ARCHITECTURAL RECORD

Business Design Engineering
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July 1986

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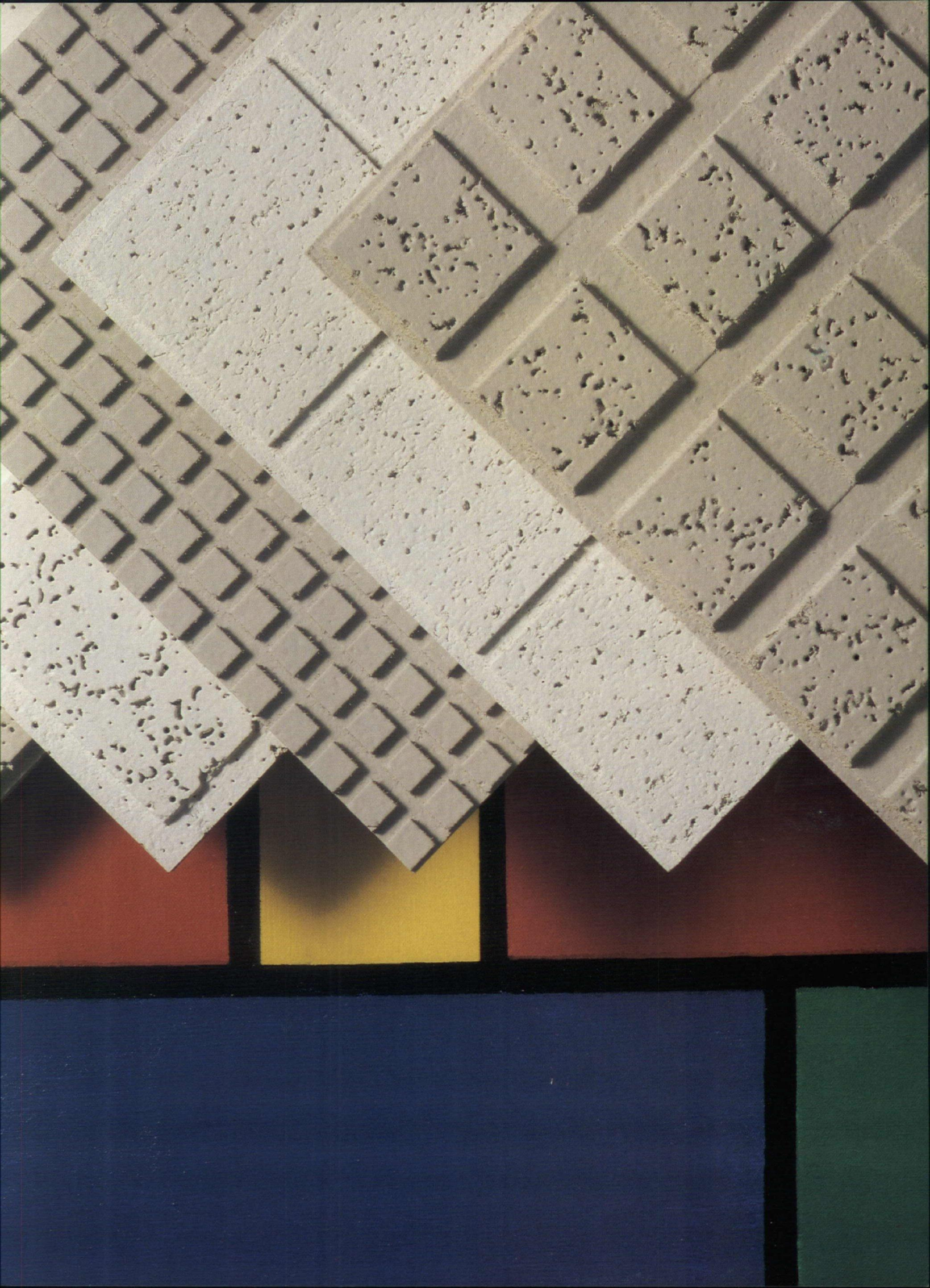

Letters

Hurrah and my heartiest congratulations on the mid-April 1986 issue of RECORD. It has been some time since a single issue of the magazine has so stimulated and amazed me. I know that additional thanks are due to Douglas Brenner, the photographers, and of course the architects.

The richness of the work, the variety, the elegant presentation, and appropriate comments encourage and stimulate all of us out here battling in the wilderness.
Bennett B. Greenwald
Greenwald/McDonald
San Diego

RECORD HOUSES is a marvel. Beautifully produced, it presents a remarkably wide spectrum of points of view that lifts the issue from a house-plan boutique to a key document for our time.
Robert A. M. Stern
Robert A. M. Stern Architects
New York City

What a wonderful RECORD HOUSES issue (even without a Sasaki project)! Being in the throes of a kitchen renovation at home, I particularly enjoyed the new kitchen and bath section—those are certainly spaces everyone can relate to (and envy). I do question how SITE's design for Laurie Mallet's house, with those white walls and "creative artifacts," will hold up with two small children in residence, her "final layer" notwithstanding.
Vicki Rugo
Publicity Coordinator
Sasaki Associates, Inc.
Watertown, Massachusetts

As a practicing architect for 28 years with experience in all forms of housing, I am shocked by the pathetic response of "199 attendees" to the plight of the homeless [Editorial, RECORD, January 1986, page 15].

The core of the problem is usury, which sets affordable homes—no matter how well designed—beyond the reach of millions around the world.

It is quite obvious to me that those in authority do not want answers and merely seek palliatives. It is to the eternal shame of architects that they support this contempt for social values.
K. Lees, Architect
Christchurch, New Zealand

I enjoyed Roger Kimball's discussion of the "Building and the Book" symposium at Columbia [RECORD, April 1986, page 53 et seq.] and found many of his points well taken. I do belong to the "I don't care what you say about me, as long as you spell my name right" school.

Which brings up another point. I do wish you had spelled Herbert Croly's name correctly. Croly, after all, was on RECORD's staff in 1891 and from 1900 to 1906—before he went off to write his books on political philosophy and found *The New Republic*. He deserves more careful treatment.
Suzanne Stephens
New York City

We are ashamed not to have caught the error.—Ed.

Roger Kimball does it again. First with the Whitney [RECORD, October 1985, page 113 et seq.], now with Stern [RECORD, May 1986, page 77.]

His accurate response to organized trivia is a triumph for truth.
Tasso Katselas, Architect
Pittsburgh

What a wonderful article by William Saunders [on architectural education] on page 49 of your May 1986 issue! How clearly he sorts things out, and in language unusually simple for this subject matter. I have always thought of furniture design as a craft—the ends being "beauty and utility."

Many people doing furniture these days obviously confuse their work with art, and as such have made objects that are neither art nor craft. I'm not sure if this point was made during our Round Table discussion [see page 114 of this issue], but it would have made it understandable why the architect-designed furniture of the past that was so successful for Herman Miller and Knoll is so different from the architect-designed furniture being done nowadays.

Print more articles by Saunders!
Richard Schultz
Barto, Pennsylvania

Six copies of Lois Boemer's article "Marketing: Getting published in the general press" [RECORD, January 1986, page 47] landed on my desk—thoughtfully deposited by members of our design staff.

Senior Editor Charles Hoyt is guiding his column in the right direction. Public relations and marketing is everybody's business.
Dianne M. Ludman
Director of Public Relations
The Stubbins Associates, Inc.
Cambridge, Massachusetts

Corrections

The developer of the PortAmerica project in Prince George's County, Maryland (RECORD, May 1986, page 55), should have been identified as James T. Lewis.

Credit for the photograph of the Donna Karan showroom (RECORD, May 1986, page 69) should have gone to Elliott Kaufman.

Calendar

July 3 through October 22
Vienna 1900: Art, Architecture, and Design, with a symposium, lectures, and a concert series of modern music; at the Museum of Modern Art, New York City.

July 17-19
The Challenges of Change, National Conference and International Exposition of Designer Sources, sponsored by the American Society of Interior Designers; at Century Plaza Hotel, Los Angeles. For information: ASID, 1430 Broadway, New York, N. Y. 10018 (212/944-9220).

August 7-10
Forms of Design, the national design conference of the Industrial Designers Society of America; at Northwestern University, Evanston, Ill. For information: IDSA, 1360 Beverly Rd., Suite 303, McLean, Va. 22101-3671.

August 18-22
ACM SIGGRAPH 86, 13th Annual Conference on Computer Graphics and Interactive Techniques, sponsored by the Association for Computer Machinery's Special Interest Group on Computer Graphics; at Dallas Convention Center, Dallas. For information: Smith, Bucklin & Associates, Inc., 111 E. Wacker Dr., Chicago, Ill. 60601 (312/644-6610).

September 1-5
PLEA '86, International Conference on Passive and Low Energy Architecture, with the Regional Committee of the Hungarian Academy of Sciences as host; in Pécs, Hungary. For information: PLEA '86 MEKSEKTOURIST, Pécs, PF.: 129, H-7601, Hungary.

September 9-11
IBC '86 Intelligent Building Conference, sponsored by Multi-Tenant Telecommunications Association and *Business Communications Review* magazine; at the Hyatt Regency, Atlanta. For information: MTTA, 2000 L St., N. W., Suite 200, Washington, D. C. 20036 (202/822-9351).

September 11-14
Second annual Inter-American Forum for Architecture, "Housing and the City," sponsored by the New Orleans Chapter, American Institute of Architects, and Tulane University; in New Orleans. For information: New Orleans Chapter AIA, 330 Exchange Alley, New Orleans, La. 70130 (504/525-8320) or Norberto Nardi (504/525-5389).

September 21-26
CIB.86, the 10th triennial congress of the International Council for Building Research (CIB); in Washington, D. C. For information: Noel J. Raufaste, Director CIB.86, Center for Building Technology, National Bureau of Standards, Gaithersburg, Md. 20890 (301/921-3106).

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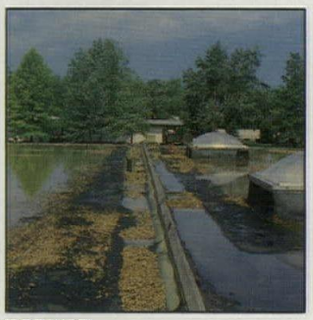

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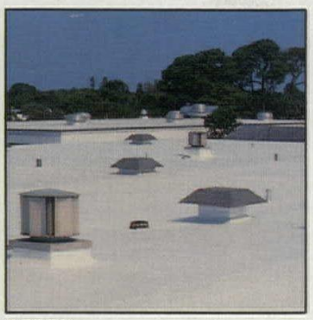

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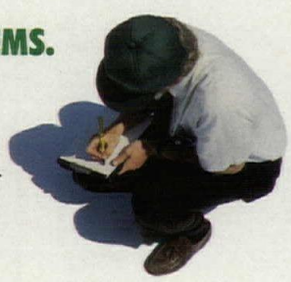

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Prospects for housing: The good and not so good news

An article by McGraw-Hill economist Joseph Spiers in this month's business section (page 41) brings a cheering prognosis for architects who like to do (and get the chance to do) big and luxurious houses. Notes Spiers: "As the rich and upper-middle class get richer, their houses will get bigger and they will have more amenities. This trend, started in the 1980s, is a trend that will most probably accelerate. . . . Hence increasing demand for large houses will be the most stable element in what will otherwise remain one of the most volatile and uncertain of all markets in the U. S." But if the immediate future of housing for less prosperous Americans appears chancy, it is nevertheless a market in which plenty of architects still work.

In his current book, *The Design of American Housing: A Reappraisal of the Architect's Role,** sociologist Robert Gutman demonstrates that architects in great numbers continue to be involved in home building in ways other than as custom designers of costly houses or as providers of comprehensive services to builders of upscale condominium developments. Nonmarket housing, of course, has been drastically curtailed. In Gutman's words: "Architects who represent the tradition of social housing have almost no work and are a dying (or at best dormant) breed." But architects continue to offer stock-plan services, or work as salaried employees of builders, or form their own design-build organizations. This group suffers, however, from problems which Gutman summarizes as follows: Builders of single-family detached houses may work without the assistance of architects; fine materials, detailing, and craftsmanship get sacrificed in the name of efficiency and economy; other professionals and nonprofessionals as well compete with architects in the housing field; architects tend to lose authority and autonomy in the larger home-building organizations.

In Gutman's view these problems as a group "boil down to the fact that the self-conception of the architects is contrary to what housing producers and consumers expect and want from the profession." The problem, he asserts, begins in the schools: "The appalling fact is that most recent graduates know very little about the organization of housing production, the technology of home building, and the kinds of housing requirements that are important to consumers. Not only is their knowledge of these subjects very skimpy, but what is more unfortunate, a large number of graduates come out of the schools with attitudes that make it difficult for them to work with the industry and its customers." The first step, says Gutman, is for the schools to begin to teach the practical aspects of housing.

A second step, he argues, would be for the so-called "captive architects," as well as those who engage in stock-plan work or design-build, to give more thought to ways in which their forms of practice could better meet consumer preferences, improve the quality of the environment, and develop better housing technologies. In summing up, Gutman states that in his judgment: "Both the self-interest of the profession and its historic concern for the quality of the environment enjoyed by all social classes suggest a third activity, namely that architects should again assume the role of spokesmen for those less-favored Americans whose housing requirements are not being addressed at the present time." So if, in spite of Joseph Spiers's prediction, you don't get some nice big houses to design this year, or even if you do, it helps to remember that the rest of the housing market is in great need of truly professional attention. *Mildred F. Schmertz*

**The Design of American Housing: A Reappraisal of the Architect's Role* by Robert Gutman, sponsored by the Design Arts Program of the National Endowment for the Arts and published in 1985 by the Publishing Center for Cultural Resources, New York City.

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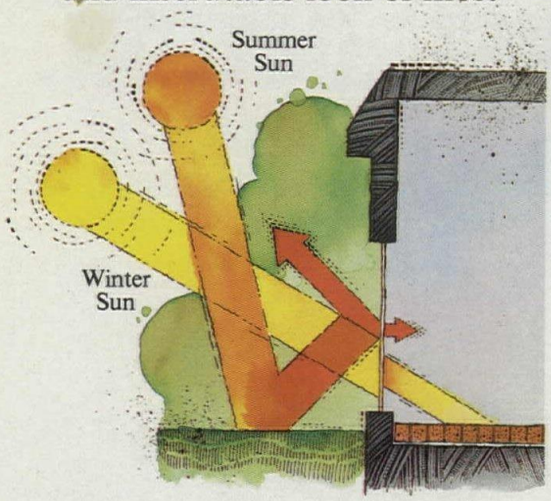

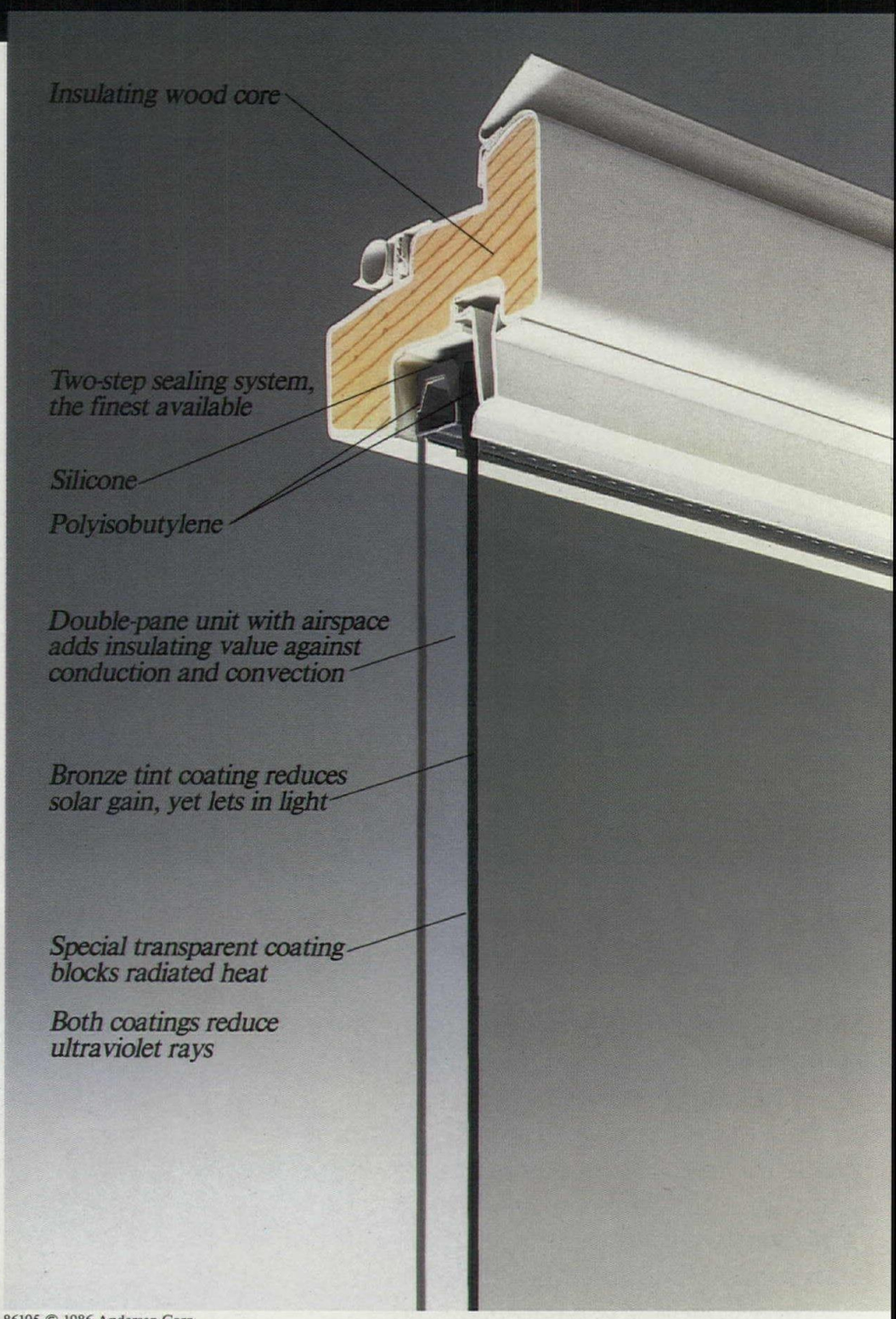

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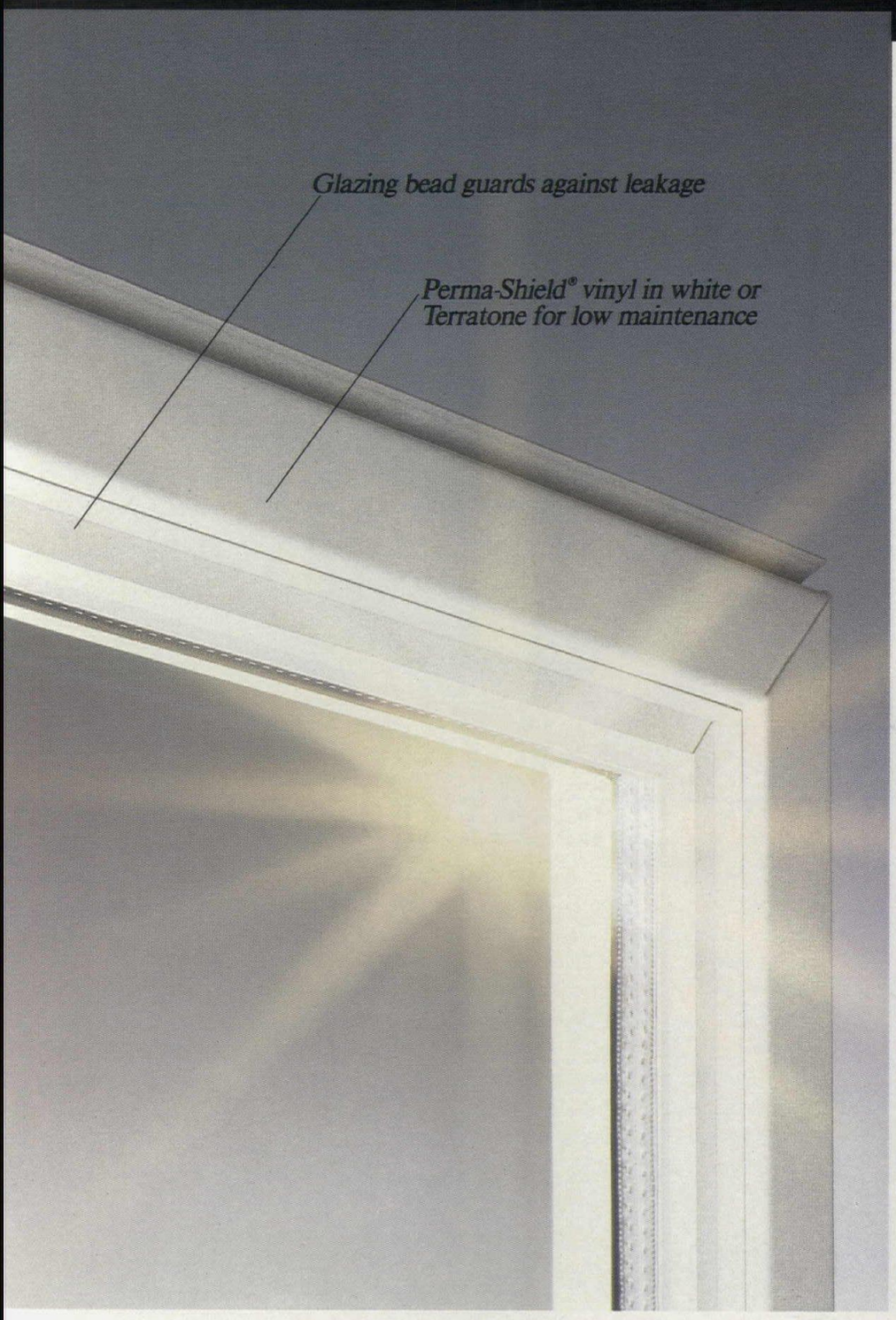

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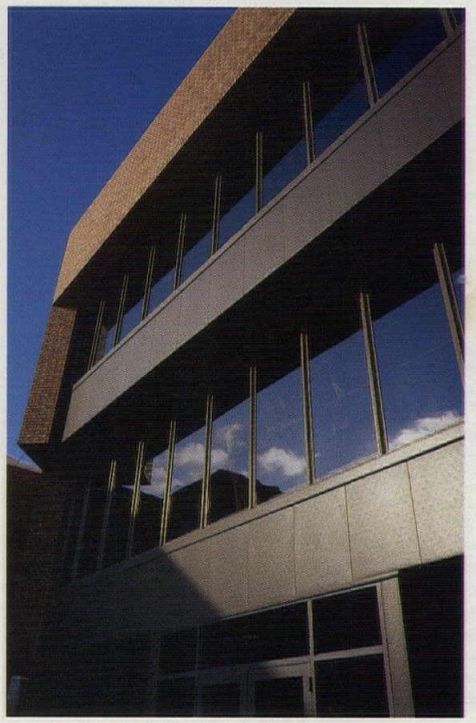

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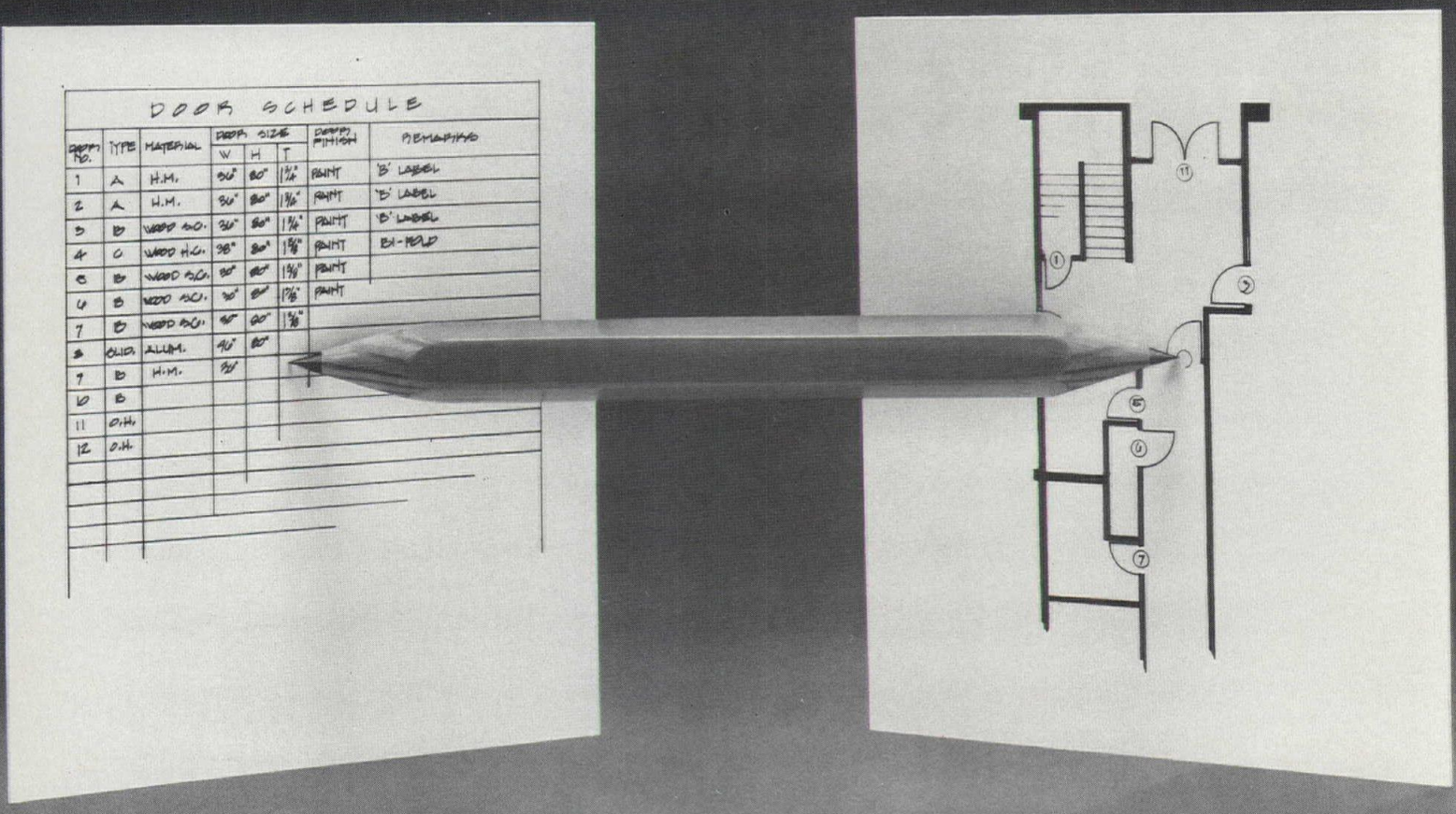

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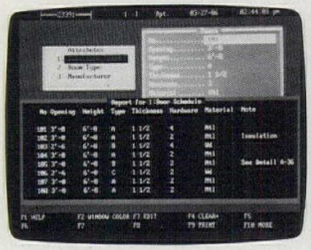

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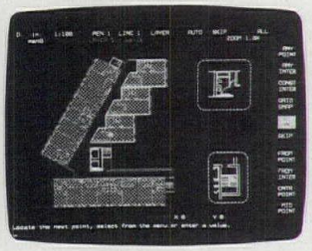

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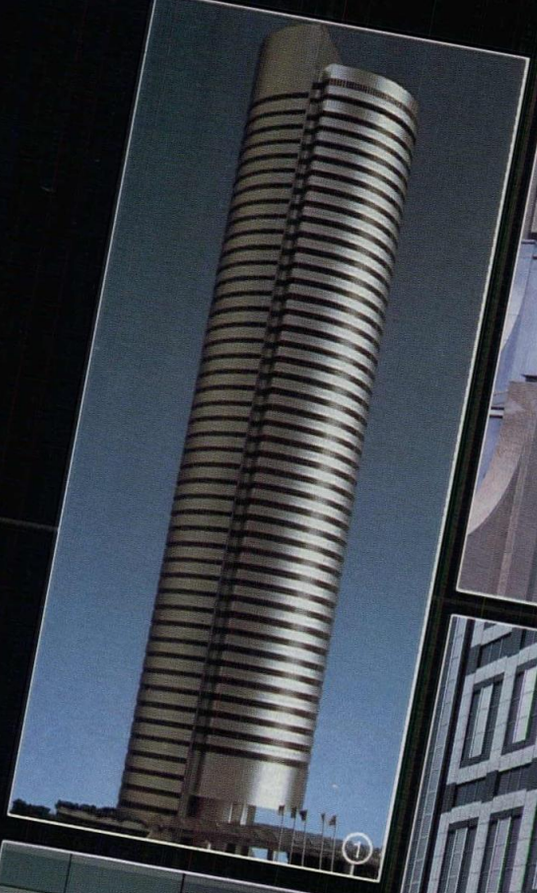
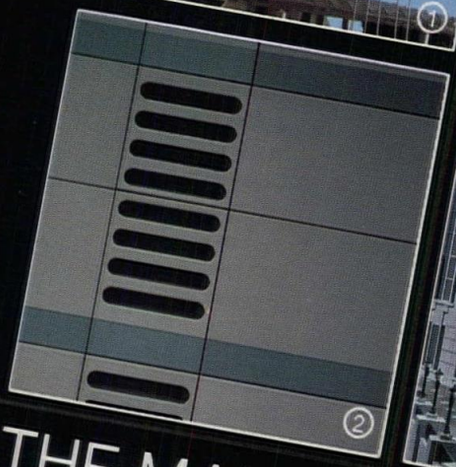



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Requests to downgrade invite lawsuits.

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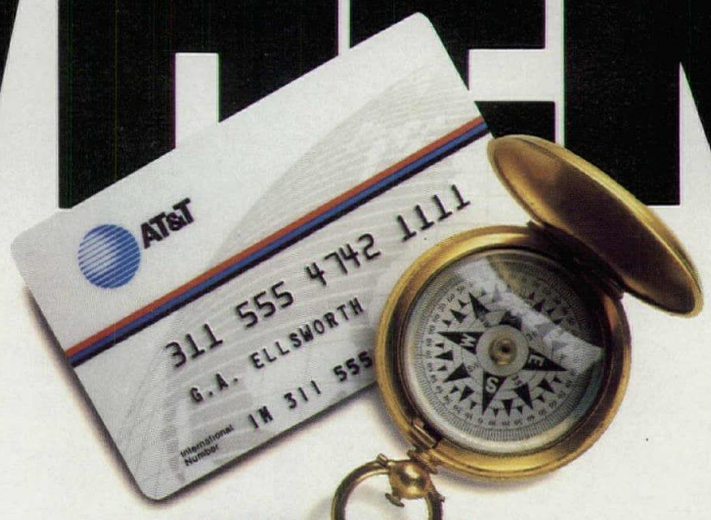

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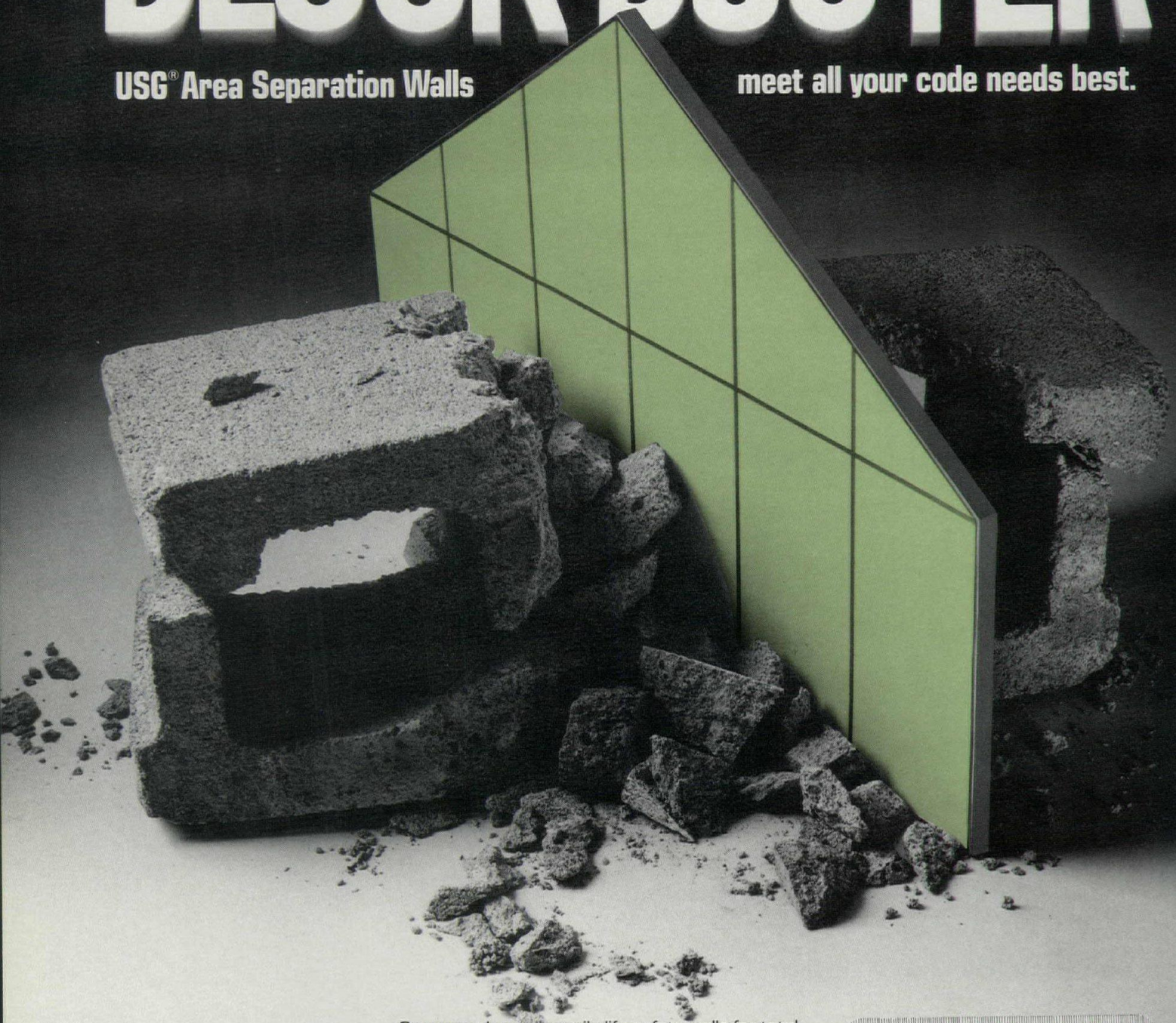

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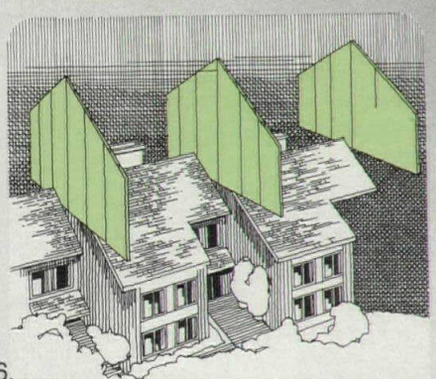

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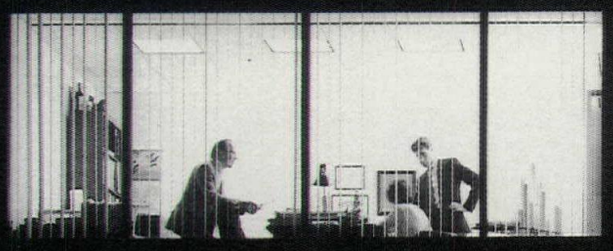

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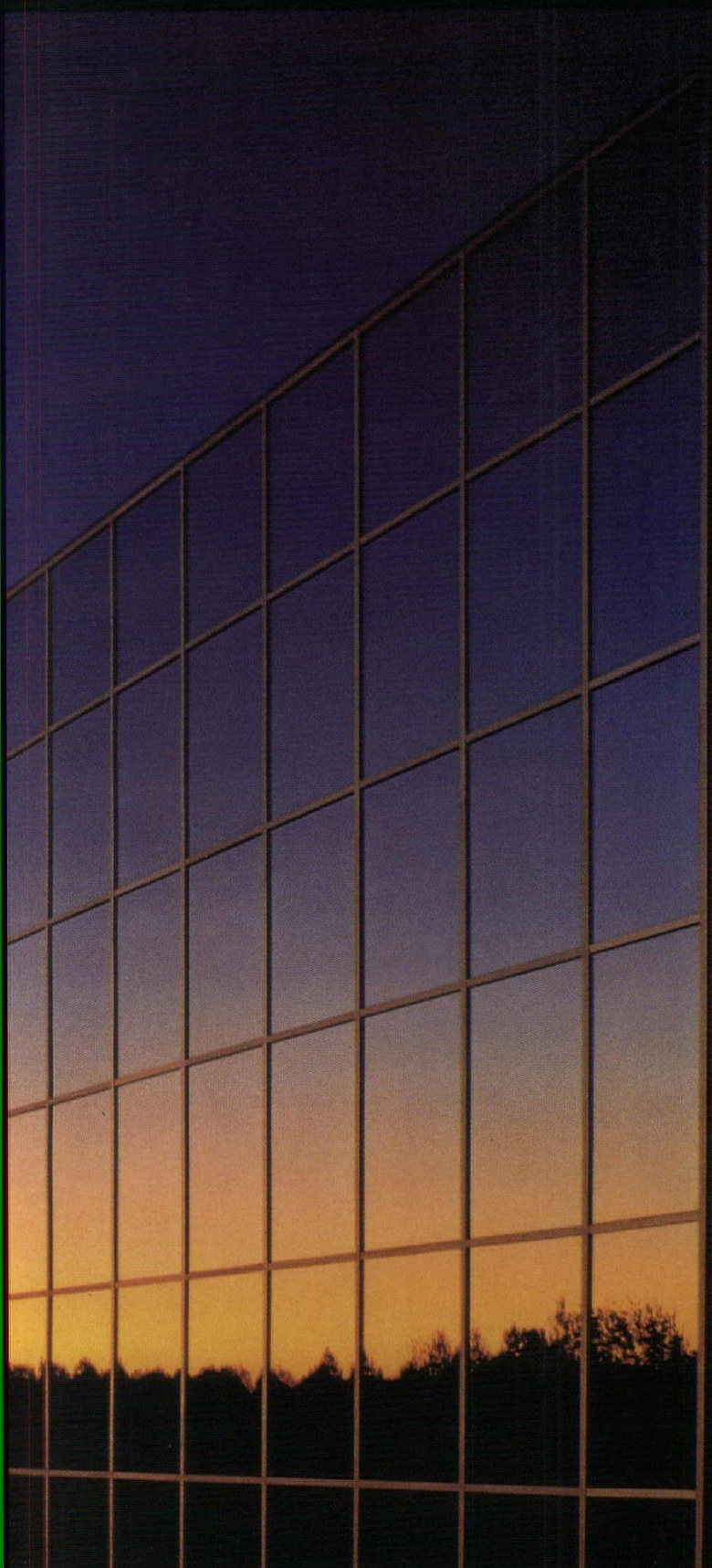

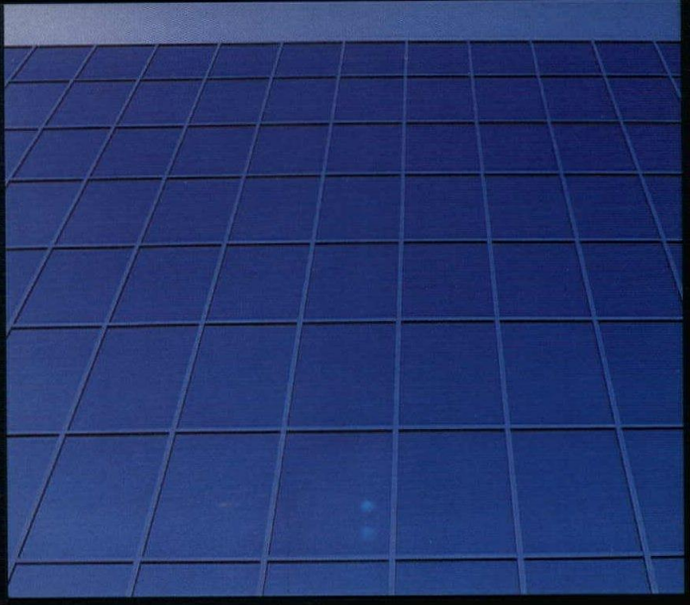

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While a glance at the Statue's rich green patina provides proof of copper's enduring good looks, closer analysis shows that weathering and oxidation of the copper skin has amounted to only five thousandths of an inch in almost a century.

For this reason, the copper skin is one of the few major elements of the Statue not needing to be significantly rebuilt or completely replaced.

The only copper part of the Statue that required significant renovation is the torch section, which is being rebuilt with new copper that will be pre-patinated to match the rich green color of the existing copper—testimony to copper's unique ability to grow more attractive over the years.

Copper is playing a key role in the restoration inside the statue as well as outside. High alloy copper saddles and rivets will secure the copper skin to the skeleton beneath. The copper fastenings will not only ensure structural integrity, but as part of a materials system, will guard against any galvanic reaction problems.

The copper and brass industry is providing technical advice on the restoration of copper components of the Statue, and is performing the same service for copper and brass components and systems at the nearby Ellis Island project. New copper is replacing the missing copper domes and roofing and other features such as globes, flashing, downspouts, gutters, cornices and louvers of the long-abandoned Great Hall.

The most dramatic part of the restoration is the reclading of the Beaux-Arts domes of the Great Hall. This project alone calls for 8,000 square feet of copper sheet. Modern and more up to date installation methods will make the copper installation easier—and even more enduring.

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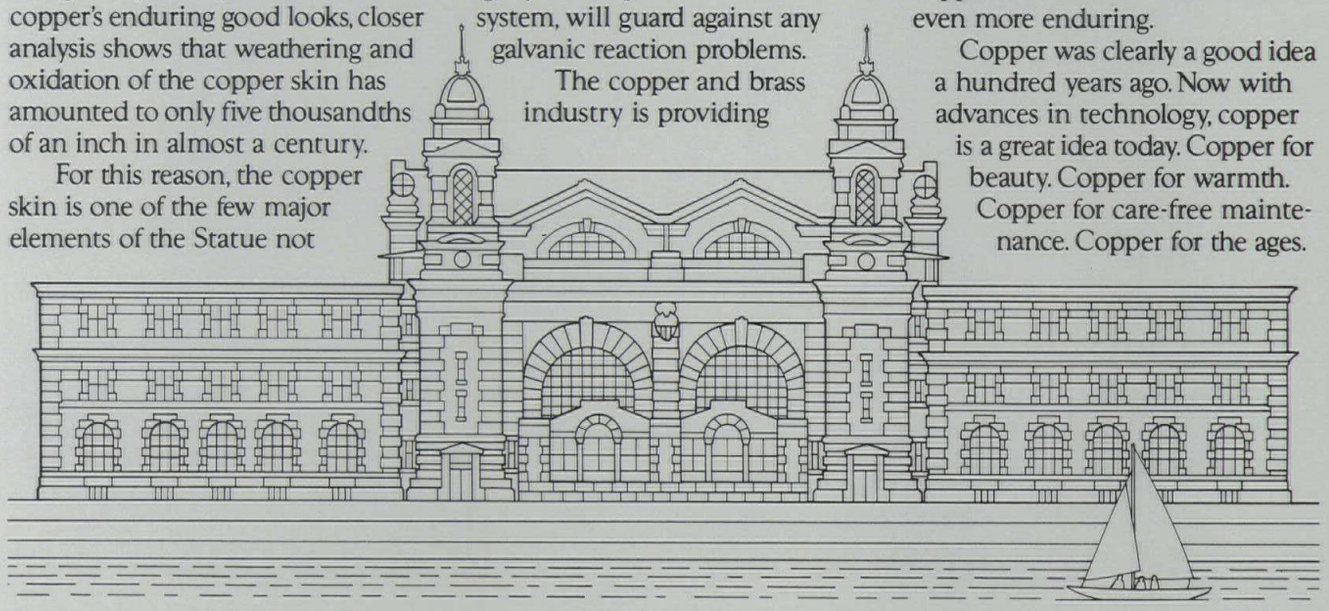

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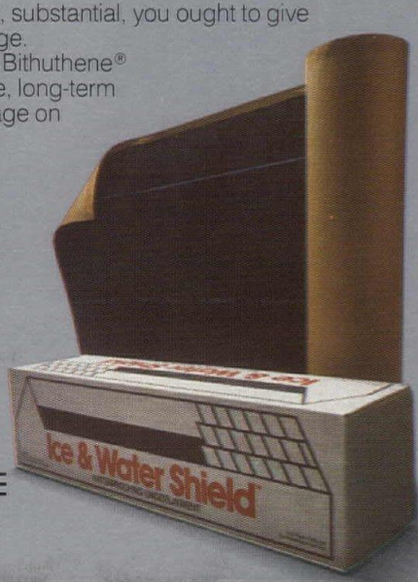

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Marlite® Brand Planks have a way with modern chain customers. The warm rich woodgrain designs are an inviting, familiar view to even the most hurried diner. Perhaps that's why they return time and time again.

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Is it any wonder that Marlite® Brand Plank sets the tone in almost all of the top 25 restaurant chains?

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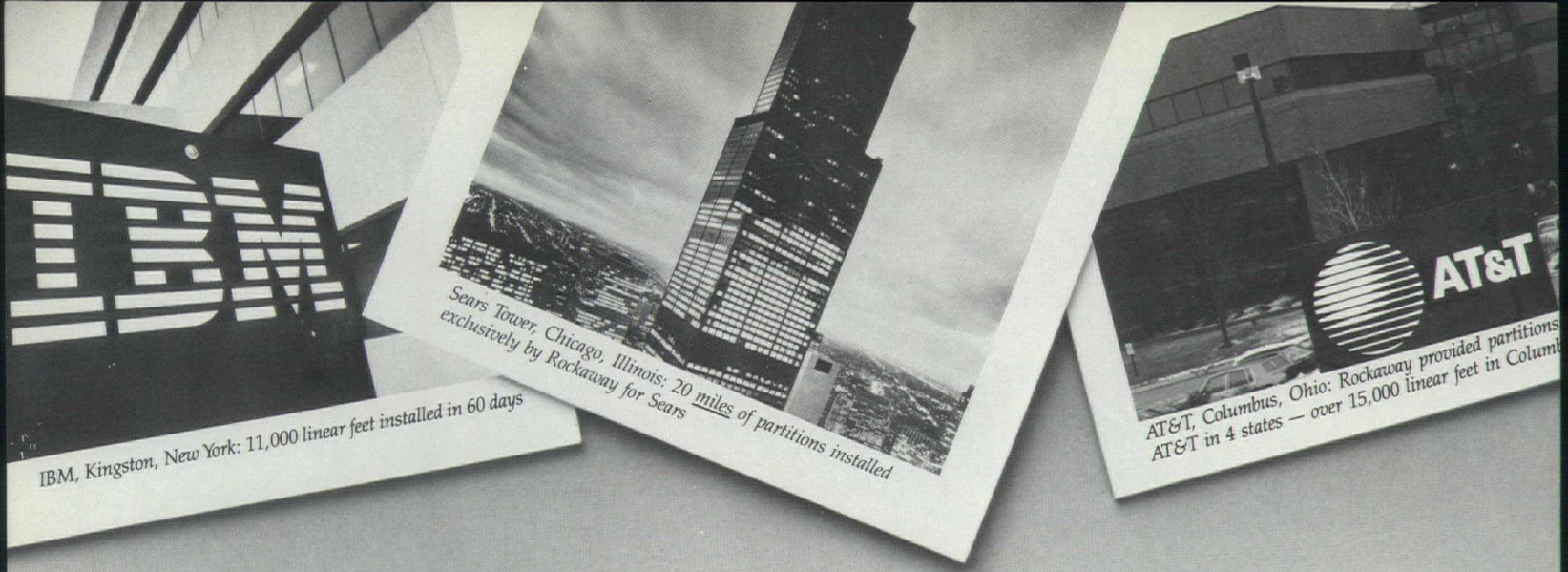

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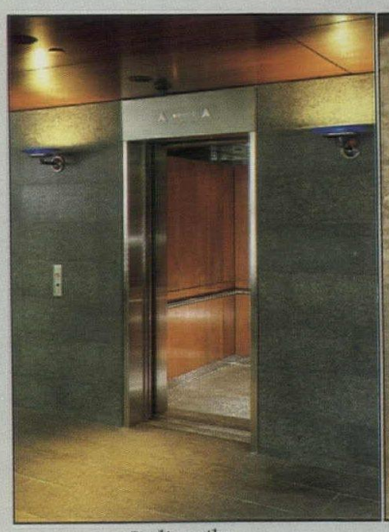

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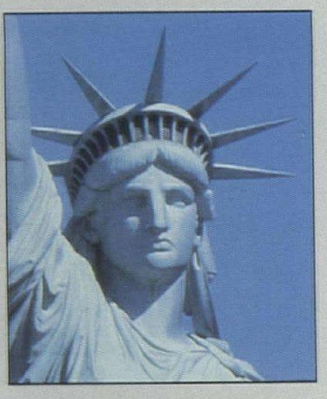

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Above: (Left) Evans Office Building, Owner: The Evans Partnership
(Right) 1100 PrincetonPark Corp. Center, Owner: The Seltzer Organization

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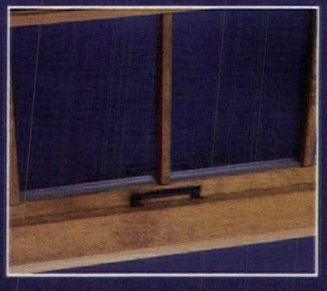

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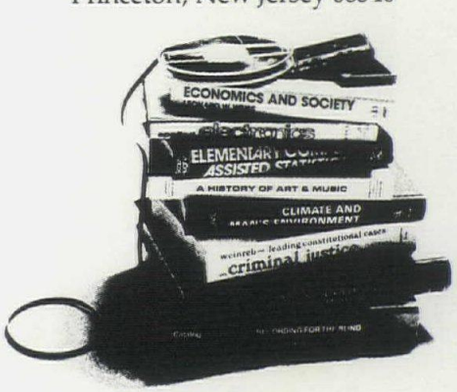

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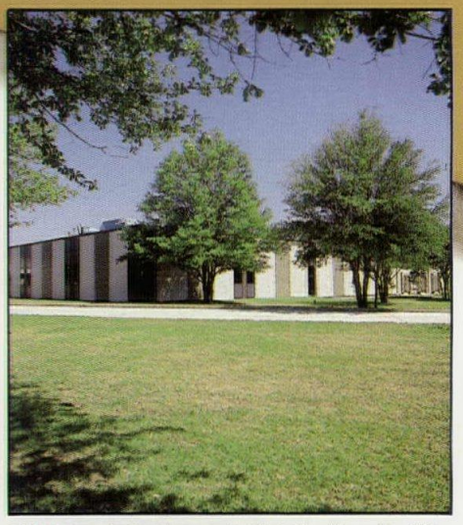

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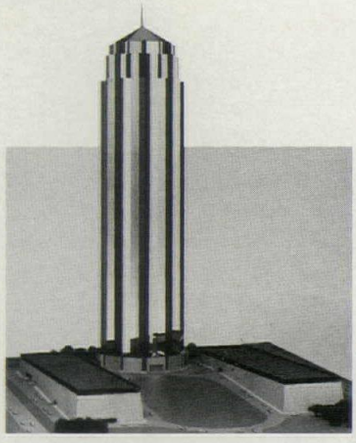
Tower exemplifies unexpected snags architects face



An office tower designed by John Burgee Architects with Philip Johnson is the cause of criticism not only for its mass and height of 52 stories but for possible airline-safety problems as well. Proposed as part of a project called Port America, located a few miles south of the District of Columbia on the Potomac River, the tower would be twice the height of the Washington Monument and, as such, would not only break historic precedent but jeopardize flight paths to National Airport, according to critics.

The entire project has been approved by Maryland's Prince Georges County planning board, which governs the location. But the Park Service, which had approved the project in essence, now objects, along with others, to the tower's 800-foot height. Manus J. Fish, Jr., director of the service's committee on the National Capital Region, wrote to the county planning board prior to that body's approval, saying that "we do have great concern for any high-rise skyscraper in the Washington area that would visually impact Federal interests. For that reason we are adamantly opposed to the 52-story office building being proposed." The National Capital Planning Commission said it was totally surprised to find out about the plans for the tower.

But a heftier problem could come from such groups as the International Airline Pilots Association, which has said the tower would cause unacceptable changes in existing approaches to National's main runway. Michael L. Moore, an association safety specialist, said that, especially in marginal weather, "aircraft would very likely fly directly over or around that building." The Federal Aviation Administration, which has a merely advisory function in approving buildings near airports, has not yet given its blessing. Developer James Lewis's consultants are working with the FAA in analyzing and perhaps adjusting flight patterns. But Lewis hints there is a possibility, that the design might have to change. "Of course, we don't want to put up a hazardous building," he says.

Peter Hoffmann, World News, Washington, D. C.

Building picks up despite predictions

After the year's tense first quarter, when it seemed that the tide of rising construction volume might be turning, contracts in April alone more than made up for the previous three months' decline. In fact, so strong was the surge that it put the volume 2 percent ahead of the same period last year, reports the F. W. Dodge Division of McGraw-Hill Information Systems Company.

At an annualized rate, the volume of newly started construction projects in April was a record $248.7 billion. This boosted activity by 15 percent above the previous month's rate. Even more remarkable in this time when one type of construction seems to gain at the expense of another, double-digit gains were reported in all three categories of building projects—housing, other buildings, and public works.

Dodge vice president and chief economist George A. Christie did have a note of sobriety: "Uncertainty about the consequences of tax reform has meant unusually erratic nonresidential activity since 1986 began. So April's exceptional rate of contracting, like Roger Maris's home-run record, probably deserves an asterisk. In April, a bunching of commercial and public projects, which might ordinarily have gone ahead during the first quarter, coincided with a generally stronger volume of homebuilding to give the *impression* that a new building boom is in the making." And Christie pointed out that a 2 percent gain over the the first four months of last year does, of course, merely hold the rate steady when inflation is factored in.

Here is how the individual components of the April rise performed: Contracting for nonresidential building rose 14 percent to an annualized $79.9 billion. Commercial and industrial building, paced by rebounds from weak March rates of office and factory construction, was the source of most of April's improvement. Institutional building (educational, health-care, and public-administration facilities) showed only a modest gain in April.

Contracting for residential building, in response to lower interest rates, rose 13 percent to an annualized rate of $123.8 billion. All categories of building advanced—one-family houses, multifamily units, and hotels/motels.

Nonbuilding construction (public works and utilities) also revived in April with a 21 percent advance to a seasonally adjusted annual rate of $45 billion. All categories of public-works construction shared in the month's gain and should, Christie said, be steadying due to the anticipated continuation of municipal bonds' tax-exempt status.

Council on Design Research created

A council that would strengthen the ties between the architectural profession and schools of architecture has been created by the AIA and the Association of Collegiate Schools of America. The 15-member council intends to advance the research of those developments of business and design within the profession—such as professional liability problems or new stylistic directions—that should be considered in the curricula of schools. The council aims not only to encourage such research by federal, state, and private groups but to solicit funds for a research endowment it will establish as well.

AIA president John Busby explained that the council will complement the AIA's own architectural-education and research initiatives and was created in recognition of the important role that such pursuits play in determining our future. ACSA president George Anselevicius said the new organization would continue his group's commitment to research in both architecture and other fields related to the environment as a whole.

The council will establish research priorities and encourage design professionals and educators to bring research issues to its attention. Specifically, the council will:

- Establish an agenda of projects.
- Oversee those projects.
- Supply advisory groups for specific research projects.
- Produce annual findings for integration into curricula.
- Establish the research endowment.

For more information, contact Pete McCall at the AIA, 1735 New York Avenue, N. W., Washington, D. C. 20006 (202/626-7300).

New local group would serve as national model

A New York organization of architects and engineers is offering free technical assistance to needy community groups and individuals. The group calls itself The Civil Works Register and is, in fact, a register of those individuals who have agreed to give their time. For more information, contact Liam O'Hanlon at Weidlinger Associates, 333 Seventh Avenue, New York, N. Y. 10001 (212/563-5200).

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Buying a computer? Here are 10 key clauses to get in your purchase contract

By Gerald Walpin and Michael V. P. Marks

When you buy a computer and related software, you are buying an expensive and complex system that should require careful thought. At the same time, the salespeople will be anxious to close the sale, and you, the prospective purchaser, will be eager to have the system installed. After all, you want the benefits of automation as quickly as possible. In this atmosphere, it may be tempting to treat the signing of legal documents as an administrative formality.

This attitude is dangerous. If the computer or software turns out to be defective or does not perform as expected, an inadequate contract can leave you with substantial losses and liabilities, and little, if any, recourse to your supplier through legal pressure or other effective means.

When are you most in danger of an inadequate contract? All too many purchasers use the supplier's contract forms as presented—particularly when salesmen assure them that the forms are "standard" and cannot be changed.

In reality, competition in the computer industry is intense, and knowledgeable purchasers, even when they use the standard forms, can generally negotiate changes. Remember that standard forms from suppliers are predictably biased in their favor.

The nature of the legal documents that you are expected to sign depends on what you are buying. A personal computer and off-the-shelf software may not involve a contract at all. The hardware may be sold with the manufacturer's standard warranty, and the software licensed under a so-called "shrink-wrap" license—an agreement you supposedly accept merely by opening the package. At the other extreme, if you buy a big computer or software customized to meet your particular needs, you may sign a hardware-purchase or lease agreement, a software-development agreement, one or more software-license agreements, and/or a maintenance agreement.

While an analysis of all the clauses that might be important or of all the traps to avoid might fill a book, the basic issues that are important—and that you should be able to negotiate—in most hardware and software agreements can be boiled down to 10:

Mr. Walpin is a senior partner and the chairman of the litigation department of the New York City law firm, Rosenman Colin Freund Lewis & Cohen. Mr. Marks is an associate in the corporate department of the firm. Both authors have had substantial experience in computer litigation and computer advisory work.

1. The first thing to get is a performance warranty so that there will be some description of what you are buying

Most standard hardware contracts either omit specific warranties altogether or contain vague language such as, "The hardware is free from defects in material and workmanship." Software contracts typically provide no warranties whatsoever or contain a "material-and-workmanship" warranty that covers only the physical medium on which the software is delivered. It is also usual for standard hardware and software agreements to disclaim the implied warranties that the Uniform Commercial Code reads into a contract when the contract is silent.

Still, you can reasonably ask for added warranties that the hardware is in good operating order and will operate in conformity with the supplier's specifications that you should then attach to the contract. Ask for 90-day to a year coverage.

In a software license, an appropriate warranty might provide that the software will be free from significant programming errors and will operate in accordance with certain specifications, again, for some reasonable period. And, again, the specifications should be attached and as detailed as possible. The warranty period for software should be longer than for hardware, since many software errors may not be detected until long after the software has been installed—particularly when certain functions, such as the preparation of year-end reports, are done infrequently.

2. You may not be able to do away with a supplier's limitation-of-liability clause but you can raise the amount it covers

To protect the supplier against potential massive liabilities if the hardware or software malfunctions, suppliers' contracts typically contain, in addition to a disclaimer of warranties, a limitation-of-liability clause on the maximum damages the supplier will pay. The limit is usually the purchase price.

Few, if any, suppliers are willing to delete the limitation-of-liability clause altogether, since their liability in those instances when a thriving business is stopped dead by a nonworking computer can be astronomically more than the computer's cost. Still, there is nothing magic about their limitation. Limitations of two or three times the purchase price are usual and make sense.

A seller technique to which the purchaser should be alert can arise when hardware and software are covered by multiple contracts. Each of these agreements may contain a separate limitation of liability limiting damages to the cost of the item covered by that contract. In this contractual tangle, if a $10,000 software program fails, damages may be limited to that amount, even though a $75,000 computer has been rendered useless as a result. The lesson is clear: In multiple-contract situations, the limitation of liability in each document should be at least the total amount paid for the system under all contracts.

But all may not be lost, even if you have accepted the seller's limits. Although limitation-of-liability clauses are generally enforced by the courts (on the theory that the purchaser and seller are free to allocate risk as they see fit), purchasers have, on occasion, convinced the courts otherwise. In a recent federal court case in California *(RRX Industries, Inc. v. Lab-Con, Inc.)*, the defendant agreed to supply software for use in the plaintiff's medical laboratories. The software proved unreliable, and remained defective after numerous attempts by the defendant to fix it. The software contract obligated the defendant to correct any malfunctions in the software, but limited the defendant's liability to the software cost. The court refused to enforce this limitation, finding the default of the seller "so total and fundamental that its consequential-damages limitation should be expunged from the contract." Again, the message is clear: Do not hesitate to complain aggressively to your supplier about problems and to insist that immediate steps be taken to correct them.

3. You need not be bound by a computer supplier's integration clause to only what his standard contract covers

The supplier's contract will typically contain a so-called integration clause that would make the contract the entire agreement between the supplier and the purchaser, superseding all prior written or oral statements. There is nothing intrinsically wrong with an integration clause. But your decision to purchase is often based, in part, on promotional and other materials describing the computer or software, and may also be based on the supplier's statements such as, "This system is the right one for your job." So, unless specific exceptions are built into the integration clause, none of these materials or statements is binding because the integration clause states that they are superseded by the contract. This problem is often addressed by adding an addendum to the contract that sums up oral statements and/or by attaching the relevant promotional materials.

Continued

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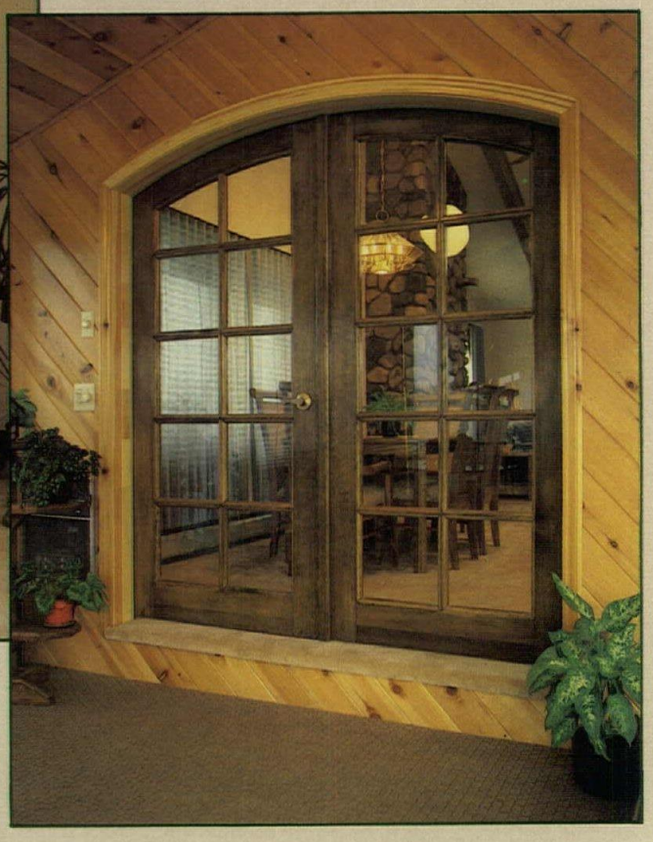

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"Remember that standard forms given you by systems suppliers are typically biased in their favor"

As in the case of limitation-of-liability clauses, the law does provide certain escapes from integration clauses in extreme cases. For example, if promotional materials on which a purchaser has relied state that a computer has enough power to perform a complex engineering analysis in five minutes, but the computer, in fact, requires five hours, the purchaser could argue that the seller's promotional materials amount to fraud, and that he should be liable for the statements made in the promotional materials, notwithstanding the integration clause.

4. A warranty of noninfringement should guard against your being sued for a copy-cat system and cover your liability if you are
All agreements should contain a provision by which the supplier warrants that the items supplied do not infringe on any patent, copyright, trademark, nor other proprietary rights of any third party. If the clause is not present in a standard contract, the purchaser should insist on it being inserted. Most suppliers will not object.

Several points should be noted when reviewing such a clause. First, the warranty should refer to the supplier's patent, copyright, trademark, and other proprietary rights and, if any of these is missing, it should be inserted.

Second, if, despite the warranty, the purchaser is sued by someone who contends that the hardware or software infringes on his rights, the purchaser should have the right to settle the lawsuit at the seller's expense. If the seller wants the right to approve any settlement, the clause should provide that such approval will not be unreasonably withheld, and that, if such consent is refused, the seller must post a bond to guarantee indemnity.

Third, and most important, this clause should make clear, as it does not in most standard forms, that the amount of reimbursement the seller would receive under the limitation-of-liability clause does *not* apply to the warranty of noninfringement. In other words, though it may be reasonable to limit the supplier's liability for malfunctions, the purchaser should not bear any risk whatsoever of liability due to an infringement by the supplier on a third party's proprietary rights.

5. Your right to test software is particularly important when that software has been written especially for you
When software is to be written specifically for you, it is important you provide for detailed testing procedures that assure you will not be required to accept that software without verifying it performs as promised. Ideally, the acceptance tests should use your data on your computer, so that they can, to the furthest extent possible, approximate how the software will operate in your practice. Similarly, the license fee you pay for the software should be in installments, with a significant percentage retained until you have accepted the software and it is installed and running properly.

6. Watch your proprietary rights when you have commissioned a customized program—especially when it involves your input
When a developer writes software or customizes existing software especially for you, it is important to spell out what right that developer has to sell the same or similar software to other customers. When you have participated in the design of the software, it is usual to restrict the developer's right to resell—to provide for a royalty to you if the developer does resell, or to provide that you will own the copyright. There are a number of legal issues in contracting for software ownership. For more on these issues and on the potential liabilities involved, (RECORD, March 1986, *Computers*, pages 41-43).

7. Make sure that, if software problems do arise, there will be a remedy if the supplier is unwilling or unable to fix them
Significant bugs can continue to surface for years after the initial installation of software. This is illustrated by the sudden failure of software that had been used for some time by the Federal Reserve Bank of New York to track wire transfers between it and its member banks. The failure caused millions of dollars in damages to the member banks due to a programming oversight that did not allow for the especially heavy load on one particular day. It is important for a purchaser to have assurance that program problems of any magnitude will be corrected. One way is to require that the supplier support, or service, the software for a stated period at a stated rate. When there is concern whether the software supplier will remain in business, or will be willing to support the software, a source-code-escrow agreement should be considered. (The source code is the plain-language version of the program that, as a practical matter, a programmer must have to make changes.) Under a source-code-escrow agreement, the code is deposited with an independent third party, such as a bank, with instructions to deliver the code to the purchaser if, but only if, certain specified conditions are met—such as the supplier going out of business or refusing to support the software. For a source-code escrow to be meaningful, the purchaser must retain a technically knowledgeable advisor to verify that the computer disk or tape which is placed in escrow is the one that contains the information and programs necessary to maintain the program.

8. If you opt to have the supplier maintain your hardware, make sure that he will be prompt and cover what is often exempted
When your business would be harmed by an extended interruption in the proper operation of your computer, you might well make a maintenance agreement with the supplier or another organization. Two provisions in such an agreement deserve special note.

First, the timeliness of repairs is critical. Standard agreements often provide for "the best efforts to provide remedial maintenance as promptly as possible"—a statement so vague as to be almost meaningless. The service supplier should agree that a repairman will respond to a call within a specified period. In a metropolitan area, three to four hours is reasonable. If the supplier will not agree to this, at the very least he should provide a representation of the average response time that he has achieved over the past several months, so the purchaser can have some idea of what to expect.

Second, suppliers frequently slip exceptions into their repair obligations. For example, some standard agreements exclude damage resulting from power surges, or brief voltage spikes in electric power lines. However, the user has no way of knowing whether a machine failure is caused by a power surge or not. If the computer is susceptible to damage from surges, the service supplier should recommend a surge protector—not exclude surge-related damage from coverage. The same reasoning should be applied to other exceptions that the supplier may try to slip into his agreement; they are often nothing more than an invitation to charge additional fees for repairs by claiming that breakdown has resulted from a cause that is not covered.

9. Watch for differences in opinion on what constitutes confidential information; you should establish its value in your contract
When a hardware supplier assesses your needs or when a software developer creates programs tailored to your practice, it is often necessary for that supplier or developer to know detailed information about your business. When, as is often the case, you do not want that information disclosed, a confidentiality clause is important.

Such a clause should state that *all* information concerning your business will be considered confidential and proprietary, and will not be disclosed without written permission. Typical confidentiality clauses in suppliers' contracts state that only information designated by the purchaser will be considered confidential. Whether or not such a limitation is reasonable depends on the situation. If all the supplier is receiving is specific written materials, it would not be difficult for you to stamp each one confidential. In reality the supplier will probably have access to your offices, and will be asking employees questions.

If a supplier goes ahead and discloses proprietary information despite a confidentiality clause, it will often be difficult for the purchaser to prove what the violation was worth in dollars. For this reason, it is desirable to have a liquidated-damages provision in which the parties acknowledge that damages may be difficult to determine and agree to a specified amount of damages—or a formula for computing them.

Finally, the need for confidentiality will often arise before a contract can be signed, because the supplier will need access to your information to determine what he is to sell you. In these situations, a separate confidentiality agreement should be signed before the main contract.

10. A supplier will often seek to limit the purchaser's right to resell his system or equipment; you can, at the least, get exceptions
Standard agreements often contain a nonassignment clause that prevents purchasers from assigning their rights without the supplier's written consent. Several exceptions to this clause to cover specific situations are important: First, you may wish to create a subsidiary holding company for your systems because of the tax advantages that are thereby available. Second, you may want to give an affiliate access to your system. Third, you may wish or be forced to sell your business, including equipment.

Architects asserting strong legal rights can maximize the benefits of automation. If things go wrong, the architect is not left bearing the responsibility alone, and a good contract has an important preventative effect on a supplier. It gives him an incentive to avoid malfunctions.

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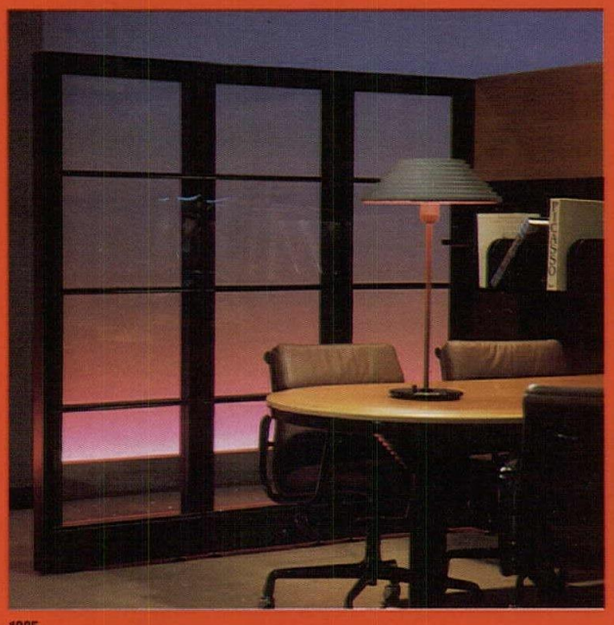

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Finance:
If you are looking for stability in the chaotic housing industry, think big

By Joseph Spiers

The construction of new houses is one of the most volatile of all industries in the United States. Hence, for architects, as well as all the others involved, it is one of the most difficult industries to work in. Activity can swing wildly from year to year, depending on where interest rates are, how much money people are making, how much money banks have to lend, and what lending policies the banks have decided to follow.

As an example of this perilous volatility in the industry, there is the 1980s: Construction of single-family houses plummeted 29 percent in 1980 to 852,000 units; new building continued to decline in 1981 and 1982. But then it surged by a dramatic 61 percent in 1983 to a little over 1 million houses. Since then, single-family house building has been going along at about a flat rate.

Unfortunately, for those who like stability, there is nothing on the horizon in either the economy or the various legislatures, federal, state, or otherwise, that will change this feast-or-famine cycle. What kind of planning is possible, then, for you as architects, not to mention all those other people involved, like builders, who are trying to run a profitable residential business? Is there any smidgen of predictability in the housing market on which to base plans for what you will be designing in the next year—or next quarter?

While total certainty is just not part of life, let alone the housing market, one approach toward knowing what you are doing in any unsure circumstance is to identify currents that flow beneath the surface turbulence. If you can identify relatively clear currents, your planning can attain at least some reliability to help you out—even if, in the case of housing, the marketplace is going to hell in a given year.

If you are trying to do forecasting, here are a few of the influences on the market you can forget

In looking for underlying currents, or we should say trends, forget about finding predictable patterns in the most important determinant of housing activity—interest rates. True, some people are paid lots of money to predict interest rates; yet few, if any, would probably offer their track record for close scrutiny. What's more, these same people are often, as most experts are, in complete disagreement on what is going to happen.

Mr. Spiers is senior economist for McGraw-Hill's Data Resources, Inc., which supplies economic information and forecasting to government, industry, and financial institutions.

