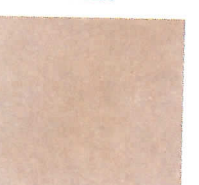
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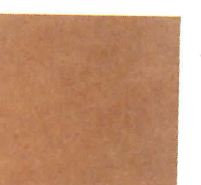
74 Harbor Blue



11 Sun Glo Flashed



42 Dove Gray



33 Falcon



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CONSTRUCTION COSTS CALM ON THE SURFACE

While there is stability on national average, a look at regional variations reveals underlying shifts.

In the first quarter of this year, construction costs on a national basis returned to a normal rate of rises in the neighborhood of 0.3 percent—well below the cost rises in the general economy. This follows a decline in the last quarter of 1989 [RECORD, June 1990, page 37]. And it reflects the generally flat pace of construction since 1987, which has produced a weakness in demand for both materials and labor.

What is of interest in this otherwise-static situation is the geographic shift of cost pressures—from the east to the west. For the first time in many years, the western half of the country takes the lead in rises and may well continue to do this for as long as it and the central states, which straddle the divide, maintain their current lead in construction-volume rises [Construction Update, September 1990, page 41-44].

Indeed, the Northeast is the one area of the country where that update anticipated construction would be falling this year.

SUMMARY OF BUILDING CONSTRUCTION COSTS

	Number metro areas	1/90 to 4/89	4/89 to 4/89	1977* to 4/89
Eastern U. S.				
Metro NY-NJ.....	18	0.17	2.42	2004.97
New England States.....	33	0.44	0.75	1855.87
Northeastern and				
North Central States.....	120	0.46	1.17	1764.01
Southeastern States.....	106	0.01	0.56	1822.30
Average Eastern U. S.	277	0.27	0.97	1812.92
Western U. S.				
Mississippi River and				
West Central States.....	122	0.46	0.61	1714.70
Pacific Coast and Rocky				
Mountain States.....	106	0.40	1.02	1823.51
Average Western U. S.	228	0.43	0.80	1765.29
United States Average	505	0.34	0.89	1791.41

*Using only cities with base year of 1977

Two cities bring the startling situation into vivid focus. Relinquishing their roles as the national construction-cost leaders are the metropolitan areas of New York and

Boston, which for many years traded first-place position back and forth. No longer are housing, now in local depression, and the artificial backlog of office-building construction, committed to in rosier times, strong enough to maintain cost pressures. New York saw its first decline this quarter. Boston did see some rebound, but costs there had been falling since the second quarter of last year—six months before the recent national decline.

Material costs were down nationally 0.3 percent. Leading the pack: concrete block (-0.5 percent), structural steel (-0.7), and conduit (-1.1). Only plywood (+2.1 percent) and copper pipe (+1.1 percent) showed any gain at all. Why, then, was there a rise in overall costs? Labor gains, although modest, were more than enough to offset material costs.

CHARLES K. HOYT

Data supplied by Dodge Cost Systems, Marshall + Swift.

HISTORICAL BUILDING COSTS INDEXES

Average of all Nonresidential Building Types, 21 Cities

1977 average for each city = 1000.0

Metropolitan area	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990				
											1st	2nd	3rd	4th	
Atlanta	2098.6	2078.0	2360.6	2456.7	2448.7	2518.3	2561.9	2580.9	2697.3	2740.4	2726.7				
Baltimore	1446.5	1544.9	1639.5	1689.7	1703.7	1743.8	1765.2	1780.2	1849.1	1886.8	1900.6				
Birmingham	1407.2	1469.9	1468.1	1535.7	1594.7	1565.7	1587.4	1542.6	1612.5	1643.0	1647.1				
Boston	1283.7	1432.5	1502.0	1569.9	1646.0	1721.0	1773.6	1883.0	1921.6	1917.2	1939.9				
Chicago	1323.6	1344.7	1425.8	1439.5	1476.7	1528.0	1599.9	1591.4	1636.5	1672.8	1680.1				
Cincinnati	1385.2	1350.4	1362.6	1430.8	1484.5	1486.6	1499.4	1510.9	1526.8	1560.7	1563.6				
Cleveland	1388.2	1459.5	1511.4	1475.9	1464.0	1474.1	1525.7	1541.8	1550.7	1556.3	1559.7				
Dallas	1481.9	1750.6	1834.3	1925.9	1958.0	1963.3	1973.9	1947.2	1927.2	1877.3	1889.3				
Denver	1487.4	1632.2	1679.1	1800.1	1824.3	1821.8	1795.8	1732.7	1725.3	1725.9	1716.6				
Detroit	1447.4	1580.3	1638.0	1672.1	1697.9	1692.6	1696.6	1689.3	1734.4	1751.2	1761.2				
Kansas City	1233.2	1323.4	1381.8	1407.5	1447.1	1472.5	1484.7	1493.7	1505.6	1518.8	1526.4				
Los Angeles	1387.5	1474.3	1503.3	1523.9	1555.1	1571.0	1609.7	1675.1	1789.5	1813.7	1831.5				
Miami	1380.6	1369.1	1392.1	1467.6	1522.2	1540.6	1566.2	1589.2	1625.2	1641.3	1641.3				
Minneapolis	1327.7	1442.6	1576.8	1624.6	1640.4	1661.0	1674.0	1677.0	1690.6	1712.5	1728.0				
New Orleans	1505.7	1572.7	1616.9	1650.5	1691.4	1762.5	1760.2	1699.8	1707.3	1685.0	1707.7				
New York	1319.4	1419.2	1491.8	1672.5	1747.2	1806.7	1899.9	1980.9	2065.3	2157.2	2148.4				
Philadelphia	1539.5	1660.7	1769.4	1819.5	1922.1	1967.9	1992.7	2023.5	2171.4	2244.3	2290.7				
Pittsburgh	1341.7	1493.2	1479.5	1497.2	1576.1	1611.0	1665.8	1647.3	1700.3	1721.3	1717.9				
St. Louis	1320.0	1397.3	1451.2	1524.9	1625.5	1641.8	1647.4	1653.5	1705.7	1761.1	1759.8				
San Francisco	1644.8	1776.4	1810.1	1856.8	1935.3	1961.8	1995.5	1992.0	2090.9	2114.3	2145.6				
Seattle	1616.8	1814.9	1962.7	1979.0	1948.9	1937.9	1925.3	1874.7	1968.0	1987.0	1999.3				

Costs in a given city for a certain period may be compared with costs in another period by dividing one index into the other; if the index for a city for one period (200.) divided by the index for a second period (150.0) equals 133%, the costs in the one period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0 divided by 200.0 = 75%) or they are 25% lower in the second period.

TAMING THE FACTS

Five ways to improve information management and thus productivity and quality control.

By David Kent Ballast

Today, the design process has grown increasingly complex and the amount of information available has outrun our ability to keep up with it. We are faced with ever expanding codes and regulations, a flood of new materials, changing construction methods, and a multitude of other data required to practice.

At first glance, it may seem that all the new technologies for information management that we see advertised and at conventions and trade shows will easily save us from being buried by an avalanche of facts and figures. It is tempting to think, for instance, that an extensive product database etched on a CD-ROM (compact disk, read-only memory) will solve our material-selection problems or that standard details encoded in our computers will make the correct drawings appear when we need them.

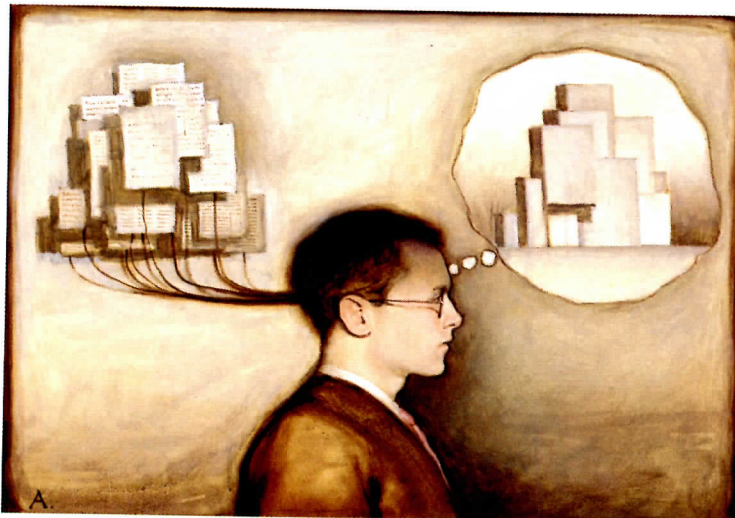
Although technology will help tame the information beast, architects practicing in the coming decades must still come to terms with three realities that require more than just a technological fix:

- The difference between data availability and wise data application means that having the most up-to-date hardware, the largest library, or access to every database possible is not enough. Resources must be targeted to solve the right problems.

- All architectural firms have unique information needs in addition to such common data requirements as codes and product literature. For example, firms design in various geographic areas, have clients with particular needs, specialize in certain building types, prefer some materials over others, and operate with different management and production systems. No collection of ready-made information can respond to all of these differences.

- Finally, non-electronic information will be with us for some time to come. We will still need paper-based data, drawings, samples, photographs, etc. As we can see, the computer has not created the paperless office.

Because of these aspects of information, simple accumulation of data or instant elec-



DANIEL ADEL

tronic access to it will not, in themselves, be adequate to serve the architectural office of the '90s. More than technology is required. Architects need to go beyond information management to knowledge management—the intelligent application of technology and information to professional practice.

There are five ways to improve knowledge management and thus productivity and quality control. Some methods require

Having the largest library or access to every database possible is not enough.

technological means. Some require a capital investment. Others simply require a different management mind-set.

1. Management commitment

The comprehensive utilization of information can only be achieved when it is placed on a level with design, marketing, production, and other aspects of practice. Top management must establish direction and allocate the time, money, and physical resources required. Such commitment is of-

ten difficult, especially for smaller firms, because libraries and information-related activities are viewed as non-income-producing, support functions.

Fortunately, technology is making information management easier and equalizing access. For example, the data contained on one Electronic Sweet's compact disk is the same for a one-person office as it is for a design giant. This type of access will make it possible for firms of all sizes to compete in the information-rich century to come.

However, access to large volumes of information will not be enough. It will be the wise

management and application of available information resources that will separate the successful practice from the unsuccessful one, regardless of size.

For small and medium-size firms that lack the resources to do everything itself there is help available. For example, the Association of Architectural Librarians offers information and support, and the AIA can assist with locating data sources on topics such as library maintenance and information management. In addition, there may be a trade library available in your area that you can join on a subscription basis. These libraries have catalogs and other references and services, maintain them, and spread costs among subscribers.

For fast data retrieval, commercial database searches can be done by anyone with a modem and terminal, but these often require experience to be used efficiently. As an alternate, most large public libraries and university libraries offer the service for a nominal fee. There are also consultants who will help organize your office's information needs and, in some instances, maintain your resource collection.

2. Full utilization of technologies

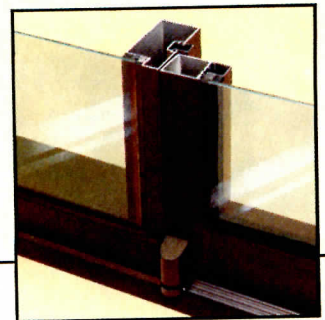
Another way to improve knowledge management is to make the most of existing resources. Many of the technologies have been around for years, but little-used by most architectural firms. For example, online database search services, such as Dia-



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log Information Services, Inc., offer access to hundreds of commercial databases through a modem connection to your computer or with a dedicated terminal. These include databases useful to architects and engineers such as the *Avery Index to Architectural Periodicals*, the *Engineering Index*, and the database of the National Technical Information Service.

Newer technologies, such as the CD-ROM, that contain data specific to the building industry, offer unprecedented amounts of easily updated information. Electronic Sweet's, produced by Sweet's Division of McGraw-Hill Information Systems Company, and the Construction Criteria Base

Newer technologies will make memory more reliable and more in tune with the three-dimensional nature of architecture.

(CCB), produced by the National Institute of Building Sciences, the Naval Facilities Engineering Command, the Corps of Engineers, and the National Aeronautics and Space Administration, are two examples of data on a disk currently being used by architectural firms. Use of CD-ROM will increase as the market expands and more architects become familiar with it. Although the cost of subscribing to some services may seem high, keeping equivalent information on paper is prohibitive.

Other services provide targeted solutions to particular design-office needs. Much recent progress has been made in code searches and master specifications. Some of these services are disk-based for use on your own computer while others require modem connection to a central main-frame or written requests.

3. Re-using information

Architects and engineers are not only information consumers, but also producers. Every job generates data on material performance, design successes and failures, costs, fee allocations, and project-management procedures. When you fail to capture this information, not only do you compromise the quality of future work, but you also lose a valuable competitive asset—something unique that no one else has.

Have a feedback system to store and easily recall information that can be reused. The system may be a simple improved filing system or a complex multimedia, in-house database. If no applicable

off-the-shelf software is available, create your own. Data-base programs are increasingly powerful and easy to use, and setting one up is relatively simple.

Many firms use existing, traditional information formats to capture their hard-earned lessons. Standard details drawn on polyester, for example, can be revised with new data on construction and products. Other information can be saved by updating master specs.

Newer technologies that are currently being improved will also make corporate memory more reliable and more in tune with the three-dimensional nature of architecture. WORM (write-once-read-many) optical disks and erasable optical disks can store vast amounts of text and graphic data for instant recovery. These are available today and, with improvements in speed and lower costs, architects will be using them more in years to come.

Hypertext systems such as Apple Computer's HyperCard also make it possible to develop nonlinear collections of data so you can develop networks of information, turning data into knowledge instead of just lists of facts. Hypermedia can even surpass this by adding to simple texts color images, animation, three-dimensional graphics, sounds, and video to record and communicate information in a medium most appropriate for the subject.

4. Continuing education

We spend increasing time simply trying to keep up with new materials, changing practice methods, and construction technology even while products like CD-ROM and commercial data-bases are continually updated. There is no substitute for human intelligence and wisdom—two qualities required to efficiently apply the wealth of information to the solution of design problems.

Each office must tailor its continuing-education program to meet its specific needs. Some methods: office seminars and sending staff to workshops, trade shows, or classes.

5. Project information integration and expert systems

In the near future two additional advancements will help architects improve knowledge management. These are project-information integration and expert systems. Integration is the coordination of all the phases and participants involved in a building's design, construction, and use. These systems allow information from architects, consultants, and others to be applied to a master database that assists with the entire life-cycle of a project.

Expert systems consist of hardware and software that use a knowledge base and so-called inference procedures (that guide and control this base) to solve problems within a specific domain. Expert systems are a way of electronically adding structure to an

overabundance of data and information to help solve very complex problems. It does little good to have the equivalent of tens of thousands of pages of information on a compact disk if you cannot apply it correctly. Expert systems can also be used to help you solve problems outside of your field and to capture knowledge and experience of seasoned professionals so they can be used by younger, less experienced people.

Both integrated project-information and expert systems for the construction industry are in their infancy. Some architectural offices and government agencies are developing and using such systems now, but for the majority of design firms, widespread adoption is some time off. However, continuing research and development will soon make them part of architectural practice. You should begin taking steps now to familiarize yourself with them and how they can benefit your practice in the future.

Coming full circle

Knowledge management will help the architectural profession take another step in the evolution of how it does business. When the architect was considered the master builder, things were simpler. The architect possessed nearly all of the skills and expertise to design, plan, and supervise the construction of a building; architecture was knowledge-based. With the increased complexity of the building process and the explosion of information, the architect became a team coordinator and manager of the multiplicity of information needed to

Knowledge management will help the architectural profession take another step in the evolution of how it does business.

build a project; architecture is currently information-based. Now that we are getting closer to having all the information we need in easily retrievable forms, the emphasis must be on using it wisely to improve productivity and the quality of service. Architecture will continue to be a knowledge-based profession, but the knowledge will be of a new higher order. □

Mr. Ballast is a Denver-based architect and consultant, and former director of project management for Gensler and Associates. He is the author of The Architect's Handbook and A Guide to Quality Control for Design Professionals.



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HOW TO VISIT THAT COMPUTER TRADE SHOW

A 10 point guide
for making the most of your time

The theory behind trade shows is a good one: You get to see a wide range of products side-by-side, talk to other architects who may have the same needs you do, and attend seminars where experts are often discussing problems that might not have occurred to you.

After more than 20 years of attending shows on almost a monthly basis, however—and four years covering meetings specifically for this magazine—I've noticed that architects often do not get the most out of them, especially when it comes to software and computer hardware demonstrations. Indeed, the excitement, glitter, and fast pace of modern trade shows make it easy for demonstrators of complex items such as software to stick to their prepared scripts. They demonstrate the tasks their products do best, and avoid talking about tasks that are difficult or impossible to handle.

That's somewhat different from viewing the latest building products. Architects are educated to understand the properties of building materials, in depth. That is not so with the ever-changing world of computers.

Here's how you take charge:

1. It sounds fundamental, but it is wise to look at the show material before coming. Make a list of the booths you definitely want to visit and the conference sessions you want to attend. If you register well in advance, you will also be on the mailing list supplied to exhibitors. This allows the exhibitors to contact you ahead of time, often with an invitation to visit a suite, off the exhibit floor, for detailed demonstrations. Remember, exhibitors view you as a particularly hot prospect for a sale, because you are investing time and money to attend the show in the first place.

2. Do not allocate your time too tightly. I try to leave at least half of each day open, so that I can take time to explore unexpected innovations. One way to extend the time available is to sign on for in-suite

demonstrations after the exhibit floor closes each day.

One disturbing trend: At many shows, exhibitors start to fold up their booths an hour or more before the official closing time on the last day. Obviously, be careful about scheduling an in-booth demo for the very end of the show.

3. Use pre-conference articles with caution. Magazines, this one included, often publish pre-show news. Usually, however, the coverage is restricted for reasons of space to what is new at the shows. The

well into a demonstration before discovering that a new piece of software will not run on their equipment, for instance. Describe the size of your practice, your equipment, any unusual requirements due to the nature of your projects or other professionals you deal with, and so forth.

One odd trap: Inexpensive 2D drafting software, especially for the Macintosh, sometimes uses integer-based calculations rather than floating-point. Integer-based calculations are much faster, but are limited to the equivalent of six-place accuracy.

That's awkward for big projects in some cases. But if you are only using CAD for drafting, with no regard for possible use of the underlying database, it does not matter.

6. Do not let an exhibitor control a demonstration. That sounds easier than it is, of course. Exhibitors will show their products to the best advantage. They know their products' weak points and carefully avoid them. A typical routine has the exhibitor draw a floor-plan, then cut into the walls to create doors and windows, add dimensions, and stretch a room or two.

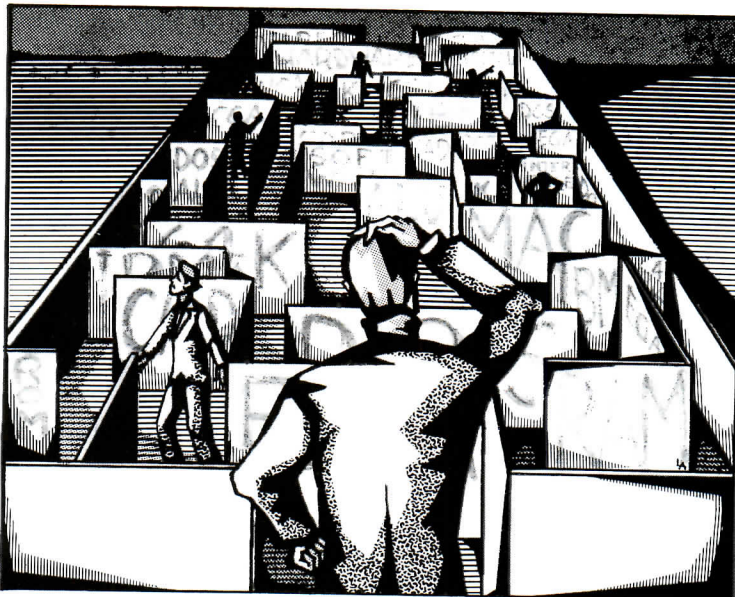
As the demonstration progresses, ask to add things to the "script" design, to determine how easy the program really is to use. Where one wall

meets another, ask for a curved or oblique corner, for instance. Ask for interior partitions to be thinner than exterior walls. See if the dimensioning style can be changed.

When shading is being demonstrated, ask to place the light source and eyepoint yourself; the position can affect the speed at which the shading takes place. Also make sure some complex curved objects are in the field of view; they take longer to shade than large plane surfaces.

If the package is billed as "3-D," make sure you ask enough questions to truly understand what this means. Some "3-D" packages allow designing only in two dimensions, with modeling in 3-D so you can get a rough idea of the finished design.

Continued on page 139



LEONARD ANTINORI

best product for you may have been announced six months or a year earlier. Thus, it probably will not be mentioned.

Many companies, surprisingly enough, never bother to notify magazines of their new products anyway, or notify them too late to be included in pre-conference coverage.

4. If there is a show daily, take a few minutes to read it each morning. Show dailies have been getting more sophisticated and more "newsy," in part because modern desktop publishing software allows production of all of the daily at the show itself, with less resort to "canned" filler material.

5. At exhibit booths, state your needs clearly. I often see show attendees get



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PLAYING THE FIELD

Janet Marie Smith, vice president of new-stadium planning and development for the Baltimore Orioles, takes a swing at downtown redevelopment.

By David Masello

In an eerily empty Baltimore Memorial Stadium, Janet Marie Smith is as animated as a baseball coach at a pregame warm-up. She rattles off facts about the stadium—upper decks slope 33 degrees, seats are 16 to 19 inches wide, treads are as narrow as 24 inches. She even knows when and where shadows appear, the different materials on seat prototypes interspersed among rows, and that the tomato plants near left field are nearly ready for picking. “The lesson in this stadium is that Baltimore has a heritage, which it will bring with it to the new Camden Yards stadium,” she says.

As vice president of new-stadium planning and development for the Baltimore Orioles, 32-year-old Smith has had to act, at once, as umpire, star player, pinch hitter, and bat girl of sorts for an 85-acre project involving the construction of a new \$110-million ballpark and the renovation of a massive turn-of-the-century warehouse next door.

“You hear about pipe dreams that never happened because they’re not sufficiently financed or well-managed. But this project *has* been well-managed, and the architects have been responsive to the tough challenge of the Orioles’ owner, Eli Jacobs—to design an old-fashioned ballpark with modern amenities—and to the state of Maryland’s mandate to do it all within a set time frame and budget,” Smith explains.

The core of Smith’s job, which she has held since February 1990, involves carrying out the specific design directives of Jacobs and his architects, the Kansas City office of Hellmuth, Obata & Kassabaum (HOK). Says Smith of her role as arbiter of often conflicting objectives: “If you were to talk to our sales and marketing department about where the seats should be, the simple answer would be between the two foul poles. But if the architects were to design a stadium with that in mind, it would



JANICE E. RETTALAATA

Smith must reconcile the demands of the Baltimore Orioles, architects HOK, and city and state agencies.

fly in the face of the very thing that Jacobs wants, which is a seating configuration that is intimate to the playing field and that has all of the nooks, crannies, and asymmetrical geometry characteristic of older ballparks.”

Smith also seeks to reconcile the concerns of every agency, public and private, involved in the construction of the new stadium—such varied tasks as laying out the accounting department, devising the anatomy of ticket operations, figuring out how to make atypical bricks economically feasible, and selecting locks for stadium doors. In addition, Smith works with the Maryland Stadium Authority, which holds all of the contracts on the project, to transmit its strict budgetary and management stipulations to the architects.

Fair play

When Smith came to Baltimore, the decision to build a new downtown stadium had long been made by the Maryland Stadium Authority and the franchise’s owner, the site had been selected, and financing secured. Excavation on the 46,000-seat stadium had begun only a month earlier, and an expert was needed to coordinate the seemingly infinite concerns typical of a large-scale private-public undertaking. It has been Smith’s job to see not only that a fair and winning game is played, but also that the project proceed without errors and strike-outs.

Among her many negotiations, Smith has had frequent, regular contact with Joe Spear, HOK principal-in-charge. “In our weekly talks lots of specifics are addressed—the layout of the Orioles’ offices and club houses, the configuration of the press box, the colors of brick, and so on,” Spear says. While Spear admits that Smith’s architectural training makes communicating with her easier than with someone unfamiliar with the specifics of design and materials, it can also, in his view, “lead more easily to debate.”

For its part, HOK’s involvement with the Orioles and Smith extends to the firm’s comprehensive contract with the Maryland Stadium Authority. In addition to its overall design role, HOK is responsible for the archeological digs, surveys, master plan, and traffic surveys associated with the project. While Spear reviews numerous design directives with Smith, he is careful to point out that “she influences the way we design the stadium like any tenant representative would. She is very interested in the entire scheme, but ultimately she represents the Orioles’ interests.”

Training for the major league

While in architecture school (she received a Bachelor’s degree in Architecture from

“This stadium [is] another example of Baltimore moving a step ahead of what other cities are doing in their urban renaissance. In many cities, sport facilities are still being built in the suburbs.” *Janet Marie Smith*

Mississippi State University in 1981 and a Master's degree in Urban Planning from the City University of New York in 1984), Smith had her sights set on the major league. “In school I was interested in what I could only define then as the business of architecture . . . not the precious aspects of design but rather the way cities were put together and the forces that influence that. I now know it to be a cross between urban design and an ability to manage.” Smith also recognized that major center-city buildings were not the result of a single hand. Rather they involved the manipulation of zoning restrictions, environmental concerns, and numerous political and economic interests. “All too often architects are brought in to decorate a project once other forces have had a hand in shaping it,” Smith remarks. “In my work, I have tried to focus on how you take these things and shape them in such a way that allows architects to do their best work.”

Following graduation, Smith worked for the National Endowment for the Arts in Washington, D. C., where she coordinated a traveling show that explored the role of the arts in urban revitalization. After a year, Smith was hired by the Battery Park City Authority as coordinator of architecture and design, where she was responsible for all design-related issues, including the creation of a master plan, design guidelines, reviews of building proposals, and the execution of the streets, parks, and esplanade of the vast mixed-use development in downtown Manhattan. “New York City had just got back on its feet after the fiscal crisis, and Richard Kahn, who was chairman then, was an inspiration in how he handled fiscal concerns,” Smith recalls. She was also influenced by the project's vice president of architecture and planning, Amanda Burden, whose eye for detail impressed Smith. “I'll never forget the number of caulking samples and shades of granite that we looked at,” Smith recalls. “She [Burden] taught me that it's too easy to look at models and renderings at a conceptual level and think you have a successful project. You have to pay attention to every detail in terms of its design and function—that is, how people relate to it.”

The road to Baltimore

Unlike some baseball players, Smith was not traded to another city but chose instead to take a position in Los Angeles once her work at Battery Park City was completed. Working with developer Wayne Ratkovich, who was then chairman of a nonprofit group overseeing the redevelopment of Pershing Square, a five-acre downtown park, Smith was responsible for the architectural program's financial package. As president of the Pershing Square Management Association, Smith worked with various city agencies and developers. What was originally meant to be a \$15-million project has subsequently ballooned as a result of numerous delays, and much of the proposal remains unrealized. Smith, however, remained on the job long enough to devise a permanent financial scheme. When it appeared that it would be at least another three years before construction would begin, she opted not to endure a long seventh-inning stretch and chose instead to move to Baltimore and her current position.

Smith admits that she was lured to Baltimore partly because the new stadium was being built downtown. Referring to the city's much celebrated Inner Harbor development, Smith says that “if you're interested in urban planning, it's hard not to admire what Baltimore and the state have done over the last 15 years. This stadium project seemed another example of Baltimore moving a step ahead of what other cities are doing in their urban renaissance. In many cities, sports facilities are still being built in the suburbs.”

Baseball as an urban model

Smith's love of baseball was another reason for her taking the position. What's more, she sees the national pastime as a metaphor for cities. “With the exception of golf, baseball is the only sport that has no fixed dimensions or clock on it. To parallel that on an urban level is the notion that cities have a kind of timeless quality to them. Every stadium has a character of its own that in many ways is a reflection of the city around it.” Indeed, when certain great plays in baseball history are recounted, they often have to do with the idiosyncracies of a particular field—the infamous

“green monster” wall at Fenway Park, the quirky bounces off Ebbets Field's scoreboard, or the unusually long playing field at Tiger Stadium.

Indicative of Smith's interest in urban sports imagery is a bulletin board in her Memorial Stadium office filled with baseball buttons and vintage postcards of previous homes of the Orioles. Miniature models of stadiums around the country line the top of a credenza. On the wall opposite her desk is a mural depicting a future game in the new stadium (yet to receive an official name, though Camden Yards is used most often) from what will be an office in the renovated B&O Railroad warehouse. The 1898 structure will provide office space for the Orioles and the Maryland Stadium Authority, as well as a public cafeteria.

In each of her three major jobs, Smith has either created her own position or was the first person to hold it. Though all three positions defy simple description, there are many people who do elements of what she does on a consulting basis. While her jobs have all had a fixed life span, Smith says that it is actually coincidental that she has relocated at the end of each project. In Baltimore, the working assumption is that Smith will be involved through 1993, and probably longer since Jacobs is now planning other developments near the ballpark that he feels might readily demand Smith's participation. Moreover, she is working on some of the Orioles' minor-league facilities and a major-league spring training facility.

Given her accomplishments in Los Angeles and New York, and her ongoing success in Baltimore, Smith's professional batting average is 1,000. When asked if her cross-country moves have fostered a feeling of rootlessness, Smith says that “it's a big myth that you leave friends. You take your friends and your professional relationships with you. I find that I'm just as quick to call someone today who gave me good advice on a project 10 years ago as I am to call my best friend in Nashville. You don't start over each time. There's a lot of continuity in my life. The worst part of moving is getting a new checking account.” □

David Masello is special-projects editor for Avenue magazine.

THE ENDURING LEGACY OF MIES VAN DER ROHE

A set of critical essays paints a complex portrait of Mies, while another book re-examines his Weissenhofsiedlung project.

Mies van der Rohe: Critical Essays, edited by Franz Schulze. New York: The Museum of Modern Art, 1989, 207 pages, \$35.

Reviewed by Mark Stankard

Ludwig Mies van der Rohe always projected a facade of cool confidence and stalwart objectivity. In *Mies van der Rohe: Critical Essays*, the architect cuts a more complex and enigmatic figure, grounded in the realities of design but challenged by the unavoidable cultural issues of his day.

This book stems from the Museum of Modern Art's 1986 centennial exhibition on Mies. After the death of exhibition curator Arthur Drexler, Franz Schulze took over the task of editing the book. What results is an insightful, attractively presented collection of three essays and an interview by Schulze with James Ingo Freed, who studied with and worked for Mies before becoming a principal with the firm Pei Cobb Freed & Partners.

Mies's approach to design is revealed here as a subtle blending of a specific ideal and a contesting element. By examining the dual nature of this approach, the essays help strip away the myth of Mies as an arrow-straight designer and promote him as a more complex and evolving architect. Through the study of philosophy and a sharp awareness of his culture, Mies pursued several themes as architect and educator, each modified by a counter-theme: the desire for freedom *with* the need for order, a knack for innovation *with* an appreciation of classicism, political neutrality *with* political influence, skilled labor *with* standardized construction methods. The "with" distinguishing and bonding these themes is the focus of these essays.

In his essay "From Obscurity to Maturity: Mies van der Rohe's Breakthrough to Modernism," Wolf Tegelhoff examines the work of Mies between 1907 and 1929. He reveals new aspects of this early work, from five well-known theoretical projects designed between 1921 and 1924 to the conservative houses created at the same time. But he tries too hard to equate what he

reads in Mies's architectural drawings with statements made by the architect during the same period.

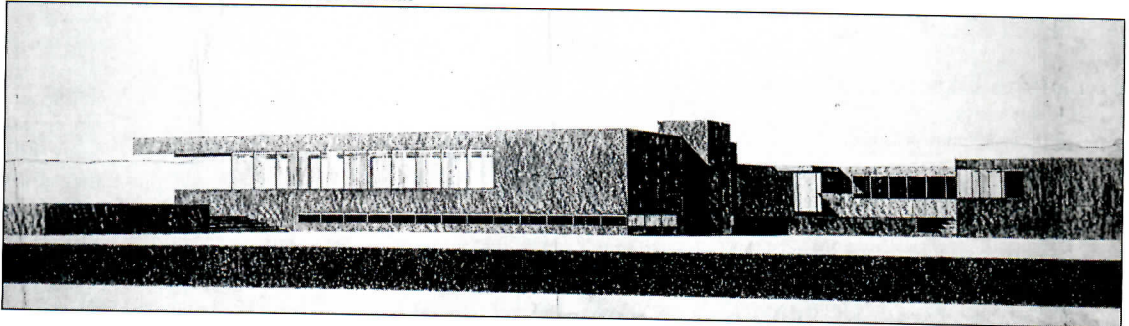
Fritz Neumeier's study, "Space for Reflection: Block versus Pavilion," reveals a poetic Mies struggling to create works of Modern architecture grounded in philosophy, nature, contemporary architecture, and the past. Neumeier goes to great lengths to show the themes Mies carried with him throughout his career.

