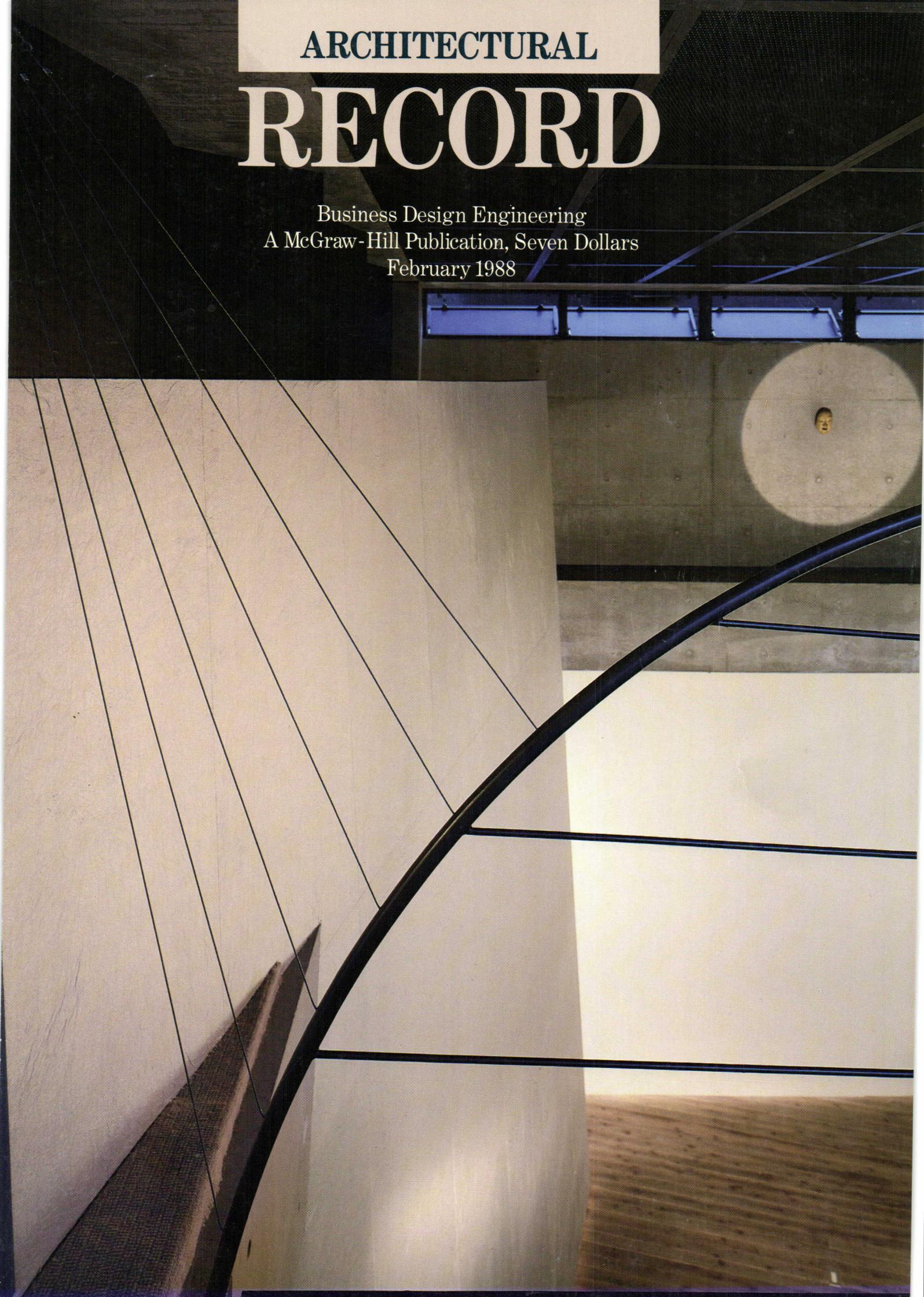
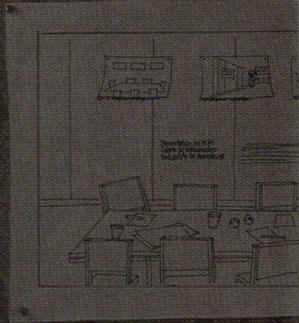


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Your editorial in the November, 1987 issue of ARCHITECTURAL RECORD, page 9, spoke of John F. Hartray's address to the National Institute for Architectural Education (NIAE) in which he questioned the success of university education and discussed the possible substitution of formal training with the apprenticeship system.

Now John Hartray is a wonderfully charming and disarming raconteur of why the old days were somehow better than present days. We do not live in the Middle Ages, however, nor in Hartray's and the editor's words, the age of "fearless youngsters" who began their careers by directly participating in the making of buildings." There are many craftsmen available today who can lay brick and block and stone, place reinforcing steel, assemble wall sections, place ducts and conduit, install glass and hang ceilings, but that does not make them architects—even though they are able to make buildings. There are many craftsmen who can create drawings that show how these pieces are to be assembled, but that does not make them architects. What architect "master" today does things the way his predecessors did? Today's architect must be able to understand and absorb new knowledge, apply it, and be able to converse intelligently with all who are a part of the building process in today's complicated building environment.

We would probably all like life to be simpler than it is. We would like people to show us how to do something and then go do it. But in today's world actions do not replicate themselves so easily. Apprenticeship is important, and it is being seriously addressed in the IDP program, which most architectural educators and professionals support. No educator would

argue that everything can be learned in the university. It seems silly to argue that the answer to educating architects who must cope with the complex realities of our time can be found by simply having them do as we do. It is tempting to grab for easy solutions to what is a most difficult problem, educating professionals for an uncertain future. Let's not add to the uncertainty by supporting simplistic solutions to the problem of education.

*John Thomas Regan  
President ACSA  
Robert M. Beckley, FAIA  
President Elect ACSA  
Washington, D. C*

*Neither John F. Hartray nor I stated or implied that architectural apprenticeship should replace formal university education in architecture. The editorial simply urged that apprenticeship once again become an option. Furthermore, neither of us suggested that apprentices as such should "do as we do." Nor do we support apprenticeship as a solution to the problems of architectural education. It would be hard to find anyone who would be that simplistic. —M. F. S.*

It was a great pleasure to read your editorial regarding the apprentice system.

Frank Lloyd Wright, recognizing the value of the apprentice system, started the Taliesin Fellowship in 1932, as an experiment in the education of architects. The idea has evolved over the past 55 years to become the Frank Lloyd Wright School of Architecture. Just as in Mr. Wright's time, today's students work side-by-side with professional architects directly participating in the making of buildings.

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As you noted, it is nearly universal that aspiring architects must be equipped with a degree from an accredited program in order to sit for the licensing exam. This all but eliminates the apprenticeship system of education. The Frank Lloyd Wright School of Architecture demonstrates that acquiring a degree and apprenticeship can be successfully combined.

*E. Thomas Casey  
Director of Education  
Frank Lloyd Wright  
School of Architecture  
Taliesin West,  
Scottsdale, Arizona*

## Correction

In the design news item entitled "New lights on old Broadway" [RECORD, November 1987, page 73], credit for the 1580 Broadway Building should have been attributed to Mayers & Schiff Associates PC, Architects in association with Schuman Lichtenstein Claman Efron.

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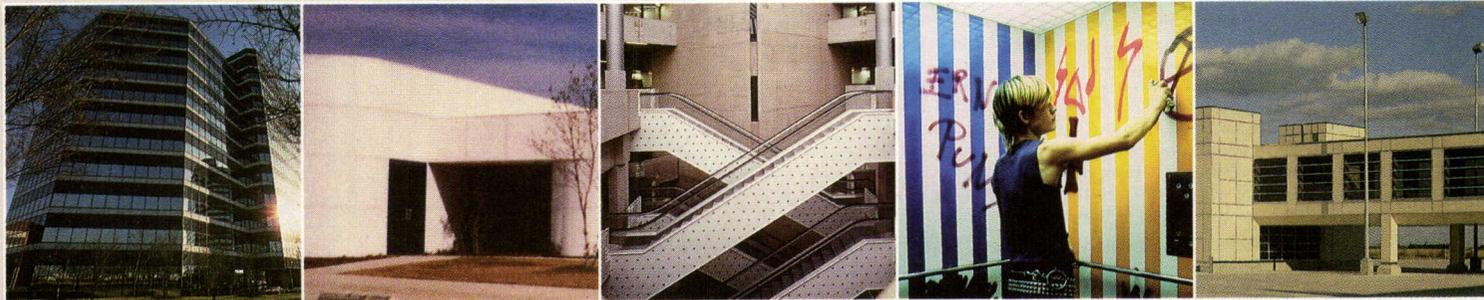
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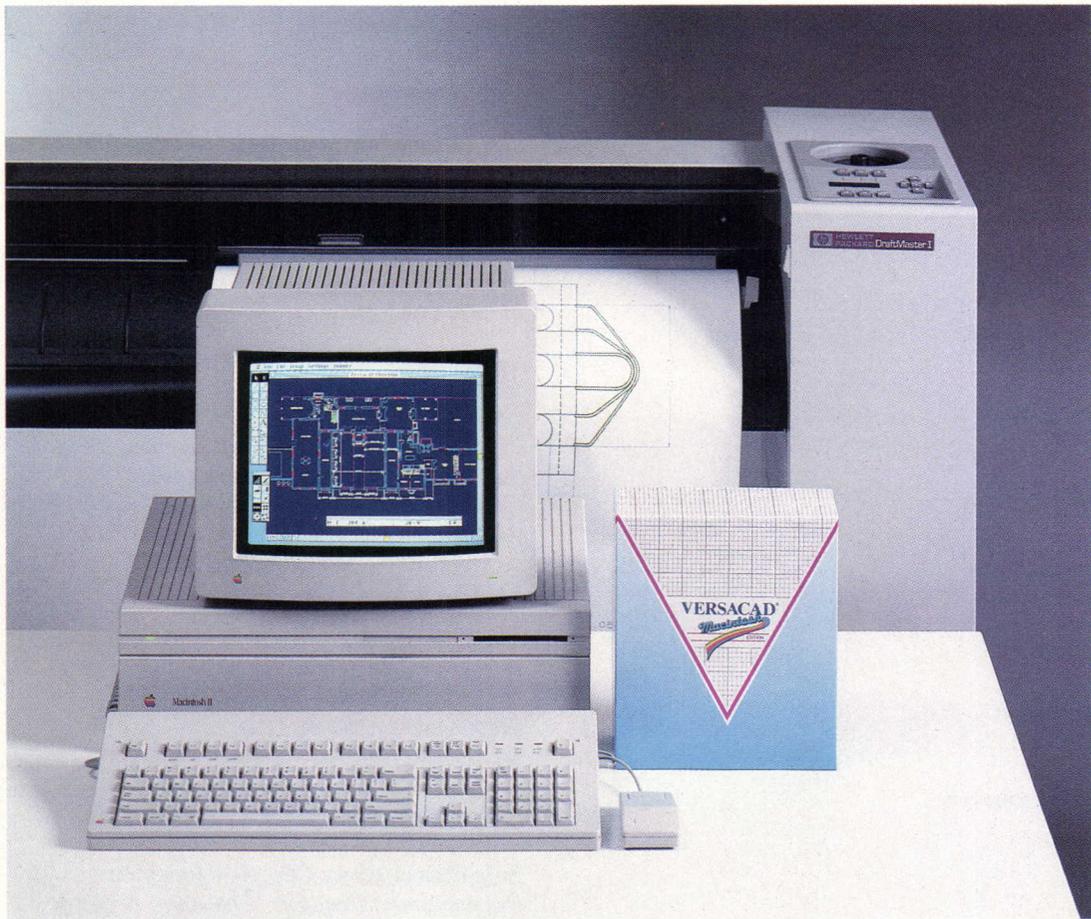
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## Good for contractors, bad for owners, worse for architects? The new General Conditions (AIA Doc. A 201) appears to have problems

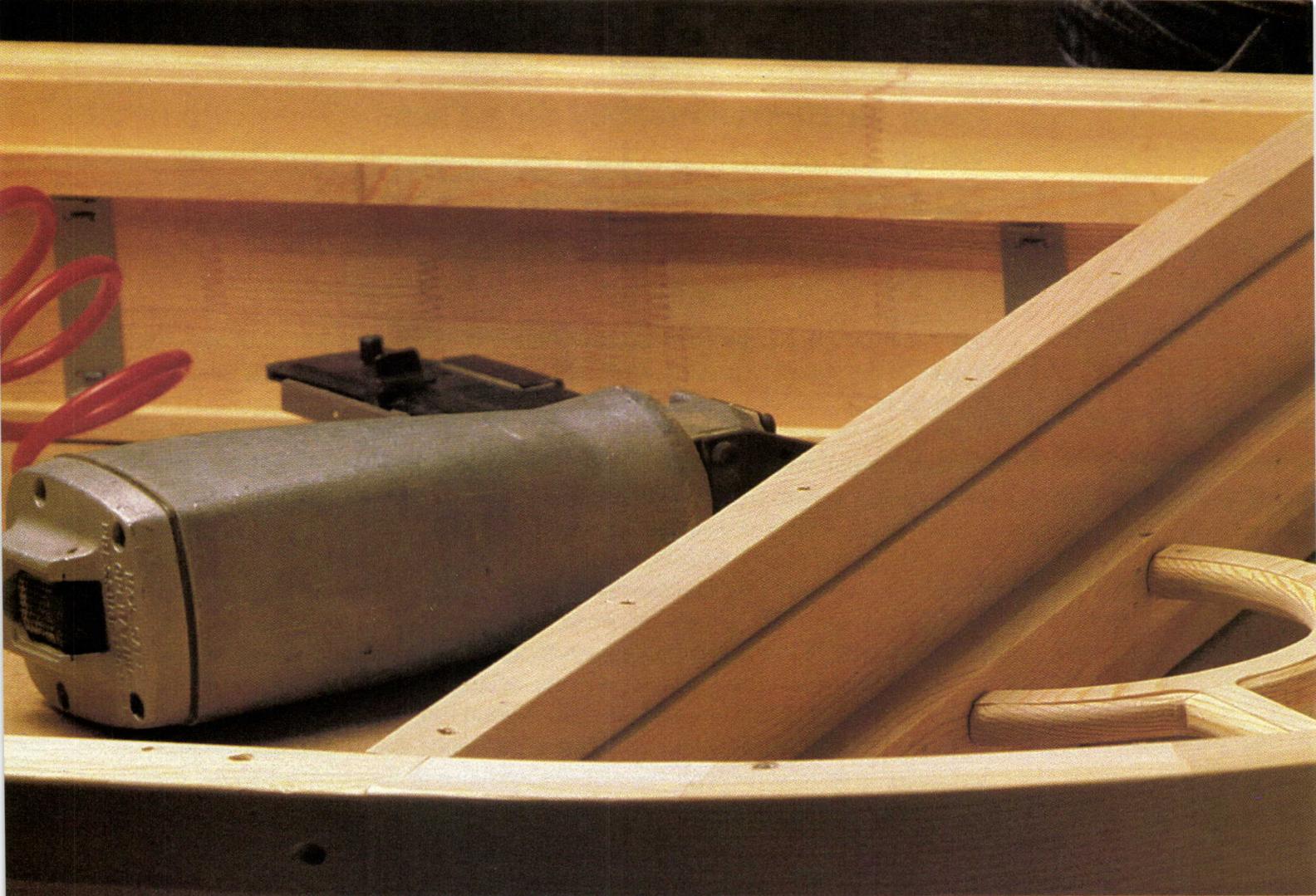
Attorney Carl M. Sapers, making his debut this month as a RECORD legal columnist (pages 37-43), takes aim at the 1987 edition of the AIA's standard forms of agreement for the construction industry. A201/87 fails in many significant ways, he asserts, "an event of grave concern to all of us connected with the design and construction of buildings in America." His criticism, elaborated in the precise language of a good lawyer, loses its subtlety in the following summary, but I nevertheless offer it as a lure to his text.

Whom does the 1987 edition fail, in Sapers's opinion, and how? The architect's client, for example, may be disserved by legal language that appears under certain conditions to give the general contractor the right to keep the owner off the premises. A201/87 may also unnecessarily complicate, to the owner's disadvantage, the sequence of procedures leading to the arbitration of disputes between owner and contractor. Furthermore, in the new edition, the owner loses his right to terminate if the contractor demonstrates insolvency, but the contractor may terminate if dissatisfied with the owner's evidence of financial resources for the project. It is now easier for a contractor, in trouble because he has seriously underbid the work, to void his contract with the owner. And in the current document the owner loses his protection against subcontractor liens. In Sapers's view, A201/87 creates confusion in its definition of the responsibility assumed by the general contractor, compounding misunderstanding as to the circumstances under which the contractor is required to indemnify the owner and architect.

The architect, disadvantaged by such injury to his client, could suffer additional setbacks. Unfortunately, earlier editions of A201, as well as the present one, provide documentary evidence for, in Sapers's words, "a court to support the proposition that the architect's duties are for the contractor's benefit and that therefore the contractor may sue the architect directly if the architect's performance injures the contractor." Not until the 1987 edition, however, has A201 gone so far as to enable even subcontractors and material suppliers to recover against the architect. According to Sapers, it would appear that the drafters of the new document have lost sight of the fact that the architect's duty "is to a client/owner, not to every other participant in the construction process."

Sapers believes that the 1987 edition's inconsistencies respecting the architect's responsibility toward hazardous materials expose him to liability in this regard. And that A201/87 increases the possibility that architects will be considered liable for workmen's injuries related to defective construction means and methods, including temporary lifts and scaffolding.

Sapers's meticulous critique is not the first the AIA has received, nor will it be the last. He and other defenders of the architectural profession are joined in urging the AIA to bring forth an improved edition of A201 in '88. Next month RECORD will publish a commentary on Sapers's arguments by the AIA. Architects should be looking forward to the Institute's rebuttal. *Mildred F. Schmertz*



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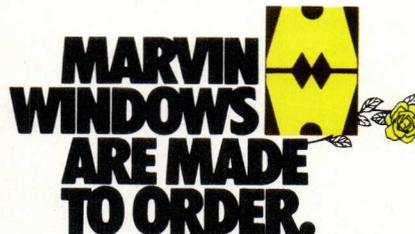
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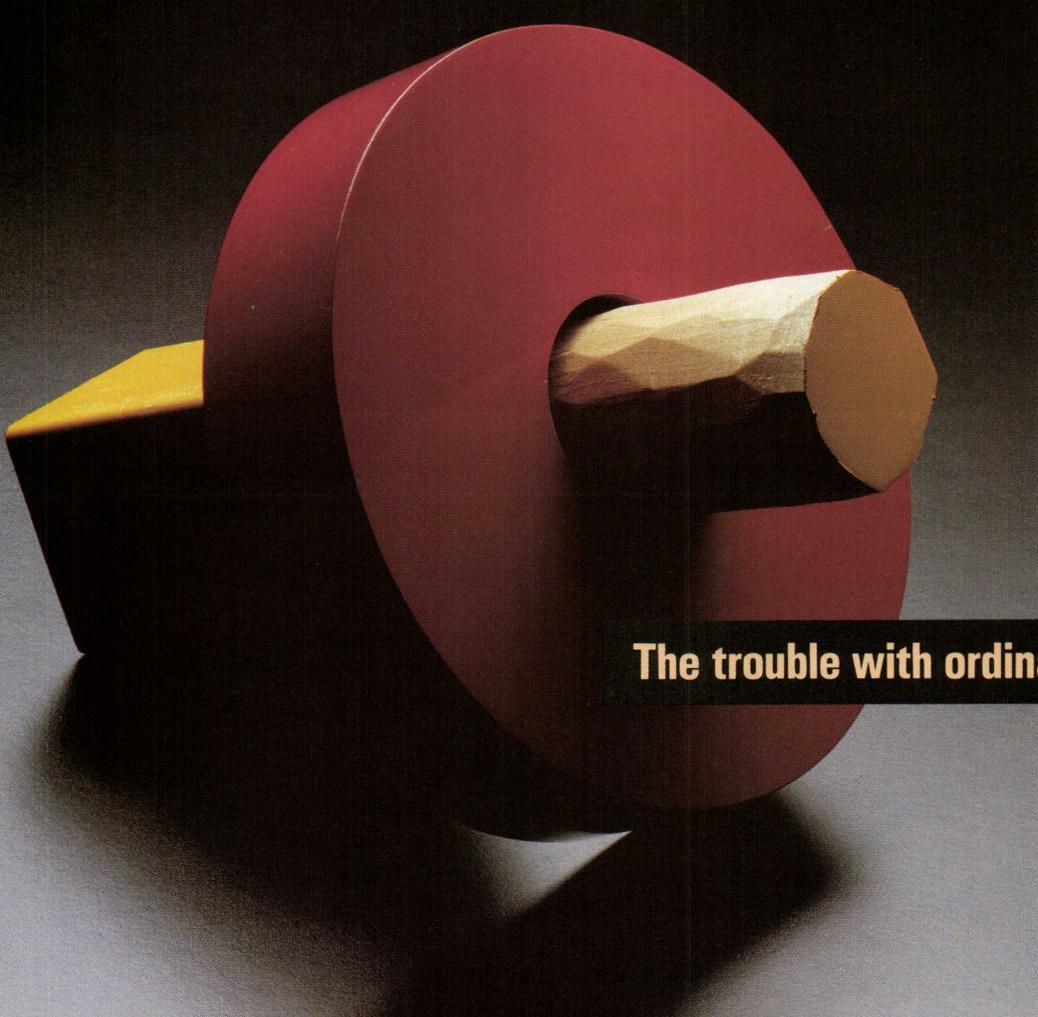
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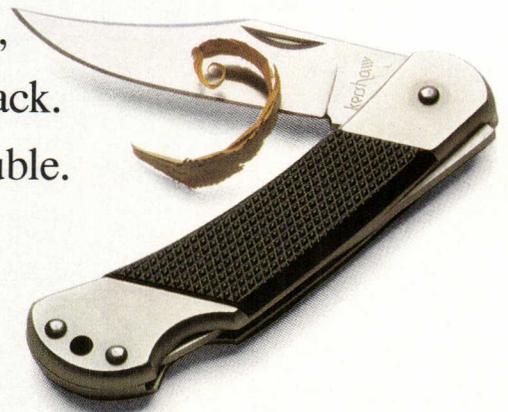
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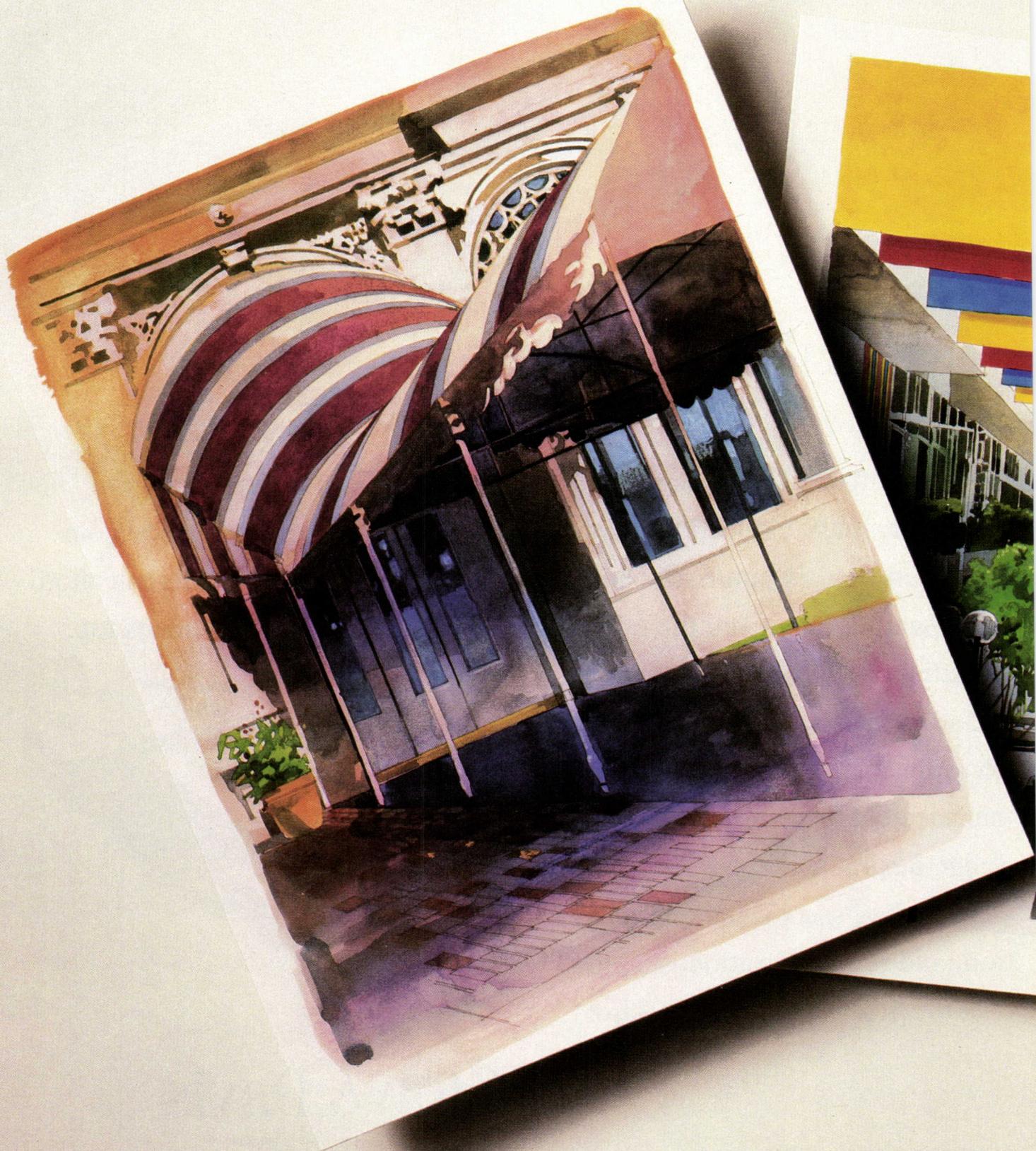
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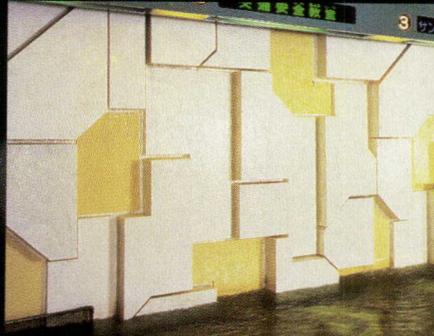
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The Woodfield at the Crossing office complex in Indianapolis, Indiana is a good example. The open web configuration of the steel joists was ideal for the use of suspended,



*5-foot spacing between Vulcraft joists permits easy installation and maintenance of heat pump units.*

energy efficient heat pumps. But, the 3' spacing between joists which is needed to support standard floor deck was not adequate for the installation and maintenance of the heat pumps. So, 5' spacings were initially specified wherever the heat pump units would be installed. However, varying the joist spacings would make construction complicated, time consuming and expensive. This is where Vulcraft was able to help.

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For more information about Vulcraft steel joists, joist girders and steel deck, or for copies of our joist and steel deck catalogs, contact the nearest Vulcraft plant listed below. Or see Sweet's 05100/VUL and 05300/VUL.

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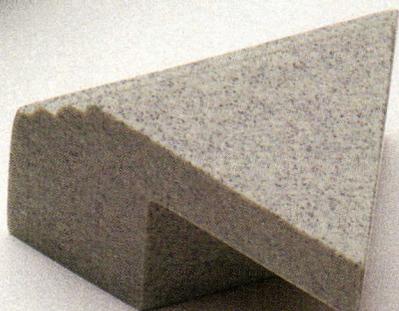
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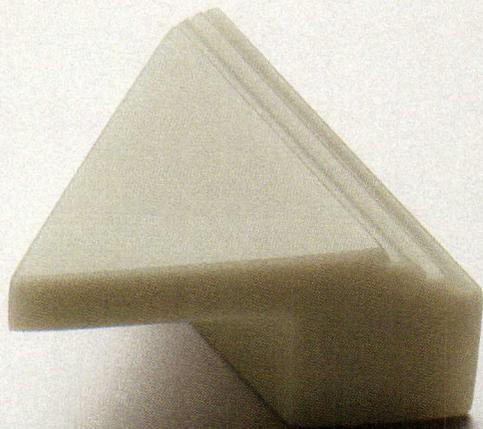
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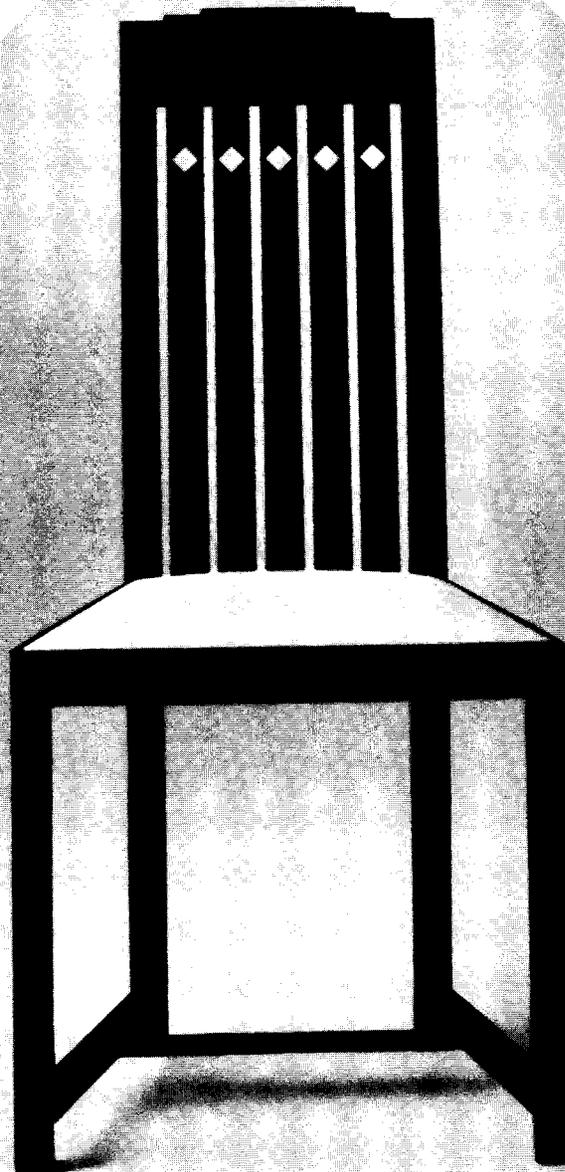
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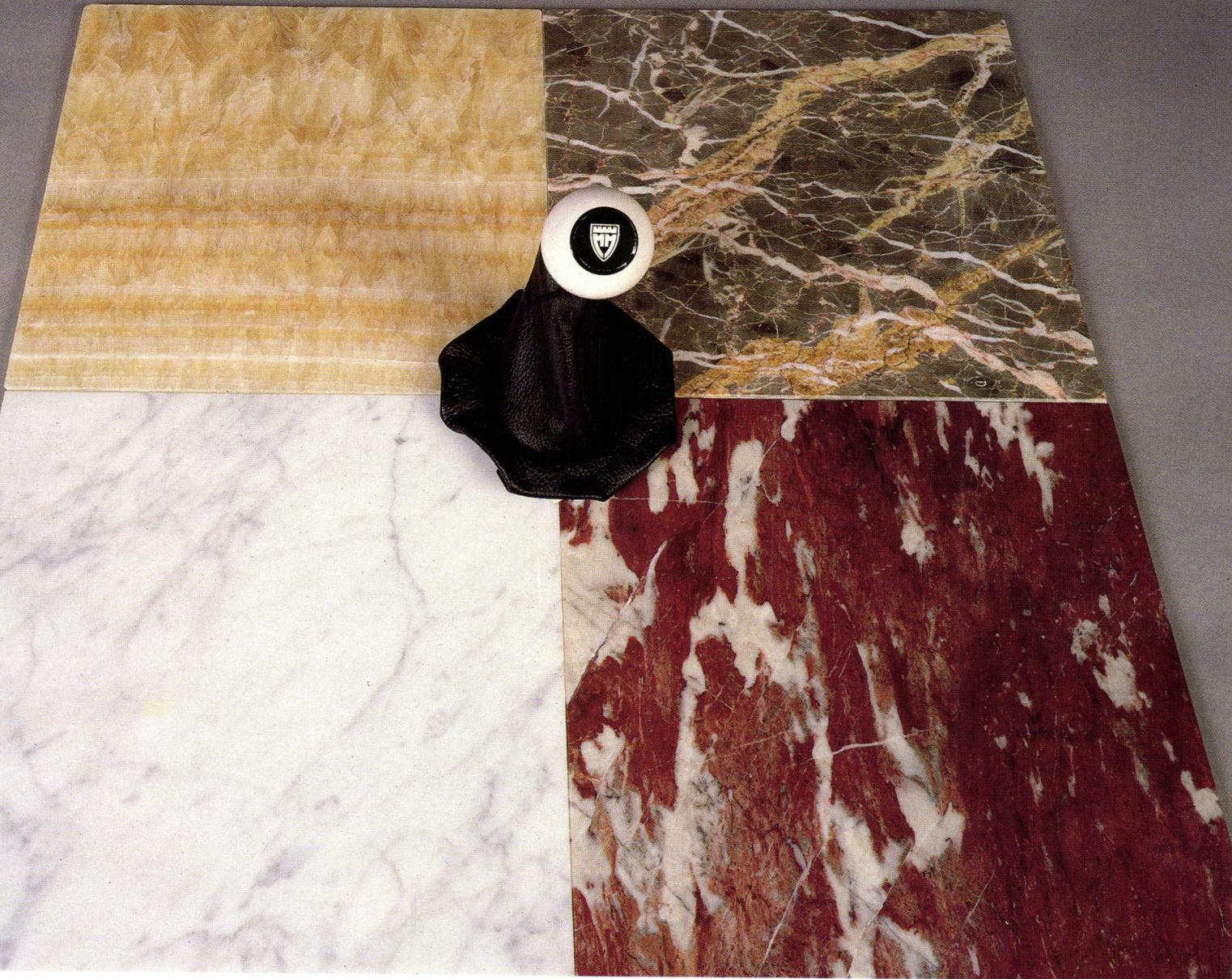
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Architectural Record February 1988 32Ea

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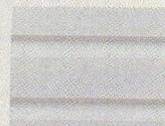
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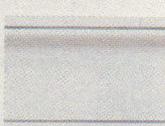
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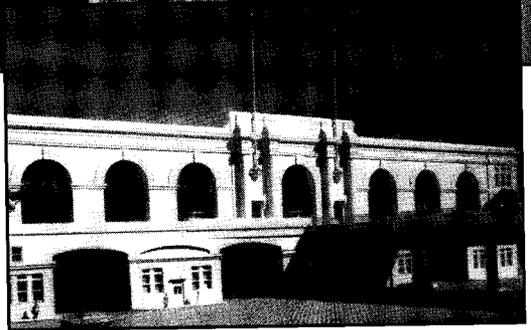
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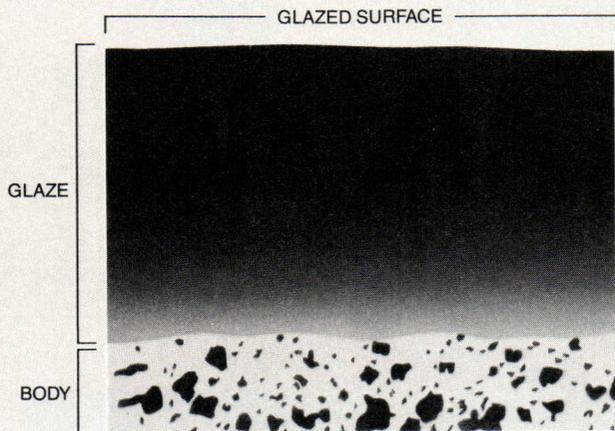
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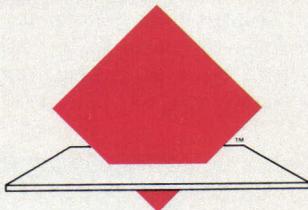
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## Conference examines how design can further corporate goals

The Boston-based Design Management Institute explored ways architects can help corporations achieve their goals in a recent conference entitled "Corporate Strategy Made Visible by Design." According to the institute's director, Earl N. Powell, the conference aimed to bring together experts in strategic planning and design to discuss, "building, enhancing, and controlling the visual equities of a business enterprise."

This is not the first time that the 11-year-old institute, composed mainly of corporate design directors, has offered architectural presentations. Says Powell: "Our goal is to help corporations orchestrate the messages they give to their publics through the design of their products, communications, and environments."

Speakers included partner Fred Koetter of architects Koetter, Kim & Associates and Thomas Walton, associate



professor of architecture and planning, The Catholic University, Washington, D. C.

Koetter discussed the impact on work of the shift from the urban to the suburban workplace. He described the thinking that went into his design for the Codex World Headquarters Building in Canton, Mass. [RECORD, November 1987, pages 120-131].

"Historically," said Walton, "while Gothic cathedrals stand as quintessential symbols of religious zeal, their beauty depended on a region's economic rather than spiritual blessings." He compared the sails of fortune

emblazoned on the walls of Florentine structures commissioned by the Runcellai to the giant aluminum radiator caps that adorn the corners of New York's Chrysler Building: "In both cases, the motivation was a dynamic blend of prestige and profitability."

Responding to the criticism of London designer Wally Olins that much corporate architecture today is, "bombastic and offensive," Walton said: "The challenge is to discover the decision-making processes that allow executives to exploit the full potential of the design resource." He told how architects had helped businesses increase productivity, define their corporate culture, express employee values, control costs, achieve the environmental flexibility to respond quickly to new-product or management demands, and even to address their social responsibilities.

On the subject of productivity, Walton said: "The work space must be as thoughtfully developed as the work tools. . . The bottom-line rewards can be tremendous considering that, over the life of a building, more than 90 percent of the operating costs are personnel expenses."

And on the subject of corporate culture and employee values, he pointed to The Hillier Group's design for The Beneficial Management complex in Peapack, N. J. (photo). "The wooded campus of red-brick office buildings, formally arranged around plazas and courtyards, stresses the notion of corporate community and the hierarchical nature of this financial-services company."

The next institute conference will take place in San Diego April 10-13. It will include a presentation by architect Takuo Hirano on managing multidisciplinary design teams. For more information, contact the institute at 777 Boylston Street, Boston, Mass. 02116-2603 (617/236-1315). *Natalie Gerardi*

## New head for College of Fellows



Perkins & Will vice chairman C. William Brubaker has been invested as the chancellor of the AIA College of Fellows, replacing S. Scott Ferebee, Jr. He is a past president of the Council of Educational Facility Planners and is on the boards of numerous planning organizations.

## National Computer Graphics exposition scheduled

The ninth annual conference and exposition of the National Computer Graphics Association will be held in Anaheim, Calif. on March 20-24. The association consists of individuals and companies interested in promoting and improving computer graphics in business, industry, government, science, and the arts, including architecture and engineering. Systems integration will be a major focus of some 300 speakers in the 128 tutorials and technical sessions planned. One demonstration will show information exchange using only stock systems. Other subjects include artificial intelligence, computer art, and animation. College-student volunteers are sought to help with registration, clerical work, phones, and monitoring conference sessions. For more information, contact the association at 2722 Merrilee Drive, Fairfax, Va. 22031 (703/698-9600).

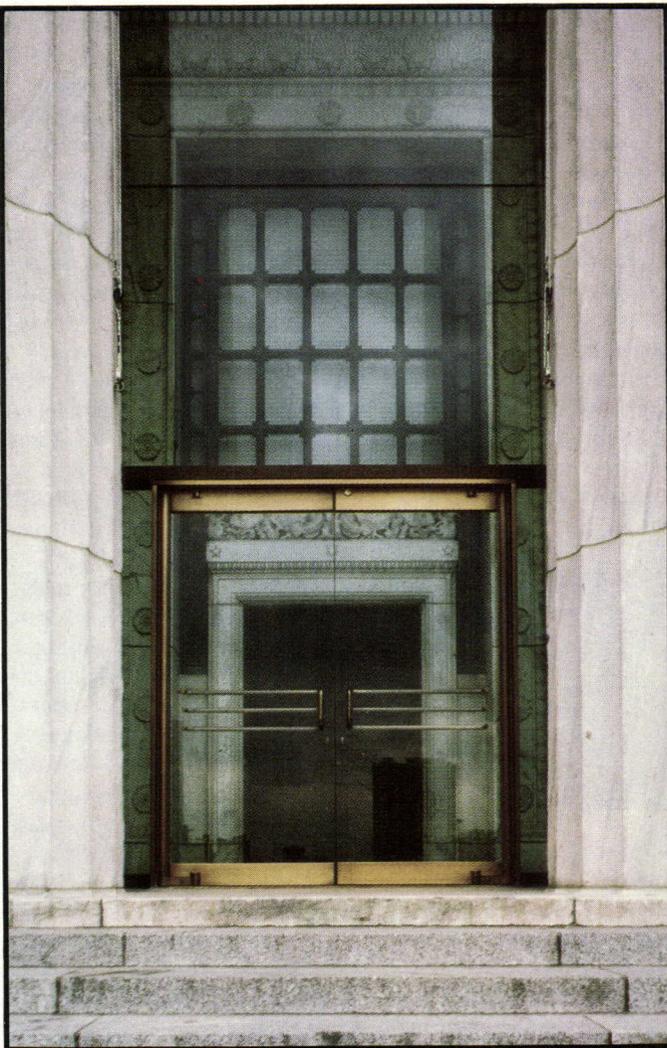
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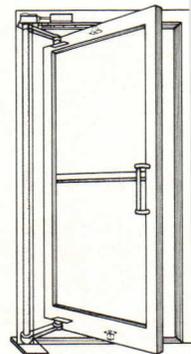
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## Practice: The new AIA General Conditions— a flawed document that architects will use at their peril

By Carl M. Sapers



Since it first published standard forms of agreement for the construction industry in 1911, the American Institute of Architects has profoundly influenced the manner in which buildings are built in America. The General Conditions (AIA Document A201), which describes in detail the responsibilities of the owner, the contractor, and the architect on a construction project, has often been described as the keystone in the arch supporting the vast expenditure on public and private construction. When a new edition is published—the 1987 edition is the 14th—it is an event of great importance. When a new edition fails in as many significant ways as the 1987 edition does, it is an event of grave concern to all of us connected with the design and construction of buildings in America.

Lawyers are trained to worry about language, its clarity and precision. Lawyers are trained to deal with controversy and often uncover the potential for controversy where architects and others see harmony. As my criticism of the 1987 edition unfolds, the reader must take into account how natural it feels for a lawyer to carp, challenge, and undermine. The Japanese long since observed that architects build things while lawyers divide them up. Yet for all of that, the problems of the 1987 edition are serious problems and, in my judgment, we use the new A201 at our peril.

*Mr. Sapers is a partner in the Boston law firm of Hill & Barlow. His clients include architects, engineers, the National Council of Architectural Registration Boards, and the Massachusetts chapters of the AIA. In 1975, he was awarded the Allied Professions Medal of the AIA, the first lawyer so honored.*

*An eminent attorney argues that A201/1987 has serious conceptual problems so bad as to require a new edition that carefully and effectively deals with them.*

### **A201/1987 and the owner's interest**

It is a long-standing criticism of A201 that owners are not participants in the analysis and drafting, even though it constitutes the working parts of the contract between an owner and a contractor. Billions of dollars are spent each year by owners who rely on A201 as a fair document which takes the owner's interest into account. But does it?

