ARCHITECTURAL RECORD

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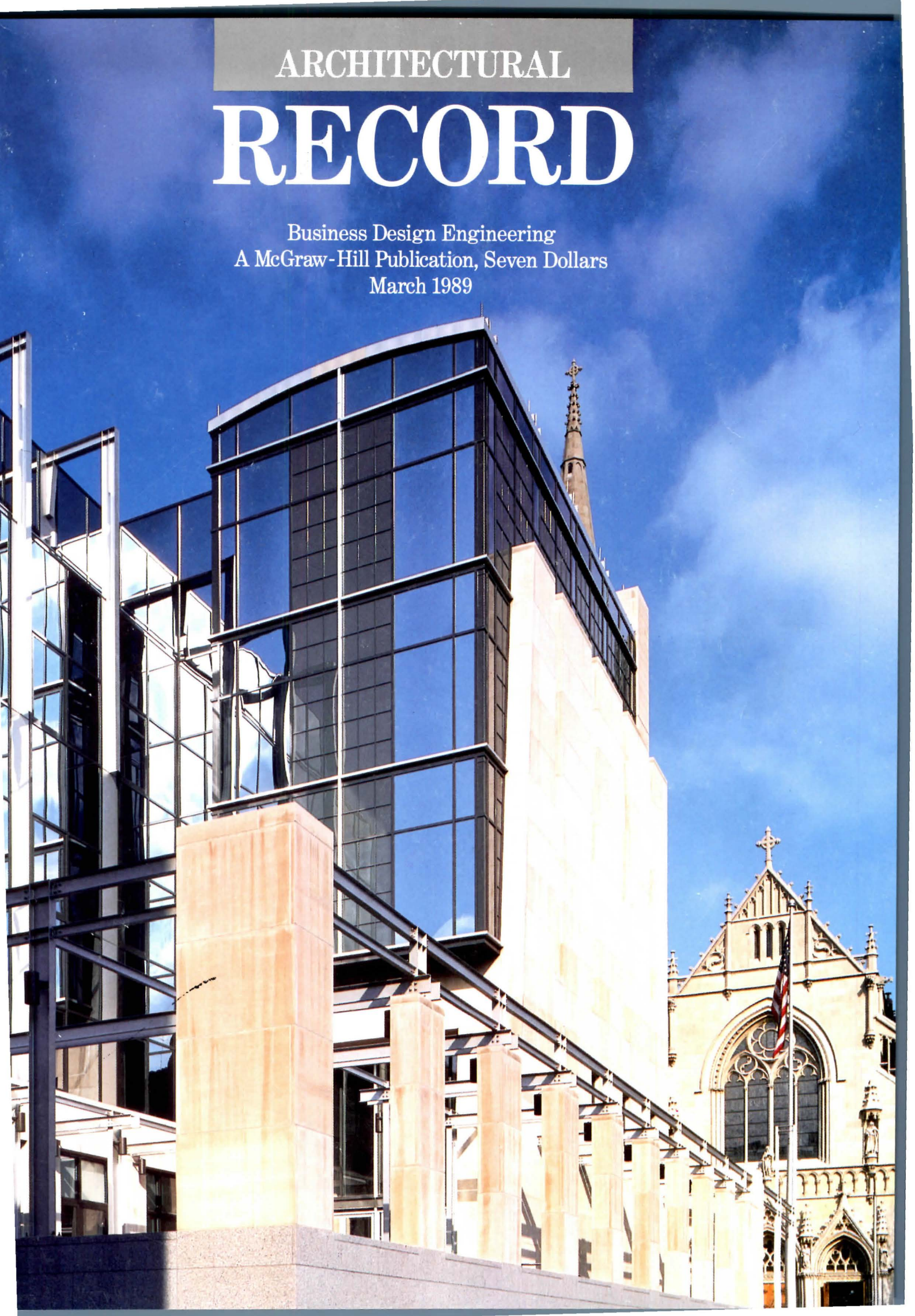
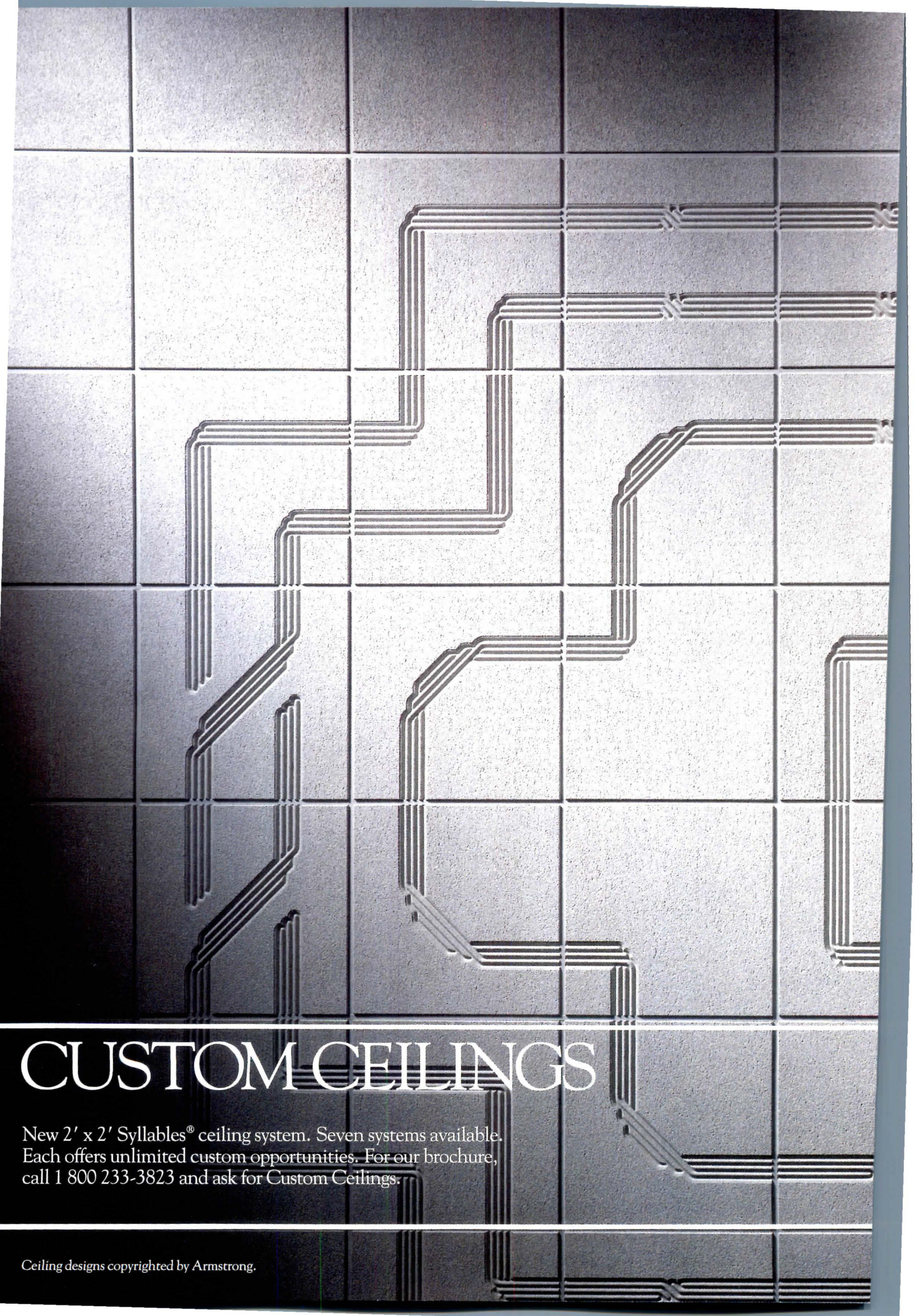
March 1989

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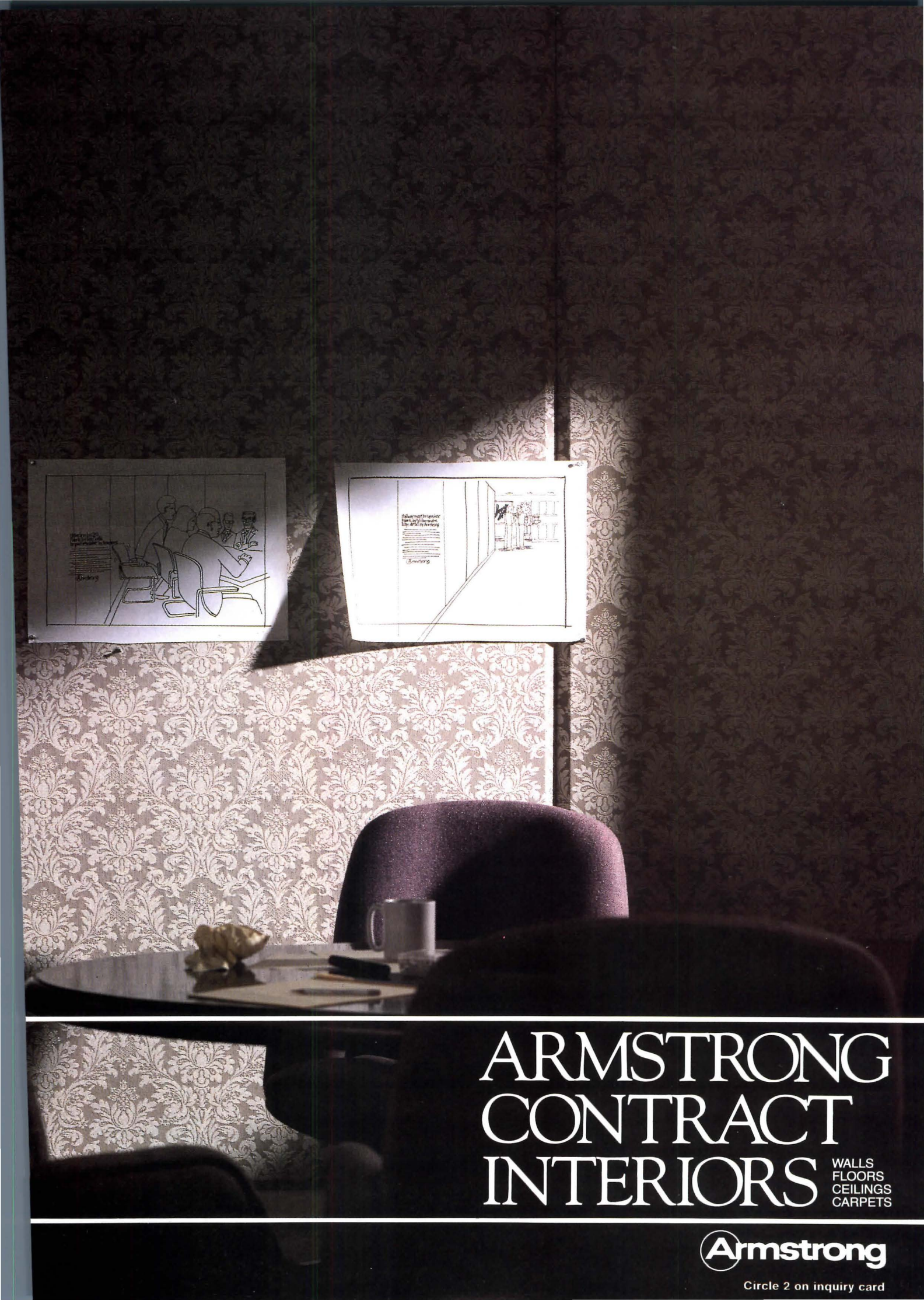
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Letters

Everyone connected with the Hole in the Wall Gang Camp is to be congratulated [ARCHITECTURAL RECORD, January 1989, pages 86-91]. We are going to start buying Newman's Own products.
Clifford Abrams
Abrams Associates, Inc., Design
Evanston, Illinois

I enjoyed your November 1988 issue and its features on affordable housing. The opening editorial, "Serving the larger public," underscored well the importance of the public nature and role of architecture. I applaud ARCHITECTURAL RECORD's commitment in focusing attention on this area through the new awards program.
David P. Habib, AIA
Managing Principal
Dewberry & Davis
Fairfax, Virginia

This is a much too late note of appreciation for ARCHITECTURAL RECORD's "In the public interest" award for our Washington Elms Development [RECORD, November 1988, pages 100-103]. I can't tell you how pleased and proud the commissioners and staff of the Cambridge Housing Authority and the residents of Washington Elms are to have garnered such valued recognition.

Too frequently public servants hear nothing but criticism for their efforts, and iteration upon iteration of failed policies or practices. To have been recognized for a job well done by a publication of such stature as ARCHITECTURAL RECORD will motivate us for some time.

Similarly, public housing residents must constantly live with an undeserved reputation regarding their environment. To see one's home and community so featured provides an enormous sense of self-worth, which is so often denied our residents.

Rest assured that as a team we will do our best to preserve the goodness of Washington Elms and to replicate its concepts in our efforts to rehabilitate other public housing developments.

Your issue "In the public interest," its recognition of public housing as an invaluable housing resource to the poor, and the Washington Elms award itself will always be cherished at the Cambridge Housing Authority.
Daniel J. Wuenschel
Executive Director
Cambridge Housing Authority
Cambridge, Massachusetts

In misidentifying Jože Plečnik as Czech [ARCHITECTURAL RECORD, January 1989, page 4], you do an injustice to would-be students of Central European history, culture, and architecture, as well as to his memory. Although a few early works following tutelage under Otto Wagner were built in Prague, Plečnik was a proud native and citizen of Slovenia, now the small northwestern republic in Yugoslavia.

His unique genius arose in large part from the struggle to give the relatively young and developing Slovene society a strong footing and voice in the fertile mix of Adriatic and Alpine cultures surrounding it. He did so through a profound and reverent yet modern interpretation of historic forms particular to the region's past.
Gregory Tung
Freedman Tung & Associates
Urban Design
Mountain View, California

Calendar

Through March 31
A retrospective of the works of 12 French architects who received the Delano and Aldrich/ Emerson Fellowships in the years 1933 through 1985; at the American Institute of Architects, Washington, D. C.
Through April 2
"Robert Mills, Designs for Democracy," an exhibit of drawings by the Greek Revivalist architect; at the Octagon Museum, Washington, D. C.
March 11 through April 28
"Greene and Greene," an exhibit of the architects' work in photographs by Marvin Rand; at the Kirsten Kiser Gallery for Architecture, Los Angeles.
March 16 through May 13
An exhibition of new works by Ricardo Bofill, Zaha Hadid, Arata Isozaki, Rem Koolhaas, Bernard Tschumi, and others; at Max Protetch, New York City.
March 20-22
Lighting Conference for Architectural Consultants, sponsored by Philips Lighting Center, Somerset, N. J. For information: Sherry Bachman, Lighting Center Coordinator, Philips Lighting Company, P. O. Box 6800, Somerset, N. J. 08875-6800 (201/563-3600).
March 21-23
"The Big Show '89," seventh annual Northeast Construction Expo, with special sessions on linkage funding and affordable housing; at World Trade Center, Boston. For information: Meg Bowen, The Northeast Construction Expo, 1502 Providence Hwy., Norwood, Mass. 02062 (617/769-7676).
April 8 through July 12
"Inigo Jones: The Complete Architectural Drawings," an exhibit of 100 of the architect's drawings assembled from British sources, plus Van Dyck's portrait of Jones; at the Drawing Center, 35 Wooster St., New York City.

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In the public interest: Recreational facilities

Last year at this time we launched a new awards program, "In the Public Interest," to serve a neglected concept—the role of "publicness" in architecture. Although public subsidies have been drastically reduced, and the typical architect's clients come from the private sector, good architecture is still being done for the public realm. It is the purpose of this awards program to find and honor the best of it.

In last year's awards program we invited submissions in the category of affordable, appropriate housing. From over 100 entries we premiated 11 outstanding projects and made them the subject of our November 1988 issue. The winners of this year's awards program—which focuses on recreational facilities—will be featured in our November 1989 issue. Aiming to gather as many good projects within this category as possible, we developed an extensive list of recreational building types. Architects are invited to submit park buildings (e. g., visitors' centers, public shelters, camping facilities, buildings for sports); public playgrounds; community centers; public-service organizations (e.g., YMCAs and YWCAs, boys' and girls' clubs); public gymnasiums; public swimming pools; arenas; and stadiums. Eligibility, submission requirements, and other details are to be found in our formal announcement (page 166). All entries must be postmarked no later than May 1, 1989.

As editors we were very pleased with the outcome of our first "In the Public Interest" awards program. Client groups—government agencies, private developers, public/private-development sponsors—as well as architects, were encouraged to see the kind of good, yet modest, design work that affordable appropriate housing represents acknowledged and honored in the architectural press. As editors we were delighted to see so much excellent work submitted from firms new to us. We look forward to your submissions this year with justified high hopes.

Mildred F. Schmertz

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Frank H. Merlotti
President & CEO

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Cloudy forecast for housing starts doesn't dampen NAHB's Atlanta convention

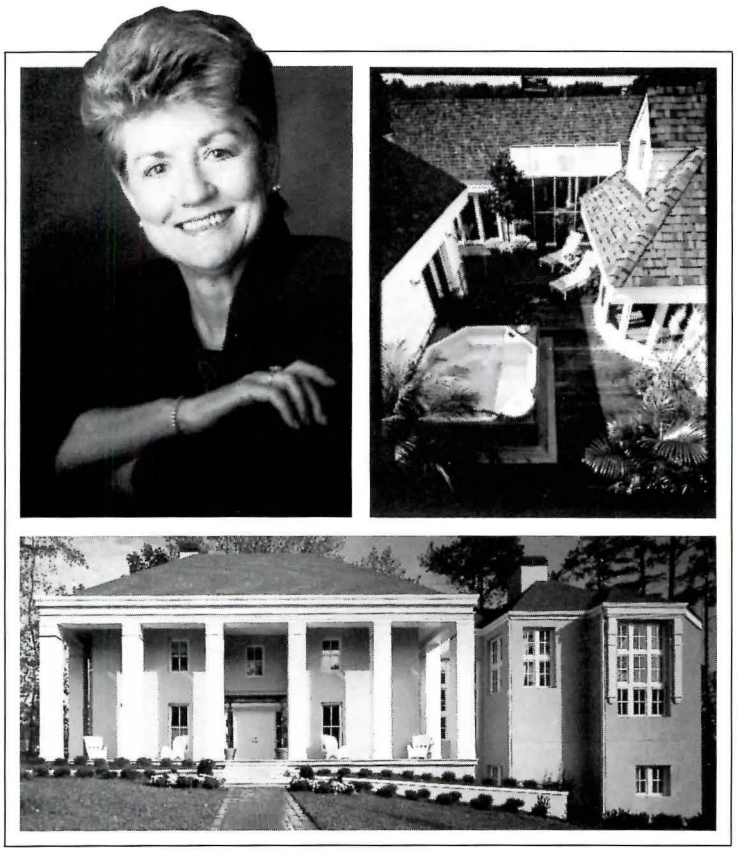
Hordes of builders—65,000 strong—crowded the exhibit halls and concourses of the Georgia World Congress Center at the recent National Association of Home Builders show in Atlanta. Their numbers, however, were not a bellwether for housing construction.

NAHB instead predicts that 1989 will see 1.38-million housing starts, off 100,000 from 1988's estimated 1.48 million and down considerably from the peak of 1.8-million starts in 1986. Builders polled at the show seemed to agree, with 78 percent expecting housing starts to be the same or somewhat less than last year.

NAHB has become a showcase for groups that build new houses in the host city

This year Charles Moore designed one for the luxury-home buyer as part of a New American Home '89 promotion by two builder magazines and by the manufacturing arm of NAHB. Project architect Arthur Andersson called it "a combination of an antebellum Southern mansion and a late-19th-century Arts and Crafts home," a 5,400-square-foot house created to give builders ideas on how to appeal to the $120,000-plus-income buyer who anticipates spending $300,000 or more for a new home. It was the sixth year of the cooperative venture. In previous years, Booth/Hansen, Fisher-Friedman, and Robert A. M. Stern, among others, designed houses to appeal to first-home and "move-up" buyers.

The NEST '89 house, the fifth in a series of modular display homes erected on the exhibit floor, consisted of six modules linking entry, kitchen, and living, dining, and bedrooms by a series of accordion-like vestibules. A seventh detached module served as an office/guest suite and entertainment center. NEST (New Expanding Shelter Technology) also featured a single-cable closed-loop wiring system developed by NAHB and other organizations (called the Smart House system).



New NAHB president Shirley McVay Wiseman; seven-module NEST/Smart house (top); Charles Moore's New American Home '89 for the luxury market (above).

A third house, the British Show House, was constructed in Atlanta with building materials from the U. K. Millwork, cabinetry, and furnishings were also British-made.

Better Homes and Gardens executive building editor Joan McCloskey gave builders her predictions on how changing family lifestyles are affecting housing now and in the future. She talked about the needs of Accordion Families (families whose living arrangments demand that one room do double or triple duty throughout the week); Empty Nesters (those homeowners who are in their 50s and 60s and may be in the market for second homes); and the Sandwich Generation, baby boomers, mainly females, who are raising their children on their own as well as caring for their parents and probably need "mother-in-law" apartments added to their single-family homes. McCloskey stressed that the '80s has become the decade when the "home is once more all-important, where we choose to focus our lives on our children, our spouses, and our close friends" a stark contrast to the '70s when "we ate yogurt from hand-thrown pottery bowls," and "architects and builders rejected the traditional housing of the past and created a new generation of houses that honored technology."

Shirley McVay Wiseman, a home builder and owner of two businesses—in Kentucky and Florida—became the 1989 president of NAHB, the first woman ever to hold that office.

Carolyn De Witt Koenig

Marketing survey produces answers — and questions?

A survey of architectural firms' marketing practices has been conducted by the AIA with the Georgia State College of Business Administration. The resulting report indicates:

- Ninety percent of principals believe that marketing is essential and 85 percent believe its importance will increase.
- Still, most consider firm reputations and referrals from their clients are most important in attracting new business.
- Firms with 19 or more employees in the hard-hit Southern oil states are spending the greatest percentage of their revenue on marketing right now (6.6 percent), while their counterparts in New England are spending the least (4.1).
- The percentage of revenue firms spend increases with firm size—3.8 percent in firms under 10 employees to 6.2 percent in firms with 35 or more.
- Principals are generally dissatisfied with their marketing efforts though, in larger firms, they tend to be more satisfied.
- Nearly a quarter of firms with 10 or more employees have hired consultants; 7 percent plan to.
- Higher levels of marketing activity tend to result in modest increases in revenue per employee, but significant gains in principals' satisfaction levels.
- Nearly a third of firms now have marketing plans and another 20 percent plan to.

The report comes under fire from at least one marketing consultant, Clare Ross, based in Phoenix. It is liberally peppered with comments by well-known marketing consultants meant to give it focus. But Ross—while praising its high statistical value—finds that some of his colleagues' conclusions actually garble it. He perhaps overstates his case when he says that the report thus raises more questions than answers. But he finds the result especially disappointing because "there is a

Continued on page 29

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real need for architects to get answers about the status of marketing and how to measure their efforts against others'."

What questions does he cite? "The attempt to explain marketing, its place, and the role of strategy-planning in it," he maintains, "is littered with inconsistencies and outright errors by consultants who should know better." For instance? Survey comment: "Every firm

Says marketing consultant Clare Ross of the AIA survey: "The focus got blurry."

has a marketing strategy either by design or default." Responds Ross: "Firms have an *image* either by design or default, but to suggest that they have a strategy by default is not to understand what a strategy is."

Another quote differentiates between strategic marketing and business development: "Strategic marketing [alone] is an orderly, methodical process." Ross counters: "An orderly approach is not what differentiates them. To be effective, they both need to be orderly methodical processes." He criticizes a comment for first describing marketing planning as beginning once a firm's goals have been agreed to—then properly describing it as *including* the goals step plus a previous one of determining what jobs a firm should go after. Another comment states: "Strategic marketing doesn't break new ground, rather it attempts to commit to paper the thoughts of a firm's principals on the future of the industry and the direction their firm should take." "What," Ross asks, "*is* the purpose of strategic thinking and marketing if it isn't to break new ground?"

Ross finds his colleagues' comments leading to "fuzzy marketing planning, marketing plans, and, hence, fuzzy results," and says such confusion could lead firms to launch into sales without planning—"like doing working drawings for a building without any programming or design activity." Not surprisingly, he particularly faults a conclusion that "the impact of marketing consultants does not appear that dramatic." He finds that an examination of the statistics reveals that, measured by revenue per employee, it is true that firms with 10 or fewer emplyees did realize only a 2.2-percent increase when they hired consultants, while those with 20 to 30 employees as well as more than 35 employees actually saw declines. However, firms with 10 to 19 employees averaged a hearty 27-percent increase. "It's risky to draw conclusions on averages," he says, without looking into such factors as what the one really successful group did differently. He picks out one final report comment: "These findings seem to indicate that the most significant contribution consultants make to a firm is generating greater comfort with marketing as opposed to greater revenue." "If this is true," responds Ross, "then marketing consulting is in serious need of new blood." *Report on the AIA Marketing Architectural Services Survey* is available for $95 through the AIA Press, 1735 New York Ave., N. W., Washington, D. C.

Charles K. Hoyt

Lease-buy, lease-out, and friendly condemnations: The federal government tries new approaches on its new buildings

Washington's Union Station (left) set the design ground rules for the Federal Judiciary Building by Barnes (rear).

Even such a sophisticated politician as Senator Daniel Patrick Moynihan of New York cannot resist occasional hyperbole. In an early-February oversight hearing by the Senate water resources, transportation, and infrastructure subcommittee, which the senator chairs, he described three current building proposals as "the most important federal development projects of our generation." Well maybe, even though the senator might have been overreaching a bit. What is certain is that the three—the International Cultural and Trade Center and the Federal Judiciary Building, both to be built in Washington, and the Courthouse Annex and Federal Building to be built at Foley Square in New York City—are to be landmarks of sorts in innovative approaches to new federal construction.

As an example of how federal buildings may be speeded along to completion in the future, the Foley Square project may use "friendly condemnation" to bypass local ordinances and approvals, saving an estimated year in the process. The two buildings containing 1.6 million square feet of office and courts plus parking and retail space became the subject of concern some time ago because, according to Moynihan, with the exception of the Federal Bench in New York's Southern District and Mayor Edward I. Koch, "no one else locally seemed in the least interested." He relates that basic agreement on the project was reached in Koch's office at Christmas 1987 and a formal contract was signed last March a year ago. But not much seems to have happened since then.

Accordingly, both the feds and key city officials are in kahoots to bypass the cumbersome local permit process. The way New York deputy mayor for policy and physical development, Robert Esnard, explains friendly condemnation: "The GSA would sue us" in, as he put it, a "friendly, nonofficial way" to condemn the required land, thereby overriding eight to nine slow-moving city permits covering, e.g., a change of zoning, air-rights transfers, and special parking requirements. According to Esnard, the concept is not new. "Friendly condemnation" has been used to speed up Post Office construction and housing for the homeless in a project run by Governor Cuomo's son.

Washington, D. C.'s new Federal Judiciary Building (photo), to go up next to Union Station on federal land that is part of the Capitol Grounds, will be innovative because it is being built by a private developer who will turn the building over to the government after a period of

Continued on page 31

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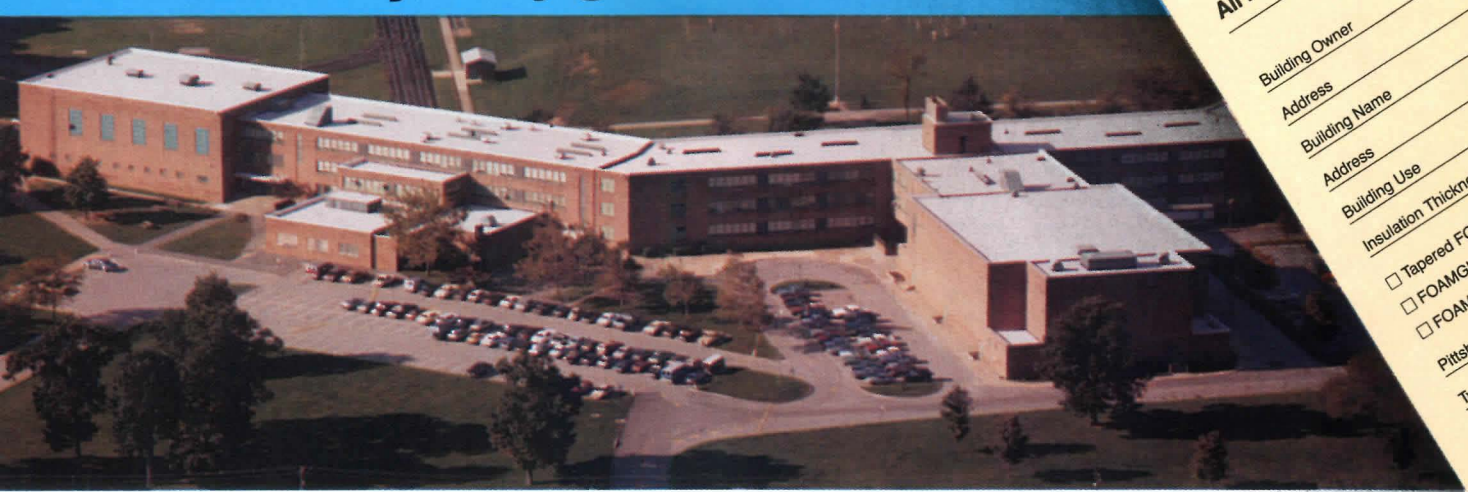

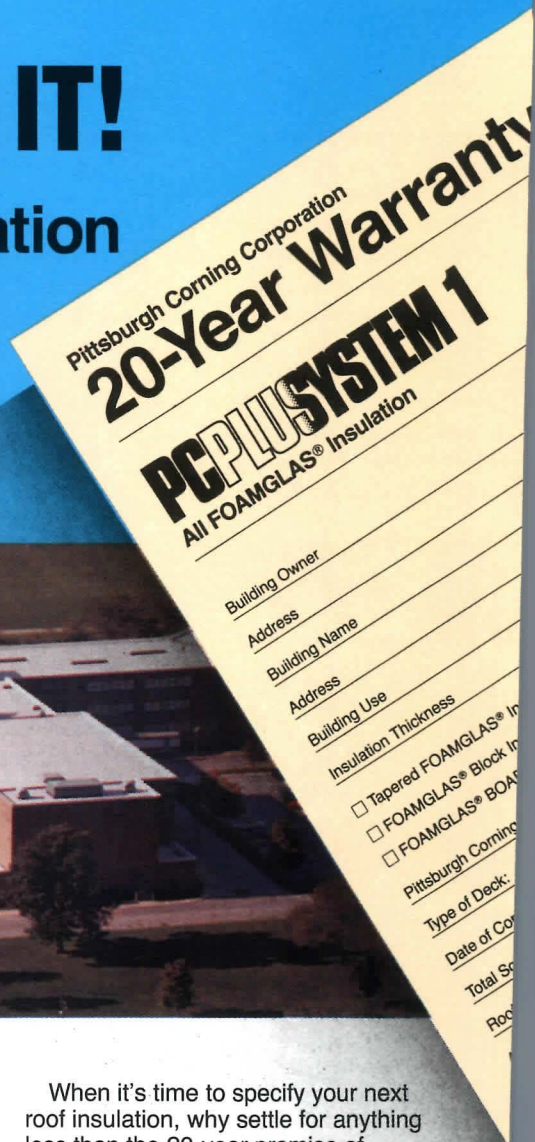

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time in exchange for regular "rent" payments that would be less than leasing commercial space elsewhere. It will house several judiciary agencies (mostly the Administrative Office of the U. S. Courts), possibly other federal agencies, and, if there is leftover space, private tenants.

Due for completion in mid-1992, the building will be built at no initial cost to the federal budget—a big plus at a time of huge budget deficits. An analysis by a real-estate and economic-consulting firm, which participated in the architect-developer selection process, GA Partners, of Washington, D. C., said the winning Boston Properties' proposal provides a "fair and reasonable overall occupancy cost" and it provides "substantial economic savings to the government." GA Partners noted that Boston Properties was one of only two competitors that offered this benefit.

The analysis also said that Boston Properties offers two "significant" cost-reduction options. One is to "prefund the construction loan and thereby establish the construction and permanent-financing interest rates simultaneously." The second is to have the developer amortize the permanent mortage over 15 instead of 30 years. This would increase the government's annual lease payments but lower total interest costs and permit government ownership in a much shorter period. The estimated building cost to the government is $126.7 million. At a permanent financing rate of 10 percent, it would produce a fixed rental payment (without operating or building-management costs) of $13.3 million annually over a 30-year term, equivalent to an average of $21.85 per rentable square foot. This, said the analysis, compares to a projected annual rental cost for the government by the time the building is built of $25 to $27 in comparable commercial space.

The selection process from among five finalist teams of architects and developers was made by jury. Winning Boston Properties was teamed with architect Edward Larrabee Barnes and Associates. (The other finalist teams: Kohn Pedersen Fox Associates, Architects of New York City with Oliver Carr Company of Washington, D. C.; Skidmore, Owings & Merrill, Architects of New York with Trammell Crow Company of Washington, D. C.; Kevin Roche John Dinkeloo Associates, Architects of Hamden, Conn., with Gerald D. Hines Interests of Houston; and I. M. Pei and Partners, Architects of New York with Quadrangle Development Corp. of Washington, D. C.

All of the proposals were limited by the design ground rules to 520,000 square feet above ground and to 80 feet in height by the D. C. Buildings Act of 1910, an act meant to assure that any nearby new structure complements and does not compete with Union Station. White granite cladding was also dictated. Accordingly, there is a certain sameness in all five designs, obliquely acknowledged in the official analysis: "All proposals were excellent designs," it says, and each has "strengths and flaws." Moynihan committee member Senator John H. Chafee of Rhode Island mused in the hearing over the "remarkable similarities." Responded Architect of the Capitol George M. White: "We gave very tight guidelines." The Barnes design, said the report, "not only satisfied the functional requirements . . . but most sensitively responded to the context within which it is to be located." But there was support for other designs, some of which were more literal in their beaux-arts inspiration. *The Washington Post* headlined its account, "The Congressional Compromise," and went on to say the winning proposal "is pre-eminently a compromise pick."

Finally, the new International Cultural and Trade Center, together with 1.4 million square

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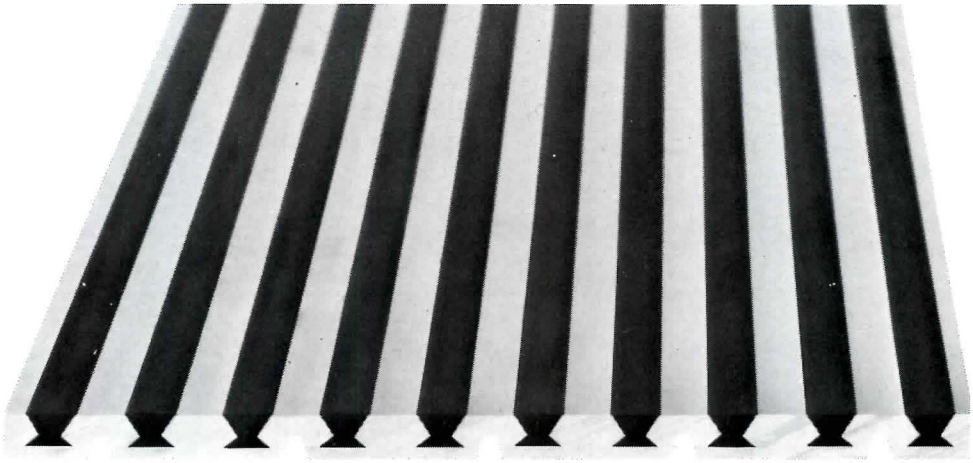

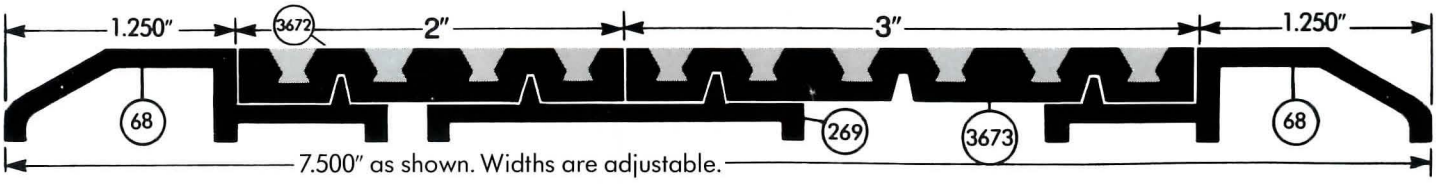

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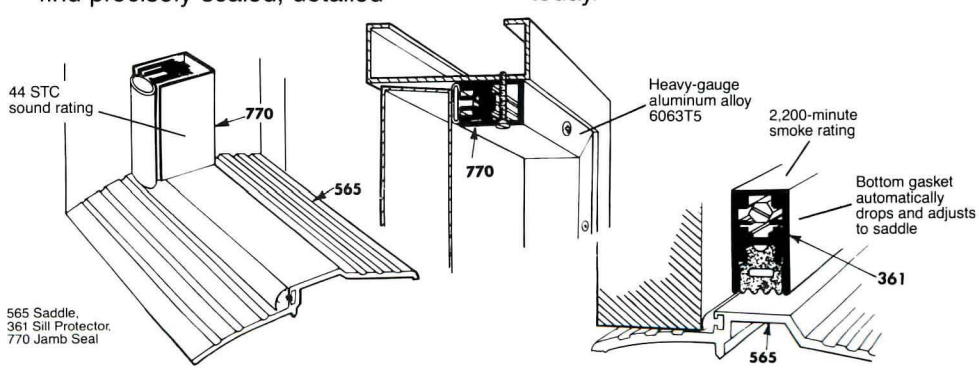

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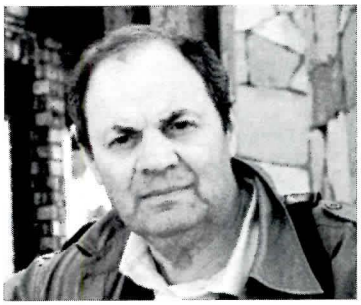
Practice: The market for American architectural services in Japan comes of age

A U. S. architect with a yen for a fee in yen, with ken, can do.

By Abner A. Layne



The door to the Japanese market is ajar, enough to allow nearly two dozen Western architects, including over a half dozen Americans, to do their creative thing in the private sector. And, in the large and lucrative public sector, the door has recently been pried open at least a crack.

Even in the private sector, limitations to a truly professional practice still prevail. A Japanese entrepreneur, developer or contractor may buy a U. S. architect's concepts and schematics with a grateful smile and a graceful bow. But inevitably—no project to the contrary has been reported—the sketches are turned over to Japanese architects who will do the working drawings. The Japanese architect may, of course, be a joint venturer with the American. Or, to avoid that nation's arcane licensing procedures, the American may be in the background as an architectural consultant or advisor. Clearly, at this time, a Western architect cannot plan to follow in Frank Lloyd Wright's 1916 footsteps to Tokyo to create in minute detail another Imperial Hotel.

The big break could be in public work

For public work from the government, the door had been slammed shut years ago by the Japanese to thwart competition by foreign architects, engineers, and construction contractors.

Mr. Layne is a free-lance writer and former senior editor/finance of Engineering News-Record.

But, following the signing of a recent agreement between the U. S. and Japan, the sound and fury of the U. S. construction community's bitter struggle to gain entry into that Japanese market is on *diminuendo.* The agreement, effective May 25 last year, gave U. S. firms a chance at 14 major public projects worth an estimated $16.9 billion over the next 15 years. More than two dozen large U. S. firms, proposing to provide both design and construction, have already slipped through the crack and begun the process of registering to compete on various projects, taking special aim at the Kansai airport and a project known as "science city."

However, the first Kansai airport awards did not go to the Americans among the entrants. They went to French design-builder Paul Andreu of Aeroports de Paris, who provided a planning concept. Subsequently, in December of last year, Italian architect Renzo Piano was selected to design the main terminal building. The selection was made by a nine-member international jury that included U. S.-based architect Helmut Jahn. Despite this loss for the U. S., the May agreement appeared to be working.

Dare we say sour grapes?

Appearances aside, a federally ordained investigation of the situation began late last year. Section 302 of the Omnibus Trade Act of 1988 (signed into being by President Reagan on August 23) mandates an investigation of "acts, policies, and practices" of the Japanese government that could have the effect of deterring U. S. firms from supplying architectural, engineering, construction, and related consulting services to Japanese clients. There was some discussion in public and private as to whether or not the investigation was appropriate. But U. S. trade representative Bonnie Richardson says, "The act directs us to initiate the investigation. That's why we're doing it and doing it now." The results may not be known for a year.

That year may see the end of the long Japanese contract drought for both U. S. design and construction firms. And it will clearly be architects or firms that offer architecture with their construction services that will have the edge.

There is only modest optimism among firms that offer construction alone

According to Mark D. Chalpin, vice president of the National Constructors Association, before the May agreement, "contractors had not been awarded a major building contract since 1965." In fact, he added, the only break came in 1986, when a U. S. contractor built "a total of one Mrs. Fields cookie stand in Japan."

The cookie crumbled right, however, for Chicago-based Schal Associates, Inc. late last year. In December, it became the first U. S. firm under the May agreement to participate in a major public-works project. But not alone. Some eight Japanese firms will join Schal to design and build a $148-million hotel and convention center in Yokohama. Schal's role is most likely to be construction manager. Says vice president Michael Lane, "We are a construction firm. We do not practice architecture." Schal may have broken the drought, but few U. S. pure-construction firms expect an outpouring of projects.

Architects are in a position to call the shots here

In comparison to firms that offer only construction, architects and firms that offer architecture are in a better situation. Says Chalpin: "The Japanese want to use the experience of U. S. architects. That's different from construction—one of their winner industries that they're riding heavily. After expanding in their domestic—and closed—market, they've been exporting it. That's not happening in architecture. Japanese architecture is not as competitive as construction, just not a winner industry. Construction is and they won't let anyone compete."

The roots of the Japanese architectural shortcomings and the potential flowering of opportunity for U. S. architects could go back to the two countries' differences in professional training. Two years ago, the University of Reading in England was commissioned by a real-estate firm to study the Japanese construction industry. Says the report: "A few Japanese architects have well-deserved international reputations for brilliant imaginative design, but the vast majority of Japanese buildings are, frankly, dull. [Here, the report speaks of buildings built to Western standards, as most larger ones are.] They are the product of engineering rather than esthetic principles. This is perhaps not surprising as Japanese architects are educated and trained as architectural engineers. Indeed, most architects refer to themselves as engineers."

An American architect who has a lot of experience working with Japanese architects in Malaysia and Singapore says, "Don't quote me by name, but that analysis is right on target." In the private sector, the Japanese developer seems to be sensitive to the surplus of stodginess in his compatriot architects' approach to buildings. In contrast, the developers "have a tremendous respect for what's going on in America in terms of the architectural scene," says a U. S. architect who is about to close a contract for a Japanese project.

Continued on page 35

Practice continued from page 33

"You are under pressure from your Japanese associates and, with a slight nudging here and there, you can easily wind up with something they could have produced themselves. You have to have a real sense of why you are there."

In the private sector, a respect for brand names and Western standards

That respect led to commissions early last year when three U. S. architects—the first after many years—were retained by Japanese developers for private projects worth $300 million. The three—the Jerde Partnership, Los Angeles; Stanley Tigerman of Tigerman McCurry Architects, Chicago; and Michael Graves, Princeton, N. J.—were asked for concept, schematic, and development drawings for a shopping center, and recreation and experimental residential projects on reclaimed land in the city of Fukuoka on the southern island of Kyushu. The projects are part of the Asian-Pacific Exposition due to open this month.

According to Jerde associate Edward S. Y. Wong, their conceptual-design contract was signed after a year of negotiation through Tokyo-based Hamana Institute. Hamana is a planner and promoter, responsible for recruiting for the Japanese construction market. Since that contract, Jerde has picked up another project in Osaka—"a kind of new town," says Wong.

And do Wong and firm principal John A. Jerde find working with Japanese developers an exotic relationship? "Not at all," says Wong: "Some entrepreneurial types make up their minds on the spot, and that makes the process easy; or you may deal with corporations and have to go through committee after committee—just like here. We are enjoying the relationship, right now."

Paul Gates, a Tigerman senior associate, says they, too, enjoy the relationship, pointing out that "it's very prestigious from the developers' point of view to hire a world-class Western architect." But isn't Tigerman's art of creativity and imagination important? "Well, yes," says Gates, "but, to be quite honest, it's also a matter of marketability, which," he adds, "is not a bad reason at all. In fact, they are planning a symposium to coincide with the opening of the projects in which Stanley Tigerman and Michael Graves will speak. That's the sort of thing the Japanese developers believe will add to the importance of the whole event."

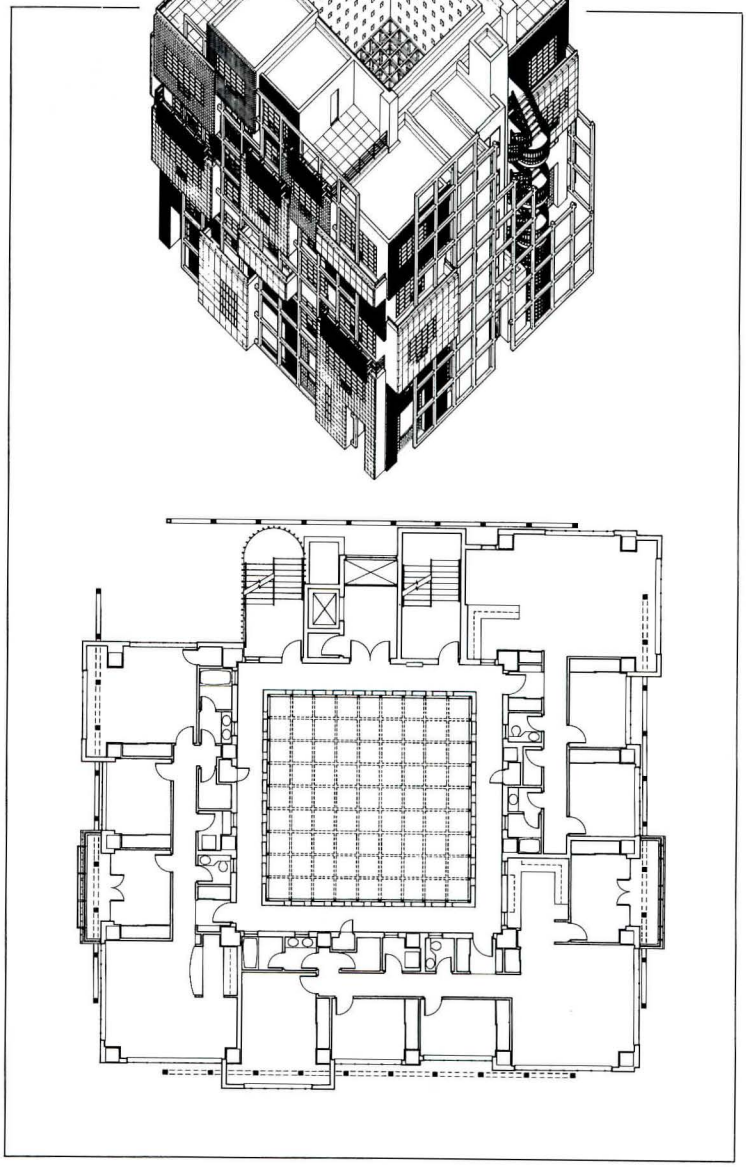
Michael Graves, who also picked up an additional condo project that is under way in Yokohama, says that the Japanese believe that Western ideas are best executed by Westerners.

And Peter Lukacic, a senior associate and landscape architect in The Architects Collaborative in Boston agrees: "The clients say, for example, they want to see an American-style aquarium and not one that a Japanese architect would produce."

To reflect a realistic sense of design that is specifically American is a "tough thing to do far away from home," Lukacic says. "You are under pressure from your Japanese associates and, with a slight nudging here and there, you can easily wind up with something they could have produced themselves. You have to have a real sense of why you are there."

Of course, Lukacic thinks one reason TAC is there is simple economics. Given the state of the dollar, "the Japanese are getting a bargain and TAC is earning higher fees." TAC does most of its work with Tobishima, a large engineering, architectural, and construction firm.

"Our work with them follows the usual pattern of Japanese business relationships," says Lukacic. The pattern includes a long period of cultivation. But, once achieved, "they continue that relationship and you don't have to repeat some formalities you first had to go through."



Two adjacent condominium apartment buildings in Fukuoka, due for substantial completion this month, illustrate Japanese developers' fascination with Western standards. One building (isometric and plan) was designed by Stanley Tigerman and the other, by Michael Graves. Tigerman describes the value of his design as only he can: It is centered on "an effectively inaccessible" open cube meant as a metaphor of the Garden of Eden (hardly an Eastern concept) and is based on "failed attempts at healing an irreparable wound . . . an optimism intrinsic to architecture presented in the context of contemporary dislocative tendencies." Associate Paul Gates is a bit more pragmatic about the value to the Japanese clients' in having well-known American names attached to projects: "It's also a matter of marketability. It's very prestigious from the Japanese point of view to hire a world-class architect." Graves is pragmatic as well: "The Japanese believe that Western standards [which Tigerman's plan clearly shows] are best executed by Westerners."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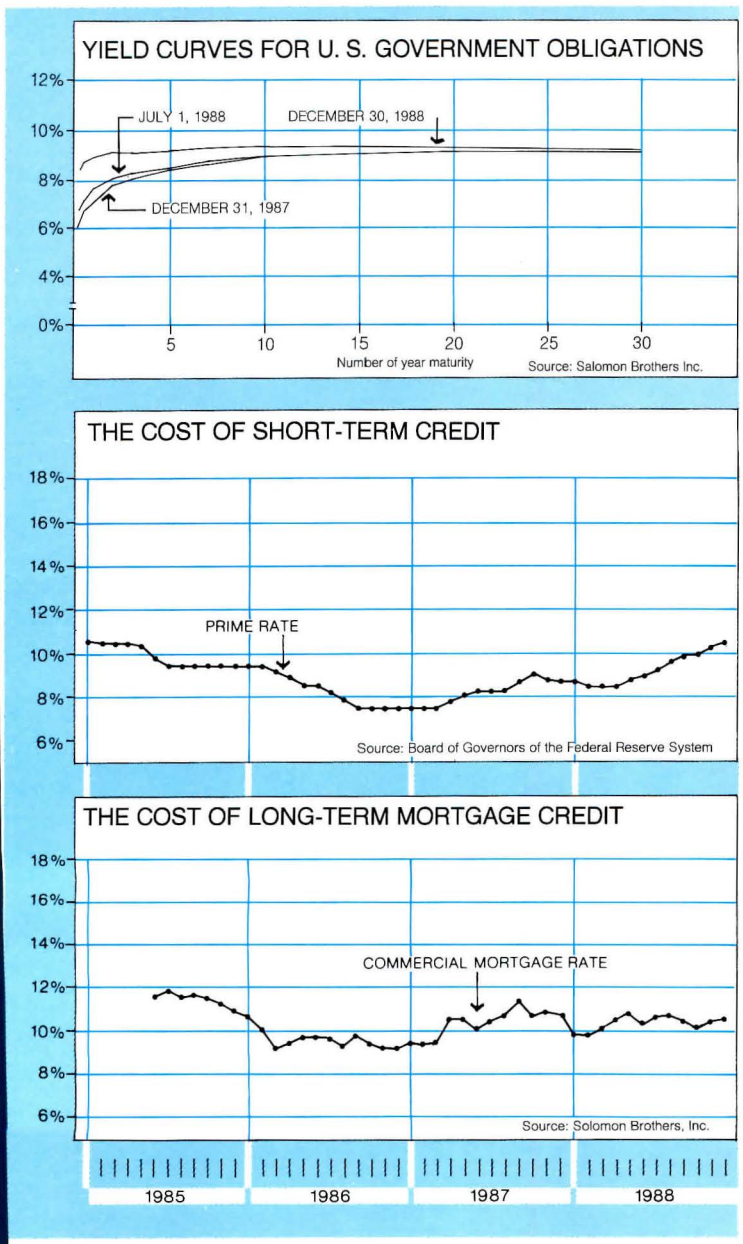
Construction finance: In search of that elusive comfort zone

Among other factors, the current aberration in the usual balance between long- and short-term interest rates means more expensive money—and a resulting moderation of economic growth.

By Phillip E. Kidd

These days the financial markets are fascinated by the shape of the yield curve and its likely meaning for future economic growth. While the short end of the curve (up to three-year maturities) flattened significantly during the second half of 1988, interest rates in the middle (seven- to 10-year maturities) actually rose above those at the long end (20- to 30-year maturities). Now the dilemma is whether short- and intermediate-term rates will proceed to rise faster than long-term rates. Or will the opposite occur? Either way, economic growth is likely to slow in coming months.

Normally, when the economy is advancing at a sustainable pace, the daily spreads between three-month Treasury bills and 30-year Treasury bonds will develop a comfort zone. For example, the zone was roughly 225 to 300 basis points (hundredths of percents) from early 1983 to the middle of 1988. However, there were times during that period when the spreads were either larger or smaller than that range.



In the comfort zone, borrowers and lenders willingly transact business all along the yield curve. Outside of that range, imbalances develop.

When the spread increases beyond 300 basis points in favor of intermediate- and long-term financial instruments, investors usually enlarge their holdings, while borrowers seek much cheaper, shorter-term, credit. When the spread shrinks below 225 basis points, investors generally shift into shorter-term investments, while borrowers search for longer-term loans. The actions and reactions of borrowers and lenders alter the supply/demand conditions enough to drive the yield spreads back into the comfort zone.

The rapid rise in short-term rates in relation to intermediate- and long-term rates since the middle of 1988 has shattered the comfort zone. To re-establish it means either short-term rates must decline sharply, or long-term rates must climb much higher. Unfortunately, the outlook for a quick improvement in short-term rates is poor, because the Federal Reserve is not likely to ease monetary policy in the next three months.

