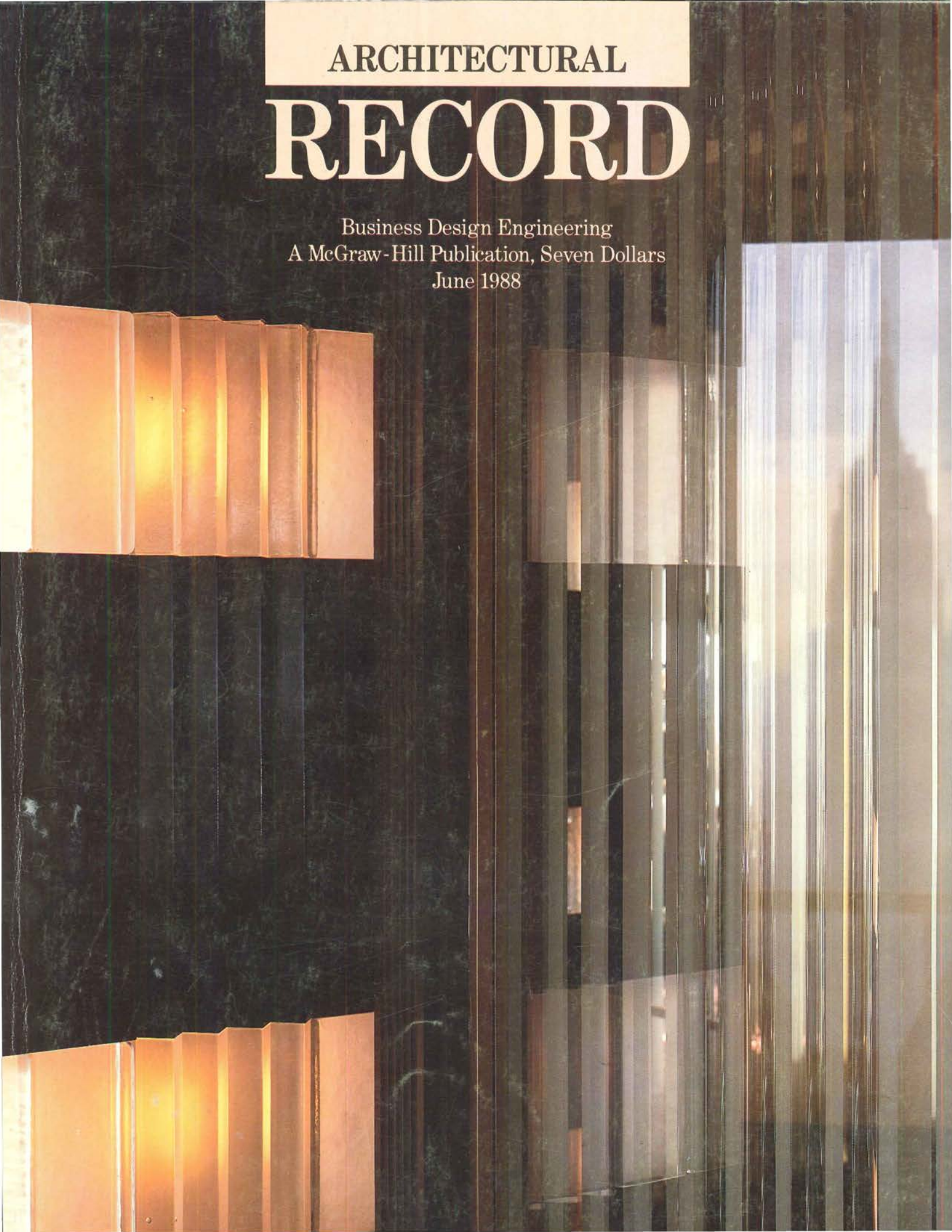

ARCHITECTURAL RECORD

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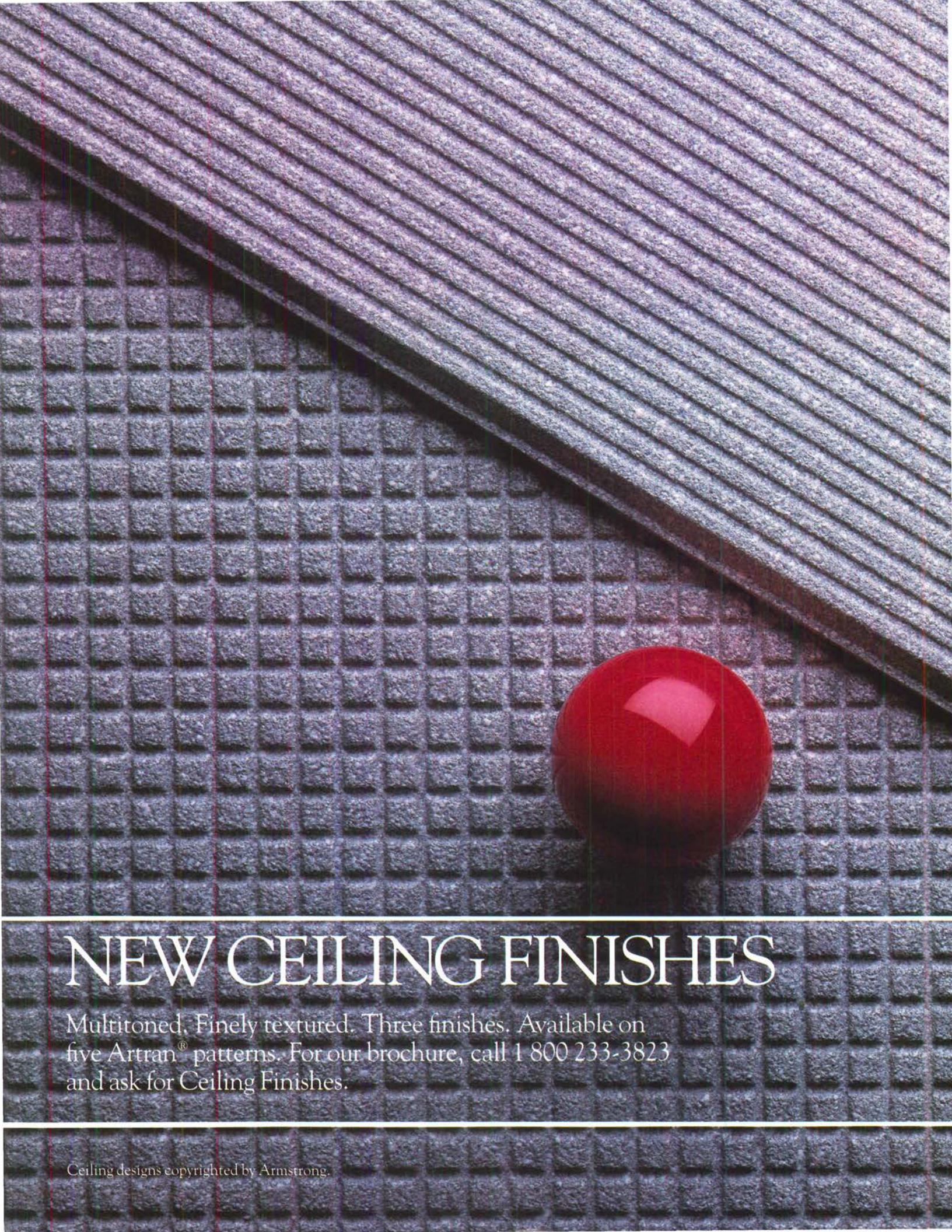
June 1988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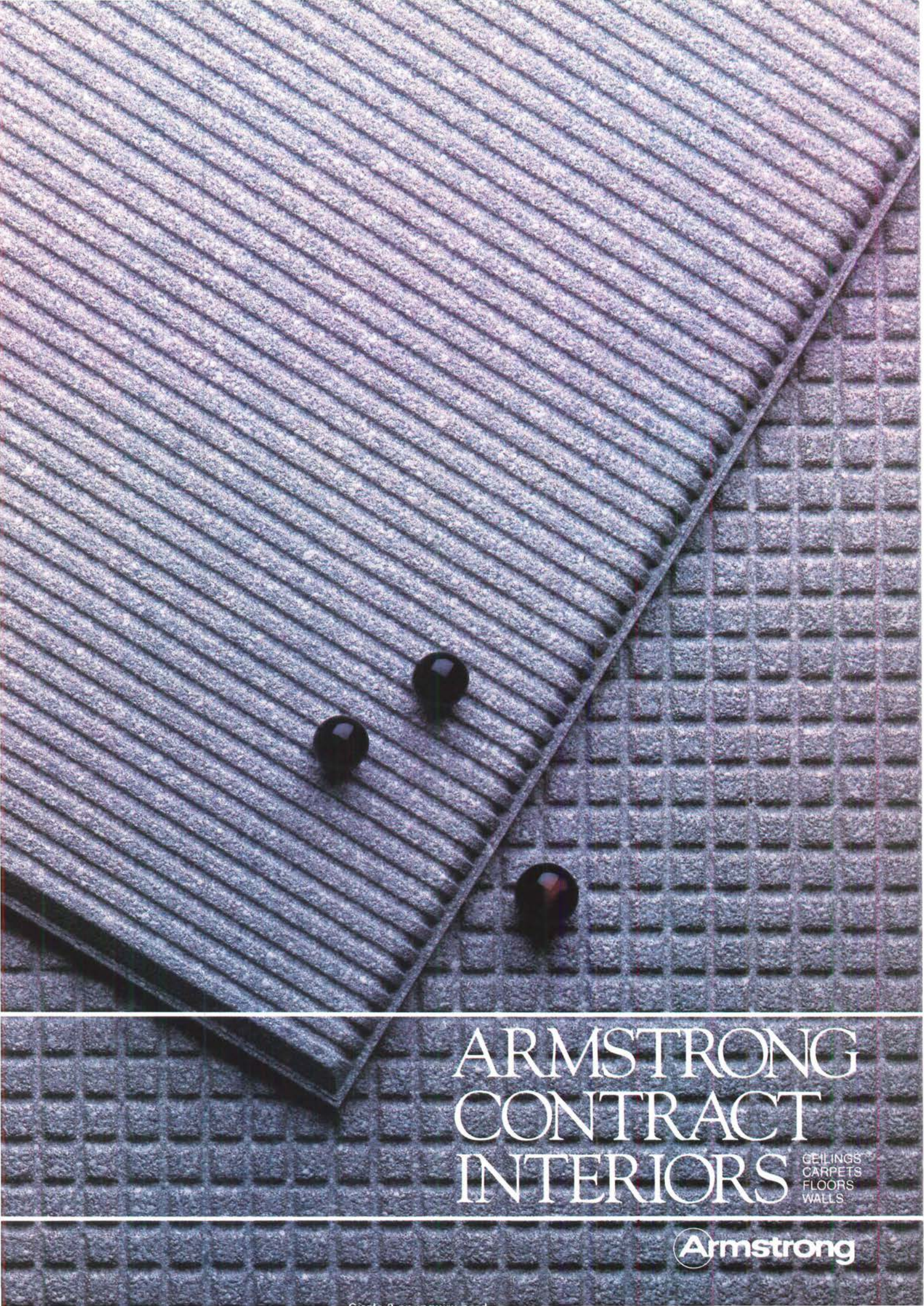