One problem emerging from the 1987 edition is who controls the building site. Historically, the site is the owner's, as are all the improvements made upon it. The basis for statutory liens arises from the fact that the mason loses title to his brick when it is permanently fastened to the building wall; that is why he is given a lien against the real estate for the value of the brick. Many contractors talk, in error, about "turning the building over" to the owner; but the common law views the owner as always having the right to possess the premises, subject to a license he has given his contractor to go on the site to build the building. Contract language could change all that, of course, and the authors of the 1987 edition seem intent on doing so. Section 9.3.3 now says that title to work done on a building passes to an owner "no later than the time of payment," while the 1976 edition provided that title passed by incorporation of the work in the construction or by payment, whichever first occurred. This is a technical point bearing chiefly on rights after bankruptcy; but, taken together with 3.16.1 (which for the first time sets forth the owner's right of access to the work, a permission most of us never thought necessary) and 9.9.1 (a new section barring the owner from occupying any portion of the work without agreement from the contractor, public authorities, and the builder's risk

insurer), a careful reader can only conclude that the authors really believe that the owner has somehow given up his possessory right to the premises. It is particularly galling to an owner's counsel to read in the document that public authorities must approve the owner's move-in; obviously, certificates of occupancy may be required, but that is a matter for the owner to deal with and not a condition to be put in the owner's contract with his general contractor.

### **When does fully responsible mean not quite?**

A second problem arises from the puzzling variation in the long-established responsibility assumed by the general contractor under A201. If, as the agreement itself says, "the contractor shall perform all the work required by the contract documents," it should follow that he is responsible for that performance whether done by his own forces entirely or by anyone in the pyramid of subs, sub-subs, material suppliers, and others, all of whom have been engaged on some portion of the work. Back in the 1950s, this relationship was clear. But the intervening editions have confused matters enormously. Section 3.3.2 makes the contractor responsible for the acts and omissions of his employees, subcontractors, their employees, and "other persons performing portions of the work under a contract with the contractor." Since any person "performing a portion of the work at the site" under contract with the contractor is a subcontractor (5.5.1), the third reference in 3.3.2 to "other persons performing . . . under a contract with the contractor" must be to folks who perform work off-site—a steel fabricator might be an example, but only if the steel fabricator is under contract with the general contractor rather than the steel

*I cannot think of better documentary evidence for a court to support the proposition that the architect's duties are for the contractor's benefit and that therefore the contractor may sue the architect directly if the architect's performance injures the contractor.*

1976 edition, and two of the three new ones reflect a subtle change from earlier editions.

Traditionally, the contractor could not void the contract unless the owner failed to make payment or public authorities effectively suspended the work; the owner could delay the contractor, suspend the work, or substantially change the work without risking a contractor's termination although, in all of those circumstances, the contractor was entitled to additional compensation for the owner's action. In the new edition, if the owner interrupts the work and thereby doubles the contract time by 100 percent or fails to fulfill the owner's obligations (other than payment obligations) so as to interfere with the progress of the work, the contractor may terminate.

Is the change significant? It is to a contractor who seriously underbid the work and wants to unload his improvident obligation to the owner. Previously, he could only recover the cost to him of the owner's interference. Now he can get out from under his contractual undertaking.

The third new cause for termination by the contractor is all the more surprising in light of the removal of the contractor's insolvency as a cause for an owner to terminate. In the 1987 edition, a contractor may terminate if the owner "fails to furnish to the contractor promptly upon the contractor's request reasonable evidence that financial arrangements have been made to fulfill the owner's obligations under the contract." While Ben Franklin might have applauded so severe a stricture against spending beyond one's means, it is not clear how real estate-developers will react. It is one thing to introduce a requirement that an owner disclose to a contractor the owner's financial resources for the project (2.2.1), but to grant the contractor the right to

terminate the contract if the disclosure gives him insufficient satisfaction is quite another. If a national trade organization representing developers had participated in the drafting of A201/1987 rather than Associated General Contractors of America, the resulting document would, no doubt, have been different.

**And A201/1987 poorly serves the architects' interests as well**

Architects who have read the foregoing are no doubt concerned with a document which does so much injury to their clients to whom they have a fiduciary obligation. As for themselves, they assume that the American Institute of Architects would never issue a document which inadequately protects their interests. Regrettably, even the interests of American architects fare badly under A201/1987.

In recent years, architects have been plagued by suits from contractors who claimed that the architects owed them a duty which was not fulfilled. Architects responded by inserting in previous editions the unequivocal statement that nothing in the contract documents "shall be construed to create a contractual relationship of any kind between the architect and the contractor" (1.1.2.). Unfortunately, at the same time, recent editions of the general conditions have contained language that undermines any benefit which the quoted clause might confer. The new Sections 4.1.2. and 4.1.3 seem effectively to sink any benefit found in 1.1.2. Section 4.1.2 states that duties, responsibilities, and limitations of authorities of the architect may not be changed without the contractor's consent. Section 4.1.3 gives the contractor a veto right over the appointment of a successor architect. I cannot think of better documentary evidence for a court to support

the proposition that the architect's duties are for the contractor's benefit—and that therefore the contractor may sue the architect directly if the architect's performance injures the contractor.

The language referred to will be cited by a general contractor bringing suit against an architect. But until the 1987 edition, nothing in A201 purported to create an obligation on the architect's part to subcontractors and material suppliers. Now, Sections 9.6.3 and 9.6.5 give the architect a new obligation to account to subcontractors and material suppliers about amounts requisitioned by the general contractor and about payments made to the general contractor by the owner. If the architect makes a mistake in that accounting and a material supplier or a subcontractor relies on that mistake to his detriment, the latter will have a sure path to recover against the architect.

No one entering the profession of architecture expects that his practice will be free of risk, but we all hope that the risk runs with a duty unfulfilled, and that that duty is to a client/owner, not to every other participant in the construction process.

**And what about hazardous materials?**

One hears a lot these days about the extraordinary risks involved in the removal of hazardous materials. The 1987 edition produces some quite remarkable and perplexing results for the architect. In 9.8 of the owner/architect agreement (B141), the architect has *no responsibility whatsoever* respecting hazardous materials. That disclaimer makes good sense because architects cannot get insurance coverage if they undertake responsibility with respect to hazardous materials. Section 10.1.2 of A201, however, takes quite a different turn.

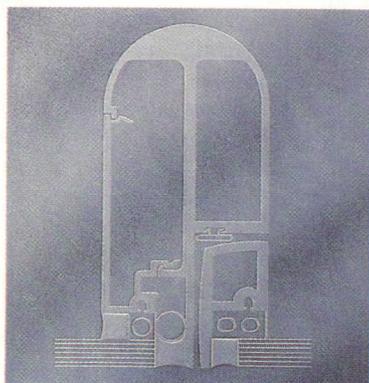
Here, the architect is assigned the duty to render a judgment (absent an agreement between the contractor and the owner on the subject) that the project area is free of asbestos or PCB or that, if the project area earlier contained those materials, the asbestos or PCB has now been rendered harmless. Thus, while in the owner/architect agreement, the AIA draftsmen insisted the architect was to have no responsibility, in the owner/contractor general conditions, the architect is assigned frightening responsibility.

Those who have studied A201 will say that there is no need to worry, for in 10.1.4, the owner agrees to indemnify both the contractor and the architect from any loss arising out of injuries to anyone employed in the performance of the work on account of the existence of asbestos or PCB or the fact that the asbestos or PCB has not been rendered harmless. The architect, notwithstanding that he is not a party to the general conditions, is named as a beneficiary of this indemnification agreement.

The problem remains, however, that the indemnification is limited to injuries suffered by persons who are injured in the performance of the work, which would exclude any persons subsequently using the premises or any person who casually appears on the premises while the work is going on. Moreover, the indemnification is "only to the extent caused in whole or in part by negligent acts or omissions of the owner." This is a tangled web which, when unwoven, has less to it than first appeared. The owner and the contractor, by way of example, have a dispute as to whether or not the asbestos in the project site has been rendered harmless. The contractor contends it has, and the owner contends that it has

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*If a national organization of developers had participated in the drafting of A201/1987, rather than the Associated General Contractors of America, the resulting document would, no doubt, have been different.*

erector. A lumber yard that sells green lumber to the contractor is not an example, since the lumber yard does not "perform a portion of the work." If the contractor has taken responsibility for all of the work, it is quite puzzling that the contractor has no responsibility for the green-lumber supplier or the wrong-gauged steel sent to the site by a fabricator under contract with the erector.

The issue becomes more confusing in Article 14, where the contractor appears, in 14.11, to bear responsibility for sub-subcontractors, while in 14.1.3, in a parallel wording, sub-subcontractors are omitted.

In 3.18.1, the contractor is required to indemnify the owner and the architect for claims caused in whole or in part by acts or omissions of anyone for "whose acts [the contractor or a subcontractor] may be liable." Do we then look to 3.3.2 to discover that the contractor is not liable for sub-subcontractors and most material suppliers?

#### **Reaching arbitration is a confusing process**

A third problem arises from the convoluted twists and turns required by the 1987 edition to resolve disputes between owner and contractor. Arbitration was introduced as the dispute resolution method in the second edition in 1915. The AIA has always believed that arbitration "can be carried out expeditiously and cheaply," and arbitration remains the dispute-resolution method in the 1987 edition, if you can find your way there.

As in the past, there is a general rule that all claims must go to the architect for a decision before invoking arbitration. The 1976 edition contained a single, straightforward rule stating that arbitration could be commenced when the architect had rendered a decision, or 10 days after evidence had been or could have been presented to the architect,

whichever came first. Section 4.5.1 of the new edition contains a general rule that arbitration may be commenced 45 days after the claim has been referred to the architect, but 4.5.4 provides for five other events which, if earlier, will permit the commencement of arbitration. Additionally, arbitration may start without any recourse to the architect, if "the claim relates to a mechanics' lien" (4.3.2).

When a claim is filed with the architect, he must take one of five specified actions within 10 days (4.4.1). The claimant must then take one of three actions (4.4.3). Does the architect then make a decision? No, not until he takes the time to write to the parties to tell them that he will make a decision "within 7 days." He is then instructed to render a decision "upon expiration of such a time period."

There is some utility in the quasi-arbitral role of the architect if the architect's decision is accepted by both parties and further proceedings are thus avoided. The architect's ability to make his decision stick has always depended upon the authority, equity, and dispatch with which the decision is made. As a practical matter, virtually all architects' decisions to which strong objection is made are finally resolved by either negotiation or arbitration between the owner and the contractor.

It should be simple, not complex, to obtain an architect's decision. It should be easy, not difficult, to appeal an architect's decision to arbitration. The 1987 edition of A201 has made the process virtually impossible to understand, much less administer. What an informed contractor would do seems clear to me; if he files a mechanics' lien at the same time he invokes arbitration, he can avoid the time delay and the confusion altogether (4.3.2). But the owner has no such escape hatch.

#### **The contractor gets to hold a stacked deck**

If the third problem is brand new in the 1987 edition, the fourth problem has grown inexorably over the years by virtue of the extraordinary influence of the insurance industry on the AIA forms. Observe that owners have no representation at the drafting table, but the influence of the insurance industry has profoundly affected AIA documents for 20 years.

The project is a 100,000-square-foot office building. The contractor was half finished under a maximum-price contract for \$18 million when a fire wiped out everything. The owner asks the contractor how much it will now cost to finish the project. Because of inflation, and the costs of cleaning up the charred remains, the contractor quotes a new maximum price of \$22 million. The owner, who has \$9 million left under his construction loan and \$9 million in insurance recovery, decides that the project is not feasible at \$22 million and, besides, he cannot raise the extra \$4 million. So he pays the contractor for work to date, uses the insurance proceeds to pay off his mortgage and calls the project off. Wrong!

All owners must read AIA Section 11.3.9 closely; in the circumstances stated, the owner's only choice (absent a "special agreement" with the contractor) is to rebuild and to issue an "appropriate change order." If the insurance is not adequate to fund the change order, the owner is out of luck; he can't call the project off.

Finally, the new edition worsens the owner's position materially if the owner and contractor reach an ultimate impasse and one or the other seeks to terminate the contract. For many years, the contract draftsmen have allowed an ironic inconsistency: if a contractor claims a \$10,000 "extra," he must submit his claim to the architect

before invoking arbitration, but if a contractor wishes to terminate the contract altogether for one of the six causes set forth in 14.1, he need not first seek a ruling from the architect. The owner, on the other hand, must obtain the architect's certification that "sufficient cause exists to justify" termination before he may terminate the contract.

The owner, by the way, has only four causes set out in the document as grounds for termination; in 1976, the owner, as a fifth ground, could terminate if the contractor was bankrupt or otherwise took an action evidencing insolvency. The deletion of the owner's right to terminate if the contractor evidences insolvency is serious and apparently reflects erroneous legal advice about the bankruptcy code.

One owner's cause for termination—the failure of the contractor to make prompt payment to the subcontractors, in A201 since at least the 1950s—has now been substantially narrowed to "[failure] to make payment to subcontractors . . . in accordance with the respective agreements between the contractor and subcontractor." The draftsmen seem to have forgotten the reason behind the cause: the owner's concern that subcontractor liens could be asserted against the owner for amounts unpaid by the contractor. The new language ties the issue to the terms of the subcontract which the owner never sees. If the subcontract says that a subcontractor will be paid in full only upon completion, the general contractor may bank all of the monthly payments for the sub's work, while the sub asserts a lien against the owner.

I observed earlier that the contractor is given six causes for termination in the new edition. These are three more than were conferred on contractors in the

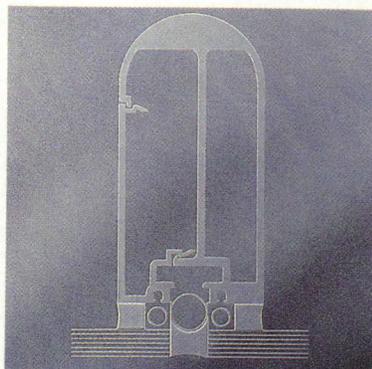
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**PROJECT REPORT**

No. 1031187

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**Designer Prescribes MBCI Craftsman Series Roof System To Achieve Warm, Friendly Appearance for Medical Facility**  
*Complements Surrounding Environment*

Medical office buildings do not have to be cold and uninviting. The design by Terry A. Fairhurst for the 8600 square foot OakHill Medical Plaza in Longview, Texas, proved just that point.

Fairhurst said he and his client wanted "a distinctive high quality appearance while avoiding the cold look of many medical facilities." Fairhurst is the principle of T.A. Fairhurst & Associates, a Tyler, Texas, building design firm.

Metal roofing was selected in the initial planning phase of the building design, according to Fairhurst. "Metal has long-term cost-efficiency and offers the high quality

appearance we were after," he said. "Energy consumption also was an important factor in the selection of a metal roof," he added. "Summer months are extremely hot in East Texas and a metal panel that reflects heat will help keep energy costs down."

Fairhurst specified and used the MBCI Craftsman Series SB16.5 panel in 24 gauge, preweathered Galvalume™. The panel is a 16½" wide pan panel with a ½" wide and 1" high snap-on batten. The Craftsman Series has a concealed fastening system for added weather-tightness.

The design called for custom cut

and formed panels for use on the rounded turret roofs. Management (continued on other side)

**Project Facts**

Project Name: OakHill Medical Plaza  
 Location: Longview, Texas  
 Roofing Contractor: Cannon Construction, Whitehouse, Texas  
 General Contractor: Snyder Construction, Trapp, Texas  
 Designer: T.A. Fairhurst & Associates, Tyler, Texas  
 MBCI Preformed Metal: Craftsman Series SB16.5, 24 gauge, preweathered Galvalume™



This medical facility creates a warm, inviting appeal as patients enter.



Practice continued

*Regrettably, even the interests of American architects fare badly under A201/1987.*

not. The architect is then required to issue a judgment and issues the judgment in favor of the contractor. It turns out that the architect and contractor were wrong, and someone is injured as a result of there being asbestos on the site. The owner did not cause the problem in whole or in part, the indemnification does not fasten, and the architect is exposed to liability.

**Before A201/1987, architects were not held responsible for injuries to workmen**

For 20 years, the AIA General Conditions and skilled counsel have turned the tide on the efforts of workmen's compensation insurers to recover payments made to injured workers by suing the project designer. With some early exceptions, the courts now clearly uphold the contract language to the effect that: "The architect will not have control over or charge of and will not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety programs in connection with the work . . ." (4.2.3). But consider 4.2.7, which now allows a possibility that the architect may be approving construction means, methods, etc., when he reviews submittals. Similarly, 3.3.1 repeats that the contractor is responsible for construction means and methods, etc., but adds the unwanted exception: "unless contract documents give other specific instructions concerning these matters." From the point of view of careful defense counsel, the two clauses go far enough to give the plaintiff the right to reach a jury on the question of whether either the contract documents or statements made by the architect indicate that the architect was in fact taking some responsibility for means and methods.

In a similar vein, the definition of "work" in 1.1.3 raises the mischievous possibility that the architect may become responsible for the safety of temporary structures like lifts and scaffolding. In earlier editions, "work" meant the completed construction required by the contract documents. In the 1987 edition, "work" includes all temporary structures such as lifts and scaffolding. Since the architect assumes an obligation to examine the way in which the work is being performed, to reject work which does not conform, and to endeavor to protect against defects and deficiencies in the work, a much clearer case lies against the architect for injuries resulting from faulty lifts and scaffolding.

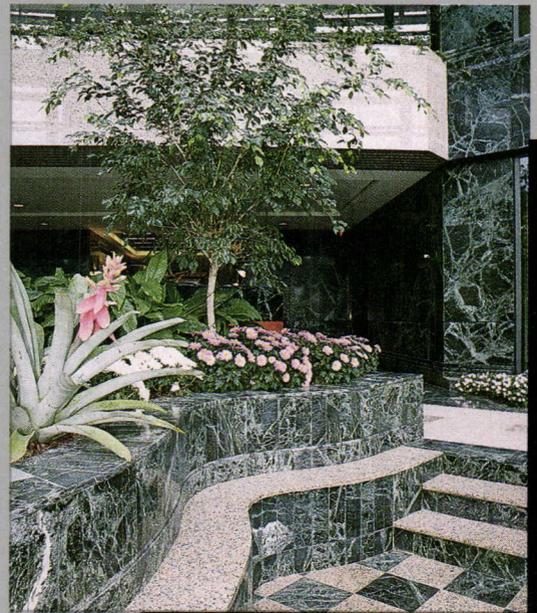
The foregoing observations about A201/1987 are not nit-picks, though plenty of nits could be picked, running the gamut from typographical errors and inconsistencies to an ill-thought-out new concept, "construction-change directives," which adds length and confusion to A201. The comments discussed here, however, go to the heart of serious conceptual issues raised by the 1987 edition. Unlike the typographical errors and inconsistencies, they cannot be easily eradicated by a carefully drafted set of supplemental conditions. It is this author's hope that the AIA will respond to the criticisms it has already received by authorizing a 1988 edition of A201 that carefully and effectively deals with these problems.

*A commentary from the AIA will appear next month.*

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## Finance: Last year's stock crash will make 1988 construction tougher, but not disastrous

By Joseph Spiers

If you're absolutely convinced the crash of '87 is like the crash of '29, there's no use in reading this article. The only thing to do is lay in your store of apples to sell in the coming depression. For if there is a depression, work for architects will plunge precipitously: Between 1929 and 1933, spending on housing declined 85 percent and outlays on nonresidential structures tumbled 80 percent. Not until the 1940s did construction regain its 1929 level.

Last October's market debacle was indeed serious. But that a 1930s-style economic implosion will follow does not seem

possible. Hence architects should think about aftershocks on their firms falling far short of that.

A key reason to discount a rerun of the 1930s is federal insurance of bank deposits. Don't forget, the Great Depression was deepened by a run on banks, which resulted in people losing their life savings. Also, back then, the Federal Reserve Board made a major blunder by tightening credit, a blunder that today's Fed is sure to avoid. Another contrast between today and 1929 is that speculation was more rampant because people could borrow a lot more unsecured money to buy stocks.

So depression does not seem a major worry. In fact, most economists do not even forecast a recession in 1988. Rather, the prime worry is a possible slowdown in economic growth to perhaps 2 percent—compared with 1987's nearly 3 percent.

Slow growth or recession would occur because consumer confidence was undermined by last October's crash—and because people lost a lot of money. But a lot of the losses were strictly on paper. What's more, by the end of 1987 the stock market still showed a gain for the year as a whole. So, while certain individuals obviously lost a lot by buying just before and selling just after the debacle, investors on the whole—those who had been in for the long haul—did not lose money.

### Construction wasn't going to be that hot anyway

Even if a recession does hit in 1988, it would not be a disaster for architects, keeping in mind that prospects for the year even before the crash were not very good. F. W. Dodge, for example, had been predicting a 4-percent decline in the value of nonresidential building contracts and a 2-percent drop in residential contracts in 1988. And, through October, construction outlays for

nonresidential buildings had fallen 5 percent compared with a year earlier, and housing starts about 9 percent, according to the U. S. Commerce Department.

The commercial-construction market has already felt the impact of tax reform. Through the 10 months ended last October, office construction was down 12 percent from a year earlier. Other commercial and hotel building was also declining.

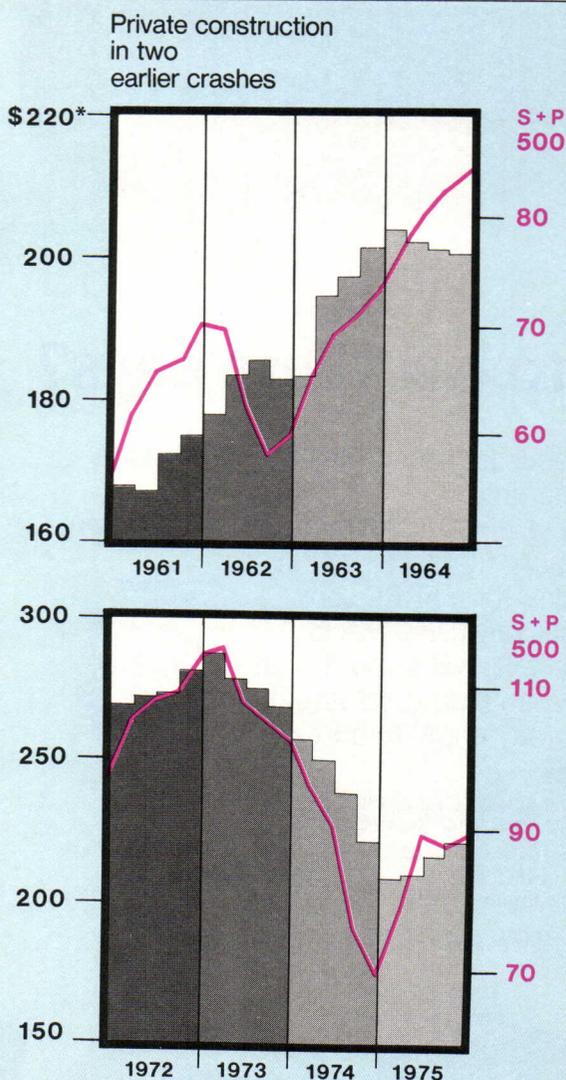
The fact is that, after five years of good times, the construction cycle had already peaked by Black Monday. A recession resulting from the crash would make things tougher this year, but it probably wouldn't drastically alter the course of events.

### Lower interest rates could even help housing

In one way, the crash could even help architects because interest rates dropped significantly as investors pulled money out of stocks and put it into bonds. As a result, mortgage interest rates (which reflect conditions in the bond market) fell a full percentage point in the wake of Black Monday, putting some hope back into housing.

Shortly after the crash, William M. Moore, president of the National Association of Realtors, said falling rates created "a window of housing opportunity for the American public." And the chief economist at the Federal Home Loan Mortgage Corporation, Robert Van Order, said the net effect of the crash could be good for housing. True, some potential buyers will exit the market because they lost money, or because they fear for their jobs. But many potential buyers will be helped by the availability of lower mortgage rates.

Van Order predicted that housing starts in 1988 will, at worst, slip just slightly below 1987's level of 1.6 million units. The realtors' association



\*Construction in billions of 1982 dollars



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*The stock shock is likely to leave at least a residual fear, causing businesses and consumers to proceed with caution.*

predicted housing starts will fall 8 percent this year to 1.5 million units. DRI/McGraw-Hill has a similar outlook, but the forecasting firm actually lifted its 1988 starts forecast after the crash because of lower rates.

With new-house building expected to slip, architects in this field might turn their attention to alterations and additions, for which spending tends to rise through thick and thin. One reason such spending goes up is that the housing stock keeps getting bigger, so there are more houses needing improvement. In 1988, the decision to improve rather than move may be particularly easy to make while house owners worry about fallout from the crash.

#### **But there may be unhappiness at housing's high end**

For some owners, of course, the fallout has already come. Brokerage firms have laid off thousands, and other Wall Street workers are receiving much lower income than they were used to. For architects in major financial centers, especially New York and Chicago, upscale residential upgradings could thus be in a bear market. To make things worse at the high end, a new tax law ends interest deductions on home-equity loans above \$100,000.

While it is still early for much data to have accumulated, there is some evidence that upper-middle-income people reined in spending after the crash. Almost immediately, for example, U. S. sales of luxury European autos plummeted. And mortgage banker Lomas & Nettleton said brokers in some markets reported difficulty selling homes in the \$200,000-to-\$800,000 range.

Also feeling a direct hit from the crash will be the vacation-home market, according to Freddie Mac. Those who buy second homes are also those who buy stocks . . . and those who sell stocks. So Freddie Mac sees an

end to the vacation-home boom that stretched out of Wall Street to New Jersey and Maine.

Some analysts believe real estate of all kinds will become more attractive to investors soured on the stock market. But the new tax law that became effective in 1987 slashed the benefits of real-estate tax shelters. In addition, for high rollers, another tax measure signed last December disallows interest deductions on mortgage debt exceeding \$1 million. That includes a taxpayer's total debt—primary residence plus other homes, as well as some assets such as boats.

The combination of the bear market and tax measures could therefore interrupt the long-term trend of new houses becoming bigger and more luxurious.

#### **The worst-case scenario would develop from mainly psychological factors**

For example, if the market crash slows consumer spending, retail store and restaurant chains will delay expansion plans, creating further weakness in construction of new malls and shopping centers. A slowdown in vacation spending would further hurt new hotels and motels.

Taking into account that 1988 was not shaping up as a great year for new construction anyway, the crash created the fear that things could turn out much worse. But as life went on after October 19, interest rates fell, and the economy turned in an acceptable performance, fears abated somewhat.

Still, the stock shock is likely to leave at least a residual fear, causing businesses and consumers to proceed with caution. One cautious tactic is to delay major outlays such as construction projects. So while architects need not order up apples and barrels, they should brace for what could be the softest demand for their services in recent years.

## **Construction doesn't always follow stocks**

A stock-market slump doesn't necessarily lead to an economic or a building slump.

Consider, for example, 1962, which some Wall Street pundits see as analogous to 1987.

In 1962, the Standard & Poor's 500 index dropped a hefty 26 percent in the first half of the year (chart 1, page 45). The market then recovered somewhat in the second half, but was still down more than 11 percent from early 1962.

Yet the economy grew in 1963, and housing-construction expenditures in 1963 jumped nearly 11 percent. Outlays on nonresidential structures also picked up a little in 1963, and then rose sharply in 1964 and 1965.

Some analysts, however, worry about parallels between 1987 and 1973-74, when the economic consequences were severe. (Chart 2, page 45.)

By the end of 1974, the stock market was down 43 percent from early 1973. And in 1975, construction of all kinds slumped badly.

But looking at stocks and construction alone ignores the surge in inflation resulting from OPEC's quadrupling of oil prices in 1973-74. Skyrocketing oil prices led to extraordinarily high interest rates and to lower corporate profits. All this exacerbated the market decline and caused a recession in 1974-75 that clobbered construction.

The market crash of 1987 is probably more akin to 1962 in its consequences than to 1973-74. As in 1962, inflation today is reasonably under control, in part because OPEC is no longer the fire-breathing dragon it was in 1974. Hence there's no need for the Fed to unduly tighten credit. Also as in 1962, the economy was growing nicely going into the stock crash.

True, interest rates today are much higher than in 1962, with

long-term rates now at roughly their 1973 level. But rates before the October 19 crash were low compared to a few years ago, and the crash brought them down further.

The wild card in this latest crash is that it all happened so suddenly. From August 25 to October 19, the S&P 500 entered into a 33 percent free fall—in two months, that is, the market plunged faster than it did in six months in 1962. But at least by the end of the year the market rebounded by 10 percent; and the economy continued to look good in 1987's fourth quarter.

The economy, since 1982, has enjoyed a record-long peacetime expansion, which, even before October 19, left many wondering how much longer it could last. The crash increased the chances of a downturn. But as the 1962 experience shows, a 1988 recession is not the necessary consequence of the Crash of '87.

*Mr. Spiers is an economist and assistant managing editor of the McGraw-Hill News, a financial news service.*

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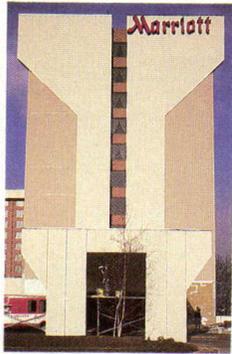


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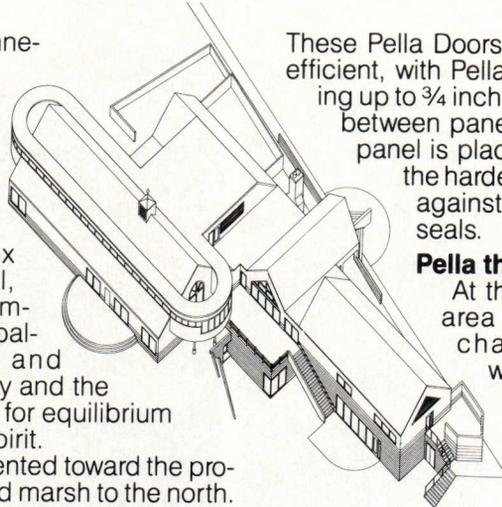
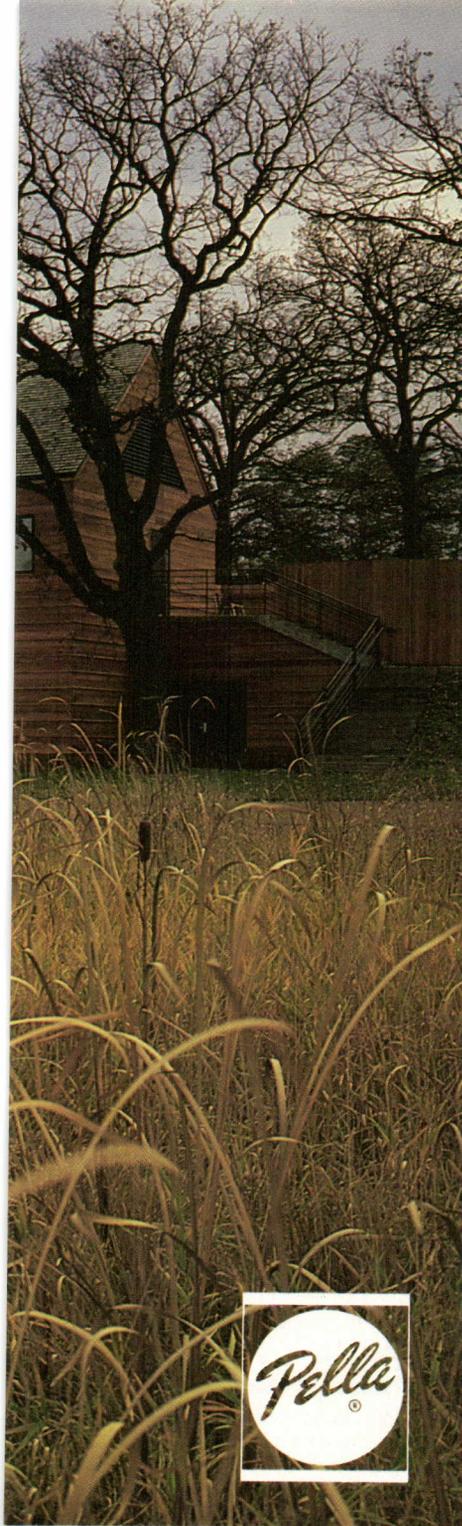
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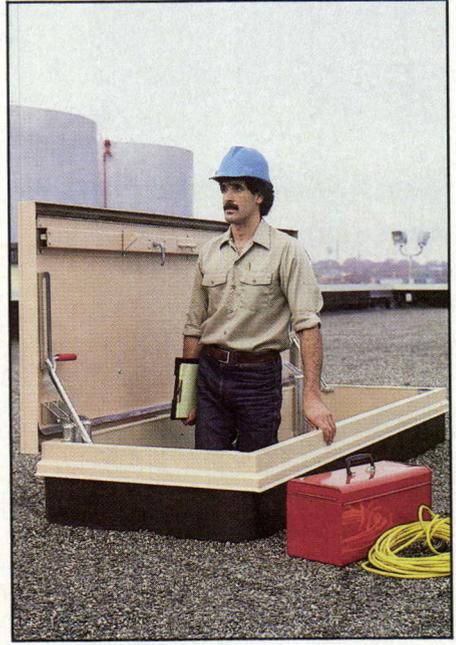
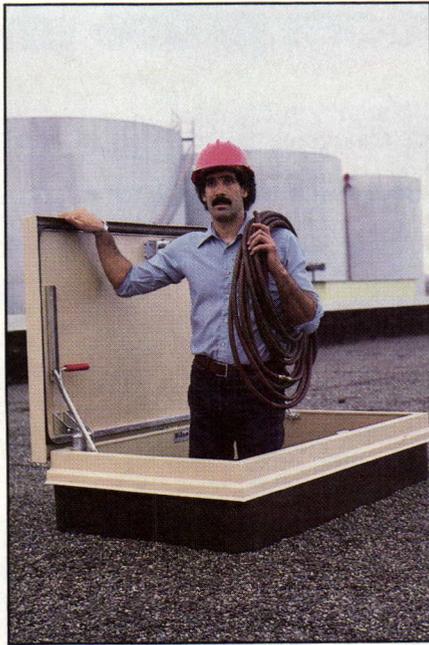
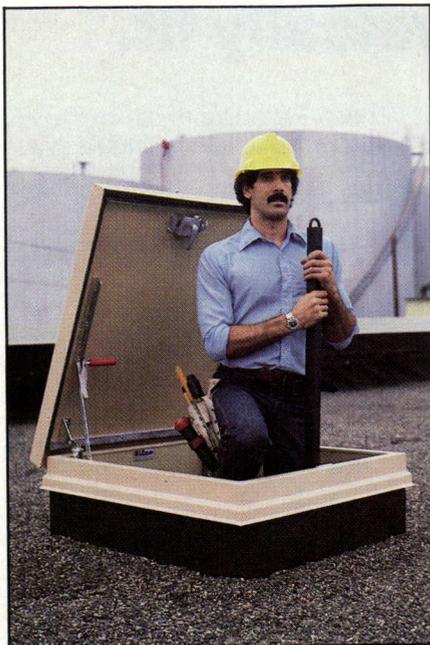
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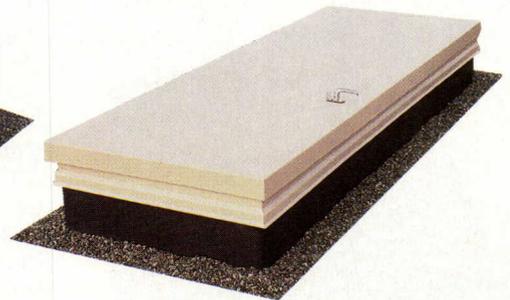
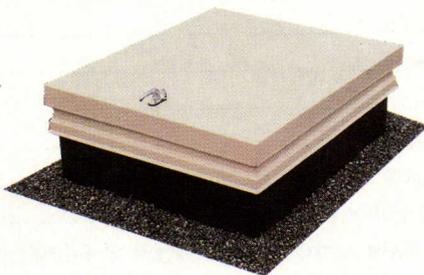
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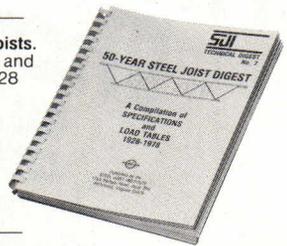
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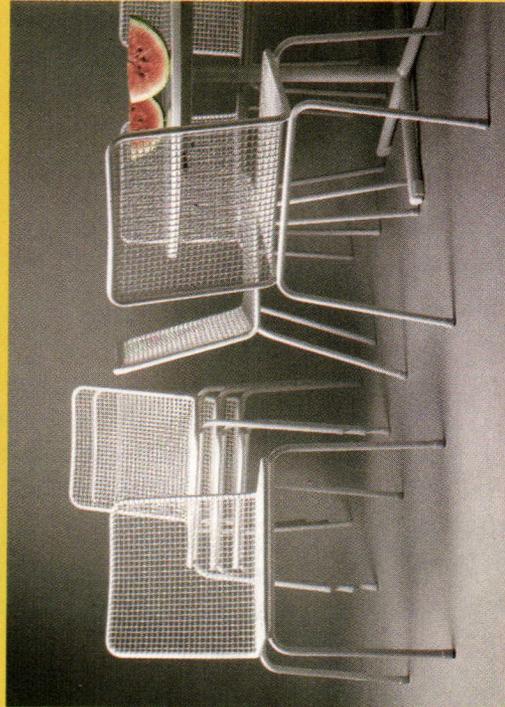
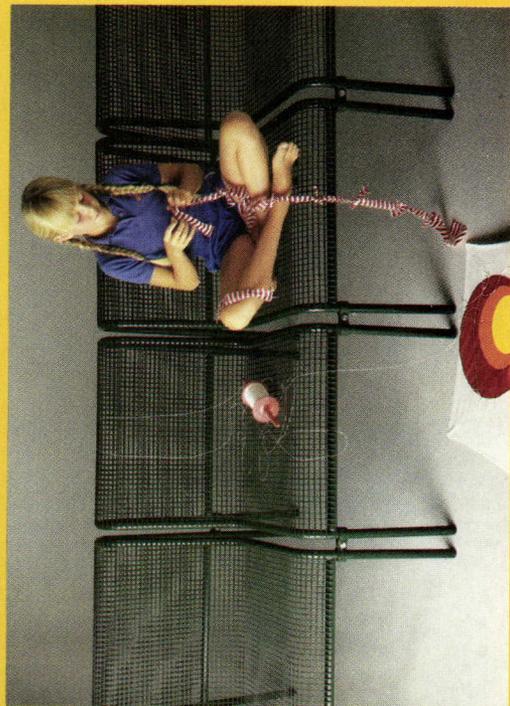
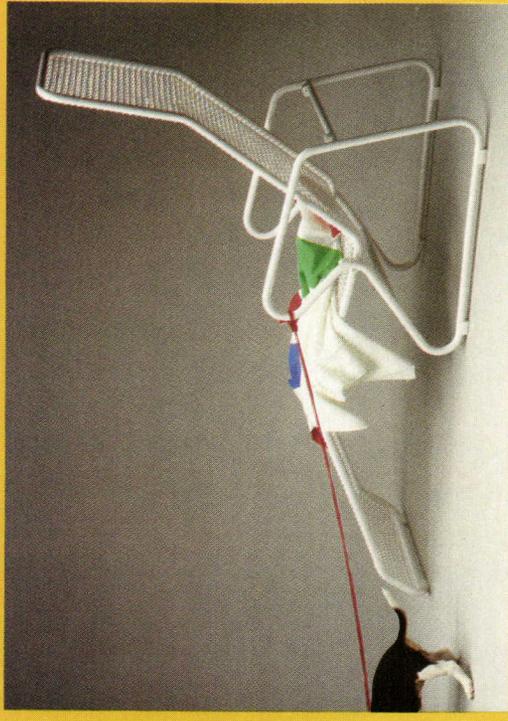
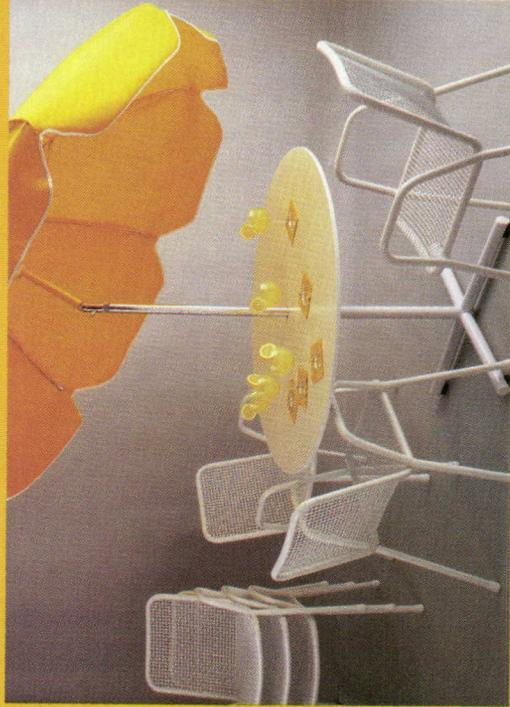
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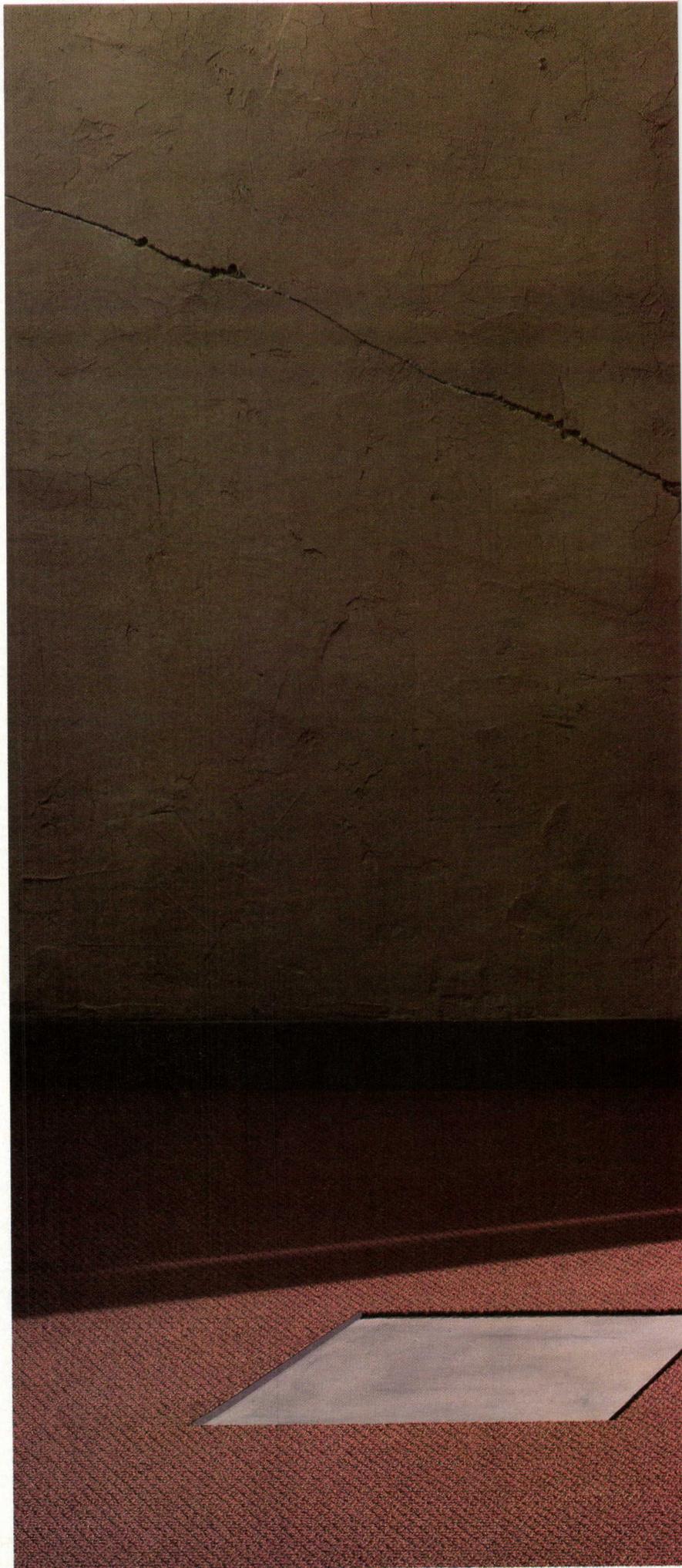
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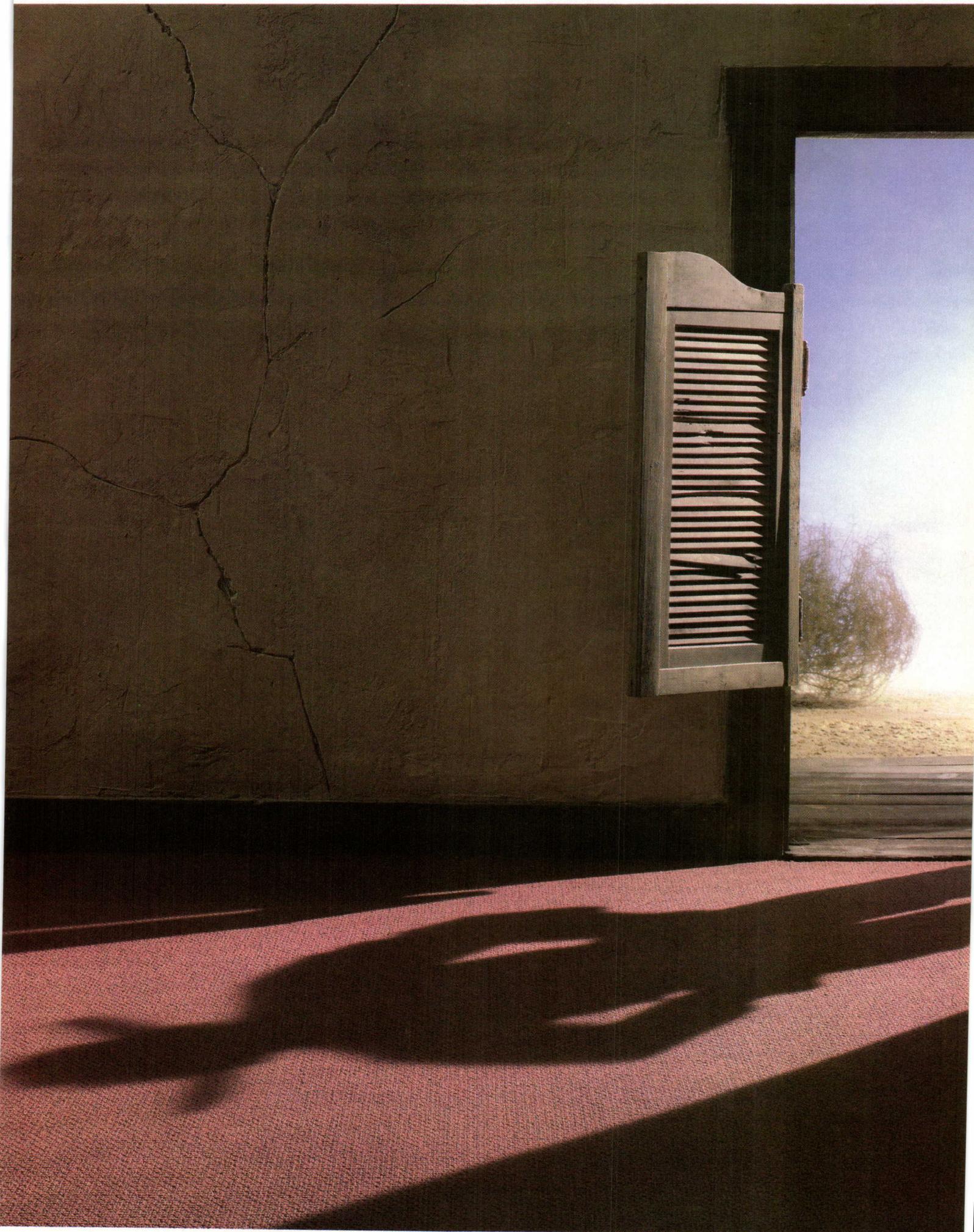
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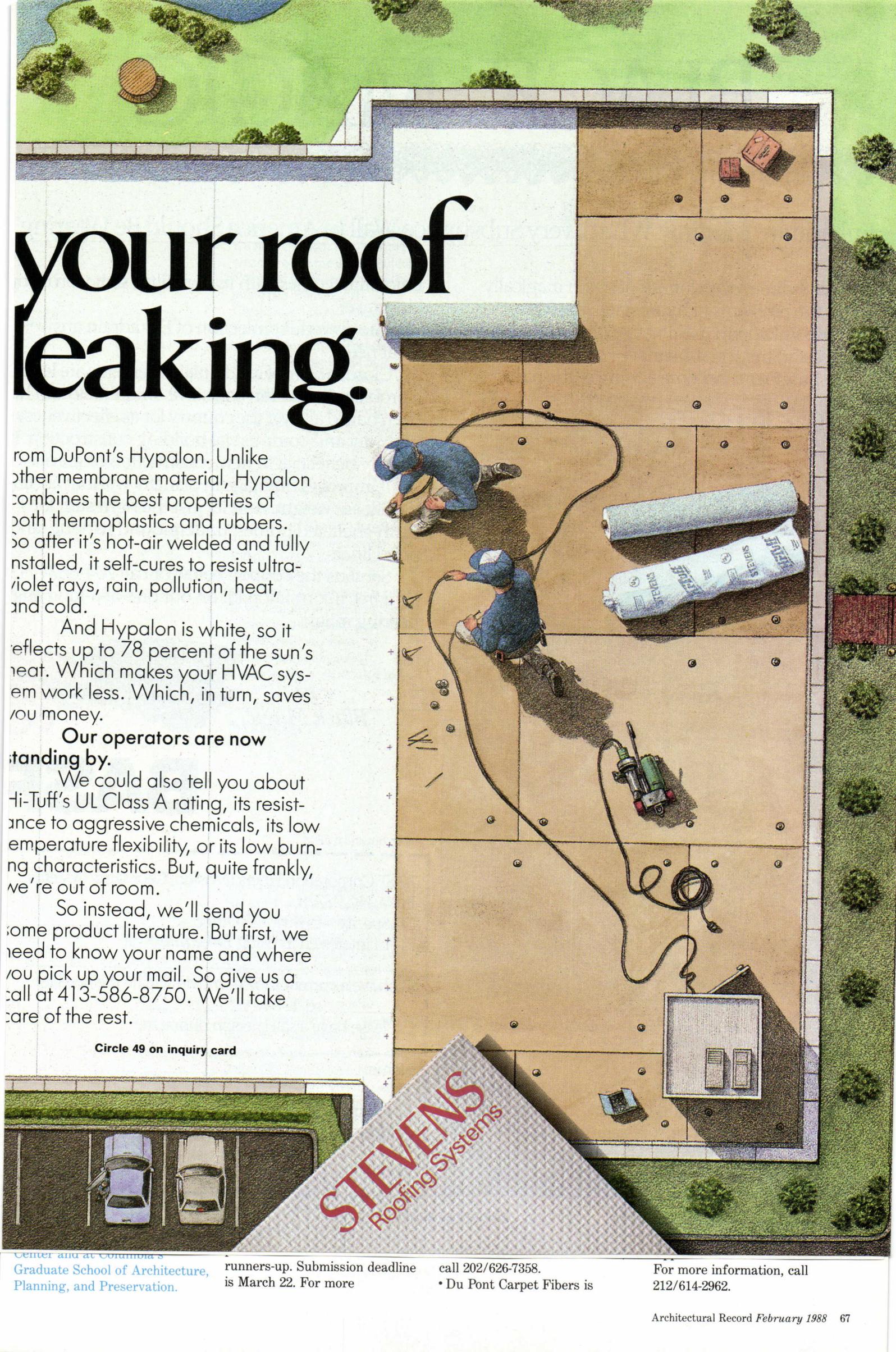
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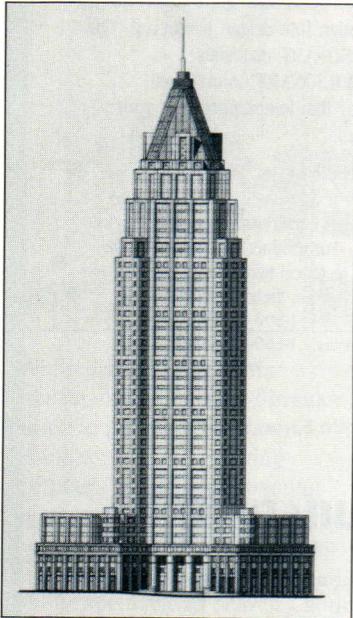
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News briefs