For example, he removes the pitched roof in a photograph of the Riehl House

In his interview, Freed treats us to a valuable and honest appraisal of Mies in the United States—what he built and what he taught. Freed confronts Mies's prejudiced sense of history (during his years at IIT, Roman architectural history was not taught) and rigid approach to design. But he also acknowledges Mies's ability to inspire and to make space rather than merely occupy it.

Mark Stankard is an architect with Venturi, Scott Brown and Associates.

MIES VAN DER ROHE ARCHIVE, MUSEUM OF MODERN ART



Mies's Concrete Country House combines a free plan with asymmetrical wings.

(1907) to equate it with the New National Gallery in Berlin (1962-1968) as a pavilion set asymmetrically on a classical base.

In his essay, "Mies van der Rohe and the Political Ideology of the Modern Movement in Architecture," Richard Pommer examines Mies in the political context of the Weimar years and the rise to power of the Nazi Party.

Although Mies was "monumentally indifferent to the formal politics of parties and governments," Pommer says the rise of Nazism in the 1920s and '30s made it impossible to depoliticize architecture. Like other architects such as Peter Behrens, Walter Gropius, Bruno Taut, and Heinrich Tessenow, Mies tried to build for the Nazis. In the end, though, the Nazis rejected all architects previously associated with the Weimar Republic. Pommer concludes, "Because [Mies's] 'ideal of freedom had become so private and purely metaphysical, he could put his work in the service of the Nazi regime, as late as the summer of 1934, although his fellow modernists, more political than he, had come to believe that Mies had betrayed them.'"

The Weissenhofsiedlung: Experimental Housing Built for the Deutscher Werkbund, Stuttgart, 1927, by Karin Kirsch. New York: Rizzoli, 1990, 224 pages, \$50.

Reviewed by Gerald Moorhead

Siegfried Giedion wrote in 1927 that the "Weissenhof Housing Settlement gives evidence of two great changes: the change from handicraft methods of construction to industrialization, and the premonition of a new way of life." The exhibit may not have lived up to Giedion's bold statement, but it remains a seminal work of early Modernism—one that brought together J. J. P. Oud, Walter Gropius, Bruno Taut, Mart Stam, Peter Behrens, and Le Corbusier under the direction of Ludwig Mies van der Rohe. Karin Kirsch's new book should revive the memory and broaden our understanding of this landmark effort.

Although some of the individual buildings were not their architects' best, the exhibit as a whole gave a strong, unified expression of the machine esthetic and social

ideals of Modernism. In addition to the model houses built on a hill north of the town center, the exhibit carried its message by way of a display of projects from around the world and a building-products exhibit designed by Lilly Reich.

Kirsch describes the social and political background for the founding of the Werkbund and the impetus for the exhibit project, from its conception in 1925 to its realization in 1927. After a brief discussion of the product displays and a long explanation of the process for selecting the architects, the bulk of this well-illustrated volume describes in detail each house—its design, construction, and interior furnishings.

Of the 21 structures designed by 17 architects, 11 were recently restored.

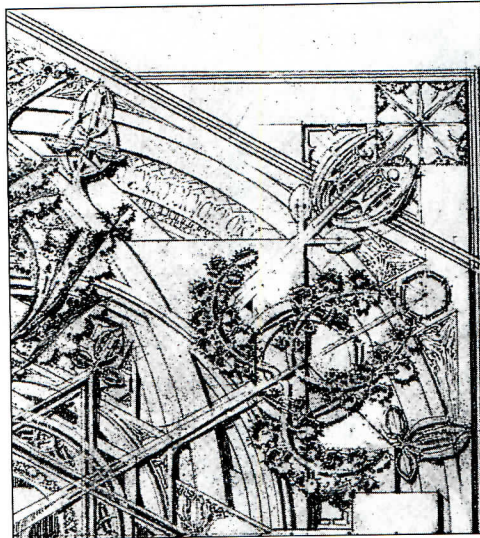
Kirsch, however, ends her study with the closing of the exhibition in late 1927 without commenting on the subsequent fate of the buildings. Nor does she include any discussion of the long-term influence of the exhibit's designs and ideas on the course of Modernism. Her documentation of this historic event is definitive, but at this distance in time, the Weissenhofsiedlung could bear some analysis or commentary.

Louis H. Sullivan: A System of Architectural Ornament. *New York: Rizzoli, 1990, 160 pages, \$200.*

Not every coffee table is big enough to handle this impressive facsimile edition of Sullivan's treatise on ornament. The original work, commissioned in 1922 by the Burnham Library of Architecture at the Art Institute of Chicago as a financial subsidy for the old master in his desperate final years, features an essay and 20 drawings. The new publication includes reproductions of Sullivan's handwritten manuscript and all of the drawings, as well as a foreword by John Zukowsky and Susan Glover Godlewski of the Art Institute and an essay by Lauren Weingarden, an art historian and Sullivan authority.

At more than a dollar a page, this book may raise a few eyebrows, especially by those who question the need for both facsimile and typeset pages of the manuscript. Sketches of ornament details and notes on the facsimile pages, however, prove to be fascinating extras that help readers enter the mind of one of this century's great architects. The drawings themselves, of course, are the stars of this production. Printed in two colors, they actually improve on the original publication's half-tone reproductions, offering greater richness and readability.

Weingarden's thoughtful essay explains the sources of Sullivan's theories of ornamentation (including John Ruskin and the transcendentalist ideas of Ralph Waldo Emerson) and examines how he applied his principles to specific buildings. **C. A. P.**



COURTESY OF RIZZOLI

Sullivan combined naturalistic and geometric forms in a drawing entitled "A Geometrical Play-Ground."

Briefly noted

The Gothic Cathedral: The Architecture of the Great Church, 1130-1530, by Christopher Wilson. *New York: Thames and Hudson, 1990, 305 pages, \$39.95.*

The author, a lecturer in art history at the University of London, covers four centuries of building throughout Europe. The book examines the interaction between architectural design and the demands of patrons, and reconstructs the challenges facing medieval architects. Topics include structural as well as stylistic development.

English Cathedrals, by Edwin Smith and Olive Cook. *London: The Herbert Press, 1989, 285 pages, \$40.*

Architect and photographer Edwin Smith spent decades exposing English cathedrals to the sharp gaze of his ancient half-plate bellows camera. Two hundred of his black-and-white photographs grace the pages of this book, along with commentary by his wife, Olive Cook.

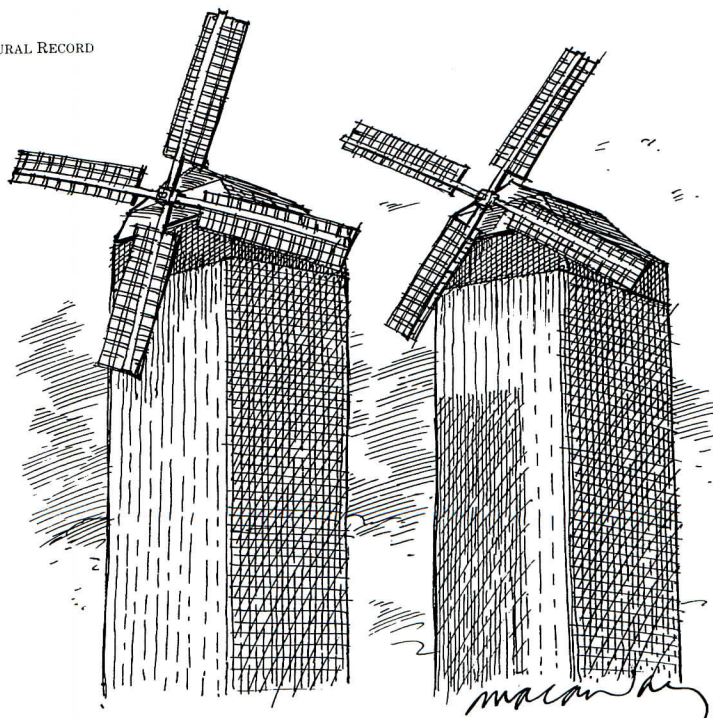
Cathedrals of England, Scotland and Wales, by Paul Johnson. *New York: Harper & Row, 1990, 217 pages, \$29.95.*

An opinionated history of cathedrals in Great Britain, this book includes 150 photographs, both color and black-and-white. Historian and journalist Paul Johnson trumpets the arrival in the 14th and 15th centuries of the Perpendicular style, "the true native style," and says he would have rather seen Coventry reconstructed after World War II. Admirers of Basil Spence's blending of new and ruinous elements at Coventry will have a bone to pick with Johnson.

The World of Chartres, by Jean Favier. *New York: Abrams, 1990, 192 pages, \$60.*

Historian Jean Favier skillfully paints a complete picture of this monument of Gothic architecture, devoting chapters to the bourgeoisie who helped shape the cathedral, the intellectual life that centered there, and the stained-glass windows that have helped make it so compelling for seven centuries. Excellent photographs, a map of the famous windows, and a fold-out plan make this book as useful as it is sumptuous. □

Drawn for ARCHITECTURAL RECORD by David Macaulay



Because of steadily increasing energy costs, traditional technology was re-introduced to power the hundreds of elevators.

ONE LESS GIANT

Gordon Bunshaft dies
after forty-two years at SOM.



GORDON BUNSHAFT
(1909-1990)

Gordon Bunshaft made no little plans. As a designer and later chief designer in the New York office of Skidmore, Owings & Merrill for 42 years, he sailed into each problem with the gusto of a hungry man attacking a steak. Of medium height but heavysset, with a high forehead, pugnacious chin, and a large briar pipe always in his mouth, Gordon, as he was known both to his partners and to the greenest designer recruits, dominated boardroom and drafting room alike by a combination of solid logic, strong voice, and instinct for cutting through to the heart of an issue. His influence on postwar American architecture was prodigious due to the time, the place, and the force of his personality.

He came on the scene just as the big postwar building boom got under way. A Plato to Mies' Socrates, he took the Mies elements of steel, glass, modularity, and Spartan detailing and translated them into a design process that would, under his guidance, be implemented by New York SOM's designers and job captains as a crisp, elegant, formal style erected up and down the Eastern Seaboard and later across the world. Starting with Lever House (1952) and 500 Park Avenue (1960) and later on the suburban low-rise General Electric headquarters (1974), these buildings were models of lucid layout, integrated mechanical, structural, and lighting grids, and a merciless module. Because of the sheer volume of his work, Gordon's impact was huge, and due to its deceptive simplicity, yielded, for better or for worse, imitations across the country.

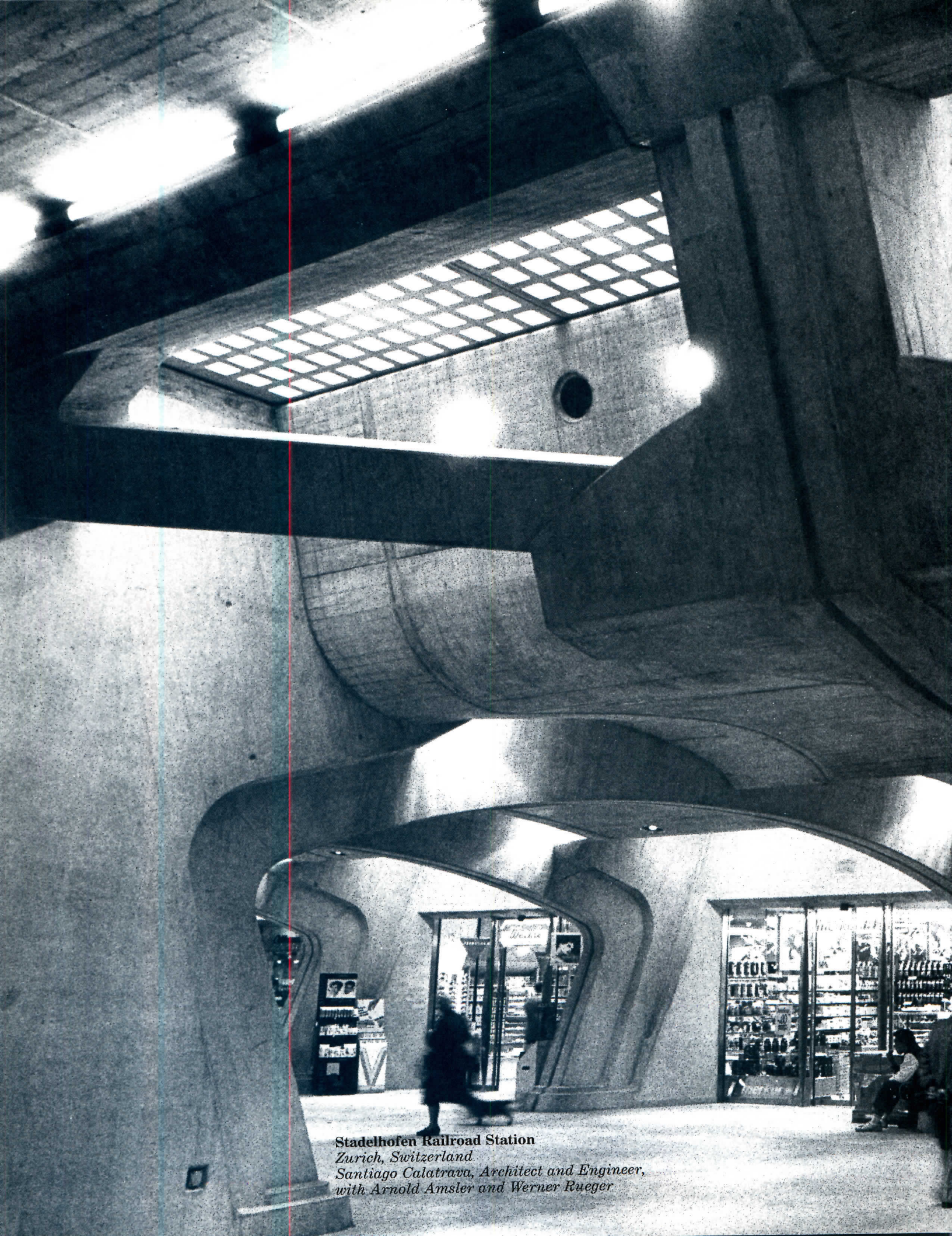
At SOM he enjoyed a powerful team of managers who saw his concepts through to working drawings, specifications, and construction, along with men and women with the connections to bring in new work.

Under his gruff mien, he was a kindly man, considerate of subordinates willing to work hard, and given to goodhearted gestures. As my first boss when I was fresh out of architecture school, Gordon helped set me on the road to a publishing career (though neither of us was aware of it at the time). I had written my first long article (linking Modernism and Classicism) which had been accepted for publication but which became stymied within the firm on the grounds that the reader might confuse my views with official SOM thinking. I appealed to Gordon, who took the manuscript home with him. The following morning he handed it to me with a laconic: "Publish."

Bunshaft's work changed with time. He gradually moved away from the sleek glass and steel idiom of the 1950s toward a more brutal concrete expression (LBJ Library, Austin 1971), and toward the end of his career, his designs took on a sculptural look using rich materials and bold forms (National Commercial Bank Tower, Jeddah, 1985).

In a day when architecture is often judged as fashion, Bunshaft's designs will survive as symbols of his own values of honesty, and tough standards fulfilled.

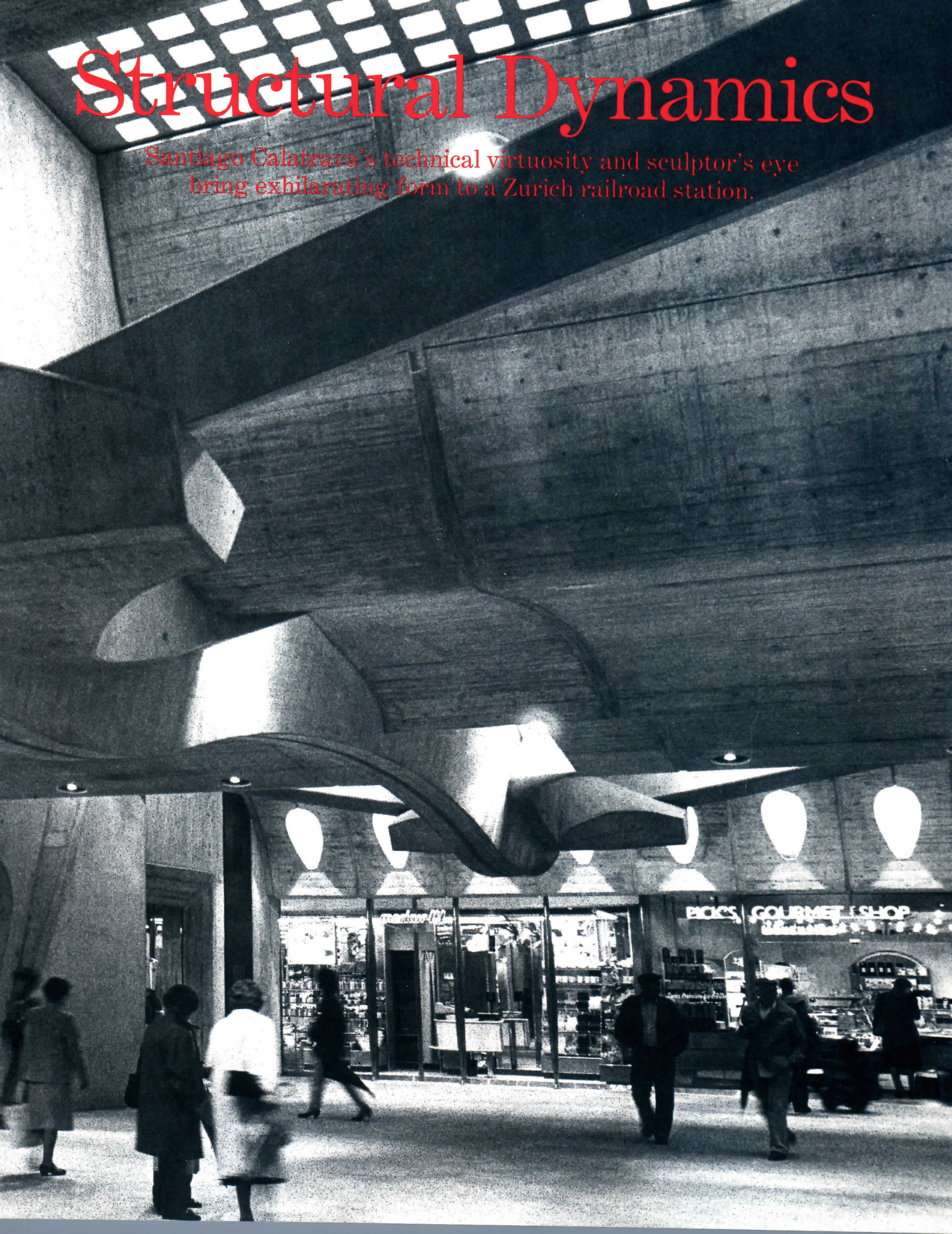
STEPHEN A. KLIMENT

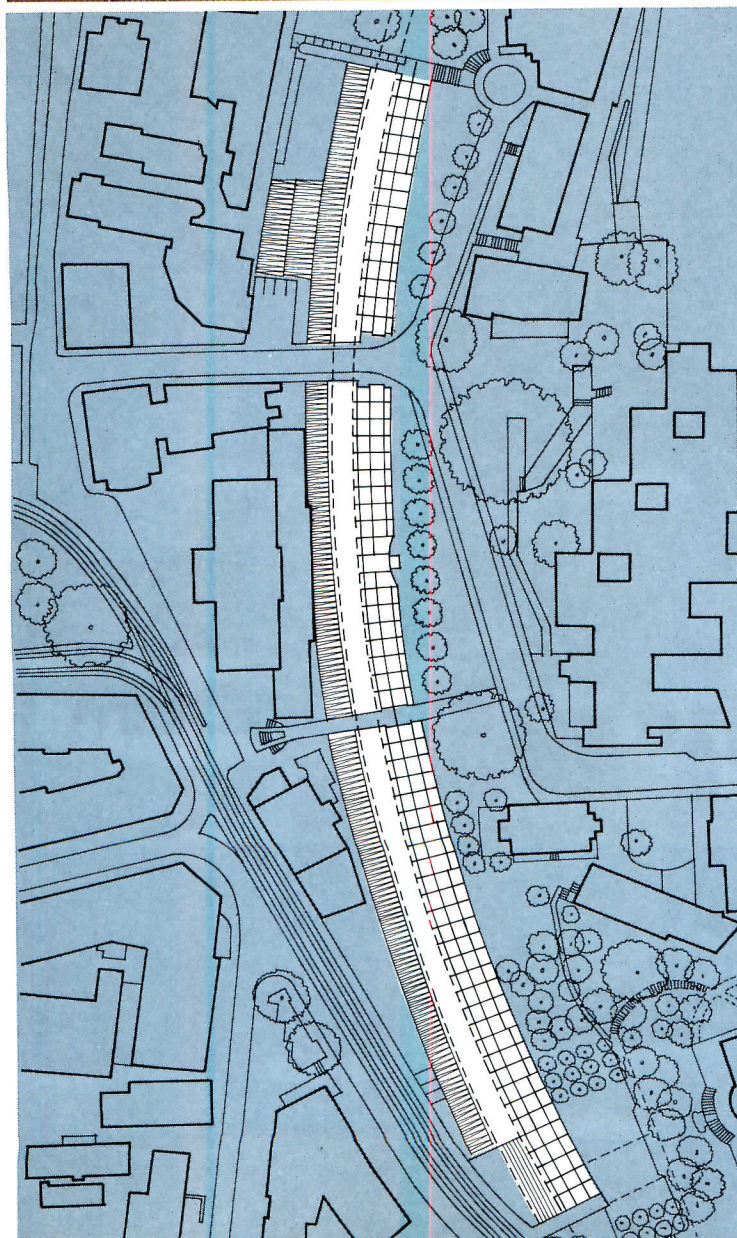


Stadelhofen Railroad Station
Zurich, Switzerland
Santiago Calatrava, Architect and Engineer,
with Arnold Amsler and Werner Rueger

Structural Dynamics

Santiago Calatrava's technical virtuosity and sculptor's eye bring exhilarating form to a Zurich railroad station.





A walk through the subterranean retail passageway under Santiago Calatrava's new Stadelhofen railroad station in Zurich evokes a sensation most mortals can only imagine: this long curving cavity framed by ribs is what the belly of the whale must have looked like to Jonah. But the Biblical metaphor, like the other zoomorphic images that so frequently attach themselves to Calatrava's work, is not as far-fetched as it might seem.

The station is the product of a competition organized in 1982 by the city of Zurich. With an eye to an expected increase in local rail traffic between the city center and the suburbs, the competition called for a new and larger station at Stadelhofen—once the limit of the old city's fortifications and still a dividing line between a parklike hillside above and the dense urban landscape on the other side of the station. Calatrava won with a strongly horizontal tripartite concept consisting of an underground shopping area and underpass to an intermediate platform, three tracks at street level half-veiled by a glass canopy, and over the inner platform a pergola-shaded promenade linked with the upper street. The four stairways leading down to the shops and underpass are closed off after midnight by gates that are frankly ornamental and vaguely reminiscent of medieval drawbridges.

The old station, which had been gouged out of the hillside, had only two tracks that ran along a vertical brick wall. Calatrava created space for a third track by removing this protective wall and hollowing out the earth behind. Arching over this hollow and over the tracks below is the promenade that replaces the lost green space—a triangular overhang concealing a concrete torsion pipe that receives and resolves the spiraling stresses. From the tracks, the flowing form of the platform roof looks more like a draped canopy than solid concrete. In time its pergola, now a trellis of bare steel wire stretched between light steel cantilever supports, will be covered with a translucent screen of hanging greenery.

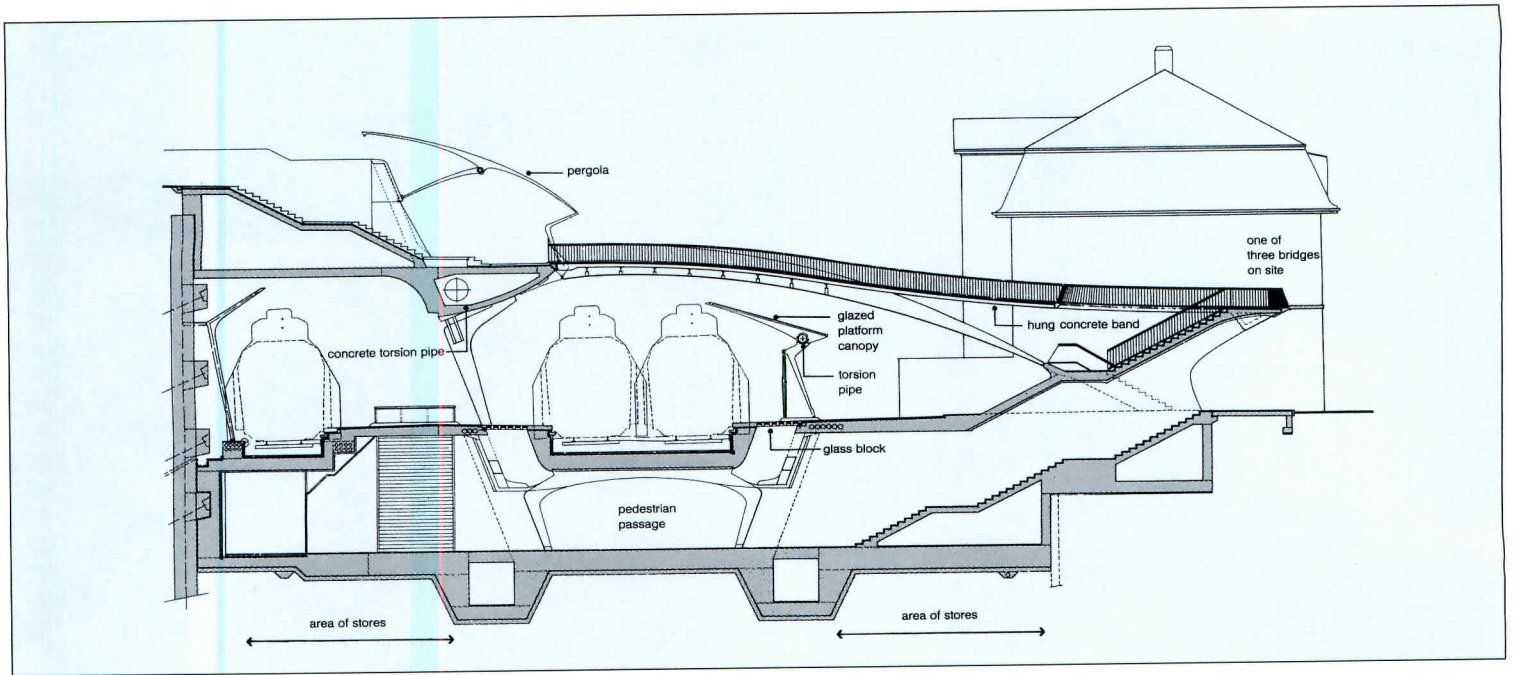
Integrating new with old

"When I first came to Zurich from Valencia, I was struck by how green the city is," the 39-year-old Calatrava says. "The topography of Switzerland makes interventions like those at Stadelhofen necessary. But as time passes these retaining walls are reconquered by waterfalls of vegetation: nature pours over and across these urban interventions back into the city. I wanted to conserve that idea in the new station. Above, it is a garden, while below it is entirely urban."

Calatrava not only added a track to Stadelhofen but created new public spaces as well: the promenade, a small public garden atop it, the station square (including a restaurant by his Swiss collaborator Arnold Amsler), and the underground shopping area. The latter is lit both artificially, with each light sunk into its own recess in the concrete, and by daylight that filters through the grids of glass block paving the platforms. In striving to give this commercial sector of the project "dignity," as he calls it, Calatrava set the shopfronts back between the sculpted concrete arches. The result (although the retail-



Set between a parklike hill and the city center, the Stadelhofen station traces a long (810-foot) slow curve composed in three parts: a glazed and cantilevered station canopy, a concrete canopy supporting a covered promenade over the inner platform, and an underground shopping arcade linking the two.



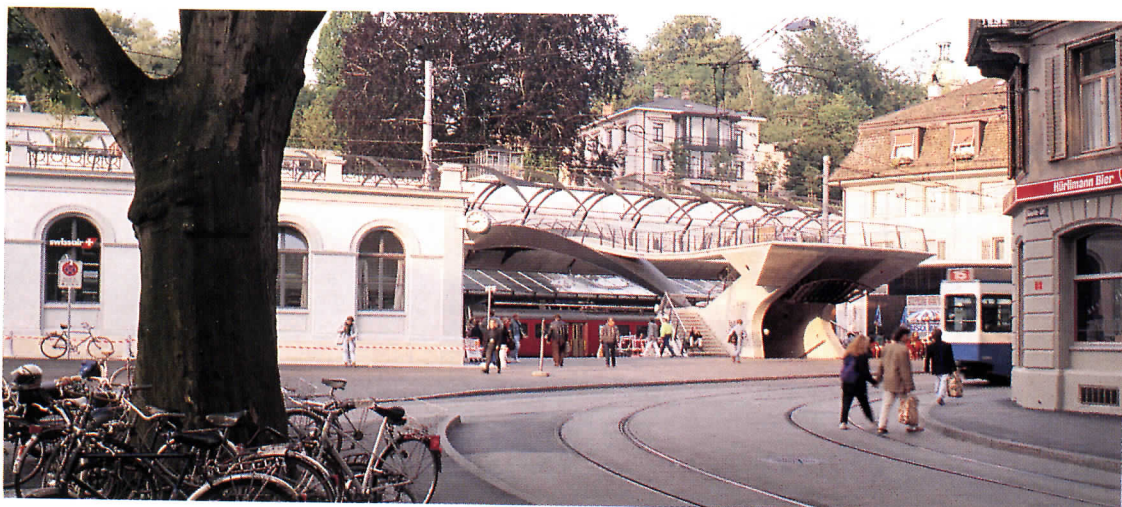
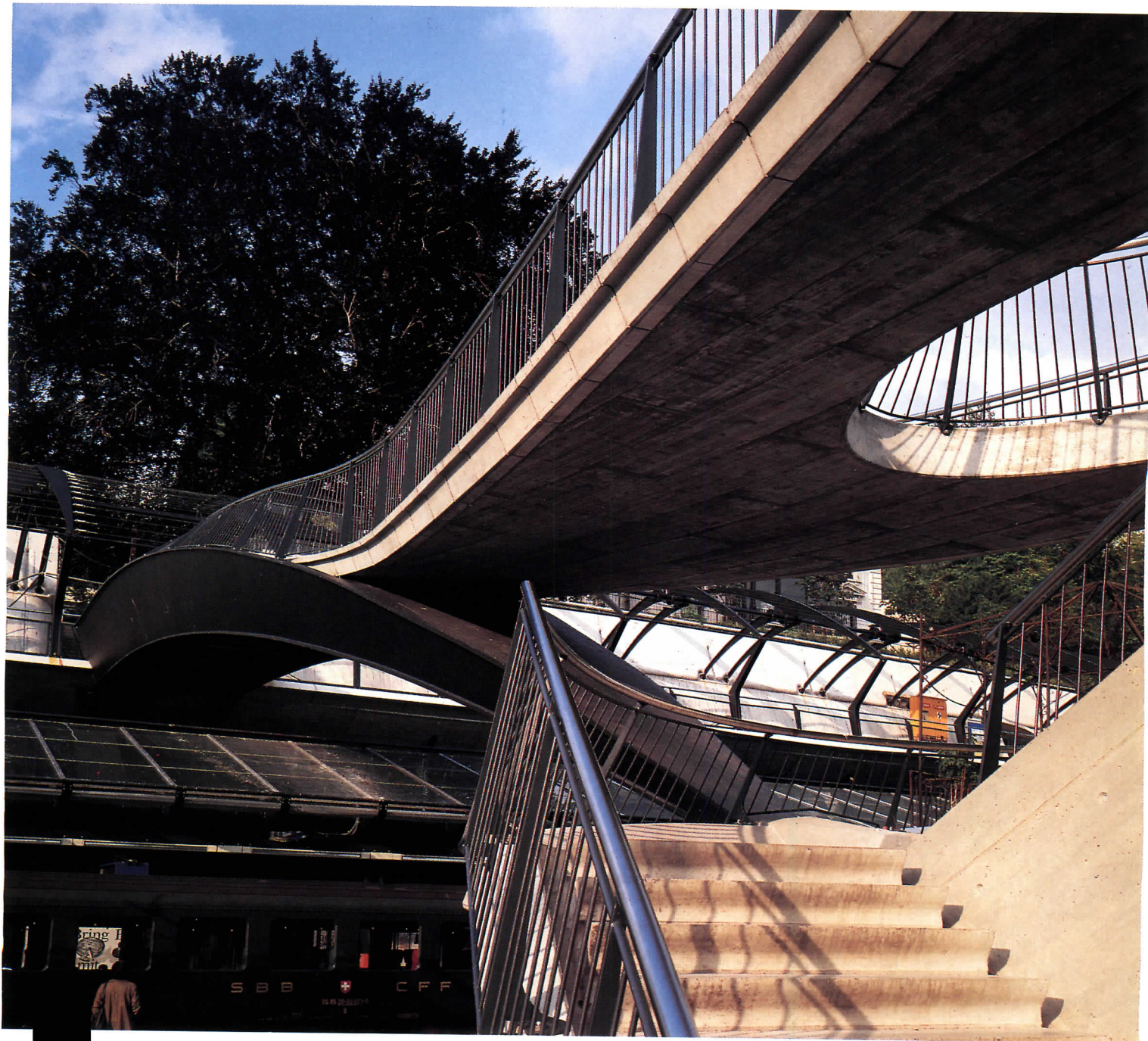
To make way for a third track, a new excavation was dug into the hill alongside the station (section). The lost green space was replaced, however, by a “roof garden” over the track, adjoining a promenade sheltered by a pergola of 15-foot-long steel arcs placed 12 feet on center. A wire trellis strung between the supports carries a roof of vines.

ers needed some convincing) is shops that do not shout each other down but rather present themselves individually to the passerby. The architect calls this area “an exercise in creating the illusion of space where there is none”: the entire station is a mere 120 feet wide and therefore “almost domestic in scale.” (In a city less civilized than Zurich these arches might provide convenient places for muggers to lurk, as could the cul-de-sac at one end of the promenade.)