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Letters

Three times I tried to read Aaron Betsky's review of the West Hollywood Civic Center design competition [ARCHITECTURAL RECORD, February 1988, pages 76-77].

The first time through, I realized how special this review was: new ideas, new concepts, new words, new grammar. My second reading confirmed my suspicion that I had indeed stumbled into a new dimension, a dimension bounded by indigenous urbanistic response and the consumable imagery that otherwise defines the visible reality of Los Angeles.

A final examination of this important article sent me down to the basement in search of my home movie camera to facilitate an investigation into antiformal, antispatial carriers of urban images and machines for contextual condensation.

Benjamin Cherner, AIA
(Outdoor-Indoor Image-Maker)
New York City

I was pleased to see the article "A little help: Housing for the aging" [ARCHITECTURAL RECORD, April 1988, pages 98-107], which appropriately addressed issues of resident psychological well-being and the social responsibilities of architects. As a health-care architect with several such projects now under way, I must point out that the design solutions you presented pose some difficult planning issues that must be further resolved to serve this population group adequately.

The Marriott Corporation Quadrangle project, while I am sure it is attractive to township authorities and the young go-go elderly market, may present difficult physical access problems to a more debilitated resident population in years to come, given the dispersion of apartment units on the site. Although the structures are physically connected, extended lengths of travel and the psychological impact of passage through the health center to the common facility for daily meals and recreation seems highly inappropriate.

Development groups and architects must be reminded that after 10 years of operation, the average resident age in these facilities will be a "slower-go" 78, and the amenities of retirement communities should not be compromised by the physical plant.

Furthermore, as you have justly criticized federal housing policies, I also would like to comment upon the unsympathetic and inflexible conditions that are imposed upon owners and designers by state regulatory agencies. The wonderful design schemes in your article presented for skilled nursing facilities often become impossible to initiate because of health-agency reimbursement, square-footage, and capital-expenditure restrictions. In an overzealous initiative to control health-care costs, these bureaucracies equate minimum with maximum standards, ignoring opportunities to enhance private and social living patterns.

We professional designers are charged to understand the aging process. We are responsible for educating development corporations and government agencies alike in the improvement of planning and legislative policy toward living environments for the elderly. After all, the population we design for is in fact ourselves, and we must positively influence our own destiny.

Stephen N. Evers, AIA
Principal
The Ritchie Organization
Boston

Calendar

Through June 30
Architectural Drawings of the Old Executive Office Building 1871-1888: Creating an American Masterpiece, showing 53 drawings and nine building fragments; the Octagon, AIA, Washington, D. C.

Through July 31
The Experimental Tradition: Twenty-Five Years of American Architectural Competitions, 1960-1985, a major exhibit of 10 contemporary competitions, organized by the Architectural League of New York and curated by Helene Lipstadt; at the National Academy of Design, New York City.

Through August
Sheet Metal Craftsmanship: Progress in Building, an exhibition of tools and structures, designed by architect Frank Gehry; National Building Museum, Washington, D. C.

June 14-17
NEOCON 20, a furniture exposition and panel discussions; Merchandise Mart, Chicago.

June 22-26
A traveling conference of the League of Historic American Theatres, with tours and case studies of 12 Texas theaters; in various Texan locations. For information: League of Historic American Theatres, 1600 H St., N. W., Washington, D. C. 20006 (202/289-1494).

June 23 through August 30
Deconstructivist Architecture, an exhibition organized by architects Philip Johnson and Mark Wigley; at the Museum of Modern Art, New York City.

June 28-30
Training program on promoting downtown; at the Westin William Penn, Pittsburgh. For information: Vicki Onderdonk, Program Associate, National Main Street Center, National Trust for Historic Preservation, 1785 Massachusetts Ave., N. W., Washington, D. C. 20036 (202/673-4219).

ABP

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Publication Office: 1221 Avenue of the Americas, New York, NY, 10020. ARCHITECTURAL RECORD (ISSN0003-858X) published monthly with additional issues in April and September by McGraw-Hill, Inc. Second-class postage paid at New York, NY and additional mailing offices. Postage paid at Windsor, Ontario, Canada. Registration Number 9617.

Postmaster: Please send address changes to: Fulfillment Manager, ARCHITECTURAL RECORD, P.O. Box 2025, Mahopac, NY 10541.
THIS ISSUE is published in national and separate editions. Additional pages or separate editions numbered or allowed for as follows:
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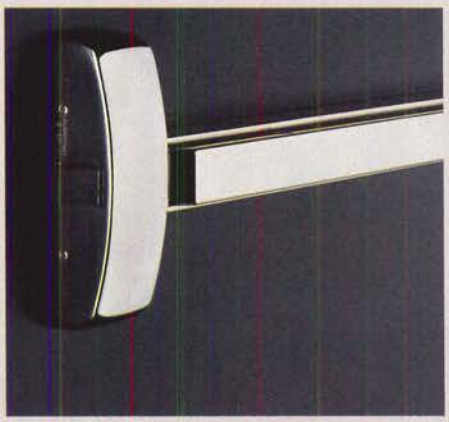