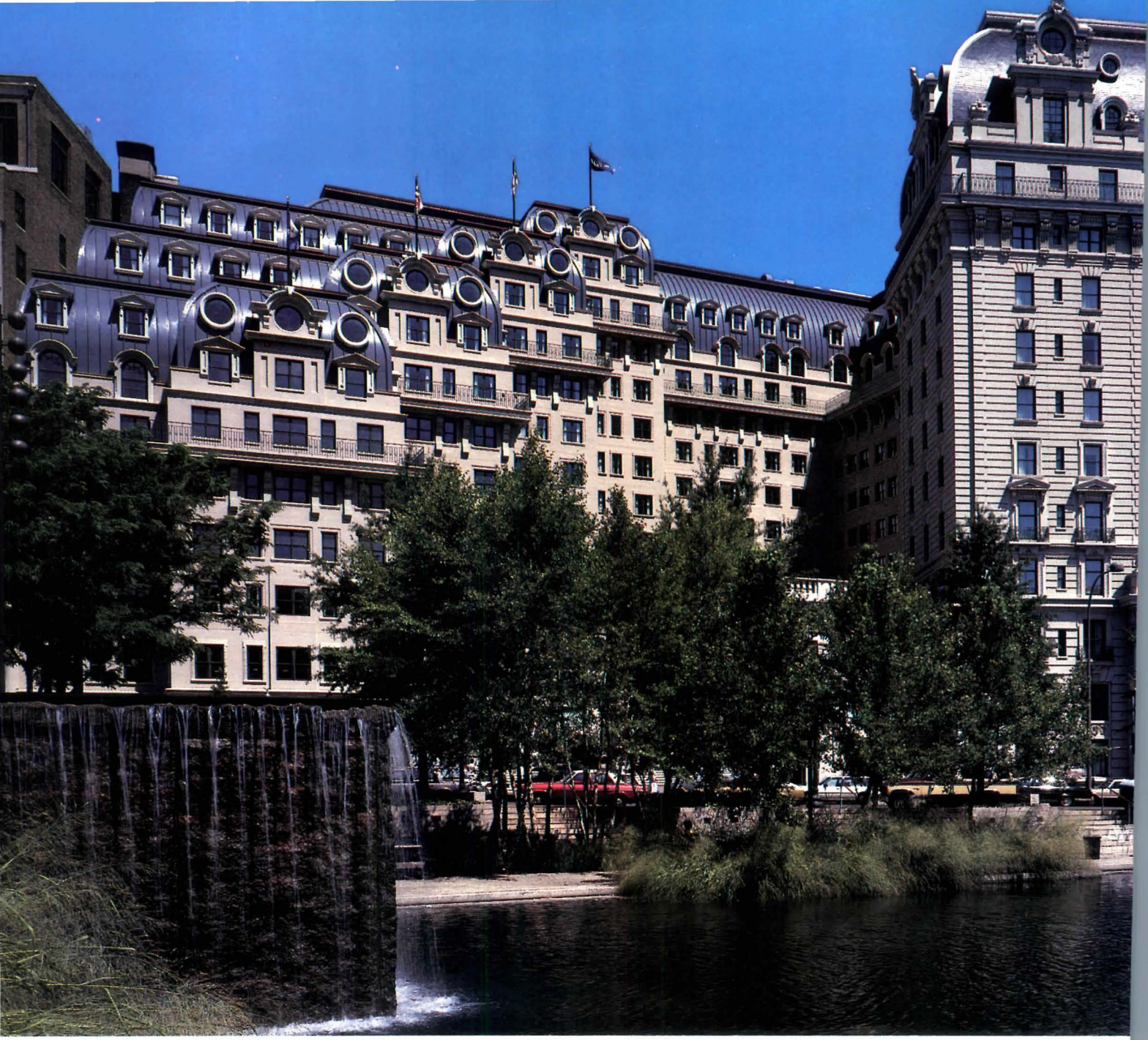
Beginning this past summer, the Federal Reserve has steadily firmed monetary policy. At first, it was primarily concerned with heading off any surge in inflation brought on by the acceleration in industrial output and the severe summer drought that hurt agricultural production. Late in the year, the Federal Reserve also acted to support the dollar, because the value tumbled immediately after the presidential election.

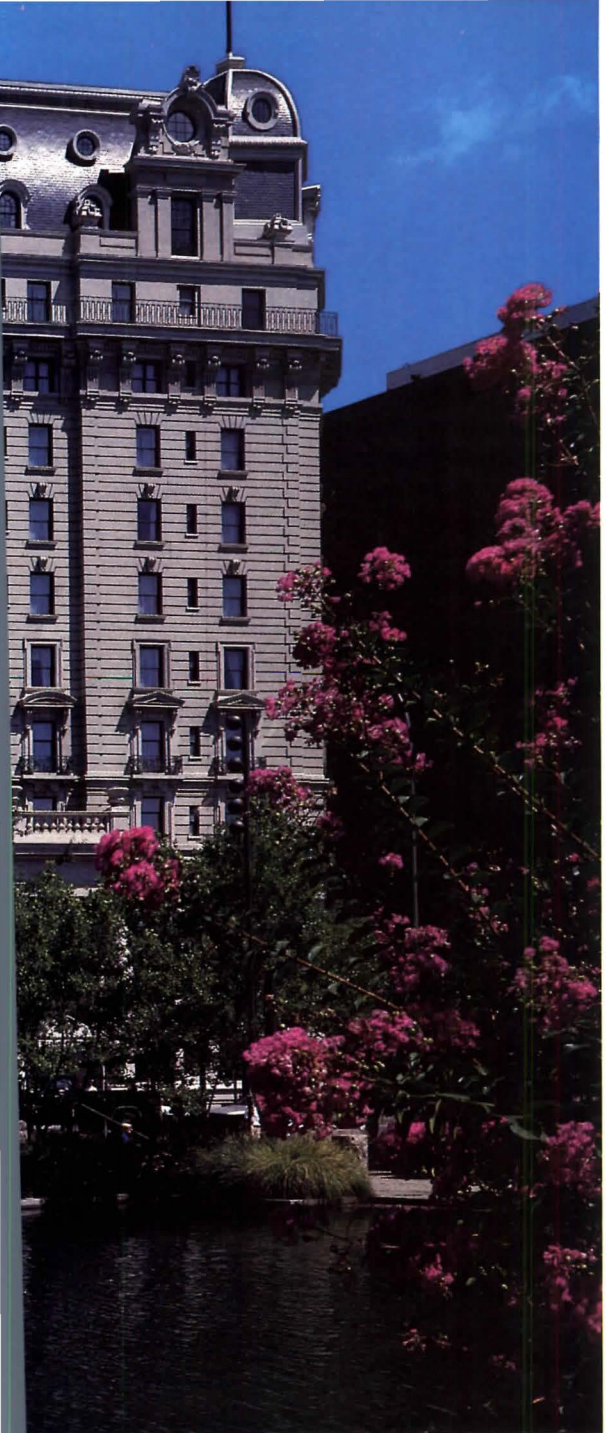
Inflationary tendencies are still present. Industrial production is strong and growing. Capacity utilization in many industries is at the point (85 percent or above), where attempts to expand output increase price pressures. Unemployment is low, meaning greater difficulties in attracting skilled and semiskilled workers for manufacturing. That could push wage rates upward. In addition, agricultural shortages, although farm output is on the rebound, are still raising food prices. Furthermore, foreign investors remain skeptical about the ability of a Republican Administration and a Democratic Congress to develop and implement quickly an effective federal-deficit reduction program. Consequently, the persistent forces for lowering the dollar's value will continue.

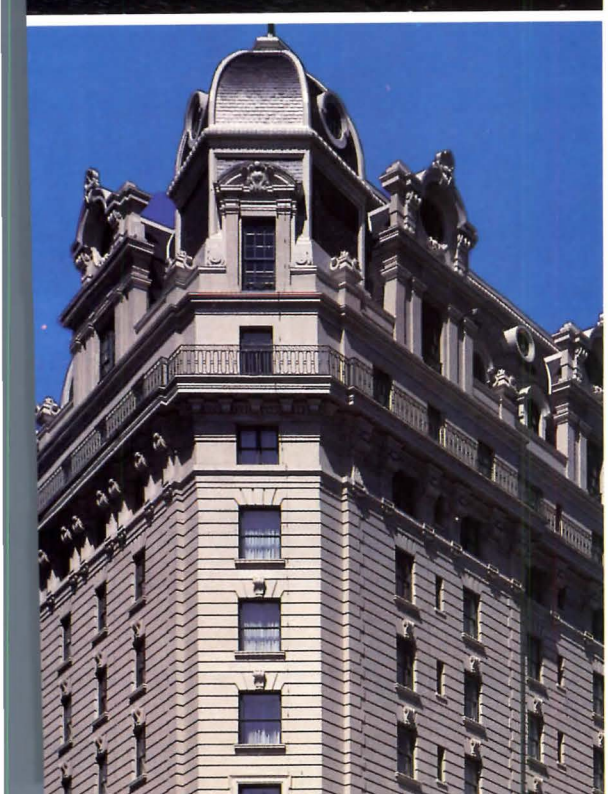
Meanwhile, several demand factors will be working with poor supply to push up intermediate- and long-term rates in the second quarter. The opening of the spring house-buying season is just a month away. Next, manufacturers are in the midst of enlarging capacity. However, their flow of internal funds (profits and depreciation) is falling, forcing them to borrow more to expand. And, federal assistance for troubled savings and loan associations will rise.

The firming of monetary policy, the ebb and flow of foreign funds, and our own poor savings performance will boost interest rates in the second quarter. The largest gains will occur in the intermediate- and long-term part of the yield curve. Rates on quality assets will range between 8.75 and 9.50 percent for short-term instruments; 9.50 to 10.25 percent for seven- to 10-year Treasuries; and 11.50 to 13 percent for mortgages.

The hike in mortgage rates will take some of the luster out of house buying, pushing starts down from current levels. Factory building will climb, but the pace will weaken slightly. And, higher rates will increase the problems in the overbuilt office and multifamily markets.







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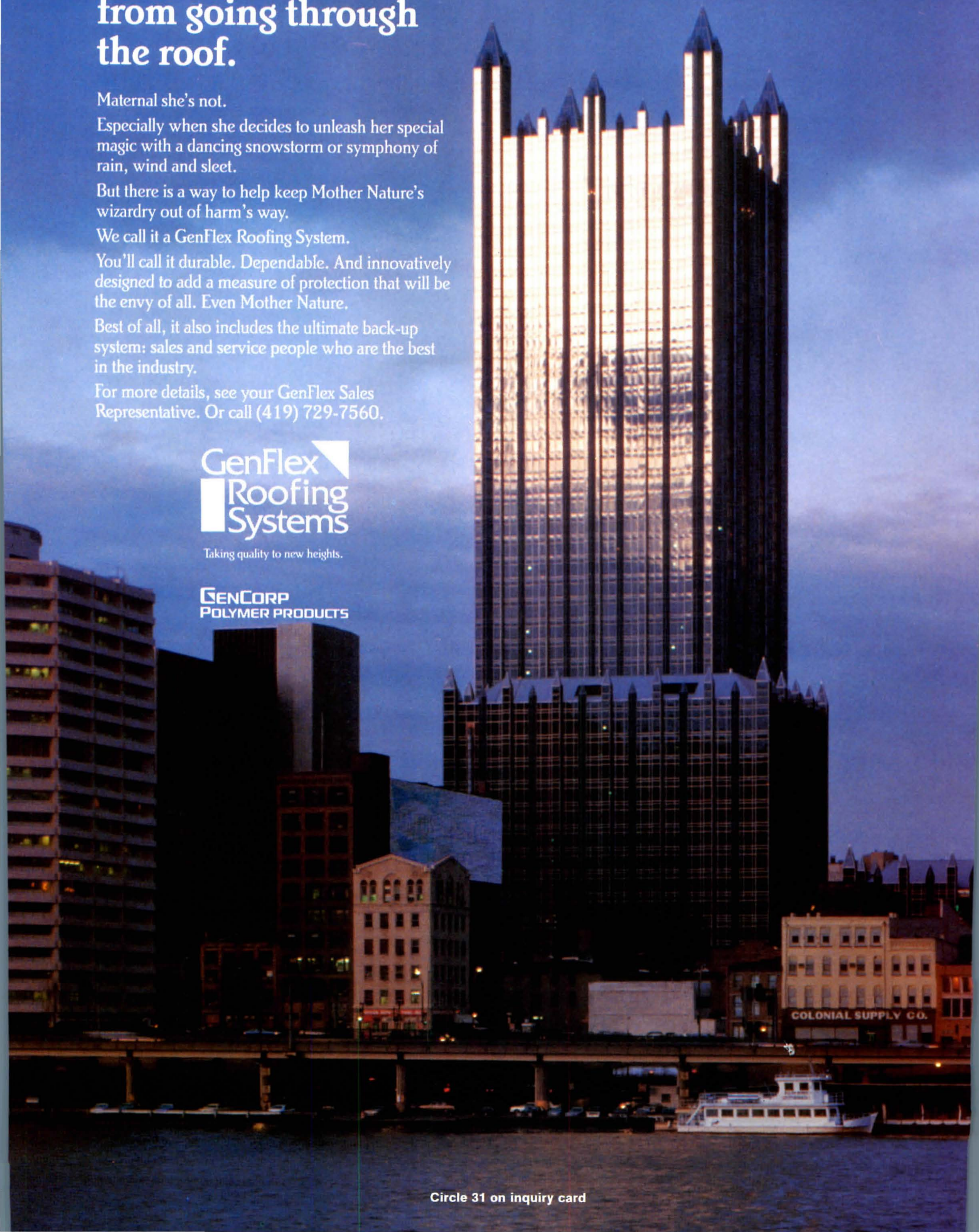


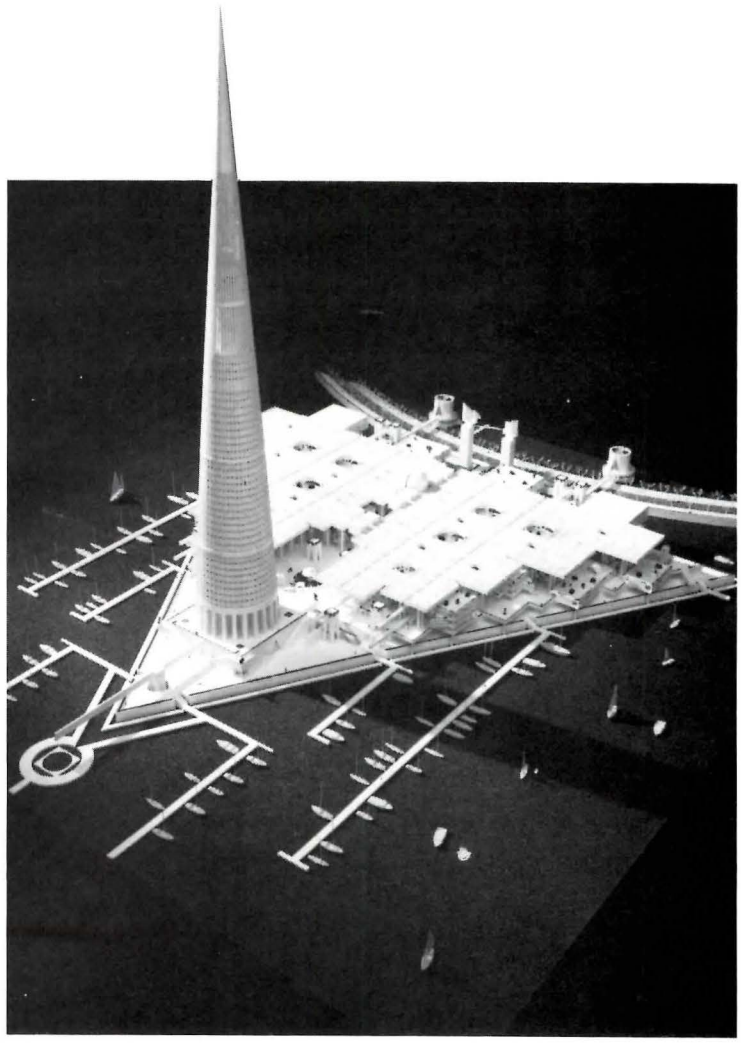
Circle 31 on inquiry card

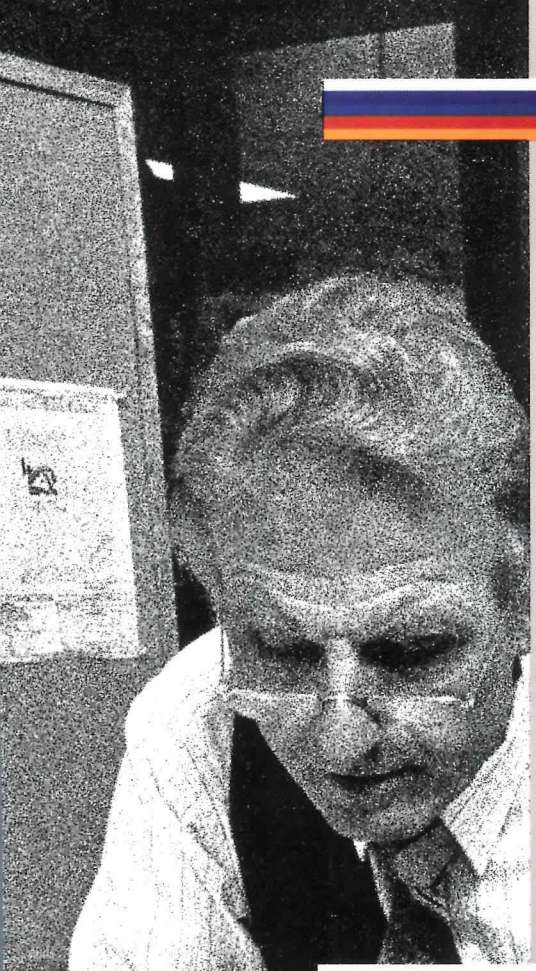
Landfall ho!

Around the Mediterranean, there have been no great manmade landmarks since the Colossus of Rhodes and the Pharos at Alexandria. But now the city of Genoa contemplates an 854-foot cone that would clearly announce the harbor's presence to seafarers. The urban planning complex, to be known as Il Porto Vecchio, was designed by John Portman and Associates at the behest of an Italian developer. Plans are to have the project in place by 1992, coincident with the city's exposition celebrating the 500th anniversary of the discovery of the New World by a Genoese sailor, as well as the opening of an economically united Europe and the dismantling of customs barriers between its nations.

Though the conical hotel tower is the most visible element of the design, the triangular island that would become the tower's podium and the new roadway that would curve across the water from the city's edge are urbanistically at least as important. The road, in addition to giving vehicular access to the podium, is intended as a pedestrian promenade serving both shore and island; the project would thus be rather less hermetic than some of Portman's other hotels. The podium will have six stories—the lower three for parking and other services, the upper levels incorporating two- and three-story office buildings and shops connected by pedestrian arcades. The entire podium will be covered by a pierced concrete sunshade.

The project will include two other major elements. One will be a university of humanities—four floors of lecture halls covered by a sculptural roof jutting into the harbor. The second will be an elliptical aquarium bounded by the shore and the curved roadway; pyramidal skylights protruding from the water will illuminate the submerged facility.





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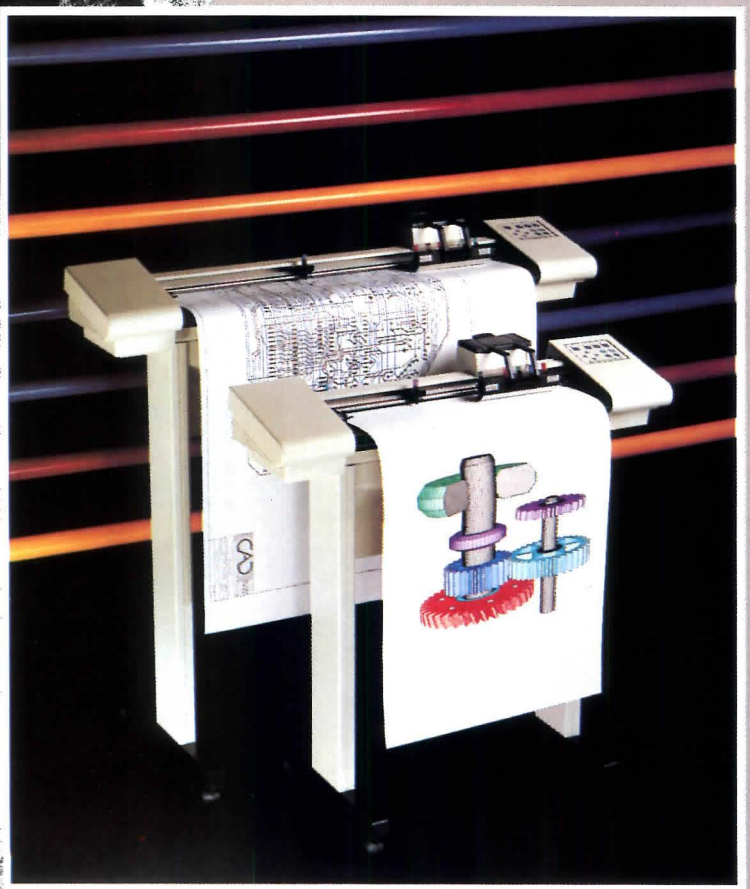

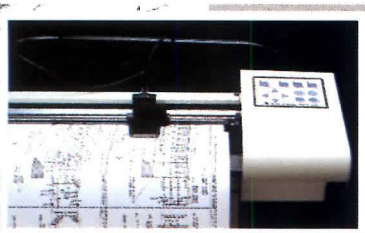

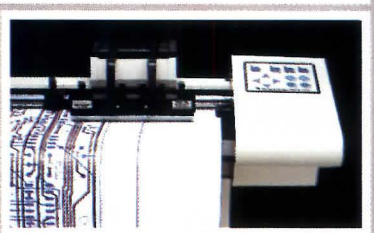

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News briefs

Charles W. Moore will receive this year's Topaz Medallion for Excellence in Architectural Education, awarded by the AIA and the Association of Collegiate Schools of Architecture. Besides designing a distinguished body of architecture, Moore has served on the faculties of Princeton, Yale, the University of California at Los Angeles and Berkeley, and the University of Texas at Austin.

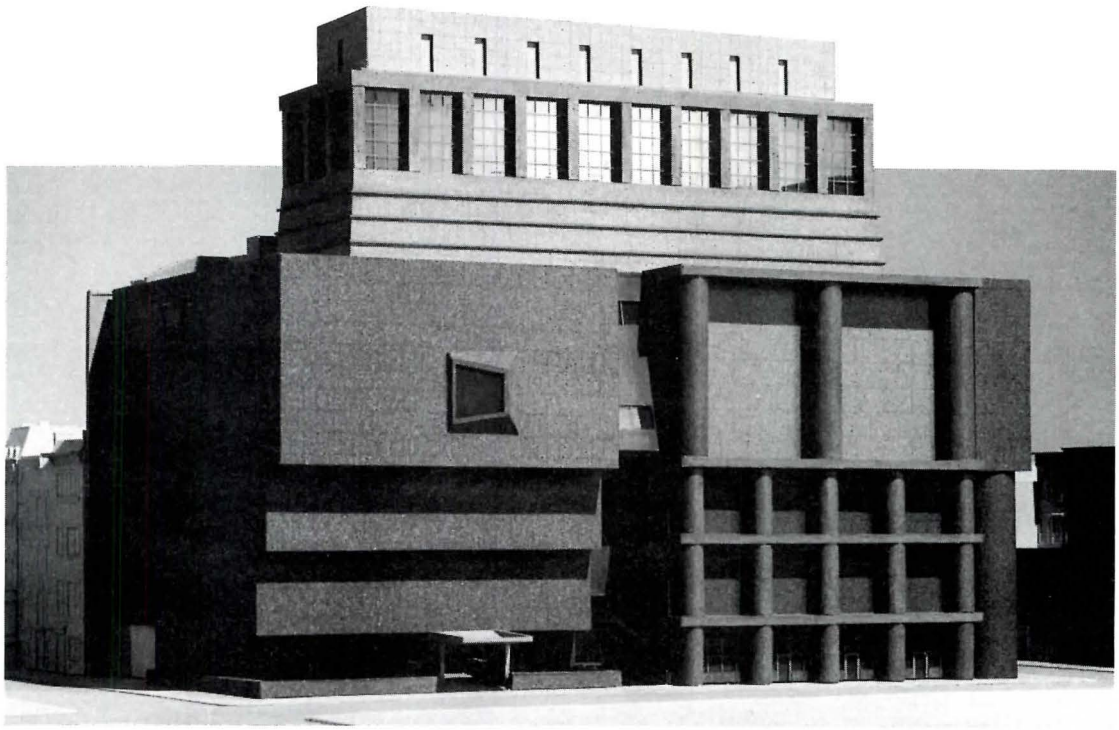
The End. Even the least bookish New Yorker loves the bronze and glass front of Scribner's Book Store on Fifth Avenue. But the building's owner recently tripled the rent, and the store closed in January. The city had already declared Ernest Flagg's facade an architectural landmark, and the elaborate interior, wholly visible from the sidewalk, will come before the landmarks commission shortly.

Construction as performance art: *Moving Circles*, a steel and wood sculpture, will be installed in a two-and-a-half-day performance at the National Building Museum in Washington starting April 6. The sculpture, by artist/journeyman carpenter Linda Wysong, will combine "the choreography of construction and the strong geometry of the completed structure."

Group One Design, a joint-venture architectural/engineering firm comprising Perkins & Will, Heard & Associates, Inc., and Consoer Townsend Associates, has been comissioned to design Terminal 5, the permanent International Terminal at Chicago's O'Hare International Airport.

Senator Daniel Patrick Moynihan (D.-N. Y.), known as an architecture buff, will receive the third annual Honor Award of the National Building Museum. The citation particularly mentions the senator's introduction of the Public Buildings Act, the Rebuilding of America Act, and the National Infrastructure Development Act.

Third time's a charm, maybe?

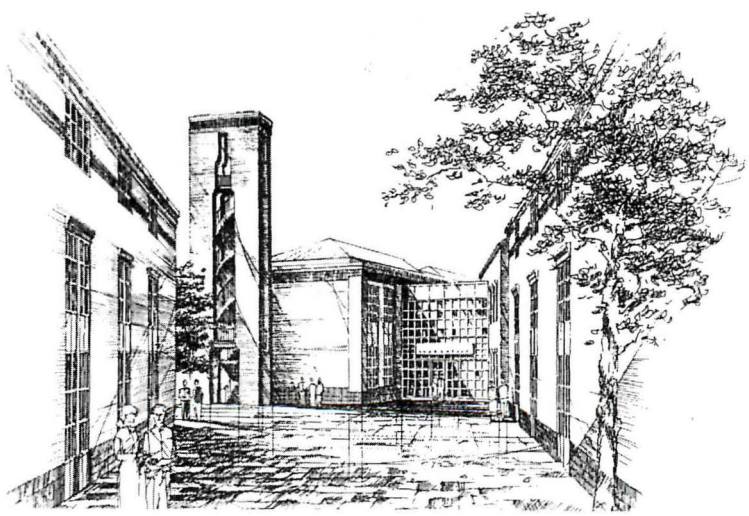


For the third time since 1985, architect Michael Graves has designed an expansion for the Whitney Museum of American Art in New York City; in the face of clamorous criticism, the client had requested the redesigns [RECORD, October 1985, page 113, and April 1987, page 45]. Graves describes this design as "less figurative and more abstract" than the earlier ones, and certainly it defers more to Marcel Breuer's original next door. Gone is the trapezoidal cartouche on the Madison Avenue facade, and gone is the "hinge" between the wings. Instead of the cartouche, gray granite cornices supported by red granite colonnades match Breuer's setbacks. And instead of the hinge, a deep recess separates old and new and marks the Breuer stairway, the effacement of which had been a major source of earlier criticism.

Competition calendar

•The National Peace Garden in Washington, D. C., will occupy four acres along the Potomac River south of the Jefferson Memorial. A design competition, sponsored by a private citizens' group and partly funded by the National Endowment for the Arts, will be open to all designers who are citizens or bona fide U. S. residents. Registration forms are due by May 26, and proposed designs will be due August 25. For information: Paul D. Spreiregen, Professional Advisor, Peace Garden Design Competition, P. O. Box 27558, Washington, D. C. 20038-7558.

Think tank expands for neuroscience



The Cold Spring Harbor Laboratory on Long Island, New York, known for biotechnological research, plans a three-phase expansion of its campus to accommodate neuroscientists. Designed by Centerbrook Architects, who planned earlier facilities here, Phases I and II will include site work and a 150-car parking garage. Phase III, scheduled for construction in 1990, will incorporate a 32,000-square-foot lodge for visiting scientists and a 44,000-square-foot laboratory. The new facility will cost an estimated $16 million.

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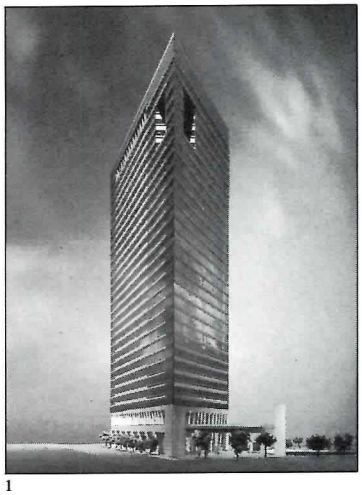
News briefs



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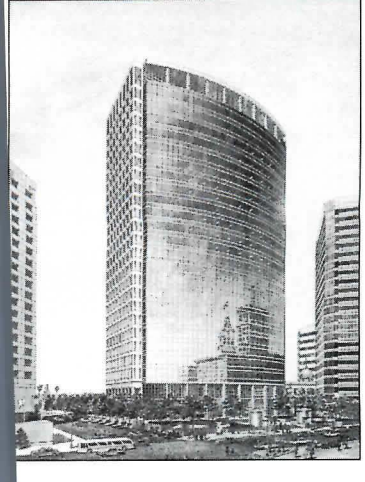


After many years of building office towers higher and higher—50 stories and up—the American business community seems prepared to settle, at least temporarily, for more modest 20- and 30-story skyscrapers.

515 North State Street in Chicago (1), designed by Kenzo Tange with Shaw and Associates, Inc., as coordinating architects, will become the headquarters of the American Medical Association when it opens in 1990; the AMA will move from the Chicago headquarters it has occupied since 1902. The new 30-floor glass and aluminum building will be the first phase of a large multiuse complex planned for the North Michigan Avenue-River North area, a district seen as a new neighborhood by the developers, the John Beck Company and Miller-Klutznick-Davis-Gray Co.

U. S. Trust Corporate Headquarters (2) will occupy a building now under construction on a midblock site in Manhattan's booming West Side business district. Architects Fox & Fowle, quite conscious of U. S. Trust's "image of understated dignity," designed a 25-story building of gray granite and two colors of iron-spot brick flanked by a pair of towers with zinc-clad domes. The building, developed by the Durst Organization, will be completed later this year.

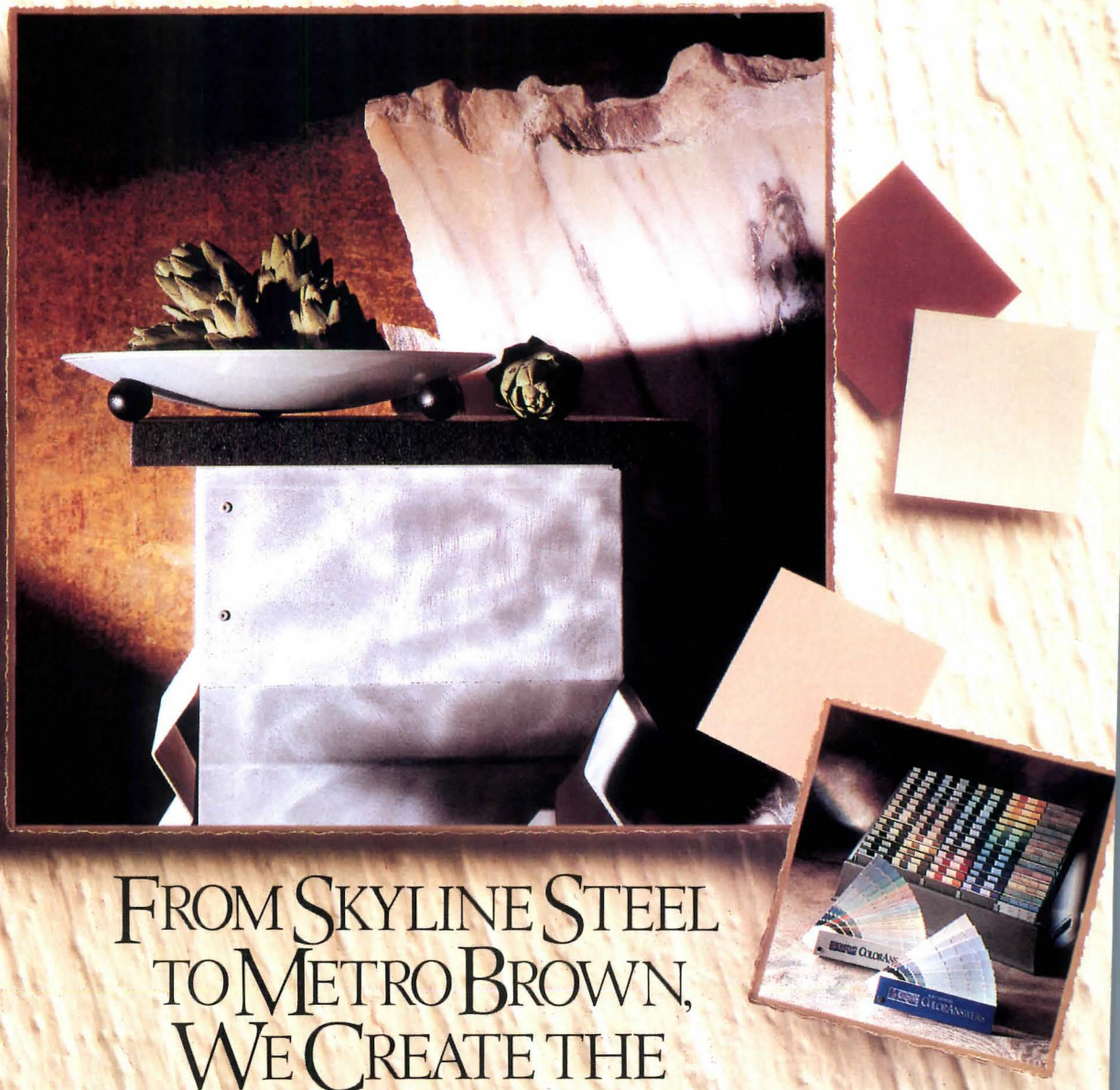
1111 Broadway, in Oakland, California (3), designed by Gensler and Associates/ Architects, will have a 5-foot-high granite base echoing other structures in the 10-block City Center. Three sides of the 25-floor tower will be faced with precast stone, while the east elevation will have a curving facade of blue-green glass. Scheduled for 1991 occupancy, the building, developed by Bramalea Pacific of Oakland, will have the American President Companies as its major tenant.

Up-to-date old-fashioned stylishness

Like a well-tailored garment, New York's beloved Plaza Hotel has weathered many alterations for size and fashion. Now its newest owner, Donald Trump, has commissioned two architects for still another set of alterations: Hardy Holzman Pfeiffer Associates for exteriors (rehabilitation and roof additions) and Lee Harris Pomeroy Associates for interiors (new guest rooms and operating facilities and restoration of the lobby and other public spaces).

Roof alterations, which will modify proportions on the 59th Street facade, are the changes most likely to attract objections from preservationists (see small photo for "before" and large one for the rendered "after"). Guest rooms on the upper floors will occupy former servants' quarters and will add a 19th floor of bedrooms for duplex suites. HHPA will enlarge dormer windows and add new ones, and will lower the top of the mansard to open views for new fenestration.

Most of the alterations, however, will try to undo recent "improvements" to Henry Hardenbergh's 1907 original and Whitney Warren's 1920 additions. Pomeroy's in situ researches have already revealed carved and gilded ceilings above the banal dropped ceiling, and HHPA will re-create the tall ballroom windows that used to grace the 59th Street facade.



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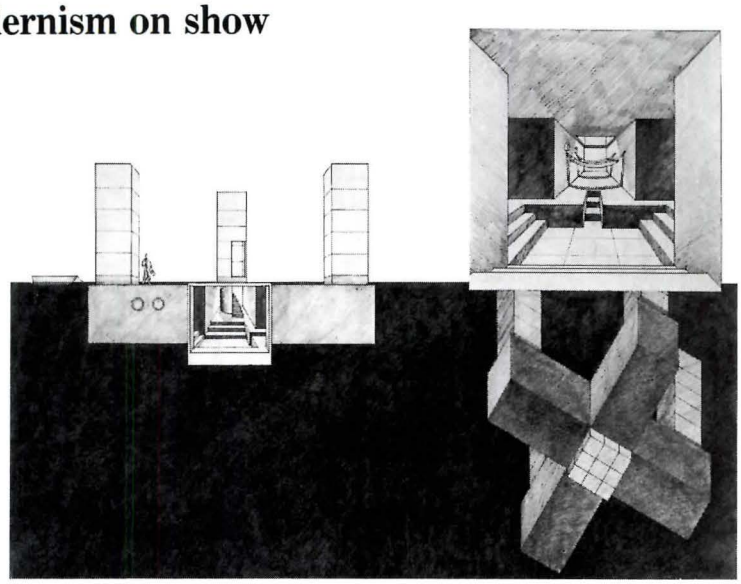
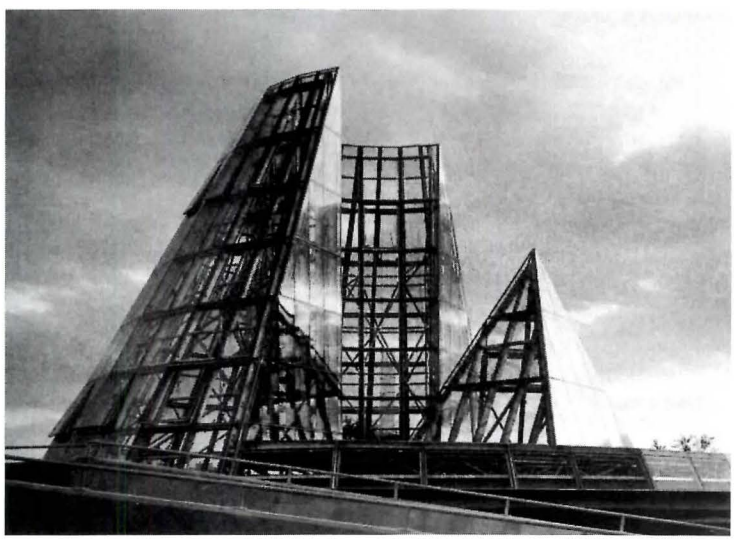
The new faces of Modernism on show





In a current exhibit, New York City's Museum of Modern Art overleaps such architectural movements as Postmodernism and Deconstructivism. Rather, it sees in the works of Emilio Ambasz and Steven Holl an effort to "revitalize the mythopoetic side of Modernism."

"Emilio Ambasz/Steven Holl: Architecture," the fourth in MoMA's Gerald D. Hines Architecture Program, can be seen through April 4. Each architect is represented by 15 projects, both completed and visionary. The curator, Stuart Wrede, director of MoMA's Department of Architecture and Design, feels that "both architects have been drawn to the Modernist tradition that sought inspiration in the anonymous and primitive vernacular." And he adds that both "have retained a sense of social idealism."

Moreover, "it is probably not a coincidence that each has designed 'mythic retreats' placed below the earth's surface." One example of this proclivity is Holl's design for an underwater house in St. Tropez (top left). Though four glass-block towers rise above the water, the building floats just below the surface so that its tenant must wade from his dory to the entrance tower (see section). Ambasz's design for the Lucille Halsell Conservatory in San Antonio (bottom left) is only partially underground, the glass greenhouses emerging from the earth to surround outdoor gardens.

Differences in architectural personalities can be discerned in each architect's influence on presentation. Ambasz's projects, for instance, include seductively romantic models of landscapes into which buildings insinuate themselves, while Holl punctuates his collection with samples of real materials and real details used in real projects.

Affordable offices

Greater Boston Community Development, Inc., is a nonprofit developer of affordable housing and a consultant to similar corporations. One of its major areas of expertise entails the weaving together of available public monies with affordable private loans. For the renovation of 95 Berkeley Street, which GBCD will develop as affordable long-term offices for itself and other nonprofit groups, it assembled funds that include borrowed money from six lenders, both public and private, and outright grants from seven foundations, as well as some of its own corporate funds.

Architects for the renovated building are ADD Inc., who plan cleaning and restoration of the patterned masonry exterior. The interior, which will be entirely gutted, will contain office floors as well as facilities to be shared by the tenants: conference rooms, training rooms, reception areas, kitchens, and lunch rooms, as well as a 1,000-square-foot deck at the third level. A 36-car parking garage will be located in the basement.

The $17.3-million building, sited within walking distance of the Back Bay railway station, is scheduled for completion later this year.

Superluxury hotel

For a consortium of New York, Hong Kong, and Tokyo investors and hoteliers, I. M. Pei & Partners have designed the Regent of New York, a hotel whose rooms will rent for a reported $400 a night. The 46-story building, on Manhattan's East 57th Street between Madison and Park avenues, will have a limestone tower with floor-to-ceiling windows illuminating extra-large rooms. To be managed by Regent International, it is scheduled to open in late 1991. Associate architect is Frank Williams & Associates; John F. Saladino will design the guest rooms.

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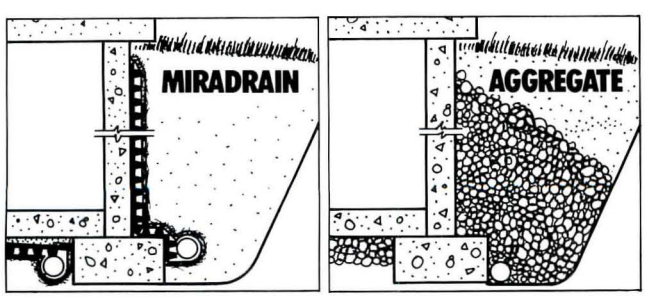

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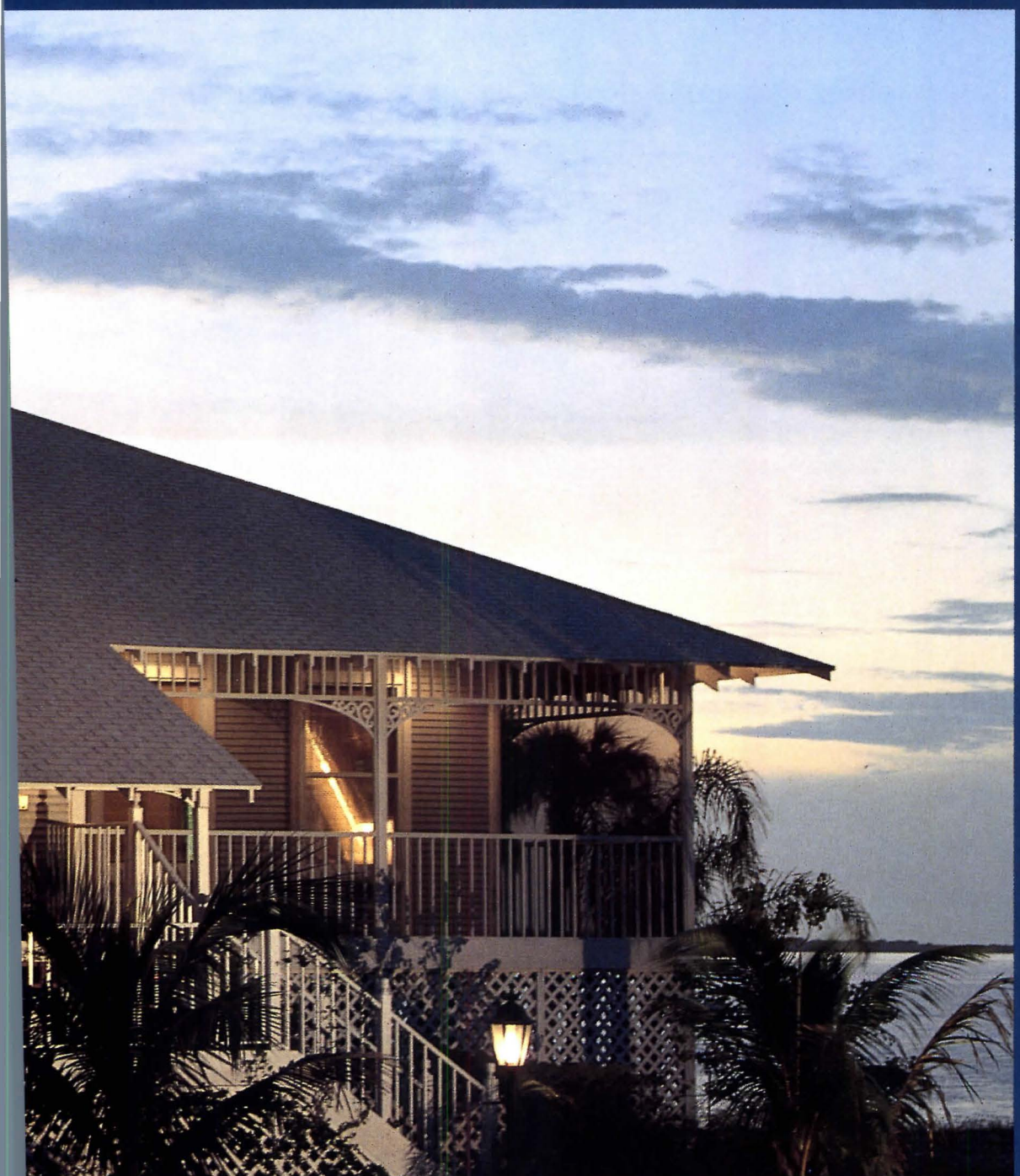

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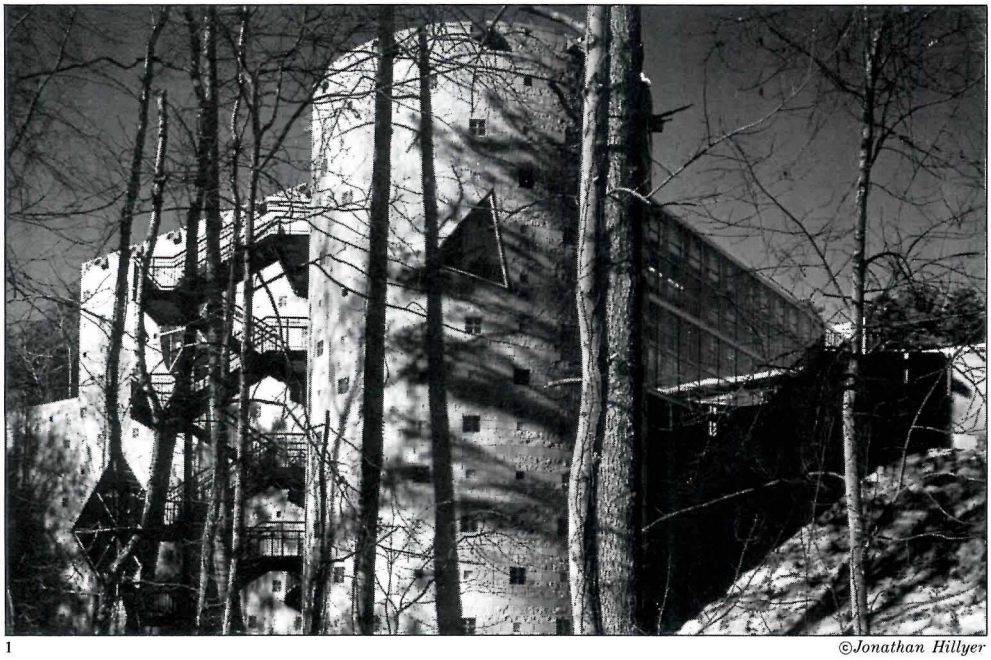
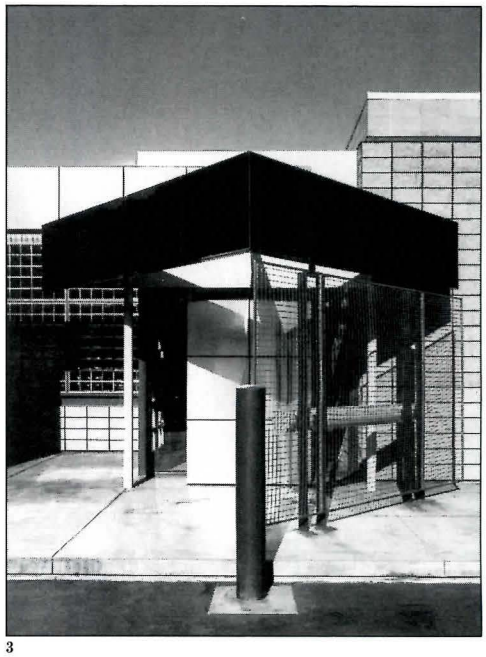
Design awards/competitions: The Georgia Association/AIA 1988 Design Awards

In its 1988 Design Awards Program, the Georgia Association of the American Institute of Architects commended eight buildings. Of the eight, only two were Awards for Excellence in Architecture—and both of them went to the same firm: Lord & Sargent, Inc., of Atlanta.



1 ©Jonathan Hillyer

2 Gordon Percy



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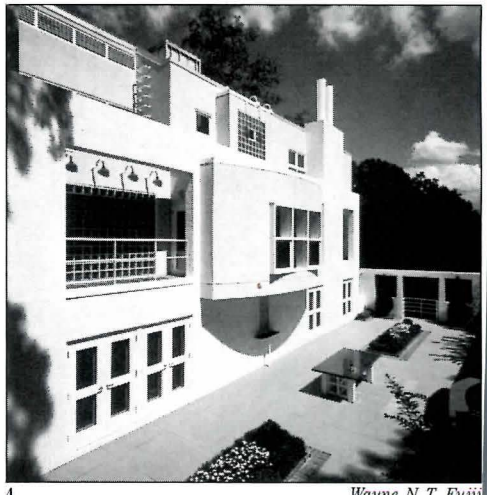


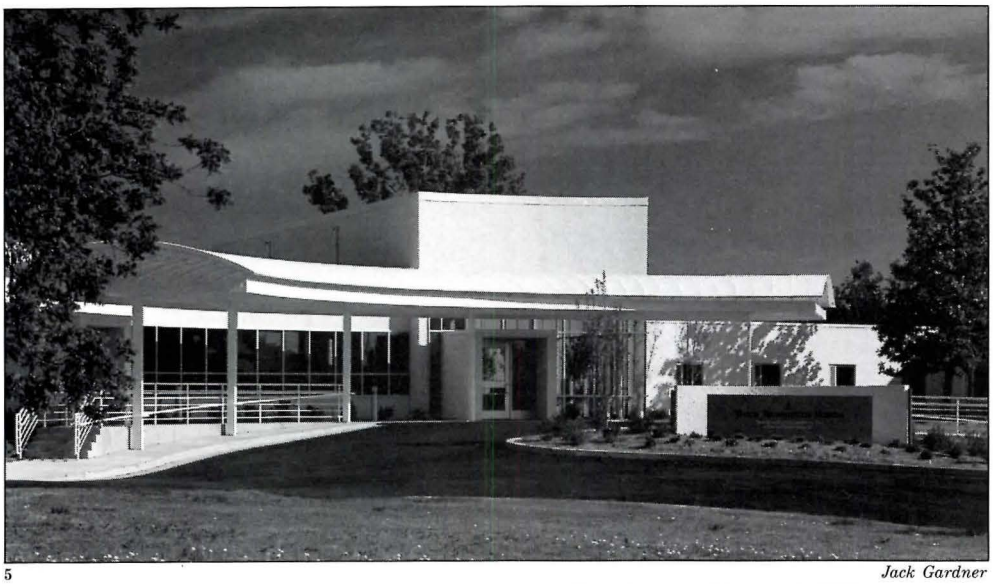
4 Wayne N. T. Fujii

1. Trinity School, Atlanta; Lord & Sargent, Inc., Architects (Award for Excellence in Architecture). The private school needed two additions—one for performing arts and assemblies, the other for administration—as well as playground space [RECORD, August 1988, pages 94-99]. Moreover, a 40-ft-deep ravine divides the site. The architects designed the building to create a "Kindergothic environment" of bridges and ramparts. "Controlled chaos," the jury enthused. "Marvelous imaginative mix of contemporary imagery," it added. "An exuberant composition of basic forms . . . with some truly original twists. A happy, optimistic place about which kids can develop affection and memory."

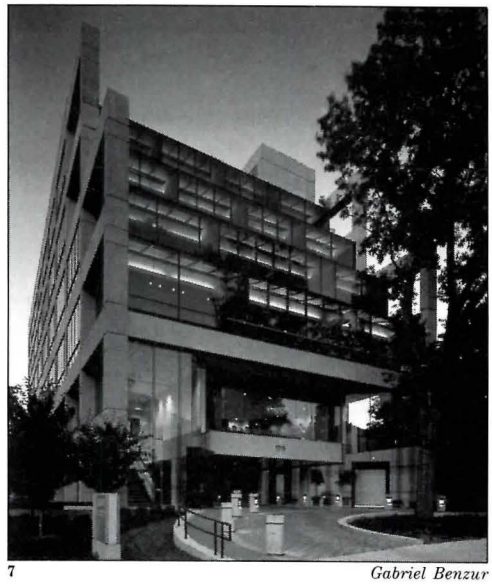
2. Delta Airlines Marketing and Reservations Office, Salt Lake City; Lord & Sargent, Inc., Architects (Award for Excellence in Architecture). For an essentially utilitarian building with a six-month schedule from design to occupancy, the architects concentrated on the double brick wall for sound control to protect 350 agents on telephones within. "An extraordinary gift wrapping for an ordinary box . . . . The few sculptural objects standing free of the big box provide rich counterpoint. The brick striations, geological in feeling, were inspired."

3. Young Architect Award went to Richard Rauh & Associates/Architects, of Atlanta, for four completed buildings (including the Atlanta computer-product showroom for Micro Mart shown above) and two projects. The award may be given, at the discretion of the jury, to a young architect with no more than five years in practice. Remarking that the firm had two buildings in serious contention for major awards, the jury commended the architect's "versatility and diversity" and thought that "the work shows quality and much promise for the future."

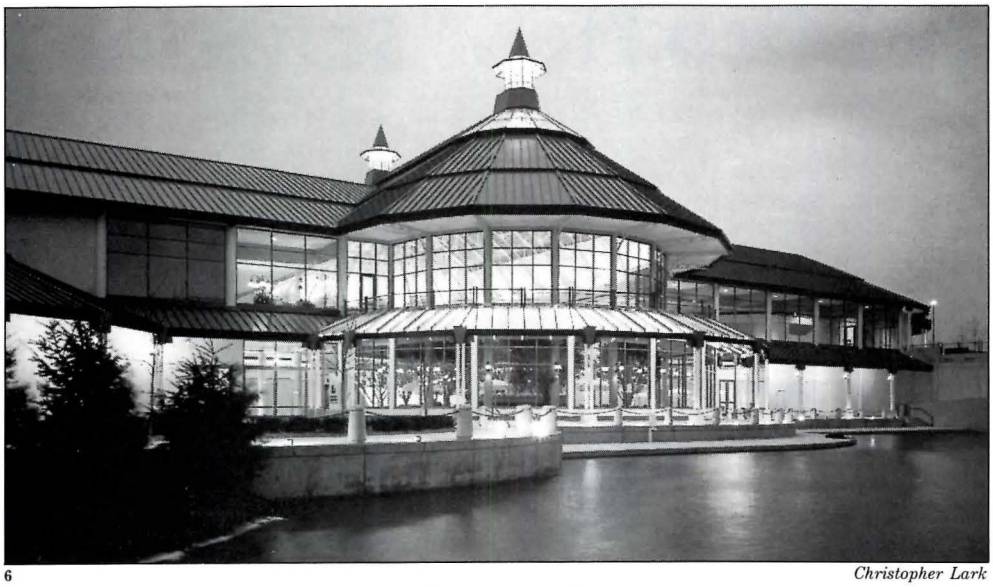
4. Hulse House, Atlanta; Anthony Ames Architect (Citation). The four-story house, built of stucco and glass block on a narrow site, reflects the architect's admiration for early 20th-century architecture as embodied in the Bauhaus School and International Style. The jury found the design "thoughtful and rich . . . a tour de force in late Modernism," and "a sophisticated [and well-detailed] exercise in plan and spatial manipulation."