Complex as the cross-section of the station may be, Calatrava has combined outspoken design elements and the precise language of engineering to create a cohesive whole in a way immediately evident to the user. “To make a place of such simplicity requires a lot of discipline on the part of the architect,” he says. “No building in the area is longer than 40 meters [120 feet],

while the station itself is an uninterrupted swath of 270 meters [810 feet]. In order to control the whole space, you have to give it rhythm and uniformity.” Both the length of the space and its soft curve are emphasized by the use of repetitive elements, such as the long rows of slanted three-pronged steel pillars (a seismic measure) supporting the concrete promenade on the “closed” side of the station, toward the hill, and lighter two-legged supports for the glass canopy on the city side. Here, as in Calatrava’s previous work, the nuts and bolts of high-tech, the rivets and the gusset plates, are present, but are never an end in themselves. Instead they manifest Calatrava’s fascination—as an engineer but also as a sculptor—with the way loads are carried to the ground.

His materials, too, are simple—glass and



Three similar bridges along its length span the station with sinuous ribbons of concrete. The central bridge (photos this page and opposite) swoops from the upper promenade, where it is hung from the torsion member, to an anvil-shaped stair platform. A slender steel tongue braces the span as it vaults the tracks.



The need for passage between the inner and outer platforms generated an underground complex that stretches half the length of the tracks, cheered both by artificial lighting and by daylight from glass-block grids (above) in the platform overhead.


steel or concrete and steel—though in other current work Calatrava is restricting his palette of materials even more, using glass and steel singly in distinct parts of the structure rather than in combination. “The use of only one material is a very elementary expression of architecture,” he says. “Minimalism in material is a good thing: it cleanses you and ensures that everything you do has an intention.” Among the architects whom Calatrava has studied seriously is Louis Kahn. “His work has a purity, a cleanness in its use of materials, which I truly admire. He also shares the idea of construction as the most fundamental part of architecture.”

If the materials are simple, though, the forms of the Stadelhofen are—for lack of adjectives yet to be invented—a combination of Antoni Gaudí and Philippe Starck. It comes as no surprise to see in the basement of Calatrava’s Zurich office racks of slides of shells and animals’ skeletons. In his preface to the monograph on Calatrava’s work, “The Daring Flight,” Pierluigi Nicolini indeed refers to “the osteological forms of the long canopies in Zurich” with their “supports shaped like the members of a gigantic animal’s skeleton.” The central bridge, for example—one of three crossings from street to promenade—swoops and soars: an organic enti-

ty with life of its own, whose railings bend fluidly outward and inward, as if the concrete band were flexing in mid-air. Above the tracks this convoluted structure joins forces with a steel tongue that widens as it vaults lightly from the first landing of the bridge’s steps to the promenade.

Here more than anywhere else in this poetic structure, Calatrava’s background as a sculptor is apparent. “I want to win back engineering objects like bridges for architecture,” he explains. “I understand architecture as an art. That is very difficult, partly because the common image that clients and politicians have of architecture is related to the commercial aspects, not to the emotional and artistic concerns. In our century the masterpiece, the artistic component in architecture, will have become an exception.” Calatrava, who has not yet built housing or a private home, says he enjoys designing public places. “It’s nice to create a relationship between a landscape, be it urban or natural, and a structure like a bridge or a station. If Stadelhofen has any importance, it is largely thanks to its urbanistic concept.” The station is also important, however, as the climax—for now—of Calatrava’s unrivaled ability to bring about a synthesis of engineering and art.

TRACY METZ



In contrast to the spare direct forms of the platform canopies, the subterranean arcade is a massive but freely modeled concrete structure in which the main pedestrian passage is formed by immense bents. On either side shops are framed in discrete niches between the arches.

Urban Delight

A 14-acre “new town” has been sensitively inserted into one of San Diego’s most distinctive neighborhoods.



© DEANN SHIER

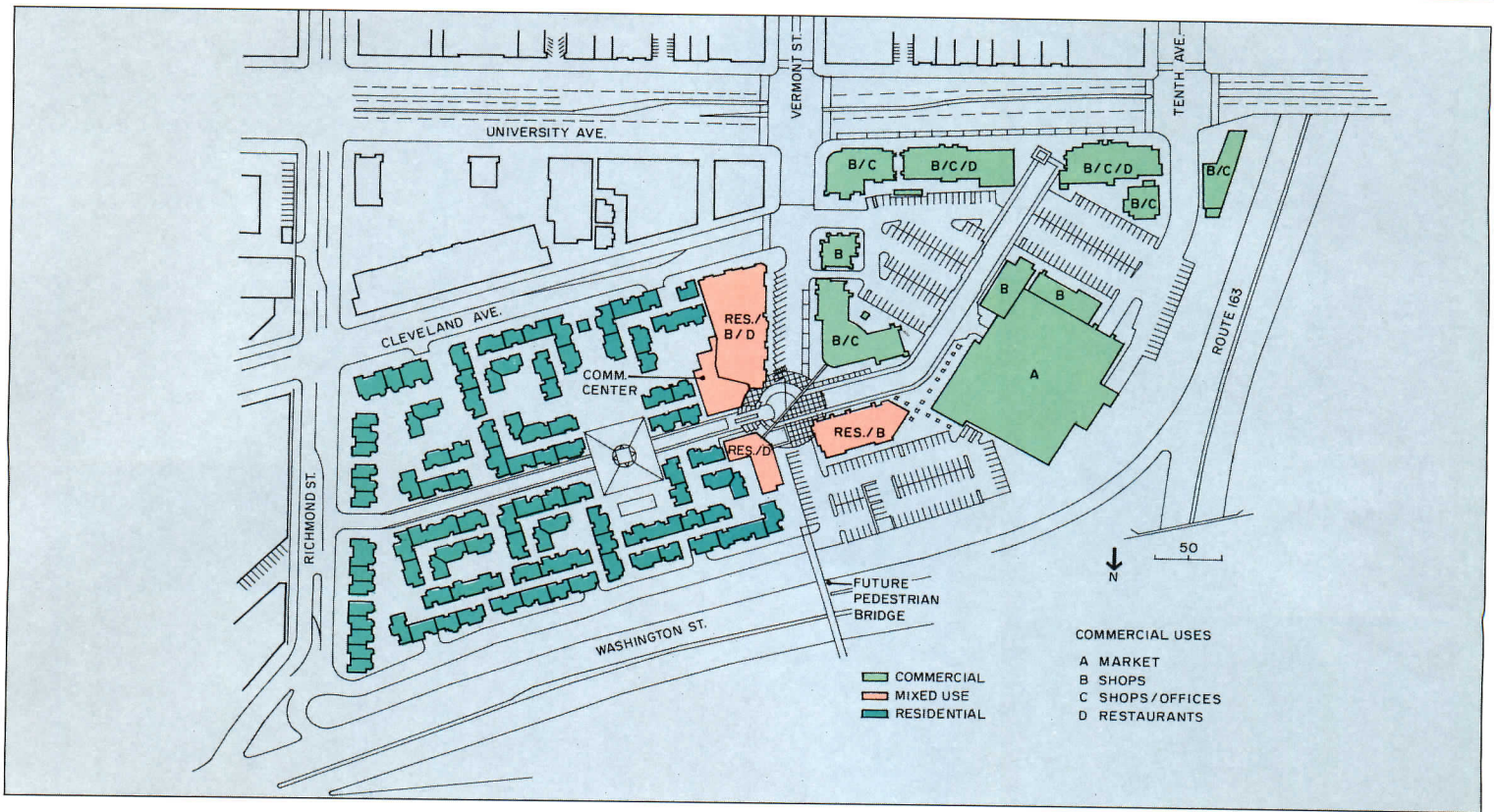
Hillcrest, located near Balboa Park and the city’s renowned zoo, is one of San Diego’s most appealing neighborhoods: pedestrian oriented, alive both day and night, and, above all, architecturally diverse. Here, the urban explorer will find some of the best works by early 20th-century regionalist Irving Gill, along with other less celebrated interpreters of the Spanish Colonial Revival mode. The area also boasts fine old Victorians, sturdy craftsman bungalows, and commercial buildings in an array of styles dating from just before to just after World War II.

Hillcrest also has its less lovely aspects, notably strip development that began spreading along major streets following the war. Most intrusive of all was a giant suburban-style Sears store, built in 1954 and set in the middle of a sea of parking. When Sears closed the store in 1986, the city bought the land, intending to use it as the site of a new central public library. After acknowledging that the library should remain downtown, San Diego’s powers-that-be sent out an RFP for architect/

developer teams to transform the 12.5-acre parcel through a combination of commercial, residential, and communal uses.

The city selected Oliver McMillan/Odmark & Thelan as developer, in part because this locally based consortium had been willing to work with Hillcrest residents and business groups. The design team comprised SGPA Architecture and Planning as master planner and architect for the project’s commercial portions, and Lorimer-Case as architect for the residential component. Though both firms had made their marks principally in the suburbs—the former in shopping centers, the latter in housing developments—here they were to come up with an unusually urbane scheme. The very name of the development, the Uptown District, suggests a desire on the part of all concerned that the project be integrated with the neighborhood rather than stand apart as an island of brash newness.

SGPA began the planning process by roaming about Hillcrest and taking hundreds of photographs. The firm then produced montages in search of a suitable architectural approach, and it



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Opposite: aerial view of Uptown District, which is intricately knit into Hillcrest's urban fabric. Above left: view down a palm-lined interior shopping street toward Ralph's supermarket. Above: mixed-use residential/retail buildings along Vermont Street. Chamfered building at left is a community center. Left: the segmental-arched roof of Ralph's supermarket is a landmark in the low-rise community.

Below: terraced steps form a landscaped pedestrian zone leading into Uptown's housing component. The stairs rise from a public plaza on Vermont Street at the junction of the mixed-use district's residential and commercial sectors.

Bottom: palm-lined view of Uptown's principal interior retail corridor, looking northeast toward the Vermont Street plaza.



soon concluded that the worst possible solution would be to wrap the entire development in a single style. For one thing, no one style predominated in Hillcrest; for another, that approach would have increased the development's apparent scale and clearly brand it as an interloper.

The architects consequently took the opposite tack, attempting to make Uptown's 48 buildings look as if they had been done by many hands over a period of time. To be sure, it helped that there were different architects for the commercial and residential sectors; yet even within each sector, buildings vary widely in form and color. Flat-roofed rows that look like something out of an old California mining town contrast with other buildings bearing hipped roofs, vaults, and towers. Uptown may be a low-rise community, but it has a lively skyline.

Most significantly, perhaps, SGPA's plan emphasizes linkages to the existing neighborhood. The original Sears site stopped just short of University Avenue, Hillcrest's main retail corridor, so the developers *bought the strip of land in between to*



Below: a heavily landscaped pedestrian zone marks the union of Uptown's retail sector and existing shops and restaurants located on University Avenue, Hillcrest's primary commercial thoroughfare.

Bottom: early 20th-century commercial architecture inspired a two-story streamlined structure housing shops and offices.



bring Uptown's total acreage to 14. Because University was one of the streets that had fallen prey to strip development, Uptown's architects brought their buildings along the avenue right up to the sidewalk line, reinforcing the street edge. What's more, SGPA extended San Diego's street grid into the project, widening Vermont Street to create a grand boulevard where the commercial and residential sectors meet. Mixed-use buildings along Vermont have ground-floor shops, with offices or residential lofts above, while a landscaped courtyard in the center of the development rises in a series of terraced steps that can serve as an amphitheater for community events.

An east-west spine extends from the courtyard to Uptown's largest single building—a Ralph's supermarket. The architects softened the store's visual impact by designing the 42,500-square-foot structure as a farmer's market topped by an arching bow-truss metal roof. They also reduced surface parking by placing the market atop a 115-car garage, which features a specially designed escalator that carries both shopping carts



Although Uptown's residential buildings (below) all exhibit some variation on a Spanish Revival theme, the architects diversified the project by arranging the stucco-clad metal-trimmed buildings around a series of

landscaped open spaces. Two-story townhouses at the perimeter of the complex (opposite) match the low-rise scale of the project's Hillcrest neighbors.



and shoppers down to their cars. Where there *is* surface parking, it is modest and heavily planted with flowering jacarandas. Landscaping and street furnishings throughout contribute an "urban village" feeling, in the architects' words.

Uptown's 320 residential units are also set over garages and are arranged in a pedestrian version of the city grid. Buildings surround a large central park and smaller landscaped courts, each with a distinct design. Lorimer-Case took advantage of San Diego's benign weather by turning what normally would be interior corridors in the apartment buildings into outdoor passageways. Two-story townhouses lining perimeter streets help bring Uptown into scale with Hillcrest's existing buildings.

Uptown was built quickly and has succeeded quickly. Rushed partly because of a threatened building moratorium, the supermarket had opened and the first apartments were leased just 24 months after the city issued its RFP. Within three months, all of the first-phase residential and 70 percent of the commercial space was leased or committed. **DONALD J. CANTY**

Uptown District

San Diego, California

OWNER: *Oliver McMillan/Odmark & Thelan Development*
ARCHITECTS: *SGPA Architecture and Planning (master plan and commercial sector)—Mike LaBarre, principal-in-charge; Dean Meredith, project designer; Randall Bohl, project architect; Bill Headley, construction administrator; Jack Gibson, job captain. Architects Lorimer-Case (residential sector)—David T. Lorimer, principal-in-charge; Dan Switzer, project architect; Carlos Rodriguez, designer*
ENGINEERS: *Engineering Alliance Corporation (structural, commercial sector); Burkett & Wong (structural, residential sector); Sevier Engineering (mechanical); Thayer Hall Consultants (electrical); Sholders & Sanford (civil); Urban Systems Associates (traffic)*
CONSULTANTS: *Karen Scarborough with Roger DeWeese & Associates (landscape); Celia Conover (exterior colors)*
GENERAL CONTRACTOR: *Nielsen Construction Company*



Down The Strip

The stark sandstone and concrete shapes of Antoine Predock's Las Vegas Library/Discovery Museum seem far removed from the neon-encrusted hotels and casinos that dominate The Strip.

© TIMOTHY HURSLEY PHOTOS



The administration tower's sharp triangular prow points north.

Las Vegas has never been known for its community facilities or for its civic-minded architecture. Thanks to Antoine Predock, it may be developing a reputation for both.

In 1986 Albuquerque-based Predock got a high-stakes out-of-state commission to design a branch library and children's museum on a Las Vegas Boulevard site, a former baseball field, within walking distance of such downtown landmarks as the Golden Nugget Hotel and Casino. Like any high-minded architect building in America's kitsch capital, Predock began his design by consulting Robert Venturi, Denise Scott Brown, and Steven Izenour's *Learning From Las Vegas*. But, he points out, "I wanted to do something different from a 'decorated shed,' so I made the building more about space than surface."

The Clark County Library District's 110,000-square-foot program comprised two principal components: a lending facility with the typical assortment of reference rooms, book stacks, and a study center, and a children's museum with both temporary and permanent exhibition space. Predock's response to the pro-

gram's split personality was a straightforward L-shaped plan cut in two by a triangular administration block that services the library to the east and the museum to the west. A barrel-vaulted children's reading room binds the pieces together formally and functionally (axonometric page 70 and plans page 74).

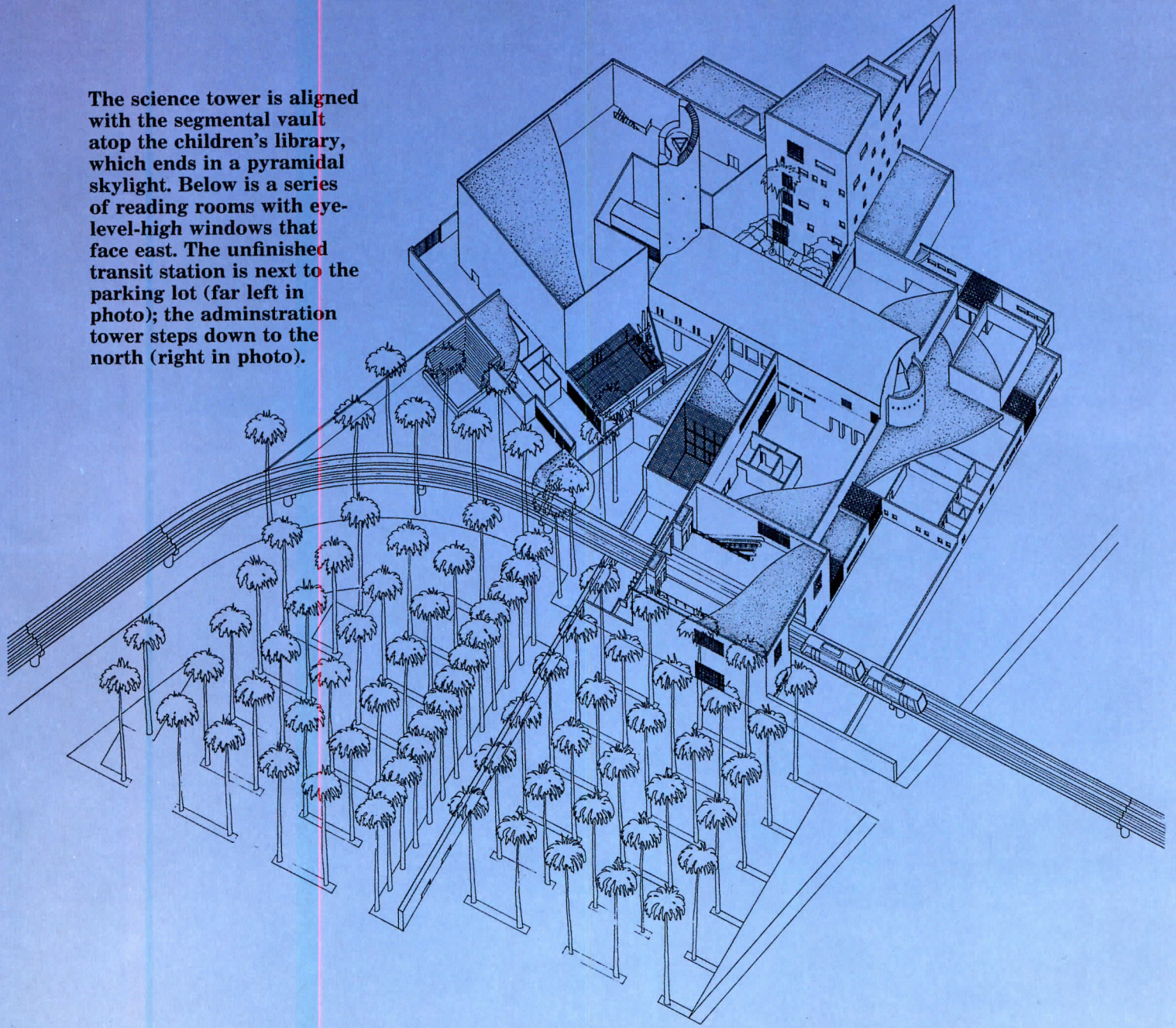
To further encourage community use of the facility, Predock saved leftover bleachers along the site's edge, hoping the parking lot will be used for neighborhood barbecues or bake sales. The architect also singled out parts of the program to give the building much-needed urban presence. For the birthday-party room, for instance, he made a party-hatlike cone out of precast concrete (with irregularly spaced portholes arranged in a spiral shape based on the ratios of the Fibonacci Series—a bit of mathematical name-dropping likely to elude most youngsters), and for "gravity experiments" he designed a 112-foot-high tower leading to a city lookout (pages 72-73).

In the parking lot, a grove of palm trees suggests the image of an urban oasis. Furthering the illusion, a gentle stream of

Las Vegas Library/Discovery
Museum
Las Vegas, Nevada
Antoine Predock, Architect

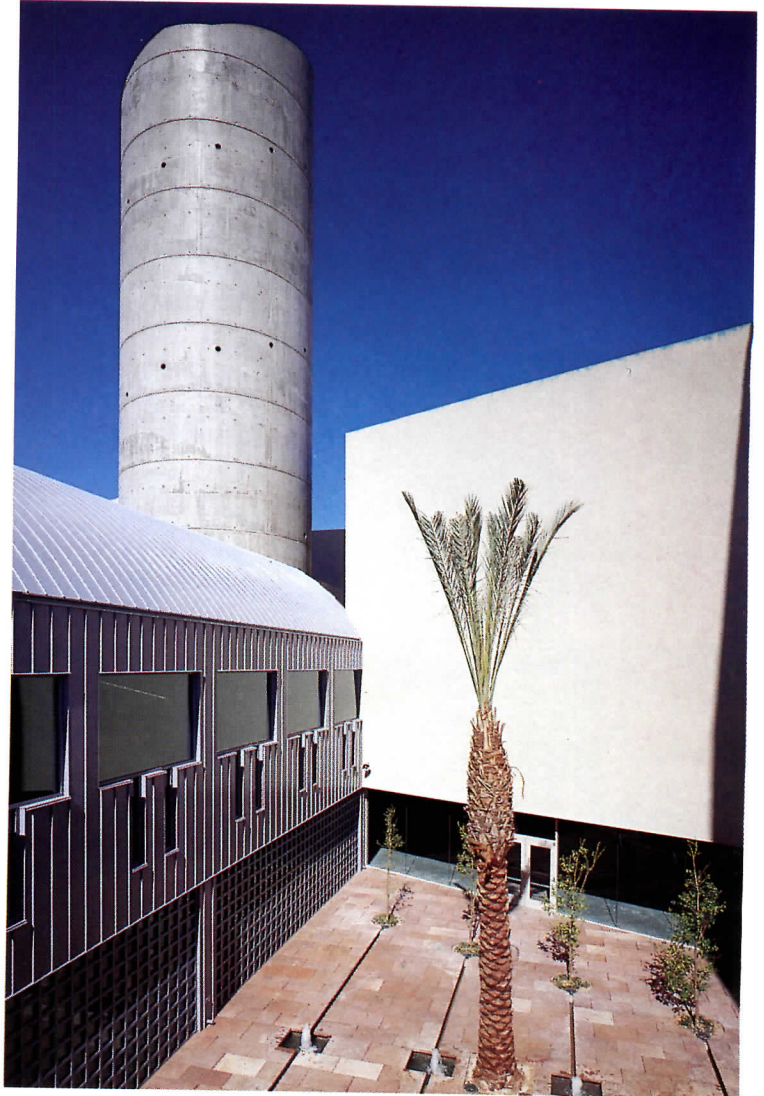


The science tower is aligned with the segmental vault atop the children's library, which ends in a pyramidal skylight. Below is a series of reading rooms with eye-level-high windows that face east. The unfinished transit station is next to the parking lot (far left in photo); the administration tower steps down to the north (right in photo).



The conical precast-concrete birthday-party room forms a courtyard wall with the sandstone water wall (below left). Water flows beneath the wall and through the lobby to form small geysers in the Oasis Courtyard, where orange

trees will eventually blossom (right). Steel grilles act as sun shades for interior courtyards. Fabric roofs block 50 percent of daylight and heat gain in some courtyards, making them habitable in summer (bottom left).



water flows under the sandstone wall that subdivides the asphalt courtyard, beneath the floor of the white entrance pavilion, and into an inner courtyard that admits natural light into the building's core (above right).

Throughout the facility, the architect placed windows in a random pattern to exploit views, and he used metal grilles inset into thick masonry walls as sunshades. In ground-floor reading rooms, for example, eye-level-high panes frame pastoral mountain landscapes. In the Young People's Library upstairs, Predock was suitably playful: low glass slots are "spy windows" on the adult reading room below. The biggest "window" of all, a square cut out in the wedge of the administrative wing, is a staff terrace.

In twin 11,000-square-foot galleries (not shown), the architect left ductwork exposed and painted surfaces black as a neutral backdrop for the interactive displays currently being installed. A modest \$12.7-million budget did allow for a few flourishes: mirrors inset into the glass-topped pyramid of the story-telling room/puppet theater (page 75) act as a kaleidoscope of cars

passing on the street below, an optical effect intriguing to children and adults alike. An electronically operated partition covers the opening, sealing the room for performances.

Predock's experience at building in the Southwest has made him sensitive to how differently buildings are perceived in the desert climate. From a distance, harsh light flattens subtle distinctions in texture, while throwing the structure's simple shapes and profile into sharp relief. As the sun sets, outdoor lighting dresses up the building for the night—though not as flamboyantly as its neighbors down The Strip (pages 72-73). Airport-runway spots cast a red glow on the curled lip of the science tower, and the giant window on the desert fills with dark sky (pages 68-69). Fluorescent street lamps add to the otherworldly feel by highlighting structural supports of a magnetic-levitation rapid-transit system that eventually will link the facility with the convention center and airport. Rail lines won't be installed until next year at the earliest, though, so for now the self-contained complex is isolated not only in location but in

A 112-foot-high science tower for “gravity experiments”
leads to a city lookout.

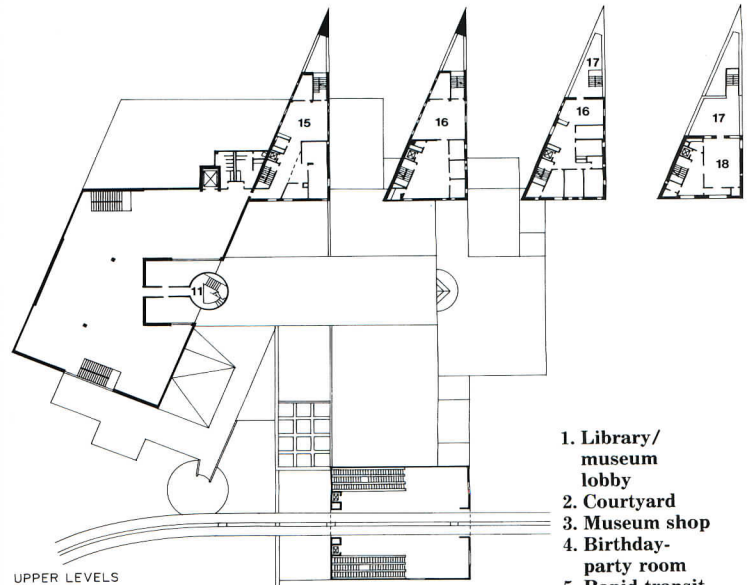
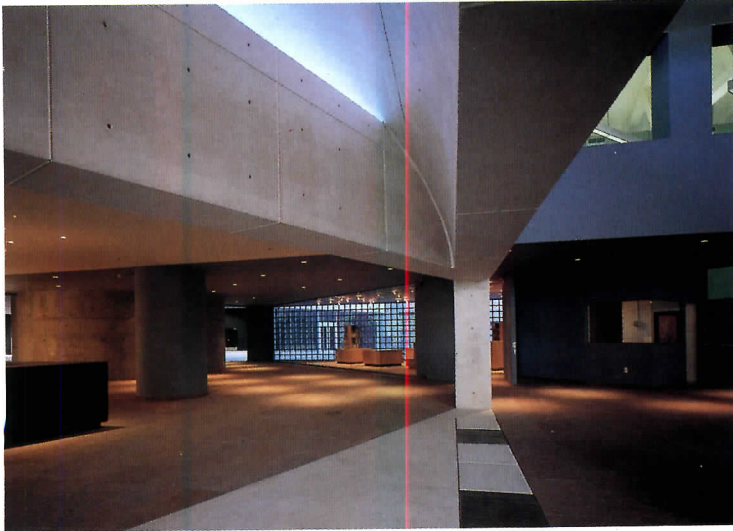




At night, runway light fixtures cast a red glow on the concrete science tower. A triangular skylight that tops the stairwell (cover) can be seen from a 205-step flight of stairs leading to an observation post overlooking the Las Vegas Strip (opposite).

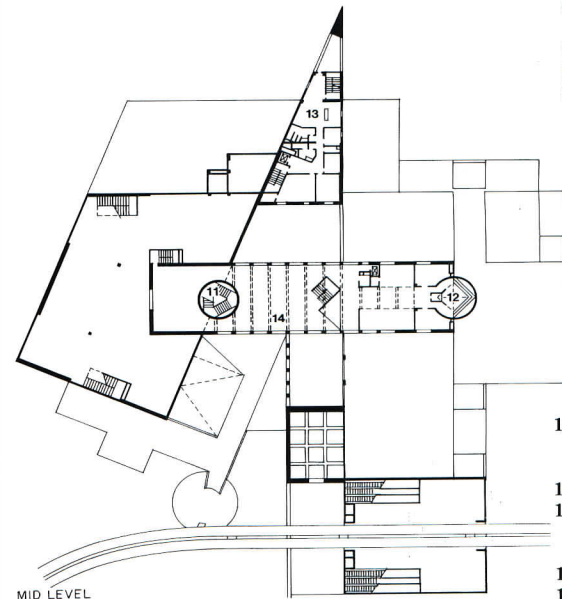
Water flows beneath the lobby floor, continuing the line of an exterior water wall, and into the Oasis Courtyard visible beyond the museum store (photo below and plans). Low windows in the children's

library let youngsters spy on adults at work in the reference room below (bottom). Lighting is a combination of daylight and fluorescent fixtures.



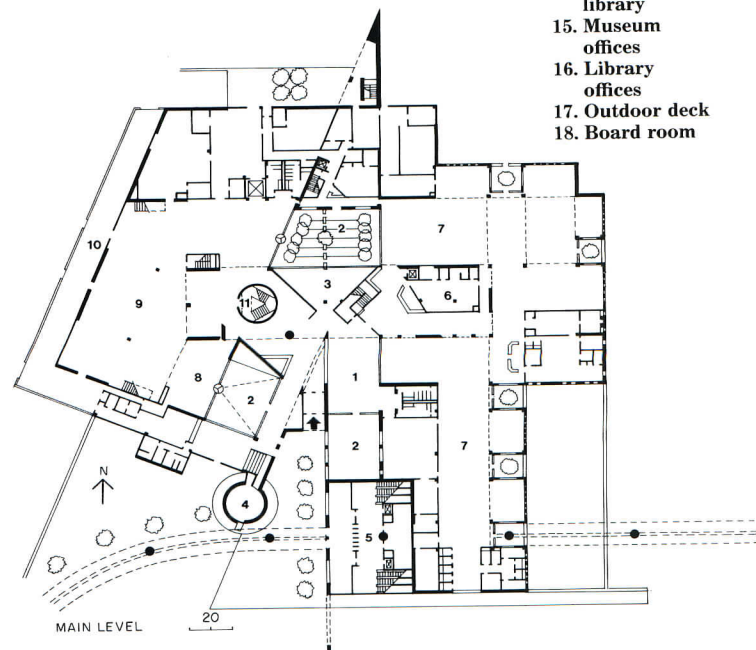
UPPER LEVELS

1. Library/museum lobby
2. Courtyard
3. Museum shop
4. Birthday-party room
5. Rapid transit station
6. Circulation desk
7. Stacks
8. Small gallery
9. Large gallery



MID LEVEL

10. Outdoor exhibition space
11. Science tower
12. Story room/puppet theater
13. Offices
14. Young people's library
15. Museum offices
16. Library offices
17. Outdoor deck
18. Board room



MAIN LEVEL

spirit—a mirage of carefully studied urban values in a town where, for the most part, anything goes. **KAREN D. STEIN**

*Las Vegas Library/Discovery Museum
Las Vegas*

OWNER: Clark County Library District
ARCHITECT: Antoine Predock, Architect—Antoine Predock, principal-in-charge; Jon Anderson, project architect; Ron Jacob, Kevin Spence, John Fleming, Becky Ingram, Keith Robertson, Eileen Devereux, and David Hrabel, project team
ENGINEERS: Martin, Peltyn and Associates (structural); J. B. A. Consulting Engineers (mechanical/electrical); Summit Engineering Corp. (civil)
CONSULTANTS: Bruce Warden and Associates (acoustics); Frank Porter (landscaping)
LANDSCAPE ARCHITECTS: Antoine Predock, Architect; Swisher-Hall, AIA Ltd.
GENERAL CONTRACTOR: The Argee Corporation

A skylight in the second-floor story-telling room may be blocked off by an electronically operated partition, making the space into a puppet theater.