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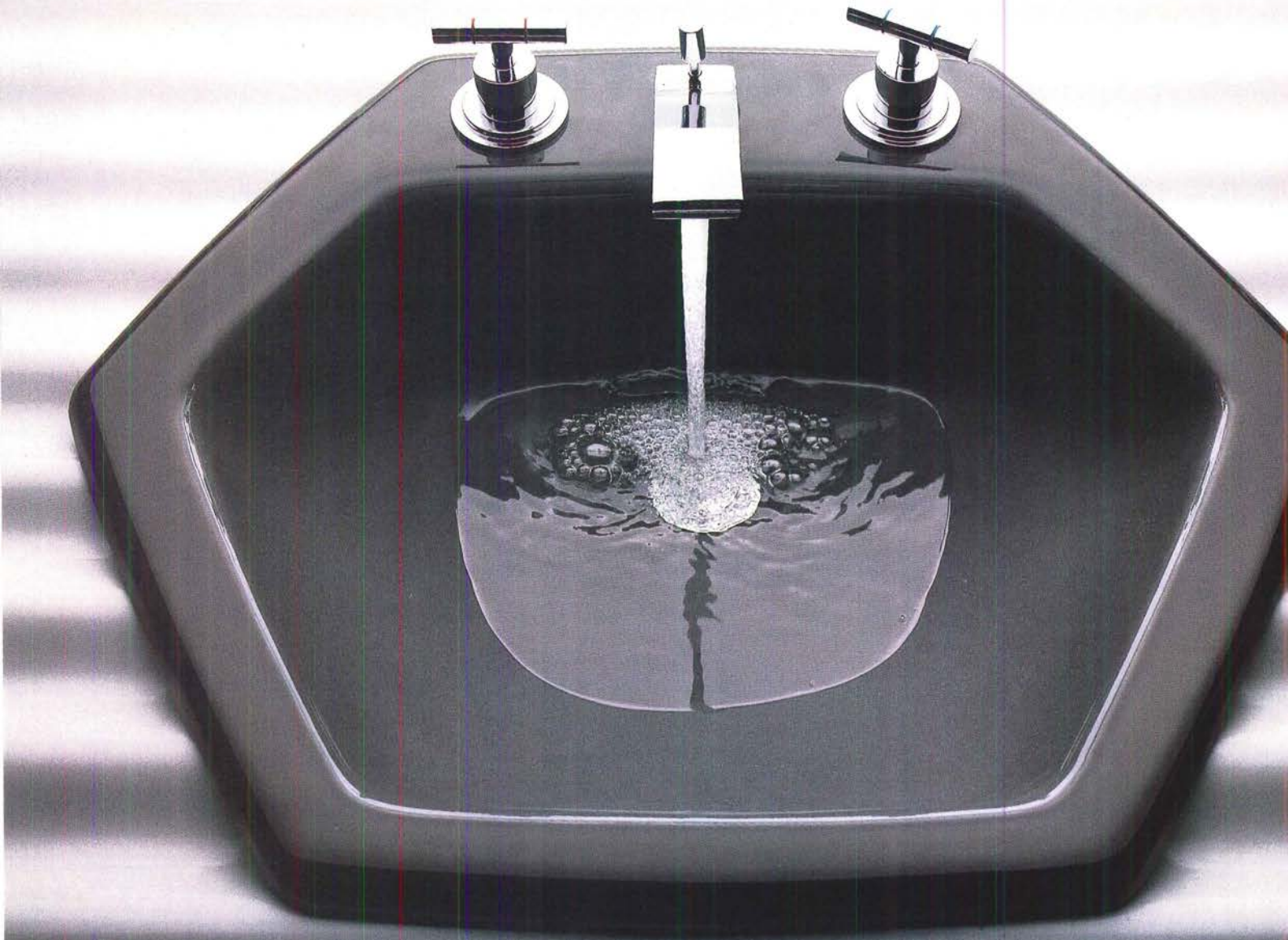

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AIA versus ASID: A battle for turf

The efforts of interior designers to persuade their state legislatures to pass interior-designer license bills are accelerating. New York State designers, for example, are currently mounting a major effort in Albany (which the New York Chapter of the AIA is doing its best to defeat), and many other jurisdictions, including Minnesota and Florida, are studying the issue. Alabama, Louisiana, and Connecticut already have adopted interior-designer licensing laws, as has the District of Columbia. Because it is a battle for control of a $40-billion-a-year segment of the construction market, neither set of combatants appears willing to grant any points to the other. Even the least threatened architects—those with interior designers as associates or partners—are unable to view designer licensing as a purely philosophical or ethical question, and their designer teammates, similarly lacking in detachment, are doing the best they can to get licensing legislation passed in their states. Because RECORD believes the issues to be more complex than either side has tended to present them, we invited two eminent attorneys to help clarify the opposing viewpoints.

Beginning on page 37, Carl M. Sapers presents the architects' position, followed by Jerrold M. Sonet, who makes the case for interior-designer licensing. Sonet argues that interior designers confront issues of public safety in every choice they make with regard to layout of space, the selection of furnishings and equipment to be placed in such space, and floor, wall, and ceiling finishes. "It defies logic," he asserts, "to contend that public safety in the built environment is confined to concerns of structural stability. And it defies logic that choice and location of attached materials and freestanding objects are irrelevant to the issue . . . . It is equally illogical to contend that only architects, or perhaps engineers, have the requisite training to confront these public safety issues." Sonet concludes by warning that the AIA's campaign against interior-designer licensing could backfire. "Given the penchant of legislators to permit everybody to work, it is unlikely that architecture will achieve the legal monopoly that the AIA seeks. The provoked counterattack, however, may seek to demonstrate to legislators that architectural expertise is not the equivalent of baccalaureate training in interior design and consequently lead to legislative action (certainly not sought at the present time) that would serve to restrict architects' participation in interior design work."

Sapers is presently serving as counsel to the National Council of Architectural Registration Boards' Committee on Procedures and Documents that was formed last year to study the merits and demerits of interior-designer licensing. The Committee is engaged in thinking through from the beginning those issues that affect licensing a trade or occupation. In his article for RECORD, Sapers discusses the legitimate foundations for all forms of state licensing and tells us where the state laws now stand with regard to interior designers. With but few caveats he argues that licensing the interior design profession is without legal justification. In particular he deplores the fact that existing interior-design licensing laws grandfathered substantially everyone working in the field at the time the laws were adopted. These people for the most part have no credentials other than selecting fabrics and furniture for people's living rooms. "If such persons," warns Sapers, "are by law empowered to design mechanical and electrical distribution systems with adequate fire-safety protection, and cuts through concrete slabs for connecting stairs, it may create serious problems to the public safety."

Except for practicing members of the opposing fields of endeavor, most of whom understandably know exactly where they stand, it is not a simple matter to take a position on an issue as vexed as this one. A further curb to the expression of a point of view is the fact that since RECORD promised equal time to the opposing defenders, it would be a breach of faith to use this editorial as the opportunity to weigh in for one side or the other. As soon, however, as NCARB's final report on its interior-designer licensing study is made public, the occasion will offer an excellent opportunity to speak out. *Mildred F. Schmertz*

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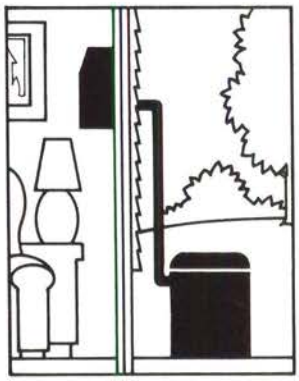

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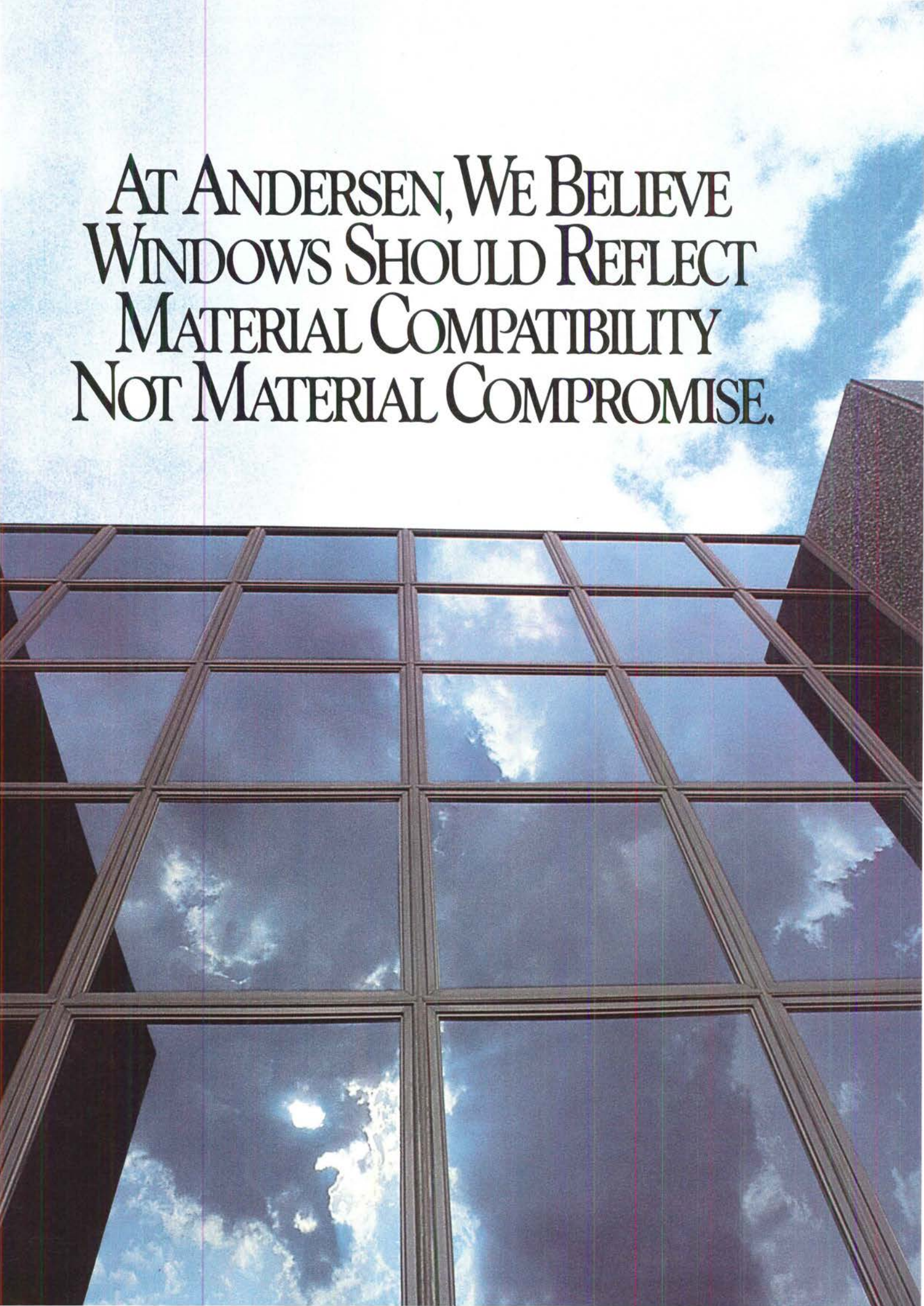