**Skidmore, Owings & Merrill** has designed what will be the tallest building in Connecticut (1). The 42-story, \$200-million structure will occupy a site in downtown Hartford adjacent to the Civic Center and provide commercial and office space. Completion is projected for mid-1990.

**A tower currently under construction** in the Streeterville neighborhood of Chicago (2) will contain commercial space at street level, 399 rental apartments, and a rooftop swimming pool. Designed by Nagle, Hartray & Associates of Chicago, the faceted exterior of glass panels accented by dark green baked-enamel frames is meant to recall, according to the architect, the city's older apartment buildings.

**The largest downtown mixed-use venture to date undertaken** by the Rouse Company is beginning construction in Phoenix (3). Designed by Howard, Needles, Tammen and Bergendoff, and dubbed "Superblock," the \$515-million project will include 1.9 million square feet of office space, 450,000 square feet of retail shops, a 600-room hotel, and parking for 5,400 cars spread over the 18.5-acre site.

**PortAmerica**, described in promotional literature as "a new luxury port town," will be built on a 480-acre site along the Potomac River in Prince George's County, Md. (4). The \$1-billion scheme, designed by John Burgee Architects with Philip Johnson, will include a World Trade Center (comprising 1.8 million square feet of office space, a 200,000-square-foot trade mart, 80,000 square feet of retail space, 450 condominiums, and two hotels) and a waterfront parcel consisting of a 350-room hotel, a 500-boat marina facility, and 1,150 Georgian-style condominiums. Completion of the entire project is targeted for the year 2000.



Tropical sanctuary

A synagogue in Barbados built in 1654, one of the oldest Jewish houses of worship in the Western world, has barely survived neglect, abandonment, and tropical storms. Now, under the leadership of Paul Altman, member of a fledgling congregation of Jews who have recently returned to the island, the synagogue is being restored to its former splendor.

After a hurricane destroyed most of the 17th-century structure in 1831, congregants rallied to reconstruct the building according to its original design. The synagogue remained the focal point for the Jewish community, whose prosperity was linked to the flourishing sugar-refining industry, until sugar prices plummeted in the later 19th century and temple members began to emigrate. By 1900 only 17 worshippers remained, and in 1929 the synagogue was sold by the last Jew on the island—to be converted into offices.

Efforts to save the synagogue from oblivion were started by a Barbadian gentile, Eustace Shilstone, who sought to purchase the adjoining cemetery as a Jewish memorial. Barbados then had no national policy for preserving monuments, however, and in 1983 the government acquired the site for construction of a new Supreme Court building. The synagogue escaped demolition only through a campaign led by Paul Altman, with the aid of Barbados's newly empowered National Trust. Altman then solicited funds from Jewish communities in North America and Europe and from owners of vacation homes in Barbados. Island architect Andy Voss is currently overseeing both exterior and interior reconstruction. The project extends to the cemetery and grounds; a "Biblical" garden and an exhibition on the history of the Jews in Barbados are also planned. *Scott Gutterman*



*Interior and exterior of the Barbados synagogue prior to restoration.*

Westweek 1988 in the works

This year's Westweek, the combined contract-manufacturer trade show and design conference held at the Pacific Design Center in West Hollywood, is scheduled for March 23-25. Entitled "Overview: Expansion and Insight," the 1988 lecture program features astronaut Joseph Allen, New York performance artist Antoni Miralda, graphic designer Milton Glaser, and an international assortment of architects, including Gae Aulenti, of Milan, Richard Rogers, of London, Cesar Pelli, of New Haven, Frank Gehry, of Los Angeles, and Marco Zanuso, of Milan.

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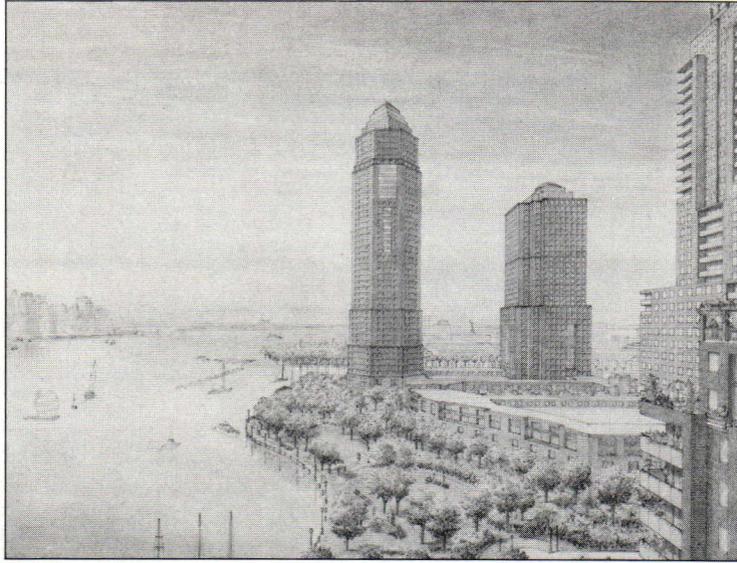
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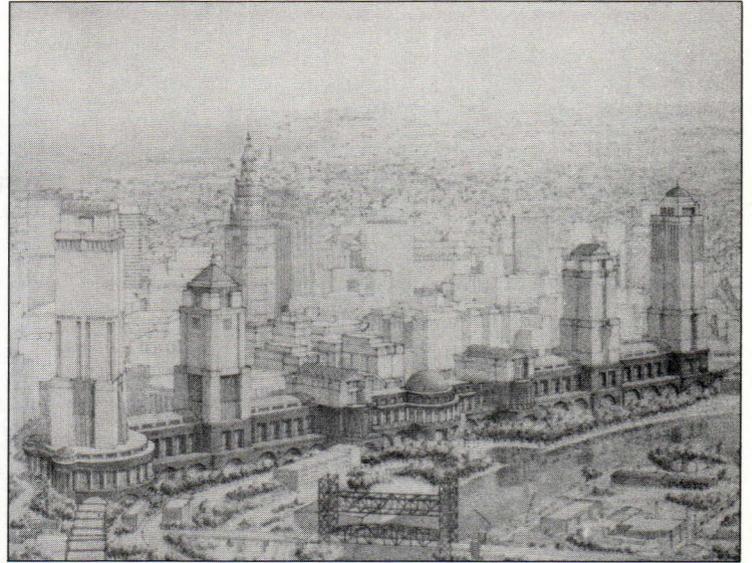
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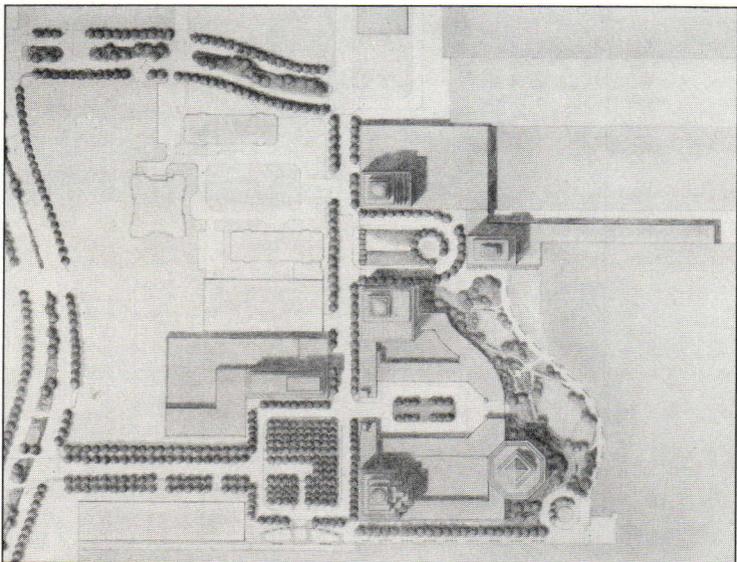
## A master planner moves on



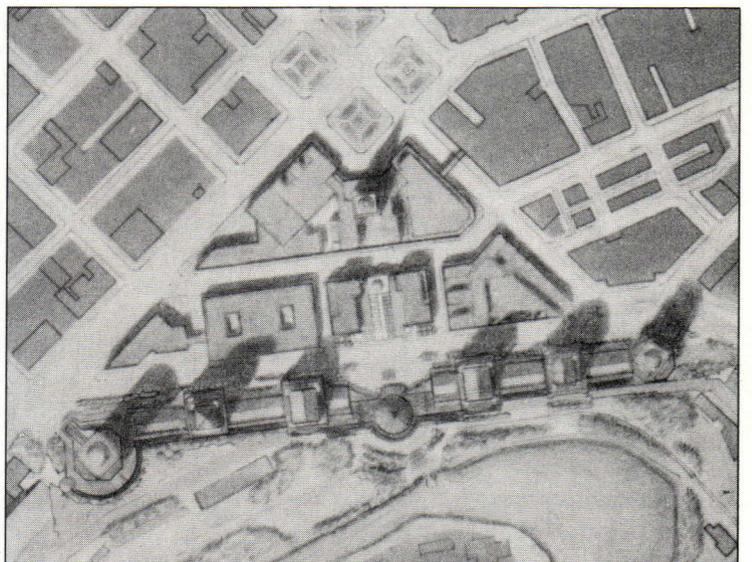
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When Stanton Eckstut split with partner Alexander Cooper to join the Ehrenkrantz Group a year and a half ago, it was generally—and, as it turns out, correctly—assumed that the Ehrenkrantz Group & Eckstut would continue the urban-planning tradition of its new principal (with Cooper, he was responsible for New York's Battery Park City master plan, hailed in *RECORD* by critic Carter Wiseman as “the standard by which the success of any future urban design must be measured”). Two of the score of urban projects currently on the Ehrenkrantz & Eckstut boards—

the Newport Master Plan for Jersey City, N. J., (figures 1 and 2, above) and the Tower City Center for Cleveland, Ohio, (figures 3 and 4)—exemplify the firm's current approach to city planning, which is, in the words of project architect Michael A. Manfredi, “to design everything down to the benches.” The proposal for the \$10-billion, 400-acre mixed-use Newport development, now under construction across the Hudson River from Battery Park City on the site of a derelict railroad yard, calls for low-, mid-, and high-rise buildings to be encircled by a “greenbelt” of

public parks and recreation areas. Eleven piers extending as far as 1,400 feet into the river will support town houses, which will be linked by arcades to shopping areas and transportation facilities. In Cleveland, a 34-acre tract along the Cuyahoga River at the city's southern edge will be transformed into Tower City Center. The focus of the Ehrenkrantz Group & Eckstut's proposal is a rotunda, located opposite the landmark Terminal Tower, to be flanked by low-rise buildings giving way to high-rises. Arcades will connect office, retail, and hotel space. *K. D. S.*

*1, 2. Newport Master Plan for Newport Associates Development Company, Jersey City, N. J.  
3, 4. Tower City Center for Forest City Enterprises, Cleveland, Ohio*

# It only looks like

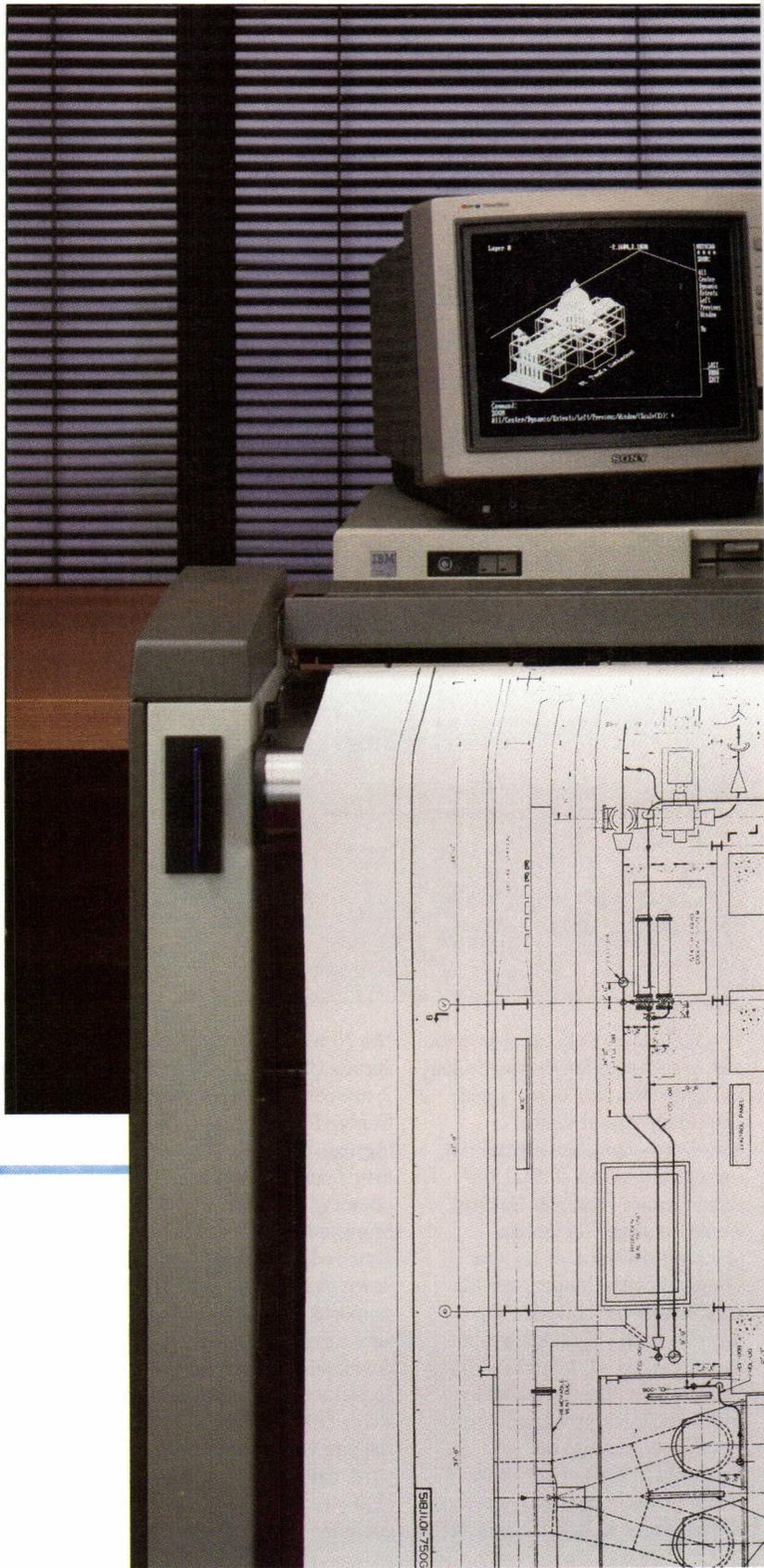
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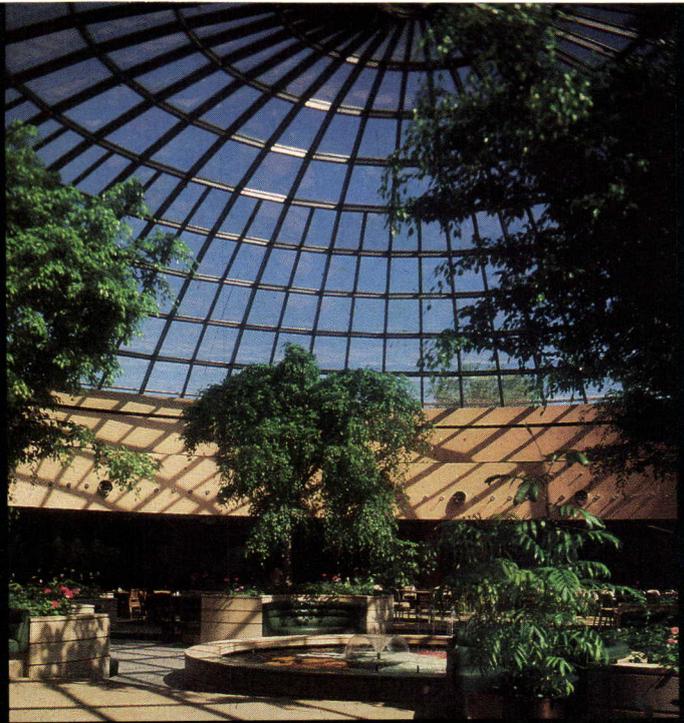


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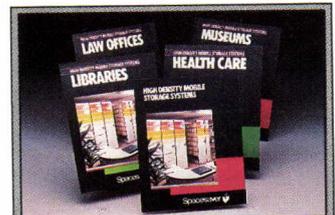
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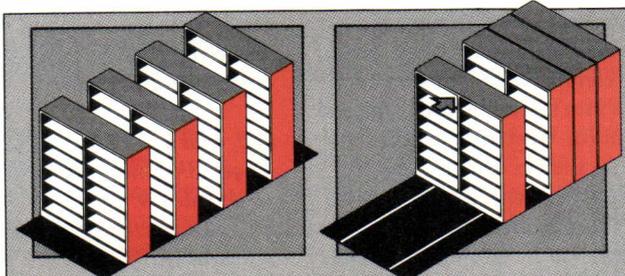
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**Eileen Gray: Architect/Designer**, by Peter Adam. New York: Abrams, 1987, \$39.95.

Reviewed by Julie V. Iovine

It is perhaps predictable that Eileen Gray, one of the preeminent designers of her generation, was grossly overlooked during her life, only to be elevated to cult-figure status after her death. She probably would have scorned the publicity anyway, according to Peter Adam's thorough, if at times lackluster, biography. Gray, after all, was a tough-minded but exceptionally shy woman who had to face the lifelong indignity of seeing her work go uncredited or, in the case of her signature E-1027 house (one of only two houses she realized as an architect), misattributed to Le Corbusier.

Born to a wealthy family in County Wexford, Ireland, Gray moved to Paris in 1900 to study art, and quickly became part of the cutting fringe. She was a spirited autodidact who absorbed all influences. In the 1920s, for example, the lacquer cult was in full swing, and Gray, having mastered the technique under the Japanese artisan Sagawara, was at its center. She also took up rug design during this period, and while her lacquer screens clearly exhibit a lingering Art Nouveau sensibility, her rugs seem influenced more by Russian Constructivism. Quite early in her career, Jacques Doucet, the *éminence grise* of the fashion world, became one of Gray's major patrons. While Adam correctly notes that Doucet did not exactly "discover" Gray, as some have contended, a much later auction of Doucet's studio contents in 1972 did contribute significantly to her recent rediscovery.

Throughout the 1920s Gray managed, or mismanaged, a chic Paris shop called Jean Désert. Retailing for the carriage trade was not her strong suit, however, and she was far more preoccupied with her radical design of Madame Mathieu-Lévy's apartment, a four-year project that resulted in the creation of the memorable pillow-stuffed Pirogue sofa. Some additional recognition came in 1923 with Gray's first full-scale exhibition at the Salon des Artistes Décorateurs, where a fur-covered divan and a large lacquered screen shared top billing with several neo-primitive, gold-lacquer and blue-glass ceiling lamps. (One alarmed critic compared the room to the Cabinet of Dr. Caligari.)

Gray turned to architecture quite late in her career, and saw only two of her designs built. Her most significant commission was for Jean Badovici, editor of the short-lived *L'Architecture*

*Vivante* and doubtless the single most influential person in Gray's life. They made an odd couple: he, the lively Hungarian who enjoyed drinking with Le Corbusier, Léger, and Mondrian; she, the middle-aged working professional with no time for foolishness. It was Badovici who commissioned Gray in 1930 to design a house that might satisfy her desire to integrate architecture and furniture. The striking result, E-1027, is Gray's masterpiece. In some ways a casebook Modern house right down to its *pilotis*, E-1027 has fun with function, incorporating wit in its fold-up drawers, sliding dividers, and stenciled collages that show where the pillows go.

During the 1930s and '40s, Gray, her social consciousness stirred by world events, turned to the design of mass-produced housing and public buildings. Although none of these projects was ever built, Le Corbusier did occasionally include her plans in

exhibitions that he arranged, mostly of his own work. Meanwhile, Gray languished in her own studio (with very little company other than her ever-faithful maid, Louise Dany), working on new designs or perfecting old ones. She died in 1976 at the age of 92.

It was not until Gray's death that critics began to reexamine and praise her work. Within the past decade, she has been the subject of several major exhibitions, Andrée Putman has licensed individual pieces of Gray's furniture (most successfully, the chrome-and-glass table from the E-1027 house), and *The New York Times* has recently hailed her as "the first woman to achieve recognition as an architect." Adam's carefully considered monograph simply confirms this enigmatic figure's acknowledged place in the history of 20th-century design. The enigma herself deserves further study.



"I keep telling you, Harold—ask a stupid question and you get a stupid answer."

Julie Iovine is a freelance writer who contributes frequently to RECORD.

## Brave new worlds

By Michael Sorkin

When I look at the work of Lebbeus Woods, certain comparisons inevitably come to mind. The fantastic interiors of Piranesi. The soaring vistas of Hugh Ferriss. The latter seems especially resonant. To be sure, for raw delineating power, Woods is our greatest, our Ferriss. And, like Ferriss, Woods has long supported himself making other architects' work look good: it's the guilty secret of many offices that a rendering by Woods often accomplishes more by way of design than was there to begin with.

But it's the visionary side of Lebbeus Woods that is of concern here. For Woods is, as this portfolio attests, a creator of worlds. Like Hugh Ferriss, his territory of invention is the city. Over the past 10 years, Woods has produced an array of striking urban visions, the latest of which—"Centricity"—is presented on these pages. But, despite a certain kinship of *chiaroscuro*, the comparison to Hugh Ferriss is a limited one. Ferriss was the great extrapolator, setting out his astonishing views of what American cities (and especially New York) might be on the basis of ideas—whether of enormous buildings, traffic separation, or zoning—that had currency but lacked expression. Indeed, the power of his images was precisely in the way they concretized expectation. There was never any doubt that these things might be.

In this, Ferriss participated in a tradition of graphic polemic that was central to the Modern movement. Sant'Elia, Tony Garnier, Le Corbusier, and Frank Lloyd Wright a little later were all suppliers of imagined urban futures, corroborations of the larger workability of their

architectural projects. Of this particular set, perhaps Sant'Elia is a better model for understanding Woods. Unlike the city of Corb, Garnier, Wright, or Ferriss, Sant'Elia's was less a reproduction of feeble social theorizing than a deliberate attempt to break out into an unknown, a tool of research rather than propaganda. Here is Sant'Elia's own description, full of the peppy cadences of Futurism: "The problem of modern architecture is . . . to raise the new built structure on a sane plan, gleaning every benefit of science and technique, settling nobly every requirement of our habits and spirits. . . . Such an architecture cannot be subject to any law of historic continuity. It must be as new as our state of mind is new and the contingencies of our moment in history. . . . In modern life, the process of consequential stylistic development comes to a halt. Architecture, tired of tradition, begins again, forcibly, from the beginning."

In the mesmerizing, astonishingly wrought vision of Lebbeus Woods, we never have the sense of confrontation with a perfected version of the present, the architectural rationalization of suburban or skyscraper theory. We are plunged into unfamiliar territory, a world of architecture beginning again. Not that an aura of familiarity is wanting. The viewer grapples for some certifying comparison, riffing through oil refineries, the middle ages, 19th-century technical construction, to try to gain a visual handle. What we see, though, is none of this. We're not even sure that the scenes are terrestrial. Woods's structures betray no familiar routines of use or of inhabitation. Yet clearly there are activities accommodated here. The whole is suffused with the support of a mysterious technics, evident in the presence of strange alchemical apparatus

*In an extraordinary series of pen-and-ink drawings dubbed "Centricity: The Unified Urban Field," Lebbeus Woods reaffirms his position as our most fecund visionary—a futurist whose notions of the ideal city stretch architecture to its technological and philosophical limits. We*

and alluded to by Woods in his enigmatic captions.

This is an important clue. In many of Woods's drawings there is writing, sometimes legible, as often not. Like his architecture, the writing's about longing, about a straining after language. Woods has written, "We should build our buildings and then discover how to live and work in them." The drawings are his avenue of inquiry, his process for this discovery. And Woods continuously leaps ahead of himself: the utter clarity of his images defies any presently possible account of them. While the written texts may be mired in an aching unreadability, the drawings deliver an account—precise, measurable—of phenomena which, for now, exceed explanation. Woods's breathtaking images force fictions upon us, innumerable strategies of coherence, different assimilations of the raw data, fresh personalized hypotheses, lodes of unverifiable elegances.

The suffusing technical aura is also crucial. Woods's polemic is about science, about an architecture conceiving in the light of the Einsteinian revolution. Among their other agendas, Woods's cities are graphic models—metaphors—for the new physics. The connections are diffuse and undogmatic, to be sure. Nevertheless, they assert Woods's implicit belief that architecture, if it is to retain vitality, must be a part of this inquiry. While architecture may have long ago abandoned its position at the leading edge, he asserts that it must, at the very least, be conscious of science's findings.

This architecture is—not to resist a phrase—science fiction, a supple rhetoric of things to come. It abounds in sites for events, rituals, and techniques now only dimly imaginable but pregnant with expanded hopes. One with the greatest of imaginative expectations, it

invents the vernacular of a culture that's yet to be. At a time when the proprietorship of anticipation has been almost completely ceded by architecture, when visionary roles have been either co-opted or renounced, Woods shows nothing but bravery in pursuing his new worlds. And in Woods's sure hands, architecture begins to get one back from George Lucas and Ridley Scott.

I recently received a questionnaire that wondered whether the U. S. government should spend more on a search of the universe for extraterrestrial forms of life. I ticked the "no" box. Not that I'm uninterested in finding neighbors out there, just that the mode of inquiry—massive radiotelescope—seems to narrow rather than expand the field of speculation, imprisoning the future within the confines of a narrow wavelength, demanding that the unknown accommodate itself to the limits of our technology. Woods's search seems to offer far richer prospects, a genuine utopia, unequivocal about its *a*-geography, the mentalism of its mapping.

Yet Woods's work is engaged and critical, not just acquiescent babble. Some lines from Brecht's poem "1940" evoke the problematic: "The designers sit/Hunched in the drawing offices./ One wrong figure, and the enemies' cities/Will remain undestroyed." Brecht thought of bombers, but our architectural technique shares the calculus. Woods clearly enfolds the Janus of technology and terror in his vision, seeking to redeem science for the arts of the marvelous. He struggles to restore the very idea of the city to a humanizing terrain, implicitly criticizing its decay into a receptacle for the irrational. The epicyclical undergirding, the inevitability of return, offers the hope of life/  
*Continued on page 85*

publish Michael Sorkin's essay on Woods to coincide with a current exhibition of the architect's work, on view at the Storefront for Art & Architecture, in New York City, from February 19 through March 19.

*Woods*

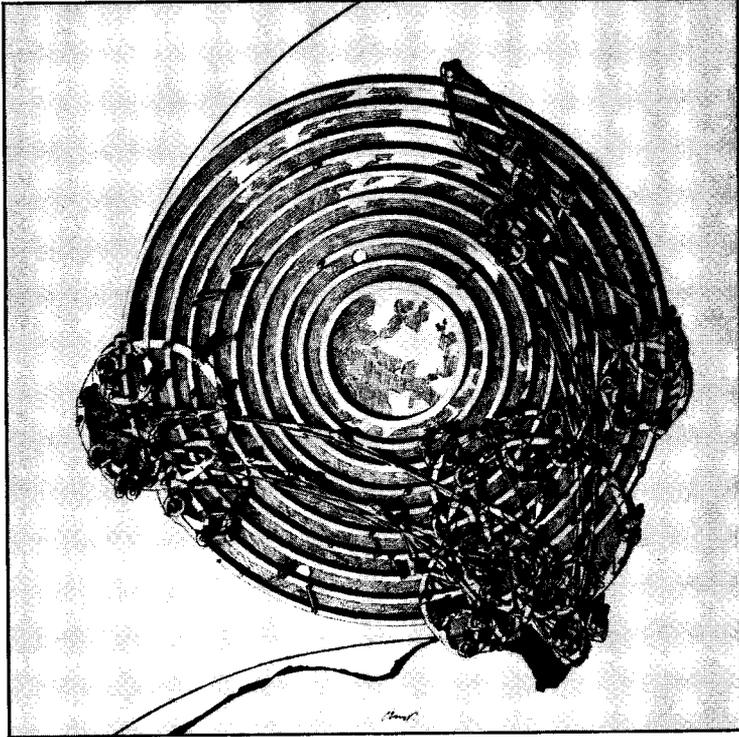
*Chris 5/11*



*Monogram - Dome - Wood - 895 Ave I, New York, New York, New York - 1907*

*"New patterns of urban form and living arise from the concepts of time and space considered as one," Lebbeus Woods has written. "The interplay of metrical systems establishing boundaries of material and energetic form is the foundation of a universal*

*science . . . whose workers include all individuals, whose principal instrument of research is architecture, and whose interactive field is centricity." The biomorphic and mechanomorphic forms that populate Woods's visionary world are, according*



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4

to Michael Sorkin, "the vernacular of a culture that's yet to be."

Drawing page 81: Centricity Terminus

Drawings below:

1. Centricity: concentric field
2. Biomechanical tower
3. Citylimit: towers and rings

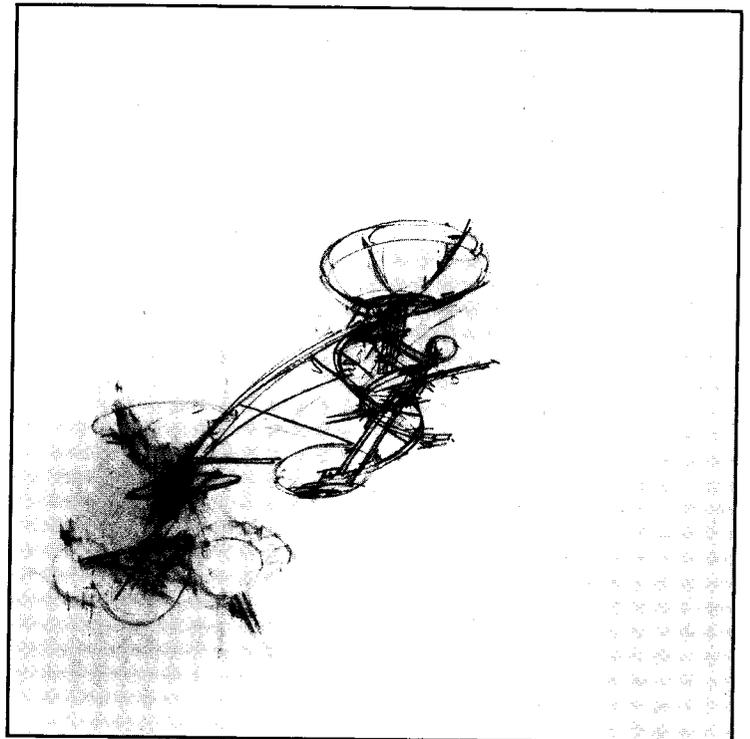
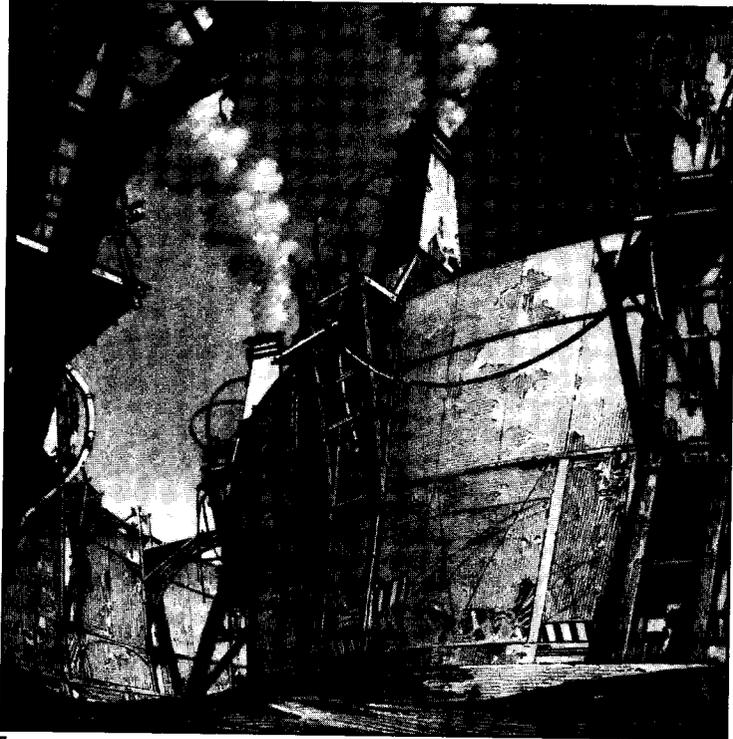
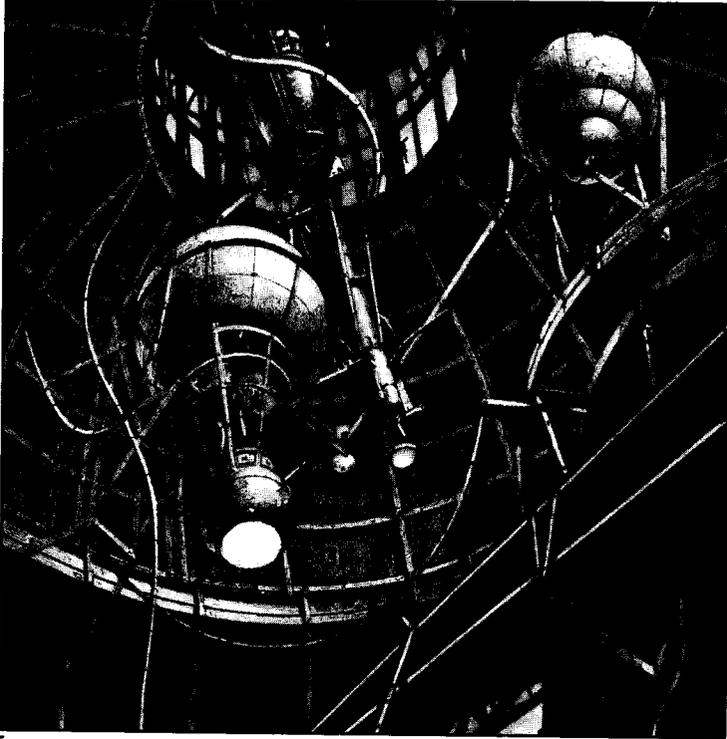
4. Quadrapolar 9A: square with geodynamic towers

5. Centrum chamber, with kinetic light machines

6. Citylimit: rings with accelerators

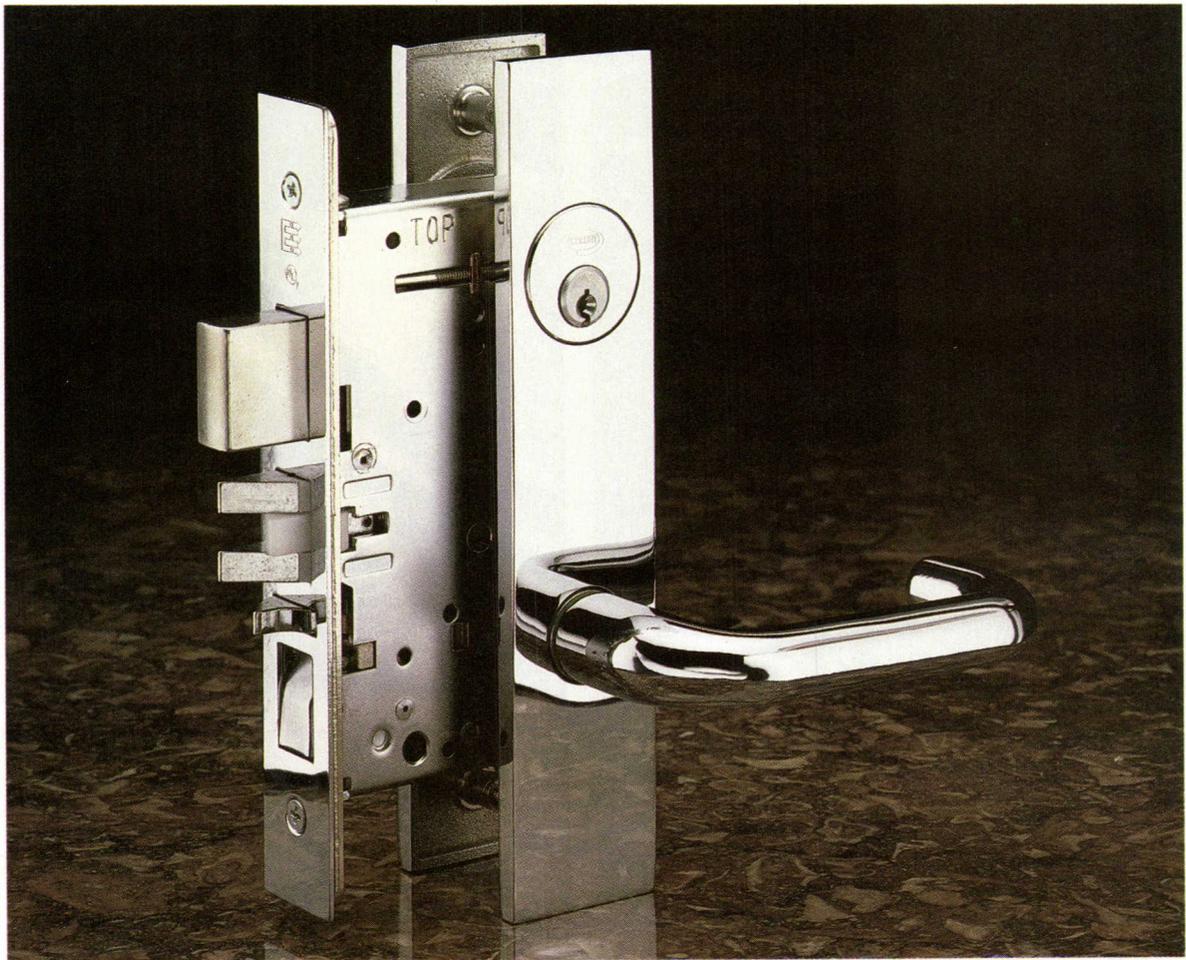
7. Acceleration rings, with geothermal machines

8. Freefield: freelight machine



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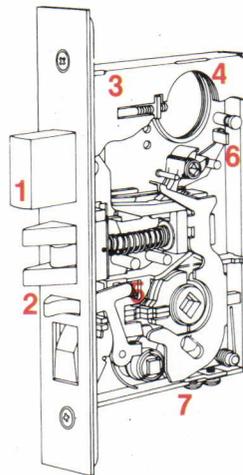


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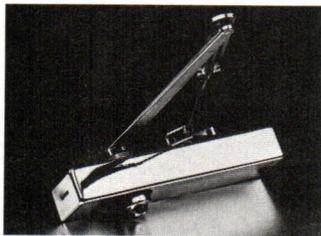
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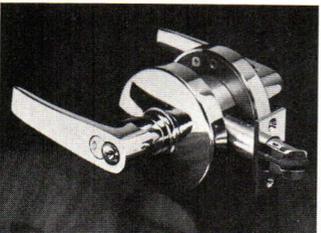
## In full line.