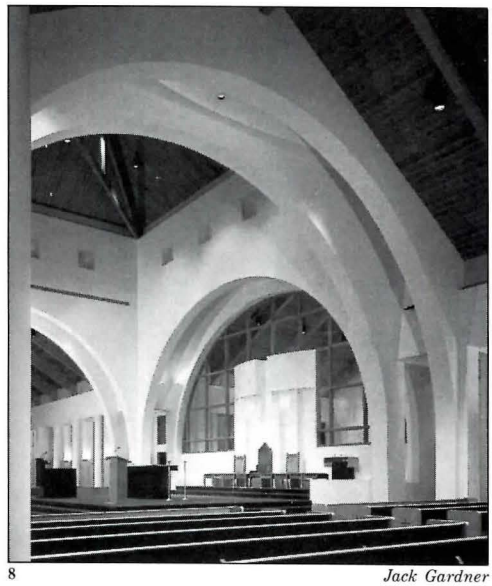
5 *Jack Gardner*



7 *Gabriel Benzur*



6 *Christopher Lark*



8 *Jack Gardner*

5. Walton Rehabilitation Center, Augusta, Georgia; Nix, Mann and Associates, Architects, with The Woodhurst Partnership/Elmer L. Perry, Jr., AIA, associated architects (Citation). The hospital comprises both a recycled building and an addition, the two "stitched" together with a curved fabric canopy and a new vocabulary of materials including white-painted brick and green-tinted fenestration. "Unpretentious, light in spirit, a mild, appropriate scheme, refreshing contrast to devious historical exercises which are common today," was one jury comment. "The yellow airplane wing at the entrance takes it out of the mundane, despite an obviously low budget . . . . "

6. The Mall at Lexington Green, Lexington, Kentucky; Cooper Carry & Associates, Architects (Citation). For this specialty food center with restaurants and shops, the architects drew on Lexington's equestrian imagery, using white cupolas, a high turquoise "horse barn" roof, and flooring patterns derived from racing silks. The jury commented on the "beautiful public space, both warm and lively," and thought this was "festive retail at its best . . . the overall spatial feeling of the great halls revives the best of the 19th century."

7. 1315 Peachtree Library/ Office Building, Atlanta; Thompson Ventulett Stainback & Associates, Architects (Citation). A mixed-use building, for which the county provided the land and the developer provided the building, has parking at ground level, a library on the second floor, and offices on the upper stories. Referring to the "strong concept on a site slightly too small for it," the jury said the building had "perhaps *the* strongest parti in the submissions . . . treats the automobile with refreshing dignity."

8. St. Andrew's Parish Church, Roswell, Georgia; Nix, Mann and Associates, Inc., Architects (Citation). The church and its education building occupy 14 acres of farmland. The sanctuary was planned as a Greek cross for liturgical reasons, drawing the congregation's attention to the altar. The jury commented that "the crossing of the nave is a powerful space," and called the church "a lesson in Italian Renaissance facade design . . . a study in diminished classical vocabulary in plan and elevation."

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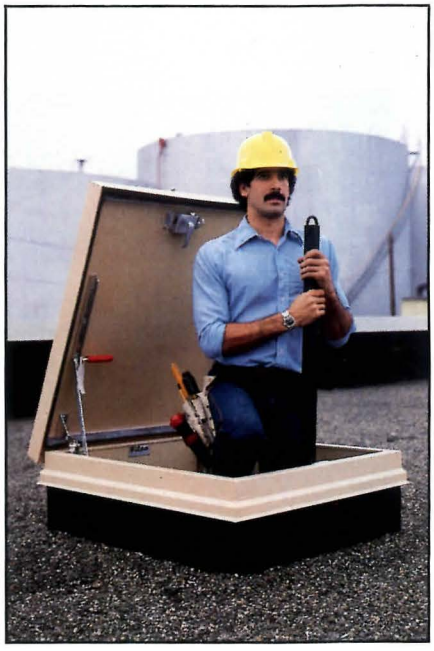

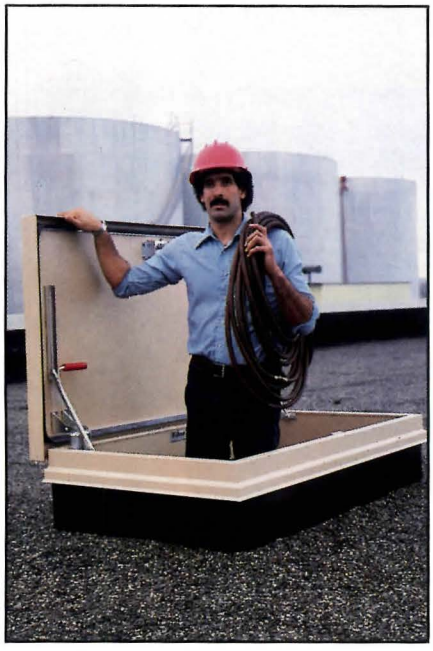

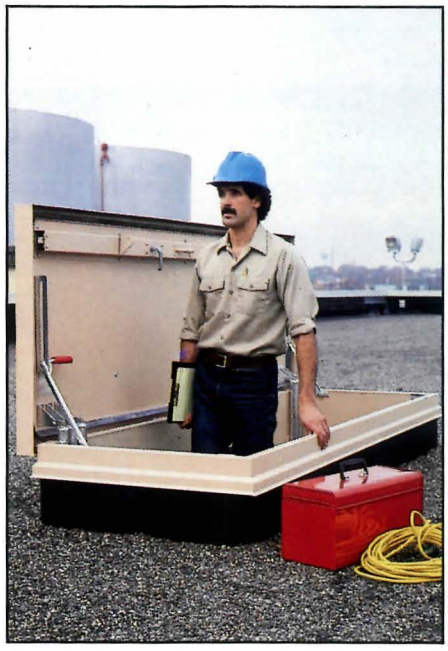

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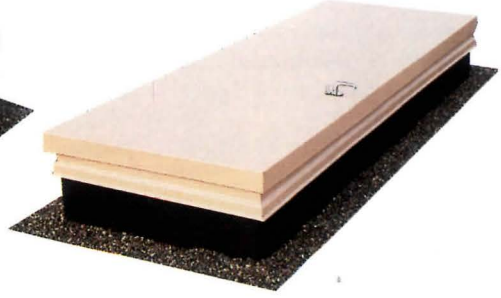

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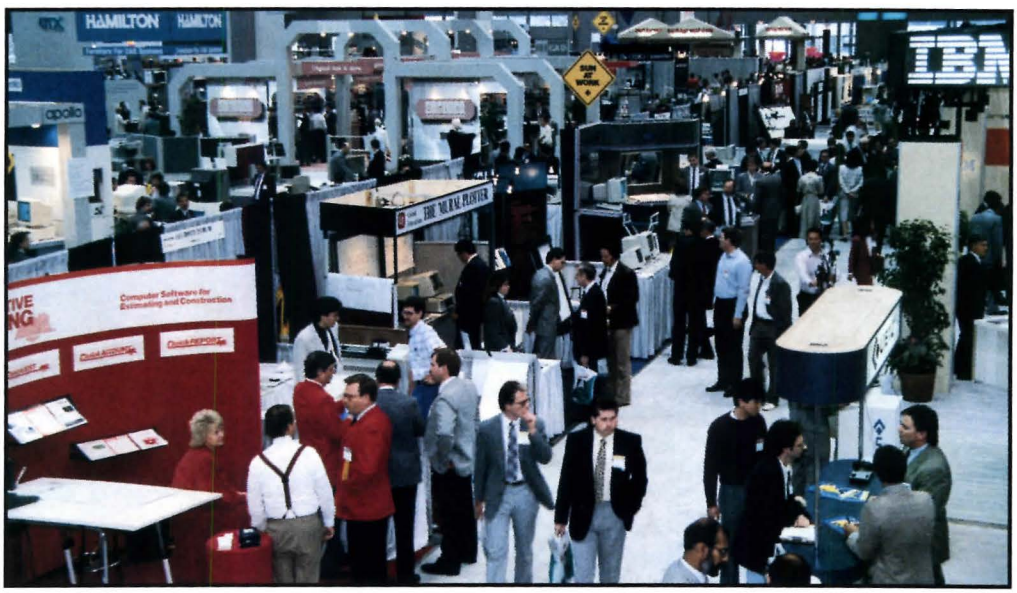

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Tuesday, June 6

8:30 a.m.

The Future of Personal Computing in Design and Construction
Moderator: Steven S Ross
Architectural Record

Making CADD Work through Effective Management
Moderator: David A Jordani, AIA
David A Jordani & Associates

System Compatibility: Translators, Interfaces and Other Exchanges
Moderator: Kristine K Fallon
Computer Technology Management Inc.

Automating the Marketing Function for Maximum Effectiveness
Moderator: David Dretzka, PE
Catalyst Marketing Group

How to Select Project Management Software
Moderator: Marsha D Lewin, CDP, CSP, CMC
Marsha D Lewin Associates, Inc.

Using Computers in the Small Contractor's Office
Moderator: Randy Blake
Southern California Chapter ABC

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Wednesday, June 7

8:30 a.m.

Computer Integrated Design: The Real Payoff
Moderator: Thomas R Fisher
Progressive Architecture

Future Directions in MicroCADD
Moderator: Eric Teicholz
Graphic Systems, Inc.

How Computers Help Small Firms Compete
Moderator: Charles Carroll, Jr, FCSI
Carroll Associates

Maintaining Effective Management Controls
Moderator: Clare G Ross
A/E Business Review

Artificial Intelligence and Expert Systems in Design and Construction
Moderator: Elizabeth Bollinger
University of Houston

Contractor Profits from Integrated Job Cost Control Systems
Moderator: Carleton Coulter III
JAC Ltd.

12:00 Noon

Developing Office Standards and Procedures for CAD Management
Michael K Schley
FM:Systems

The Computer-Assisted Design Charrette: Planning a New Town in Seven Days
Mark M Schimmenti
Andres Duany & Elizabeth Plater-Zyberk

Plotting for Results: Solving the CADD Bottleneck
R Darrell James, PE
Barge, Waggoner, Sumner and Cannon

Personal Computers for Design Office Principals
Frank Mascia
Collaborative Design Group

How to Recruit and Retain CADD Personnel
CM "Chuck" McReynolds
CM McReynolds

Computer Generated Animation f Architecture and Urban Design
Tsuyoshi Sasada
Osaka University

New Tools for Specifiers
Timothy F Kirby, AIA Assoc., CSI
Ventulett, Stainback & Associates Architects

Thursday, June 8

:00 p.m.

Computer-Assisted Architecture: Advanced Techniques in Computer-Aided Design
Gary S Whitney
The Whitney Group

Scanning, Laser Plotting, Macro-Retrieval Systems and Reprographic Integration
Moderator: James C Gaither, Jr
The DuPont Company

Building Computer-Aided Facilities Management Databases
Bruce Kenneth Forbes
Jung/Brannen Research & Development Corp.

Computer-Aided Engineering for Civil and Structural Design
Christopher J Holt
Envirodyne Engineers

Building Modeling and Procedural Design: A Punchlist for the '90s
Ben Sanders, AIA
Beason Pomeroy Associates

The Use of Computers in Japan
Muneki Ikegami
JUS Inc.

Change Estimating: Conquering Cost Overruns
Michael W Curran
Decision Sciences Corporation

Developing Integrated Drawing and Product Information Data Bases
Charles Chief Boyd, FCSI, CCS, AIA
The Boyd Group

8:30 a.m.

CAD: On the Threshold of the '90s
Moderator: E Forrest, PE
A-E-C AUTOMATION NEWSLETTER

Structuring CADD Layering: Tips for Success
Moderator: Michael K Schley
FM:Systems

Graphic Workstation Trends for the '90s
Moderator: Daniel S Raker
Design & Systems Research, Inc.

Using Computers in Power & Process Engineering
Moderator: Nadine Post
ENR

CAD for Contractors: It's Here
Moderator: Glenn P Williams, PE
Wayne Homes, Inc.

Innovative Uses for Personal-Computers in Construction
Moderator: Craig Savage
Savage Co.

12:00 Noon

Marketing Your CAD Capability
Mark F Thomas
Everett I Brown Company

Using CADD in the Small Firm: A Case Study
W Millet Salter
W M Salter & Associates, Inc.

Computers in the Engineering Office: A Case Study
Blake R Eckerle
Cash & Associates Engineers

Automated Scanning for Design and Facilities Management
Richard D Schulman
AUDRE, Inc.

Finding New Uses for Computers
Moderator: Oliver R Witte
Management Consultants

Desktop Publishing for A/E's and Contractors
Sharon Reynolds
Fluor Daniel, Inc.

Program subject to change

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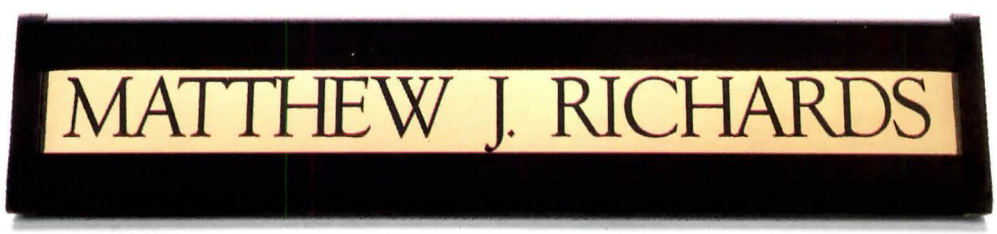

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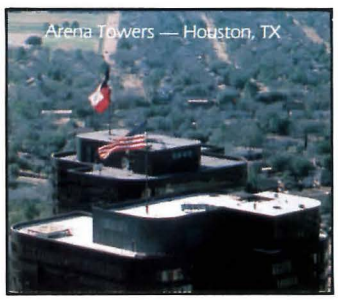

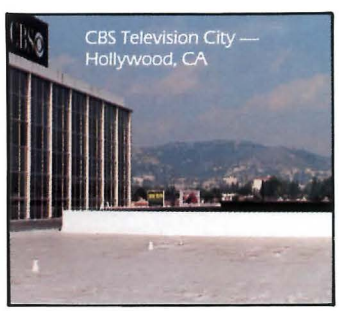

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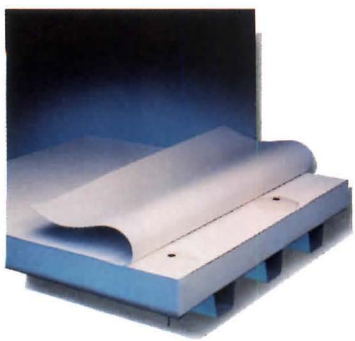

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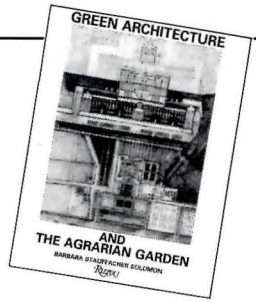
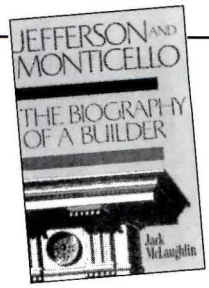




Green Architecture and the Agrarian Garden, by Barbara Stauffacher Solomon. New York: Rizzoli, 1988, $40.

Reviewed by
Margaretta J. Darnall

Barbara Stauffacher Solomon has been well known since the 1960s for her architectural graphics and signage, including the ram's horn logo for Sea Ranch, in California. In the 1980s she has turned her attention to repairing the split between architects and landscape architects that she claims occurred in the 18th century. This is the subject of *Green Architecture and the Agrarian Garden*, an expansion of her earlier publication, *Green Architecture: Notes on the Common Ground* (1982), which accompanied an exhibition of her drawings at the Walker Art Center in Minneapolis. While building on the earlier catalog, the new volume is presented as a notebook in which the graphic layout (complete with blue-pencil construction lines) and typography, as well as sketches and the text, are all by Solomon.

In separate sections the author looks at historic origins, meanings, and present-day implications of formal garden planning, ideas of the picturesque, and the nominally undesigned agrarian landscape, summarizing her points in sketched 1-inch by 1-1/2-inch matrices. These grids of little drawings, in which trees and columns are virtually indistinguishable, are reminiscent of the registers of architectonic types in the early 19th-century theoretical work of Jean-Nicolas-Louis Durand.

Solomon's work as a graphic designer has made her acutely aware of the abstract patterns visible in both gardens and agriculture. She analyzes magnificent historical examples of geometrically formal garden designs in such wonders as the Villa Lante, in Italy, and Ancy Le Franc and Marly, in France. Examples of picturesque garden planning are shown at Castle Howard and Rousham, in Britain, Ermenonville, in France, and Stow Lake, in San Francisco's Golden Gate Park. Palladio's Villa Barbaro, at Maser, the Portico di San Luca, in Bologna, and the town and fields of Sonoma, Calif., demonstrate the great beauty inherent in agricultural landscapes. These historic selections are all superb, and the principal ones are given full-page sketches, discussions, and chronologies.

"Green" architecture, according to Solomon, is the transformation of the agrarian landscape into the urban plan: "Furrows deepen into streets, trees become columns, and cleared fields become plazas. Grids of orchards become the ground plans of buildings. Buildings are planned in conjunction with streets. Green walls reinforce inhabited corridors. Farmsteads are perimeter blocks." This is the essence of her landscape-graphic paradise, an attractive alternative to typical suburban sprawl, but it is ill-defined in relation to existing landscapes.

The strength of the book is its attempt to bring architecture and landscape architecture into synchronicity; its weakness is that the *ideas*, as well as the drawings, layout, and text, are only roughly sketched. The notebooks of accomplished masters like Michelangelo, Picasso, or Le Corbusier are fascinating in retrospect because they illuminate their finished work. Solomon's notebook would be more compelling if the polemic and the designs were visible in built projects.

Margaretta J. Darnall is an architectural historian in Oakland, Calif.

Jefferson and Monticello, by Jack McLaughlin. New York: Henry Holt and Company, Inc., 1988, $29.95.

Reviewed by
Richard Lavenstein

For those who have followed the perfidy of the Reagan years as portrayed by former advisors, Cabinet officers, and disgraced friends in their various astonishing memoirs, Jack McLaughlin's *Jefferson and Monticello* will be a happy antidote. It reminds us that our national leaders have had true learning and intellect, and a vision of what might make a great society and a noble culture. McLaughlin, who heads the Humanities Division at Clemson University, has written a biography of our third president as seen through the building of a great house. It was in this case a 50-year enterprise that sputtered on and off in the midst of a historic and tumultuous life, and, like so many obsessive building projects, ultimately bankrupted its owner.

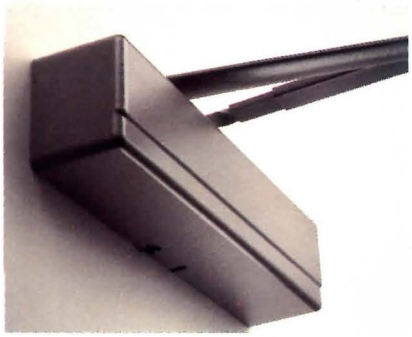
The binary division of the title (as opposed to *Jefferson's Monticello*, for example) is subtly revealing. What becomes clear is the intertwining of the house-building project and Jefferson's life. Begun in 1769 as little more than a one-room honeymoon shack, Monticello was extended during the early years of Jefferson's marriage and the birth of his five children, but languished and fell into disrepair during his years in France as American ambassador.

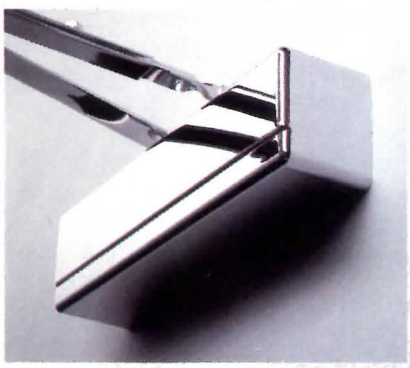
Major alterations and additions were again undertaken in 1796. This work lasted through Jefferson's terms as Vice President and President, until his death in 1826. Having, according to McLaughlin, "a professional understanding of the construction crafts and their craftsmen," Jefferson struggled to realize his high artistic and mathematically exacting standards in spite of the rudimentary state of early-American building arts. Without benefit of skilled artisans or today's building-supply emporiums, Jefferson had to fulfill the dual roles of architect and contractor during these 30 years, even developing methods of fabrication previously unavailable. Plagued by a constant scarcity of materials, unreliable (or, more often, drunk) workmen, and an array of interminably delaying disasters, Jefferson nonetheless pressed on.

This inquiry attempts considerably more than a history of building in colonial America, fascinating though this is. McLaughlin says that Monticello represents the two halves of Jefferson's psyche: the tightly controlled—even icily reserved—18th-century rationalist, and the intensely domestic man who craved love, comfort, and ease. Physically the house exhibits a combination of Palladian rationalism in its plans and elevations, and homegrown American inventiveness in its delightful accouterments: the double-acting French doors, the dumbwaiter in the fireplace, the alcove bed on pulleys. Monticello is at once commanding and inviting, a public house for a private man.

While concentrating on Jefferson's architectural obsessions, McLaughlin is also able to analyze attitudes toward slavery (and how it pertained to the building of Monticello), the effect of Jefferson's years abroad, and his relationship to friends and family. In attempting to locate and assess the competing factors of seriousness and playfulness that Jefferson alternately displayed,

Richard Lavenstein is an architect practicing in New York City.





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Briefly noted

McLaughlin keenly observes, "... it is precisely the obsessive person who requires the spontaneity of play as a counterweight to psychological necessity." One of the book's leitmotifs is the irony of Jefferson the compulsive record-keeper (who constantly reminded those around him of the dangers of debt) coming to the end of his own life in penury. This might be explained, as the editors of Jefferson's Memorandum Books have observed, in that "the daily ritual of recording pecuniary events gave Jefferson an artificial sense of order in his financial world." On the other hand, among Jefferson's favorite self-deprecations was, apropos of Monticello: "Putting up and pulling down is one of my favorite amusements."

McLaughlin weaves together social history, eyewitness accounts, psychological biography, and architectural analysis; *Jefferson and Monticello* is a spirited tour through the life and times of a great-souled man. In a sometimes wayward attempt at immediacy, however, the author occasionally falls into pseudo-novelistic conjecturing: "But as he ran his eyes over the freshly plastered and painted room with its new windows in strange locations, he could not help but experience a loss ..." But more often McLaughlin maintains in his prose the lively pace of his hero's life. This is an admirable study which in the end reminds us that contradictions and adversity are often a spur to greatness and achievement.

Terrazzo. New York: Rizzoli, 1988, $20. In the clogged racks of architecture and design magazines, this new offering—to be published twice yearly—is distinguished by unusual attention to the drawings and photographs displayed: even the paper is matched to the artwork. The first issue includes remarkably Memphis-like photos by Ettore Sottsass from India and North Yemen, Herbert Muschamp on avant-gardism, and an article describing particularly rare and exotic types of stone. The magazine is seen by editor Barbara Radice as a "sophisticated object," having something of the same effect as "slipping into a perfumed bath and then [putting] on a beautiful new dress."

The Architecture of John Wellborn Root, by Donald Hoffman. Chicago: The University of Chicago Press, 1988, $16.95. To read this volume, first published in 1973, is to realize that though Root, along with Daniel Burnham, was a pioneer of the large commercial office building, many of the issues faced in Chicago in the last two decades of the 19th century are not so different from those faced by the architects in commercial practice today. Hoffman deftly portrays Root's handling of technical problems posed by ever-larger buildings, and he describes Root's dealing with clients unresponsive to the architect's vision of a "suitable architectural expression" of commerce.

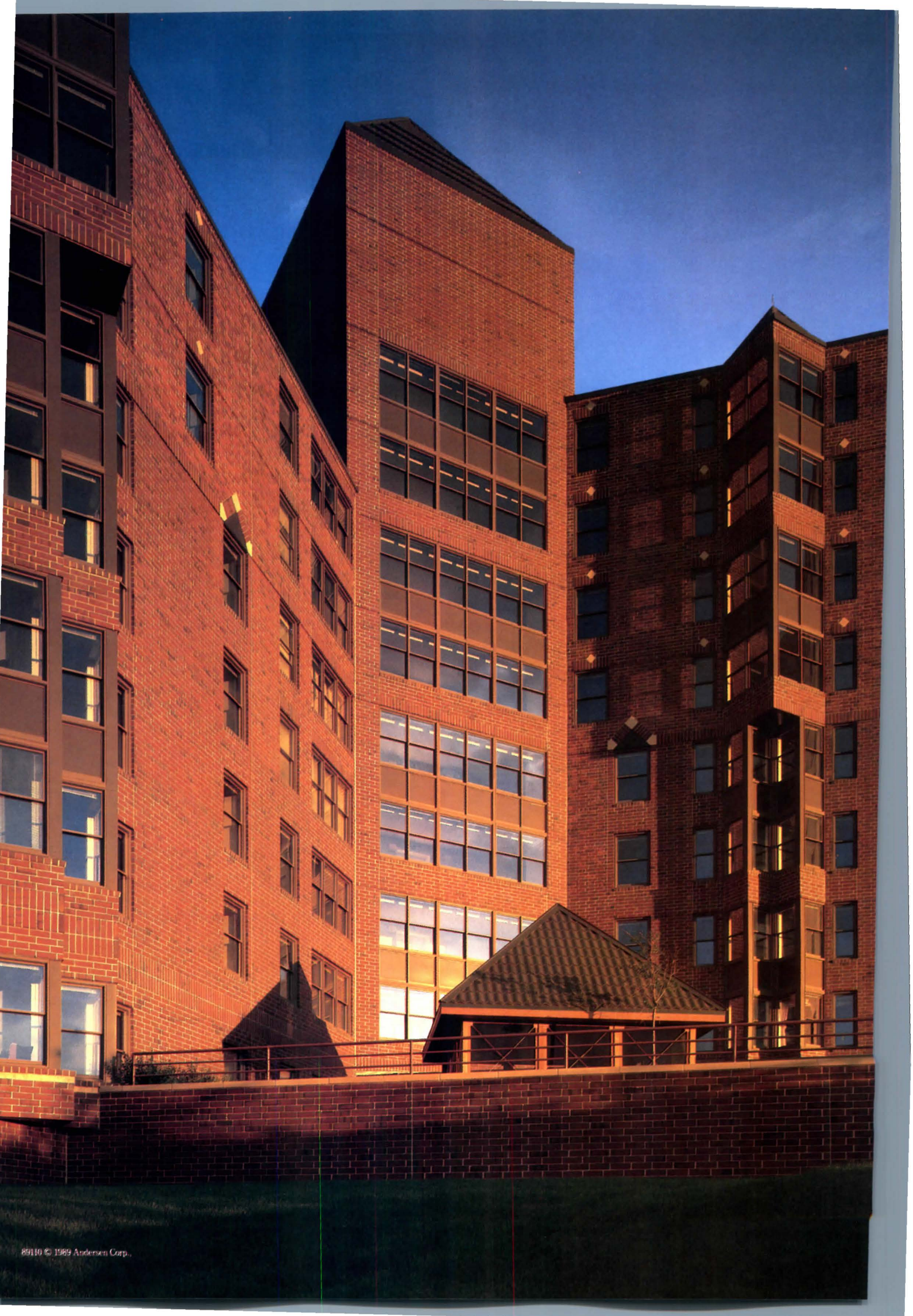
Antonio Saint'Elia, the Complete Works, by Luciano Caramel and Alberto Longatti. New York: Rizzoli, 1988, $65. Though no built works can be "definitely attributed" to Saint'Elia, the power of his seminal images of the futurist "new city," produced in 1914-15, remains undimmed. His small output is overpackaged, however, in this coffee-table volume, in which the authors (either underedited or poorly translated by a writer unnamed) use excessively complicated locutions to portray Saint'Elia's cameo role in the standard history of Modernism.

Emerging European Architects, edited by Wilfried Wang. Cambridge and New York: Harvard University Graduate School of Design with Rizzoli, 1988, $20. This modest volume, a documentation of a symposium that took place at Harvard last fall, does not quite do justice to the work covered, but it performs an important service in bringing to light the work of many practitioners previously unseen on these shores. The projects are typically small, yet thoughtful, and frequently transcend difficult circumstances: the stone repaving of streets in a historic Spanish village, by Josep Lluis Mateo, for example, or a metal-paneled envelope for a desulfurization plant, in Salzburg, by the Swiss architects Marie-Claude Bétrix and Eraldo Consolascio. Many of these architects are working on the edge of European cities, a landscape as bleak in its own way as the commercial strips and parking lots in the U. S.

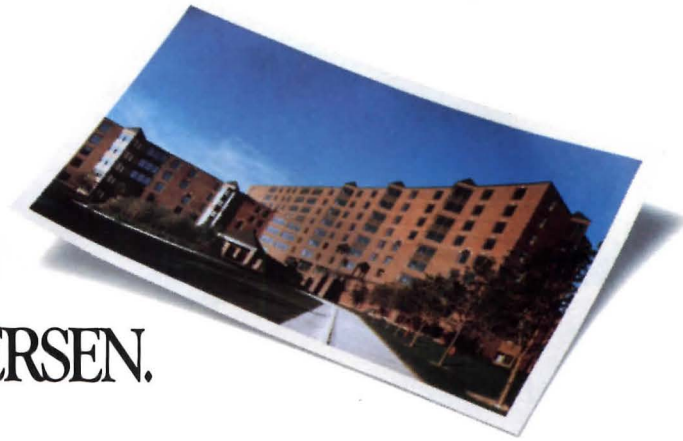
Sedad Eldem: Architect in Turkey, by Sibel Bozdoğan, Suha Özkan, and Engin Yenal. Singapore/New York: Concept Media/Aperture, 1988, $40. Eldem was raised in Europe, trained in Turkey, and apprenticed with well-known figures of the Modern Movement. This volume documents the architect's often-extraordinary synthesis of traditional planning and expression with modern programs and building techniques. At its best, Eldem's work is neither sentimentally historicist nor heroically internationalist. Whether in government offices tucked into the urban hodgepodge of Istanbul (for which he won an Aga Khan award) or in private villas along the Bosphorus, it is refreshingly emblematic of the struggle to define a new/old architectural—not to mention *cultural*—identity for his rapidly changing country.

Theater Technology, by George C. Izenour. New York: McGraw-Hill, 1988, $195. A companion to the author's comprehensive *Theater Design*, this book is a compendium of the gadgetry that makes theater magic happen. Dozens of theaters are illustrated, and scores of fascinating, if unlikely, contraptions are lovingly described. Sections of the book, however, are only for the historian of technology.

The Landmarks of New York, by Barbaralee Diamonstein. New York: Harry N. Abrams, 1988, $45. There is no dearth of volumes on New York City's architectural history, but this work is unique in its documentation only of buildings *designated* landmarks in the last 23 years by the city's pioneering Landmarks Preservation Commission. It says as much about what is valued by architecturally conscious residents (both in buildings that have been selected and those that have not) as it does about history, or about architecture itself. Among the book's rewards are entries on many little-known structures in out-of-the-way corners of the city. Landmarks described range from exceedingly modest 17th-century houses and graveyards to familiar structures, such as Grand Central Station and Carnegie Hall, and include structures erected as recently as the early 1950s—the final entry, Skidmore, Owings & Merrill's Lever House.



FOR THE ARCHITECT ON THIS PROJECT, THERE WERE A LOT OF TOUGH DECISIONS. AND THEN THERE WAS ANDERSEN.



According to the Design-Build am of OPUS Corporation and ammel Green and Abrahamson, ere were "special problems" ilding St. Therese, an enhanced tirement facility in Hopkins, MN.

For one, there was concern out putting a 228-unit project in suburban neighborhood. "We anted to do it in a sympathetic shion," said project architect uane Johnson of HGA.

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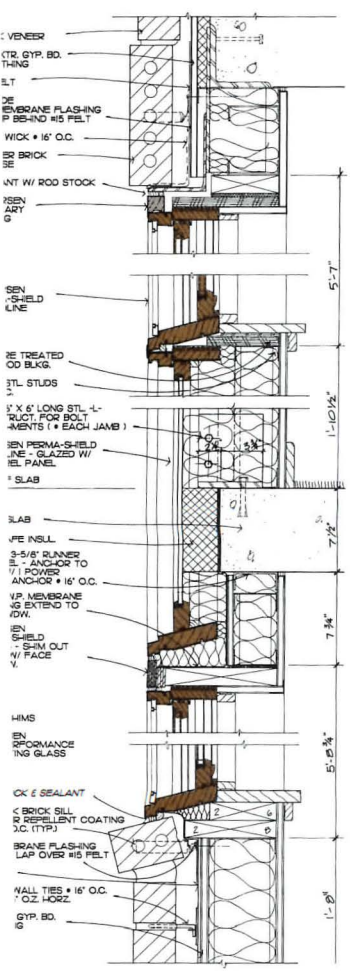

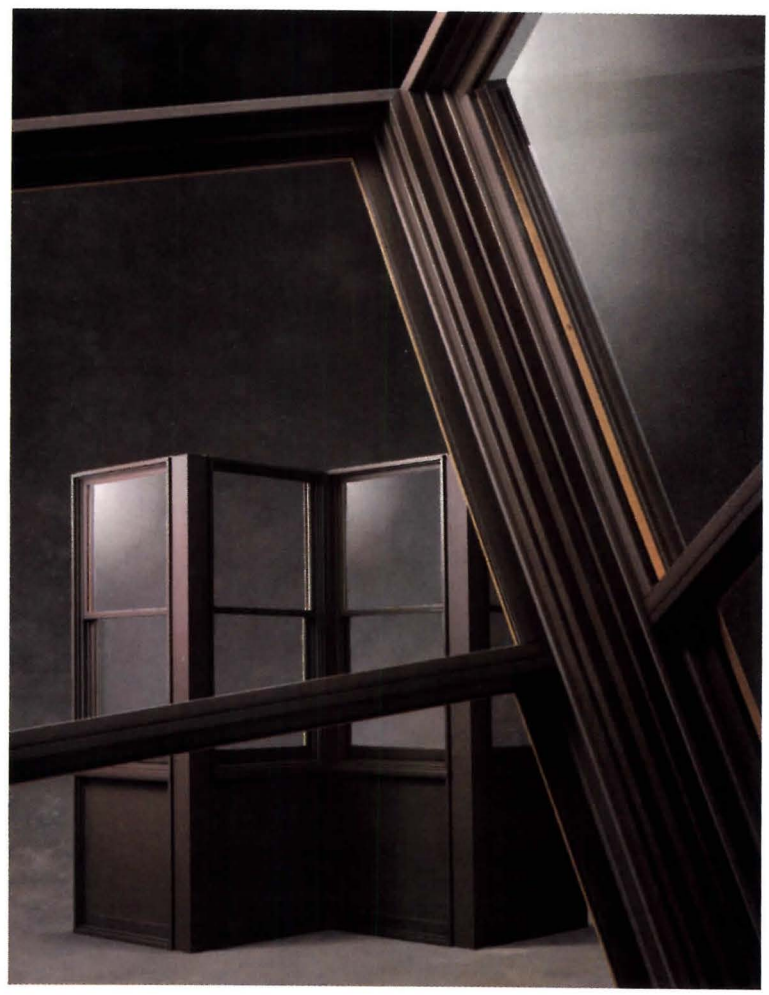

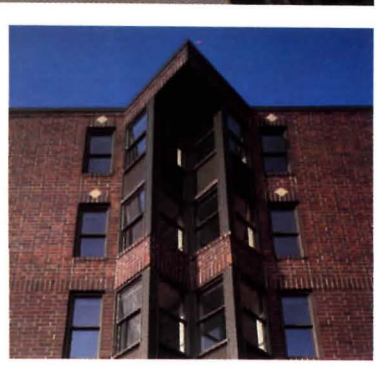

St. Therese Care Center
Hopkins, Minnesota

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Hammel Green and Abrahamson
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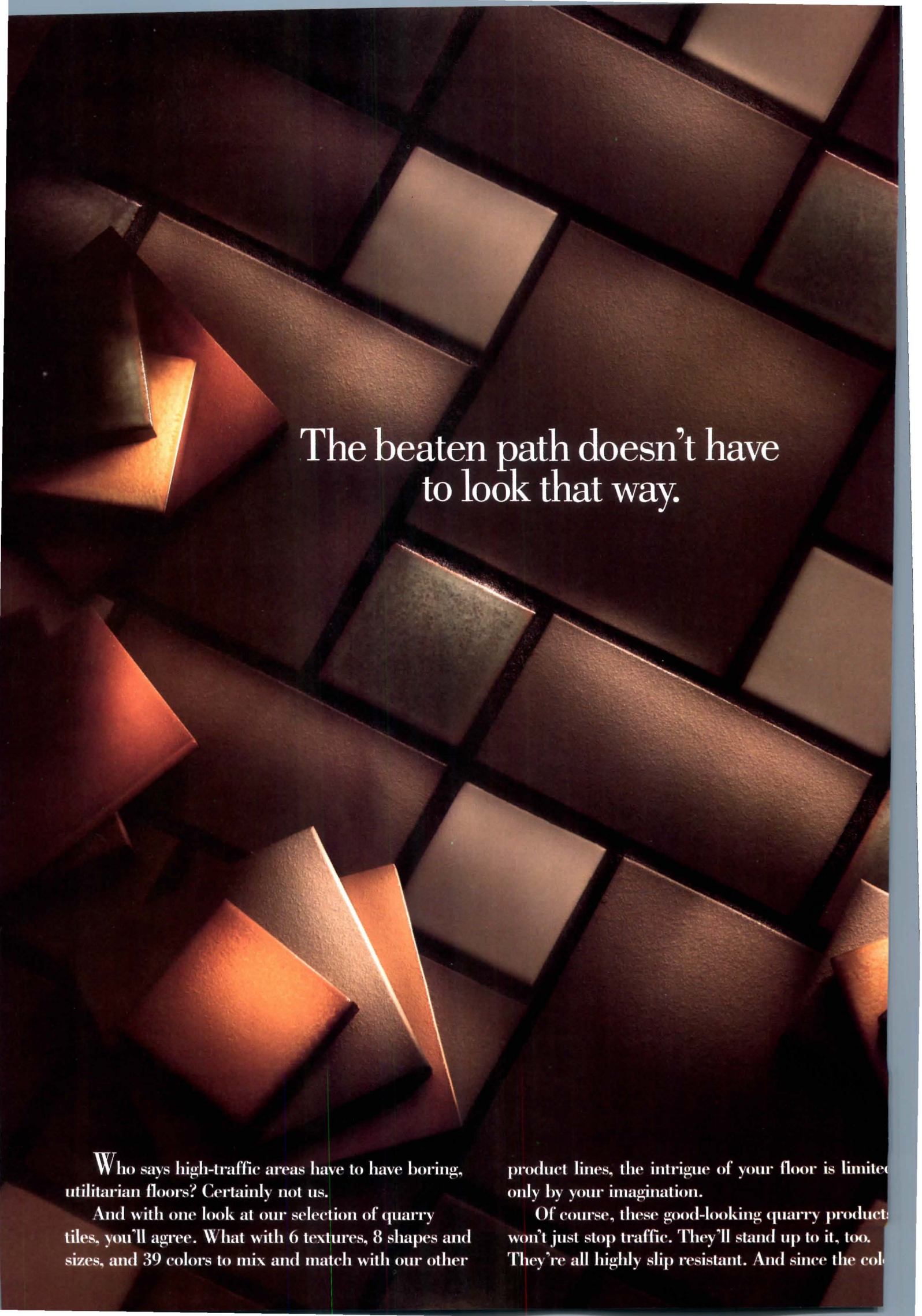

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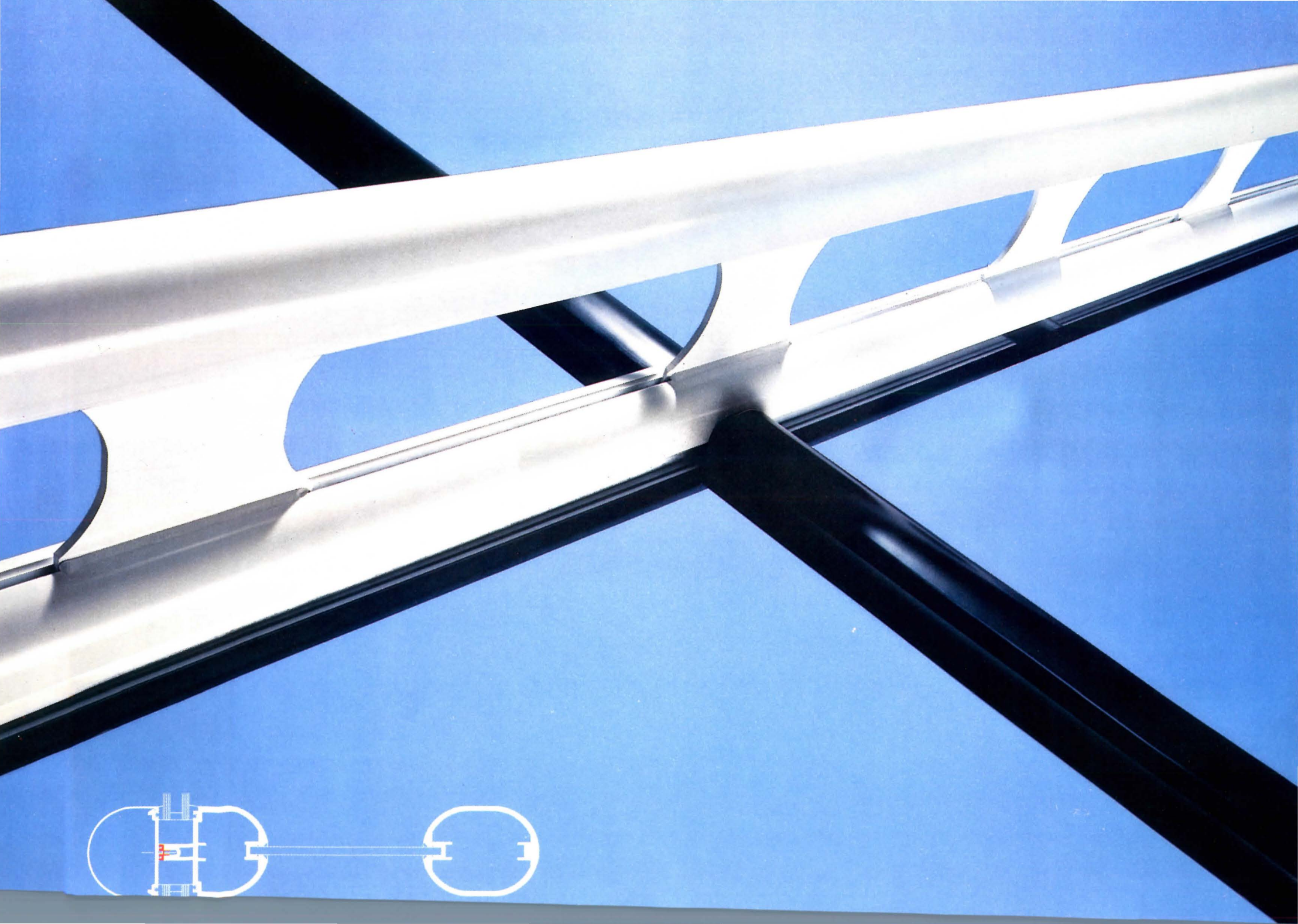

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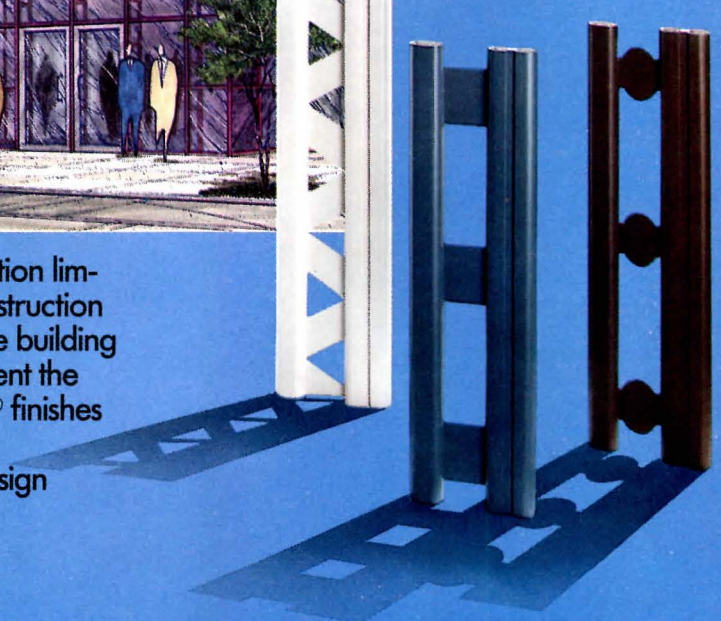

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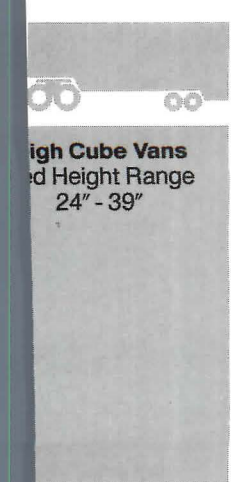

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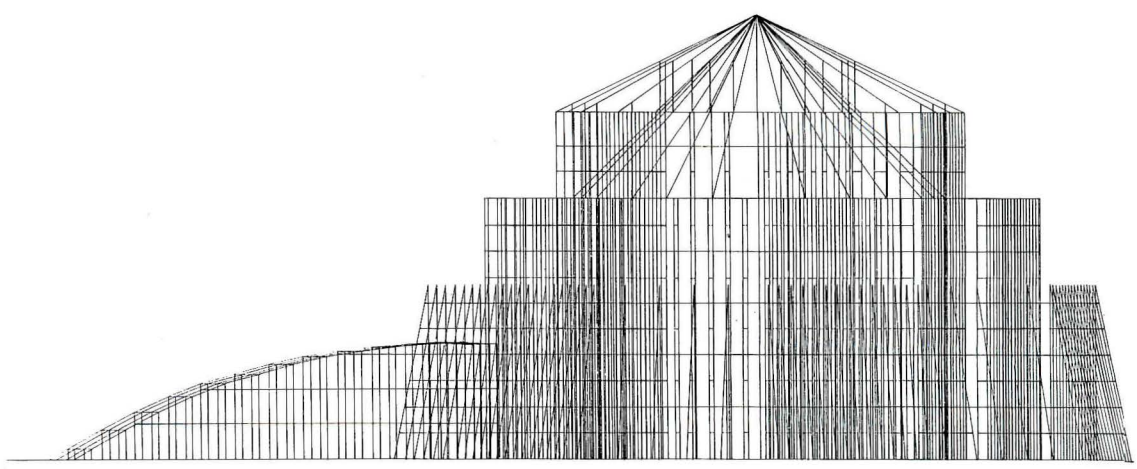
In this issue

Urbanity in design is an elusive quality many architects hope to achieve, but only a few attain. Whether working in a cultural capital like New York or Toyko, a large American city like San Antonio or Pittsburgh, or a small town on Cape Cod, the architects of the projects featured on the following pages all share a keen awareness of urbanity and a well-mannered sensibility for the complexities of metropolitan life.

The team of Bohlin Powell Larkin Cywinski and Burt Hill Kosar Rittlemann, for example, has designed the Software Engineering Institute in Pittsburgh (cover and pages 78-83) to reflect the building's late 20th-century function as a post-industrial research center while respecting the scale and style of its neighbors, a pair of early 20th-century Pittsburgh landmarks.

A more basic, but no less significant, educational program motivated four architects commissioned by the City of New York to devise a new generation of buildings for the nation's largest public-school system. In our Building Types Study (pages 106-115), critic Ellen Posner examines their work—one completed school in lower Manhattan and a system of modular prototypes adaptable for various sites in the city—and concludes that the initial results represent "a small miracle of humanity." Nearly as crucial to any city's sense of self-worth as its school system is an attractive, financially viable commercial district. In San Antonio, the Urban Design Group has carefully interwoven old and new buildings to create a mixed-use downtown complex, Rivercenter, that transcends typical shopping-mall banality by embracing an extension of San Antonio's popular River Walk (pages 100-105). On Cape Cod, two developers, working with several area architects, have gracefully utilized the planning lessons of the past to transform a rundown shopping center into the first stage of a new town, Mashpee Commons (pages 84-89).

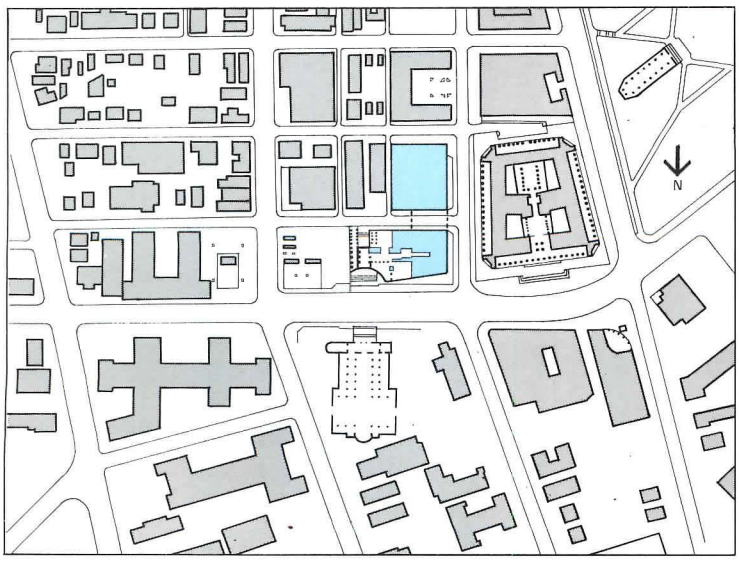
The demountable Karaza Theater by Japanese architect Tadao Ando (drawing below and pages 90-93) exhibits a formal and technical sophistication not often associated with portable buildings. Back in New York, French designer Philippe Starck has transformed the aging Royalton Hotel (pages 94-99) into a stylish new meeting place for the city's smart set—an eclectic creation that Starck calls "a cultural cocktail." What, one might ask, could be more urbane?



Karaza Theater, Tadao Ando Architect & Associates

The modestly scaled Software Engineering Institute holds its own within the heroic architectural heritage of Pittsburgh's academic and cultural heart.

Soft machine



The mythology of software development lionizes nerds with pale complexions tinkering in the garage, or envisions post-adolescent gadget freaks laboring within anonymous reflective-glass slabs in Silicon Valley. An image *not* usually conjured up is Pittsburgh's historic Oakland section, home of an eclectic assortment of academic, cultural, and religious structures built in a dizzying variety of early 20th-century revival styles. Yet here, amidst monumental buildings memorializing the creators of Pittsburgh's industrial might, is the setting of Carnegie Mellon University's Software Engineering Institute (SEI). Sponsored by the U. S. Department of Defense, the facility undertakes research on problems related to the armed forces' multifarious technologies (devising a common visual interface for electronic jet-fighter navigation screens, for example).

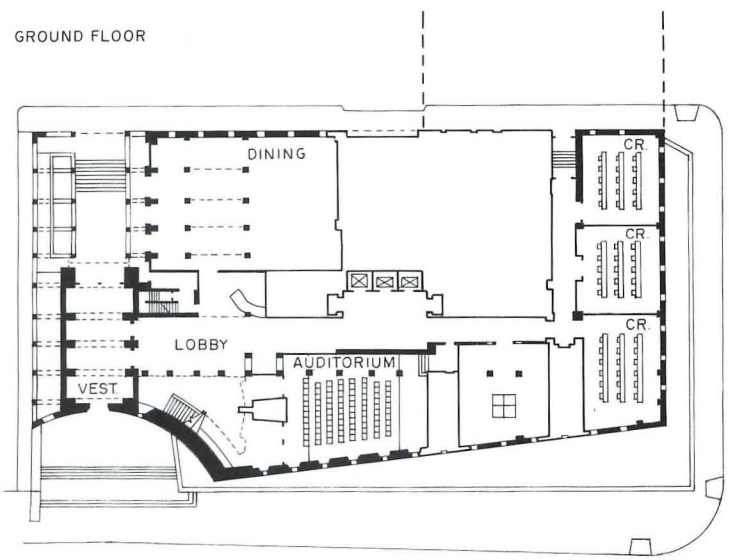
In shaping the SEI, the Pittsburgh office of Bohlin Powell Larkin Cywinski, teamed with local architect/engineer Burt Hill Kosar Rittelmann, addressed the Institute's introverted program and its urbanistically important site. The structure is articulated as three parts that express a hierarchy of public to top-secret spaces. A small but prominent pavilion, set behind a semicircular plaza, lies on axis with the 1906 Cathedral of St. Paul across Fifth Avenue (opposite and page 81), housing such public rooms as the entrance vestibule, library, conference suite, and boardroom. Reflective glass encloses the secure office/laboratory block, which has been detailed in elevation to echo the heroic scale of the Mellon Institute, a column-ringed 1930s temple to applied research that lies to the west (pages 80 and 81). Mellon's street wall is extended by the skewed massing of this lab wing. SEI's third element, a 400-space parking structure, has been placed across an alley south of the building's main body (site plan).

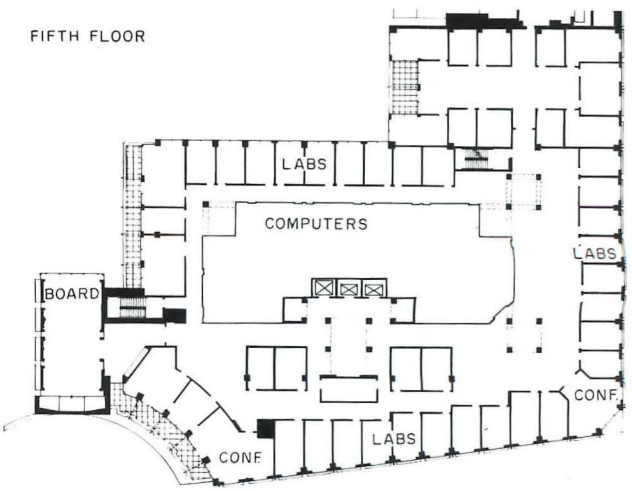
The Institute's 154,400-square-foot plan is "thick and fat," in Peter Bohlin's words—an economical arrangement of building bulk consistent with zoning-code exigencies. Its parapet is deliberately aligned with the top of the Mellon Institute (middle). Inside, SEI's technicians perform most of their work in sound-insulated 10- by 13-ft office/laboratories that line the building perimeter. Offices are served by user-accessible wiring systems (diagram page 81), permitting harried researchers to quickly reconfigure equipment. Each work space is supplied with 2,000 watts of electrical power, enough to support engineering workstations and an assortment of personal computers and peripheral equipment. The enormous heat generated is swept directly into the return-air system through custom casework.