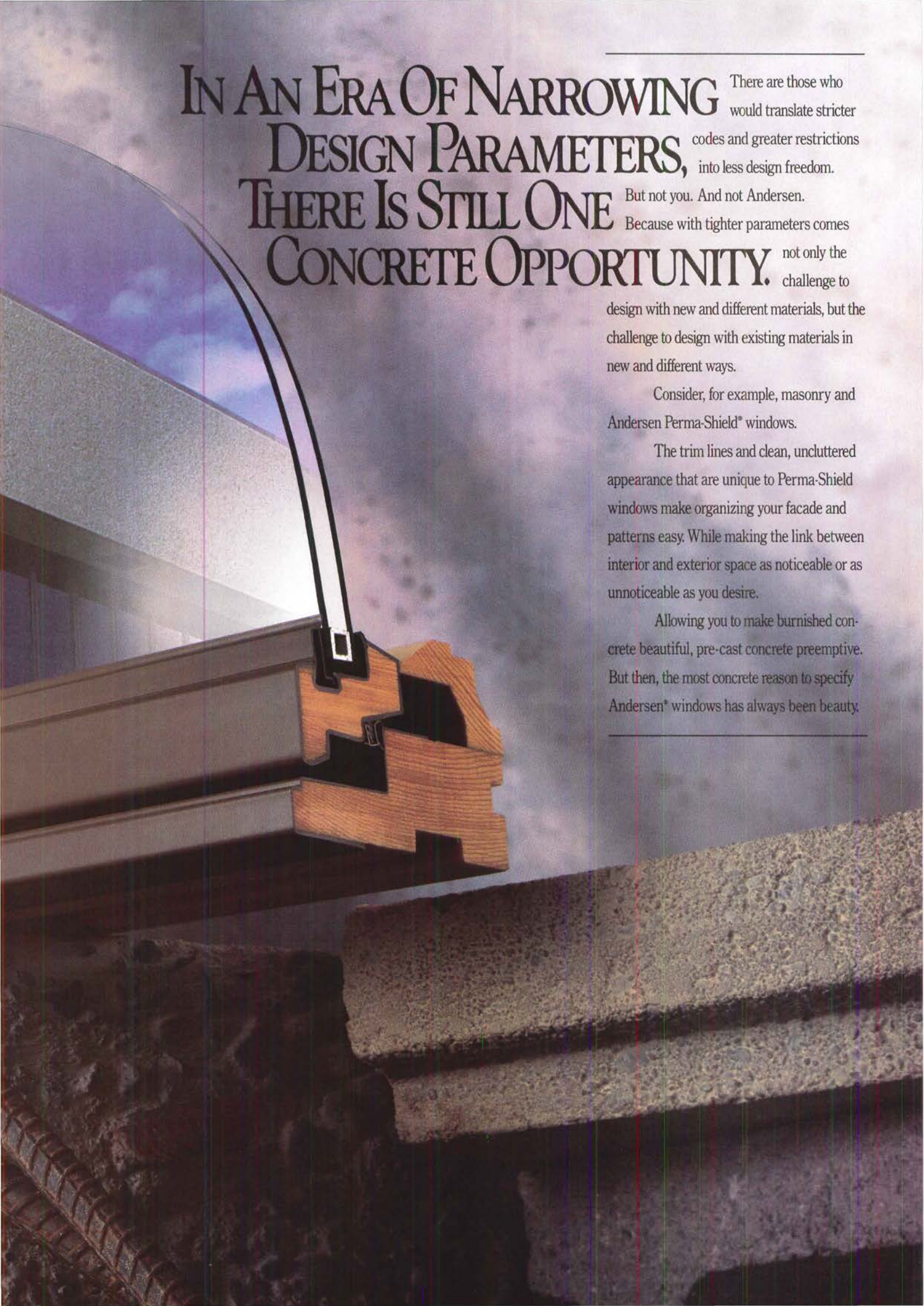

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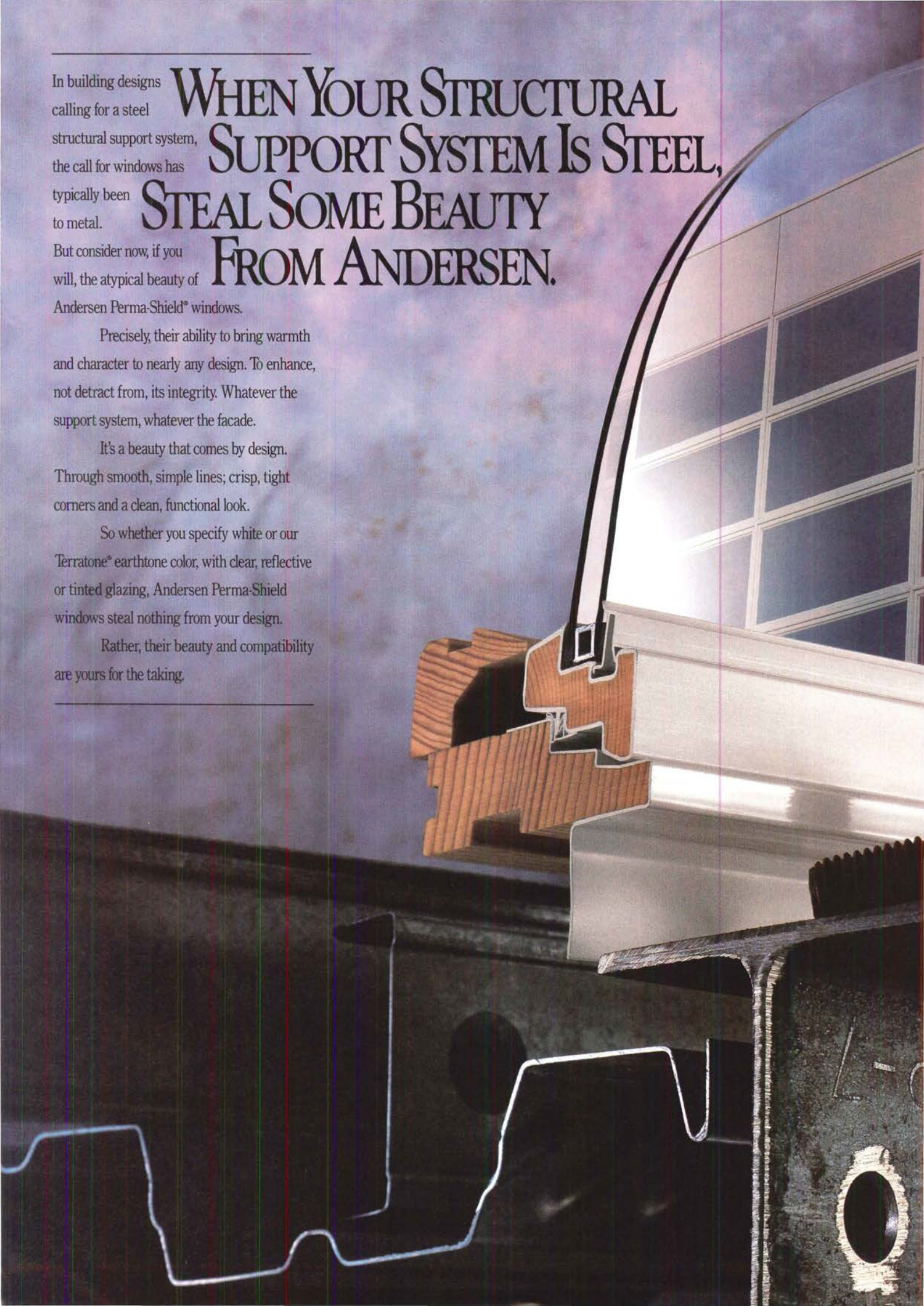