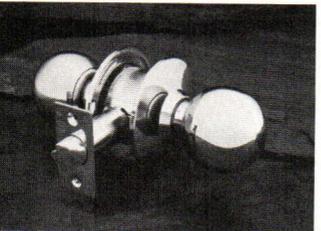
Closers



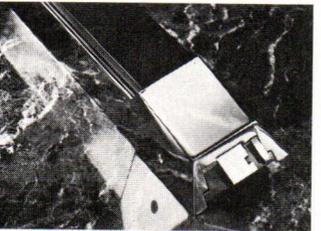
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*Observations continued*  
cycle. The craft and casual decay of his urban fabric retain everywhere the evidence of the hand, not his alone but the unseen imagined hands of a citizenship. And, tech's sting is averted by architecture's privileging. Woods's vision assails the placelessness of mediated culture by mesmerizing us with location.

Late in the sequence of drawings for the Centricity, forms slowly metamorphose, sloughing off Euclid for more biomorphic shapes. Architecture is evolving here as Woods struggles to bring it to life. One sees the fervid inventor in his lab, commanding matter into a new order, making not just those cycling atoms and molecules but the orbits of the universe dance to an irresistible tune. Here's a glimpse of the grand Woodsian synthesis, the ultimate harmonizing of the spheres, the fresh totality. Mechanics, excited by light and genius, becomes biology. The final images of the Centricity—the "free-gravity" and "free-light" machines—loose architecture from its most primary constraints, barely materialized wisps of longing for an eventuality we know must come. Lebbeus Woods prepares architecture to soar from becoming to the incredible lightness of being itself.

It is a striking feature of contemporary architecture that the visionary style, once so prominent, so central, is now so lacking. Our avant-garde, such as it is, pursues inquiries that seem ultimately solipsistic—private investigations which, however poetic, long for no comprehending grandeurs. Part of this reticence is reactive, a retreat from the regulatory oppressions of a checkered history of great plans. Lebbeus Woods's bold imaginings are vital and restorative. His imaginary cities walk the visionary's inevitable fine line between coercion and fantasy with the elegance and grace of Philippe Petit. Centricity argues not for the superiority of some specific practical arrangement but for the liberatory prospect of imagining broadly, fervently. His ever-expanding discourse of the almost possible is an inspiration not just to build, but to think.

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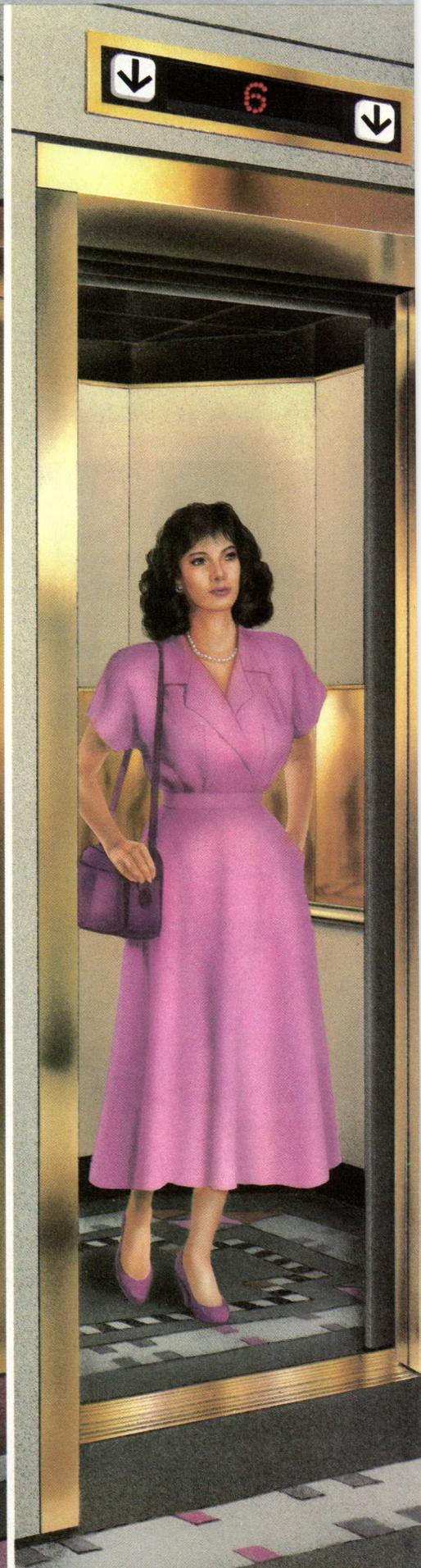
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At the pinnacle of the Opryland Hotel Conservatory's lush indoor Victorian garden are angle bay windows, custom built for the hotel.

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Some would call it a tall order...building windows for Opryland Hotel that are in perfect harmony with their Conservatory suites.

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*Norco's sweeping angle bays complement the southern elegance at Opryland Hotel Conservatory suites and give guests a breathtaking view of the Conservatory.*

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Angle Bay Window was designed to create a  
floor-to-ceiling wall of windows, set precisely  
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the Conservatory.

**Grand results brought Norco back  
for an encore.**

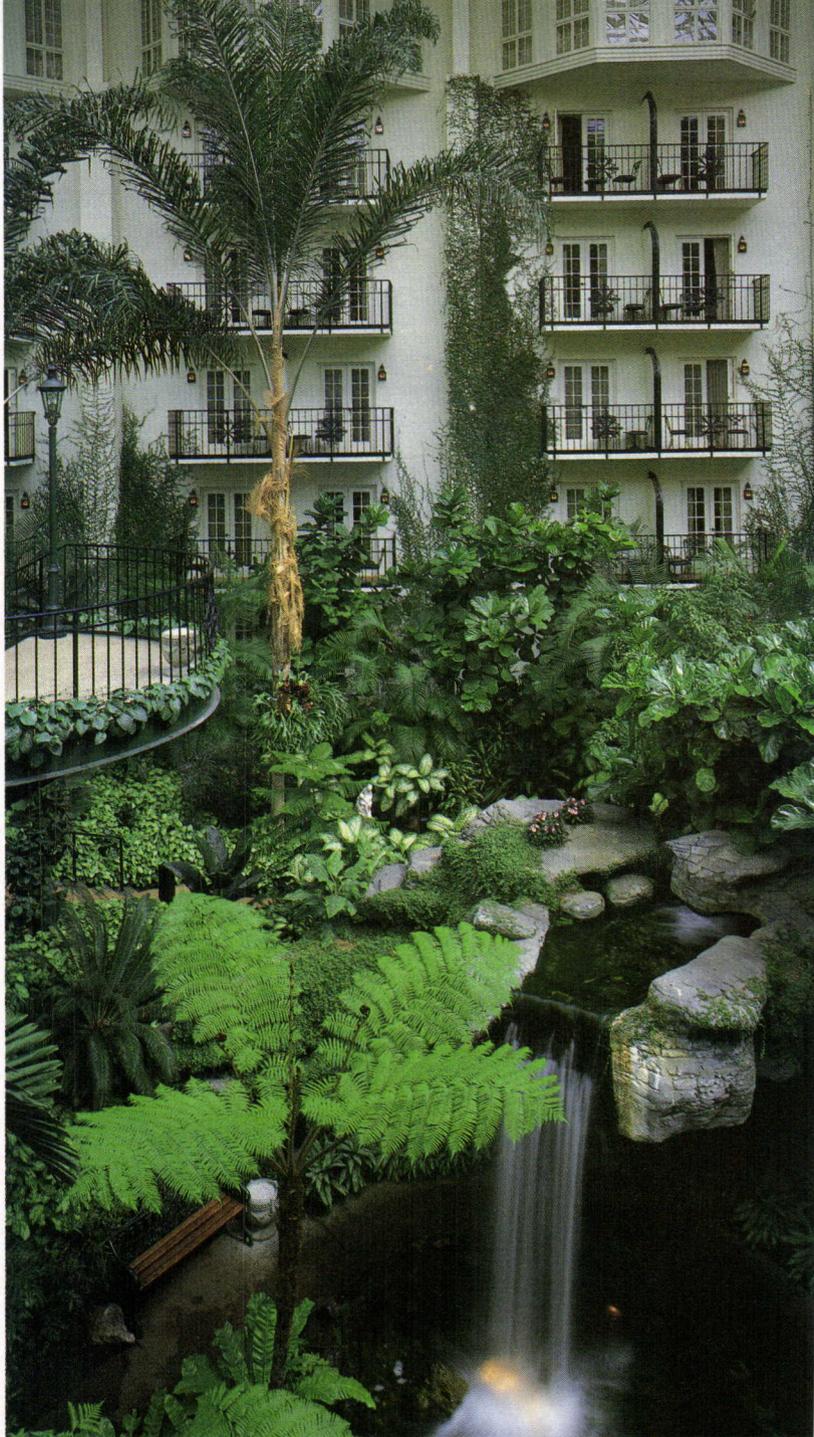
Opryland Hotel's newest expansion, the  
Cascades, is set for completion in 1988. It is  
another major, skylighted interior space even  
larger than the Conservatory. Its 839 additional  
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**Windows:**  
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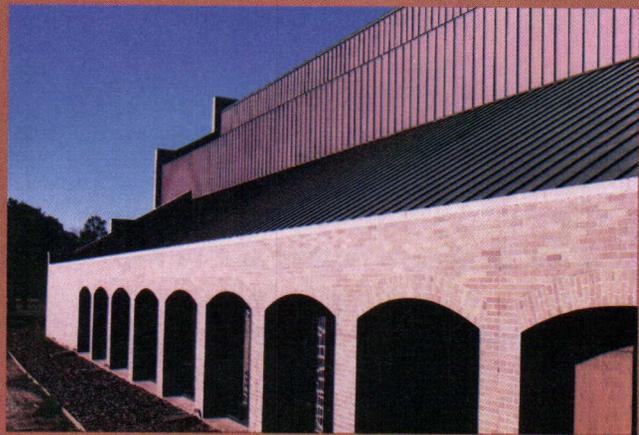
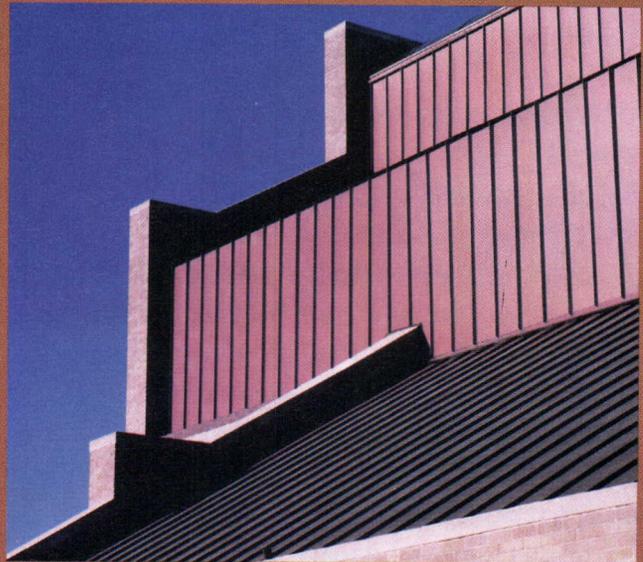
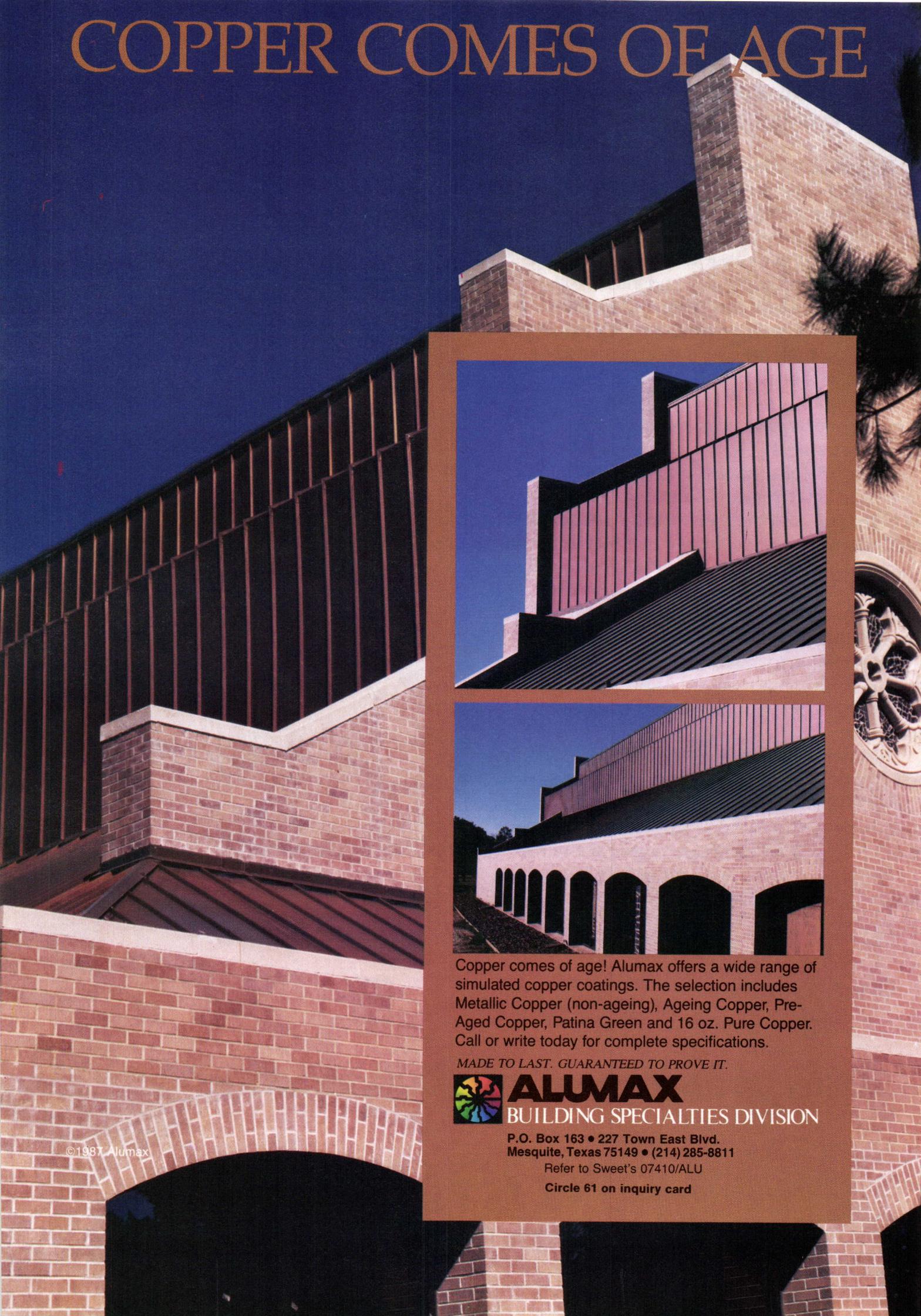
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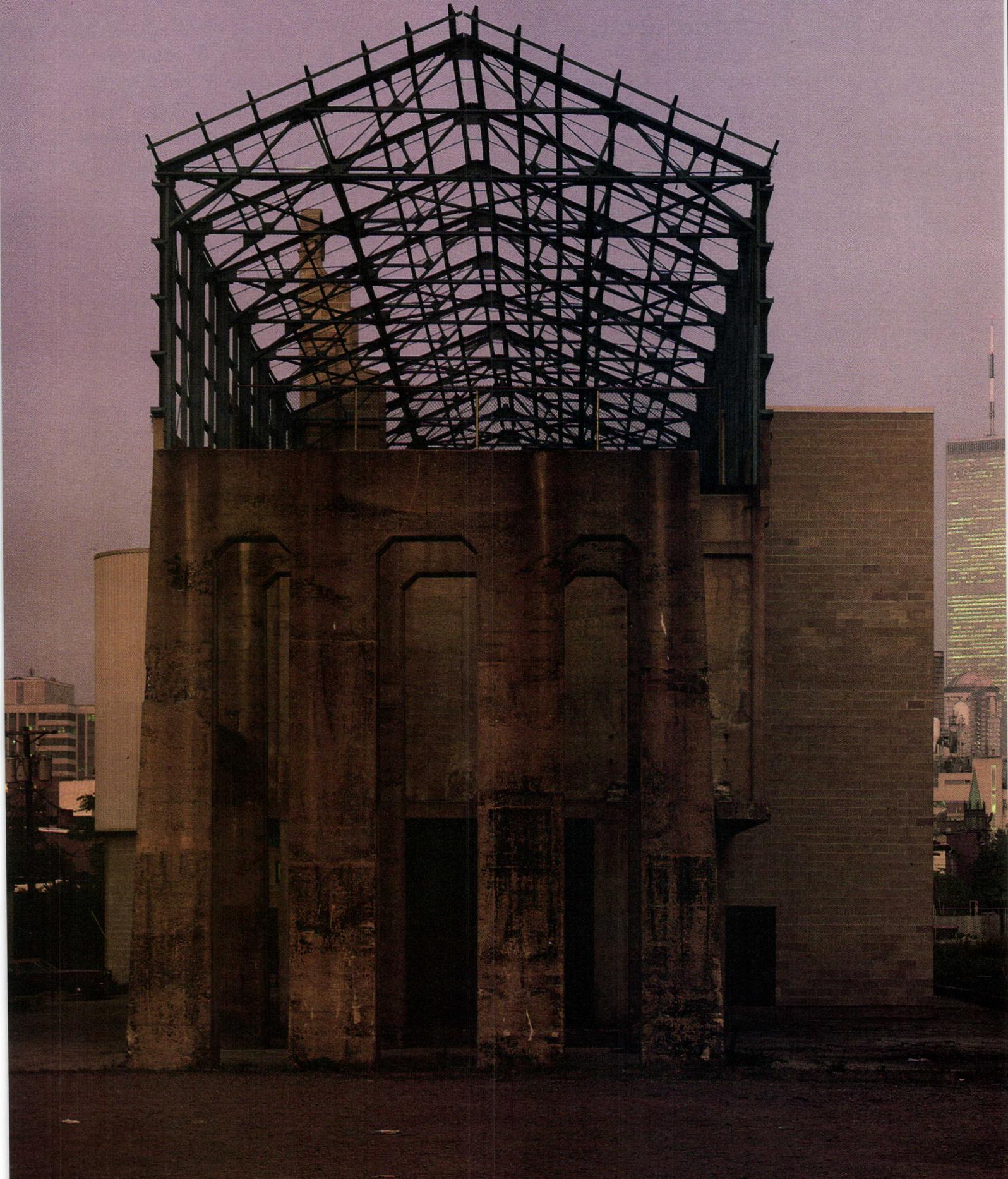
# In this issue

The cool serenity of the room shown in our cover photo belies its location amid one of the densest, busiest cityscapes in the world. The interior is the Tokyo studio of Atsushi Kitagawara, a leader among the emerging generation of Japanese architects whose work deliberately echoes the contradictions of modern urban life. A portfolio of Kitagawara's three most recent projects, on pages 108-121, analyzes the counterpoint of calculated incongruities—sometimes pessimistic, always expressive—which the designer has described as “metropolitan automatism.”

This Japanese perspective is itself a telling counterpoint to the different vantage points on city living inherent in all the American projects we present this month. Paradoxically, and perhaps appropriately, given the multilayered history of the particular locales we have chosen to focus on here, our survey begins in an indeterminate future—forcefully realized in the visionary “Centricity” of Lebbeus Woods (see “Observations,” pages 80-85)—and concludes with a backward look at a not-so-distant past replete with lessons for the present. The latter article, on pages 122-135, examines the evolution of New York City housing through the work and commentary of two masters in this essential building type, architects Lewis Davis and Samuel Brody.

The buildings presented in our two other feature articles are also in the New York metropolitan area, a geographical proximity that only heightens the programmatic and esthetic contrasts between them. Edward Larrabee Barnes Associates' speculative office tower at 599 Lexington Avenue (pages 100-107) takes its place alongside one of Manhattan's best-known skyscrapers, with sleek Modern apparel and a tip of the hat to “contextualism.” Oppenheimer, Brady & Vogelstein's Boys Club of Jersey City (pages 93-99), which overlooks the Gotham skyline from the opposite bank of the Hudson, is a low-budget rehab whose tough, raw-boned ingenuity delineates the face of another urban reality.

Boys Club of Jersey City  
Jersey City, New Jersey  
Oppenheimer, Brady &  
Vogelstein, Architect



# True grit

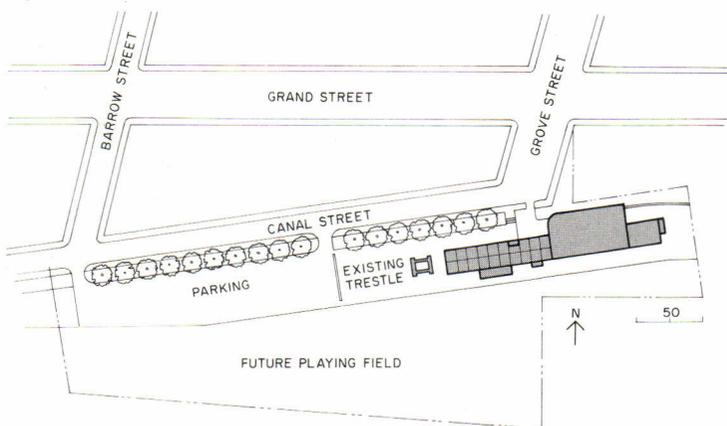
*With the ingenious conversion of an abandoned industrial relic into a public youth center, an inner-city eyesore has become a landmark of civic pride.*

The setting—Jersey City's drab industrial fringes, seen against the glittering backdrop of lower Manhattan—is straight out of a contemporary TV thriller. The story, however, might be the plot of a 1940s B movie. It begins nine years ago, with the Boys Club of Jersey City on the verge of extinction, its membership below 100, and its town-house headquarters hopelessly dilapidated. Enter a group of local businessmen, who decide to rejuvenate the board, hire a dynamic young director, and draw up a list of 20 possible locations for a new clubhouse. One overcast day in 1981, while the club's new director and his two architects are visiting a potential building site, they seek shelter from the rain in an abandoned coal-storage bunker, an artifact from Jersey City's gritty past. The architects, Herbert Oppenheimer and Charles Vogelstein, admire the 64-year-old bunker's sturdy, poured-in-place concrete construction, its segmental-arched vaulting, and its steel-framed train shed. The director, David Messier, likes the building's location on "neutral turf," bordering the patchwork of ethnic neighborhoods that make up central Jersey City but not actually in any one of them. Almost at once, the three men know they have stumbled on the ideal site for the club's new home . . .

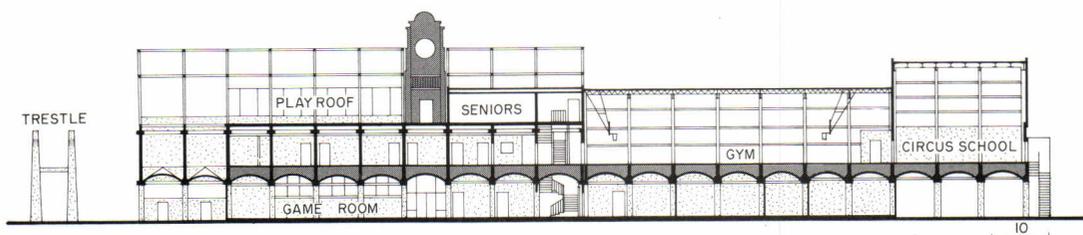
Four years later, the boys club moved into one of the more intriguing adaptive-use projects in recent memory—a 31,000-square-foot facility whose startling, almost surreal presence results from the architects' decision to strip away the train shed's deteriorated cladding and keep its structural-steel roof trusses exposed. Moreover, rather than overlaying some arbitrary historical mode onto what is essentially a styleless building, Oppenheimer, Brady & Vogelstein elected to retain the bunker's blue-collar simplicity. The architects left the exterior largely unaltered (except for punching windows through foot-thick concrete walls) and carefully preserved such key remnants as a pair of concrete pylons salvaged from the demolished trestle. The sole concession to style is a new reinforced-concrete-block clocktower, whose curving Mediterranean Revival parapet subtly acknowledges Jersey City's Hispanic and Italian communities. Seventy-five feet tall, the tower commandingly terminates the view along Grove Street, a major downtown artery (top photo).

In terms of program, the architects faced the difficult challenge of fitting the functions of a typical inner-city boys club—basketball and boxing gymnasiums, locker rooms, arts and crafts studios, a small library, a game room, and offices—into a highly atypical, 320- by 37-foot shell. With the addition of a reinforced-concrete second-story slab, the bunker proved remarkably adaptable: 16-foot-wide coal bins were the ideal size for offices and studios, and the architects devised a logical linear circulation plan simply by cutting a corridor straight through the bin walls. (To accommodate the two gyms, however, they had to widen a 110-foot section of the bunker by means of a new aluminum-sided addition.) The club's workaday interior represents a compromise between the architects, who envisioned rough concrete finishes throughout, and the client, who lobbied for dropped ceilings and gypboard walls, arguing that many of the boys using the facility came from the bleak, concrete-block environment of public housing. While the accommodation to visible comfort is probably just, the most memorable space at the club—the boxing gym—is clearly the toughest (page 99). A raw-boned concrete-block world adorned only by the ribs of the bunker's arched vaults, this room seems an apt architectural metaphor for the hard-won human victories achieved here. *Paul M. Sachner*

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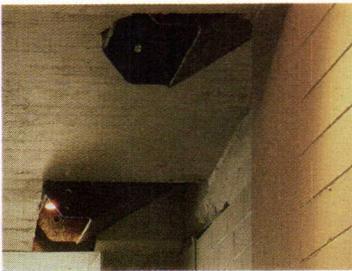
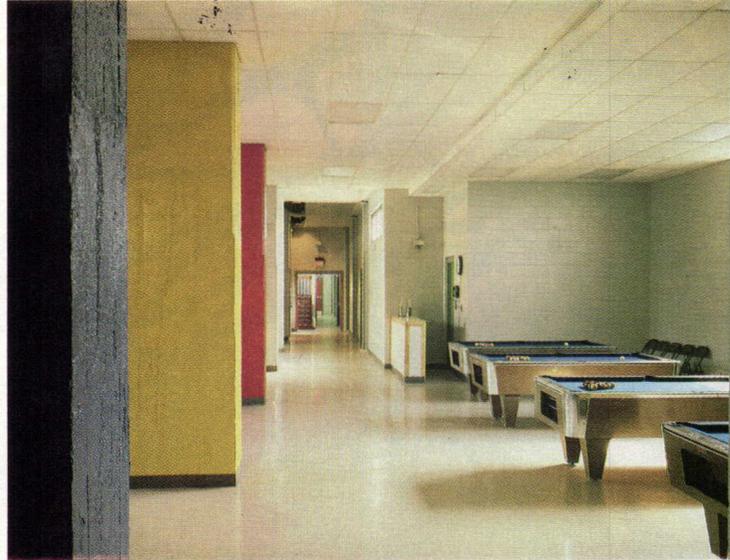


Jersey City's original coal-storage bunker, erected by the Lehigh Valley Railroad in 1917 and abandoned in 1946, was the terminus of a trestle that carried trains directly into a peaked-roof shed, where hoppers dumped their cargos into bins below (top right). In order to open up views of New York City across the Hudson River, and to reconnect Jersey City visually with its own reviving waterfront, Oppenheimer, Brady & Vogelstein removed the deteriorated exterior of the train shed and demolished most of the concrete trestle supports. They left two of the trestle pylons intact, together with the skeleton of the shed's steel roof trusses, to serve as reminders of the building's industrial history (bottom). More whimsical evocations of the structure's past are the train tracks painted onto the epoxy-resin surface of a rooftop play area (opposite) and, throughout the building, "chute lights," made by inserting incandescent spots into the bunker's old cast-iron coal slides (small photo page 98).





Two- by three-foot-thick piers that once supported coal bins line one side of the club's first-story game room (top right), whose bright paint job is courtesy of volunteer labor. In order to add a new wing housing two gymnasiums, the architects virtually sliced the bunker in two, revealing in the main basketball gym (below right) the section of an I-beam that originally bore the weight of coal trains. In the boxing gym, new steel columns brace concrete vaults that may have been weakened by the necessary removal of lateral walls (opposite).



*Boys Club of Jersey City*  
*Jersey City, New Jersey*

**Owner:**

*Boys Club of Jersey City*

**Architect:**

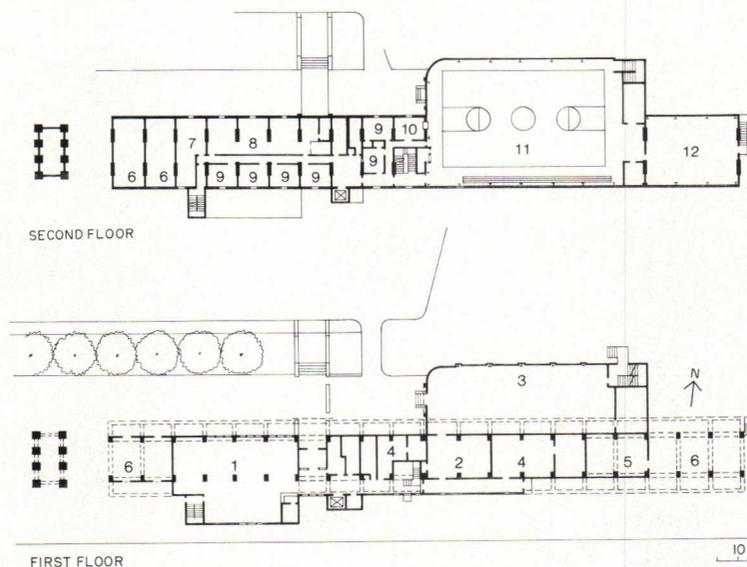
*Oppenheimer, Brady & Vogelstein—Herbert B. Oppenheimer, partner-in-charge; Charles Vogelstein, interiors; Frank Weiner, project architect*

**Engineers:**

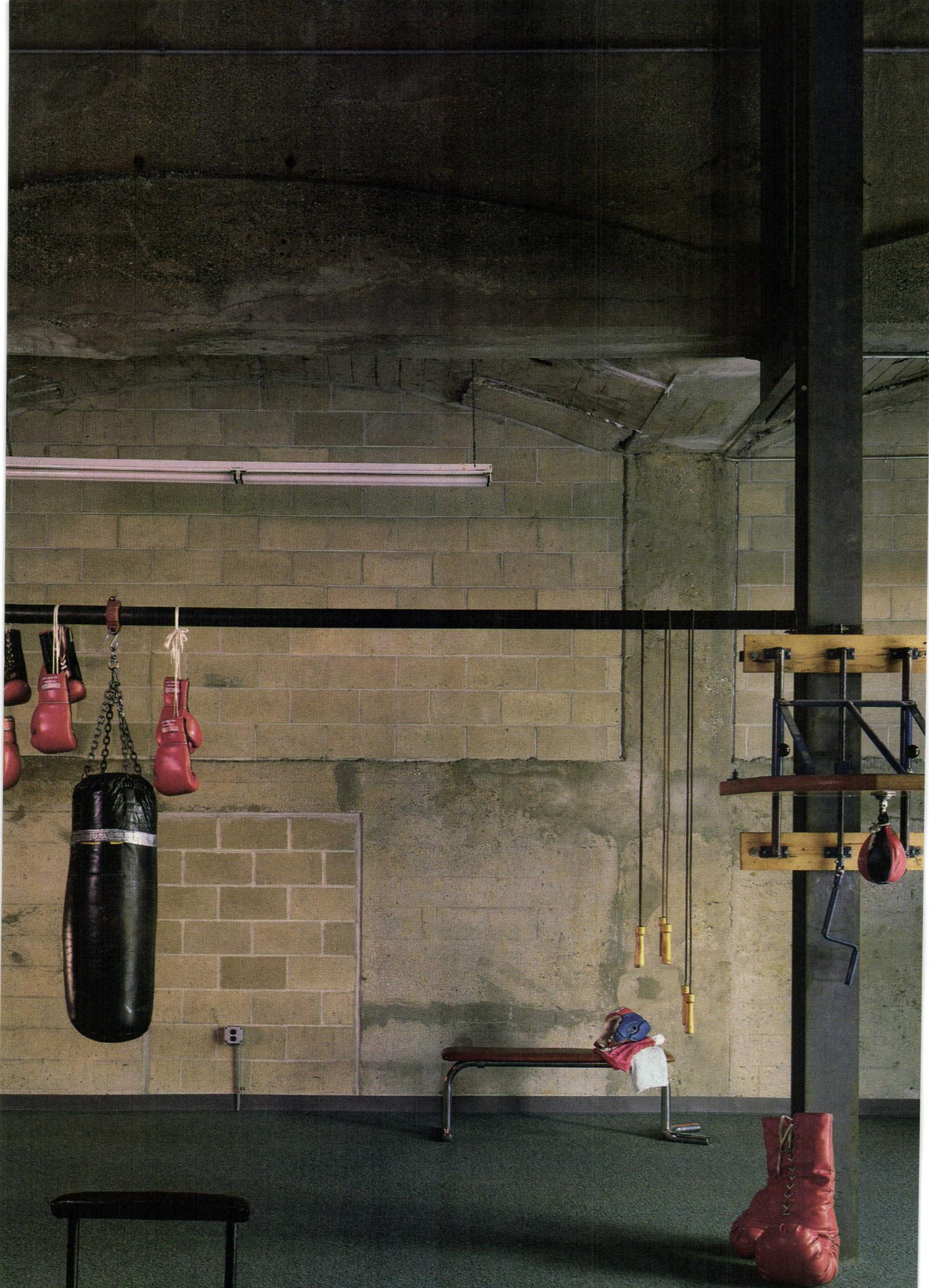
*Purdy & Henderson (structural); Kruse Associates and Zicherman & Bloome (mechanical)*

**General contractor:**

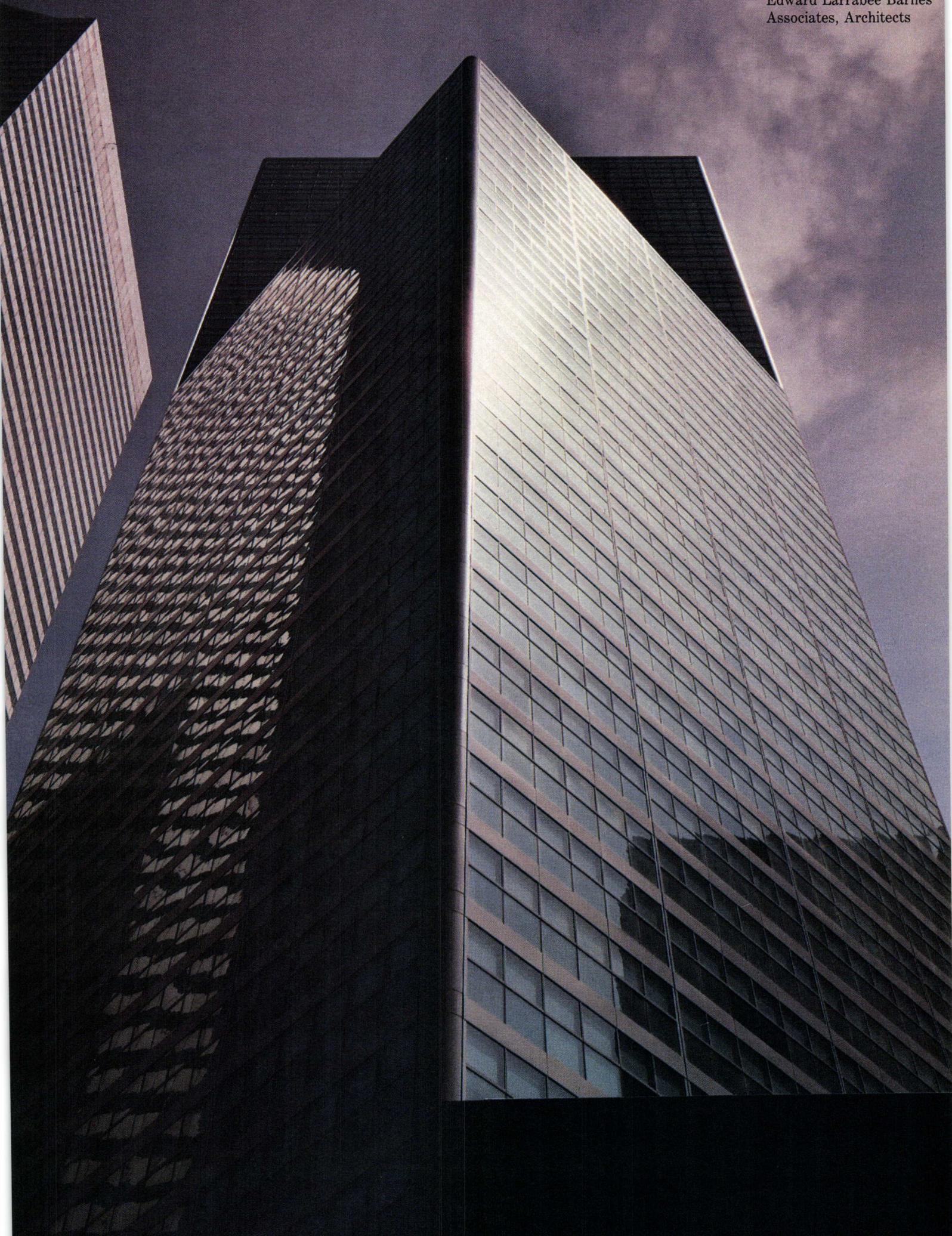
*Louis Gargiulo Co., Inc.—Anthony Gargiulo, president*



1. Game room
2. Exercise room
3. Boxing gymnasium
4. Lockers
5. Boiler room
6. Unimproved area
7. Library
8. Arts and crafts
9. Office
10. Kitchen
11. Main gymnasium
12. Circus school



599 Lexington Avenue  
New York City  
Edward Larrabee Barnes  
Associates, Architects



# A paradoxical neighbor

*Though strongly individual in the bold  
prows and angles of its sculptural form,  
an elegant new office building shows a  
civilized approach to "contextual"  
speculative skyscraper design.*

It is quite a feat to design a major building that has individuality and yet also thoughtfully melds with the architectural grab bag of midtown Manhattan—and especially on a site flanking a one-of-a-kind landmark. Edward Larrabee Barnes Associates has succeeded remarkably in such a blending of presence with politeness for a new rental office tower at 599 Lexington Avenue, directly across the street from the assertive—and justly admired—slant-topped Citicorp Center.

Careful development of the new building's shape, skin, and amenities firmly established its own distinctive strength, while relating with discerning friendliness to neighboring facades and fenestrations, and to pedestrian life at street level.