And even some executives whose economic lives depend on interest-rate movements—namely savings-and-loan officials—gambled wrong on interest rates in the past year, sending their institutions, which they were so highly paid to guide, into bankruptcy.

The next most important thing that determines the rate of single-family-house construction is potential buyers' incomes. This should be easier to figure out than interest rates because incomes usually go up—that is except during a recession. All of which leads, once again, to big forecasting problems.

In early 1985, for example, some economists were predicting recession within the year. It did not happen; instead, the economy continued to grow, albeit slowly. Now, most economists foresee growth in 1986 as being a little better than in 1985, which implies a level of house building that's also a little higher. But then, depending on those economists' accuracy once again, we could get a recession, producing not a slight housing boost but a slump.

After the two big determinants of how much new housing construction gets built—interest rates and incomes—there are a number of smaller ones. The policy of banks that do the lending is among the most important. If mortgage defaults and delinquencies are high, as they were in 1985, then banks and other lenders tighten up their requirements for making loans. Fewer would-be home buyers qualify for mortgages, and house building may suffer—despite the health of interest rates and incomes.

Then again, lenders may concoct new types of mortgages, such as the large array of adjustable-rate mortgages that came into being in 1981. These new mortgages enabled some otherwise financially unqualified people to buy houses. But it's not easy to determine when banks will change policies, or to guess what deals they may decide to offer.

So if the housing market puts bread and butter on your table, how can you get a better handle on your fate if so many fundamentals remain a mystery? It's a bit like being a member of a primitive religion: You observe phenomena—rain, for example—that you can't understand but which are very important to maintaining your life; yet you don't know how to control or even to predict the rain. Instead, you rely on certain time-honored customs (what would be, in more sophisticated surroundings, trends) that direct you to plant your seeds at a certain time of year when the rain, if it comes, will do the most good.

There is no guarantee your crop will flourish, nor is there any guarantee you will be able to prosper in the housing market. But maybe the chances of success will be raised by looking for reliable trends and factoring them into your business-development plans.

A look at some history can tell you well enough what to do for the present

One suggestion is to look at housing markets segmented by quality and price, summarized by the square footage of new homes shown in Table 1 (page 43). While the numbers in the table jump around from year to year, there may be a motif in this madness: Bigger (meaning more expensive) houses are becoming dominant.

The reason, probably, is that upper- and upper-middle-income people are getting richer and are consequently demanding more living space. Architects seeking residential work now, therefore, would do well to concentrate on this high end of the market.

Even when the high end was not so prosperous, it was where there was the greatest demand, in proportion to all houses built, for the sophisticated design that architects do. It presumably produces the greatest return for design-and-production work done. And today, as we shall see, it is not only becoming dominant but, by far, the fastest growing market segment.

Here, in some detail, is a rundown of the evidence: From 1970 to 1984, the number of houses completed in this country that contained more than 2,400 square feet of floor space grew by nearly 100 percent. During the same period, the mid-size range of between 1,200 and 2,400 square feet grew only a little more than 50 percent. And the number of small houses of under 1,200 square feet plummeted by nearly a third from the 1970 count.

In view of this decade-and-a-half-long decline in small houses, what about the hoopla a few years ago about construction of mini-houses to accommodate young people confronted by mortgage rates soaring to 17 percent? Well, it wasn't totally a matter of the nightly news looking at the world through the wrong end of a telescope: That one-third decline was not in a straight line; as a share of all houses completed, those with less than 1,200 square feet fell by a half—from 36 percent to 18 percent—from 1970 to 1979. Then in the 1980s, as recession and high interest rates gripped the marketplace, builders responded by

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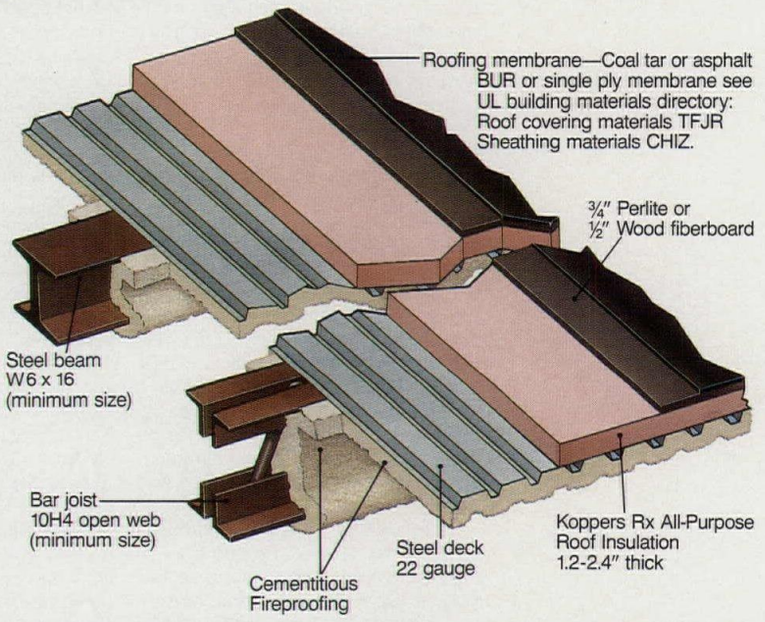

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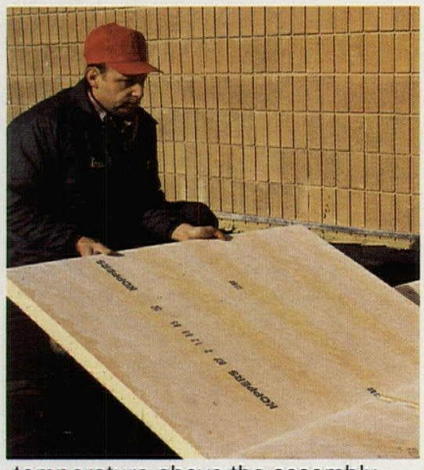

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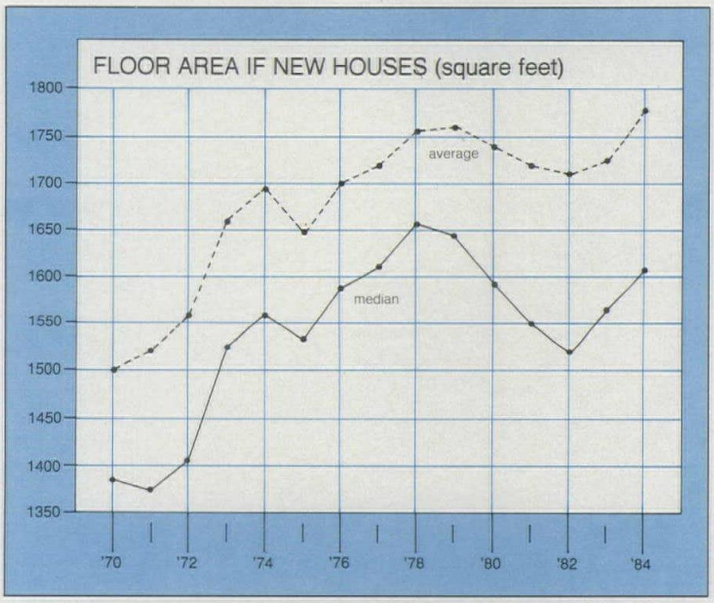


Table 1. New single-family houses rated by square feet

	Total houses completed (000)	Under 1200	1200-2400	Over 2400
1970	793	36%	56%	8%
1975	875	25	64	11
1979	1301	18	67	15
1980	957	21	64	15
1981	819	24	61	15
1982	632	25	60	15
1983	924	22	63	15
1984	1025	19	64	17
change	+29%	-31%	+54%	+97%

Table 2. Housing amenities grow

	2 or more baths	2 or more stories	2-car garage
1970	48%	17%	58%
1975	60	23	67
1980	73	31	56
1981	70	32	53
1982	67	33	50
1983	72	36	54
1984	76	40	70

increasing the share of small houses they put up. This trend peaked in 1982, the depth of the recession, at 25 percent.

Meanwhile, houses over 2,400 square feet maintained their share of market during the housing slump in the early 1980s. The relative gain for small houses came at the expense of houses in the 1,600- to 2,400-square-foot range, which fell from 38 percent of the market in 1979 to 30 percent in 1982.

When economic recovery came in 1983, leading to expansion in 1984, the share of small houses resumed its long-term downward path while larger houses' path rose.

Certain fundamental principles do apply to the housing market for predictions of the future:

- When people can afford to, they buy large houses and shun the small ones. As we saw, while the country grew richer between 1970 and 1979, the market share of small houses plunged. When times got rough in the early 1980s, the share of small houses spurted.
- Relatively wealthy groups in society have grown increasingly important in the housing market. Again, as we saw, large houses, as a share of market, have risen constantly since 1970, leveling off (but not falling) during the recession in the early 1980s and then rising again in 1984.

The first point above is obvious enough, but what business action can be taken in light of it? For acting on it means being able to forecast the business cycle accurately and, as suggested above, that is a very tricky feat.

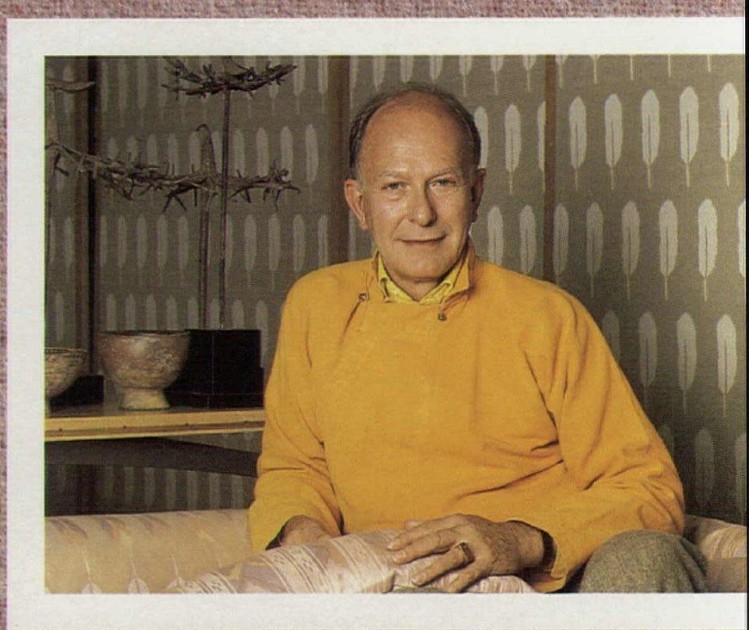
The safe assumption is that, over time, Americans will continue to become gradually better off and thus desire larger houses, continuing the pattern shown in Table 1. Along with more square footage, Americans have also been looking increasingly for two or more bathrooms, two-car garages, and two or more stories in their new homes (Table 2). But, as Tables 1 and 2 also show, there are times when new houses get smaller and amenities are reduced.

The second underlying trend noted above—that big houses are becoming more important—possibly gives a better source of prediction than the fact that a rising tide raises all boats—or, here, the size of all houses. The action: Allocate your creative and marketing time, not only now but for the future, to houses of the largest size.

While those upper-income groups have been doing better and better financially during the 1980s and those middle- and lower-middle income groups have been straining their budgets to keep up, there is no evidence of change. This trend should continue as the job market increasingly rewards executives and professionals, and as deregulated financial markets increase investment opportunities for people with money.

One indication of the accuracy of this trend in forecasting is that, while the median (50 percent above, 50 percent below) size of new houses shrank sharply during the 1981-82 recession, the average size only fell a little, because the average was pulled up by all those very large houses. This, of course, indicates that homebuilding at the high end of the market does well even during a recession—in the case of 1981-82, even at a time when more middle-class people were willing to buy more smaller homes than at any time in the recent past.

The upshot of this discussion: As the rich and upper-middle class get richer, their houses will get bigger and they will have more amenities. This trend, started in the 1980s, is a trend that will most probably accelerate. Meanwhile, as the rest of Americans do better, they'll also demand more size and amenities in their houses; but this demand will be subject to the ups and downs of the business cycle far more severely than the demand of upper-income groups. Hence, increasing demand for large houses will be the most stable element in what will otherwise remain one of the most volatile and uncertain of all markets in the U. S.



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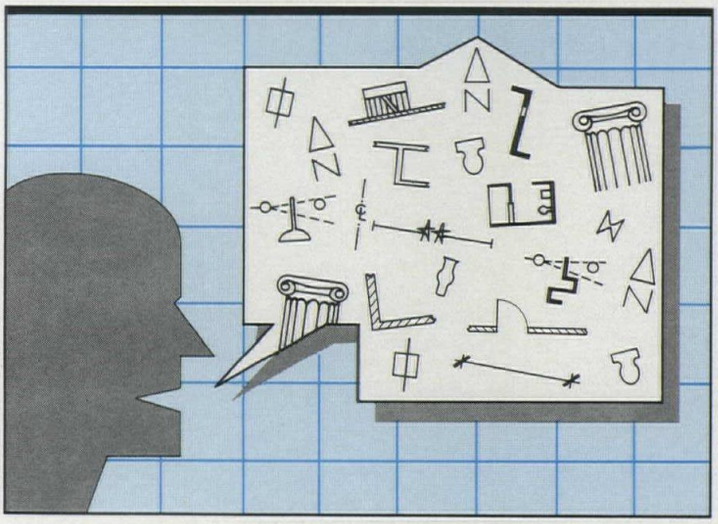
Management: Don't lapse into lingo when talking with clients

By Richard Wiegand, Ph.D.



While we architects all know that those people out there in the rest of the world don't always speak our language when it comes to talking about design concepts and getting them built, we sometimes forget and lapse into architectural lingo. Then someone like Dr. Wiegand comes along and, in a straightforward manner and with occasional humor, reminds us to hear what we say from the listener's point of view. In short, he reminds us to observe one of the basic tenets of politeness by considering the other person and, in the competitive business environment today, one of the basic tenets of good common sense as well. Listen to Dr. Wiegand. Don't get caught throwing incomprehensible jargon at people who might otherwise like to be your clients.

Certainly most architects—particularly those who design houses—have faced the frustration of the client's misunderstanding of what seemed to them to be the simplest terms and concepts. But is it the client's responsibility to know the patois, the jargon of architects?

Why can't architects find terms and language that clients can understand? Indeed, effective communications should be a basic part of architects' practices.

Clients are neither fools nor simpletons. That they don't know basic facts about construction—or its esoteric terminology—is no indication that they are mentally deficient.

Not a few architects have offended clients by acting superior or amused when the clients botched technical terms. Young architects, in particular, think it's hilarious when a client becomes confused and can't find the right word.

If you want to know how a client feels in such a situation, consider your own reaction to an automobile mechanic who smiles smugly while you desperately try to explain what's wrong with your car. Or how you feel when a car salesman explains with a condescending tone that "SEL" means a car has a gasoline engine instead of a diesel engine (which, by the way, is an incomplete explanation.)

It may be difficult for you to remember the difference between professional and everyday terms. Take "elevation," for example. In one of the standard college dictionaries, not the first but the sixth definition is "a geometrical projection (as of a building) on a vertical plane." Is there any wonder that the meaning of "elevation" you most often use doesn't spring to the minds of your clients?

So when your client wants to see "the drawing of the house," don't get irritated. And don't correct with "the elevations." You could open a chasm in your communications that would haunt you later.

For instance, you must fit the house to the lifestyle of the occupants. And it takes a lot of patience and careful communication to establish what that lifestyle is—to find out what the family really needs. And you don't want the properly intimidated family coming back with such statements as "I get out on the left elevation of the bed."

It's easy to lose your patience when, after five or ten minutes of their hand waving and rough sketches, you find that they have been trying to say they want a hip roof. You can't help wanting to scream, "Why didn't you say so?" Unfortunately, even wanting to is going to show.

And your clients may be woefully ignorant of other verities of both architectural design and construction. They can't possibly appreciate the problems caused by that 40-foot clear span they want across their living room. And they have no idea of the stress problems caused by that brick floor they want on their balcony. Nor need they know such things! They hired you to explain those things in terms they can understand. It's up to you to build a common basis of communications between them and you—just as surely as it is up to you to see their building is properly built. Here are some techniques that you can use:

Become a translator; mediate between your clients and the harsh world of construction

Concentrate on the way your clients express themselves; use professional patois only to people, such as contractors, who use it too.

For example, the term used by contractors in your part of the country might be either "hose bibb" or "bibcock" or "sillcock." But a client may say "garden-hose faucet." In the final analysis, the contractor will supply water where needed and you don't have to broaden the client's vocabulary.

That is to say that, as long as you can truly understand and interpret what the client wants and what his needs are, you should use any terminology with him that keeps the channels clear and open. If he knows the "right" term and uses it properly, fine; use it too. But if he uses a layman's equivalent—and you understand what he means—don't be afraid to use that.

Be diplomatic when you must interpret patois: If a plumber says to your client, "I'm having some problems running lines; just where do you want that bibcock hung?", you say, "Didn't you want the garden faucet under the kitchen window?" You've said what the plumber said and the client hasn't been embarrassed.

Problem-solving is not the form of mediation being suggested here. The building trades cling proudly to their special terms. A soffit is a soffit to a carpenter—and that's all it is. He is probably unaware that dictionaries call it the underside of a roof overhang. Still, he seems to delight in impressing (or confusing) your client by parading a spectrum of trade terms that the tradesman knows are strange to him.

Wouldn't it have helped if you had had someone to interpret for you when you were in that car showroom? If you had had an intercessor, you might have bought that car instead of walking out in frustration.

There comes a time, when you know your client better, that some careful education will help

Not that you can start right in with his education in your early relationship, but it most certainly does help the client—and broadens him too—if he can learn both the precepts and the basic language of your profession. Knowing the right terms can make him more accurate and precise. For example, once you explain how a three-way switch works and what it can do, he won't ask for a three-way switch that works from five locations.

But how do you assume the role of teacher without offending your client? There certainly is a danger if your methods are blunt or obvious. After all, clients are successful people who expect respect in everyday life, and no less from architects and contractors.

Most successful people, however, are eager to learn more about new areas—especially areas that affect them as directly as their own construction projects. So they accept instruction in technical terms and concepts if a few simple factors are present:

- The reason for the explanation is obvious.
- The teacher is not superior in attitude or condescending in tone.
- The new terminology is immediately useful.

Clients are most receptive when you can give them information that is immediately useful. Take "cfm," for example. Simply stating "cubic feet per minute" doesn't explain much. But describing the kind of breeze that would go through a building from one attic fan versus that from another with a higher cfm rating makes direct and meaningful sense. Clients can easily transfer this understanding to other problems of air movement.

But don't push the issue. If "bibcock" just doesn't make sense to a client and he can't remember it, "garden faucet" will do just fine.

If you are dedicated to building better communication with your clients, if such a goal is an integral part of your practice, then you must become an interpreter/translator/mediator for your clients, and (with great care), a teacher. Such actions will strengthen the bonds between you and your clients and will go a long way toward everyone's more complete understanding.

Dr. Wiegand is a professor of management communication at The University of Alabama and a consultant in both written and oral communications in business. He has taught technical writing at Georgia Tech University while serving as the University's director of continuing education for 21 years. He has worked with architects, scientists, engineers, and management personnel to develop and present continuing education programs.

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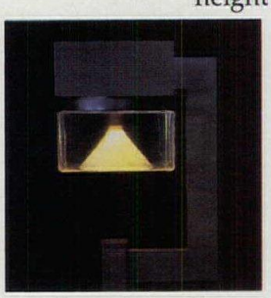

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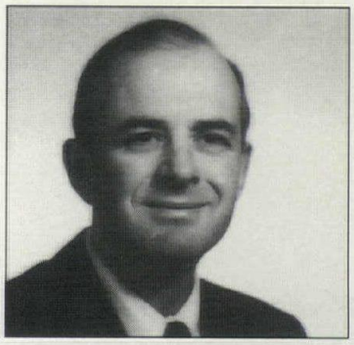
Architectural education: Teaching professional practice—heroics, hypocrisy, or hyperbole?

Of all the debates among architects and educators, none is as long-enduring as how—and where—practice skills should be taught. Professor Groves, who is also an architect and a lawyer, presents a thoughtful discussion of what a course in professional practice ought to include

By John Russell Groves, Jr.



Without getting into the extravagances often heard, from both architectural practitioners and academics, about teaching professional practice in schools, I would like to propose some considerations for such a vital course. I have taught professional practice for some 15 years, and grappled with almost every conceivable attitude and opinion. I do not profess to know all the answers, but I have certainly been part of the debate. In an architectural curriculum, there is a vast amount to learn in a very few years.

Within the limited number of curriculum hours available, faculty members often lobby, debate, and compete for time for their particular area of interest. This is a necessary process unless students are to be expected to continue their formal schooling indefinitely. At the same time, while the course content in programs of architecture does vary, there is a detectable similarity based in part on tried and proven didactic methods.

Within this matrix, the curriculum is under continuous review by faculty and outside groups. In addition to the subject of design, the integration of technology and related subjects throughout the curriculum has been given attention of late, with insightful but unresolved results. In fact, the only resolution that might be drawn from these discussions is that there can be no final consensus, but only a continuing debate that seeks to question and correct perceived inadequacies.

It is in this context that teaching professional practice is taken to task, with an examination of the place and purpose of conventional wisdom as well as nontraditional forms of practice.

John Russell Groves, Jr., AIA, is associate professor of architecture at the University of Kentucky College of Architecture. He is also a member of the Kentucky Bar Association and vice president and secretary-treasurer of Johnson/Romanowitz/Architects, Inc., in Lexington. He is a past Commissioner of the Kentucky Department of Housing, Building and Construction, and State Facilities Engineer for the Kentucky National Guard.

What is professional practice?

Professional practice defies precise definition. In one sense it is all of architecture. In another, it pertains to the organizational, managerial, planning, legal, ethical, and administrative aspects of practice. Teaching professional practice is usually undertaken in a three- or possibly six-hour course within the architectural curriculum, plus related electives.

Of necessity, only a limited number of subjects can be extensively examined. A dilemma facing the teacher of professional practice is: first to identify and then to bring to the classroom the issues, challenges, and experiences that characterize practice.

Although professional practice may not be easily defined, one constant factor is the need in virtually all aspects of practice to communicate with others in a give-and-take process of exchanging information and solving problems.

Creative as the classroom process may be in replicating those circumstances, the essence of practice-related problem-solving can never truly be duplicated in the classroom, nor can it be superimposed on the design studio. Certainly, useful exercises can result from the creation of hypothetical situations involving professional practice within the design studio. A team-teaching process involving the studio critic and the professional-practice instructor can undoubtedly reveal many conditions and circumstances, the examination of which would be useful for the student.

A superimposition within the studio, however, is generally not received with enthusiasm by the studio critic, due mainly not to an aversion to professional-practice matters, but rather to the desire to use the studio time for studio matters. Exceptions may be possible and, if pursued on a carefully planned basis, can result in a complementary joint exercise. Even with these arrangements, the examination of professional practice must continue primarily in the conventional classroom setting.

What then are the components of professional practice that should be addressed in the curriculum of a college of architecture? While literally hundreds of topics could be a part of a professional-practice syllabus, limits on time dictate that many will be dealt with as little more than vocabulary terms.

The discussions that follow suggest teaching professional practice from several points of view. They are: the architect as a professional; the architect's office and administration; public expectations and responsibilities; the client's requirements; the relations with the contractor; the case study; and what I call "war stories."

The architect

The study of professional practice is in good company if it begins with a review of the architect's place in history as a participant in shaping the environment, and as a person who, by virtue of training and experience, is vested with certain rights and obligations.

The term professional should be examined. It might be asked why both architects and athletes can be termed professionals. Where is the distinction? While each state has registration laws (which should be made a part of the discussion), the larger issues will be: the impact of architecture on society; the role of architects today; and the future of architecture, with attention given to both traditional and nontraditional forms of practice. This introduction can also include options which will confront the students at various points in their professional lives, as they decide upon the form of practice to which they are best suited or most strongly attracted.

As the "architect" component of practice is further examined, the implication may emerge that professional-practice matters can occupy too great a portion of time—to the extent that professional practice becomes an end in itself. At this juncture, the instructor of professional practice may face the precarious task of balancing competing interests. The following section explains.

The architect's office

Physicians, attorneys, and other licensed professionals—as well as architects and engineers—have seen an increase in administrative, peripheral, and supporting activities related to their professions. The maintenance of any profession or business today requires almost a new definition of "overhead" to provide the services necessary for the essential activities to occur.

As the professions in this country have grown and matured, public expectations have increased and been more clearly defined. At the same time, regulations at every level of government have had increasing impact on all professions. Increased regulatory activity has translated directly into the expenditure of more time and resources to satisfy those requirements. Thus, the importance of maintaining a balance in practice—with emphasis on planning and design—results as a continuous challenge.

Public expectations

Along with an examination of the role of architect as practitioner, the architect's responsibility to the public requires study. Registration laws in all the states are based on protection of the health, safety, and welfare of the public. Architects are presumed to have the knowledge, skill, and experience necessary to provide services that will lead to buildings which are safe for their inhabitants and that fulfill their intended purpose.

Historically, registration laws have avoided matters of attractiveness, esthetics, or design—except as can be measured objectively and evaluated, if necessary, by legal standards. As a result, registration laws do not include standards for these components of architecture. Rather, the adequacy with which those criteria are satisfied is measured in the marketplace, and in critical assessments by the media, academe, other members of the profession, and the general public. The study of the relationship between architect and the public must examine these dogmatic and regulatory expectations.

Students may not be greatly stimulated by the introduction of these materials into their daily course of study, the core of which will be intense involvement in the design studio. The challenge for the professional-practice instructor is to demonstrate the interdependent relationships among design, practice, and regulatory matters—showing those relationships to be necessary, demanding, and essential for a concept to become a reality.

An architectural project cannot be complete without adequate attention having been given to these matters. Likewise, an evaluation of any architect's overall competence and effectiveness, whether self-imposed or done by the client or others, will be based in no small measure on the ability to solve a broad range of problems—both during the design and document phases, and over the life of the project.

Understanding the expectations of the general public is one of the first steps toward understanding the needs of a particular client. The client's requirements, as translated through the building program, will be the starting point for design. But, before the analysis of a particular client's needs can begin, the pragmatic requirements for the safety and welfare of the building users should be understood.

The client

The course in professional practice should include examination of the

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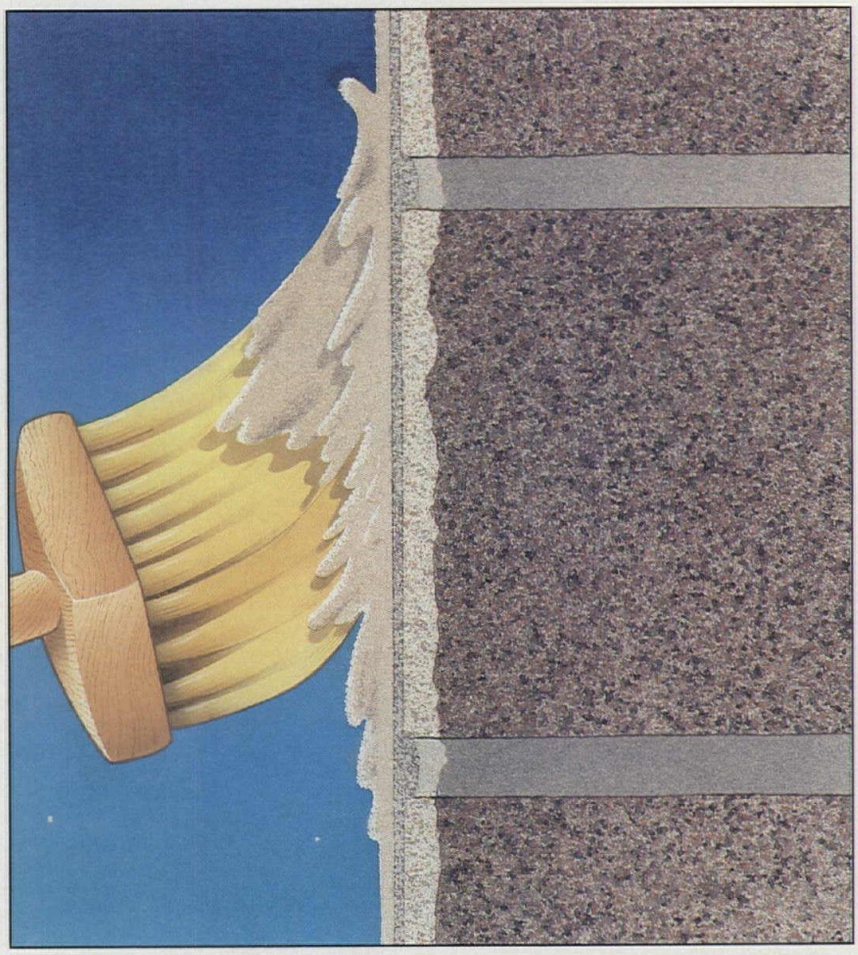

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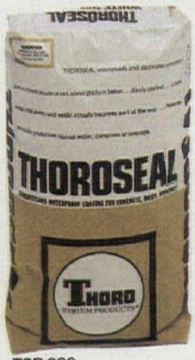

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process of developing and interpreting the client's requirements.

Often the building program presented to a student in the design studio is abbreviated, and may undergo change during the initial phases of studio investigation. Normally, however, little emphasis is placed on the *process* of developing a detailed building program by examining assumptions and criteria the client provides the architect. The professional-practice course should examine initial expectations on the part of both the client and architect—along with the need for records, meetings, and contract terminology to confirm decisions made to satisfy the program.

The contractor

The relationship between the architect and the contractor, including subcontractors and material suppliers, is a central issue in architectural practice. Obviously a course in methods and materials in construction will deal with the technical side of this issue. But the architect's role in the construction phase of services, as well as in the process of soliciting bids and assisting in contract formation, should be addressed.

In addition, subjects such as design/build and construction management deserve examination as alternative and sometimes complex forms of the relationship between architect and contractor. Under this general rubric, attention might also be given to the architect's overall relationship to the contractor, beginning with initial meetings with the client to determine the form of construction, and as described in the owner/contractor agreement.

The architect's involvement in the negotiation or bidding process, and then as the owner's representative during construction, including post-construction service, are significant aspects of this particular subject.

While it is a topic that may be examined separately, professional liability insurance is of growing importance in the context of the architect's document production and the construction phase. The history of, and contemporary issues associated with, obtaining professional liability insurance also have relevance. "Why have insurance?" is a threshold question, which will have a less than pat answer. Typical language found in professional liability insurance policies pertaining to the architect's role during the construction phase is germane—with attention to matters such as all forms of bonds, insurance, and the general conditions of the construction contract.

Although consultants will have entered the picture long before the construction phase, yet another issue will be coordinating contract administration with the consultants. This particular topic offers the professional-practice instructor an opportunity to integrate subject matter from other courses in the curriculum, using other faculty where possible, in order to illustrate: (1) the nature of architect and consultant coordination; (2) the need for the architect to be familiar with the work product of the engineering disciplines; (3) the methodology used in working with consultants, based on a schedule of production, scope of the work, and the consultants' roles during the construction phase.

In addition, mention should also be made of the contractual arrangements between architects and consultants, including fees and scope of responsibility. Professional liability insurance to be provided to the architect from consultants is a related topic.

The case study

Finally, the nature of projects themselves can be given detailed attention using case-study analysis. While many subjects should receive separate emphasis, building a broad understanding of the elements of professional practice through a case study provides perspective and cohesiveness. Consideration should be given to devoting a significant portion of the course to detailed case studies that analyze the architect's actual practice under a variety of circumstances, some anticipated and some not, but all realistic.

In the case-study approach, many major topics thus far mentioned can be posed as variables which will arise, and may change, as a project progresses. Additionally, a student's interest in design can be used as the basis for a case study. The approach may then be to explore the process that allows a design to move from paper to reality—a laborious process, sometimes complex and frustrating.

War stories

One task for any instructor in professional practice, and one that may seem at odds with the ideas presented thus far, is the avoidance of preaching dogma. The analysis by the instructor of a practice problem that is based on experience may not illustrate the best cause of action, and may in fact not be exemplary at all. The task for any instructor is to: (1) define the goals; (2) state the tools available; and (3) recite examples of procedures that have worked under certain circumstances (being careful to delineate the circumstances). The goal is to provide the student with an appreciation of the range of considerations and variables that can arise in the management of any project.

While it is unlikely that the instructor will be an attorney, there certainly will be a need to deal with legal issues. Legal issues should be dealt with factually, and from the standpoint of avoiding legal problems, but knowing where and how to seek assistance should problems arise.

Prudent practice techniques derived from case law and their application to practice can be discussed, while at the same time encouraging students to take care and use good judgment in making any decision.

The result, it is hoped, will be the development of a balance of effective practice techniques best suited to the individual architect or firm, rather than promoting a rote application (or no application at all!) of a myriad of "how to and how not to do" aphorisms.

Conclusion

The debate over the role and status of professional practice as a course in the curriculum of the study of architecture is not likely to end soon. Some faculty members will say that professional practice should best be left to a post-degree phase. Others will argue that the maximum degree of integration of practice subjects throughout the curriculum can only serve to better the application of all else that is taught.

In all likelihood, the emphasis on professional practice in any curriculum will be a function of the collective experience of the faculty at any given time, affected somewhat perhaps by factors such as NCARB criteria and recommendations by other external groups.

Recent soundings of the profession indicate a growing weariness with administrative burdens, which seem both to take more time, and to detract from the thoroughness of the design and production process. Some would add that a no greater, and in fact a lesser, level of financial profitability is also a result.

In frustration, some architects have simply said that architecture is no longer any fun. Be that as it may (and in all likelihood each generation of architects has to some extent experienced the same frustrations), the facts are: (1) design in architecture is still the issue central to the profession; (2) the profession and the areas it touches are subject to increasing regulation; (3) the probability of involvement in litigation is increasing; (4) competition among and between architectural firms, and the resulting impact on fees and services, is increasing; (5) architecture, while becoming less of an unknown quantity to the public in general, has created higher expectations among clients and owners—and, at the same time, those expectations are translated into ones demanding contract terminology, as well as claims and/or litigation at a much higher rate than in the past years; and (6) while long-term involvement with any project has always been characteristic of the architectural process—in view of the number of the factors mentioned above—the point at which a project is complete and fully accepted by the owner is becoming subject to many more qualifiers. There is greater expectation placed on the architect to see that the building is completed as the owner intended. Owners at times see the architect as possessing authority and power equal to that of the contractor, and expect the architect to be able to force the contractor and subcontractors to perform. While it is true that an architect possesses certain leverage in motivating the contractor, students should realize that the ultimate authority to force the contractor to do anything rests with the owner, and *that* recognition should be included as part of the discussion of the architect's relationship with the owner and the contractor.

Practice as taught may, in large measure, be a function of the knowledge, experience, and abilities of the faculty member in charge. It is foreseeable that a number of faculty and outside speakers may comprise a larger body involved in professional-practice instruction. Nonetheless, there must be a central theme that imparts to the students an ability to develop a plan of action for the execution of an architectural project. The goal of the professional-practice class is to equip the student to chart the course from initial client contact, through development of the design, to a successful completed project. It is a tall order. But the practice of architecture has always been a demanding mistress, and her demands are not likely to lessen.

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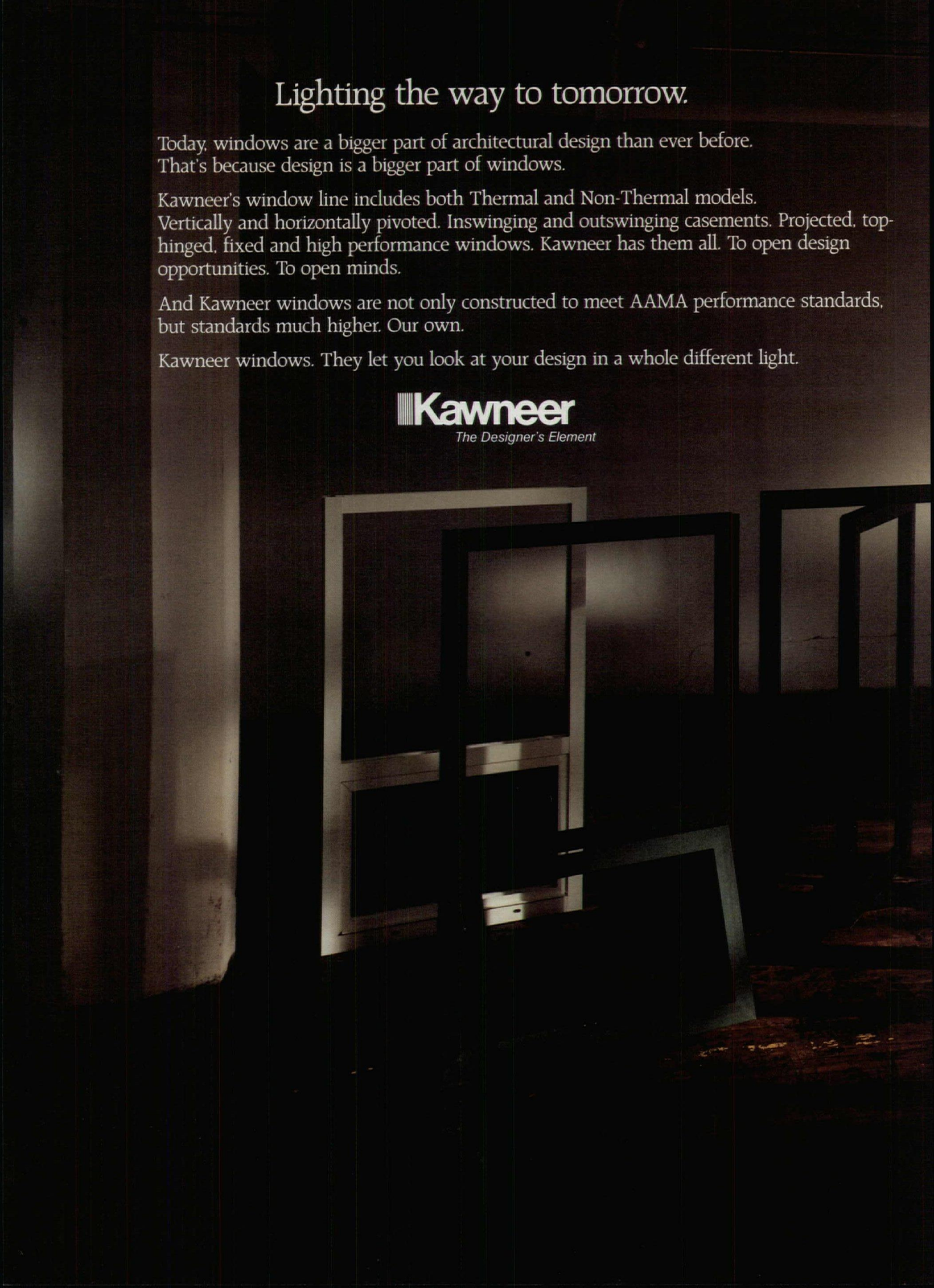

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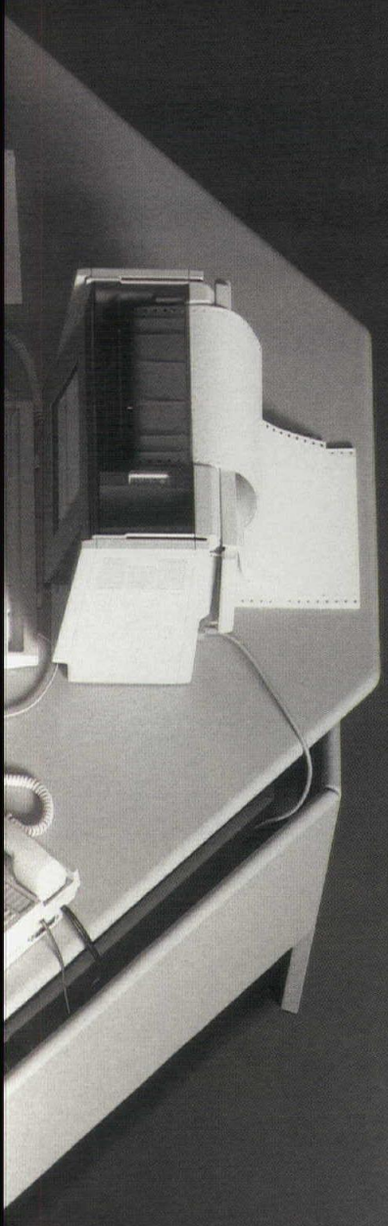

Series 8800 computer furniture *is* the real thing. Real furniture. Not a compromise; not a hastily assembled response to a poorly understood problem.

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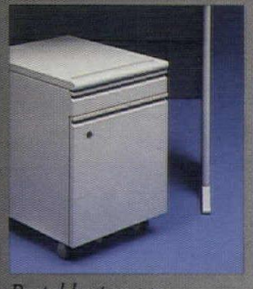
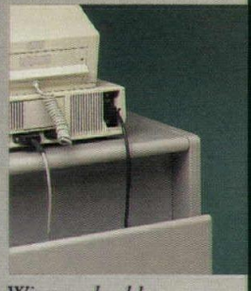


Portable storage at your fingertips

Worksurfaces are height-adjustable



Wires and cables are neatly handled

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TWO...

THREE...

...GO!

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It's as easy as 1, 2, 3.

1. It can wash one *or* two *or* three people at once.
2. It meets all barrier-free codes.
3. It's a real cost saver—saving water and energy with each use, saving time and trouble with minimal maintenance through the years.

Each of the three independent spray nozzles is controlled by its own push button, so each user activates a single metered .5 GPM flow of preblended water. It really cuts down on waste and waiting time.

Leg and toe clearances, and required reach to the push buttons and water streams, are well within existing barrier-free codes as well as ANSI A117.1-1980 standards. Less than five pounds of pressure activates a safe, tempered flow of water which shuts off automatically. Optional backsplash—mounted soap valves are available, too. Concealed spray formers, recessed push buttons, and a rugged access panel provide unsurpassed vandal-resistance.

The Tri-Fount™ Washfountain is also easy to maintain, with front access to all supplies and stops. The unit's metering valve assemblies employ the same basic design as Bradley's field-proven 90-75 metering faucet. Timing can be adjusted from five to twenty seconds by turning a screw—without turning off the water. And if the metering cartridge should ever fail, it can be replaced quickly and easily.

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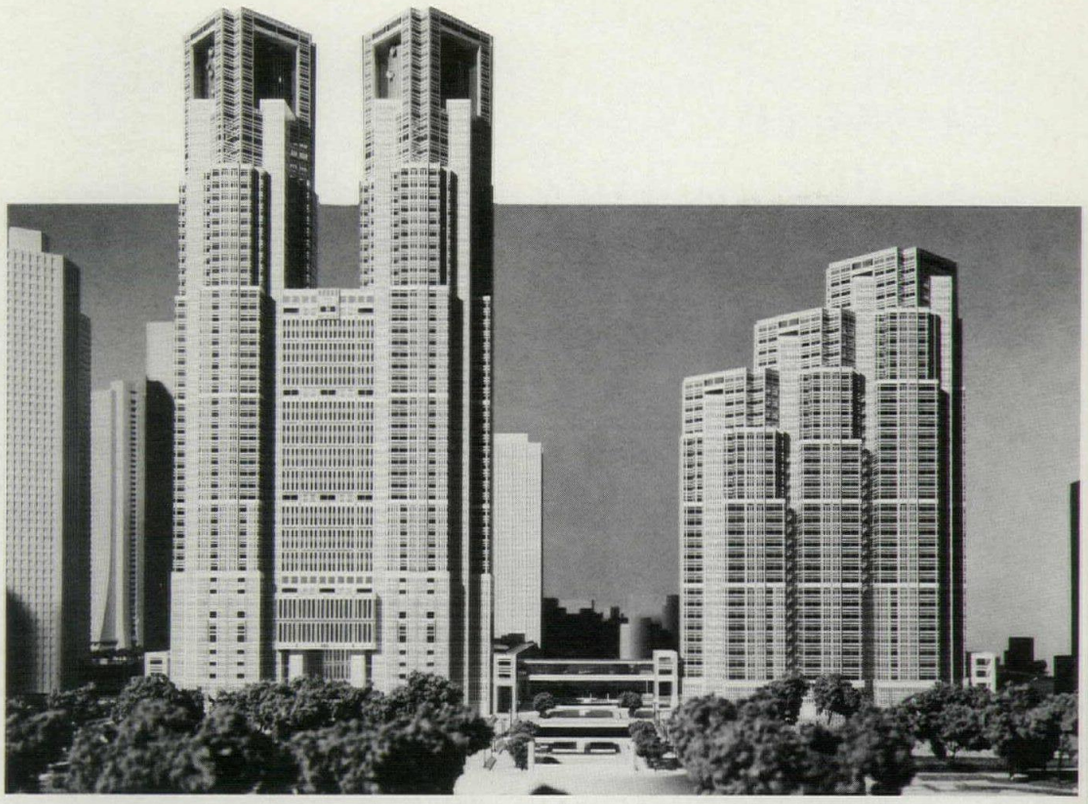
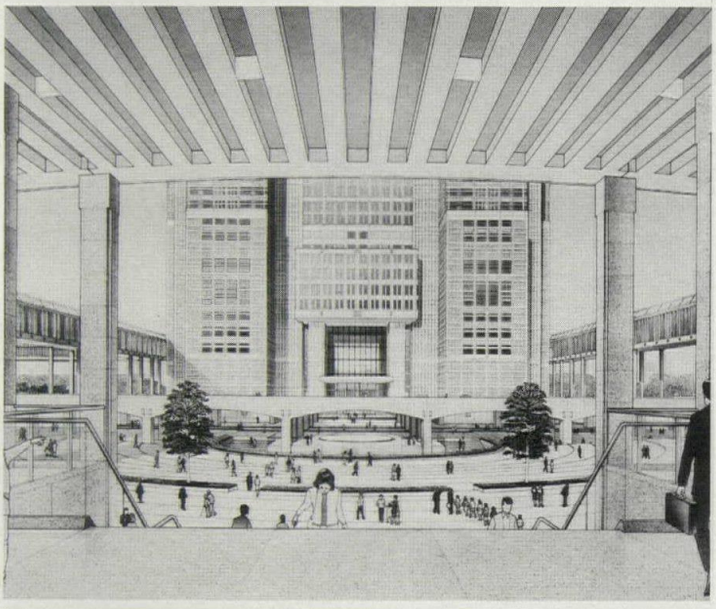
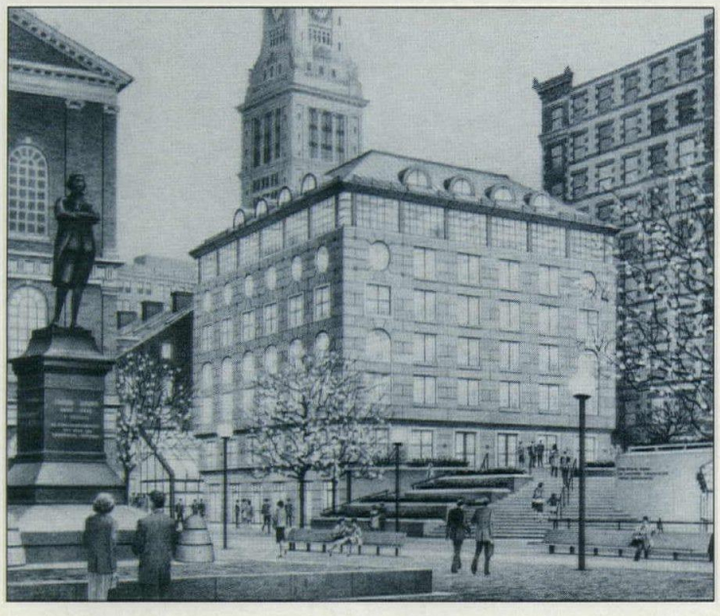




The city of Tokyo has unveiled an ambitious proposal for a new city hall, which, if completed as currently planned, would be one of the largest municipal government centers in the world. Designed by Kenzo Tange, the complex will occupy a three-block site in the city's Shinjuku district and will consist of two office towers rising 48 and 34 stories (above) and a low-rise assembly hall opening onto a semi-elliptical civic plaza (left). The Tokyo press has lyrically described the project in terms that reflect the dual nature of Japanese society: it is "a symbol both of 'my town' and of Tokyo advancing into the 21st century," a structure that "takes a far-sighted view of the information era" but is humanized with corner windows and greenery, architecture that "will not be a simple box but a cultural environment that expresses the heart."



Yankee ingenuity and Boston common sense

Despite its reputation as a place that reveres its past, Boston boasts few office buildings that defer to the city's legendary 18th-century charms. Until now: witness plans drawn up by Graham Gund Associates for One Faneuil Hall Square, a seven-story mixed-use structure whose gray granite facade, hipped roof, and modest scale are gracious bows to adjacent Colonial-era landmarks.

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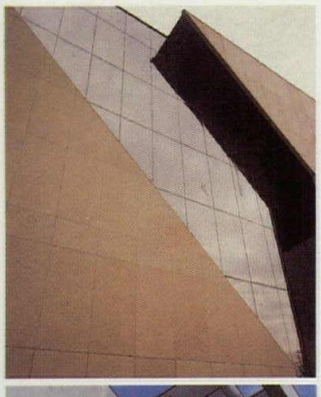
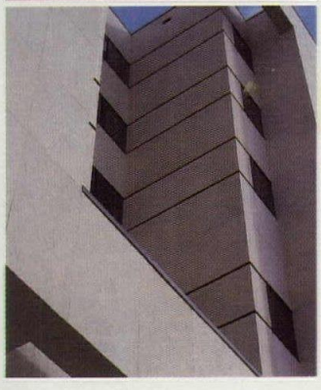




News briefs

Paul Rudolph and Frank Gehry were among the 10 prize-winning artists in the 13th Creative Arts Awards program, sponsored annually by Brandeis University. Rudolph received a medal, the program's top honor, while Gehry received a citation.

Mario Botta, Charles Correa, and Cesar Pelli have been named the winners of the annual Chicago Architectural Awards, sponsored jointly by the Illinois Council of the American Institute of Architects, the Chicago Merchandise Mart, and RECORD.

Fourteen design professionals have been named Loeb Fellows for the 1986-87 academic year at the Harvard University Graduate School of Design. The fellowship winners are Norma DeCamp Burns of Raleigh, N. C.; Patricia Conway of New York City; Mary Decker of Chicago; David Dillon of Dallas; Antonio DiMambro of Boston; Lorraine Downey of Boston; Susan Frey of Washington, D. C.; Tessa Huxley of New York City; Nellie Longsworth of Washington, D. C.; Margaret McCurry of Chicago; Donna Moffitt of Raleigh, N. C.; Richard Ridley of Washington, D. C.; Laura Rosen of New York City; and Allison Williams of San Francisco.

Arthur Rosenblatt, long-time head of the Department of Architecture at the Metropolitan Museum of Art, has resigned to assume the position of director of the new United States Holocaust Memorial Museum and Archive in Washington, D. C.

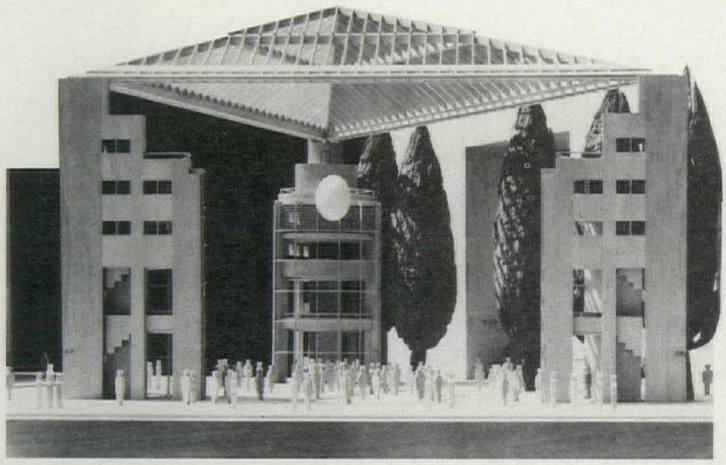
Michael Kwartler, a New York City architect and urban designer, has been named director of the Historic Preservation Program at Columbia University's School of Architecture. The graduate program is the nation's oldest and largest degree-granting course of study in architectural preservation.

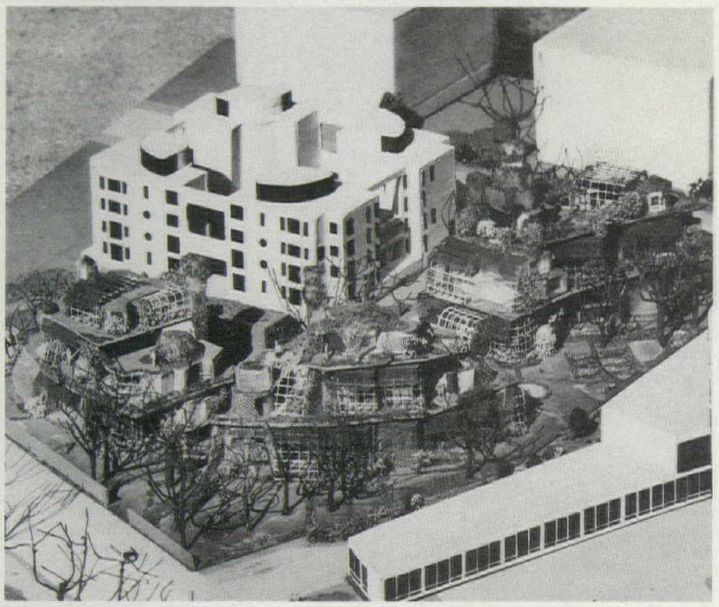
Roger Ferri, a rising star in New York's architecture world who left his own firm over a year ago to join Welton Becket Associates, has resumed independent practice.

The restructuring of The Gruzen Partnership has resulted in the new firm of Gruzen Samton Steinglass. Jordan Gruzen, Peter Samton, and Ralph Steinglass are the firm's three founding partners.

West End Marketplace, a festival retail center that will occupy a turn-of-the-century former furniture warehouse in Dallas, will open in October. Architects of the 240,000-square-foot adaptive-use project are Ceria & Coupel.

West Berlin update: Sprucing up the Ku-damm and the greening of IBA

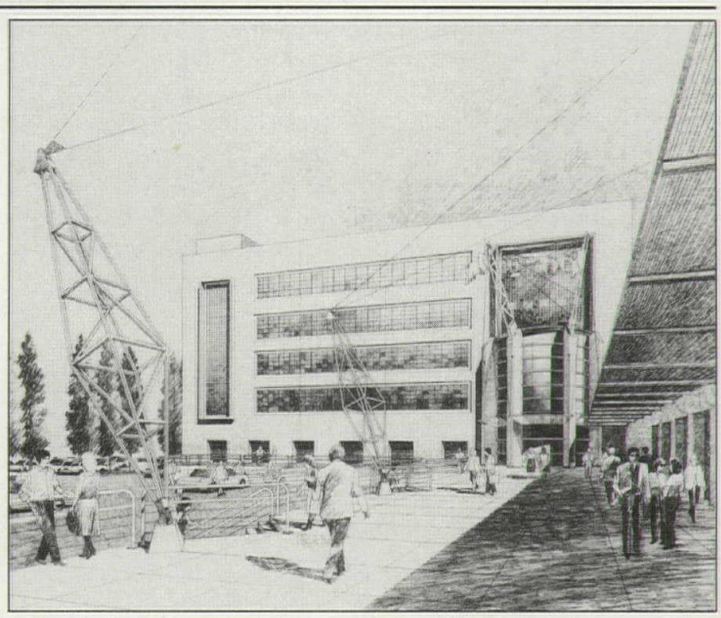




One of the most significant events marking Berlin's 750th anniversary next year is a city-sponsored competition to select designs for the renewal of 10 major squares along a 20-block stretch of the Kurfürstendamm, the city's principal shopping boulevard. The "squares," which in reality are triangles formed by the avenue's oblique trajectory through the city, lost their character during post-World War II reconstruction (middle photo left). In a separate competition the city has selected a scheme for the renewal of one of the key squares—Joachimstaler Platz—that features three towerlike buildings housing space for cafes, shops, and public facilities (top photo). An egg-shaped sculpture suspended from the apex of a translucent roof is meant to remind Berliners of the city's future. Designed by Bangert, Jansen, Scholz and Schultes, this proposal will be exhibited along with other winning designs during the anniversary year. Renewal of the squares is scheduled to begin before the end of the decade.

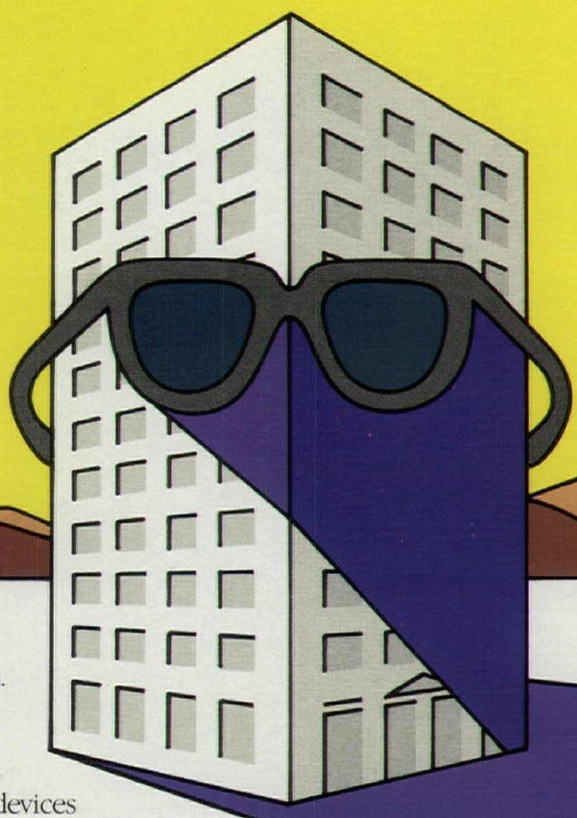
Also related to anniversary festivities is Öko-Haus (bottom photo), an "ecological apartment complex" that is perhaps the most visually challenging of the 150 projects involved in West Berlin's International Building Exhibition (IBA). Designed by a team headed by Frei Otto, the 30-unit complex is conceived as a skeleton of tree trunks and branches, its individual units the human equivalent of birds' nests. The apartments will range from 1,100 to 1,350 square feet, and owners can divide up 15-foot-high interiors as they wish. Otto's scheme calls for elaborate gardens over the complex and extensive provisions for solar energy. *Robert Ingersoll, World News, Bonn*

Concrete constructivism comes to California



Cable-stayed steel light towers arrayed along a 1,500-foot-long concrete terrace will beckon visitors to the Carleton Business Center, a mixed-use office and warehouse facility that will comprise a combination of new and reused buildings on the site of the former Colgate-Palmolive industrial complex in Berkeley. Gensler & Associates are project architects, in association with Ace Architects.

You could put sunglasses on your building...



For centuries man has found many ways to cope with the sun. Parisian ladies carried parasols, Arabs use tents, Mexicans have their sombreros and Americans wear sunglasses. These simple devices help because on a hot sunny day, it's cooler in the shade.

THE PROBLEM WITH BUILDINGS

So how does a modern building cope with sun driven heat loads? Mostly with huge capacity and costly-to-operate air conditioning systems we suppose. Of course, solar tint glazing helps a little too. But why not try to keep the sun off of a building or at least off of its windows? Well parasols don't go with international style and sunglasses would look awfully foolish on post modern.

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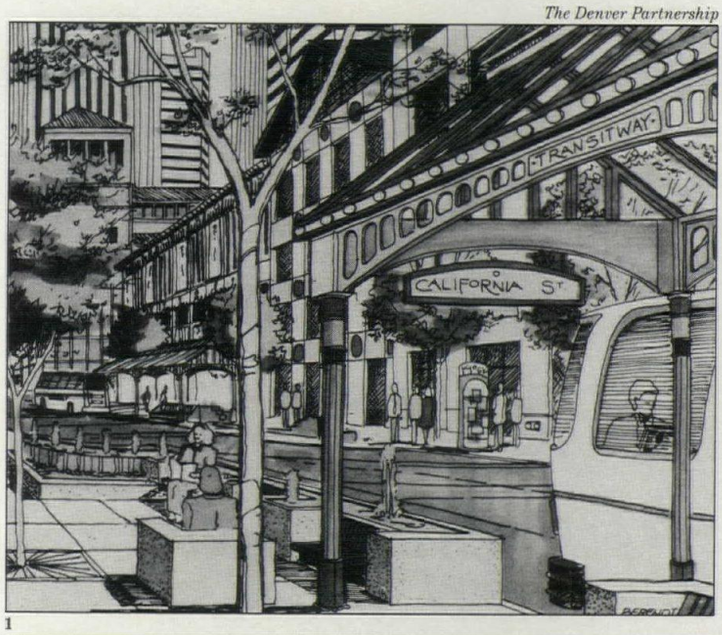
or you could use C/S Sun Shades.

THE C/S GROUP

Report from Denver:
A new downtown master plan, an ambitious mixed-use conversion, and a conference on Rocky Mountain design

1. Proposed California Street Transit Mall in downtown Denver.
2. Terminus of the 16th Street Mall at the South Platte River, looking toward northwest Denver.
3. The former Montgomery Ward distribution center, undergoing renovation into the Atrium at Broadway Plaza office complex.
4. The new Denver Design Center.

The Denver Partnership



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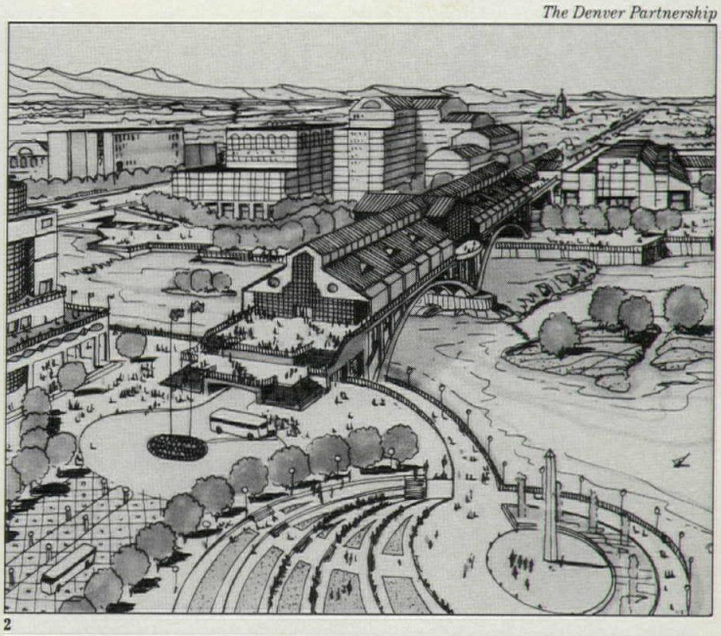
The Denver Partnership



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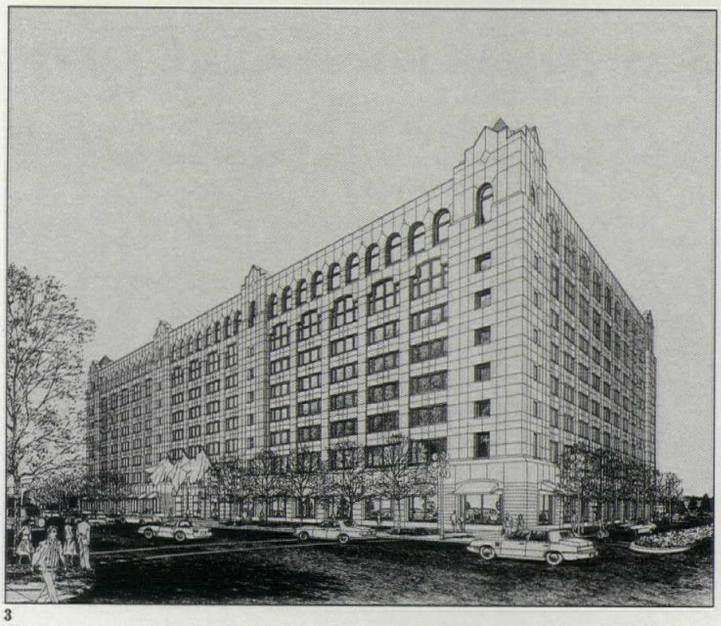

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4

The news coming out of Denver in recent weeks gives rise to speculation that, despite current economic woes stemming from the depressed state of energy-related industries and agriculture, the Mile-High City may be about to embark on a promising period of planned urban development. In addition to ongoing efforts to replace the city's obsolete Stapleton International Airport with a completely new facility, a 28-member committee of public officials and private citizens appointed two years ago by mayor Federico Peña has just completed a comprehensive plan charting the future of Denver's downtown. Advised and inspired by Edmund Bacon, author of the much-admired plan for Center-City Philadelphia, the committee in Denver outlined the physical qualities of downtown that should be preserved (the lusty Victorian-era architecture centering on the Larimer Square historic district, for example, and the successful 16th Street transit mall, a major spine anchored by Civic Center Park and Union Station), enhanced (the underutilized waterfronts of the South Platte River and Cherry Creek), and developed from scratch (new housing on unsightly parking lots at downtown's edges and an expanded system of access corridors, including a subway on 15th Street and a new transit mall on California Street). Although seductive conceptual sketches in the committee's glossy report reveal the potential of these and other proposals, the success of the plan ultimately hinges on Denver's long-term economic recovery and on the city's ability to find private resources to replace diminishing urban funding from Washington.

One place the powers-that-be in Denver might begin their search is the office of Allan Reiver, a local developer who is transforming a 55-acre industrial site 20 blocks south of downtown into a mixed-use complex known as Broadway Plaza. Although Reiver has scored something of a coup by convincing the Paris department store Printemps to open its first American branch at Broadway Plaza, the project's real centerpiece is the former Montgomery Ward distribution center, a 1920s industrial behemoth that is being redesigned by Gensler & Associates into a 700,000-square-foot office and retail facility. Next door the first phase of the new Denver Design Center has opened with 170,000 square feet of showroom space for residential and contract furniture manufacturers. Phase two of the project will comprise an additional 107,000 square feet of space. Designed by Murata Outland Associates, the sleek, barrel-vaulted facility was host to a well-attended conference in mid-May that brought together local architects and designers and editors from several major trade publications to address the topic of current design in the Rocky Mountain states. While conference participants probably raised more questions than they answered—a result, no doubt, of the fact that there is no single Rocky Mountain style in an eight-state area as geographically, culturally, and climatically varied as this one—the event clearly underscored a willingness among members of the local design community to investigate those indigenous natural and man-made qualities that characterize the region and endow it with a special sense of place. *P. M. S.*

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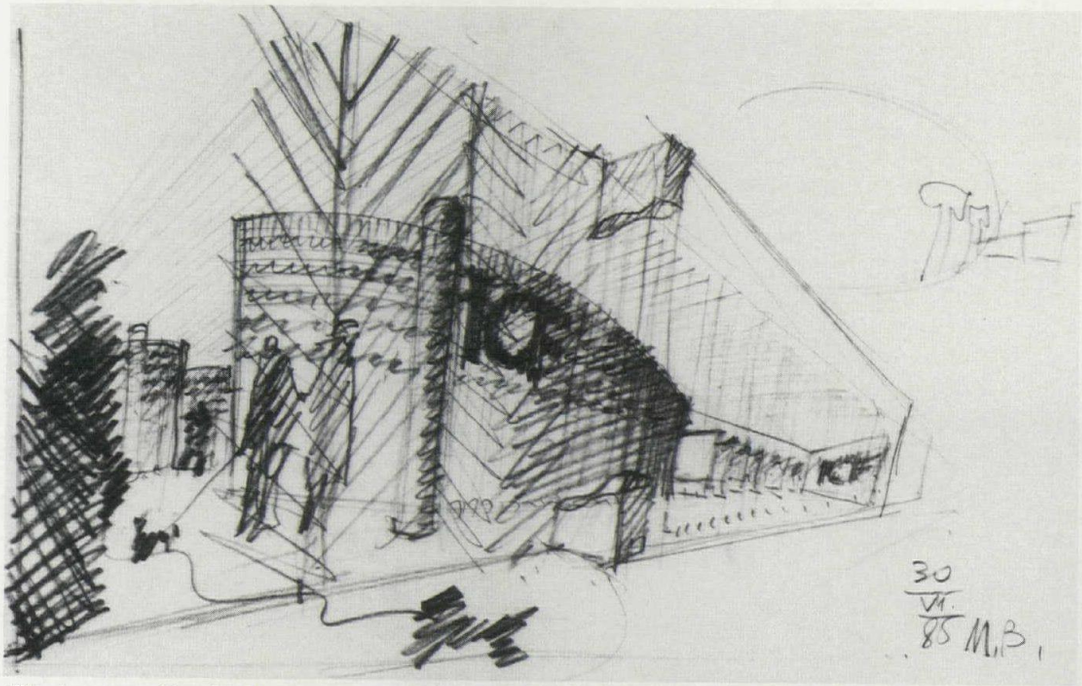
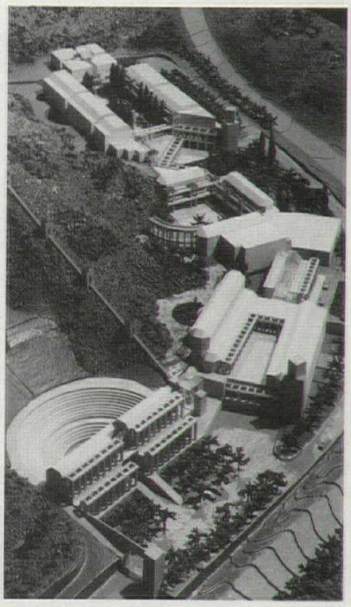


"I've been searching for Mario Botta for 20 years without knowing it," said ICF executive vice president Pat Hoffman, noting how Botta's idiosyncratic brand of Modernism seems in perfect harmony with her firm's historic commitment to innovative, architect-designed furniture. ICF was responsible for introducing Botta's own furniture to the American market, so when the company needed a designer for its new 11,000-square-foot showroom at the International Design Center in New York, it logically turned to the Swiss architect. The ICF facility is Botta's first architectural commission in the United States and his first furniture showroom anywhere. Rather than design a space that has to be redecorated each time a product line is changed, Botta has proposed a neutral interior that features the architect's signature concrete brick, painted off-white and laid up in a series of arched "chapels." An airplane-wire ceiling grid is a high-tech variation on ICF's classic string ceiling, and a floor paved in Dex-o-Tex, a resilient material used on indoor running tracks, should provide a welcome cushion under the feet of architects and designers visiting the showroom on hectic market days.

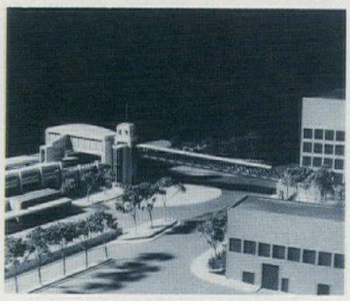
A new museum and study center of American Jewish life

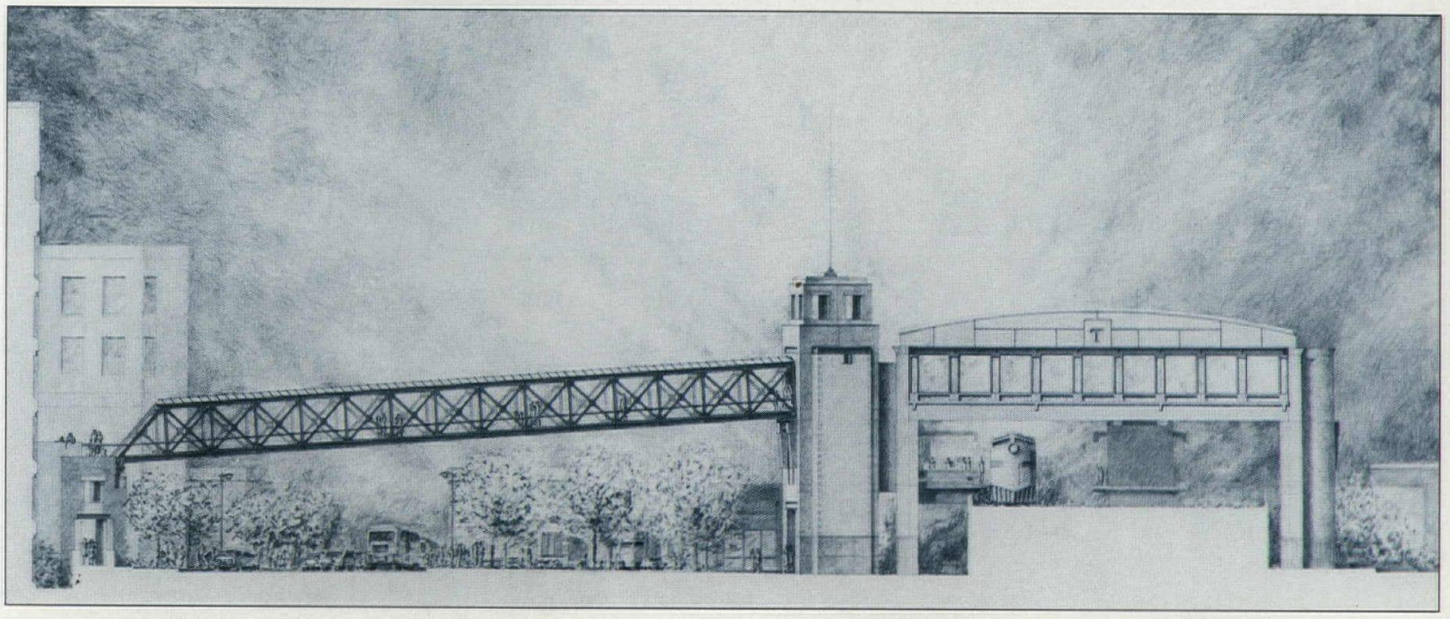
Stone walls, precast-concrete framing, and trellised courtyards will characterize the Hebrew Union College Cultural Center, planned for a 15-acre site in the Santa Monica Mountains of Los Angeles. Designed by Moshe Safdie, the complex will feature an amphitheater and museum wing backed by a masonry dam that offers protection from southern California's frequent earth slides.