Though relationships among program elements were established with an eye fixed on the bottom line (a big chunk of the $97-per-square-foot cost was allocated to mechanical systems that serve the structure's high density of equipment), the architects were also able to provide visual relief outside the confining individual labs. Coffee-break alcoves are located at major intersections, encouraging casual interaction among researchers whose work is often solitary; expansive corridors terminate in glazed conference rooms that bring the architects' exterior strategy inside, reintroducing even those occupants buried deep within the floor plate to their context (page 82). Neither high-tech nor even high-style, the SEI is respectful of both place and program; there is a kind of architectural hum as aspects of its heterogenous neighbors resonate throughout. Bohlin explains, "We wanted the building to look at the past as well as to the future. I think we got it right." *James S. Russell*

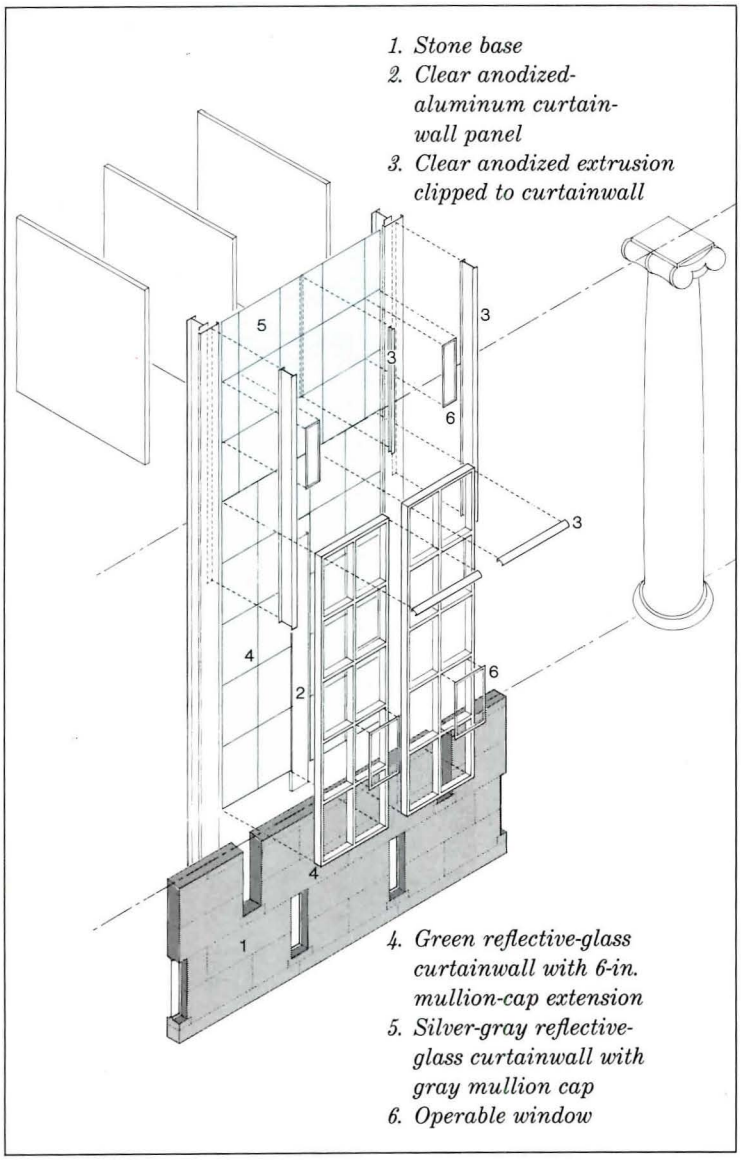
Software Engineering Institute
Carnegie Mellon University
Pittsburgh
Bohlin Powell Larkin Cywinski
and Burt Hill Kosar Rittelmann
Associates, Architects

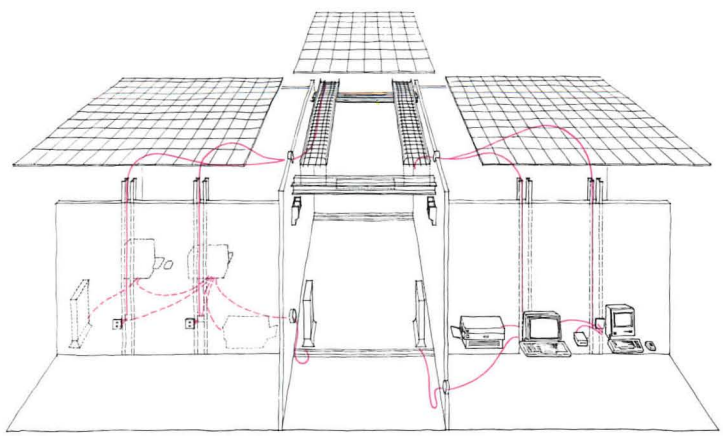
Though undeniably contemporary, the SEI's Fifth Avenue elevation responds to the rhythm of the neighboring Mellon Institute (left), itself built on such a heroic scale that its 65-ton columns were each carved from a single block of Indiana limestone. The SEI's window wall rises out of a matching stone base and changes both in pattern and color at the level of Mellon's entablature (photo below and axonometric opposite). Aluminum extrusions attached to the curtainwall deepen shadow lines. The limestone-



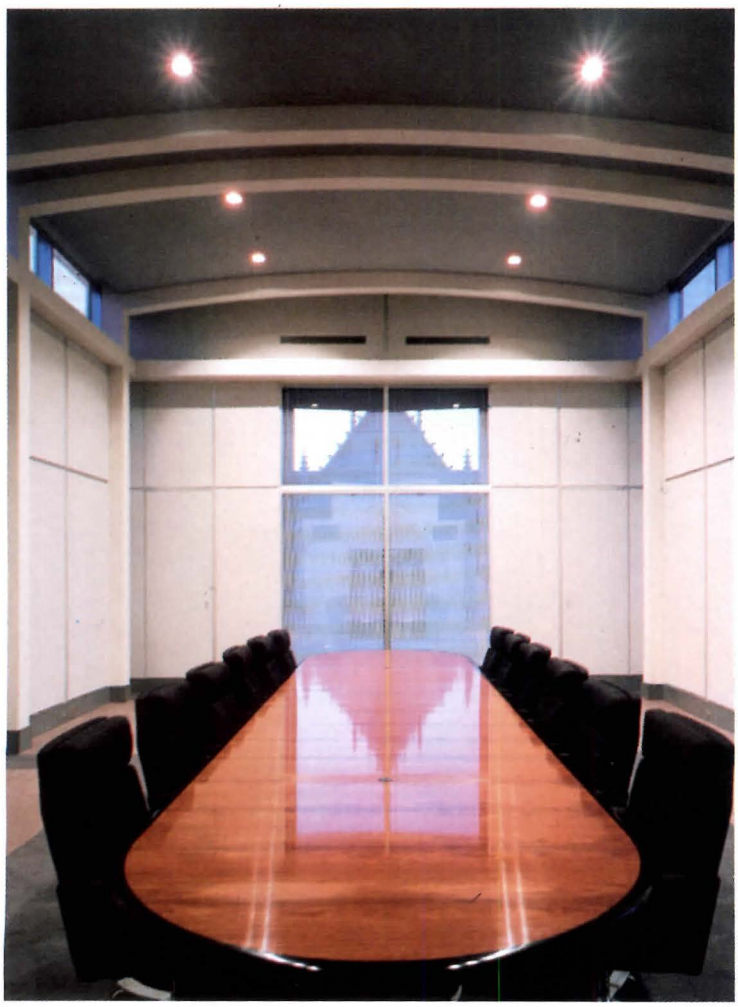


clad entrance pavilion (below right) anchors the eastern edge of the building, its verticality reflecting the neo-Gothic St. Paul's Cathedral across the street. Computer wiring has been made entirely accessible to users: matched C-studs form chases to accessible ceilings, which in turn lead to cable trays below the corridor ceiling (bottom). Workstations can be linked to other workstations, off-campus networks, file-serving computers on each floor, the basement computer room, or a nearby supercomputer.





The SEI's deep plan motivated the creation of special interior places. An extruded-aluminum light fixture—evocative of the city's industrial roots—marks the ground-floor auditorium (left). Where corridors intersect, coffee alcoves encourage casual discussion (background in photo below). In the top-floor boardroom, diffuse light enters on all sides (bottom left). Originally slated for a mainframe computer, the basement computer room (bottom right) now houses a series of special-use minicomputers. Lining the building's corridors, easily accessed cable trays are supported on U-shaped aluminum extrusions and brackets incorporating light fixtures (opposite). On the floor, processing units—their fans whirring, their LEDs winking—resemble nothing so much as ranks of tiny robots.



Software Engineering Institute Pittsburgh
Owner:
Carnegie Mellon University
Architects:
Bohlin Powell Larkin Cywinski and Burt Hill Kosar Rittelmann Associates—Peter Q. Bohlin, P. Richard Rittelmann, David L. Henderson, principals-in-charge; John C. Jackson, associate; Robert S. Pfaffmann, Richard H. Forsythe, Peter A. Matthews, D. Joe Wendling, Jeffrey T. Davis, Paula R. Maynes, Mike Rajchel, staff
Engineers:
Dotter Engineering, Inc. (structural); Burt Hill Kosar Rittelmann Associates (mechanical/electrical);
General contractor:
Turner Construction Company

Mashpee Commons
Mashpee, Massachusetts

Common sense

Paul M. Stechner

Although Fields Point Limited elected to incorporate its 1962 New Seabury Shopping Center (top) into Mashpee Commons, using part of the earlier complex to define the southern edge of Market Street (background of photo above), most of the old building's mansard crown has been concealed behind new peak-roofed parapets.

In a small but growing number of cities and towns, enlightened public officials and private developers are attempting to reverse planning decisions that have desecrated America's urban and rural landscape over the past 30 years. Boston, for example, is engaged in a 10-year megaplan to reconnect the city's historic core to its waterfront by replacing the elevated Central Artery with a subterranean highway. A sweeping zoning ordinance in San Francisco strictly limits downtown development and attempts to legislate the architectural character of those structures that do get built. And along Florida's Gulf Coast, Robert Davis's much-publicized new resort town of Seaside [RECORD, mid-April 1986, pages 90-97] continues to evolve according to a master plan that eschews current methods of suburban development in favor of the time-honored principles of 19th-century American urbanism.

The impulses that moved Seaside's planners to create a low-rise, high-density town of picket fences, front porches, and generous public amenities likewise motivated Arnold Chace, Jr., and Douglas Storrs, partners of Fields Point Limited, the development company responsible for the ongoing conversion of a mansard-roofed shopping center erected by Chace's family in 1962 (shown in a 1965 photo, top left) into a 30-acre new town center on Cape Cod, Mashpee Commons. Like Davis, Chace and Storrs are part of a new generation of developers in their late 30s and early 40s who fondly recall the small towns of their youth and contend that the qualities that made those places so appealing can be profitably incorporated into today's commercial and residential projects. "We want to make money," explains Storrs, a trained environmental planner, "but we don't feel that you have to put up a strip shopping center or enclosed mall to be financially successful."

For its part, the town of Mashpee seemed an ideal place for Chace and Storrs's urbane brand of development. Founded in 1870, late by Massachusetts standards, Mashpee never had the cohesive village core characteristic of many small New England towns. During the 1960s, the chaotic roadside commercial boom that afflicted other parts of Cape Cod largely bypassed Mashpee, leaving the town a semirural outpost of pitch-pine and oak forests midway between Falmouth and Barnstable, the Cape's two most populous towns. Development in Mashpee was further inhibited during the late 1970s and early '80s when a protracted land-ownership suit by the Wampanoag Indian Council put all property sales in the town on hold. Although Mashpee eventually won that suit, it saw what uncontrolled growth had done to neighboring towns, and in 1979 it drew up a master plan that called for new commercial, civic, and religious buildings at the intersection of routes 151 and 28—the Mashpee Rotary—on land adjoining the Chaces' shopping center. Since 1980 the town has moved its public library and police and fire headquarters to the area, and Christ the King parish is currently building an imposing new church on land adjacent to the Chace property (plan opposite).

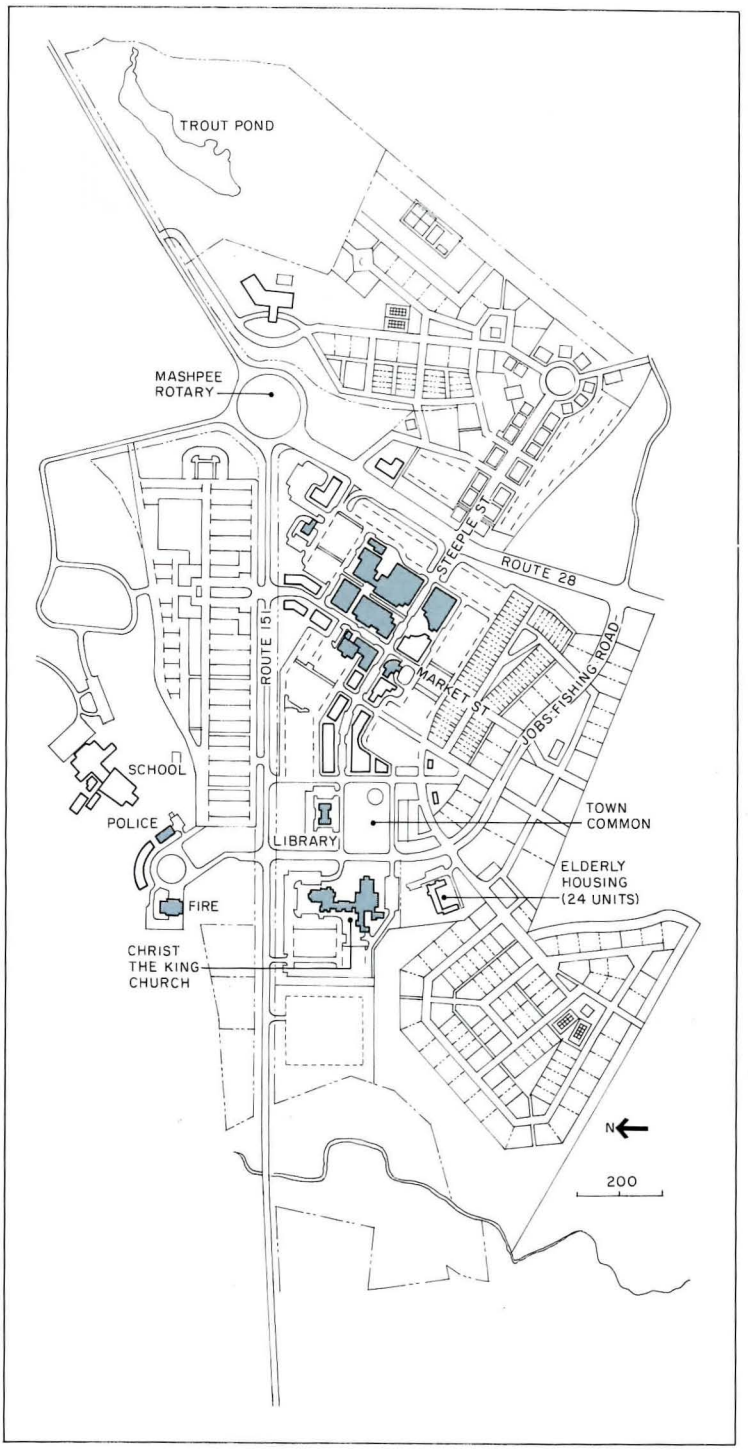
The first phase of a projected 275-acre new town on Cape Cod, Mashpee Commons offers small-town virtues as an alternative to the ad hoc suburban development that has eradicated much of the Cape's 19th-century charm.

Paul M. Sachner

In 1984 Storrs and Chace began revisiting some of the nearby villages they knew growing up on the Cape, as well as more distant towns like Hanover, New Hampshire, and Woodstock, Vermont. In addition to cataloging such obvious physical characteristics as granite curbs, street trees, and small-scale buildings constructed of brick and clapboard, they measured street and sidewalk widths, and returned to Mashpee to lay out a new town center that would incorporate the elements that give New England villages their distinctive sense of place. Recognizing that even the best urban intentions were futile if, as Storrs puts it, "a K-Mart moves in across the street," Fields Point assembled 275 acres on both sides of routes 28 and 151; last summer, moreover, the developers brought in Andres Duany and Elizabeth Plater-Zyberk, the Miami architects who designed Seaside and the leading American proponents of small-town planning, to conduct a week-long charette that produced architectural guidelines for six mixed-use neighborhoods surrounding Mashpee Commons's commercial core (a few of the residential building types that emerged from the charette are shown below).

Although Mashpee Commons is a market-driven work-in-progress whose completion date is still undetermined, enough buildings have been constructed (shaded areas on plan right) to justify a preliminary examination. The project as it now exists is something of a hybrid, far better than the shopping center it replaces, but not yet the small town of one's dreams. As the photographs on the following pages reveal, the structures erected thus far are deliberately unassertive, ranging from a pair of two-story red-brick buildings by Ellenzweig Associates, located at the principal intersection of Steeple and Market streets (page 86), to a gracefully arcaded clapboard building, designed by Orr & Taylor, that houses six movie theaters, shops, and offices (page 87). Mashpee Commons's chief visual drawback is, not surprisingly, its expanse of asphalt parking lots, a necessary evil Storrs claims will be masked by proposed buildings on the two major access roads connecting the complex to routes 28 and 151. A less serious problem is the iconography of the project's street signage, which, with its understated scallop-shell logo, reinforces the feeling of a *private* realm (standard street signs used elsewhere in Mashpee would be better).

In the end, it seems clear that Mashpee Commons will improve over time, especially when work begins next year on the first of its residential neighborhoods. Still, expectations must be tempered by the fact that it's one thing to replicate past architectural form, quite another matter to recapture a Cape Cod way of life that no longer exists. If Chace and Storrs can somehow find a way to infuse their late 20th-century commercial venture with 19th-century small-town innocence, Mashpee Commons will be more than just a comely exercise in thoughtful urban planning; it will be a sociological miracle. *Paul M. Sachner*




COURTYARD APARTMENTS

GREEK REVIVAL

HALF CAPE

The Sentry Federal Savings Bank (below) and Great Hay Building (bottom), designed by Randall Imai of Ellenzweig Associates, were inspired by anonymous red-brick background buildings erected in small towns throughout the United States during the 19th century. Just down Steeple Street, a classically articulated 55,000-square-foot building designed by Orr & Taylor (top and bottom opposite) houses six movie theaters, street-facing shops and restaurants, and second-story office space. One of the architects' urbanistic

triumphs was convincing the theater operator that the building entrance should be in the curved arcade facing Market Street, rather than off the parking lot in the manner of a conventional mall. The arcade forms half of a semicircular plaza that lies on direct axis with a pedestrian shopping allée (not shown). Later this year work will begin on a companion building by an as-yet unnamed architect that will complete the plaza, which Fields Point envisions as Mashpee Commons's major public gathering place.

Fields Point commissioned small firms to design Mashpee Commons's early buildings, including local architect Tony Ferragamo for the town's new post office (below), and Prellwitz/Chilinski, of Cambridge, for a two-story retail and office building (top opposite). Though the post office is the sole civic building in the complex to date, the developers and local officials are discussing a proposed new town hall at the southern edge of the project's common. In laying out Mashpee Commons's streets and sidewalks (bottom photos this page and opposite), the developers doubled the town's 30-foot building-height limit to arrive at a building-to-building dimension of 60 feet. Roadways are narrow (12-foot car lanes plus eight feet on each side for parallel parking), 10-foot-wide sidewalks are embellished with lindens planted in red-brick strips, and curved street corners have shorter-than-standard radii meant to make pedestrian crossings more user-friendly. "None of this is rocket science," admits Douglas Storrs. "It's mostly just common sense."

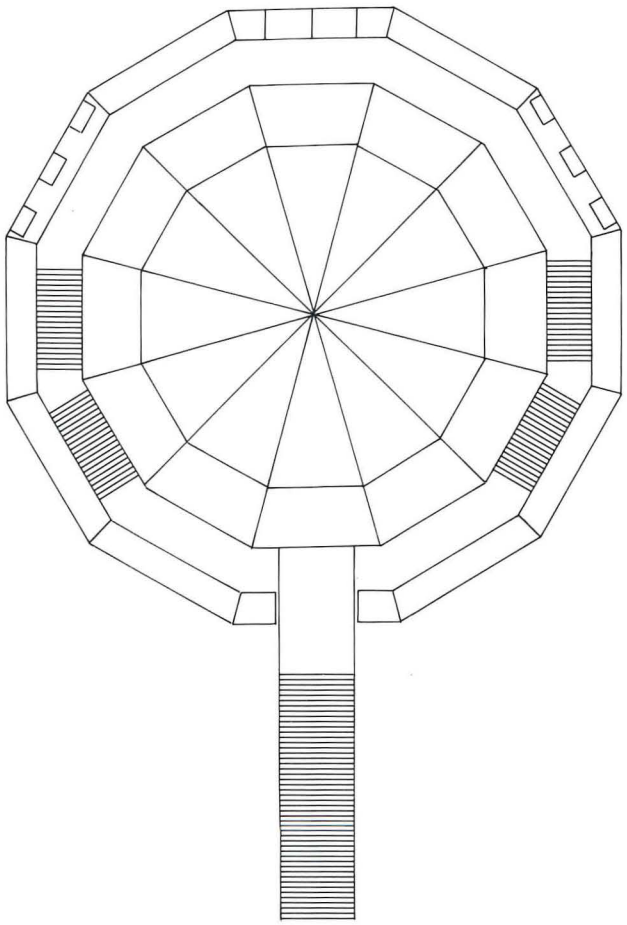
Mashpee Commons
Mashpee, Massachusetts
Owner:
Fields Point Limited Partnership—Arnold B. Chace, Jr., president; Douglas S. Storrs, vice president for planning and development

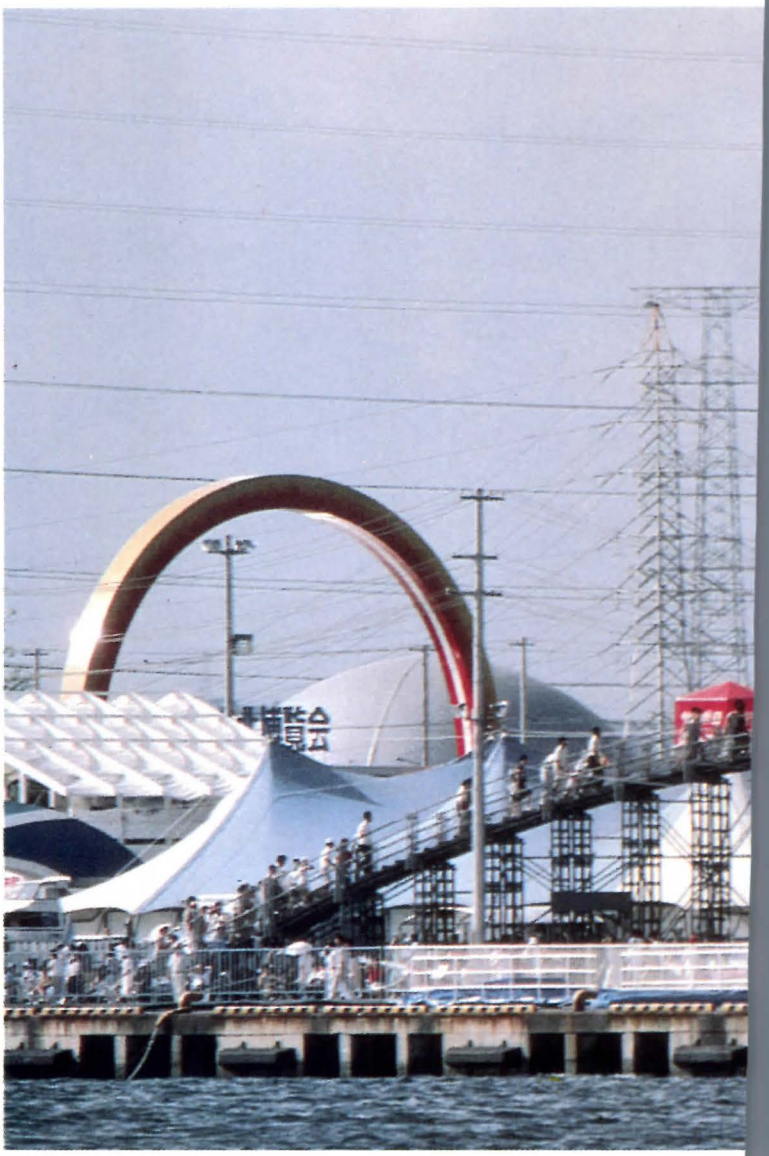
Architects:
Prellwitz/Chilinski Architects (Steeple Street Building, Building 7 renovation)—David Chilinski, Berry Stafford, project architects; Ellenzweig Associates (Great Hay Building, Sentry Bank, Market Street Shops)—Randall Imai, project architect; Orr & Taylor Architects (Theater Building)—Melanie Taylor, project architect; A. E. Ferragamo Architect (Post Office Building)
Structural engineers:
Foley & Buhl Engineers; John Born & Associates; Allen Jones & Associates; Souza & True

Consultants:
Andres Duany & Elizabeth Plater-Zyberk (master-plan architects); Freer Associates and The Cavendish Partnership (streetscape design); Clifford Selbert Design (signage)
General contractor:
Woodside Park Corporation

Karaza Theater
Tadao Ando Architect &
Associates, Architects

Traveling show



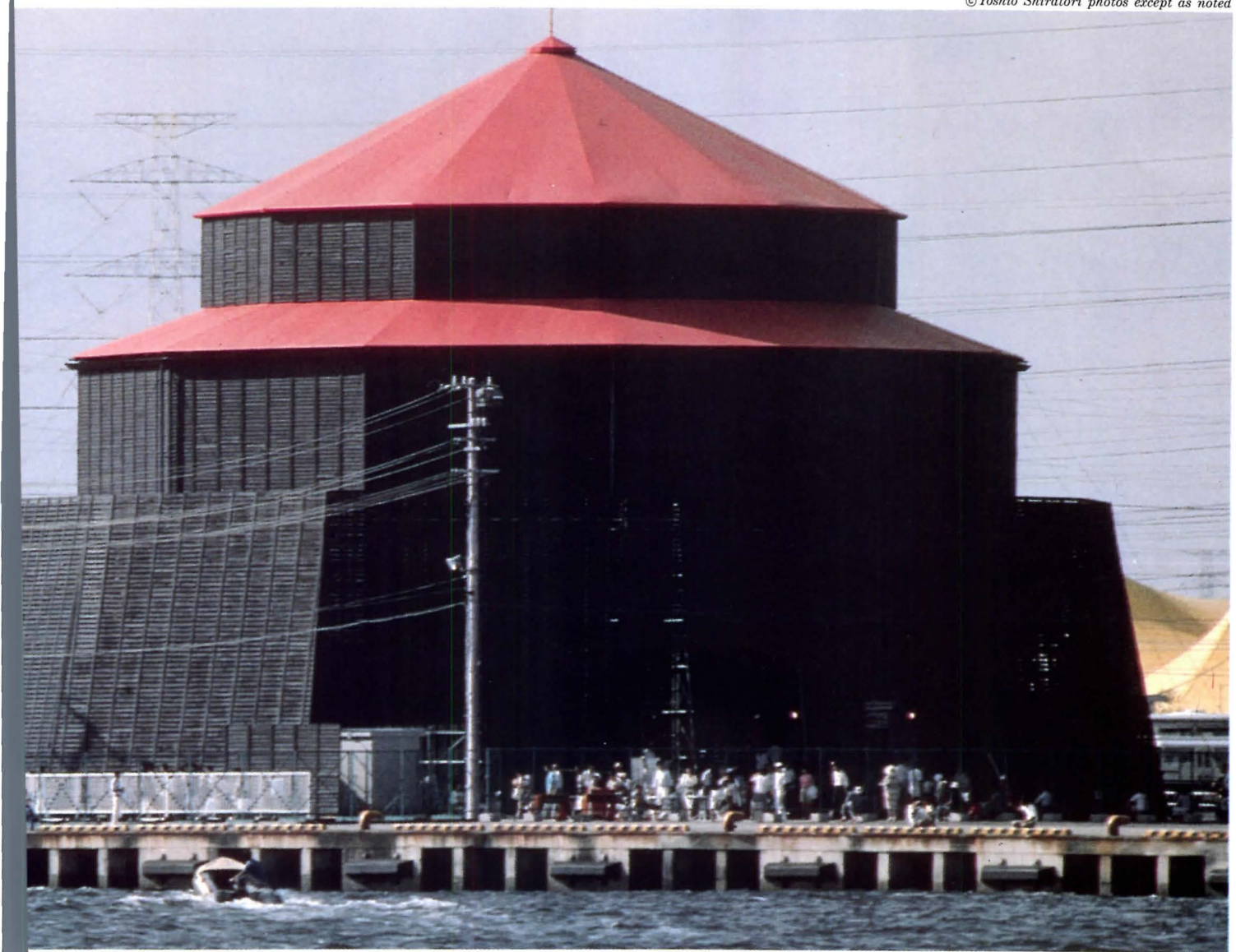


Japanese architect Tadao Ando is best known for his austere concrete structures—hermetic forms with a finish as smooth as marble [RECORD, November 1985, pages 116-125]. In what appears to be a radical departure from his previous oeuvre, however, Ando's demountable Karaza Theater, temporarily on display in the northern Honshu city of Sendai in 1987 and in Tokyo's Asakusa district last spring, has an exposed structure. The theater, home of the traveling performance company Kara Juro, is constructed from a kit of steel and wood parts that comes complete with computer-generated drawings, which explain how the structure can be assembled in just two weeks.

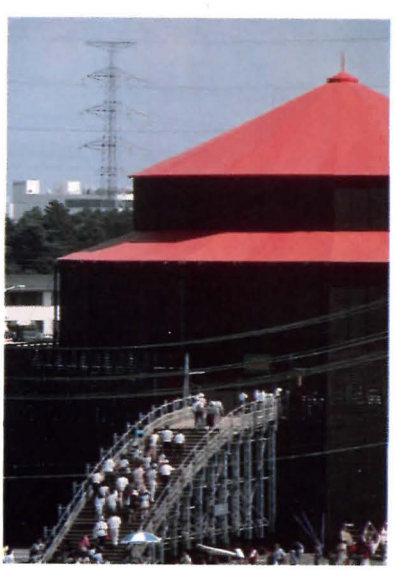
Ando's unexpected stylistic turn is yet another example of his continuing challenge to Western preconceptions about Japanese architecture and architects. Practicing in Osaka, away from the stimulation of Tokyo's supercharged design community, the 48-year-old architect is a professional loner. Although Ando was interested in design as a child, he received no formal architectural training. Instead, he devised a disciplined program of self-instruction, combining independent study with international

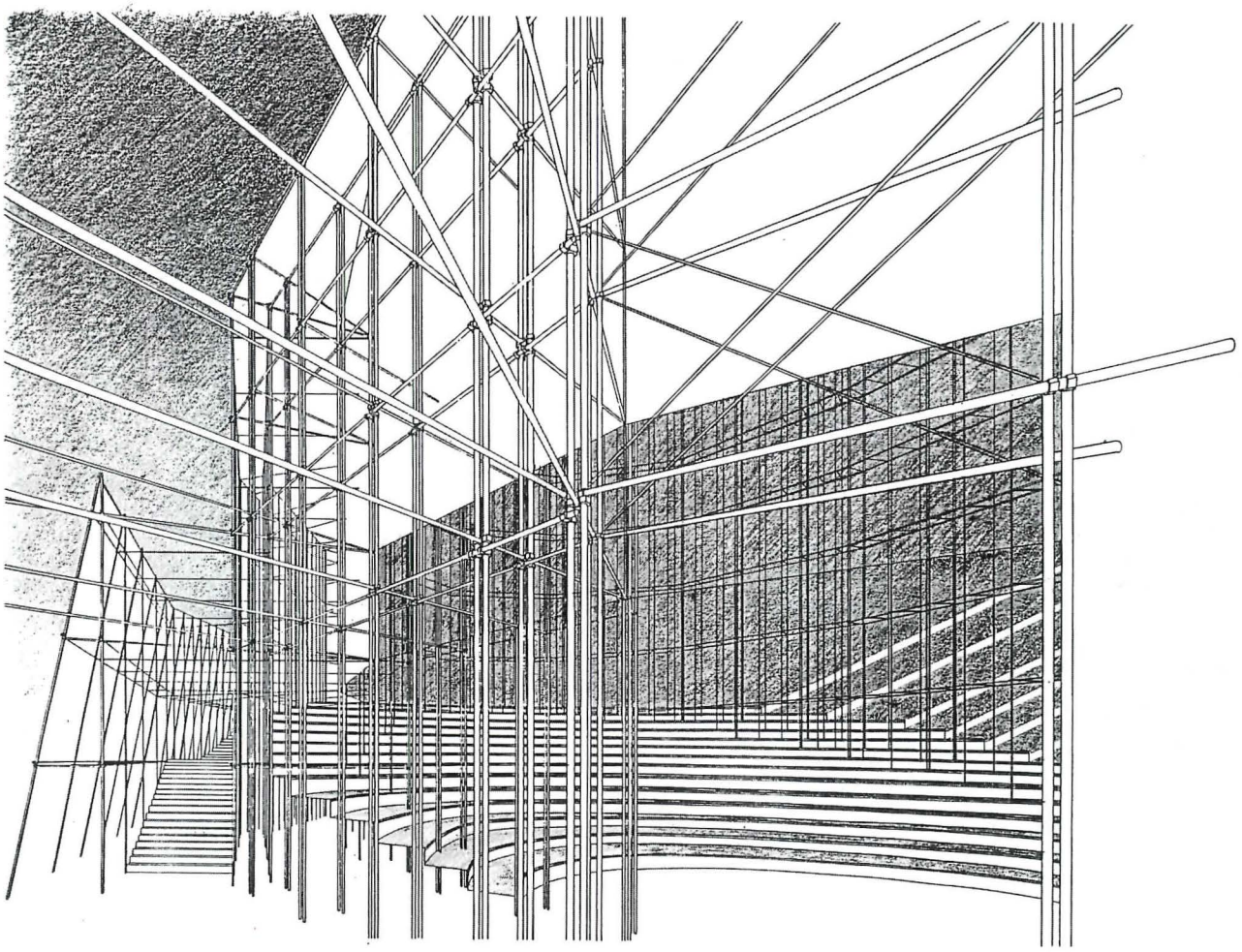
Tadao Ando's Karaza Theater, assembled from a kit of steel and wood parts, is the new portable home of a traveling Japanese drama troupe.

© Yoshio Shiratori photos except as noted

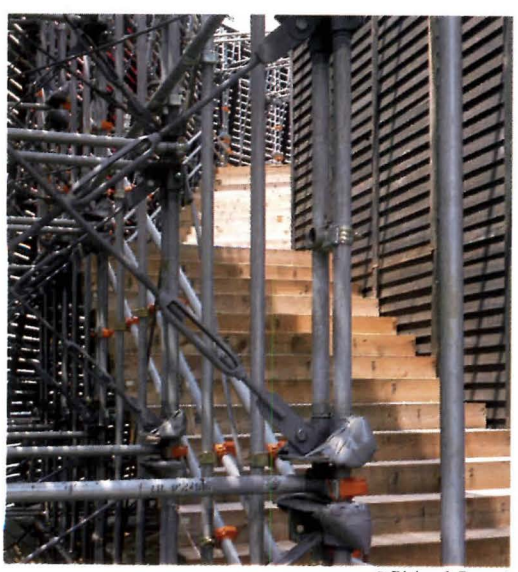


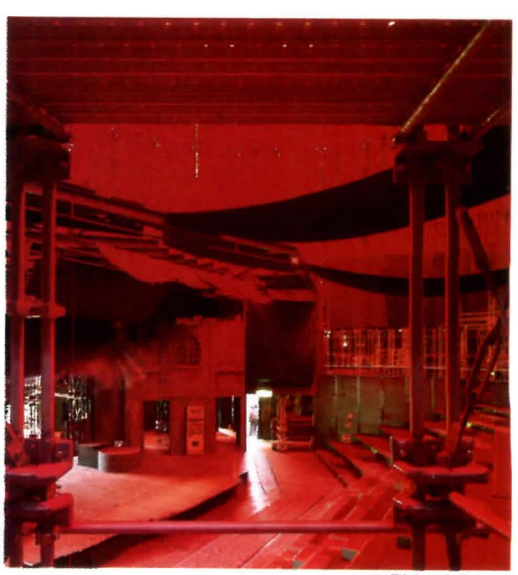
vel, which he interrupted briefly to pursue a career as a fessional boxer. Not surprisingly, Ando's Hemingway persona vades his work, and his withdrawn, monolithic forms, hioned from handcrafted materials, have a haunting presence. ugh materially distinct from earlier projects, Karaza exhibits lo's ongoing fascination with shape as metaphor. Its 12 sides present the cosmos," in the architect's words, and its entrance lge "symbolizes the path from reality to illusion." Constructed lywood panels secured to scaffolding pipes by clamps, the ecagon is approximately 120 feet wide and 81 feet high. The nson fabric roof is a reference to Kara Juro's previous mmodations, a red tent. The requirement that the new theater be movable inspired rather than constrained Ando, whose ving of Karaza harbored in New York (above left) recalls Aldo si's floating Teatro del Mondo of 1979. Although the sketch als the architect's more whimsical side, it does not represent fantasy, since plans to transport Karaza to the United States an upcoming festival celebrating Japan are afoot. Perhaps ion and reality will meet again, in Manhattan. *Karen D. Stein*



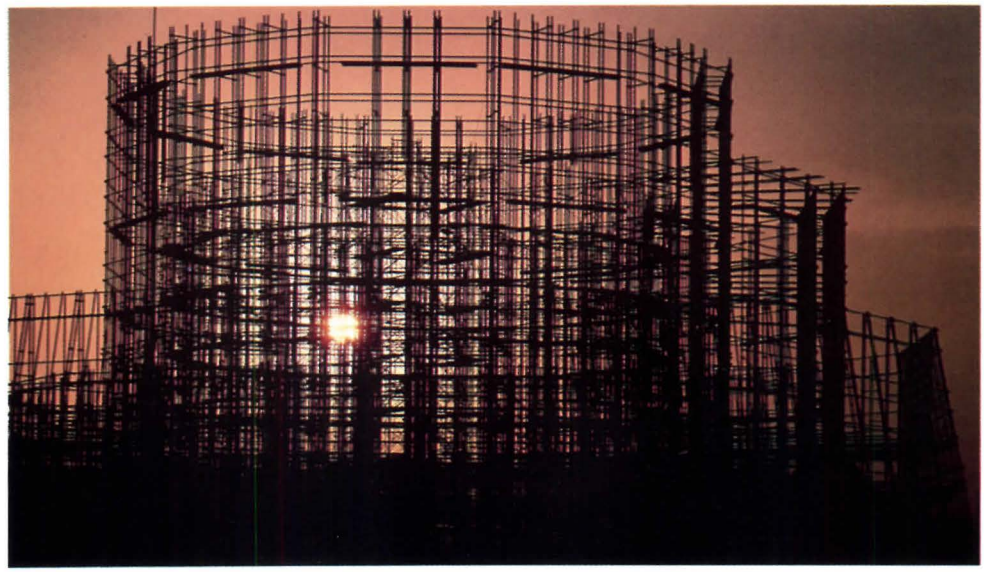


Initially designed entirely in wood, the Karaza Theater was reconfigured with metal pipes when the program required that it be demountable. According to Tadao Ando, the combination of a steel structure and plywood cladding gives the Karaza Theater "a simultaneously traditional and futuristic image." Inside the theater the dichotomy is even more apparent. Bleacher-style risers (also constructed of plywood) wrapped in carpeting accommodate an audience of up to 600 and are positioned amid a complex web of scaffolding (drawing above and photo below left). Kara Juro mounts its offbeat dramatic productions on a small platform (below right), which is bisected by a water-filled "river"—a stylized set for the performance of Japanese comedy and tragedy.



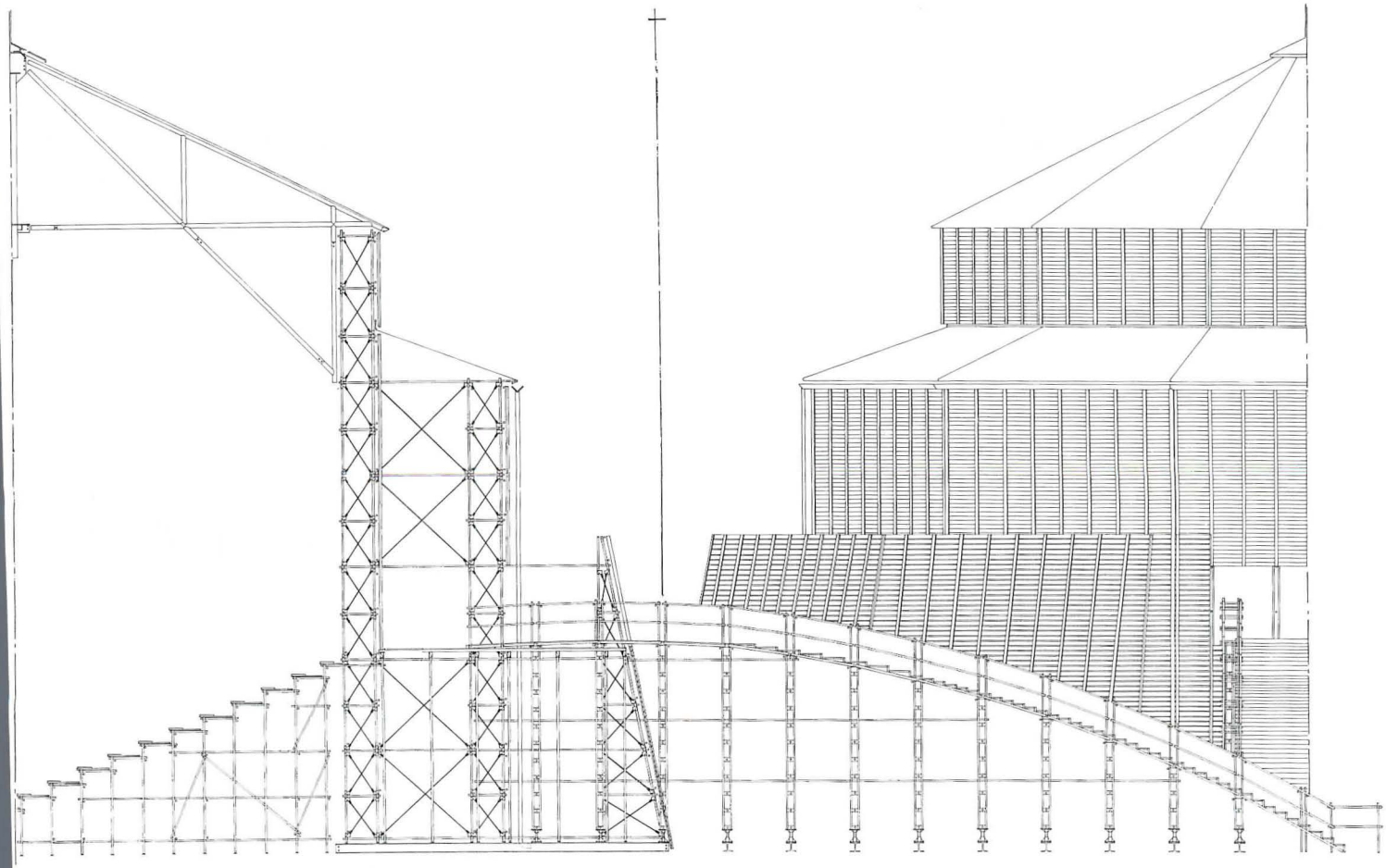


Accompanying the package of scaffolding pipes, plywood panels, specially designed clamps, and bleacher-style benches that comprises Karaza Theater are a set of computer-generated drawings and instructions that claim "construction is possible anywhere" within a two-week period. Although structurally more sophisticated than a typical circus big top or the red tent that served as Kara Juro's previous quarters, Karaza is meant to celebrate similar rituals of assembly (photo below) and disassembly.



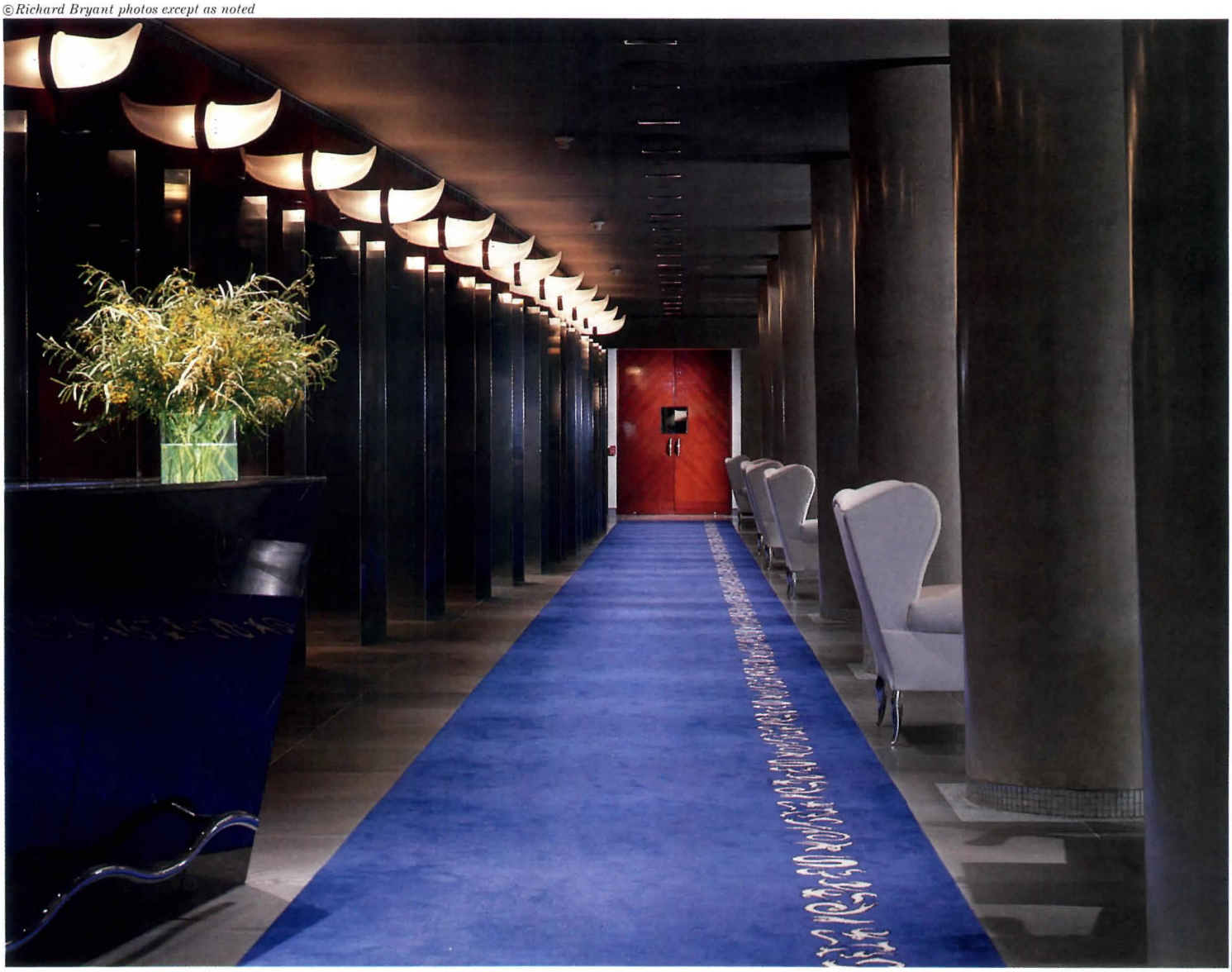
Karaza Theater
Tokyo and Sendai, Japan
Owner:
Seiyo Corporation

Architect:
Tadao Ando Architect & Associates—Tadao Ando, principal-in-charge
General contractor:
Tobishima Corporation



The Royalton Hotel
New York City
Philippe Starck, Designer
Gruzen Samton Steinglass
Architects, Planners

Rags to riches



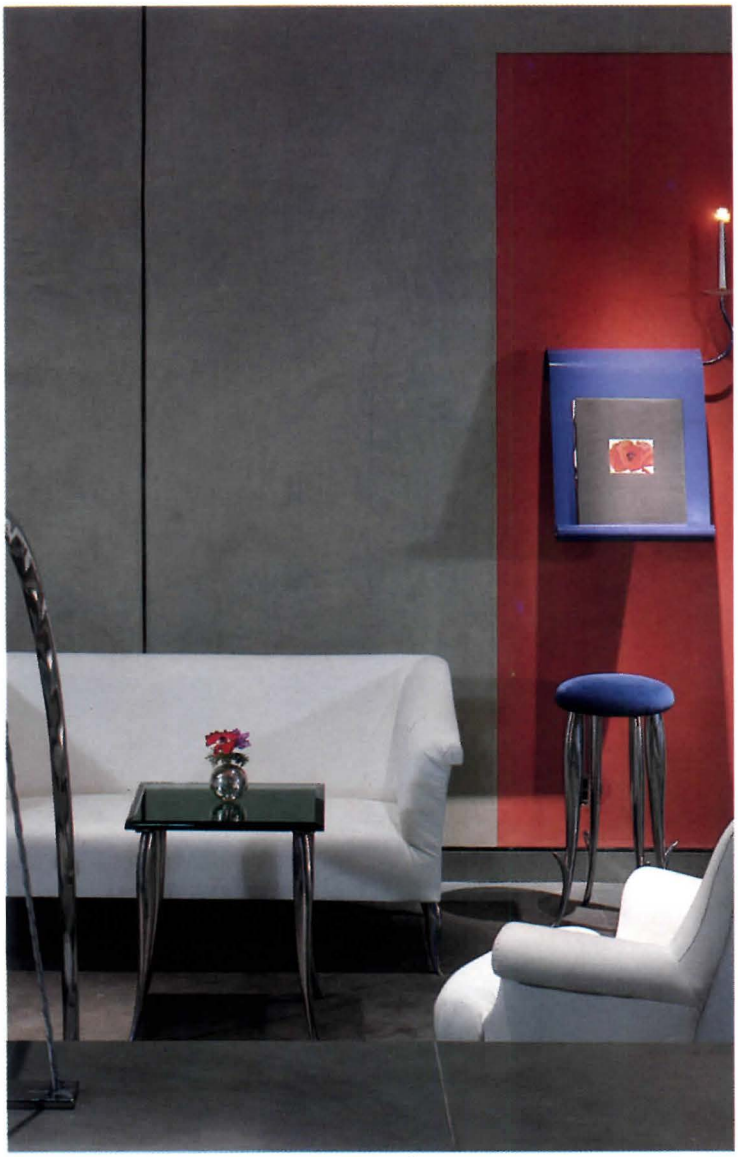
Over the past 50 years Manhattan's Royalton Hotel has not exactly lived up to its name. Built in 1897, this once-exclusive bachelors' residence had declined into a second-rate hostelry by the mid 1930s. But when entertainment impresarios Steve Rubell and Ian Schrager and partner Philip Pilevsky purchased the derelict building in 1985, the new owners made it clear that they would restore a measure of dignity to the Royalton's structure and a ring of truth to its regal-sounding name.

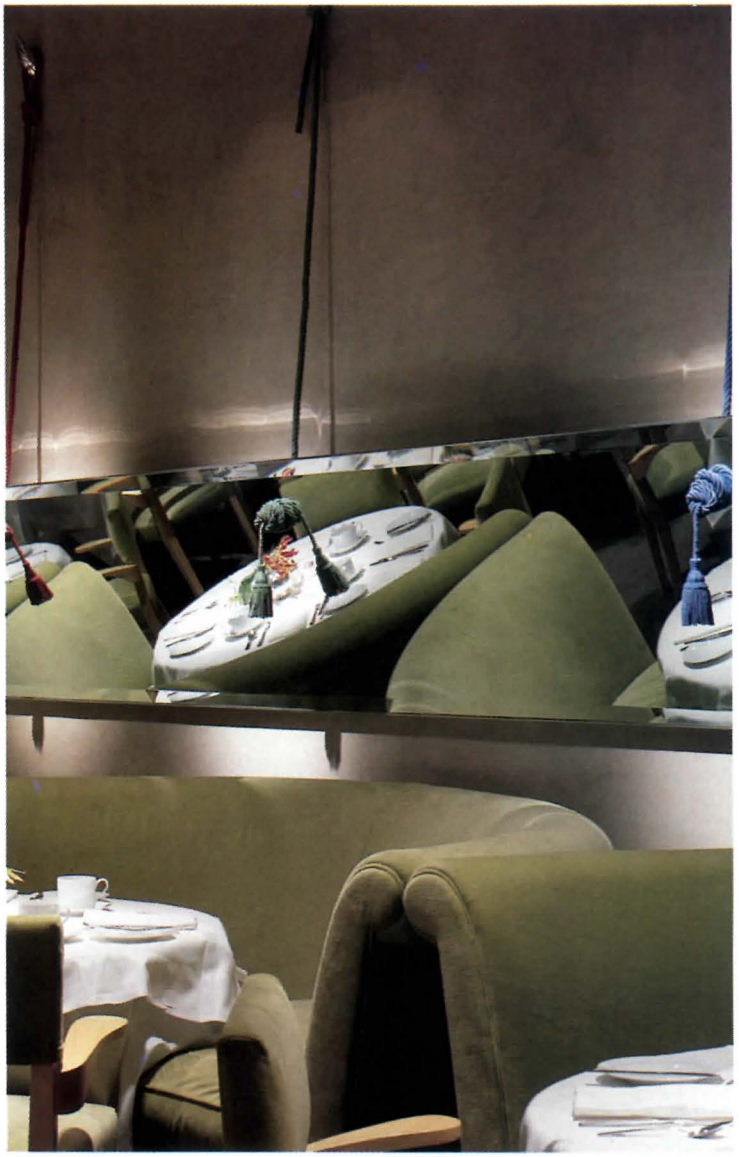
Since serving 13-month jail terms on charges of tax evasion, former nightclub owners Rubell and Schrager have built more respectable reputations as developers of luxurious lodgings—and perhaps more significantly, as patrons of architecture. After opening Morgans Hotel, Andrée Putman's essay in quiet good taste [RECORD, March 1985, pages 144-151], the duo decided to raise the visual volume for their next venture, the Royalton. They turned to 39-year-old Philippe Starck, of Paris, a world traveler and hotel connoisseur himself, whose current star status among international designers made him an ideal spokesman for the fast lane crowd the hotel hopes to attract. With local architects Gruze

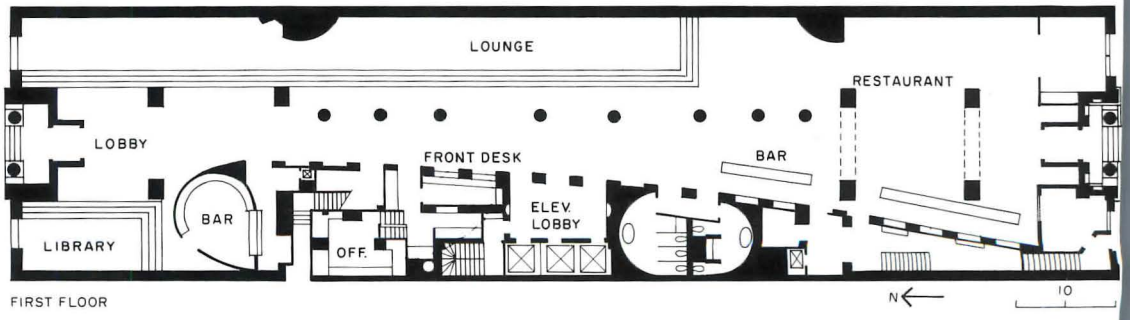
Philippe Starck, darling of the international design world, has restored the sparkle of youth to Manhattan's 92-year-old Royalton Hotel.