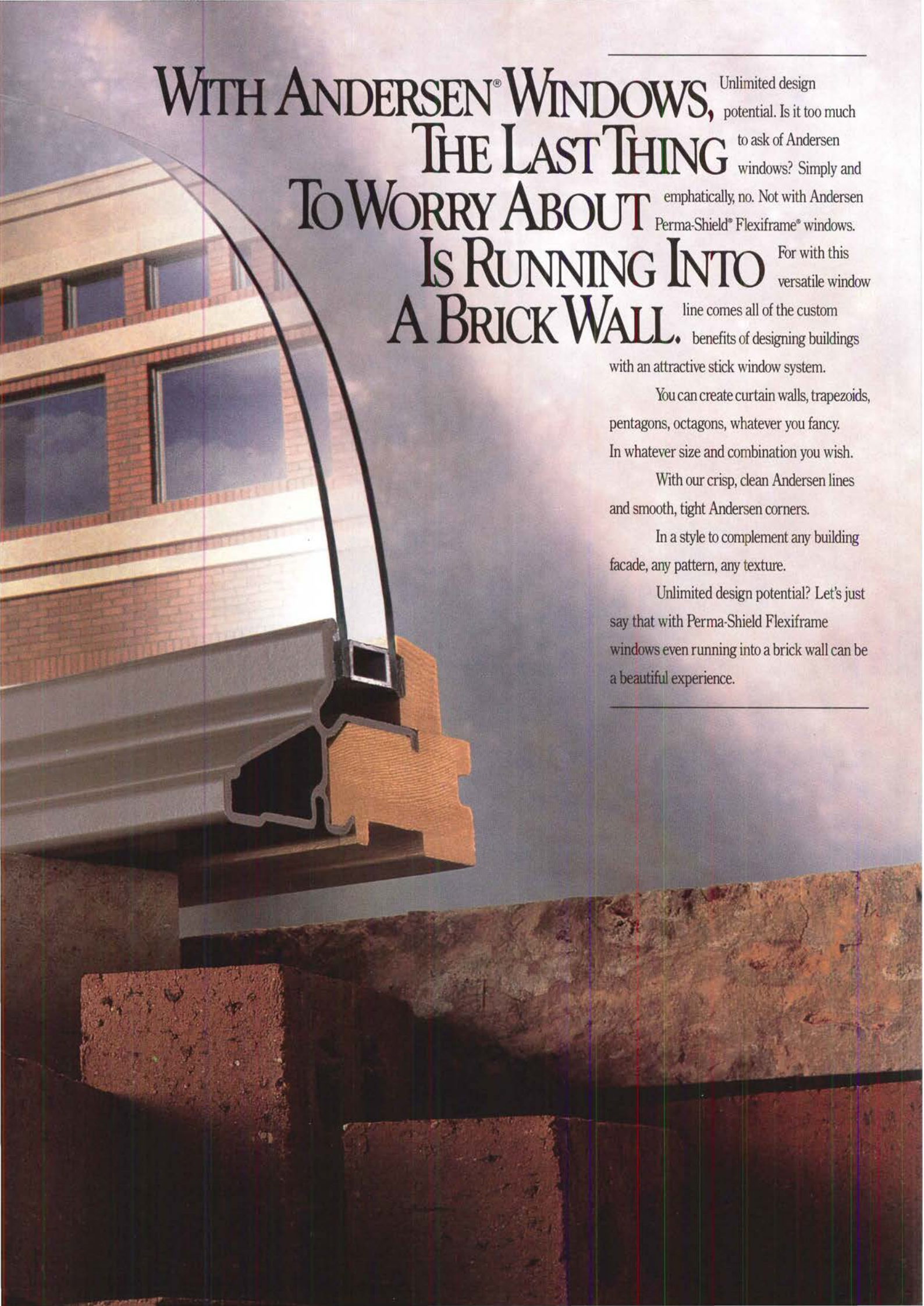

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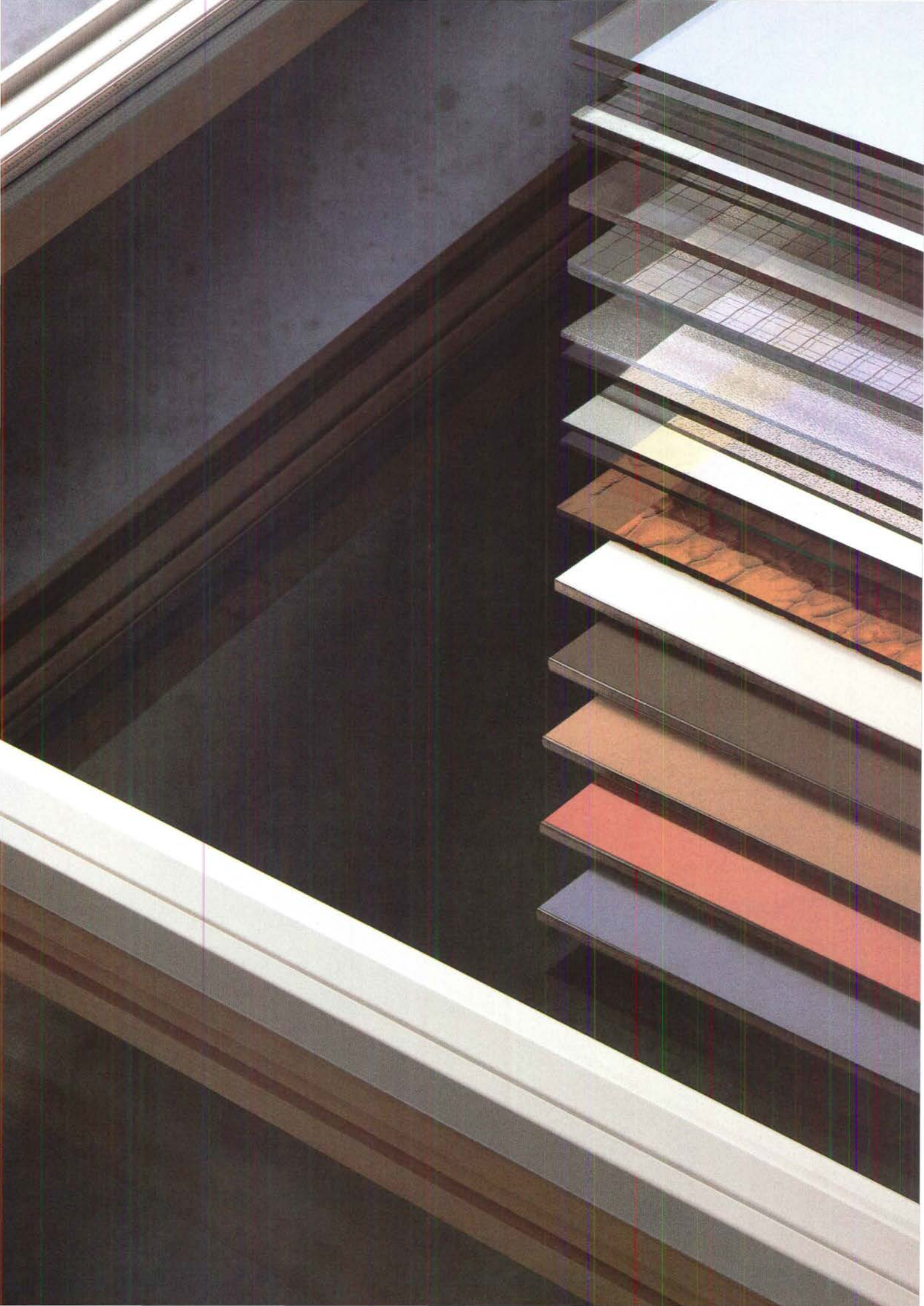

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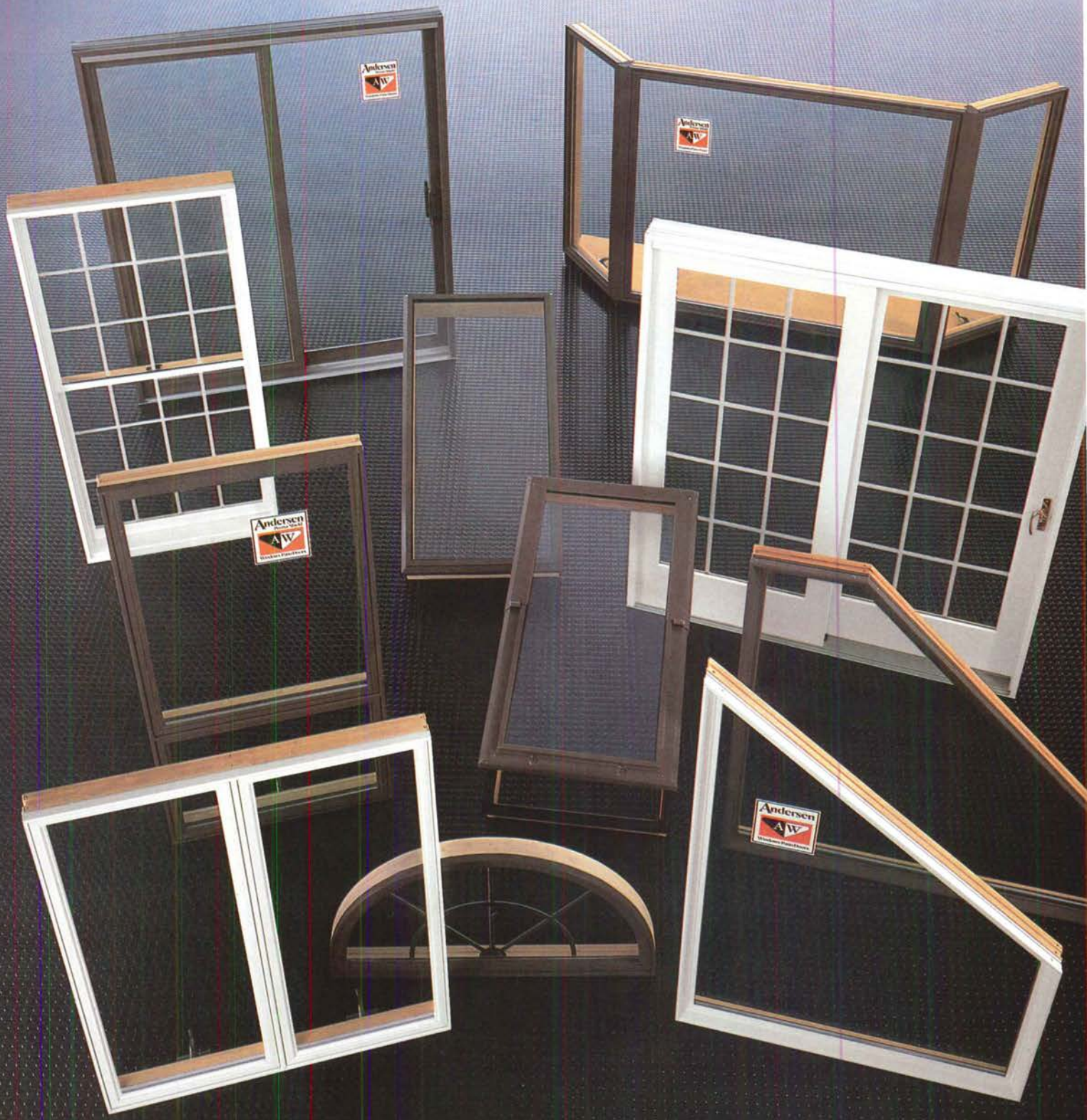