Making connections

The Massachusetts Bay Transportation Authority has unveiled an intriguing mass-transit proposal that will link the existing rail station in the Boston suburb of Malden with the elevated plaza of the community's government center. Designed in an industrial esthetic traditionally associated with railroads, the project comprises three distinctive elements: a new precast-concrete headhouse spanning three subway and commuter-rail tracks, an elevator/stair shaft that conjures up images of a 19th-century control tower, and a cross-braced, glazed steel-truss pedestrian overpass meant, according to the architects, as "a kind of gangway or drawbridge . . . touching down upon the embankment of the city." Project architects and engineers are Tippetts Abbett McCarthy Stratton.





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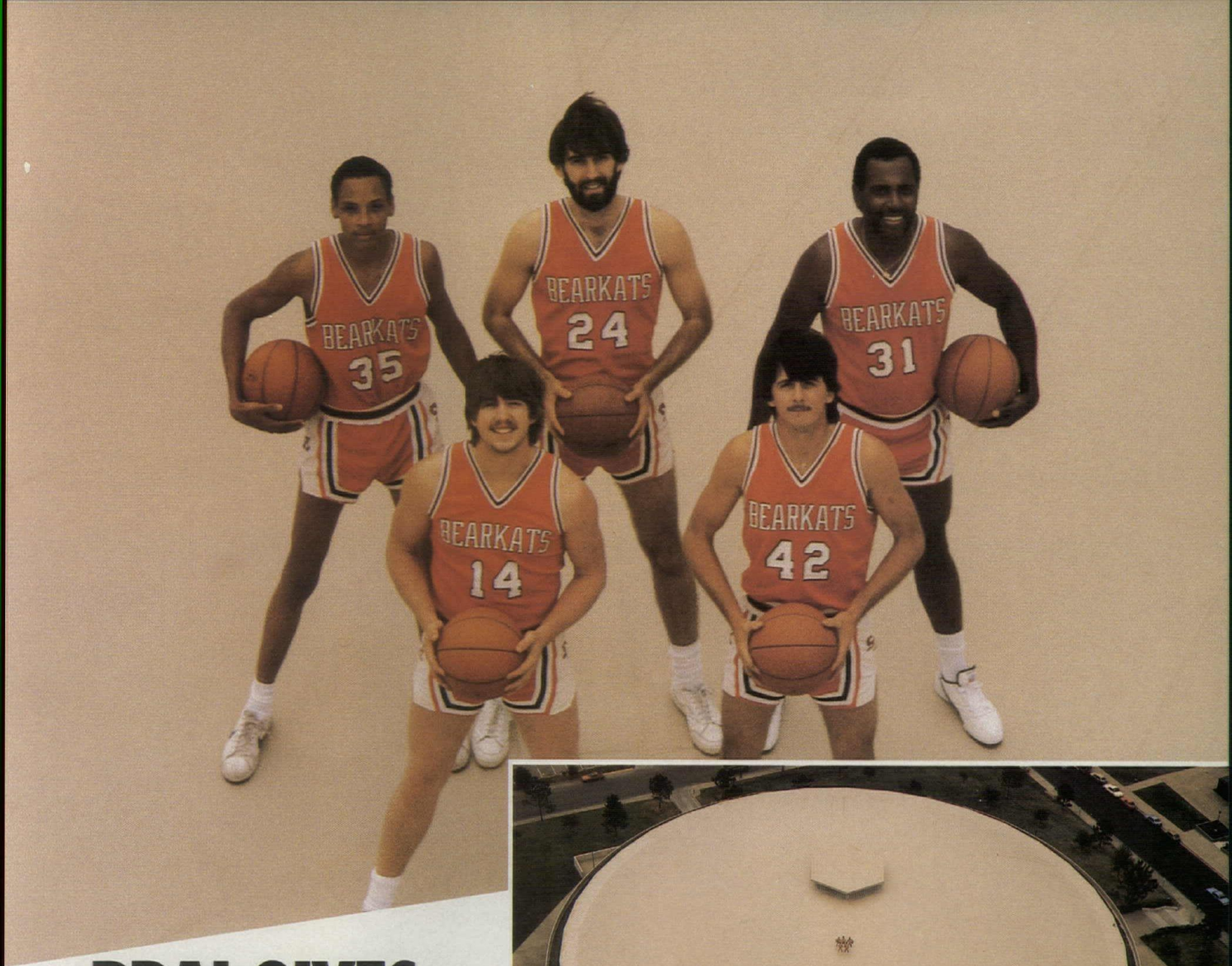

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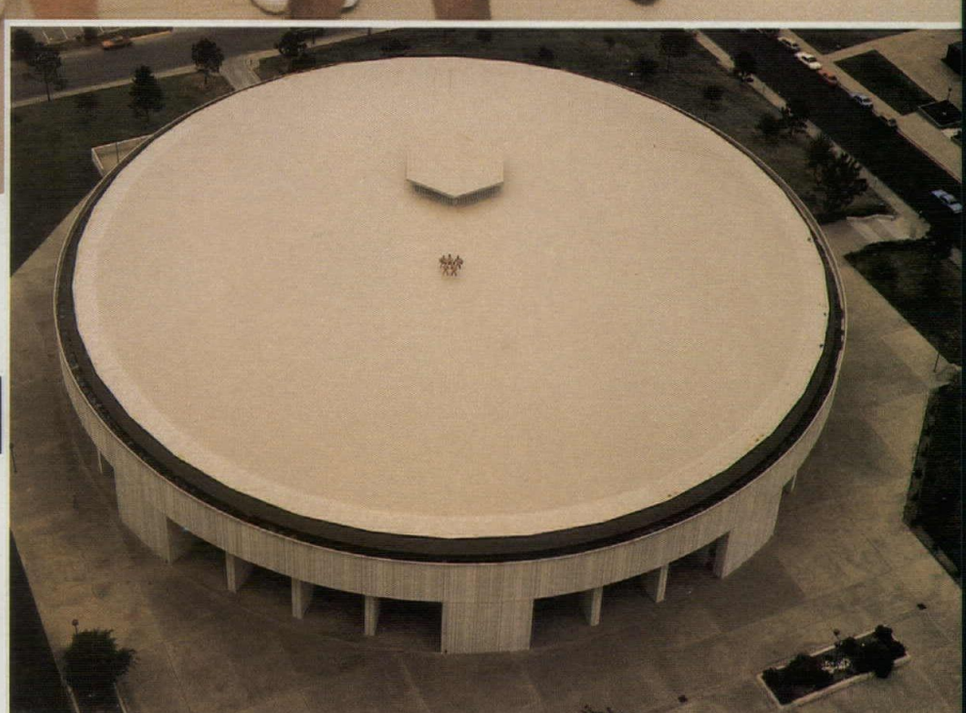

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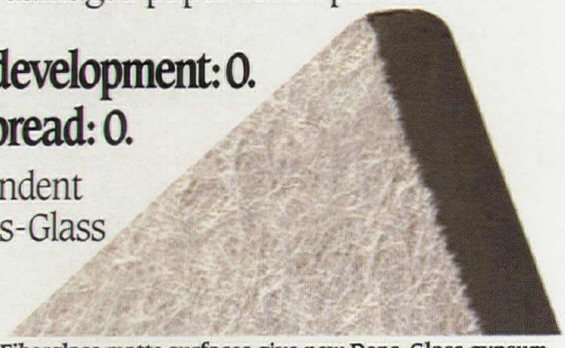

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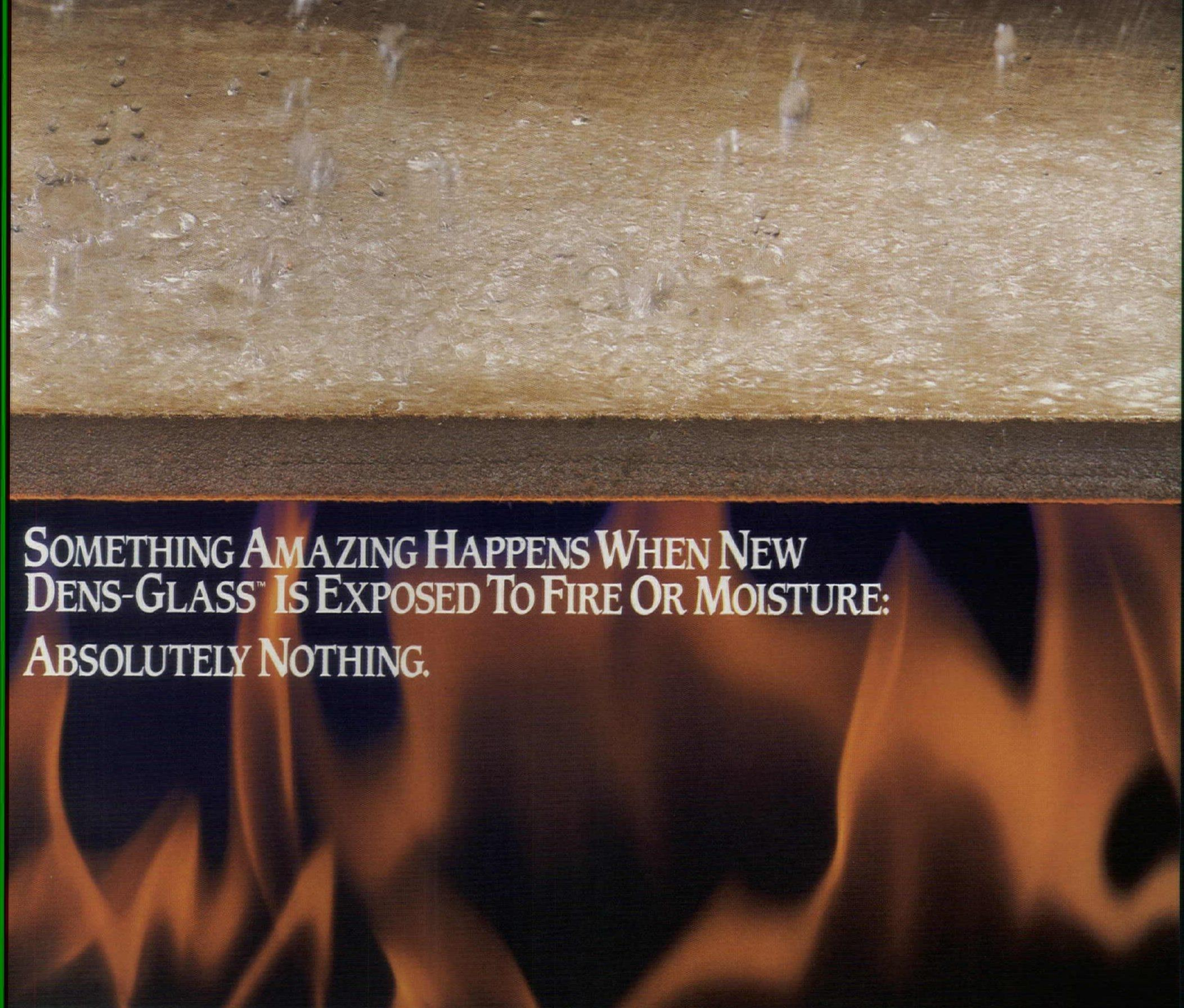

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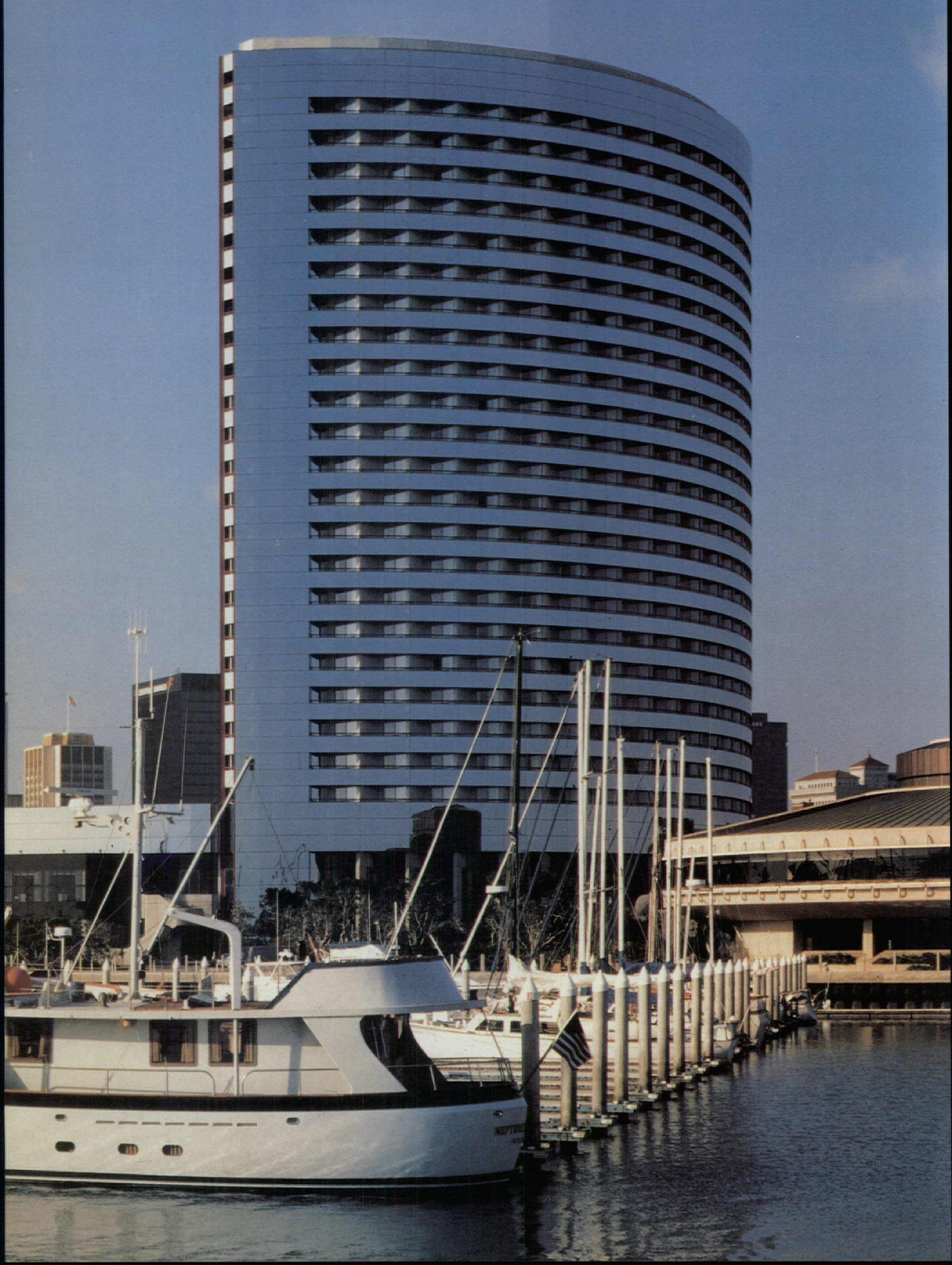

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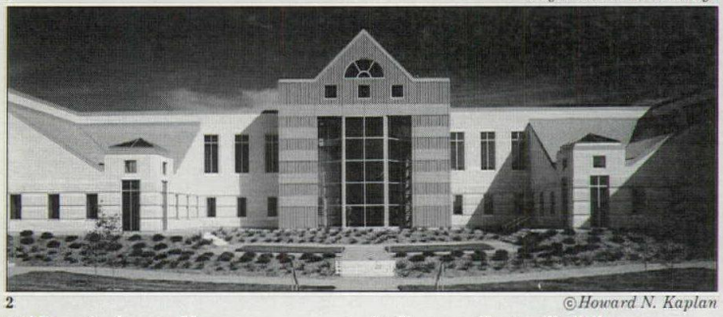
Design awards/competitions: Wisconsin Society of Architects 1986 Honor Awards Program

A diversity of architectural modes and building types characterized the nine buildings recently recognized by the Wisconsin Society of Architects in its 1986 honor awards program. Sleek Modernism, a contextual brand of Postmodernism, and the adaptive use of historic buildings were all represented in the group of premiated projects, which were selected from 60 program submissions by jurors Eugene Mackey, AIA, of Mackey and Associates in St. Louis; Leonard Parker, FAIA, of Leonard Parker Associates in Minneapolis; and Paul Sachner, senior editor of RECORD.

1 *Roger Grant/Critical Eye*



2 *©Howard N. Kaplan*

3 *Joe Paskus*

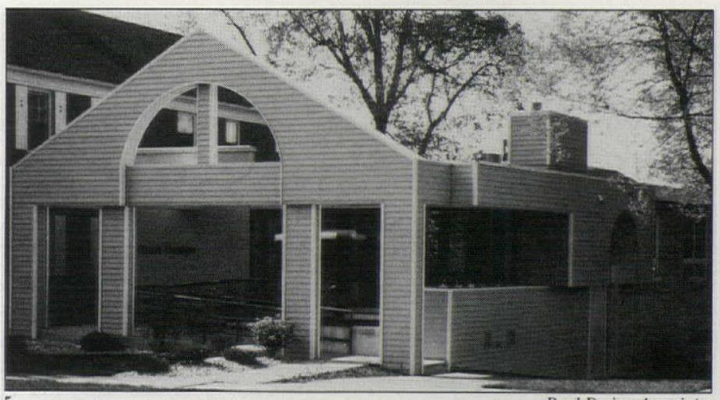
4 *©Eric Oxendorf*

1. Mons Anderson House Restoration, La Crosse, Wisconsin; V. J. Schute Associates, Architects (Honor Award). A dilapidated Gothic Revival house, built in 1854 and listed on the National Register, had to be documented, gutted, modernized, and restored in accordance with rehabilitation guidelines established by the U. S. Department of the Interior. The building was completely insulated, and new mechanical and electrical systems were carefully threaded into the existing framework. Although the jurors admired the architects' "painstaking research and historic accuracy" in their re-creation of the structure's original Victorian interior, they reserved their highest praise for the addition of a new peak-roofed garage that echoes the color, scale, and profile of the existing architecture.

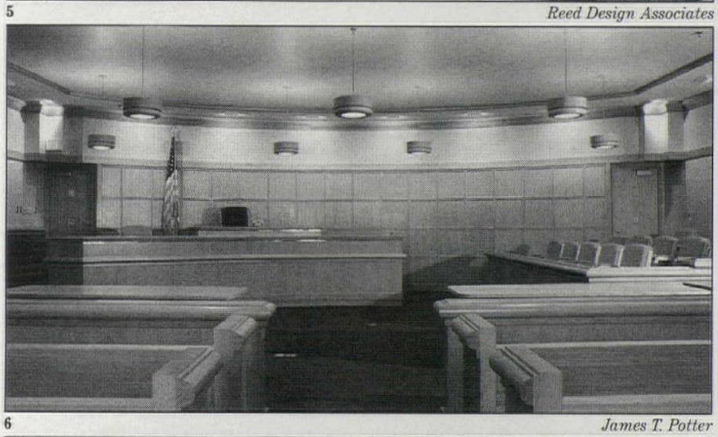
2. Campus Center Building, Cardinal Stritch College, Milwaukee, Wisconsin; Kahler Slater Torphy Engberg, Architects (Honor Award). The program for this multiple-function complex called for a full-service student union, gymnasium, and multimedia library, meant to bring order to a campus initially built during the 1950s and expanded haphazardly ever since. The decision to design the structure in a cruciform configuration addresses the functional needs of a student center while providing the appropriate symbolic imagery for a Catholic college. The jurors admired the architects' creative use of such inexpensive materials as industrial metal siding and rusticated concrete block, and they characterized the overall design as "a handsome resolution to a most complex building program."

3. Lincoln School Apartments, Madison, Wisconsin; Bowen Williamson Zimmermann, Architects (Honor Award). For the conversion of an obsolete, National Register-listed public school overlooking Lake Mendota into an apartment house, the architects removed unsightly fire escapes from the lakeside elevation and preserved the structure's distinctive Prairie Style detailing. They redesigned the school's original 20-classroom interior to accommodate a variety of single-level and duplex apartments, and they successfully reconfigured an existing park by concealing off-street parking within a turf-covered hillside. "A masterful scheme," proclaimed the jury. "The architects were sensitive in their handling of the exterior, and the interior reorganization makes excellent utilization of available space."

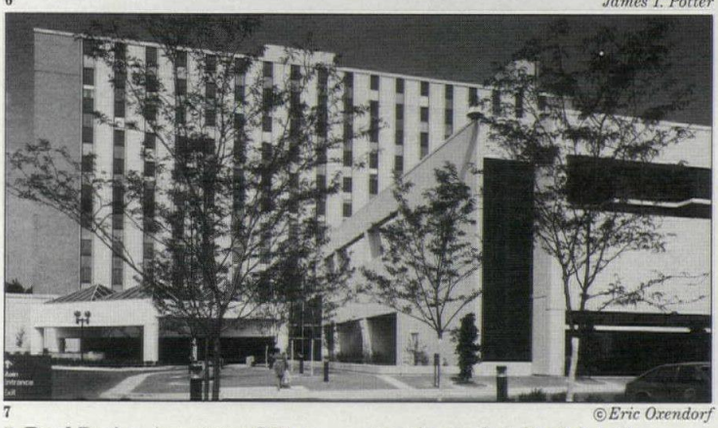
4. Terminal Expansion at General Mitchell Field, Milwaukee, Wisconsin; Miller and Meier and Associates, Architects (Honor Award). The renovation and expansion program for the main air terminal at Milwaukee's General Mitchell Field called for 210,000 square feet of new and upgraded facilities in the airport's baggage-claim, ticketing, concession, and waiting areas. The plan also incorporates a new dual road system that separates incoming and outgoing passenger traffic. The jury observed that by combining natural light, space-frame structural systems, polished surfaces, and careful screening of what had previously existed, the architects "transformed the airport into one of the finest terminal interiors in the country—a light-filled, easy-to-negotiate facility that offers a lovely welcome to the city."



5 *Reed Design Associates*



6 *James T. Potter*



7 *©Eric Oxendorf*

8 *©Howard N. Kaplan*

9 *John I. Lottes*

5. Reed Design Associates Offices, Madison, Wisconsin; Heike/Design Associates, Architects (Merit Award). Faced with a limited budget of $20,000, the architects sought to alter the rather pedestrian character of a 1950s cinder-block office building by designing new gable-roofed facades for the structure's two street-facing elevations. The result is an upgraded image for the graphic design firm housed within the building and an improved visual relationship between the structure and the peak-roofed houses of the surrounding residential neighborhood.

6. Dodge County Legal Services Building, Juneau, Wisconsin; Potter Lawson & Pawlowsky, Architects (Merit Award). Designed to serve a predominantly agrarian area in southeastern Wisconsin, this justice center exhibits the horizontal massing and stylized detailing associated with Prairie Style architecture. Although some jurors found the exterior an uncomfortable combination of modes and materials, they all had high praise for the building's interior, with its handsome detailing, well-crafted millwork, excellent lighting, and commodious arrangement of courtroom space—"civic grandeur," they concluded, "that is all too rare in government buildings today."

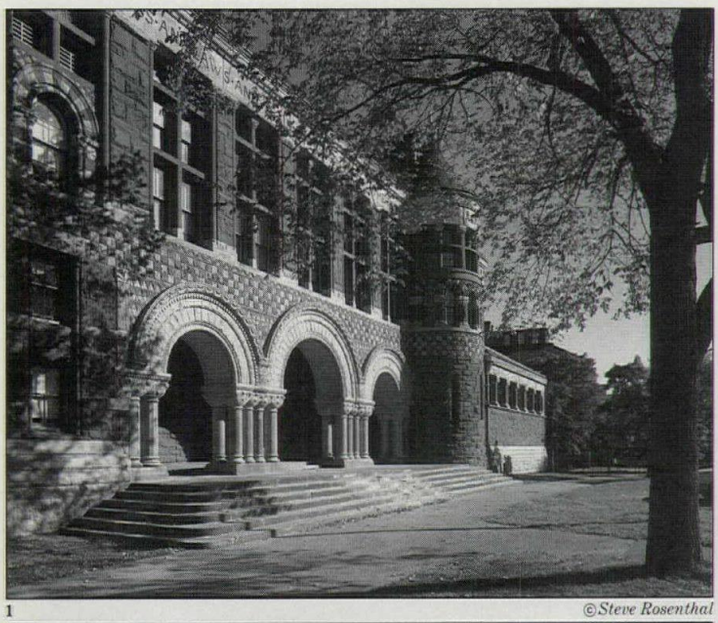
7. Good Samaritan Medical Center, Milwaukee, Wisconsin; Plunkett Keymar Reginato, Architects (Merit Award). This project involved the renovation and consolidation of two aging inner-city hospitals into a modern medical center. The jury felt that "the architects effectively addressed issues of planning a new hospital pavilion around existing buildings, issues of urban design, and issues of style—here, a slick, sensitively used Modernism that seems appropriate for a hospital attempting to upgrade both its services and its public image. It is a good, workmanlike solution that creates a pleasant environment where it is desperately needed."

8. Patrick and Beatrice Haggerty Museum of Art, Marquette University, Milwaukee, Wisconsin; Kahler Slater Torphy Engberg, in association with Ford Powell and Carson, Architects (Merit Award). Although the jury was not completely comfortable with the exterior of this university museum—an idiosyncratic composition comprising a steeply pitched roof, oversized dormers and gutters, and diamond-shaped windows—it had high praise for the facility's galleries, which, with their harmonious palette of exposed concrete walls, steel trusses, and wood ceilings and floors, seemed ideally suited for viewing works of art. "This interior has been detailed by architects who fully understand how materials go together," observed one juror.

9. Time Insurance Group Annex Building, Milwaukee, Wisconsin; Herbst Eppstein Keller & Chadek, Architects (Merit Award). This urbanistically intriguing project involved the conversion of a former J. C. Penney department store in downtown Milwaukee into office space for an insurance company. The jury singled out the architects' sensitive use of material and color—especially noteworthy for what is, in the end, a temporary office facility—and it called the project "an excellent model for cities anywhere that are seeking new uses for obsolete downtown retail buildings."

Building Stone Institute 1986 Tucker Awards for Architectural Excellence

The Tucker Architectural Awards program is sponsored annually by the Building Stone Institute, an international trade association founded in 1919 that comprises quarriers, fabricators, dealers, and installers of natural stone. The program is named for the late Beverly R. Tucker, Jr., past president of the Institute. Illustrated on these pages are the nine projects cited by the 1986 awards jury, which consisted of Paul Rudolph, FAIA; Elliot Willensky, FAIA; and Roger Yee, editor of Corporate Design & Realty *magazine.*



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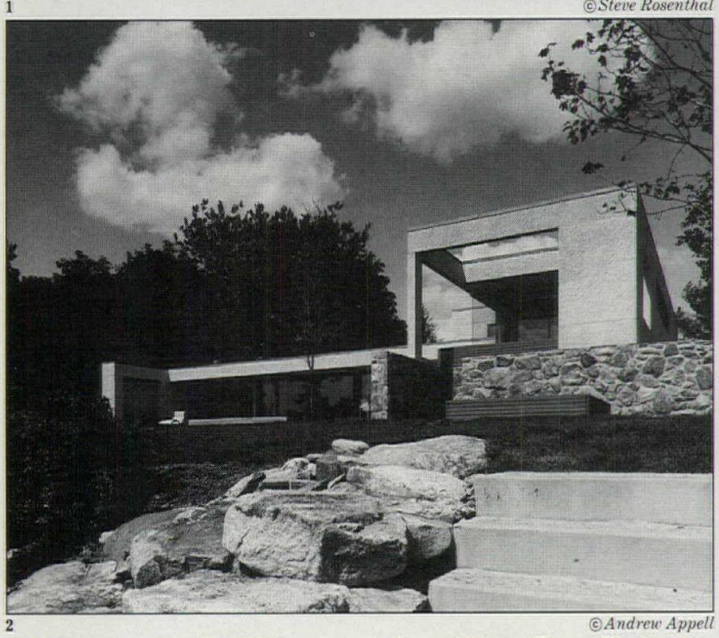

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4

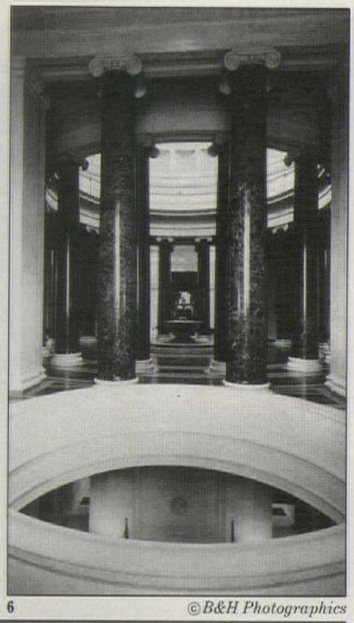
1. Restoration of Austin Hall, Harvard Law School, Cambridge, Massachusetts; Goody, Clancy & Associates, Restoration Architects; Ann Beha Associates, Restoration Consultants. Designed in 1883, Austin Hall is one of H. H. Richardson's finest buildings. Through a meticulous stone-conservation program of testing, cleaning, and repointing, the restoration architects revealed the original polychromatic tonality of the building's smooth and rusticated stonework. The jury called the project a good example of "how, with a minimum of intervention, a building designed and detailed to take advantage of stone can once again assert itself as a beautiful object."

2. Greens Farms House, Westport, Connecticut; Herbert Beckhard/ Frank Richlan & Associates, Architects. A complementary material palette of native fieldstone (for base and landscaping), bluestone (for stairs and floors), stucco (for exterior walls), and wood (for ceilings and trim) characterizes a private dwelling located on a three-acre site overlooking Long Island Sound. "Proportion gives this house its distinction," observed the jury. "There is a certain calm, a certain logic about it. The transition space between the inside and outside is one of its great delights."

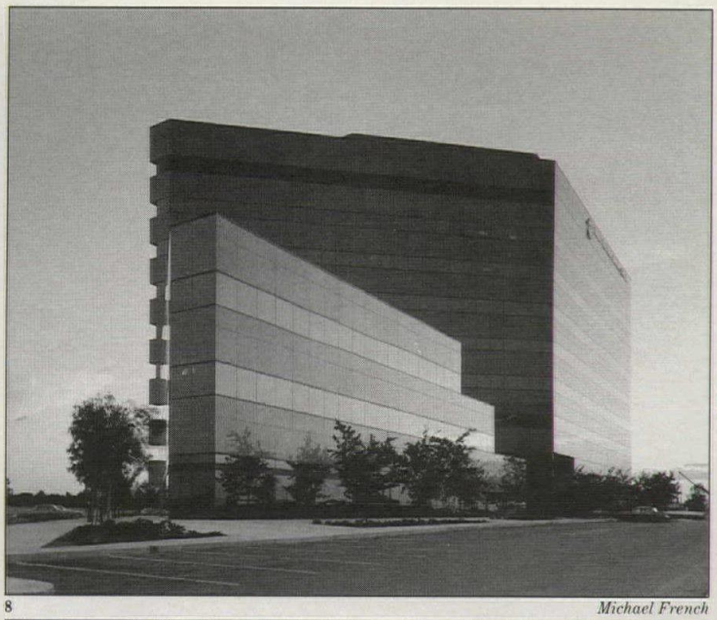
3. Innova, Houston, Texas; Cambridge Seven Associates, Architects. A new center serving the architecture and design community in the Southwest is a monolithic masonry box, broken apart by a glass curtain wall that reveals an elaborate series of interior atriums. The structure is built of reinforced concrete clad in a skin of alternating bands of black polished and flame-finished granite. The jury noted that "from a purely architectural viewpoint, this project is superior to all the other entries. [The architects] took a difficult problem and gave the building a human aspect in terms of interior and exterior scale." The jury also praised the structural honesty of the building's stone sheathing: "It is clearly a curtain wall hung on a frame, and the building celebrates this bit of architectural truthfulness."

4. The Limited, New York City; Beyer Blinder Belle, Architects. The first Manhattan outlet of a national chain of women's clothing stores is housed in a reconstructed building—designed in 1928 by McKim, Mead & White—that once housed the original Louis Sherry ice-cream parlor on Madison Avenue. Work on the structure included removing a later glass-block alteration, replicating original granite-and-limestone facades and bronze storefronts, and adding a two-story rooftop greenhouse. The jury praised the architects "for making a better composition out of what had always been considered a flat-topped background building. Its scale is now appropriate for a city street corner, yet as one comes closer, that scale is broken down by the treatment of the openings."

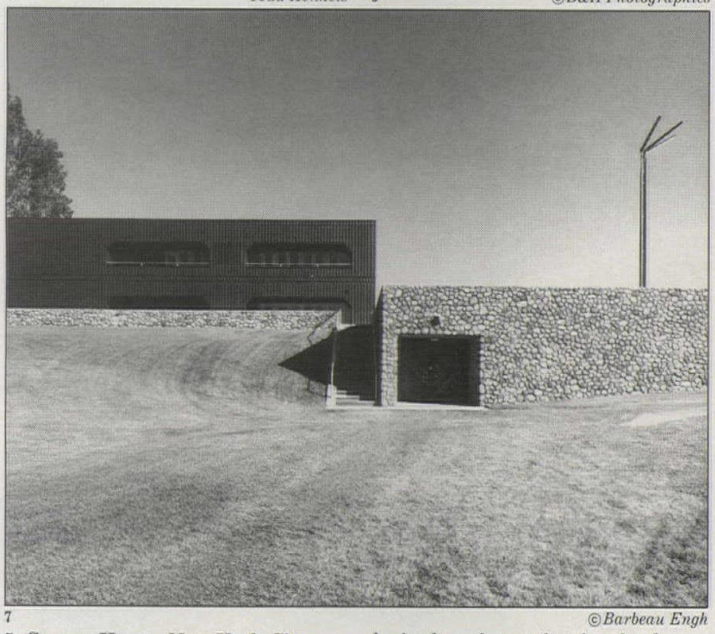
5 *Todd Henkels*



6 *©B&H Photographics*



8 *Michael French*



7 *©Barbeau Engh*

9

5. Curzon House, New York City; Stephen B. Jacobs & Associates, Architects. Located between a row of early 20th-century limestone town houses and the red-brick Knickerbocker Club, a new six-story infill building in New York's Upper East Side Historic District houses 13 residential units. The structure's rusticated ground floor harmonizes with the limestone bases of adjacent buildings, while a three-story middle section has chamfered corners, creating the effect of a large bay window. "This building is distinguished by its respect for and understanding of the real qualities of urbanism," said the jury.

6. The Oculus, National Gallery of Art, Washington, D. C.; Vitetta Group, Restoration Architects. In order to enliven the Constitution Avenue lobby of John Russell Pope's original building for the National Gallery, the architects devised a scheme that involved cutting an oculus into the lobby ceiling, thereby allowing visitors to view the rich detailing and monumental rotunda dome of the main floor above. "This restoration was done with great flair and skill," said the jury. "The oculus gives new life, new light, and a new presence to what had been thought of as a rear entrance. Its stylistic qualities seem absolutely right."

7. Sonoma-Cutrer Winery, Santa Rosa, California; Rolland/Miller/Associates, Architects. Located on the Russian River in northern California's Sonoma County, a new winery is constructed partially of native stone that was gathered on the 800-acre property, trucked to the site, and laid up in the tradition of local masonry buildings. "An inventive rural structure, appropriate to the character of a winery," lauded the jury. "The architects have used stone to mediate between the manmade building and the land, and they have done so with great clarity."

8. Valley National Banking Center, Tucson, Arizona; Architecture One, Ltd., Architects. A prominent new office building in Tucson consists of interlocking parallelograms clad in horizontal bands of five-foot-wide granite panels and tinted glazing. The jury liked the building's "simple use of stone, juxtaposed against red granite columns and glass on the exterior. The proportion of stone elements is beautifully conceived: it is a harmonious composition."

9. Restoration of the New York Shakespeare Festival Theater, New York City; Mendel, Mesick, Cohen, Waite, Hall, Restoration Architects. Using newly quarried brownstone and a team of stone carvers from West Germany, the architects restored the exterior of the former Astor Library, a Romanesque Revival building that was converted 20 years ago into a successful theater complex. The program called for replicating all lost or deteriorated sandstone ornament, as well as replacing precast concrete elements used in an earlier restoration attempt. The jury called the project "a reassuring reminder that the supposedly lost building-trade skills that made a structure like this possible are still available today and are every bit as good as their predecessors."

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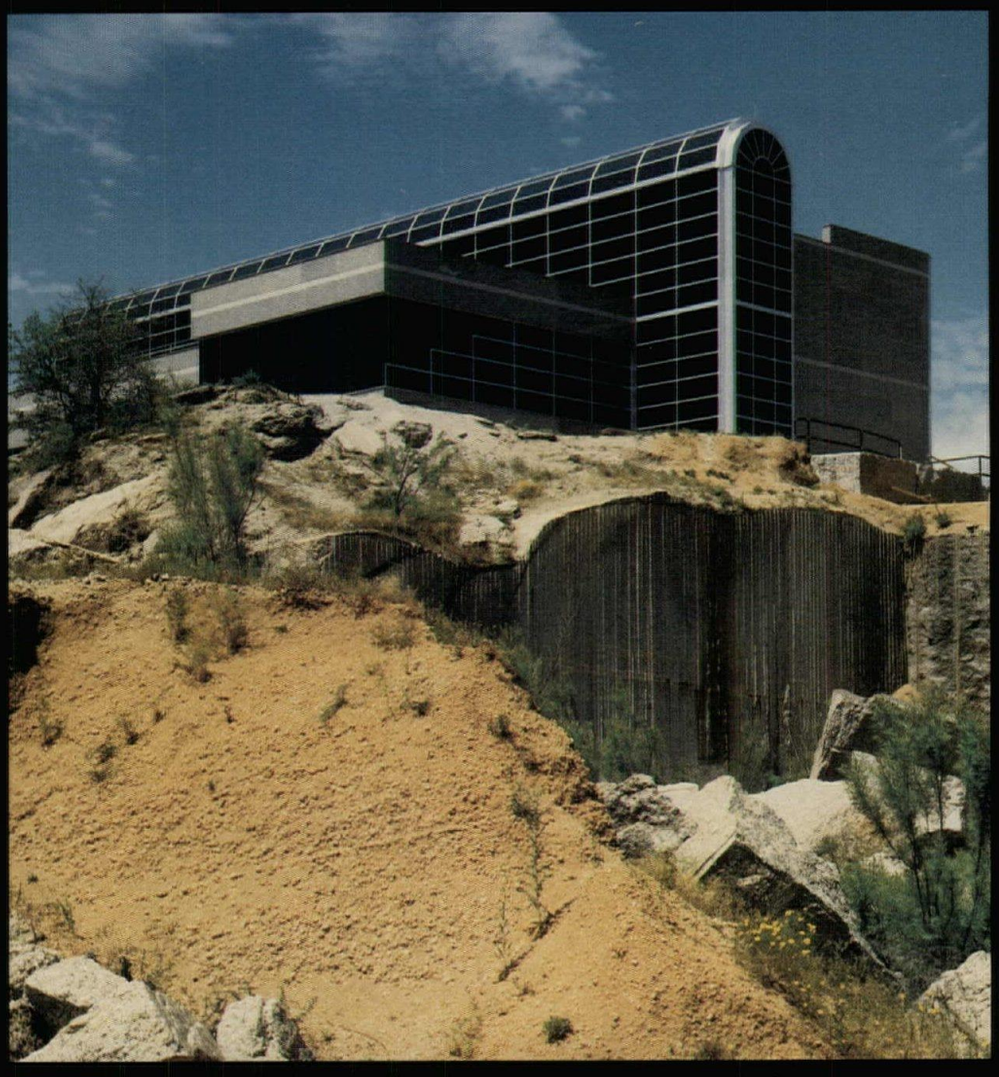

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The Secret Life of Buildings: An American Mythology for Modern Architecture, by Gavin Macrae-Gibson. Cambridge: MIT Press, 1985, $25.

Reviewed by
Sarah Williams Ksiazek

American architects who reject the doctrines of orthodox Modernism have long needed a sympathetic theorist, and in Gavin Macrae-Gibson they have found one. In his attempt to uncover common ideological ground in the work of Robert Stern, Michael Graves, Allan Greenberg, Cesar Pelli, Frank Gehry, and Peter Eisenman, the author has written the first sustained theoretical work on these contemporary architects that does not begin or end by assailing most with charges of consumerism, wallpaper architecture, or reactionary politics. From the start, Macrae-Gibson sets himself apart from most current theorists, asserting that he does not demand architecture to assume a critical stance toward its culture by exposing present blindnesses and inequities for some future good. Instead, Macrae-Gibson thinks that built form should effect moral enlightenment along an esthetic axis: "The return of meaning from the esthetic to the moral world, achieved through the resonancy of one with the other *when the first is sounded by its own means*, is what confers legitimacy on form."

Do Stern's Bozzi House, Graves's Portland Building, Greenberg's Manchester Courthouse, Pelli's Four Leaf Towers, Gehry's Santa Monica House, and Eisenman's House El Even Odd—the projects covered here—use esthetic means to enhance our moral sense of diversity, of individuality, of choice? Macrae-Gibson argues that they do, showing how through detailed and well-written analyses of each project. In each chapter he starts with the urban context ("The Pacific Ocean is to Los Angeles what Europe is to New York"), from which he telescopes in, through a discussion of the various historical influences and references, to settle on the building's "secret life," which I can only describe as the way it confronts contemporary ontological concerns. In effect, Macrae-Gibson interprets these buildings as each architect's personal response to the question of how man can forge himself a space in a world lacking in commonly held deities (scientific, technological, divine), where consciousness is thought to bear no stable relationship to objective reality—a world trembling, as the author puts it, with "a sharp sense of threat." Answers are as dramatically varied as the personalities of their makers: Graves constructs "a new sublime," Pelli "a sensible silence," Venturi a cigar-smoking essay on man's imperfectibility, Eisenman an angst-ridden representation of the "Second Fall."

Macrae-Gibson's chapter on Eisenman is one of his best. He starts with a crash course on the history of perspective (Brunelleschi to Vignola to Piranesi), then demonstrates how Eisenman uses architectural form to deconstruct these canons since he thinks them based on the archaism of humanism, which assumes man as this world's cynosure. Eisenman is driven to show man's "displacement from the center," and his House El Even Odd is a cube in which an endlessly receding bite is taken out, so that the observer looking for a center "is led on and on in an endless search, getting nearer and nearer, but never arriving."

Covering Gehry, Macrae-Gibson recalls the California doyen's passion for the Russian Formalist paintings of Kasmir Malevich, arguing that Gehry uses Malevich's technique of confounding visual habits in order to heighten our perception of three-dimensional space: "Perspective illusion and perspective contradiction are used throughout Gehry's house to prevent the formation of an intellectual picture that might destroy the continual immediacy of perceptual shock." The link between Gehry and Russian Formalism is key, and the author is to be congratulated for making it; however, he would have profited by focusing less on Malevich and more on Tatlin and, especially, El Lizzitsky.

Though Macrae-Gibson's book should be a primer for anyone wanting a more sophisticated reading of contemporary architecture than is generally available, *Secret Life* at points suffers from the constraints of an ill-conceived theoretical system. In his introduction and epilogue, the author explains why he thinks this new period in architecture emerges from the old. According to him, the old "utopian" and the current "lyric" Modernists share three concerns—memory, expression, and morality—but the lyric Modernists redefine the terms of their elders. Utopian Modernists adopted a teleological view of history which rejected stylistic and typological references as part of a past they believed more primitive than the present. They relied on the "literal content" of functionalism for expression rather than on "memory" in its two forms—physical (knowledge of our own bodies) and cultural (knowledge of historical forms). Today's lyric Modernists reject this teleologic view of history, thereby liberating themselves to mine memory's treasures once again.

Although Macrae-Gibson's theory advances beyond functionalist rhetoric to portray utopian Modernism as just one more mode of representation, it is otherwise inadequate to the task of explaining either the utopian Modernists' work or the projects that are scrutinized in this volume. The problem is Macrae-Gibson's idea that representation in architecture depends on either the functionalist expression of "literal content," or on physical and cultural memory. First, what is "literal" about the content of a Modernist building? Macrae-Gibson never exactly explains. Second, Modernist architects did not altogether reject their own heritage; they merely rejected the early 20th-century habit of accreting new buildings with literal stylistic references. Nor did they unilaterally reject "physical" memory, which, according to the author, includes both anthropomorphism and scale. After all, wasn't it Le Corbusier

Sarah Williams Ksiazek, a doctoral candidate in art history at Columbia University, writes frequently on architectural matters.

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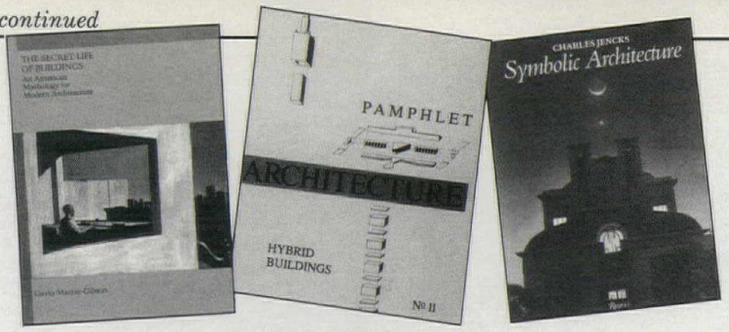

who criticized the European adoption of the metric system because it was not based on the human figure, and who tried to unite the golden section with the body in *Modulor*?

Macrae-Gibson's definition of cultural memory is too narrow to address the work of the "lyricists," and his application of the idea of physical memory is at times far-fetched. For example, in his section on Robert Venturi, he illuminates—carefully and exceedingly well—how Wu Hall is under the tutelage of Jacobean predecessors; however, by working on a definition of cultural memory as formal architectural history, Macrae-Gibson misses how Venturi manipulates those forms into double references that also recall the American vernacular. Wu Hall's cafeteria is not only a medieval dining hall, but also a diner; the overmantle at the entrance is not only an Elizabethan gateway, but a collection of Playskool blocks arranged to look like some child's notion of home.

To support his idea that the human figures into lyric Modernist works, Macrae-Gibson tends to see man lurking in corners where I don't see him at all. Adam and Eve show up holding a bitten apple, supposedly the metaphor contained within Eisenman's L-shaped cube; three faces face Wu Hall, and ghosts inhabit its internal stairways.

In short, by developing the categories of physical and cultural memory to elucidate the problem of representation in architecture, Macrae-Gibson causes more problems than he solves; however sophisticated the notion is, it remains, in the theory of representation, a first step. Nevertheless, he is to be congratulated for elevating the level of discussion on this new phase of architecture, for with *The Secret Life of Buildings* Macrae-Gibson adds a highly literate and intelligent voice to the ongoing critical debate.

Hybrid Buildings, by Joseph Fenton. Princeton, N. J.: Princeton Architectural Press, 1985, $7.

Reviewed by Paulina Borsook

The 11th in the series of Pamphlet Architecture chapbooks, *Hybrid Buildings* maps out a typology for mixed-used buildings. The author, architect Joseph Fenton, worked with Stephen Holl, the editor-in-chief and organizing force behind this set of art objects-cum-position papers, and his writing reflects the nativist ideology of that office. The book serves as an outline for a catalogue raisonné of mixed-use buildings, an architectural morphology Fenton believes is uniquely American.

Each writer in the Pamphlet Architecture series has freedom of choice in layout, design, and content. Writers are restricted only by folio size (legal pad, folded in half) and to the treatment of a single concept, whether verbal or visual. The pamphlets are not edited in the traditional sense: Holl's vision for the works is an uninterrupted forum outside the mainstream of academic and commercial presses.

Hybrid Buildings is the third in a subset of pamphlets that Holl says concentrate on "the essence of American architecture, in an effort to provoke thoughts toward the spatial and programmatic renewal of American cities." *The Alphabetical City* (#5, 1980), already something of a cult classic, explored the correlation between building types and city grid patterns. *Rural and Urban House Types in North America* (#9, 1982) offered a collection of peculiarly American dwellings as an alternative to the tract house.

Hybrid Buildings turns out to be a revisionist treatise intent on rescuing the history of 19th- and 20th-century mixed-use buildings from obscurity. While the initial decline of combination buildings in part stems from the pronouncements of CIAM architects during the 1930s, the building type began to be ignored altogether in the post-World War II political and economic environment. By the 1970s, the phrase "mixed-use" itself fell out of favor, damned by association with structures whose segregation of function was felt to have contributed to inner-city deterioration.

As a result of one of those paradigm shifts Thomas Kuhn describes in *The Structure of Scientific Revolutions*—a change in the intellectual and cultural climate simultaneously stimulating the same idea by different thinkers—the term "hybrid building" is now coming into general use in a spirit of reform. The phrase turns up without attribution in current literature as a preferred neologism for the rehabilitated notion of mixed-use. Appropriating words of art from planning as a new way to talk about architectural form, *Hybrid Architecture* is the manifesto of a new coinage of an old idea.

Fenton breaks down hybrid buildings into three types: fabric, graft, and monolith. The categorizations do not follow any specific chronology, reflecting the author's thesis that hybrid buildings have persevered over time and are not merely archaic curiosities.

Fabric hybrids generally conform to their surroundings, and their exteriors may make only modest reference to their internal variety of function. Graft hybrids clearly express their variegated program through the direct grafting of one building type onto another. Monolith hybrids differ from fabric hybrids mostly in terms of scale, a case where quantitative changes become qualitative changes; these monumental cities-within-a-city refer more to themselves than to the city around them.

Fenton uses the term *thematic* to describe related functions, such as teaching, nursing, and eating within a hospital. *Disparate* functions spring from the economic advantages that accrue, for example, when a church gains income from the rental of office space in the tower above its sanctuary.

Hybrid buildings are not unique to the Western Hemisphere, but there are probably more of them in North America than elsewhere, due to the proliferation of skyscrapers, the advent of structural framing, and the opportunities offered by the sheer size of high rises. Hybrids flourished from their introduction in the 1880s to the Depression of 1929. Whether their formal organization followed along social lines (Jarmlowsky's Bank on New York City's Lower East Side, which combined tenement housing and banking) or developed as a homage to commerce (Chicago's Daily News Building, which incorporated newspaper production and railroad offices), they benefited from the complex new technologies represented by elevators, telephones, and electrical wiring.

Hybrid Buildings is a tacit plea for an American species of architecture. Implicit in the text is a response to Postmodernism that argues for a native American solution to the crisis in contemporary architecture. Rather than exchanging one European tradition, the Bauhaus, for another, be it the Gothic, the Classical, or the Chippendale, the technique of hybrid building presents a case for an architecture grounded in American custom. In its photographs, drawings, and exploded sections, the pamphlet amply documents a building methodology based on American historical precedent.

Hybridism implies vigor and genealogy. *Hybrid Buildings* illustrates a way of solving economic and design problems so that remedies are embedded in function and history, rather than in style and theory alone.

Paulina Borsook is a writer based in New York City.

Towards a Symbolic Architecture, by Charles Jencks. New York: Rizzoli, 1985, $50.

Charles Jencks's new book is a curious hybrid—a lavishly illustrated coffee-table book, a critical essay, and a manifesto for Postmodern or, as Jencks calls it, "symbolic" architecture, with a title that paraphrases Le Corbusier's famous statement. Jencks lays out the historical and philosophical basis for symbolic architecture in a brief introduction and in Parts I and II, which, along with the epilogue, are the only sections of the book that deal with anyone else's work but his own. It is here that Jencks assails Modern architecture for lacking the symbols that identify a building's function and express society's values. He advocates a return to the good old days before Modernism came along and stripped architecture of the "clear symbolic and iconographic directions which used to be an implicit part of the building contract," citing such historical examples as the yin and yang symbols in Chinese architecture and Thomas Tresham's 1593 Triangular Lodge, which, in its geometry and ornament, represents the Catholic Trinity.

Although the book is set up as a partisan but disinterested critique, Jencks's decision to discuss his philosophy only in light of his own work puts him in the awkward position of being his own critic—and he gives himself very good reviews indeed. Much of the book is devoted to loving descriptions of four of his projects: the Garagia Rotunda, an artist's studio; the Elemental House in Los Angeles; a farmhouse addition in Scotland; and Jencks's own Thematic House. Through Richard Bryant's beautiful color photographs, Jencks elucidates his design process (complete with discarded solutions), revealing the obsessiveness of his symbolism. From the large volumes to the smallest tile, each detail contributes to the expression of whatever "meaning" he has assigned the structure. The iconographic tradition to which Jencks claims to be heir grew out of long, evolved relationships between images and the significance of buildings. But his meanings seem as arbitrary and his vocabulary as idiosyncratic as anything Modern architecture has spawned. The Elemental House, for example, was designed to express the "Four Californian Elements"—air, water, fire, and earth—and two poems by Milton. While it is interesting to trace the author's creative process, the book is more a picture of his self-absorption than a convincing argument for a new theory of architecture.

Julia Lichtblau

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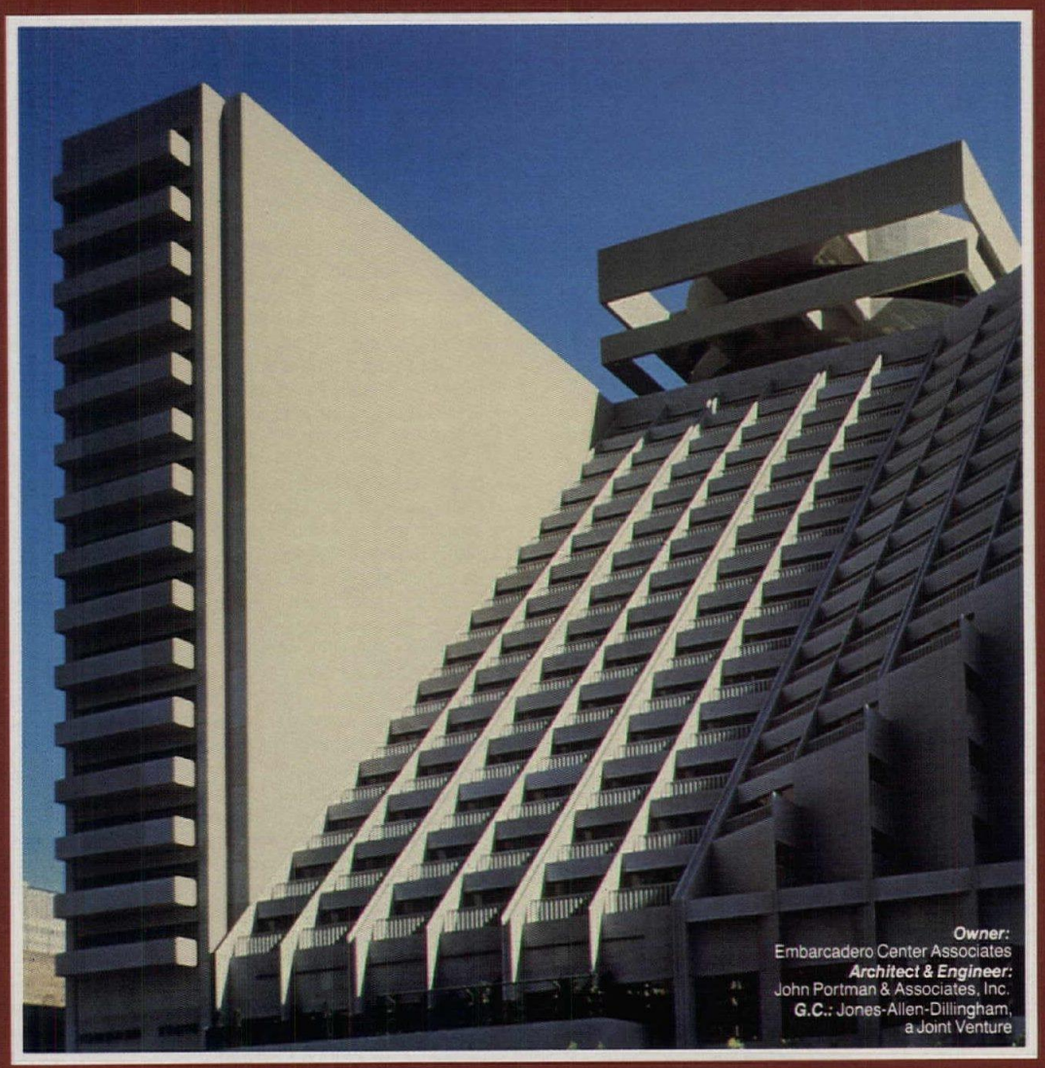

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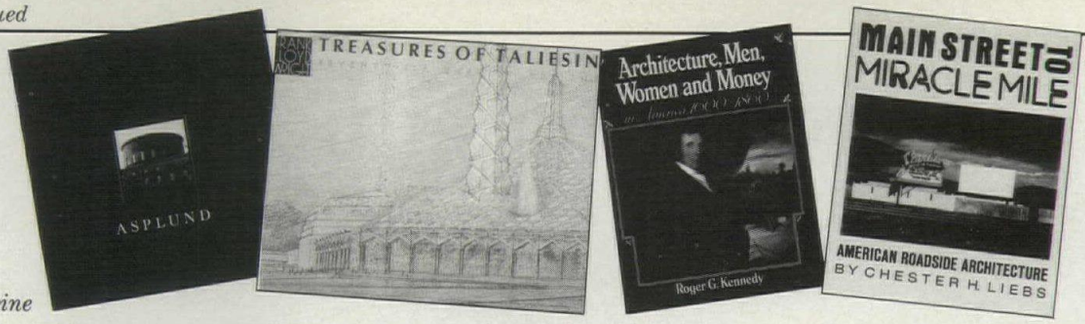


Reviewed by Julie Iovine

Asplund, edited by Claes Caldenby & Olof Huttin. New York: Rizzoli, 1986, $35.

No matter how familiar, published, or lionized, certain architects (especially those whose work is located on the geographical or theoretical fringe) preserve an aura of newness and discovery. Gunnar Asplund is such an architect. Not that Sweden is Siberia, but it's not exactly on the Grand Tour either; moreover, Asplund's design approach—a graceful blend of "romantic nationalism," sometime functionalism, and reinvented classicism—could not be more original. This resplendently illustrated addition to a growing bibliography on the architect is, in its own way, a perfect example of a type: the appreciative monograph. The book starts out with five essays broaching some aspect of Asplund's professional life or philosophy. Axel Acking, a former collaborator, offers a startling portrayal of the artist-architect at work: 14 hours at a stretch, rubbing his thumb until it bled, covering windows to bar distraction, and forbidding himself or others from ever reusing a solution gleaned from a former project. Kenneth Frampton then builds an undocumentable, but convincing, case for the influence of Russian Constructivism on Asplund at the Stockholm Exhibition of 1930, while Stuart Wrede—author of another important book on Asplund—makes an illuminating connection between the landscaping for Woodland Cemetery and the paintings of the German Romantic, Carl David Friedrich. Elias Cornell discusses Asplund's consummate artistry in shaping enclosures as if vaulting the heaven, and Claes Caldenby places the architect and his work in the context of Swedish design between 1890 and 1940.

The rest is given over to a spectacular display of 15 of Asplund's 40 completed projects through recent photographs, as well as plans, sketches, and gouache prints. From his first independent work, the Woodland Cemetery, where tholoi, temple, and pyramid coalesce into one perfectly primordial image lurking in a pine forest, and the Lister Courthouse, whose oversized gable "has probably inspired some of the Postmodernism of the 1980s," to that contextual masterpiece (and favorite design problem for second-year students) the Göteborg Law Courts, this monograph does a thorough job proving that while genius can never be copied, or even fully explained, it can be photographed to great effect.

Julie Iovine, a freelance writer from New York, contributes frequently to RECORD.

Treasures of Taliesin, by Bruce Brooks Pfeiffer. Carbondale, Ill.: Southern Illinois University Press, 1985, $60.

One-hundred six color plates of 76 unbuilt Frank Lloyd Wright projects, 29 never before published, is a rare cache indeed—the kind of book every architect will want to buy and display prominently without feeling compelled to read very closely. After all, these are polished presentation drawings that were meant to wow clients with a look, not a floor plan. There is certainly an abundance of material here. Even during his so-called barren years during the 1920s and '30s, Wright was working up ideas and fertilizing notions. From a 1924 copper-plated skyscraper in Chicago (something akin to the Italian futurist Sant'Elia's power-station graphics) to a spiraling planetarium in Maryland (the first inkling, in 1925, of a scheme that would eventually become the Guggenheim Museum), the unbuilt designs shown here prove that Wright was never in danger of drying up.

The drawings cover over 60 years of work from 1895 to Wright's last project, a mountaintop house in Paradise Valley, Arizona. The drawing technique itself, shifting subtly from a scroll-like oriental mode to a more fluid, colorful style, is surprisingly consistent over the years and complements nicely the equally gradual shift from the horizontal and cantilevered to the organic and ovoid. It feels as if both were part of a natural evolution of one vast concept that could well have flourished forever. Although the drawings are this book's essence, it would be a mistake not to dip into the text by Wright's dedicated associate and loyal archivist, Bruce Brooks Pfeiffer. The anecdotes and circumstances surrounding these unrealized dreams are real, often revealing, collectibles. One classic exchange between Raymond Hood and Wright in 1926, for example, goes like this: "Frank, tell me, what do you do when you get to the top of a skyscraper? What sort of terminal or ending do you give it?" Replied Wright: "Just cut it off, Ray." Who, moreover, wouldn't want to read about encounters with and promising schemes for Marilyn Monroe, Ayn Rand, Michael Todd, and Vincent Scully (the last a clear case, Wright would say, of "a champagne appetite accompanied by a beer income")? Throughout the book, Pfeiffer seems to hint that more complete working drawings for many of these projects are available for the asking. In any case, *Treasures of Taliesin* is clearly one of the Master's finest presentations.

Architecture, Men, Women and Money In America, 1600-1860, by Roger G. Kennedy. New York: Random House, 1985, $35.

A title that embraces both sexes, money, *and* architecture sounds implausibly catchy and does no justice to Roger Kennedy's exceedingly learned inquiry into the impact of finance on American domestic architecture between 1600 and 1860. A former banker himself, the author sets out to explore "how the economic circumstances of a building's purchaser would determine not only its magnitude, but often its shape and function." Detailed accounts of the roller-coasting fortunes of such figures as George Washington at Mount Vernon, Adelicia Cheatham (who "could have eaten Scarlett O'Hara for breakfast" as she oversaw the construction of Belmont in Tennessee), and the financier Livingston Biddle of Philadelphia give the book historic heft. But that's only part of the story and for architects, perhaps the less relevant. Far more intriguing are Kennedy's pointed conjectures about the psychology of style among nouveau-riche clients as he illustrates how "form follows feeling."

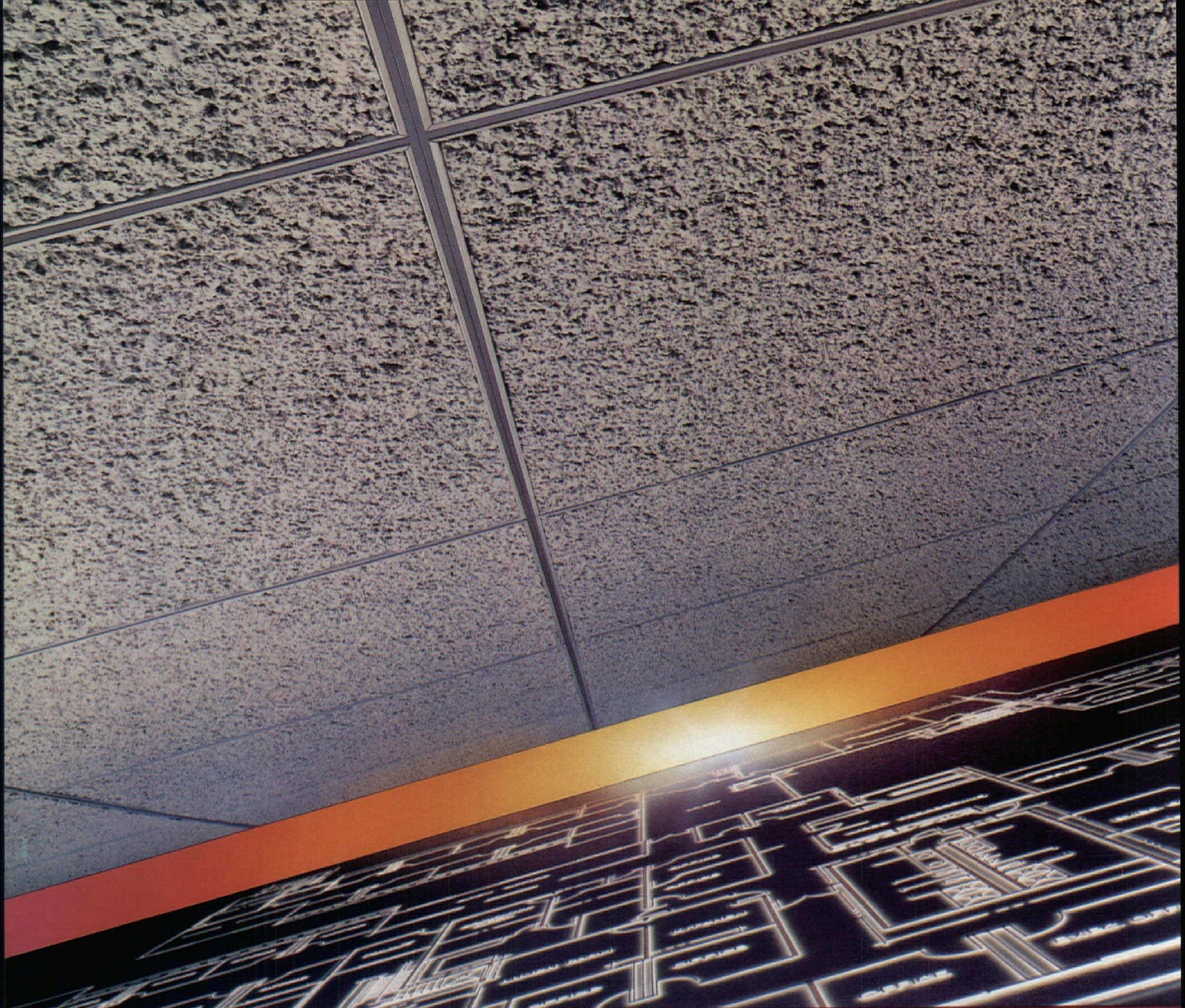
Beginning with the architecture of fear and alienation on sugar plantations in the West Indies, the story travels to the mainland, where Palladian forms and Greek Revivial styles served as false fronts of dignity and calm for a restless and insecure population getting rich on slave labor. Succeeding the architecture of fear is the architecture of association, where, according to Kennedy, the first rule of thumb is that new money "clears the way for new architecture." The ideal architectural patron, says Kennedy, is often the social arriviste eager to mask gaucherie with dignified design. But don't expect to find too much about clients and architects hashing it out between drawing room and drawing board. Architects themselves seem to play a relatively small role in the popularization of building styles before the Civil War. And although the careers of William Jay, Robert Mills, and Samuel Sloan are thoroughly documented, it seems that pattern books were just as influential. Finally, Kennedy is at his best examining the complex ambiguities of the Greek Revival style—dubbed here Ideological Classicism—which the author breaks into two categories, one more Roman than Greek, the other just Jeffersonian. A more exacting analysis of the influence of everything, from indigo crops to the Parthenon, on our built heritage would be inconceivable.

Main Street to Miracle Mile, by Chester Liebs. New York: Little, Brown & Company, 1985, $40. ($19.95 paperback).

Next to pop psychology, what could be more entertaining than roadside architecture? The hold that the subject has on baby-boomer architects surely must have something to do with one's memories of a '57 Ford zipping down Main Street out onto the highways of America. Robert Venturi was the first to set the myth into motion, and now Chester Liebs puts it into socio-architectural perspective. Everyone's favorite pit stops are on the map—drive-ins, miniature golf courses, motels, auto showrooms, gas stations—and meticulously profiled. The diner, for instance, is tracked from an 1872 café on wheels in Providence right up to a 1980 Postmodern eatery in Boulder, Colorado.

As Liebs sees it, roadside architecture reels out like "a windshield movie, . . . flagging down the money market" ever in search of better entertainment, more refreshments, and a tankful of gas. The evolution of wayside commerce did not begin, however, with the car, but on Main Street, where, as early as 1850, shopfront billboards and placards vied for customers' attention. Cars merely "prompted the marriage of architecture and advertising, a blend of building and sign," in the interest of getting the message across as fast as possible along every Miracle Mile leading out of town. Even the Depression didn't put a break on the rapid growth of highway attractions, although the rationing of rubber, gas, and cars during World War II did, if only to fuel faster sprawl in the postwar years. Today, with superhighways racing right over and beyond the old mall-lined strips, you can "window-shop at 55 mph."

The architectural imagery associated with the evolution of motor marketing is just as kaleidoscopic and transitional, running the gamut from fantastical tepee and duck styles to the parabolas of "Exaggerated Modern," culminating in the "Old Building Look" of today. In short, architectural integrity is not an issue, for, as Liebs wisely points out, "stripside loyalty [is] not pure to architectural style, but to sales." Liebs concludes that roadside architecture is as revealing about the commercial revolution of the 20th century as factories were to the 19th-century industrial revolution. That doesn't mean that all the Golden Arches should be given landmark status; Liebs only suggests that there is a lot more to learn from McDonald's than meets the eye.



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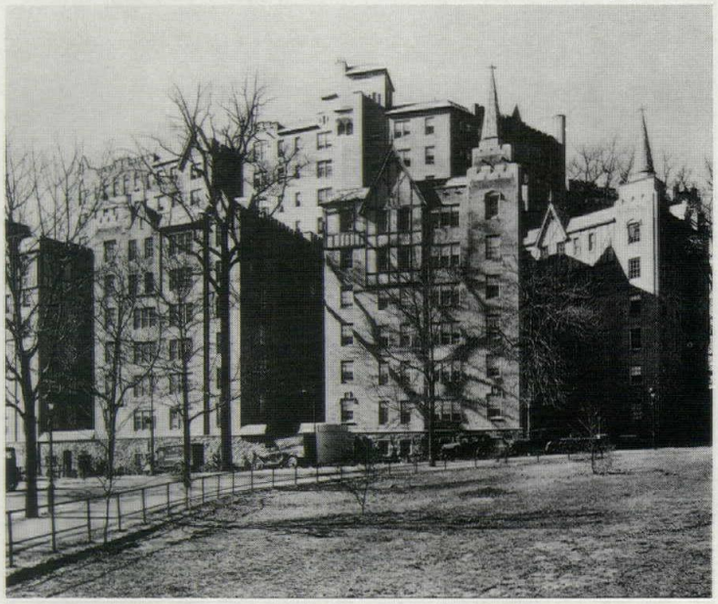
Up in the Bronx, a new look at a neglected architectural legacy

Top: Bronx County Building, 1931-33, Joseph H. Freedlander and Max Hausle, Architects. Bottom: Apartment house at 3875 Waldo Avenue, 1928, Horace Ginsbern, Architect.

By Thomas Matthews

Museum of the City of New York

Museum of the City of New York



The long architectural tradition of the Bronx extends from pre-Revolution fieldstone farmhouses to the anodized-aluminum, space-age technology of Richard Meier's Bronx Developmental Center. This history falls roughly into three eras: the first two centuries of rural independence, the last two decades of urban blight, and the 100 years in between, when development and resources achieved a dynamic balance. "Building a Borough: Architecture and Planning in the Bronx, 1890-1940," now on view at the Bronx Museum of the Arts, focuses on the central period. This groundbreaking exhibition surveys the major buildings, characteristic building types, and planning approaches that helped define the Bronx during its most significant period of growth.

In 1874, when the southern reaches of the Bronx were annexed by New York City—its first expansion beyond Manhattan island—about 28,000 people lived in a largely rural landscape of villages, farms, and country villas. In 1891, a local planning authority issued a comprehensive Borough Plan, and development began in earnest. Within half a century, the population of the densely built borough numbered 1.4 million.