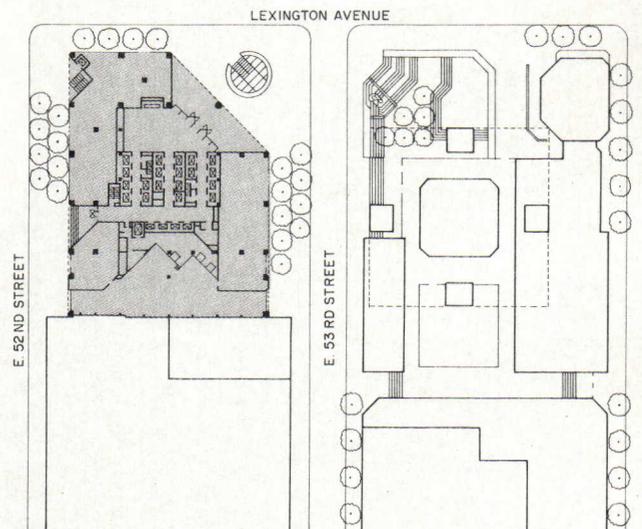
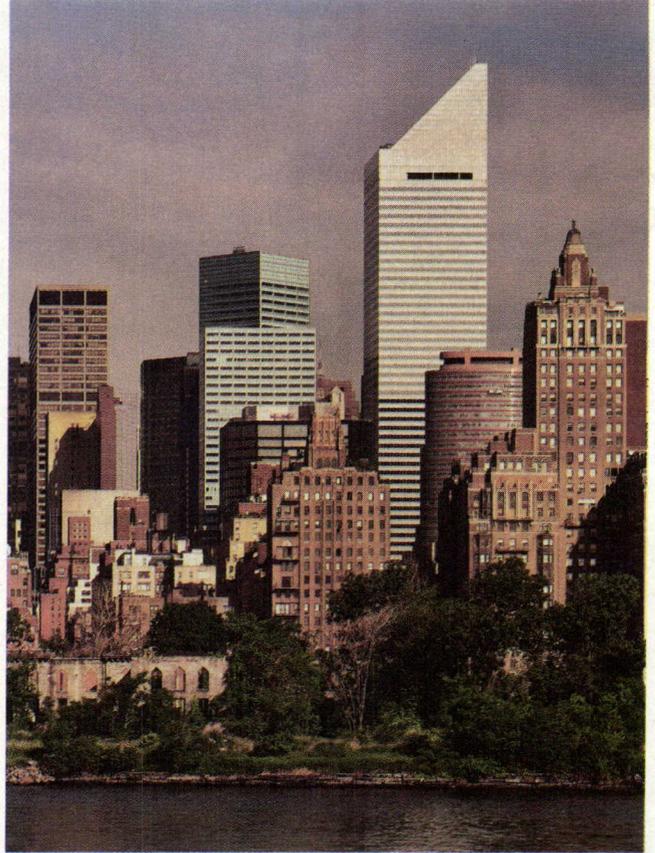
By using a lot of new angles—literally and figuratively—Barnes has come up with a new alternative to the "wedding cake" tiered setbacks of the standard zoning envelope. As the site is hemmed in on all sides, it was reasoned that an angled, or rotated plan, sliced away at heights relating to other structures, could offer significant advantages in light, views, and rentability. Working closely with the New York City planning department, Barnes and John Lee, the firm's principal-in-charge for the project, established that the subtractive massing of their scheme would give trade-offs equal to standard building setbacks—and achieve maximum allowable rental space for the site.

Added amenities obviously played their parts in getting city approval for the building: integrated subway entrances and concourse; through-block, off-street loading docks; and a small entrance plaza sliced into the corner to complement and bracket the larger one at Citicorp. All these, plus wide, tree-planted sidewalks, street-level shops, and a glazed, 50-foot-high lobby—elegantly clad in green and white marbles and a giant Frank Stella painted relief—provide pleasure and convenience for city strollers, as well as for the building's occupants.

Though the curtain wall for 599 Lex above all reflects Citicorp's smooth, silver-gray-metal and clear glass banding, subtle variances and complexities help visually bridge the design to other, less sleek facades around. To help stress the fact that the new building is not an annex or part of Citicorp, structural elements of the skin are silver-green aluminum, glass is a light blue-green, and spandrels are glazed "shadow boxes," backed (six inches behind) by white panels for a sense of depth and sparkle similar to that of the windows. As Barnes comments, "One reads a structural rhythm, and everything between—windows and spandrels—is somewhat illusive." That resulting ambiguity of what is window and what is not, visually forms a transition from Citicorp's narrow regular bands to the motley fenestration of the other structures around. Effectively, it helps relate Citicorp itself to the neighborhood.

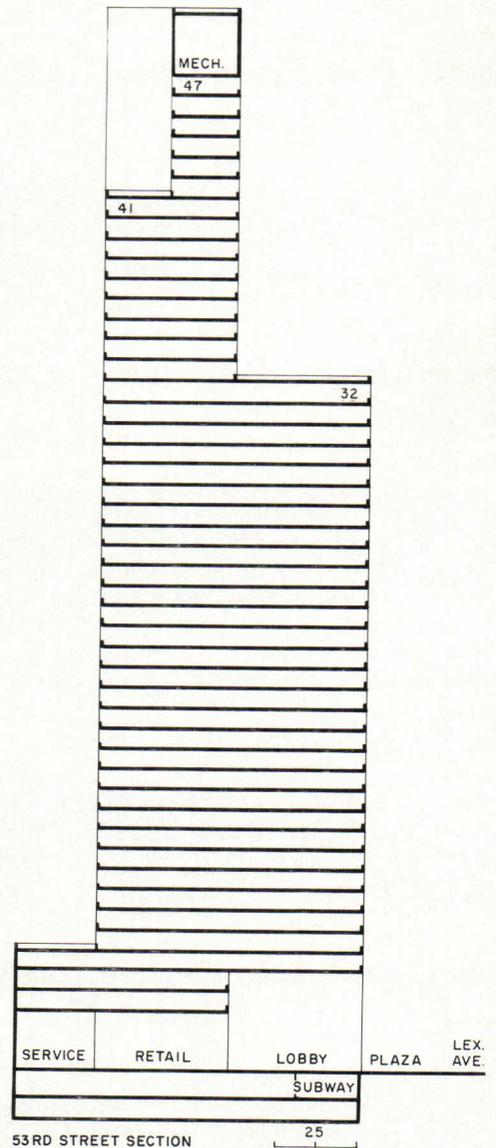
The angled corner plaza not only links visual space to the one at Citicorp, but closes the inset to reestablish the "building wall" at street level. Similar functions are achieved by the setbacks, with the lower levels aligning with other structures next door, and the upper floors of the tower with the Lexington Avenue facade of Citicorp. But 599 Lex is never a mere background building. The dramatic angles and prows created by the setbacks are proudly emphasized at night by lights from the various terraces, which make the building glow somewhat brighter than Citicorp. "After all," reason some of Barnes' staff, "it is a smaller building." And sometimes a smaller building, however elegant, needs a little help to hold its own. *Herbert L. Smith, Jr.*

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As is immediately seen in the photos at left and on the preceding pages, the unorthodox angles and setbacks of 599 Lexington Avenue coalesce into a variety of strong and eye-catching, sculptural compositions—depending on one's angle of view. (Some perspectives looking up even mimic Citicorp's sloping top!) All this provides a pivotal or transitional function in the middle of a veritable Sweet's Catalog of curtain walls, setbacks, and zoning "trade-offs." The setbacks and alignments of 599 relate closely to adjacent structures, and the fenestration strikes a midpoint in complexity. The prow of the Avenue facade forms a sort of huge bay window, with views up and down the street. A main subway entrance is in a slant-topped glass kiosk in the plaza (far left); a second one is niched into the building and has an elevator (center left).



© Robert Miller



© Robert Miller



*From a glazed kiosk in the angled plaza (right), stairs lead down through a circular, stone-rimmed skylight to a bright and colorful concourse (above) linking major subway lines.*

*599 Lexington Avenue  
New York City*

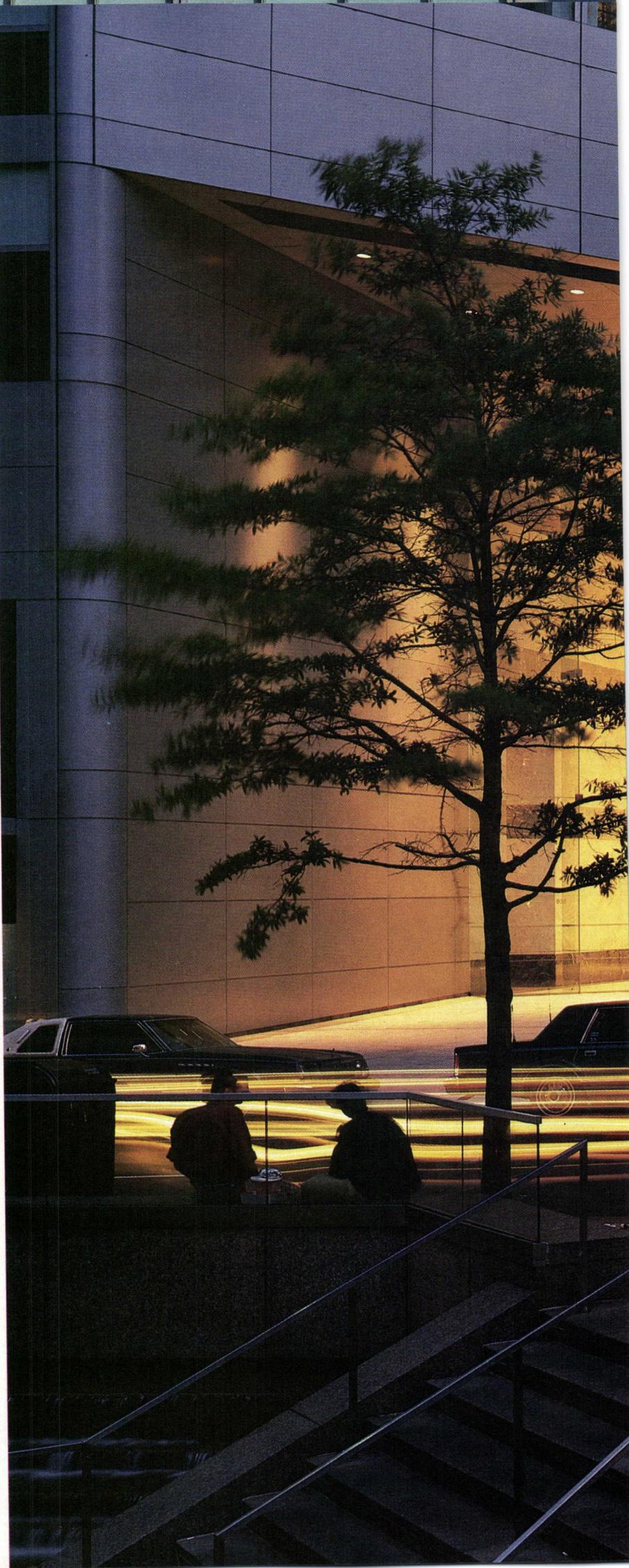
**Owner:**  
*Boston Properties, Inc.*

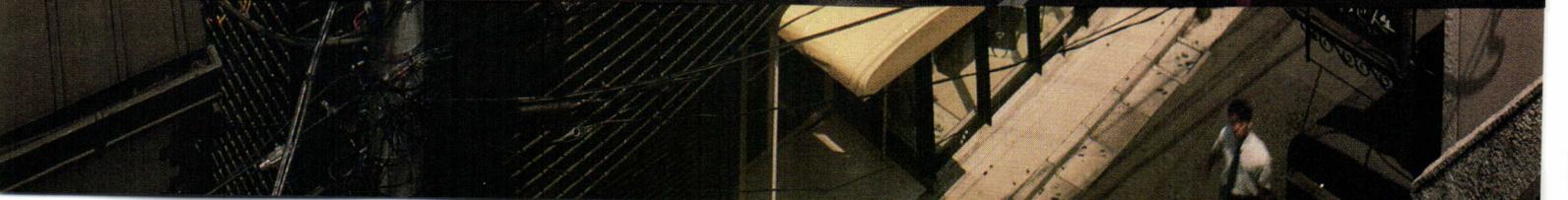
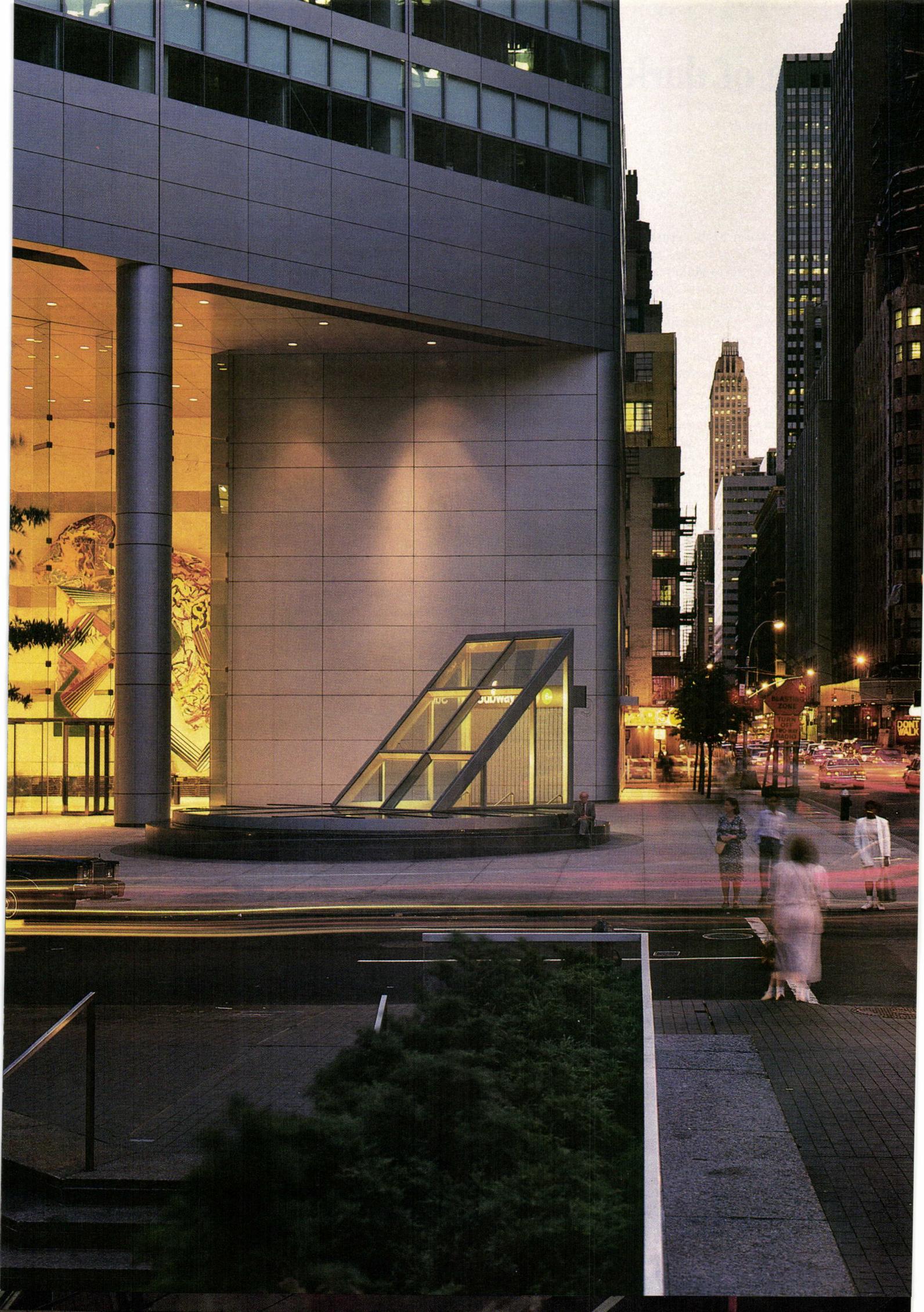
**Architect:**  
*Edward Larrabee Barnes Associates—John M. Y. Lee, principal-in-charge; Robert Segal, Siglinde Stern, Richard Ridge, Gajinder Singh (subway concourse), project architects*

**Engineers:**  
*Thornton-Thomassetti (structural); Jaros, Baum & Bolles (mechanical, electrical); Vollmer Associates (subway)*

**Consultants:**  
*Quennell Rothschild Associates (landscape); de Harak & Associates (graphics, tower); Chermayeff & Geismar Associates (graphics, subway)*

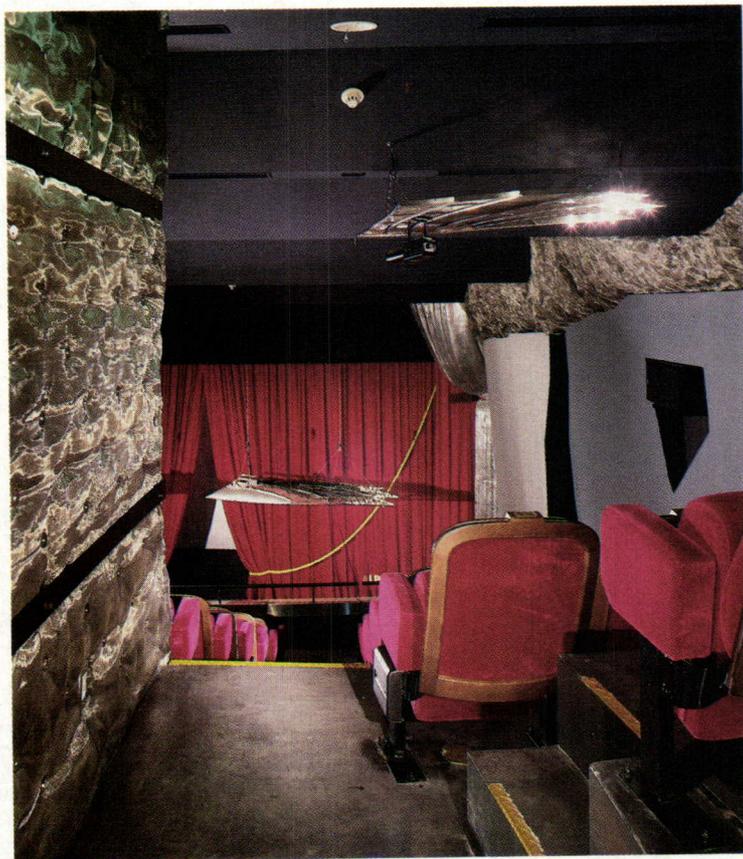
**General contractor:**  
*HRH Construction Corp.*



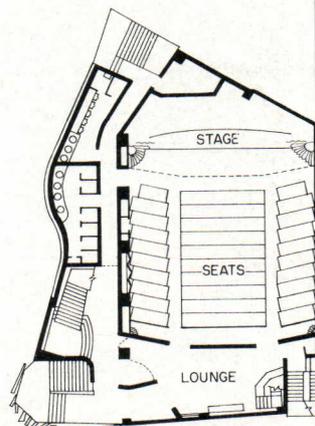


# Rise

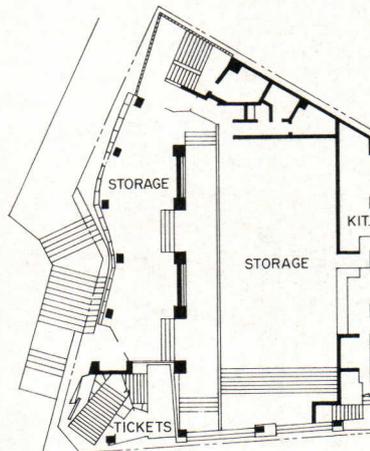
The wildly disparate forms on the exterior of Rise obscure a simple parti. The building's movie theaters and restaurant are contained in a rectangular volume, and are separated from the undulating wall along Spanish Alley by a circulation zone. The staircase that leads to the upper-story cinema (opposite) exhibits Kitagawara's penchant for the expressionistic, kitsch, and surreal: a gilt-framed mirror hangs in splendid isolation on concrete walls, and a flying stair above the landing leads nowhere. In the movie theater (top right), cast-aluminum curtains mock their velvet counterparts, and brushed steel panels on the balcony walls simulate tufted fabric, recalling the incongruous imagery of a René Magritte painting. The mirrored wings above the stage modulate light during intermission (right).



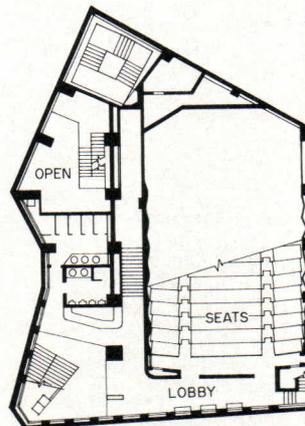
**Rise**  
 Tokyo, Japan  
**Owner:**  
 Taiwa, Inc.  
**Architect:**  
 Atsushi Kitagawara + ILDC, Inc. — Atsushi Kitagawara, principal-in-charge; Tomoyoshi Yonei, Toshihiko Yoshida, Toshihiko Mori, project team  
**Engineers:**  
 Ikeda Structural Engineering, Inc. (structural); Godai Engineering, Inc. (mechanical/electrical)  
**Consultants:**  
 Nippon Gakki Co., Ltd.; Architectural Acoustic Laboratory (acoustics)  
**General contractor:**  
 Ando Construction Co., Ltd.



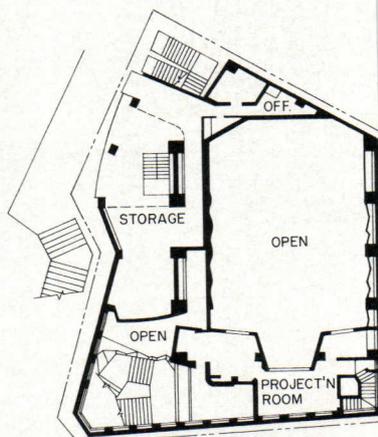
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THE LOVE STORY  
1992年10月1日  
東京都立美術館  
東京都立美術館



"I always propose underground spaces to my clients, a concept which isn't easily accepted in Japan," says Kitagawara, who demonstrates the merits of subterranean living in his offices on 395's basement level. Lighted by a clerestory, the architect's double-height studio is divided from the adjacent drafting room by angled, floating partitions (opposite and below), and connected to the conference room above (top right) by a spiral staircase. To enliven the raw concrete surfaces, Kitagawara installed a painting by contemporary artist Toshimitsu Imai in the conference room (top) and brightly patterned screens of his own design in the spaces below. The Noh mask that hangs in the studio (opposite and cover) once belonged to the architect's father, a prominent poet of the traditional Japanese school, who encouraged Atsushi Kitagawara's own interest in literature. Spotlit in a place of honor, the mask symbolizes the younger Kitagawara's art of concealment.

395, Tokyo, Japan

**Owner:**

Toyoko Okuno

**Architect:**

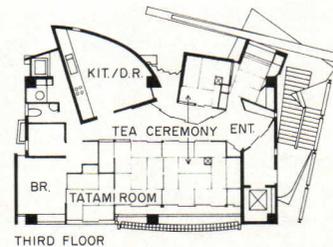
Atsushi Kitagawara + ILCD, Inc. — Atsushi Kitagawara, principal-in-charge; Yoshihiro Shinke, project architect

**Engineers:**

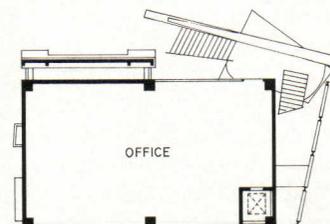
Ikedo Structural Engineering, Inc. (structural); Godai Engineering Office, Inc. (mechanical/electrical)

**General contractor:**

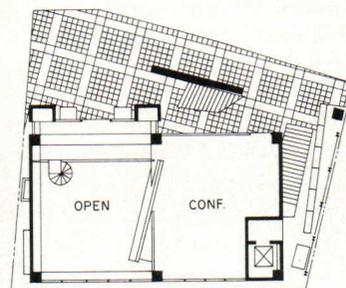
Moriya Shokai, Inc.



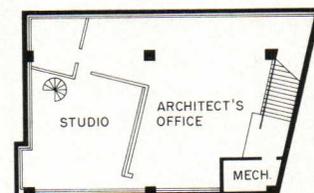
THIRD FLOOR



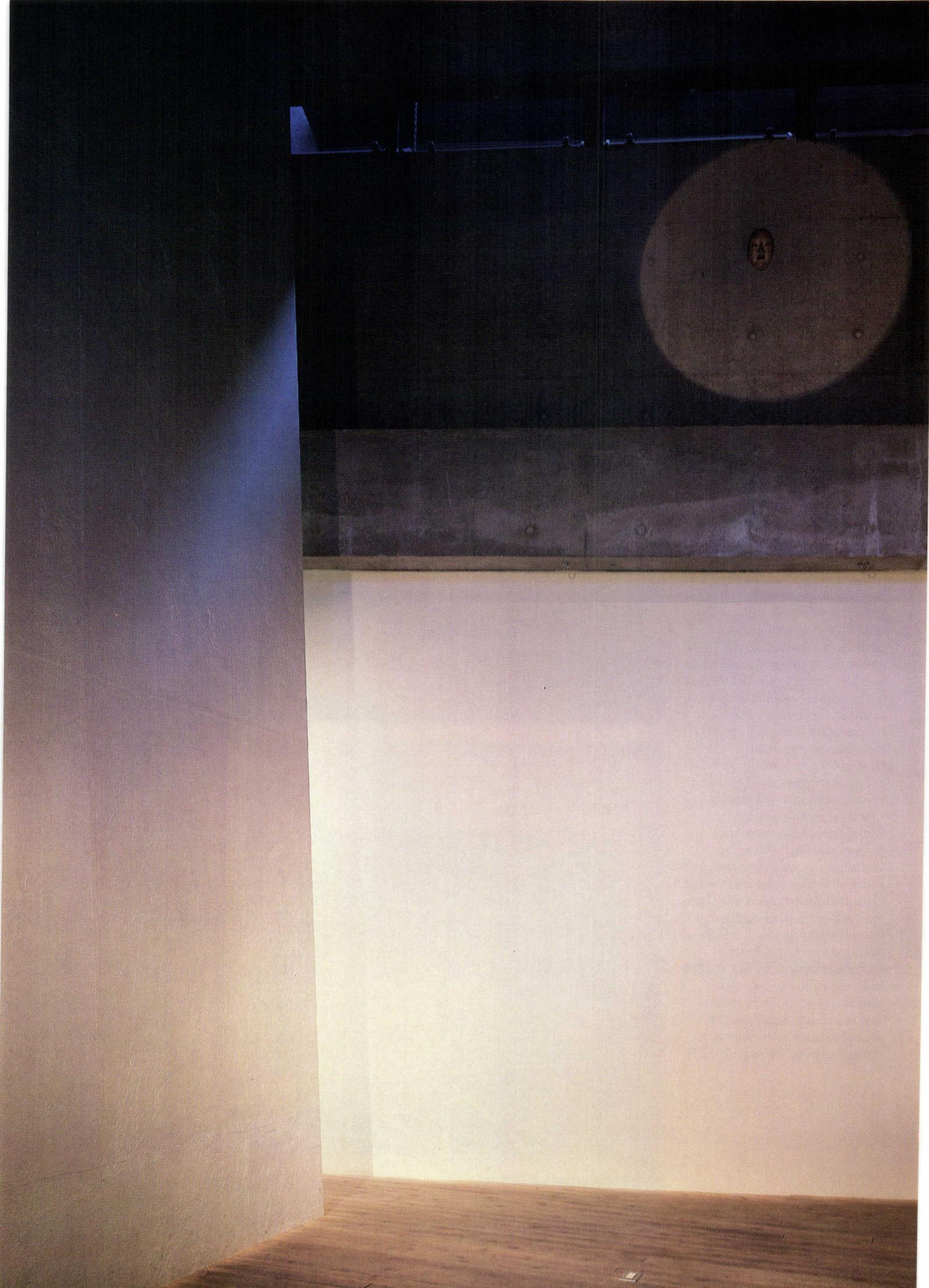
SECOND FLOOR



FIRST FLOOR

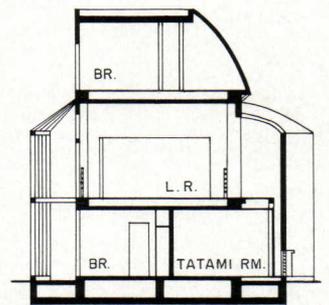
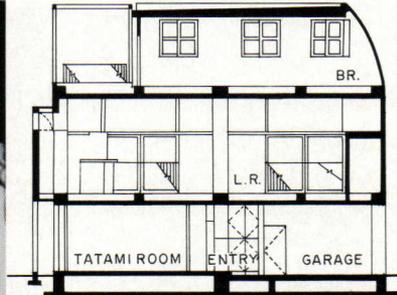


BASEMENT



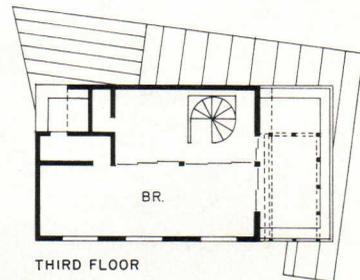
# Kamera

In honor of his clients, a young photographer and his family, Atsushi Kitagawara dubbed his most recently completed project Kamera (also a play on the Italian word for room, *camera*). The focus of the three-story house, located south of Tokyo in the Chiba province, is a sunlit, open space on the second floor, which is used as a living/dining room and photographic studio. Surrounding the simple rectilinear room are a series of vaulted accretions, which conform to the angles of the site, and contain the main staircase, bedrooms, and tatami rooms. Although Kamera conveys a more straightforward image than the outlandish Rise building, it too reveals Kitagawara's fascination with additive forms arranged to conceal, yet draw attention to, a building's uppermost spaces. The architect has emphasized the central concrete volume of the house as the anchor of his fragmentation by peeling away the surrounding wood framework. As a result, the different wings of the building appear to be exposed in various stages of completion. Kitagawara achieves both privacy and daylighting by enclosing the primary rooms and stairwell in sheets of translucent glass that accentuate their shoji-like frames (bottom right), and the secondary spaces in off-the-shelf panels of perforated aluminum (opposite). The rooftop bedroom suite and adjacent terrace are shielded by metal-covered vaults, which assume the appearance of a camera shutter open to the sky. *D. K. D.*

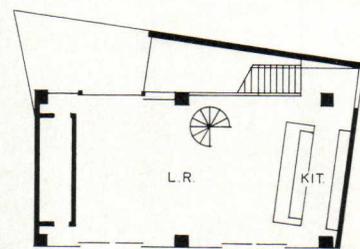




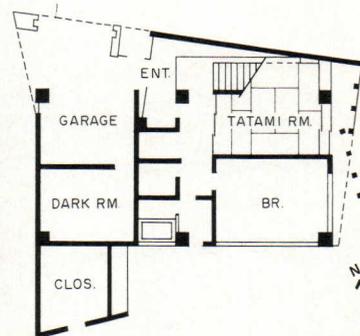
Light and air, precious commodities in Japanese dwellings, permeate the small spaces of Kamera. The centerpiece of the house is a combination living/dining room, flanked by shoji-like window walls, that also is used as a photographic studio (top right). Privacy in this main room is provided by curtains and a clerestory of translucent glass, a material that also encloses the entrance vestibule (bottom right). Kitagawara has detailed Kamera's simple concrete and wood-frame construction with characteristic precision, exposing a perforated aluminum-covered truss and ribbed vault in the kitchen (opposite). Both the dining-room table (top right) and floor lamp (below right) were designed by the architect.



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

**Kamera**  
Ichikawa, Japan

**Owner:**  
Masaru Mera

**Architect:**  
Atsushi Kitagawara + ILCD,  
Inc. — Atsushi Kitagawara,  
principal-in-charge; Kenta  
Nakanoh, project architect

**Engineers:**  
Matsumoto Structural  
Engineering (structural);  
Atsushi Kitagawara + ILCD,  
Inc. (mechanical/electrical)

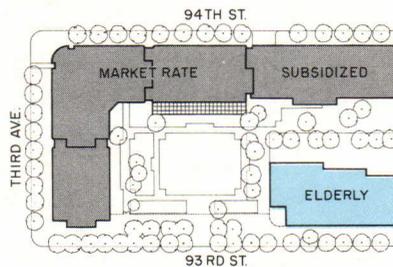
**General contractor:**  
Shin Komuten, Inc.



# Carnegie Park and Brown Gardens

The Carnegie Park complex, completed in 1986, marks Davis and Brody's—and Manhattan's—transition from subsidized middle-class housing to more luxurious upper-middle-class housing. Indeed, Brody calls it “the last hurrah of urban renewal.” The complex embodies the mix typical of the area, which in the days of the Third Avenue elevated train combined middle-class and blue-collar housing. Carnegie Park, built by The Related Companies, Inc., unites market-rate rental housing, which faces Third Avenue and turns the corner with a 30-story tower, and subsidized housing on East 94th Street (seen from the back at right in photo opposite bottom left). In addition, the site accommodates the more stringently budgeted Arthur B. Brown and Thomas Brown Gardens building, which contains housing for the elderly (opposite top right) sponsored by the New York Foundation for the Elderly. Happily, the two developers cooperated with each other, allowing Davis and Brody to design the projects as a coordinated whole around a *real* Manhattan luxury—an enclosed lawn.

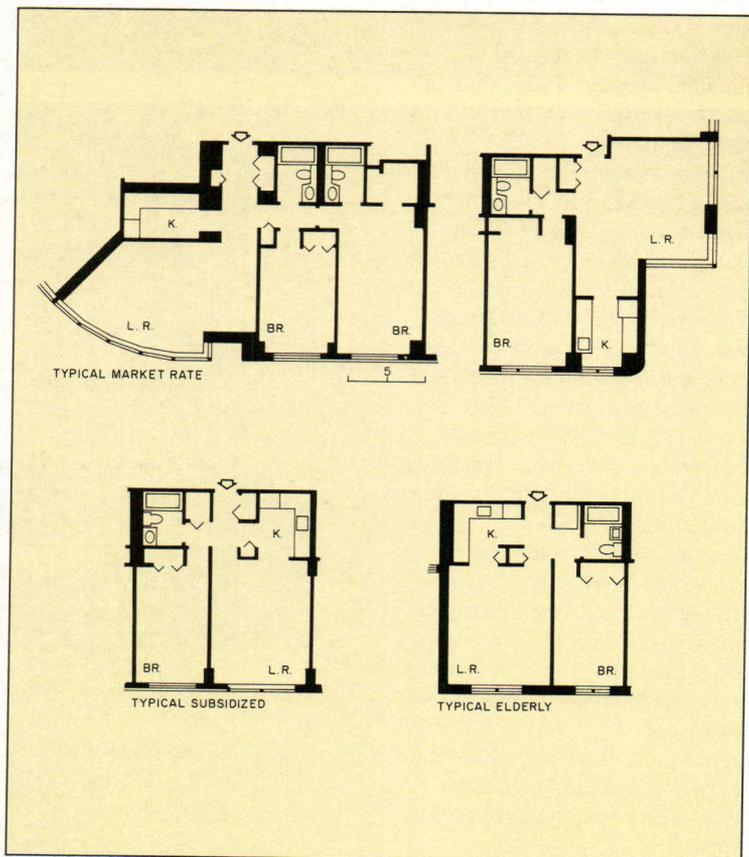
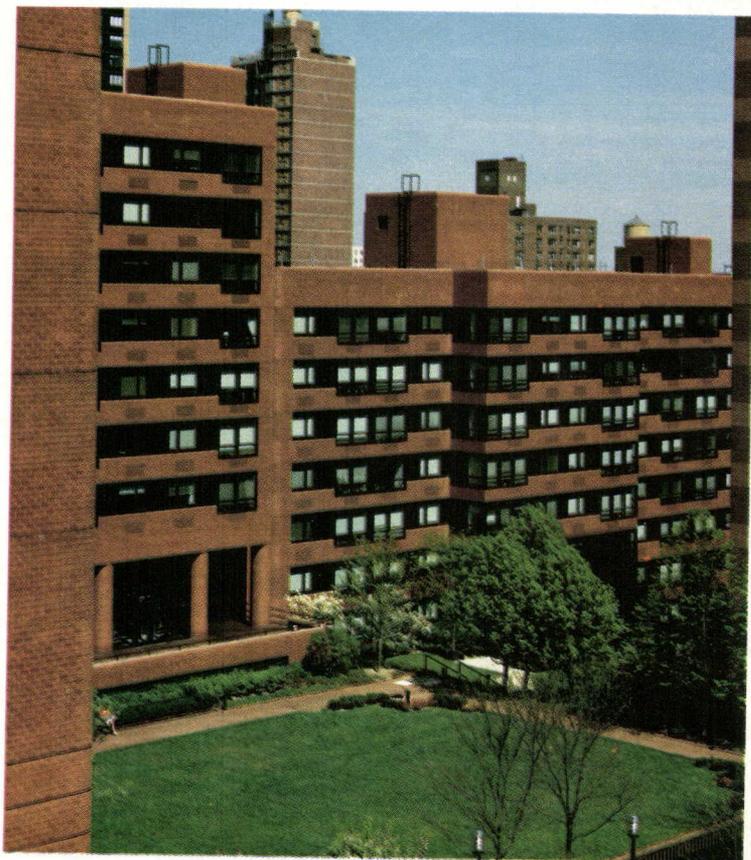
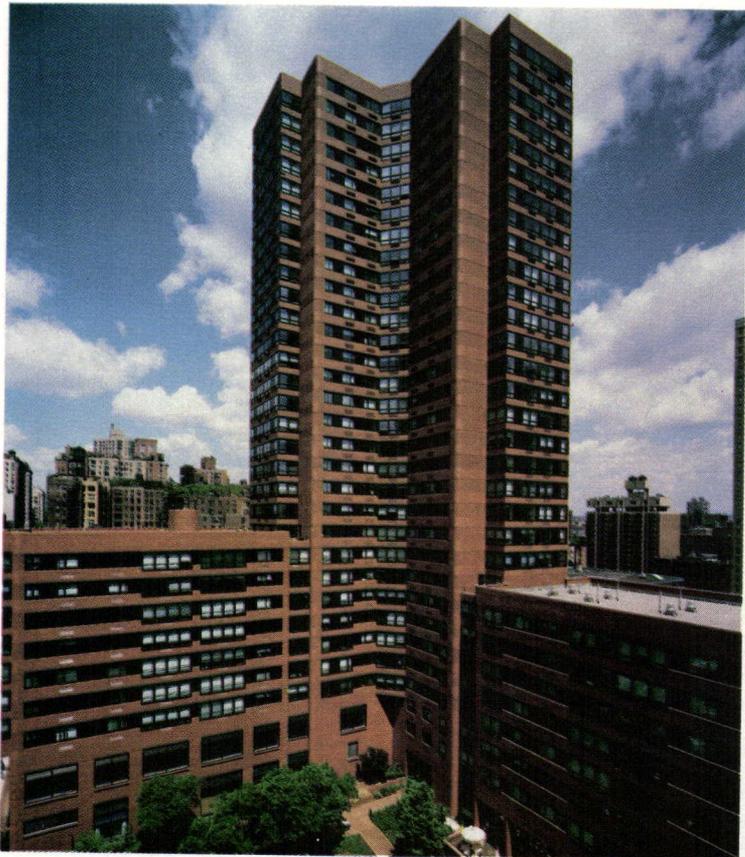
The walls of the complex's three components are subtly differentiated, from the shadowed stripes of vertically scored courses on Carnegie Park to the down-to-earth bearing walls of the Brown housing. But all are red brick to comport with other new buildings in the emerging neighborhood (including Davis and Brody's Ruppert Brewery housing two blocks south). Though in a sense the central lawn, overlooked by all three sets of apartments, is shared by all tenants, only the residents of Carnegie Park have pedestrian access. Residents of the Brown housing have a separate but adjacent patio downhill with a fine view of grass and trees. *G. A.*



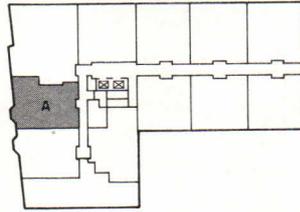
© Wolfgang Hoyt/ESTO photos

The three-part mixed-income complex, designed for two developers, includes three types of rental housing: market-rate apartments in the corner tower and the mid-rise wing facing Third Avenue (opposite), subsidized apartments in an attached wing (bottom left, at

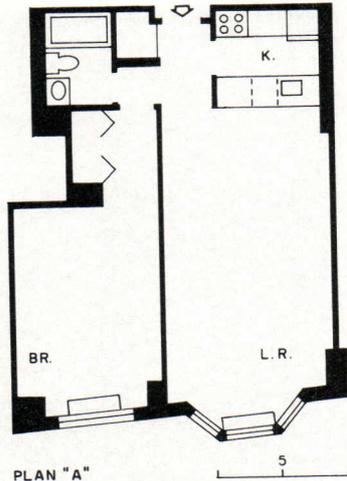
right), and separate low-cost housing for the elderly (top right). While the exterior is accordingly better or less-better finished and the economic hierarchy is discernible, the architects purposely blurred distinctions to favor a coherent appearance.



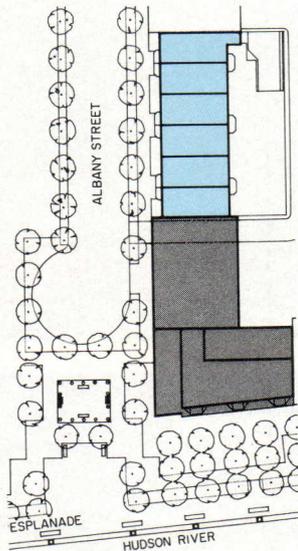
# Hudson Tower, Battery Park City



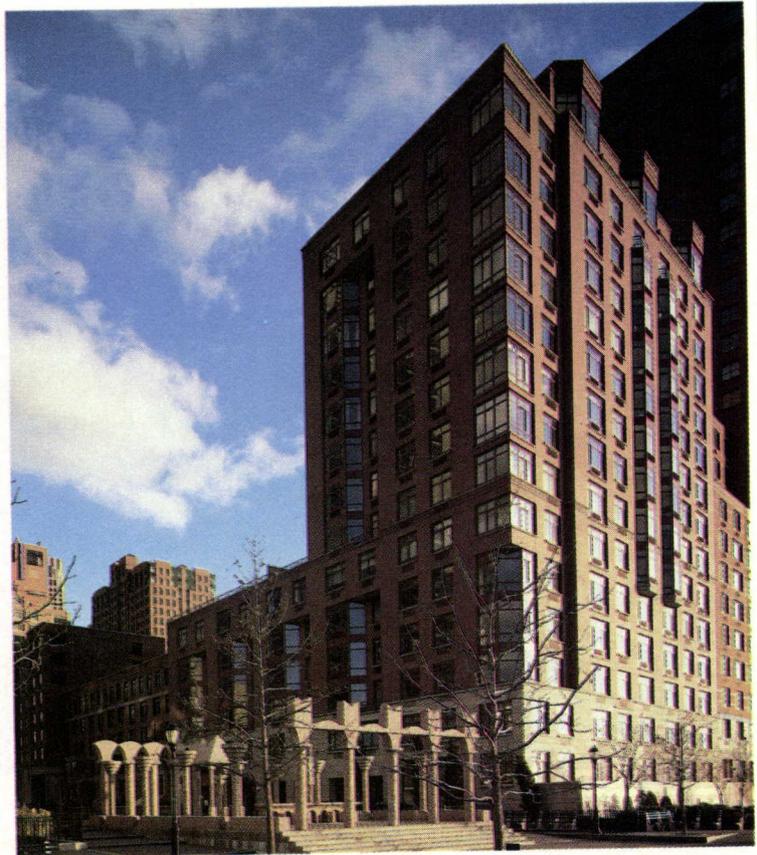
Battery Park City is not gentrified Manhattan but an entirely new neighborhood built on land that didn't even exist 15 years ago. A large number of office buildings and apartment houses now occupy a 92-acre landfill along the southern tip of Manhattan between West Street and the Hudson River. The architectural context may be a potpourri of '80s high style and glitz, but this is unmistakably a *neighborhood*. And it possesses a neighborhood treasure in the form of a riverside esplanade that New Yorkers immediately took to their hearts.