On The Threshold

A tiny church vestibule designed by Leo J. Blackman makes a smooth transition from outdoors to indoors, and medieval to modern.

When Leo Blackman designed a small vestibule for St. Paul the Apostle, a 105-year-old church on Manhattan's Upper West Side, he thought of it as a piece of cabinetry lit from within. With a tight space (42.5 square feet) and an equally tight construction budget (\$10,500), Blackman fell back on his experience as a solo practitioner designing apartment renovations and small retail projects. Such work had taught him to make the most of inexpensive elements such as built-in furniture and lighting fixtures. Once designed, the vestibule was built in a Brooklyn cabinetry shop in four sections (three sides and the ceiling), then assembled on-site.

The vestibule was needed as an airlock against cold breezes that blast parishioners during the winter. In the past, the Great East Door, located on axis with the church's altar, was normally shut for the winter, forcing visitors to enter and exit from less ceremonial (and less direct) doors on the north and south ends of the east facade.

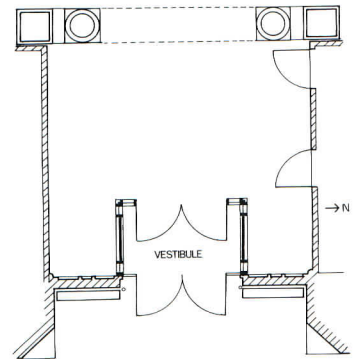
The rather plain exterior of the church gives little hint of the grand basilica inside, adorned with a Stanford White altar, a stone floor designed by Bertram Goodhue, and works by Augustus Saint-Gaudens and John La Farge. Blackman's challenge was to insert an 8.5- by 5-foot vestibule in the 30-foot-high narthex where, as the young architect explains, "a rather imposing crew of artistic ghosts lurks about."

Instead of directly imitating the neo-medieval ornamentation found throughout the church, Blackman applied the proportions of the oak paneling surrounding the vestibule for his discreetly Modern design. Built of 1.5- by 5.25-inch oak boards with 3/4-inch-thick oak-plywood panels and glass panes set into a grid, the vestibule respects the older architecture while establishing its own identity.

Anchoring the design are four pyramid-topped corner "towers," reminiscent of



© EDUARD HUEBER PHOTOS



those on the exterior of the church. Panels facing the altar are mostly translucent glass so priests won't be blinded by strong morning sunlight. Three narrow bands of clear glass wrap around the structure for contrast and pick up horizontal elements in the neo-Gothic paneling on either side of the vestibule. Maintaining a simple palette of materials, Blackman used light-green slate for the floor and baseboards. Changes

in materials—from rough pressed glass to smooth bronze handles—add a tactile dimension to the room.

The vestibule serves as a fitting, human-scaled transition from the outdoors to the great space of the church itself. During the day (when sunlight is diffused by the translucent glass) and at night (when incandescent strip lights on the ceiling are turned on), the vestibule glows warmly, setting itself somewhat apart from the darker surfaces around it. Imbued with the spirit (if not the exact style) of its context, this modest room is a popular addition to a venerable church.

CLIFFORD A. PEARSON



The intimate scale of the vestibule intensifies the impact of the columned narthex and grand basilica (above). New elements follow dimensions set by the surrounding paneling (top).

*Vestibule
Church of St. Paul the Apostle
New York City*

OWNER: The Paulist Fathers
ARCHITECT: Leo J. Blackman,
*Architect—Leo J. Blackman, David
Nowlin, Christine Straw, project team*
FABRICATOR: B.A. Woodworking—John
Gonzalez

The vestibule glows warmly with natural light (below), and seems one step removed from the heavier esthetic of the surrounding paneling and Great East Door (right). Construction costs for the 42.5-square-foot room (excluding the exterior glass doors) came to less than \$11,000.



New Frontier



© SCOTT FRANCES/ESTO PHOTOS

Ettore Sottsass has achieved enough in one career to fill three separate job descriptions—industrial designer, interior designer, and, most recently, architect. Now, in his eighth decade, the Austrian-born Milan-based Sottsass has completed his first house.

Seventy-three is a relatively late age for an architect's first house. As a visit to the newly completed Wolf House confirms, however, it was worth waiting for Ettore Sottsass to fill the equivalent of two enviable portfolios (as an industrial designer and all-around impresario) before he began his third and most recent career as a playful, but always serious, master builder.

As one of his country's most beloved design maestros, Sottsass is largely responsible for exporting high-style Italian design to the U.S. In 1972, his work was part of the now-celebrated "New Domestic Landscape" exhibition at New York City's Museum of Modern Art, and the wild colors and shapes of his Memphis furniture designs of the early 1980s caught the public's fancy like few recent cultural subtrends.

For the still-prolific Sottsass, patience has become a necessary ingredient of his staying power. Though pleased when given his first residential commission in 1986, the Milan-based architect took his time completing its design, partly because his client, a Manhattan art dealer and collector, had an atypical agenda for his

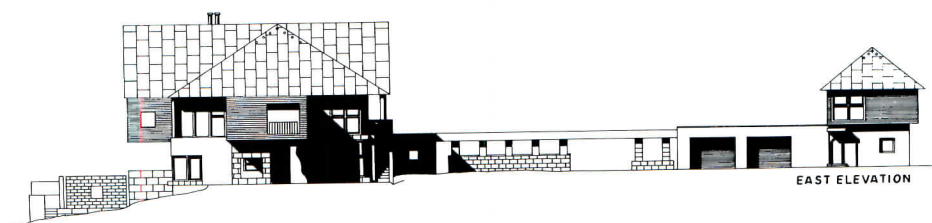


summer retreat in southwestern Colorado. In fact, Daniel Wolf approached the project just like an artistic acquisition, enlisting the help of friend R. Craig Miller, then a design curator at the Metropolitan Museum of Art. Without a definite building program, construction schedule, or budget, Wolf set out simply to “build a great house.”

All parties gradually agreed on a scheme consisting of a main building, guest pavilion, and a series of paved and planted courtyards, surrounded by the natural grandeur of Wolf’s vast cattle ranch. Sottsass and associate Johanna Grawunder set the compound on a hilltop clearing at an elevation of 8,200 feet. The structure’s concrete base supports a steel-framed first floor and a wood-framed second floor. A pergola and a double-height “glass house,” which resembles a covered piazza with its balconies, help make the arrangement villagelike, while an assortment of oversized gable roofs, giant window mullions, and boxy outdoor rooms projecting from the second floor are bold counterpoints to the rugged landscape. As one might expect, Sottsass’s varied



On the south facade, the red entablature atop a giant column helps support the gable of the double-height “glass house.” Yellow boxes are master-bedroom-suite terraces.



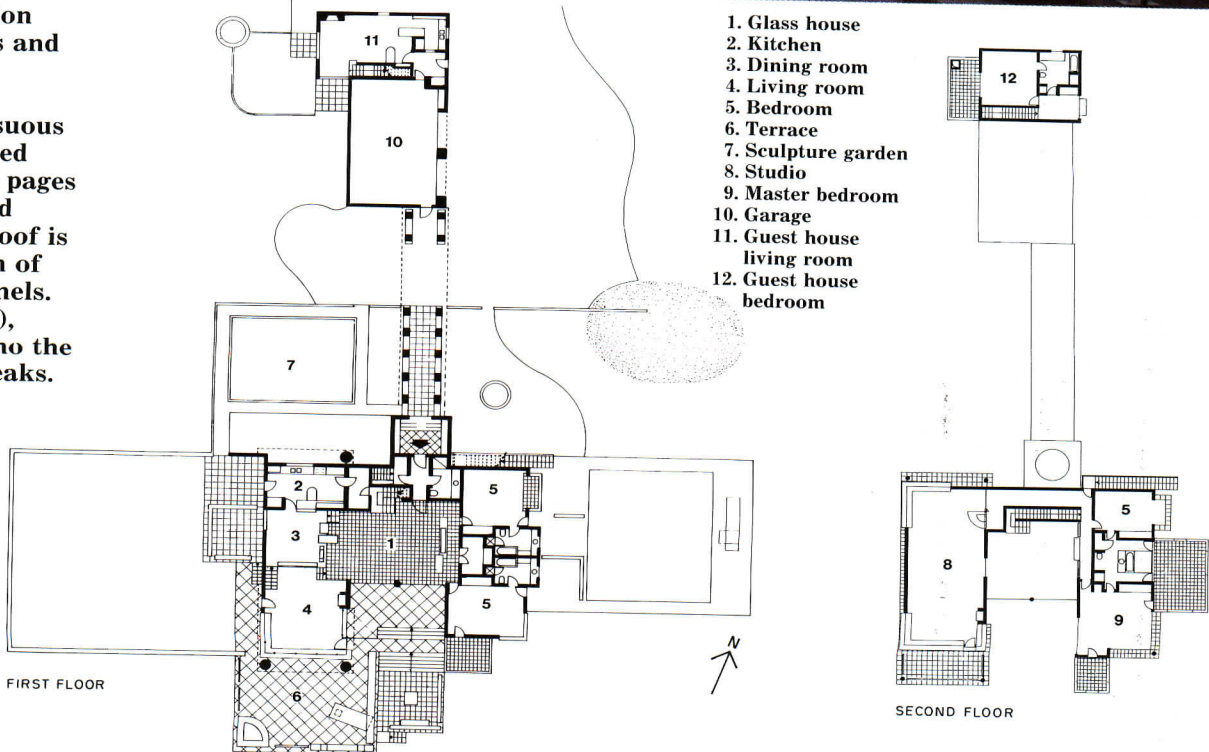
European background shows through in the design: a green roof of interlocking metal panels caps the master bedroom wing like a Tyrolean hat, and brightly stained exterior wood siding and interior cabinetry, along with cross-ventilated rooms, give an overall effect of an airy Mediterranean villa. (The international group did face some difficulties in Colorado; masons from Italy weren't used to the rapid drops in temperature and marble fell off walls.)

The fourth side of the green roof is visible inside the glass house (page 83), where, by day, a turquoise ceramic-tile floor appears as a mirror image of the vibrant sky. Dramatic views of the valley and distant mountain tops are captured in large window panes and glass doors leading to a stepped patio. Beyond the great room is the more intimate living room, with a stone fireplace for the winter and built-in window seats, dining room, and kitchen with bubble-gum pink cabinets.

An esthetic pioneer, Wolf wanted to fit in as much as he wanted to stand out. Even though he did not copy his neighbor, fashion designer Ralph Lauren, by building an ersatz log cabin,



Along the east elevation boxy yellow balconies and giant windows with overscaled mullions contrast with the sensuous curves of a rose-colored stone column (photos pages 78-79 and opposite and drawing). The green roof is a custom-made system of interlocking metal panels. Looking south (above), various-size gables echo the profile of mountain peaks.

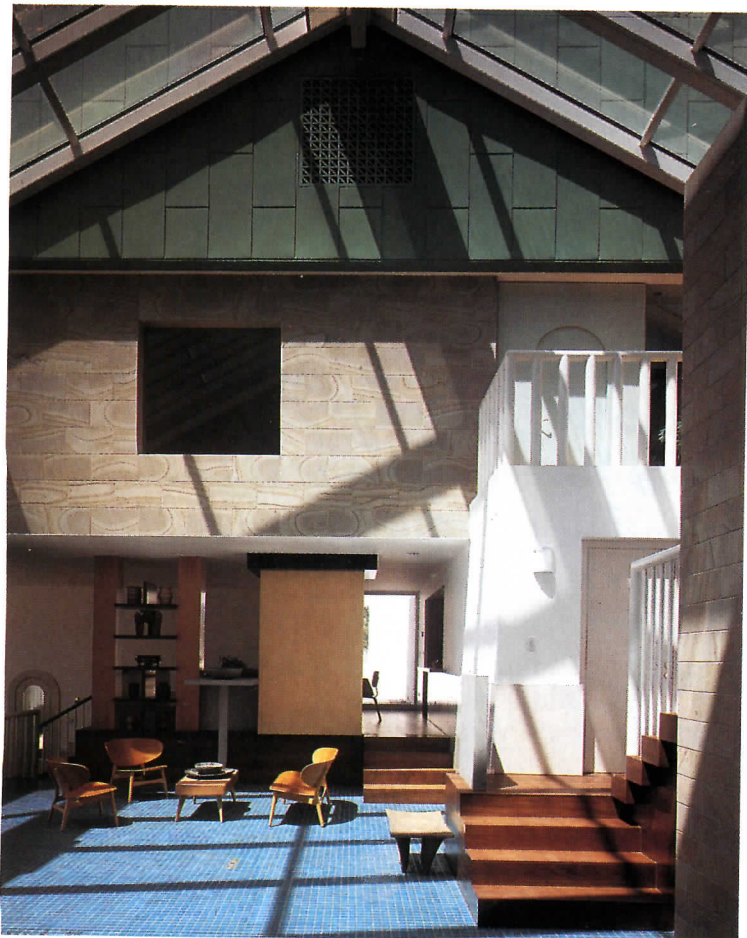


- 1. Glass house
- 2. Kitchen
- 3. Dining room
- 4. Living room
- 5. Bedroom
- 6. Terrace
- 7. Sculpture garden
- 8. Studio
- 9. Master bedroom
- 10. Garage
- 11. Guest house living room
- 12. Guest house bedroom

FIRST FLOOR

SECOND FLOOR





A modest front door opens into the main room, where a turquoise ceramic-tile floor glistens like the bottom of a swimming pool (opposite). Light streams through an insulated-glass gable and giant south-facing windows and doors. A stair tucked between the skylight-topped mud room (bottom left) and kitchen leads to a studio, which has a picture window overlooking the two-story space.



A door concealed in a storage unit leads to an exterior staircase (above). Venetian woodworkers used boldly grained reconstituted wood veneers stained such colors as canary yellow, bubble-gum pink, pomegranate red, black, and gold for Sottsass-designed doors, cabinetry, and furniture. Floors are cherry, walnut, and red oak.



he regrets that his house is visible from the highway miles away—a condition maturing trees will soon remedy. Since he moved into the house, Wolf has reviewed some of Sottsass's early proposals, including a simple rectangular building with an almost anonymous exterior. But he does not regret his choice: "The other scheme was too subtle," explains Wolf, who had purchased some of Sottsass's outlandish furniture of the 1980s. "I wanted something like Memphis." And that's what he got: a virtual explosion of creativity.

KAREN D. STEIN

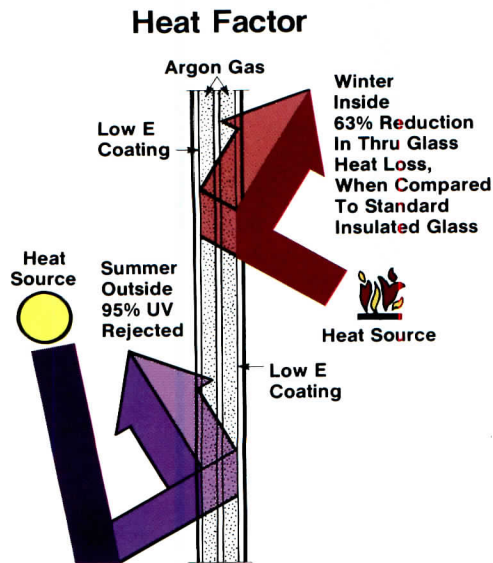
Wolf House
 Ridgway, Colorado
 OWNER: Daniel Wolf
 ARCHITECT: Sottsass Associati—Ettore Sottsass with
 Johanna Grawunder, principals-in-charge
 ASSOCIATE ARCHITECT: Michael Barber Architecture
 CONSULTANT: Lichtdesign (lighting)
 GENERAL CONTRACTOR: Duddy Viele Construction

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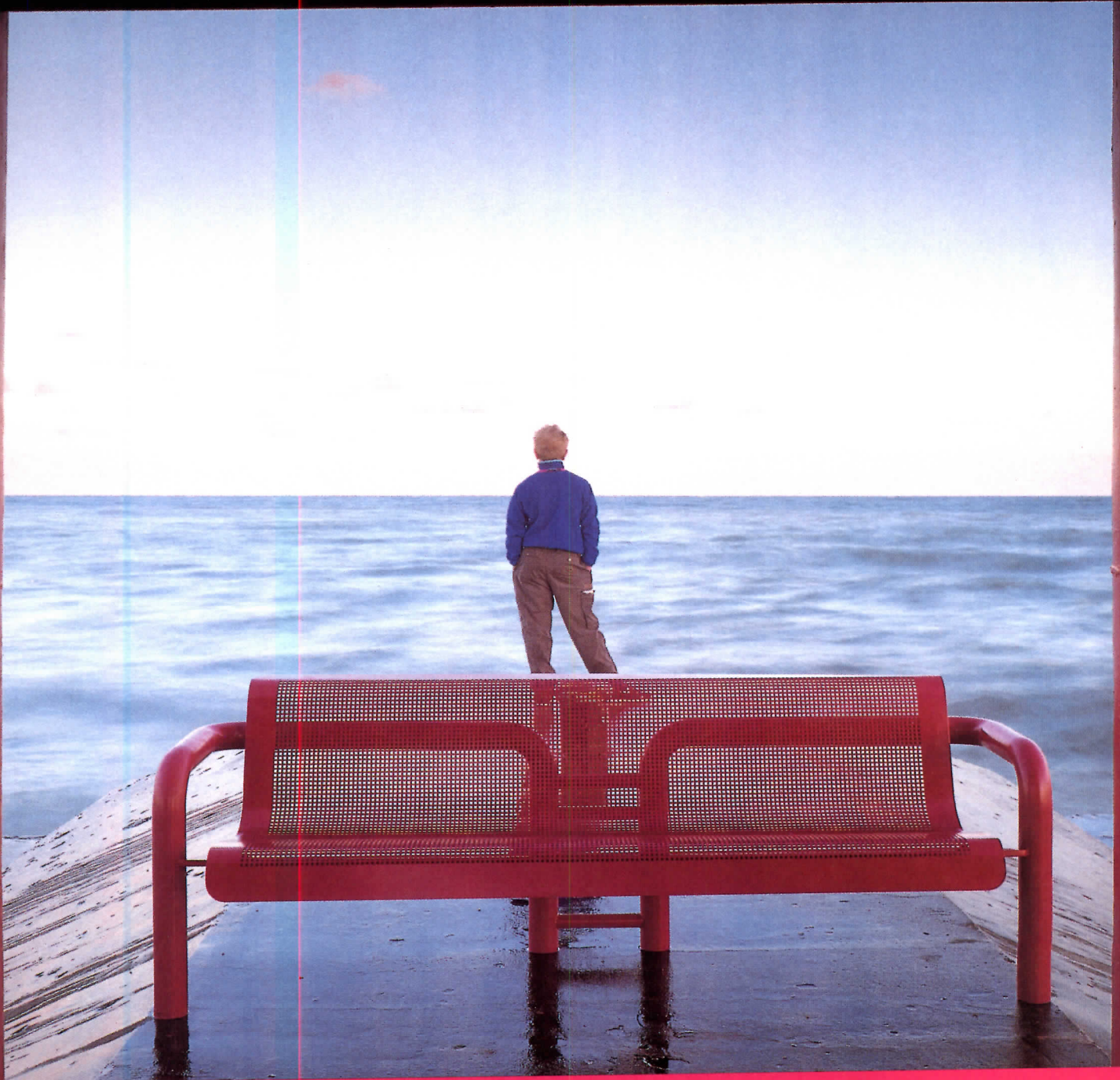


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High-Risk High Rises

The bad news: a weakening economy means fewer spec-office commissions. The good news: developers are beginning to recognize the marketing benefits of first-rate architecture.

When RECORD last probed the world of speculative office buildings [July 1988, pages 98-111], we moved away from our usual practice of scrutinizing individual projects to focus on three American cities that were being radically transformed by commercial development. Times seemed rosy in mid-1988, and the three examined cities—Hartford, Charlotte, and the Seattle suburb of Bellevue—shared confidence in the future, which translated into ambitious proposals for a raft of spec-office towers that would have drastically altered each city's central core.

Thirty months later, the American spec-office market has become much less secure. While Charlotte and Bellevue have actually seen a slight drop in office-vacancy rates in the past two and a half years, Hartford, along with much of the Northeast, has gone from boomtown to basket case, its downtown vacancy rate soaring from 6.5 to 17 percent according to a recent Coldwell Banker commercial office-vacancy index. Given the national decline in real-estate values, the rise in fuel prices and unemployment, and the reappearance of the word "stagflation" in economic reporting for the first time since the late 1970s, it is no surprise that 1990 will hardly go down as a banner year for commercial-building construction. George Christie, chief economic forecaster for McGraw-Hill's Construction Information Group, predicts that office-building activity this year will total 165 million square feet—a substantial level of construction, to be sure, but 28 percent lower than 1989's total of 230 million square feet.

Even amid a weakening fiscal environment, however, office buildings and their interiors represent an important 25 percent of all construction activity in a country whose economy continues its shift from manufacturing to services. What has changed most, perhaps, over the past 10 years is the amount of risk financial institutions are willing to assume with respect to loans for spec-office projects. With the nation's banks sharply curtailing their real-estate lending, many developers likewise have begun to eschew daring leaps of faith in favor of build-to-suit projects for a specific buyer or primary tenant.

The result is something of a real-estate hybrid: the custom-designed spec-office building, which, unlike similar projects of the past, often boasts separate entrances, lobbies, and elevator banks used exclusively by the lead tenant.

The most striking recent example of this new typology is Skidmore, Owings & Merrill's Worldwide Plaza, a 49-story tower in midtown Manhattan whose 1.5 million square feet of space are occupied by four major tenants, each with its own elaborate entrance, lobby, and security system.

The high-rise office tower, certainly the most significant American contribution to 20th-century urbanism, clearly remains the ultimate architectural commission, a building type that is able to thrive even in less-than-ideal economic conditions. Within a five-block radius of RECORD's midtown Manhattan offices, for example, a dozen office towers have recently been completed or are nearing completion, and at least one other major project—Rockefeller Center West—is about to break ground. Despite slower-than-normal absorption rates, developers in New York City appear willing to gamble on the long-term viability of the office workplace as the chief arena of American business.

Then, too, while the overall U.S. office-vacancy rate hovers around 20 percent, the rate in Western Europe is considerably lower—about 2.5 percent—and American developers



DRAWING BY
DONALD REILLY



© GEORGE COTT
1

(and their architects) are now looking across the Atlantic as a likely target for their expertise in the planning, financing, and design of high-rise commercial buildings. Major European projects with American architects already underway include Europe's tallest office building, a 70-story tower in Frankfurt designed by Murphy/Jahn, and a series of commercial buildings in London's Financial District designed by Swanke Hayden Connell, a New York firm that coordinates its European operations from a 60-person London office. The lifting of Europe's legal and trade barriers in 1992, together with the continuing political liberalization of the Eastern Bloc, should open additional doors to Americans abroad.

Another wave of opportunity for architects at home is the growing market for renovating and upgrading existing skyscrapers. Like baby boomers now in their 40s, many of the high-rise buildings erected just after World War II are beginning to show their age, not only from the standpoint of mechanical systems and other energy-consuming functions but also in terms of esthetics. In some instances, architects are replacing aluminum and glass curtainwalls—those icons of post-war Modernism—with the same thin-stone veneers now popular for new-building facades [see RECORD, June 1990, pages 108-111, for an in-depth investigation of thin-stone veneer on high-rise buildings].

Inside, moreover, developers seem increasingly aware of the close link between the quality of a building's public spaces and its marketability. In New York, for example, the owner of a 35-story office tower at 1500 Broadway that was 40-percent vacant recently commissioned Clark Tribble Harris & Li to transform part of the building's drably rectilinear post-war lobby into a 25-foot rotunda, sheathed in granite and marble and crowned by a pale-blue dome. The result of the metamorphosis: six major new tenants and a fiscally more palatable vacancy rate of 14 percent.

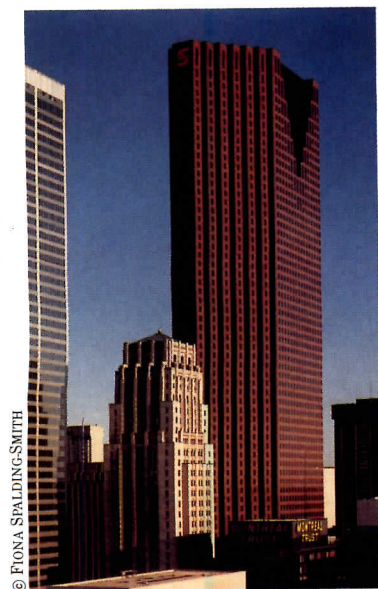
Just as architecture has come to play a growing role in a developer's ability to attract new tenants in an increasingly competitive marketplace, cities have also helped shape the current crop of high-rise spec-office buildings. Following the lead of New York, which during the mid-1970s passed a series of zoning-ordinance revisions meant to reverse the damage caused by the tower-in-a-plaza mentality that pervaded high-rise design in the 1950s and '60s, most major North American metropolises now have ordinances that encourage architects to respect the traditional street wall and reward developers for provid-

ing certain ground-level amenities lost during the early post-war period.

Joseph Gonzalez, a design partner at Skidmore, Owings & Merrill's Chicago office, recently wrote that tall buildings "have a responsibility to re-establish a connection to the traditional city and restore the hierarchical balance between the public and private realms." It is pleasing irony to note that the firm which gave us Lever House, the Inland Steel Building, and the Crown Zellerbach Building, Modernist landmarks whose structural expression and impact on the skyline overwhelm any attempts at urban integration, has now taken the lead in showing how the existing downtown fabric can generate architectural form. Gonzalez, SOM/Chicago colleague Adrian Smith, and SOM/New York design partner David Childs have employed a number of devices—through-block arcades, setback masonry-clad facades, street-facing shops, and connections to existing transit systems, to name a few—all of which bluntly echo the commercial cathedrals erected during the 1910s, '20s and '30s, America's Golden Age of skyscraper design and construction.

SOM, of course, is not the only firm producing what Gonzalez calls the "urbanistically reconstructed" office high-rise. Kohn Pedersen Fox, Roche/Dinkeloo, Cesar Pelli, Murphy/Jahn, John Burgee, Fox & Fowle, and Pei Cobb Freed are a few of the better-known firms deliberately looking to the past for solutions to current problems.

Beyond the New York-Chicago axis, moreover, architects have been quick to pick up those same cues. In Birmingham, Alabama, Hellmuth, Obata & Kassabaum set the 31-story tower of AmSouth/Harbert Plaza atop 60,000 square feet of retail space, and it crowned the granite-sheathed setback structure with four stone spheres and a pyramidal copper roof—details meant to infuse the building with "the romance of architecture done in the '20s and '30s," according to project designer William P. Lacey. At Scotia Plaza in Toronto, The Webb Zerafa Menkès Housden Partnership merged a strikingly faceted 68-story office tower (Canada's second tallest building) with the historic Bank of Nova Scotia, connecting the two structures with a 130-foot-tall glass-roofed atrium. The complex boasts links with downtown Toronto's elaborate underground pedestrian and rail-transit networks. And in Phoenix, Emery Roth & Sons gave the Arizona state capital a sorely needed focus by planning the Renaissance Square office complex around the first of a series of mid-block arcades that eventually will extend throughout the central business district.



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2



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3

“When you put up a building, you have a responsibility not to place a blot on the street. I have no patience for developers who make no attempt to do good work.” *Richard Stein, Chicago developer*

Even though some developers continue to balk at the cost and time involved in making their spec projects more site-friendly, others have come to recognize the value—both in terms of economics and ethics—of doing it right. “We have an obligation to do quality work,” observes Richard Stein, joint-venture developer of SOM’s AT&T Corporate Center in Chicago (pages 94-97). “If you build quality, you get paid for it in higher rents or sales. But beyond economics, it’s simply the right way to do it. When you put up a building, you have a responsibility not to place a blot on the street. I have no patience for developers who make absolutely no attempt to do good work.”

The three spec-office towers featured on the following pages are anything but blots on the street. In its own way, each structure exemplifies how the marriage of a benign developer and a sensitive architect, abetted by enlightened zoning, can produce tall buildings that reconcile the bottom line with sound urban-planning principles.

The three projects—Mitchell/Giurgola’s Center West in Los Angeles (pages 90-93), SOM’s AT&T Corporate Center in Chicago (pages 94-97), and Kohn Pedersen Fox’s 125 Summer Street in Boston (pages 98-101)—share certain important characteristics. Each is steel-frame construction (AT&T is actually a composite of steel-frame perimeter and a concrete core), which remains the structural system of choice among most engineers of tall office buildings for its long spanning capabilities and for the relatively small floor area consumed by its structural members. Each occupies a dense, highly visible urban situation—L. A.’s Wilshire Corridor, Chicago’s Loop, Boston’s Financial District—and each has proven remarkably successful in the midst of a national commercial-market slowdown.

But although all three buildings boast granite-clad facades, generous ground-floor retail space, subterranean parking, richly appointed marble and bronze-fixtured lobbies, and carefully thought-out connections with surrounding streets, the architect of each tower has manipulated form and detail in an original, site-specific way.

At Center West, this meant pushing a crisply Modernist office slab to the front of a three-story podium in an attempt, according to Mitchell/Giurgola’s Paul Broches, “to reinforce the grandeur of Wilshire Boulevard and at the same time engage with the intimacy of adjoining Westwood Village.” At AT&T Corporate Center, SOM’s Adrian Smith reconciled the need to make a monumental statement on the big-shouldered Chicago skyline with the

desire for street-level intimacy by designing the 60-story tower with a series of shallow setbacks that subtly echo the setback skyscrapers of the early 20th century. A block-through pedestrian arcade anticipates future commercial growth along the Loop’s burgeoning Franklin Street corridor. In Boston, KPF partner-in-charge Arthur May threaded a similar, if much more modest, gallery through 125 Summer Street, linking the city’s South Station transit hub with a projected commercial development corridor along Essex Street. Unlike Mitchell/Giurgola and SOM, though, KPF had to weave its office tower into the preserved facades of four late 19th-century brick-and-stone buildings. The building owes its success equally to KPF’s art and to input from the Boston Redevelopment Authority, the city agency that plays an unusually activist role in all significant downtown development projects.

All of which raises the question: have we entered a new Golden Age of skyscraper construction equal to the 1920s and ’30s? Probably not. Good as the three buildings featured here might be, they pale in comparison with the graceful pre-war towers that so obviously inspired their architects. When seen alongside, say, the RCA Building or the Tribune Tower, their veneer of stone ornament seems thin, their proportions a little mannered, their bulk uncomfortably overweening. These new structures are, to borrow a phrase from Edmund Burke’s 18th-century description of government, “founded on compromise and barter.” In the case of spec-office buildings, possibly more than any other building type, that compromise is the result of a sometimes painful but necessary give-and-take between art and profit—a struggle that mirrors a city’s double-edged role as a civilized *public* realm and a cost-effective setting for *private* enterprise.

The best sign of hope in a world based on reconciling opposing ambitions is a developer like Chicago’s Stein, who, while acknowledging that he is in business to make money, also speaks passionately about architecture and of his responsibility to his hometown. “We want to create interest and excitement in the city,” he said in an interview held earlier this year, “and we try to do things with a certain amount of class and style. It can be done, but you have to demand the best from people and then follow through.” Stein is simply reaffirming what many architects seem to understand as a matter of course: that the need to turn a fair profit does not necessarily preclude the time-honored qualities of firmness, commodity, and delight.

PAUL M. SACHNER



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- The state of the art in spec-office towers:**
1. AmSouth/Harbert Plaza Tower, Birmingham, Alabama; Hellmuth, Obata & Kassabaum, Architects.
 2. Scotia Plaza, Toronto; The Webb Zerafa Menkès Housden Partnership.
 3. NorthWestern Atrium Center, Chicago; Murphy/Jahn Architects.
 4. Renaissance Square, Phoenix; Emery Roth & Sons, Architects.
 5. 225 West Wacker Drive, Chicago; Kohn Pedersen Fox Associates, Architects.