Samton Steinglass ensuring the buildability of his idiosyncratic ideas, Starck set out to break as many rules of conventional hotel design as his clients would allow. In the lobby, for example, the designer emphasized its awkward length by running a royal-blue rug down its center. He tucked what is typically a lobby's most prominent feature, the registration desk, behind a tapering mahogany wall highlighted with horn-shaped sconces. Opposite, steel-legged chairs and sofas slipcovered in white, apricot, apple green, and amethyst provide a suitably dramatic lounge for well-heeled guests. Upstairs, 90 units were gutted and replaced by 171 rooms. Elegantly appointed in mahogany, slate, and subtly shaded gray carpeting, the rooms are comparatively restrained, except for vintage Starck lavatories, where standard fittings were rejected in favor of glass-topped vanities, round tubs, and mirrored showers. Starck's unusual obsession with bathrooms probably won him the commission. "When I saw Philippe's early fixture designs," recalls Schrager, "I thought, 'A guy that does this kind of bathroom must be capable of a lot.' " As the Royalton's cosmopolitan glamour reveals, he certainly is. *Karen D. Stein*

The Royalton's 180-foot-long lobby is subdivided into several distinct areas (plan below). Near the main entrance, a lower-level lounge contains Philippe Starck's variation on classic wingback chairs. Intentionally impratical white slipcovers ("No other hotel will dare copy them," says co-owner Ian Schrager) give the effect of draped sheets, while sinuous chrome-plated steel makes delicate legs and armrests. Seemingly medieval in purpose and inspiration, a purple bookstand and candle holder framed in crimson add color to a gray wall whose waxed-plaster finish emits a subtle gleam (below left). In the restaurant, banquettes and blond wood chairs upholstered in apple green are reflected in a massive mirror that appears to be supported solely by brightly colored cordons and

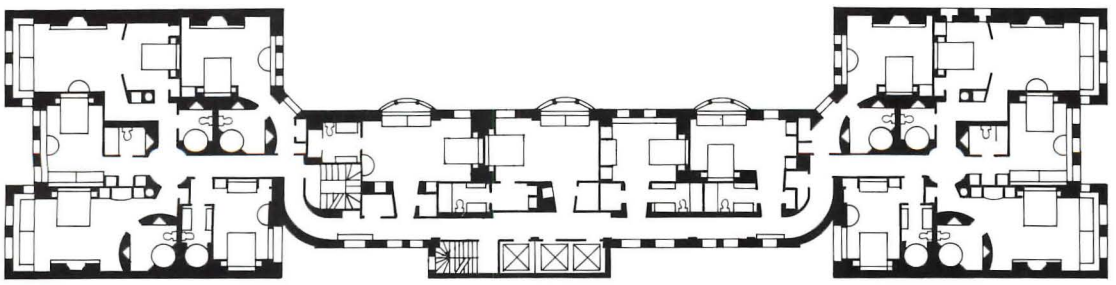






FIRST FLOOR

tassels (opposite right). It is here that Schrager and partner Steve Rubell hope Manhattan's literary crowd will establish a new lunchtime Round Table, which was once conducted across the street in the more traditional dining room of the Algonquin Hotel. For further evidence of the Royalton's bookish aspirations, one must only look to the "library," where a mahogany table piled high with monographs on architecture, art, garden design, and fashion occupies a streetfront showcase (below left). For more intimate occasions, there is a 192-square-foot circular bar, padded from floor to ceiling in tufted cerulean velvet (below right). Defying stylistic classification, the lobby's eclectic mélange is perhaps best summed up by Starck, who calls it a "cultural cocktail."



TYPICAL FLOOR

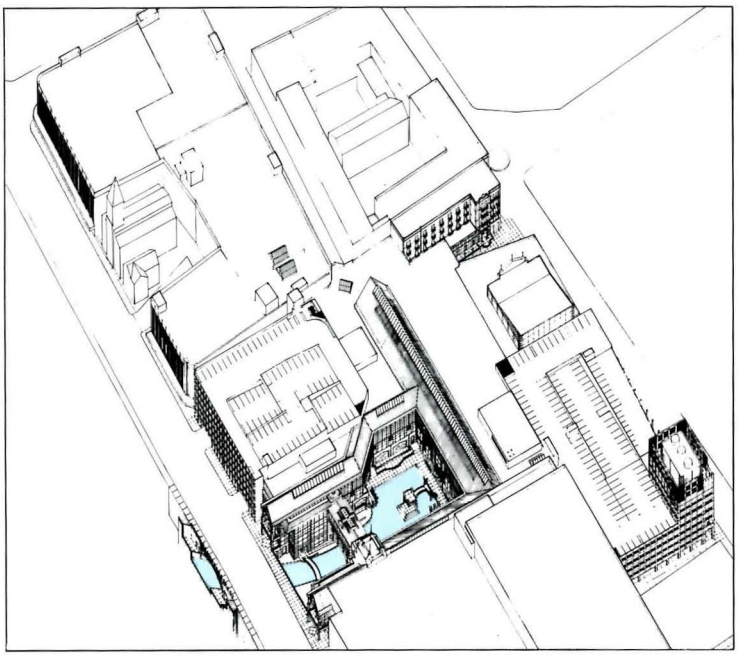
What began as a simple renovation turned into a complete gutting when financial considerations required that the Royalton's 90 original rooms be transformed into 171 units of various sizes. All of the new rooms contain custom-designed furniture and light fixtures and some, including a penthouse suite (bottom), have slate fireplaces. Instead of commissioning permanent artwork, Philippe Starck created a candle stand that holds a postcard, which is changed daily (right).

The Royalton Hotel
New York City
Owner:
44th Street Hotel Associates
Designer:
Philippe Starck
Architect:
Gruzen Samton Steinglass Architects, Planners—Ralph Steinglass, partner-in-charge; Jury Alvarez, project architect; Anda Andrei, project designer; Robin Bernstein and Richard Rosinski, senior technicians
Engineers:
Stanley H. Goldstein (structural); Ambrosino DePinto & Schmieder (mechanical/electrical)
Consultants:
Jules Fisher & Paul Marantz, Inc. (lighting); Purchasing Associates—Pam Weinzapfel, associate-in-charge (fixtures, furnishings, and equipment); John A. VanDeusen & Associates (elevators)
Construction manager:
Herbert Construction Company—Don Denardo, field supervision

Elliot Kaufman

Rivercenter
San Antonio, Texas
Urban Design Group, Master Planners and Architects

Just add water



Among the elements tight-packed on Rivercenter's 13-acre site (above), the signature feature is not a building but an open space—an inland Texas version of a waterfront. To tie the complex into the River Walk, the city channelled a new branch of the twisting San Antonio River to a horseshoe-shaped lagoon wrapped by the retail arcade that connects the project's several anchors (opposite). The liveliness of the basin, which is embellished by elegant bridges (one forms a "Ponte Vecchio" for local crafts), airy terraces and boat landings, and exuberant landscaping, is heightened by contrast with the rigor of the curtainwall enclosing the shopping streets within.

"Just add water," the promotional slogan for San Antonio's Rivercenter, only hints at the full recipe behind an instant commercial success that must to its beneficiaries seem the product of nothing short of alchemy. In the 14 months since its opening, sales in the downtown shopping and entertainment center have outstripped even the most optimistic projections; its stores, restaurants, and hotels have generated some 3,000 jobs, many among under-employed elements of San Antonio's populace; and significant increases have been registered both in the number of visitors drawn to the city and the length of their stays.

Like most overnight triumphs, this one was long in coming. The project's descent can fairly be traced to the 70-year-old vision of San Antonio as an archipelago of cultural and commercial centers joined by a seamless riverside garden. This image of the city has informed the ongoing downtown revitalization plan set in motion by the 1968 HemisFair exposition, the later construction of a convention center on its site, and the concomitant development of the city's much-acclaimed River Walk. But its more direct genesis was an effort joined in 1979 to gentrify the down-at-heels area just east of the central business district, between the new convention center and the hallowed precincts of the Alamo. A multiuse complex firmly tilted toward retail, the center as built includes a three-level shopping arcade, three major department stores, and two attendant parking garages in addition to two hotels and an IMAX theater, with more to come. Happily, though, the planners did not mistake the site for another cornfield ripe for paving, but recognized and nurtured the latent commercial vigor beneath its crumbling surface.

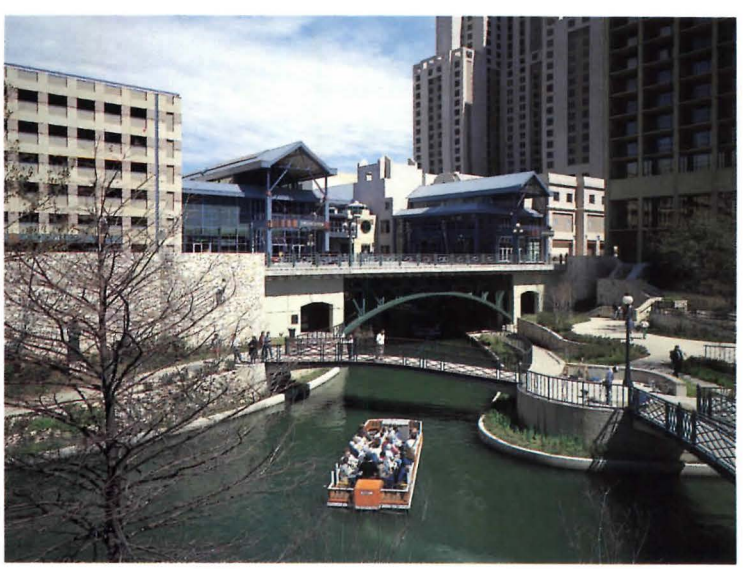
If "urban shopping mall" strikes some as an oxymoron, Rivercenter nonetheless achieves a convincing, if laid-back, urbanity by engaging and emulating the surrounding community, smoothly insinuating its 3 million gross square feet into a mixed and changing neighborhood. The casual visitor, in fact, sees the mall proper as simply the brightest thread in a dense tapestry woven from buildings of old, new, and uncertain vintage (see photos overleaf). The former Joske's department store at the center's southeast corner, for example, dates to the late 1800s and embraces an only slightly more modern church. Yet its restored facade, which now houses two smaller anchor stores along with an interior extension of the arcade, is every bit as fresh as the bandbox-new Lord & Taylor's down the block. Across a one-time alley turned pedestrian street, the historic 333-room Menger Hotel, spruced up and expanded, similarly holds its own against the 42-story Marriott that is now the city's tallest building.

A more subtle tie to the larger metropolis rises from the refusal to snub that notorious city slayer, the car. To welcome auto-reliant San Antonians as well as transients, Rivercenter's parking is not only plentiful, safe, and convenient but downright spiffy. In addition, the arcade's interior layout concentrates offerings geared to tourists and conventioneers at the river level, with those more attuned to a local clientele on the upper floors. The crucial symbiosis with the city was achieved, however, by wrapping the arcade around a lagoon (opposite) that brings the river to the project's doorstep, creating an ebullient front yard for the center and adding a lively destination to the River Walk.

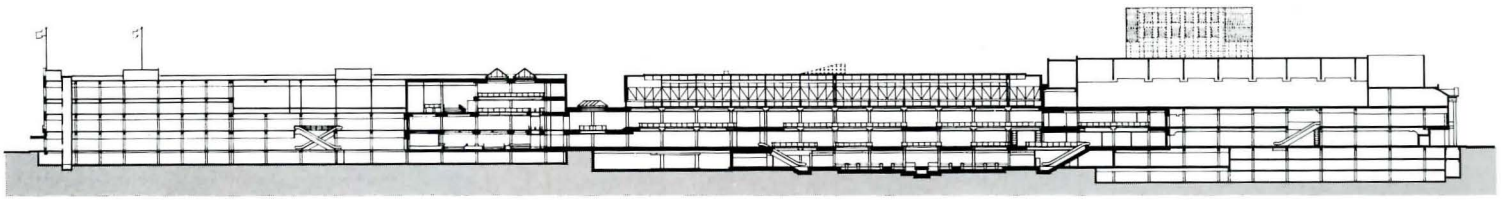
Whether the complex will, as intended, also serve as a catalyst for a full-fledged retail revival in the sagging city core remains to be seen. Meanwhile, its carefully cultivated "street smarts" yield urban lessons of their own. *Margaret Gaskie*

Channeling San Antonio's popular River Walk to Rivercenter's doorstep was just one of the not-so-secret ingredients that give the new complex both its lively presence—and a past.

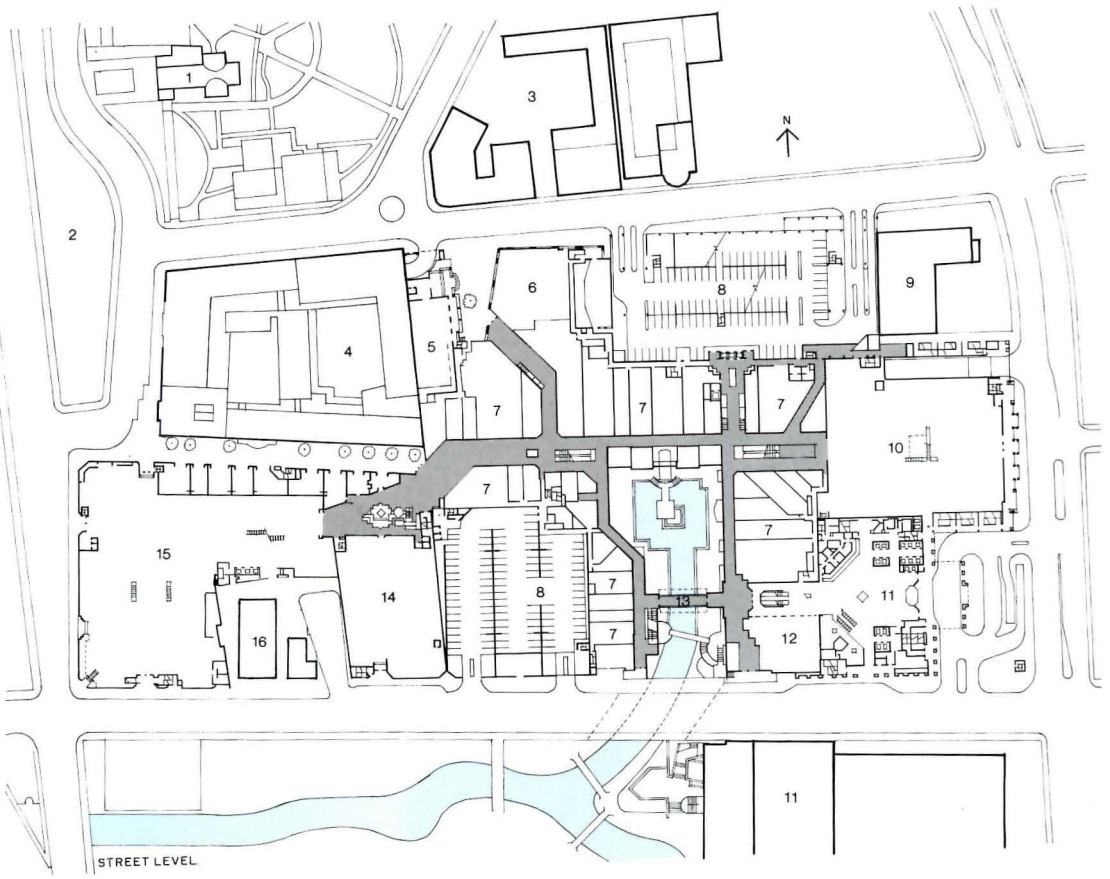
©Nick Wheeler photos

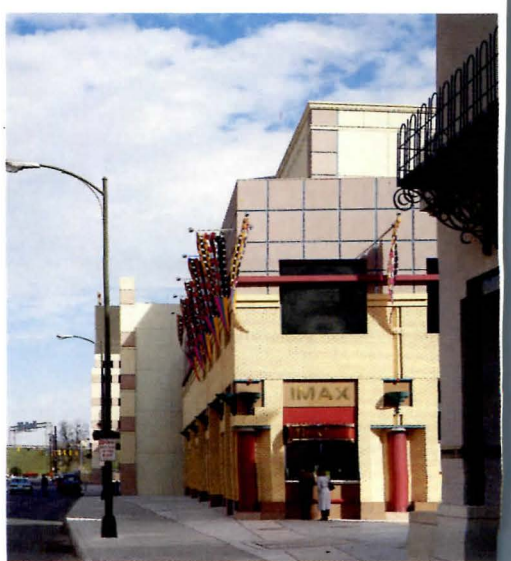


Though its cynosure is the water garden fronting the retail arcade, the project as a whole is no less remarkable for its largely persuasive guise as infill. Actually, only the Menger Hotel and the shell of the neighboring department store at the western edge of the site were retained and restored. But the center's just-built pieces are equally at home in the old neighborhood, even before the "new" wears off. Realizing that variety is the area's chief attraction, as well as its "context," Urban Design Group wisely resisted imposing a "consistent" style on the various buildings, instead trying for the individual reticence and collective appeal of a true urban ensemble. The garages look unapologetically like garages; the new Lord & Taylor's (bottom left) is a classic downtown store, lent

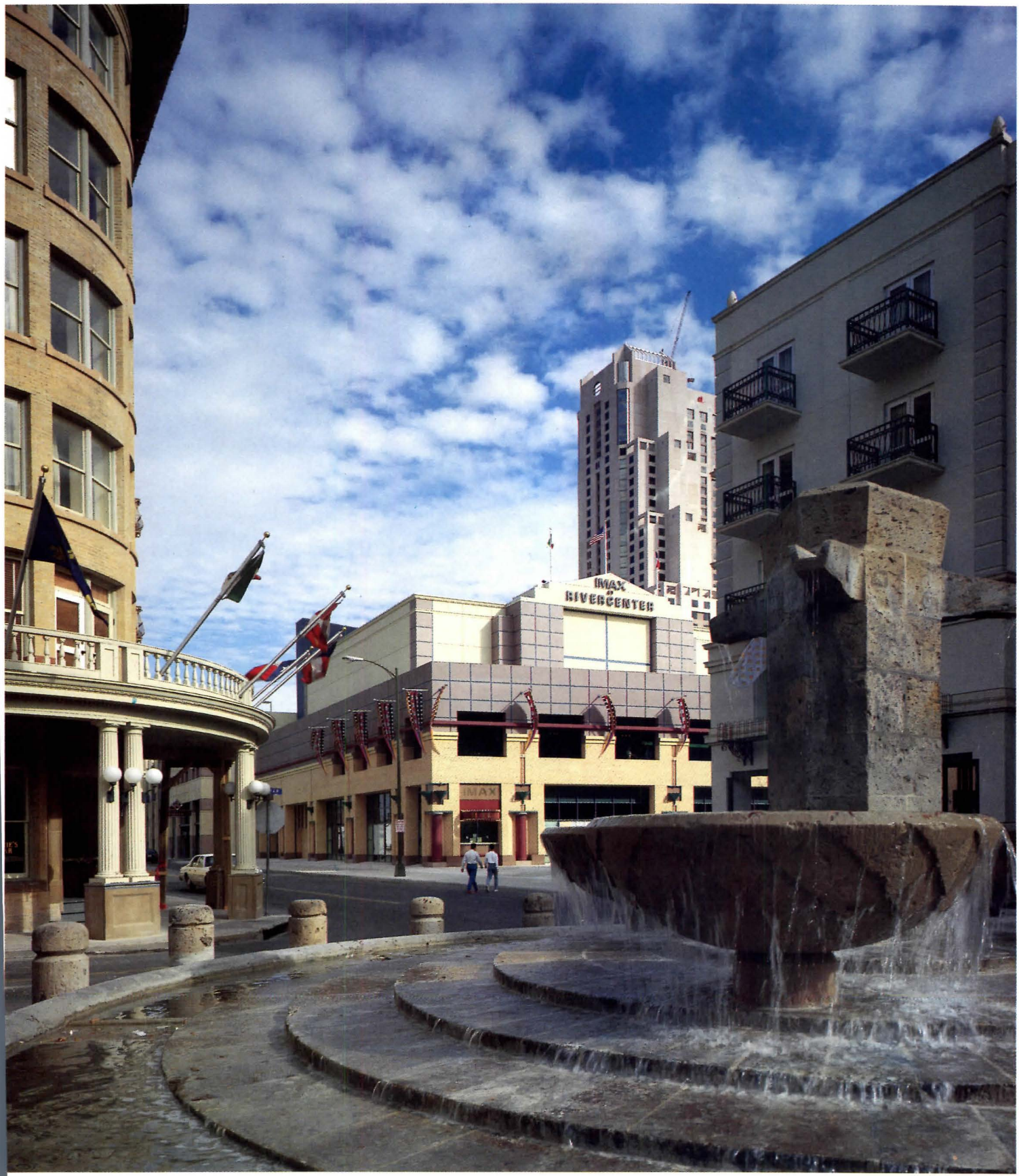


1. *Alamo*
2. *Alamo Plaza*
3. *Crockett Hotel*
4. *Menger Hotel*
5. *Menger Hotel expansion*
6. *IMAX Theater*
7. *Retail*
8. *Garage*
9. *Future hotel*
10. *Lord & Taylor*
11. *Marriott Hotel*
12. *Hotel restaurant*
13. *Retail bridge*
14. *Neiman Marcus*
15. *Dillard's*
16. *St. Joseph's Church*





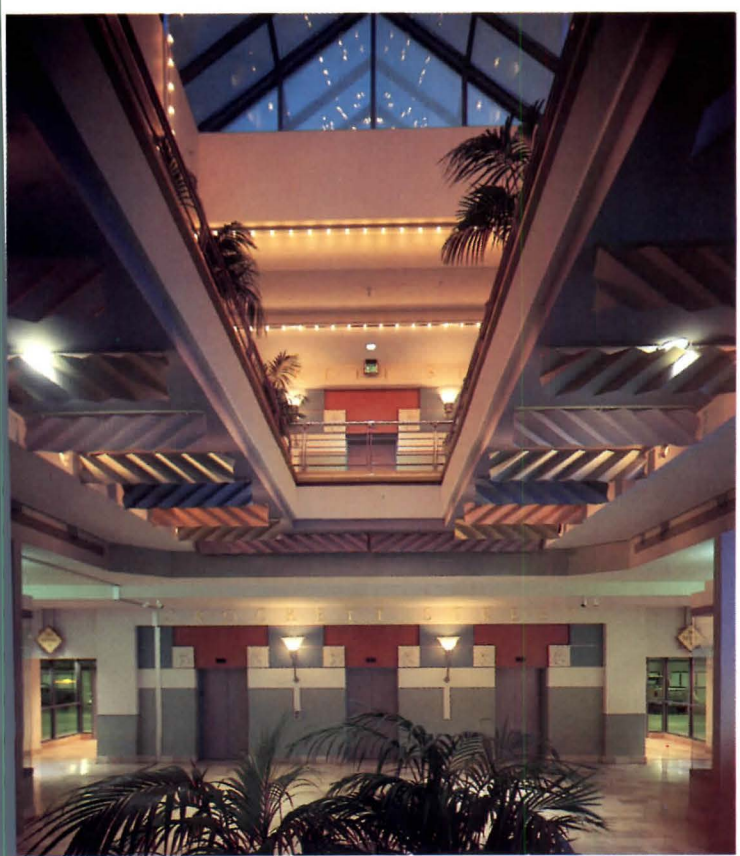
added stature by carrying the Marriott's ballroom on its roof; the IMAX theater (bottom right below and opposite) could only be a theater—and only in San Antonio. Even the 1,000-room Marriott Hotel (designed by RTKL) looks like a hotel. The picture-postcard street scene below is a capsule summary of Rivercenter's mostly gentle presence. The fountain, installed during earlier improvements to the Alamo Plaza, introduces the facade of the copycat addition to the Menger Hotel (far right). In the center of the photo are the IMAX Theater and behind it the Marriott, both new. The historic Crockett Hotel glimpsed at left is neither new nor part of the Rivercenter complex, but was recently renovated and restored in an early example of the project's hoped-for trickle-down effect.



The disciplined structure of the "market shed" that edges Rivercenter's lagoon (below and upper left opposite) places single-loaded shops in receding tiers as it rises from river level to street level and the upper "Fashion" level. Combined with skylights and clerestories above, the glass front opens the mall to daylight and views, and provides an airy expansiveness without loss of orientation. Taking advantage of San Antonio's gold-flecked sunlight, the steel frame is outlined in vivid blues and greens that would elsewhere seem harsh.

Rivercenter
San Antonio, Texas
Owner:
The Edward J. DeBartolo Corp.
Architects/master planners:
Urban Design Group—John M. Novack, principal-in-charge; Donald C. Buenger, master planner/design coordinator; Ronald D. Armstrong, technical coordinator/construction administrator; Randy Hart, John Foster, Tom Gandee, Randy Brown, Leisa McNulty, Randy Johnson, Whit Todd, Brad Buchanan, Jan Delaney (retail/parking); Jack McSorley, Finley Skocdopole, Laird MacDonald (Menger Hotel); Kent Utsurogi (IMAX)
Architects for river extension and landscaping:
Ford, Powell & Carson
Architects for Marriott Hotel:
RTKL Associates, Inc.
Engineers:
Walter P. Moore & Associates (structural); Smith & Boucher, Inc., Goetting & Associates (mechanical/electrical/plumbing); K. M. Ng & Associates (civil and bridge)
Consultants:
Communication Arts (retail interiors/graphics); Maurice Kley (L&T image); DeShazo, Starek & Tang (traffic/parking); Learch, Bates & Associates (vertical transportation); Barath Acoustics, Sonic Associates (IMAX); Day & Zimmerman (city contract managers)
General contractor:
Manhattan Construction Co.

The comparative restraint of the arcade's upper floors (not a clock tower in sight) gives way to exuberant Hispanic motifs at the tourist-oriented river level. Mahogany lattices, for example, screen the deep portals that open from landscaped terraces to inner concourses (below right), allowing light to penetrate their dense shade. In the central food court (bottom right), colorful tiles, bas reliefs of chili peppers, sturdy oak furniture, and metal ruffles as light shields create a space that is gay but not gaudy. The ruffled baffles reappear in a colorful lobby for garage elevators (bottom left) that exemplifies Rivercenter's attentiveness to motorists.



Learning curve

By Ellen Posner

New York City's public-school system has become a metaphor for disaster. Disorder, violence, and drug use are well-documented, as are the less blatant but equally discouraging problems of overcrowded classrooms and deteriorating structures—the result of what one New York State assemblyman calls "systematic underinvestment."

But improvements are underway. Two years ago, the city began a program to build 12 new schools, four of which are scheduled to break ground in December 1989. The architects of these projects are four New York City firms—Gruzen Samton Steinglass, Perkins & Will, The Ehrenkrantz Group & Eckstut, and Richard Dattner. Each firm has designed one modular prototype that will be adapted for various sites in the boroughs of Manhattan, Queens, Brooklyn, and The Bronx.

One of those architects, Richard Dattner, has also designed the first primary school to be built in New York City in over a decade. Public School 234 was begun four years ago as part of the 10-block Washington Market Urban Renewal Area in lower Manhattan, a project of the New York City Public Development Corporation, a quasipublic agency. Many of the same people now involved in the prototype program, particularly at the Board of Education, were responsible for the successful completion of the school, and Dattner reports exemplary cooperation among architects, school board members, and community residents. In a city like New York, such a story can be hard to believe. In fact, if P. S. 234 hadn't already turned out so well, the city's current initiative might just seem too good to be true.

Ellen Posner writes about architecture for The Wall Street Journal.

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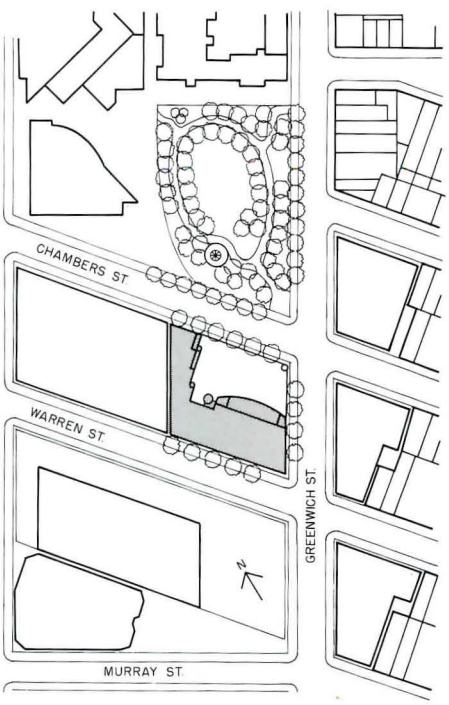
Public School 234
New York City
Richard Dattner Architect

Primary consideration



P. S. 234 faces Washington Market Park, which serves as a visual extension of the school's courtyard (site plan). On the southeast corner of the building, a turret houses a reading alcove for the school's second-story library (above).

In another city it might qualify as just one more well-designed school building, but in New York City, P. S. 234 stands out as a small miracle of humanity. In 1984, the school was offered as a tradeoff to residents of the lower Manhattan neighborhood of Tribeca, who reluctantly consented to have an office tower built amidst the neighborhood's mostly low-scale 19th-century industrial buildings (many of which have been converted to residential lofts). Opened last September, P. S. 234 accommodates children in grades K to 5 who previously were being taught in leased space on the ground floor of an apartment building.

Architect Richard Dattner successfully joined the school to its surroundings by slipping a sawtoothed form with strip windows into a red-brick envelope, which is pierced by narrow arched windows and enlivened by pale belt courses. (The architect in fact has been complimented by a number of local residents on what they think is a sensitive renovation of an older structure). At the intersection of Chambers and Greenwich streets, the entrance of the school is demarcated by a series of red-brick piers and arches, connected by decorated steel gates (bottom left opposite) designed by artist and neighborhood resident Donna Dennis. These elements enclose a courtyard/play area that has been raised above street level to provide youngsters with privacy and protection. A quartet of sentry-box-like towers, including one containing a bell that the children can ring, is meant to encourage a sense of security. Although overtly quaint, the towers help to portray the school as a welcoming place—a significant improvement over the bleak asphalt-and-chain-link-enclosed playgrounds or nonexistent play areas at older institutions.

Inside P. S. 234, Dattner struck a balance between straightforward organization and visual interest. In keeping with the current "return-to-basics" pedagogy, as well as his own belief that children should experience the school as a place where they are expected to work, the architect maintained a pale, neutral palette (he was limited in his choice of materials by the school board's requirements for maintenance and safety) and arranged fixed, rectangular classrooms. Although Dattner designed the classrooms as traditional units, he eschewed lining them up like cells. Instead, by means of slight chamfers and jogs, he gave each room its own distinct entrance along the corridors. They benefit from large windows at child's eye level, high ceilings, and exposed or exaggerated structural elements that are meant to be subtly instructive.

Despite the Board of Education's highly specific program, with nearly every inch of space accounted for, Dattner was able to work with the agency's staff architects "to steal a little from this and a little from that" and create a stack of informal, nonspecific areas. He treated the corridors not merely as circulation routes, but as important gathering places where the life of the school is conducted. Alcoves were inserted, windows with good views provided, and wood strips applied to the walls for an orderly display area for student artwork. The ground-floor entrance hall is furnished with simple wooden benches and referred to as the "community area." On the second and third levels, curved wooden platforms rise to a series of varied windows, including an oculus.

Considering the city's web of bureaucracy and the limited means available for public projects, Richard Dattner calls P. S. 234 a "victory," and he's right. The children attending this school deserve no less. *E. P.*

New York City's newest public school is located near the Hudson River and World Financial Center in Battery Park City (below). Architect Richard Dattner designed the primary-grade facility around a courtyard with recessed brick courses and patterned pavers in scale with the children (below right). Artist Donna Dennis (whose work was made possible by the city's Percent for Art program) stressed a maritime association in her design for the gates (below left), depicting ships that, at one time or another, would have sailed the Hudson.

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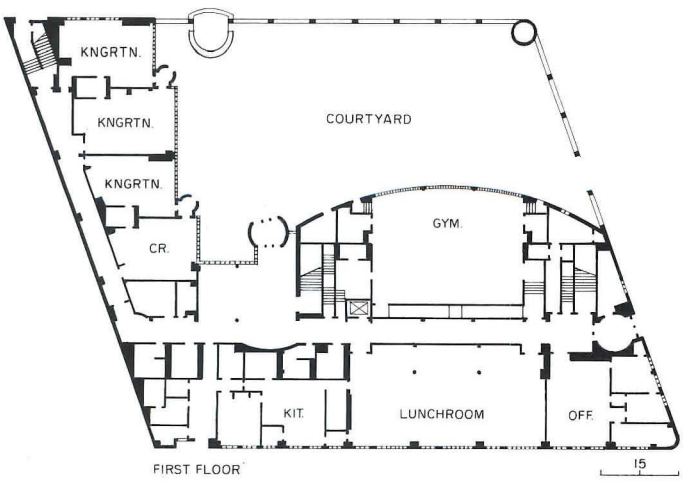
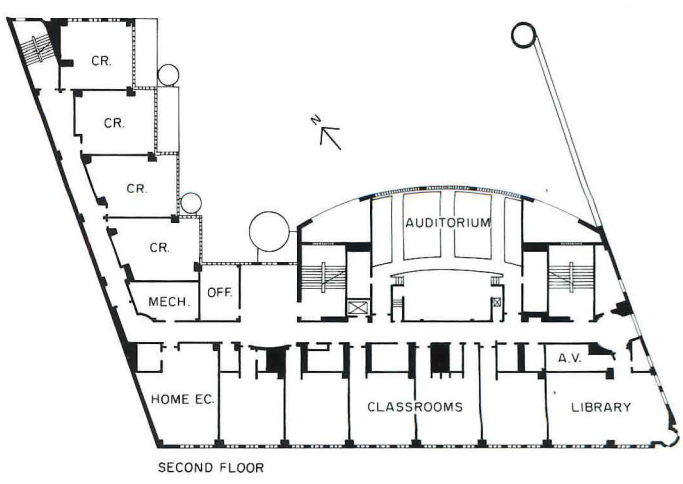
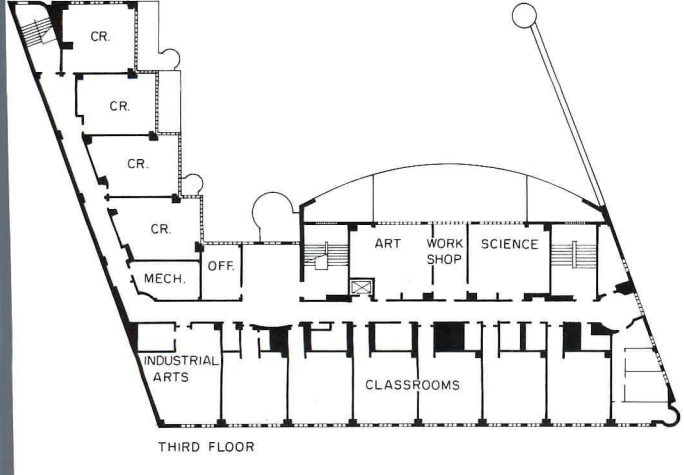
In P.S. 234's classrooms, exposed concrete beams (below) and brick window arches reveal the school's structure to the students. Shared public spaces exhibit a warmth and dignity not always associated with city-funded projects. Richard Dattner designed the oak-paneled auditorium (opposite) with a large bay glazed with decorative glass block. The shallow domes in the corridors (bottom opposite) are intended to house representations of constellations created by artist Donna Dennis, which have not been realized as of yet due to budgetary constraints. Though most of the classrooms are generic in size and shape, special provisions were made for the ground-floor kindergartens. Slightly larger than the other classrooms, they incorporate bathrooms and private entrances from the courtyard towers.

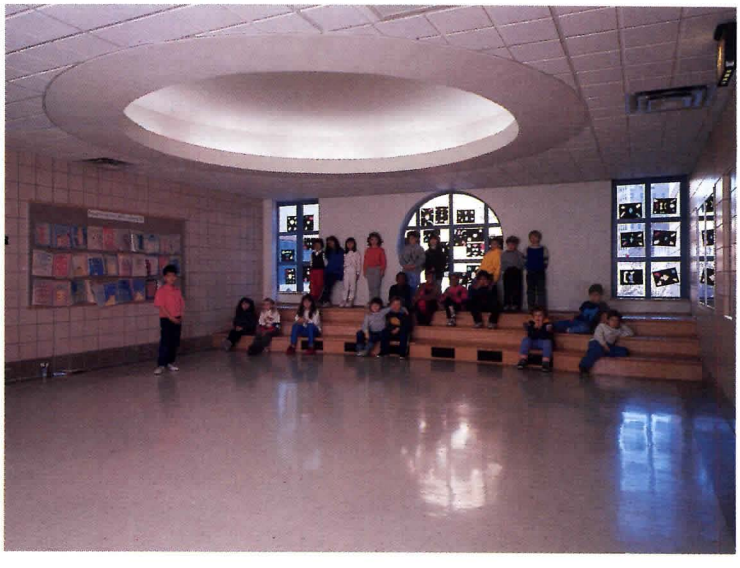




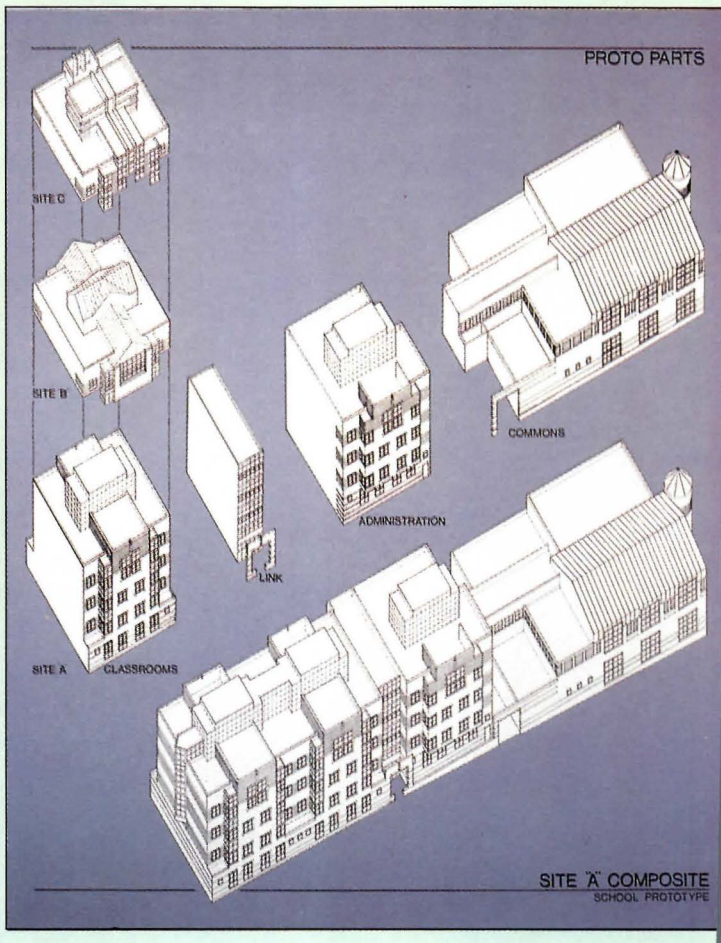
P. S. 234
New York City
Architect:
Richard Dattner Architect—Richard Dattner, principal-in-charge; William Stein, associate-in-charge; Songsri Chang, Kevin Dakan, Craig Abel, Jeff Kieffer, Naomi Lieseroff, William Kelm, Donna Taraschuk, Michelle Noe, Michael Daniels, project team
Engineers:
Goldreich, Page & Thropp (structural); Robert Derector (mechanical)
Landscape architect:
Miceli-Kulik & Associates
Consultants:
Peter George (acoustics); Nissim Zelouf (cost); Donna Dennis (art)
General contractor:
Arnell Construction Corporation



THIRD FLOOR



Building blocks



Over the past two decades, New York City has not supported wholeheartedly architectural intervention as a means of solving the problems that confront its public-school system. During the city's fiscal crisis in the 1970s, for example, projects under construction were abruptly terminated, with dug foundations abandoned and steel frames left standing. More recently, as the school-age population dwindled in some districts and bulged in others, problem-solving techniques consisted of closing or demolishing scores of schools, while allowing students in other locations to be taught in converted closets or bathrooms. The Board of Education's staff architects struggled with meager financial resources to do whatever maintenance and modernization work they could. By 1987, conditions had deteriorated to such an extent that a Mayor's task force began looking into building new schools, designing them better, and constructing them more quickly. The result is a school-construction program that is expected to produce 189 new buildings over the next 10 years—about the same number built per decade in the Board of Education's post-World War II heyday. Most elements of the new program already are in place, including a newly formed New York City School Construction Authority, created by the state legislature, and a streamlined, anti-bureaucratic method of site selection and acquisition initiated by Mayor Edward Koch. The pivotal allocation from the city's capital budget for the program's first five years is expected to be decided this spring.

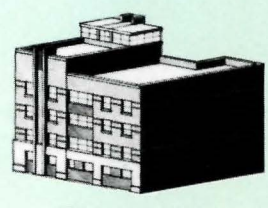
Meanwhile, the first 12 schools in the program (9 primary, 3 intermediate) are already going ahead. Early last year, four New York City firms—Gruzen Samton Steinglass, Perkins & Will, The Ehrenkrantz Group & Eckstut, and Richard Dattner—were commissioned, each to design one flexible, modular prototype school building that will be reconfigured for three different sites. Initially, when the Board of Education sent out its request for proposals to 23 New York firms in 1987, the agency was looking for one firm to design one prototype for the 600-to-900-student primary schools they were first planning to build. A presubmission meeting was held, attended by representatives of such prominent firms as Edward Larrabee Barnes, Ulrich Franzen, Hellmuth Obata & Kassabaum, Mitchell/Giurgola, James Stewart Polshek, Hardy Holzman Pfeiffer, Skidmore, Owings & Merrill, Tod Williams, and Steven Holl, along with those architects who ultimately were commissioned. It was during the group's discussion, recalls Rose Diamond, deputy director for management at the Board of Education's division of school buildings, that "interesting ideas began to emerge, including the idea of a 'kit of parts' rather than a 'cookie-cutter' design." The Board suddenly began to see "more possibilities and more needs" and decided to commission more than one firm. An innovative approach to the program evolved, eventually affecting larger primary and intermediate schools of 1,200 to 1,800 students. Sites were selected in residential neighborhoods where school overcrowding was worst—a continuing process that requires the city to condemn property for the first time in 25 years.

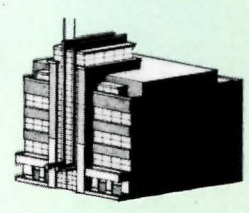
The design process, from pre-schematics to design development, evolved in three, six-month intervals, which allowed the four firms to devise a variety of configurations and facade treatments. The Ehrenkrantz Group & Eckstut, for example, arranged gabled buildings around courtyards, which appear almost suburban in

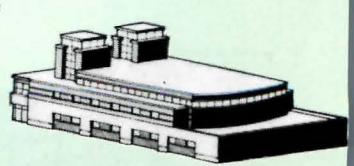
Text continued on page 114

Perkins & Will

Perkins & Will worked with the same program as Gruzen Samton Steinglass to design 300-student classroom modules for three different schools in the Bronx. Aaron Schwarz, partner-in-charge of design for the project, says the firm decided against creating "a bunch of townhouses." Instead, the architects took their cues from Modern sources, employing a stripped-down esthetic sympathetic to the Art Deco character of the neighborhood, which gives the complex a civic presence. Within each school, the major public entrance is located in the administration module (right). The wing containing the lunchroom/assembly room is separated from the gymnasium (1, 2) but the two areas may be connected as a single block (3), depending upon the size and configuration of the site.


TEACHING CLUSTER

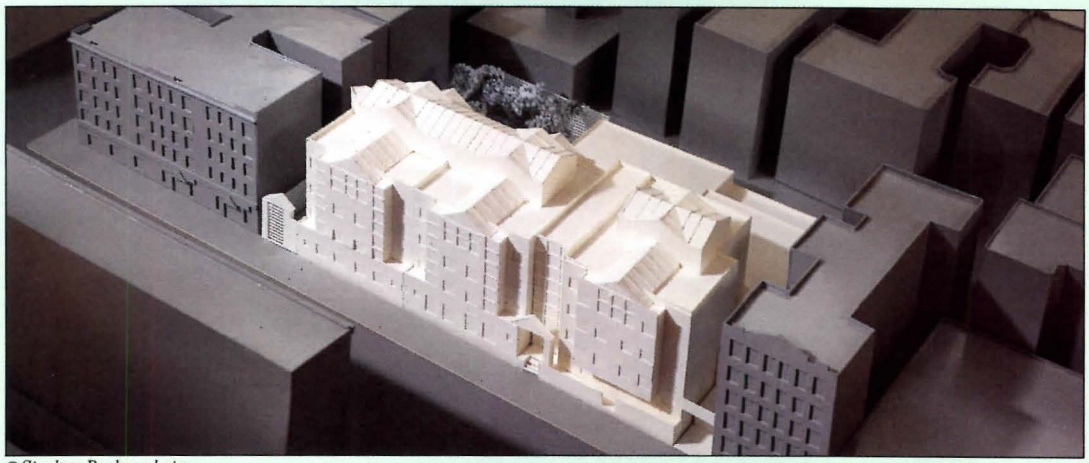

ADMINISTRATION / RESOURCE

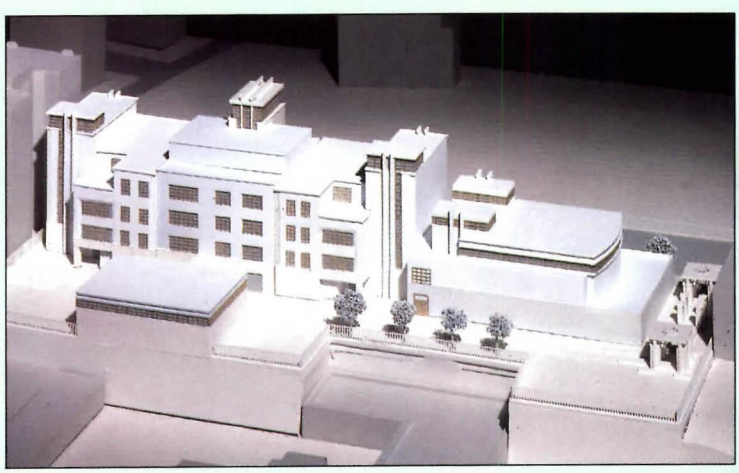

LUNCHROOM / ASSEMBLY


GYMNASIUM

Gruzen Samton Steinglass

The bays of the 300-student classroom modules designed by Gruzen Samton Steinglass are joined by "link" modules that contain shared vertical circulation, including entrances from the street and playground (left). To accommodate 900 students at the Sherman Creek school located at the north end of Manhattan (bottom right), an extra link was added for support facilities, while the program for the Broadway and West 204th Street site (top right) was condensed and the "commons" placed at the rear. The spaces within the commons module (the auditorium, gymnasium, and cafeteria) can be reconfigured while the structure retains the same long spans. The architects separated the public spaces from classrooms with security gates so that the community can use the school's facilities in the evenings.





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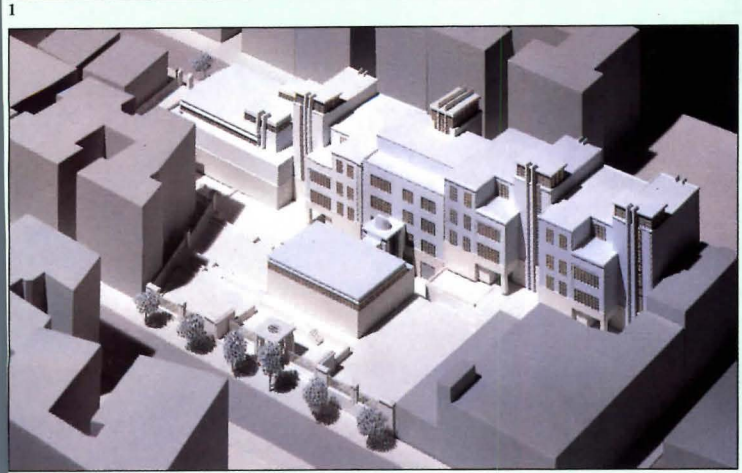


2

3

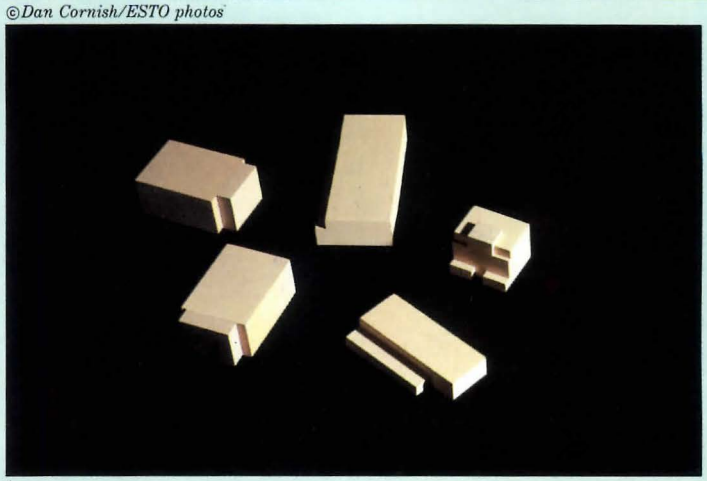
1. *Washington Avenue, The Bronx*
2. *Walton Avenue, The Bronx*
3. *LaFontaine Avenue, The Bronx*

Text continued from page 112
character, while Gruzen Samton Steinglass drew upon urban townhouses for the tightly-knit building blocks of its scheme. To accommodate various student-population sizes, the four firms designed multiple classroom modules that respond to recommended student capacities: intermediate schools no larger than 750 students and primary schools no larger than 600. Some architects subdivided the assigned school population into 300- and 550-student wings, and incorporated vertical elements—stairtowers, gables, and projecting bays—to break up the large scale and horizontal massing. Portions of the projects can be perceived—to greater and lesser extents, depending upon positioning and facade treatment—as sub-schools of their own, so that even in 900- or 1,200-student-capacity schools, the children will not, presumably, feel overwhelmed. And, as insisted upon by the New York City Art Commission, which approves designs for public buildings on city-owned land, all of the proposals achieve some balance between civic and residential scale.

The Prototype School Program has given the Board of Education the opportunity to start from scratch and entirely rethink its program for such buildings; to refine and streamline the site selection, acquisition, and design and construction processes; and to explore the changing role of schools in the community. The immigrant population in New York, for example, has been surging, and is expected to exceed all previous records by the year 2000. The public school is likely to be the first sustained interaction with the official structure of this country (and its more subtle rites and symbols) by these families, not just their children. It will suggest what values our society places upon education and whether or not children are considered to be important. New York City schools also have come to have a greater *in loco parentis* role: children are attending school at an earlier age and spending more time there (some schools now serve three meals a day). And schools have supplanted other civic buildings as focal points in the community, as places for meetings, cultural events, adult-education programs, and other social activities.

The prototypes address these realities and others. All include self-contained auditoriums and community rooms, pre-kindergarten classrooms, and separate workrooms, as well as private areas for teachers. Space for computers is allocated in every classroom, provisions have been made for the mainstreaming of handicapped children wherever possible, and there are outdoor play areas with plantings in each design.

There is much cause for cautious optimism in the new government legislation and procedures. By utilizing flexible prototypes, the Board of Education saves time in the design stage and gains greater flexibility in selecting sites—an urgent matter given the dense urban context of New York. The school construction agency will be exempt for at least five years from the Wicks Law, which requires separate contractors for each construction task; representatives of all city agencies involved are meeting once a month to make sure that site acquisition is moving along; and the Board of Education is being allowed to commission designs while the sites are being acquired. Crucial to the implementation of the program and its future success is the involvement and commitment of the three project managers at the Board of Education—Ken Karpel, the agency's chief architect and his architect-trained colleagues, Rose Diamond and Prakash Nair. They are helping to provide one of the magic ingredients of any successful architectural project: a good client. *E. P.*



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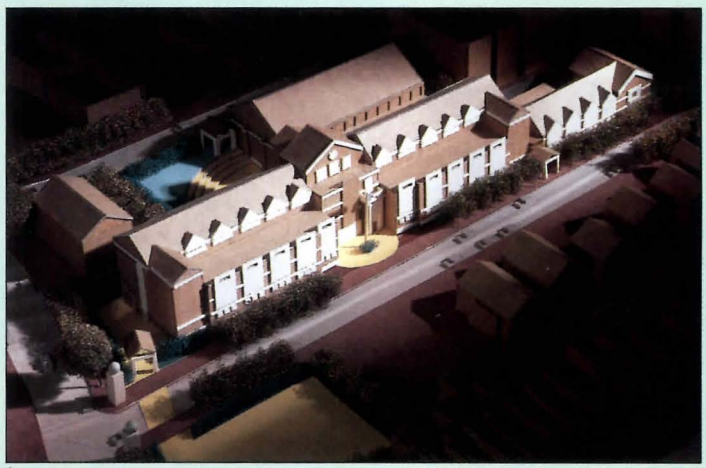

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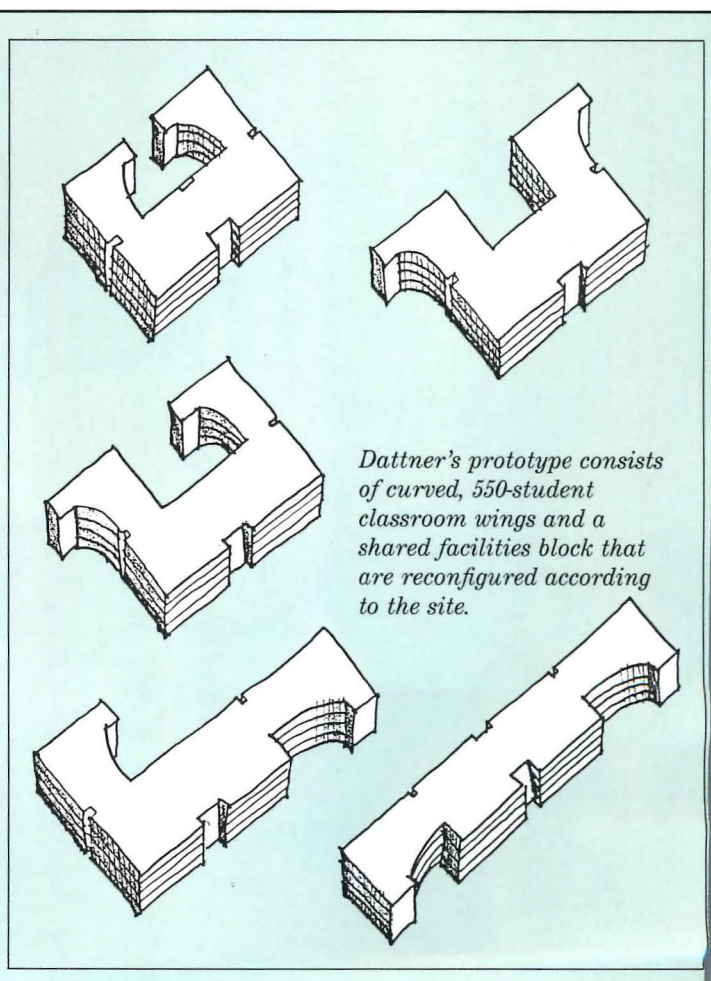
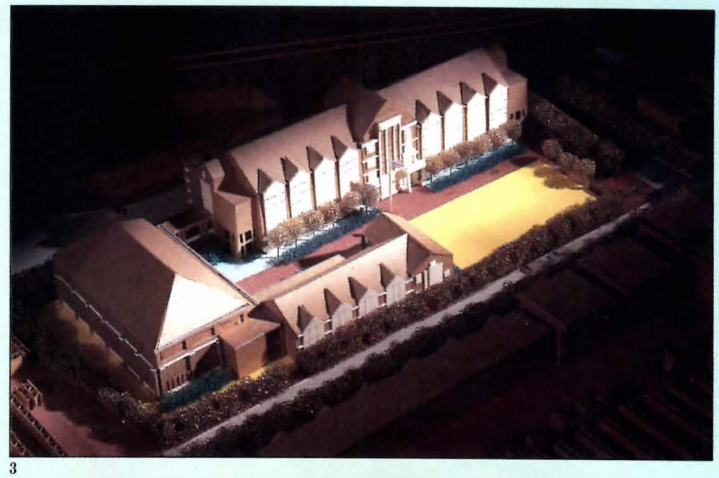


Dattner's prototype consists of curved, 550-student classroom wings and a shared facilities block that are reconfigured according to the site.