Though the site for Hudson Tower—a tower with 135 co-op units and six adjacent town houses—with its splendid river views, recalls that at Waterside (pages 126-127), Davis and Brody treated it quite differently: not an imposing complex proudly standing alone on the shore, but an intimate enclave on a vehicular dead end. Moreover, the apartment house and the adjacent town houses, all developed by the Zeckendorf Company, Inc., create an ineluctable Manhattan streetscape—the stone-based brick building, the red marquee, the town houses' stone steps and porches. The buildings' scale also echoes Manhattan streetscapes, with a tall tower on the major thoroughfare (the Hudson River) and low houses midblock.



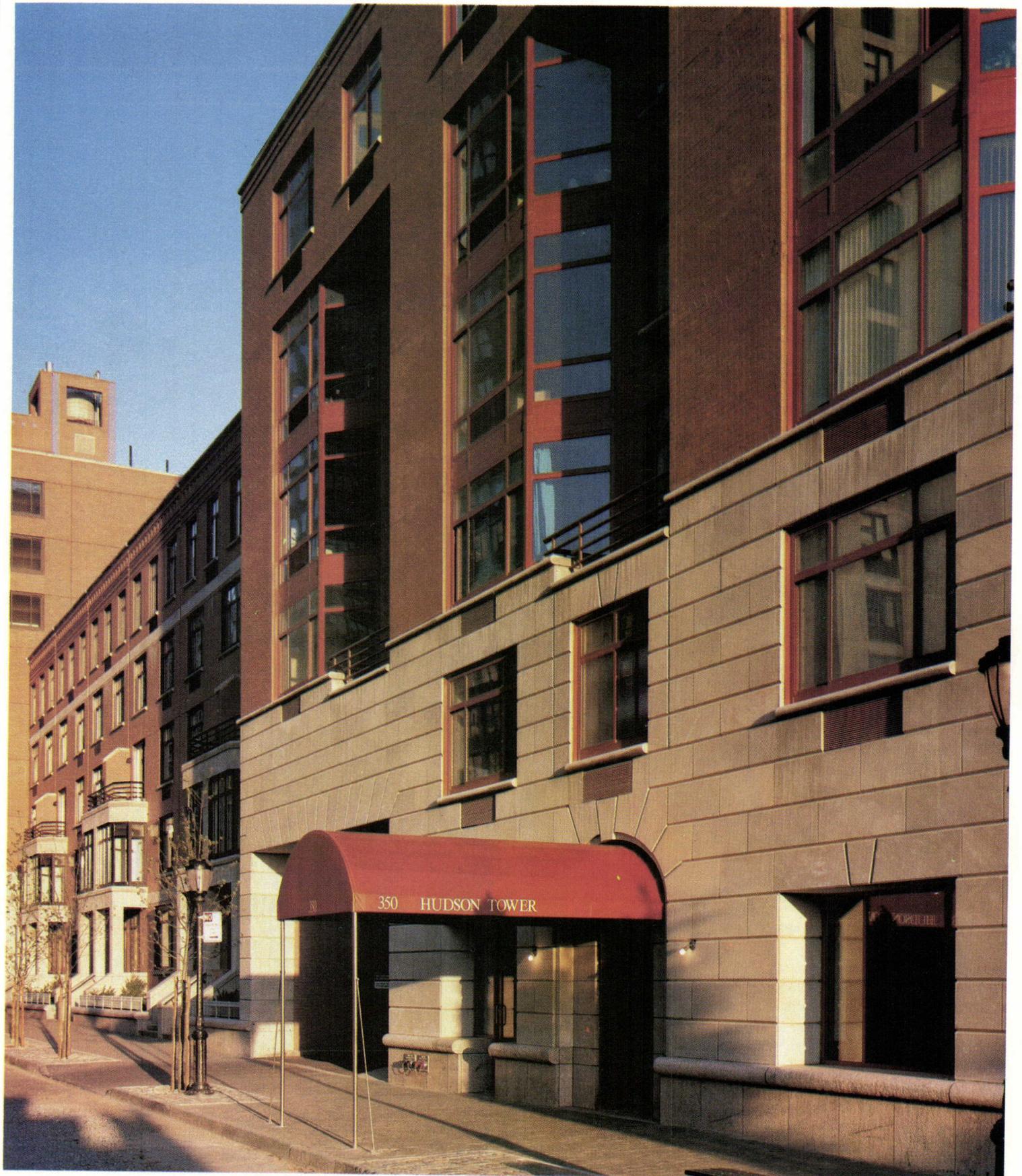
Though the speculative development contains privately owned co-ops, the public, through the Urban Development Corporation, imposed a strict regimen of design guidelines and approvals. Among the requirements was a granite base of uniform height on all facades bordering the esplanade. Davis and Brody wrapped the granite around the street facade, too, as a rusticated stone base supporting a brick superstructure, thus furnishing a composition familiar on residential streets. G. A.



© Wolfgang Hoyt/ESTO photos

*To take maximum advantage of the views, bay windows look up, down, and across the Hudson River (plan opposite). On the Albany Street facade, however, apartments get only two-thirds of a bay window (below), the angled pane commanding a view of the*

*river. The town houses, at only four stories, have full bay windows on top of their porches (opposite bottom)—again, a typical Manhattan device. At the end of the street, a many-columned sculpture by Ned Smyth marks a belvedere (opposite top).*

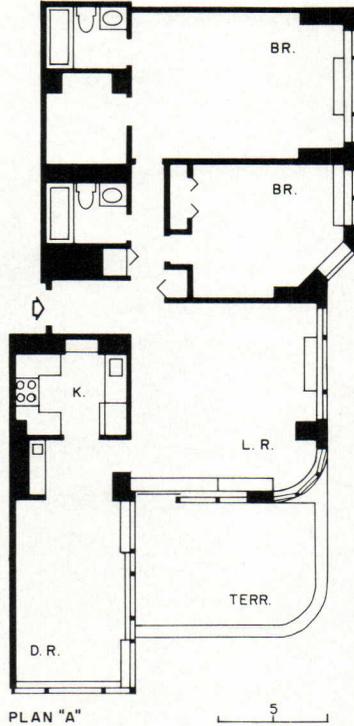
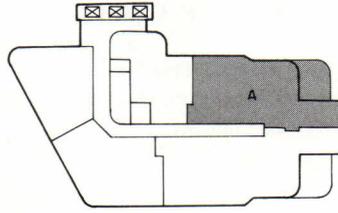


# The Copley

The Copley exemplifies a newly resuscitated—and updated—Manhattan building type: the luxury apartment on upper Broadway, a type moribund since well before World War II. An assortment of factors has encouraged this construction activity—among other things, the city's stimulation of building on the West Side, the powerful presence of Lincoln Center's theaters and concert halls at 65th Street (three blocks south of the Copley), and, of course, Manhattan's insatiable appetite for housing, affordable or not. Over the last couple of years, observers have remarked upon, even welcomed, this revival of a tradition dating back to the 19th century.

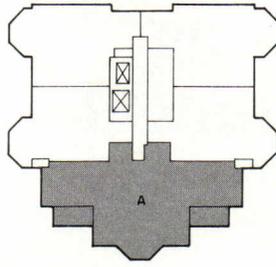
The Copley, designed for the Zuckerman Company, Inc., and now nearly complete, is in many ways the most conventionally sited of Davis and Brody's designs as seen in this study. A site on a major north-south avenue (Broadway qualifies despite its diagonal orientation) is normally built to the edge of the sidewalk and lives cheek by jowl with existing buildings; whether these buildings are architectural landmarks or unsightly services, they all have and exercise valid claims to their turf. Here, the site included two existing buildings—a church, in whose air rights the 150-unit limestone tower is built, and a supermarket, whose upscaled version now occupies the base of the Copley.

Even on a constricted site along upper Broadway, however, Davis and Brody contrived to indulge their concern for the tenant's visual release to the outdoors. Thus the windows on the Broadway facade have the benefit—unusual in Manhattan's orthogonal urban grid—of a diagonal view toward Lincoln Center to the southwest, while the cascaded windows at the back (right) look east toward Central Park. *G. A.*



© Wolfgang Hoyt/ESTO

# Central Park Place

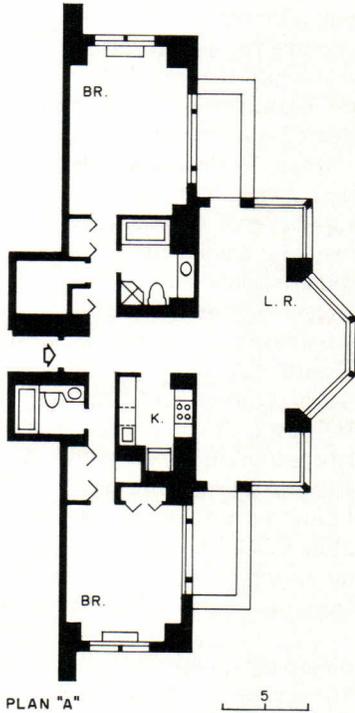


The gray aluminum curtain wall on the tower at Central Park Place epitomizes the distance New York City, Davis and Brody, and housing have traveled in 20 years. The partners, though by no means ashamed of this design, talk rather wistfully about the satisfactions of designing affordable family-oriented housing.

Their work these days, Davis says, is "called 'luxury' housing, although because of budget constraints the room sizes are not always luxurious." But one must remember that the definition of luxury has changed a lot in 20, let alone a hundred, years. Apartment dwellers do not often have large extended families, and they neither expect nor want servants' quarters. Luxury is parking space, a Jacuzzi in the bathroom, and a health club on the premises.

An unarguable luxury here is the view. Davis and Brody's luck with scenery holds—the East River, the Hudson River, and now Central Park. The angled turrets on the north face of the building (right) command a sweeping view of much of Olmsted and Vaux's landscape, as well as of the luxury apartments on Fifth Avenue. Because the vista is oriented diagonally across Columbus Circle, even gigantic development on the circle should not interrupt the prospect.

The apartment tower at Central Park Place is also the first housing for which Davis and Brody have used a curtain wall, a facing more typical of steel-framed offices than concrete-framed apartment buildings. The architects offer as reason for this departure from the norm the desire to speed construction, the developer's resistance to glass walls seen on other luxury apartments, and their own architectural wish to reduce the apparent weight of a very tall apartment house. G. A.



Jack Horner composite photo

# Roofing: a pressing need for commitment

By far, the leading source of malpractice claims brought against architects is for the premature failure of roofs. As claims continue to mount, so do architects' concerns for the ever-more sophisticated roofing technology at their disposal. Fortunately, architects do not stand alone. Most roofing contractors and manufacturers of roofing products share the architects' concern to give the building owner a roof that is appropriate and long-lasting. Indeed, it is imperative that all segments of the industry work together, and it is hoped that architects will come to take the leading role.

Acquiring the knowledge and skill to design, specify, and oversee the construction of sound roofs is not difficult, although it is initially time-consuming. The principles of good roofing have remained unchanged over the years. These principles are widely published in textbooks, pamphlets, and magazine articles, and are often outlined in manufacturers' product literature. To go beyond roofing basics, field experience and attendance at continuing-education sessions may be necessary. For the latter, a number of outstanding courses are conducted throughout the country and are open to practitioners. Best known is the Roofing Industry Educational Institute (RIEI) centered in Denver. A nonprofit educational corporation, RIEI was formed in 1979 by concerned individuals throughout the industry—architects, contractors, manufacturers—troubled by the current levels of roofing failure and litigation. The eight courses they have developed are offered throughout the United States and Canada. Another organization with an educational mission is the National Roofing Contractor Association (NRCA). It holds conferences on new roofing and reroofing throughout the year. To date, virtually all of the NRCA's programs have a contractor-oriented focus, but this may be more an advantage than a disadvantage to the architect. The major manufacturers of roofing components are heavily committed to research and education, and many offer training to the designer. One of particular note is BURS I (Better Understanding of Roofing Systems Institute), sponsored by the Manville Corporation. Regrettably, in recent years the AIA has not been allocating sufficient resources to technical education through its Professional Development Program, nor has it been involved in roofing research. Modest signs of a policy change are surfacing, however.

*Approximately one-third of the average building envelope is its roof. Because roofs endure more environmental and mechanical abuse than any other portion of the building envelope, they are particularly vulnerable to failure. Architects,*

The AIA will be joining forces with the NRCA to produce a series of audio-visual tapes that are scheduled for release later this year. It is hoped that the AIA will lose no further time in recognizing the grave need to improve roofing design, and make roofing-related educational material more readily available to its members.

Ironically, building owners do not seem adverse to spending their money on roofing, particularly after the benefits of a superior roof are compared to potential (if not inevitable) loss resulting from a mediocre system. On an average, roofing costs comprise only 2 1/2 percent of a building's overall construction budget. Convincing a client to hold that level of expenditure, or even increase it by 1 percent, would serve both the client and the liability-vulnerable architect very well indeed. As architect Robert Galloway, referring to roofing-design experience gained at Hellmuth, Obata & Kassabaum, explained, "In starting a project, I have often said to an owner that there are a lot of things we're going to do right; for one, we really want to give you a good roof. I have never found a client who objected to that. In fact, I have often told clients that the roof is a good place to spend a little more money, not a good place to compromise—I've never encountered a lot of resistance to that point either."

## Single-ply roofing

There is no single roofing material or system that is right for all buildings—not even for all minimum-slope commercial/industrial roofs. Regional climate patterns, local atmospheric conditions (particularly with respect to chemical pollutants), locally established construction practices, and use-patterns are among the design factors an architect must consider. Even though one of the major roofing types may be selected for a project—built-up roofing, single-ply, modified bitumen, metal—the generic details characterizing the system will need to be developed for an appropriate, site-specific application.

The general technical notes and drawings that follow pertain only to single-ply roofing systems incorporating EPDM membranes. Single plies have been selected for presentation because of their prevalence in the commercial-roofing market—in 1987, more than 50 percent of the dollars spent on roofing were for single plies—and because they are among the newest systems



1



2



3

*Single-ply systems are most often characterized by their method of attachment: mechanical (figs. 1, 2, 6), ballasted (fig. 3), and fully adhered. Of the two mechanical attachment configurations—linear (figs. 1 and 2) and spot (fig. 6)—linear more evenly*

*who at this time are unusually exposed to threats of litigation, need to take a more comprehensive, in-depth approach to roofing technology.*

available. Furthermore, a disproportionately high number of problems have been credited to single-ply roofs. (In 1986, from an ongoing NRCA data base known as Project Pinpoint, respondents reported observing more than 1,100 problems on 695 roofs. Problems with single-ply roofs were reported most often, accounting for 63 percent of the problem jobs described in the report.)

Among single-ply materials, EPDMs have the majority of the market share. EPDM is an elastomeric compound synthesized from ethylene, propylene, and a small amount of diene monomer. It is generally used as a vulcanized (also referred to as "thermoset") material. A distinguishing characteristic of a vulcanized elastomer is that it can only be bonded to itself by the use of an adhesive because, once cured, new molecular linkages cannot be formed. Used as a roofing material since the early 1960s, EPDM sheets range in thickness from 30 to 60 mil and are usually black or white in color. EPDM's properties of resilience, tensile strength, elongation, and hardness are largely retained in aging tests at elevated temperatures. Resistance is excellent to acids, alkalis, animal and vegetable oils, and oxygenated solvents such as ketones, esters, and alcohols. On the other hand, exposure to aromatic, alogenated, and aliphatic solvents should be avoided to prevent swelling and distortion of the membrane.

There are three system types for single plies, categorized by their method of attachment: ballasted, mechanically attached, and fully adhered. Ballasted systems, which are the most economical, hold the membrane to the building by using the force of gravity from loosely laid materials. Stones and masonry pavers are typically used as ballast (fig. 3, below). Mechanically attached systems comprise both membrane-penetrating and membrane-nonpenetrating techniques. All nonpenetrating systems are attached at points (fig. 6); penetrating attachments are made either in bands (figs. 1 and 2) or at points. Mechanically attached systems are particularly popular in southern regions where lightweight-roof construction is feasible. The fully adhered systems, arguably the best overall method of attachment, bond the single-ply membrane directly to the substrate. Of course, they too are lightweight, but costlier than mechanically attached systems because their application is more labor-intensive.

### Putting a system together

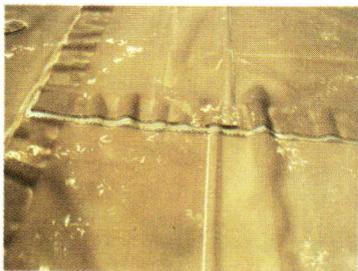
A roofing system starts at the deck. In its most basic form it consists of the structural deck itself, insulation, and the roofing membrane. For single-ply systems in most regions, a vapor retarder should also be incorporated. All components must be compatible if the roof system is to function properly. That, of course, is a design challenge which will necessarily involve research results from testing laboratories. Several manufacturers now offer pre-engineered systems. These are certainly worthy of consideration and have one particularly significant advantage: all components are covered under a single guarantee.

The jury is still out on single-ply systems. However, within the next several years, sufficient empirical data will take much of the guess work out of assessing the long-term quality of a system and its parts. As a proximate guide to alert the roofing industry of problem areas, in 1987, NRCA's Project Pinpoint conducted a study of single-ply roofs in which 794 problems were reported. The problems were categorized in the following way:

PROBLEM TYPE	% OF TOTAL PROBLEMS
Lap defects	24
Flashing defects	16
Shrinkage	12
Punctures	12
Embrittlement	7
Wind-related	5
Blistering	4
Other/combination	20

Most of the problems itemized above relate to application or misuse of materials. The drawings that follow highlight details that, for their given system, successfully address many of these problems. (Incidentally, these drawings embody a graphic standard that would serve all involved parties very well during the bidding and construction process.) Roof technology is a problem area for architects even though excellent roofing materials are available, the knowledge to successfully assemble them is accessible, and clients generally seem willing to cooperate. With so much at stake, how can architects afford not to take a leading role in roofing?

*Darl Rastorfer*



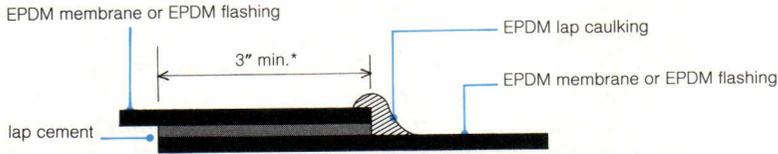
*distributes stresses caused by wind uplift. The non-penetrating attachment in fig. 6 shows the membrane movement caused by the wind, which can result in seam failure (fig. 4). Wind uplift can also redistribute ballast (fig. 5), leading to roof failure.*

# Seams for EPDM single plies

EPDM's are the most popular single-ply membranes in today's market. They are vulcanized elastomers, which means that once the polymers are cross-linked during manufacturing, they do not change. Therefore, EPDM's can only be bonded to themselves by

use of an adhesive. The exemplary seam details below incorporate caulking at edge-laps. Admittedly a "belt-and-suspenders" detail, given an architect's legal vulnerability in premature roofing failure, such careful measures are recommended.

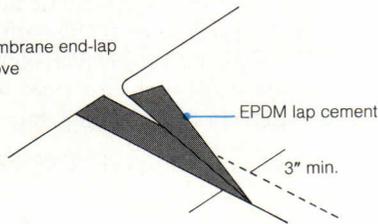
Drawings courtesy Manville Corporation



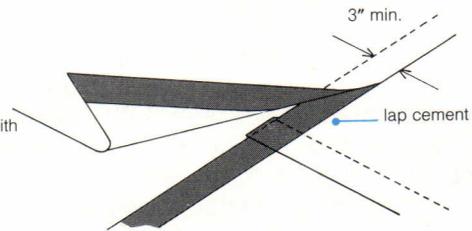
STANDARD ROOF LAP

\* FM class 1, 1-60 and 1-90 require 4" minimum for all cemented membrane field laps

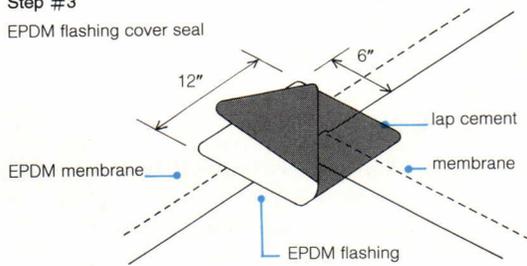
Step #1  
Standard membrane end-lap per detail above



Step #2  
Standard side-lap with adjoining sheet

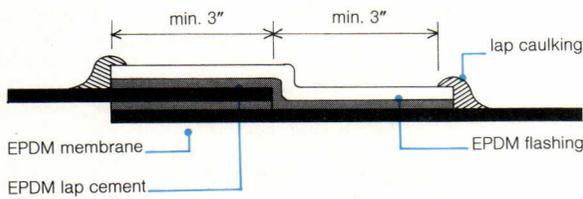
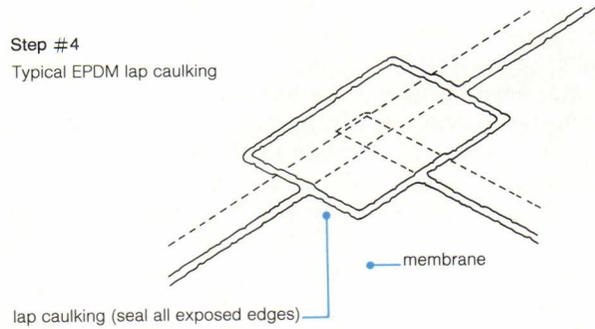


Step #3  
EPDM flashing cover seal

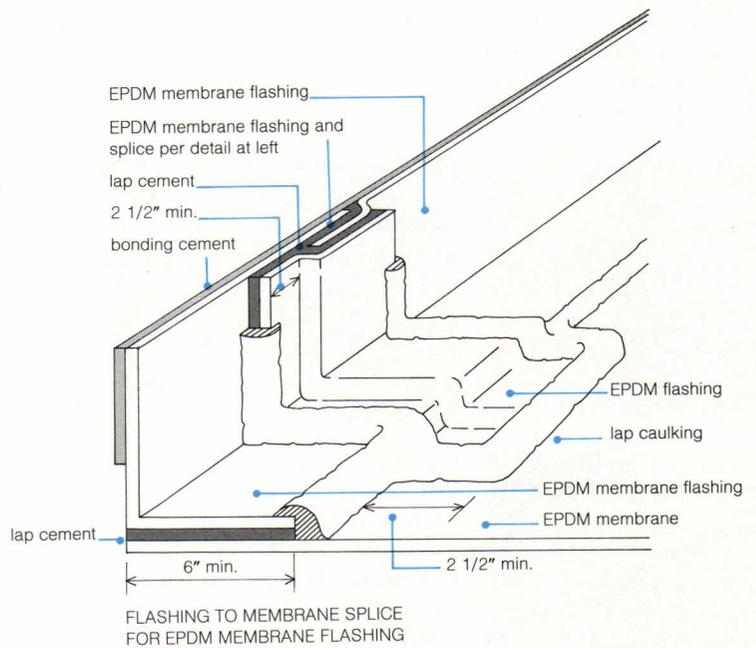


TEE SEAM INTERSECTION

Step #4  
Typical EPDM lap caulking



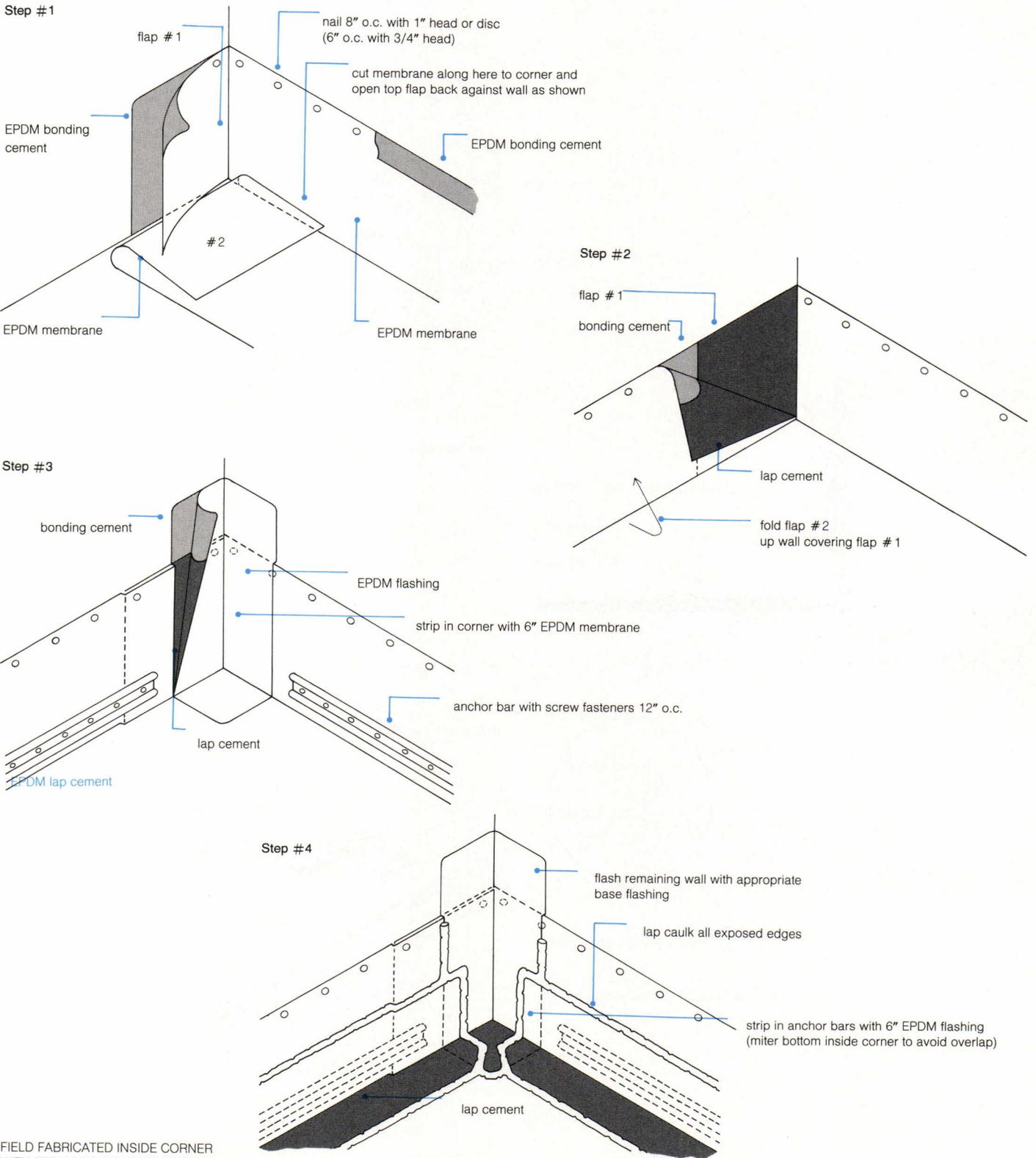
MEMBRANE LAP SEALED WITH EPDM FLASHING



# Field-fabricated inside corner

*Corners, penetrations, and terminations require exacting details, no matter what the roofing system. Making an inside corner using an EPDM membrane as the flashing material is shown sequentially below. Preparing a drawing series, to indicate a*

*construction process, is advisable whenever complicated cuts and laps are required for details made in the field. The inside corner detail incorporates an anchor bar for the base flashing. For full-base flashing detail, with anchor bar, see page 140.*

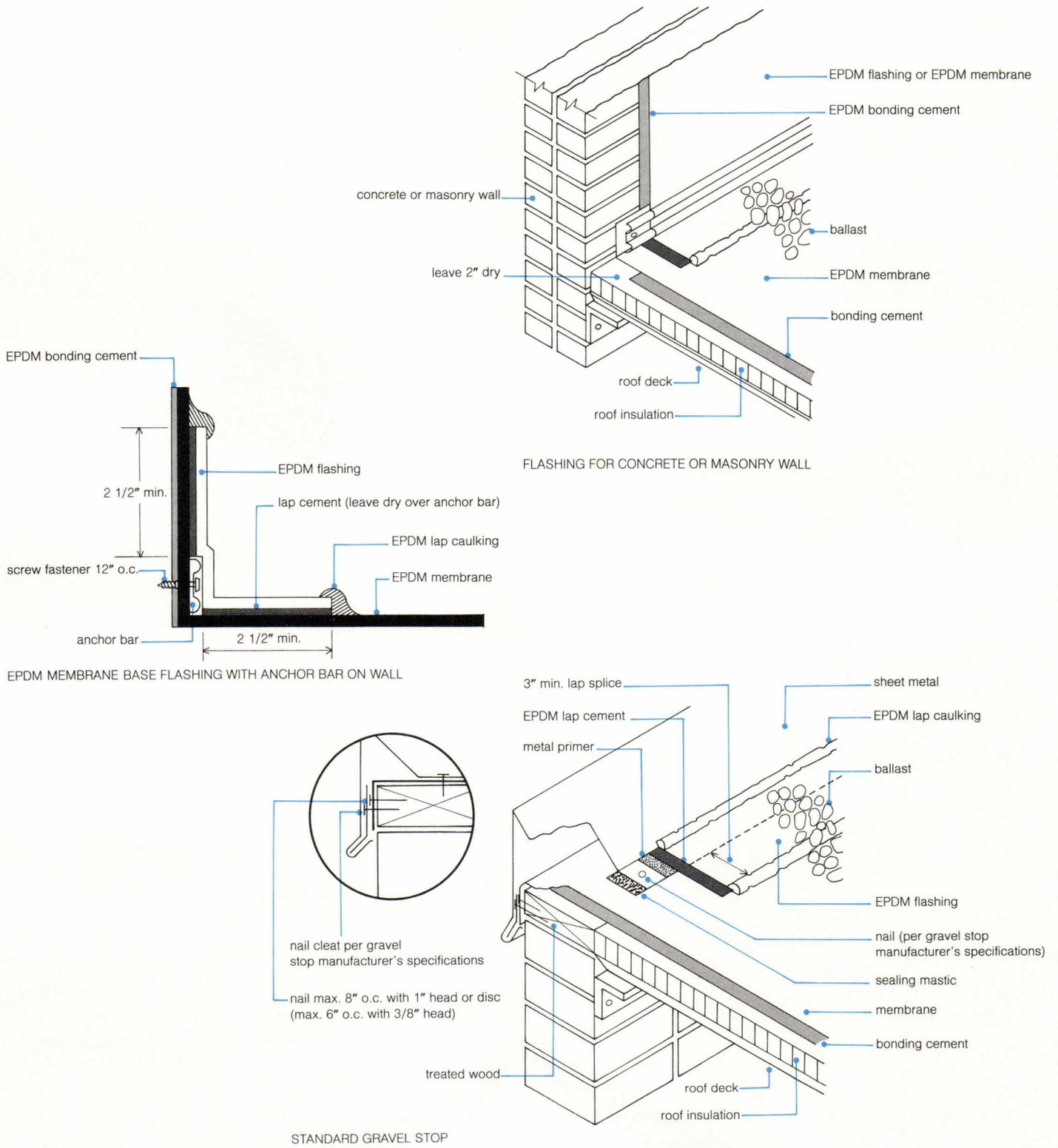


FIELD FABRICATED INSIDE CORNER WITH EPDM MEMBRANE FLASHING

# Roof-to-wall intersections

Flashing defects comprise a substantial portion of premature roofing failures. The details for single-ply systems shown below are competent designs for four common conditions: flashing where the membrane turns up to join a parapet wall; a gravel stop detail integrating a sheet-metal termination; flashing at an expansion joint where the deck is structurally independent of the building wall; and a simple drip-edge termination that approximates the details for gravel stops. These details, with the

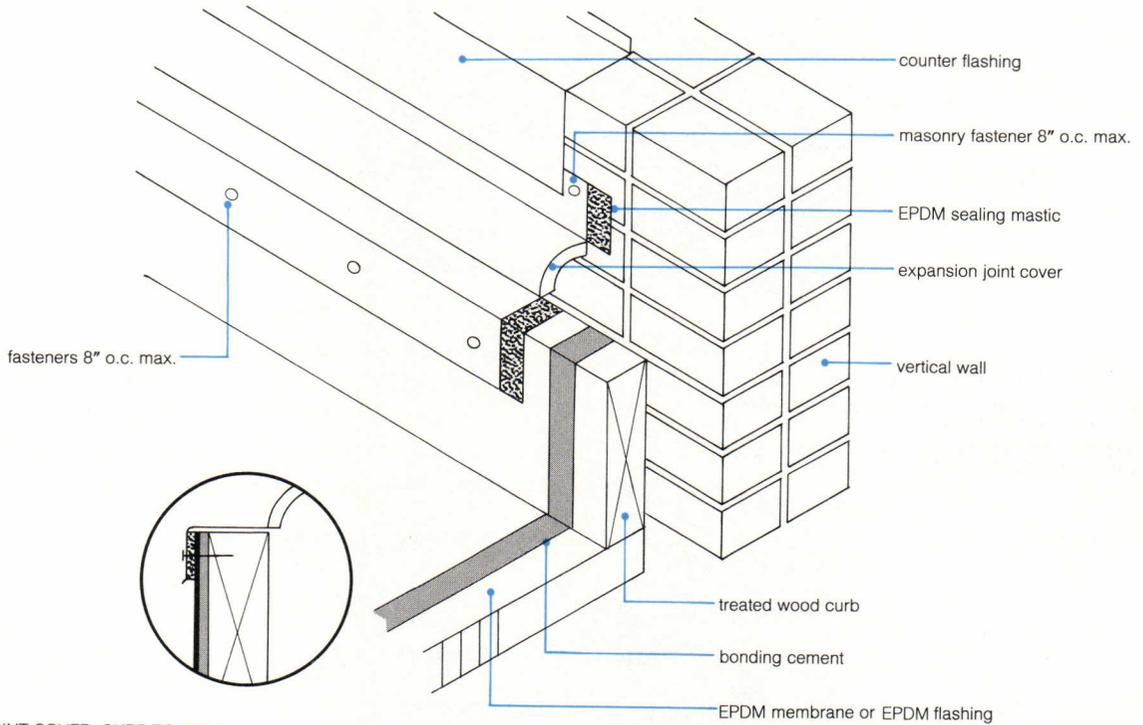
stop detail integrating a sheet-metal termination; flashing at an expansion joint where the deck is structurally independent of the building wall; and a simple drip-edge termination that approximates the details for gravel stops. These details, with the



exception of the expansion joint, should be used only on decks supported by the outside wall, a configuration which assumes that the deck and the supporting wall move as one. When movement occurs, as it will on a daily basis, the elastic properties of EPDM allow it to

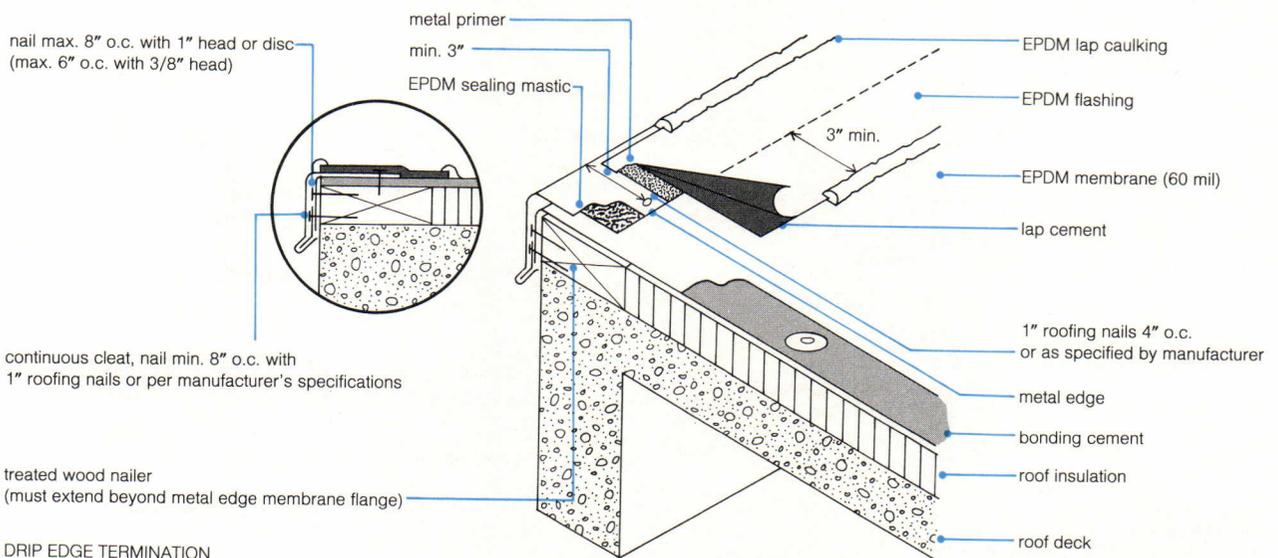
stretch and contract evenly throughout its cross-section. This will, of course, impose a moment couple (peel stress) at the membrane seams. All seams shown have been designed to accommodate peel stress. In these, as with all other details, specified lap

cements and caulks must be chemically compatible with the particular EPDM to be installed. It is recommended that lap cements be butyl-based (butyl-based cements are not affected by moisture).



EXPANSION JOINT COVER: CURB TO WALL

note:  
use with appropriate base flashing details



DRIP EDGE TERMINATION

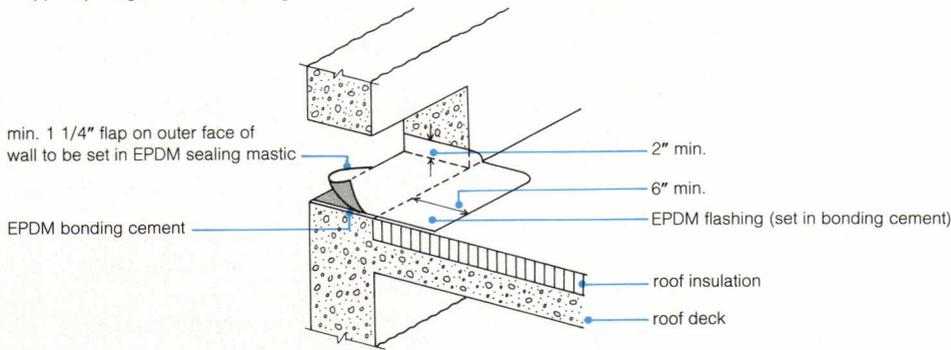
# Primary drain scupper with EPDM flashing

The three-step detail (left column below) and full section detail (below right) are appropriate for adhered (either fully adhered or plate-bonded) or mechanically attached single-ply systems. Naturally, these details are applicable only for decks supported by the

outside wall. The EPDM flashing used can be either cured or uncured. Uncured EPDM, in fact, cures in the field, and is more malleable than a cured membrane—a significant advantage when forming complicated configurations like the scupper drain below.

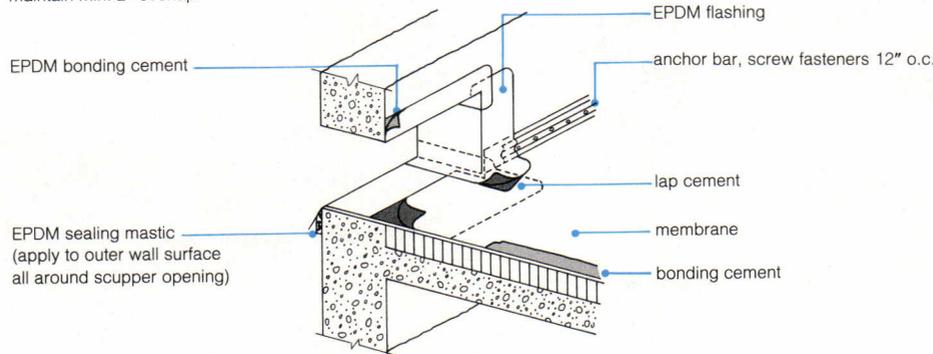
## Step #1

Line bottom and lower portion of scupper opening with EPDM flashing



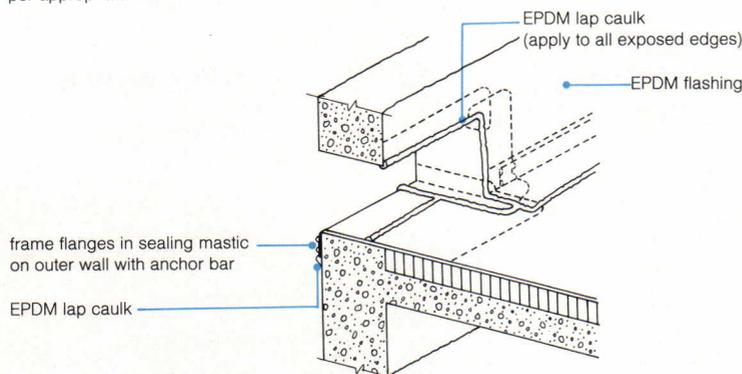
## Step #2

Position EPDM membrane and mechanically fasten at perimeter. Fasten to EPDM flashing with lap cement. Line sides and top of scupper opening with EPDM flashing, maintain min. 2" overlap.