GOOD TASTE

Center West

Los Angeles, California
 Mitchell/Giurgola Architects

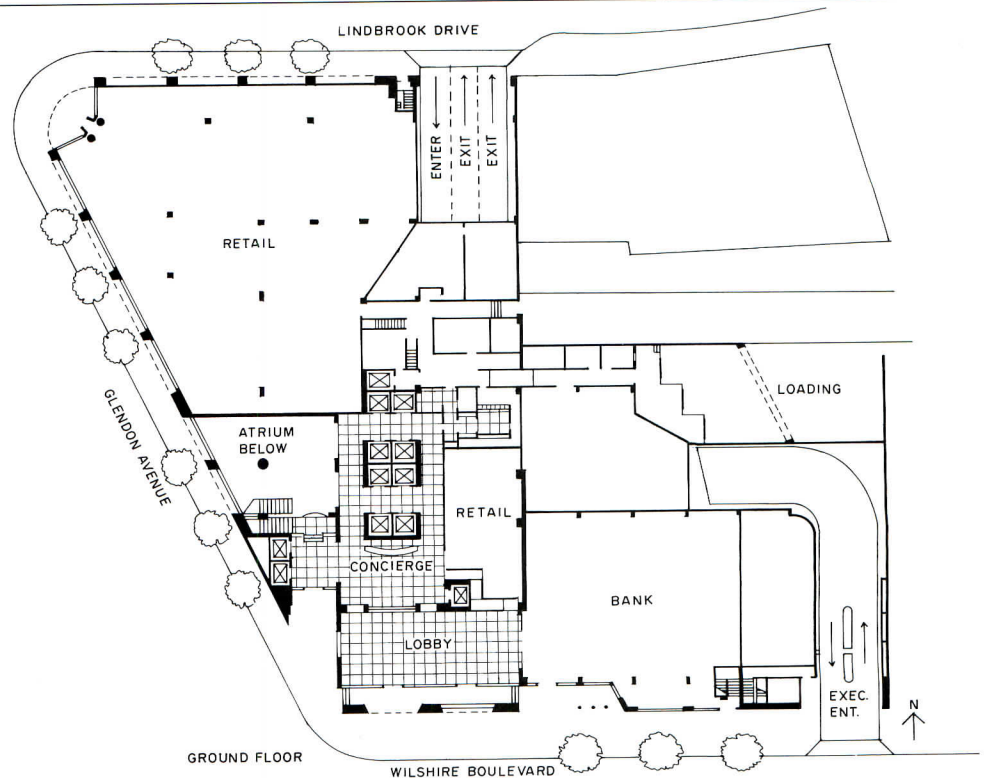
From 1958 until 1984, the busy intersection of Wilshire Boulevard and Glendon Avenue was ruled by Ship's restaurant, a popular oasis for students at nearby UCLA and a key example of 1950s coffee-shop architecture in Los Angeles. While many lament the loss of this monument to space-age innocence, Ship's was doomed by the desirability of its site, located at the point where the high-rise office towers of Wilshire meet the pedestrian-scaled shops and movie theaters of Westwood Village.

In 1982 local developer Kambiz Hekmat acquired the Ship's site and initiated a limited competition for a mixed-use project that would eventually comprise 290,000 square feet of speculatively leased office space, 24,000 square feet of retail space, and parking for 800 cars. The main challenge facing competition winner Mitchell/Giurgola was the site itself, which straddles two zoning lots. One half of the parcel lies within the Wilshire Corridor district, which permits an FAR of 10; the other half falls under Westwood Village's low-rise zoning mandates, allowing an FAR of just three. Moreover, the city's master plan for Westwood requires street-facing retail along Glendon Avenue and Lindbrook Drive, in addition to generous provisions for off-street parking.

An urbane response

Mitchell/Giurgola's solution—a 23-story steel-frame tower set atop a three-story retail and parking podium—bespeaks the increasingly rare commodities of quiet good taste and sensible urbanism. When partner-in-charge Paul Broches recalls that "our objective was a timeless presence in a city better known for its momentary flights of fancy," he is referring not only to Ship's short life but also to Center West's immediate neighbors to the east—a discordant collection of office towers that defines Wilshire as a boulevard of frenetic grandeur.

The architects sought to mute Wilshire's visual volume a bit by designing Center West with walls of flame-finished rose-colored granite, broken by double-glazed clear-glass windows that are recessed 12 inches on the building's southern flank and flush-mounted on the remaining elevations. The punched windows are in part a response to L. A.'s energy code, which limits the amount of glass on new-building facades, while polished-granite sills are meant to give the nearly square openings



© SCOTT FRANCES/ESTO PHOTOS



At 332 feet, Center West roughly matches the height of other office towers that line the Wilshire Boulevard corridor.

**A three-story retail podium
at the corner of Glendon
Avenue and Lindbrook
Drive addresses the low-rise
scale of Westwood Village.
A five-story setback crown
topped by tile-clad columns
is a beacon from afar.**



an illusion of greater height, approximating the tower's rectangular proportions. Though the office building rises from its base without elaborate setbacks, allowing consistent 15,500-square-foot floor plates, Mitchell/Giurgola notched the top five floors to form a crown of polished-granite spandrels and columns clad in blue glazed-ceramic tile.

Back at street level, Center West successfully meets the low-rise context of Westwood Village with a retail podium whose metal-canopied corner echoes the curving facade of a Spanish Colonial Revival retail arcade diagonally across the street. Since most employees and visitors arrive by car, the architects deliberately planned the principal entry sequence through the building's four-level garage. Motorists leave their cars in a landscaped drop-off area and enter the building through a light-filled lower-level atrium (bottom opposite). From the atrium they ascend one level to the building's main lobby, an imposing 33-foot-high space that also serves pedestrians entering from Wilshire (top opposite).

Not surprising for a firm known for a well-bred brand of Modernism, Center West's public areas are finished in an elegant, but unpretentious, palette, ranging from polished Italian marble floors and walls to etched bronze elevator doors and a mahogany-veneered security desk. Two commissioned works of art—a neo-Renaissance mural by Kurt Wenner of an allegorical California landscape (just visible at far right of top photo opposite) and a plaster bas-relief of abstract forms by Dani Karavan in the lower atrium (bottom opposite)—are the sole decorative flourishes. It's a far cry from the vinyl-and-plastic world of Ship's, but then, that was the whole point.

P. M. S.

Center West

Los Angeles, California

OWNER: Center West

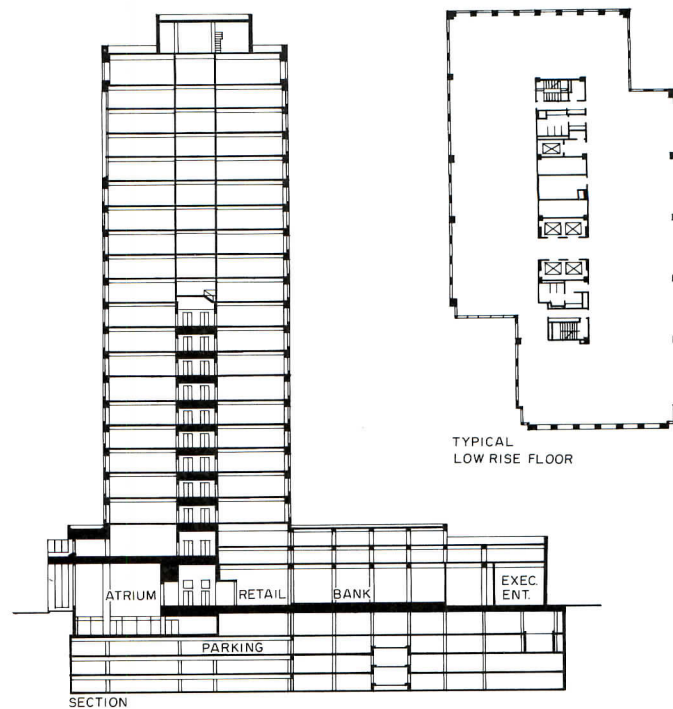
DESIGN ARCHITECT: Mitchell/Giurgola Architects—Paul Broches, Romaldo Giurgola, Steven Goldberg, partners; Scott Phillips, project architect; T. J. Costello, John Loomis, Nancy Brandenburg, project team

EXECUTIVE ARCHITECT: Daniel Mann Johnson Mendenhall—Gerd H. Ernst, project director; Gerhard Pichel, project manager; Tom Brakefield, project architect; Ralda Jammal, construction administrator

ENGINEERS: John A. Martin and Associates (structural); James A. Knowles and Associates (mechanical); Levine/Siegel Associates (electrical)

CONSULTANTS: Gordon H. Smith Corp. (curtainwall); Howard Brandston Lighting Design (lighting)

GENERAL CONTRACTOR: Peck/Jones Brothers



The Wilshire Boulevard lobby rises 33 feet to a coffered ceiling made of glass-fiber reinforced plaster. Square green-glass lenses in the ceiling conceal incandescent fixtures.



Above: walls of the Wilshire Boulevard lobby are clad in polished Italian marble. Floors finished in striated white statuary marble have green marble accents.

Below: a plaster bas-relief by artist Dani Karavan adorns the north wall of a lower-level atrium. Doors lead to the auto drop-off point in the building's 800-car garage.



GOOD CONNECTIONS

AT&T Corporate Center

Chicago, Illinois

Skidmore, Owings & Merrill, Architects

To call AT&T Corporate Center the first great skyscraper of the 1990s probably belittles this 891-foot-tall structure with public-relations-style hyperbole. Yet the two-phase, \$600-million building complex at the corner of Monroe and Franklin streets in Chicago's west Loop is undeniably impressive: a 60-story, 1.4-million-square-foot tower (completed in mid-1989) that consolidates AT&T's midwestern regional offices, connected to a 34-story, 1-million-square-foot building (scheduled for completion in mid-1992) that will house, among other tenants, the world headquarters of USG Corporation. AT&T occupies 55 percent of the first building, while USG will use roughly 50 percent of the second building. In addition to offices, the complex has 34,000 square feet of ground-floor retail space, an 11,000-square-foot restaurant, and underground parking for 340 cars.

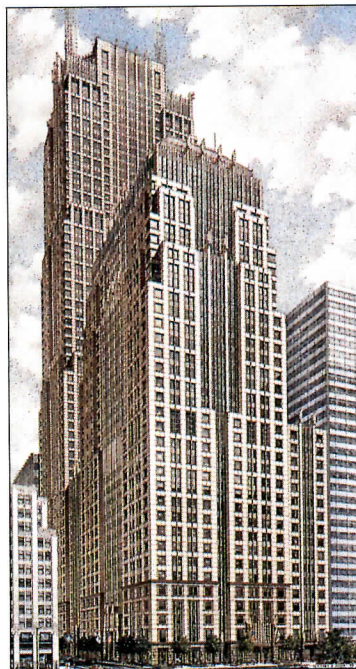
Aside from its imposing scale, AT&T represents the most recent example of on-going attempts by Skidmore, Owings & Merrill's Chicago office to integrate large-scale development projects into an existing urban landscape. "Our goal at AT&T," recalls SOM design partner Adrian Smith, "was an outgrowth of a philosophy, which we've been working on for some time, of how to connect a building to the city." For its part, AT&T wished to avoid the notoriety that accompanied the design of its world headquarters in New York, a building whose high cost and controversial Postmodern crown came to be viewed as the wrong symbols for a leaner company operating in a competitive, post-breakup corporate environment.

Setbacks and a granite curtainwall

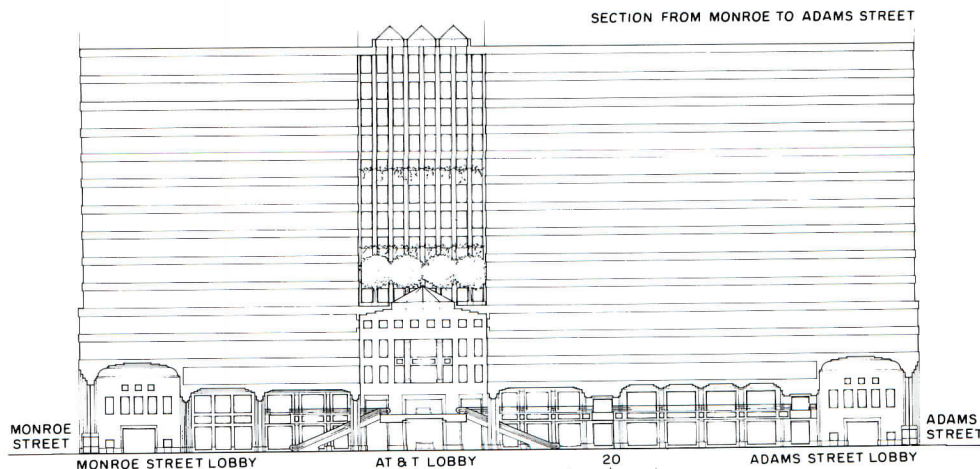
Toward these ends, SOM designed the project's phase-one signature piece as an elegant, but understated, tower that recalls Art Deco and Moderne towers of the 1930s without mimicking any specific precedent. Three major setbacks—at floors 30, 45, and 59—mark the termination of elevator banks, while a subtler fourth setback at the 15th floor refers to the historic building line of Chicago's early skyscrapers. The architects sheathed the composite steel-frame-with-poured-concrete-core tower in a curtainwall of polished and flame-finished granite—ranging in color from dark red at the base to light beige on the 56-story shaft—and they clad the building's spandrels with silkscreened, dark-green aluminum panels. The structure's



© NICK WHEELER (ABOVE); WES THOMPSON (OPPOSITE)



At just under 900 feet, AT&T Corporate Center (above) is Chicago's sixth tallest structure. The steel-frame setback tower offers rentable floor plates ranging from 35,250 square feet on the lowest levels to 22,000 square feet on the highest floors. The tower is clad in flame-finished and polished granite panels set between dual-glazed tinted windows (opposite). Phase two, located south of the completed tower, will rise 34 stories (foreground in rendering left). A through-block arcade between Monroe and Adams streets (section below) will link the two components.





Custom bronze and stained-glass chandeliers and sconces embellish the Monroe Street lobby. The 4,000-square-foot marble-clad room is frequently used for public events.



crown consists of four spires, embellished with fins and open metalwork, that taper as they rise 130 feet.

At ground level, SOM established a friendly dialogue between the pedestrian and what might be an intimidating building mass. Street-facing storefronts, lower-story rustication, and a canopy of trees all help “set up an intimate relationship with the guy on the street,” says Smith, “avoiding the feeling of isolation that accompanies so much high-rise architecture.”

Inside, the architects created a series of oak-trimmed marble-clad public spaces that substitute Renaissance-inspired dignity for the dim, almost medieval character of Burgee/Johnson’s AT&T interiors in New York. (Smith does acknowledge, however, that four large oculi cut into the escalator lobby walls are a tongue-in-cheek reference to a similar motif at AT&T/New York.) For AT&T’s security requirements, SOM transferred the chief tenant’s lobby from the ground floor, where ID checkpoints might have backed up pedestrian traffic onto the street, to a second-floor space reached by twin banks of escalators. The Monroe Street lobby, a grand 90-foot-long by 45-foot-wide by 45-foot-high room, leads directly to the building’s elevator vestibules, where upper-story tenants enter mahogany and bronze cabs through etched-bronze doors.

AT&T’s lobbies are, moreover, a highly responsible piece of urban design that will form a through-block north-south arcade connecting Monroe and Adams streets, once the project’s USG phase is completed. (For now, a trompe-l’oeil mural on canvas by artist Richard Haas adorns the lobby’s temporary south wall, depicting a literal rendering of the arcade extension.) The hub of this processional sequence is a jewelbox-like cube that rises through a 16-story-high atrium. AT&T’s arcade owes a debt to other through-block passageways that bisect office buildings throughout the Loop, all well used by Chicagoans seeking refuge from the city’s severe winter weather.

P. M. S.

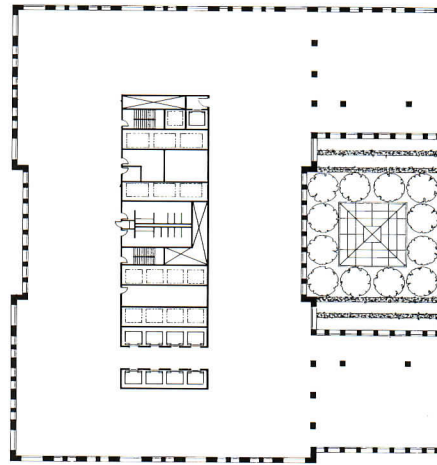
*AT&T Corporate Center
Chicago, Illinois*

OWNERS: AT&T and Stein & Company
ARCHITECT AND ENGINEER: Skidmore, Owings & Merrill—Adrian Smith, design partner; Robert Diamant, partner-in-charge; D. Stanton Korista, structural engineering partner; Parambir Gujral, mechanical systems partner; N. Anderson, project manager
CONSULTANTS: Jules Fisher & Paul Marantz (lighting); Simon & McLean (graphics); Lerch, Bates & Associates (exterior maintenance); Edgett Williams (vertical transportation); Cerami & Associates (acoustics)
GENERAL CONTRACTOR: Mayfair/Blount

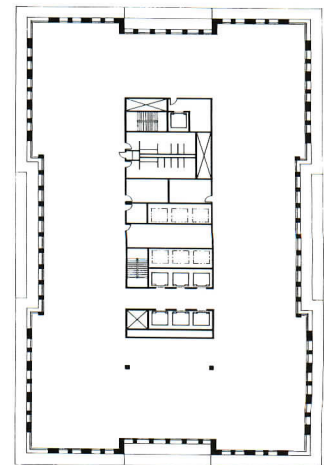


© SCOTT McDONALD/HERDICH-BLESSING (LEFT AND OPPOSITE)

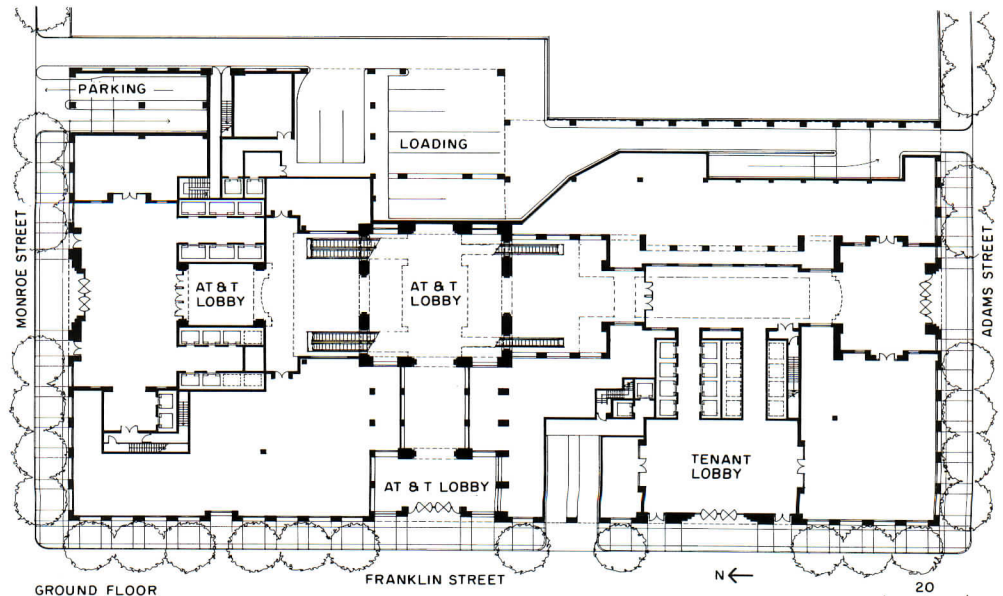
Twin escalator banks rise to AT&T’s second-story security checkpoint.



FLOORS 3 - 15

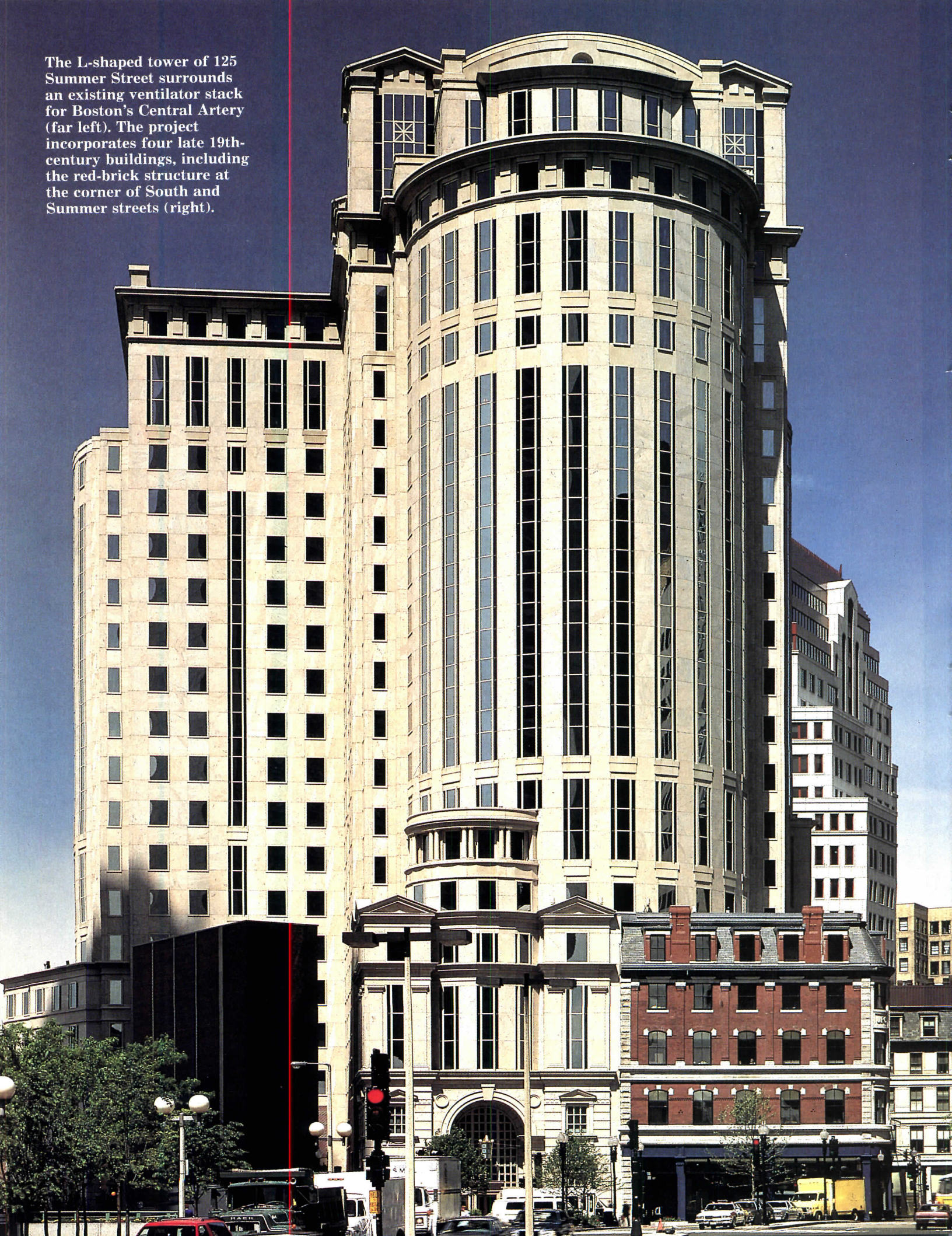


FLOORS 31 - 44



GROUND FLOOR

The L-shaped tower of 125 Summer Street surrounds an existing ventilator stack for Boston's Central Artery (far left). The project incorporates four late 19th-century buildings, including the red-brick structure at the corner of South and Summer streets (right).



GOOD MANNERS

125 Summer Street

Boston, Massachusetts

Kohn Pedersen Fox Associates, Architect

No one ever said it was easy to build large-scale development projects in downtown Boston. For one thing, the city's peculiar physical form—a welter of twisted streets and odd-shaped blocks that date back to Colonial times—confound architects used to the rectilinear grid of most other American metropolises. Then, too, after years of allowing developers and architects to fill much of downtown with overscaled towers and empty plazas, the city now has one of the most complex design-review processes in the country. The Boston Redevelopment Authority, the Boston Preservation Alliance, even the Massachusetts Historical Commission all have a say in what gets built in the urban core and, more significantly, what it will look like once it is completed.

The results of Boston's ongoing vigilance have been impressive—witness Heritage on the Garden [RECORD, May 1989, pages 122-127] and Rows Wharf [RECORD, March 1988, pages 86-93], two new mixed-use projects that successfully marry the demands of late 20th-century real estate with the city's red-brick-and-granite vernacular. Although a third building, 125 Summer Street, is less complicated than either Rows Wharf or Heritage on the Garden, architect Kohn Pedersen Fox faced an equally daunting challenge: to weave a 500,000-square-foot spec-office tower into a trapezoidal block already occupied by four five-story commercial buildings erected just after the great fire of 1872, and a red-brick ventilator shaft that services the adjacent Central Artery. The project's 31,000-square-foot site terminates the vistas down seven streets in the southern end of Boston's financial district.

A contextually sensitive giant

KPF responded with a 300-foot-tall steel-frame tower whose L-shaped plan neatly wraps around the ventilator shaft and whose five-story base retains the elevations of the four late 19th-century buildings. (The buildings' interiors, however, were gutted and integrated into the new tower's office floors.) Although the existing buildings are not designated landmarks, they visually help define the Summer Street retail corridor, which extends north from the site. "Once we agreed to retain the facades of those structures," recalls KPF partner-in-charge Arthur May, "we got a lot of people on our side."

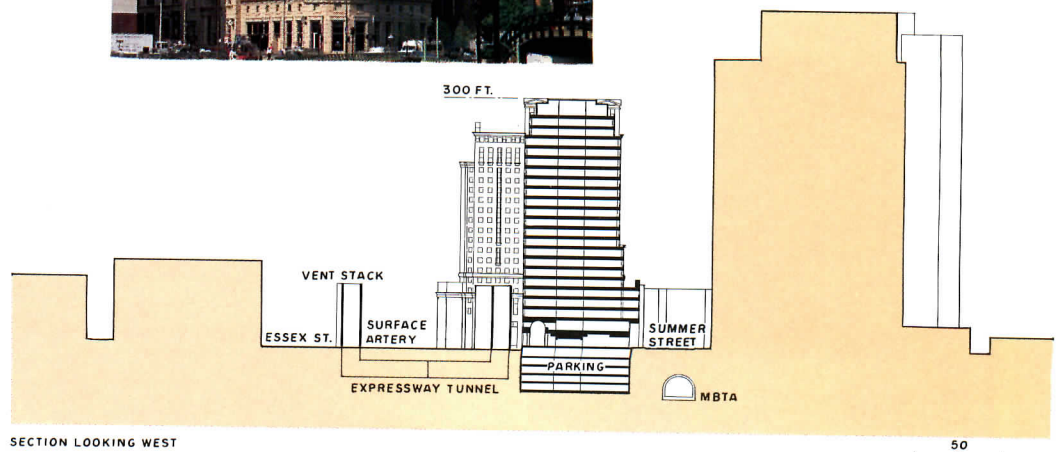
Another factor that helped ease 125 Summer Street through the city's regula-



© JOCK POTTLE PHOTOS, EXCEPT AS NOTED



By inserting 125 Summer Street's principal entrance between two existing granite-clad structures on the site (above), KPF reinforced Summer Street's five-story building line. The existing buildings, both of which date from the 1870s, have been renovated to house shops on the ground floors, with offices above. Along Lincoln Street a curving bay houses the entrance to five levels of underground parking for 400 cars (photo left and section below).



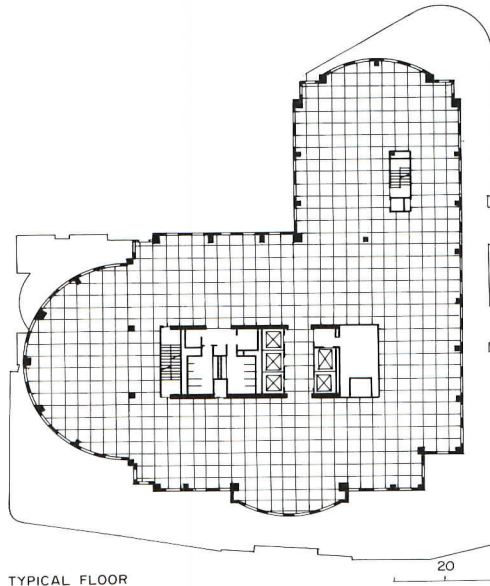
SECTION LOOKING WEST

tory gauntlet was the incorporation of 8,500 square feet of ground-floor retail space and a through-block shopping arcade from South Street to Lincoln Street. This 180-foot-long interior passage forms an all-weather link for commuters walking between South Station just a block away and the financial district.

If 125 Summer Street is a well-mannered, contextual piece of urban design, it is also architecturally one of the most satisfying of KPF's recent high-rise commissions. Clad in a combination of precast concrete and pink Stony Creek granite, the building shows a lively, classically inspired ornamental palette of cornices, pediments, moldings, and lanterns, echoing its low-rise neighbors without aping any one specific earlier structure. The tower's most striking features are three round-arched entry bays, each slightly different, that merge seamlessly with existing structures on the site, and an 80-foot-diameter apsidal elevation that responds to South Station's curving granite facade.

Inside, KPF gave the developer a highly marketable series of public spaces. In addition to the retail arcade, which is finished in a combination of marble wainscoting and cherry-stained maple, a 50-foot-square main lobby boasts lavish patterned-marble walls and floors, a coffered frieze of glass-fiber reinforced concrete, and a 39-foot-diameter drum topped by a luminous frosted-glass ceiling. "We like to think that the architecture helped in the building's leasing," says May, though he acknowledges that the developer's carefully timed marketing strategy probably was crucial. Whatever the case, the results are 100-percent occupancy in a New England spec-office market that is unsteady to say the least.

P. M. S.



TYPICAL FLOOR

A typical office floor (left) offers tenants 20,600 square feet of leasable area. Ground-floor public spaces include a richly ornamented main lobby (below), finished in white, rose, and green Italian marble. This 2,500-square-foot space is topped by a



© CHUCK CHOI

39-foot-diameter drum, which opens onto an office mezzanine. The building's other significant public amenity is a 180-foot-long through-block arcade (opposite)—a maple-paneled pedestrian passage connecting South and Lincoln streets.

125 Summer Street

Boston, Massachusetts

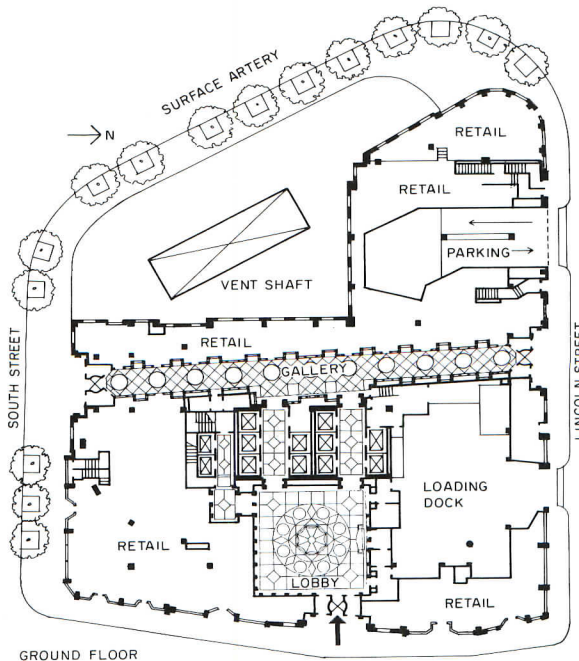
OWNER: A. W. Perry/Jaymont

Properties

ARCHITECT: Kohn Pedersen Fox Associates—Sheldon Fox, partner-in-charge; Arthur May, partner-in-charge of design; John Lucas, associate partner; Glenn Garrison, project manager; Gregory Waugh, job captain; Tae Choi, Warren Smith, Paul Katz, Jose Monge, design team

ENGINEERS: LeMessurier Associates (structural); R. G. Vanderweil Engineers (mechanical); Haley & Aldrich, Inc. (geotechnical)
CONSULTANTS: Howard Brandston Lighting Design (lighting); Gordon H. Smith Corp. (exterior wall); Preservation Technology Associates (technical preservation); John Van Deusen & Associates (elevators); John Copley & Associates (landscape)

GENERAL CONTRACTOR: Turner Construction Company



GROUND FLOOR



“Carolyn’s been with

Carolyn and Gordon met in 1977. “I was new and he was new,” she says, “and we sort of grew together.” Perhaps all clients don’t take advantage of Carolyn’s brand of thorough service, but Gordon does. “He’s cautious,” she says. “He tends to call us before he starts a project or gets into certain areas. He might say, ‘We’re thinking about a joint venture with another firm. How will that impact our insurance?’ Then our contract analyst and I work together to give him some advice on short and long-term consequences.”

On the account management side, Carolyn doesn’t just wait for the renewal quote to come in. She’s on the phone with DPIC — dealing with the underwriters, pointing out her clients’ strengths, negotiating for the terms she needs. And she’s persuasive.

“I expect a high quality of service for him — I want to be as professional as Gordon is. He

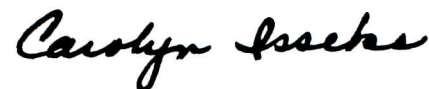
emphasizes high standards in serving his clients. And we feel the same way.” Carolyn also works hard to keep Gordon H. Chong + Associates informed about the many premium reduction opportunities available from the DPIC program.

Carolyn has a master’s degree in education and began her working life as a teacher. The teacher in her still comes out when she’s conducting a workshop panel on liability issues for one of the Bay Area AIA chapters or a brownbag seminar for one of her clients. “I love to see the light bulb go on in someone’s head,” she says. “The ‘oh, now I know what you’re talking about.’ I think that’s what I like about this job: I’m always teaching and getting close to people who, I think, appreciate what I have to tell them. They all have the same interests — they want to better their practice in a professional way.”

Gordon Chong is the owner of Gordon H. Chong + Associates, a 45-person architectural practice located in San Francisco, California. He is president of the San Francisco Chapter of the AIA for 1991, and has been a director of the California Council of the AIA and president of Asian American Architects and Engineers.