The Ehrenkrantz Group & Eckstut

In the early 1960s, Ezra Ehrenkrantz was instrumental in the California-based School Construction Systems Development project, an experimental program to devise systematic design and construction methods for building new schools. His involvement in SCSD is reflected in his modular designs for two, 1,200-student primary schools in Queens and one in The Bronx. The components of the Ehrenkrantz Group & Eckstut's scheme include two identical, 4-story classroom modules that each accommodate 550 students (top left photo); a 2-story block for 100 special education students enrolled in a program for the disabled; an administrative wing containing offices, guidance counseling, a medical clinic and library; and a gymnasium/auditorium. To distinguish each module with a strong individual identity, the architects housed the functions within a series of gabled bays. In addition to locating the main door in the administration wing, they furnished each classroom module with its own entrance. The links between the various wings will be custom-designed, so that the modules can be pulled apart and placed at different angles to accommodate specific site considerations. These corridors are intended to be fully glazed, thereby offering views to courtyards, play areas, and the adjacent streets.

1. *Prototype building blocks (clockwise from lower left): classroom modules, special education, administration, gymnasium/auditorium*
2. *Loring Place, The Bronx*
3. *Barnwell Avenue, Queens*
4. *Webster Avenue, Queens*



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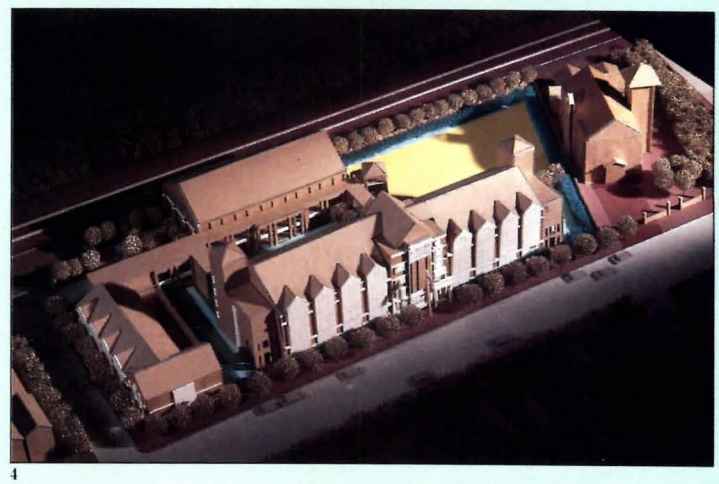
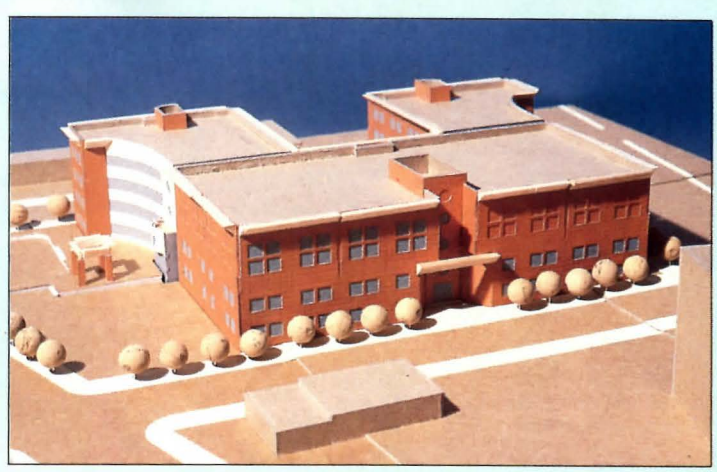


4

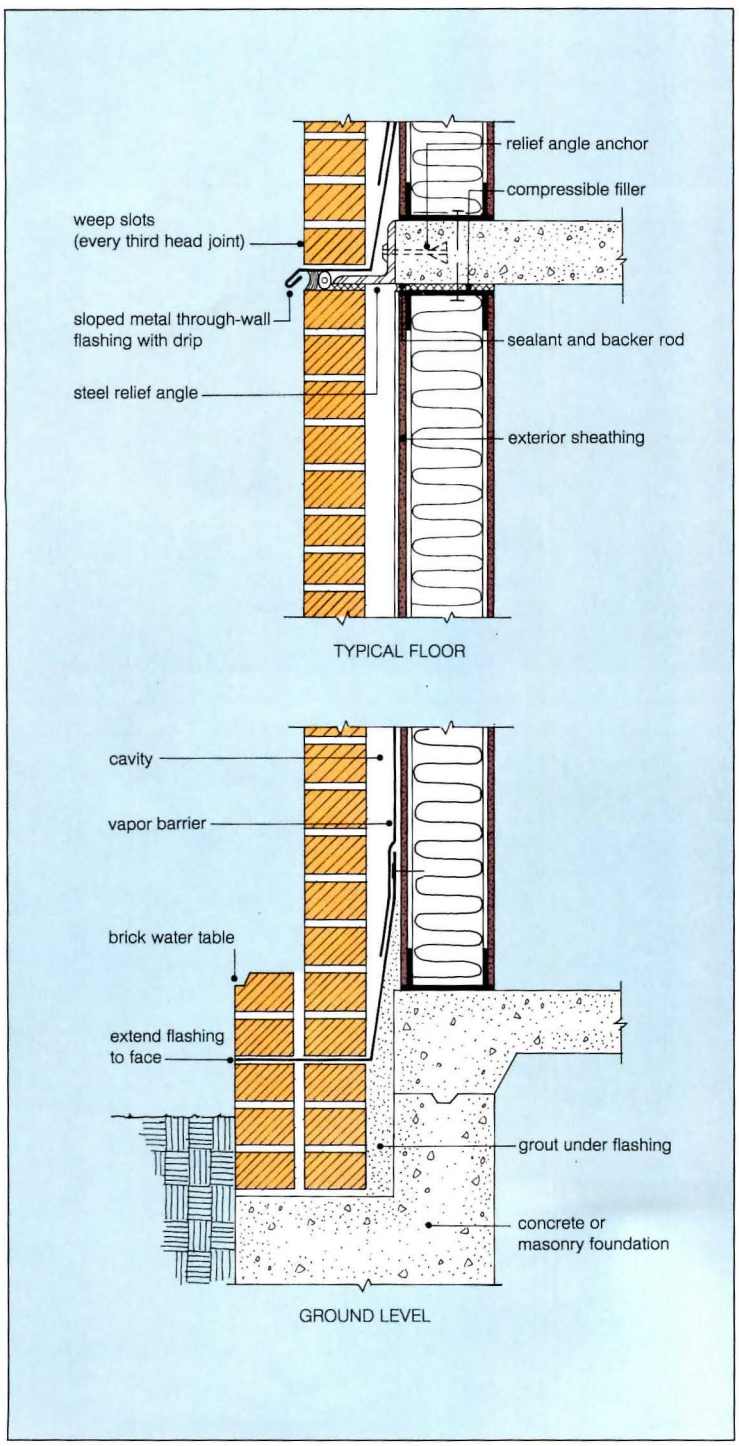
Richard Dattner

Richard Dattner was assigned a program for 1,200- to 1,800-student intermediate schools at Edgecombe Avenue and Jumel Place in upper Manhattan (top right); Queens Boulevard and Hillyer Street in Queens (bottom right); and Parkside and Nostrand avenues in Brooklyn (not shown). Of the four firms selected, he developed the fewest components: a pair of classroom wings to accommodate 550 students each, a third classroom module to house 600 students, and a centrally located structure containing shared facilities such as administration, gymnasium, and lunchroom. Special-education classes for the most acutely disabled are to be integrated throughout the schools. Dattner designed the 550-student classroom modules as curved forms in order to differentiate entrances to the individual subschools. The monumentality, strong cornice lines, and decorative brickwork of his proposed structures are intended to be reminiscent of the Collegiate Gothic imagery of the public schools built by New York City at the turn of the century.



Because of recurring questions about water penetration and long-term stability, brick veneer with steel stud backup remains controversial. Recent research by principals of Simpson, Gumpertz & Heger sheds new light on these questions.

A veneer too thin?



Relief angles at each floor allow the top of the brick wythe to move, reducing stresses (top). Bell and Gumpertz propose forming through-wall flashing into a drip at the exterior to avoid moisture migration under the flashing. An additional wythe of brick at the base can protect the flashing (bottom).

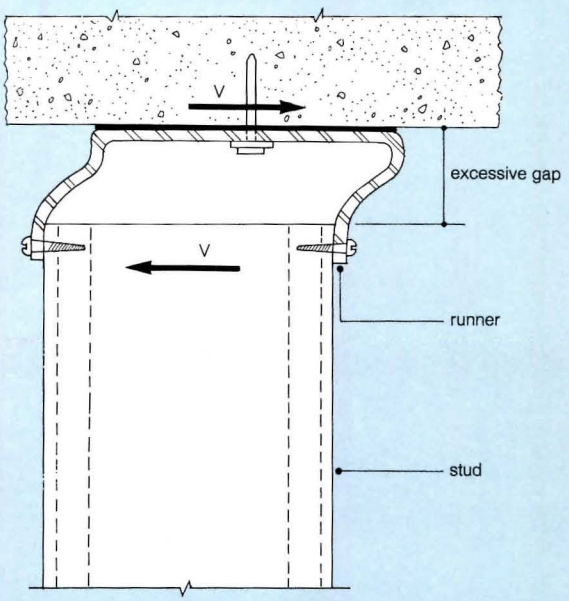
Persistent structural-performance and corrosion problems have nagged the wall system of brick veneer with metal stud backup. Employed for decades in small-scale residential construction, the combination has been promoted on much larger projects as an economical alternative to solid masonry or masonry cavity-wall construction, even though questions raised by such technological inflation have yet to be laid to rest. Although industry groups have sponsored tests intended to set standards for performance, "all failed to provide a rational model for [the system's structural] behavior," according to Glenn R. Bell and Werner H. Gumpertz, associate and principal, respectively, in the engineering firm of Simpson Gumpertz & Heger. These conclusions are based on analysis of the tests as well as diagnosis of more than a dozen problem-plagued brick veneer/metal stud buildings. Worse, many of the analyzed buildings suffered substantial leakage and corrosion damage due merely to sloppy detailing or construction.

Rigid bricks, ductile studs: incompatible?

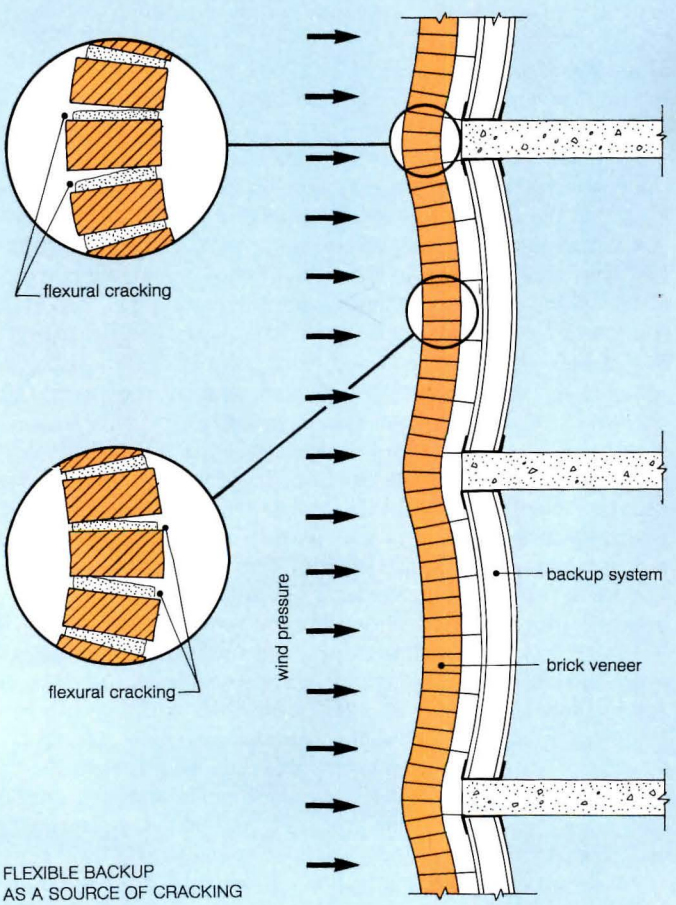
The system is composed of a metal stud wall sheathed on the inside with gypsum wall board; the cavity side is faced with gypsum sheathing, and is linked across an air space to the single wythe of brick by metal ties. The assembly is a curtainwall—supporting only itself—but must still resist both positive and suction wind pressure. In theory, this occurs by composite action of the brick veneer and the studs. In fact, because of the dramatic difference in rigidity between the veneer and the stud wall, there is no consensus that such action takes place. Much of the controversy has focused on design of the stud wall for deflection. Bell and Gumpertz note that groups that have sponsored testing have drawn different design criteria from the results: The Metal Lath/Steel Framing Association (MLSFA) defends L/360 as an adequate deflection criterion under full design load, while the Brick Institute of America (BIA) has revised its technical note on the subject to reflect a recommended deflection limit of L/600. What Bell and Gumpertz have found is that the emphasis on stiffness of the backup may be misplaced. They note that "Onset of veneer cracking does not necessarily represent the safe load limit of the wall. Test results by others show substantial reserve load-carrying capacity after cracking." They argue that brick veneer/metal stud systems should be accepted in an analogous way to reinforced concrete, the metal stud wall acting in effect as the steel reinforcement. In reinforced concrete design, cracking is allowed at ultimate strength. Under design (unfactored) loads, *serviceability* limits are set, describing maximum crack width and deflection. Unfortunately, no research has focused on how much cracking can be considered to be acceptable in brick veneer. Bell and Gumpertz advise using L/600 or L/720 under full design load until research definitively establishes criteria.

Another area of uncertainty in the performance of the walls is the likely difference in span lengths of the studs and the veneer. When the structural frame of the buildings has deep spandrel elements, or the veneer has no relief angle at the floors—to take two examples—the individual deflected shapes of the veneer and back-up are not compatible (wall section, opposite). Since the backup studs cannot contribute to the bending resistance at the much more rigid structural frame, there is, according to the engineers, potential for substantial load redistribution and concomitant high bending moments concentrated in the veneer, causing unpredictable veneer cracking.

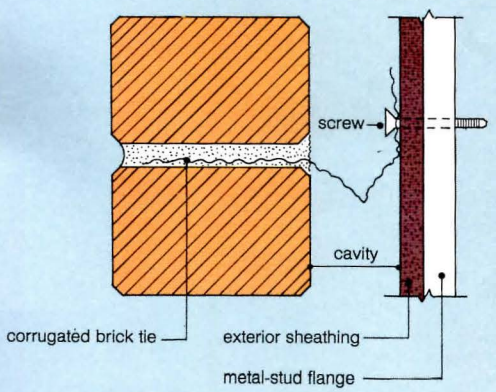
Because the metal studs are far less rigid than either the brick veneer or the building structure, stress incompatibilities can develop and cause cracking in the veneer (bottom left). Movement in the building frame can buckle the studs or deform the top runner if not detailed properly (top and recommended detail, opposite). Improperly installed ties can introduce flexibility into the system, another source of veneer cracking. Particularly vulnerable are corrugated metal ties (bottom right).

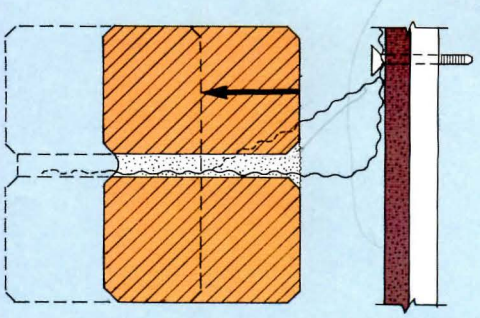


DEFORMATION OF STEEL RUNNER AT STUD ATTACHMENT



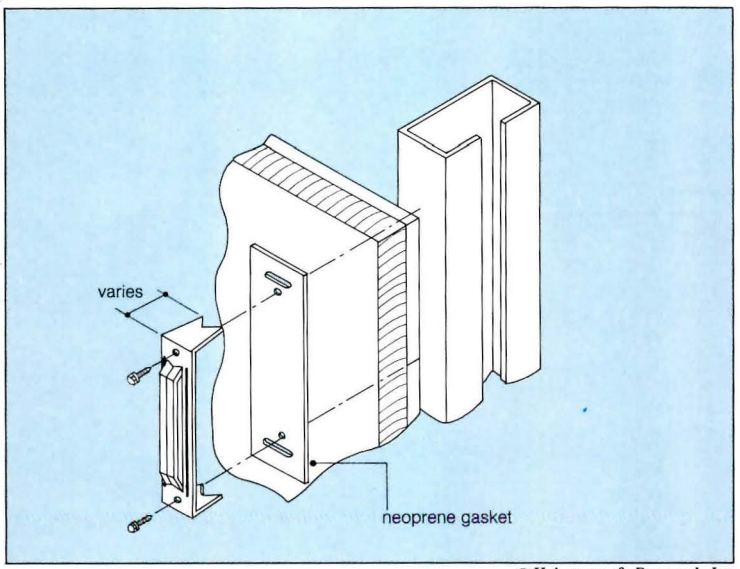
FLEXIBLE BACKUP
AS A SOURCE OF CRACKING





IMPROPERLY INSTALLED TIES

The box formed by the brick tie as well as free movement between the tie and its flange can approximate the expected maximum deflection of a very stiff backup, allowing veneer cracking exclusive of other sources of flexibility in the system. Of designs



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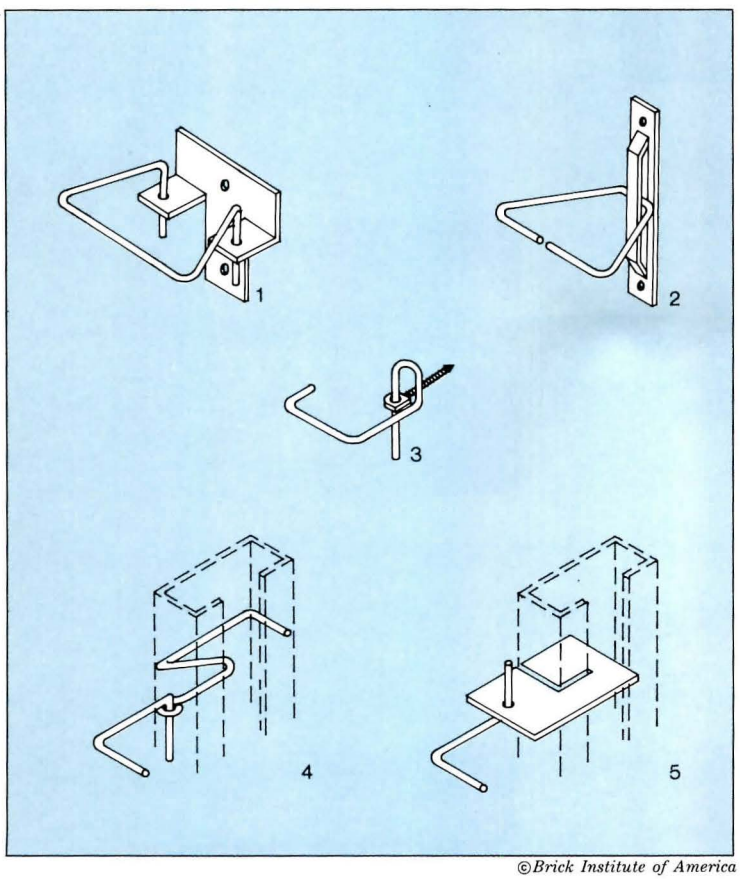

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recommended by the BIA, Bell and Gumpertz have found that 1 and 3 (bottom) best solve this problem. One flange design (top) takes into account possible crushing of a layer of insulation introduced on the cavity side to reduce thermal bridging of the studs.

Perils of poor detailing and installation

Improper detailing or sloppy construction readily causes problems in the metal-stud backup. Brick ties, for example, are critical to performance of the system because they transfer loads between the veneer and the stud wall. While designers commonly specify spacing and size based on a simple tributary area approach, the engineers' research showed that this is inappropriate, since tie loads can vary considerably within a single story height (some ties were found to be in tension and others in compression under a given wind load). Corrugated ties are discouraged because incorrect installation (all too typical) negates their function (page 117). Not all adjustable wire ties accepted by the BIA (bottom left) are appropriate since some designs are an additional source of unwanted flexibility. Bell and Gumpertz recommend that brick ties at each floor level, or at other load-bearing framing, be designed to support the entire span of the veneer, and to assume that the veneer carries the full design wind load. Tie design between floors should be governed by the greater of the following: forces derived from the assumption that the stud wall carries the full design wind load, or the distribution of veneer forces based on elastic uncracked analysis. Though exterior sheathing cannot be relied upon to contribute to composite action with the stud wall, it does help the studs resist buckling, *if* installed properly and not degraded by moisture penetration.

A great deal of attention has been paid in recent years to movement problems in masonry walls. This is of particular concern in the brick veneer/metal stud system in two areas. In tests at Clemson University, sponsored jointly by the BIA and the MLSFA, substantial horizontal movement of the top of the unrestrained brick wythe was detected, which is believed to have relieved stresses considerably. Thus shelf angles with "soft" joints underneath—clear of mortar and caulked with sealant—must be placed at every story. Movement damage due to shrinkage creep in concrete framing, or thermal movement in a steel structure, could cause buckling of the metal studs as well, if provisions for such vertical movement are not made. Even minor stud deflections can be transferred to the veneer through ties, another cause of veneer cracking (page 117, top).

Moisture damage

Preventing water damage is critical to the longevity of the brick and metal stud combination. Clayton T. Grimm, among the most vocal critics of the system, has focused attention on corrosion of the screw fastener, which may be engaged with only a single thread in the light-gauge metal studs. He notes that even heavy zinc coatings can be removed in the process of installing the fastener, leaving the connection open to attack by mortar salts dissolved in moisture present within the cavity. Bell and Gumpertz found some corrosion in a majority of installations they had examined, with complete consumption of the cross section of some (in this case prime-painted) studs and runners in one 10-year-old structure. Moisture can also degrade the gypsum board sheathing, preventing it from bracing the metal stud frame. Emphasizing that a single wythe of brickwork is fundamentally water permeable, Bell and Gumpertz urge detailing the cavity to positively protect the stud wall as well as convey collected water to the exterior (wall sections, page 116, window details, opposite). The brick veneer/metal stud system unfortunately has little tolerance for poor detailing or sloppy workmanship. All of the following have been found in problem walls the engineers have examined: mortar droppings clogging weep holes (the BIA now recommends a 2-in. gap as a minimum that workmen can readily keep clear); improper provisions for thermal, moisture, and structural-frame movement; inappropriate or damaged flashing (see selection chart opposite); and improperly installed or poorly maintained sealants. These problems contributed to cracked or dislocated bricks, corroded studs and runners, and the degradation by water penetration of sheathing, drywall, and insulation.

Condensation

Energy-driven requirements for higher insulating values have caused condensation within the wall system to become a greater problem, since the leakiness of older buildings equalized moisture content within and outside. If the dewpoint falls within the stud system, as it can on cold days with high interior humidity, or on hot humid days with dry air conditioning inside, moisture is deposited, damaging fasteners, studs, and insulation. Thus, an analysis must be undertaken, according to criteria set out in the ASHRAE *Handbook of Fundamentals.* While a vapor barrier on the exterior side of the studs should keep water from migrating inward on hot days, the stud wall backup is not appropriate as an enclosure for high humidity rooms, due to the difficulty of installing an effective barrier on the inside of the studs.

Conclusion

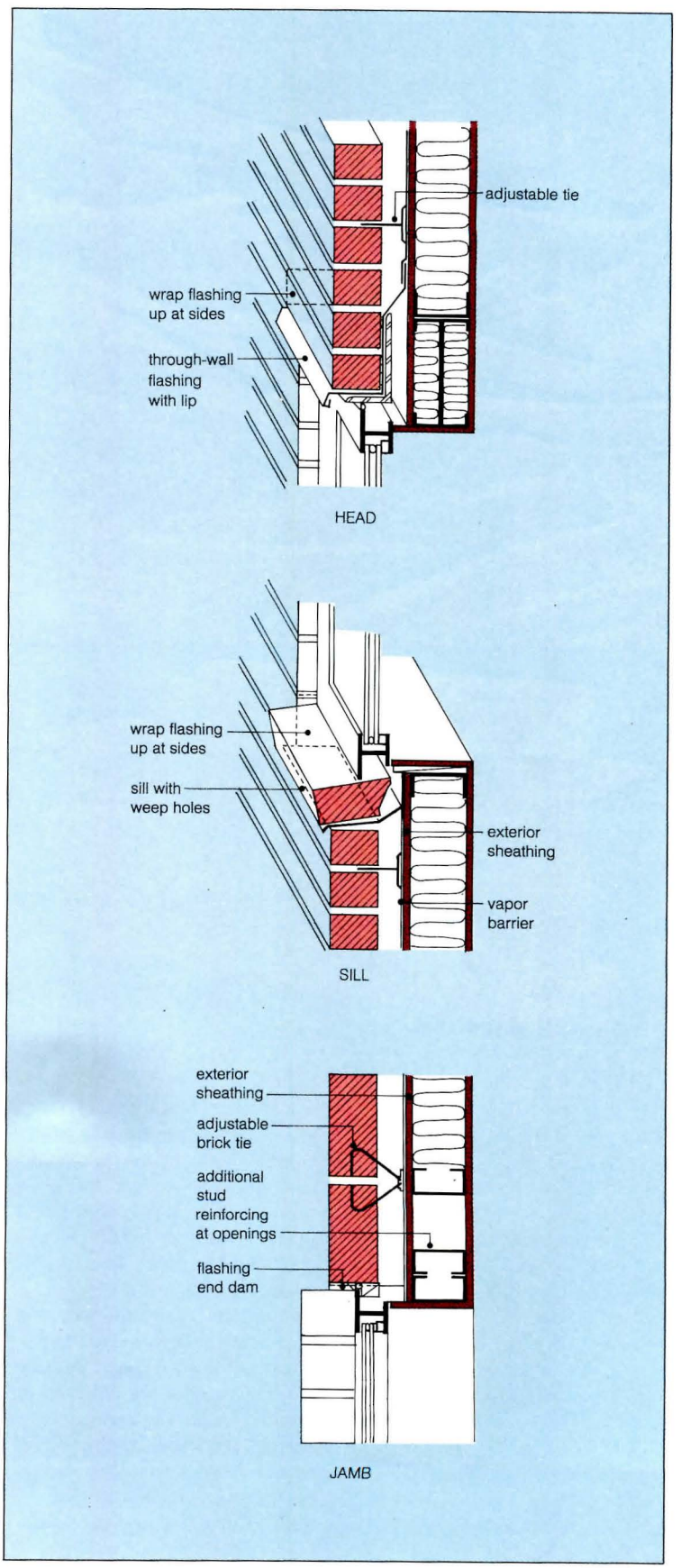
Bell and Gumpertz continue to harbor reservations about the long-term viability of the assembly: "The system should be used in new construction only with the understanding that its behavior is not well understood, its experience record is limited, and the life of the walls may be limited." The MLSFA shrugs off the controversy as equal to that surrounding the introduction of interior drywall systems in place of plaster. The comparison is invidious. As Bell and Gumpertz argue, "even slight defects in design, material and construction can cause substantial expenses which are certain to be disproportionate to the savings achieved by careless design, use of inexpensive materials unsuitable for their intended purpose, or negligent construction." The engineer's findings were first published in the proceedings of the Third North American Masonry Conference (1985). Other sources of information are the BIA's *Technical Notes on Brick Construction,* No. 28B, February 1987 revision, and the MLSFA brochure, "Here are the Facts about Steel Framing-Brick Veneer Systems Design." *James S. Russell*

PROPERTIES OF FLASHING

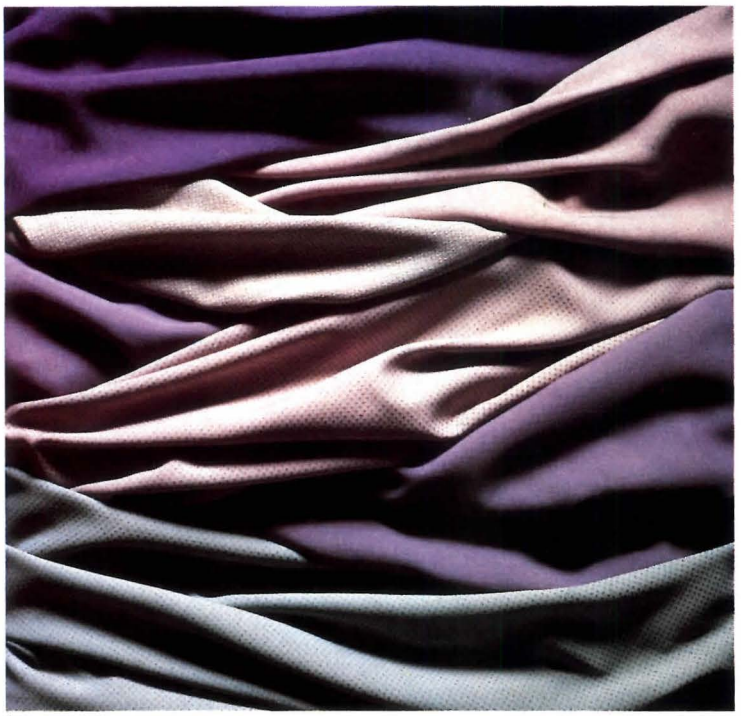
Material	Advantages	Disadvantages and Limitations
Stainless steel 2D, dead soft, annealed. Minimum thickness 0.015"; installed cost 100%.	Hard, impervious, strong, very durable.	Difficult to form and join; stiff, poor bond to mortar. Labor-intensive.
Cold-rolled copper. Minimum thickness 16 oz.; installed cost 90%.	Impervious, flexible, durable, easily formed and joined.	Damaged by excessive flexing; runoff can stain other surfaces.
Lead-coated Copper. Minimum thickness 16 oz.; installed cost 95%.	Similar to copper; runoff does not stain other surfaces.	Similar to copper; requires care in soldering.
Aluminum. Minimum thickness 0.032"; installed cost 60%.	Fairly durable; can be formed, corrosion resistant (except in presence of lime).	High thermal coefficient; cracks easily when bent; cannot be field sealed; corroded by lime.
Galvanized steel. Minimum thickness .0217"; installed cost 80%.	Hard, impervious; easily formed and joined; low thermal coefficient.	Subject to early corrosion.
Lead. Minimum thickness 2#; installed cost 75%.	Easily formed and joined.	Easily torn; affected by lime in mortar; creeps.
Zinc. Installed cost 80%.	Easily formed and joined.	Creeps; destroyed by corrosion; cracks easily in thermal cycling.
Copper fabric. *Minimum thickness 5 oz. (copper); installed cost 50%.	Easily formed and joined; good bond to mortar.	Easier torn than metal.
Neoprene. *Minimum thickness 0.045"; Installed cost 55%.	Easily formed and bonded; reliable, flexible.	Can be punctured; strength limited; requires protection against sun.
PVC. *Minimum thickness 0.040"; Installed cost 25%.	Easily formed and joined; impervious when new.	Aging deterioration and hardening; easily punctured and cut; weak.
Fiber-reinforced bituminous fabric.* Installed cost 35%.	Effective when intact; easy to form.	Easily damaged; weak; needs multiple plies; cracks in thermal cycling.

* Requires metal flashing for exposed drip edge

Additional reinforcement is called for in the stud wall at openings to maintain stress resistance. To prevent water penetration, elastomeric gaskets should be used with brick ties and the vapor barrier should be continuous, lapping over the flashing.



New products: WestWeek



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Maje Waldo 4

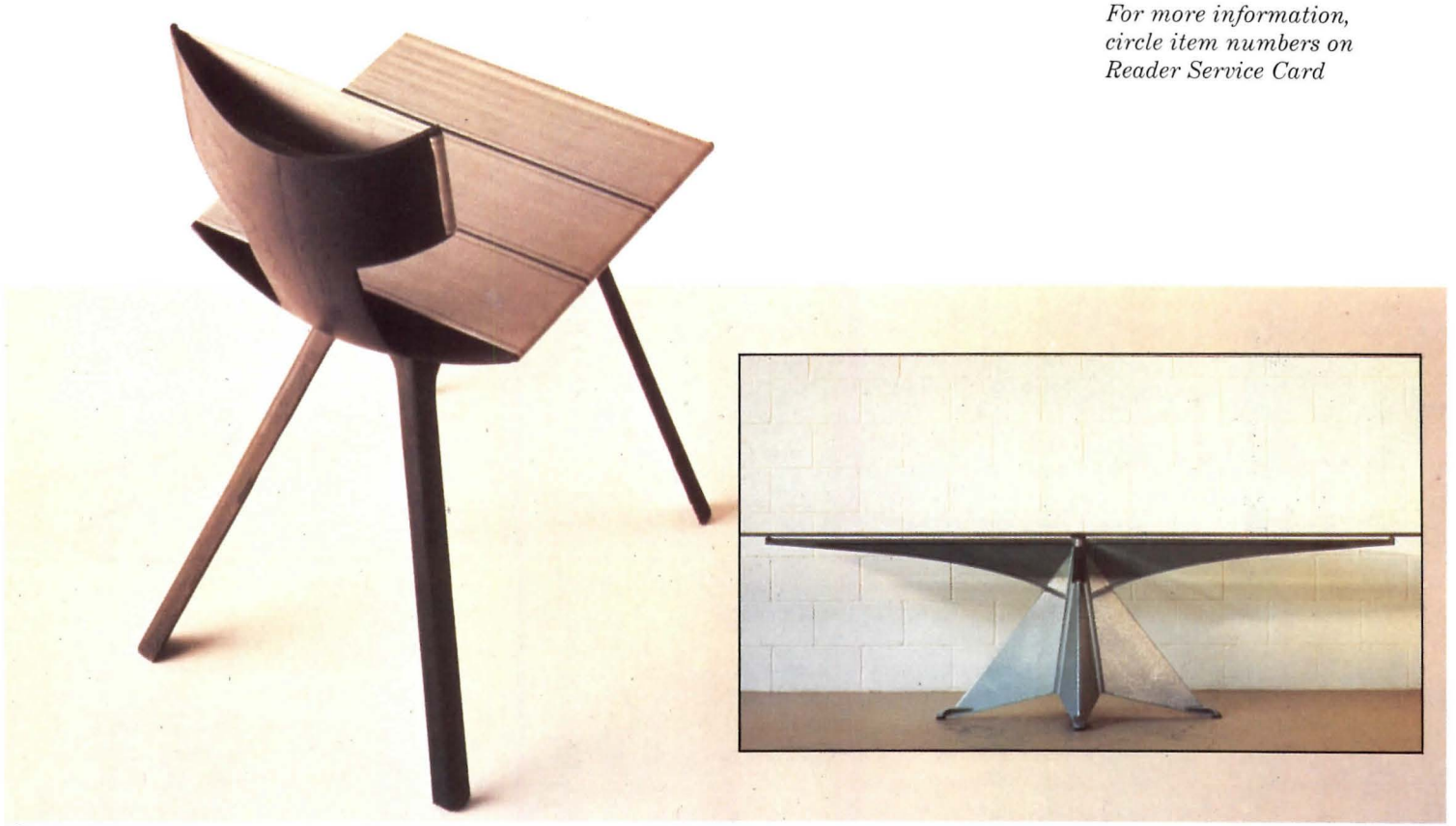
The first of 1989's major contract shows takes place in the Pacific Design Center, in Los Angeles, March 29-31, under the existential theme "Critical Choices: Intuition and Reason in the Design Process." Concurrent with the design awards, business sessions, and architectural presentations, Italian artist Mauro Staccioli will create an environmental sculpture in the outdoor Plaza of the Design Center. Here is an advance look at some of the new products.
J. F. B.

1. Pick a color . . .
A California-based manufacturer of systems furniture, Pleion, will launch a new, no-extra-charge custom-color program for five types of Dacron-polyester panel fabric, woven in worsted wool or silk-linen textures. For a minimum 300-yard order, the contract specifier may match or coordinate the piece-dyed panel fabric with any color of interior finish. Swatches are lab-dyed for designer approval, and the entire custom order will be shipped within Pleion's lead time for standard fabrics, six weeks. Pleion Corp., Santa Ana, Calif.
Circle 300 on reader service card

2. Downsize sofas
Part of a collection Stendig calls The American Business Sofa and manufactures in North Carolina, the Venice is 78 in. wide by 33 1/2-in. deep, a smaller scale designed to fit more easily into the not-quite-so-big executive office. It is, however, very heavy, made of plywood and bent steel. Designed by Lella and Massimo Vignelli with David Law, Venice is available in leather and fabric. Stendig International, New York City.
Circle 301 on reader service card

3. Oriental woodwork
Renamed during last year's WestWeek, the KnollStudio division of Knoll International expanded its line of architect-designed furniture with Gianfranco Frattini's Kyoto table. A handmade beechwood lattice, the low table and companion étagerès come in natural or ebony stain with red lacquer details. Knoll International, New York City.
Circle 302 on reader service card

4. Damask upholstery
A spectacular silk damask, Georgian has a traditional floral pattern in single colors of deep blue, red, green, or copper placed against a black background. The 50-in.-wide fabric is also suitable for use as a wallcovering or



5/6

8

window treatment. Scalamandré, New York City.
Circle 303 on reader service card

5/6. European flair
The curved frame of Alberto Meda's Softlight chair is made of an aluminum/carbon-fiber composite, with seat and back of tensioned elastic webbing. Also new from ICF is Spanish architect Oscar Tusquets' Montserrat Table, which has a pyramid-shaped base of cast aluminum supporting a glass top sand-blasted in an intricate diagonal pattern. International Contract Furnishings, Inc., Orangeburg, N. Y.
Circle 304 on reader service card

7. Canadian cantilever
Made in Italy but Canadian at heart, architect Steven Copeland's China Lamp is the first nonItalian design for AI Lighting. The metallic, cone-shaped shade is carried by a wand-like adjustable stem. Atelier International Lighting, Long Island City, N. Y.
Circle 305 on reader service card

8. Wool upholstery
An all-wool worsted from England, Onate upholstery incorporates a soft, small-scale (8 1/2-in. repeat) contemporary pattern available in six warm colors. The fabric is 54 in. wide, and also may be used on vertical surfaces. Schumacher, New York City.
Circle 306 on reader service card

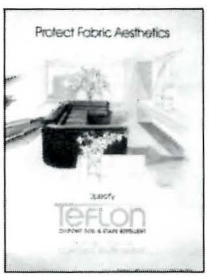
9

9. Conference tables
Shaw-Walker is entering the conference market with a full-blown product line of 36 different Radius Tables. Offered in 4 hardwood veneers and 11 laminate colors, the tops come in round, rectangular, oval, and boat shapes. An optional wire-management grommet leads wires from table-top equipment down through the column base. Shaw-Walker, Muskegon, Mich.
Circle 307 on reader service card
More products on page 125

Product literature: Furniture/finishes

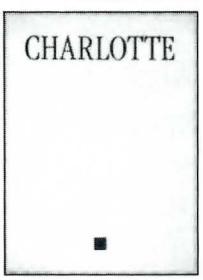
For more information, circle item numbers on Reader Service Card

Executive seating
Both high- and low-back versions of this Canadian manufacturer's leather-upholstered office chairs are shown in a four-page catalog. Nienkämper, Scarborough, Ont.
Circle 400 on reader service card

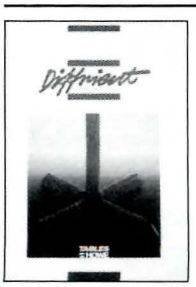


Contract fabric treatment
A brochure highlights the benefits of Teflon topical fabric finish in a contract environment: it repels soil and stains without impairing the original appearance of the material. E. I. duPont de Nemours & Co., Wilmington, Del.
Circle 401 on reader service card

Office design guide
Floor-to-ceiling walls, panels, office systems, and components can create flexible solutions to unique office configurations, according to a layout guide. Adanlock Office Environments, Inc., Jamestown, N. Y.
Circle 402 on reader service card

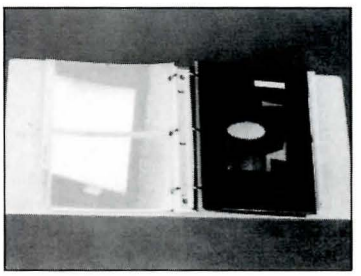


Hardwood furniture
Contemporary bentwood seating and furniture designs for hospitality, office, institutional, healthcare, and retail use are highlighted in a color catalog from this Michigan maker. Charlotte, Inc., Belding, Mich.
Circle 403 on reader service card

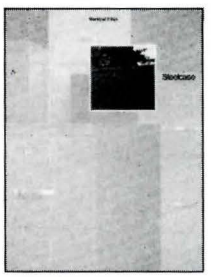


Contract tables
New wood and laminate-surfaced folding and fixed-leg tables, designed by Niels Diffrient with a variety of edge and base details, are introduced in a 20-page color catalog. Howe Furniture Corp., Trumbull, Conn.
Circle 404 on reader service card

Wood-panel system
A 24-page color brochure highlights the Arris System, which features nonhanded panel connections and modular casegoods for both open-plan and private offices. Alma Desk Co., High Point, N. C.
Circle 405 on reader service card

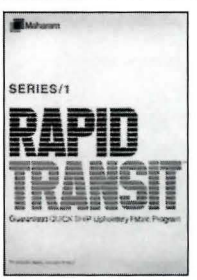


Office furniture guide
A full-line catalog for architectural specifiers contains color product photography, fabric and finish samples, and prices for this maker's office systems, seating, casegoods, and desks. CorryHiebert Corp., Irving, Tex.
Circle 406 on reader service card

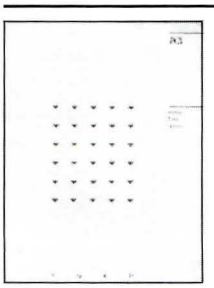


Files and office storage
All Steelcase vertical and lateral files, overhead storage, and storage cabinets—in standard and PerfectMatch colors—are shown in new catalogs. Construction features are detailed. Steelcase, Inc., Grand Rapids, Mich.
Circle 407 on reader service card

Insulating window shades
An architectural brochure on the Duette dual-pleated window treatment details thermal ratings, fabric types, and such standard and special systems as flexible curved-track installation. Hunter Douglas, Broomfield, Colo.
Circle 408 on reader service card



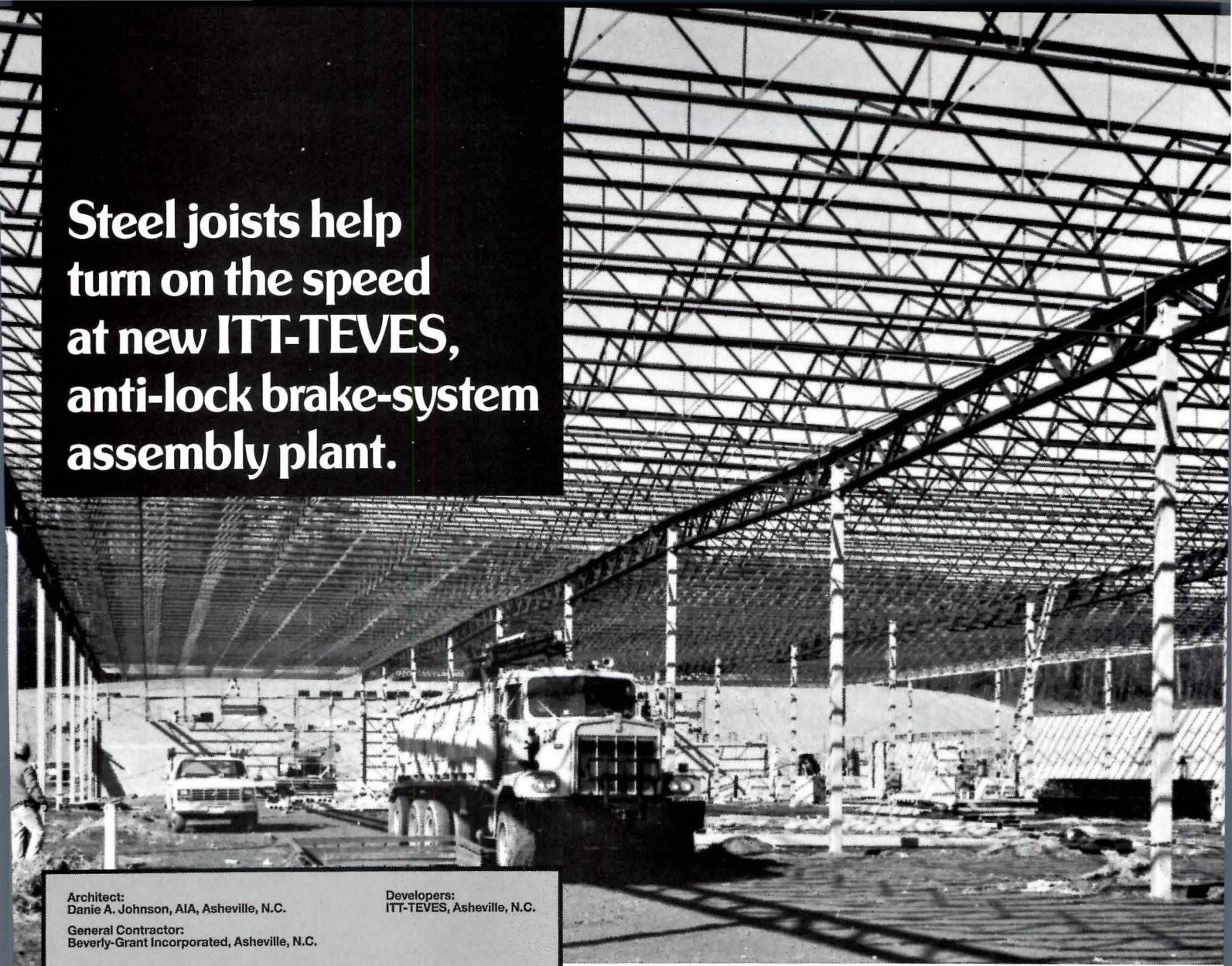
Quick-ship upholstery
A new program, offering guaranteed four-day availability for 28 upholstery patterns in 140 colors and a range of fabric, is described in a sample binder. Maharam, Hauppauge, N. Y.
Circle 409 on reader service card



Ergonomic seating
A 12-page brochure contains photographs and schematics that demonstrate the user-responsiveness of German-made Physio-Class seating, offered in both leather and fabric. Voko U. S. Inc., Pittsburgh.
Circle 410 on reader service card

Mailroom design
A 24-page guide includes a space-planning grid, worksheet, and survey forms to help the designer achieve the most efficient mailroom workflow. Hamilton Sorter Co., Inc., Fairfield, Ohio.
Circle 411 on reader service card
Continued on page 127

Steel joists help turn on the speed at new ITT-TEVES, anti-lock brake-system assembly plant.



Architect:
Danie A. Johnson, AIA, Asheville, N.C.

Developers:
ITT-TEVES, Asheville, N.C.

General Contractor:
Beverly-Grant Incorporated, Asheville, N.C.

Requirements for ITT-TEVES' new antilock brake systems manufacturing facility in Asheville, N.C. were familiar to Beverly-Grant Construction Company. The client wanted a well-built plant—quickly and cost-effectively.

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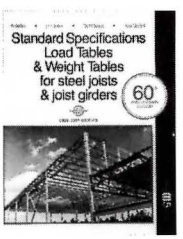

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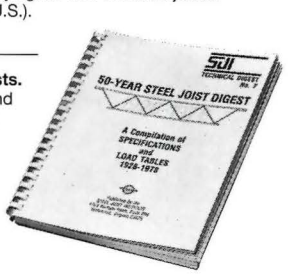

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Circle 52 on inquiry card

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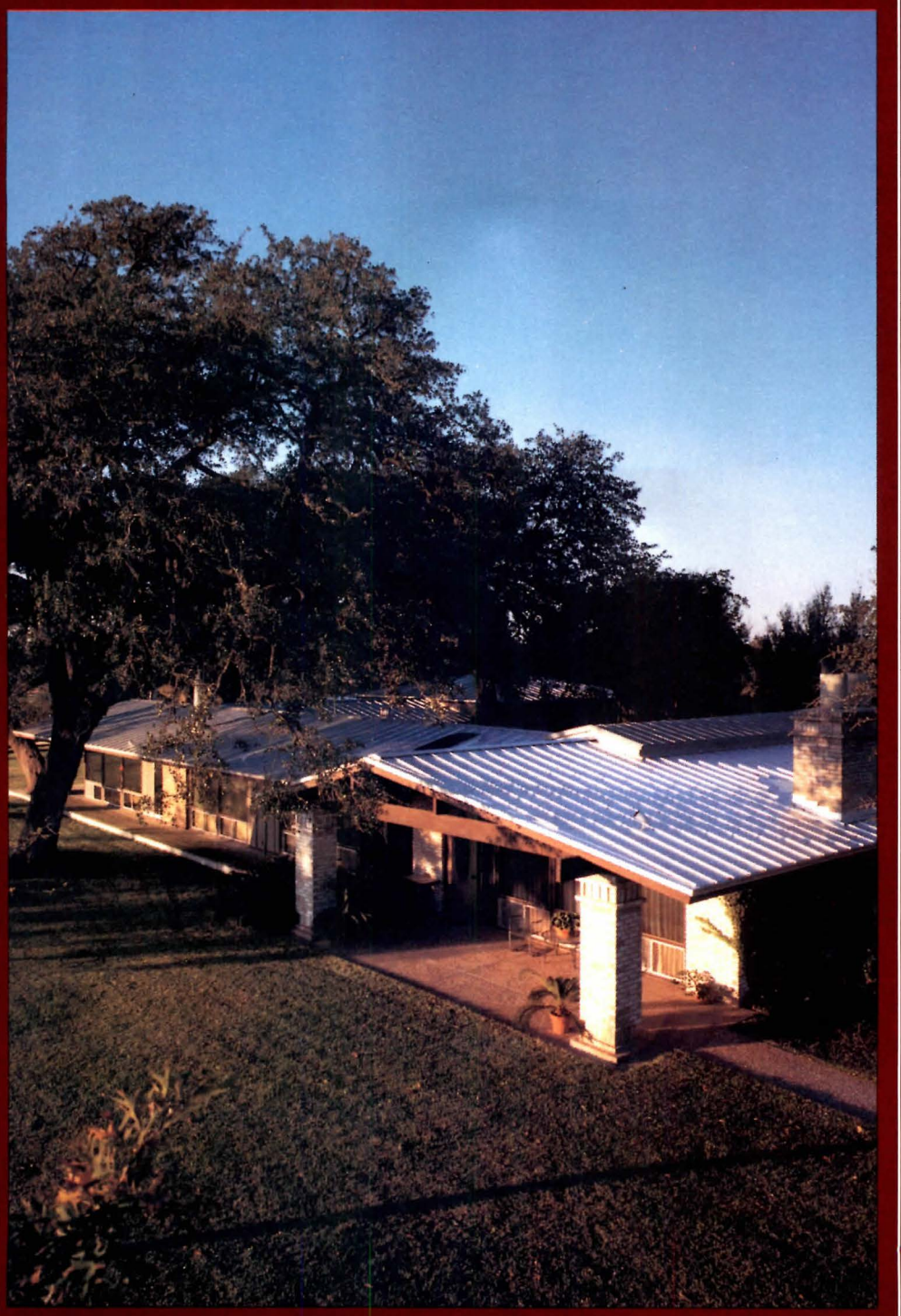

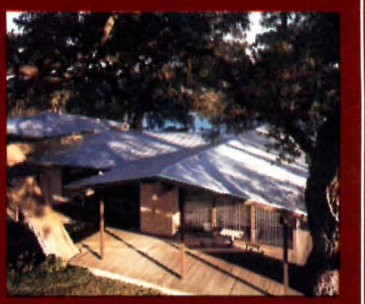

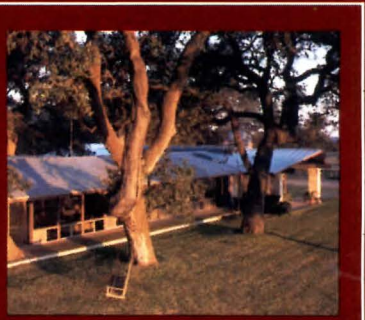

"As an architect, I have had the o portunity to work with MBCI on several projects, and did not hesitate to specify their materials on my own home. MBCI delivers fine, quality product, and I am w pleased with the end result," says architect Travis Broesche, AIA.