The Plan combined a strict urban grid with an extensive park system—Haussmann's Paris with nature instead of monuments on the axes. "Bird's-Eye Views" depicted both formal boulevards and houses with gardens. An 1891 real-estate advertisement promised "a New Civilization," nature improved by convenience. Building centered around train and subway stations as developers subdivided country estates to erect multifamily housing. The suddenness of the transformation is exemplified by a striking 1910 photograph of open fields crisscrossed by white lines laid down for streets. A forlorn horse and wagon stand where all would soon be bustle and concrete.

Public progress stimulated private enterprise; development followed the extension of municipal services and was anchored by public buildings. Many of these were designed by prominent Beaux-Arts architects: railroad stations by Cass Gilbert, a municipal building by George B. Post. Style runs rampant. Vintage photographs of the borough's public schools portray flamboyant Gothic, gabled Chateauesque, sleek Art Deco, and stripped Industrial. Joseph Freedlander and Max Hausle's Bronx County Building (1931-33), bulky and ingenuous, combines a granite podium and Roman porches with sculpture celebrating the common man. Unlike the lofty imagery of public buildings in Manhattan, aspirations in the Bronx stayed close to the earth.

The exhibition also illustrates that the Bronx is the greenest of New York City's five boroughs, with 20 percent of its area given to parks, including the extensive and innovative Botanical Garden and Zoological Park. The Grand Concourse, the borough's noblest thoroughfare, was planned as a speedway between Manhattan's Central Park and the open spaces of the Bronx. Calvert Vaux, Heins and LaFarge, and Lord and Burnham were among the designers responsible for these impressive oases. The bathhouse at Orchard Beach is the subject of a lovely watercolor rendering, peopled with elegant couples decked out in the sportswear of the '30s.

Other high points of the exhibition include McKim, Mead & White's classical campus for New York University (1894-1912, now Bronx Community College), shown in photographs and working drawings, and the opulent Loew's Paradise Theater on the Grand Concourse, built in 1929 to designs by John Eberson. A watercolor rendering of the interior is an exotic decorator's fantasy—a Bronx version of Ali Baba's cave. Photographs of life in the wood-frame houses of Morris Avenue and the brick tenements of East 138th Street convey the multilevel quality of everyday life in a huge city made up of intimate neighborhoods. But where is mighty Yankee Stadium, arguably the borough's most famous landmark?

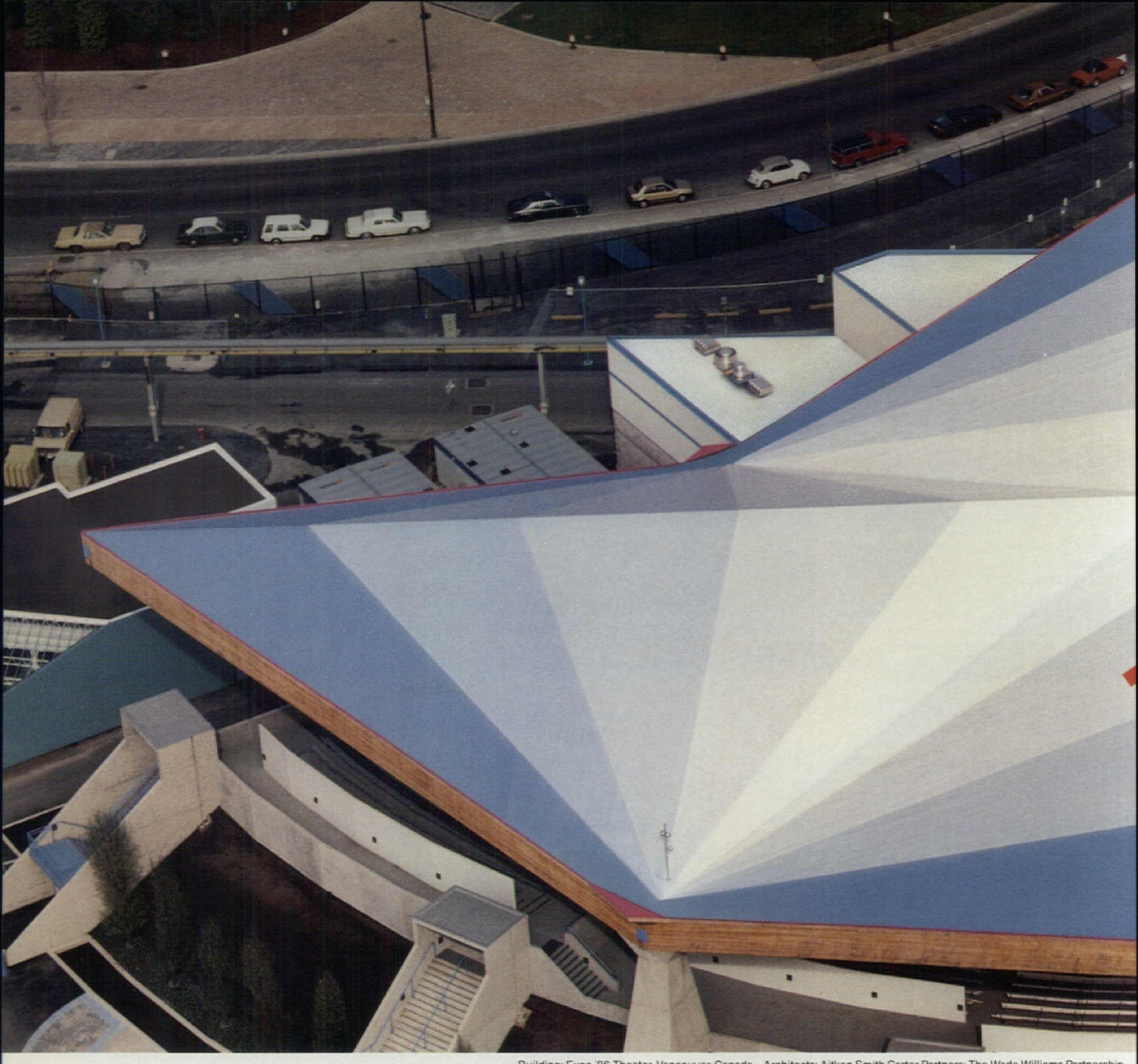
Perhaps the strongest segment of the exhibition is devoted to the dominant Bronx building type—housing—and, specifically, the apartment building. Immigrant waves from the turn of the century overwhelmed the 19th-century villages with flourishing communities of Irish, Jews, and Italians. Tenements and row houses in the southern part of the Bronx gave way to "high-class," six-story-with-courtyard apartment buildings in historicist garb—many designed by the prolific architect Horace Ginsbern—and experiments in planned garden complexes reflected the upward mobility of the working class. The multifamily dwelling climaxed during the 1930s with an explosion of Art Deco buildings "unmatched anywhere else in the country," according to guest curator Timothy Rub. A series of period photographs practically defines the style. The show ends with an aerial view of Parkchester, an enormous project erected between 1938 and 1942 that comprises 58 buildings housing 60,000 people. After World War II the rush to greener pastures left the Bronx behind.

The exhibition's objects were gleaned from diverse sources and vary in condition. A photo album from the American Banknote Company not only shows the Greek Revival mansion its factory replaced, but also documents the era's photographic techniques with dusty affection. On the whole, the show's subject is desire as often as reality, and the linkage between the two is sometimes explicit in the juxtaposition of planning maps and real-estate auction brochures. The Bronx was conceived as a Grand Concourse and marketed as a way to the American Dream. The borough's capacity to absorb so much hope contributed to its astounding development. When the dreams failed, from the 1960s onward, the buildings burned.

The exhibition comprises over 100 photographs, maps, architectural drawings, and renderings, many assembled for public view for the first time by Rub and the museum's head curator Philip Verre. A forthcoming catalog providing interpretive essays on social history, institutional buildings, and housing in the borough should amplify the message of the objects; as hung, their emphasis on single facades tends to obscure the lively connections among buildings, people, and communities that make up the social fabric of the Bronx.

That fabric, now torn and patched, can be felt firsthand by a visit to the museum, which is located in a converted former synagogue at 1040 Grand Concourse, surrounded by some of the original architecture reproduced in the show. The exhibition continues through November 23.

Thomas Matthews is a freelance architectural writer from New York City.



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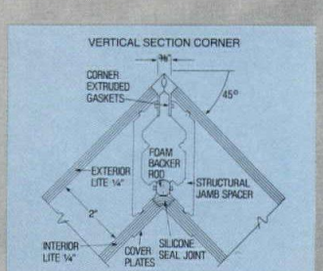

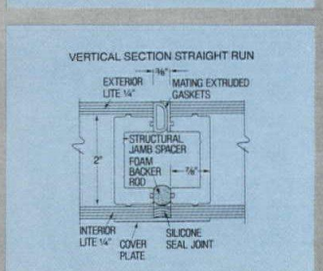

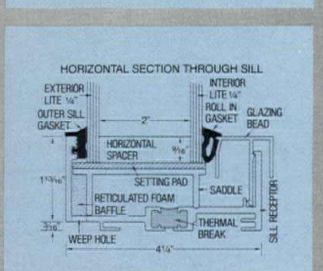

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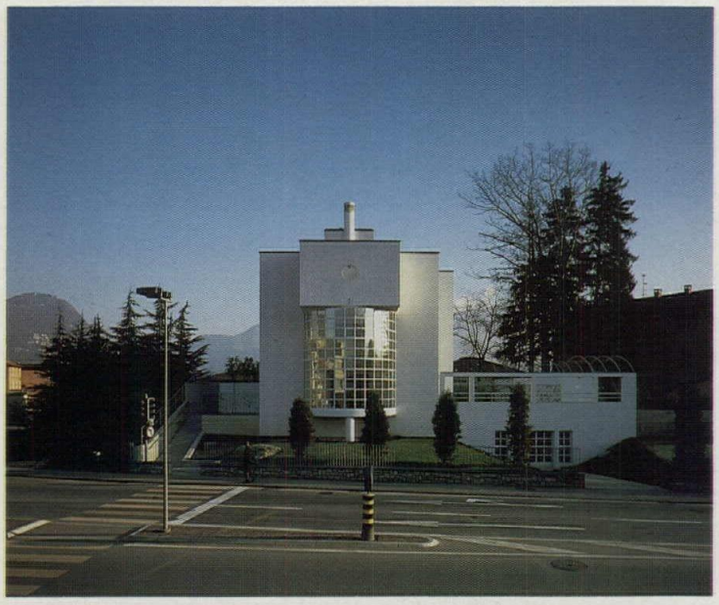
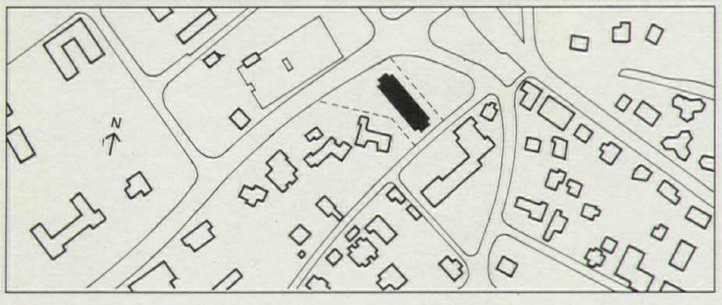
City living: Three states of the art

It has become a cliché in architectural journalism (at least at this magazine) to call the genre of custom-built single-family residence—the kind, usually suburban or exurban, that appears in RECORD HOUSES—"a laboratory of design." If this scientific metaphor seems somewhat dated now, however apposite it may have been in years gone by, it is not because the building type it addresses is any less thoroughly researched or imaginatively developed by contemporary practitioners. Perhaps the image of architect as scientist has lost its allure, as popular faith in technological panaceas of every sort has dwindled into disillusionment. And perhaps too many recent architectural "experiments" in the domestic sphere seem directed toward the lifestyles of a happy few rather than a decent standard of living for the many. Low-cost mass housing was the experiment of choice for many early 20th-century Modernists, but the sense of urgency that inspired their mission seems to have been dismissed by revisionist historians as period atmosphere for an unfashionable style. Hardly anybody talks about The Masses nowadays, but if one is to find any lasting value in still-current clichés such as "urban renaissance," it is imperative to recognize that the availability of good, affordable housing is essential to the revival and sustenance of cities everywhere. In the absence of a concerted national policy on this issue, and having no authoritative manifesto of our own to advance, we at RECORD can only present the work of architects whose efforts may at least stimulate further discussion. To expand the frame of reference beyond familiar American conditions, we have included two European projects among the three examples of multifamily dwellings shown on the following pages. All of these buildings were constructed on urban sites (all marginal by local standards), but they serve a variety of social groups. Mario Campi and Franco Pessina's nine row houses on the northern fringe of Lugano have been bought primarily by well-to-do professionals. Antoine Predock's 74-unit rental apartment complex on a run-down strip in Albuquerque is intended for lower-middle-income tenants. Wytze Patijn's recycled waterworks, a mile and a half from central Rotterdam, furnishes inexpensive government-subsidized homes for young working people and students. What each building owes to science and ingenuity can be gauged in the quantifiable amenities it provides its inhabitants within the limitations of a given program. What each building also gives back to the city around it—a sense of dignity, a sense of history, drama, and style—can be measured only by the notoriously unreliable standards of art. *Douglas Brenner*

Casa in Via Cabione
Lugano, Switzerland
Mario Campi and Franco Pessina,
Architects

Within the bounds of reason





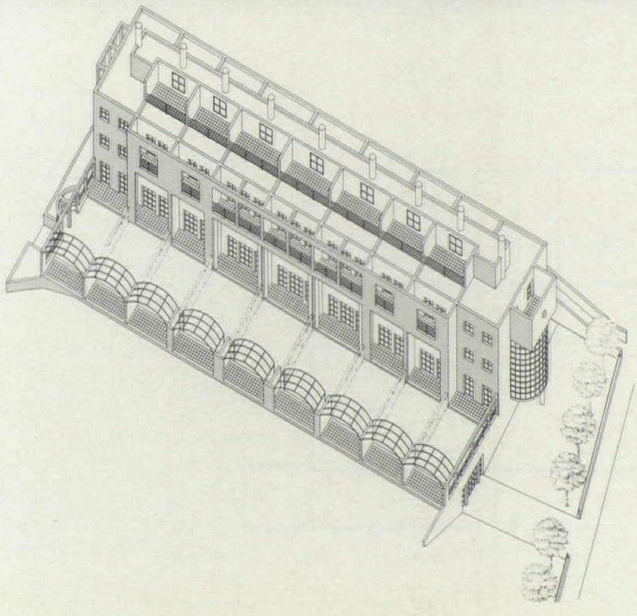
Anyone familiar with the helter-skelter urban sprawl of America can only marvel, or sigh, at Mario Campi's description of the nine town houses that he and Franco Pessina designed for sale on Lugano's Via Cabione as "a stabilizing element of the city periphery that tries to regulate a very disordered area." Ah, only in Switzerland, one reflects, surveying the scene we illustrate here, could *this* be disorder. But then, problems of context are always relative and, given the particular cultural framework of the Italo-Swiss canton of Ticino where Campi and Pessina work, the architectural solutions accomplished in their *Casa* are admirably adroit. To begin with, the site was itself problematic, an awkwardly narrow parcel of land that had long remained vacant because it faced the busy access route to a major highway at the northern end of Lugano. The architects (who were also the developers) compounded the challenge by choosing a building type, the row house, that has never been popular in Ticino. Urban dwellings there, as in Italy, tend to be either apartment blocks or villas, like those that cluster amid the tree-shaded gardens bordering the Via Cabione. Row houses are far more common in German-speaking cantons, where this kind of habitation gained acceptance during the heyday of the Bauhaus *siedlung*. Such products of European Modernism between the wars inevitably spring to mind when one confronts the white walls, flat roofs, and austere cubic geometry of Campi and Pessina, who indeed admire Loos, Terragni, and other luminaries of the period.

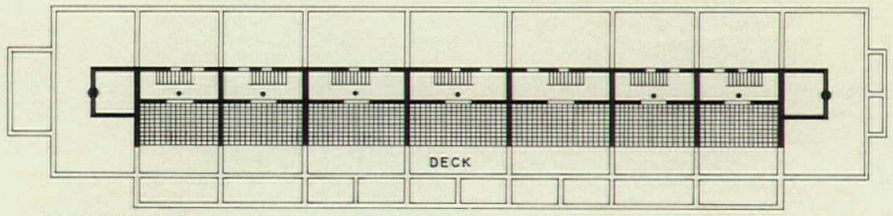
"The Modern Movement is still alive," Campi asserts. "It is not just a part of history like other styles, and in its essence it has much more to say about the future of our cities and of architecture than all of the Postmodern attitudes out in the world now." No mere disciples, however, Campi and his partner elect to pursue a continuous "critical revision" of Modernism, counteracting its dogmatic historical (or *a*historical) myopia with a more open-minded approach to learning from the past and a more flexible adaptation to the diversity of contemporary life. This studied tolerance notwithstanding, the search for recognizable order remains a constant preoccupation. Hence the interplay of an almost classical symmetry and no-less-deliberate asymmetry in the massing and fenestration of the Lugano building; and hence Campi's reference to the project as a "stabilizing element" within its heterogeneous surroundings. Rather than deploy row houses in Bauhaus fashion as a series of discrete, repetitive units, apparently finite in number only because some theoretical supervisor had temporarily cut off production on an ideal assembly line, Campi and Pessina revived the older urban strategy of diverse structures subsumed within a hierarchical totality, as exemplified in 18th- and 19th-century streetscapes from London to Turin. Fortunately, the result of this classical influence avoids the pitfall of arbitrarily subordinating plan to monumental facade.

The towers, loggias, and pergolas of the Casa in Via Cabione create an imposing ensemble without compromising the logic of a simple, efficient plan or the privacy of each unit (drawings overleaf). A key element in the parti is the stairway that divides each dwelling vertically into two zones: a narrow utilitarian sector of kitchen, bathrooms, and storage opens off a raised alleyway on the north side, providing a buffer against traffic noise; more generously proportioned living areas face south toward quiet gardens above an underground garage. Houses range in size from roughly 1,500 to 1,700 square feet, the three units in the middle of the row being somewhat wider than the rest. Besides contributing to the subtly tripartite scheme of the north and south facades, the shift in unit width introduces one of several options designed to offer residents a modicum of individuality. Structural party walls, for example, allow partitions and even slabs to be removed or rearranged, as several owners, including Pessina, have done. Externally, though, deed restrictions govern every detail from stucco colors to trellised vines. "I'm not so arrogant as to say this is like Pessac," Campi remarks with a chuckle, "but. . . ."

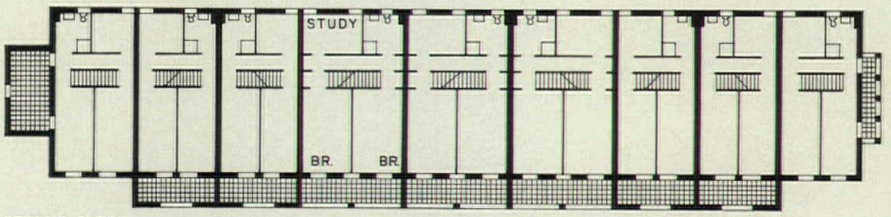
Main living floors are elevated on a bermed basement, allowing on-grade entry to lower-level parking and raising pedestrian entrances and gardens above heavily traveled streets. Because a dense grove of pines screens the long north facade (details overleaf) and the south front (below and overleaf) gives onto the secluded yard of a private villa, the most visible public aspects of the building are the towerlike end pavilions. A bowed oriel in the westernmost house acknowledges the curve of the street and mounts a symbolic gatepost at the edge of the city. More domestically scaled balconies at the opposite end overlook a school playground (opposite below). The indentation at the foot of the eastern tower is the precise size required to hold two standard trash containers: "very Swiss," says Mario Campi.

Alo Zanetta photos

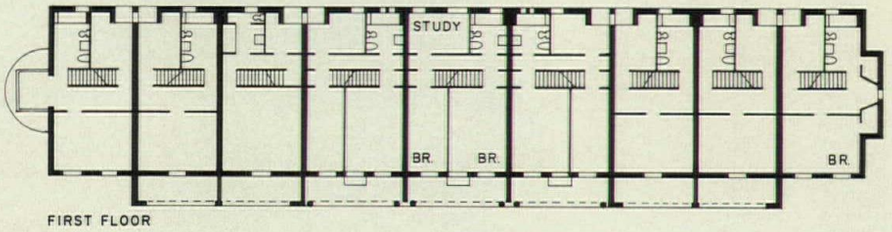




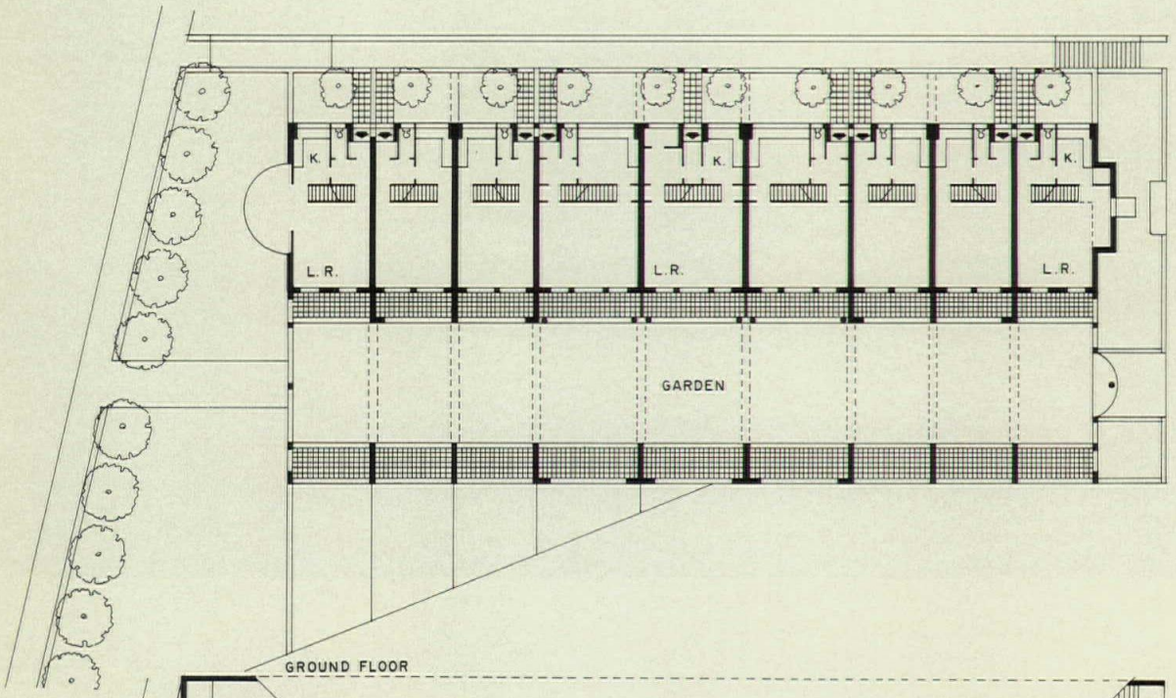
SOLARIUM FLOOR



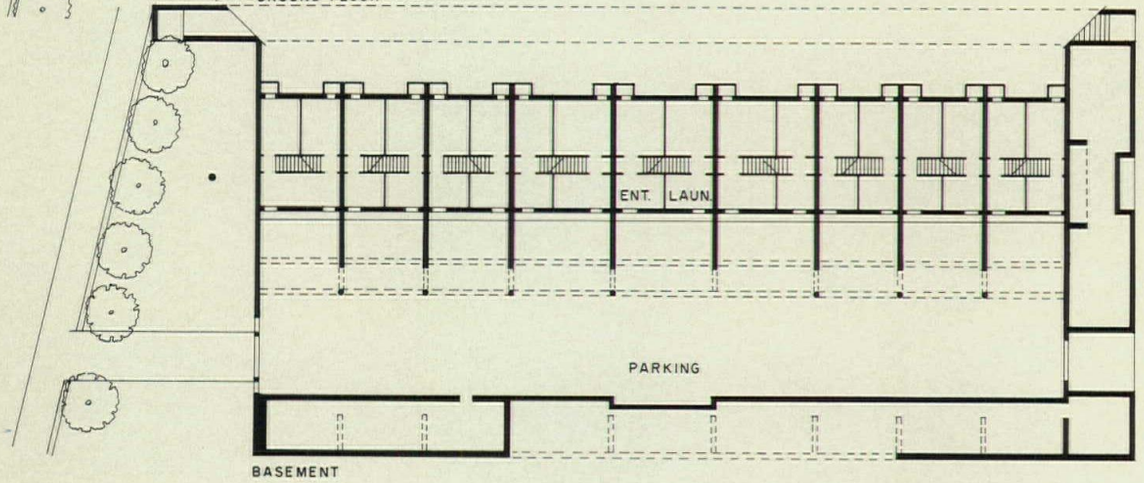
SECOND FLOOR



FIRST FLOOR

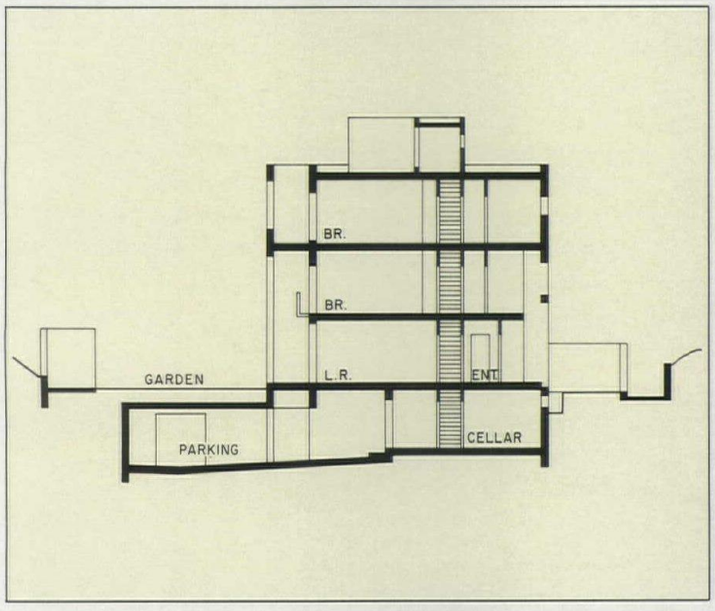


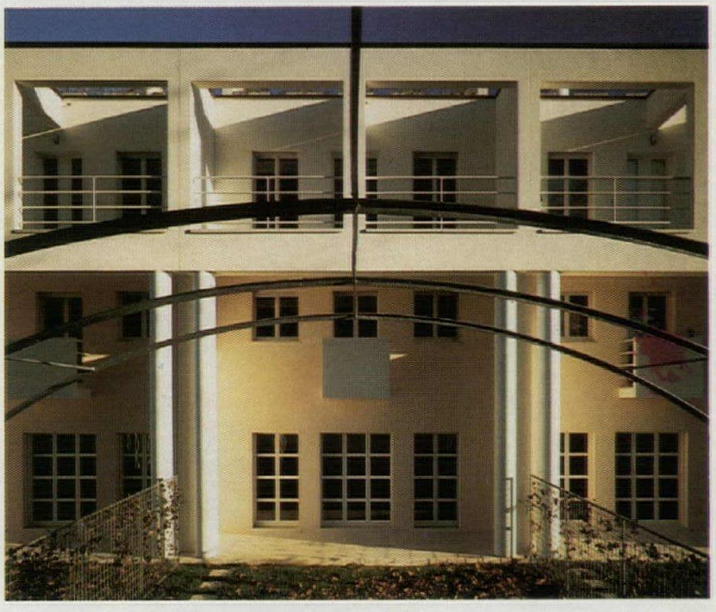
GROUND FLOOR



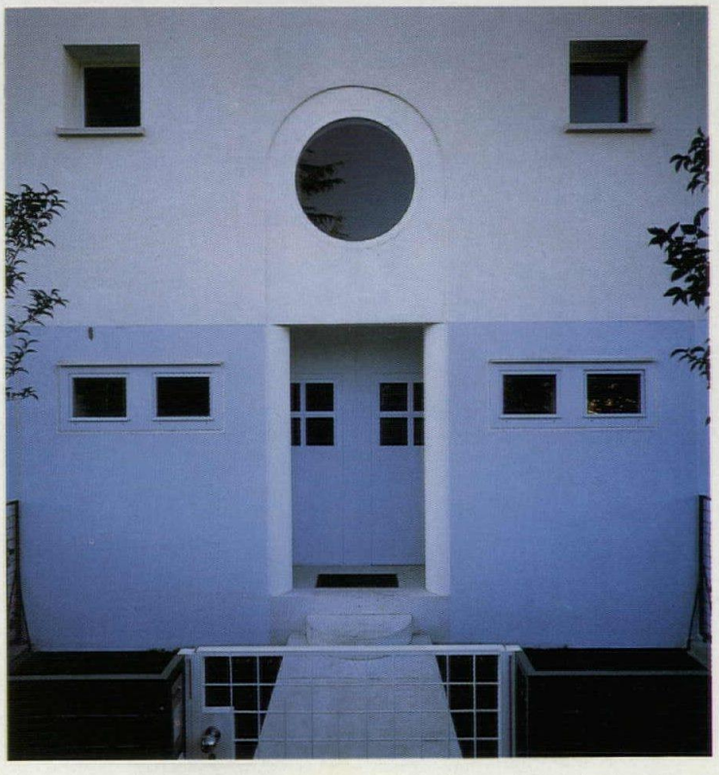
BASEMENT

As a maxim for their current work, Pessina and Campi quote a comment of Frankfurt School philosopher Jürgen Habermas to the effect that the Modern Movement in architecture is an "unachieved project." The two designers respectfully revise the grammar of the 1920s and '30s with borrowings from classical rhetoric and embellish soberly geometric functionalism with delicately fanciful touches. Orthodox white facades (stucco over structural concrete and brick infill) are painted pale blue at the base (top right), a device Campi and Pessina learned from Otto Senn, a Modernist compatriot now in his 80s who asserts that simple changes of color or texture can articulate an elevation as effectively as rustication. Silhouetted against the brise-soleil-loggias of the south facade, metal arches and fences frame pergolas and trellises. In a mannerist alteration of the plans shown at left, the central portal on the north front frames what appear to be two doors (bottom), one of which (at left) is actually false.

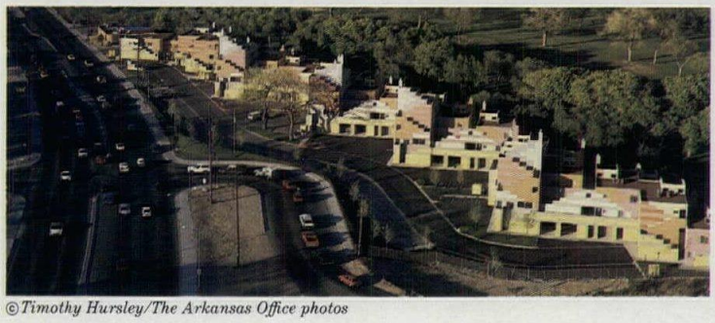




Casa in Via Cabione
Lugano, Switzerland
Architects:
Mario Campi and Franco Pessina
Engineers:
Enzo Vanetta; Piero Früh
General contractor:
Lepori SA



Life on the fault line



©*Timothy Hursley/The Arkansas Office photos*

Heading north into Albuquerque on Route 66, the first building you see across the Rio Grande is The Beach, an apartment complex that architect Antoine Predock calls "a big, 74-unit low-rider." No matter when you pass The Beach—by day, when bold stripes exaggerate its horizontal expanse beneath the skyline of the Sandia Mountains, or by night, when neon zig-zags along its walls like the streaking chrome and headlights of moving vehicles—it's easy to see the point of Predock's reference to the souped-up low-slung cars in which proud Latinos cruise the neighborhood. Cults of the automobile are nothing new along this stretch of 66 (a.k.a. Central Avenue), where seedy Spanish-style motels, trailer courts, and cafés with flickering signs remain icons for nostalgic votaries. The Beach stands on the city-owned site of a demolished adobe motel (Elvis Presley slept there), which in turn was named for nearby Tingley Beach, a riverbank drainage pond that used to be a popular swimming hole and is now a favorite stop on the low-rider circuit. Remarkably, the developer of the new apartment house appreciated the multilayered folk history of the locale, but he also saw the potential value of its most conspicuous (if incongruous) asset, an unobstructed view of the Albuquerque Country Club from the old motel's back yard. The profitability of a scenic outlook combined with easy commuting distance to downtown, and the chance to spur redevelopment of a

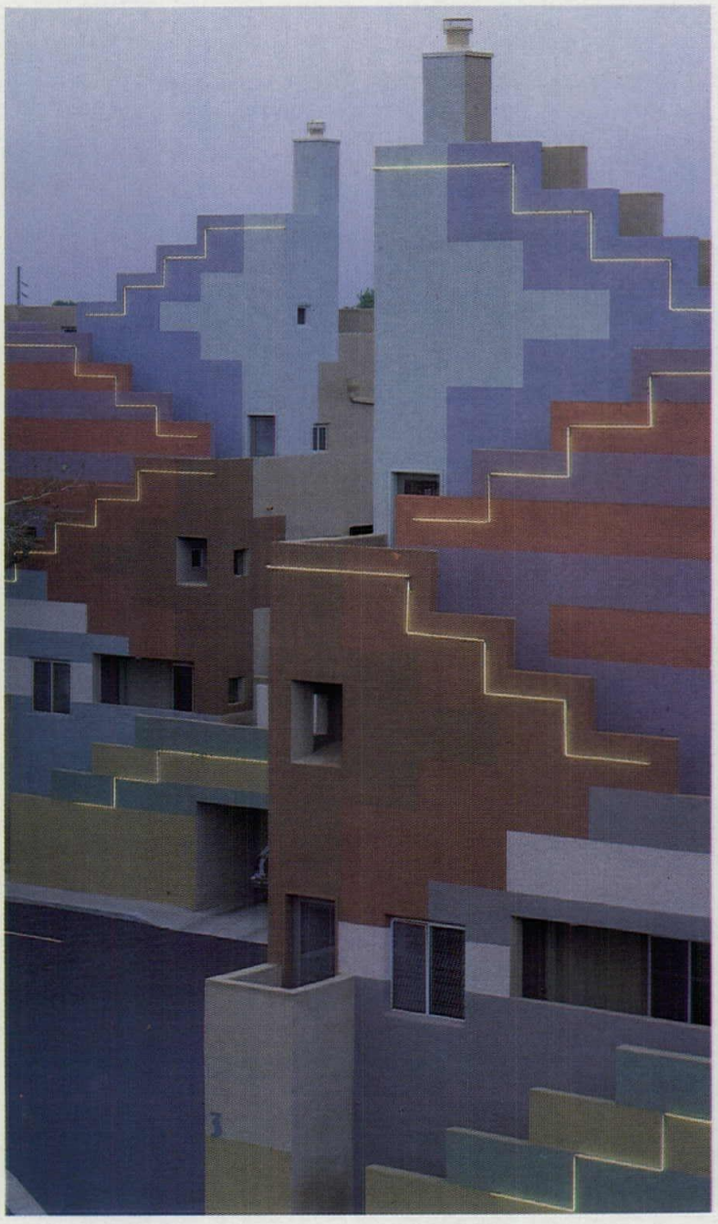
The Beach
Albuquerque, New Mexico
Antoine Predock, Architect

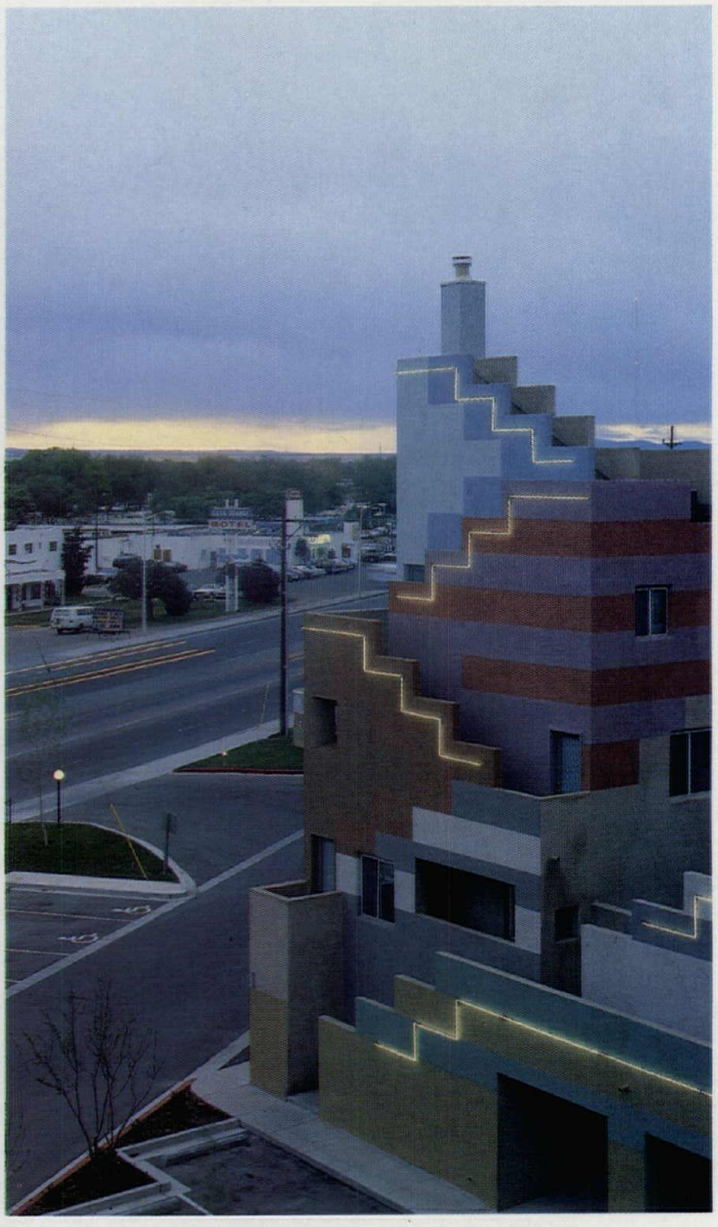
deteriorated strip, also made sense to the Abuquerque City Council, which approved a 10-year lease and tax-free bond to finance The Beach as rental housing and offices. Under the terms of this funding, at least 20 percent of the apartments were to be designated for moderate- or below-moderate-income tenants.

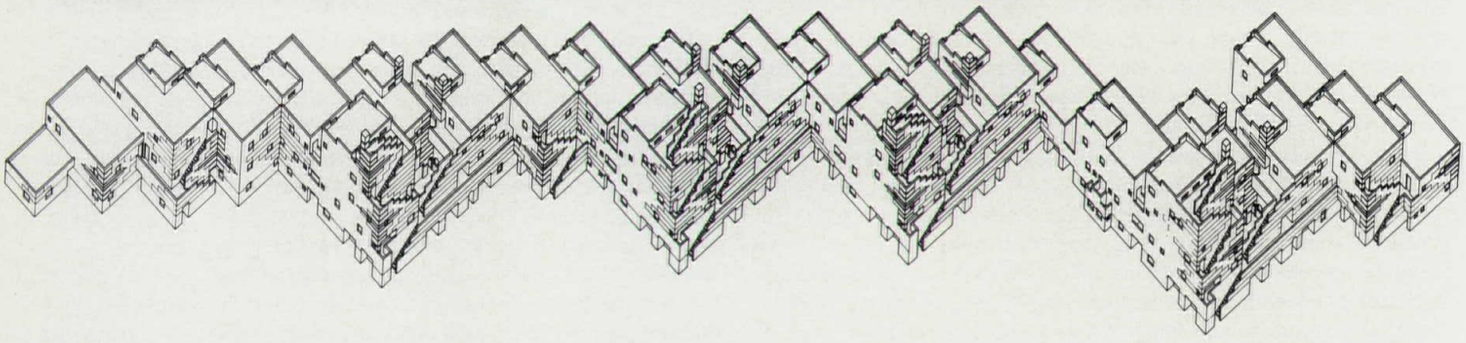
Antoine Predock describes the task that confronted him as designing for a site that "straddles a cultural fault line: the habitat of the custom cruiser meeting the white belts and white shoes of the country club." Unwilling to simplify his low-budget task by turning his back on either realm, he conceived a building that addresses both—as well as calling forth transcendent images of regional history and geography. This evocative composition also serves the developer's program with a varied range of apartment layouts, ranging from 450-square-foot efficiencies to 1,900-square-foot two-bedroom penthouses (typical layouts on page 98). In plan, the complex steps back diagonally from Route 66, breaking down the long street frontage into more intimate bays reminiscent of old motor courts, and making parking a ceremonial element of the entry sequence. The sawtooth outline recurs in the profiles of exterior stairway parapets and an uneven roofline that steps up to lookouts atop the four penthouse towers. Along the street side of The Beach, polychrome bands applied to stucco and a linear appliqué of neon tubes key the ziggurat motif to different rhythms and moods.

Though Predock deliberately steered clear of too-literal "contextual" metaphors, his architecture is dense with overlapping allusions. The same step pattern that brings to mind a Navajo serape or the terraces of a Zuñi pueblo also triggers memories of Jazz Age roadhouse décor or the shapes of mountain, butte, and mesa. "Landscape memories" are especially dear to Predock (RECORD, mid-April 1986, pages 72-79), who sees this building as an abstraction of the peaks and valleys of New Mexico's terrain. His mural palette underscores the affinity of architecture with nature. The base is green, adapted from the foliage of the riverside *bosque*, but given a garish tinge equally suggestive of highway sign art; the middle stratum is warm sunset and earth tones; and the four pinnacles are sky-blue. The concentration of these colorful stripes, and their complement of neon lightning bolts, along Route 66 is akin to the Western tradition of a catchy, public facade contrasting with neutral sides and back. Predock's decoration is wraparound rather than false-front, yet a walk through The Beach's arcaded passageways, or past the south end of the building by the pool, reveals monochrome adobe-color walls all along the east side, framing patios and a panorama of the golf links. Sheltered from low-riders and other traffic, it is quiet enough here to listen to the murmur of the cottonwood trees.

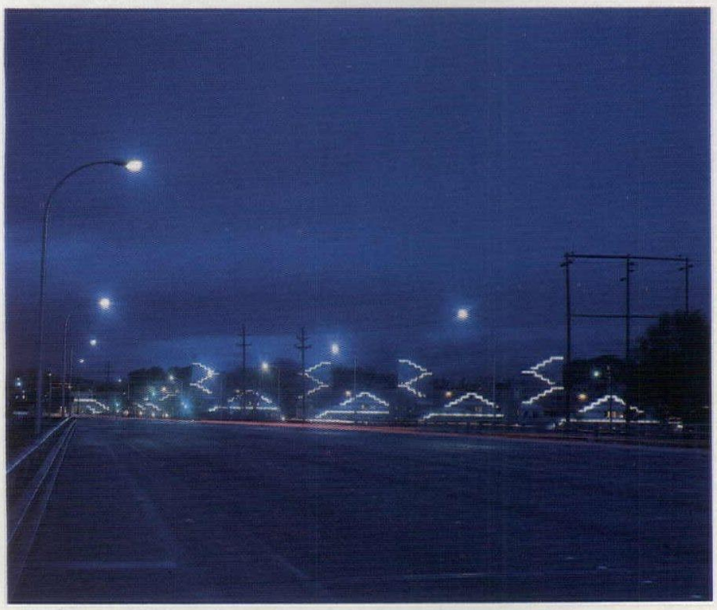
Working within a limited $3-million budget, it took daring and ingenuity to include four rooftop aeries with no function other than to give views to residents of duplex penthouses. Several stories above anything in the immediate vicinity, one can see as far as Santa Fe and scan a panorama of Albuquerque, the Rio Grande Valley, extinct volcanoes, and the Sandia Mountains. In spite of the verticality of the towers, ziggurat massing, banded walls, and neon accents sustain the horizontal sweep of the entire complex. Neon was part of Predock's design from the outset, and is the most obvious harkening back to the erstwhile glamor of Route 66. In the late afternoon, when timers turn them on, the luminous tubes are barely perceptible, and could be mistaken for white lines painted on the walls. As the sun sets, the facade seems to

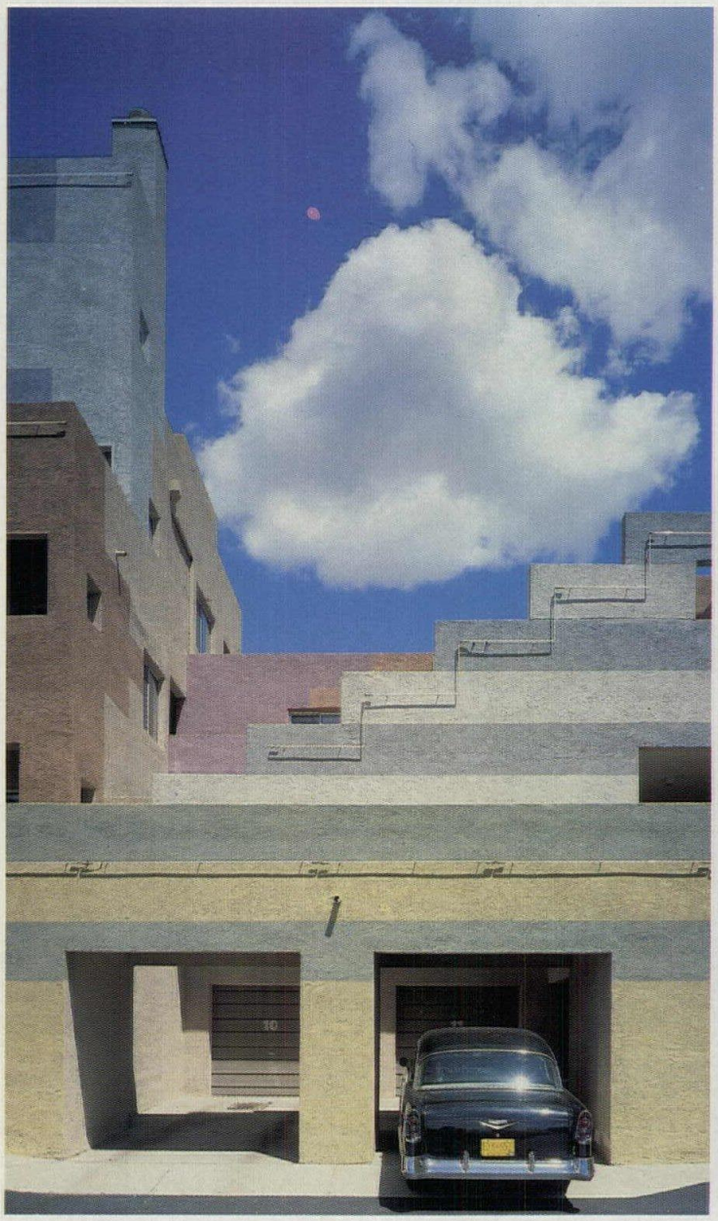


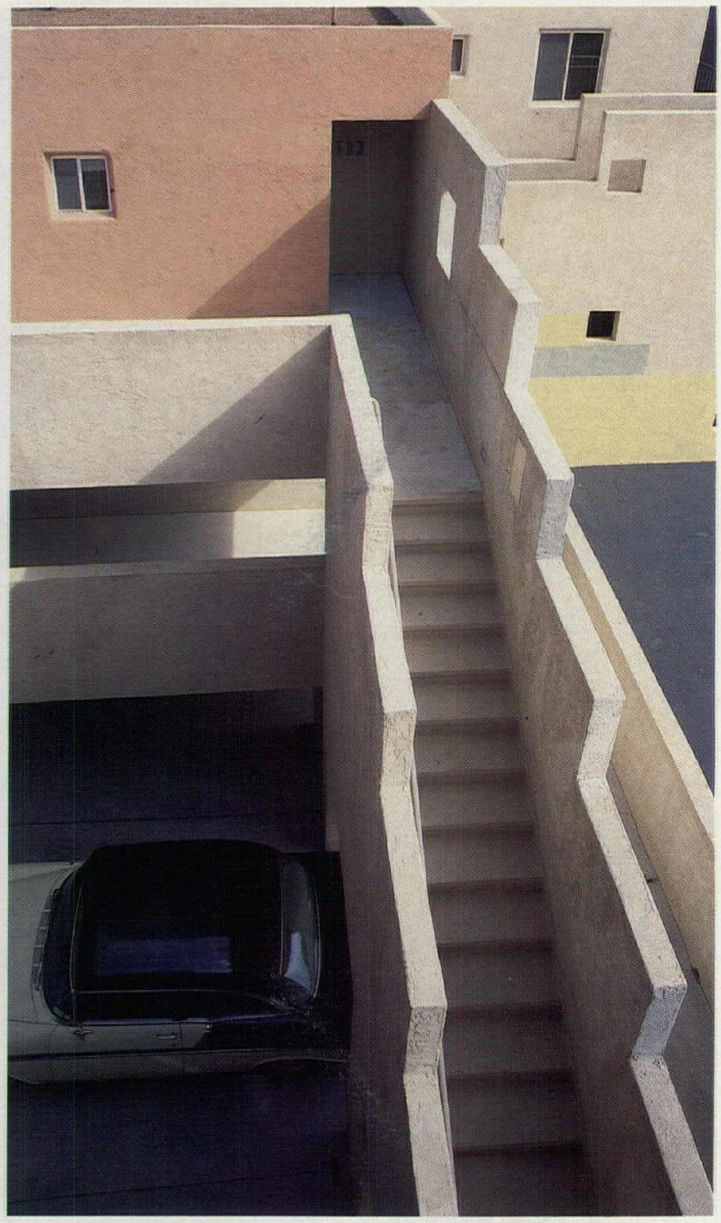




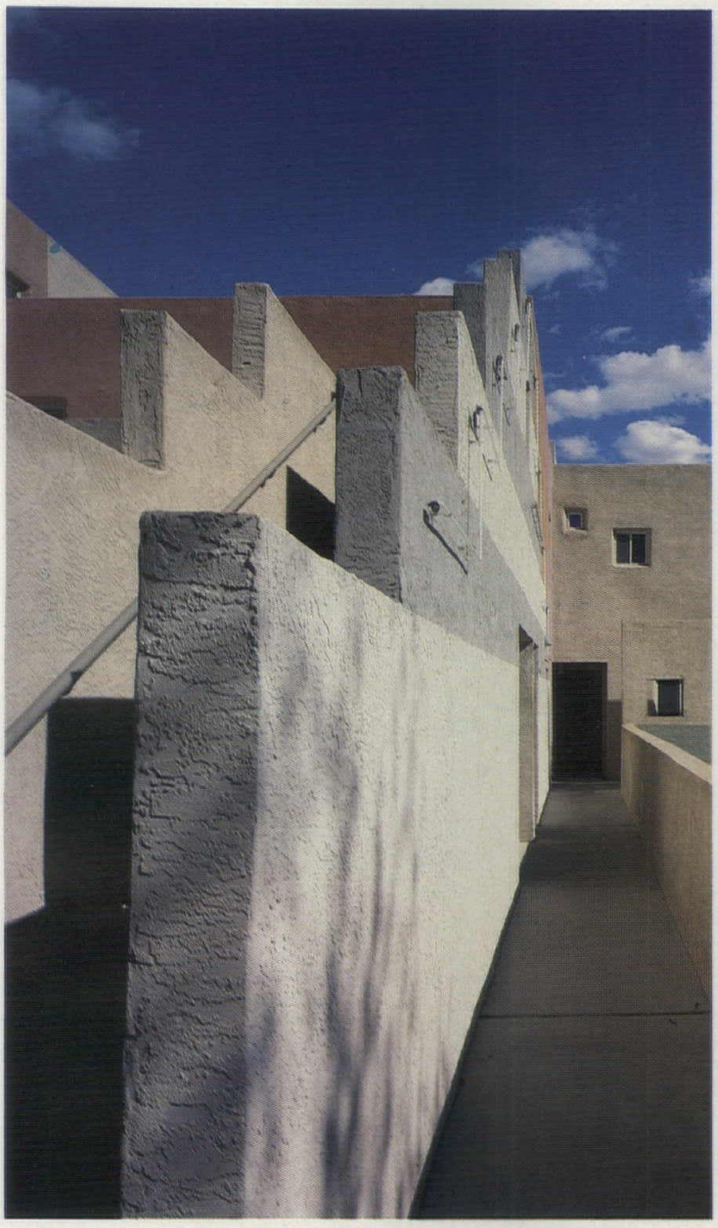
glow with phosphorescent intensity, until solid form virtually dissolves into darkness and the building presents the illusion of pure, disembodied brilliance. For visitors approaching Albuquerque from the south, the receding light waves flash a dramatic welcome to the city. For residents of The Beach and their guests, neon also performs the practical function of lighting outdoor stairways. Predock and project manager Ronald Jacob considerately placed most of the tubes where they would not shine into apartment windows. Away from the light show, under the cottonwoods along Tingley Beach (large photo below) or facing the golf course (from which the building is barely visible through the trees), plain stuccoed facades project a calmer image, recalling Southwestern towns before the car.

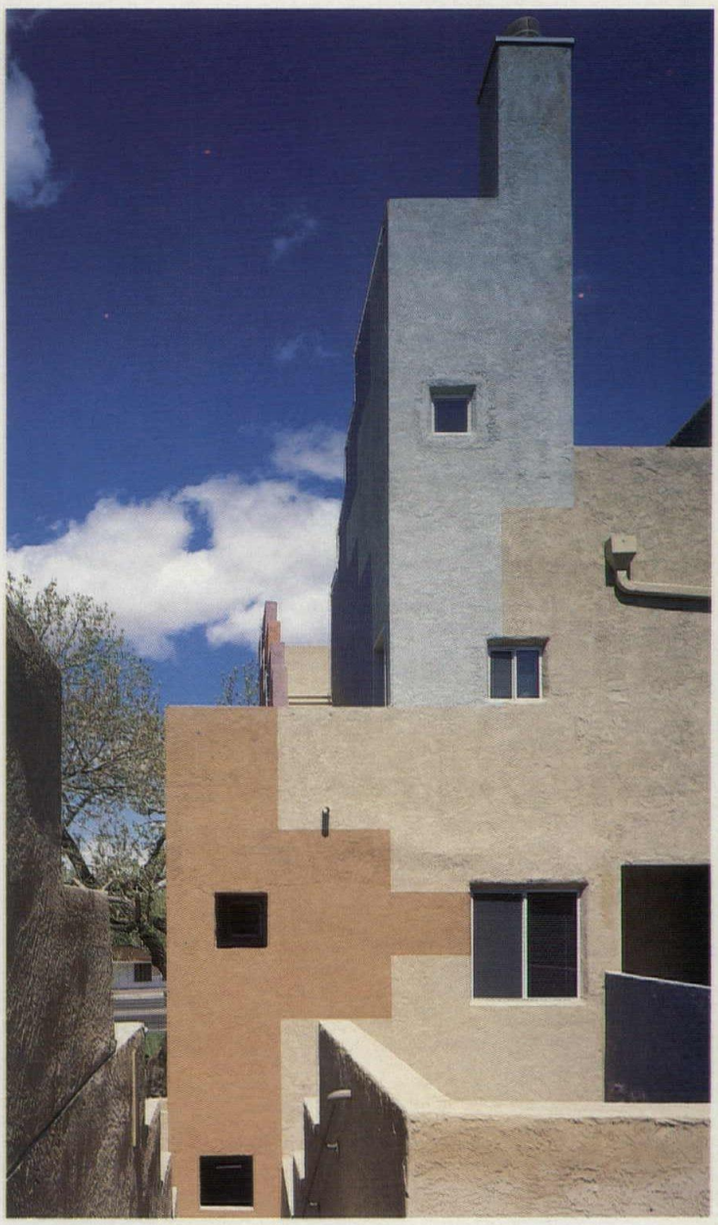






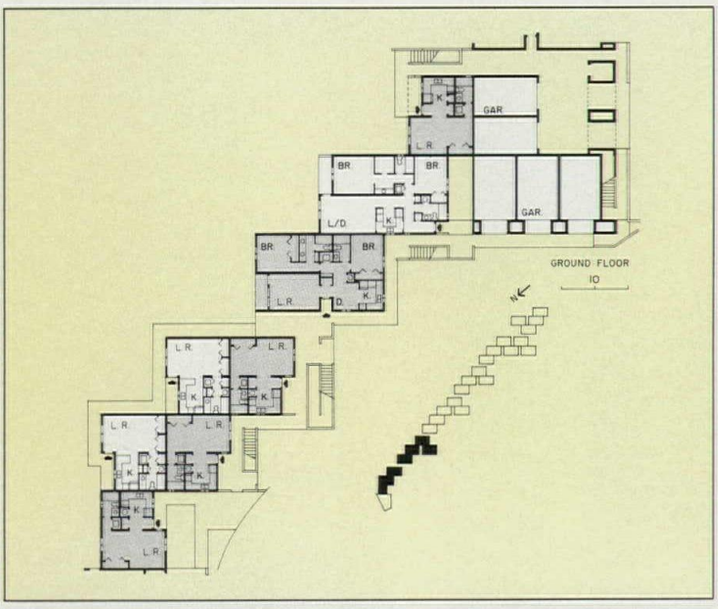
Seeking to reaffirm the friendly connection of automobile to building he had admired in early motor courts, Predock made vehicular arrival a focus of the entire circulation scheme. Most tenants and visitors park in a plaza by the serpentine berm that doubles as noise insulation along Route 66, but 24 residents have parking privileges in interior carports-cum-garages (above left). Whether seen from street

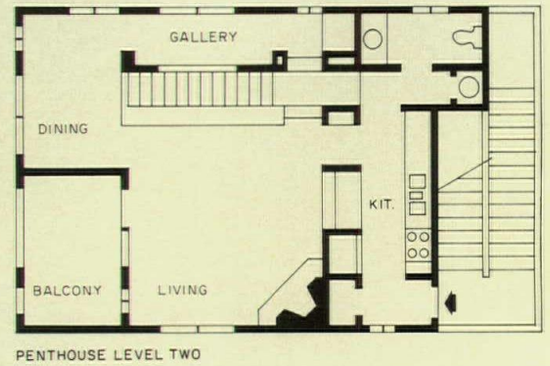




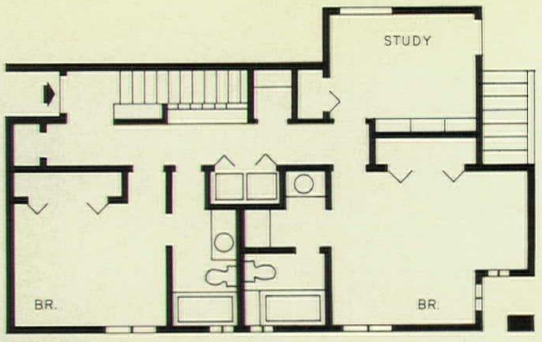
level or from above, the shapes and colors of cars are meant to figure among other details that bring the whole composition down to human scale and animate its villagelike network of stairways and passages. Stenciled signage and "Spanish lace-texture" stucco also inexpensively enrich the character of modest architecture. The structure is conventional frame above a masonry ground floor.

The interior in the photo below is the upper level of a two-bedroom penthouse duplex, the most luxurious layout in what is primarily a lower-middle-income development (offices to let are also available at the northern end of the complex). Tax-free municipal bonds issued to finance the project stipulate maximum annual tenant income for at least 20 percent of units, current levels ranging from $15,100 for an individual to $21,600 for a group of four occupying a single apartment. Most units face east toward the country club and, owing to the building's staggered plan, residents throughout much of the complex have views of mountains and greenery, both from inside their homes and from common passageways. As Predock observes, "We can't expect everybody to be in love with the strip."

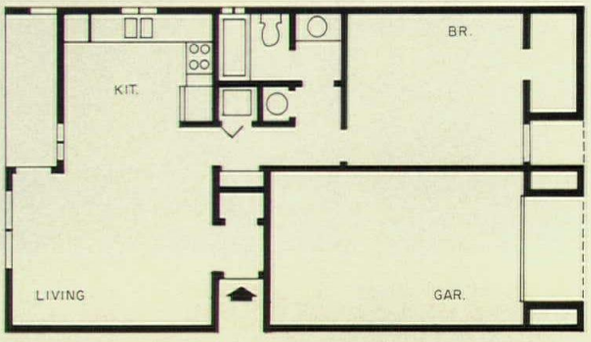




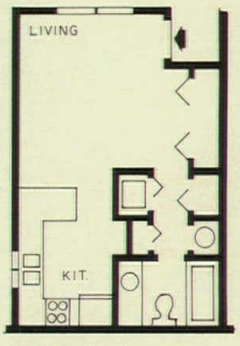
PENTHOUSE LEVEL TWO



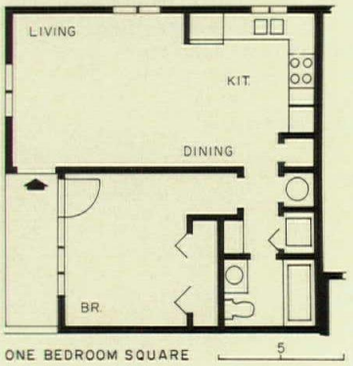
PENTHOUSE LEVEL ONE



ONE BEDROOM ELL

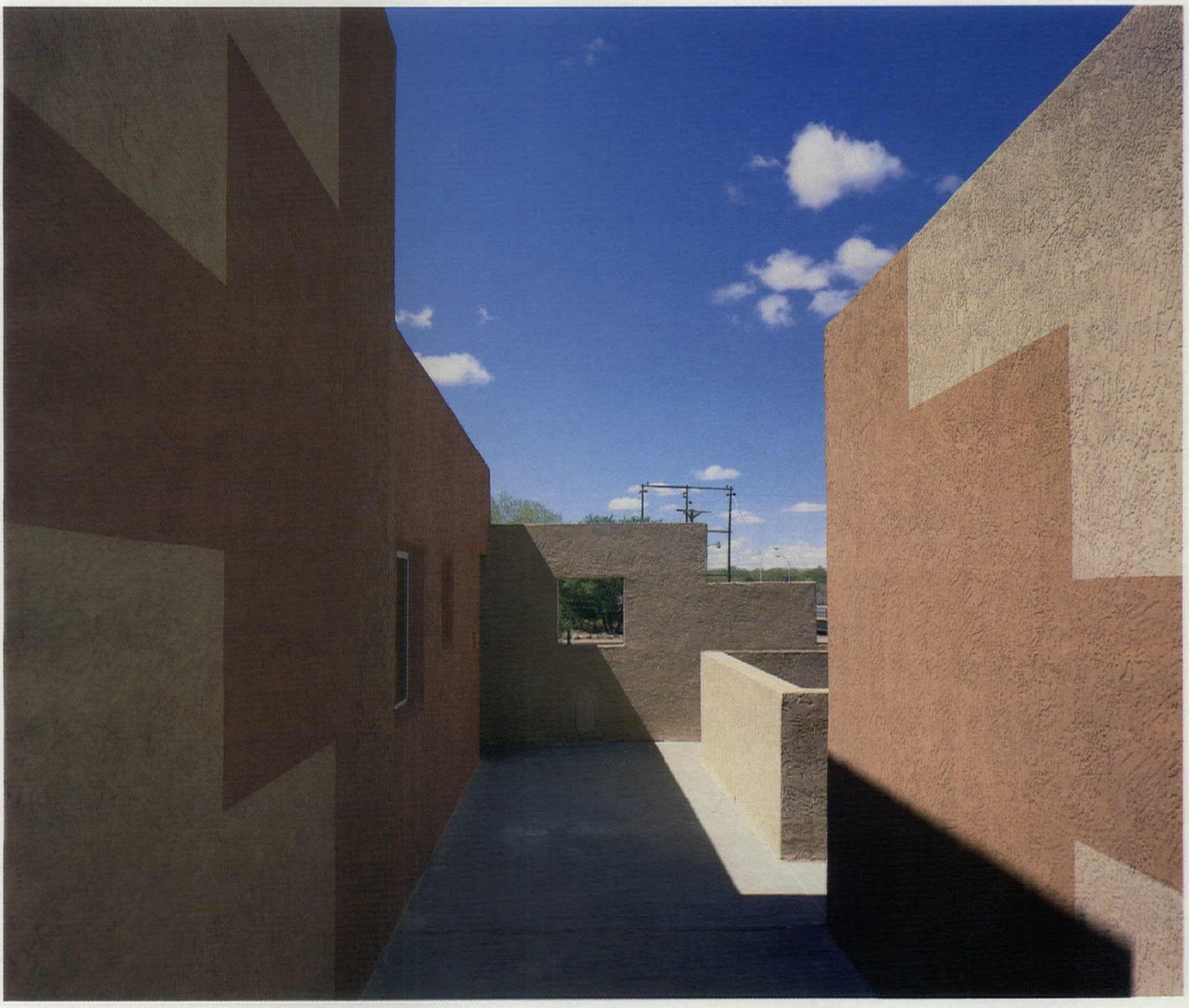


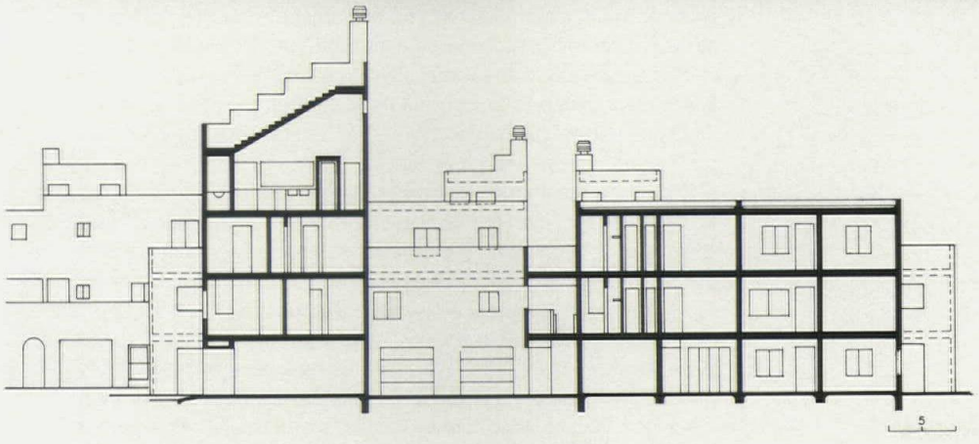
EFFICIENCY



ONE BEDROOM SQUARE

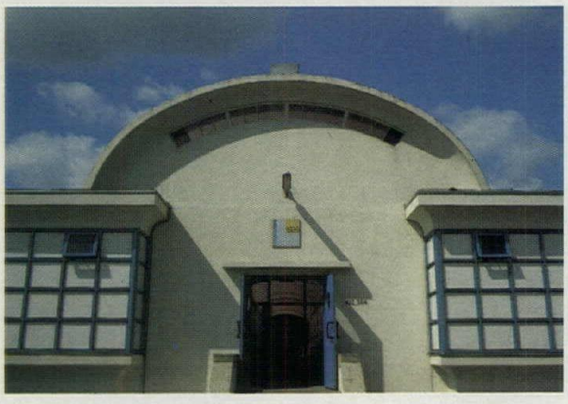
The Beach
Albuquerque, New Mexico
Owner:
D. J. R. Inc. as General Partner for Beach Venture Ltd.
Architect:
Antoine Predock—Antoine Predock with Ronald Jacob, project manager
Engineers:
Randy Holt Associates (structural); Telcon Engineering Inc. (electrical); Four Seasons Engineering (mechanical); Chavez and Grieves (civil)
Construction manager:
Bradbury & Stamm Construction Company Inc.

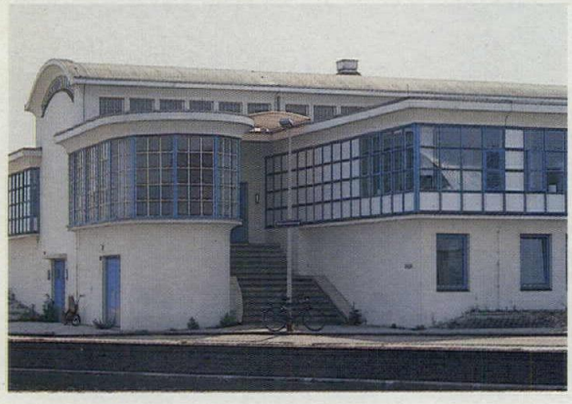




De Filtergebouwen te Rotterdam
Rotterdam, The Netherlands
Wytze Patijn, Architect

Public utility





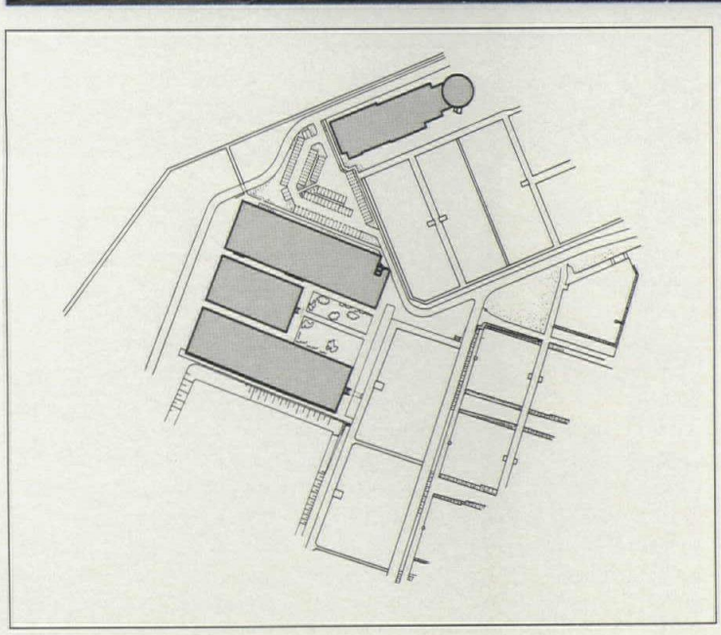
Built in 1929, 1941, and 1950 (middle, top, and bottom photos this page, respectively, and left to right opposite) the three filtration plants face away from the Maas River to frame a courtyard overlooking reservoirs. Beyond the 1950 building are (left to right opposite) a two-story brick structure used by the Utopia design group, a round water tower encased in restoration scaffolding, and two of the pump houses now classed as national monuments. The last-named buildings have been allocated as musicians' studios and apartments.

The symbolism of dwellings installed in a former waterworks is almost comically apt in Rotterdam, a city founded like much of the Netherlands on land reclaimed from sea and river. Such iconography was of course incidental to the socioeconomic rationale for this particular architectural recycling, which was publicly funded to help relieve a critical shortage of affordable rental housing among students and young working people. The enterprise began in the late 1970s when a group of designers known as Utopia organized efforts to block the City of Rotterdam from demolishing an abandoned water filtration plant, storage tower, and pumping stations that stood on a 15-acre site scheduled for development as a park near the Maas River. Utopia's proposal that municipal authorities renovate as much as possible of the extant structures for residential use, while still providing ample space for popular recreation, found a receptive audience. A national housing act passed in 1975 had not only encouraged special attention to the needs of youth and the elderly but reinforced a general sense of entitlement to decent habitation. In recent years nearly 90 percent of housing construction in the Netherlands has been government-sponsored, although riots and demonstrations over squatters' rights, the upheavals caused by urban renewal, and a persistent lack of low-income housing have dramatized the thorny planning issues that tangle even the best-intentioned public policy (RECORD, January 1985, pages 134-143). It took the Rotterdam City Council several years to assess the full impact of the waterworks housing scheme and officially inaugurate the project by appointing Wytze Patijn as architect for the first stage of a multiphase venture.

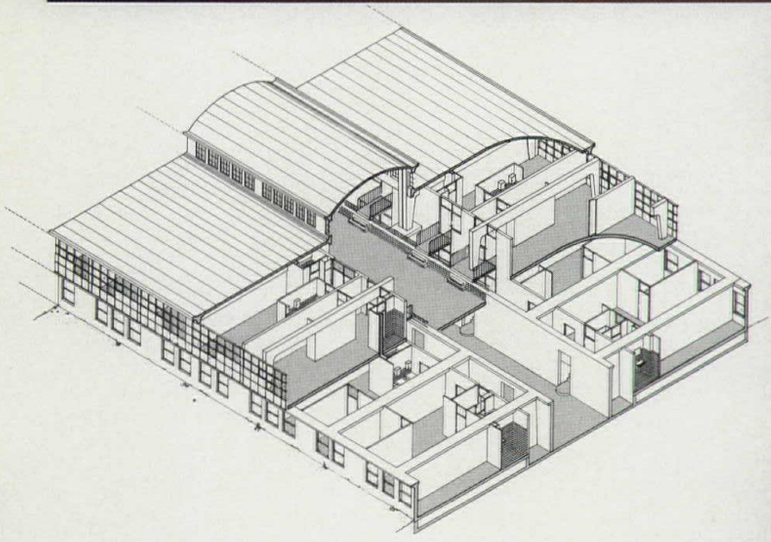
Then a staff member of the city's department of housing, whose design research bureau he now heads, Patijn concentrated on the conversion of three nearly identical concrete-frame filtration sheds built in 1929, 1941, and 1950 by architect A. van der Steur and engineer J. Bakker. Van der Steur's name does not loom large in the annals of Dutch architecture, but his work represents a dignified variation on the Modernism of better-known contemporaries such as J. J. P. Oud, the de Stijl master responsible for Rotterdam's finest 20th-century housing. Owing to the devastation caused by wartime bombing, rare survivors of "old" Rotterdam such as the first two *filtergebouwen* and the adjoining water tower and pump houses, which exemplify the picturesque eclecticism of an earlier generation, have taken on special importance as historic landmarks. Respect for this original fabric, and adherence to a strict budget, impelled Wytze Patijn to retain as much as possible of the filtration buildings' industrial character while discreetly inserting more congenial domestic details. Concrete skeletons remain fully exposed, although wooden mullions replace corroded steel window frames. Epoxy-painted floors and trim inject primary colors reminiscent of de Stijl into once-monochrome interiors, stucco cladding tempers the chill of tiled walls in the water basins now transformed into apartments and service galleries, and potted plants soften the stark geometry of filter pits and channels now devoted to human circulation and the parking of bicycles and motorbikes.