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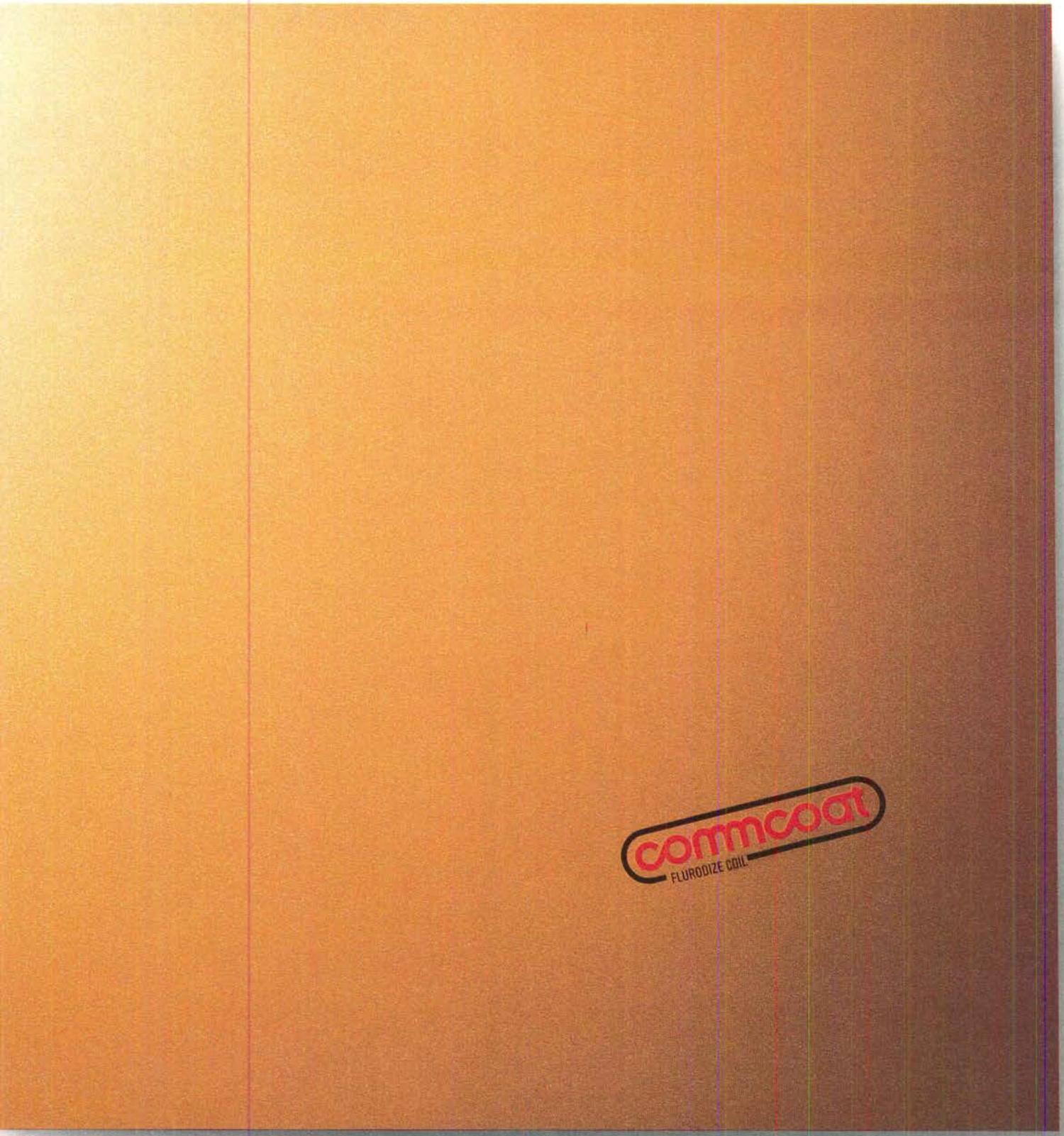

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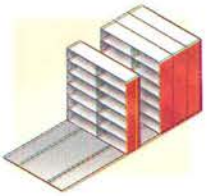

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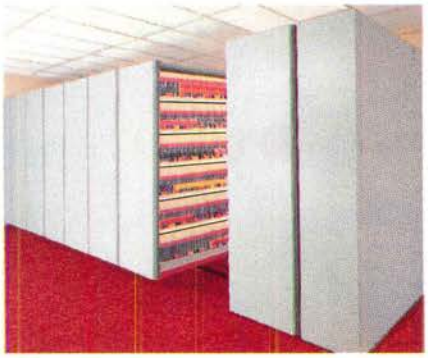

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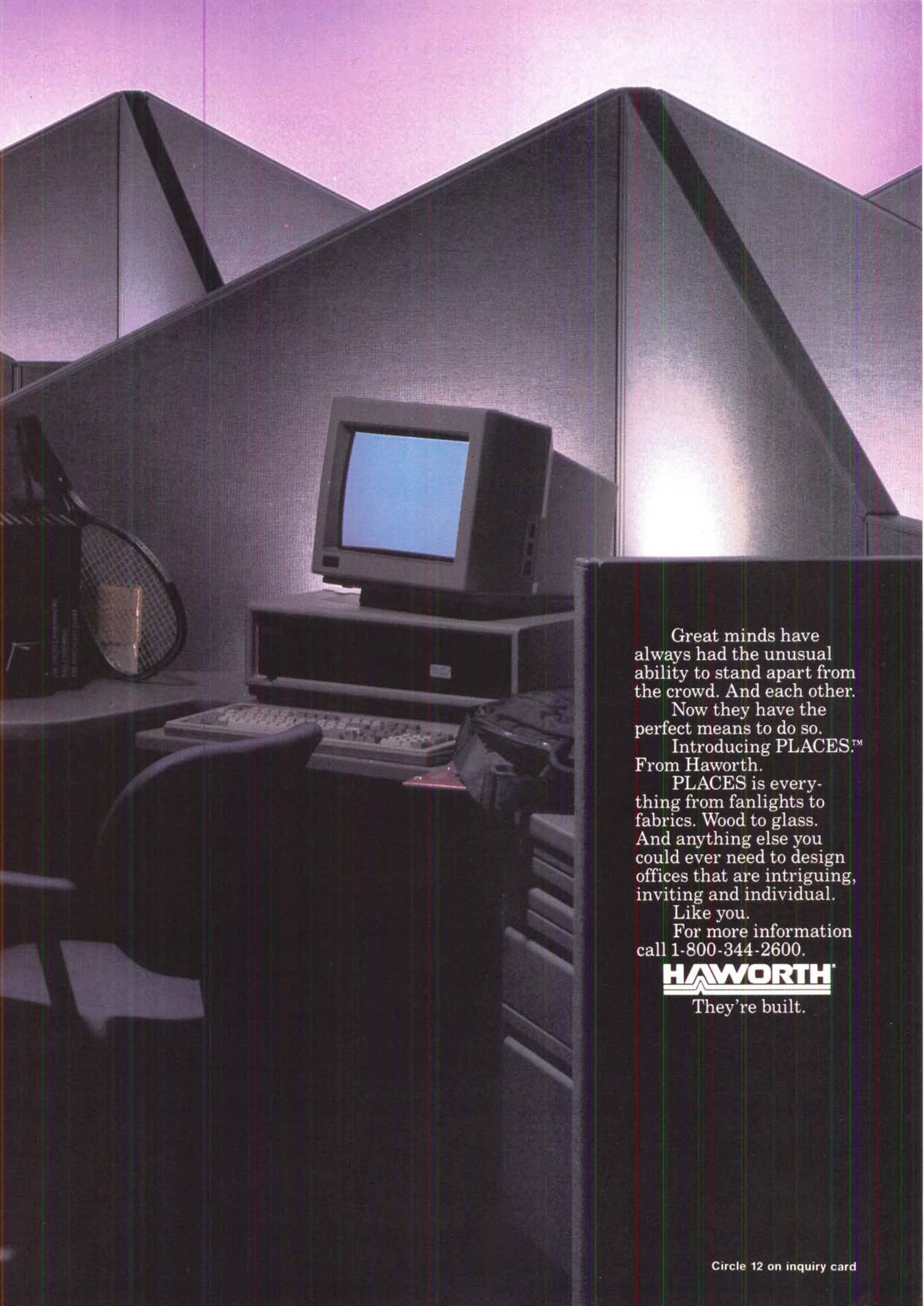