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Circle 53 on inquiry card

New products *continued*

For more information, circle item numbers on Reader Service Card

1, 2. Pre-K constructionists
TotTime shapes let preschool children assemble furniture, locomotives, and other indoor play structures by themselves. For example, the train, **1**, is constructed of 14 bright, geometric blocks, made of dense foam covered in vinyl-coated nylon, held together by Velcro strips. Sturdy enough to sit and climb on, the play structures and animal shapes, **2**, encourage the young child to reach, stretch, and stack neatly. GameTime, Inc., Fort Payne, Ala.
Circle 308 on reader service card

3. Ergonomically fixed
An extension of a line introduced in 1982, Articula II seating (shown here in a beam-mounted tandem version) now incorporates a range of passive ergonomic features: a flexible frame; an articulated seat and back; and a waterfall front edge for the upholstered seat. Jury chairs will be the next model added to the Articula series. JG Furniture Systems, Inc., Quakertown, Pa.
Circle 309 on reader service card

4. Metal architectural molding
New HollowForm aluminum moldings may be used as a ceiling cornice, casement trim, chair rail, or light soffit (pictured). This #8 style is 6 1/4-in. deep, and projects 4 5/8 in. from the wall. The concealed suspension rail, which can carry light fixtures and wiring, allows for vertical as well as horizontal installation. Pre-coped and mitered corners are available; straight runs are said to be easily cut to fit on-site. Appearance options include gold specular, clear anodized, satin, and bronze finishes, as well as a durable coating for exterior use. The firm also makes a line of metallic-laminate-covered wood-core moldings. Cullar/La Cuesta, San Francisco.
Circle 310 on reader service card


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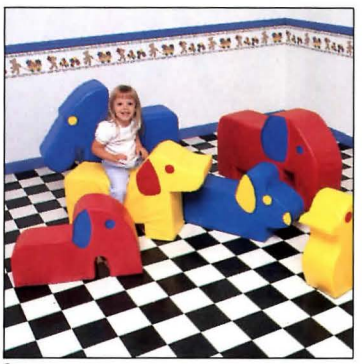
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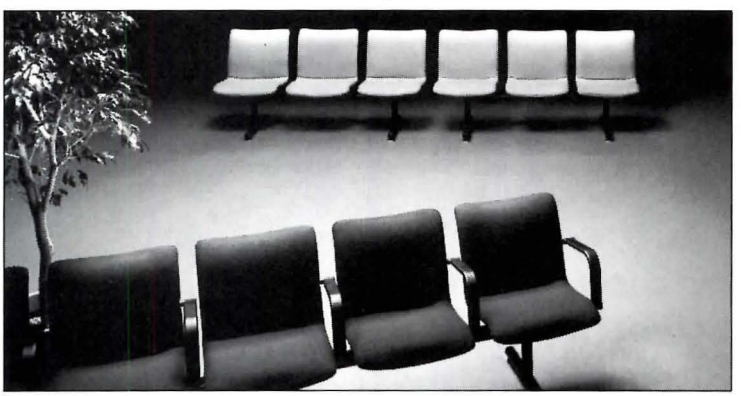
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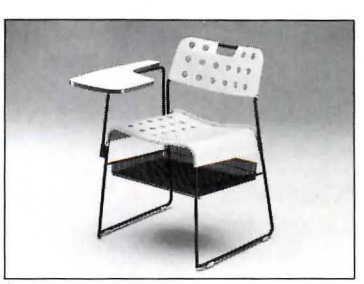
6


7

5. Low-voltage track fixture
Designed by Richard Sapper, the Argo System consists of an aluminum spotlight set on an extruded track; the lateral connection of track and fixture is said to facilitate the integration of the system with the ceiling or wall. The counterbalanced light can revolve in any direction. Artemide litech, Inc., Farmingdale, N. Y.
Circle 311 on reader service card

6. Steel stacking chair
Rodney Kinsman's OMKstack Chair, made in Italy by Bieffeplast, is constructed of perforated and tubular steel in red, white, green, yellow, black, or gray. The version pictured has a folding tablet arm and under-seat book rack. Gullans International, Long Island City, N. Y.
Circle 312 on reader service card

7. Office-system additions
Domore has added new features to the Neo7 office, designed by Don Albinson to accommodate an increasing variety of computer-related equipment. Enhancements include pull-out work surfaces, counter-level power outlets, gray-tinted curved glass partitions, and two new shapes of run-off conference work surfaces. Domore Corp., Elkhart, Ind.
Circle 313 on reader service card
Continued on page 149

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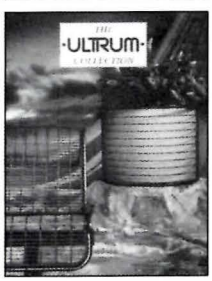
Product literature *continued*

For more information, circle item numbers on Reader Service Card

Earth-retention system
A brochure describes how Soil Nailing combines short in-situ reinforcement and shotcrete to tie back excavations and cuts, building from the top down in a minimum of space. Schnabel Foundation Co., Bethesda, Md.
Circle 412 on reader service card

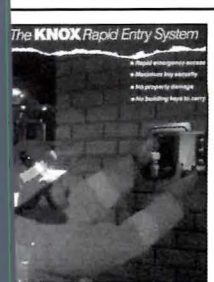


Site furniture
The 1989 Ultrum Catalog has over 500 new designs for chairs, benches, tables, and receptacles in powder-coated perforated metal and wire, and traditional and contemporary wood styles. GameTime, Inc., Ft. Payne, Ala.
Circle 413 on reader service card

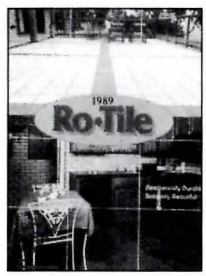
School carpeting
A six-page brochure compares carpeting to hard-surface flooring in schools, citing such benefits as student comfort and safety, energy cost savings, and improved acoustic performance. BASF Corp., Williamsburg, Va.
Circle 414 on reader service card

Washroom equipment
Both standard and vandal-resistant accessories are shown in a 52-page color catalog. A new quick-reference chart provides product-mounting guidelines for the physically handicapped. Bobrick, North Hollywood, Calif.
Circle 415 on reader service card

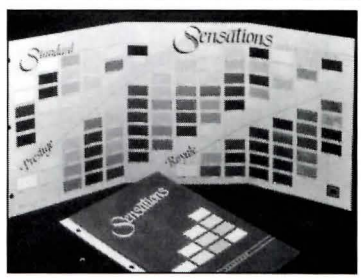
Task/utility lighting
A brochure introduces the Versamate twin-tube fluorescent fixture, which provides high-level, low-angle diffuse illumination for damage-prone institutional, industrial, and commercial areas. Kenall Mfg. Co., Chicago.
Circle 416 on reader service card



Emergency fire access
A UL-listed, high-security key vault system, designed to provide emergency personnel with rapid entry to locked buildings, is described in an eight-page booklet. The Knox Co., Newport Beach, Calif.
Circle 417 on reader service card

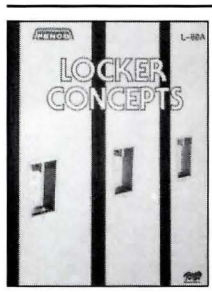


Cement tile products
Cement-bodied tile, stone, and veneer brick, for interior and exterior use on walls and floors, is shown in a 12-page color architectural catalog. Ro-Tile, Inc., Lodi, Calif.
Circle 418 on reader service card



Ceiling grid
A color selector folder supplies samples of over 100 available grid colors, prematched to products offered by acoustical panel, fabric, and carpeting manufacturers. Chicago Metallic Corp., Chicago.
Circle 419 on reader service card

Architectural windows
Custom designs for new, historic, and retrofit applications, shown in an 18-page design brochure, are achieved by specific modifications to eight basic window types. Graham Architectural Products Corp., York, Pa.
Circle 420 on reader service card



Storage lockers
A 20-page catalog features 2- to 18-person locker configurations, coat racks, special-use lockers, and accessories such as baskets, locks, and mirrors. Specification and finish data are included. Penco Products, Oaks, Pa.
Circle 421 on reader service card

Locks
All Schlage mechanical and electronic security products are illustrated in a 1989 architectural catalog. Hardware is keyed with the relevant ANSI number and grade classification. Schlage Lock Co., San Fernando, Calif.
Circle 422 on reader service card

Customized floor mats
A catalog explains how Pedigrid/Pedimat entrance mats and foot grids can incorporate special graphics; drawings show surface-mounted and recessed systems. The C/S Group, Muncy, Pa.
Circle 423 on reader service card
Continued on page 154

Not just another power trip.

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A desktop system with 386 power, loaded with memory, racing through complex applications at up to 25 MHz, is where the Personal System/2® Model 70 386 *begins.*

What it offers you beyond its sheer power, is where it begins to make a difference.

	Model 70 386		
Available models	A21	121	E61
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Optional Math Co-Processor	80387 25 MHz	80387 20 MHz	80387 16 MHz
Memory (RAM)			
Standard	2Mb (80ns)	2Mb (85ns)	1Mb (100ns)
Maximum on system board	8Mb	6Mb	6Mb
System maximum	16Mb	16Mb	16Mb
Diskette storage	1.44Mb 3.5-inch standard (2 maximum).		
Fixed disk storage	120Mb (23ms)	120Mb (23ms)	60Mb (27ms)
Built-in features	Video Graphics Array (VGA) and display port; diskette controller; serial, parallel, keyboard and pointing device ports; clock/calendar.		
System expansion	Three option slots (two 32-bit, one 16-bit).		
Operating systems	DOS 3.3, 4.0; IBM OS/2; AIX™ PS/2.		

The Model 70 386 features Micro Channel,™ a 32-bit bus created to take full advantage of 386 technology. Micro Channel is designed for multitasking and multiprocessing. It allows the PS/2® to operate several intelligent processors and subsystems simultaneously. So you can do several jobs at once and still get truly balanced performance.

With the Model 70 386, complex spreadsheets go faster than ever. So do sophisticated graphics. Even networking is no sweat. And Micro Channel ensures a platform for future applications, such as imaging and advanced communications.

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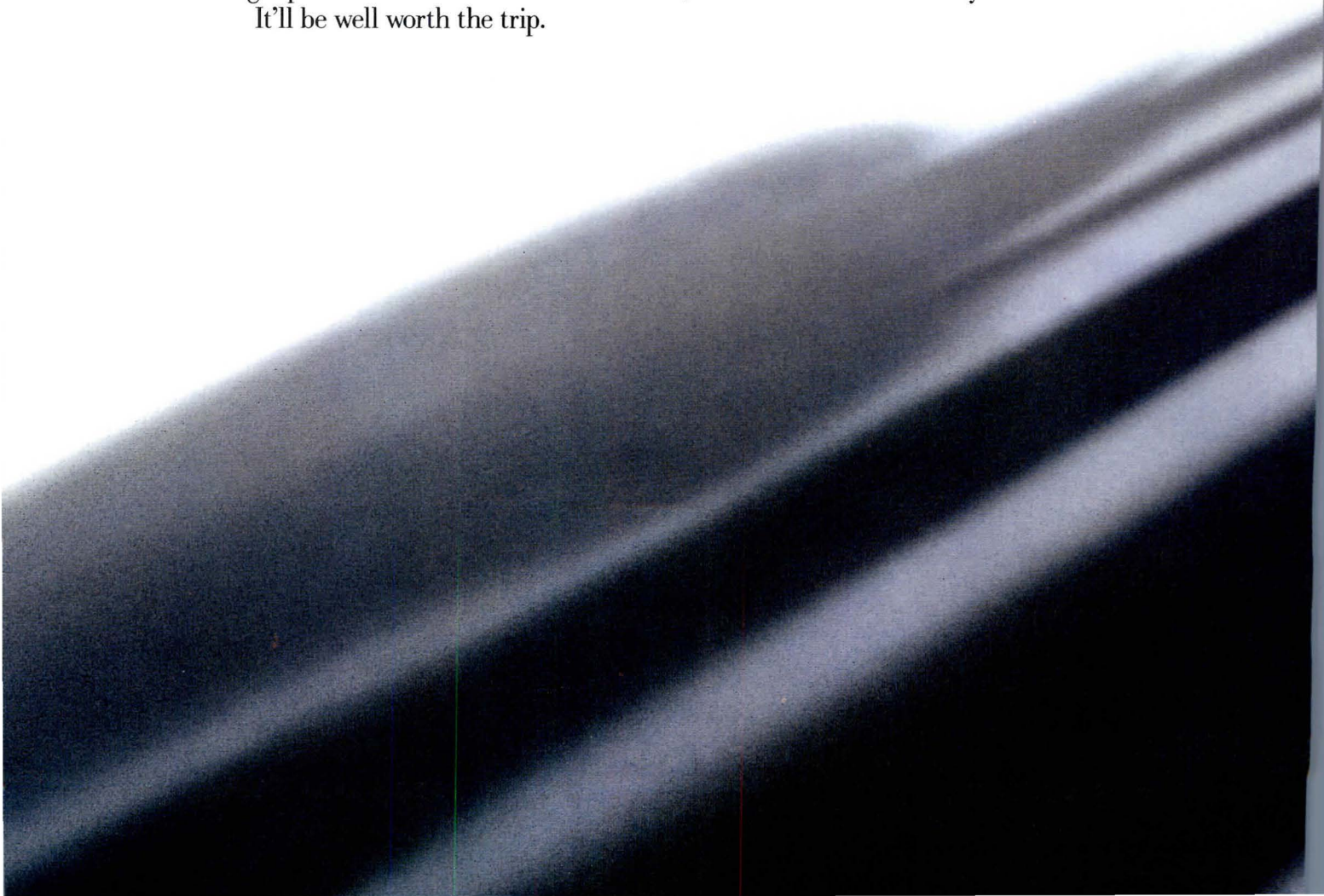
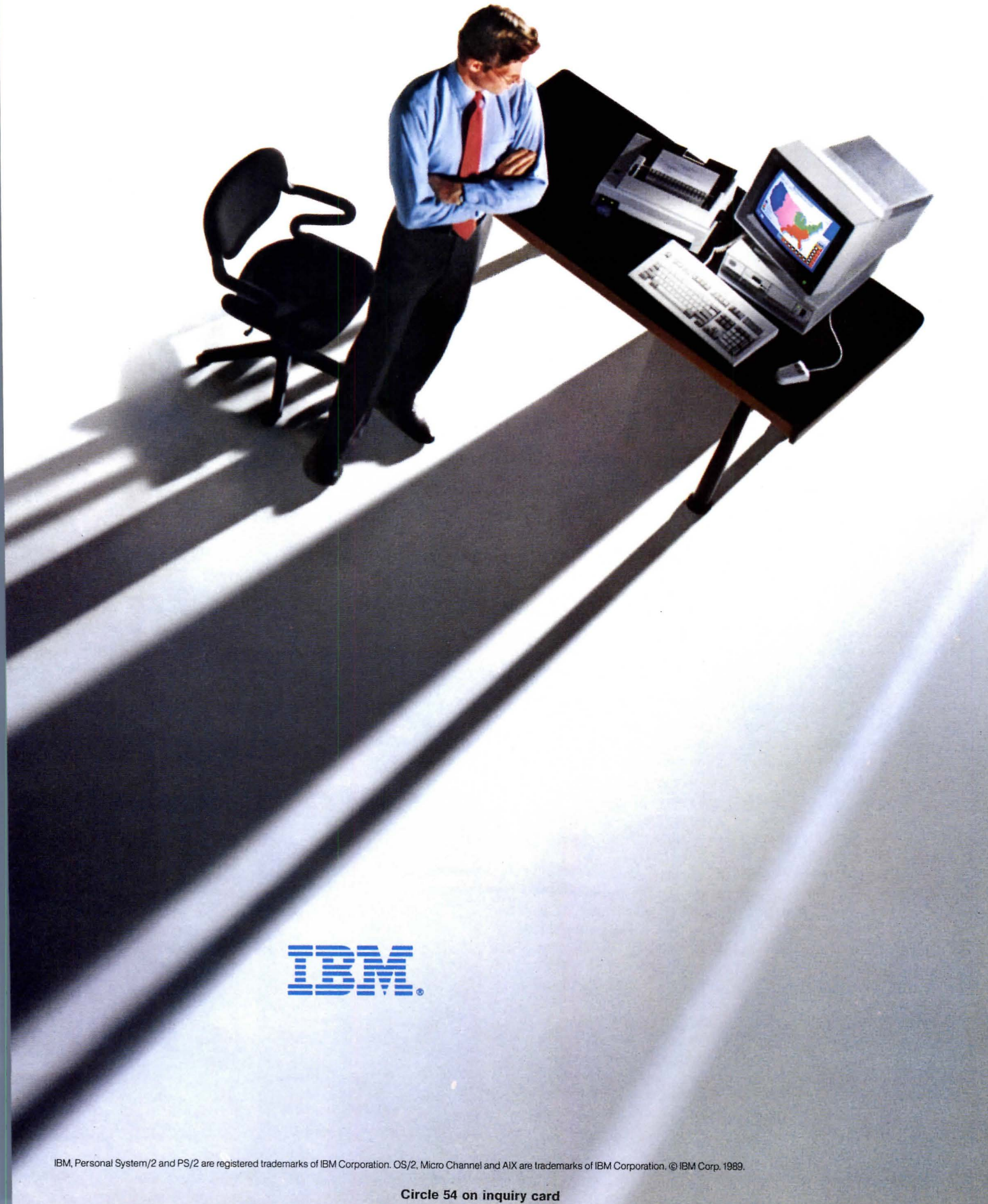




IBM

Emerging trends in architectural CAD software

By Ken Sanders

The PC-CAD "revolution," while dramatically reducing entry-level system costs for architects, has also indirectly suppressed new CAD software development over the past several years. Established turnkey vendors, caught off guard by the rising popularity of PC-CAD, have focused on bringing new versions of their software to PC platforms. At the same time, PC-CAD vendors have focused on copying features of the older, larger systems and reselling them at low-end prices.

The pace of architectural CAD software innovation has slowed considerably as a result. The basic structure and functionality of today's PC-based CAD systems—based on overlay drafting techniques and rudimentary 3-D modeling and rendering algorithms bear a striking resemblance to the turnkey systems of several years ago. CAD systems have certainly become a lot cheaper, but not much smarter.

The affordability trend will continue, of course, with overall price/performance of computer hardware doubling every 18 to 24 months. Improved desktop power will not only increase the speed of software, but continue to present opportunities for CAD developers to investigate new approaches to CAD tools for architects. Because developers are constantly struggling with the tradeoffs between breaking new ground and staying compatible with older versions of their software, the best architectural CAD software of tomorrow may not evolve from yesterday's turnkey systems or today's PC systems, both of which carry heavy compatibility baggage. Rather, it will be created with a new vision about what architectural software should do for its users, and designed to fully leverage the improved desktop computing and graphics power available.

Ken Sanders, AIA, is director of Computer Services for Leason Pomeroy Associates, an architecture, planning, and interior-design firm with offices in Los Angeles and Orange County, California.

Building modeling

Most vendors, for example, stress productivity as the primary benefit of using CAD. But more important than the speed with which architectural drawings are produced is the quality of information they convey. Toward this end, the notion of deriving 2-D CAD drawings directly from a 3-D building model has long intrigued architects as a means to assure the accuracy and coordination of their working drawings. This conceptual approach is most commonly known as building modeling.

Many architects long for the ultimate building-modeling system, which "automatically" generates 100 percent working drawings from a 3-D model, as well as provides code-checking, interference checking, and accurate material takeoffs. However, creating a 3-D building model in enough detail to accomplish this is most likely a self-extinguishing proposition. The time invested in developing the fine-grain of the 3-D computer model would most likely eclipse the time saved by extracting the drawings automatically.

Architectural working drawings, after all, are very schematic documents. Architects do not really care—nor should they—where each 2 by 4 stud is precisely placed in a wood-frame building. (What is important is conformance to applicable building codes.)

Architecture is a multidiscipline effort that reflects the economic realities of building construction. The subdivision of labor between many parties has evolved to expedite construction of complex, one-of-a-kind projects. Every building is a prototype.

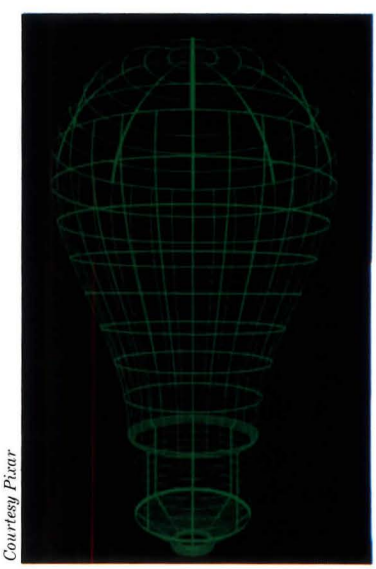
Despite these constraints, the concept of building modeling provides fundamental advantages to the architect over traditional, drafting-oriented CAD systems. Although no architectural CAD system marketed today provides robust, easy-to-use building-modeling tools for both design and production, such systems should see the light of day by 1990 and may well be the future direction of all architectural CAD systems (see sidebar, page 131).

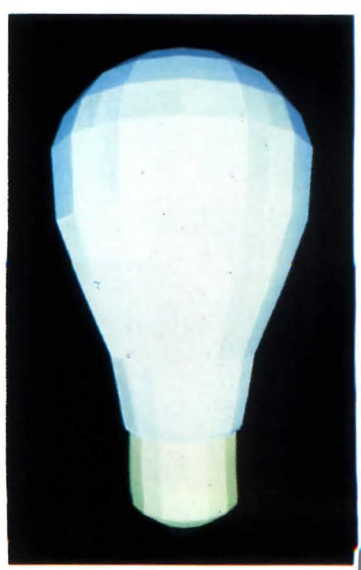
The building is the database

The organization of drawings in building-modeling systems is fundamentally different from traditional CAD drafting systems based on overlay drafting techniques. In building modeling, the building is the database, not the drawings. A drawing is defined as a graphic report of a building model, and is described by a "view" of the model, a scale, selection filters, and an overlay of annotations, such as text, dimensions, and targets. The view of the model must accommodate clipping, so that enlarged partial plans can be developed without losing their associative connection to the model. If necessary, multiple drawings at different scales are composited to create a complete working drawing. Automatic cross-referencing can be provided because drawings "understand" their connection to the overall building database. For example, if a drawing is renumbered or moved between sheets, all targets or notes which refer to that drawing's number or sheet location are updated automatically.

The primary advantage of defining drawings as reports of overall building models is assuring dimensional consistency between details at large scale and overall drawings, even if drawn at different scales and on different sheets. For example, if a change is made to an overall floor plan—say a column dimension, a wall thickness, or a door location—that change is automatically propagated to all drawings on all sheets which show that part of the floor plan.

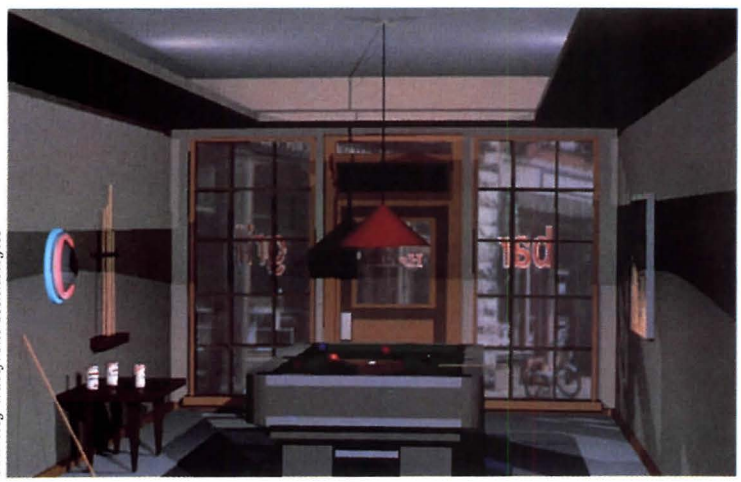
Image-synthesis technology bridges a modeling system with a rendering system. The RenderMan interface (below) creates a light bulb in (left to right) wire-frame display; facet-shaded surfaces; smooth shaded surfaces; and composite of photorealistic techniques.





Courtesy Pixar

What's ahead in CAD for architects? A punchlist for 1990



Courtesy Wavefront Technologies

High-resolution ray-traced images provide impressive realism but require expensive hardware. Lower-cost hardware will bring these capabilities to the desktop in the 1990s.

Although many 3-D CAD systems allow generation of outline working drawings using views of a 3-D model, the vast majority are not building-modeling systems, because the connection between model and drawing is not associative. A key question to ask: After the drawings are generated from the model, will the drawings automatically reflect changes to the model? If not, the system is not a building-modeling system.

It is important to note that the building-model database from which drawings are extracted need not be a single 3-D database, but instead can be a collection of 2-D databases. As usual, there are tradeoffs to each approach. Small-scale tenant-improvement or interior architecture projects can often be done more efficiently by using a 3-D model to derive working drawing plans, elevations, and sections. Many complex projects, however, simply do not lend themselves to a single 3-D building model, and are better developed using multiple 2-D models, or "slices" through a building. The disadvantage of multiple 2-D

Continued on page 133

Listed below are the features that distinguish true project-oriented architectural design systems from generic drafting systems. Although few CAD systems today provide any of these features, the best architectural design software in 1990 and beyond should provide all of them.

Associative drawings
Can drawings be imparted as clipped views within larger 2-D or 3-D building models, overlaid with annotation and dimensions specific to the drawing? Are the drawings associative? In other words, when the model is changed, do all drawings that are covered by that part of the model reflect the change?

Sheet paste-up
Can several drawings at different scales be pasted up on a sheet without losing their associative connection to the model(s)? Can the sheet be previewed on the screen, and the drawings interactively rearranged? Can the drawings be rotated to orientations different than the model?

Automatic cross-referencing
If a partial plan or detail is moved between sheets and/or renumbered, will cross-reference bubbles and notes which refer to that partial plan or detail, even if on different sheets, automatically reflect the change?

Associative dimensioning
If an object is moved in a model, will its dimensions shown in the drawings, even if on different sheets, also change?

View-dependent objects
Can objects be defined which are displayed differently depending on the way they are viewed? For example, can a door be defined which is automatically displayed with an open leaf and swing arc in plan, but displayed closed in elevation?

Scale attributes
Do objects have scale attributes, controlling at which scales they will be displayed, and at which scales they will not be displayed? (Architectural drawings always show different levels of detail at different scales; good modeling systems will allow users to easily control this using scale attributes.)

Pictorial, symbolic, and annotative objects
Does the system distinguish between these three types of objects and their behavior? For example, can the scale of a drawing be changed on a sheet without affecting the displayed size of annotative or symbolic objects (grid bubbles, targets, dimension text, etc.)?

Intelligent models
Can graphic objects be defined in terms of other objects and project-design parameters? Will these objects automatically (or optionally) reflect changes to related objects? Will they reflect changes to project design parameters? Can building performance criteria be established, and the performance results displayed interactively as changes are made to the building model?

Image synthesis
Does the system support photorealistic rendering tools, including texture mapping, transparency, ray-tracing, and shadows? If not, does the system interface to a third-party rendering package that supports those capabilities?

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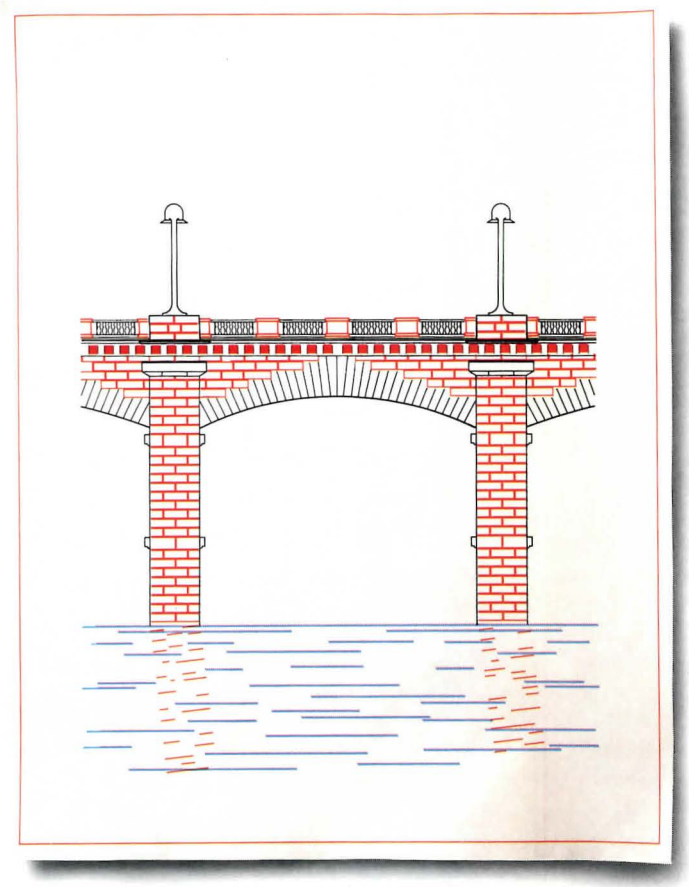
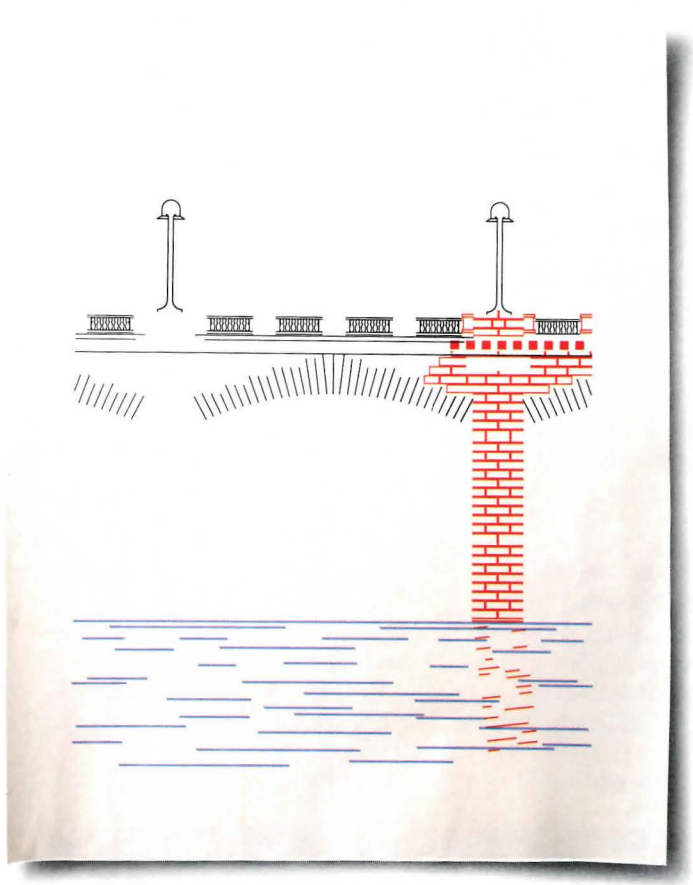


The HP DraftMaster plotter.



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Architectural CAD software continued from page 131

models is the lack of connection between plan, section, and elevation. Each of these three drawing types must be coordinated manually with one another. But within each drawing type, drawings at different scales and on different sheets are assured dimensional consistency (see the case study at right).

Simply put, single 3-D models are appropriate for small-scale, fairly simple building projects, while multiple 2-D models are appropriate for large-scale, complex projects.

Although a different organizational concept than overlay-drafting techniques which most CAD systems imitate, building modeling more accurately reflects the way architects think. Working drawings are, after all, legal documents describing a building design to the owner and to the third parties who will construct it. They are descriptions of the building design, not the design itself, and are best expressed as reports of a single database, not the database itself. Providing building-modeling tools within low-cost software, while retaining the flexibility of more traditional 2-D drafting software, remains a key opportunity for CAD vendors.

The biggest challenge will be faced by PC CAD vendors, whose systems were originally designed simply as low-cost electronic pencils or "word processors for drawings." By themselves, such systems are appropriate for individual drawings. On medium- to large-scale projects, however, which require more coordination in their construction documents, the vast majority of PC-based systems do not yet fully leverage the information-sharing power of the computer.

Object behavior

Architectural drawings enjoy other unique characteristics which CAD systems of the future must recognize. For example, all architectural drawings contain three kinds of graphic objects: pictorial, symbolic, and annotative.

- Pictorial objects are physical parts of the building that are drawn to closely match their actual appearance, such as interior and exterior elevations and details.
- Symbolic objects also represent physical parts of the building, but aren't drawn as they actually appear. Examples include most mechanical- and electrical-fixture symbols.
- Annotative objects do not represent physical parts of the building, but are included on the drawing to convey additional information. Dimensions, targets, notes, and detail bubbles are examples.

Each of these object types exhibits unique behavior—such as whether the objects change size when they are plotted at different scales. Many pictorial and symbolic objects in architectural drawings appear differently depending on the view—plan, elevation, section, or isometric. Often, these various representations aren't easily derived from the same 3-D model—such as a door shown open in plan, but closed in elevation. Annotative objects, on the other hand, are view-independent.

The level of detail shown on an architectural drawing is also proportional to its scale; in general, the larger the scale, the more detail shown. Clearly, the architect needs an easy and straightforward method to filter the amount of information shown in a drawing based on its scale and view in relation to the overall building database.

Unfortunately, no CAD system on the market today distinguishes easily between pictorial, symbolic, and

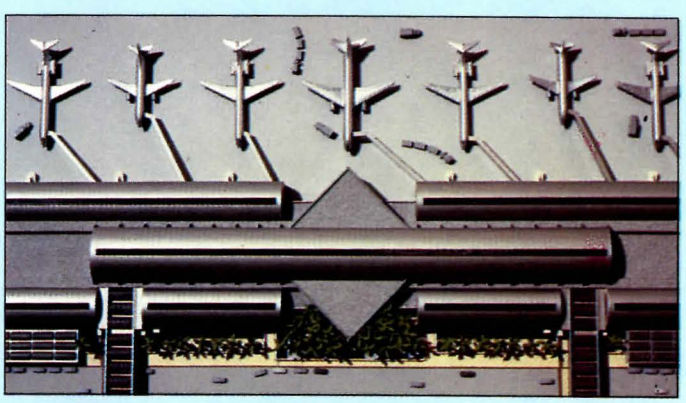
Continued on page 134

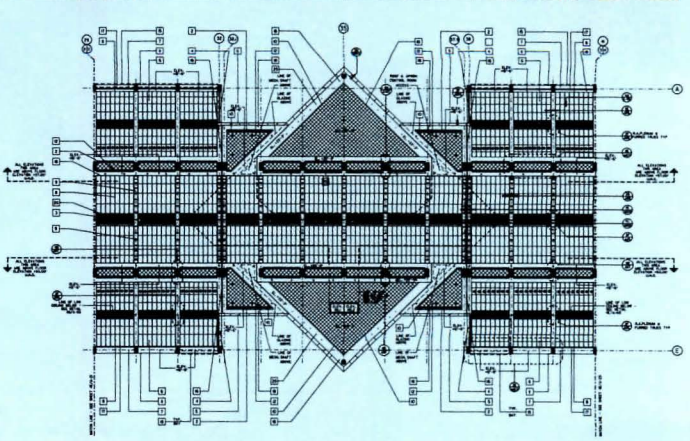
The John Wayne Airport– A case study in building modeling

The John Wayne Airport Terminal is a 1,980-ft-long, 330,000-sq-ft, three-level building currently under construction in Orange County, Calif. Working within the constraints of a demanding schedule, project architects Leason Pomeroy Associates used building-modeling techniques to organize the CAD working drawings for the project. The building database was not a single 3-D model, but a series of 2-D "slices" showing overall plans, sections, and elevations. Enlarged plans, sections, and elevations were created as graphic reports of the overall database files, each defined by a "window" into the database, a scale, and an overlay of annotation, such as notes, dimensions, and targets.

Overall 2-D floor plan models were produced for the arrival, departure, and mezzanine levels of the terminal building. At 1/16-in. scale, the floor plan of the entire building would have been over 10 ft long, so five partial floor plans at 1/16-in. scale were prepared for each level. (Overall plans at 1 in. = 60 ft were also included for orientation.)

In addition, 1/8-in. and 1/4-in. partial floor plans were produced of key areas. If an overall floor plan model was changed, that change was automatically reflected in all the partial floor plans. The building-modeling approach not only allowed the John Wayne Airport team to quickly produce the partial plans, sections, and elevations of the project by referencing them to the overall model, but also allowed easier accommodation of design refinements and program changes during the working drawing phase.





Architectural CAD software continued from page 133

annotative objects, nor provides scale and view attributes. Most systems do allow users to define layers to segregate information meant for different scales, or create symbol libraries containing alternate representations of view-dependent objects. However, the object types and attributes are not built into the basic frameworks of these systems, placing a significant organizational burden on the user.

The spreadsheet analogy

The concept of building modeling—defining architectural drawings as views of a building model—leaves unresolved the issues of what the building model is, how it is described to the computer, and how the user interacts with it. Most importantly, the model must be intelligent—not just a collection of 2-D or 3-D objects, but also a dynamic representation of the design relationships of the building itself.

The spreadsheet is a good example of an intelligent model. Using formulas, users can define dynamic relationships between the numbers in the spreadsheet, and quickly grasp the bottom-line implications of changes. The spreadsheet is both a time-saver and a true design tool. Its power lies not in the numbers, but in the formulas.

Similarly, the next-generation of architectural CAD systems will focus less on the geometry of drawings, and more on the relationships of building elements. What is architecture, after all, but a complex set of design relationships?

Many of these relationships, of course, are prescribed by code or local ordinance. Others are dictated by client programs and budgets, office standards, or individual experience. Quite a few are not easily quantifiable, and cannot be effectively modeled within a computer. Intuition, insight, and imagination certainly cannot be described by a set of rules. The relationships of proportion, scale, massing, color, and style—esthetic issues involving human judgment and taste—will also remain the proprietary contribution of the designer.

How are these relationships described to the computer? Spreadsheets understand numerical formulas, and allow the user to express them using a language of mathematical operators (+,–,X,/) and functions (sum, average, mean). The language in which building relationships are described, on the other hand, is far more complex, and remains the missing ingredient of truly intuitive computerized design tools. The development of such a language—with which architects can define design issues in any formulaic way—is perhaps the most fascinating area of CAD research and development today.

By using computer tools to dynamically model quantifiable design relationships, the architect is better positioned to experiment with those which are not.

Image synthesis

Once they are described to the computer, the realistic rendering of building models remains a time-consuming and expensive task. Limitations of clarity, color, and realism have prevented widespread application of affordable rendering tools within architectural offices. The vendors' challenge is to introduce higher quality computer-rendering systems not to replace, but to supplement, traditional methods of seeing the unbuilt. Like the pencil and yellow trace, after all, the cardboard model will never die. A model sitting on a desk, or in one's hands, provides a real-time 3-D experience that no computer-generated image will ever reproduce.

Image synthesis—the creation of realistic computer-generated renderings of computer models—is perhaps the only area of CAD research where the software is ahead of the hardware. Algorithms for representing objects in photorealistic detail are well-documented in the public domain. Software is available that portrays textures of carpeting, granite, and concrete; reflective materials, such as ceramic tile and polished marble; translucent materials, such as glass block or sandblasted glass; and materials with nonrandom

but irregular textures, like wood.

Yet producing such realistic renderings in reasonable time still requires the use of powerful hardware. As a result, the most sophisticated imaging systems are still quite expensive, and out of the financial reach of most architectural firms. Mirroring the trend of 2-D drafting systems, however, their costs will decline over the next several years.

The real question is how fast realistic images can be generated from the computer model to suit the interactive design requirements of architects. High-quality rendering software is terrific as a presentation or marketing tool, but suffers greatly as a design tool if architects must wait overnight to see the results.

Fortunately, image-synthesis software is a prime candidate for use in new parallel-processing hardware, in which several CPUs work together to tackle small pieces of a computing problem at the same time. Parallel-processing machines are usually difficult to program, because most computing problems are not easy to subdivide into tasks that can be evaluated independently. In image synthesis, however, this is easily done.

Most advanced algorithms such as ray-tracing, which portrays shadows and reflections from a user-defined origin, calculate the color of each pixel on the screen independently of all others requiring high computer power. As a result, the arrival of parallel-processing computers on the desktop should greatly increase the speed at which realistic images can be generated. Such high-performance rendering "engines," in the form of both parallel-processing hardware and sophisticated software, should become available during the next several years.

Since the field of image synthesis isn't restricted to architectural design, the best rendering systems most likely will be generic, and not part of architectural-specific CAD software. As a result, the recent development of the RenderMan Scene Description Interface standard is of particular interest. RenderMan was introduced last year by Pixar, a leading-edge computer graphics company partially owned by ex-Apple Computer chairman Steve Jobs. Just as the PostScript language describes a common interface between laser printers and graphic-oriented software, RenderMan describes a common interface between 3-D modeling systems and rendering systems. Such a widely supported standard will allow architects to select the best modeling tools for their specific applications, and still take advantage of a wide variety of rendering software and hardware.

1990 and beyond

In the next several years, as vendors redirect their resources toward true research and development, CAD systems for architects should evolve away from drawing-oriented drafting systems, and toward project-oriented building modeling systems. Building modeling rewards architects not only with increased productivity benefits but, more importantly, with improved quality, by more easily accommodating design refinement and assuring coordinated documents.

More importantly, architectural CAD systems in 1990 and beyond will be measured, not by their ability to model and render two- and three-dimensional geometry, but to dynamically model the relationships of building design. Again, the potential for architects and their clients is not necessarily a faster design process, but a process with higher quality results. By quickly grasping the implications of design choices as they are made, the architect will enjoy greater freedom to experiment with those ideas which are his or her unique contribution.

Clearly, many innovative software development opportunities still lie ahead. Those architects who anticipate and understand the emerging trends of architectural CAD software will be best prepared to choose the right tools and successfully apply them to their practice.

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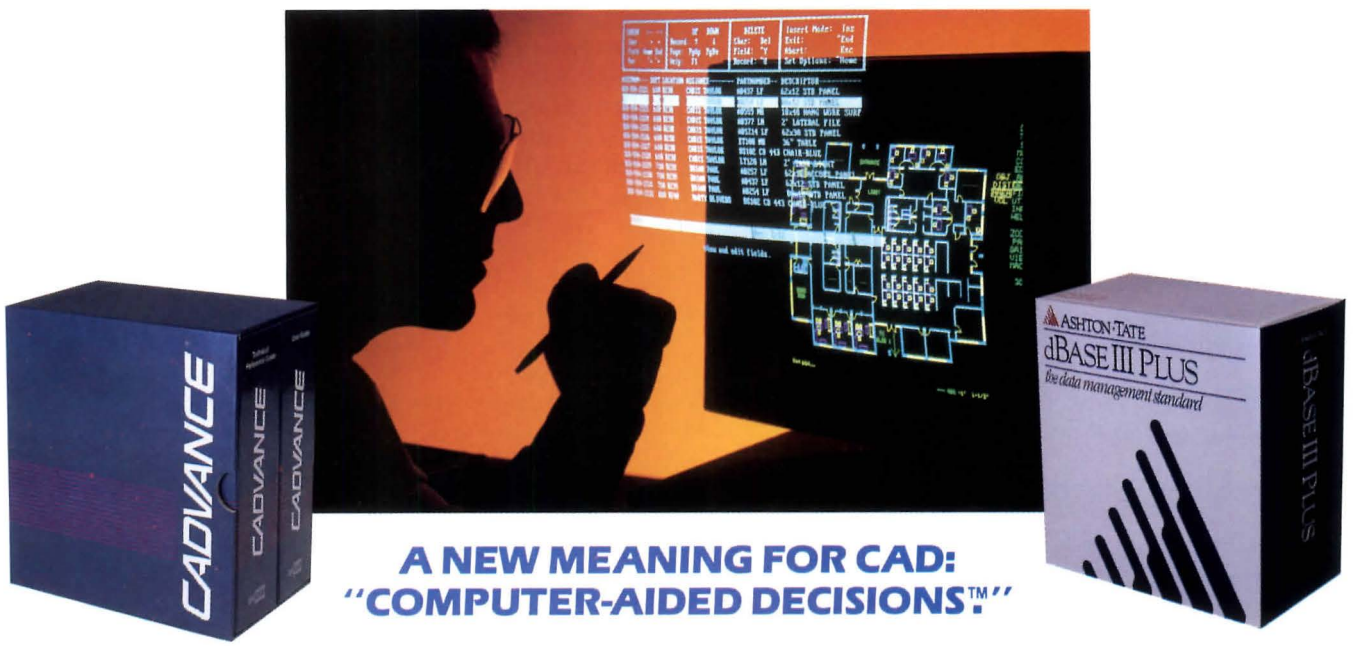

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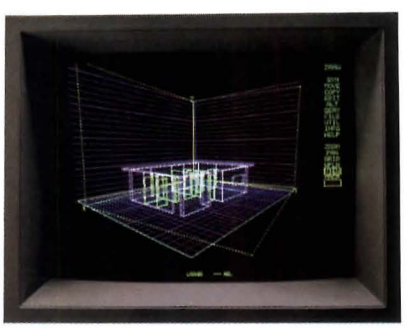

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Circle 56 on inquiry card

Electronic Sweet's

A CD-ROM disk that includes an automated index to the Sweet's General Building and Renovation, and Engineering and Retrofit, Catalogs. There's also an interactive spec-writing system that's designed to automatically query a remote mainframe (via modem and telephone line) holding an expanded version of the AIA's MASTERSPEC files. The system, developed with Heery International, Atlanta, is inexpensive and easy to use.
Equipment required: Any computer that uses MS-DOS or PC-DOS, 640K, a hard disk, 1,200 or 2,400 bit-per-second modem, and CD-ROM player (see below) capable of handling the industry-standard High Sierra format.
Vendor: Sweet's/McGraw-Hill, 1221 Avenue of the Americas, New York, N. Y. 10020. 800-742-2255. The CD-ROM disk and a demo on floppy disk are included with the latest edition of Sweet's General Building and Renovation and Engineering, and Retrofit, Catalogs. McGraw-Hill is selling the NEC Intersect CD-ROM player in external or internal versions for $495 plus $25 shipping and handling.

Summary
Manual: Good—but hardly needed, except to hold the disk and to list local dial-up numbers for the Tymnet and Telenet networks. On-screen instructions and prompts are fine. The NEC equipment manuals do not answer all questions for the CD-ROM player's installation in nonstandard systems, but NEC offers a toll-free hot line.
Ease-of-use: Excellent.
Error-trapping: Superb. Error messages produced by the software module that handles the automatic modem dial-up are too cryptic for easy diagnosis of problems, but help is available via Sweet's toll-free number, if a user cannot understand the listing of error messages at the rear of the Sweet's manual.

Review
First, a statement about conflict of interest: Sweet's is, of course, a division of McGraw-Hill—the same company that publishes this magazine.

That said, let me put my personal reputation on the line: If you currently are eligible to receive the Sweet's Catalog, your office must have this. Play with the demo disk. Then run, don't walk, to your nearest computer store and buy a modem if you don't already have one. Buy a CD-ROM player there, too, if the price is anywhere near the bargain McGraw-Hill is offering. If not, and if you are willing to wait six to eight weeks for delivery, order one from McGraw-Hill. All this equipment will cost you about $600. Each specification section you write with the system will cost you $24. Each section update will cost you $12. You end up with a file you can print directly, or modify using virtually any word-processing software. That's about what it costs to hire a typist to type a spec you might write yourself, from scratch.

For this review, I invited two members of a firm that is not currently using CAD software to use the product. The only computers in the shop are two used for word processing and bookkeeping. One of the architects claimed a total of two previous hours of keyboard time. The other architect had used only a word processor. Both attached themselves to Sweet's and wouldn't let go. They figured out how SweetSearch worked in about five minutes. While I turned for 10 minutes to take a phone call, they switched into SweetSpec themselves and started creating a specification. The next day, they showed the resulting work product to their colleagues, and called McGraw-Hill to buy a CD-ROM player for their office.

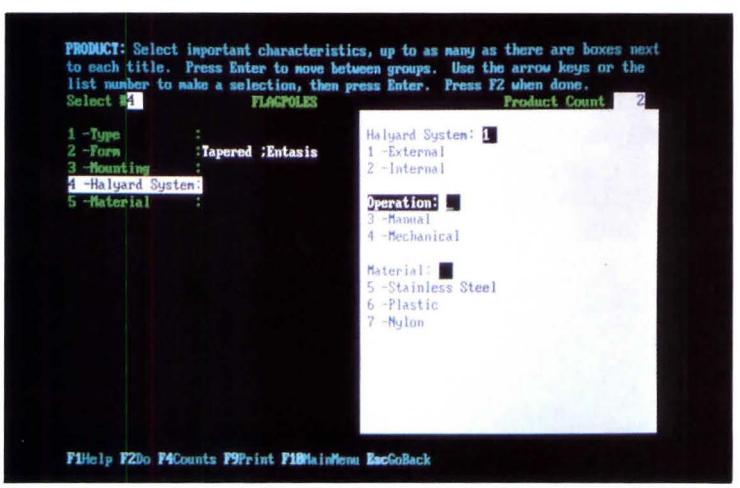
No, the system is not perfect in operation. And we did find some limitations and even a small error in the product database. But it produces a usable spec with about an hour's work per section. Everything is up-to-date: The ASTM test designations, the MASTERSPEC material, the manufacturers' information, everything. The system even prints out an audit trail and a set of notes for coordinating the spec with your drawings.

Even if you never write a spec, the time saved by using only SweetSearch to electronically search the gigantic Sweet's Catalog is probably worth the price of the CD-ROM player.

What is a CD-ROM anyway? The name stands for Compact Disk—Read Only Memory. Physically, these disks are much like the ones used for music. In fact, the NEC CD-ROM player also can be connected to an audio amplifier and used to play records. Most importantly for Sweet's, a CD-ROM can hold a staggering amount of information. In the popular High Sierra format, each disk can contain 540 megabytes. That's the equivalent of 1,500 standard 360K floppy disks.

These CD-ROMs cannot be written on, however. They are thus somewhat similar to prerecorded audio disks in that respect as well. And they do read data slowly, at about a tenth the speed of a good hard disk. Thus, one suffers no degradation in performance by installing the CD-ROM player in an inexpensive PC. The PC will still be faster than the CD-ROM. The CD-ROM player links to the computer with a cable connected from the (included) standard SCSI board. (SCSI is pronounced "scuzzy" by the trade; it stands for Small Computer Systems Interface.) Large Apple Macintosh computers have SCSI ports built in. But the Sweet's system doesn't work with Macintosh— yet—even though the CD-ROM disk can be read by a Mac.

SweetSearch allows users to search for any product in the two Sweet's Catalogs it covers, by product type, manufacturer, *Continued on page 139*



A product search for flagpoles provides over 65 products to choose from, including those with halyard systems.

Mr. Ross is a prominent computer consultant and a regular contributor to RECORD.

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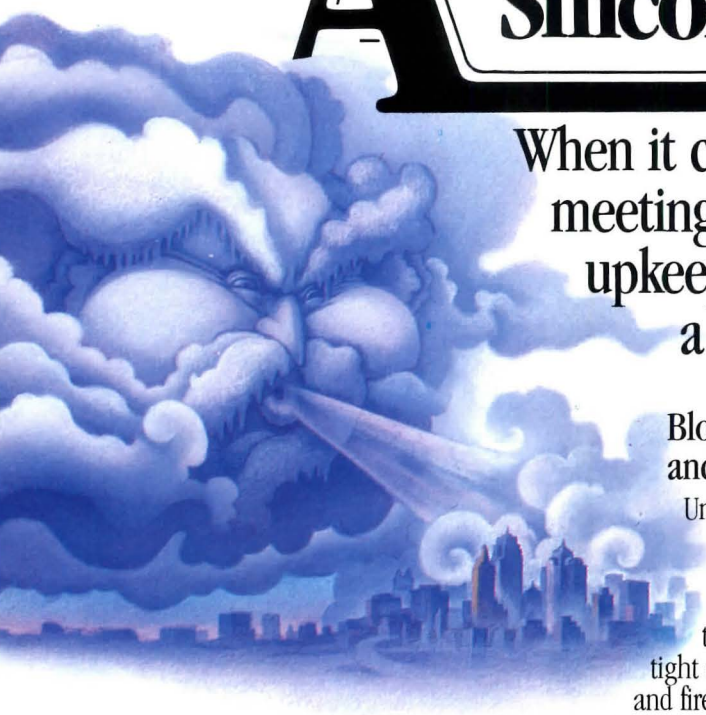

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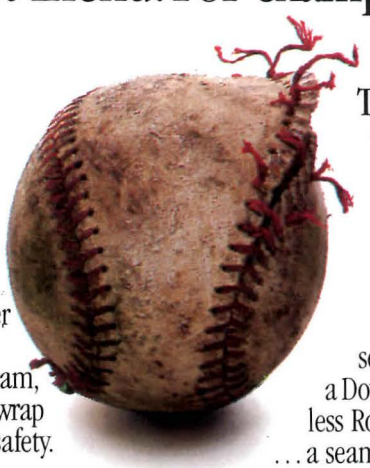

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Software reviews continued from page 137

Sweet Search is a great timesaver, but it is Sweet Spec that is revolutionary, similar to the interaction of a designer questioning an experienced spec writer: Each succeeding question is based on answers to previous ones.

trade name, or catalog section. Trade, professional, and government associations that are sources for more information are also listed. This is absolutely free, once you have the equipment. All the information the system needs is on the CD-ROM disk.

Once you've narrowed the search to the product you want, SweetSearch summarizes product information. Even the Sweet's Buyline identification pops on the screen. That's the number you give the operator when you call Sweet's toll-free to find the nearest manufacturer's distributor.

Let's say you are interested in flagpoles, for instance, and you've never ordered one. Choose the product search technique. Select Division 10 (specialties), then classification section 13 (flagpoles). You'll see a screen that asks you about the exact kind of flagpole you are looking for, to narrow the choice among the 65 products in the catalog. It is a good idea to select the features most important to you first, so as not to narrow the search too far with minor details. In general SweetSearch provides "or better" products. That is, if you specify a flagpole that can withstand a wind of 75 to 90 miles per hour, you'll also get poles that can resist higher winds.

We found an apparent error in SweetSearch. Alucobond preformed wall panels and composite building panels, from Alucobond Technologies, were also listed under the trade name "Alucobone." The error would be an innocent one, except that the specs for each Alucobond listing were slightly different. A user would have to go to the catalog pages themselves to see what is correct.

SweetSearch is a great timesaver, of course. But it is the SweetSpec system that is revolutionary. First, users prepare a specification by answering questions specific to the MASTERSPEC section involved. About 300 narrowscope sections are in the Sweet's computer as of this writing. The manual includes instructions for tailoring broadscope sections to handle products that may not fit entirely into an existing narrowscope—or for writing a section from scratch. Even the latter is easier to do using SweetSpec than to do manually; at least the code and test references are up-to-date.

Our testers described the process as similar to the interaction of a designer questioning an experienced spec writer at a large firm: Each succeeding question is based on answers to previous ones. In complicated sections, the SweetSpec process is thus much faster and more intuitive than a manual checklist would be.

The questioning process—and the printing of an audit trail, listing questions and answers—takes place without connecting to the Sweet's mainframe computer. Until that connection is made, everything is free. Once the connection is made, the system uses your answers to pull needed data from the Sweet's computer into yours. It takes about five minutes a section. The system then combines the new information with data stored on the CD-ROM, and stores a final spec on your hard disk. Included are an audit trail and a set of coordination notes listing such items as details to be added to a drawing.

The spec can be printed out in two standard formats—the AIA's, with each line numbered, or the CSI's, with article numbers and paragraph letters. Or, users can create their own custom formats using a simple word-processing program supplied free on the Sweet's disk. Users can also read the specification into their own word processors for modification.

Frank Silva

NEC CD-ROM player costs under $500 and holds the equivalent in information of 1,500 standard floppy disks.

But how good are the specs? To check, we compared some specs with those written manually. The SweetSpec version was always more detailed—if anything, too much so to suit some tastes. In one case, a spec involving the proprietary Alucobond wall panel system, Sweet's added general information about live loads, even though the manufacturer's data is silent on that point. The manually written spec omitted wind loading. The system did it even though the spec was being written in section 07412, Preformed Metal Wall Panels, instead of MASTERSPEC section 07420, Composite Wall Panels (where the manufacturer had placed the product). Section 07420 isn't yet in the SweetSpec system. On the other hand, the manufacturer allows users to vary the thickness of the panels. This did not show up, because the manufacturer had not added that information in precisely that form to the catalog data in Sweet's itself. Sweet's says it has created 500 different templates for manufacturers to use in describing their products. But the system is still being refined—and manufacturers are still being educated.

We tested the system just as material was being loaded into the main computer to reflect the CD-ROM disk released in January with the Sweet's Catalog itself. This produced two error messages—three-digit numbers with notices to call the Sweet's toll-free hot line. The system still produced an adequate spec. Sweet's technical support then added the material and the sections were rerun. This mismatch between CD-ROM and central computer will happen every time Sweet's sends a new disk—about twice a year, under current plans. Data to match the old disk will stay in the central computer for a month after the new disk comes. After that, a section may have to be rerun from scratch to get an updated spec.

The system as a whole requires lots of memory. In fact, until I cleared every other memory-using application except PC-DOS itself out of the system, I had trouble connecting to the remote computer at all. Sweet's customer service pinpointed the problem.