Carolyn Isseks is vice president of Dealey, Renton & Associates, an independent insurance agency based in Oakland, California. She has represented DPIC’s unique insurance program of education and loss prevention services for over thirteen years. She is also a member of the Professional Liability Agents Network (PLAN), a nationwide group that specializes in serving the risk management needs of design professionals.



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DESIGNING THE SUPER-THIN NEW BUILDINGS

Very tall, very slender buildings represent the cutting edge of skyscraper design.

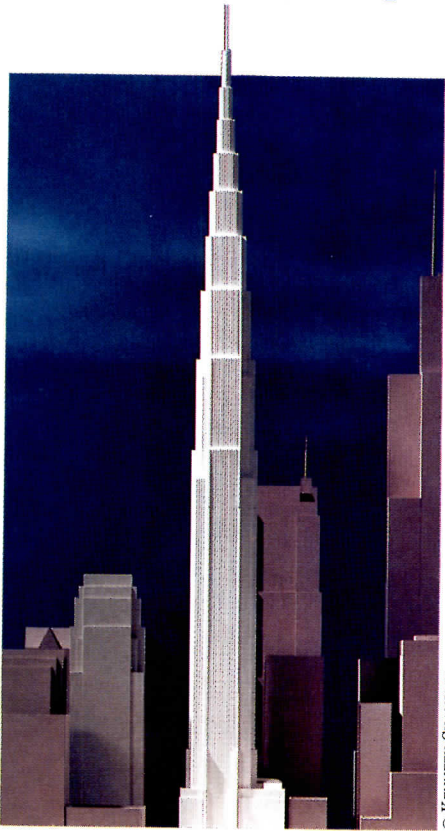
Once tall buildings could be dramatic, soaring things. In the last 25 years or so, though, the 1-million-sq-ft “developer special” has become a ubiquitous and less inspiring presence. But a new crop of extremely tall and slender buildings that may restore the romance to city skylines has been commissioned. These new structures have become the touchstone for technological development in tall buildings because they stretch the state of the art in use of materials, in the analysis of building behavior, even in planning for services and elevators.

Jacob Grossman, vice president of Robert Rosenwasser Associates, has designed several of these buildings. He defines a slender, tall building as “a structure having an aspect ratio of 10 to 1 or more.” In the real world, this means buildings with relatively small floor plates, usually much less than the square footage deemed minimum by most downtown office-building developers.

Tall buildings with small floor plates have until very recently been thought uneconomic: there’s no doubt a construction-cost premium must be paid, and only certain kinds of tenants can make good use of floors as small as 7,000 sq ft. (For comparison, the average high-rise office building has 25,000-sq-ft floors; the largest range to more than 60,000 sq ft on some floors.) For these reasons such structures may never represent more than a small percentage of a typical central business district’s inventory. But new ways of doing business downtown might portend more of these buildings than the current wisdom would suggest. Many big-city firms have separated clerical and support functions from management, placing the former in low-cost back-office venues, or they have simply eliminated many jobs by automating the workplace. Downtown is now typically home to highly specific types of enterprises—law, accounting, insurance, banking, advertising, and public relations—that demand a lower proportion of support staff to executives. With more upper-management personnel to please, buildings need more perimeter office space with views. This pitch is made explicitly by the developers of Chicago’s Miglin-Beitler tower (above and page 108), in which floors range from 7,000 to only 18,000 sq ft.

Tall slender buildings have other aspects to commend them. They suit increasingly restrictive zoning needs (712 Fifth Avenue, page 106, for example) and by bringing more workers closer to the exterior, they offer a better working environment and take advantage of energy-saving daylighting.

In these last aspects the new projects are akin to some pioneering skyscrapers—the Woolworth, Chrysler, PSFS, and



Chicago’s proposed Miglin-Beitler tower will rise 125 stories.

RCA (now GE) buildings—built at a time when fluorescent lighting and air conditioning had not yet obviated the need for daylight and outside ventilation. Yet because the recent structures are so much taller for their size (at 62 stories, Carnegie Tower—page 106—is twice the height of PSFS and has a smaller floor plate), structural engineering criteria are different, inspiring innovative solutions.

Most tall-building engineering design is governed by resistance to wind forces. For tall buildings with narrow profiles, eliminating discomfort from wind-induced swaying becomes the critical design factor. “A dynamic wind loading is caused by a combination of inertial forces developed as the structure sways and amplified by the variations of pressure at different points along the surface,” Grossman explains. “These loads are often much larger than the mean static loading of wind impinging on the building.” Stiffening the structure, the obvious solution, will reduce total sway but will also reduce the period of the sway, which makes it more noticeable and uncomfortable for occupants. Instead, engineers must combine additional stiffness with a damping strategy. There are various means to accomplish this, and the

case studies on the following pages describe solutions ranging from all-concrete construction to steel-concrete composites.

But the complications don’t end here. In slender structures, reducing the amount of space taken up by structure is essential. Of the projects shown, the most efficient wind-resisting plan, a rectangular slab, was appropriate only to 712 Fifth Avenue and Carnegie Tower. For residential occupancies—Cityspire and the Rihga Hotel—the perimeter of the structure had to be left essentially unencumbered, requiring hybrid shearwall/tube solutions.

Jean Nouvel’s Tour Sans Fins, in Paris (Ove Arup Partnership, engineers), is a composite structure in which the circular plan offers considerable structural economy. The scheme goes utterly against precedent in placing all of the “core” at the perimeter. In Chicago, Thornton-Tomasetti, engineers for the Miglin-Beitler tower, combined a cruciform poured-concrete core (with punch-outs for access) and enormous fins of concrete-encased steel. The fins place the wind-resisting elements at their most efficient locations, and the concrete damps sway. If this ambitious scheme is a success, it may signal more slender buildings. After all, tall thin buildings block less light and air than squat low ones, and planners in overbuilt downtowns are beginning to take notice.

JAMES S. RUSSELL

CARNEGIE TOWER NEW YORK CITY

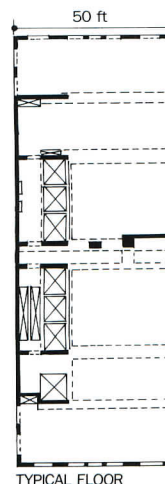
Carnegie Tower's slender profile is particularly noticeable on its 50-ft-wide north side (right), which rises 757 ft. (The site doglegs, so it is 75 ft wide on the south.) Like many very slender buildings, it is an air-rights structure, in which un-built square footage from the zoning lot occupied by Carnegie Hall (right in photo) has been transferred to the tower's site.

Cesar Pelli & Associates, the design architect, used brick, metal, and precast concrete on the exterior so that the tower would seem an extension of the hall. (The base provides additional support space to the hall as well.) Rosenwasser Associates engineered the building as a "double tube," with the wind-resisting elements designed into the poured-in-place walls. "Cesar wanted to match the music-hall exterior in window sizing and spacing, so we were able to put more concrete on the outside," explains Rosenwasser's Grossman. "If the architect will accept closely spaced columns and small windows, this is the most efficient structure you can have."

The brick masonry, in standard New York City practice, was laid up onsite. The



The 50-ft-wide shaft of Carnegie Tower adjoins 16-story Carnegie Hall.



TYPICAL FLOOR

© STEPHEN SENIGO PHOTOS, EXCEPT AS NOTED

tower is crowned by a row of vertical metal fins evocative of the 100-year-old hall's projecting cornice.

ARCHITECTS: *Cesar Pelli & Associates, design architect; Brennan Beer Gorman, architect of record*
ENGINEER: *Robert Rosenwasser Associates*

712 FIFTH AVENUE NEW YORK CITY

A limestone-clad 53-story office tower, 712 Fifth Avenue is a product of zoning restrictions. It is the first tower built since the central and eastern parts of midtown Manhattan were downzoned three years ago. The tower is set back from Fifth Avenue, behind a group of restored landmark commercial buildings.

Though the sheer shaft is not as slender as the other buildings on these pages, its less-bulky silhouette lets plenty of light and air penetrate to the street (vindicating the new ordinance). It also leaves famous vistas down Fifth Avenue unencumbered and allowed the engineers to develop a highly efficient concrete-tube structure. According to Sing L. Chu, partner at Weiskopf & Pickworth, "wind-induced vibration" was the critical problem. Stiffness and mass are supplied by the concrete frame, although the mass of the cladding, on average 4.5 in. thick, contributed to the damping effect. All of the wind-resisting elements have been placed at the exterior and are not linked to the core. This freed the architects to place the elevator shafts and other services where they would best serve likely tenant layouts.

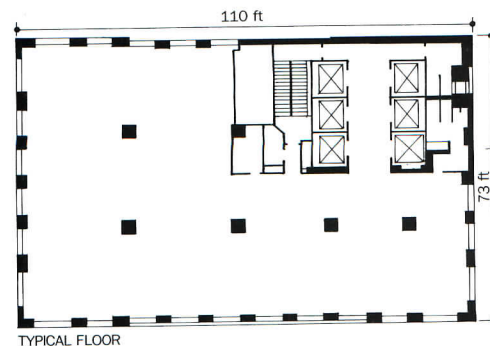
The architects and engineer had to care-



The narrow silhouette of 712 Fifth Avenue contrasts with larger neighbors in midtown Manhattan.

fully carry the building loads around the landmark buildings at its base. To avoid a single large transfer structure, column loads were shifted in small horizontal steps across nine floors.

ARCHITECTS: *Kohn Pedersen Fox Associates, design architect; Shuman Lichtenstein Claman and Efron, architect of record; Beyer Blinder Belle, restoration architect*
ENGINEER: *Weiskopf & Pickworth*



TYPICAL FLOOR

CITYSPIRE NEW YORK CITY

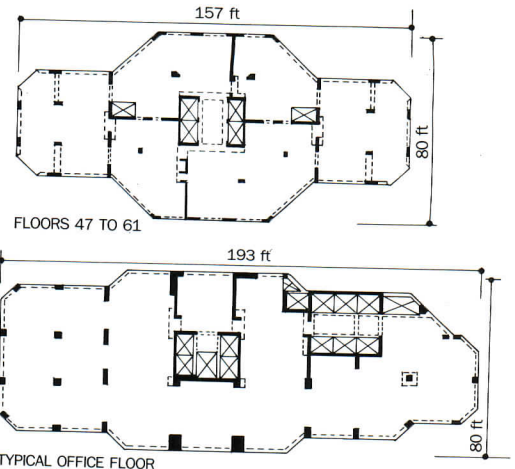
The shape of Cityspire, a mixed-use tower, was virtually dictated by a statutory zoning envelope, according to Sam Scaccia, executive vice president of Murphy/Jahn. Bulk restrictions came into play because the project took advantage of adjacent air rights from City Center, an extravagant neo-Moorish theater.

Nine major structural systems were designed for the project, in part because a regular column grid could not be set for apartment levels. The 23 lowest floors are offices. As the building rises, and the program switches to apartments, the eastern and western ends are sliced off in three setbacks to stay within the zoning envelope. Floors 63 through 69 rise as an octagonal tower. Because the floors need to be as open to views as possible, little of the wind-resisting structure could be placed at the perimeter.

The structural engineers call their concept for the building a "shear-wall/open tube," in which the central elevator core—the tube—is linked to exterior columns through pinwheeling shear walls which, in most cases, are set between residential



Cityspire's top echos the dome of the adjacent City Center theater.



units. Where full-height walls were not possible, the shear walls are linked by coupling beams. On some office floors, rectangular concrete panels are staggered from floor to floor to create a multilevel diagonal brace.

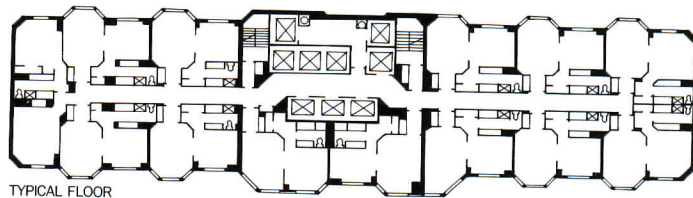
ARCHITECT: *Murphy/Jahn*
ENGINEER: *Robert Rosenwasser Associates*

RIHGA ROYAL HOTEL NEW YORK CITY

Faced with the design of a very large all-suite hotel on a midtown Manhattan site hemmed in by large buildings, Frank Williams was stymied. On a trip to Paris, though, he was taken by that city's legions of bay windows. They became the device to differentiate the more public of the luxury-class hotel's typical two-room suites, and, appearing on the exterior as vertical ribs, help break down the 50-story building's intimidating mass.

As in most very slender structures, reducing sway to a level acceptable by occupants was the critical design criterion. Jacob Grossman, of Robert Rosenwasser Associates, sought to develop this resistance entirely through mass and stiffening rather than dampers. He considers the latter solution, as executed in the past, too expensive.

Any building in which fewer than two percent of occupants complain about uncomfortable accelerations complies with the current standard, which was drafted with the aid of developers. Because excessive sway has to do with serviceability—it's a comfort factor—rather than with literal structural efficacy, Grossman feels that the client should be involved in deter-



mining its importance. After all, meeting the criterion has economic consequences. In the event building occupants are more sensitive than average, the Rihga Royal was designed to accept hydraulic dampers if they were needed. As it turned out, they weren't.

To leave the exterior as open for glazing as possible, the engineers used shear walls to form a giant tube in the central section of the plan. Outside this "core," the structure is braced by additional shear walls between the units ("excellent for sound attenuation," comments Williams). The rib-like bay windows offer additional rigidity.

ARCHITECT: *Frank Williams Associates*
ENGINEER: *Robert Rosenwasser Associates*

The brick-clad Rihga Royal Hotel's bay windows open rooms east and west to city and river views.

MIGLIN-BEITLER TOWER CHICAGO

At 1,999.9 ft, the top of the Miglin-Beitler tower's spire is not only higher than the Sears Tower, but taller even than Toronto's CN tower, making it "the world's tallest non-guyed structure," according to Thornton-Tomasetti, engineers for the project. "None of us set out to do the world's tallest building," explained Greg Jones, project manager at Cesar Pelli & Associates. "When we put together the 1.1- to 1.3-million-sq-ft program with the floor areas the clients were looking for, it had implications for the massing and the skyline." The attenuated silhouette, with each setback slightly shorter than the one below it, came about as the architects and engineers sought to integrate structural and architectural needs. The massive fins that brace the core are only the most visibly expressed supporting element.

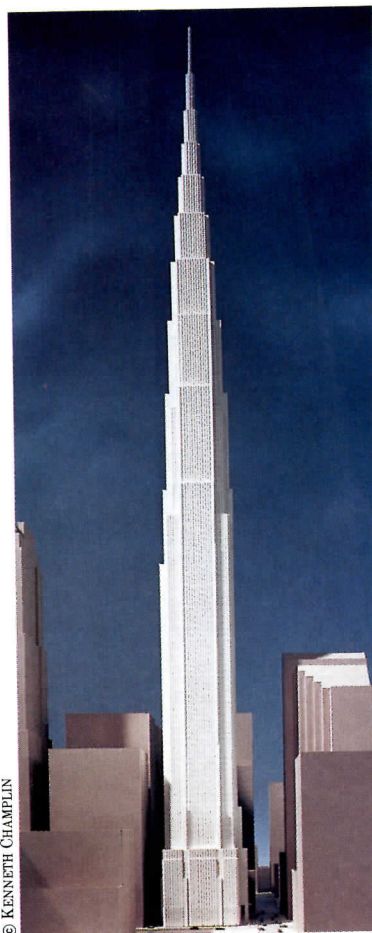
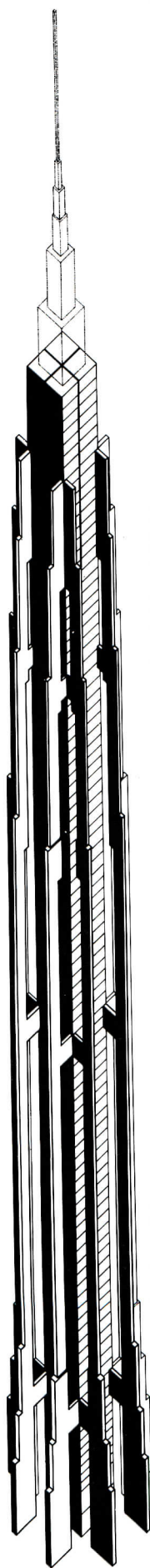
Cruciform core and fins

Thornton-Tomasetti's "cruciform tube" solution has five primary elements.

- A 62.5-ft-square concrete core. Walls vary from 1.5-ft to 3-ft thick. Openings for access to elevators and other core areas are punched out of the solid walls.
- Four pairs of bracing fins will be constructed by pouring concrete around steel erection columns. The base of each fin is 6.5 by 33 ft, at which point it extends up to 20 ft beyond the building line. The fins step in at seven setbacks, tapering to 4.5 by 13 ft near the top.
- Concrete link beams (toned red, plans opposite), which are cast integrally with each floor, lock the fins to the core. "Outrigger" walls at the 16th, 56th, and 91st stories are proposed as an additional means to rigidify the structure and tie the fin columns and core together.
- Spandrels at each floor will be backed up by Vierendeel trusses that span the 60-ft face between fins. They boost the building's lateral force resistance and torsional resistance. They also transfer dead load to the fin columns.

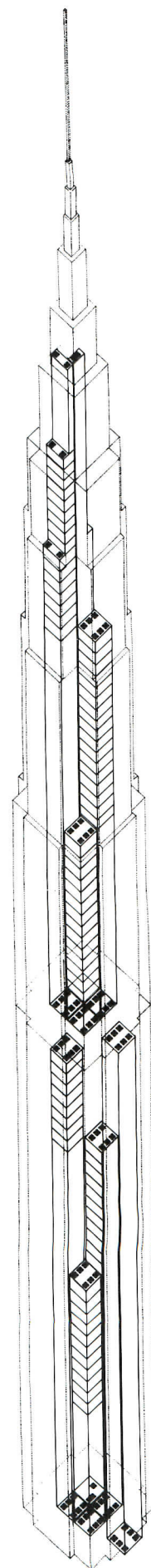
To make these diverse elements work together required some juggling of floor plans and structural elements. First, the core-area-versus-floor-area proportion had to be worked out. This led to the decision to locate the bank of elevators serving the skylobby out of the core and to one side. The most efficient core-to-fin connection would have the fins aligned with the edge of the core, according to Charles Thornton. This arrangement, however, conflicted with the standard five-ft module for office layouts. So the fins have been set slightly outside the edges of the core, and the link

The structural axonometric (left) expresses the relationship of the core to the bracing fins. Occupied floor area is not shown. The spire will be framed in steel. The elevator scheme is shown right; one bank of express elevators located at the periphery serves upper-



© KENNETH CHAMPLIN

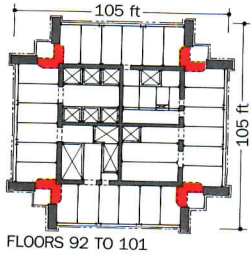
floor shafts via a skylobby. The architects and engineers used the wind-tunnel facilities of Rowan Williams Davies Irwin, in Guelph, Ontario, to test the Miglin-Beitler tower for resistance to static and dynamic pressures. In house, the engineers analyzed the building using 14 separate two-dimensional and three-dimensional runs on two separate computer programs.



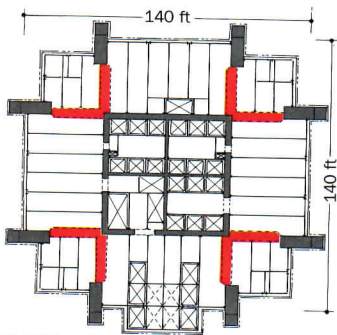
beams traverse the floors at a slight angle. Their section is smallest where moments are weakest to allow the passage of ductwork underneath.

The fin scheme made column-free corner offices possible, and the resulting re-entrant corners soften the tower's silhouette. The architects emphasized this effect by designing the curtainwall as narrow vertical piers.

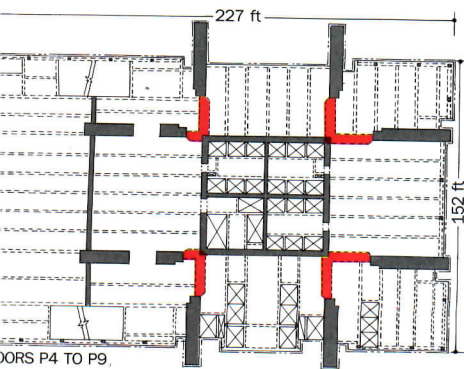
This bold scheme, oriented to prestigious small-space users, has been greeted with skepticism in the Chicago real-estate com-



FLOORS 92 TO 101



FLOORS 19 TO 32



FLOORS P4 TO P9

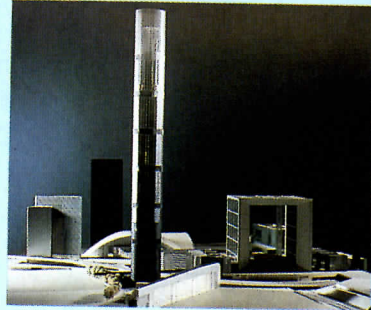
munity which, like many cities, is facing rising vacancy rates. But the 1.2-million-sq-ft project is only one-tenth the area of New York's World Trade Center, which glutted the office market during the 1970s. □

ARCHITECT: Cesar Pelli & Associates; HKS, Inc., associate architect
ENGINEER: Thornton-Tomasetti; Cohen, Barreto, Marchertas, associated structural engineer

UNORTHODOX SCHEME FOR PARIS

Set within the high-rise chaos of La Défense in Paris, Jean Nouvel's shimmering 80-story Tour sans Fins plays off the cubic silhouette of the Grand Arch of La Défense and dissolves at its top into a diaphanous fretwork. Moreover, the design turns skyscraper design conventions literally inside out by placing elevators, stairs, and other services at the exterior rather than the interior.

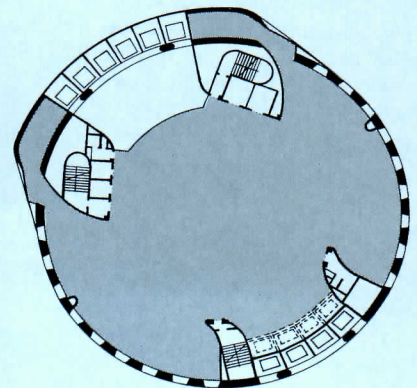
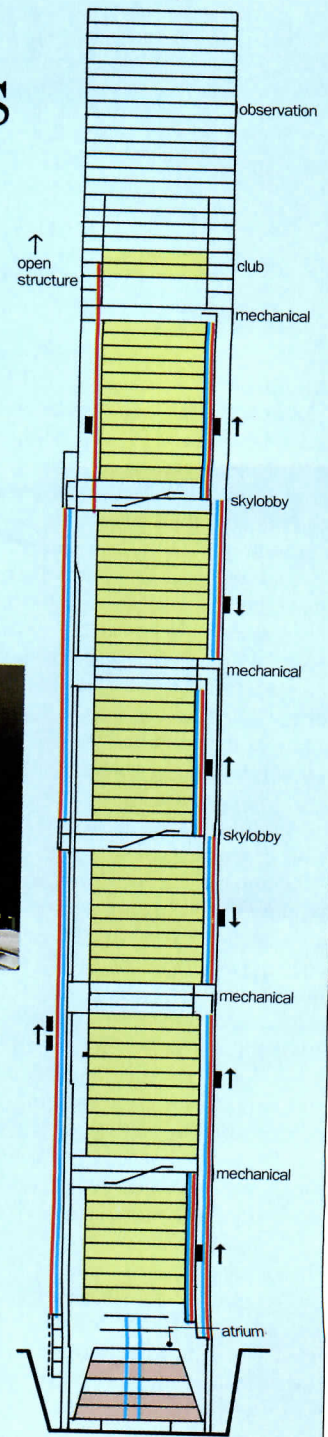
Curving multifloor spaces are carved out at various levels to create vistas from the center of the floor plate to large "urban windows," spanned by visible structural *grandes croix*. The base of the structure, 85 ft below grade, will be excavated in what Nouvel calls a "crater." At these levels, an hour-glass-shaped central street slices through the volume.



The plan's cylindrical form "offers good material utilization and a regular structure," according to Tony Fitzpatrick, director of the engineering team for the Ove Arup Partnership, London. The concrete perimeter frame acts as a tube to carry all of the wind forces on the tower. This dense framing is completely circular, but a bank of express elevators is set outside the tube, giving the tower a slightly ovoid plan.

Though the cylindrical shape is innately efficient, the critical design criterion is a phenomenon called vortex shedding, in which oscillating positive and negative pressures occur at 90 degrees to the wind direction. The multistory open lattice at the top of the building does not merely suggest a "tower without end," but is designed specifically to counter these forces.

Typical floors are 100 ft in diameter and shelter only 7,700 sq ft; consequently, the engineers have designed a very rigid composite structure to reduce discomfort due to sway. The structure is most massive near its base (for wind resistance), where the wall-to-window ratio is about 50 percent. As the building rises, window openings are larger, the structure lighter. The top quarter of the building is framed in steel (to reduce the period of sway). Steel beams span radially from the exterior to the center and are cast integrally with the lightweight-concrete slabs for horizontal composite action. □



ASBESTOS: STILL A DARK CLOUD OVER CONSTRUCTION

It's in thousands of buildings, and the trend to management in-place over removal signals an ongoing role for architects.

Asbestos remains a dirty word, and architects will continue to face issues related to the material for years to come. Though asbestos is gone from the marketplace, tens of thousands of buildings continue to harbor it in some form, with large institutional and commercial structures built from 1945 to 1980 likely to have the greatest amount of the material. Asbestos is only dangerous when individual fibers are released, and this is more likely with pipe insulation or sprayed-on insulation than in roofing felts or vinyl-asbestos tile.

Research now underway (which should be completed in a year or two) is likely to give a clearer picture of the hazards the material poses for day-to-day occupants, and the results may, as some suspect, confirm that the peril is low. Even now there is generally no legal requirement for inspection or removal of undisturbed material. Yet the nature and the extent of the danger represented by asbestos in buildings is more controversial than ever (see "Were Asbestos Dangers Exaggerated?" opposite).

There is little reason to be complacent about asbestos. A hands-off policy, adopted by many architects in response to the enormous liability burden of asbestos-related work, is untenable on many projects, due to the fact that the management or abatement of the material complicates schedules, and affects too many other design and detailing issues. Ignorance is not a legitimate excuse: "As a registered architect, you are expected to exercise reasonable professional judgment," explains Zach Cowan of the National Asbestos Council. "You can be expected to know about the technology in your field, including the potential presence of asbestos."

Management-in-place versus removal

Driven by panic and liability woes, some owners undertake immediate (and very expensive) removal of all asbestos-containing material. The Asbestos Hazard Emergency Response Act (AHERA), which applies to schools, *does require removal of asbestos-*



A steampipe explosion in New York City covered an apartment building with asbestos-contaminated mud.

containing material based on the potential for fiber release. Regulatory agencies also require removal when material has been damaged, before renovation projects can begin, or before a structure can be demolished. But removal is increasingly controversial. Callous contractors—variously described as "rip and skip" or "bag and drag"—can expose workers, building occupants, and even occupants of neighboring buildings to dangerous levels of asbestos. Such sites may be very hard to clean up.

If fibers are not being released, government agencies and most consultants prefer to manage asbestos in place. It's less expensive (or allows stretching abatement costs over a long period of time) and doesn't risk critical-exposure accidents during removal. It does, however, place a long-term burden on the owner to monitor the condition of the asbestos and to consider possible disturbance due to routine maintenance or renovation activities.

Management may be complicated because asbestos can be hard to identify. "Most designers are aware of the obvious asbestos material applications, such as spray-on fireproofing, troweled or sprayed acoustical materials, and pipe or boiler insulation materials," explains Roger Childean, an architect and manager of the New York regional office of Alternative Ways, Inc., an environmental and engineering consulting firm. "However, some roofing

felts, shingles, various textiles, woven ropes and filters, ceiling and floor tiles, mastics used for floor and wall-finish applications, and gypsum board and spackling compounds were in the past made with asbestos."

In-building workers targeted

Experts on asbestos in buildings are increasingly making distinctions between exposure to occupants or visitors and exposure to maintenance and construction workers. Occupational Safety and Health Administration (OSHA) guidelines are intended to prevent workers from receiving peak exposures, which are equivalent to those received by workers in asbestos-related occupations who have developed disease in large numbers. Dr. Richard Kronenberg, administrative director of the Texas Institute of Occupational Safety and Health at Tyler, explains, "The major thrust in asbestos-related disease in the next 10 years will be looking at cohorts of workers that have been exposed to asbestos-containing materials in place. It's established very clearly that there is potential for disease. We're seeing sheet-metal workers, firefighters, custodians—people for whom exposure is incidental to their work, rather than primary to their occupation." Dr. Irving Selikoff, a pioneering asbestos researcher at the Mount Sinai Medical Center, studied custodians in New York City schools and found that "roughly one-third had abnormal X-rays of a kind that occur after the inhalation of asbestos." He says similar findings have been reported in Boston, Los Angeles, and Wisconsin.

The potential for exposure by building workers (and, of course, architects working onsite) will continue to complicate jobs ranging from major demolitions to telephone-cable relocations. According to the NAC's Cowan, new workplace rules will further restrict the types of activities that may be performed without full-scale protective measures. For some materials, such as roofing, OSHA has not yet set standards, which leaves the decision as to

abatement method to the contractor, owner, or specifications writer.

Because of the higher risk for maintenance workers, a management plan, consultants say, should focus on training personnel to recognize work that may disturb asbestos in place, but should also require an in-building permit system (so that any work that might affect asbestos can be monitored), and emergency contingencies for water leakage, earthquakes, and fire. Such plans may, in any event, be legislated, says Chiljean. "New York City is considering regulations that would require building owners to survey and identify all in-place asbestos-containing materials and implement management programs." Other cities may follow New York's lead.

Architects and consultants

In the mid-1980s, many architects had to tell clients that they could assume no role at all in the management or abatement of asbestos for fear of assuming liability vastly larger than the resources of the firm. This was not what clients wanted to hear, hoping for knowledgeable professional advice on how to handle a problem that also exposed the client to enormous liability. Through negotiations between the AIA and insurers, limited claims-made coverage (which means that insurance remains in force only as long as the policy is renewed) is now available for asbestos-related errors and omissions incidental to a larger project. Architects can also take some assurance from the spreading state-

and EPA-sponsored certification programs that apply to consultants and contractors. Nevertheless, some pitfalls remain: "A consulting firm specializing in schools may have little or no experience working in high-rise offices or other complex building types where abatement must be completed while the facility is occupied," says Chiljean. Since consultants must certify an abatement site as "clean," Chiljean urges investigation of any financial ties between

Limited claims-made coverage is now available for asbestos-related errors and omissions . . .

consultants and removal contractors, as well as verification that the firm's insurance coverage includes asbestos and that it has a rating of "A plus" or better from A. M. Best, an insurance rating firm.

Some who are skeptical of asbestos's dangers argue that *liability* is the architect's primary risk. If the owner retains a consulting firm, the architect's services should exclude these responsibilities and the owner must hold the architect harmless for asbestos work. Other recommen-

- Clearly define the architect's responsibilities, and exclude from the contract any asbestos investigations, identifications, remediation specifications, or inspection.
 - Work with the environmental consultant to assure the client that all asbestos-related issues are being handled appropriately. Architects should share drawings and specifications with the consultant so that any conflicts can be identified.
 - Document decisions throughout the project in order to build an adequate defense against claims or litigation.
- J. S. R.

Further information:

National Asbestos Council, Suite 150, 1777 Northeast Expressway, Atlanta, Ga. 30329 (404/633-2622). A broad-based coalition of interest groups. Offers a directory to environmental consultants.

"Managing Asbestos in Place," and "The ABCs of Asbestos in Schools," Environmental Protection Agency, Washington, D. C. (202/554-1404).

"Asbestos Policy Decisions: An Industry Report for Corporate America," published by Alternative Ways, Inc., 100 Essex Avenue, Bellmawr, N. J. 08031 (800/547-0101).

"Asbestos: Scientific Developments and Implications for Public Policy," by B. T. Mossman, J. Bignon, M. Corn, A. Seaton, J. B. L. Gee, *Science*, January 19, 1990, pages 294-300.

Brodeur, Paul. *Outrageous Misconduct: The Asbestos Industry on Trial*. New York: Pantheon, 1985.

WERE ASBESTOS DANGERS EXAGGERATED?

One scientist's "prudent abatement" is another's "asbestos panic."

In an article titled "Asbestos: Scientific Developments and Implications for Public Policy," that recently appeared in the respected, peer-reviewed journal *Science*, four researchers conclude, "The available data . . . indicate that chrysotile asbestos, the type of fiber found predominantly in U. S. schools and buildings, is not a health risk in the nonoccupational environment." The authors did not call for a halt to abatement, but wrote, "clearly the asbestos panic in the U. S. must be curtailed . . ."