Reflecting the youth and modest income of intended residents, as well as the rapid increase of one- and two-person households in the entire Dutch population, the 140 rent-subsidized apartments comprise only studios (of 323 square feet) and two-room units (of either 463 or 603 square feet), all equipped with kitchens and bathrooms. Though the dimensions are tight, barely exceeding legal minimums, skylights and large windows with views over open terrain, reservoirs, and the riverbank extend perceived spatial boundaries. Because the 1941 filtration building is too closely flanked by its neighbors to permit sufficient perimeter windows, it was deemed unsuitable for residences and has been converted instead into architects' ateliers. Secondary phases of the project now underway include renovation of the tower and pump houses into flats, offices, and musicians' studios. The energy level of Rotterdam's newest public utility continues to rise.

Tjeerd Frederikse photos

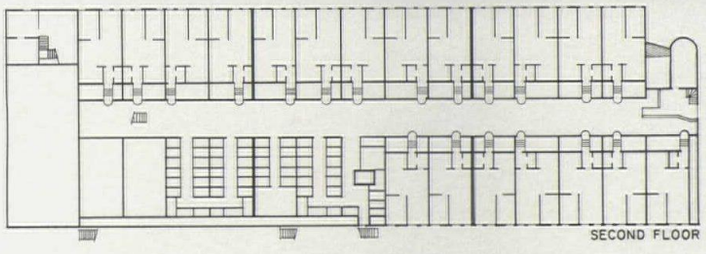


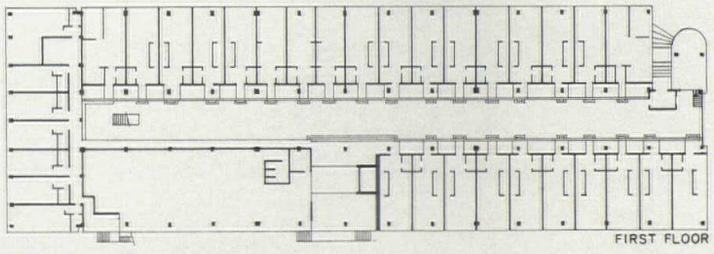
Clerestories illuminate the vaulted interior courtyard serving main-level flats in the 1950 building (large photo below and isometric). Translucent blocks set into stoops outside apartment entrances permit daylight to filter down into a corridor linking basement units. Windows for the lower-level apartments were cut through the 16-inch-thick walls of disused concrete water basins. In the 1929 structure (opposite), Wytze Patijn replaced leaky glass-block vaults with a continuous skylight, turning a service gallery into an atrium and conservatory for botanical displays, which are rooted in a former water channel. Though careful to keep reminders of the industrial past in the architectural envelope, Patijn applied brilliant colors "to establish an atmosphere where there can be no mistake that people live here."

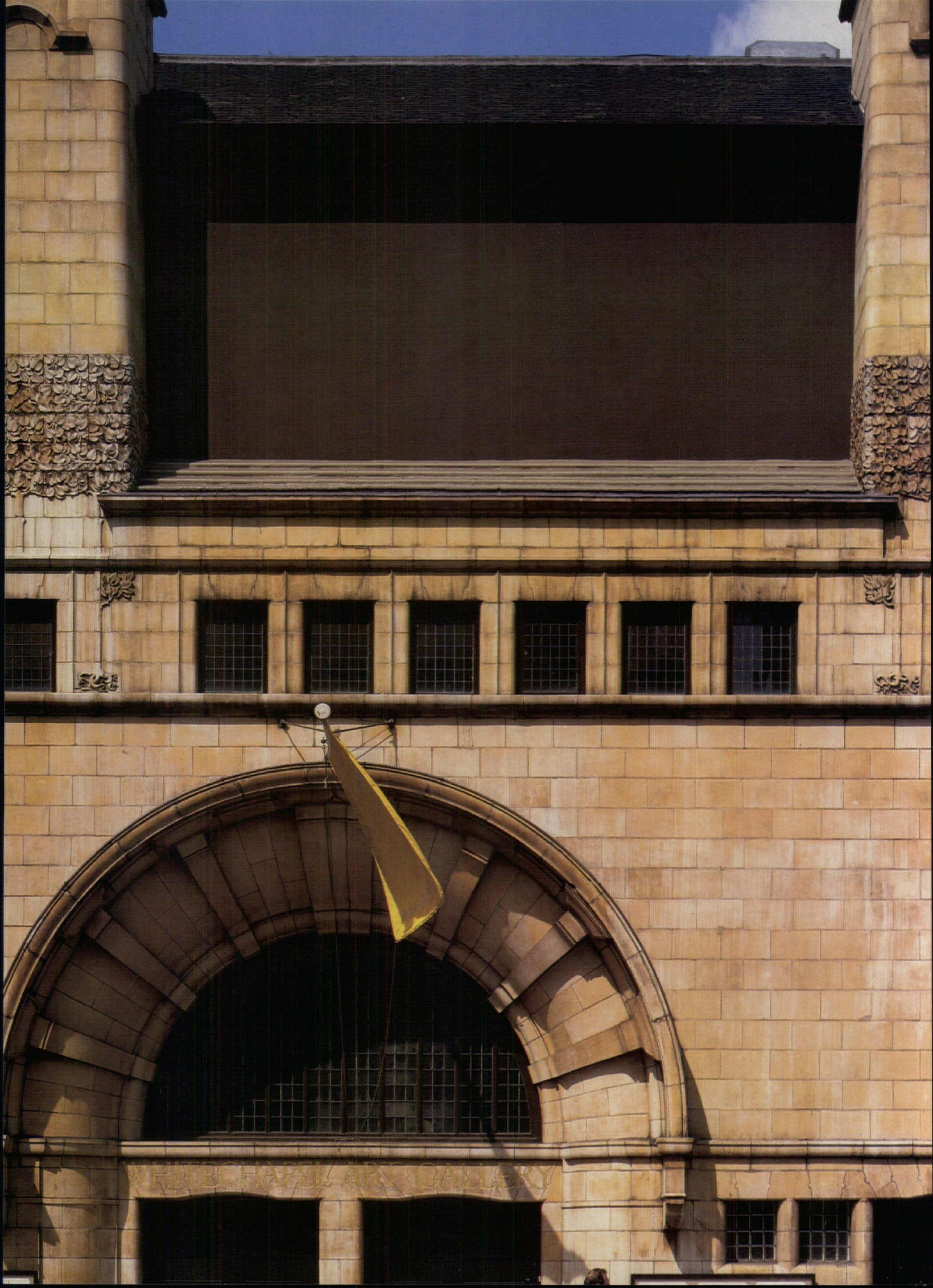


De Filtergebouwen te Rotterdam
Rotterdam, The Netherlands
Owner:
Maatschappij voor Volkswoningen
Architects:
Wytze Patijn (Director, Bureau of Design Research, City of Rotterdam Department of Housing), architect-in-charge; Jan Mulder (Senior Architect, City of Rotterdam), assistant

Engineers:
Groeneveld en Poot
General contractors:
Roodzand, van der Vlist en Struyk, Zomerhof, Röttger Combination






WHITECHAPEL ART GALLERY

A fine weave

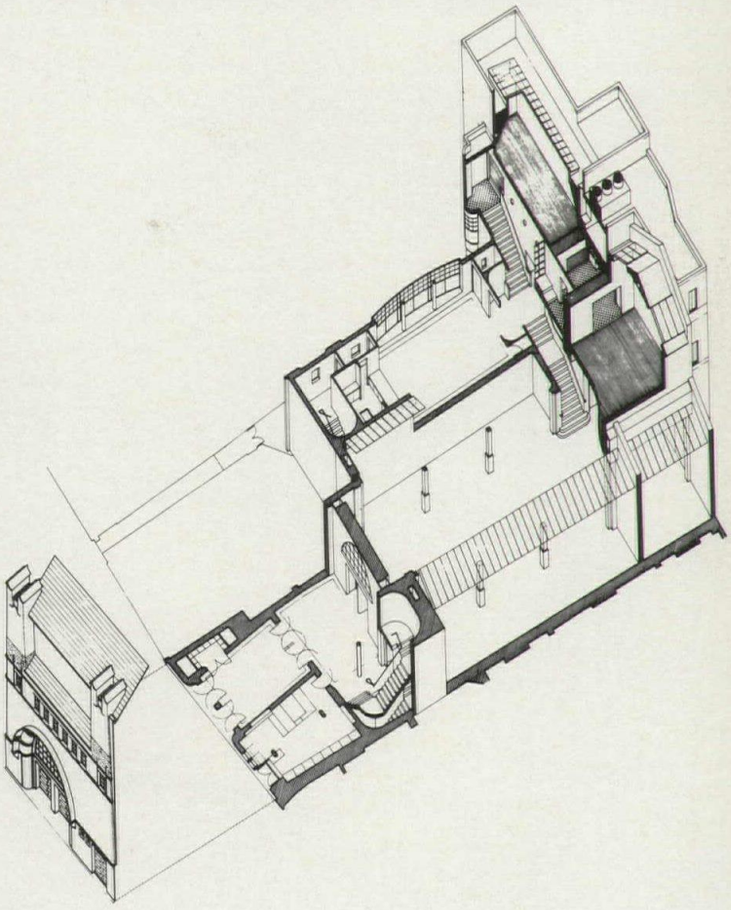
Whitechapel Art Gallery
London, England
Colquhoun + Miller, Architects

When commissioned to design the Whitechapel Art Gallery in 1897, Charles Harrison Townsend was confronted by a crooked site, an uncooperative contractor, and a penny-pinching board of trustees. By the completion of the building in 1901, he had not only overcome these obstacles, but had created an internationally recognized, stylistic amalgam of Art Nouveau, Arts and Crafts, and Richardsonian Romanesque that has since become an icon of turn-of-the-century architectural history.

When commissioned to remodel the Whitechapel in 1978, the firm of Colquhoun + Miller was faced with the same constricted site, a mandate to upgrade the gallery to conform to modern museum standards, and a more understanding, but a no less thrifty, board of trustees. By 1982, the basic renovation of the gallery's original exhibition spaces had grown to comprise a new addition, made possible by the trustees' fortuitous acquisition of two slivers of land adjoining the existing building. In expanding its program to emphasize educational facilities— a studio/workshop, a lecture theater, a classroom, and an audiovisual room—and the amenities typical of today's museums—a bookstore and a café—the trustees aimed to bolster the public profile of the gallery in the philanthropic spirit of its Victorian founders who introduced art to the poor of London's East End. Colquhoun + Miller, whose reputation previously rested on the design of public housing and academic institutions in a minimal, white idiom (provoking some to dub the firm "England's answer to the New York Five"), seized upon the required alterations and additions as an opportunity to improve and reinterpret Townsend's original scheme without stylistic pastiche. "Our strategy in modifying this building was based on the need to preserve its typical features, to invent new forms, and not in any way to copy the original building's particular clothing," asserts partner Alan Colquhoun, who splits his time between his London practice, teaching at Princeton University's school of architecture, and writing architectural criticism.

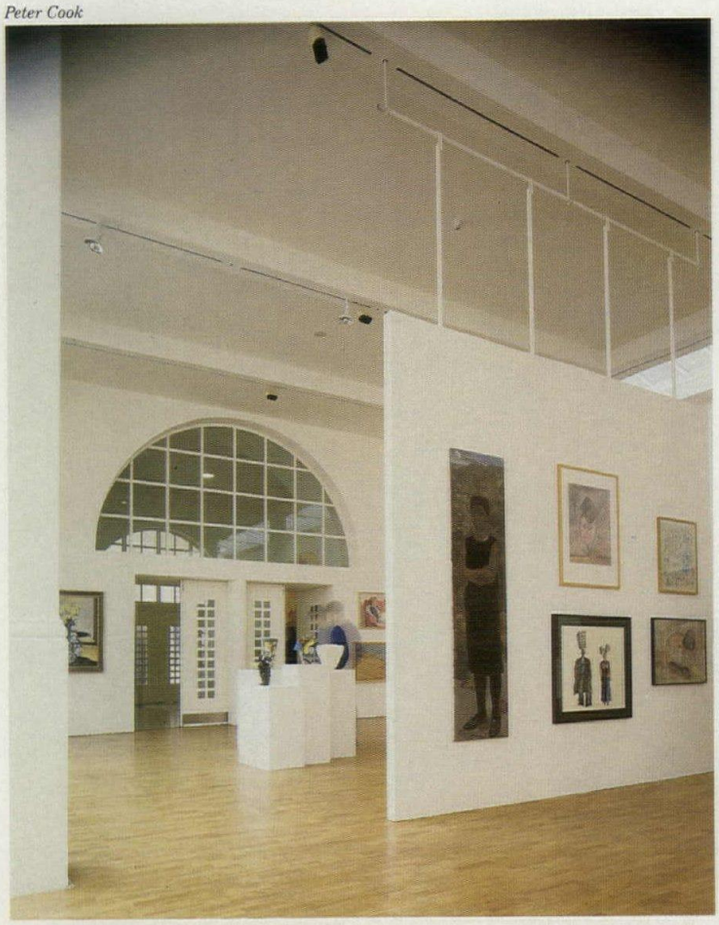
While presenting a strong facade, the gallery's interiors suffered from the awkwardly narrow proportions of the site, splayed against the angle of Whitechapel High Street (axonometric), and lack of spatial continuity between floors. Two brick-enclosed staircases squeezed into either end of the building served as the only access between the ground-floor and first-floor galleries, and the seemingly public spaces behind the street elevation were relegated to behind-the-scenes functions: storage, a caretaker's office, and a trustees' meeting room. To create a more accessible means of reaching both galleries, and to take advantage of the spaces at the front of the building, the architects replaced the stairs nearest the street with a bookstore on the ground level and a workshop above, and positioned a staircase in a former lightwell off the newly created reception area. The existing staircase at the rear of the ground-floor gallery was demolished to make way for a straight flight of stairs, dramatized by a skylit, perspectival illusion as the major axis through the new L-shaped addition (axonometric). As a sequence of rooms both connected to and autonomous from the original galleries, the interior of the new wing adopts Townsend's predilection for simple, daylit volumes and the spare decoration of his early Modernist, *fin de siècle* contemporaries. Its "secret" facade, visible only within the narrow confines of Angel Alley, a public right-of-way through the site's western side, reflects the original architect's 19th-century picturesque tendencies with sculpted bay and oriel windows. Rendered in pale yellow brick and banded in red, the elevation defers to the horizontality of the gallery's terra-cotta frontispiece, now restored with the removal of two attic windows from its blank, brown-painted frieze, once intended for a Walter Crane mural (facing page). By shunning the extremes of slavish replication or radical reinterpretation both inside and out, Colquhoun + Miller has carefully stitched Townsend's "clothing" back into London's urban fabric, mending its threadbare form without showing any seams. *Deborah K. Dietsch*

Martin Charles

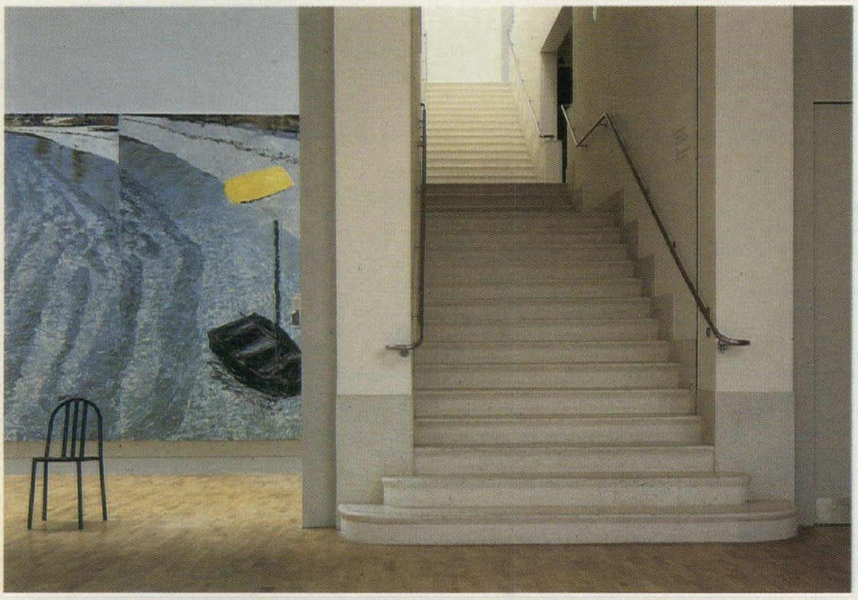


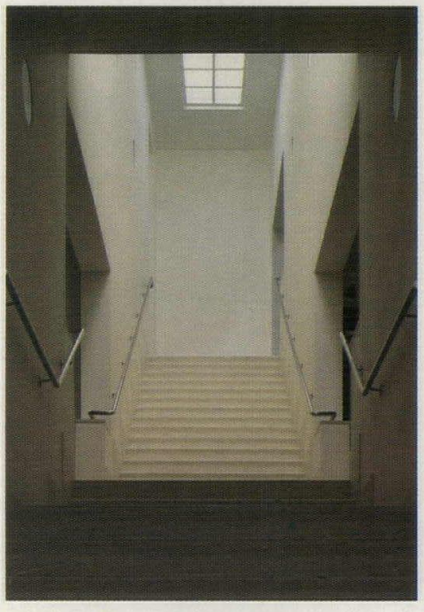
Richard Bryant photos except as noted

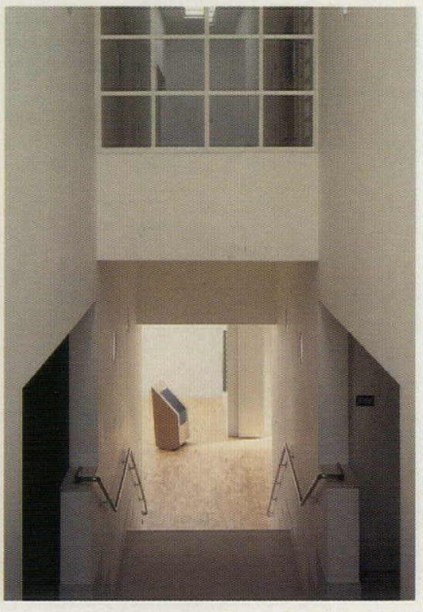
Peter Cook

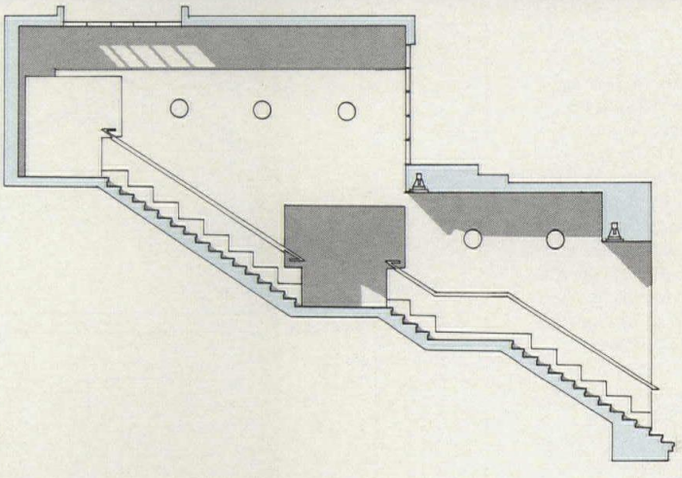


The Whitechapel is entered through Townsend's refurbished, barrel-vaulted vestibule to a newly created reception area (facing page). Located beyond the reception area is the original ground-floor gallery, a new bookstore, and a new toplit staircase that occupies a former lightwell. Colquhoun + Miller took advantage of the skewed orientation of the entrance vestibule by terminating its axis with the information desk, curved outward to emphasize the ground-floor gallery entry. To continue the procession from the front door through the reception area, the architects repeated a streamlined version of Townsend's glazed lunettes (previous and facing pages) over the ground-floor gallery entrance (top left). In integrating new elements into the old building, they chose decorative motifs sympathetic to the Arts and Crafts and Vienna Secessionist periods, such as the 4-inch-square glazing in the vestibule and gallery doors (facing page). "We wanted the ornamentation to scale down the surfaces of our elements, but also to remain stylistically abstract," explains Alan Colquhoun. The renovation of Townsend's basilica-like ground-floor gallery with toplit aisles (bottom left) entailed upgrading the building's mechanical, lighting, and security systems to contemporary gallery standards with minimal structural intervention. Requisite temperature, air purification, and humidity controls were discreetly tucked into a space between the skylights over the aisles and the adjacent exterior wall, and fed into ceiling ductwork (section page 110). The glass in the skylights was replaced with a sandwich of laminated, wired, and ultraviolet-filtered glazing to control direct sunlight. To accommodate changing painting exhibitions, demountable plywood panels were custom-designed with braced tubular supports that are inserted into holes in the ceiling soffits (left). Incandescent lighting fixtures are adjusted on soffit-mounted tracks, and the laser-based security system installed in the friezes of the aisles (bottom left). "The nicest comment visitors have made about the interiors is that they don't know where our design begins and Townsend's ends," notes John Miller.

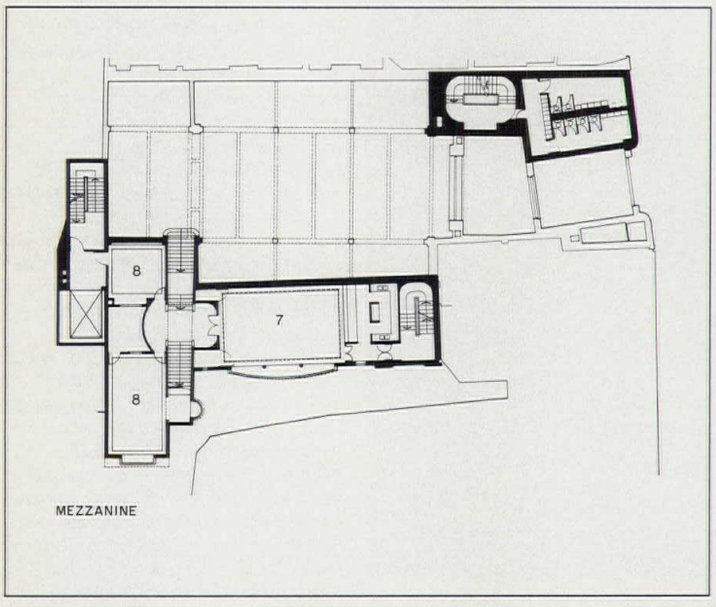




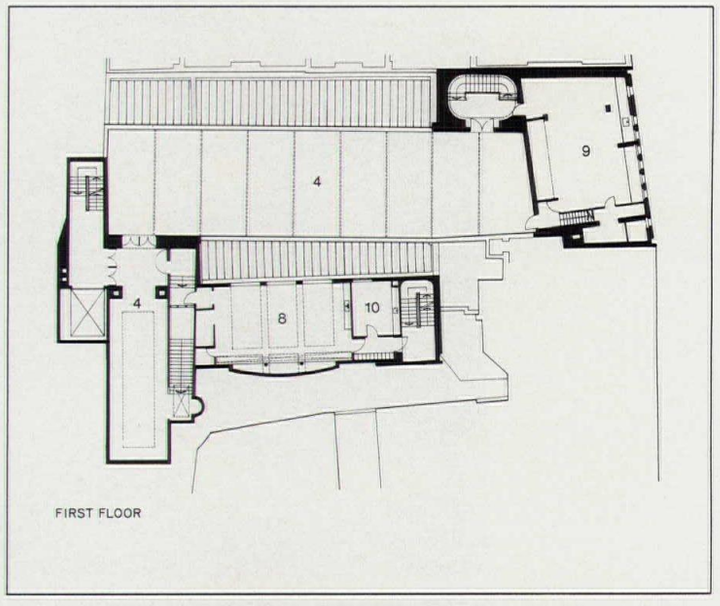




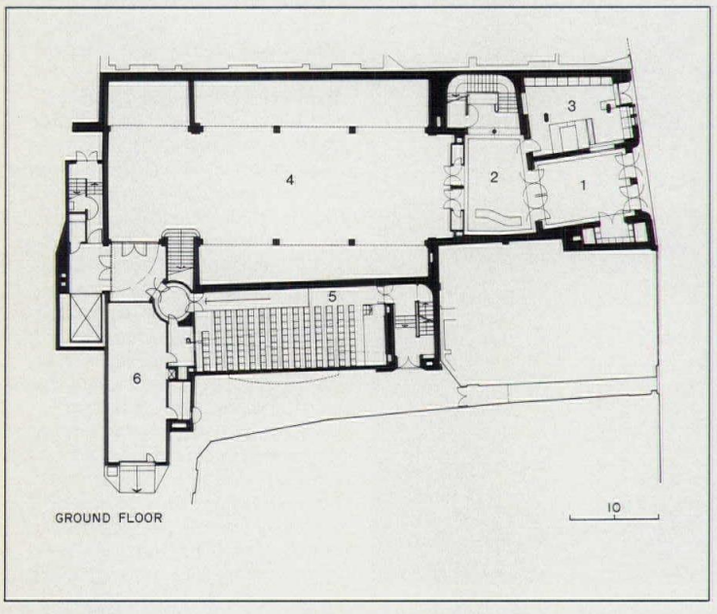
Skylights over the aisles of the ground-floor gallery naturally illuminate artwork such as Jennifer Bartlett's "Yellow and Black Boats," and Francesco Clemente's "1152" pâpier-maché and mud figures (facing page). To create spatial continuity between the ground-floor and first-floor galleries, Colquhoun + Miller revamped Townsend's circulation system with processional spaces easily seen by the visitor. The former switchback staircase hidden at the far end of the ground-floor gallery was replaced with a ceremonial flight of stairs that spills out beyond the northwest bay to announce its presence (facing page). As the grand axis through the new wing, it connects the original, ground-floor gallery to a café and meeting rooms off two curved lobbies on the mezzanine level (section and bottom photos), and to the first-floor galleries off the top landing. The architects dramatized the stair's straight ascent by successively narrowing each of its three flights in response to the angled walls of the existing structure (top left), a Mannerist, perspectival illusion purportedly inspired by the Scala Regia in the Vatican Palace. Skylights (bottom left) and a gridded window "balcony" over the stair (bottom right) extend Townsend's daylit esthetic into the new addition. To differentiate new from old, a series of early Modern references from Townsend's contemporaries decorate the stair, including "porthole" incandescent fixtures (Mallet-Stevens), double-stepped wall skirting (Loos), and an inlay of small squares set into the terrazzo of the treads (Mackintosh). "Our process of design is more a distillation of history, than self-conscious quotations from it," asserts John Miller, adding, "It always involves a bit of serendipity."



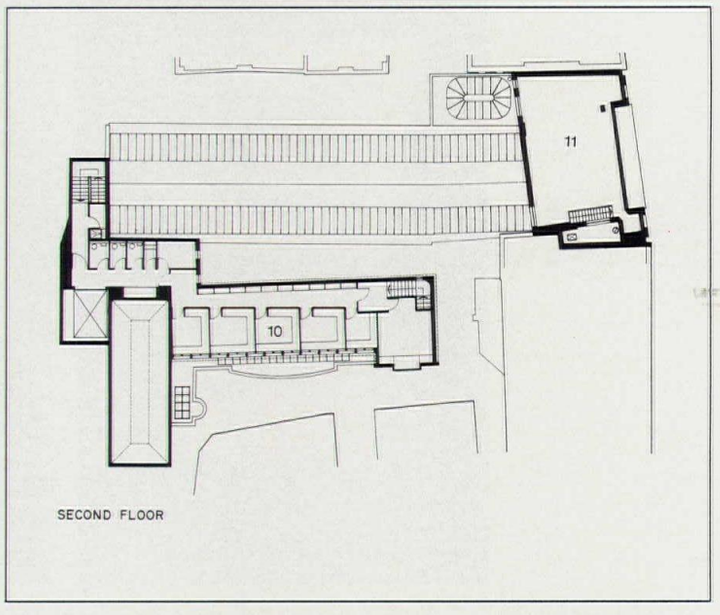
MEZZANINE



FIRST FLOOR



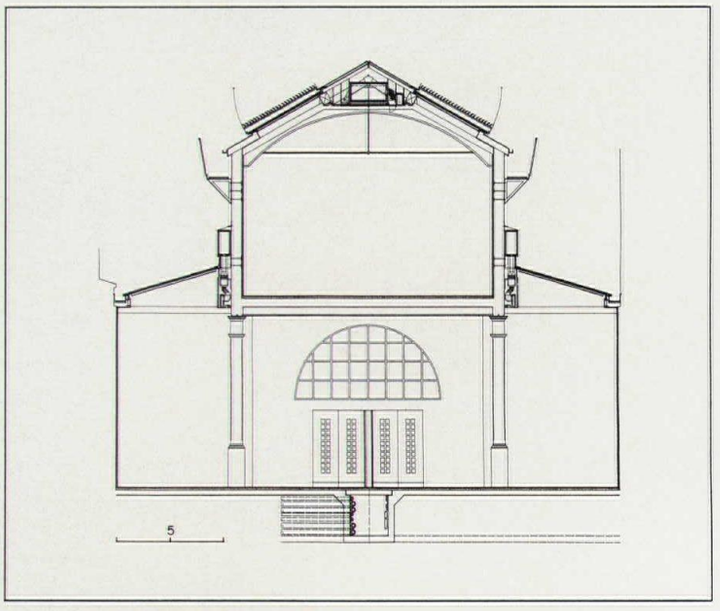
GROUND FLOOR



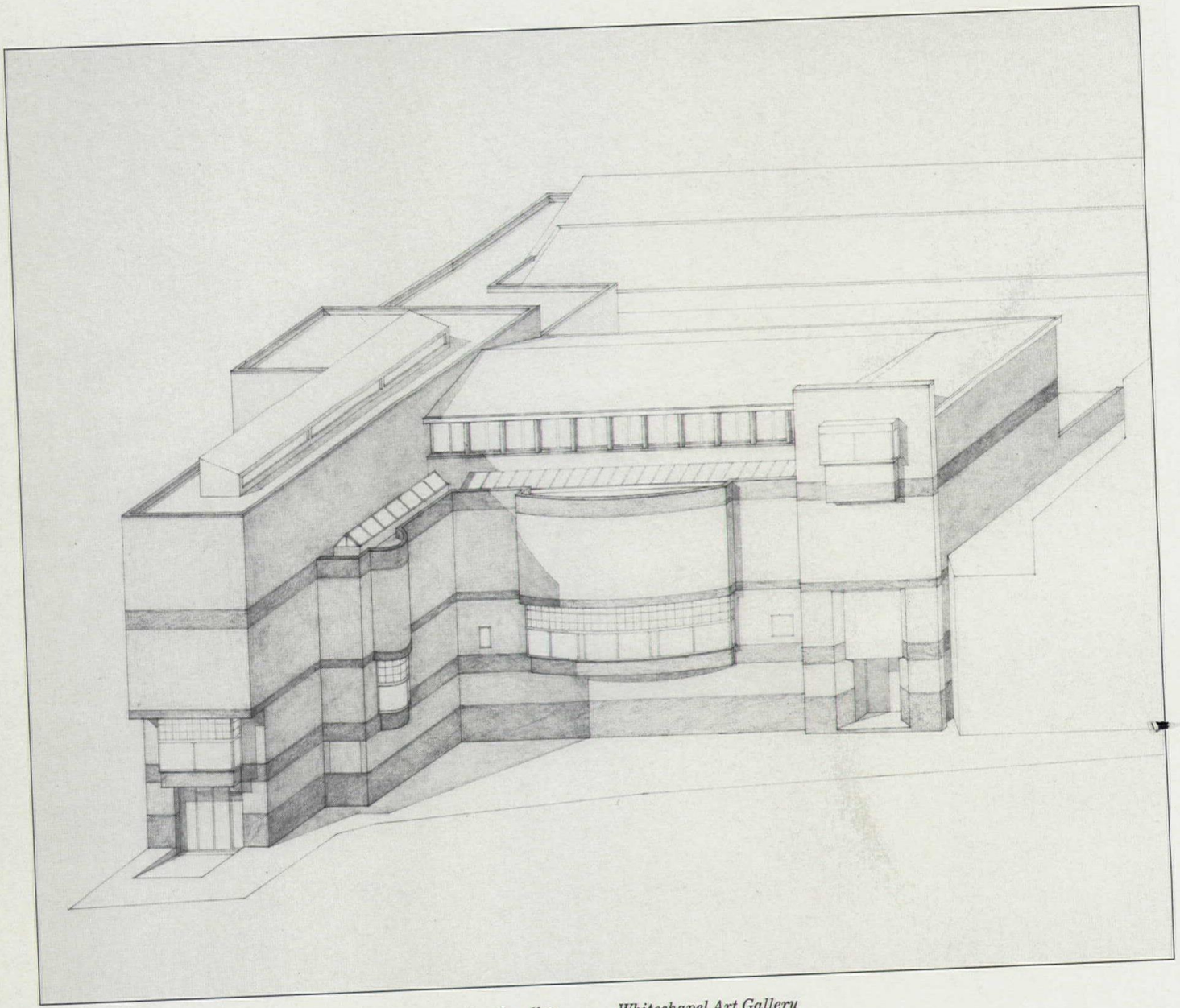
SECOND FLOOR

1. *Entrance vestibule*
2. *Reception*
3. *Bookstore*
4. *Gallery*
5. *Lecture theater*
6. *Loading/storage*
7. *Café*
8. *Meeting/education*
9. *Workshop*
10. *Staff*
11. *Mechanical*

Colquhoun + Miller nearly doubled the volume of the Whitechapel's original, 1,190 square meters by adding an L-shaped wing to its western side (bottom of plans), serviced by a new elevator and stairs at the rear (left of plans). A separate entrance off Angel Alley allows the new wing to be used by the East End community during the hours when the galleries are closed. On the first floor of the existing building, the nave-like simplicity of Townsend's upper gallery (opposite) was maintained by inserting the required mechanical and lighting systems into a compact space between the peak of the roof and its supporting trusses (section). To control direct sunlight, the original skylights were replaced with clear laminated glass, ultraviolet filters, and electronically operated external louvers.



Martin Charles



"Rather than treating the alley elevation as a throwaway, we decided to create something positive that future architects could respond to when the buildings opposite are torn down," explains John Miller. In composing the new wing's facades, the architects took their cues from Townsend's front facade in playing asymmetry against symmetry with Arts-and-Crafts-inspired fenestration (isometric drawing). The cylindrical oriel that terminates the axis of Angel Alley, and the bowed café window that presses against the alley's narrow width (opposite), are intended to extend the views both inside and out. The buff-colored brick, chosen to harmonize with Townsend's terra cotta, is banded in red to echo the stringcourses of the front and to rationally denote each level of the new gallery addition.

Whitechapel Art Gallery
London, England
Owner:
Trustees of the Whitechapel Art Gallery
Architects:
Colquhoun + Miller, Architects—John Miller, Richard Brearley, Alan Colquhoun, Graham Smith, John Carpenter, Norman Chang, design team
Engineers:
F. J. Samuely & Partners (structural); Steensen, Varming, Mulcahy Partnership (mechanical/electrical/lighting)
General contractor:
R. Mansell (City) Ltd.
Consultant:
Brian Davis Associates (quantity surveyor)

Drawing the line

About 18 months ago, I was visiting the Santa Monica office of Eric Owen Moss, who is considered to be one of the most avant-garde of California's avant-garde architects (which is saying something), and there on the shelf next to the numerous models of Moss's unbuilt projects, I noticed four little chairs that looked as if they had been designed for a Valley Girl's New Wave dollhouse. "What are those?" I asked. To which Moss replied, "Oh, I'm doing some work for Company X." "Company X!" I exclaimed, "The one in Grand Rapids, Michigan? You're not serious." Yes," he said, "Company X. They're trying to get with it." Though at the time I let it go, the thought of Company X asking Eric Moss to become its strange bedfellow has continually come back, if not to haunt me, at least to remind me that architects and furniture companies are bedding down in numbers untold. In search of insight, RECORD invited a group of architects, industrial designers, and furniture manufacturers and distributors to discuss the growing phenomenon with fellow editor Deborah Dietsch and me. Pulling up a chair at the Round Table (actually square) were Orlando Diaz-Azcuy (of Gensler Associates), Niels Diffrient (an independent industrial designer), Joseph D'Urso (of D'Urso Design), Charles Gwathmey (of Gwathmey Siegel & Associates), Paul Haigh (of Haigh Space), Robert Harvey (vice president of design at Herman Miller), Pat Hoffman (executive vice president of ICF), Charles Mauro (an independent industrial designer), David McLeod (vice president of Haworth's Venture Group), Lee Mindel (of Shelton, Mindel & Associates), Jeffrey Osborne (vice president of design for Knoll International), Leon Rosen (president of The Pace Collection), Richard Schultz (an independent industrial designer), Michael Steinberg (founder of Furniture of the 20th Century), William Stumpf (an independent industrial designer), Lella Vignelli (of Vignelli Designs), and Terence West (director of industrial design at Steelcase). Eavesdrop, if you will.

Though Lella Vignelli found our first question—"To what do we owe the current rush of architects to the product design arena?"—a "non-question," she nonetheless offered her perspective. "Years ago, American architects would not touch interior design, let alone furniture design. SOM had their interiors department, in which there were mainly interior designers, and the architects looked down on them. During the '70s recession, however, architects re-entered the field of interior and furniture design because there was an economic crisis in architecture. I see it as a welcome development." Charles Gwathmey extended the long view: "Historically, architects have designed furniture as a reaction to an existing condition. Architects from the Wiener Werkstätte and the Bauhaus found the available market unsympathetic to their theoretical and formal principles, and therefore were compelled to design their own furniture. Now, whether because of Postmodernism or whatever, architects once again feel compelled to design the total environment, including the furniture, and some of that furniture inevitably has become publicly available." Case in point is the Gwathmey Siegel-designed DeMenil table series for ICF. According to Pat Hoffman: "Charlie was using a lot of Hoffmann furniture in a project [as so many architects are these days] and realized that big tables were lacking; so he came to us saying 'what do your customers do about big tables?' And I said 'Gee, that's a problem; let's do something about it.' " Jeffrey Osborne concurred: "Almost all of Mies's furniture was designed on a project-by-project basis [Barcelona Pavilion, Tugendhat House, etc.]. . . . He needed furniture that was appropriate to his vocabulary and supportive of the environment that he had created." The Round Table was reminded of Le Corbusier, Mackintosh, Wagner, and Wright, all of whom designed it all. "An architect designs a building and within that building there exists the potential for furniture," provided Leon Rosen: "So it is a very natural

"The battle is between Ettore Sottsass and ergonomics," concluded one participant at RECORD's symposium on "The Influence of Architects on Furniture Design." He was referring to the debate between form and function, style and substance, currently underway in furniture showrooms around the country. The issue is more complex than a simple either/or alternative, of course, but it is revealing to consider Ettore Sottsass's very festive WestSide Collection chair for the European arm of Knoll International (left) and Niels Diffrient's very ergonomic Jefferson chair for SunarHauserman (below). It's a long way from the pyramids of Memphis (the one in Egypt) to the American workstation, as the Round Table made abundantly clear.

alliance for the architect to be involved with the furniture. It has been done through the ages [and Rosen is doing it now with architects Steven Holl, David Estreich, and Peter Coan]." Architect Lee Mindel confessed that his firm "kept going in circles on certain projects for furniture that was compatible" with its esthetic intentions, until coming up "with a set of drawings for several pieces that we intended to have custom-made; coincidentally, Luten Clarey Stern came to us and asked if we had furniture designs that we would be interested in producing [RECORD, June 1986, page 164]." Mindel, however, found in the "current rush of architects to the furniture design arena" a troubling symptom of what he referred to as the "MTV-culture: you can maintain people's attention for such a short amount of time and you can get them with a splash and I think that a lot of companies are trying to get this quick shot of adrenalin. Some people are really interested in translating their point of view about architecture into furniture. . . others are swept into it only for the publicity thing."

The discussion then moved enthusiastically on to the "publicity thing," i.e., the hype aspect of much architect-designed furniture. "I think we live in a market today in which we follow fashion design and we follow the stars. . . . Manufacturers sell an individual, and then the product that comes with the individual," offered Orlando Diaz-Azcuy. And no one disagreed. Paul Haigh thought "many of these high-profile products are the ones where a designer has taken formal or architectonic issues and presented them, almost irrespective of function, as protagonists to the marketplace. The other side of the issue is to take design as a problem-solving issue and deal with the modern office and the technology that exists today and how you solve those problems. The protagonist idea is a very useful way of marketing a company, because it holds interest and curiosity, whereas the more mundane things like solving problems are not particularly fashionable today." Joseph D'Urso added that many companies hitch their commercial wagons to architectural stars because "if they don't they are perceived as boring, as not having any romance; they don't get the publicity or the attention." What followed was considerable criticism of recent contributions to the furniture marketplace by protagonists/stars Richard Meier and Robert Venturi (who were not present to defend either themselves or their controversial and pricey furniture). Much was made of the extraordinary publicity Knoll has enjoyed as a result of its affiliation with Meier and Venturi, and the question was put to Osborne, "Is this stuff really selling? Or is it the red convertible in the showroom window—there to sell the blue sedan, i.e., your office systems?" Osborne reported that Knoll tried to take a "leadership" position "rather than simply respond to customers in the present tense," and that "the best work has always been controversial." And as for sales? The Meier and Venturi Collections are selling beyond the company's forecasts, thank you. "Is that because the forecasts were so low?" Osborne was asked. "Of course," he quipped.

Publicity notwithstanding, interjected Joseph D'Urso, "the impact of the Venturi Collection and the Meier Collection has been primarily in the media and the intellectual community of architecture and design. But in terms of the average person, the impact has been very small." Richard Schultz quoted comedian Billy Crystal's great line—"It's better to look good than to feel good"—before venturing, "I think furniture has to do both." "The battle now," according to Schultz, is between Ettore Sottsass [the mastermind behind Memphis and the designer of the WestSide Collection for Knoll International WorldTrade, photo above left] and ergonomics—those are very strong elements." Ergonomicist Niels Diffrient found in Sottsass's work for Memphis a cautionary tale: "If you continue on with visual esthetics alone. . . as Stanley Marcus said, 'All fashion will end in excess.' " Diffrient added:

As noted by both moderators and panelists, the technical expertise demanded of office systems has excluded architects from their design. Nevertheless, the '80s have witnessed innovative departures from the sea of paneled clones typical of systems past. Witness 1) SunarHauserman's Diffrient System, designed by Niels Diffrient, and 2) Herman Miller's Ethospace System, designed by William Stumpf, Jack Kelley, and Clino Castelli. 3) One of the few architect-designed systems (though manufacturer Knoll considers the line as casegoods and desks) is Gwathmey Siegel's. 4) Conventional systems are becoming more responsive to the computer, such as Haworth's new wraparound work surface for its ES line.

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"I think too much of the discussion has revolved around visual esthetics. Well, there is more than one kind of esthetic. There is performance esthetic—when something feels good, you like it. That can be the root of a whole design relationship. My own approach is to try and develop a form of product that starts with the individual and deals with the idea of performance esthetics [witness Diffrient's Jefferson Chair for SunarHauserman, photo, page 115]." In industrial designer Charles Mauro's opinion, "Specifiers are becoming much more sophisticated in their ability to critically evaluate products. There will be a time soon where you won't be able to produce slick videos and sell your product. You will have to be able to substantiate objectively the performance of the product in ergonomic terms." Pat Hoffman pointed to Alvar Aalto as the ideal architect-as-furniture-designer model: "We sell his furniture like popcorn. It's in every major pediatric facility, and it's also in the Museum of Modern Art. So to conclude that architect-designed furniture has to be uncomfortable, unsalable,. . . 'way out' is ridiculous." Hoffman was queried as to whether ICF's Mario Botta chairs were selling like "popcorn" too. Her reply: "It may surprise you to hear that there are some 100-seat restaurants around the country that have Botta chairs." (RECORD couldn't resist the temptation to ask if they were fast-food restaurants.) On the Aalto issue, Richard Schultz agreed: "His furniture is marvelous because it came out of an understanding and an attempt to advance the technology of wooden furniture. There is real depth there. . . true innovation, which is missing from the back-of-the-envelope stuff [we all knew to what he referred]." Osborne added that Breuer was not dissimilar: "Important furniture has happened when there were new materials to explore. Breuer started exploring tubular steel. . . pushing it. He was thinking almost as a product designer—in terms of function and performance." Terence West added: "The message here is the designer must understand materials and processes." Richard Schultz, a designer who certainly does, proudly confessed, "I build every piece of furniture I submit to a client," and Lella Vignelli admitted she and husband Massimo did the same thing, most recently in their design and marketing of the Handkerchief chair, manufacturered by Knoll (page 118). Steelcase's Terence West cited industrial designer Warren Snodgrass (page 118) as another who "did his homework. He almost literally designed around Steelcase's manufacturing strengths and capabilities." Orlando Diaz-Azcuy took exception to the conversation: "I don't like the idea that designers have the responsibility. Manufacturers have the economic

Modern furniture classics created by architects began as custom-designed pieces for a specific project, client, and site, and then were selected by a manufacturer for mass production. Recent examples of this phenomenon include: 5) Steven Holl's K desk for The Pace Collection, originally designed in 1984 to harmonize with a radiator in a New York City apartment, and 6) the table designed by Joseph D'Urso for the L. A. Esprit showroom, produced by Bieffeplast and now marketed by Gullans International. Knoll's strong support of architect-designed furniture has led to both extraordinary success with 7) the 1980 D'Urso collection of tables, and disappointment, 8) the Haigh collection of tables, introduced in 1981, and, sadly, discontinued.

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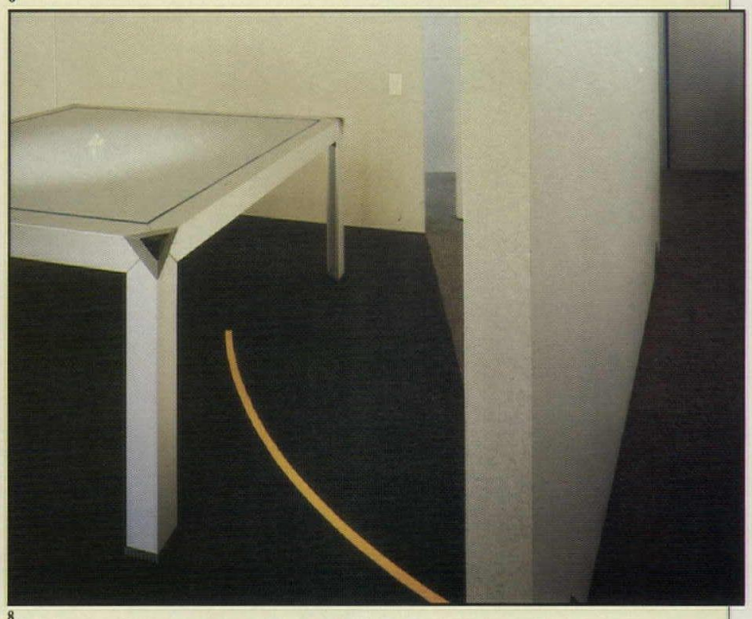

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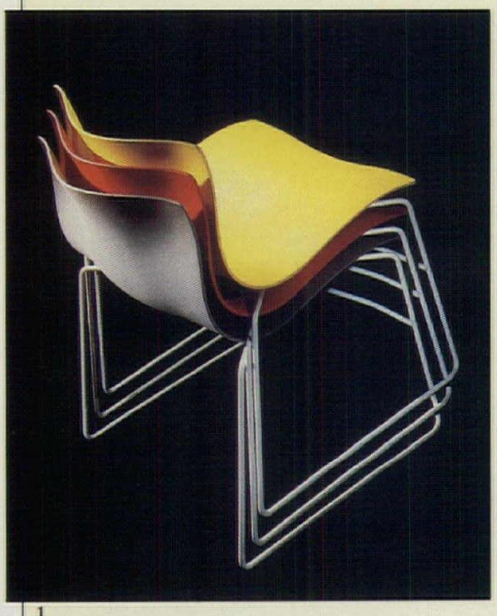
power." When an architect does not have the financial nor technical wherewithal to build his own prototype, Joseph D'Urso added, "It is important that he stay vitally involved from the beginning concept all the way through the production run because things can get lost. Hopefully a product gets better. You start somewhere and then there is a give and take between you, the technology, and the client." Stubbornness on the product designer's part (architect or not) was cited as essential to success.

Osborne introduced a sobering note when he reminded the Round Table that "quality" furniture (i.e., architect-designed furniture) is but a minuscule portion of the industry. The real business is in open-office systems. Though the most architectonic of all furniture, architects are conspicuously, and ironically, absent from their design. Joseph D'Urso asked the obvious question: "Why aren't there any architects doing systems?" According to Orlando Diaz-Azcuy, "The technology involved is tremendous... likewise, the manufacturer's financial investment." Osborne explained Knoll's position: "A product designer or an industrial designer is educated more in terms of materials and production processes and is more likely to be able to handle office seating or office systems... things that have the responsibility of cost performance. So we have taken a fairly definite line between working with architects and interior designers on furniture, and industrial designers and product designers on office systems and office seating." To many present this was not good news. William Stumpf, co-designer of Herman Miller's Ethospace system, reported that he was "one hundred and eighty degrees opposed to the concept of design being divided between architecture and industrial design. It goes back to the educational system in America, which is a very serious problem. It has to do with the schism between utilitarian thinking and esthetic thinking. I attended a design conference where the president of BEST Products was asked 'Why aren't your products as well designed and as interesting as your stores?' And he said, 'I never let design get in the way of business.' I think that's the core of the matter.... It is a disassociation. Charles Eames has always been my chief hero because he never begged the question. He was an integrationist. Those things which were functional were also eloquent." The Gwathmey Siegel desk and casegoods line for Knoll (page 116) was cited as an example of non-elitist architect-designed office furniture that is intended for a mass-market, but has the architectonic signature. "We aren't allowed to call it a 'system,' however," revealed Gwathmey—"it's a series of desks and

The pinwheel of chairs below offers a sampling of the diverse approaches to furniture design that architects and industrial designers are currently taking. 1) Lella and Massimo Vignelli's Handkerchief chair for Knoll International is an example of architect-designed furniture that is targeted to the mass market. 2) Warren Snodgrass's stacking chair for Steelcase is the product of an industrial designer "almost literally designing around Steelcase and then bringing the chair in speculatively." 3) Michele de Lucchi's First chair for Memphis is the biggest selling product the Milan-based design consortium has yet produced. 4) Richard Schultz's Ricardo chair for Conde House evolved out of the product designer's experiments with wood slats in his



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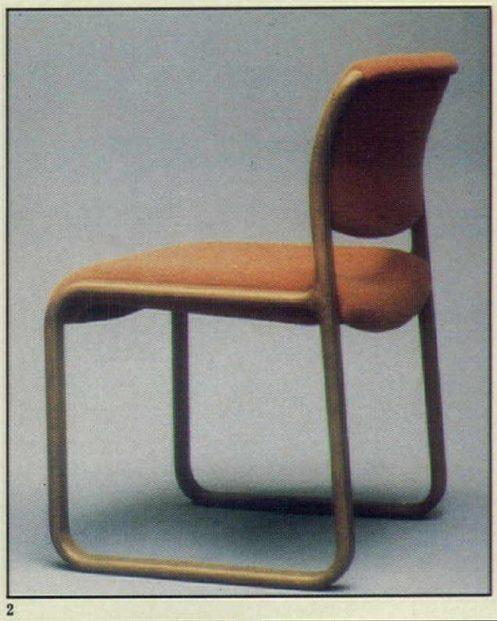

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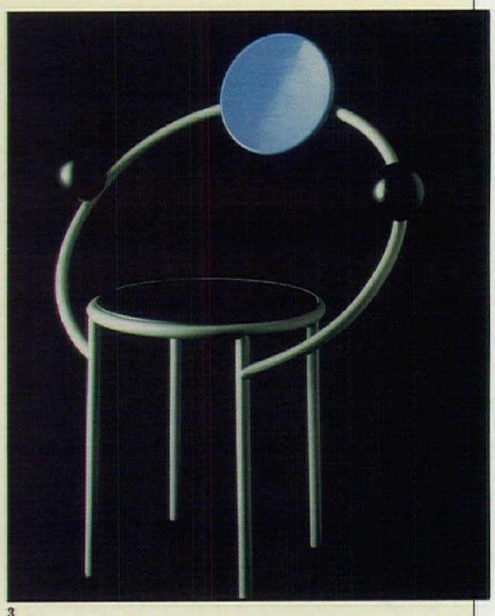

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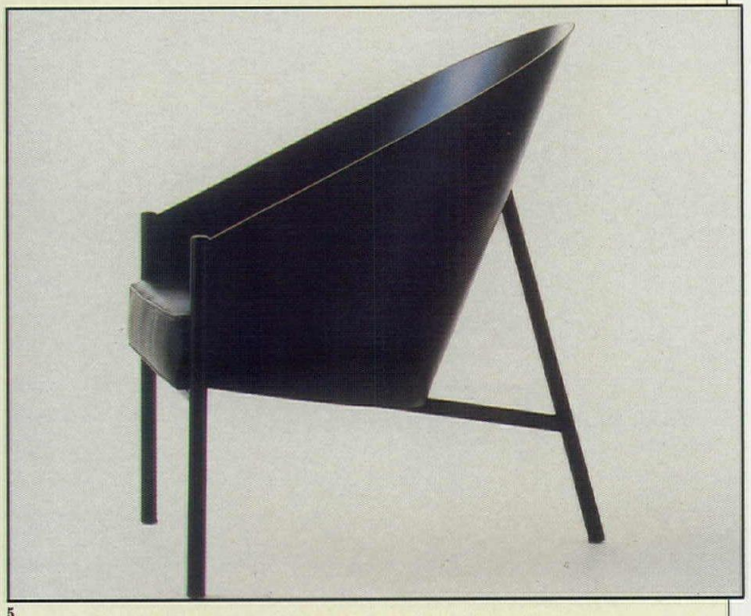

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credenzas that happens to be very systematic."

Osborne hinted at the reason: "If we're working on an office system, we try to keep it as neutral as possible." Too neutral, in the eyes of Lella Vignelli, who offered the ever-popular "you can't tell one system from another" opinion. Ironically, recalled Terence McLeod, "Frank Lloyd Wright's Johnson Wax Administration Building is proof that an architect had a vision that predated the office landscape by 25 years." In Europe, we were reminded by Pat Hoffman, things are different: "Systems are designed by architects. But here we have industrial designers designing them. . . . It has to do with American specialization." It undoubtedly also has something to do with American money. According to Osborne, "In the systems business, if you are not operating at a large scale—say $100 million—you're not considered really serious and corporations don't really review the product line." No one acted surprised when Robert Harvey matter-of-factly noted: "I think manufacturers have a tendency to be risk-aversive." It was implicit, though not stated, that much architect-designed furniture, at this point, entails a certain risk. On that issue, William Stumpf reminisced: "There was a point in time when small enterprising companies used economics as a vehicle, as an instrument to pursue ideas. In the larger organizations, it seems, the economic question becomes self-referential. In other words, if you defer to the needs of the money center—bottom line return on investment—there is a loss of eccentricity, a loss of nerve, and the risk of the entrepreneurial spirit. I frankly rejoice in the experimentation in contemporary architecture. I would love to carry the sense of playfulness that I see in Eric Moss's work, for example, into product design. But when you start talking about product design, the conversation comes around to 'cash cow' real quickly. What that means again is the difference between high money-producing products, the 'Rocky IV's,' and the riskier ones, which seem to go in a continuous arabesque around the product planning department and never see the light of day."

Though Terry West said his company "did not make a hard distinction between architects and industrial designers," and was, in fact, working with a number of architects (no specific names could be extracted from West, however), he thought "it should be understood straightaway that there are no guarantees. . . . It's a very iffy situation. We manufacture product and it has to be sold in today's world." Part of the problem, according to Charles Mauro, is that "most decisions made on product development today are made by committee; there's no one

shop. 5) Philippe Starck's Café Costes chair—distributed by Furniture of the 20th Century—is an example of furniture designed for a specific project, which has then been put into production. 6) The Equa chair by William Stumpf and Don Chadwick is Herman Miller's runaway bestseller in the office-chair category. 7) Architect Eric Moss's chair has neither name nor manufacturer—at least at present. 8) Giuseppe Terragni's 1936 Sant'Elia chair is a classic reproduction distributed through Furniture of the 20th Century. 9) The Chalice chair is one of architect Orlando Diaz-Azcuy's answers to Hickory Business Furniture's call for contemporary chairs. 10) ICF's 1936 Aalto lounge chair is another classic reproduction that hasn't aged a day.

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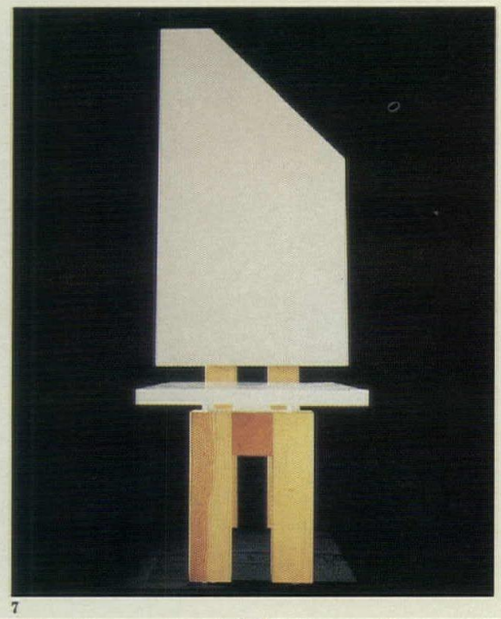

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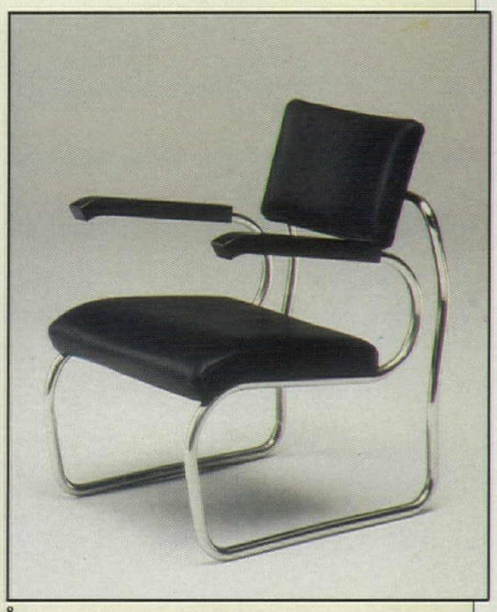

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around of Florence Knoll's stature anymore." Pat Hoffman thought that another part of the problem was that "an open-plan system is a very complicated thing and you can't design it part-time while you are building buildings. And most of the architects we're discussing here have designed their furniture part-time. But I think if an architect wanted to stop building for a year and really study and get into designing such a complicated thing as an open-plan system, it could be one of the most fabulous products of the century. But none of us could afford a year of Charles Gwathmey." [Miami-based Arquitectonica is currently working on an open-plan system for a well-known contract furniture manufacturer, though the firm hasn't stopped building—so time will perhaps tell on Hoffman's prediction.]

"Development of effective product today is enormously complex and difficult," warned Charles Mauro, "so what that means is that you will see teams of designers producing products or design solutions, as opposed to individual designers." But Joseph D'Urso added a cautionary note: "In any project there always has to be one person who has a vision at the beginning and is involved all the way through. Every project involves a team, but that is not to say that every member of the team has equal impact. Teams are not people, but there are individuals in that team, and without that I think the product comes out looking unclear." "That's exactly the point," noted William Stumpf, "that's what's happening to systems furniture. It has become a commodity and commodities are the most impersonal things we have." Orlando Diaz-Azcuy added, "The design community is still in the boutique phase. . . we are ignoring the heavy-duty markets and needs that exist." Jeffrey Osborne wisely noted, however, that "major changes happen often on a small scale, and if they really work they are then reproduced [on] larger and larger scales."

In an attempt to close on a sanguine note, the Round Table was asked about the possibility of collaboration between architects, who, it was generally agreed, wield the upper esthetic hand, and industrial designers, who clearly wield the upper technical hand. Niels Diffrient was polled: "Since you and Michael Graves share the same SunarHauserman showroom, is it possible that you could work together on an open-office system?" "Could you think of somebody else?" responded Diffrient. Not a definitive answer, perhaps, but the general question seemed as logical as it did intriguing. At least until the Alvar Aalto and Charles Eames of this decade emerge.

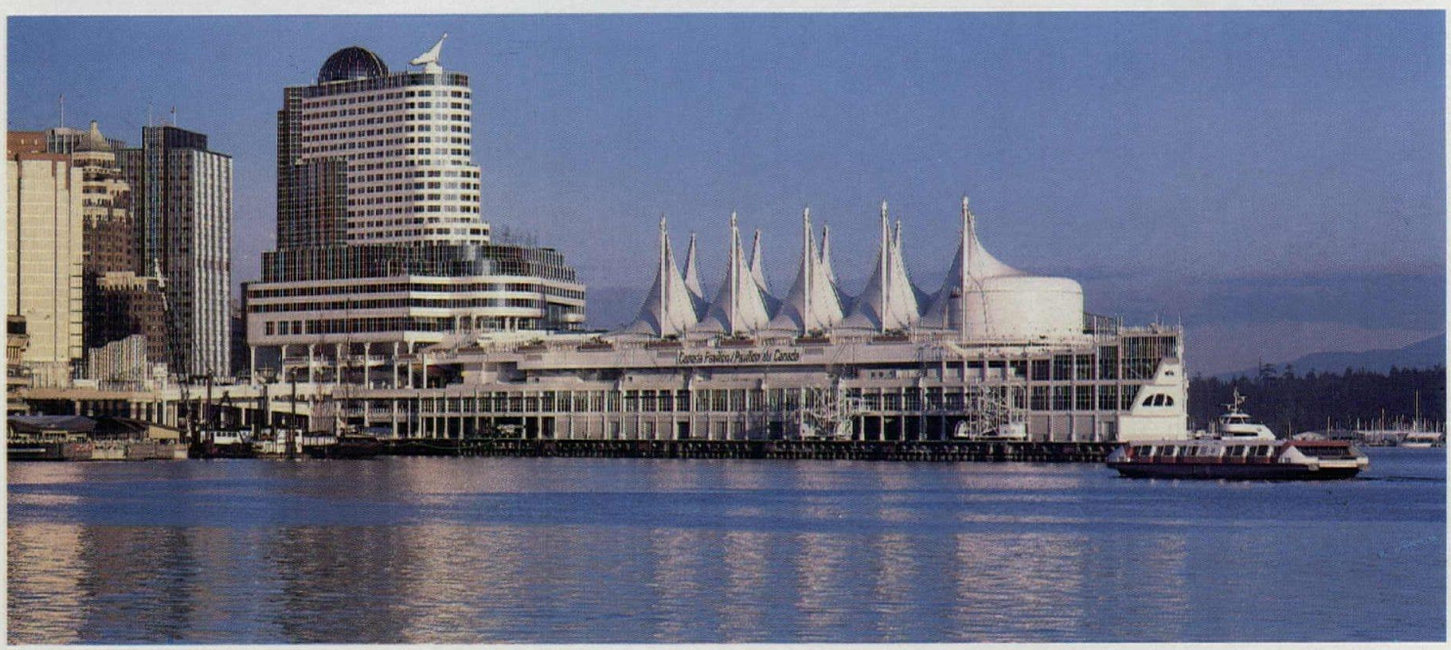
Charles K. Gandee

Vancouver: better than fair

EXPO 86
Vancouver, British Columbia,
Canada

The 1,600-ft-long promenades along both sides of the Canada Place complex lead to an outdoor amphitheater, a CN Imax 3-D movie theater, restaurants, and a shopping center—intended as enticements to the end of the pier (top). The five 80-ft-high masts that support the Convention Centre's fiberglass-reinforced Teflon roof provide the complex with an appropriately nautical end-piece (bottom).

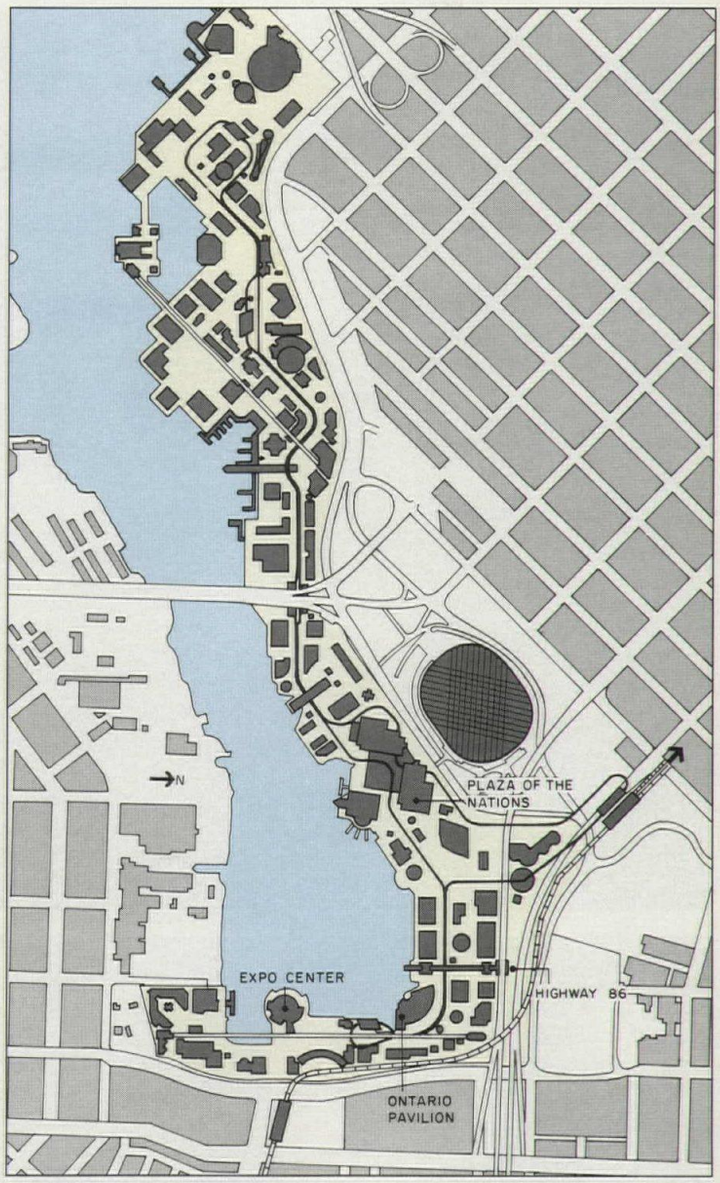
©Timothy Hursley/The Arkansas Office photos

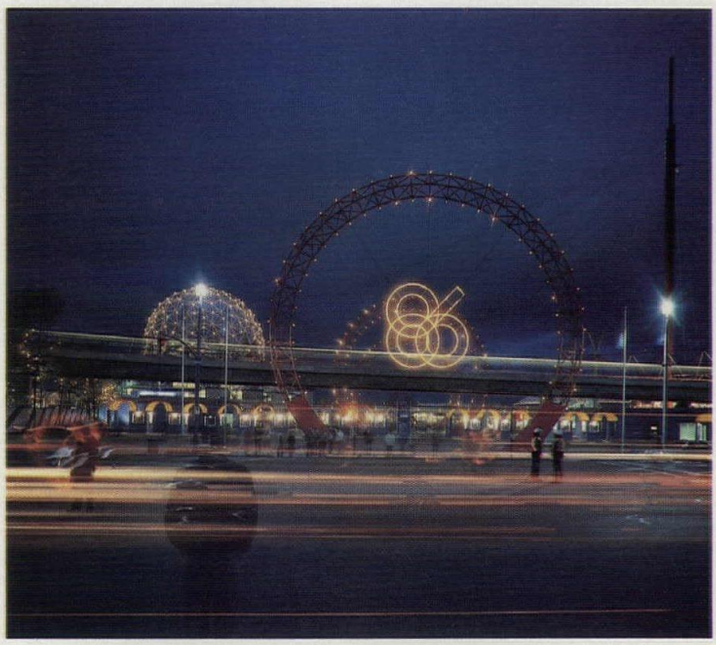


On May 2, EXPO 86 officially unlocked its turnstiles to the waiting throngs of pleasure-seekers amidst predicted fanfare and equally predicted—by the local weatherman—Vancouver showers. Eager to discover what lay behind this year's promised display of a "World in Motion—World in Touch," the crowd's enthusiasm was not dampened. In fact, hordes of well-wishers queued up in the on-and-off downpour, grateful for even a glimpse of their Royal Highnesses Prince Charles and Diana, Princess of Wales, who were on hand to officiate at the opening ceremonies. On the heels of two financially disastrous world's fairs—two years ago in New Orleans and four years ago in Knoxville—one such well-attended rainy day was enough to proclaim this year's Expo a smashing success. As one seasoned fair-goer observed, "There was more of a crowd here on press day than on any of their better days in New Orleans." If the photographers were in full force hoping to capture the *ne plus ultra* shot of Lady Diana, the rest of the crowd had other intentions. At $20 (Canadian) apiece, a one-day pass grants admittance to the more than 80 pavilions and exhibits (representing over 50 different countries) with their endless hours of motion-simulated, 3-D, and interactive audio-visual movies, and even to the "one-of-a-kind" Omnimax hemispherical sensor-round production. Expo will run at its frenetic pace for 165 days; during that time the Pacific-coast city of 1.2 million will play host to an anticipated onslaught of 16 million visitors until the fair closes on, appropriately enough, Canadian Thanksgiving Day, October 13.

Almost eight years in the making, Expo comprises the mixed-used Canada Place complex (preceding pages and photos left), located at the foot of downtown Vancouver at a 45-degree angle to the city's grid, and the 165-acre main fair grounds along False Creek (drawing right). Connected by the first segment of the new SkyTrain rapid-transit system, a project of B. C. Transit expedited for Expo, the two sites are 3/4 of a mile apart. Intended to help revitalize a neglected part of the city's waterfront, Canada Place consists of three main parts: The Pan Pacific Hotel, contained in a faceted reflective-glass tower; Vancouver's World Trade Center, contained in the tower's bulky base; and the cruise ship terminal and British Columbia Convention Centre, contained in a fabric-tent structure that is being used during Expo as The Canadian Pavilion. The complex was designed by the Toronto-based Zeidler Roberts Partnership, which set out to create a "strong, poetic image" for the previously undistinguished harbor that, during Expo, could serve as the national host pavilion. Unlike Canada Place which, according to partner-in-charge Eberhard Zeidler, is intended for "life after Expo," most of the pavilions on the main site will be demolished when the fair is over. Hired as chief architect by the Expo 86 Corporation, Bruno Freschi and his firm developed the master plan. The architect envisioned the 2 1/4-mile-long belt as an urban boulevard with three organizing elements: the water's edge, a circulation spine, and theme plazas. Typical of this type of fair, the host—here, the province of British Columbia—builds the pavilions, and the participants lease their required space and are given free reign to embellish it in any manner they choose; the overall tendency, as Freschi reports, was "overkill on Postmodern." Freschi conceived a demountable system of 9- by 45-ft modules that could accommodate varied needs during the fair, and then be reused for local exhibits after Expo. Although only three of the pavilions, including the geodesic Expo Centre, also designed by Freschi (photo right), were built to stay, the preparation of the site necessitated several long-term enhancements, including dredging the water and strengthening the infrastructure of the pier.