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Continued on page 141

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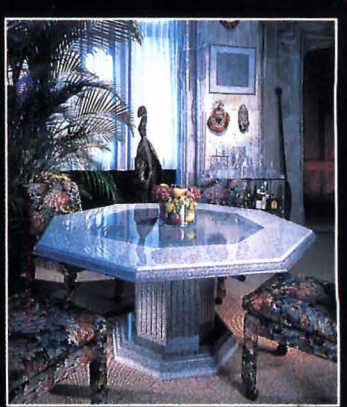

Octagonal Table, Plexability, New York
Designed by Berkowicz/Haller

Marotta Residence, New
Designed by We-Add, New

Circle 63 on inquiry card

Software reviews continued from page 139

This latest AutoCAD release for MS-DOS and PC-DOS systems turns the software into a full-fledged 3-D system.

costs less than $100 at current prices, and prices are dropping.

What next? Close examination of the Sweet's CD-ROM reveals that only about 10 percent of the disk is being used. There's still about 500 megabytes left. Already, the disk carries software from Codeworks—the CodeControl and CodeAnalyst system for figuring what codes apply to your building and location [RECORD, August 1988, page 129]. It can be activated by calling Codeworks and paying a separate fee.

Some other logical items for the disk would be manufacturer-supplied details, ready to be picked up by your CAD software. Or local Geographical Information System data ready for insertion into a COGO (coordinate geometry) database.

There are so many possibilities that you'll probably get more use out of the system if you buy a CD-ROM player that sits next to your computer (an "external" model), rather than one that inserts into a disk-drive bay. Then you can install SCSI boards where you need them, and move the CD-ROM player around. There was enough room in 640K to run the Sweet's system along with a PC-NET LAN program for networking several computers together. But there was not enough room to handle Sweet's and Appletalk.

AutoCAD Release 10 with ADE 3

The latest AutoCAD release for MS-DOS and PC-DOS systems. This version smooths out many of the kinks in 3-D implementation that were evident in Release 9. AutoCAD is now a full-fledged 3-D system. It all barely fits into MS-DOS and PC-DOS systems, however, and some system incompatibilities exist. Release 10 is such a tight fit that Autodesk insiders say this will be the last release for DOS systems. Future updates for IBMs and compatibles will run under OS/2 instead. This is an update of reviews of previous releases.

Equipment required: IBM XT (not recommended; see below) AT or compatible, PS/2 30, 50, 60, 70, or 80 with 512 kilobytes of random-access memory (640K needed for AutoLISP, and another 512K of extended memory for Extended AutoLISP), hard drive, coprocessor chip (8087, 80287, 80387), graphics monitor. Digitizing tablet strongly recommended. PC-DOS 3.3 (rather than later or earlier versions of DOS) strongly recommended; earlier versions have problems using extra memory, and PC-DOS 4 creates some incompatibilities (see text).

Vendor: Autodesk, Inc., 2320 Marinship Way, Sausalito, Calif. 94965, 800-445-5415. $3,000.

Summary

Manual: Better than the manuals included with Releases 2.6 and 9. But do not expect to install this on your own without good dealer support, or without a resident DOS expert. Once installed, however, new users will find the tutorial excellent.

Ease-of-use: AutoCAD has always been a full-featured package with many options. Release 10 extends these options considerably. Translation: AutoCAD does a lot of things, requiring a lot of commands. Release 10 requires even more commands. In exchange, the system of pull-down menus has been extended. Using a tablet or mouse to designate points generally does not work if you are working in a perspective view; you must enter coordinates through the keyboard.

Error-trapping: Generally good. Users should be careful to keep 2-D drawings even on the X-Y plane, especially if they expect to create 3-D entities by extrusion. Some graphics-accelerator boards, and early EGA boards, are incompatible. As always, users should not try to delete temporary work files while working on a drawing. It is clear that AutoCAD Release 10 is hungry for space inside a personal computer. We had problems accessing extended memory above 640K on a PS/2 Model 30-286 equipped with 1,024K and running PC-DOS 4.01, but not on an IBM AT clone with Phoenix bios running PC-DOS 3.3. The problem appears to be with the computer, not the software, however. At this writing, Microsoft Windows-286 cannot access expanded memory on a PS/2 30-286, either. And the DOS 4.01 SHARE command, which allows access to hard disks larger than 32 megabytes, must be carefully fine-tuned. Thus, we recommend staying with PC-DOS 3.3.

Some memory conflicts that cropped up in Release 9 still exist, with respect to use of a RAM disk in extended memory. Most users seem to have avoided them by not using extended memory at all, but this is not wise with Release 10 (see below).

Review

The CAD world has been experimenting with more intuitive ways to represent 3-D drawings on a 2-D computer screen. AutoCAD uses a straightforward system. First, there's a "world" coordinate system, fixed in space. Then there's a "user" coordinate system that can be rotated inside the world system, to present a drawing plane that's easy to work on, even if the plane isn't square with the world coordinates.

Objects can be viewed in 3-D by specifying a view point and eye point. Up to four views can be displayed on the screen at one time. Drawings can contain as many user coordinates as needed. 3-D images can be built up of extrusions, meshes, and the joining of separate 2-D faces. The meshes can be built up by sweeping a contour through space, or by specifying points in three coordinates and then forcing AutoCAD to smooth their connections. All this happens fairly slowly, however, unless you plan ahead. That means configuring AutoCAD to use as much expanded and extended random-access memory as possible. AutoCAD can use up to four megabytes of such memory for itself and for drawings, in addition to the 640K of memory DOS can normally address. AutoCAD can usually determine what kinds of memory you have, and how much you have. It uses expanded memory first. Every computer has a different way of getting at expanded memory. But once the equipment manufacturer's "driver" software is installed, expanded memory all works the same way as far as AutoCAD is concerned.

Extended memory, on the other hand, cannot be directly accessed by DOS software. Instead, it is used for a RAM disk, or "virtual memory" disk. Use extended memory to store AutoCAD's numerous overlay files, so the overlays don't have to be pulled from a slower, mechanical disk drive when they are needed. Different software uses extended memory in

Continued on page 143

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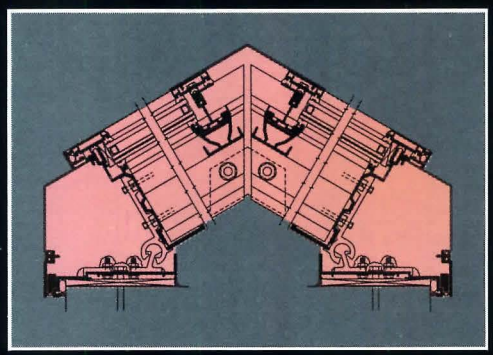

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17	Sun

Continued from page 141

nonstandard ways, however, so AutoCAD's own commands (rather than DOS commands) should be used to tell AutoCAD to start its use of extended memory at a memory address above where any DOS RAM disk is placed. AutoCAD also can be speeded up by working on as few drawing layers at a time as possible, and telling the software to update layers only as needed.

AutoLISP can now run in extended memory, allowing add-on programs of almost unlimited size. Previous releases allow AutoLISP programs no larger than 40 kilobytes. But existing add-on programs written in AutoLISP (including AutoSHADE) will almost certainly have to be modified to run with Release 10. Some quick fixes are detailed in literature that comes with the new release. Extended memory manager software from Compaq and Quarterdeck, as well as the Intel Inboard, will not, as of this writing, work with extended AutoLISP at all. Thus, using the Intel board to supercharge an old IBM XT for AutoCAD 10 is not a good idea.

The bottom line: If you are in the middle of a hot project, stay with AutoCAD 9 for the time being, unless you absolutely have to have 3-D—especially if you are using undersized computers and lots of AutoCAD add-on software written in AutoLISP. If possible, wait for your third-party vendors and graphics-board suppliers to provide updates before you convert.

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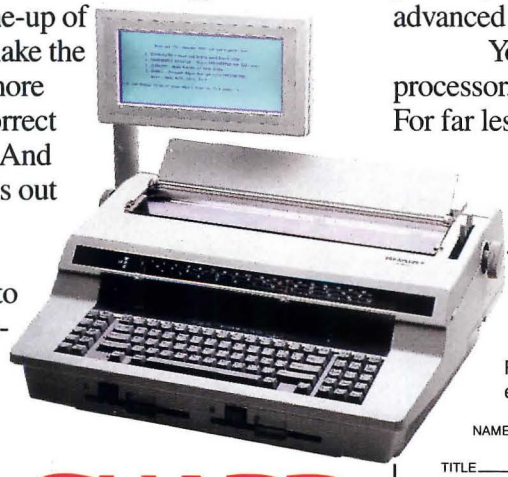

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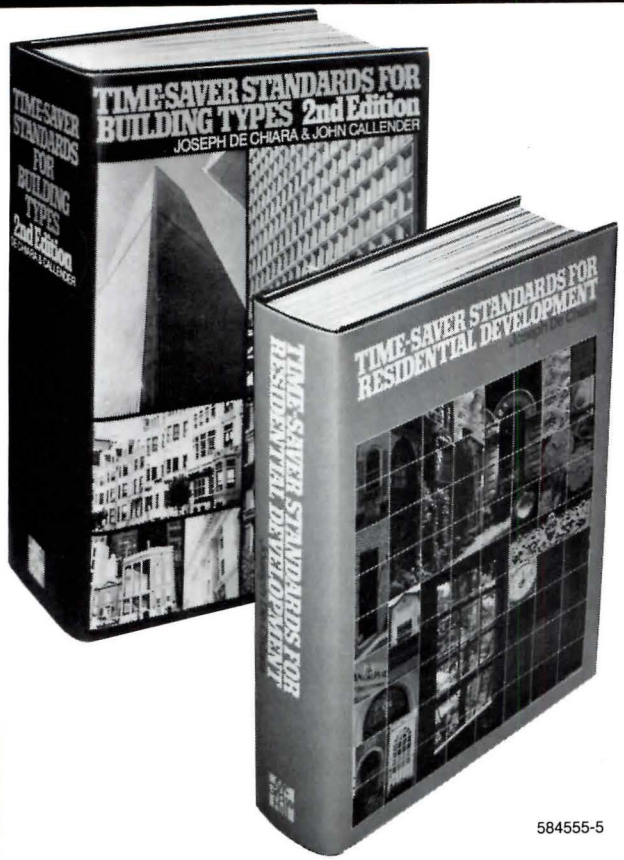

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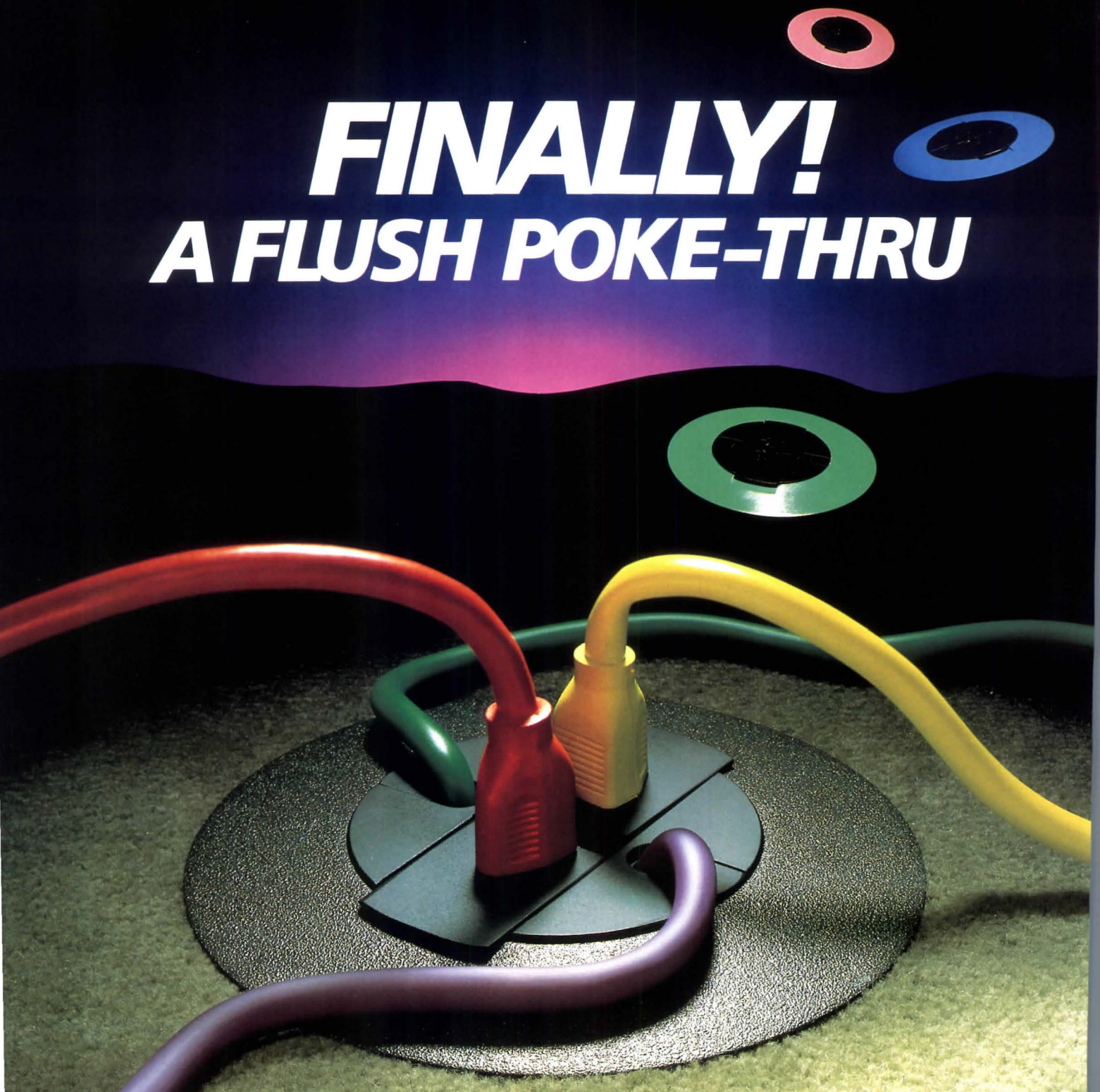

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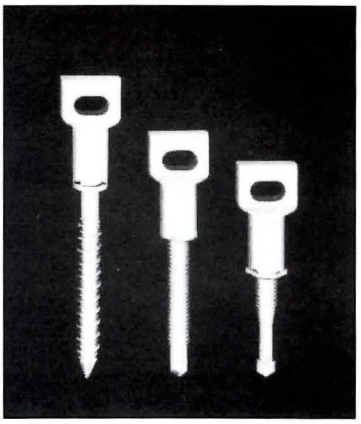
Continued from page 125



Masonry-veneer anchors
The three types of Pos-i-Tie fasteners are said to provide dependable anchoring of masonry veneers to the structural elements of different backup systems: masonry or concrete, steel studs, and structural steel. The self-drilling or self-threading anchors keep damaging movement between veneer and backup to a minimum, while transferring tension and compression loads and allowing for a small amount of controlled thermal movement. Elco Industries, Rockford, Ill.
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Large-drawing printer
A plain-paper printer with zoom optics, the 5080 can make five full-size prints of an E-size (36-in.-wide) document per minute. Smaller D- and C-size prints can be produced at higher speed. Output can be electronically edited: selecting coordinates for as many as eight areas on the original will eliminate these sectors from the copies. Xerox Corp., Rochester, N. Y.
Circle 315 on reader service card
More products on page 151

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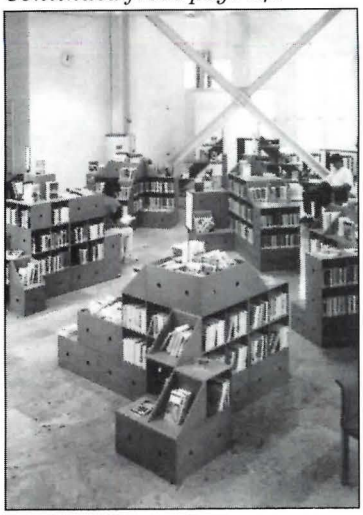

Library display system
British in origin, the Modulsystem is said to be particularly effective in encouraging young children to browse through displayed reading materials. The shelving consists of open-fronted shapes—boxes, cubes, and a diagonal cube—which fit together with plastic nuts and bolts. Units can create cubicles for seating, and be placed around columns or into alcoves, using all of the space available. Gressco, Ltd., Madison, Wis.
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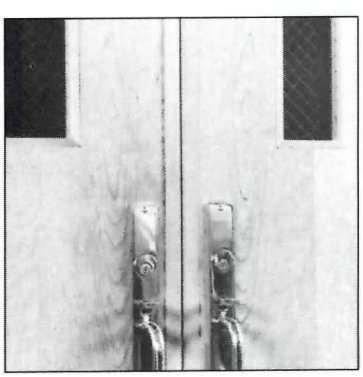

Paired fire doors
The Superfire System, labeled for up to 1 1/2 hours, is now available in a paired-door system without an overlapping astragal. The metal channels on the meeting edges and the glass-light beading are wrapped with the same veneers used on the doors, providing an all-wood appearance. Optional reinforcement for hardware attachment can be specified to allow surface-mounted closers, fire-exit devices, and surface vertical rods to be fastened with screws rather than by through-bolting. Algoma Hardwoods, Inc., Algoma, Wis.
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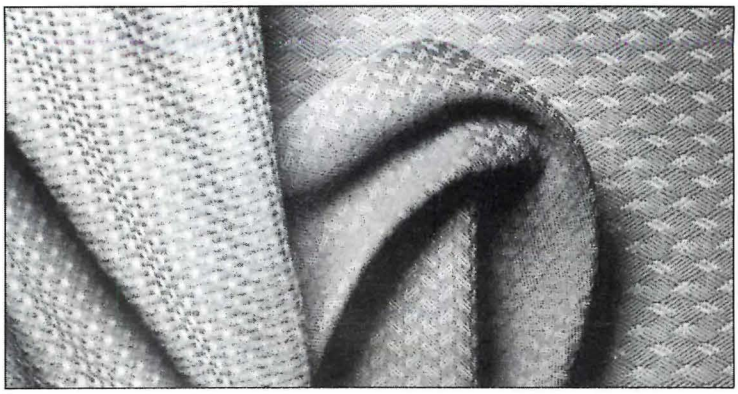

Flame-retardant fabric
A blend of SEF modacrylic and nylon woven in three different nondirectional patterns, these COM Collection fabrics are suggested for upholstery and vertical use in hotels, public areas, and offices. Lee Jofa, Carlstadt, N. J.
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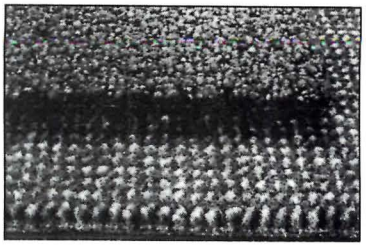

Antibacterial carpeting
The heavy-duty backing of new institutional patterns is said to prevent carpet delamination. A permanent antimicrobal treatment reduces the chance of odor developing in the carpet. Lees Carpets, King of Prussia, Pa.
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Manufacturer 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 78-83
Software Engineering Institute
Bohlin Powell Larkin Cywinski and Burt Hill Kosar Rittelmann Associates, Architects
Pages 78-81—Curtainwall: Marmet Corp.; E. P. I. Architectural Systems, Inc. Tinted and reflective glazing: Guardian Industries Corp. Terne roofing: MTG, Inc. EPDM roofing: Firestone Building Products. Custom stainless-steel entrance: Ellison Bronze Co., Inc. Aluminum-framed entrances: Kawneer Co., Inc.; Amarlite Architectural Products. Granite: Cold Spring Granite. Limestone: Bybee Stone Co.
Pages 82-83—Wood and glass interior doors: Weyerhaeuser Co. Locksets: Schlage Lock Co. Hinges: Lawrence Brothers. Ceiling tile: Armstrong World Industries. Plaster and gypsum drywall: Gold Bond Building Products. Alkyd paints: PPG Industries, Inc. Carpeting: Lees Commercial Carpet Co. Corridor light fixtures: custom by architect. Special wall treatment: EPI Wall Systems, Inc.

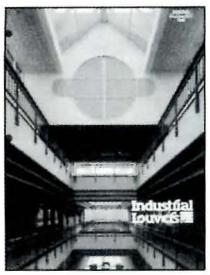
Pages 94-99
The Royalton Hotel
Gruzen Samton Steinglass, Architect; Interior Designer: Philippe Starck.
Page 94—Storefront windows: Star Front, Inc. Aluminum-framed windows: Wonder Window. Entrance doors and custom cabinetry: Maville Interiors. Lobby plasterwork: S. O. E. Stucce & Staffe. Front desk: Bauerschmidt & Sons, Inc. Carpet: Crowthers. Wall fixtures: Daum Glass. Furniture: Yves Hallard; Vinchard. Exterior lighting: Omega; Hydrel; Edison Price.
Pages 95-97—Restaurant furniture: Muebles Case. Upholstery and panel fabric: Duralee; County Interprises: Edmond Petit; H. Lelievre. Lighting: Bega; Bergen Art Metal. Drywall and wet plaster: Argus/Sorbara. Custom metal work: Dacheville.

Pages 98-99—Guest room furnishings: Driade; Disform. Lighting: Koch + Lowy, Inc. Carpeting: Philadelphia.

Pages 100-105
Rivercenter
Urban Design Group, Architects
Pages 100-101, 104-105—Steel and aluminum curtainwalls: Wassau Metals; Richmond Steel. Architectural precast: Redondo. Aluminum storefronts, windows, and entrances: Regal Mfg. Corp. Vertical glazing: PPG Industries. Laminated skylight glazing: Viracon. Operable storefronts: F. W. Riesenecker. Elastomeric roofing: Carlisle Corp. Standing-seam metal roof: Burns Sheet Metal. Rolling doors: Atlas Door Corp. Acrylic paint: Gladwin Paint Co. Special coatings: U. S. Paint; Du Pont. HID fixtures: Omega. Hydraulic elevators: Montgomery.
Pages 102-103—Modular face brick: Elgin Butler. Storefronts, windows, and entrance: Samuels Metal Products. Exterior finish: Ispo USA, Inc. (R-Wall).

Pages 106-111
Public School 234
Richard Dattner Architect, P. C.
Pages 106-109—Red brick: Bowerston Shale Brick. Tan brick: Taylor Brick Products. IRMA roofing: Manville. Awning and projected windows: Miami Wall Systems, Inc. Metal doors: General Fire Proof Door Corp. Upward-acting grille: Kinnear Div., Harsco Corp. Flagpole: American Flagpole, Inc. Cut and welded steel fence: Donna Dennis, artist; fabricated by Architectural Iron Co.
Pages 110-111—Structural glazed-facing tile: Belden-Stark. Vinyl tile: Azrock Floor Products. Paints: Wallcote. Fixed seating: Irwin Seating. Sheet vinyl: Armstrong World Industries. (Corlon).

Product literature *continued*



Ventilation louvers
An expanded, 20-page catalog features extruded-aluminum and formed-metal louvers and penthouses, accessories, decorative screens, and brick and block vents. Industrial Louvers, Inc., Delano, Minn.
Circle 424 on reader service card

Plotter materials
A color brochure matches films, vellums, and opaque and new translucent bond media with hundreds of different flatbed and drum-type digital plotters. Dietzgen Corp., Des Plaines, Ill.
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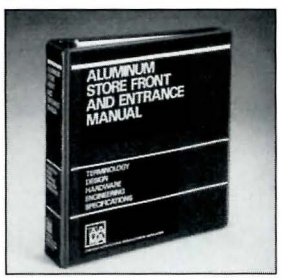

Store fronts/entrances
A 140-page manual provides technical information intended to encourage good design, the use of quality materials, and careful workmanship in entry areas. Cost: $50. American Architectural Mfrs. Assn., Des Plaines, Ill.
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Curved drywall
A technical data sheet illustrates suggested construction techniques, such as cutting and wetting, used to form drywall to almost any cylindrically curved surface. United States Gypsum Co., Chicago.
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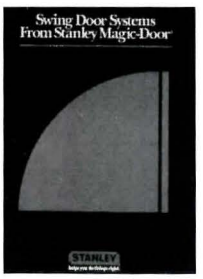

Automatic swing door systems
A booklet explains how fire-safety, security, and handicap-access requirements can be met with Magic-Swing and Value Swing door systems. Door control options are described. Stanley Magic-Door, Farmington, Conn.
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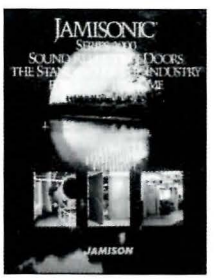

Sound-reduction doors
A variety of applications for sound-reduction doors are covered in an eight-page catalog. Door types, sizes, key design features, and sound transmission ratings are explained. Jamison Door Co., Hagerstown, Md.
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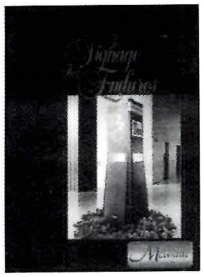
For more information, circle item numbers on Reader Service Card



Etched signage
Custom institutional and commercial graphics, from office signs to memorial plaques, are shown in a color foldout. Bronze, aluminum, and nickel-plated finishes are pictured. Medalia Specialties, Inc., Bensenville, Ill.
Circle 430 on reader service card

Radius corners
A system of field-cuttable, paint-ready formed steel is described on a data sheet as a cost-effective way to fabricate curved corners on interior gypsum board walls and ceilings. Radius Corner Systems, Inc., Bloomfield, Conn.
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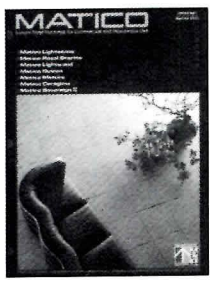

Vinyl flooring
An architectural catalog on Japanese-made vinyl tile features close-up and installation photos of floors that resemble stone, tile, terrazzo, wood plank, and carpet. Flame-test and other data are included. Matico, Commack, N. Y.
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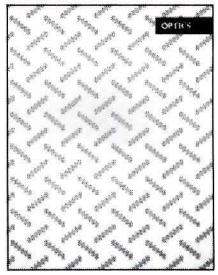

Customized commercial carpet
A specification guide describes new Optics contract carpeting, illustrating 150 patterns and 100 colors offered in any desired combination. Stratton Commercial Carpets, Sub. Shaw Industries, Inc., Dalton, Ga.
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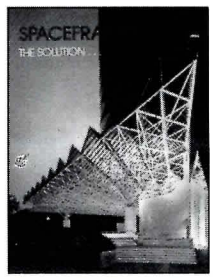

Spaceframe design
Architectural design solutions using spaceframes to support curtain-walls, large-span atria, canopies, and amphitheaters are illustrated in a color catalog. MERO Structures, Inc., Germantown, Wis.
Circle 434 on reader service card

Marble aggregate tile
A 1989 design catalog illustrates 15 colors of cast-marble-chip tiles for floors and walls, including a 3/8-in.-thick, 24-in.-square size. Both polished and low-upkeep honed finishes are offered. ArmStar, Lenoir City, Tenn.
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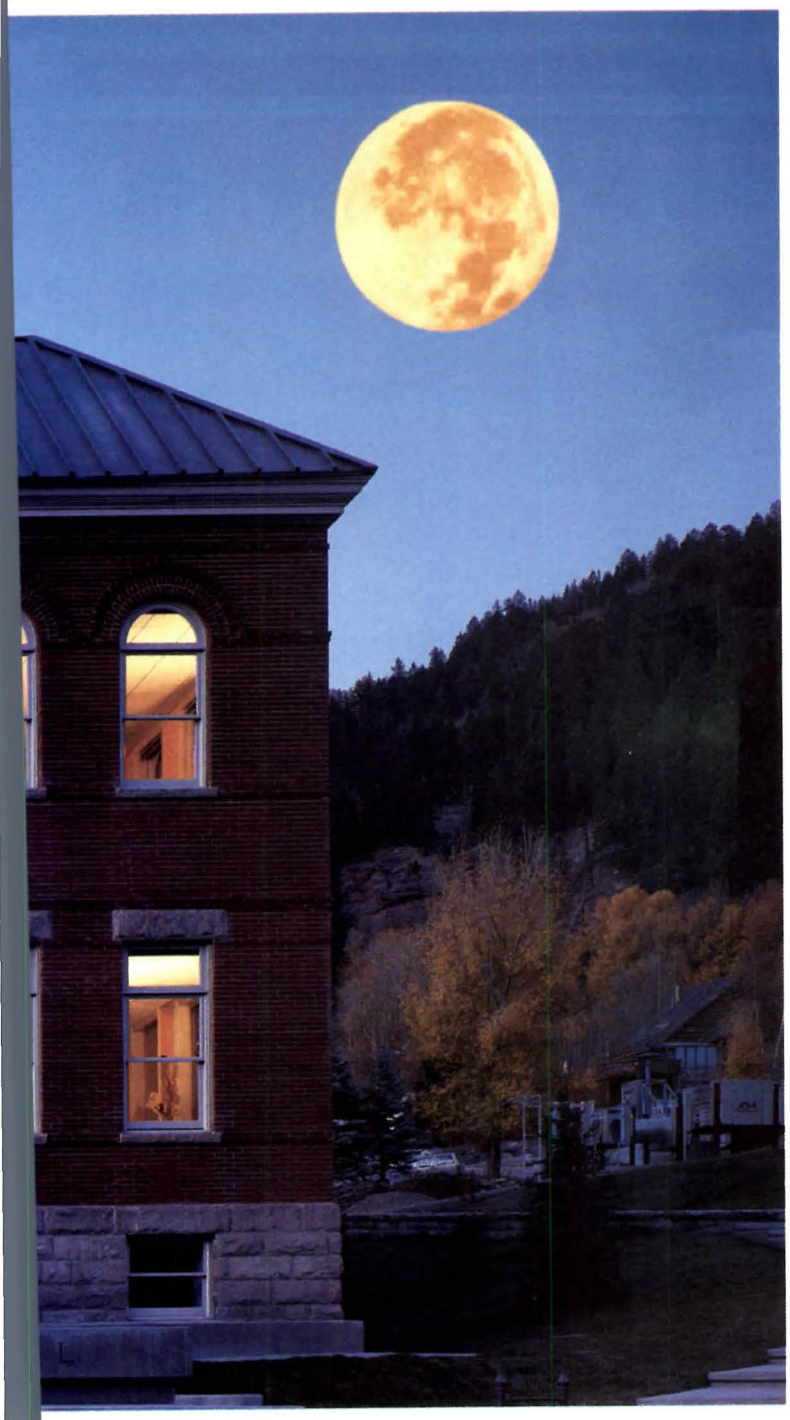

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Architect: Moore Ruble Yudell, Architecture and Planning

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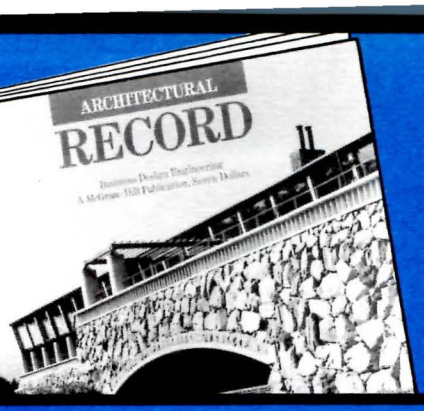
Business news
Continued from page 31

feet of federal office space, proposed for the downtown Federal Triangle site in Washington, would permit the consolidation of federal agencies such as Treasury, Justice, and the State Departments. The Cultural and Trade Center component would add another 500,000 square feet, bringing the total to roughly two-thirds the size of the behemoth Pentagon.

The main uncertainty seems to surround the center. The GSA would like to move large chunks of the Justice Department in on completion (by 1994 at a cost of some $461 million). However, while the Pennsylvania Avenue Development Corporation, initially charged by Congress with the lead responsibility for the project, has worked up a prospectus and is meeting with interested clients, it has yet to award a design contract. A key issue is tenancy—who will make companionable neighbors under one roof? Some witnesses, including former Senator Charles Percy, chairman of a recently established presidential commission on the center, told Moynihan's committee bluntly that foreign governments are unlikely to move into a building with trade promotion and even perhaps one-stop visa offices if they have to share it with the Justice Department. The United States Information Agency, for instance, he thought would be a different matter. Percy, who said he had explored the idea with both foreign governments and the State Department, said it is his impression that the foreigners would be unwilling to move in if Justice prevails because, among other considerations, it has different security requirements: "If the foreign missions pull out, it would destroy the whole concept," said Percy.

Peter Hoffmann
Washington, D. C.



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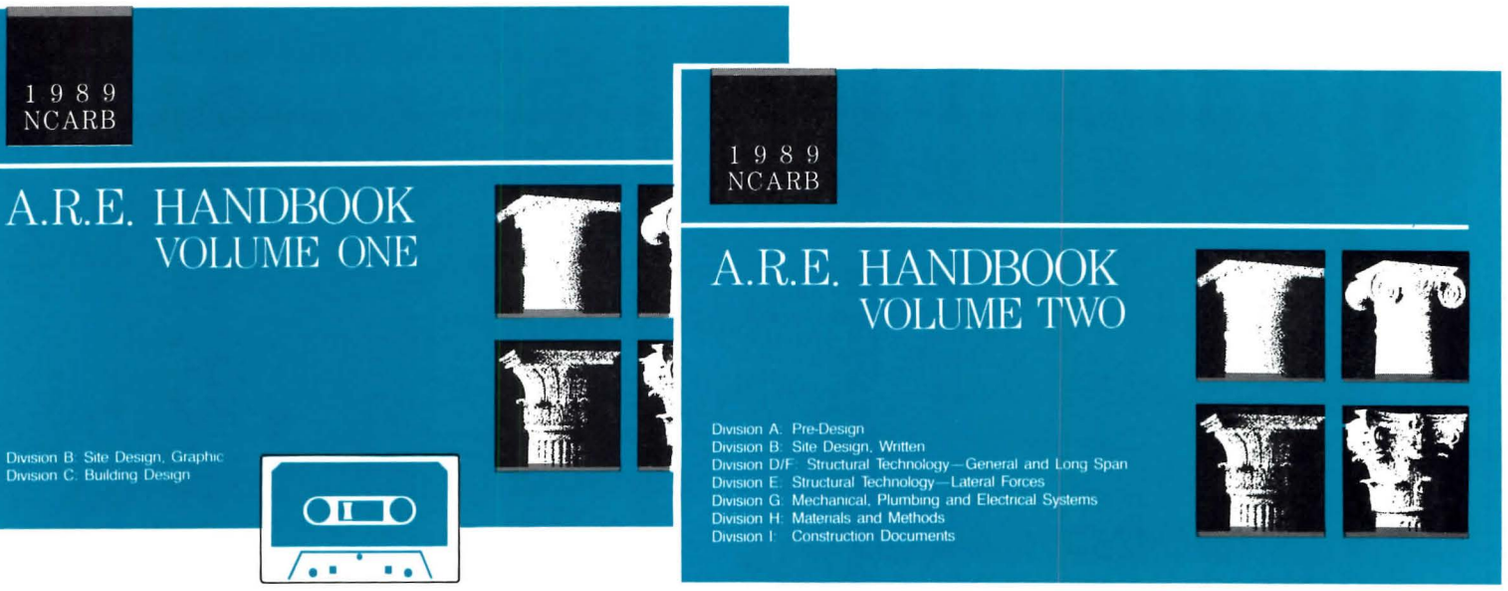

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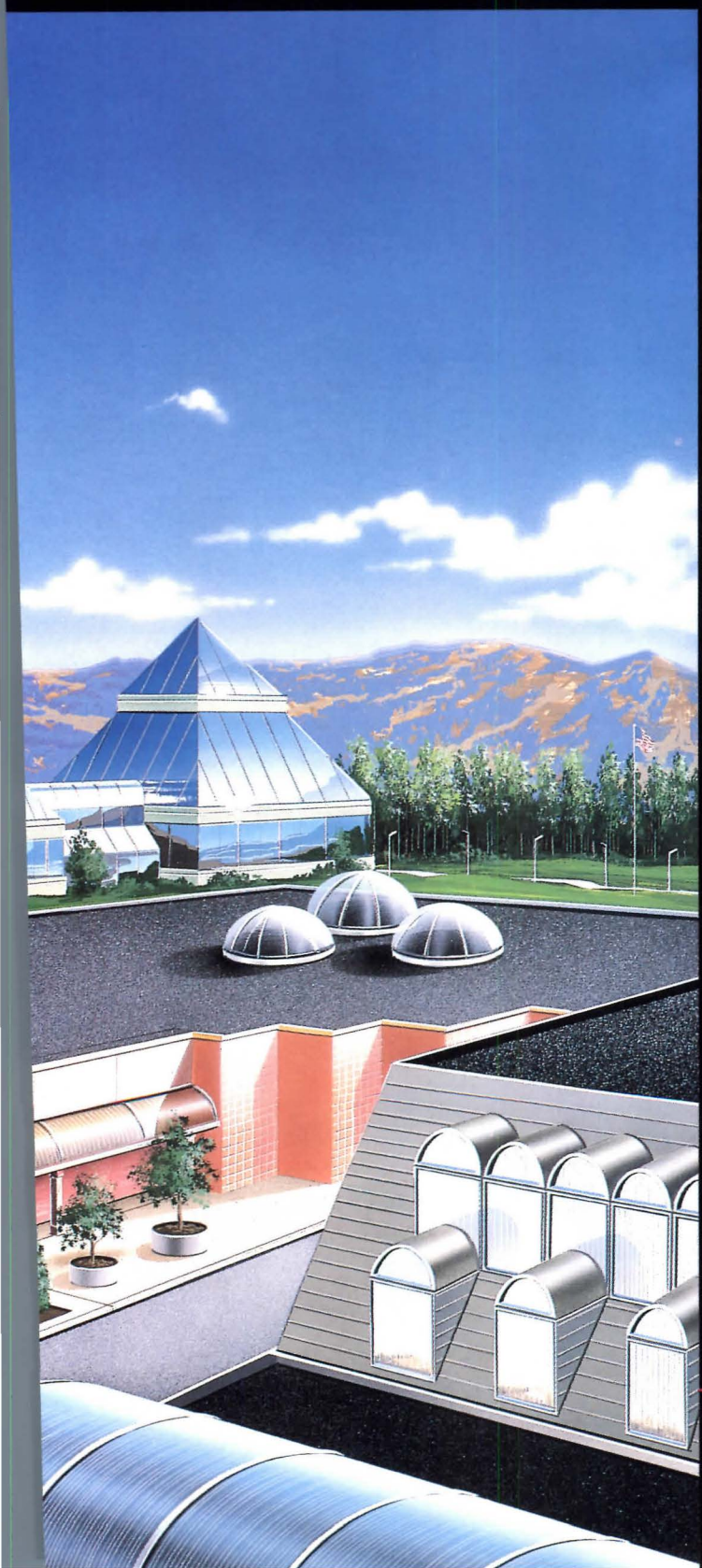

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Publication:
Winning entries will be featured in the November 1989 issue of ARCHITECTURAL RECORD. Other submissions will be returned or scheduled for a future issue.

For additional information, call Deborah K. Dietsch at 212/512-2409.

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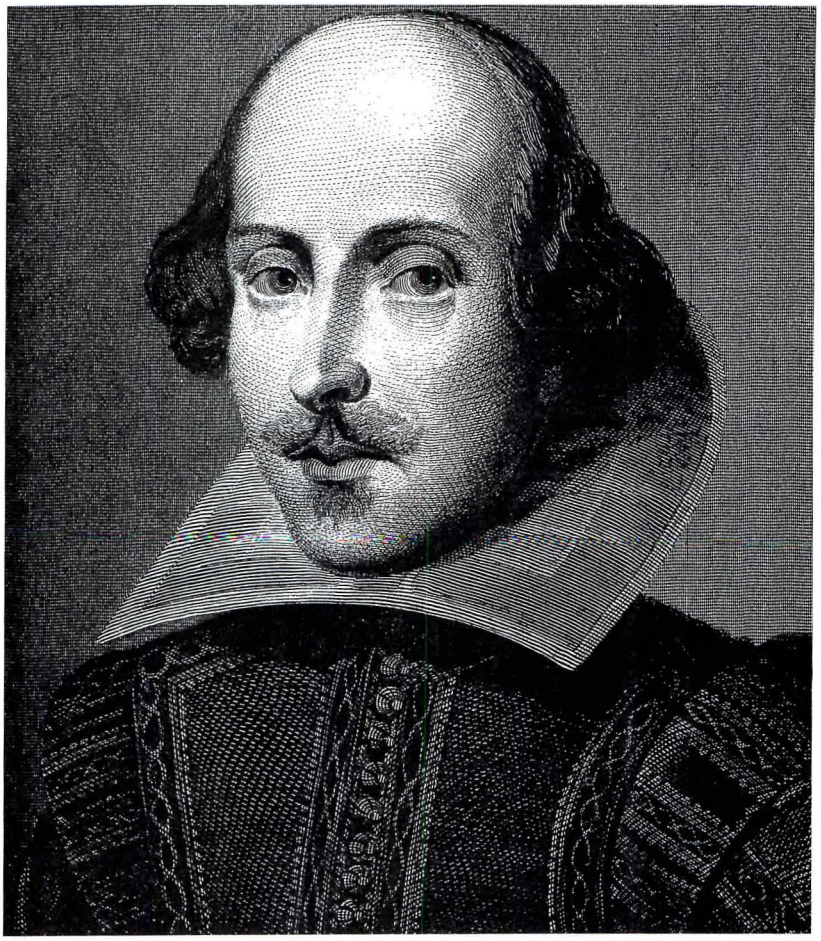

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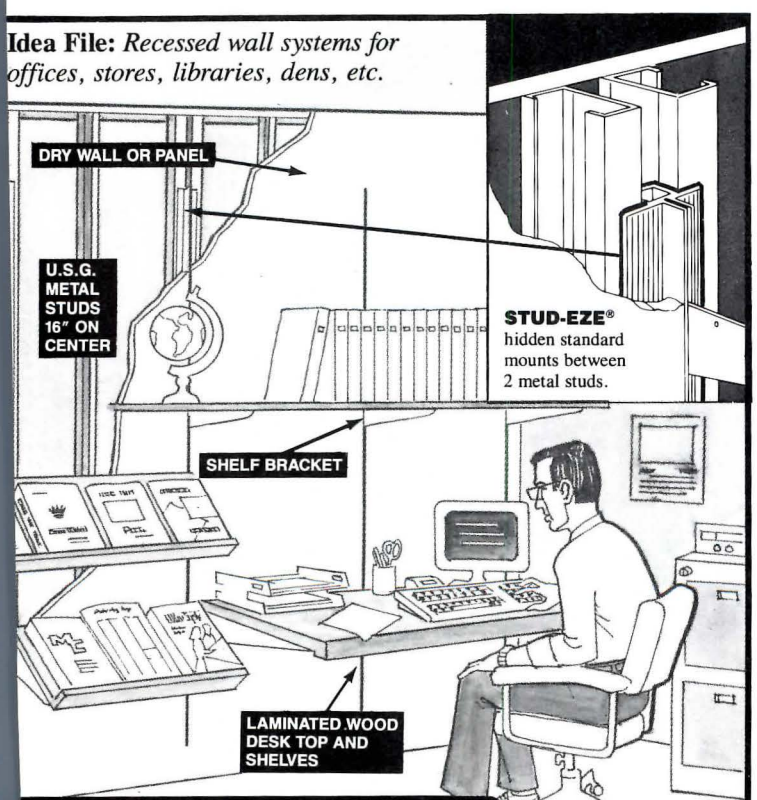

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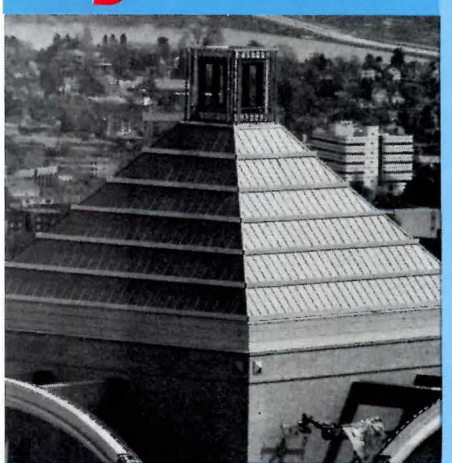

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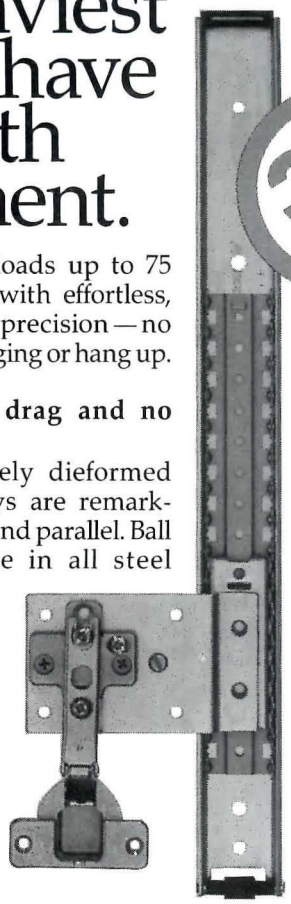

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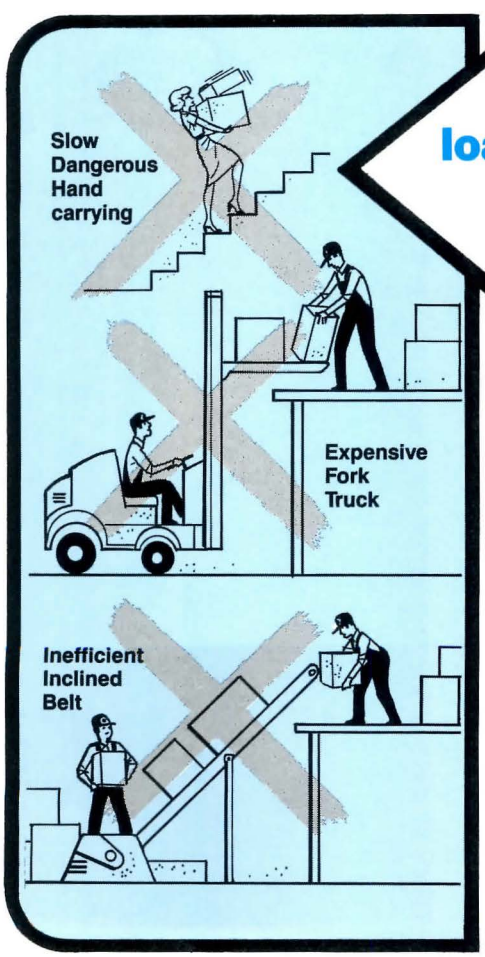

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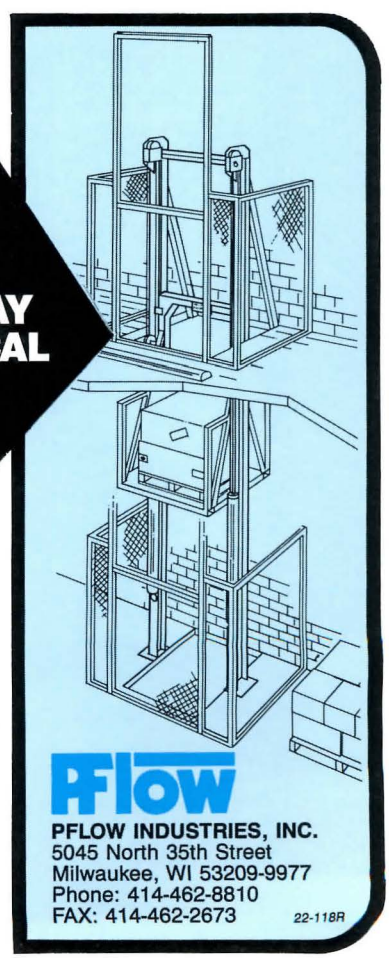

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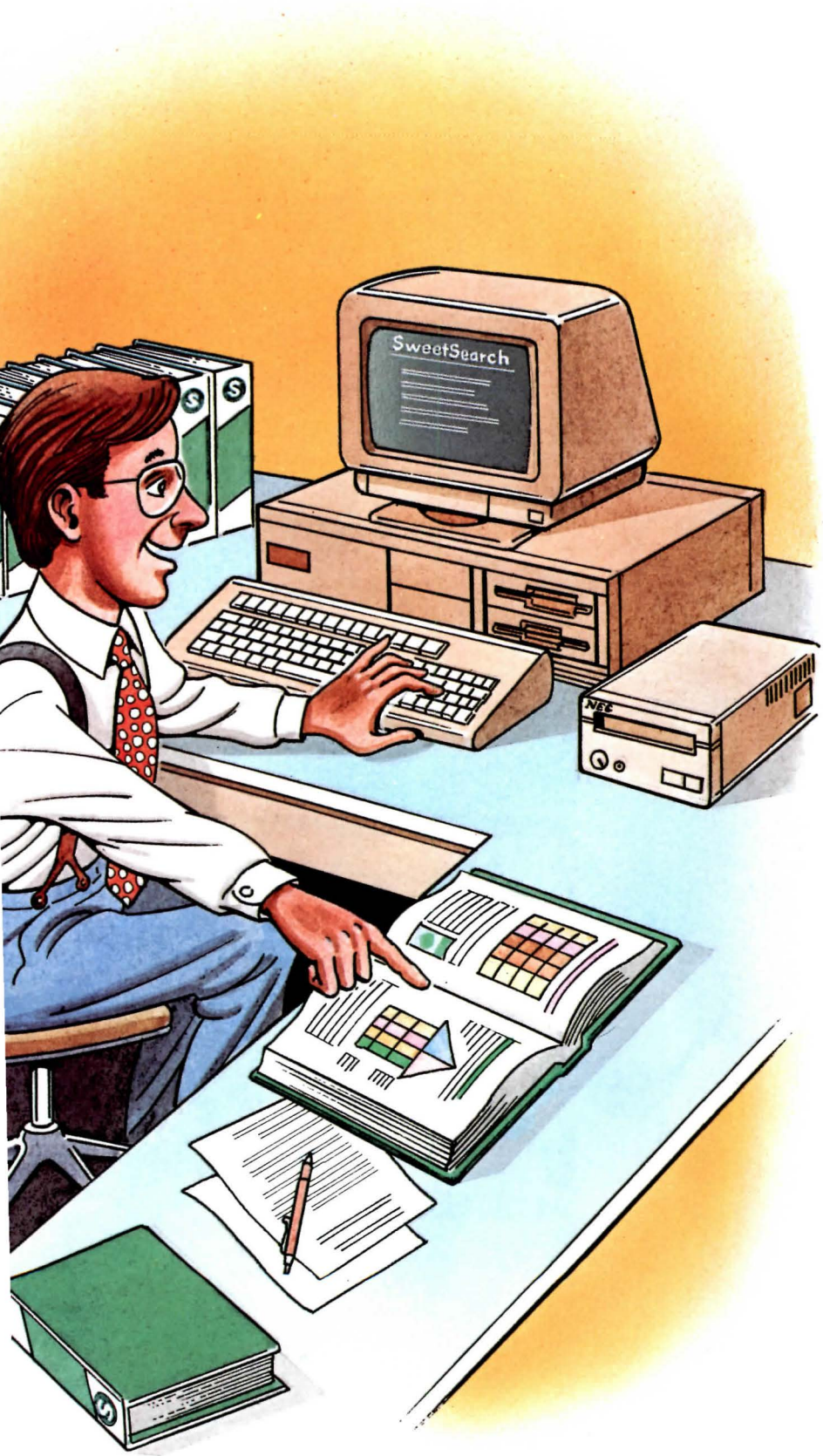

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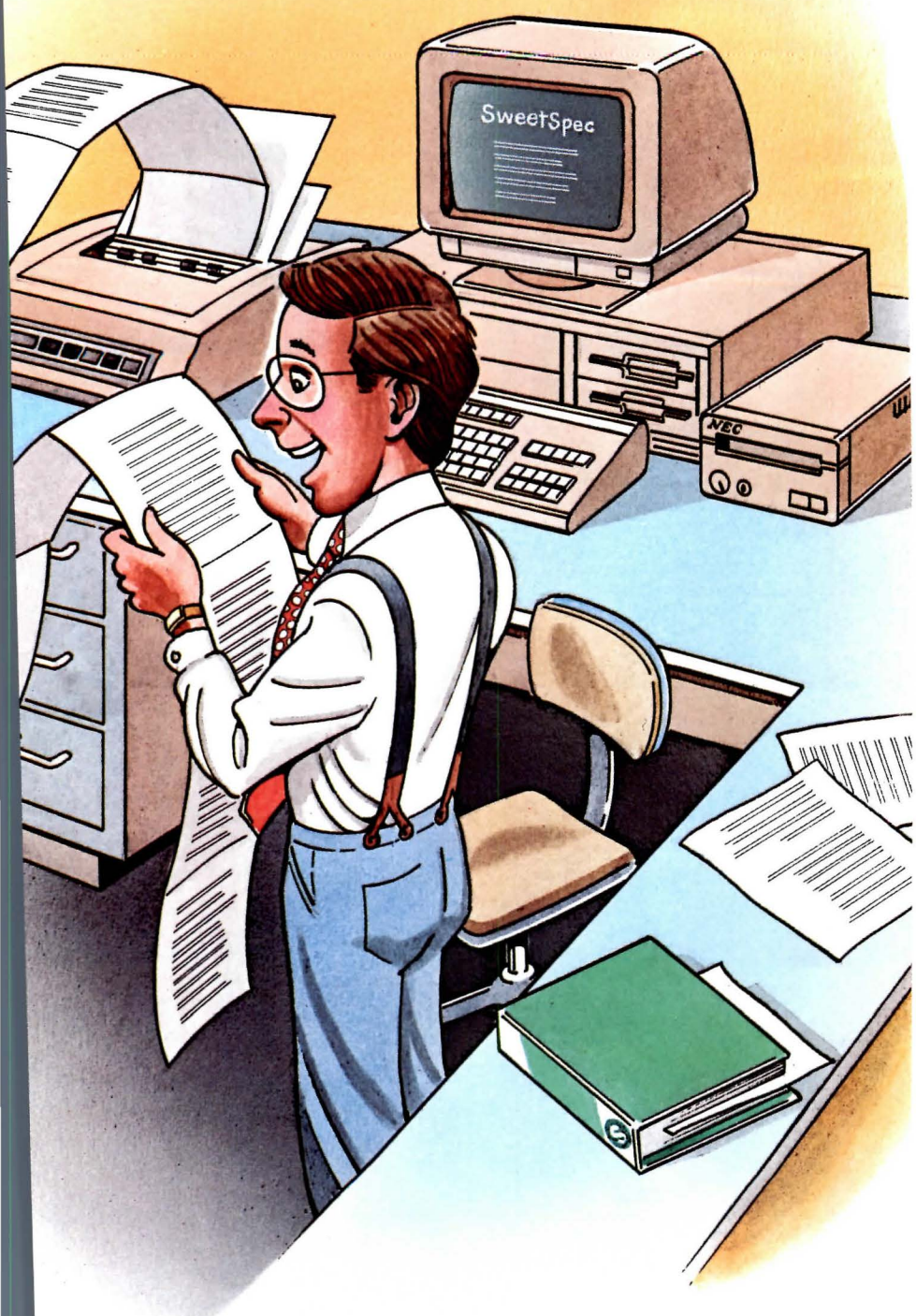

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