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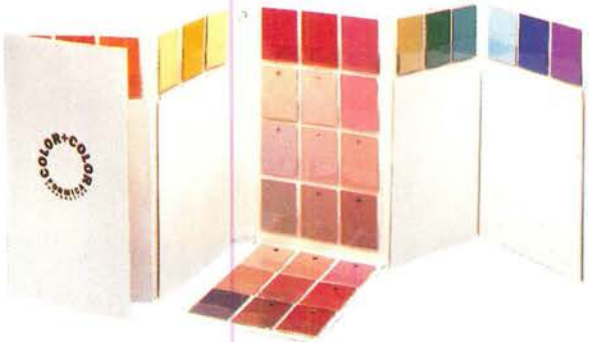

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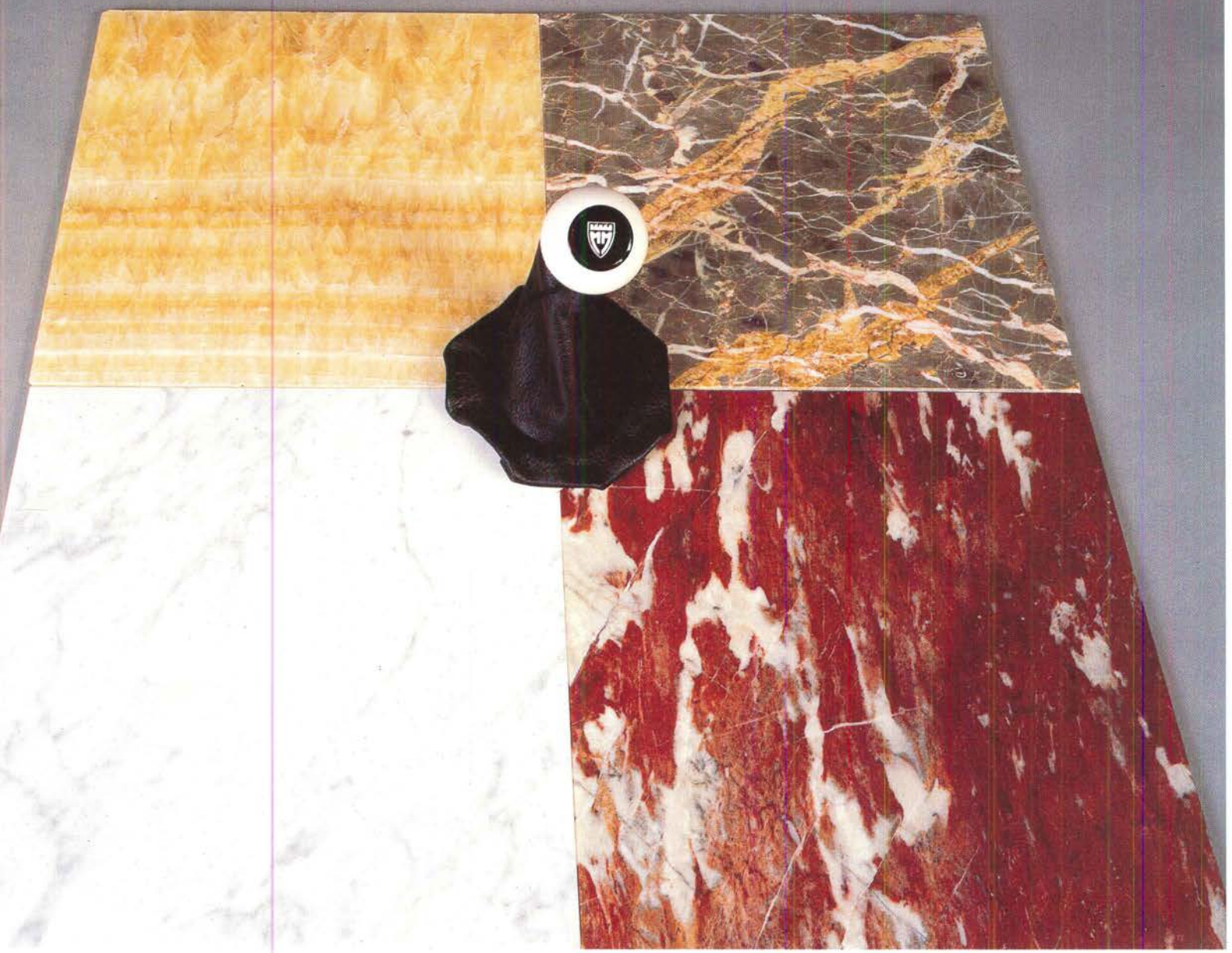

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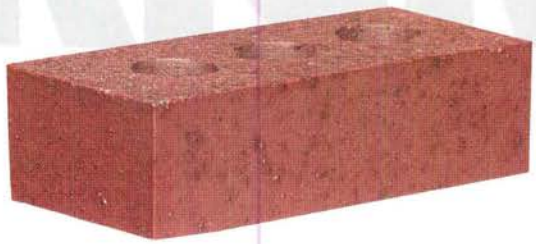

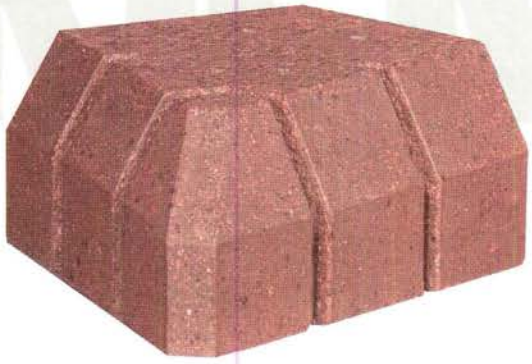

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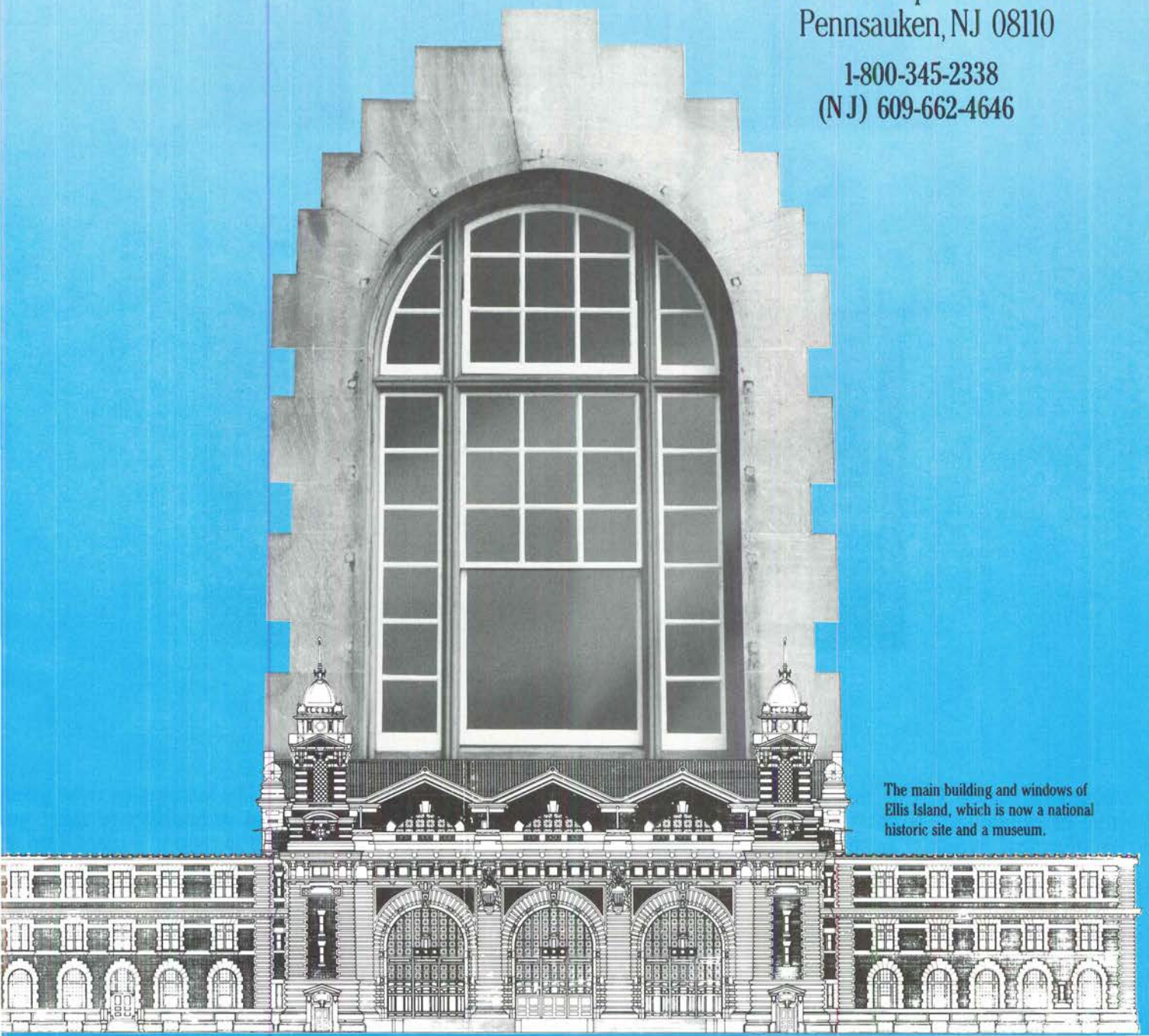

The main building and windows of Ellis Island, which is now a national historic site and a museum.