Despite initial protest by key members of the provincial government, Vancouver has parlayed the expensive proposition of hosting a fair into much-needed capital improvements. When all the pavilions are packed away, Expo will have left the city, which is also celebrating the centennial of its incorporation, with more than just memories of one long government-subsidized birthday party. *Karen D. Stein*

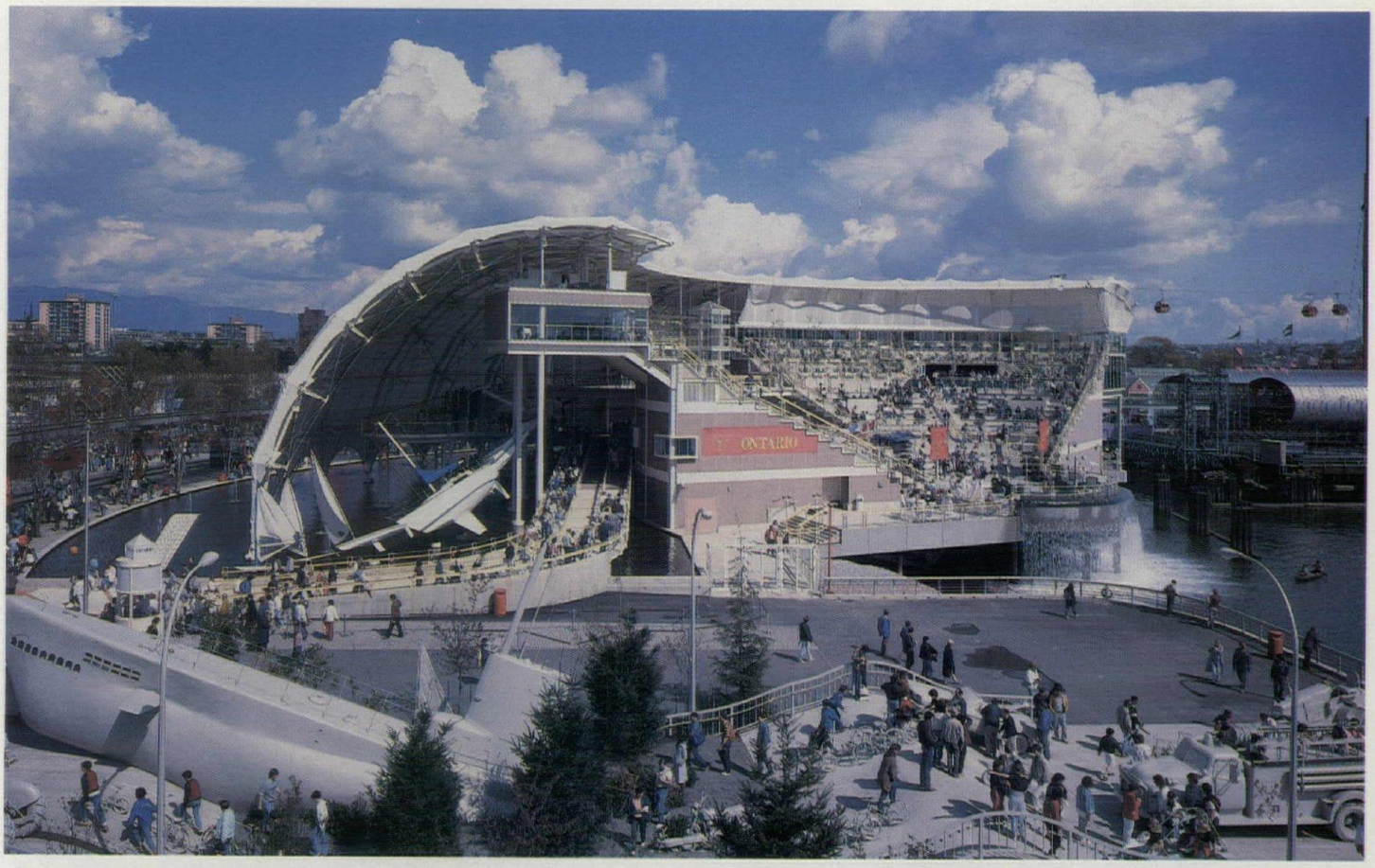


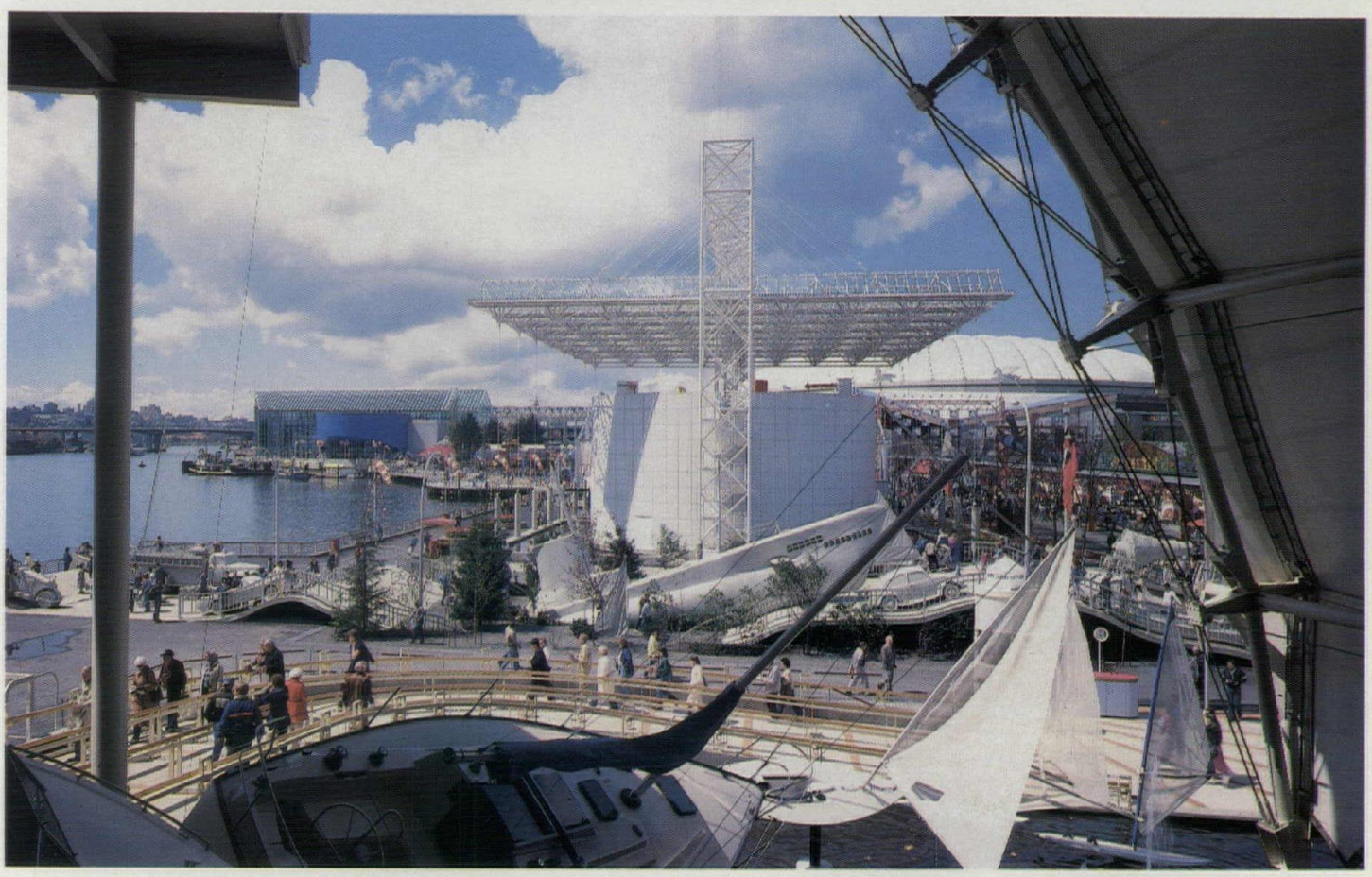


The main fair grounds along False Creek can be explored on foot or viewed from above, aboard the monorail, which makes a 20-minute circuit of the 2 1/4-mile site (top). The monorail delineates what Bruno Freschi, the architect in charge of site-planning, calls the "spine" of the site, from which pavilions are grouped around theme plazas. The pavilions, representing over 50 nations, feature exhibits and different types of audio-visual presentations that focus on this year's theme of transportation and communications. In addition, most of the pavilions have their own gift shops that sell wares "typical" of the nation. Taking the notion to an uncharacteristic extreme, the Swiss pavilion (bottom) is wrapped in a giant Swatch watch—a version of those that are, sure enough, available inside.

The Ontario Pavilion (below) was designed by the Zeidler Roberts Partnership (see preceding pages) to be both an exposition pavilion and a giant outdoor amphitheater. Although performances are subject to the whims of the temperamental Vancouver weather, the pavilion affords a view of the southwest portion of the fair, and, every evening at 10 PM, of a 15-minute firework and laser show.

Constructed of round pipe columns and covered with a coated fabric that is stretched, umbrella-like, over wire-tensioned bowstring trusses, the structure is said to be—like the other pavilions—easy to demount and reassemble. The restaurant on the Pavilion's top floor is only one of over 100 eateries—fast-food and haute-cuisine alike—available to satiate the varied tastes of hungry fair-goers.

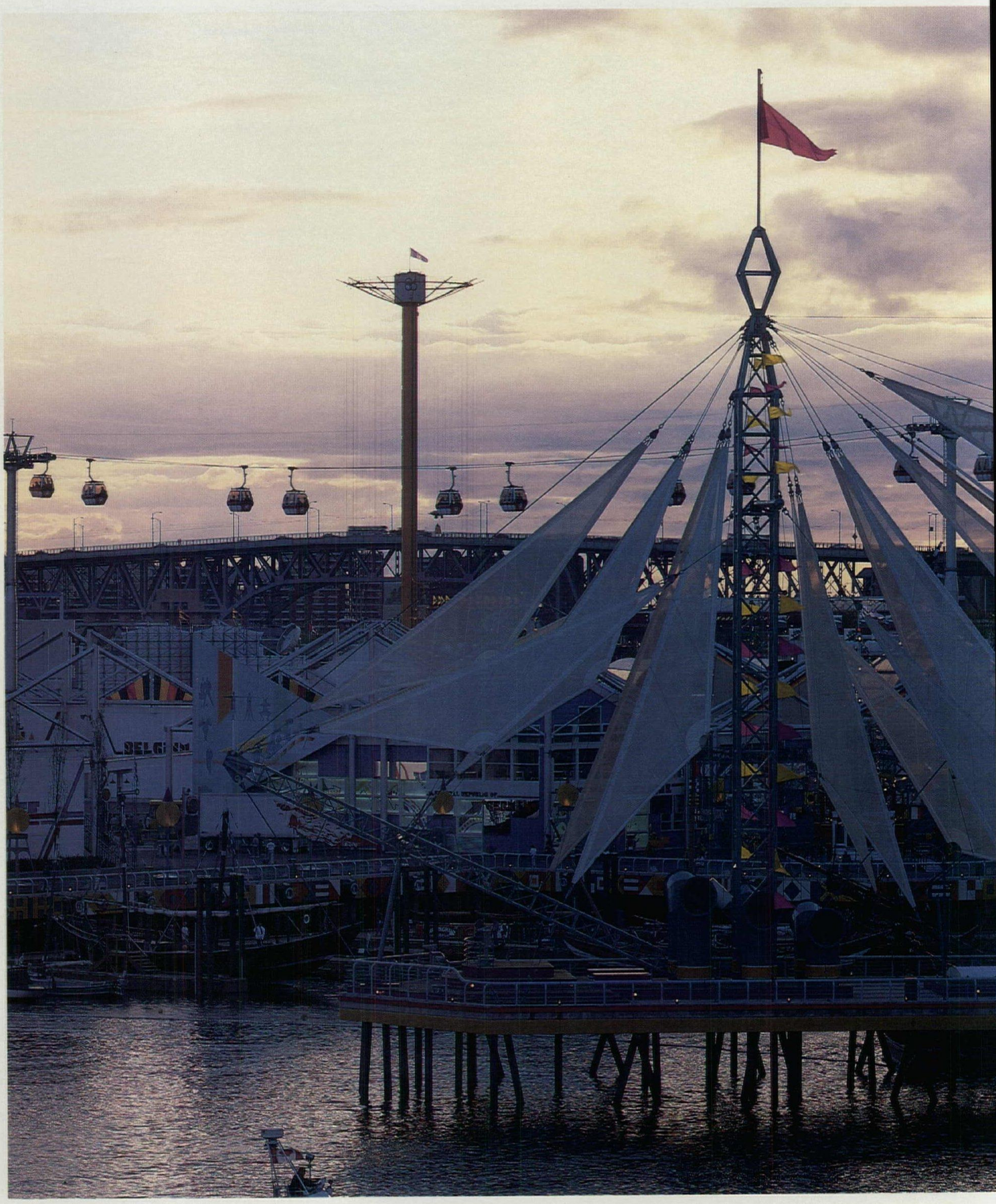




The $75 million international marketing campaign that offered previews of EXPO 86 a year before it officially opened may have guaranteed its financial success. But it is Vancouver itself, set against a backdrop of mountains and waterways and a locus of air, sea, and ground transportation (below), that makes Expo's theme statement "A World in Motion—A World in Touch" believable.

Site planning
EXPO 86
Vancouver, B. C.
Canada
Owner:
Expo 86 Corporation
Architect:
Bruno Freschi, Architects—Bruno Freschi, principal-in-charge; Helmut Kassautzki, associate-in-charge; Rick Balfour, John Clarke, Trish French, Ron Kellett, Vladimir Knizhnik, Elizabeth MacKenzie, Julia Meadows, and Lynne Werker, project team

Canada Place
Vancouver, B. C.
Canada
Owners:
Canada Harbour Place Corporation (Convention Centre/Cruise Ship Terminal);
Tokyu Canada Corporation (Pan Pacific Hotel and World Trade Centre)
Architects:
Zeidler Roberts Partnership Architects—Eberhard Zeidler, partner-in-charge; Alan Munn, project architect
Downs Archambault Architects—Barry Downs, partner-in-charge and David Galpin, project architect for Hotel and World Trade Centre
Musson Cathell, Mackey



Partnership—Frank Musson, partner-in-charge and John Marchant, project architect for Convention Centre

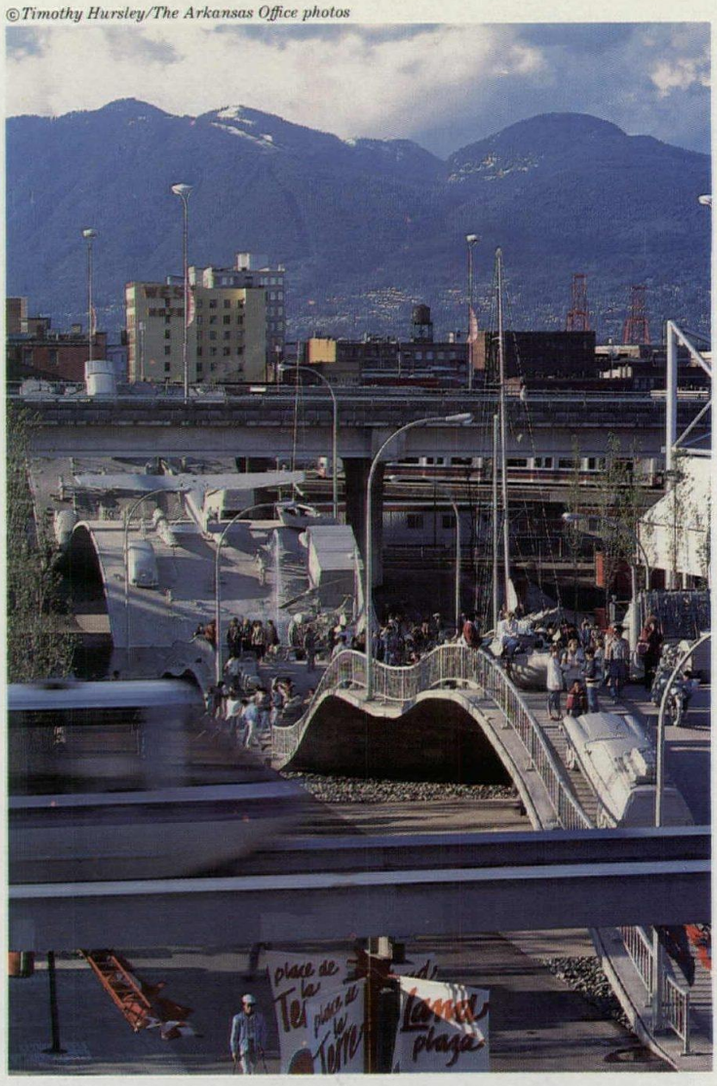
Engineers:
Read, Jones, Christofferson (structural); Mechanical Consultants Western (mechanical); AME Engineering (electrical); Geiger Berger Associates (fabric roof)

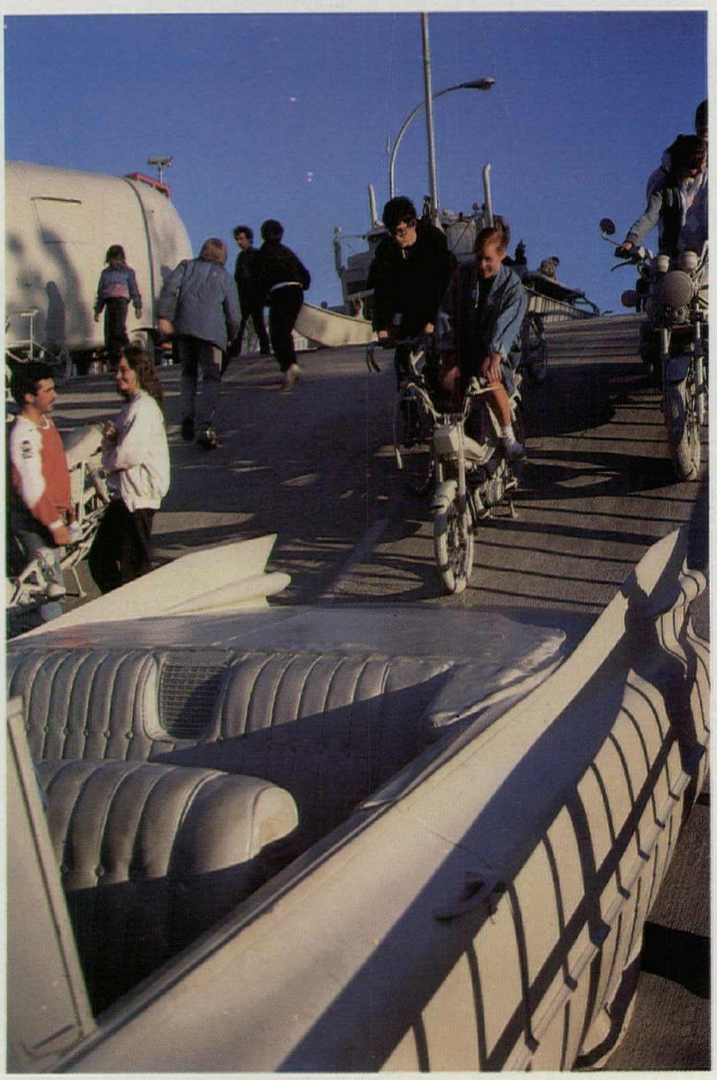
Consultants:
Hirsch/Bedner and Associates (hotel design); Rolf Jensen & Associates Limited (life safety); Brown Strachan Associates and Valcoustics Canada Limited (acoustical); Cornelia Hahn Oberlander and Vaughn Derrante Limited (landscape); Hanscornts Associates and Dominion Construction (cost); N. D. Lea (traffic)

General contractors:
Ellis Don Limited (Convention Centre/Cruise Ship Terminal); PCL Construction Limited (Pan Pacific Hotel and World Trade Centre)

Highway 86
EXPO 86
Vancouver, British Columbia, Canada
SITE Projects, Inc., Designers

©Timothy Hursley/The Arkansas Office photos



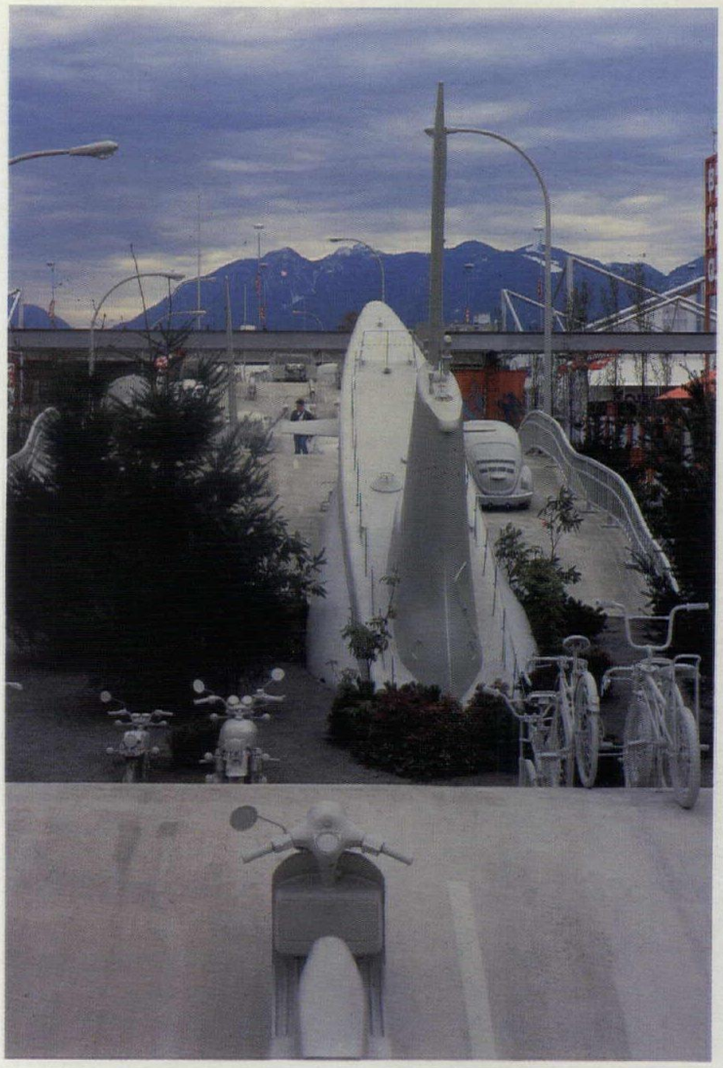


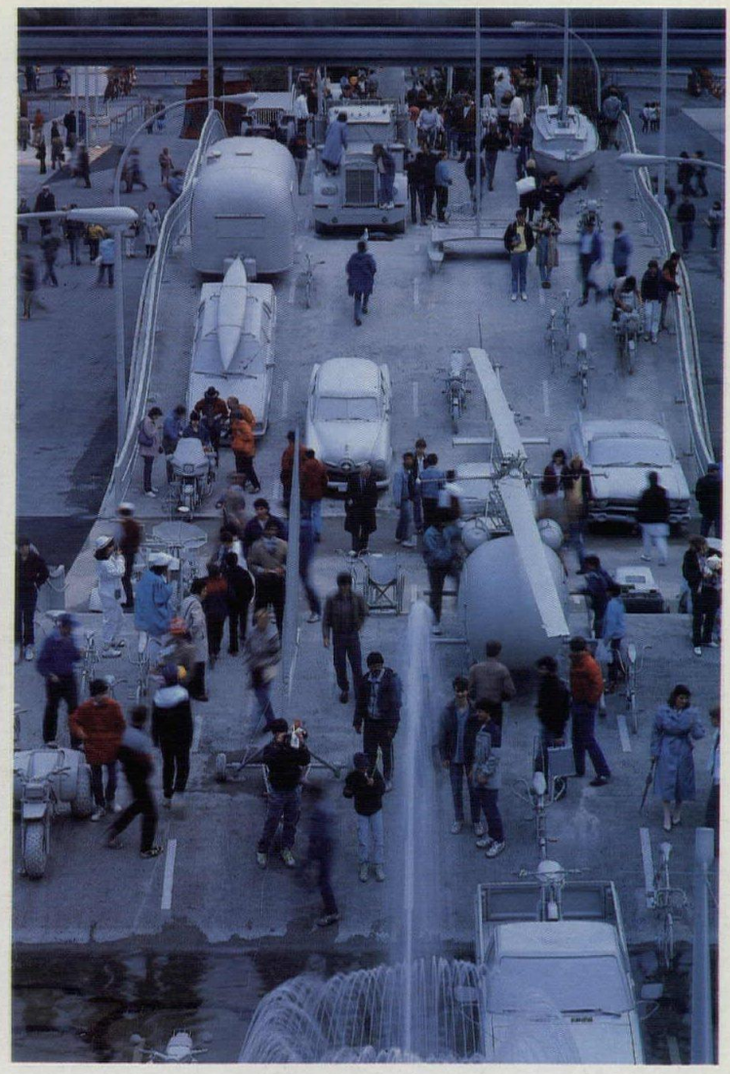
It's no accident that when he's describing SITE's work, James Wines, the firm's president, sprinkles his conversation with the word "perverse." Delivered with the mischievous delight of an impertinent child, the word evokes the bizarre—a quality that characterizes most of SITE's work to date, including its latest incursion into the mixed camp of art and architecture: Highway 86.

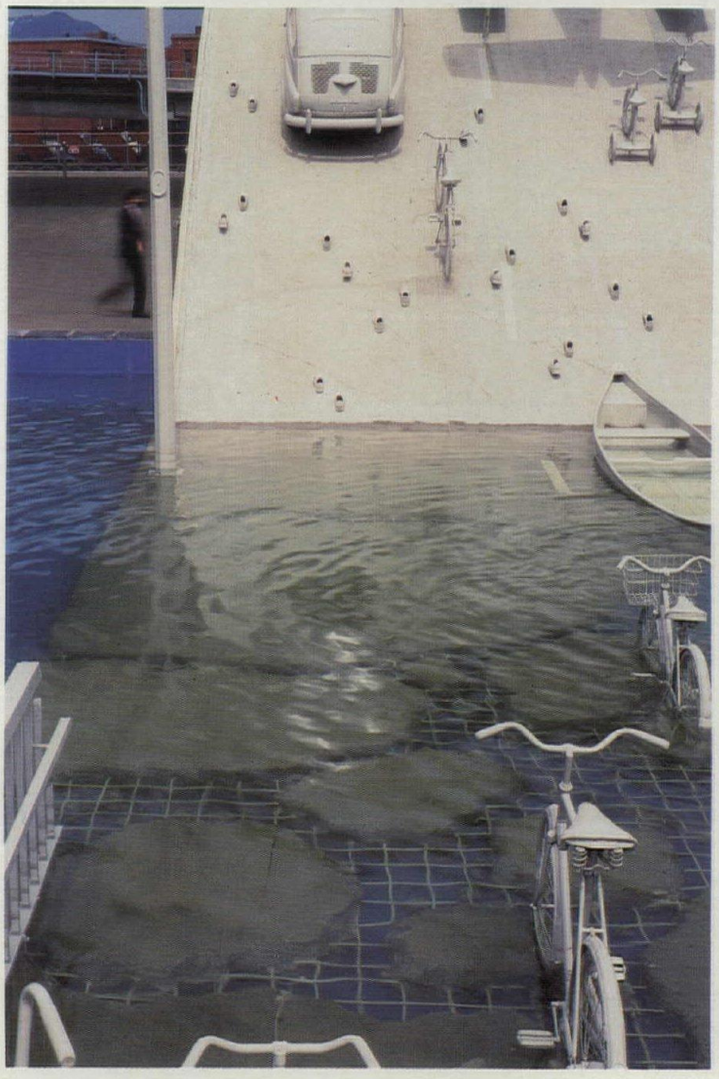
Although the EXPO 86-sponsored competition that generated the scheme had called for a pavilion and exhibition area which would properly glorify the Vancouver fair's theme of transportation and communication, SITE, as is its wont, responded with an alternative proposal: A four-lane ribbon of concrete, encrusted with a monochromatic pageantry of more than 200 vehicles, that emerges from the waters of False Creek and undulates for 712 feet across the Expo grounds (site plan page 123 and photo top right). After much deliberation and several long, hard swallows, the jury selected SITE's entry, perhaps arguing in its favor that SITE's somewhat unorthodox methods aside, it had indeed satisfied the *conceptual* requirements of the design brief.

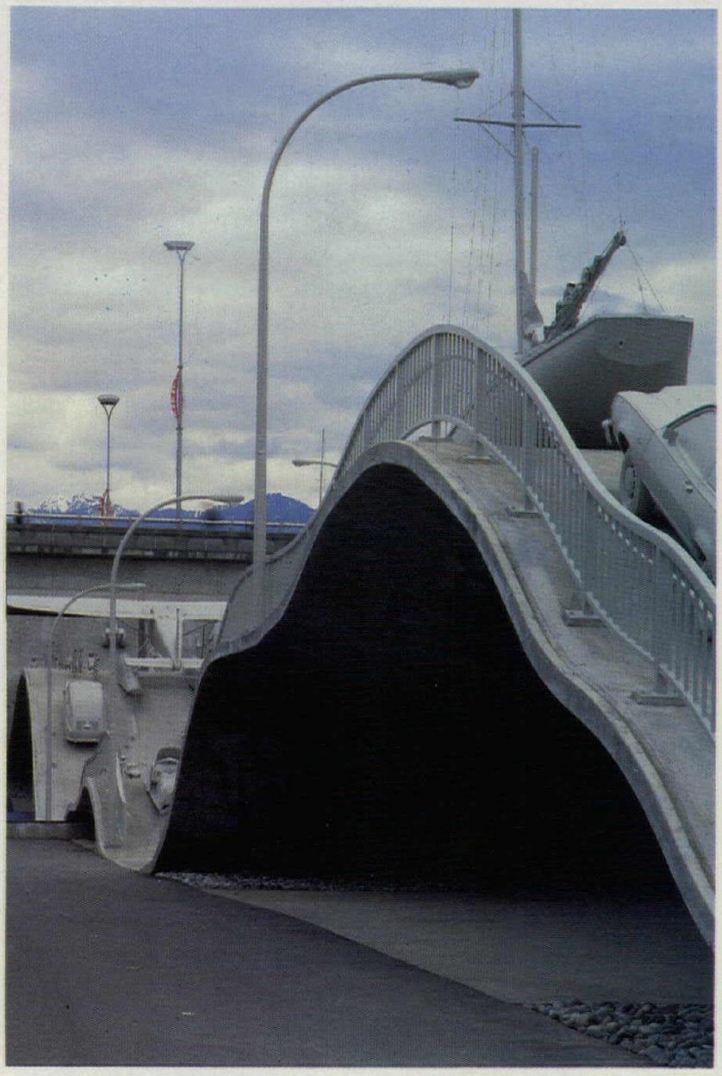
Proponents of what Wines refers to as "narrative architecture," SITE delves into the social, psychological, and emotional underpinnings, with equal vehemence, of the project at hand. While still providing Expo with the traditional amenities of a public space—a place where people can wander or sit, a place with greenery and fountains (opposite left, top and bottom)—SITE has created a commentary on 20th-century transportation that expresses ambivalence about what all this "progress" is leading to. To find the proper ingredients for its sculptural mélange, SITE scoured Vancouver's province of British Columbia—dealerships, garages, backyards, and junkyards—in search of the most potent cars, trucks, campers, motorcycles, scooters, airplanes, helicopters, and boats that it could find. (With only a few exceptions, the vehicles were either purchased or donated. The space capsule and lunar rover were built according to NASA-supplied specifications, and the construction of the submarine was based on a 1940s HMS Rainbow Class model.) The team, headed by Boak Alexander Architects' sleuth-hound Charlie McLaren, amassed items from everyone's actual or fantasized past, including such collectors' dreams as a 1959 Cadillac Eldorado convertibile—'59 was the year General Motors made its longest fins (bottom right)—and a 1950 Champion Studebaker (cover and page 131). And if that wasn't already enough, the team added to its treasure trove, as a subtext on man-powered forms of transportation, a variety of athletic equipment from skateboards to sneakers. Even though some items are more emotionally charged than others, the Highway deliberately plays on the familiarity of each object and the jolt of its incongruous use (or, to some stubborn detractors, misuse). A pack of jean-jacketed high-school ruffians was particularly miffed by the fate of the '68 Camaro Hot Rod, but the message, even to them, is clear: nothing is sacred. Before the vehicles were finally mounted on the site, their engines and transmissions were removed, anchors were welded to the wheels, all openings were sealed, and the exteriors were spray-painted with a weatherproofing light-gray chlorinated rubber compound. Their placement and juxtapositon was carefully orchestrated to ensure moments of surprise (the bicycles partially immersed in water, opposite bottom left), tenderness (a diminutive tricycle next to the submarine), humor (a lone wheelchair), and even horror (a brand-new Mercedes-Benz four-door sedan stuck on a hill behind a 1940s Jeep).

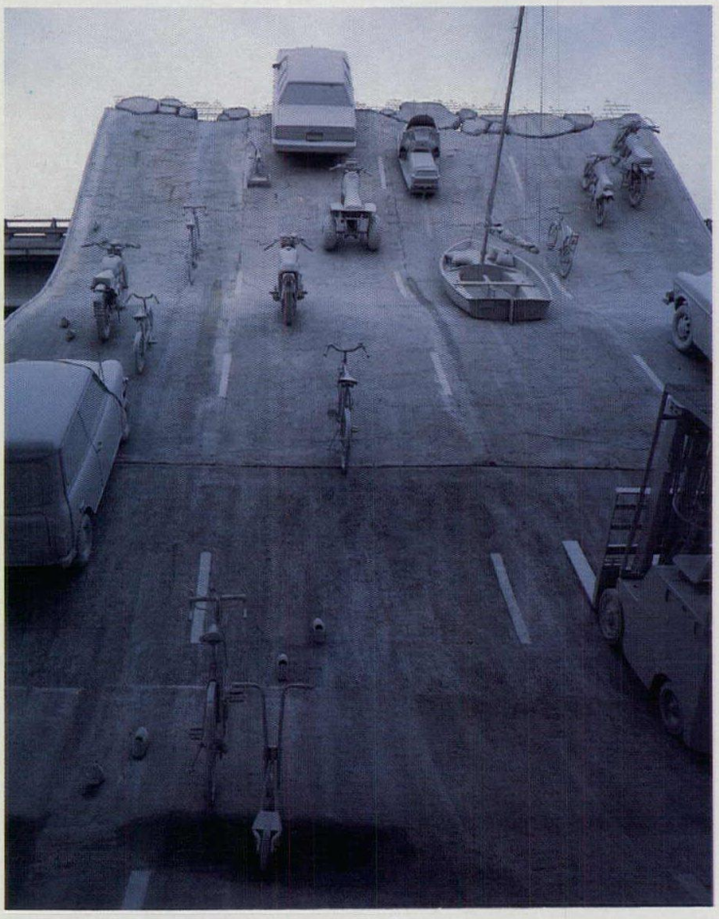
Haunted and surreal when empty, the Highway is completely transformed and animated by people (opposite top right). Not entirely art nor architecture, festive nor foreboding, it inhabits indeterminate ground, located somewhere—as Wines will willingly interject—between "apocalypse and utopia." Intended as a temporary exhibit for EXPO 86 that will be torn down when the fair ends in October, Highway 86 is the object of a sad, but in some way fitting, irony. The sense of permanence it exudes cannot overcome its own all-too-transient life. *K. D. S.*











Intended to "link the sea to the mountains and the mountains to the sea," Highway 86 emerges from the Vancouver harbor (top left) and ripples northward for 712 feet until its abrupt, almost vertical termination between two highway viaducts (middle and bottom left). With the exception of the segment of the Highway that rises out of the water and the cantilevered end-piece, the concrete ribbon—as much a testimony to technological developments as the items exhibited on it—is constructed of arches that are tied together at their bases with steel cables running underground, which are designed to withstand the lateral thrust imposed on each arch. Although the placement of the different vehicles appears casual (opposite), it was actually carefully studied by SITE principal Alison Sky and her colleagues, with the aid of a model and movable miniatures. Even though most of the items were purchased, several were obtained by donation, a gratifying show of support to SITE, which had been taken to task for its less-than-sympathetic treatment of the vehicles. Mercedes-Benz's zero-hour donation of a $60,000 1986 560 SEL right off the assembly line reveals how quickly the tides of criticism can turn when a not-to-be-missed opportunity is recognized—the company plans to feature the ghosted car in an upcoming advertising campaign.

Highway 86
Vancouver, B. C.
Canada
Owner:
Expo 86 Corporation
Designers:
SITE Projects, Inc.—
Alison Sky, Michelle Stone, and James Wines, principals-in-charge; John de Vitry, project manager; Josh Weinstein, Stomu Miyazaki, and Naoto Sekiguchi, project team
Architects:
Boak Alexander Architects—Boak Alexander, principal-in-charge; Roger Morris, project architect; Charlie McLaren, exhibit coordinator
Engineers:
Geiger Associates (structural); D. W. Thomson Consultants (electrical and plumbing)
Consultants:
Signe Nielsen (landscape design); Vaughan-Durante Limited (landscape); Tillyard & Partners (quantity surveyor)
Contractors:
Halse-Martin Construction Co. (general contractor); Ebco Industries (exhibit contractor); Britco Installations (exhibit installation)

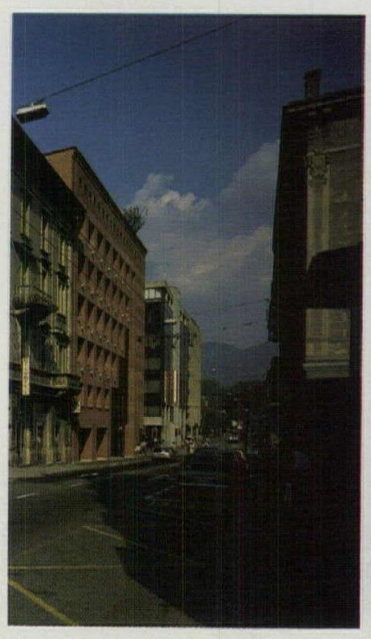
A tree grows in Lugano

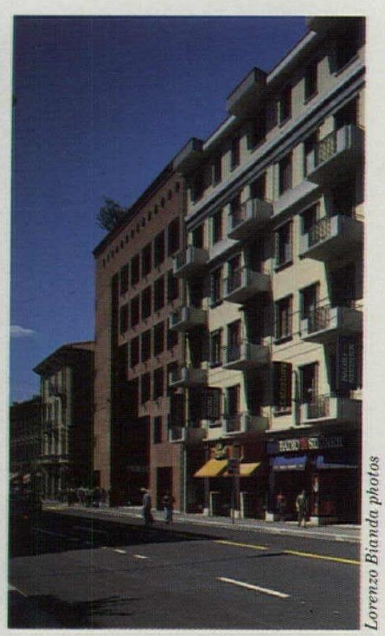
Ransila Office Building
Lugano, Switzerland
Mario Botta, Architect

For eyes all too accustomed to Postmodernist pastiches, it may be hard to believe that in Mario Botta's native canton of Ticino the local folk still regard his elemental esthetic as "disturbing." Nonplussed but otherwise undaunted, the Swiss architect has persevered, much like his professional progenitors Le Corbusier and Louis Kahn did, in his attempt to get back to the basics of architecture rather than recycle its early motifs. Although Botta has completed a secondary school, a monastic library, and a spate of single-family houses all nestled in his canton's verdant exurban splendor, it took two decades for him to receive his first commission for a large-scale building in the city of Lugano, where he lives and works.

Located downtown on a corner site near the city's historic quarter, the outline of the Ransila building neatly patches a hole in the perimeter of the adjacent public square, although its two public facades, which have been carved away from their shared binding, are remnants of the once incomplete urban matrix. The building's clear, highly articulated bulk provides it with a single, accessible image that has been carefully composed so as not to consume its constituent parts. Toward that end, Botta shaped the anchoring corner to appear tower-like and almost disengaged from the building itself. The thick brick curtain that envelops the corner's flanking facades is retracted to reveal portions of the building's steel-framed second skin—an architectural assemblage that makes a play of solid and void, composition and decomposition, surface and depth, light and dark, and brick and glass, which animates what otherwise might have been, in another's less assiduous hands, a plain, dumb box. The architect drew his inspiration not only from the position of the site but also from the pattern of the surrounding urban fabric. Woven into the structure is the tripartite configuration typical of the neighboring buildings (below): with a public portico as the base, pairs of windows recessed into layered cutouts as the middle section, and a flat cornice with portal windows as the top section. The stacked windows of the middle section modulate the cadence that moves from building to building along the contiguous streetfronts and rises to an unexpected, final crescendo at the summit of Botta's building. Here, a displaced tree—the structure's crowning touch and only decorative flourish—stakes its claim.

Since Botta defines architecture as "taking possession" of a place, the tree is particularly polemical. It represents what he terms the "reciprocal rapport" between architecture and nature which, if harmonious, more than satisfies the "primary need for simplicity" and supplants any supposed need for swags, garlands, and other such adornments. *Karen D. Stein*

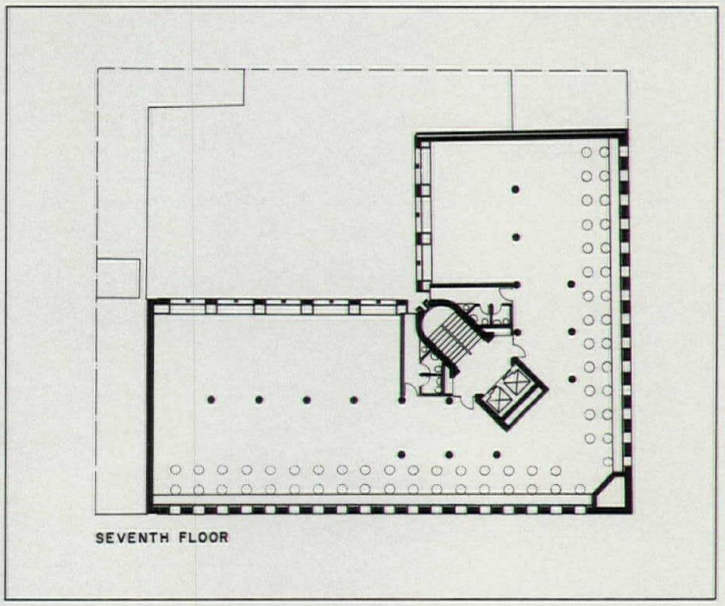


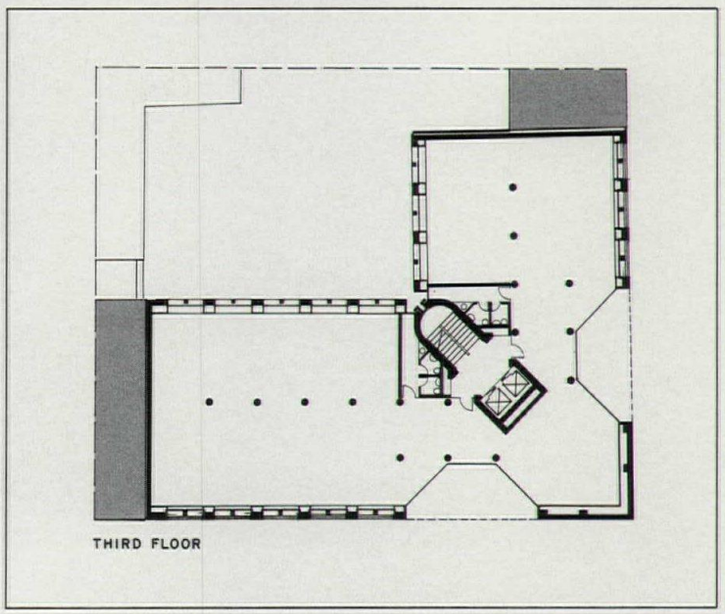


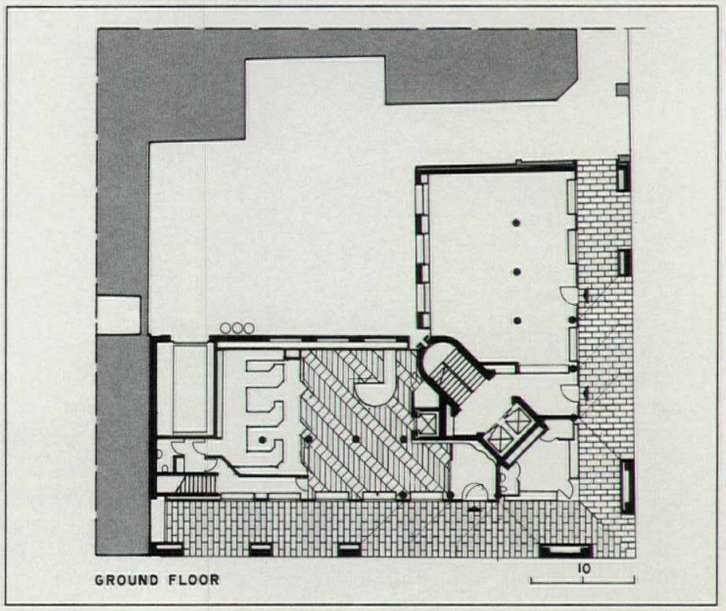
Lorenzo Bianda photos


Bata
Bata
Calzature

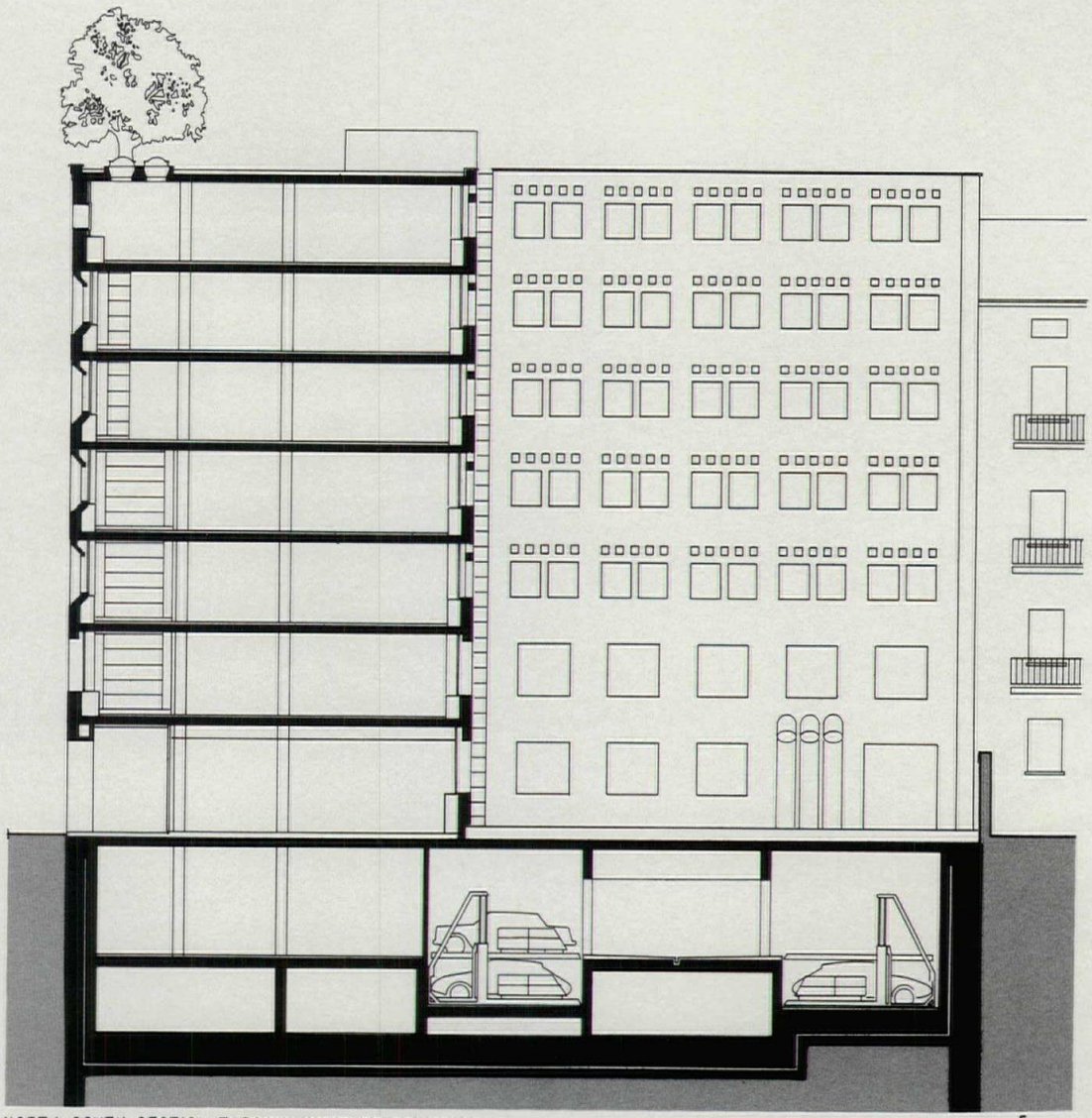
Although from the street the shape of the Ransila building appears to be a solid cube, it is actually a squat L (drawings right). Impelled, no doubt, by his self-confessed obsession with order and symmetry, Botta purposely overemphasized the southeast corner of the building and made symmetrical cutouts into the two adjoining facades in order to detract attention from their disproportionate lengths. A public portico that runs just inside the perimeter of the building shelters the sidewalk and creates a transition zone between the street and the building's interior. The entrance is directly behind the outside corner of the L; the elevators and staircases to the six floors above are located opposite the entrance, against its inside corner. The stepped incisions into the building's thick outer skin (photo opposite) reveal the glass-and-steel-enclosed office and retail spaces contained within. The detailing of the facades proves that the same relentless rationalist who devised a rigorously apportioned layout and an evenly distributed system of windows is also a master of artifice. Botta has not only composed a rhythmic sequence of external openings, he has also accentuated it by the alternating use of glass and brick that, together, refract the light and bathe both facades in a painterly chiaroscuro.







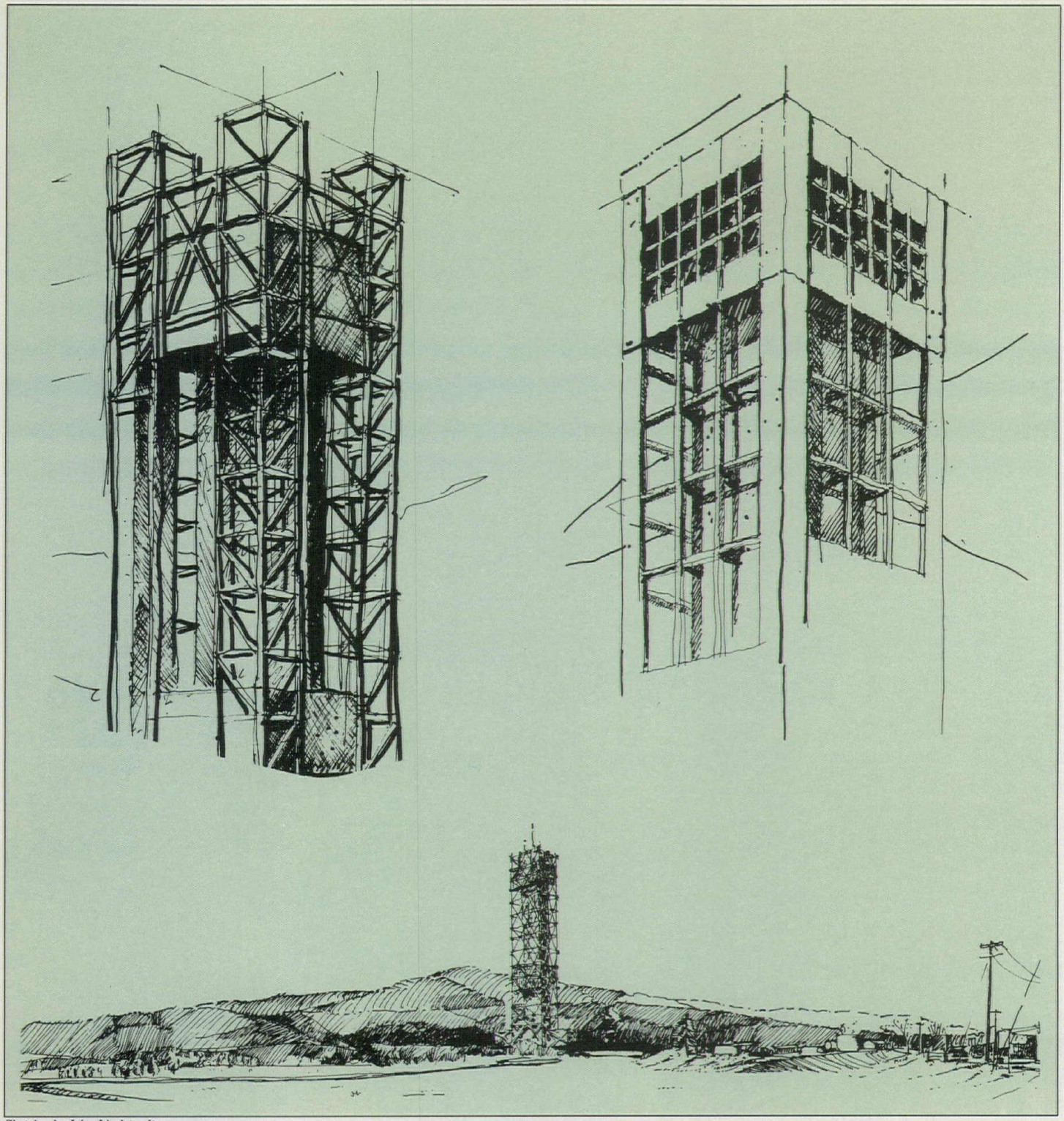

Via Pretorio
9
Bata
Bata



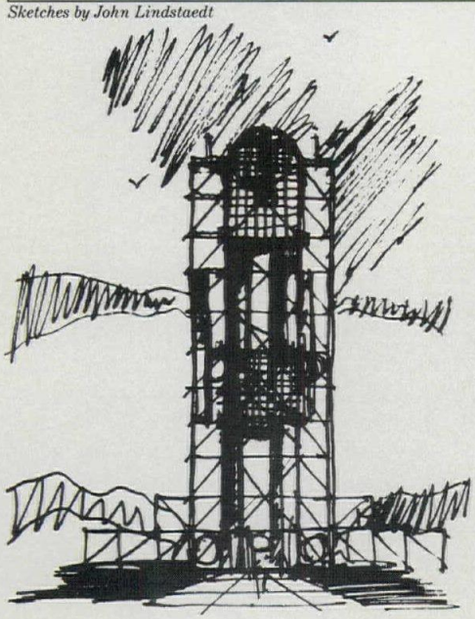
NORTH-SOUTH SECTION THROUGH INTERIOR COURTYARD

In the less publicly scrutinized realm of the interior courtyard (section drawing above and photo opposite), Botta loosened his reins of architectural composition: here, the clear tripartite division of the streetfront facades dissolves into two roughly indeterminate levels, and the detailing, though just as precise, is simpler. The trio of exposed exhaust pipes, which may be considered by some to be a disfigurement of an otherwise sleek and untouched surface, actually provides welcome visual relief from the incessant repetition and regularity of the window bays. Absent are the brickwork gymnastics of the public facades, although the lack here too of unsightly gaps and unintended asymmetries in the more simply arranged brick on top of reinforced concrete is an equally impressive feat.

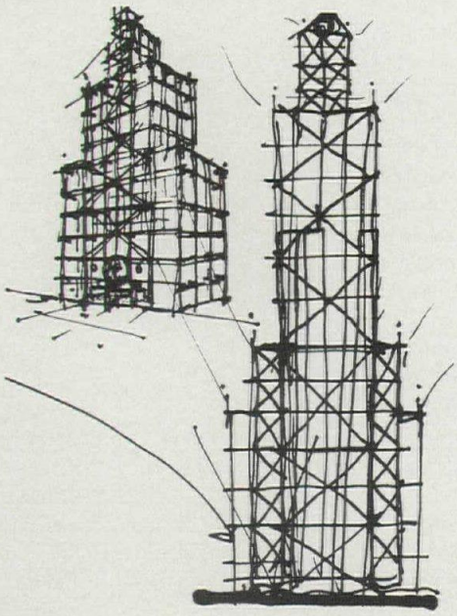
Ransila Office Building
Lugano, Switzerland
Owner:
Ransila, s.a.
Architect:
Mario Botta, Architect—
Mario Botta, principal-in-charge;
Ferruccio Robbiani, Maurizio Pelli,
Mischa Groh, project team



Sketches by John Lindstaedt



As evidenced by the sketches on this page, early concepts for the elevator test tower envisioned the building as an open structure. Set among the hills of Connecticut, the building would have recalled a fire tower (sketch immediately above), albeit a remarkably tall one with a slenderness ratio of 10:1, a proportion of height to width approximating that of the Washington Monument. Wind loads present the major engineering challenge for a slender structure, and, because of its dead weight, concrete can be the most economical means of resisting lateral loads (upper right). However, the clients came to want the flexibility offered by steel. Consequently, the designers began to investigate steel frame structures comprising an inner and an outer tube (left and above left). The last concept to emerge was for a simple trussed wall (right).



The evolution of an elevator tower

Otis Elevator is building a test tower in Bristol, Connecticut, designed by the Washington, D. C., office of Hellmuth, Obata & Kassabaum (HOK) in collaboration with the engineering firm, Spiegel and Zamecnik, Inc. The tower's purpose has been described by Otis as industrial research, and, of course, the research for which the tower is being constructed centers on elevatoring. Two other functions for the tower have emerged, however, over the past year of planning. Technicians will be trained to install and service elevators and escalators in the facility, and the test tower will be used as a marketing center for the client's products and services. Together these functions constitute a unique program. When the facility is completed later this year, it will be by far the tallest, most ambitious one of its kind in North America.

Consider the nature of this elevator test tower's program and its site. Among other things, Otis wanted to simulate the operating conditions for elevators in a high-rise office building. But, since it didn't need offices, Otis simply asked for an elevator core with 11 hoistways. Needless to say, when you peel away everything but the core, you're left with something very skinny and very tall (concept sketches left). You are also faced with a formidable structural challenge with regard to lateral stability. Otis wanted its facility to be capable of accommodating a wide range of experiments. Therefore, the test facility was to be designed around low-rise, mid-rise, and high-rise elevator hoistways, some capable of accommodating hydraulic lifts; some, traction-type lifts; and there was to be an area for testing escalators. Only one hoistway would have a permanently installed elevator. All other hoistways were to be highly adaptable, with nearly every floor able to serve as a machine room. For both experimental and training purposes, a portion of the ground floor and a mid-level floor are equipped for total environmental control. Earth and sand would be moved onto these floors to simulate the construction site conditions. The educational functions of the building necessitated a classroom; the marketing activities suggested a pleasant lobby and conference room. Lastly, the tower was to be sited in a rural landscape. What should its image be and how would it relate to the context?

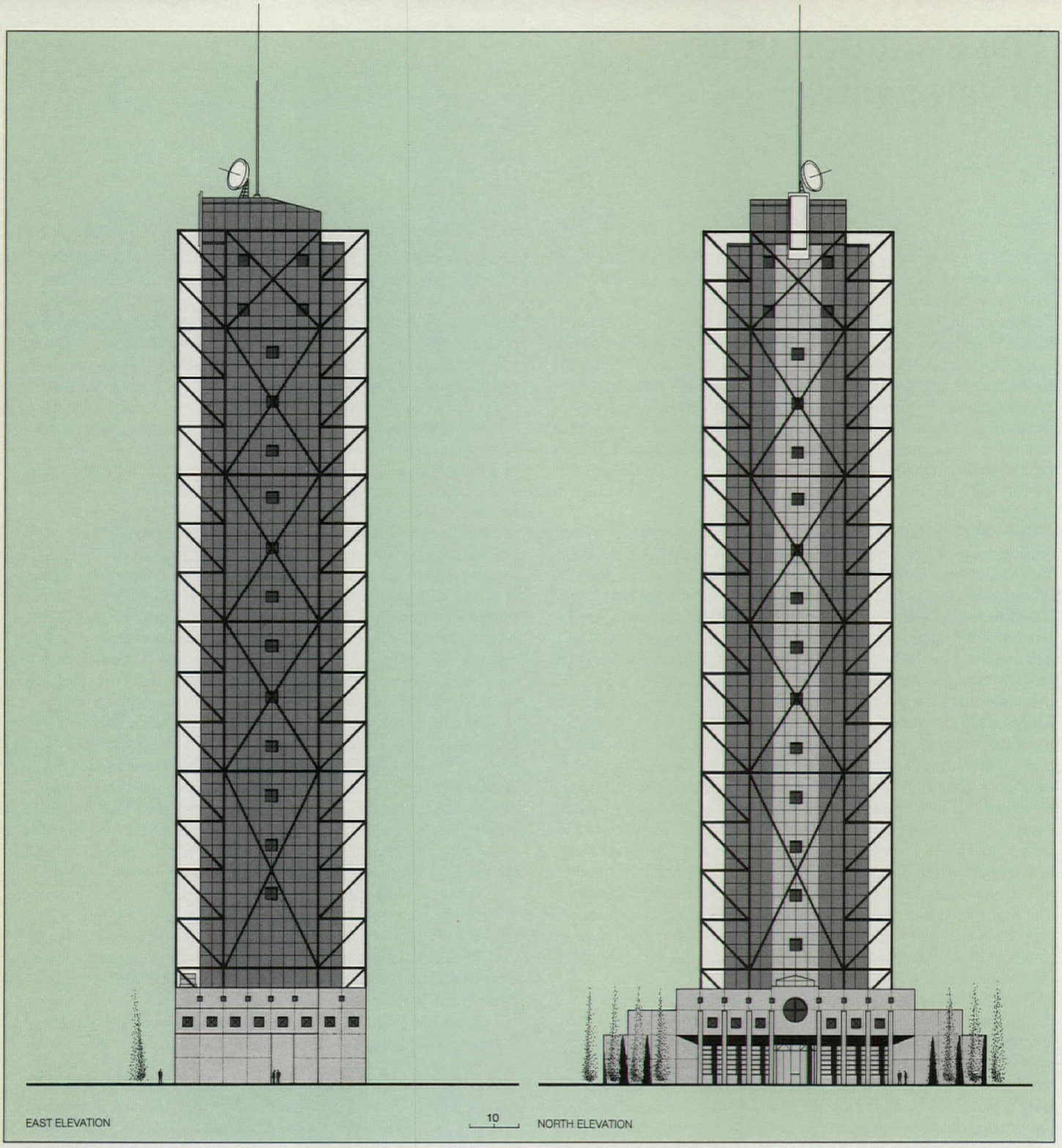
The client's program emerged in the process of an ever-evolving design. In the beginning, when things were the most simple, the architecture and engineering of the building were nearly one and the same. The structure of the building was its image, and the structure was by and large a response to lateral loads. Every building must resist lateral loads, which are, for the most part, wind loads. The more slender the building, the more difficult it is to resist horizontal forces while keeping the degree of sway (drift) and the speed with which it sways (acceleration) within acceptable limits. The ratio of height to width (termed aspect, or slenderness ratio) of the earliest schemes was 10.5:1, which is somewhat more slender than the Washington Monument, and therefore a very demanding structure. (The slenderness ratio for the final design, a 376-ft tower, is 7.1:1, still very slender, and by conventional definition, a super-tall structure.) Exacerbating the demands on the structure were the unconventionally high live loads (125 lb per sq ft compared to 50 in a typical office building); 30,000-lb machines used to move traction-type elevators account for the enormous live loads. These machines must be able to move anywhere in the building at any time. Adding to the live loads are three permanent bridge cranes in the tower: one 10-ton crane for the escalators, and two 5-ton cranes, one on the 12th floor, one on the 28th, used to move the steel and concrete lids that will cover hoistways not in use. (Due to the many movable parts and inherent flexibility, the project architect, Jodi Ernst, has likened the building to a three-dimensional puzzle that's all holes.) A design using well-measured and well-placed reinforced concrete would have been the simplest way to engineer the building. The client, however, discounted concrete in order to expedite the construction process and to ensure maximum flexibility in the arrangement of partitions. An all-steel structure was the only feasible alternative, which gave rise to the evolution of designs shown here.

The first generation of designs depended on a heavily braced tube-within-a-tube structural configuration (page 140). In this system, the inner network of structural steel (concealed by cladding) would handle the local loads of each floor, with the outer network of exposed steel responsible for the general stability of the tower. Lateral loads are taken by the diagonal bracing used in three-story modules. The crossing of the diagonals corresponds to the location of through-floors serving continuous hoistways. Architecturally, the three-story bracing gives a light and open look to the exposed structure. After the tube-within-a-tube scheme was presented, the client added classroom and conference space to the program, thus changing the classification of the building and ultimately precluding an exposed structure.

The change of building classification brought about by the expanded program meant that the building would have to be more fire-resistant. Making an adequately fire-resistant exposed structure would have been economically prohibitive. Therefore a second generation of design schemes emerged that relied on a continuous trussed wall system that could be efficiently clad and fireproofed (page 141). A three-story diagonal module was maintained in the structure, still corresponding to the through-floors. The system is a megastructure, with all but the corner columns serving only their designated floors. A horizontal truss is integrated into the floor framing where the tower steps back. Working as very stiff diaphragms, these trusses brace the building against wind loads while helping to support major mechanical floors. The architects envisioned a glass skin for the building that would reflect the surrounding landscape and sky, thus diminishing the tower's visual impact. Ultimately, the clients requested an industrial image for the building, which is realized in the final scheme (pages 142-143).

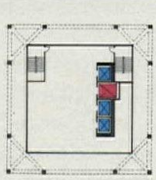
Clad in gray metal panels, the structure of the final scheme behaves in much the same way as the earlier trussed wall system. The difference in its configuration comes from a change in the rhythm of bays. When all unnecessary floor area was removed in the final scheme, symmetrical bays disappeared. Multifloor diagonal bracing running in a straight line became geometrically impossible. Therefore, for the sake of construction simplicity, the building was developed as a system of one-story trusses stacked into a megastructure. As evidenced by the section (page 143), through-floors are intermittent. The structurally independent low-rise buildings clustered at the base of the tower contain rooms that are fully heated and air-conditioned. The tower came to need a 21-ft-deep basement to accommodate mid-rise and high-rise elevator pits. Twenty-one feet beneath grade is below the water table, and since there could be no leakage in the basement, the basement was elevated 10 ft above grade and bermed with earth. This affected the foundation design. Originally a mat foundation was considered that would have helped balance the building's height. The raised basement positioned the mat on unstable soil, so the mat was replaced by a deep foundation of pressure-injected footings. Incidentally, beyond the 21-ft basement will be two 70-ft deep casings for mid-rise hydraulic elevator equipment. The equipment has not yet been invented, but when it is, the hole will be ready to receive it, and the superstructure above has been designed so that equipment for the casing can be moved and lifted into place with ease.

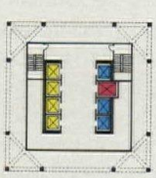
And it's all being done for the sake of smoother, faster elevator rides in the future. Herman Spiegel, chief engineer for the building, takes great delight in the mechanistic character of the project. As he's stated, "The building is like a heavy-duty machine for testing elevators. It's totally different from any building we've engineered in the past—and we've done a lot of industrial projects. This one is unique. In the final design, some of the excitement is gone from the earlier schemes, but the economy is in." And that is an accomplishment in which architect, engineer, and client can take pride. *Darl Rastorfer*

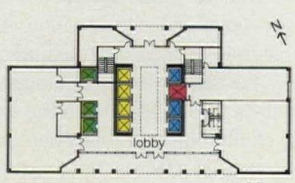


Early form: tube within a tube

Described by the architects and engineers as "looking a bit like an oil derrick," the first scheme to mature for the test tower depended on a tube-within-a-tube structural form. (Because the discontinuous floors lack diaphragm action, exterior framing was necessary.) The inner tube of the system handles only the local loads at each floor. The outer tube serves the overall stability of the tower. X-ing the outer tube as a wind-bracing device minimized the number of structural members. Furthermore, the cross-bracing contributes to the "light" look of the assemblage. These braces lace their way up the building at every third story, connecting there with the through floors (intermediate stories are continuous). Each corner of the outer tube is made up of three columns: one at the true building corner, the other two at the points of an isosceles triangle with the corner column as apex. Tied together with diagonals, these bundled corners are strong, efficient, and stiff, yet light in weight. While developing this scheme, the designers struggled to integrate some means by which the structural stiffness of the tower could, at will, be mechanically altered so that elevators could be tested under varying conditions of building acceleration and drift. Two fascinating techniques were explored. One called for adjustable bolts where the inner and outer tubes connected: by changing the torque in the bolt, the building would become more or less stiff. A second technique considered a hydraulic device like those used as shock absorbers in automobiles: a change in pressure or density of fluid would result in the desired structural behavior. Ultimately, Otis will develop a mechanism to place over hoistways that will simulate building motion.

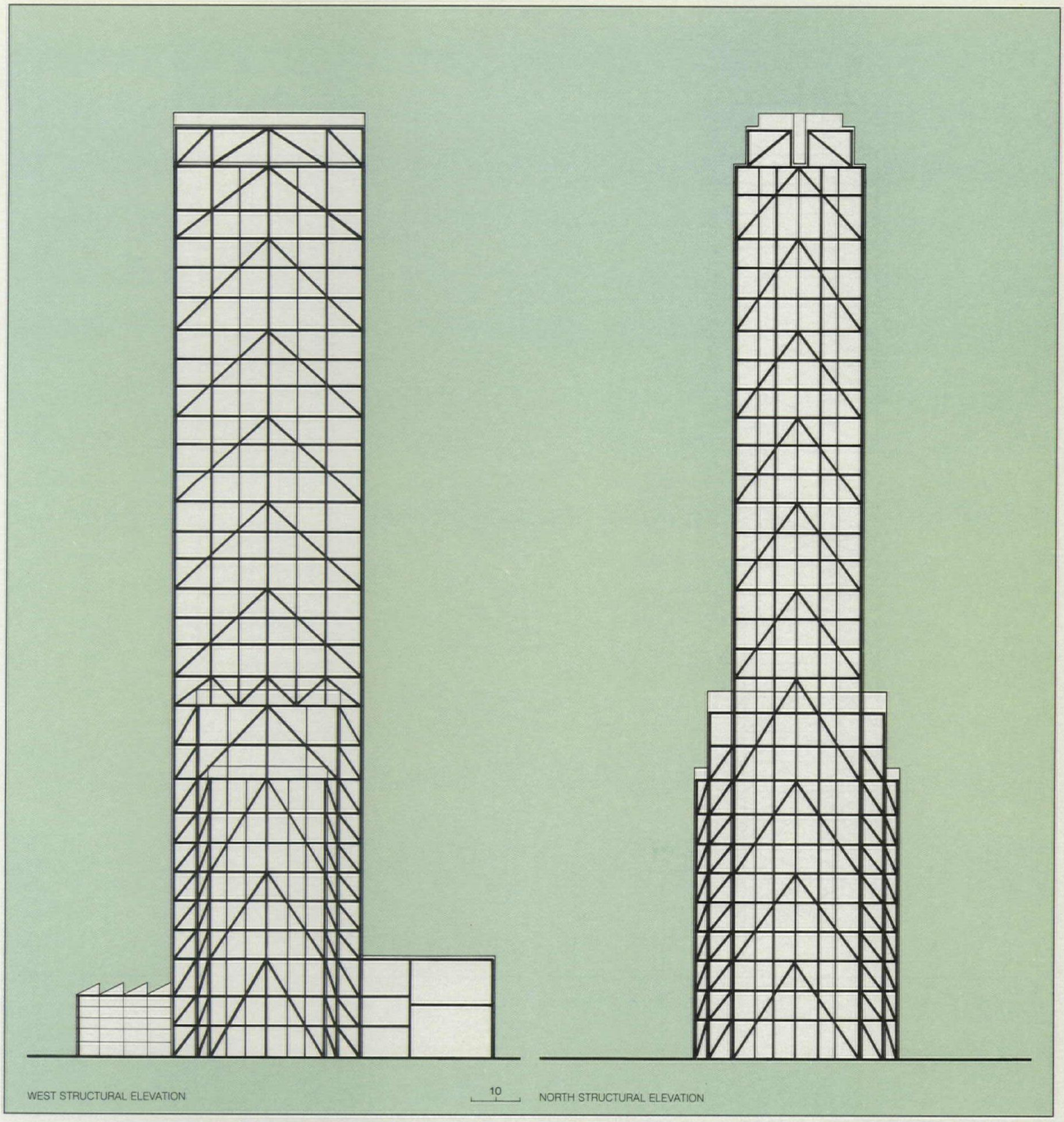

HIGH-RISE LEVEL 26


MID-RISE LEVEL 10



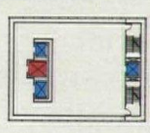
GROUND LEVEL 20

SERVICE ELEVATOR
HIGH-RISE HOISTWAY
MID-RISE HOISTWAY
LOW-RISE HOISTWAY

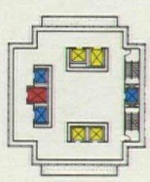


First metamorphosis: trussed wall megastructure

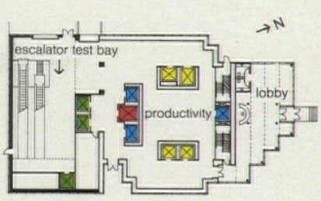
The tower's design underwent a significant change when the client enhanced the program by adding conference and marketing functions. With this, the classification of the building changed from a laboratory to a business use; therefore, the demands for fire resistance increased. A totally exposed structure became economically unfeasible to fireproof. The structure was to be clad. With cladding, the role of the structure was reduced from being the primary visual force to a concealed armature. However, elegance of structural form was not to be compromised. A steel, trussed wall system comprising a megastructure was developed (elevations above). In this system, every floor is self-sufficient if one takes the diagonals away. However, the general stability of the tower depends on the diagonal braces—these are the members that pick up individual floor loads as well as offer resistance to lateral loads from the wind. The floor loads carried by the diagonals are taken to the corner columns, then conveyed to the ground. (Concentrating weight at the outer corners increases the effective stance of the building against overturning, a formidable problem since the building is nearly all holes and, therefore, relatively lightweight.) As with the earlier scheme, the diagonal bracing module is three stories high, with the base and apex of the triangle corresponding to the full through-floors; the intermediate floors are connected in section. Simplicity was achieved by exact repetition of bay dimensions. A clean rhythm meant that the vocabulary of structural shapes and connections would be limited, and that diagonals would run in a straight line—an esthetic as well as economic achievement.