This article has caused a furor in the asbestos-abatement community. The authors argue that chrysotile has a shape that is less harmful than those of other types of asbestos. Paul Brodeur, author of *Outrageous Misconduct: The Asbestos Industry on Trial*, calls the chrysotile theory "a pathetic attempt by the former manufacturers of asbestos to ex-

tend the presumption of innocence to asbestos." Brodeur claims that three of the article's four authors are either paid consultants to the asbestos industry or have testified in lawsuits on its behalf, circumstances not disclosed by *Science*. The article reviewed previous studies, and some researchers have charged that the authors ignored relevant data.

The damage that asbestos can do to lung tissue is well established. Thousands of miners, fabricators, and installers of asbestos-containing materials have died from asbestosis, lung cancer, or mesothelioma (another cancer), caused or aggravated over decades by asbestos fibers lodged in lung tissue.

What remains debatable is how much asbestos must be inhaled over what period of time to pose a danger. Dr. Richard Kronenberg says, "We really don't know what the hazard is for asbestos in-

place in buildings. But there is increasingly accumulating evidence that you can't ignore it." The EPA's official position is that asbestos in buildings cannot be categorized as risk free, although the danger "appears to be low, particularly in settings where disturbance to the material is controlled and minimized." The agency has sponsored research to determine the risk to occupants more accurately.

If scientists can't agree, what is the most prudent course for the architect? There are no explicit rules for buildings other than schools, but Roger Morse, of ENTEK Environmental and Technical Services, in Troy, N. Y., calls AHERA, with its provisions for surveying, documenting, and managing asbestos, "the standard for care," to which an architect's actions may be compared in court.

J. S. R.



Contact Kawneer, Department C, Technology Park – Atlanta, 555 Guthridge Court, Norcross, GA 30092. 404-449-5555.

DRAFIX WINDOWS VERSUS POWERDRAW FOR THE MAC

Which of these mature, feature-laden 2-D CAD packages is for your firm? It depends on what features in particular you're looking for.

The word this past summer was that Microsoft finally got it right; its Windows 3.0 cured most of the problems of earlier versions, allowing the easy installation and use of a Macintosh-like interface on IBM-compatible computers. But it takes more than an interface to make the two computer families equivalent. We look this month at a pair of 2-D CAD products to show you what we mean. They share many of the standard Macintosh/Windows features—pulldown menus, dialog boxes, and so forth. But they still behave differently.

PowerDraw 3.0, for the Mac, is clearly a smoother product when it comes to changing drawing tools and getting lines into your drawing. Drafix Windows CAD users are sometimes interrupted with dialog boxes that ask if a tool's defaults should be changed, whether you want them changed or not. On the Mac, the clipboard is inside the application. In Windows, it is a separate program that must be brought to the screen if you want to transfer files to other software.

On the other hand, file translation between Drafix and other CAD packages, particularly AutoCAD, is superior. Some offices will also appreciate the way Drafix handles symbol libraries and multiple views.

Windows also helps manage memory. Once Windows is installed, programs that are designed to operate with it have ready access to whatever extended memory is available in your computer. This, in theory, should help keep dealer service costs low. Indeed, Drafix Windows CAD, at \$695, is lower-priced than some less-capable Macintosh software.

But theory has not been fully realized, because installing Windows itself can be tricky. Our review computer—a standard IBM PSD/2 Model 80—refused to accept Windows until we killed off expanded memory drivers that came with our Orchid memory card.

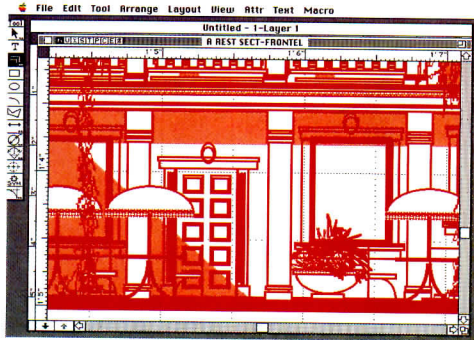
PowerDraw review

PowerDraw lives up to its name. It is a powerful drawing package indeed. All the standard drawing tools are included: lines, parallel lines, boxes, closed curves, polylines, beziers, and so forth. And there are many ease-of-use features that make plac-

ing and manipulating elements in your drawing a delight.

For example: There's an "autoscroll" feature that pans the screen across your drawing to reveal additional drawing areas, if there are any, when the cursor gets to the screen edge. You have to bring the cursor to the screen edge to get at the menus, but if you do it at normal speed, the drawing senses what you want to do.

Adding text is easy. Draw a block on the screen to hold the text, and start typing. The text will wrap at the right margin of your block as you type, and the text box



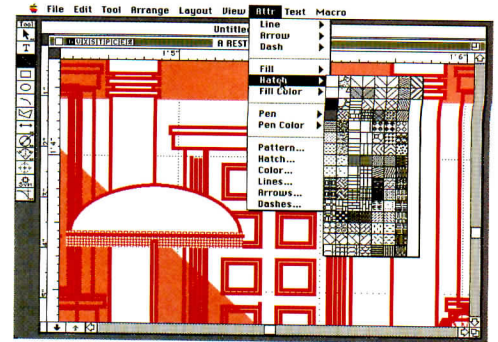
With Powerdraw, it is easy to select permutations of drawing tools; simply move the mouse to "Toolbox" on left.

will grow deeper, as needed. After you finish typing, you can change the margins or move the block. Text can be rotated on the drawing. If you need to edit text that has already been rotated, it moves into upright position for easy typing, then moves back to the original rotation when you finish.

Double lines are drawn at any offset you specify, to the path described by your cursor. You can turn a single-lined object into a multiple-lined one with the "parallel placement" tool. Although the parallel-line function is a simple one (two lines, equal weights), you can write macros to add any number of lines to the ones you've already drawn.

All CAD software allows you to define a circle by specifying a centerpoint, then a radius. PowerDraw allows you to start a circle's circumference where you want it to touch another object, and grow the circle as you grow the diameter.

Regular polygons can be drawn with



Move to the type of tool (in this case, line) and pull to the right. Alternatives then appear on-screen.

any number of sides—select the number of sides in the dialog box, and draw it as you would a circle in most packages—by specifying the distance from the center to the circumference (in this case, to the midpoint of a side).

As with most high-end 2-D CAD these days, dimensioning is dynamic. That is, if you change the size of the underlying object, the dimensions will change as well. You can easily change the length and orientation of leader lines as need be, as the drawing progresses. As you might expect, dimensions can be strung along or stacked. Angular as well as linear dimensions can be handled. Tolerances are allowed in dimensions.

Any number of symbol libraries can be accessed from within PowerDraw. In fact, drawings from PowerDraw or other programs such as Mac Draw can be added to the current drawing at will. You may have to slide the symbol around a bit after you add it, though; PowerDraw places it with its center where your cursor was when you opened the library dialog box.

We did not review the symbol packages available for PowerDraw from third parties. But we did see some at the A/E/C Systems show this past June. They are generally well-done—much better than the spare, mass-produced symbols often supplied by vendors.

The manual recommends placing your own reference point inside each symbol that you add to the library, so that each such after-placement move is kept to a minimum.

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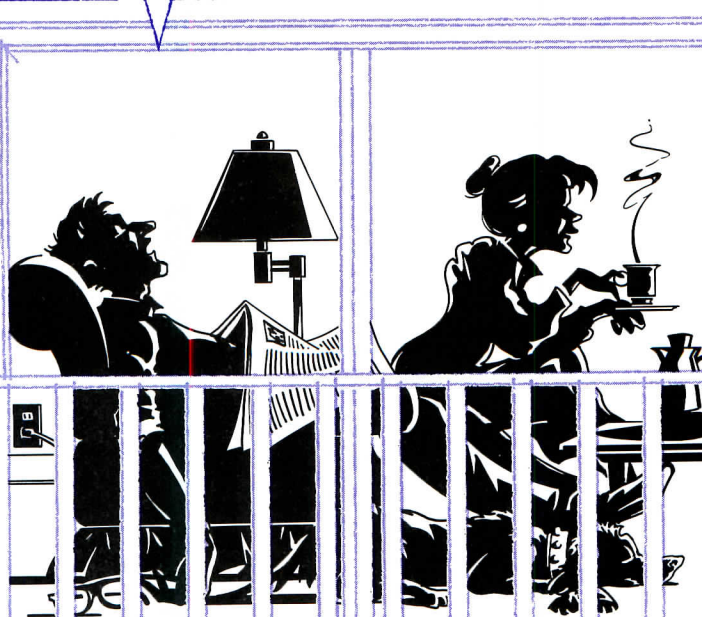
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PowerDraw 3.0a

A feature-laden 2-D CAD package for the Mac. It can read Claris CAD, MacDraw, and PICT (clipboard) files directly.

Equipment required: Macintosh Plus or larger (SE, II, IIX, and so forth), 1 MB of random-access memory, System 6.03 or higher. Works with a wide range of printers and plotters.

Vendor: Engineered Software, P. O. Box 18344, 615 Guilford-Jamestown Rd., Greensboro, N.C. 27419. (919/299-4843). \$795 with one-year service. Optional DXF translator, \$275. Libraries available for landscape architecture, residential and heavy construction details, and general architectural symbols, at prices ranging from \$79 to \$199 from the vendor and third-party suppliers.

Manual: Excellent reference guide and good tutorial. The guide covers subjects in the order users need them.

Ease-of-use: Intuitive. Follows Macintosh conventions just about to the letter. Access to the drawing tools is particularly well thought out. Dialog boxes open up to change options only if the "option" key is pressed on the keyboard as you mouse through the menus.

Options can be changed for a specific drawing addition, or the default can be changed, affecting all uses of that specific drawing tool until another change is made. The dialog box can be opened after a drawing element is in place, once it is selected; changes appear directly on-screen. SE and Plus users will want a larger screen.

Error-trapping: Good. In general, PowerDraw writes files with new changes before destroying old files. You can select and delete an entire layer with one mouse command and one keystroke. But there is an "Undo" command. You can run out of memory while plotting, but it isn't likely unless you are using the 1 MB minimum. This review was conducted on Macintoshes with 2 MB and 5 MB of RAM. We never ran out.

It is perhaps a little too easy to save a drawing in PICT format by mistake (pixel dots instead of CAD vectors). If you do, you would, of course, lose scale and drawing parameters, and any objects in layers that have been turned off.

You can overwrite "stationery files" (the ones that hold your drawing defaults) accidentally, so make copies.

Libraries can be any size, but the bigger they are, the more memory they need to be opened. It seems best to create little libraries—one for doors, one for windows, and so forth—opening and closing them when needed.

Some functions, of course, demand that a dialog box open up before the activity proceeds—printing for example. Those menu choices, in Macintosh style, have an ellipsis (three dots . . .) after them.

As is typical in the Macintosh world, you save defaults by saving an empty drawing containing the defaults. PowerDraw calls these "stationery" format files. To use the defaults in a new drawing, you call the stationery file (you can name it anything you wish), draw on it, and save the drawing under a new name. This embeds the defaults in the new drawing.

Saving is not automatic, but the program prompts you to save every once in awhile. You can keep multiple files open at once.

"Undo" only undoes the last change. You cannot continually step back, undoing change after change. If you totally mess up an editing session, however, you can use the Restore command to delete the current file and bring back the last file version saved.

"Undo" does not work for the Move Points command. Ar-

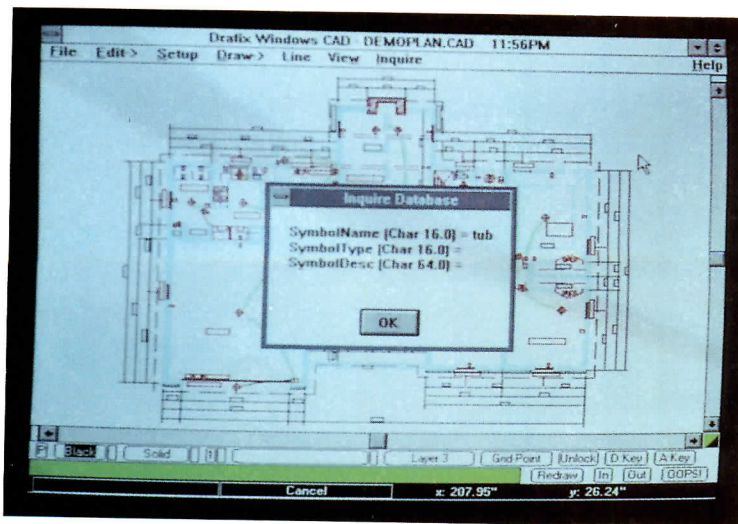
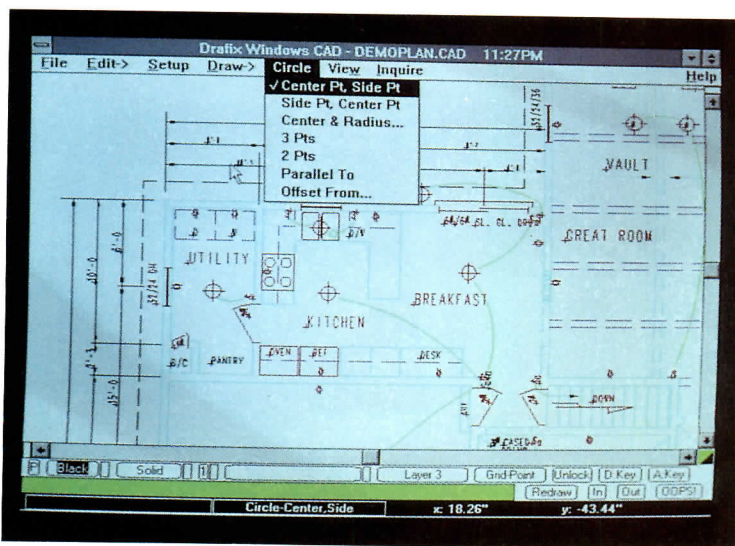
chitects would use Move Points to move a wall or some other complex object—furniture perhaps—around a drawing. Save before using this command, and Revert if necessary. Likewise, "Undo" does not work with groups. If you group a set of objects and bring them to the top level in a layer (from different levels), you'd have to put them back separately.

The duplicate command can be used to easily move objects between layers. Because it duplicated the offset as well as the object, you can select an object, move to where you want to duplicate it, and click on the mouse to get your first duplicate. Then you can replicate the object and the move multiple times by going back to the Duplicate command in the Edit menu.

Objects (but not text) can be rescaled in the X and Y axes independently. For changing the size of text, change its font rather than its scale.

2-D objects can be sheared, or distorted, to produce isometric or oblique images on-screen. As you specify a shearing effect, a little cube image in the dialog box moves so you can guess at the effect. An independent vendor offers a macro program that takes advantage of this to allow automatic creation of wireframe drawings from 2-D PowerDraw files.

Objects can be "locked" to keep them from being casually



Selecting "circle" as a drawing tool (top), opens Drafix secondary menu, even if the default is wanted (the last way tool was used). TRIM dialog box (bottom) opens from the secondary menu's SETUP option.

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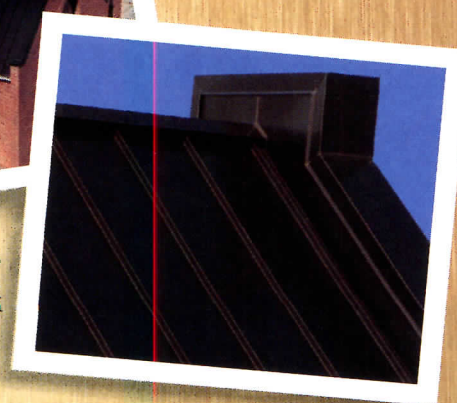
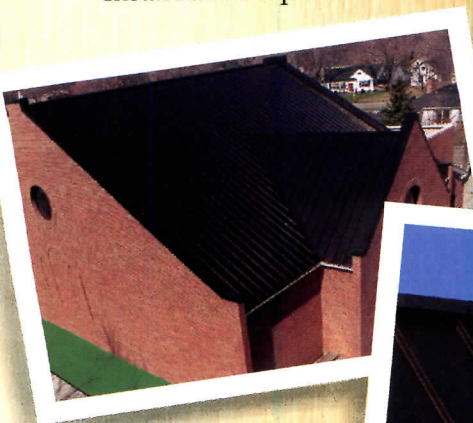
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changed. Locked objects cannot be resized or moved. Good for security, and also when you are trying to select an object with many other objects close by. Lock the other objects first.

PowerDraw files can have unlimited layers. Scale and drawing size are set in separate dialog boxes.

If you bill your CAD time, you will find the Log command useful. It logs all drawing opening times, saves, and plot times. The log file can be used by the Excel spreadsheet or by word-processing software.

Up to 10 views can be stored and recalled quickly.

Line weights from 0.25 to 10 points are possible. Line-endings, such as arrows, do not change as linewidths change; you edit them separately.

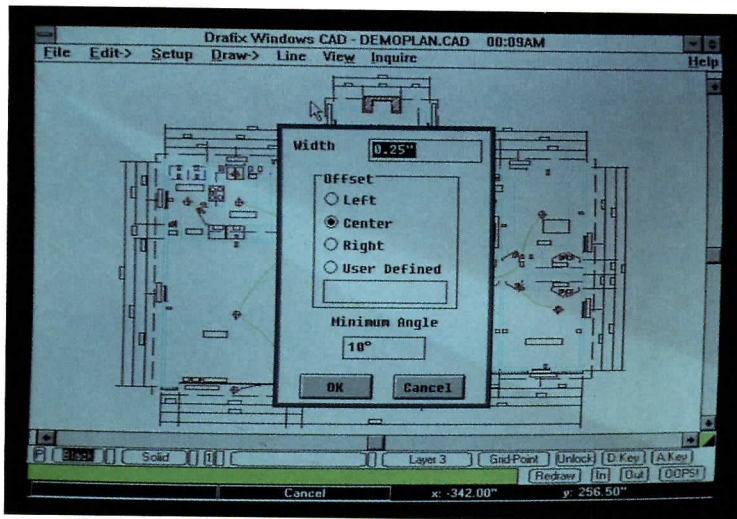
There's a good selection of fill patterns. Fill patterns come two ways—as dot-based or as vector-based patterns. It is easy to create your own pattern by editing an existing one. But the new patterns are stored only with the drawing you are working on, not with new drawings. You'd have to edit the fill pattern in a stationery drawing to use it everywhere. Editing of patterns (or, for that matter, arrows, dashes, and colors) will update objects previously drawn that used the attribute being edited.

The macro language is a subset of Pascal. It is not easy to learn on your own. But because Pascal is so commonly taught in colleges and high schools, help is not too far away.

Drafix Windows review

Drafix Windows CAD is a worthy addition to a family of low-cost, easy-to-use CAD software that includes Drafix CAD Ultra with optional 3-D modeler. Its database links are excellent and on-screen performance superb. Windows adds some grace to the interface, but its biggest advantage is in opening all the memory you have, up to 16 MB, to use by Drafix.

File import and export are built in. Dra-



Drafix parallel-lines option opens dialog box. Parallel lines feature good control.

fix Windows CAD can import HPGL, import or export Drafix Ultra, DXF, and Windows metafiles, and export IGES. (To export an HPGL file, you "plot" it to a file; all the layers add up in one layer, so if you want to preserve layering, you must plot one layer at a time.) There's also a separate DXFEXPORT program that can be invoked at a DOS prompt rather than from inside Drafix 1 Plus files to the Drafix Windows format.

To help clean up some of the incompatibilities that would occur when sending DXF files to AutoCAD, Drafix includes a utility, PTMARK S.SHP, that can be compiled by your AutoCAD version into an SHX file. For DXF files from AutoCAD, all z-axis coordinates are ignored by Drafix—Drafix is a 2-D program, not 3-D. AutoCAD Point, 3-D Line, and 3-D Face entities are also ignored. Nevertheless, some practices will find it cost-effective from the standpoint of software prices, size of required computer, and ease of training, to mix AutoCAD and Drafix on the same projects.

There are some limitations caused by Windows. One is plot size that can be easily achieved. Placeable Windows metafiles (for file transfer, not physical plotting) are

limited to about 23 by 23 inches drawing size; larger sheets are scaled down. Floating point data, as would be contained in AutoCAD files, are rounded to integers.

Mice do more work in the DOS world than when attached to a Mac. Mac mice have only one button. DOS mice can have two or three. In the case of Windows CAD, the left mouse button initiates a command. The right one cancels it. Most of our software reviewers over the years like that arrangement.

Any number of libraries can be invoked in a drawing session. Symbols from libraries appear in the selection box before you place them into the drawing.

Attributes to define entities in a drawing can be exported to database or spreadsheet programs, particularly the Excel spreadsheet. If you don't use Excel, you can export in comma-separated variables (particularly good for imports into dBase, Foxbase, or other database software) or as ASCII text that can be parsed into separate cells in Lotus 1-2-3, Quattro, or other spreadsheet software.

Up to four views can be open at the same time. Any number can be stored for quick recall; the limitation is disk space and RAM.

Double lines can be drawn with one movement. Whenever you select the "Double" option from the Line secondary menu, however, the dialog box opens, whether you want it or not. Any number of parallel lines or arcs can be added to an existing entity as well. Polylines can have a maximum of 325 segments.

Macros are Pascal-like. There's a good explanation of the command language in Appendix C of the reference manual. The language can even be used to create new menu systems with Drafix.

Defaults can be saved in "template" files that contain few or no drawings. The use of template or stationery files has been common in the Mac world, but not on DOS computers. □

Drafix Windows

A full-featured 2-D drafting package for MS-DOS and PC-DOS computers using the Macintosh-like Windows system. It works best with Windows 3.0 rather than earlier versions.

Equipment required: An IBM-compatible computer with 80286, 80386SX, 80386, or 80486 processor and at least 1MB of random-access memory (at least 2 MB strongly recommended). Floating-

point coprocessor chip strongly recommended. Windows 2.x, 386, or 3.0 (3.0 recommended). Works with any printer, plotter, or monitor for which a Windows driver is available.

Vendor: Foresight Resources Corp., 10725 Ambassador Dr., Kansas City, Mo. 64153. \$695. Library of architectural symbols, \$150.

Manual: Fair reference, excellent tutorial. Both, however, presuppose some

CAD experience. Novices will be confused by terms used at the beginning.

Ease-of-use: Good for so full-featured a package. The biggest hangup is that drawing tools have to be reset each time you use them. There's no departing from a standard default to draw one entity, then reverting automatically.

Error-trapping: Good. Erased entities usually stay in the file, so you can "un-erase" successively to recover old data.

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WINDOW-CAD IN USE

Five years ago Pella brought out the Selector, a product-specific window symbol library intended to be a computerized tool for the architect using CAD in the design process. This started a game of marketing leapfrog, with other wood-window makers offering product selection and specification help on disk, each trying to outdo the previous version in size, scope, and features. These automated catalogs were heavily promoted: Andersen, for example, has distributed 10,000 free copies of its CADD-I program to architects and schools.

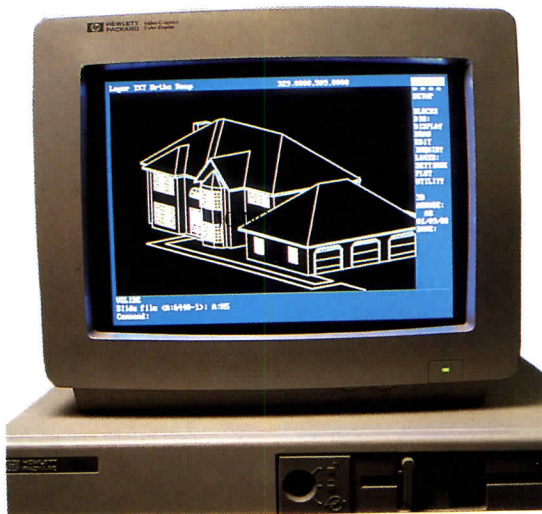
Currently, six manufacturers offer CAD-catalog help to architects, either free or for a small charge—evidence of penetration for a major PC-based application software, all run within AutoCAD, though most are available in other formats as well. (The box, opposite, lists these programs and the most recent enhancements. RECORD reviewed software from Andersen, Marvin, and Pella in September 1987; Weather Shield and Peachtree catalogs have been developed by Architectural Synthesis using their Computer Intelligent Details and Specifications selection sequence.) And the pioneering window makers have been joined by dozens of other building-product manufacturers who provide some sort of computerized detail or specification aids.

How handy are these tools?

But the real usefulness of these proprietary programs has been difficult to assess. Window makers now offering CAD-based materials (or planning to) are trying to answer two major questions: what do architects want? And how do they want it?

Should a manufacturer load up the program with bells and whistles (3-D capability, for example) and risk making the learning curve too steep for those many firms that use CAD in its most basic applications only? Or should they confine product CAD to details, preferably in a standardized, easy-to-access, and transparent format?

Most of the manufacturers currently offering window-CAD—as well as vendors anxious to help create proprietary software—have surveyed firms known to have been sent the programs, trying to get a handle on how—and if—architects are



1. 3-D view generated by Pella's Designer AutoCAD system.
2. Elevation of a house in Minocqua, Wisconsin, by architect Edward Carlson of A. N. S. Construction Services, produced on QuikCAD from Weather Shield.
3. Rose window assembled by Marvin software, combining elevation and sections with text specifications.



4 5/8" x 1 1/2" x 1 1/2"
 1/4" LEAD GLASS BY OTHER
 1 1/4" FINISH
 1/4" x 1/4" x 1/4"

SIZED TO MATCH 1 3/4" SASH PARTS
 FRAME AND SASH SCALE: 1" = 1'-0"
 ADJ. MOUNTS SCALE: 1" = 1'-0"
 FRAME AND SASH SCALE: 1" = 1'-0"

SPECIFICATIONS:
 WOOD: SELECTED 1 1/4" THICKNESS OAK
 LEAD: 1/4" TO 1/2" 2 LEAD PRACTICAL WHITE
 INTERIOR FINISH: PRIME
 EXTERIOR FINISH: BRUSH
 WINDOW TYPE: 11' CROWN
 ELEVATION FILE: 11C
 PLEASE VERIFY SIZE AND SPECIFICATIONS

MARVIN ARCHITECTURAL DIVISION
 CATHEDRAL WINDOW
 SHEET 1 OF 1

A look at the architectural wood-window industry's product-specific CAD tools— and how the profession is using them.

using them. The results are a surprise, covering as they do a gamut of responses without producing a definitive profile.

Mixed use

Some design firms admitted that the templates were still on their shelves, with cellophane intact. Others complained that the particular program was fun to play with, but took too much learning to be accessible to the occasional user. Large disk-space requirements were a problem for some. For many firms, CAD still means computer-aided drafting. But other architects showed a real enthusiasm for these AutoCAD-based programs. For example, an Atlanta firm has several window programs and finds them particularly helpful in preparing bid documents that give the contractor a good idea of the framing requirements of the specified window line. If the first-choice product comes in over budget, they flip in another disk and start over.

Any effect on the bottom line?

The window manufacturers are seeing proprietary details showing up on working drawings from their dealers, but do not feel that window-CAD programs have produced a quantum leap in orders. While developing these programs has been to a certain extent a competitive response to the market,

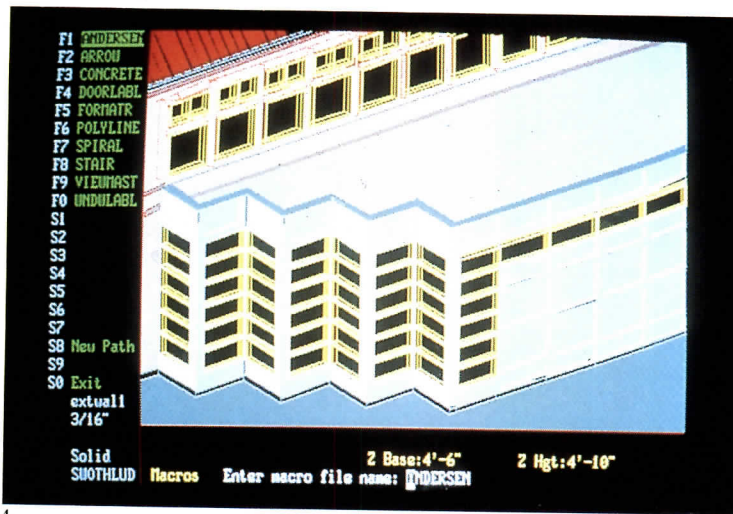


they consider the software a logical extension of standard architectural catalogs, a tool they need to offer specifiers. Pella's Gary Mathes, for example, says that the Designer programs are a continuation of the same sales effort that produced dry-transfer window symbols 15 years ago.

According to Steve Lundwall of Marvin, manufacturers are gradually realizing that an electronic standard is necessary, and that future CAD offerings should be capable of integration with related databases such as building-code and energy-calculation programs.

RECORD asked a random sample of its readers if their office had a window-CAD program, and, if so, how much use they got out of it. If the answer was "no Window CAD," readers were asked if they would like one. The answers fell into three sections: 44 percent don't have window CAD, and were not particularly interested in getting a disk; another 44 percent didn't have the software either, but were very much interested in getting their own; and 12 percent said yes to both parts: they had it and they used it.

J. F. B.



4. City Hall in Chaska, Minnesota (top) was designed by architect John Weidt of The Weidt Group. Andersen's CADD-I Version 2.0 produced the 3-D view (left).

Currently available window CAD programs

All take advantage of the easy-to-customize capacity of AutoCAD.

Andersen. CADD-I Version 2. Designed for use on AutoCAD Release 10 or later. Menu-driven; includes 3-D drawing functions, preselected defaults, and automated installation; DXF-based symbol library. Andersen Commercial Group, Bayport, Minn. *Circle 300*

Hurd. Architectural Tracing File. Permits viewing of all products and op-

tions, in plan, section, and elevation. Energy performance and egress data included. Generates specifications and material lists. Hurd Millwork Co., Medford, Wis. *Circle 301*

Marvin. DXF-based library of details and elevations; works in 2-D and has a product scheduler. Marvin Windows, Minneapolis. *Circle 302*

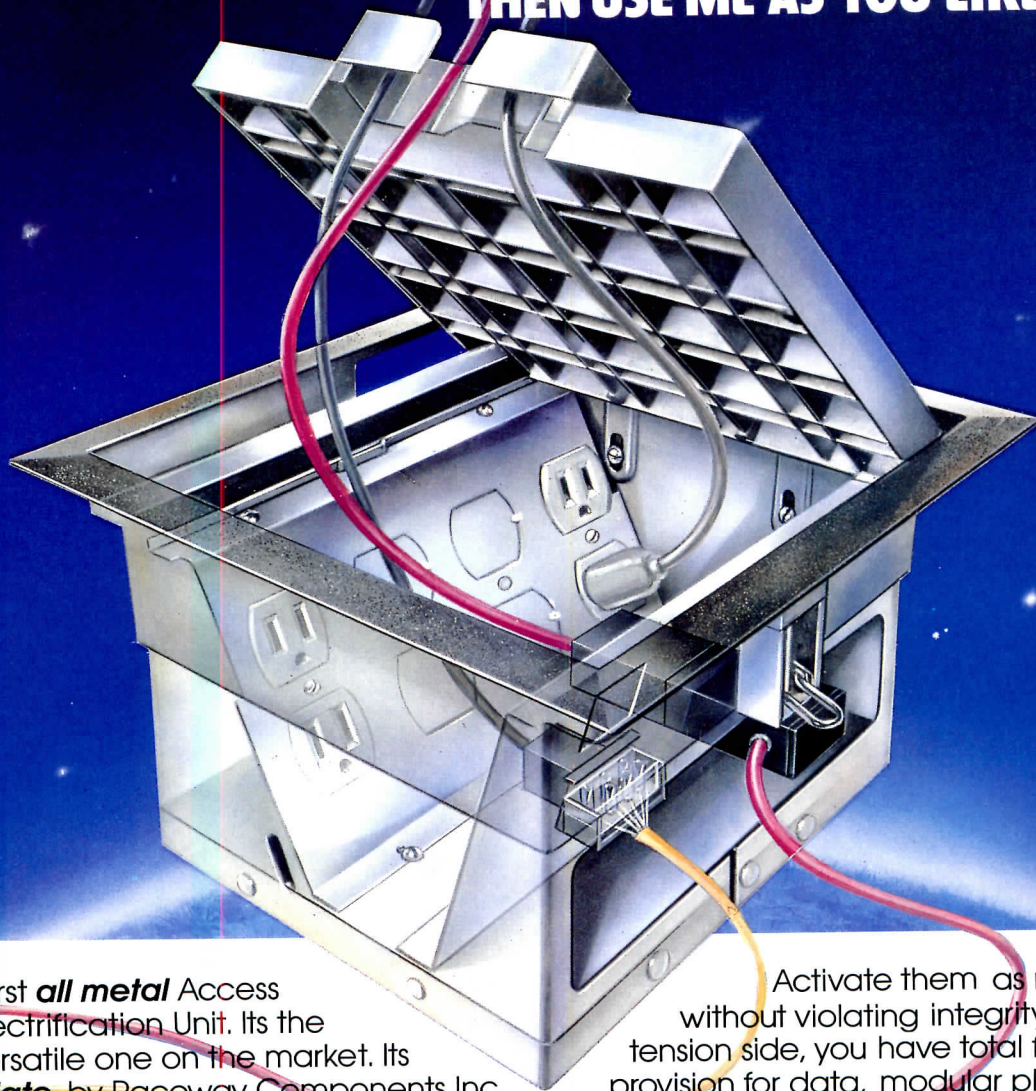
Peachtree. Peachtree for AutoCAD. A database of over 1,600 components that can be run from a digitizing-tablet template. Peachtree Windows and Doors, Inc. Atlanta. *Circle 303*

Pella. Designer. Works with AutoCAD 9 and above. Enhancements include capacity to define muntin bars, draw products in floor-plan view, and plot cross sections in either a high or low level of detail to suit scale. Also available within ASG/Architectural third-party application software. Pella/Rolscreen, Pella, Iowa. *Circle 304*

Weather Shield. QuikCAD. Question-and-answer selection format accessible from pull-down menu and digitizer. Places building conditions and notes on drawings. Weather Shield Mfg., Inc., Medford, Wis. *Circle 305*

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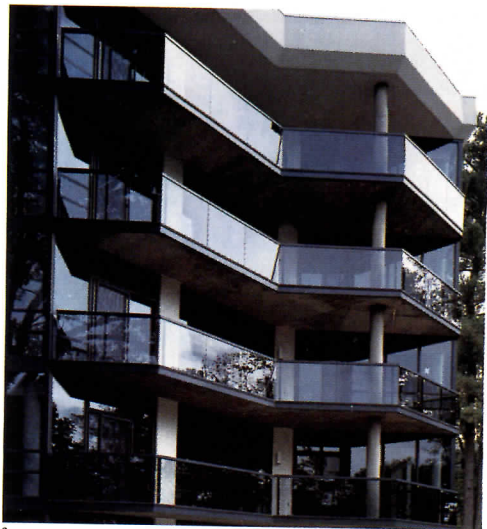
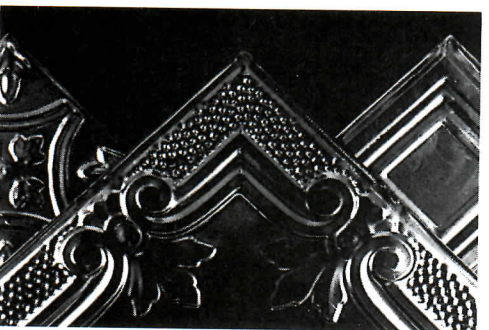
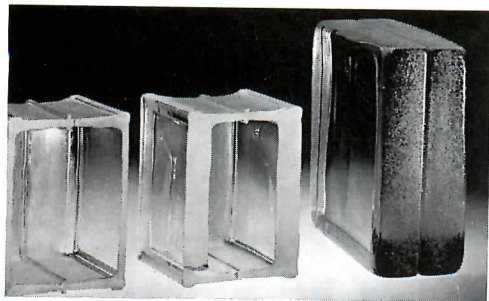
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SITE-SPECIFIC SOLUTIONS

New products use glass, metal, and composite stone in intriguing new ways.