## Step #3

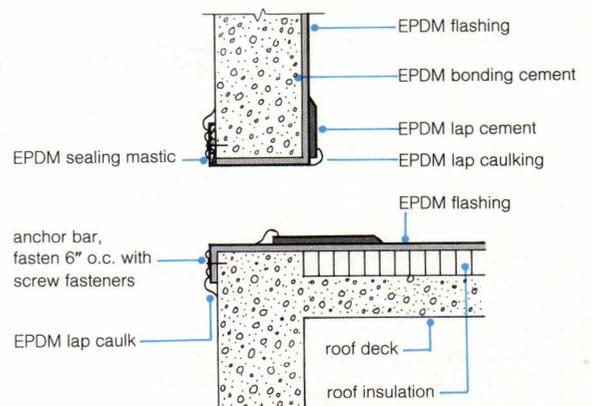
Flash wall with EPDM flashing per appropriate detail



### notes:

1. Use course section for rock retention with ballasted installations
2. Be sure to use EPDM bonding cement for attachment of flashing to substrate and EPDM lap cement for flashing to flashing or membrane

PRIMARY DRAIN SCUPPER WITH EPDM FLASHING

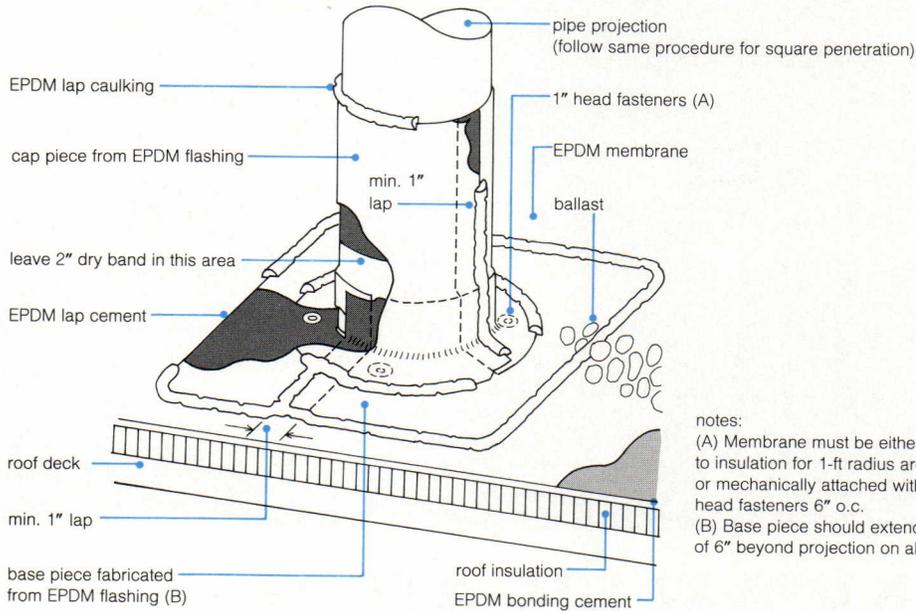


# Penetrations

EPDM penetrations around short pipe projections (top illustration below) should be flashed with an EPDM membrane to maintain the compatibility of all materials in the system. No projections should be located in valley or drain areas. The steel

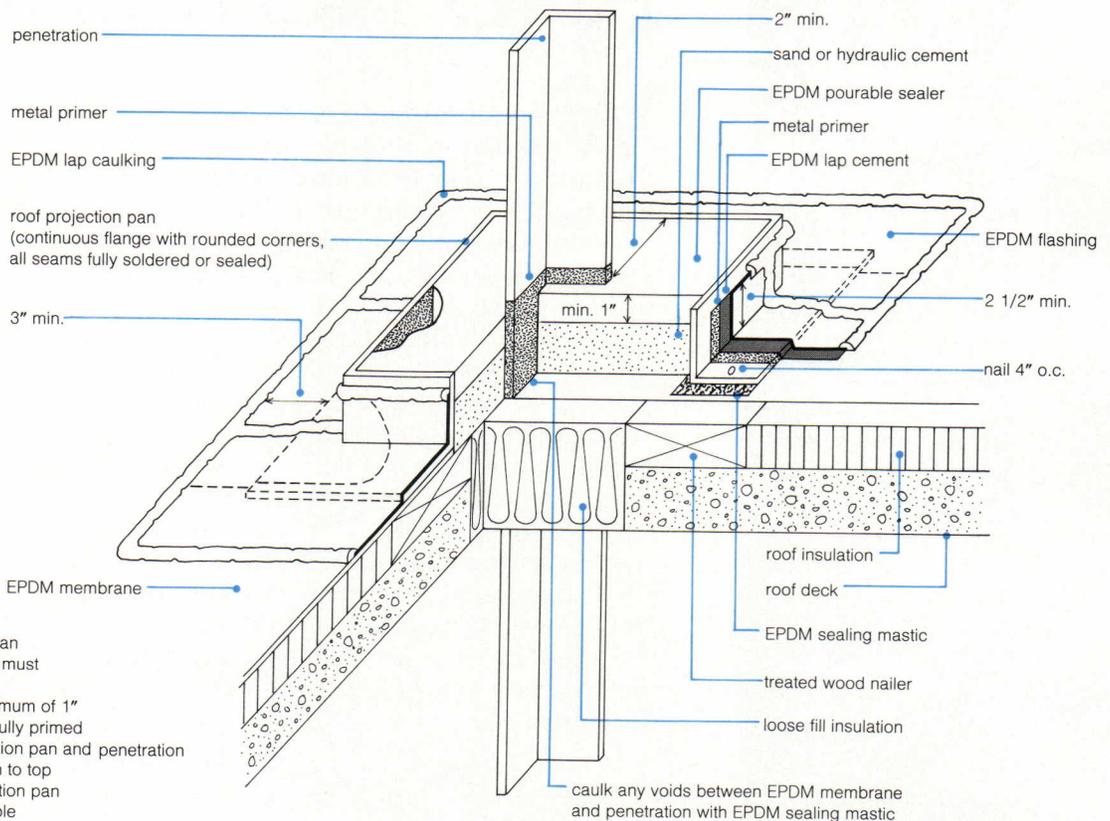
projection shown in the bottom drawing (a member typically used to support air-handling units or signage) incorporates a pitch pan. As a general practice, whenever possible, pitch pans should be avoided. However, when a projection is flexible, such as a

cable, or of an irregular shape and cannot be covered with a hood, a state-of-the-art pitch pan, such as the one illustrated, is recommended. The pan is attached directly to the deck. The poured sealer (a urethane) bonds to pans and projections.



notes:  
 (A) Membrane must be either fully adhered to insulation for 1-ft radius around projection or mechanically attached with min. 1" head fasteners 6" o.c.  
 (B) Base piece should extend a minimum of 6" beyond projection on all sides

FIELD FABRICATED PIPE FLASHING



Notes:  
 1. If vertical leg of projection pan is less than 3", EPDM flashing must extend up and over top edge and down inside of pan a minimum of 1"  
 2. All metal surfaces must be fully primed with metal primer (both projection pan and penetration)  
 3. Pourable sealer must fill pan to top  
 4. Flash corners of roof projection pan  
 5. This detail suitable for multiple penetrations through a single opening

ROOF PROJECTION PAN, FLASHING WITH NAILER



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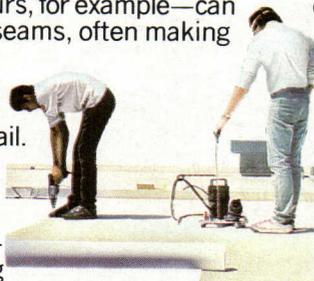
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# Software reviews for architects

By Steven S. Ross

## VersaCAD DESIGN 5.3

A high-end CADD program with 3-D, shading, and bills-of-materials processing included. This newest version (November 1987) allows multiple views of a three-dimensional object on-screen at the same time. Works smoothly with a variety of graphics boards, inputs, and outputs. Each drawing can have up to 250 levels of detail.

**Equipment required:** IBM AT or compatible, or 80386-based computer, PC-DOS or MS-DOS 2.1 or above (3.1 or above for AT); 640K, fast-access hard drive. Two megabytes of extended memory strongly recommended. A wide range of graphics adaptors is supported, from crude CGA to PGA, Hercules, and Targa boards. Can output to a wide variety of printers and plotters, from the crude (dot-matrix Epson MX or IBM graphics printers) to LaserJet, with excellent control of pen color, size, and shading. Digitizer strongly recommended for input; software can store any number of custom digitizer overlays. Versions are available for Sun, Apollo, Macintosh, and Hewlett-Packard UNIX-based workstations.

**Vendor:** VersaCAD Corporation, 2124 Main St., Huntington Beach, CA 92648 (714-960-7720).  
**Price:** \$2,995 for license to use on a single workstation.

*Steven S. Ross is past president of CCM, an educational software company in New York City, and now teaches journalism at Columbia University, where he also runs a large computing laboratory for students. He is often consulted on quality-assurance matters; his latest book, Construction Disasters: Design Failures, Causes and Prevention, was published by McGraw-Hill in 1984.*

### Summary

**Manual:** Good; most of the material is in the form of tutorials. **Ease of use:** Good. On-line help is clear. Most operations are menu-driven. **Error-trapping:** Excellent. Literally every change made in a 2-D drawing can be undone.

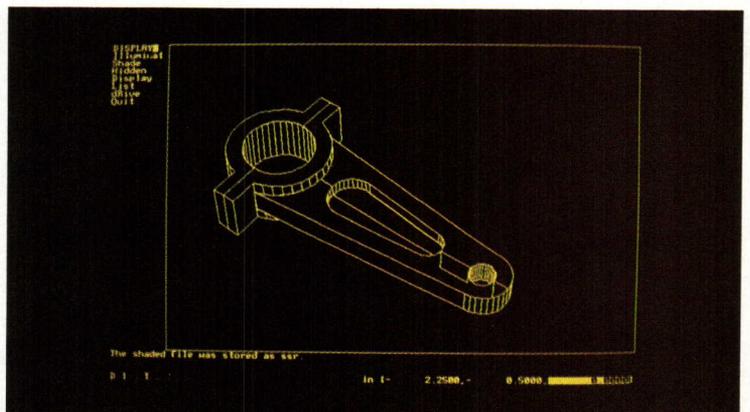
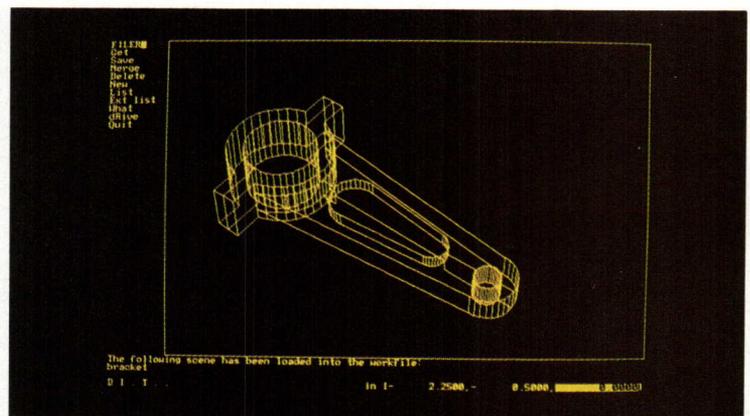
With version 5.3, VersaCAD, long number two to AutoCAD among architects, presents a strong competitive challenge. VersaCAD's prominent features include easy—almost intuitively easy—3-D modeling, portability of files to and from mainframe systems, and tight integration of shading and bills-of-materials processing.

All the features do not come without pain, however. The shading feature, while easy to use, doesn't quite have the flexibility of AutoCAD's \$500 add-in. It offers only one point

light source per scene (plus ambient lighting) rather than multiple lights, for instance, and focal length of the "camera" lens viewing the shaded object is approximated by choosing viewing angle and distance.

Shading and hidden-line removal take a long time, too, on a "conventional" IBM AT or clone with standard graphics cards such as the EGA or Hercules. In contrast, pans, zooms, and other 2-D manipulations, such as copying and rotating images in a plane, are fast—almost instantaneous.

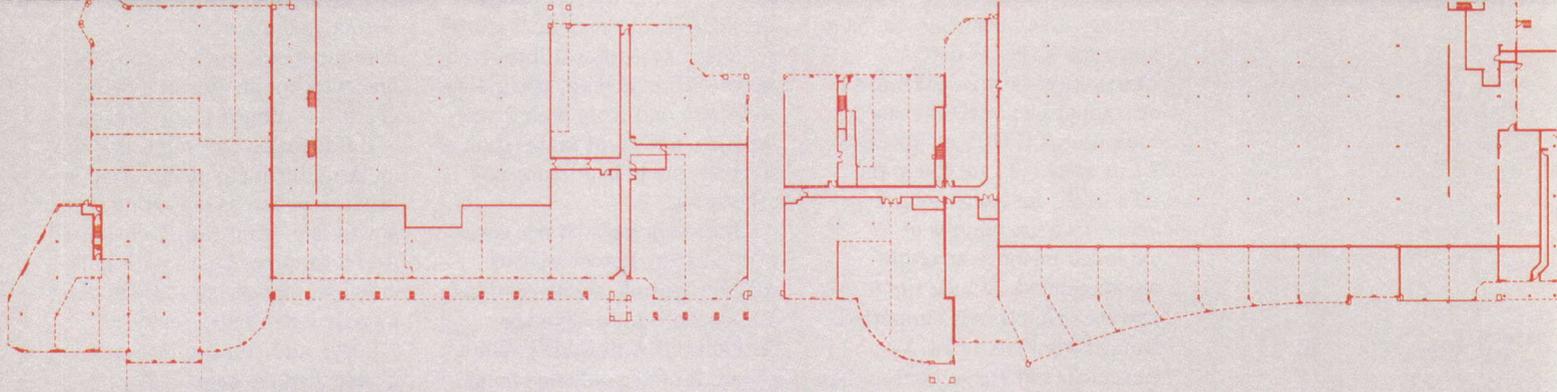
But speed is becoming less of an issue for many users. That's because desktop computing power is getting rather cheap. Add a graphics board with built-in image processing (\$2,000), two megabytes of extra memory (\$1,000), and you can increase  
*Continued on page 149*



Bracket with all lines visible (top) and with hidden lines

removed (bottom) using VersaCAD's new DESIGN 5.3.

# How to Go Shopping for CAD.



With personal computers becoming ever more powerful and affordable, there's never been a better time to look into the benefits of doing your design work on one.

At Autodesk, we've put together a few guidelines to help make shopping for a system a little easier.

## Draw Up a Plan.

First, consider the software. You don't want to spend months learning it (you've already spent enough time learning your profession). And you don't want to shell out a bundle, either.

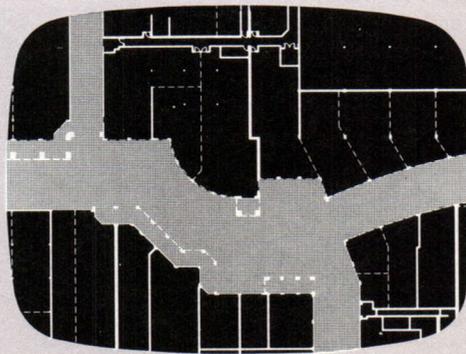
Consider AutoCAD AEC.<sup>®</sup> The name stands for architecture, engineering, and construction, and it works in tandem with our industry-leading AutoCAD<sup>®</sup> package. Which itself has introduced computerized drafting to over 90,000 people.

Put AutoCAD AEC on your choice of more than 30 popular microcomputers, and you can set up an entire system that's well within your budget.

## One-Stop Shopping.

Next, consider a system that gives you all the features that are important to your work. Starting with accuracy and speed.

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Which, after all, is what good design is all about.

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*Many users will buy VersaCAD because of its easy handling of 3-D work. It's easy to create multiple views of the object you're working on, with as many as 16 on-screen at once.*

processing speed six-fold. Spend an extra \$500 for a "turbo" AT clone and matching, extra-fast 20287 coprocessor when you first buy your computer and you'll double that—a 12-fold increase in speed. An extra \$3,000 in first cost buys a computer based on the 80386 chip and 80387 coprocessor, to triple the 12-fold increase.

In short, VersaCAD may lack something in the speed department, but the extra equipment needed to make VersaCAD run faster is not very expensive these days—and is getting cheaper.

Installing VersaCAD is easy. For me, the software worked almost right out of the box. Following clear instructions, I started (or "booted") the computer, switched to drive D (where I wanted to store VersaCAD), inserted disk 1 (of the 18 supplied) into drive A, and typed "A:INSTALL C:". Drive C is my "boot" drive, the place my computer looks first for files called CONFIG.SYS and AUTOEXEC.BAT.

The installation process automatically created the required subdirectories on Drive D and modified the boot-drive files to recognize the new DOS "path" to the subdirectories and to keep at least 40 files open at once.

The Install program automatically invokes a VersaCAD program called ENVIRO that is used to tell the software what monitors, graphics cards, digitizer, plotter, printer, COM ports and so forth are being used. ENVIRO then prompts the user to insert each floppy disk in turn, and copies the contents to the hard disk. If you change your equipment later, you can rerun ENVIRO without going through the entire installation procedure. VersaCAD takes from 5 to 6 megabytes of space on a hard disk, depending on the options being installed. In using the

program, I found one oddity. VersaCAD allows fast printing (or "dumping") of the on-screen image to a simple dot-matrix printer, when working in the 2-D mode. I have a laser printer and a dot matrix connected to the same printer port on my computer. I forgot to switch off the laser and switch on the dot matrix before trying the feature. Result: Blank and almost blank pages spewing from the laser! Turning the printer off froze the system and forced me to reboot the system.

Fortunately, I had set up VersaCAD to save each modification I had made to the drawing on disk, rather than to store the drawing only in memory. The drawing was all on disk waiting for me.

Because VersaCAD can be configured to save all changes on 2-D drawings, by the way, it

can "go back" and undo any change (not merely the last change). This feature can lead to huge drawing files, however. So there is a "crunch" feature that condenses drawings by removing all intermediate changes and leaving only the final version on disk. Intermediate changes are not saved to the permanent disk file when you are working in 3-D, by the way. They are, however, saved in the current workfile. Thus, you can undo a change in a 3-D file as you work on it, but not once it is saved.

Many users will buy VersaCAD because of its easy handling of 3-D work. So it seems wise to dwell upon how the program handles 3-D. To start with, you can draw something in 2-D, then import it into 3-D for further work. The imported drawing is set onto whatever plane you wish—a

floor plan would normally be set in the Z=0 plane, for instance, or an elevation into Y=0.

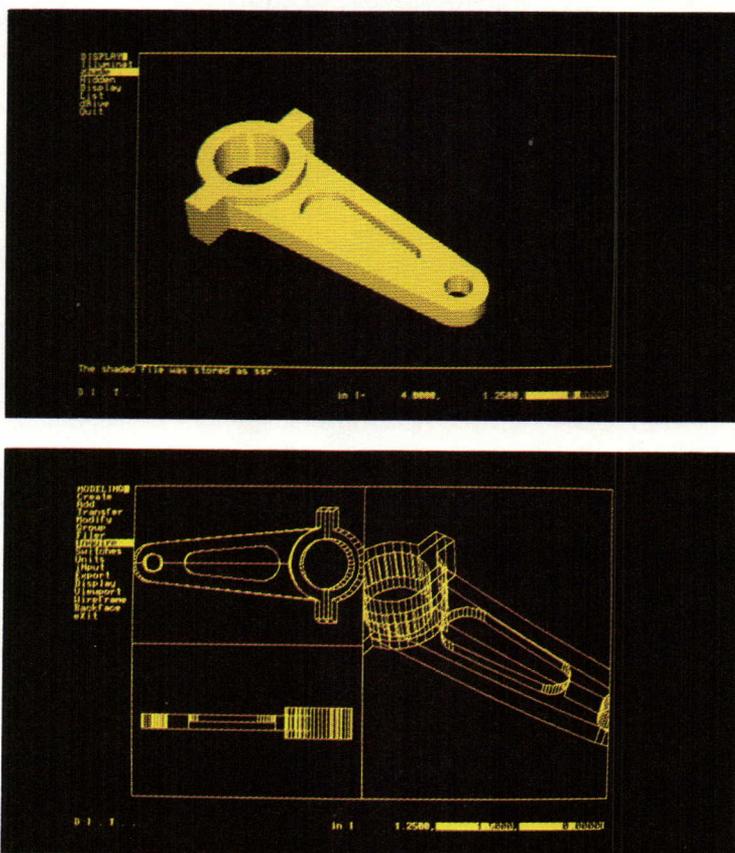
VersaCAD allows some time-saving tricks, however. Suppose you have a floor plan, for instance, and you want to use it as the basis for a 3-D view of the entire floor. You can import the 2-D floor plan with Z-bottom set at, for instance, 0, and Z-top set at 8 feet to represent an 8-foot ceiling height. VersaCAD automatically fills in the vertical surfaces. You can then modify the surfaces with doors, windows, or whatever. The amount of modification needed depends on the care with which the original floor plan was drawn. Experimenting, I found a 2-D door cutout extended to the ceiling, so it had to be modified in 3-D.

Once in 3-D, it is easy to create multiple views of the object you are working on. As many as 16 views can be on-screen at once, and the windows holding the views can be any rectangular shape.

Modifying the drawing in one window (VersaCAD calls the windows "viewports") changes the other views as well. Moving from window to window took a bit of getting used to; with multiple windows, you cannot simply position the cursor where you want to work on screen, and start drawing. You have to change menus, moving upward in the menu hierarchy to the modeling menu, down to the viewport menu, positioning the cursor on the window you want to move to, and pressing the F7 key. You then move back to modeling.

VersaCAD allows you to save and retrieve viewports easily. And, because only the instructions for recreating the view are saved—eyepoint, type of view (orthogonal, perspective, etc.), image size—any later changes in the drawing itself are automatically included.

*Continued on page 151*



*DESIGN 5.3 allows shading of bracket (top) and placement of three views on same screen, to help 3-D drafting (bottom).*

# CALL FOR ENTRIES

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# New products

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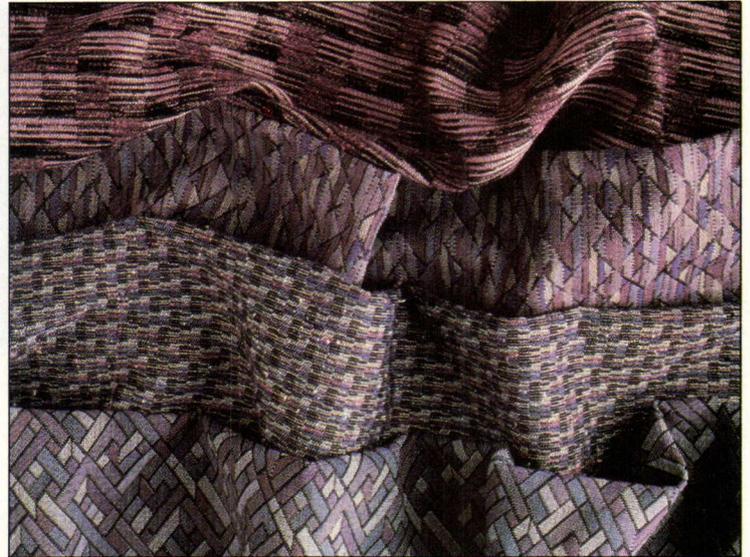
1



3



2



4

## Contract fabrics — pattern and texture

A new crop of contract fabrics marketed primarily for office applications combines color warmth and interesting pattern design with solid durability and flamespread ratings.

The Arc-Com Design Studio based the *Vienna* pattern on original Secession sources of the Wiener Werkstätte, incorporating the metallic overlay effect found in the works of Austrian artist Gustav Klimt. A small-scale design printed on an all-cotton velvet, *Vienna* (1) comes in the four colorways pictured.

Fabric designer Pat Green set stylized tulips on a two-toned background for *Burgeoning* (2), woven for Groundworks in West Germany of 53 percent cotton and 47 percent rayon. Suitable for both upholstery and vertical applications, the pattern comes in three colorways: teal, ochre, and viridian, a blue-green.

An Italian silk jacquard intended for both casement and fabric wall applications, *Garlands* (3) alternates a vertical satin stripe with clusters of woven flowers. Designed for Gretchen Bellinger's *Window/Wall* collection, the fabric comes in ivory, taupe, and beige.

Four distinct but soft patterns are offered in Jhane Barnes's most recent upholstery collection for Knoll International (4). Included are two contemporary tapestry patterns, *Maze* (bottom) and *Intaglio* (second from top), woven in Japan of wool and polyester on a cotton weft. *Fenestra* (second from bottom), a wool/rayon/cotton blend woven in the U. S., has a subtler design; *Pyramids* (top), also from Japan, has a random-textured geometric pattern of wool and rayon, with a touch of silk. All fabrics are 54-in.-wide and are suitable for a full range of office seating.

1. Arc-Com Fabrics, Inc., Orangeburg, N. Y.  
*Circle 300 on reader service card*
2. Groundworks, a division of Lee Jofa, Carlstadt, N. J.  
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3. Gretchen Bellinger, Inc., New York City.  
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4. Knoll International, Inc., New York City.  
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*More products on page 155*



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## • Sloped roof retrofit

An adjustable structural system, *Var-I-Spacer* is described in a 12-page booklet as an economical, slope-inducing solution to flat-roof problems. Spacer members are placed over an existing, worn-out roof at heights designed to provide the desired pitch and direction of slope, and coated-metal *Total Performance Roof* panels are attached with a concealed clip assembly that allows the roof to expand and contract with thermal change. Re-roofing with the *Var-I-Spacer* system creates a cavity for easy installation of low-cost, low-density insulation, and is said to greatly improve the appearance of the building itself. H. H. Robertson Co., Pittsburgh.

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## • Standing-seam roof

A 12-page technical brochure on the *Ultra-Dek 124* metal-panel roof system explains how the 3-in.-high snap-together seams eliminate any perforation of the flat part of the panel, said to be a major site of leaks in other panel systems. Drawings show eave, corner, ridge, and end lap details for masonry, wood, and metal building construction. *Ultra-Dek* panels are reversible end-for-end for use on either side of the roof ridge; no field notching or other adaptations are required. Metal Building Components, Inc., Houston.

Circle 414 on reader service card

## • CPE membrane

A 4-page specification brochure stresses the chemical- and ozone-resistance of *UltraPly 78* single-ply roofing membrane, made of *Tyryn* (chlorinated polyethylene) polymer reinforced with a polyester fiber scrim. A mechanically fastened system, *UltraPly 78* remains heat-weldable for the life of the roof, a characteristic said to facilitate repairs or roof modifications. Firestone Building Products Co., Indianapolis.

Circle 415 on reader service card

## • Flexible membrane

An architectural folder on the *PRM (Protected Roof Membrane)* system describes how the one-part compound, made of refined asphalts and synthetic rubbers, bonds to any sound concrete, masonry, steel, or wood deck, at temperatures down to 0 F, to form a 180-mil-thick waterproof membrane. Step-by-step photos show *PRM* installed as part of an inverted roof-membrane assembly, with ballasted *Styrofoam* insulation boards placed on top. The self-healing membrane bridges small deck cracks, and seals hard-to-flash roof penetrations easily, according to the manufacturer. American Hydrotech, Inc., Chicago.

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## • Single-ply roofing

A data sheet introduces *Trocral Light SR-60*, a 60-mil-thick white PVC membrane reinforced with glass fiber, which is designed to be mechanically fastened to the roof deck. A chart compares test results for the new membrane with ASTM minimum standards for PVC single-ply sheets. Dynamit Nobel of America, Inc., Rockleigh, N. J.

Circle 417 on reader service card

## • Glazed roofing tiles

Vitrified Japanese-made *Toyo* tiles are shown in an 8-page folder, illustrated with photographs of roofs in colors ranging from maroon to bright blue and silver gray. There are four tile configurations: Japanese, a concave shape with a lip along one edge; S- and Spanish-style tiles with a pronounced overlap; and a flatter French shape. The frostproof glazed tiles have a water-absorption rate below 7 percent. DRG International, Inc., Mountainside, N. J.

Circle 418 on reader service card

## • Roofing panel systems

A new 8-page catalog on corrugated, ribbed, and standing-seam roof panels contains clear color drawings of specific valley, ridge, skylight, and transition details as installed on a large, multi-level retail complex. Text covers span lengths and finish options, and describes the *Energy Dome Skylight*, which fits within the *RS-18* panel. Steelite, Inc., Pittsburgh.

Circle 419 on reader service card

## • Wind-uplift data

One in a series of technical reports on the performance characteristics of *Hi-Tuff* CSPE-based roofing membrane, a 6-page *Tech Facts* folder explains the forces that generate wind uplift on a roof, and the various tests for wind resistance that are performed on membranes and fasteners. Text and photos compare the wind-uplift characteristics of ballasted, fully adhering, and mechanically-attached roofing assemblies.

J. P. Stevens & Co., Inc., Northampton, Mass.

Circle 420 on reader service card

## • Built-up roofing

A generic product and performance guide is available from the Asphalt Roofing Manufacturers Association to help specifiers select components for built-up roofing systems. Sections cover design considerations based on ASTM, UL, and FM standards; materials ranging from decks to flashings; and acceptable and recommended application procedures. There is a small charge for individual copies of the 24-page booklet. Asphalt Roofing Manufacturers Association, Rockville, Md.

Circle 421 on reader service card

## • Liquid roofing system

*Topcoat* water-based, self-curing roof coating is applied with an airless spray to form a flexible weatherproof membrane over a number of new and existing roof assemblies. A 12-page illustrated booklet explains the installation and product economies claimed for the coating system, and introduces *Topcoat Patina Green*, for re-roofing deteriorated copper. Topcoat, Div. The Major Group, Walpole, Mass.

Circle 422 on reader service card

## • Fiber-cement roofing slate

*Supra-Slate*, described on a catalog sheet as having the look and durability of natural stone, is manufactured in realistic slate colorations. Photos of roof projects suggest some of the architectural effects possible by blending shingles of different colors, or by staggering the butts. Supradur Mfg. Corp., Rye, N. Y.

Circle 423 on reader service card

## • Thermoplastic membrane

An 8-page brochure on *BondGrey* NBP polymer-blend single-ply roofing provides a sample of the membrane, and lists its physical properties with the test procedures used. Text and photos explain the fast, safe, and flexible installation techniques claimed for the hot-air welded, mechanically attached system. WestPoint Pepperell, Bond Cote Roofing Systems, West Point, Ga.

Circle 424 on reader service card

## • EPDM membrane

The *Sure-Seal* reinforced EPDM roofing membrane, an economical alternative to this maker's ballasted and fully adhering systems, is introduced in a color brochure. Step-by-step photos illustrate the attachment of membrane to roof with fasteners and plates, and the permanent splicing of roof seams with cement and sealant. Carlisle SynTec Systems, Inc., Carlisle, Pa.

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Architect: Harker Waterfront Residence; Chesapeake Bay, Eastern Shore; Charles Harker, AIA, Principal, The Martin Organization, Architects, Philadelphia.

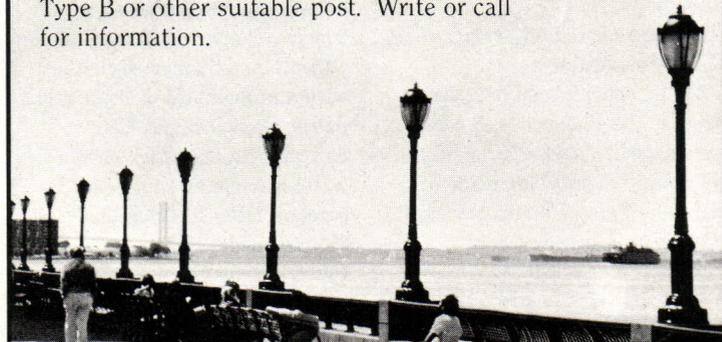
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## Sentry SBP



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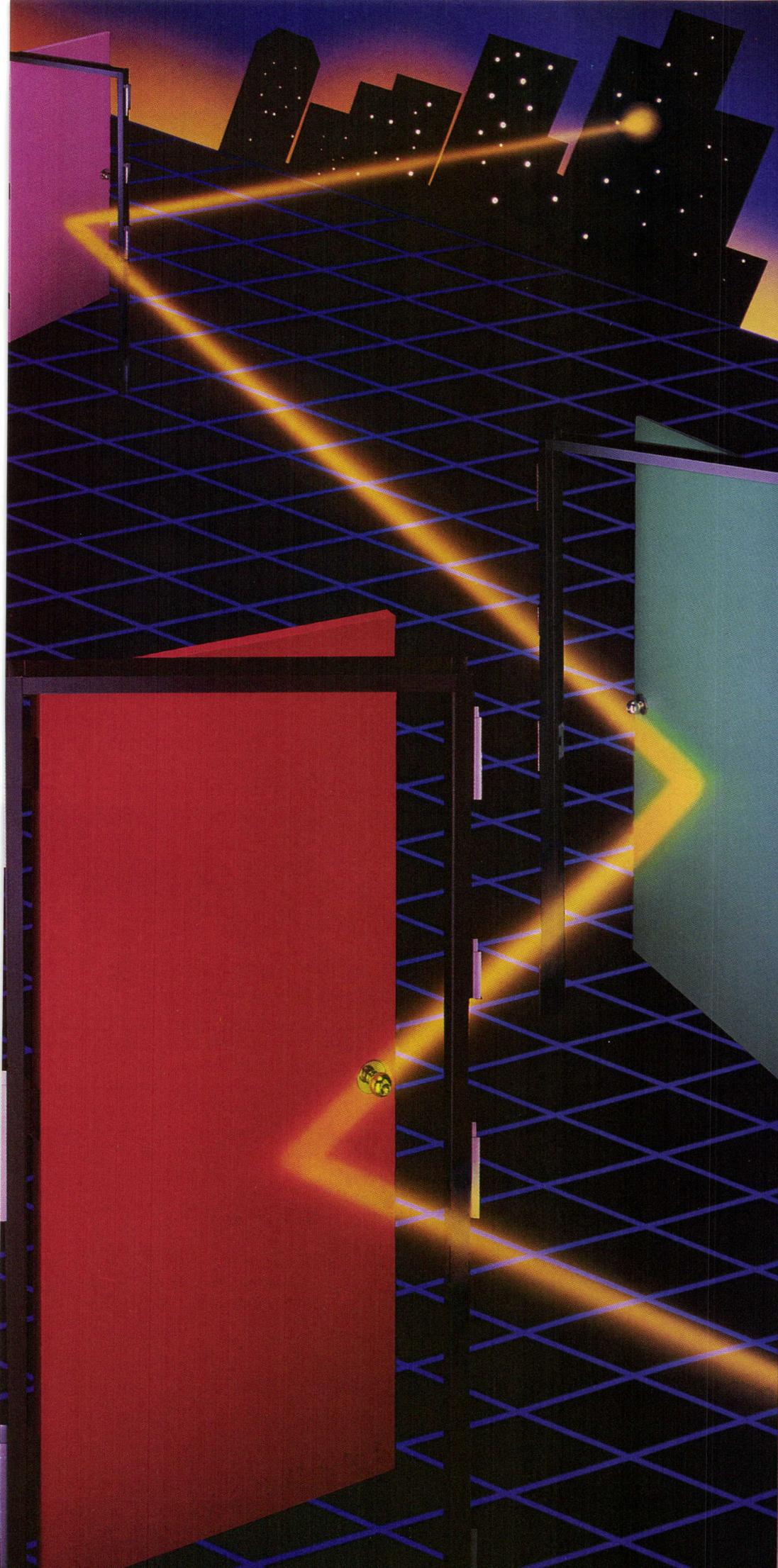
Sentry SBP luminaires stand along the Hudson River Esplanade of Battery Park City, evoking past eras to contemporary New Yorkers. At night the SBPs become energy-efficient H.I.D. light sources that extend the Esplanade's usefulness well into the evening. Indestructible polycarbonate globes make them virtually vandal-proof. Available with New York Type B or other suitable post. Write or call for information.



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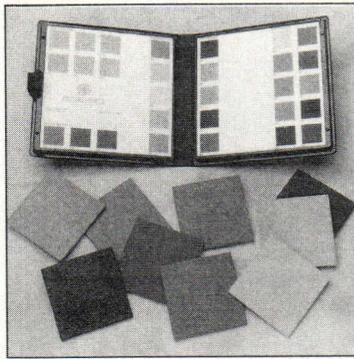
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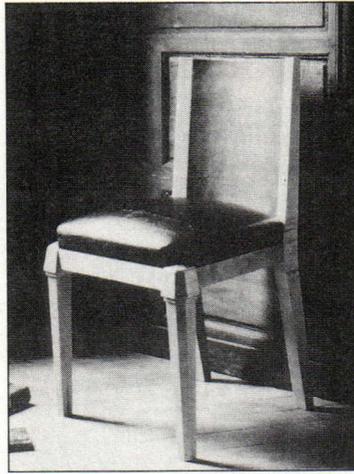


#### Unglazed ceramic tile

Made with optical-quality glass as the primary body material, new *Prominence* tile is produced on a roller-hearth kiln in six sizes and 29 colors. Tiles are said to be consistent in physical dimensions and color, so that various sizes can be used in a truly modular installation.

*Prominence* tile is available in groupings of complementary colors, ranging from light to very dark tones. For high-traffic installations, the frost-proof tile has no surface porosity, is abrasion-, slip- and stain-resistant, and is impervious to moisture. GTE Engineered Ceramics, Greenland, N. H.

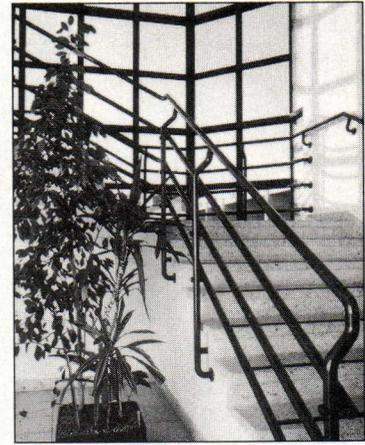
Circle 305 on reader service card



#### Classic chair

Designed and manufactured in France by Philippe Hurel, the *Cobra* chair has a crown detail capping the front legs and a concave-curved back inlaid with leather. The chair frame is made of sycamore. Interna Designs, Ltd., Chicago.

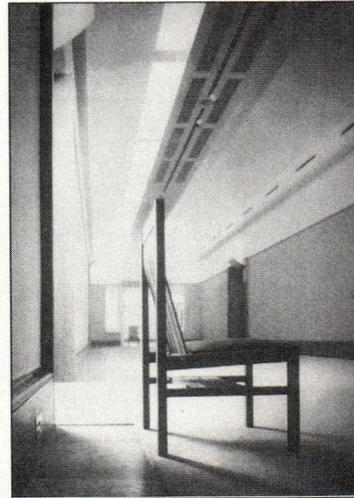
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#### Nylon-coated railings

Now manufactured to custom design specifications, railing systems for interior and exterior applications are made of nylon-coated steel, available in 12 colors that coordinate with *Normbau* handles, grab bars, and locksets. Rails meet code requirements for commercial, residential, and institutional applications, and are shipped ready to install. Normbau, Inc., Addison, Ill.

Circle 308 on reader service card



#### Gallery chair

Pictured on location in James Stirling's Clore Gallery, London, the *Tate Gallery Chair* was designed by Ron Carter to fill a particular requirement of the museum's guards: the underseat shelf holds a lunch box. The chair, made in England by Miles/Carter, is now available in a number of different woods and finishes for contract use. Interna Designs, Ltd., Chicago.

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#### Lounge seating

The *Alexa* contract line includes this three-seat sofa and lounge chair, as well as a 70-in.-wide loveseat, upholstered in either

fabric or leather. Seating has pleated cushions attached to the curved arm and back. AGI Industries, High Point, N. C.  
Circle 309 on reader service card

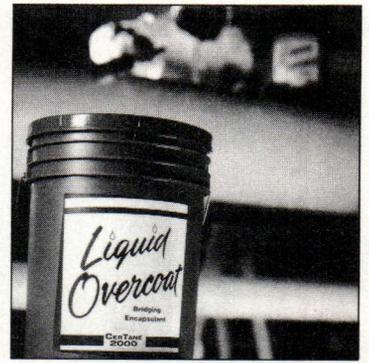
#### Sconce

Designed in stainless steel by Alex Forsyth, the *Theta* sconce provides a white light effect from a 300 W halogen bulb. The three-dimensional housing is formed of welded-steel sections, connected to the circular wall mount by a matching arm support. Fixture is UL-listed for contract and residential applications. Brueton Industries, Inc., Springfield Gardens, N. Y.  
Circle 310 on reader service card



#### Office storage

An extension of the *Roll-Out Conserv-a-file* line, freestanding *Architectural Companion Units* include storage cabinets with adjustable shelving, swing-door files, and a wardrobe over 5 ft high. Accent strips color-coordinate the steel storage units with the manufacturer's file system. Supreme Equipment and Systems Corp., Brooklyn, N. Y.  
Circle 311 on reader service card



#### Asbestos encapsulant

A polymer-based gel that can be sprayed or brushed over asbestos used for thermal or sound insulation, *Liquid Overcoat* is said to effectively stop leakage of asbestos dust and fibers, even in areas of wide temperature and humidity swings. In fire situations, the resilient coating becomes a glasslike ceramic fire barrier, and will not emit irritating or toxic gases. Offered in one-coat formulations for various asbestos applications, *Liquid Overcoat* may be colored; it cures at room temperature. Certified Technologies, Minneapolis.  
Circle 312 on reader service card  
Continued on page 166



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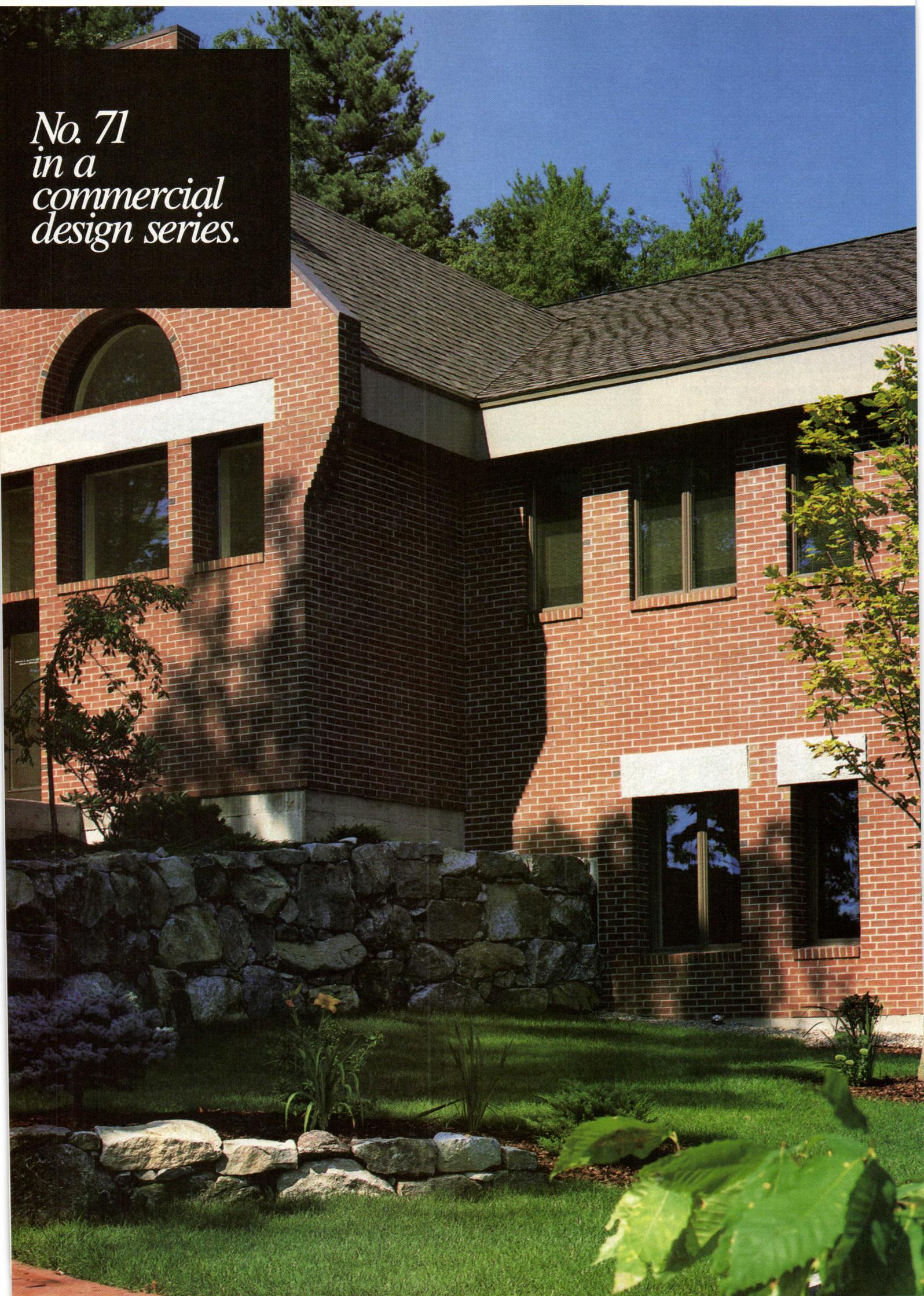
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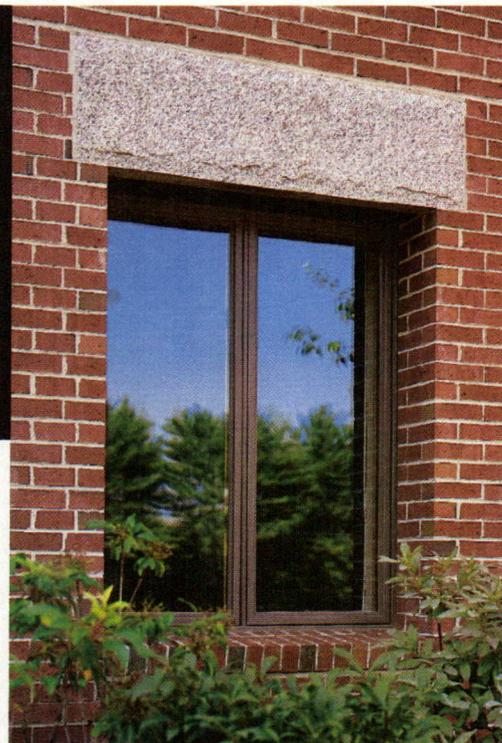


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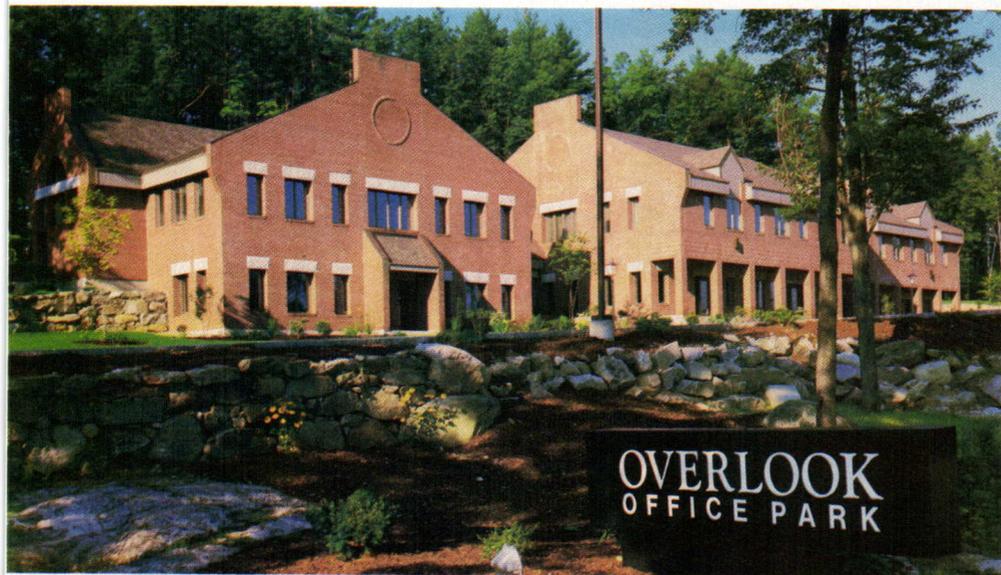


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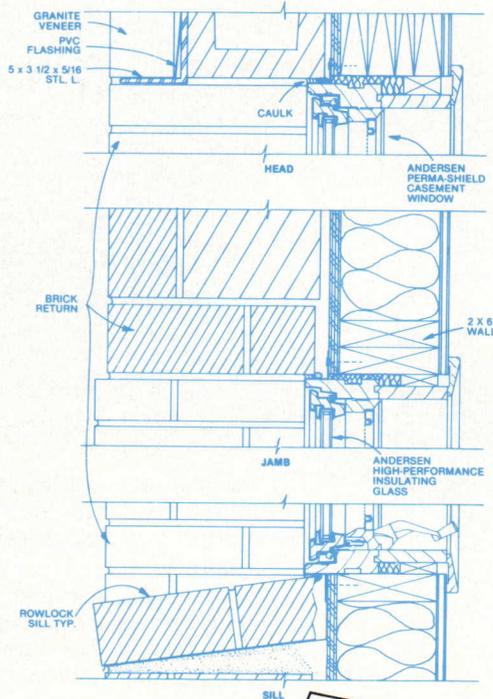
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Amherst, New Hampshire

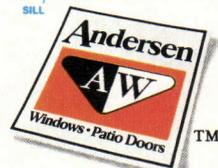
Architect: David White AIA and  
Peter Stewart of Architects Four  
Manchester, New Hampshire

Developer: Coldstream Associates, Inc.  
Bedford, New Hampshire

Printing limitations prohibit exact  
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## Calendar

### January 19 to February 28

*Long Island Modern: The First Generation of Modernist Architects on Long Island, 1925-1960*, an exhibition of photographs, drawings, and models; at the Octagon, 1735 New York Ave., N. W., Washington, D. C.