HIGH-RISE LEVEL 26

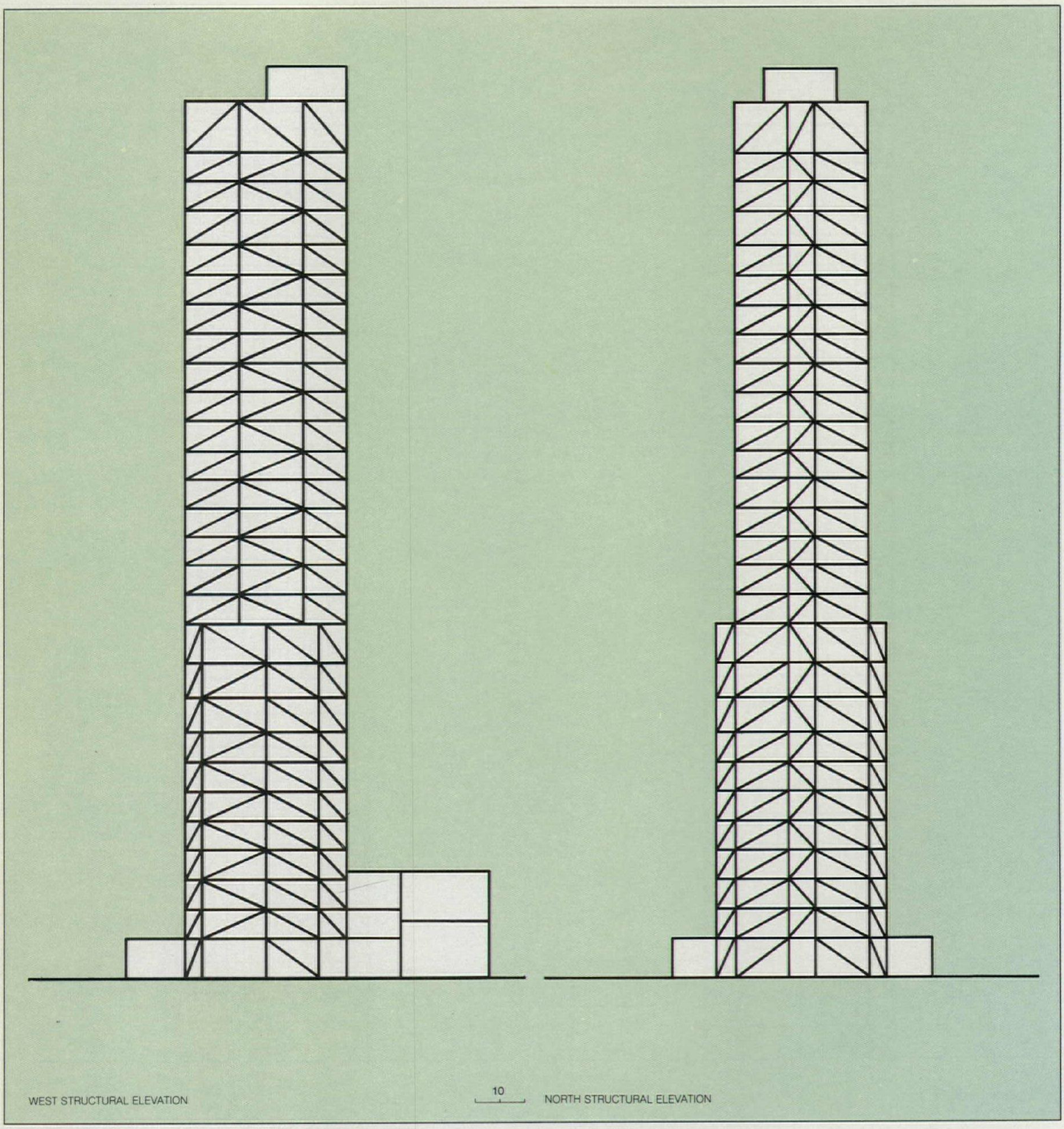


MID-RISE LEVEL 10



GROUND LEVEL

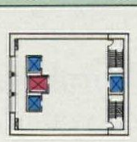
20

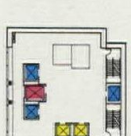


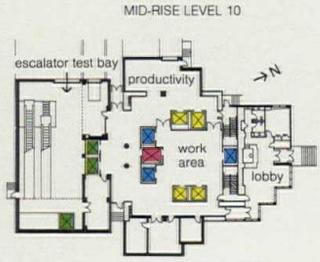
Final form: stacked, single-story trussed wall

The elevator test tower that will be built (above and facing page) grew directly out of the earlier trussed-wall scheme. At a glance, the two systems may look quite different. In fact, the behavior and efficiency of the two configurations are very close. Like the earlier scheme, the final structure is a megastructure that encompasses both a local and a general system: each inner column only serves its floor, while the diagonals and corner columns serve both their floors and the overall tower. (One could look at the entire building as a single truss comprising one-story trusses.) The evolution of the final form was driven by a desire on the part of the client to squeeze all unnecessary floor area out of the plan. With the reduction in floor area came the loss of equally spaced bays, giving rise to a single-story diagonal bracing pattern (sections above). At the mechanical floors—the 12th and top floors—a horizontal truss is introduced. (A similar device was incorporated in the earlier trussed wall schemes.) Acting like very stiff diaphragms, the horizontal trusses transfer lateral loads to the outer plane of the trussed wall, where they are distributed and conveyed to the ground through pressure-injected footings.

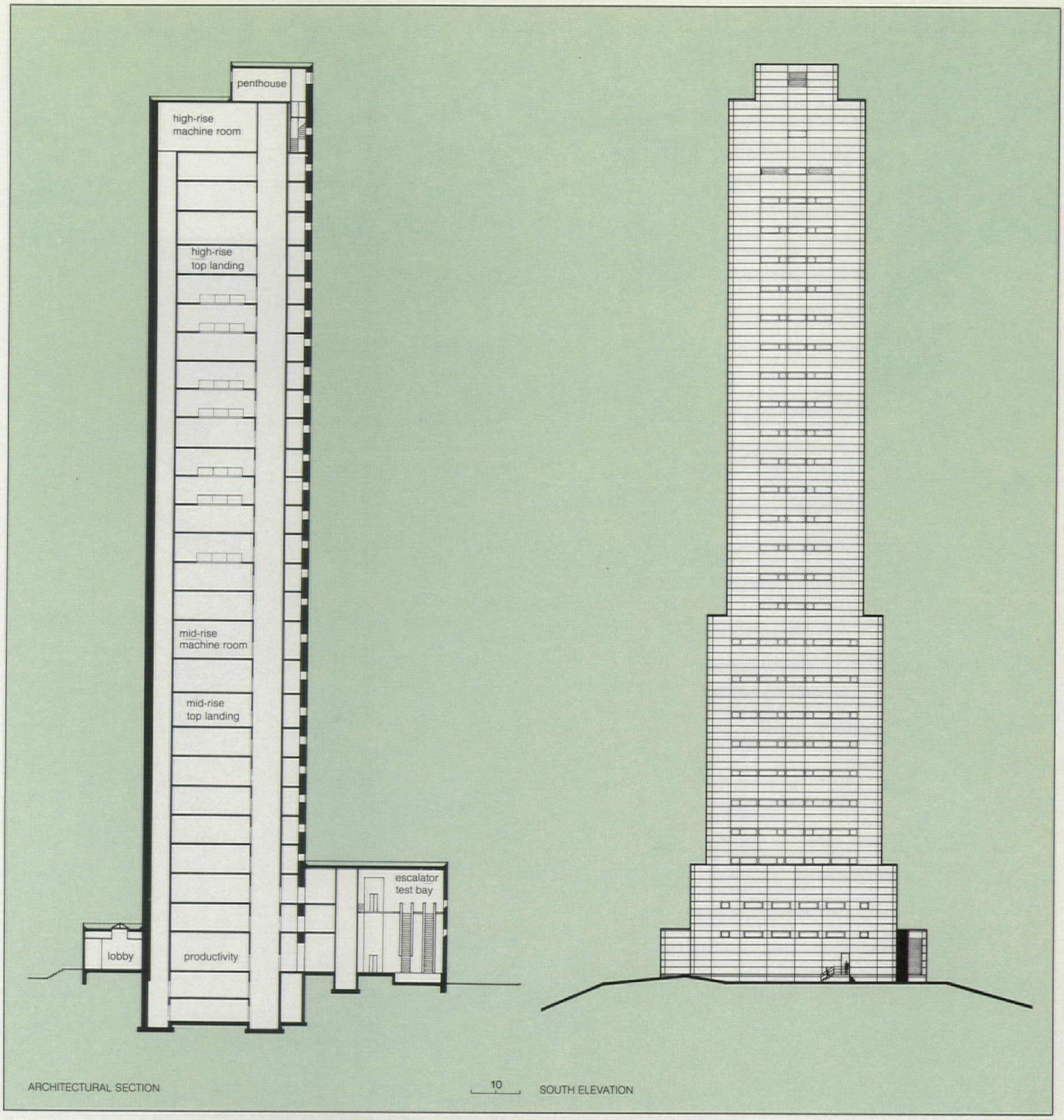
Summing up the design process and the final structural form that resulted from it, Satish Shah, one of the tower's structural engineers, stated: "It's a unique structure, and that's what's so exciting about it. If it were a conventional office building, I would question all the diagonals. But since it's a one-of-a-kind, skinny tower, this simple form with its many diagonals is appropriate. The process of development, and the reasons behind the changes, made working on this project exciting."

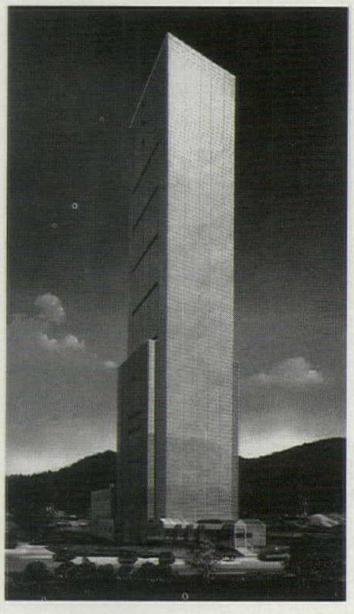

HIGH-RISE LEVEL 26


MID-RISE LEVEL 10



GROUND LEVEL 20



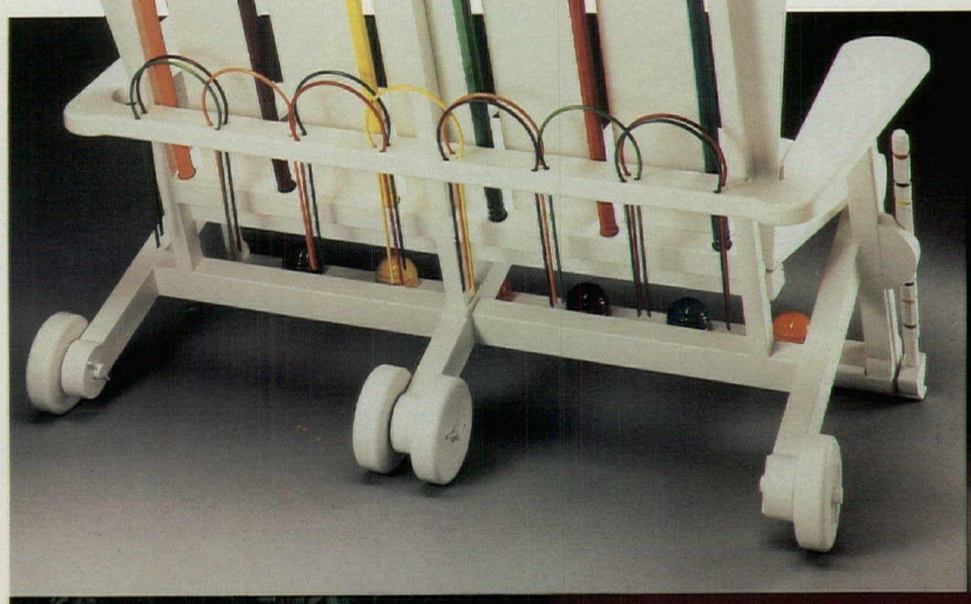


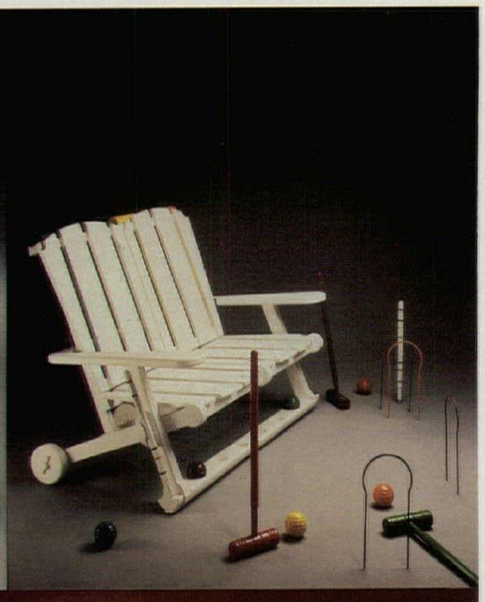
Otis Elevator Research & Marketing Facility
Bristol, Connecticut
Owner:
Otis Elevator Company
Architects:
HOK (Washington, D. C.)—Larry Sauer, director of design; Robert Barr, project manager; John Lindstaedt, project designer; Jodi Ernst, project architect
Engineers:
Spiegel and Zamecnik Inc.—Herman D. J. Spiegel, principal-in-charge; Satish Shah, project manager; Jim Whynot, Lou Minuit, Vladimir Tusman (structural); HOK (New York) (mechanical/electrical/plumbing)
Construction manager:
Lehrer/McGovern

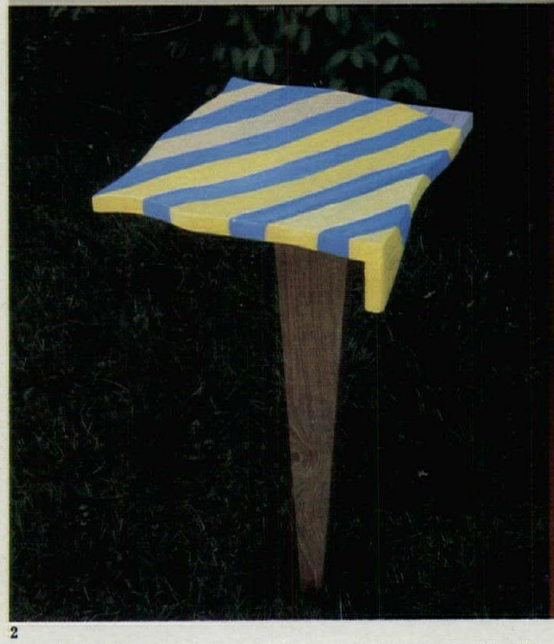
New products

For more information, circle item numbers on Reader Service Card

1







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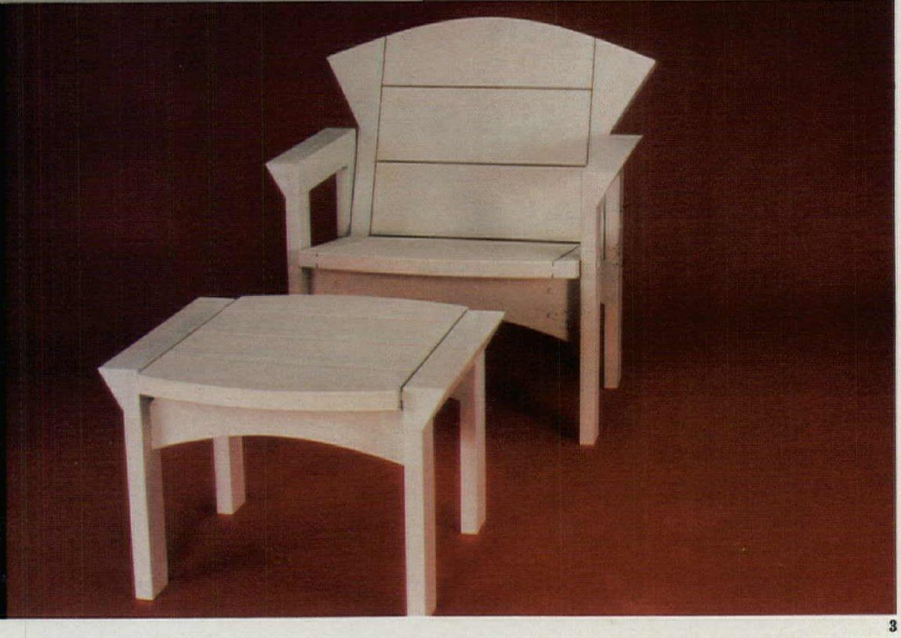

3

Fanciful furniture

Last winter when Vanessa Lynn, director of the Gallery at Workbench in New York City, was deciding what the summer exhibit should include, she knew she wanted something whimsical—something artists and clients could both have fun with. The challenge she subsequently set before some 25 furniture artists was to create leisure furniture for either indoor or outdoor applications that was playful, light, and fanciful. Nineteen artists responded with such pieces as brightly colored astroturf throw rugs, a bamboo bug lamp with a portable spider-like design, and a lounge chair shaped like a wheelbarrow. The *Made For The Shade* exhibit—showing from May 29 to July 20—fulfills the fanciful prerequisite but does so without compromising either quality or functionality. Jay Stanger's "Garden Party," a two-seat bench (top photos), is made of pine, maple, and aluminum, and comes with a complete croquet set, including multicolored mallets, wickets, and balls. The "Napkin Table" (bottom left), designed by Ron Curtis, features a painted redwood top, available in several patterns, and a tapered teak leg that can easily be staked into a lawn to accommodate strolling guests. A somewhat more conventional piece, designed by James Schriber, is a descendant of the traditional Adirondack chair and ottoman (bottom right) and is made of Honduras mahogany and finished with milk paint. *Made For The Shade* is one of five yearly thematic exhibits, each running approximately six weeks and featuring 30 pieces of functional furniture. In 1984, the Gallery dropped the wholly subsidized, philanthropic status it had maintained for its first four seasons and began to establish itself as a resource center of sorts for architects, designers, and collectors looking for furniture makers. Currently, the Gallery operates a slide-reference library featuring more than 100 artists that its staff uses to match potential clients' needs with appropriate furniture designers. According to Lynn, the response from the artists and specifiers has been positive. She sees the Gallery as a vehicle through which the artists can express their true esthetic selves while alleviating some of the inherent concern that accompanies trying to sell a completed piece. In this capacity, the Gallery, artist, and architect seem to be made for each other. The Gallery at Workbench, New York City. *Eileen Gabriele Circle 300 on reader service card*

1. Jay Stanger, *"Garden Party" 45-in. by 42-in. by 70-in.*
2. Ron Curtis, *"Napkin Table" 11-in. by 11-in. by 24-in.*
3. James Schriber, *garden chair and ottoman. Chair: 24-in. by 22-in. by 32-in. Ottoman: 22-in. by 22-in. by 16-in.*

The Pilkington Wall

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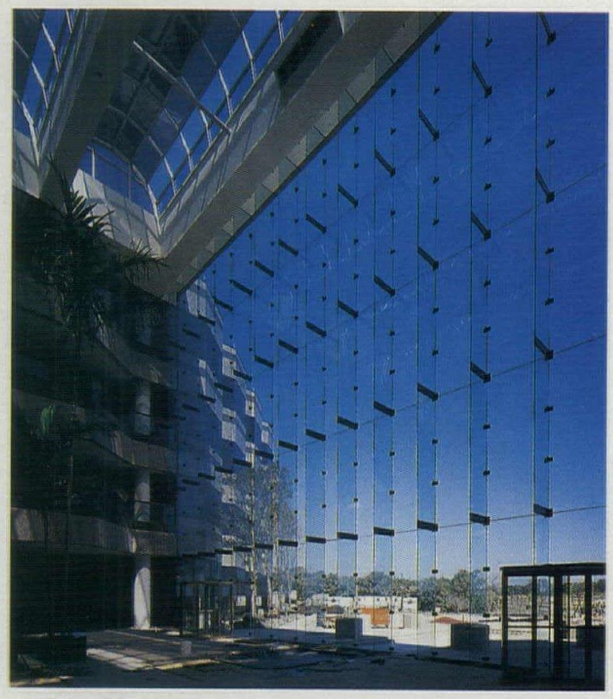

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(914) 636 4900

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Glassalum Engineering Corp.
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(513) 874 7733

Harmon Contract Glazing Inc.,
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Minneapolis, Minnesota 55414
(612) 623 1997

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The Easy Flow revolving door is just that. Easy on people. With power-assist or full automation, it can adjust to any traffic situation. And a handicapped switch may be used to slow the rotation for those who desire a more cautious passage.

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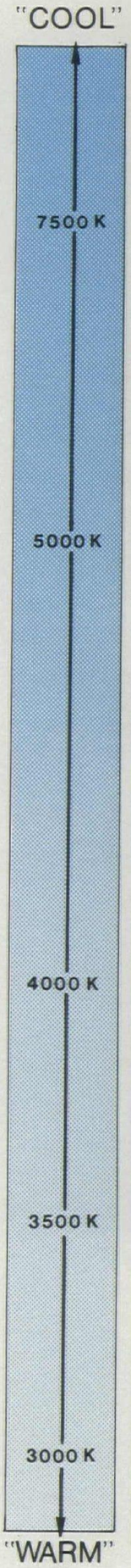
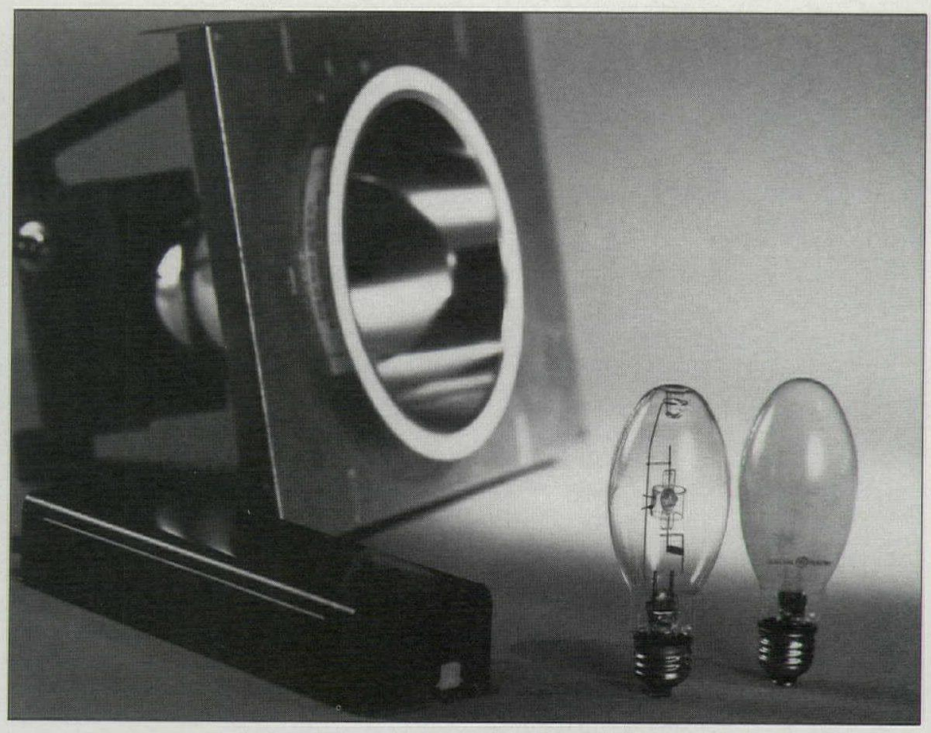
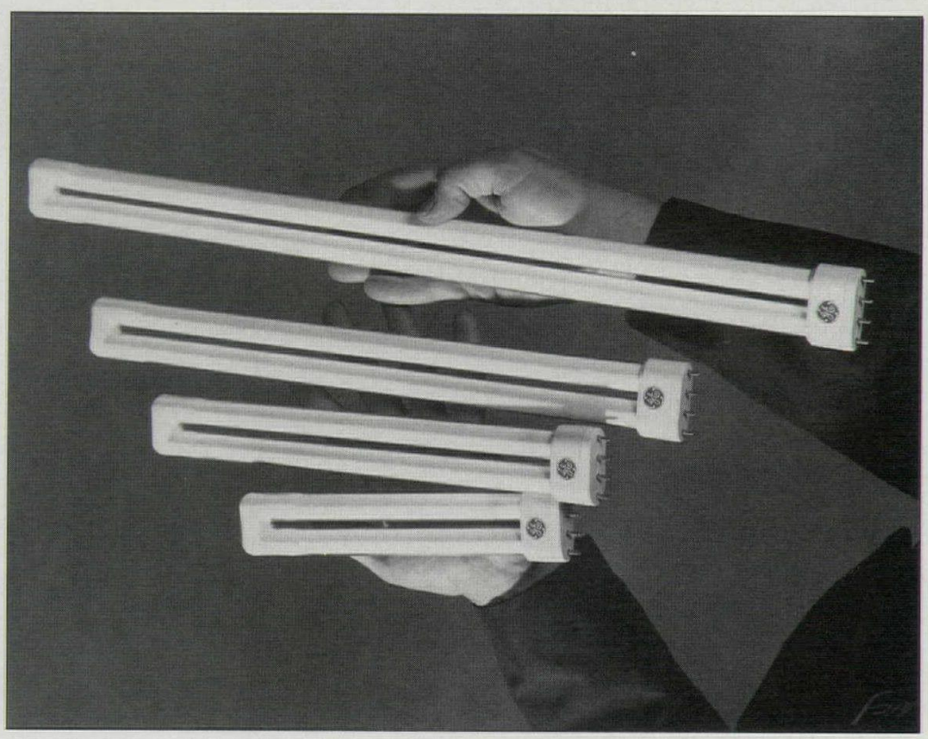
For more information on our Easy Flow Series revolving door, call toll-free 1-800-531-3111. In Texas, call 512/888-5591. Or write for a complete brochure and specifications to Horton Automatics, 4242 Baldwin Blvd., Corpus Christi, Texas 78405. Also, look for our catalog in the Sweet's General Building File, Sec. 8.1a/Hor. **Circle 65 on inquiry card**

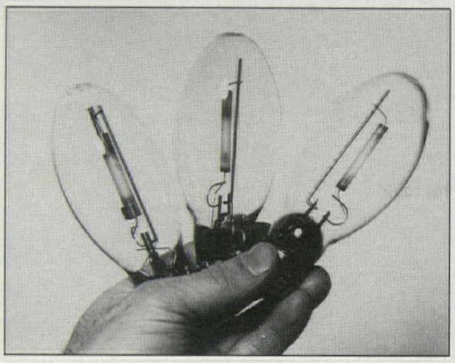
Horton Automatics

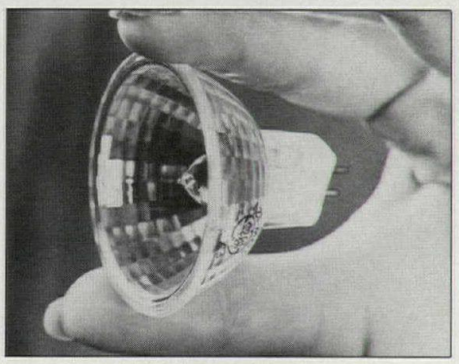
Enlightened choices
The compactness, improved color rendition, and increased fixture-design flexibility that architects, interior designers, and other lighting specifiers have been requesting for years are said to be successfully integrated in the new *Biax* (middle) and *Halarc* (top) lamps. Introduced by General Electric at Lighting World IV, these high-lumen compact light sources represent an alternative to standard fluorescent lamps and are designed for new construction and renovation applications. According to the manufacturer, in the past compactness was achieved at the sacrifice of lumens per watt—a measure of visual efficiency—and the quality of color. However, this trade-off has now been eliminated by the 17-in.-long, 39-watt *Biax* lamp that is said to emit lumens comparable to that of a 4-ft-long fluorescent tube. Prompted by increased attention to the economical and psychological benefits that good color rendition can offer, the *Biax* lamp features a tri-phosphor coating to redirect the infrared rays back into the source, and an electromagnetic ballast. Additionally, the lamp will be available in three color temperatures ranging from a warm 3000 deg Kelvin to a cooler 4100 deg Kelvin. The compact size is said to ease the relocation and maintenance of the lamps, and provide better optical control. The 32-watt metal-halide *Halarc* lamp features an electronic ballast that can be mounted into typical downlighting fixtures without conversion adapters. The lamp is said to be especially effective in controlling the number of spilled lumens and therefore provides improved lighting control. Similarly, the compact, low-voltage *Precise* (bottom right) and *Watt-Miser Quartzline* (bottom left) lamps provide highly focused beams of light particularly well-suited for display-lighting applications. General Electric Lighting Business Group, Cleveland, Ohio. *E. G.*
Circle 301 on reader service card











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International Airport Terminal Building, San Antonio, Texas; Architects: Heery/Marmon Mok/Simpson

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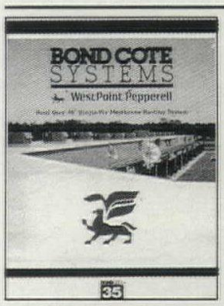
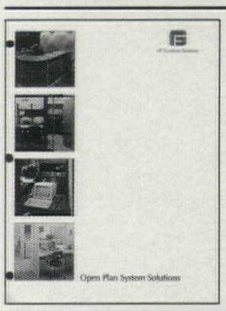
Product literature

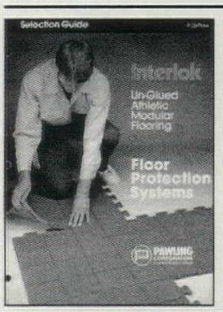
For more information, circle item numbers on Reader Service Card



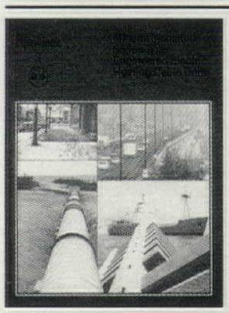
Roofing system
The manufacturer's *Bond Grey 35* single-ply membrane roofing system is featured in an 8-page color brochure. Topics reviewed in the brochure include quality control in manufacturing, physical properties, installation information, accessories, insulation, and delivery. Bond Cote Systems/WestPoint Pepperell, West Point, Ga.
Circle 400 on reader service card



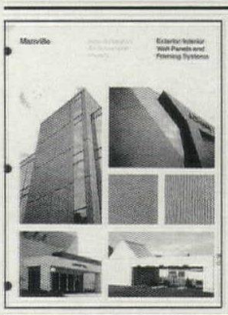
Furniture system
A 34-page color brochure entitled *Open Plan System Solutions* describes the manufacturer's office furniture arrangements. The system's benefits and features are reviewed with respect to clerical, managerial, professional, and electronic applications.
GF Furniture Systems, Inc., Youngstown, Ohio.
Circle 401 on reader service card



Rubber flooring
An 8-page color selection guide features the *Interlok* unglued modular rubber flooring system for athletic applications. The booklet contains detailed product descriptions, dimensional information, and diagrams of possible configurations. Pawling Corp., Pawling, N. Y.
Circle 402 on reader service card



Heating cable units
Mineral-insulated electric heating cable units are reviewed in a 34-page booklet. Design requirement information, product features, dimensional installation diagrams, and heat rating charts are included. Pyrotenax USA, Inc., East Syracuse, N. Y.
Circle 403 on reader service card



Wall panels
The manufacturer's line of panels designed for fascias, soffits, spandrels, and dry-built walls for commercial, residential, and industrial buildings is featured in a 24-page color brochure. The literature describes textures, colors, sizes, and application techniques. Manville, Denver.
Circle 404 on reader service card

Metal roofing system
A 4-page color booklet highlights the manufacturer's metal roofing system. The literature contains detailed dimensional diagrams of several applications, including roof peaks, pipe vents, sidewall details, and hip and eave intersections. Code approvals and architectural specifications are also reviewed. Met-Tile, Inc., Ontario, Calif.
Circle 405 on reader service card

Ceiling system
The *Acousti-Tough* ceiling system, designed for use in schools, gymnasiums, and health clubs, is featured in a 4-page color brochure. The literature includes descriptions of the system's features, limitations, code acceptability, and warranty. Diagrams and general specifications are also included. Tectum, Inc., Newark, Ohio.
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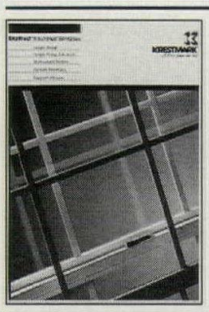

Windows
A 4-page color brochure reviews the manufacturer's line of *StarKrest* insulated windows. The literature covers single-hung, single-hung tilt sash, horizontal sliders, and picture windows, and custom designs. Dimensional specifications are also included. Krestmark Industries, Inc., Lewisville, Tex.
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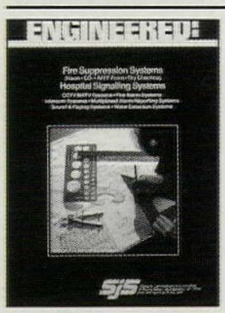
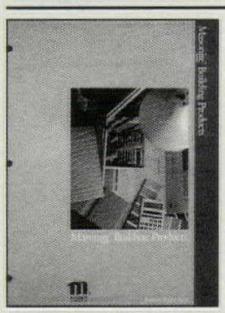
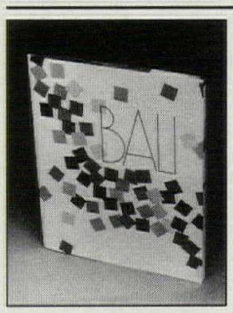


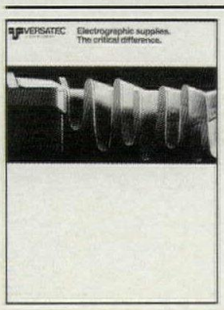
Communications services
A 4-page brochure, directed to electrical contractors, describes the manufacturer's facilities and experience in the design and implementation of engineered fire-suppression, hospital signaling, intercom, and water detection systems. Signal & Communications Corp., West Babylon, N. Y.
Circle 408 on reader service card



Building products
A 28-page color brochure features the manufacturer's line of lap and panel siding, roofing shingles, and siding products. Included is information on dimensions, surface characteristics, finishes, and installation. Masonite Corp., Chicago.
Circle 409 on reader service card



Window blinds
The manufacturer's line of window blinds is highlighted in an 8-page color brochure. Featured in the literature are micro, mini, vertical, pleated, and duplex blinds, along with photos of special applications including custom-shaped windows and skylights. Marathon Carey-McFall, Co., Montgomery, Pa.
Circle 410 on reader service card



Electrographic supplies
A 4-page booklet describes the processes involved in developing electrostatic plotting equipment and supplies and the differences that these procedures can have on the quality of output. The manufacturer's research and production facilities are featured as well in the literature. Versatec, Div. of Xerox, Santa Clara, Calif.
Circle 411 on reader service card

Our Beauty Is More Than Skin Deep.

Above: Cypress Commons Tampa, Florida
Architect: The Design Arts Group
Developers: The Vantage Companies

Top Photo: Farm Credit Bank Austin, Texas
Architect: H.K.S. Architects

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Genesis™ porcelain tile is available in beautiful monochromatic and granite-like colors. Genesis is offered in unpolished, polished and textured surfaces in a wide array of sizes. Genesis can be used in interior and exterior floor and walls.

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Product literature *continued*

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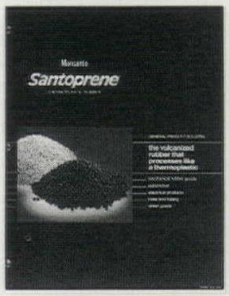
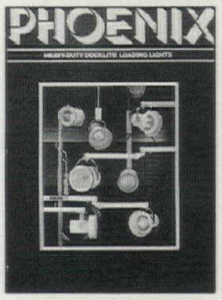
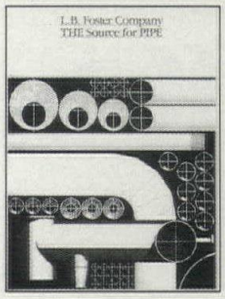


Thermoplastic rubber
A 24-page brochure features performance characteristics and end-use applications of the manufacturer's *Santoprene* thermoplastic rubber products. Detailed tables and charts highlighting weatherability, heat aging, and fluid resistance are also included. Monsanto Chemical Co., St. Louis.
Circle 412 on reader service card

Commercial window systems
The manufacturer's custom-engineered commercial window systems designed for replacement, new construction, and renovation applications are described in an 8-page color brochure. Cross-sectional diagrams and illustrations of the system in place are also included. Republic Aluminum, Chicago.
Circle 413 on reader service card

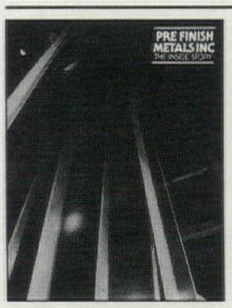


Loading-dock lights
A 16-page color catalog features the manufacturer's line of loading-dock lights. The catalog describes high-pressure sodium and incandescent single- and double-arm fixtures as well as pull-down, explosion-proof, and portable models. Phoenix Products Co., Inc., Milwaukee, Wis.
Circle 414 on reader service card

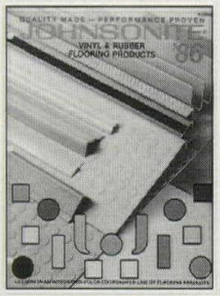


Stock pipes
Stock pipes, pipe coatings and linings, water-well products, sprinkler pipe systems, and tubing for the oil and gas industries are all reviewed in an 8-page brochure. The information includes individual product descriptions, dimensional data, and photos of the pipes in place. L. B. Foster Co., Pittsburgh.
Circle 415 on reader service card

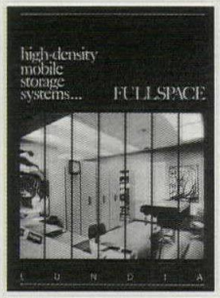
Revolving door system
A 4-page color booklet features the manufacturer's revolving door system. Photographs and drawings of the door, entrance framing, balanced-door side entrances, side lights, and glass framing are included. Also described are the system's automatic power closer and other options. Kawneer Co., Inc., Norcross, Ga.
Circle 416 on reader service card



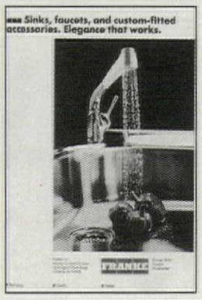
Coil coating
A 16-page brochure compares the quality, economy, and ecology of coil coating to other post-fabrication coating methods. Also included in the literature are sections on the manufacturer's composites and laminates and a review of the production of corrosion-resistant electroplated sheet-steel. Pre Finish Metals, Inc., Elk Grove Village, Ill.
Circle 417 on reader service card



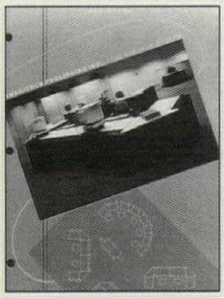
Flooring products
A 12-page color catalog features the manufacturer's line of vinyl and rubber flooring products. The catalog includes detailed information on stair treads, floor tiles, stringers and risers, carpet edge guards, adapters and reducers, and corner bumper guards. The Johnson Rubber Co., Middlefield, Ohio.
Circle 418 on reader service card



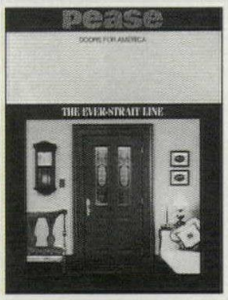
Storage systems
The manufacturer's line of mobile, high-density storage systems is featured in a 16-page color catalog. The literature reviews several aspects of light-, medium-, and heavy-duty mobile shelving and lists different criteria for selection. Lundia, Jacksonville, Ill.
Circle 419 on reader service card



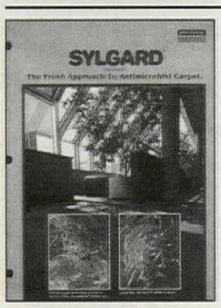
Faucets
A 12-page color catalog features the manufacturer's high-end sink, faucet, and custom accessory lines. The *Prestige, Compact, Classic,* and *Rotondo* sink lines are highlighted, along with descriptions of optional custom-fitted, color-coordinated accessories. Franke, Inc., Hatfield, Pa.
Circle 420 on reader service card



Office furniture
A review of office-design problems and the manufacturer's suggested solutions are contained in a color brochure. Photographs and floor plans of recommended workstation designs and descriptions of an integral track, articulating keyboard arm, and wire trough components are included. Allsteel, Inc., Aurora, Ill.
Circle 421 on reader service card



Patio and entrance doors
A 22-page color brochure features the manufacturer's line of patio and entrance doors. Included in the literature are descriptions of product features, dimensional information, photographs of the doors in place, illustrations of door components, and available options. Pease Industries, Inc., Fairfield, Ohio.
Circle 422 on reader service card



Carpet
The manufacturer's *Sylgard* antimicrobial carpet is featured in an 8-page color brochure. The carpet's ability to control the growth of microorganisms is reviewed, along with its safety and durability characteristics. General specifications and testing procedures are also included. Dow Corning Corp., Midland, Mich.
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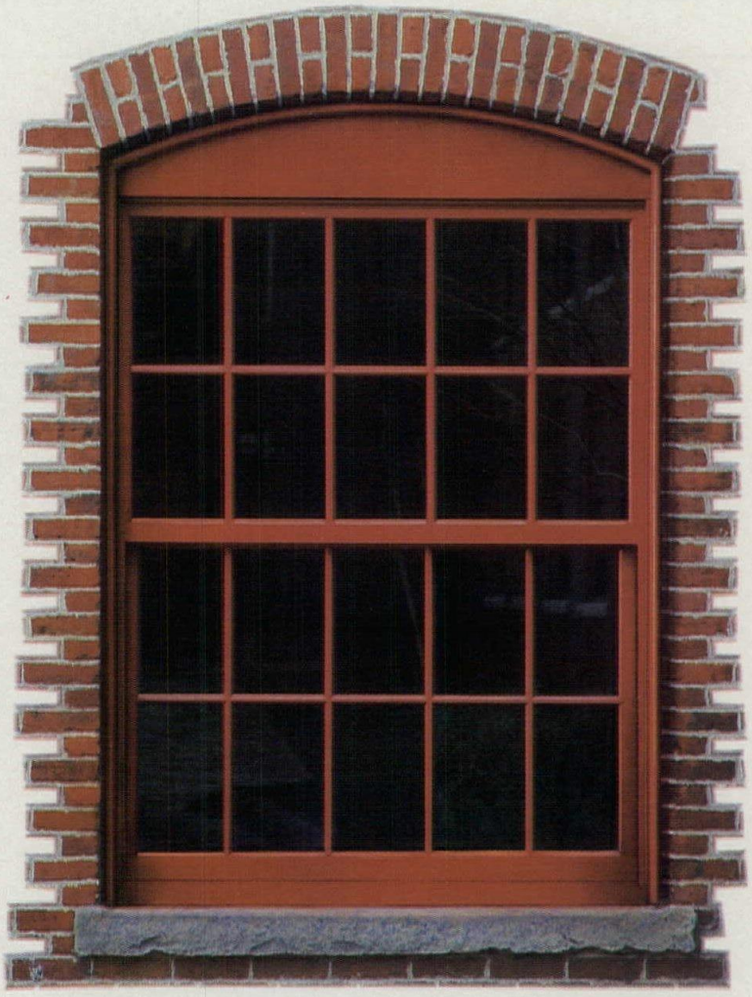

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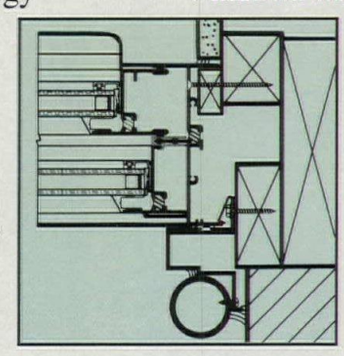

Window replacement jamb detail at Cypress Center (former Mighty Mac Coat Factory), Manchester, NH.

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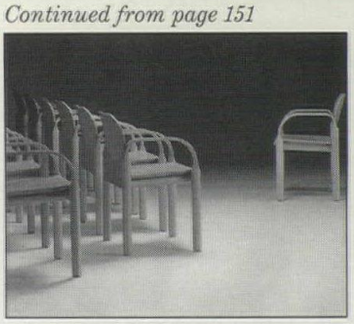
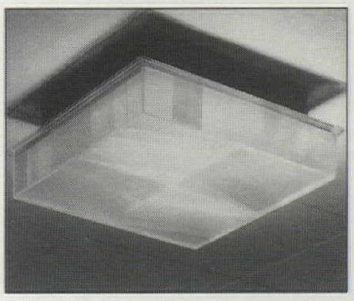
Continued from page 151

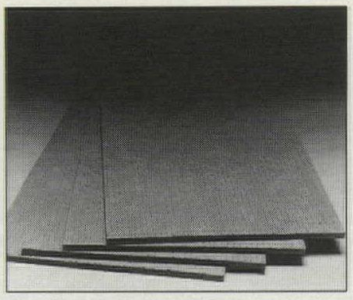


Side chair
The manufacturer's *Fyn* chair features a bentwood beech frame and measures 22-in.-wide by 22-in.-deep. The chair is available with beech or walnut-face veneer seats, backs, and arms. Other seat options include wood, cane, or upholstery. Metropolitan Furniture Corp., South San Francisco.
Circle 302 on reader service card

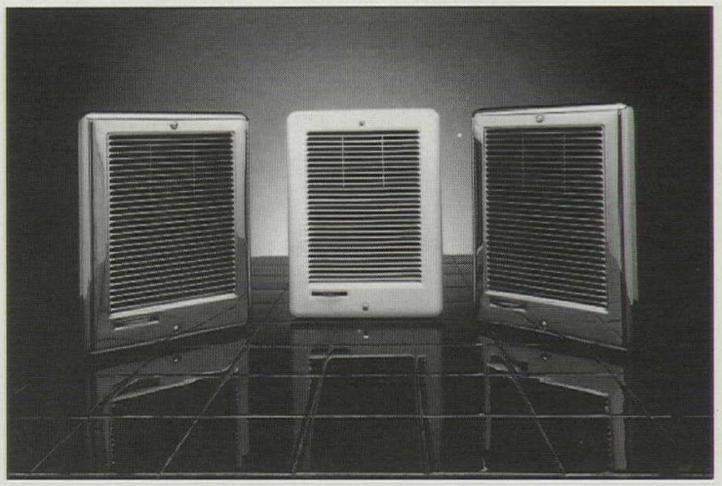
Drafting table
A series of drafting tables features a full-power tilt that can be activated by an optional hand control and can shift the table from a horizontal position to an almost vertical one. The units are available with a vinyl surface supported by a steel sheet over tempered hardboard. Hamilton Industries, Two Rivers, Wis.
Circle 303 on reader service card



Emergency light
The *CBSQ* series of fluorescent fixtures and emergency lights features 100 percent solid-state electronics and provides illumination of up to 90 minutes upon the interruption of normal AC power. The units are available for surface, semiflush, or fully recessed mounting. Elan Emergency Lighting, San Jose, Calif.
Circle 304 on reader service card

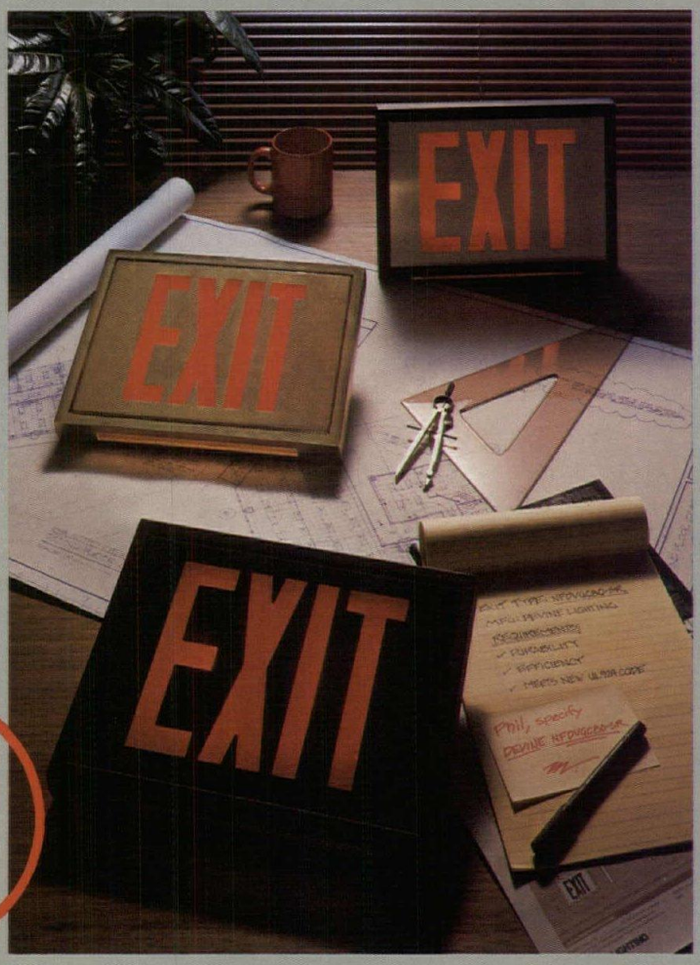


Insulation board
The *Fireshield* rigid roof-insulation board is composed of particles of expanded perlite, cellulose binders, and a sizing agent said to provide increased fire resistance. *Fireshield* also features a patented perforation pattern that allows melted bitumen to flow inside and form a bond. International Permalite, Inc., Ontario, Calif.
Circle 305 on reader service card



Heater
The *Com-Pak Bath* wall- or ceiling-mounted heater features one-piece construction with a low-profile grill and rounded corners. The 9- by 12-in. grill is available in pristine white porcelain, bright chrome, or polished brass finishes. The heater may be controlled by a remote thermostat, a timer switch, or an optional built-in thermostat. Cadet Manufacturing, Co., Vancouver, Wash.
Circle 306 on reader service card
Continued on page 159

Now, the first exit to meet new UL requirements.



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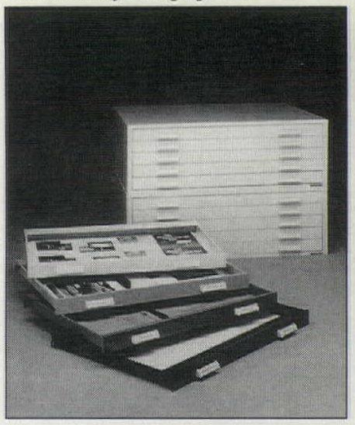
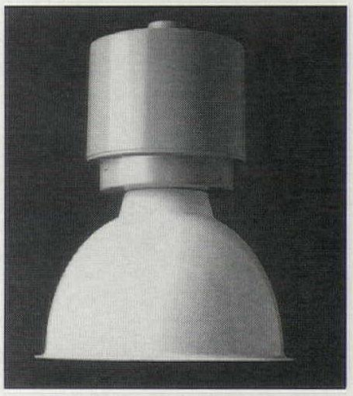
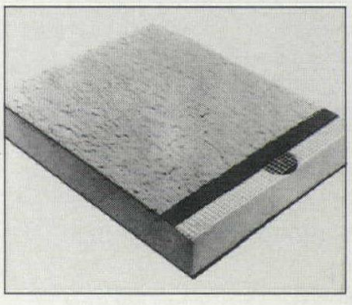
Continued from page 157



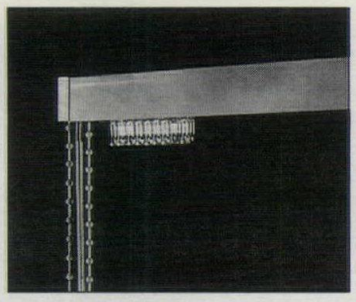
Flat files
The manufacturer's *Super C* flat file features heavy-duty steel construction and five 2-in. drawers with an integral cap to seal out dust. Each drawer is equipped with a sheet depressor and a rear drawer hood to prevent materials from slipping out the back. The cabinets are available in three sizes and four standard colors. Plan Hold Corp., Irvine, Calif.
Circle 307 on reader service card



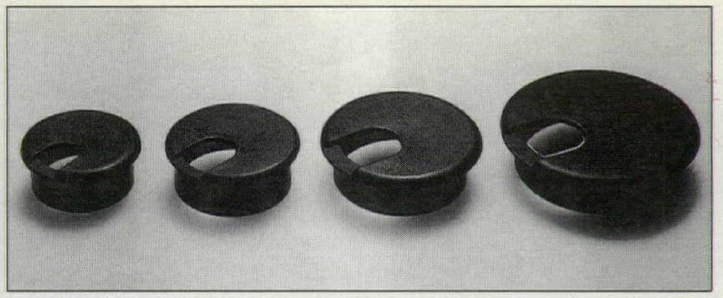
HID fixture
The *Low-Liter* HID fixture is constructed of die-cast aluminum and is fully gasketed for damp locations. The fixture is designed for low-bay commercial and industrial applications in walkways, aisles, and utility rooms since it is less than 13 in. high and allows for four mounting positions. Benjamin, Div. of Thomas Industries, Inc., Sparta, Tenn.
Circle 308 on reader service card



Wall insulation
An exterior wall insulation and coating system includes expanded polystyrene insulation board, fiberglass mesh, adhesive-base material, seamless coating, and an optional mechanical fastening system for high wind loads. Finishes are available in a variety of colors and textures. Pleko Products, Inc., Tacoma, Wash.
Circle 309 on reader service card



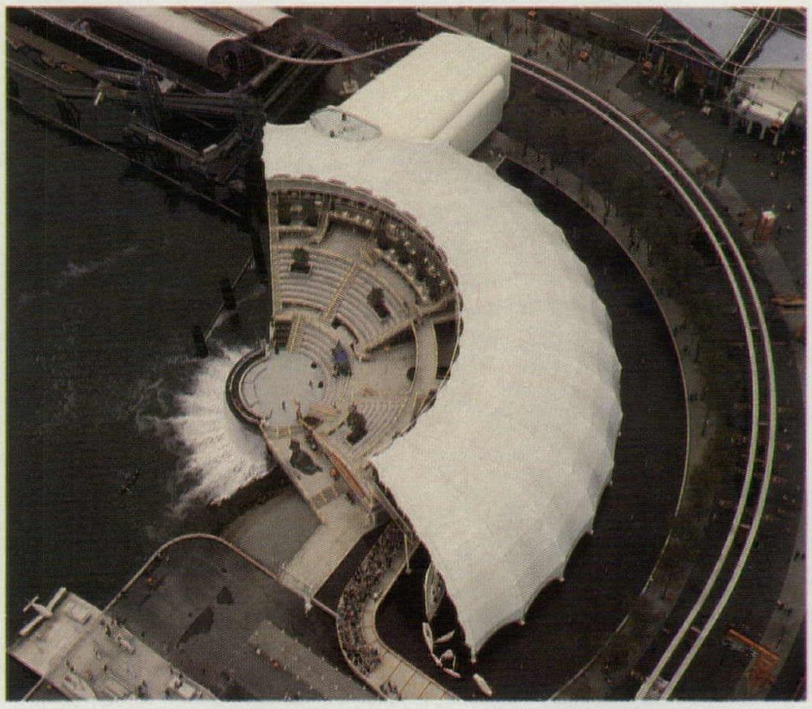
Vertical-blind track
A vertical-blind track system features a miniaturization of "travelers" that reduces the center-to-center stack distance in half. The system also features a rotating mechanism that turns the vanes up to 220 deg for maximum closure and comes with an adjustable tilt-limit stop. Hunter Douglas, Inc., Upper Saddle River, N. J.
Circle 310 on reader service card



Cord-access grommets
The manufacturer's series of round cord-access grommets is available in four sizes ranging from 1 3/4 in. to 3 in. designed to accommodate a variety of cord and plug diameters. The grommets are made of plastic and come in black, walnut brown, light grey, almond, chrome, brass, and antique bronze. Doug Mockett & Co., Inc., Manhattan Beach, Calif.
Circle 311 on reader service card
Continued on page 161

INNOVATIONS

In Shape



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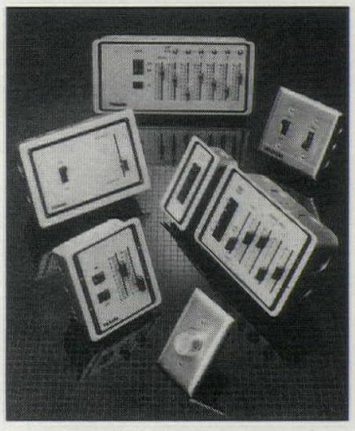
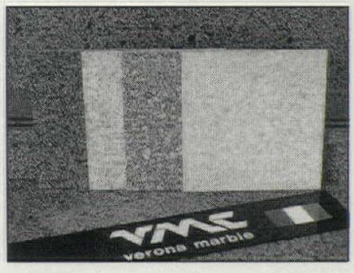
Continued from page 159

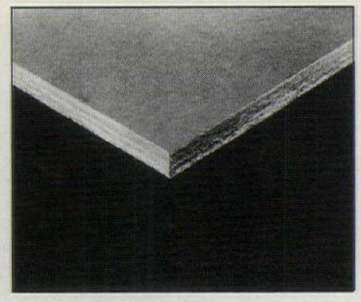
Floodlights
Malibu Metal Floodlights feature a recessed lamp that distracts attention from the light source and redirects attention to what is being lit. The units come with 100 ft of low-voltage cable, four color lenses, polymar stakes, and a power pack that automatically turns the lights on at dusk. Intermatic, Inc., Spring Grove, Ill.
Circle 312 on reader service card



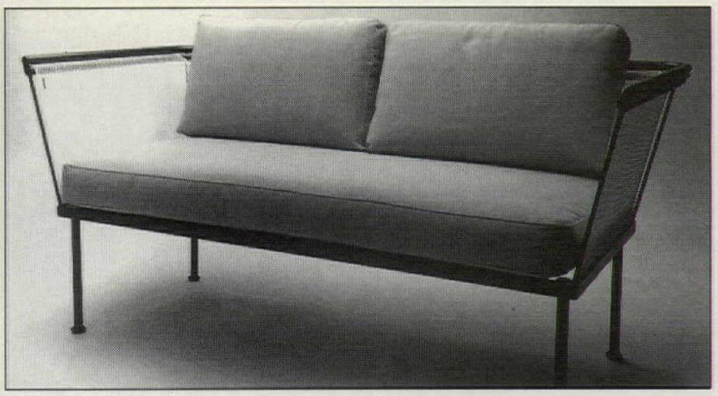
Lighting control system
The *ZoneMate* HID lighting control system, designed for commercial and industrial applications, consists of dimming ballasts for HID fixtures, a dimmer panel, and a choice of automatic, programmable, or manual controls. Optional photosensors are available to compensate for changes in light. The system is U. L. listed. Wide-Lite, San Marcos, Tex.
Circle 313 on reader service card



Marble
The manufacturer's *Marghestone* line of composite-marble-chip products has the appearance of granite and is available with high polish, honed, or bush-hammered finishes. The assimilated granite comes in 11 colors and is available in slabs from 12- by 12- by 3/8-in. to 48- by 48- by 1 1/4-in. Verona Marble Co., Mesquite, Tex.
Circle 314 on reader service card



Concrete forming panel
The *A-Matte* medium-density concrete overlaid-with-plywood forming panels feature a 1/64-in. tolerance. Because the plywood is sanded before the overlay is applied, grain and patch transfer is said to be minimal. The panels are available in 4- by 8-ft and 4- by 10-ft units. Simpson Timber Co., Shelton, Wash.
Circle 315 on reader service card



Sofa
Caterina, designed by James Kwan, is available as a two-seat sofa and armchair. The frame is grey polished steel, and the cushions are made of polyurethane covered with acrylic fiber. The back cushions rest on a frame covered with a net in white plastic fabric. Estasis, Italy.
Circle 316 on reader service card
Continued on page 163

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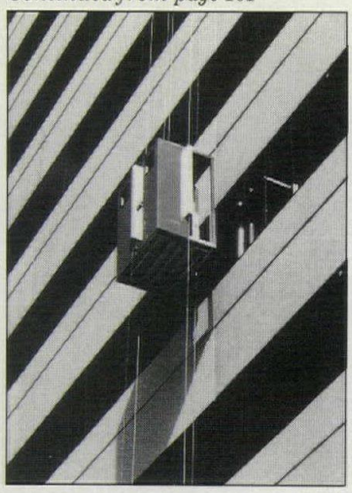
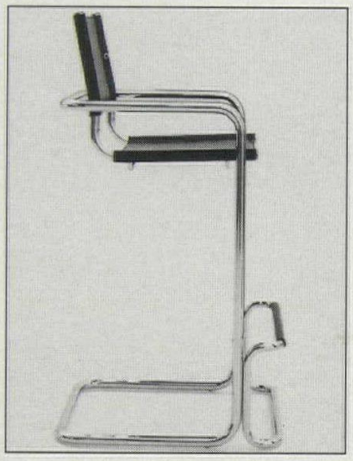
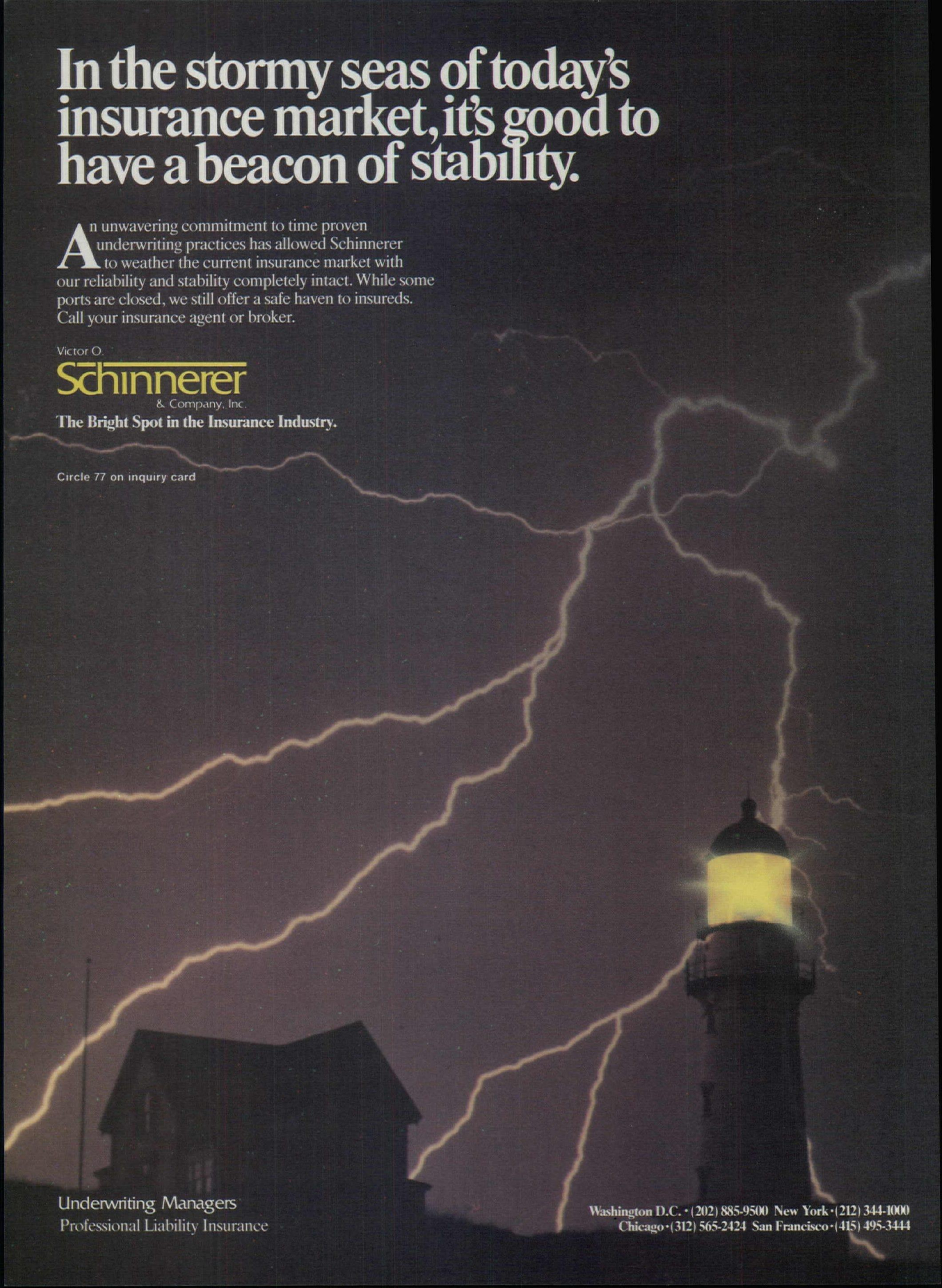


External elevator
The *Multi-Story Transporter* external elevator is powered by a hydraulic winch mounted directly on the unit. The elevator can be controlled by fire crews on the ground and features heavy-duty spotlights mounted on the roof. Four steel cables run vertically through guides and support the elevator. Henke Machine, Inc., Columbus, Neb.
Circle 317 on reader service card



Bar stool
The manufacturer's *Baden* bar stool, designed in the Bauhaus tradition, features heavy-gauge, spring-steel tubing with extra-fine chrome plating. The stool also features a non-tip front support and foot rail. The seat and back are specified in leather. Loewenstein Oggo, Pompano Beach, Fla.
Circle 318 on reader service card

Drinking fountains
The manufacturer's line of wall-mounted drinking fountains features a polished chrome-plated bubbler, a sculpted receptor, and a rounded outer shell. The units may be specified in stainless-steel and bronze finishes. Extended wall brackets for handicap-accessibility are also available. Haws Drinking Faucets Co., Berkeley, Calif.
Circle 319 on reader service card
Continued on page 165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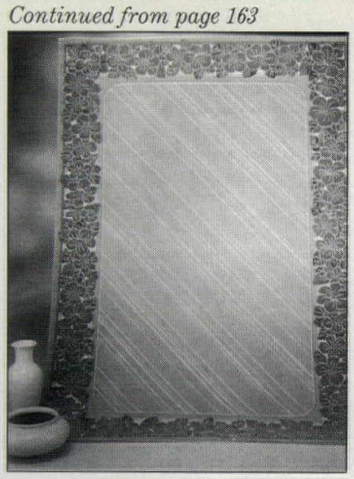
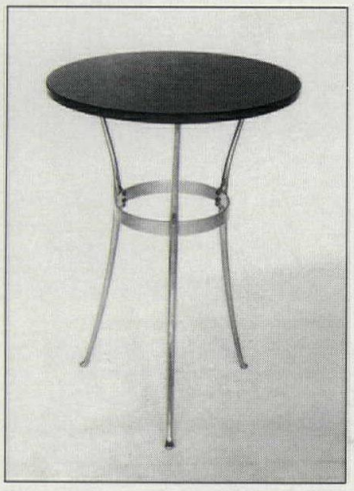
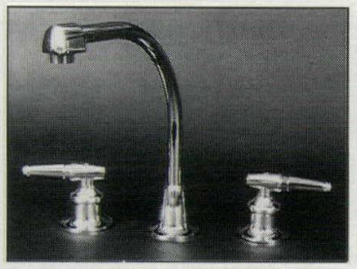


Area rugs
The *Symphony* collection of area rugs consists of floral and geometric patterns blended for a carved effect that is achieved by a power looming process developed in Belgium. The collection features three different designs in three sizes. Couristan, New York City.
Circle 320 on reader service card



Coffee table
The *Trevi* coffee table, designed by Enzo Mari, features an aluminum alloy and steel frame. The table top can be specified in marble, beola stone, or stratified plastic laminate in white or black. The table measures 27 1/2-in. high and 21-in. in diameter. Furniture of the Twentieth Century, New York City.
Circle 321 on reader service card



Faucets
The manufacturer's *Duet* faucet collection features chrome bodies with polished brass accents. The line is available in tub and shower, kitchen, lavatory, and bar faucets. The units feature polished-brass-handle adapters, lift rods, and aerators. U. S. Brass, Plano, Tex.
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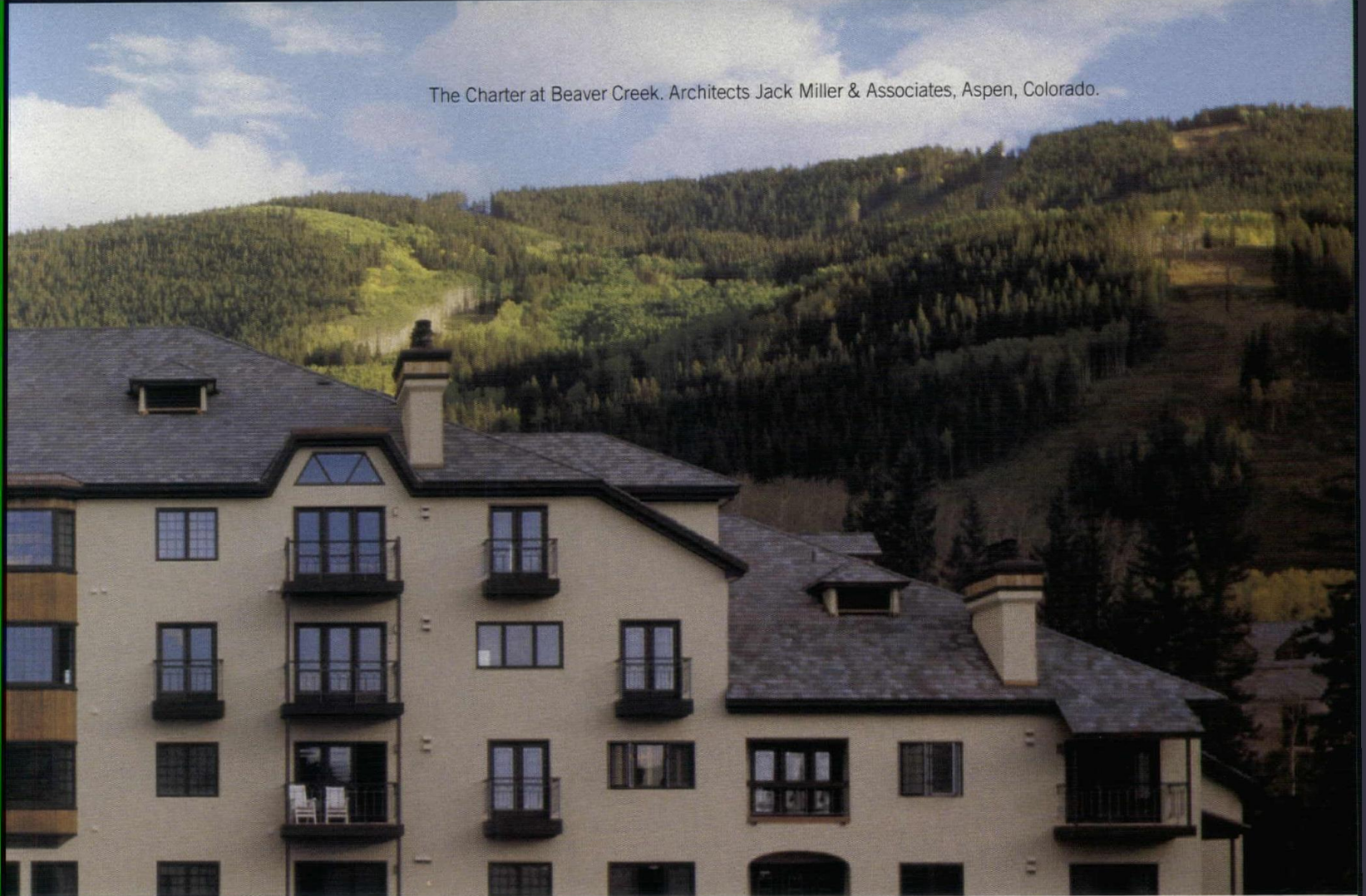

The Charter at Beaver Creek. Architects Jack Miller & Associates, Aspen, Colorado.