1. Security glass block

Initially developed as a special item for an Oklahoma jail, a new glass block in the Vue pattern (center) has 3/4-in.-thick vertical faces for increased security in detention and institutional applications. Other security glazing options include Regular Series GlassBlock units with a 1/4-in. face (left) and 3-in.-thick Vistabrik solid glass blocks (right). Pittsburgh Corning Corp., Pittsburgh. *Circle 306*

2. Composite-granite counters

The Black Crystal coloration of Granitech, a granite/resin composite, is shown here as used by designer Gretchen Bartlett in a countertop for a corporate hospitality center. The stone material is made in a range of sizes and thicknesses for interior applications, from standard 12- and 24-in.-sq

floor tiles to 4- by 8-ft, 3/4-in.-thick slabs, as well as a thin, flexible veneer that can easily conform to a radius of 14 in. or greater. The Granitech Corp., Fairfield, Iowa. *Circle 307*

3. Metal lay-in ceiling panels

Based on decorative Victorian and Art Deco stamped-tin ceiling patterns, noncombustible Ornametal steel panels fit in exposed-grid systems to provide full plenum access and accommodate light fixtures and air diffusers. Available in both 2- by 2- and 2- by 4-ft sizes, ceilings may be ordered in unfinished metal, preplated brass and copper finishes, and over 80 paint colors. Coordinated perimeter accessories include pebble-patterned filler panels, cornices, and wall angles. Chicago Metallic Corp., Chicago. *Circle 308*

4. Pre-war window

Series 590 replicates steel windows widely used in commercial and industrial buildings from the 1920s through the '50s. The narrow muntins, available in both true-divided-light and exterior grid versions, give the appearance of putty glazing. The thermally broken, 2 7/16-in.-deep aluminum frame comes in projected and casement configurations, finished in any specified color. Efcu Corp., Monett, Mo. *Circle 309*

5, 6. Custom balcony railings

Two railings designed to meet the specific architectural and wind-loading requirements of multistory projects are based on the manufacturer's Sentinel aluminum rail system. (5) Designed by CHK Architects & Planners for a high-rise condominium, a seamless oval hand-rail holds clear tempered-glass panels. Totally concealed fasteners attach the rail to the precast balcony; finish is custom-color Duracron. (6) Because architects Lapicki-Smith Associates wanted the glass and aluminum rail of the Pavillion in the Park to reflect the color and profile of the building's windows, balcony slabs of various thicknesses are concealed by a fascia detailed to match the mullions. As the railing glass runs flush to this fascia, an integral water dam leads rainwater to the outside. Adaptations to the Sentinel rail allowed the rail to be completely shop-fabricated; the matching fascia cover was snapped on after the rail was in place. Robern, Inc., Bensalem, Pa. *Circle 310*

Products continued on page 136

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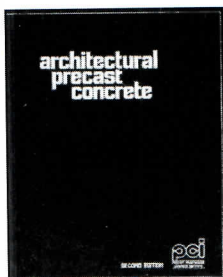
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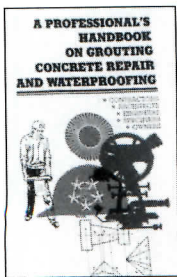
Roofing systems

A descriptive 54-page catalog covers built-up and modified-bitumen roofing materials, including gravel-, aggregate-, and smooth-surfaced membranes. A total system warranty on the Celotex membrane and insulation assembly is explained. Celotex Corp., Tampa. *Circle 400*



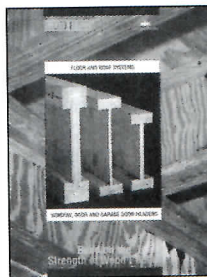
Architectural precast concrete

A profusely illustrated, 352-page design manual recommends procedures important in obtaining optimum economy, performance, and esthetics in precast concrete. New concrete technologies are described. A flyer gives ordering information. PCI, Chicago. *Circle 406*



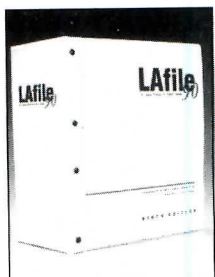
Cementitious grouts

A 300-page handbook covers selection, applications, installation techniques, performance data, and tests for nonshrink cementitious and epoxy grouts, concrete repair materials, and cementitious waterproofing systems. Five Star Products, Inc., Fairfield, Conn. *Circle 401*



Plywood-web beams

A technical catalog explains the load-bearing, span, and construction advantages of the Wood I Beam used in floor and roof systems. Beams and headers come in three web and chord dimensions, in cut-to-fit lengths of up to 48 feet. Georgia-Pacific, Ocala, Fla. *Circle 407*



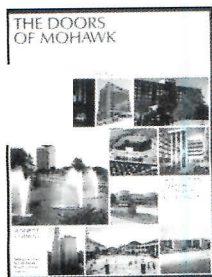
Site and landscape products

A large-format binder, *LAFILE '90* contains 17 sections of landscape architectural product catalogs, including site furnishings, fences, lighting, paving materials, and plant material. Cost: \$53.96. American Society of Landscape Architects, Washington, D.C. *Circle 402*



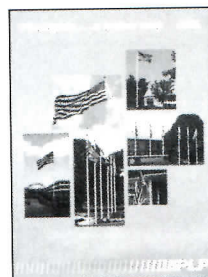
Door pulls

Sinuous shapes in stainless steel, chrome, and brass are shown in a 40-page catalog from a Japanese maker of architectural door handles. Other standard and custom designs use ceramics, wood, acrylic, and cloisonné. Elmes, New York City. *Circle 408*



Architectural flush doors

Wood doors, some fire-labeled for up to 90 minutes, are described in a 12-page brochure. Corporate, commercial, institutional, and residential door styles are pictured; cross-section drawings illustrate construction features. Mohawk Flush Doors, Inc., Northumberland, Pa. *Circle 403*



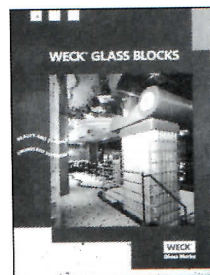
Fiberglass flagpoles

A color catalog describes commercial flagpoles made of fiberglass-reinforced plastic with a glossy polyester surface. Vertical-, wall-mount-, and yardarm-style poles and halyard options are illustrated. PLP Composite Technologies, Inc., Plymouth, Mass. *Circle 409*



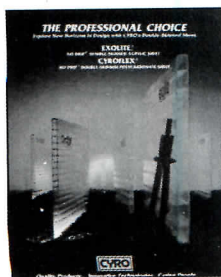
Elastomeric roofing products

Sheet systems suitable for even the most complex roof configurations are shown in a 24-page catalog. Installations include mechanically attached, fully adhered, ballasted, and a Versigard membrane specifically for re-roofing metal buildings. Good-year, Akron, Ohio. *Circle 404*



Glass block

All standard patterns of Weck block, both English and metric, are shown in a 12-page architectural catalog. Product features include mortar-hiding white sidewalls, bullnosed corner shapes, and UL-classified Fire Stop units. Glashauss, Inc., Arlington Heights, Ill. *Circle 410*



Thermoplastic glazing

Cyroflex polycarbonate and Exolite acrylic double-skinned sheets are shown in a 12-page architectural guide. Light transmittance, insulating, and weathering data are given; built projects show the design potential of the glazing material. CYRO Industries, Mt. Arlington, N. J. *Circle 405*



Metal louvers

Architectural and industrial hvac louvers made of extruded aluminum or formed metal are described in a color brochure. Frame style, screen, and finish options are shown. Empco, Inc., Dallas. *Circle 411*

More literature on page 143

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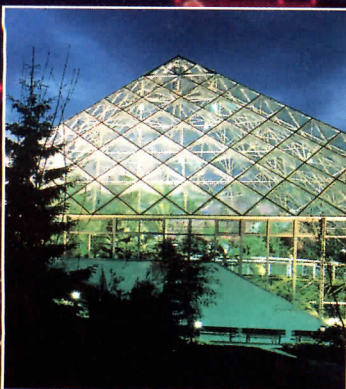
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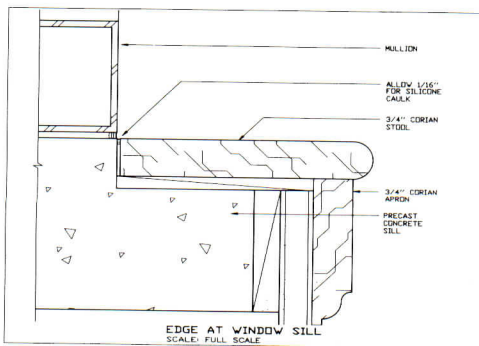


Hardwood toilet partitions

Dressing cubicles and washroom partitions can be ordered in solid oak, cherry, walnut, or mahogany, with doors in either a raised panel (shown) or flush design. Hardware options include stainless steel, polished brass, and bright aluminum. Compartments in plastic laminate, phenolic resin, and Surell solid-surface material are also available. Columbia Partitions, Columbia, S. C. *Circle 314*

Solid surface design by computer

Corian is now providing detail and specification information on floppy disk, running either stand-alone or within AutoCAD. Assembled in Vertex Design System's Cadalog format, the menu-driven software has detail drawings for mounting and edge treatments, such as the sill construction shown, as well as data on all sink styles, sheet thicknesses, and colors available in the stonelike surfacing material. Du Pont Co., Wilmington, Del. *Circle 315*



Building access

A fixed, inclined wheelchair lift in models for either straight or turning, multilevel stairs, the Stair-Lift offers several safety and security enhancements that protect both user and equipment. The design, featuring a cable drive that fits within a sleek-looking support rail and a fold-up, compact platform, is said to provide handicap access without unduly disrupting landmark structures. Garaventa, Surrey, B. C. *Circle 316*

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WORKING WITH PHOTOGRAPHERS . . .

Continued from page 31

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In accordance with the Copyright Act of 1976 and based on recommendations of the American Society of Magazine Photographers, copyright of the photographs and ownership of all originals are retained by the freelance photographer. License for non-exclusive use is conveyed by written release from the photographer.

While photographers set their own fees—usually based on a day rate plus expenses—that fee is normally based on the uses to which the photographs will be put, and is negotiated with each client.

To make high-quality photography available to architects and designers at a lower price, photographers have established a special minimum rate that covers limited use of the photographs in presentations, portfolios, office brochures, slide shows, exhibitions, and professional competitions. (Rates, less than for corporate clients, generally fall between \$1,000 to \$1,600 per day.) This is termed "record-and-exhibition use." If photographs are reproduced in magazines, they pay use fees unless they have shared the cost of the photographing. If the publication does not pay use fees, they become the architect's responsibility.

Often a furniture or building-products manufacturer, or a client, will share photography costs. Then, the overall fee is likely to be higher, but the architect's share lower. The fee paid by third parties will be based on their primary use—catalogs, publicity, or advertising.

For architects and designers, there are advantages when photographers retain ownership of the images. It insures safekeeping of original materials, which are easily lost and damaged with careless handling. And when originals are needed for high-quality-print requirements, the photographers will make a high-quality duplicate or lend the originals out during the printing-production process, after which they are returned for safekeeping. □

Mr. Polites is a consultant and writer on architecture and design.

Further reading:

Busch, Akiko. *The Photography of Architecture: Twelve Views*. Van Nostrand Reinhold, 1987.

Korab, Balthazar. *Archabet: an Architectural Alphabet*. Preservation Press, 1985.

McGrath, Norman. *Photographing Buildings Inside and Out*. Whitney Library of Design, 1987.

Sanders, Norman. *Photographing for Publication*. R. R. Bowker, 1983.

Circle 44 on inquiry card

COMPUTER TRADE SHOW ...

Continued from page 43

Such packages occasionally do not allow easy drawing of complex rooflines, except in 2-D elevation.

During the demonstration, look carefully at the horsepower of the computer itself. IBM compatibles are often high-octane 25 or 33 MHz machines equipped with extra memory, high-speed fixed disks, and graphics accelerator cards. Make sure you get the details. Macintosh demos are increasingly using the top-of-the-line IIfx, which costs \$8,000 or more equipped the way architects would normally use it.

7. Suppliers often claim file compatibility with your existing system (to aid conversion to *their* system), and with the systems of your colleagues. Usually, this is through a translation program that feeds on DXF files. Most CAD software can either read or create a DXF file. But the DXF standard, and other standards for that matter, have had trouble keeping up with CAD advances. Not everything that your system creates is necessarily translated through DXF.

How do you know what might work? Bring your own file on a 3.5-inch 720K disk, the most universal size. New Macintosh computers can read such a disk, even if it was formatted by PC-DOS or MS-DOS. The file should be a small one, but it should include all the layers, drawn entities, and text of your normal output. Depending on the show traffic, exhibitors may legitimately balk at translating a file for you at the booth. But it should be acceptable at an in-suite demo.

8. Software and hardware are only as good as the dealers behind them. Always enquire about dealers and available training in your area. At many regional shows, it is the dealer rather than the supplier who is demonstrating systems anyway. Is there only one strong person at the booth? Or several?

9. References from existing customers are important. Ideally, you should get the names of customers who have practices similar to yours, and who use the same dealer you are considering. But, especially for new software that might give you some advantages, you may have to settle for less than the ideal.

A common situation at regional conferences: The dealer's best references are in the conference city. You may want to visit a reference while you are still there.

10. Finally, make sure the software is not newer-than-new. Because major national conferences are covered by the trade press, software suppliers rush to get packages completed in time to scoop any competition. But they often miss perfecting the system by several months. They will announce and demonstrate new software that is not quite ready to ship.

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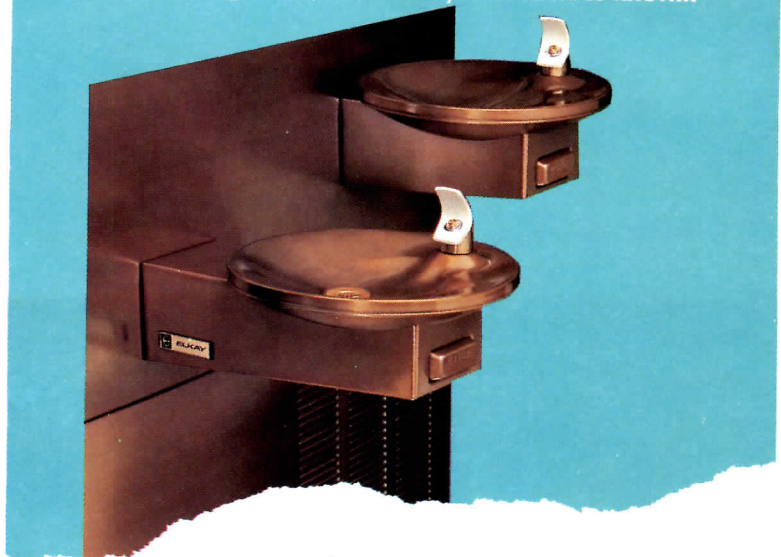
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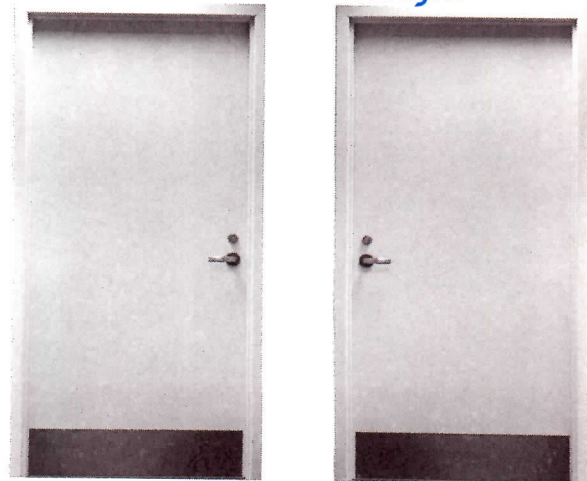
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Circle 49 on inquiry card

Through November 3

An exhibition of the work of Erik Gunnar Asplund, at the Max Protetch Gallery, New York City.

Through November 3

"Emerging Japanese Architects of the 1990s," showing structures by six independent architectural firms in Japan; at the Miriam and Ira D. Wallach Art Gallery, Schermerhorn Hall, Columbia University, New York City.

Through November 30

"Architectural Brochures: History, Hype, and Graphic Design," showing brochures and other promotional items from the

Pittsburgh region dating from the 1890s to the present; at the Carnegie Mellon University Library, Pittsburgh.

Through December 2

"Give Us Your Best: An Exhibition of Washington Architects' Work," showing built and unbuilt designs chosen by Washington architects from their own work; at the National Building Museum, Washington, D. C.

October 16-February 24

"Mondo Materialis," collages of "relevant and inspirational" new materials by architects and designers, organized by the Steelcase Design Partnership; at the Coop-

er-Hewitt Museum, New York City.

October 17-20

The 44th National Preservation Conference, sponsored by the National Trust for Historic Preservation; at the Omni Hotel at Charleston Place, Charleston, S. C. For information: National Preservation Conference, National Trust for Historic Preservation, 1785 Massachusetts Ave., N. W., Washington, D. C. 20036 (202/673-4000).

October 18-20

Lighting World show, at the Los Angeles Convention Center, Los Angeles. For information: National Expositions Company, 15 W. 39th St., New York, N. Y. 10018 (212/391-9111).

November 4-January 13, 1991

"The Independent Group: Postwar Britain and the Esthetics of Plenty," an exhibition of the work of the '50s British group of architects, artists, and critics; the Museum of Contemporary Art's Temporary Contemporary, 152 N. Central Ave., Los Angeles.

November 5-9

Fourth World Congress of the Council of Tall Buildings and Urban Habitat, considering the psychological and physiological adequacy of spaces for living and work; in Hong Kong. (The council is a consulting nongovernmental organization of UNESCO.) For information: Council on Tall Buildings and Urban Habitat, Lehigh University, Building 13, Bethlehem, Pa. 18015.

November 7-11

The 34th National Convention, Society of American Registered Architects, based on the theme "The 1990s—A New History"; at the Back Bay Hilton Hotel, Boston. For information: SARA National Headquarters, 1245 S. Highland Ave., Lombard, Ill. 60148 (708/932-4622).

November 7-11

International Public Design Fair NAGOYA '90, comprising four international sections: Public Design Exhibition, Public Design Competition, Public Design Symposium, and Streets of the World Contest; in Nagoya, Japan. For information: Organizing Committee Secretariat for NAGOYA '90, Nagoya Chamber of Commerce and Industry Building, 8F, 10-19, Sakae 2-chome, Nakaku, Nagoya, 460 Japan (052/202-1100).

November 10-13

The 75th International Hotel/Motel & Restaurant Show, at the Jacob K. Javits Convention Center, New York City. For information: Tony Lee, George Little Management, 2 Park Ave., Suite 1100, New York, N. Y. 10016 (212/686-6070).

November 14-16

Build Boston '90, a design and construction industries convention with symposiums and exhibits, sponsored by the Boston Society of Architects and others; at the World Trade Center, Boston. For information: Richard Fitzgerald, Executive Director, BSA, 52 Broad St., Boston, Mass. 02109 (617/951-1433).

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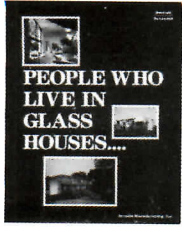
WASHINGTON POST
Shown at the Peabody Hotel in Memphis, Tenn. 12' to 16'10" heights (excluding luminaire) 2 1/2" and 2 3/4" O.D. bases. Available as 4 or 5 luminaire unit.

Circle 50 on inquiry card

For more information, circle item numbers on Reader Service Cards

Continued from page 132

Large-scale sliders: Sliding glass doors and windows up to 10-ft high are shown installed in houses by architects such as Charles Gwathmey and Edward Larrabee Barnes. Details cover high-performance, monumental, and multi-slide units. Arcadia Mfg., Inc., Bridgeport, Conn.



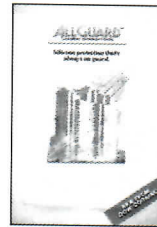
Circle 412

Clay roofing tile: A colorful architectural brochure illustrates hard-fired clay tile and matching trim pieces installed on both newly constructed and renovated commercial, institutional, and residential buildings. Ludowici-Celadon, Inc., New Lexington, Ohio.



Circle 417

Waterproofing coating: A new all-silicone, water-based coating, Allguard remains flexible when exposed to extremes of temperature and long-term UV radiation. Technical, application, and color information is given in a 10-page brochure. Dow Corning Corp., Midland, Mich.



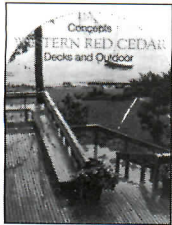
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Plaza-deck insulation: A technical brochure highlights the weight-saving, moisture-resistant, and membrane-protecting benefits of Styrofoam deck insulation, particularly when used over large air-conditioned spaces. The Dow Chemical Co., Midland, Mich.



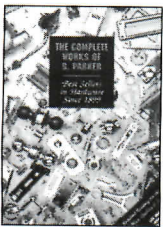
Circle 413

Cedar decks: Four-page idea book suggests ways that the architect can use Western Red Cedar in decks and outdoor amenities. Simple and complex site designs are shown, as well as planters, trellises, and grade-changing steps. Western Red Cedar Lumber Assn., Portland, Ore.



Circle 414

Builders hardware: Published for the commercial hardware buyer and specifier, a 96-page distributors catalog provides line drawings of hundreds of hinges, escutcheons, templates, door closers, and locksets. S. Parker, Inc., Englewood, N. J.



Circle 415

Reglets and flashings: Springlok flashing systems for most applications including stucco, concrete, and masonry; beveled-flange reglets for concrete; and a new reglet designed for stucco over block conditions—are detailed in a 4-page catalog. Fry Reglet, Alhambra, Calif.



Circle 416

Park West Development
Phoenix, Arizona
Architects: Shepherd & Boyd

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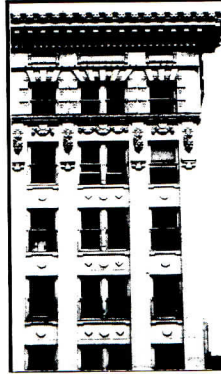
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Texas Tech University invites applications and nominations for the position of Dean of the College of Architecture, effective June 1, 1991. The Dean reports to the Executive Vice President and Provost and is responsible for promoting research and teaching excellence, managing the financial and material resources of the College, engaging in fund raising, and representing the College within the University and the larger community. The Dean administers a five-year undergraduate professional program, a master's program, and a small university-wide doctoral program in Land Use Planning, Management, and Design. Applicants must be architects who have appropriate professional, academic and administrative experience and are recognized leaders in the field. Screening of candidates will begin November 16, 1990, and continue until a selection is made. Applicants should submit a curriculum vita and a brief statement of interest and philosophy, and have three letters of reference sent to Dr. Clyde Hendrick, Graduate Dean, Chair, Search Committee For Dean of Architecture, The Graduate School, Texas Tech University, Lubbock, TX 79409. Texas Tech University is an Equal Opportunity, Affirmative Action Employer.

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University of Illinois at Urbana-Champaign School of Architecture. Design Teaching Division seeks applicants for two or more full-time nine-month tenured Assoc. Prof / Tenure-track Asst Prof or Instr faculty level positions to begin August 21, 1991. Candidates should be highly motivated, dedicated individuals who can take advantage of the unique resources at UIUC for teaching and research. These include personal-computer-based studios, major reference library, access to associated research programs (Housing Research & Development Program, Building Research Council, The U.S. Army Construction Engineering Research Lab). Positions involve both studio and lecture/seminar teaching activities. Applicants with professional, teaching and/or research experience in Architecture and Urban Design; Theory and Criticism; Housing or CAD, and who are interested in developing and/or pursuing innovative approaches to design studio teaching, are especially encouraged to apply. Rank and salary will be determined by candidates' qualifications and experience. Requirements for Assoc and Asst Profs are: Architectural registration plus a Masters Degree or a PhD, or similar and equivalent experience. Requirement for Instr rank is a professional Masters Degree with demonstrated design accomplishment. Previous experience in teaching, research or recognition for design excellence is desirable. For full consideration, C.V., statement expressing educational/professional philosophy, names of three references must be received by December 3, 1990. Send to: R. A. Forrester, Director, School of Architecture, Design Search Committee, 608 E. Lorado Taft Dr., Champaign, IL 61820. (217) 333-1330. The U of I is an EOE/AA.

The University of California at Irvine. The Student Recommended Faculty Program seeks a lecturer for a one-year appointment for the academic year 1991-92 to teach undergraduate courses in Architecture, Design, and related substantive areas. Send curriculum vitae, three reference letters, teacher evaluations (if available) and course syllabi to: Gina Lichacz, ASUCI-SRFP, UC Irvine, Irvine, CA 92717, EOE/AA. Deadline: December 15, 1990.

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MANUFACTURER SOURCES

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD has asked the architects to identify the products specified

Pages 68-75

The Las Vegas Library/Discovery Museum
Antoine Predock, Architect
Masonry: Colorado Rose Sandstone. Roofing: Gen-Corp Polymer Products. Insulation: W.R. Grace & Co. (Zonolite). Area lighting: Bega. Formwork for tower concrete: Symons Corp. Shade fabric: Phifer Wire Products. Windows and entrances: U.S. Aluminum. Frame paint: PPG Industries (Duranar). Glazing: Horizon Glass Co. Carpeting: Bigelow-Sanford, Inc. Recessed and cylindrical lighting: Marco. Linear fluorescent pendants: Peerless Lighting. Interior paints: PPG Industries.

Pages 78-83

Wolf House
Sottsass Associati, Architect
Masonry: Trachite stone; Pietra d'Istria. Windows: Kawneer, Inc. (custom). Ceramic tile: Taos Tile Co. Exterior lighting: Lightolier, Inc. Built-in furniture, doors and architectural woodwork, and dining table: custom by architect, fabricated by Zago & Co. Special fixtures: Stilnovo; Artemide.

Pages 90-93

Center West
Mitchell/Giurgola Architects, design architect
Pages 90-91—Masonry cladding: Red Karella granite, panelized on steel strong-back frame system by Intrepid Enterprises. Curtainwall: Harmon Contract. Insulating glazing and tempered glass: Viracon. Tinted glass: PPG Industries, Glass Group. (Solex). Built-up roofing: Owens-Corning.
Pages 92-93—Entrances: Ellison Bronze Co., Inc. Laminated glass: Armor. Sapelle-wood doors: Durand. Hinges and closers: Rixson. Exit devices: Monarch. Custom security desk: Devin. Paints: Sinclair. Glass-reinforced-gypsum coffered ceiling: Moonlight Molds. Drywall and veneer plaster: U.S. Gypsum. Marble wall and floor tile: Carnavelle/Lohr. Exterior lighting and custom lobby fixtures: Lightolier, Inc. Elevators: Otis.

Pages 94-97

AT&T Corporate Center
Skidmore, Owning & Merrill, Architects
Pages 94-95—Granite cladding: Cold Spring Granite Co. (Sunset Beige, Sunset Red, and green and black accents). Silk-screened aluminum spandrel panels: Cupples Products Div., H.H. Robertson Co. Spandrel and insulating glazing: Spectrum. Skylight glass: Falconer Glass. Fluid Applied membrane roofing: American Hydrotech, Inc.
Pages 96-97—Entrances and revolving doors: Illinois Bronze; Crane Fullview Door Co. Lobby floor and walls: Carrara Marble. Finish on terrazzo: Sonneborn. Pendant and other lighting: Cole. Elevators and bronze-clad escalators: Otis.

Pages 98-101

125 Summer Street
Kohn Pedersen Fox Associates, Architect
Pages 98-99—Aluminum curtainwall: Southern Walls; custom Kynar-base finish. Masonry: Savana (Stony Creek granite). Membrane roofing: W.R. Grace. Sheet metal: Lead-coated and red copper.
Pages 100-101—Lobby marble: Moliterno. Custom fixtures: Baldinger. Elevators: Fujitech.

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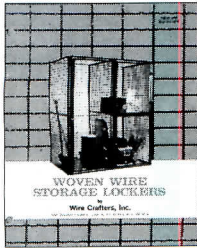
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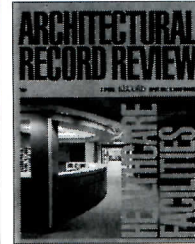
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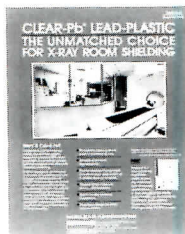
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Bench Catalog

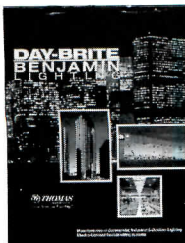


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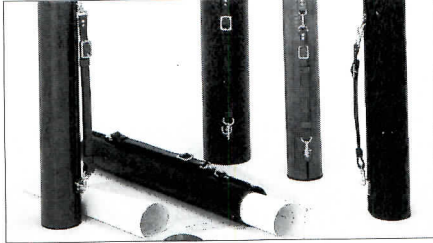


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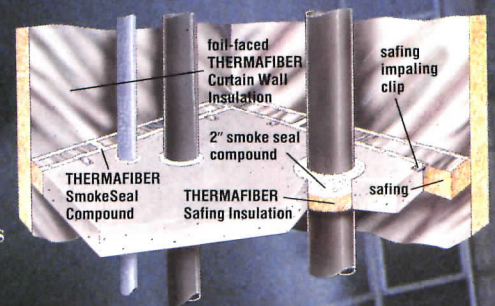
Cut corners by specifying low-melt-point foam or glass fiber insulations, and risk the spread of fire and deadly gases when they break down. Install sprinklers to improve fire safety, but smoke and fire still might not be effectively contained, causing fatalities away from the source.

A tested, reliable method for containing fire and smoke to the floor of origin is the THERMAFIBER™ Fire/Smoke Stop System. By sealing off all perimeter openings with foil-faced THERMAFIBER® curtain wall insulation, safing insulation and SMOKE SEAL™ compound, and filling poke-through openings as well, fire and smoke can be effectively contained.* The added protection costs little more than assemblies using insulations that are not fire resistant.

Experts agree that the first line of defense against fire and smoke is containment.

It's also the most sensible way to keep a lot more than property from going up in smoke.

*Test results and system information are published in our brochure "THERMAFIBER Life Safety Insulation Systems." For a copy, write USG Interiors, Inc., Thermafiber Division, 101 South Wacker Drive, Chicago, IL 60606-4385, Dept. AR1090



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