### February 4-6

Open meeting of the AIA Committee on Historic Resources, with a workshop in masonry restoration; in Washington, D. C. For information: Bruce Kriviskey, American Institute of Architects, 1735 New York Ave., N. W., Washington, D. C. 20006 (202/626-7452).

### February 13-14

*Theory and Practice: Bridging the Gap*, a conference discussing the restoration of sandstone and limestone, architectural terra cotta, and paint, presented by the Association for Preservation Technology, co-sponsored by Columbia University. For information: The Association for Preservation Technology, Post Office Box 1106, Lenox Hill Station, New York, N. Y. 10021 (212/744-6787).

### February 16 through May 18

An exhibit of the architecture of Frank Gehry; at the Museum of Contemporary Art, 250 South Grand Avenue at California Plaza, Los Angeles, Calif.

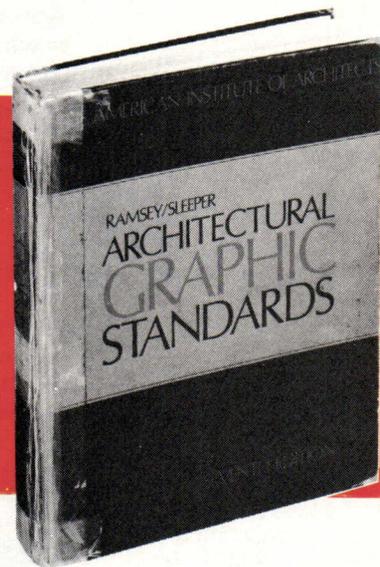
### February 19-21

Open meeting of AIA Architecture for Education Committee, sponsored in conjunction with the American Association of School Administrators; in Las Vegas. For information: Christopher Gribbs, American Institute of Architects 1735 New York Ave., N. W., Washington, D. C. 20006 (202/626-7589).

### February 20

Symposium on architecture and education, *The past twenty-five years and assumptions for the future*, sponsored by the  
*Continued on page 175*

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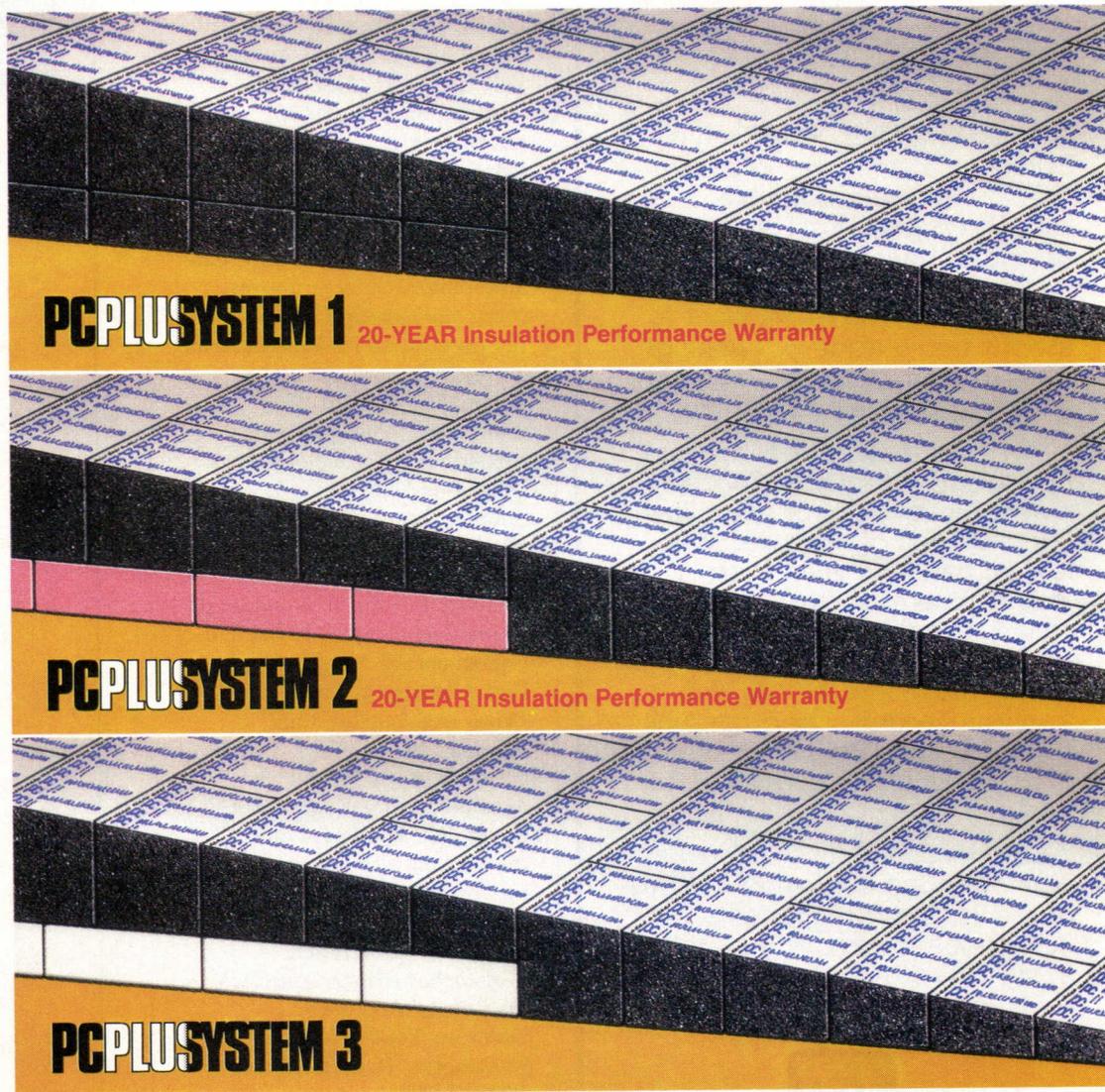


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**Calendar**

*Continued from page 173*

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2	General Motors
3	Mobil
4	Ford Motor
5	IBM
6	Texaco
7	E.I. du Pont
8	Standard Oil (Ind.)
9	Standard Oil of Cal.
10	General Electric
11	Gulf Oil
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Princeton University School of Architecture; at the Princeton University campus, Princeton, N. J. For information: Cynthia Nelson (609/452-5018).

**February 23 through May 15**

*Versailles: The view from Sweden*, drawings from the National Museum and the Royal Palace, Stockholm; at the Cooper-Hewitt Museum, New York City.

**February 26-28**

A conference focusing on marketing professional services, sponsored by the National AIA Interiors Group; at the Ritz-Carlton, Buckhead, Atlanta. For information: Ros Brandt (202/626-7589).

**Through March 6**

*Vienna/New York: The Work of Joseph Urban, 1872-1933*, showing Urban's theatrical designs as well as his architecture and decoration; at the Cooper-Hewitt Museum, New York City.

**March 1-3**

RHIDE '88, The Restaurant/Hotel International Design Exposition and Conference; at Expo Center, Chicago. For information: National Exposition Company, 49 W. 38th St., Suite 12A, New York, N. Y. 10018 (212/391-9111).

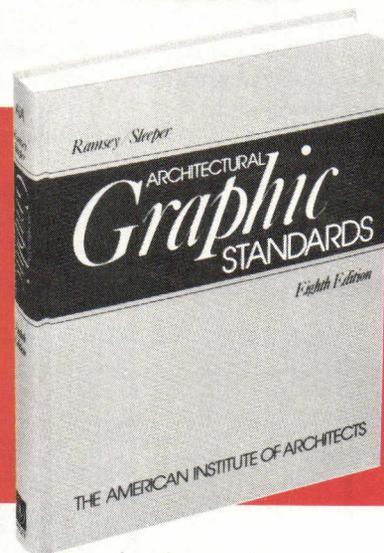
**March 3-5**

*Remaking Cities*, an international conference on economic, technological, and social changes facing industrial cities, sponsored by the AIA/Royal Institute of British Architects; in Pittsburgh. For information: Charles Zucker, American Institute of Architects 1735 New York Ave., N. W., Washington, D. C. 20006 (202/626-7532).

**March 8-9**

*Let there be light... and power*, an educational workshop and seminar on lighting solutions and power distribution in the Contract Furniture Industry; at Hotel Sofitel, Chicago O'Hare. For information: Professionals at Your Service, Ltd., 3316 Colfax St., Evanston, Ill. 60201 (312/475-0480).

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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 94-99

Boys Club of Jersey City  
Oppenheimer, Brady &  
Vogelstein, architects

**Pages 94-97**—Block masonry: Bayonne Block. Metal panel fascia: Nick Bouras Co. Built-up roofing: Manville. Clock: National Time. Hollow-metal interior and exterior doors: Commercial Door. Hopper windows and glazing: General Plate.

**Pages 98-99**—Ceiling-suspension system: Harry Rich. Vinyl flooring: Armstrong World Industries.

### Pages 100-107

599 Lexington Avenue  
Edward Larrabee Barnes  
Associates, architects

**Pages 100-104**—Aluminum-framed curtain wall: Cupples Products Div., H. H. Robertson Co. Finish: PPG (*Kynar*). Blue-green tinted spandrel and vision glass: Libbey-Owens-Ford. Membrane roofing: Gates Engineering (*Gracoflex*).

**Page 103**—Porcelain enamel panels: Petco. Floor tile: Gail International Co. Railings, glass and rail balustrade: Melto Metal.

**Page 104**—Recessed lighting: mcPhilben. Suspended glass assembly: Pilkington Glass Ltd. Revolving doors: International Door Co.

### Pages 122-135

Davis, Brody & Associates, architects

### Pages 128-129

Carnegie Park  
Brick: Glen-Gery Brick. Precast-concrete copings and sills: Steindl Cast Stone Co. Residential windows: SWS Industries, Inc. Site furniture: Kroin Inc. Pole-top lighting: Trimble House Corp. Bollards: Lightolier. Park fencing: A&T Iron Works. Custom entrance: fabricated by TEK Metal Industries.

### Page 130

Aron Residence, Mount Sinai Medical Center  
Brick: Merrit Brick Co. Curved glazed stairwell bays: Zimmcor Inc. Glass: PPG. Railings: Brooklyn Welding Corp.

### Page 131

Zeckendorf Towers  
Masonry: Glen-Gery Brick Co. Tubular pyramids: Space Structures International Corp. Storefronts: Lynbrook Glass & Architectural Metals Corp. Base and tower windows: Traco. Curved railings: Grossman Steel & Aluminum Corp. Straight rail: Sterling Factories, Inc.

### Pages 132-133

Hudson Garden, Battery Park City  
Stone: Miller-Druck, Inc.; Domestic Stone. Brick: Interstate Brick. Metal-framed bays: Acorn Windows. Grilles: Arrow. Cornice: Plasticrete. Street lighting: Battery Park City Standard. Building lighting: BEGA. Revolving entrance: Tubelite.

### Page 134

The Copley  
Brick: Merrit Brick Co. Stone: Petrillo Stone. Masonry trim: Landino Precast Concrete. Bronze entrance doors: Armet Metal Products. Railings: Sterling Factories, Inc. Operable windows: Acorn Windows. Curved bays: Skylights by Fisher. Louvers: Arrow.

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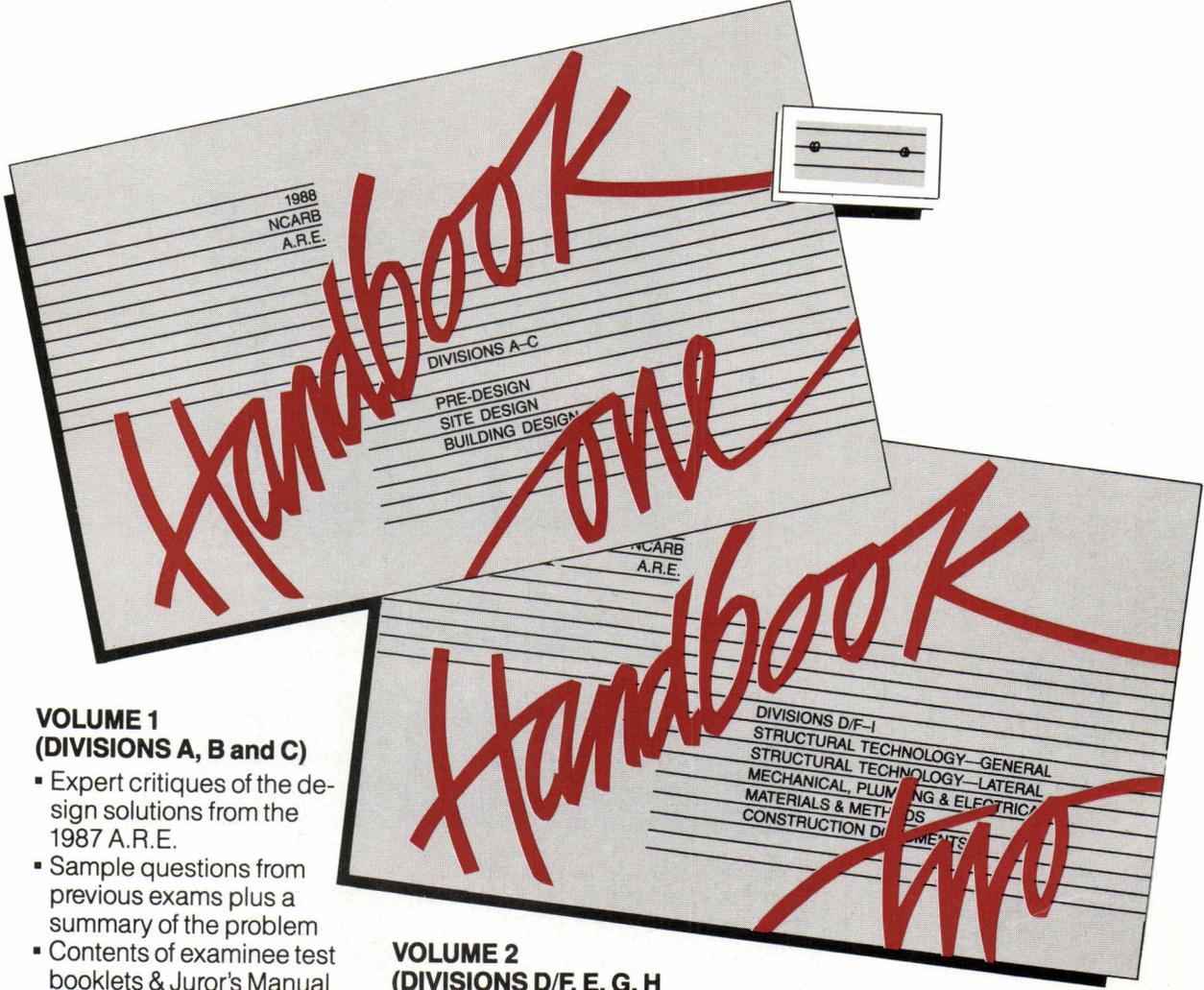
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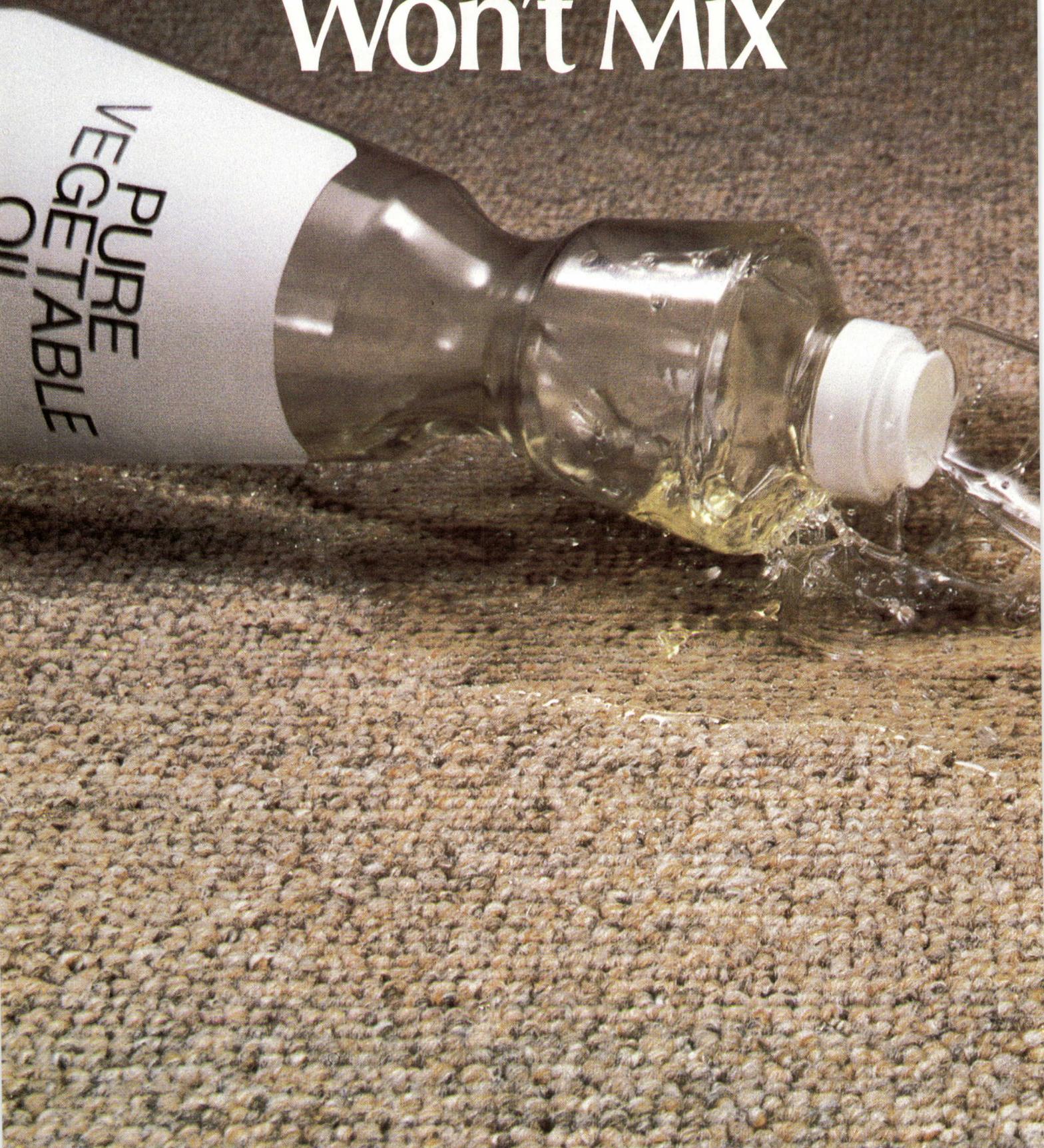
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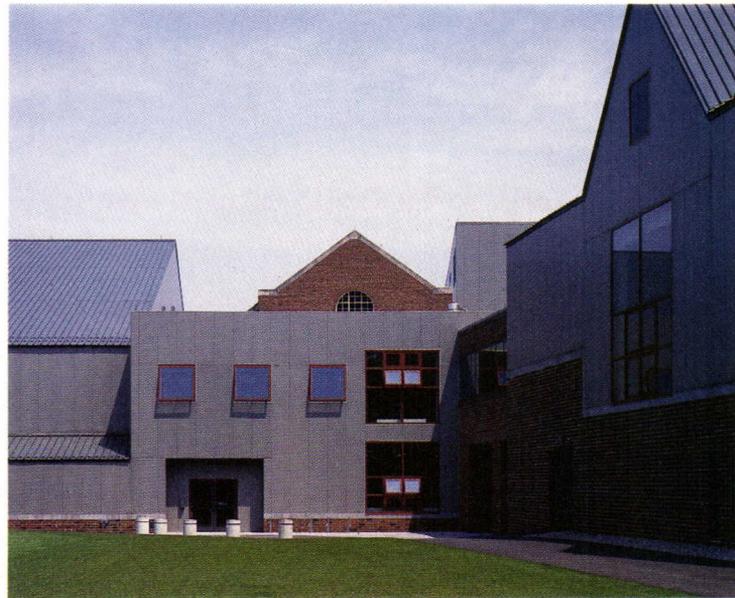


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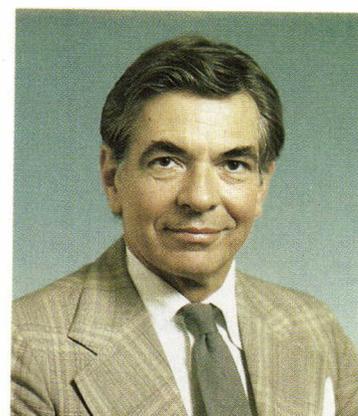
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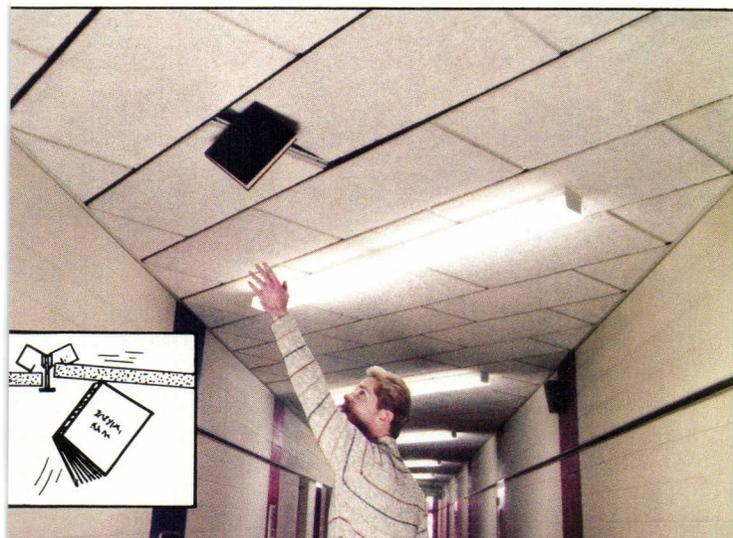
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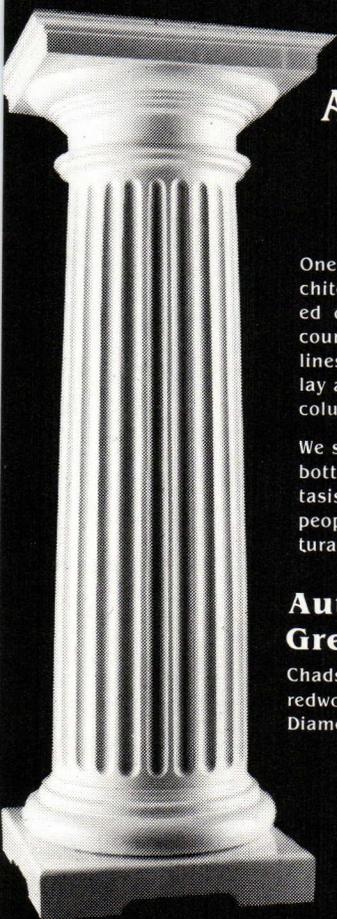


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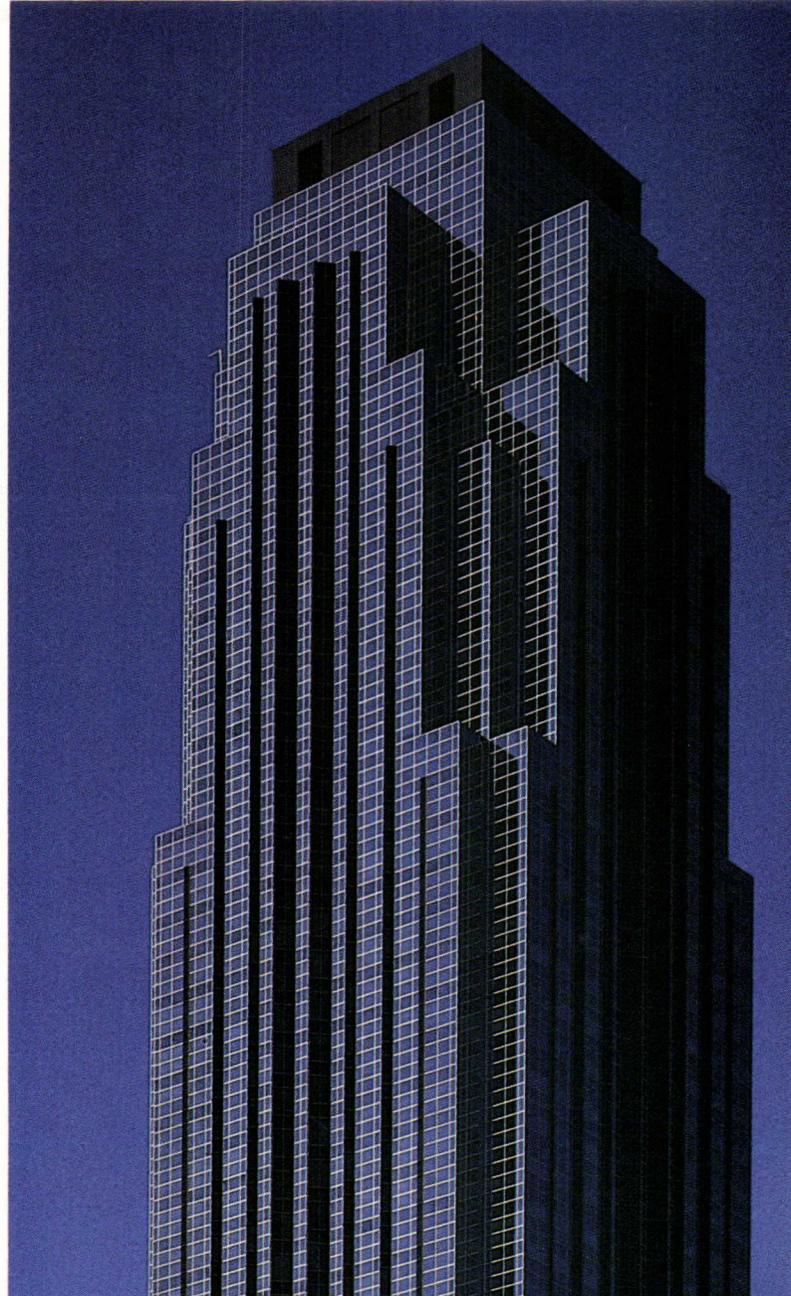
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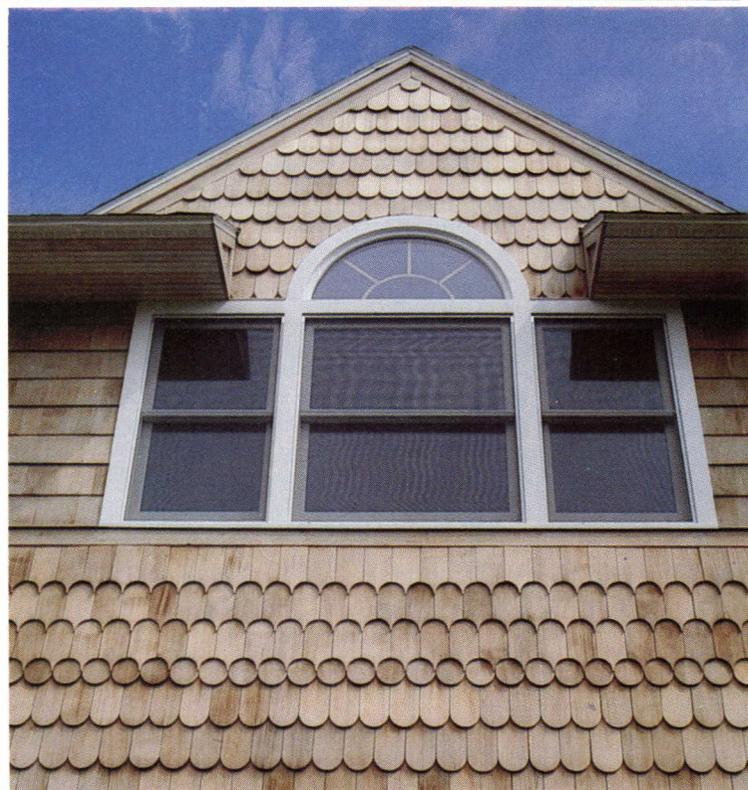
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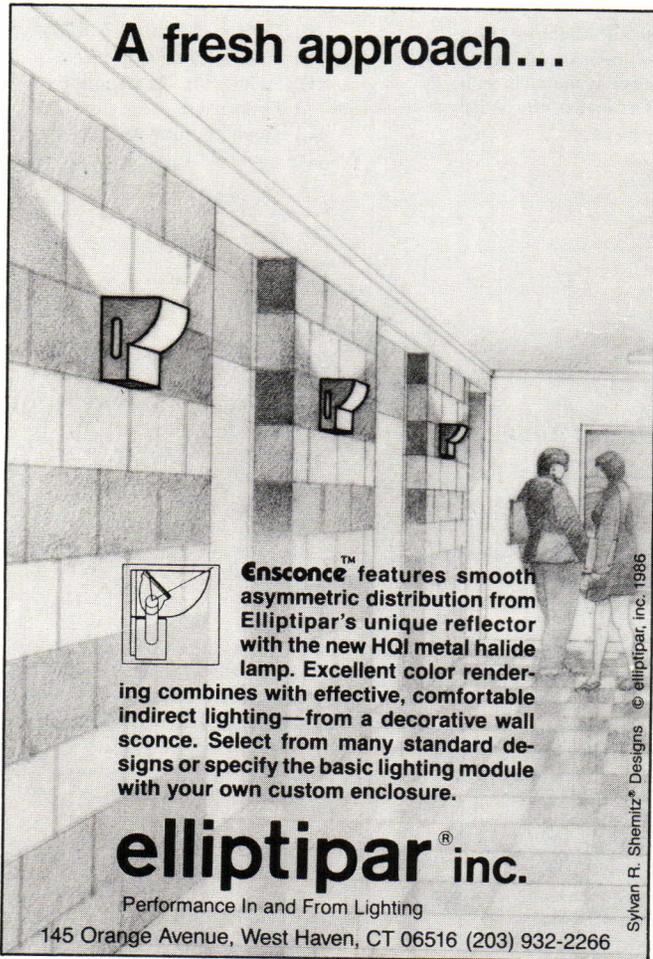
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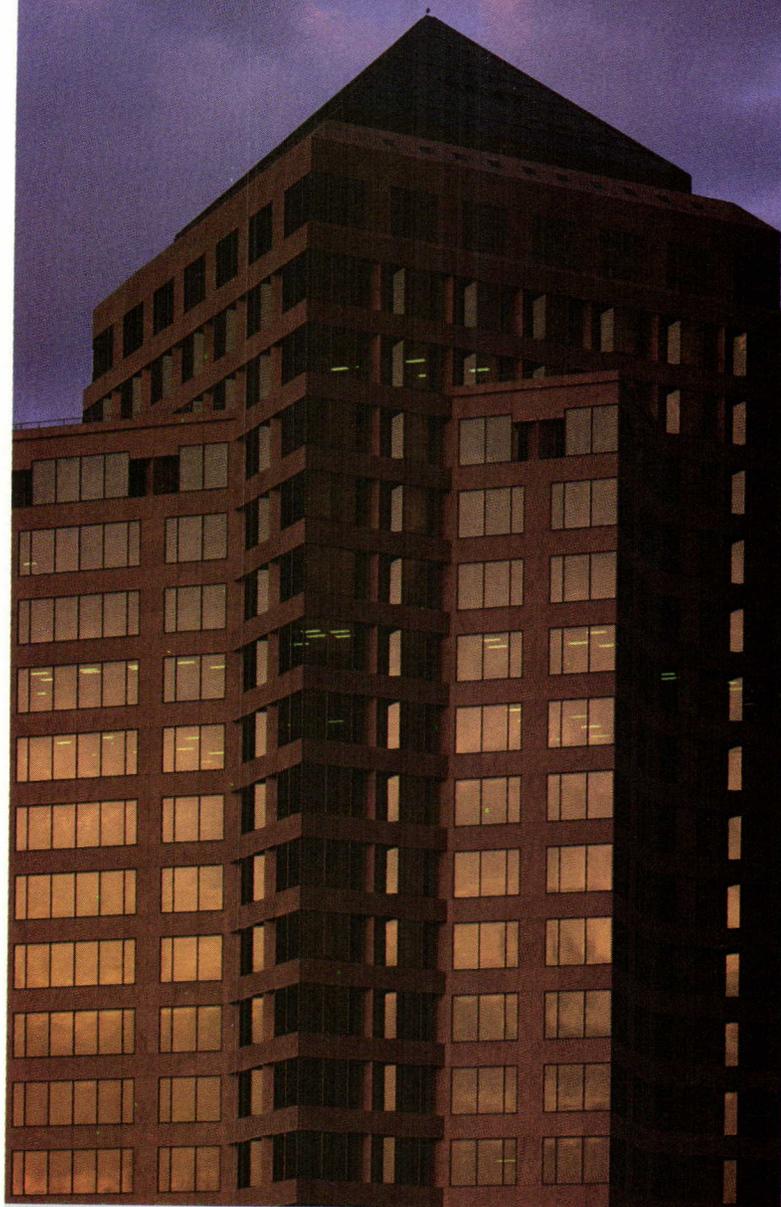


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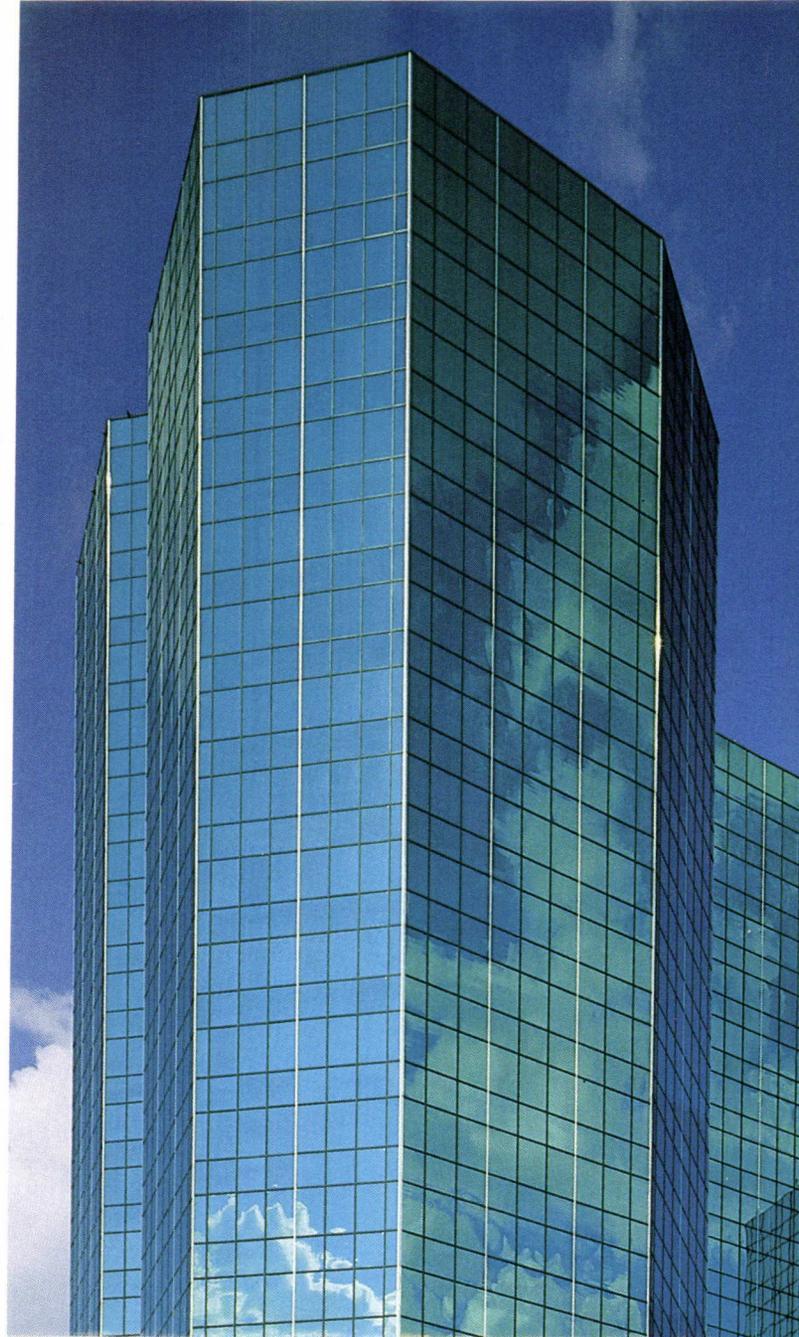
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# Hats On to the Winners...



I'm Bill Markcrow and I want to thank the more than 140 people from all over the world who designed some of the most interesting and

unique gazebos I've ever seen for my first-ever "Design a Gazebo Contest." In my opinion, they're all winners.

## ...of the First International Design a Gazebo Contest.

I'd also like to thank the distinguished panel of judges who worked a long and exhausting day, painstakingly selecting our twelve prize winners. These hard-working decision-makers from both educational and architectural backgrounds include: Robert Campbell, Architect, Cambridge Massachusetts, contributing editor to *Architecture* and critic for "The Boston Globe" . . . Patrick L. Pinnell, Principal Architect, Cass & Pinnell Architects, Washington, D.C., and instructor, Yale University . . . Stephen Potters, Stephen Potters Architects, New York City . . . Suzanne Stephens, journalist, critic, editor and teacher, Barnard College, New York City, and contributor to *House and Garden*, *Manhattan, Inc.* and *Art in America* . . . and Craig Whitaker, Craig Whitaker Architects, New York City.

## And the winners are:

- Robert Botwin and Rick Metcalf, New York City, NY
- C.L. Fornari, Chatham, NY
- Lee Hill, Guilford, CT
- John Keshar Wenderoth, Gradyville, PA
- Marc L'Italien, New York City, NY
- Robert L. Miller, Washington, D.C.
- Jesus Porras, Houston, TX
- Paul William Smith, Ann Arbor, MI
- Patrick Roberson, Dallas, TX
- Karen Schindler, Chicago, IL
- Daniel Winterbottom, Boston, MA
- The Skyline High School Architecture Cluster, Dallas, TX



It was quite a contest . . . with submissions ranging from beautifully designed models to nine sets of colored drawings, and entrants ranging from high school students to the world's top architects.

Some of the unusual designs ranged from the Niagara Falls Gazebo and the Garbage Gazebo (covered entirely with garbage, believe it or not) . . . to the Fairy Tale Gazebo.

Thank you gazebo designers everywhere, for making my "First International Design a Gazebo Contest" such a success. My special thanks to thirteen-year-old John Keshar Wenderoth for his clever and imaginative "Gazebo for Duck Hunters."

Watch for the innovative gazebo design entries to be exhibited in March and April at the National Institute for Architectural Education, 30 West 22 Street, New York, NY, from March 9 through April 15.

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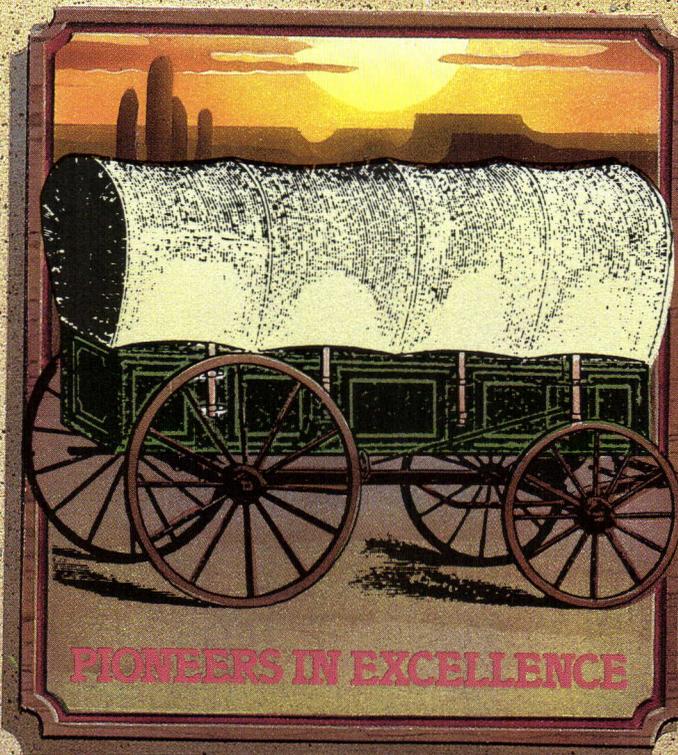
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