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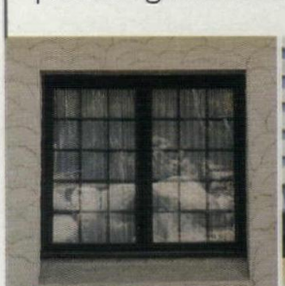

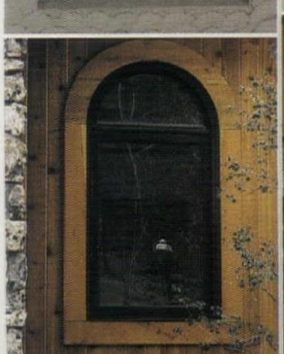

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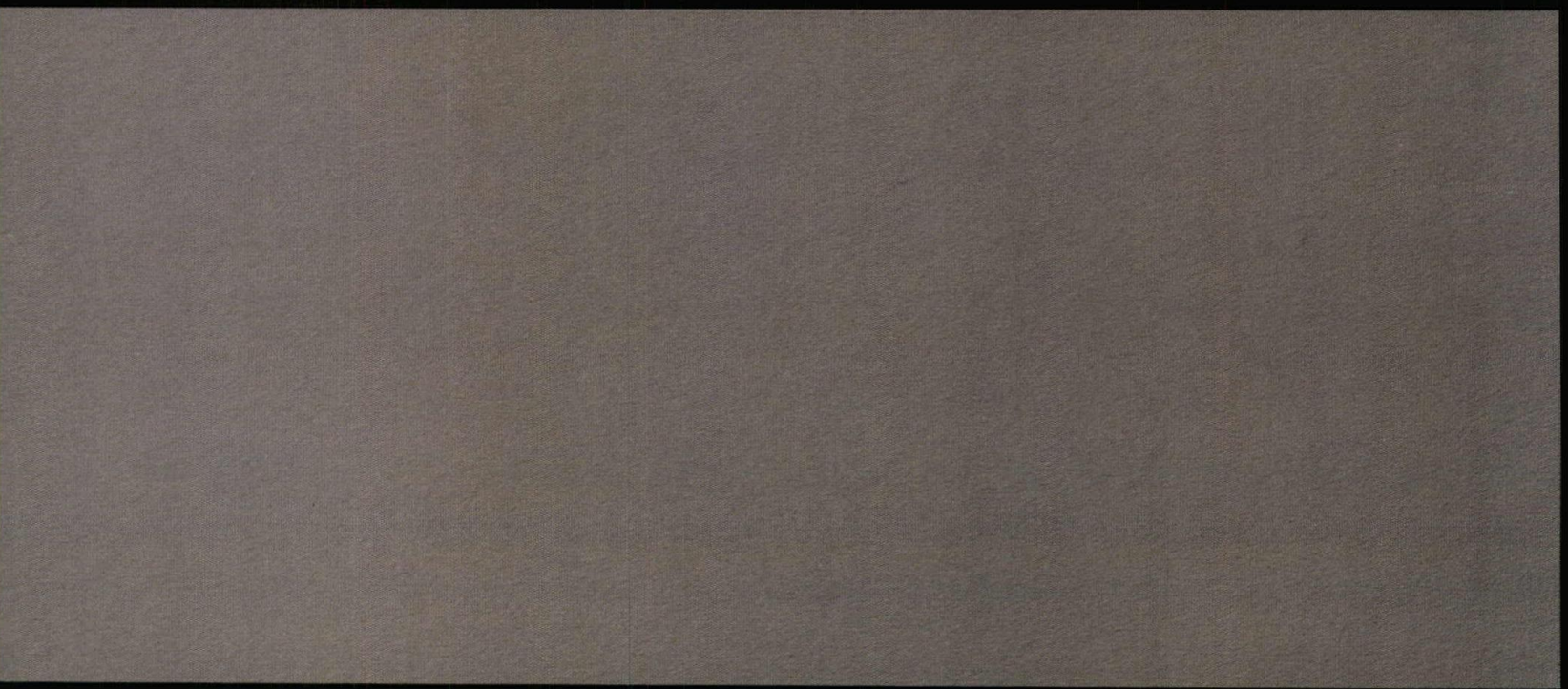

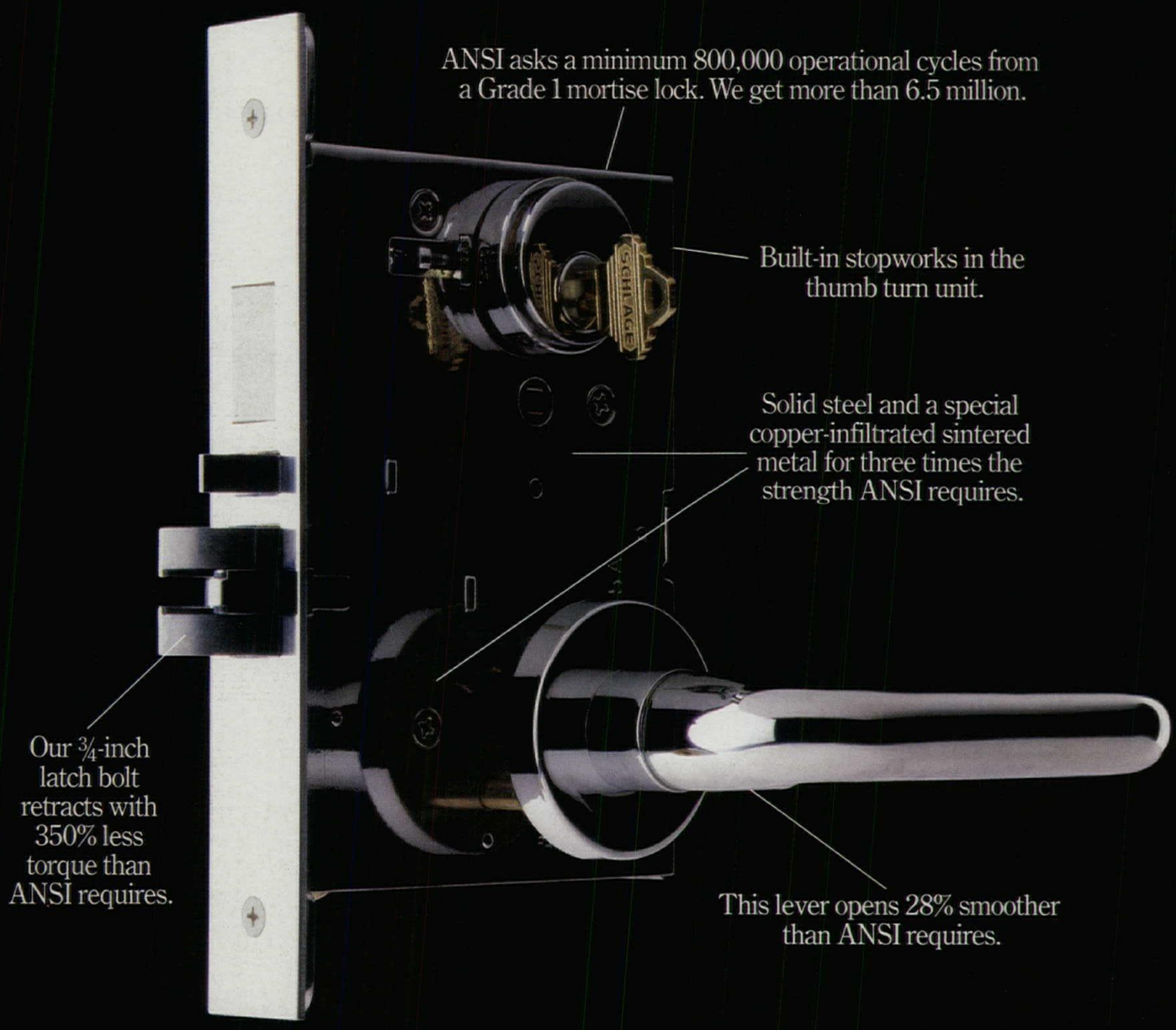

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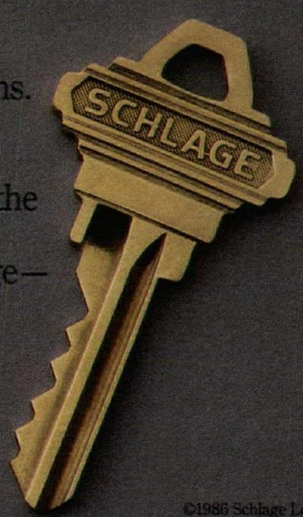

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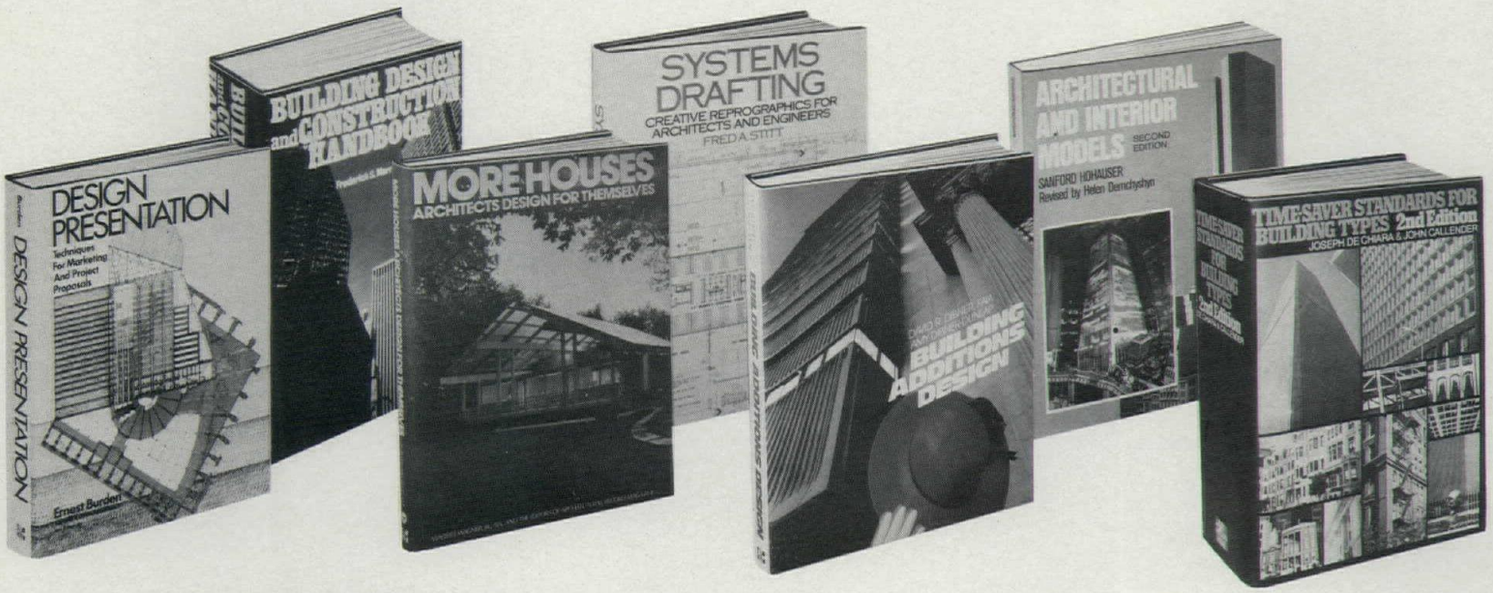

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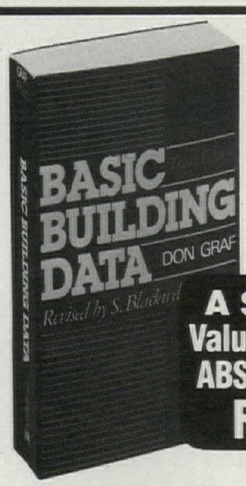

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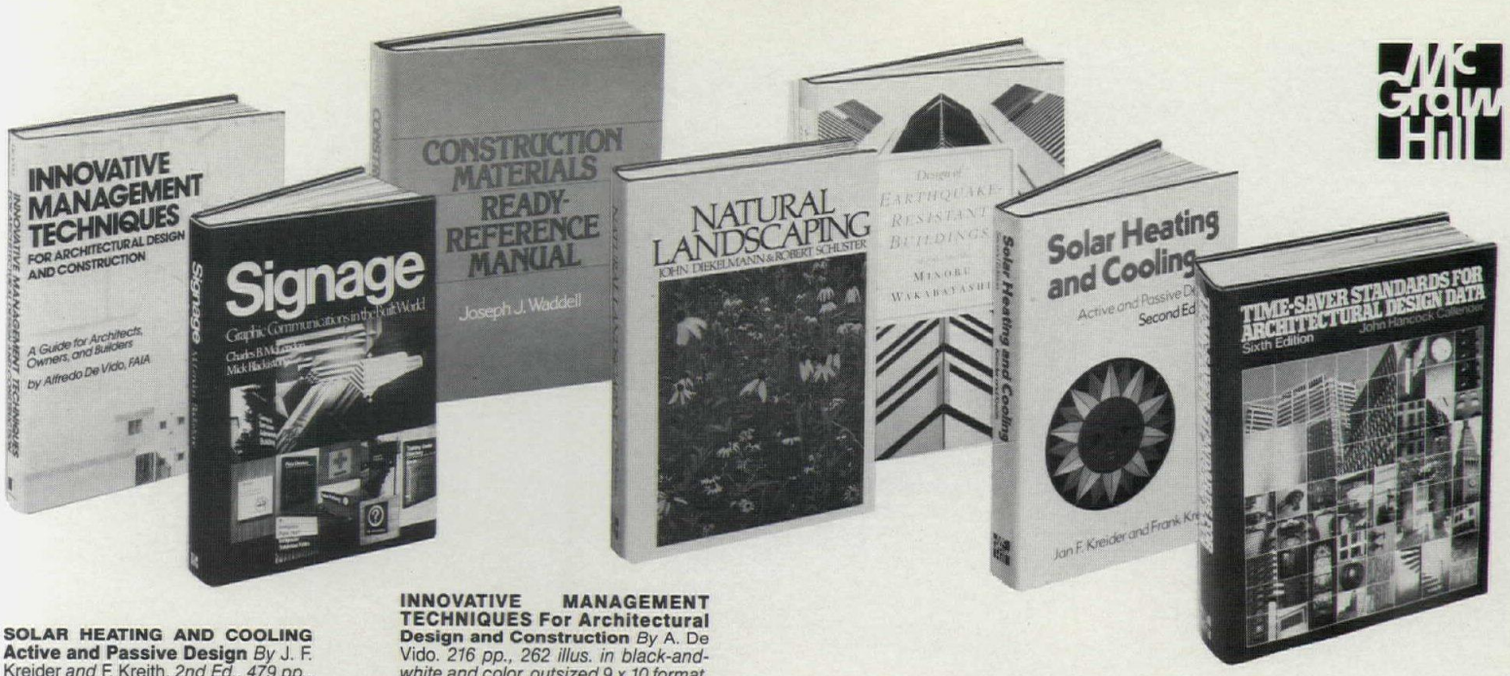

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"RED BRICK"

Fire your imagination with red brick. Acme Brick Company's new Tulsa, Oklahoma brick plant is producing an exciting new line of products available in various shades, sizes, textures, and shapes. In celebration, Acme has printed a limited number of posters based on this ad, "Red Brick." To receive your poster, please call or write Marketing Services, Acme Brick Company, P.O. Box 425, Fort Worth, Texas 76101. (817) 332-4101.

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HOLGUIN PC Solutions automate the drafting process and obsolete the drafting table.

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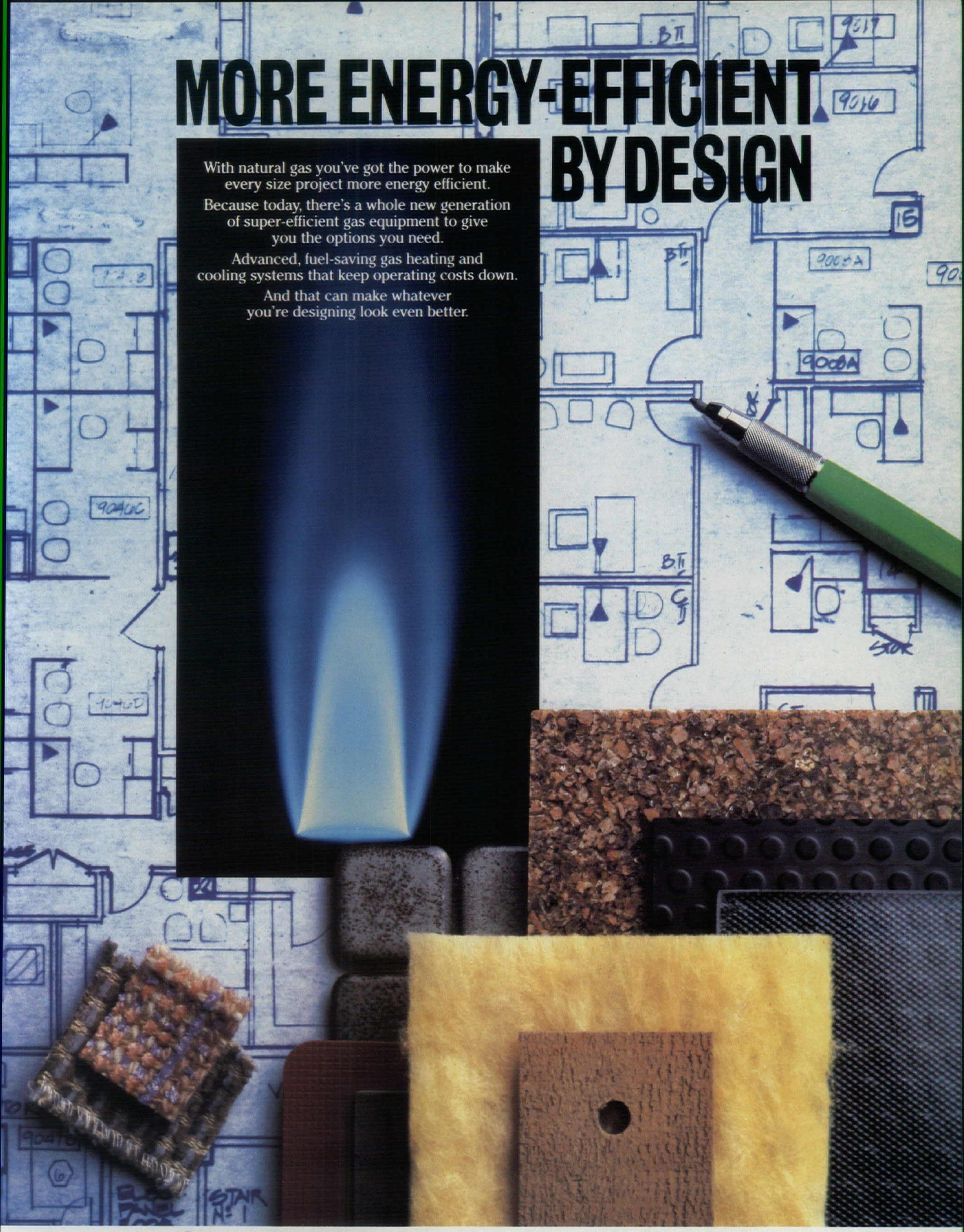
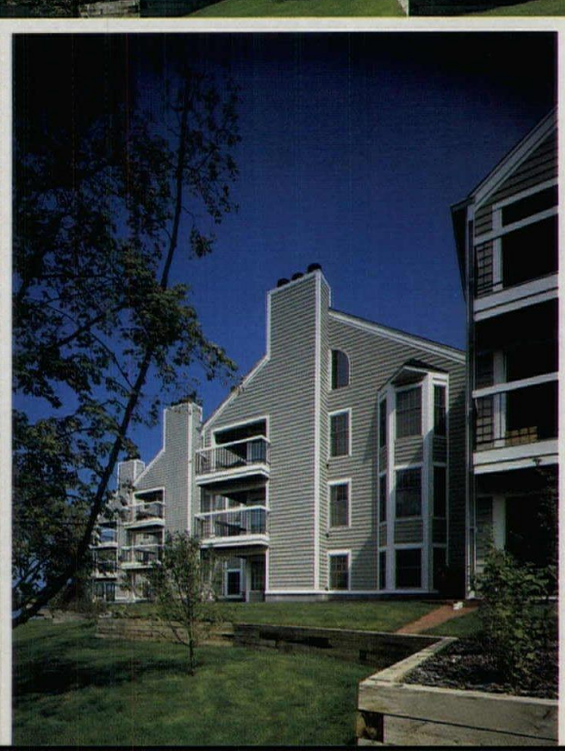
Because today, there's a whole new generation of super-efficient gas equipment to give you the options you need.

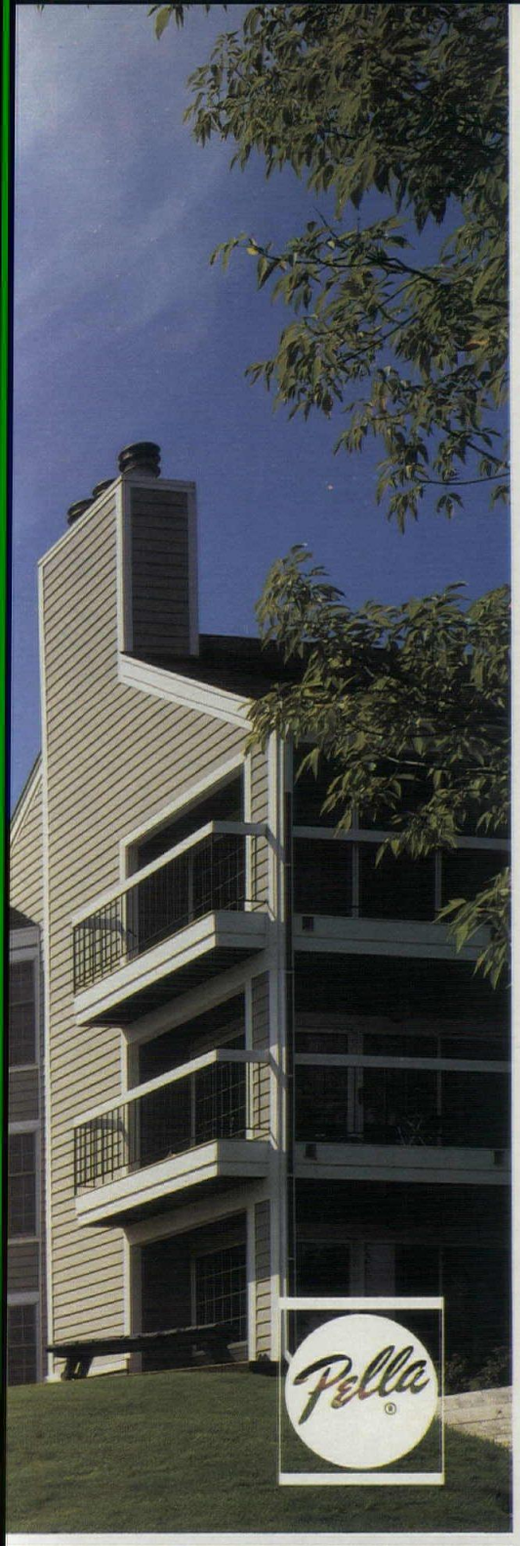
Advanced, fuel-saving gas heating and cooling systems that keep operating costs down.

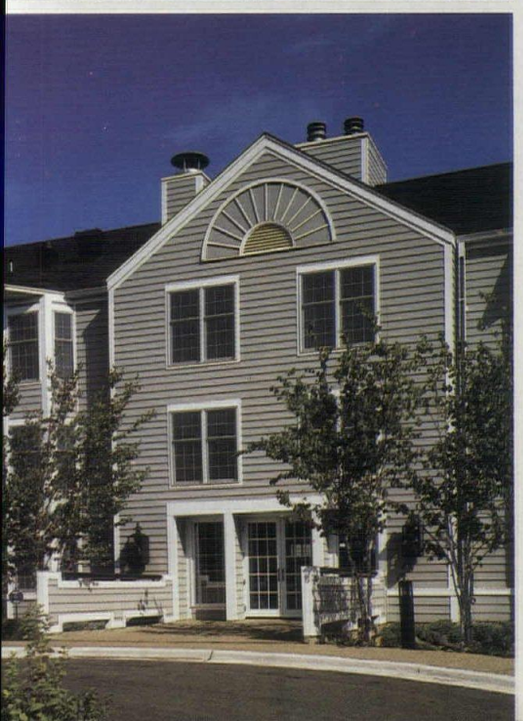
And that can make whatever you're designing look even better.



Gas. America's best energy value.







To give everyone a view of the lake, the building shape had to repeat itself. So Pella was chosen to say "quality" over and over.

The people of Excelsior, Minnesota, have long held a sentimental attachment to a historic parcel of land on the shore of Lake Minnetonka. That's why they made waves any time anyone proposed to develop it. And now — where streetcars from Minneapolis dropped vacationers from around the world, where a landmark amusement park had stood — stands Excelsior Bay Gables.

Miller Hanson Westerbeck Bell Architects have succeeded admirably in recalling the excitement, texture and scale of the community's past in this luxury condominium development. For this upscale market and this beloved site, nothing but the best would do. And that meant Pella Windows and Doors. Through double-hung bay windows and sliding glass doors, each of the 52 units is afforded equal orientation to the lake.

The creative interlocking of dwellings resembles a New England fishing village in its traditional materials, forms and colors. While reminiscent of grand old Excelsior resort hotels, mass is broken into a residential scale that is sympathetic with this quaint community of wood frame houses.

Pella standard and custom windows and doors.

Pella offers a range of standard and custom windows to suit almost any new or retrofit project, with a variety of glazing and shading options. At the Gables, Pella Double-Hung Windows are arranged in bays, while custom Pella springline quarter circle windows light up third story lofts.

Here, custom height Pella Sliding Glass Doors help hold in the heat from fin/tube radiation below the sill. The sliding door panel is mounted to the outside, so the harder the north wind blows off the lake, the tighter the weatherstripping seals. Pella doors are among the industry's best performers for air and water infiltration, so there will be no damp carpeting under the grand pianos at the Gables. And those doors offer excellent security, either locked closed or open about three inches for ventilation.

Pella says quality in custom colors.

MHWB specified Pella Clad Windows and Doors for the Gables. No matter what color a project calls for, Pella's low-maintenance, aluminum cladding with baked enameled finish assures exceptional color stability, resistance to chemical attack, chalking, erosion, chipping, peeling and cracking.

Pella's warm wood interiors enhance the traditional feel at the Gables. And removable wood muntins and pivoting sash make Pella Double-Hung Windows easy to wash from indoors.

Your Pella distributor can tell you more about it. For information, look for Pella in the Yellow Pages under "Windows", call Sweet's BUYLINE or see Sweet's General Building File. Or, send the coupon below.

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Excelsior Bay Gables Condominums
Excelsior, Minnesota

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Minneapolis, Minnesota

Architect: Miller Hanson Westerbeck Bell Architects, Inc.
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Contractor: John Lambin Construction Company
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BLACK

Down-To-Earth Sorcery That Keeps Buildings Drier And Quieter.

A layer of Enkadrain diffuses hydrostatic pressure along underground walls, preventing seepage and water damage. **(See Sweet's 2.7d/Ame)**

Is it reasonable to suggest that the tangle of nylon shown running across this ad can provide the best way to drain water from subsurface walls? Give roots room to develop in planters? Shut down noise between floors?

As unlikely as it may seem, builders and specifiers are using this same lightweight geomatrix for all these reasons. And with some remarkable, and cost-effective, results.

Enkadrain® Matting: Outerwear For Subsurface Walls.

Positioned against basement and retaining walls, Enkadrain eliminates hydrostatic pressure by providing water an escape route. Its unique construction resists compression and an incorporated filter keeps it free from clogging, so the passageway stays permanently clear. In contrast to graded aggregates or sand blankets, there's no need for heavy equipment. So Enkadrain

Enkadrain "pulls" roots to the sides of the planter, for fuller development, as it encourages lateral drainage. **(See Sweet's 2.7d/Ame)**

Circle 87 on inquiry card

MAGIC.

Placing Enkasonic between floors effectively shuts down both impact and airborne noise. **(See Sweet's 13.10/Am)**

can cut your cost-in-place to half that of conventional solutions.

Used in planters, the lightness and thin cross-section of Enkadrain make it an ingenious alternative to gravel, especially where overall planter weight is a decisive factor. There's greater space for growth medium and root development, and better drainage—to the sides as well as downward.

The Enkasonic® System: An Air-Tight Sound Barrier.

When your finished floor floats on a thin layer of this same three dimensional matting, quiet is the natural result. Enkasonic shuts off the transmission of both airborne and impact noise, protecting you from complaints that could lead to tenant suits.

Used under ceramic tile, wood, parquet, marble, vinyl, or carpeting, Enkasonic well exceeds both STC and IIC ratings of 50. It is the only system available that has achieved dual ratings this high in testing conducted by the Ceramic Tile Institute.

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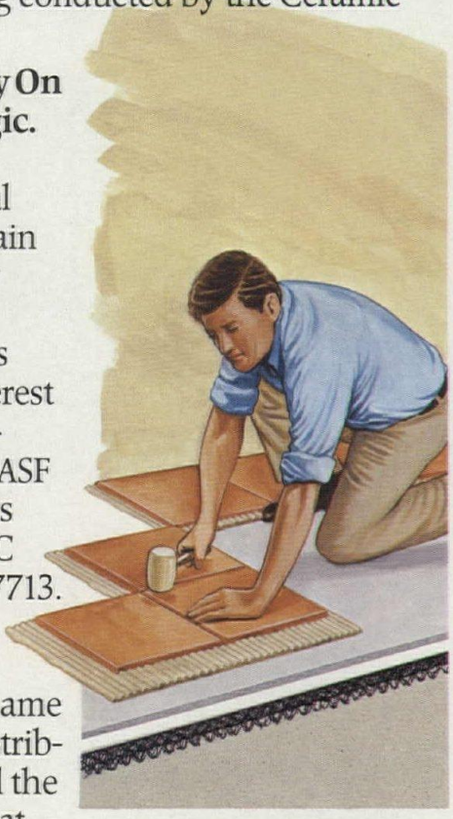
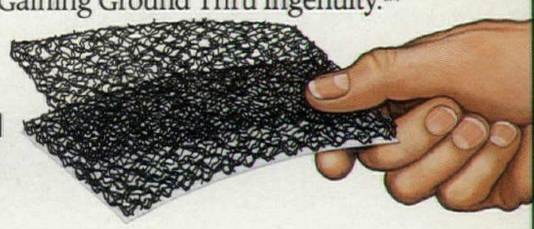


Light, thin, and airy, Enkasonic adds as little as ¾" to any flooring system.

Gaining Ground Thru Ingenuity.℠



BASF

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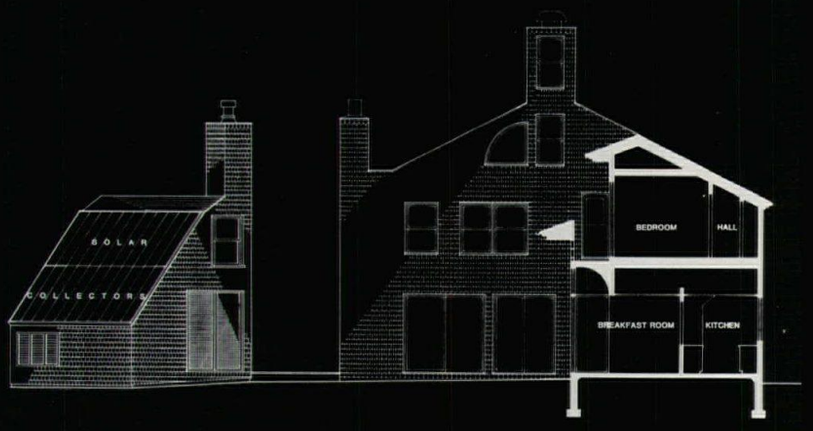
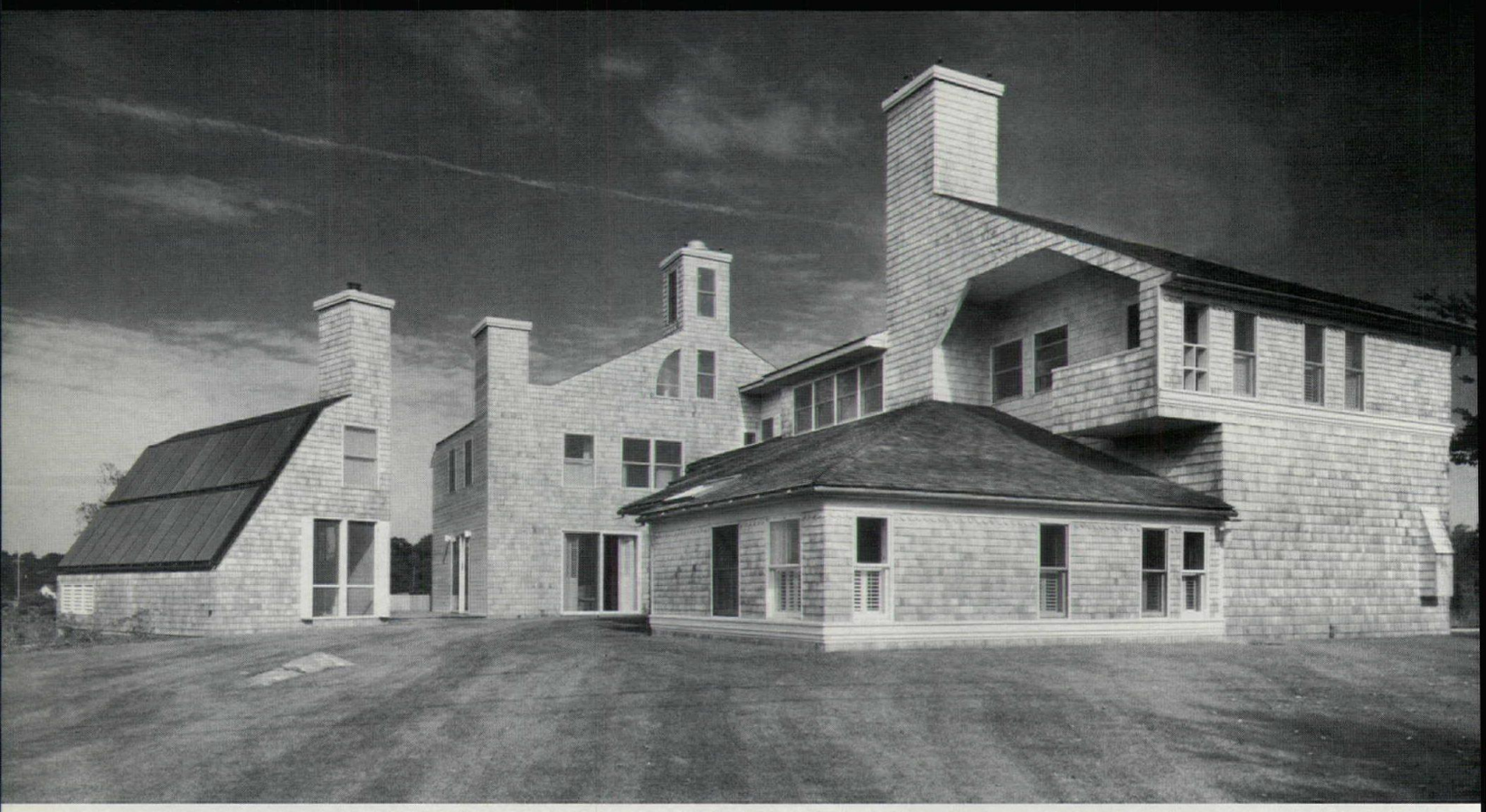
A Paradox Covered In Cedar Shingles.





Here is a house that had to work every bit as well for an extended family as a small one. Had to be both sophisticated-contemporary and seaside-warm. Feel spacious and private despite its location on a densely populated Connecticut shore.

No surprise, then, that mixed in with all those clean geometric lines are little touches from times past. All clad in the enduring warmth of red cedar shingles. Because nothing else weathers quite so beautifully or insulates so well against the cold salt air.

But to fully understand why red cedar shingles and shakes are such an excellent solution, write for your free copy of The Architect's Cedar Library. It will tell you everything you need to know regarding insulation, ventilation, roof junctures, valleys and flashings, product selection, economy grades, specs, care and treatment, finishing and available literature. All free. Just address your request to:

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These labels on the bundles of red cedar shingles and shakes are your guarantee of Bureau-graded quality. Insist on them.

The House on the Shore
Architect: Jefferson B. Riley, AIA
of Centerbrook Architects

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The recognized authority.

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MOVEABLE FEAST.

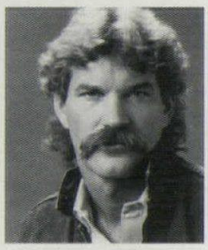
The assignment: Redesign a decades-old Pullman sleeper into a rolling hotel for business travel.

The media: WILSONART Color Quest™ decorative laminates and Decorative Metals.

The designer: Thomas J. Bolin, ASID, Planning & Design, Inc., Minneapolis.

Bolin comments: "WILSONART surfacing products offered me both the color and surfacing finish choices and the easy-care, hard-wearing characteristics I had to have to pull off this assignment.

"I needed a comfortable, luxuriously appointed interior that wouldn't feel confining despite the space limitations (of an 85′ x 10′ car), while meeting the unusual functional requirements of outfitting a moving, smoke-spewing train. WILSONART gave me the solution."



Thomas J. Bolin, ASID
Planning & Design, Inc., Minneapolis

The dining/conference area (photo below) set the Art Deco design referent used throughout the car. The visual expansion is created with a color progression of Mauve Mist to Wildrose to Amethyst gloss decorative laminates on the inset ceiling.

The same palette forms table tops and decorative inlays on Northsea-clad cabinets, with gloss Black accents.

WILSONART Satin Brushed Natural Aluminum clads pocket dividers which open to pass-through service from the kitchen.

The results: A delighted client, whose goals have been fully realized through fine design partnered with WILSONART materials.

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Photo: Craig Anderson

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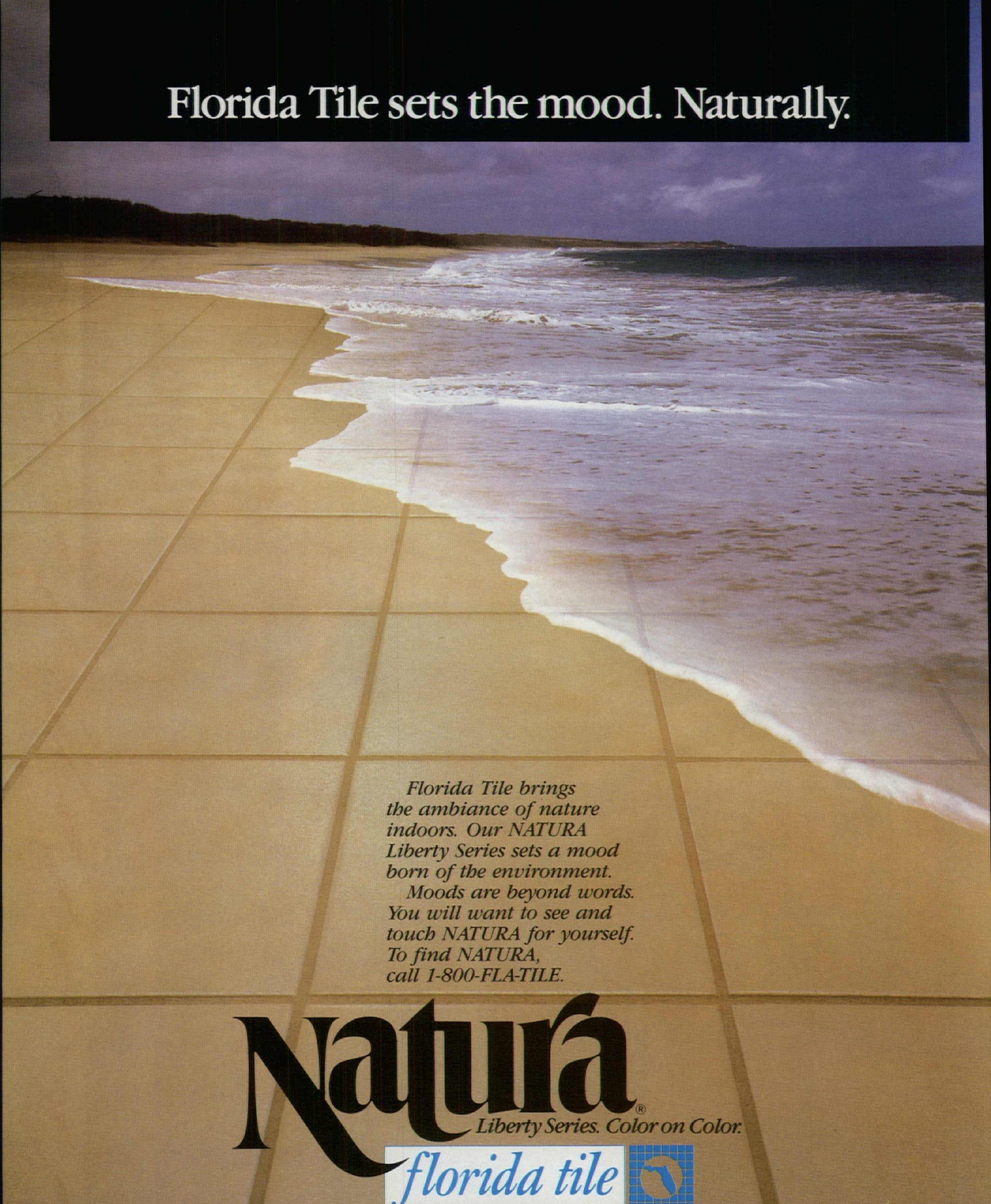

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July 1986

CIGNIFICANCE

Newsletter of McGraw-Hill Construction Information Group
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Architectural Record • Black's Guide, Inc. • Building Economics • Cost Information Systems • F.W. Dodge • DRI Construction Information Service • Electrical Construction & Maintenance • Electrical Wholesaling/ Electrical Marketing • Engineering News-Record/International Construction Week • Sweet's Division

Preview of unreleased survey

LARGEST STUDY OF ITS TYPE TO SHOW ACCELERATED COMPUTER USE BY ARCHITECTS; CADD ALONE INCREASED 50% FOR THE YEAR.

Harry Mileaf, CIG VP/Planning-Electronics Products now analyzing 1,800 questionnaires completed from a new survey of 4,500 Architectural, Engineering, Contracting, and A/E firms. Detailed results of study of computer use in construction to be reported in summer issue of TechPointers, 21,000-circulation CIG newsletter.

Computer use now at 69% of Architectural firms, doubled from 35% level in '82. Architects still behind Engineering (85%), Contracting (89%), A/E (86%).

Study shows average of 2.3 microcomputers per Architects' offices using computers, vs. 10-15 Mileaf estimates should be in average office.

Dramatic one-year CADD increase by Architects is partly result of pressure from clients to save money and improve quality through CADD.

Among other key usage findings:
Computer estimating: Architectural 28%, Engineering 29%, Contracting 53%, A/E 42%.
Modems: Architectural 22%, Engineering 53%, Contracting 46%, A/E 55%.

Mileaf predicts over 90% of Architectural firms will use computers by 1989, when Electronic Sweet's will be available. Relatively low current penetration among Architects seen as big growth opportunity for hardware/software marketers.

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New Dodge / DRI monthly

"CONSTRUCTION AND REAL ESTATE REVIEW" SUMMARIZES AND ANALYZES MARKETS, PROVIDES KEY FORECASTING DATA; NOW AVAILABLE TO NON-CLIENTS.

Dodge/DRI recently launched a major new publication to provide informed month-by-month overview of construction and real estate activity and trends. The "Review" is provided at no extra charge to annual subscribers of Dodge/DRI construction and real estate information services.

Dodge/DRI's 20 economists plus McGraw-Hill Information Systems Company's Economics Dept. team up to interpret and analyze info from exclusive computerized data bases, most extensive in the industry.

Guest contributors include experts from academia, industry, and the financial community. Regular features include special studies on such topics as "Residential Alteration Expenditures and Housing Adjustment Behavior" and "Changes in Educational Construction." As intro to actionability of Dodge/DRI information, the "Review" is now available to non-clients at $3,000 yearly.

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ILLUSTRATED CHANGES IN "NATIONAL ELECTRIC CODE" TO BE CARRIED IN 4 ISSUES OF EC&M: 3-YEAR LIFE OF CODE PROVIDES 3-YEAR AD LIFE FOR MARKETERS.

Sept.-Oct.-Nov.-Dec. issues of Electrical Construction & Maintenance will be the only publication to illustrate the 1987 NEC changes.

Diagrams, sketches, photos will show exactly what is acceptable, what isn't. The four issues are seen as "must reading", "must refer-to-source" for designers, specifiers, installers and maintainers. As sole-source of often-needed info, 4-issue series provides unique advertiser bonus impressions over life of code.

Closing for Sept. issue is August 15.

Circle 94 on inquiry card

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The future is now

ELECTRONIC SWEET'S DEBUTS AT AIA SHOW; DEMOS TO MANUFACTURERS RESULTS IN ADDED AND IMMEDIATE PARTICIPATION IN SWEET'S IN PREP OF 1989 ELECTRONIC LAUNCH.

Last month's AIA Convention was the first public "preview" of exactly how Electronic Sweet's will change architects' lives after distribution in 1989. A sample search shows how pinpoint programming can identify those few products that meet specific needs out of 300+ total listings in product category—in minutes.

Architects impressed with "depth of search, ease of

Cont'd...

use, low price" for Electronic Sweet's. "Grunt work" of thumbing through dozens of catalogs is eliminated. Computer directs user to precise page in Print Catalog. Print Catalog then shows manufacturer-specific differences not covered electronically—warranties, installation info, design exclusivity, etc.

Manufacturers impressed with indisputable competitive need to be included in computer search.

Perry Sells, Sweet's VP/GM says that after demo, some manufacturers have signed up two years before Electronic distribution. Reason: only manufacturers in Sweet's can participate in current development of selection criteria programming. If competitors have sole say in working with Sweet's in programming criteria, key selling features could be missing from "easy search" data base.

Compact disks for entire General Building and Engineering Files will be delivered automatically with Print Catalogs. Ten-minute demo of Electronic Sweet's now being shown by Sweet's reps.

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Design Estimator II:
NEW SOFTWARE FROM DODGE MICROSYSTEMS NOW PROVIDES QUARTERLY UPDATES OF DODGE CONSTRUCTION COST DATA BASE.

Architects, contractors, developers now cutting estimating time by 30-70% of manual estimating. Desk-top data base includes over 6,000 building materials, paired with wage rates/output for 22 building trades, with specific costs for 720 U.S. and Canadian cities.

Demonstration kits now available for in-office preview of speed and accuracy of Design Estimator II. Kit includes complete instructions, demo system disk and data disk.

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CRAM COURSES ON "HOW TO MARKET OFFICE SPACE" BEING PLANNED FOR CITIES IN NORTHEAST BY "BLACK'S GUIDE".

Series of ½-day seminars recently held for building owners, developers, brokers and ad agencies in West/Southwest are now in works for Metro NY/Philadelphia/D.C. areas. Topics include realistic local market analysis; how to make ads more cost effective; improving inquiry-to-conversion ratio.

Seminar's eight-section binder contains total-course outline with space for attendee notes to provide permanent marketing checklist for in-office reference. Seminars are presented by James F. Black, Jr., former real estate salesman, author, and President of CIG's Black's Guide, nation's leading publisher of regional office space availability listings. Free brochures outlining seminar are available.

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HOW TO STAY HEALTHY IN THE COMING DECLINE

Earlier this year, CIG Chief Economist George Christie forecast that the expansion phase of the building cycle would lose momentum in '86, with a continuing decline through '87 and '88. At this writing, George says the construction sector will be dominated by this declining phase of the building cycle.

Following are some thoughts for profitability in a tough market, based on customer input and Dodge analysis of previous down cycles:

—Prospecting. Even if your schedule looks filled, now's the time to look for jobs starting months in the future. If you have a backlog, use this period to submit bids that aren't skinned to the bone of profitability. Some very smart firms bid some jobs conservatively to keep their job pipeline filled, others for maximum profit. Make sure Dodge Reports are culled every day for the best jobs. Soon there will be a lot fewer starts.

—Negotiated contracts are now 65% of the business. That calls for subs to become active marketers. Frequent contact with GCs is most important, especially with those listed in Plan stage in Dodge reports.

—A changing game for building product manufacturers. With many GCs taking over design function, manufacturers now have new prime prospects in addition to architects. Because many of the biggest jobs to be built in the slack phase are now ready for design, manufacturers should be identifying these new players right now via Dodge.

—More bids for subs. The more bids, the more jobs landed. Dodge/SCAN delivers plans for all relevant jobs in subs' area, automatically by mail, for more bid options.

—Finding new markets. Some areas will be hot despite the slump, so it can pay to explore new territories. Also different categories. For example, some Electricals normally bid only buildings. But outdoor lighting for non-building jobs like highways and bridges are big money.

I hope the preceeding is helpful.

—Wes Fraser,
VP / General Manager, F.W. Dodge

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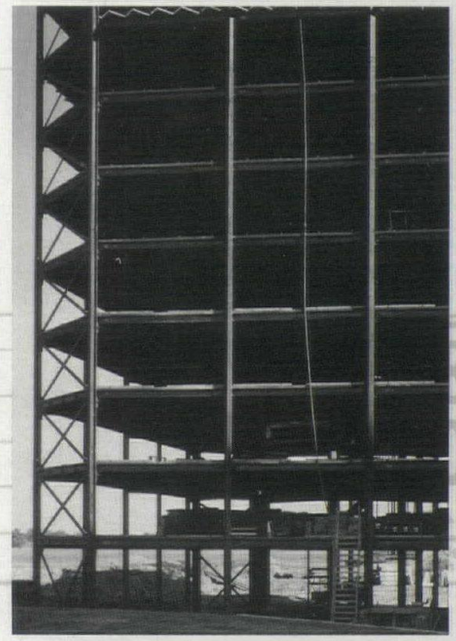

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Manufacturer sources

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 92-99
The Beach Apartments
Antoine Predock, Architect
Pages 92-97—Stucco: El Rey. Paints (interior and exterior): Wellborn Paint Co. Neon: Southwest Outdoor Electric. Aluminum-framed windows: General Aluminum. Entrance doors: Valient Door Co. Locksets: Yale. Hinges: Hager. Skylights: Skyview Co. Garage doors: Stanley.
Page 98— Chimney and fireplace: Heatilator. Incandescent lighting: Progress Lighting Co.

Pages 120-122
Canada Place, Vancouver
Zeidler Roberts Partnership/Architects
Curtain wall: Indal Wall Systems Ltd. Tinted glazing: Ford Glass Ltd. Aluminum coating: PPG (Duranar XL). Hotel dome: Lord & Burnham. Glazing: Ford (Sky 30). Porcelain enameled steel cladding: P. G. Bell/Westeel, Div. Jannock Ltd. Canopy: H. H. Robertson Inc., Sentinel Architectural Div. Tension structure, *Teflon*-coated fiber glass skin with *Fabrasorb* liner: Birdair Structures. Flag poles: John Ewing & Co. (AginCourt). Site furniture: Wanze. Pier paving blocks: Annawerk. Globe lighting: Design Lighting. Standing seam roof and metal deck: Westeel. Elevators: Otis; Montgomery. Escalators: Dover/Hitachi.

Pages 125-127
Ontario Pavilion for Expo '86
Zeidler Roberts Partnership/Architects
Contour clad curtain walls: Westeel Rosco. Porcelain steel panels: P.G. Bell. Entrance and glazing: Bogardus Wilson. Composite panels: Graham Products (Granex). Intumescent paint: Nullifier. Overhead doors: Kinnear. Paints and stains: General Paint; Pratt & Lambert. Outdoor lighting fixtures: Crouse Hinds. Emergency lighting: Emergi-Lite. Elevators: Schindler.

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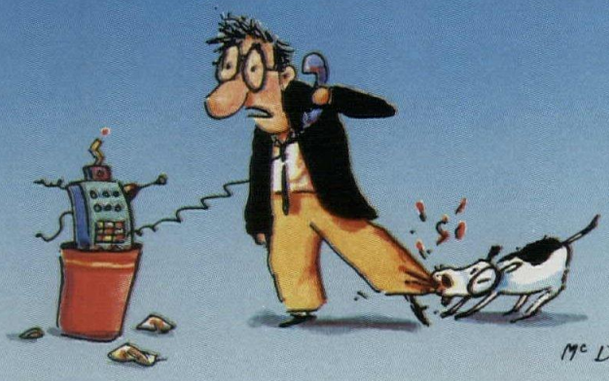

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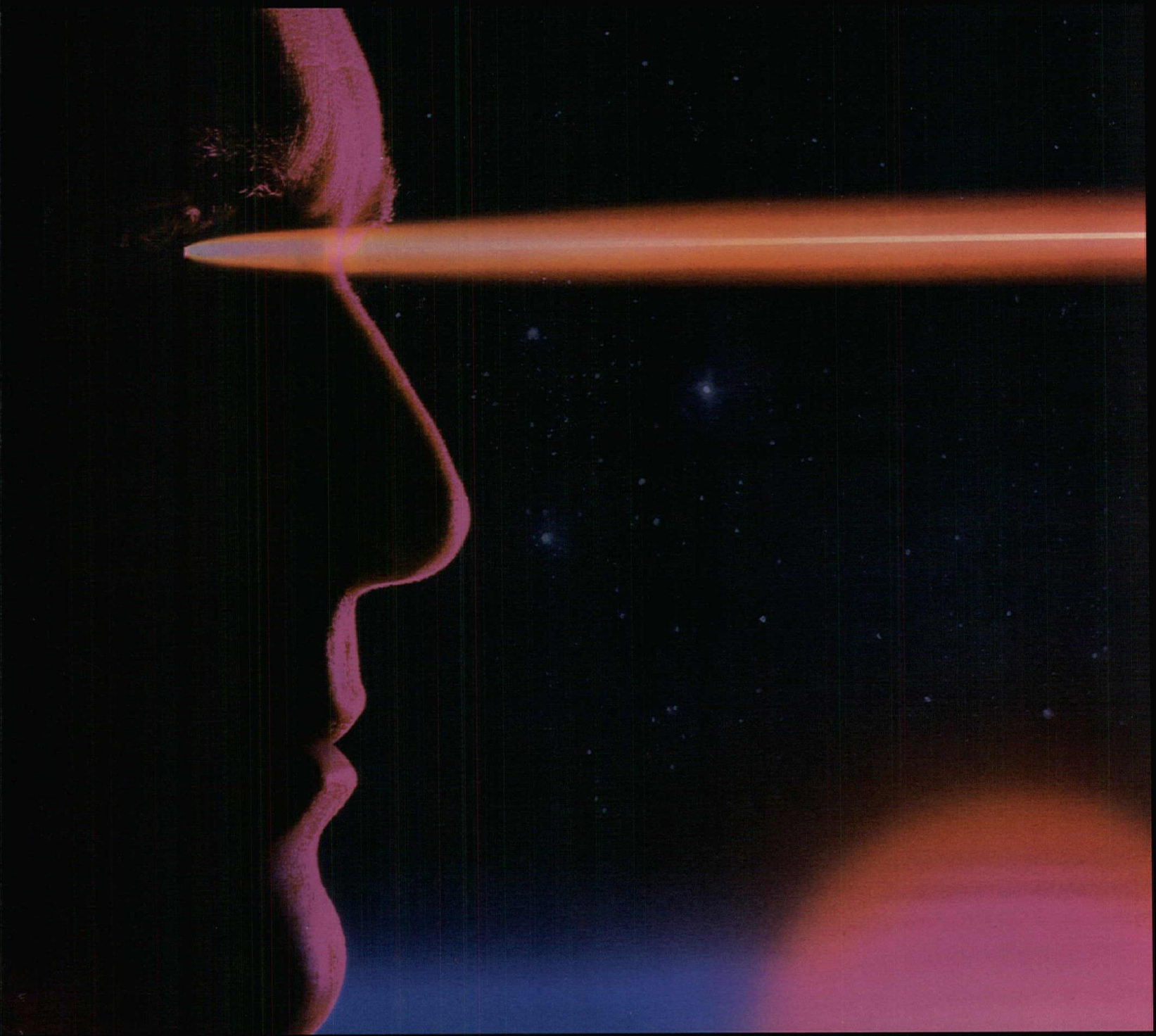

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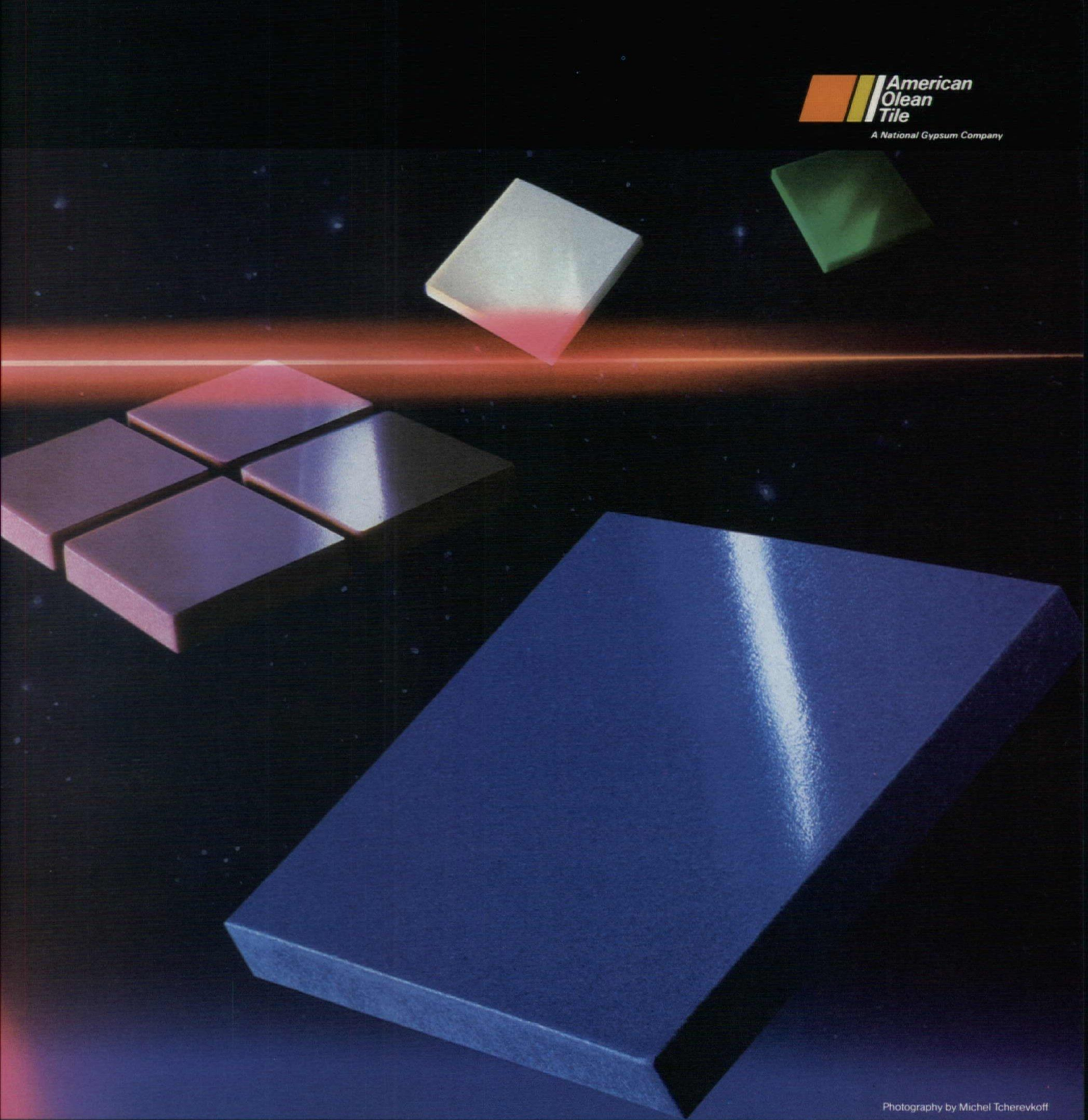

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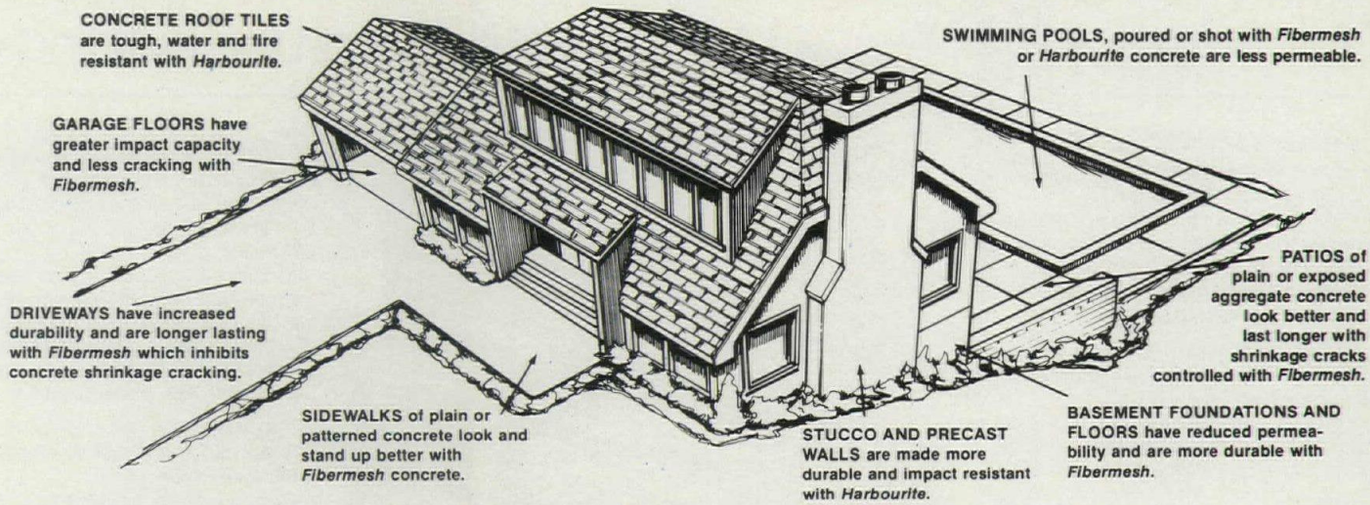

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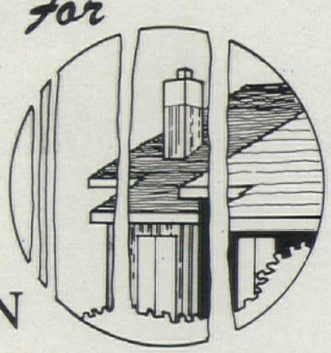

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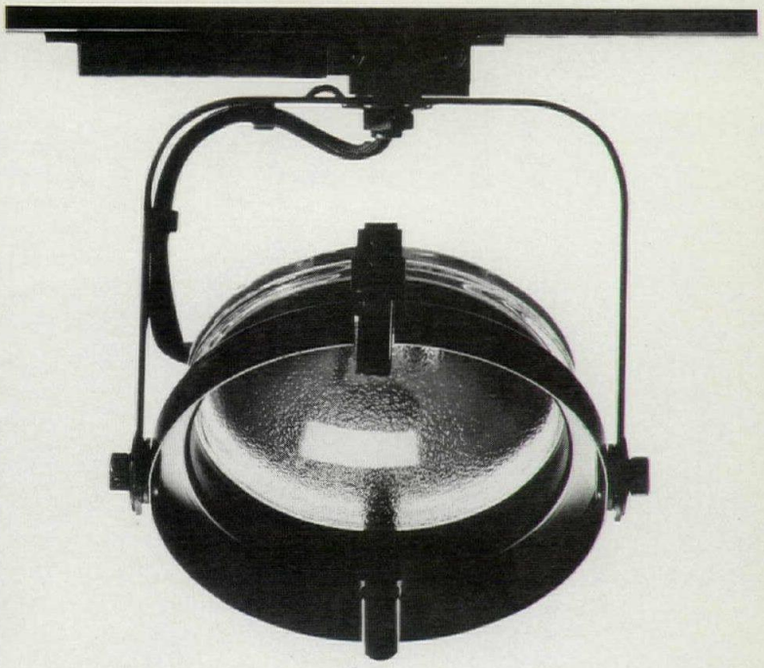

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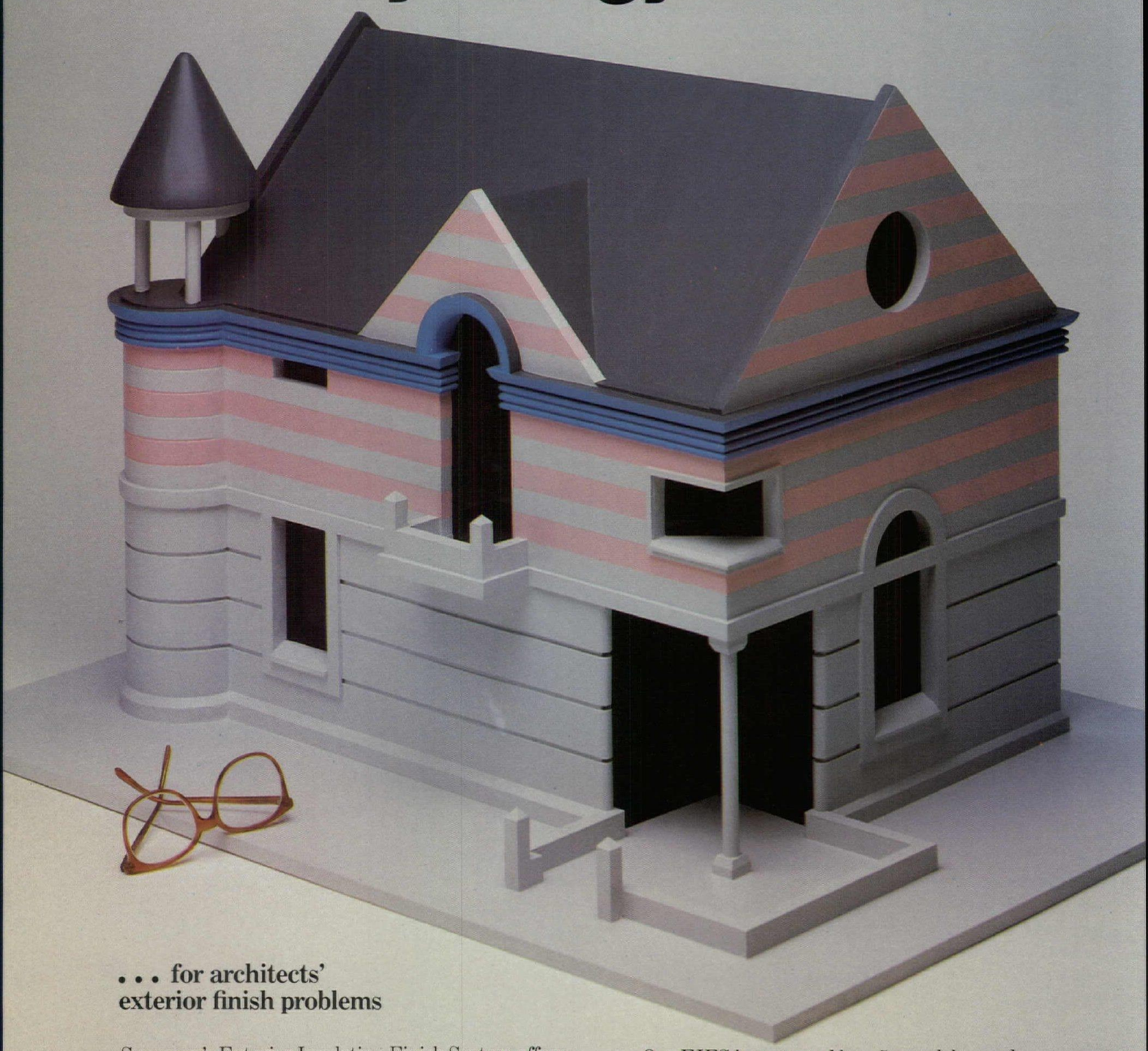

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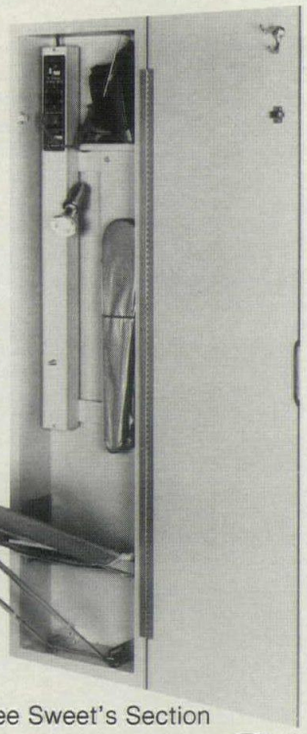

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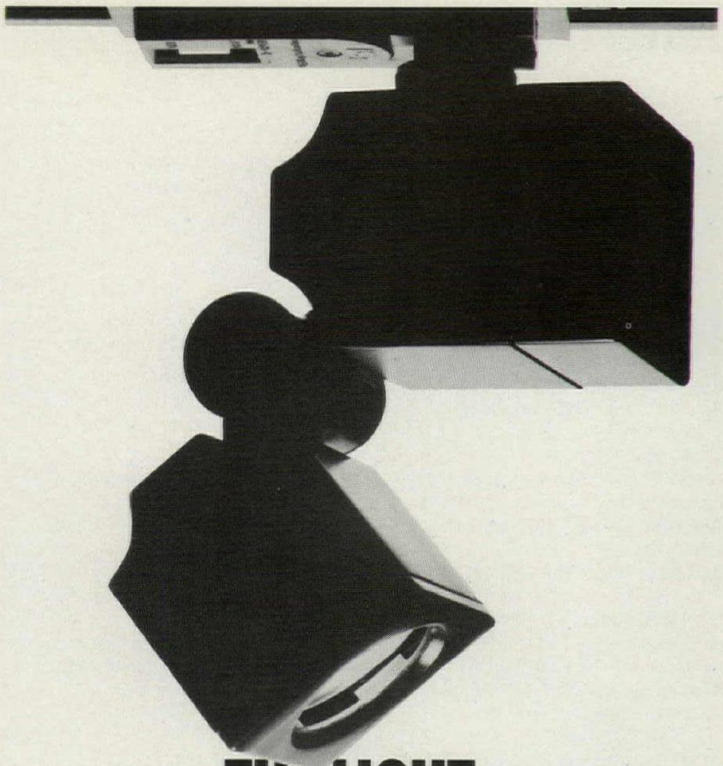

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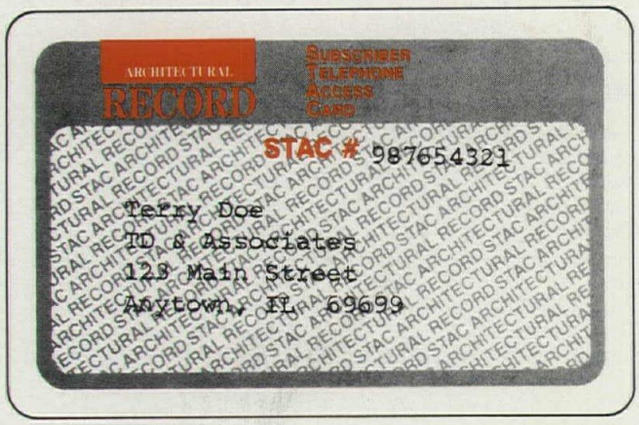

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2 5 # 7 6 # #

ENTER YOUR INQUIRIES:

6. When the recording says, "Enter (next) inquiry number..." enter the first Inquiry Selection Number, including symbols, from your list below. Ignore blank boxes. Wait for the prompt before entering each subsequent number (maximum 17 numbers).

1. ☐☐☐☐☐##
2. ☐☐☐☐☐##
3. ☐☐☐☐☐##
4. ☐☐☐☐☐##
5. ☐☐☐☐☐##
6. ☐☐☐☐☐##
7. ☐☐☐☐☐##
8. ☐☐☐☐☐##
9. ☐☐☐☐☐##
10. ☐☐☐☐☐##
11. ☐☐☐☐☐##
12. ☐☐☐☐☐##
13. ☐☐☐☐☐##
14. ☐☐☐☐☐##
15. ☐☐☐☐☐##
16. ☐☐☐☐☐##
17. ☐☐☐☐☐##

END STAC SESSION:

7. When you have entered all your Inquiry Selection Numbers and the recording prompts, "Enter next inquiry number," End the call by entering:

• • 9 1 # #

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