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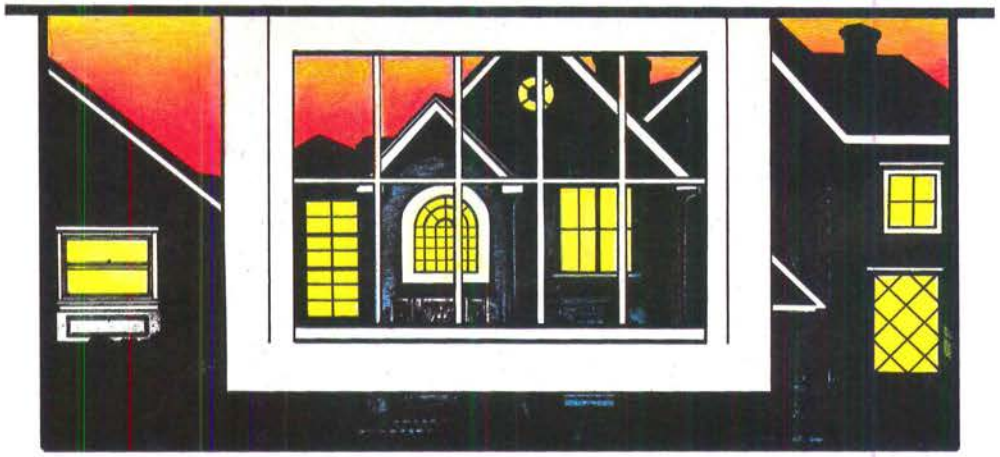

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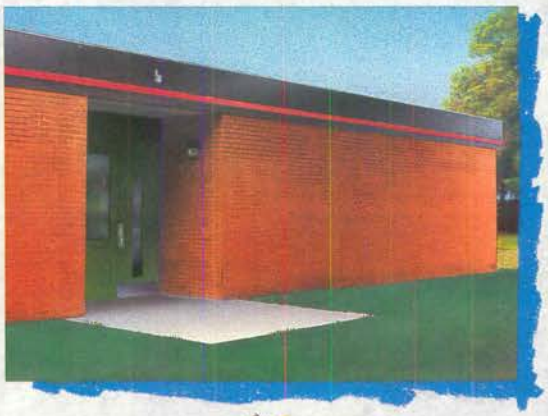

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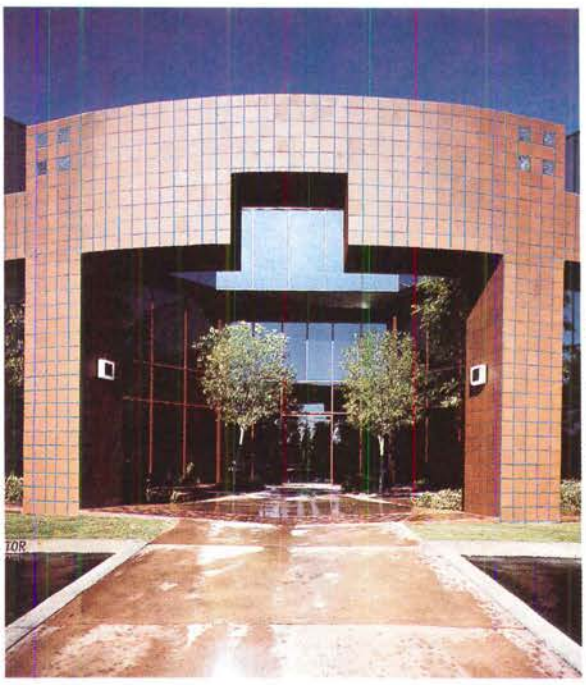

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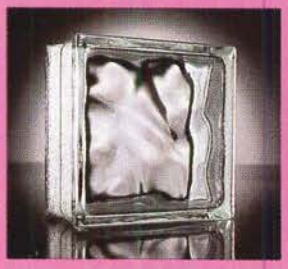

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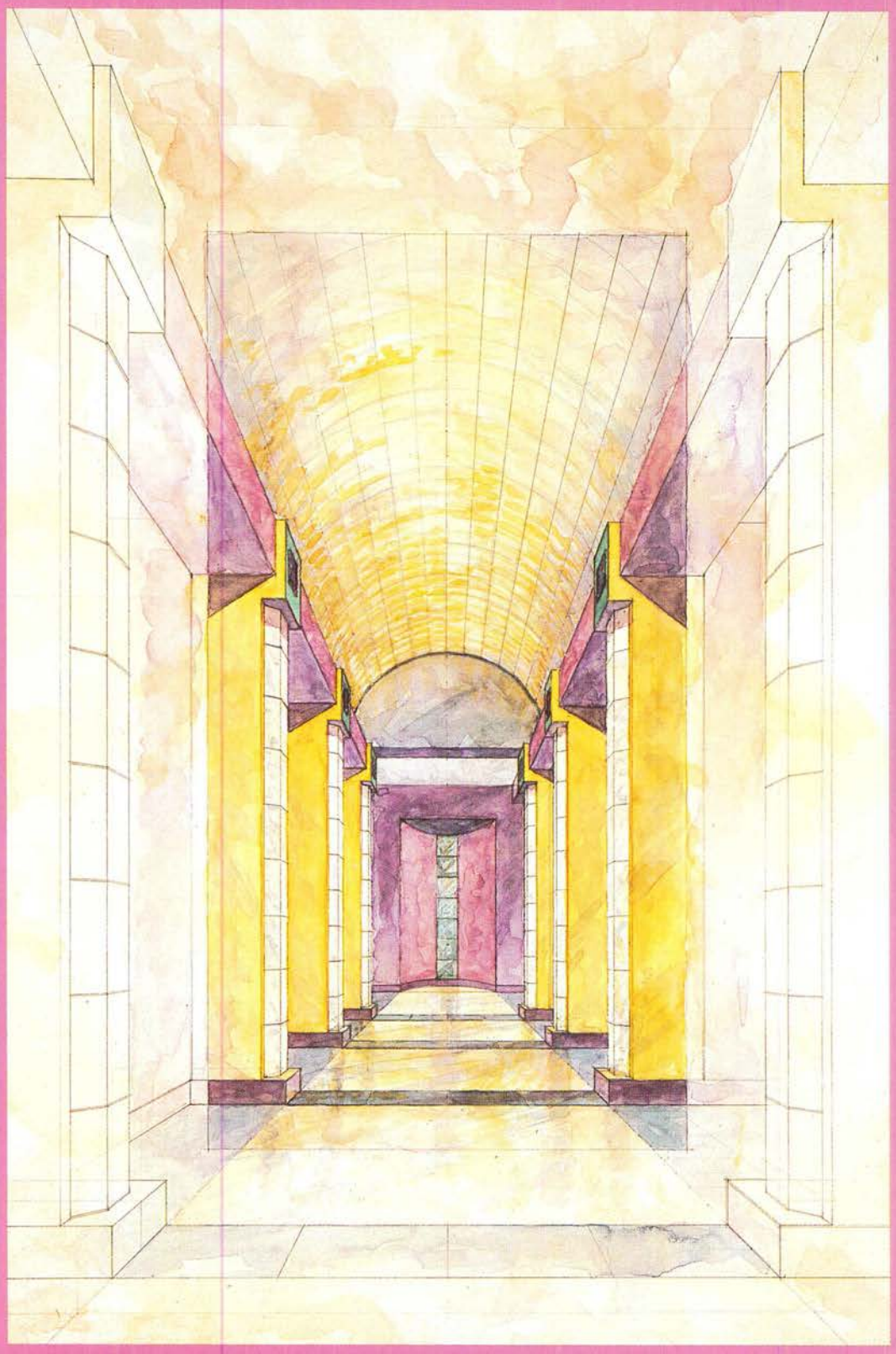

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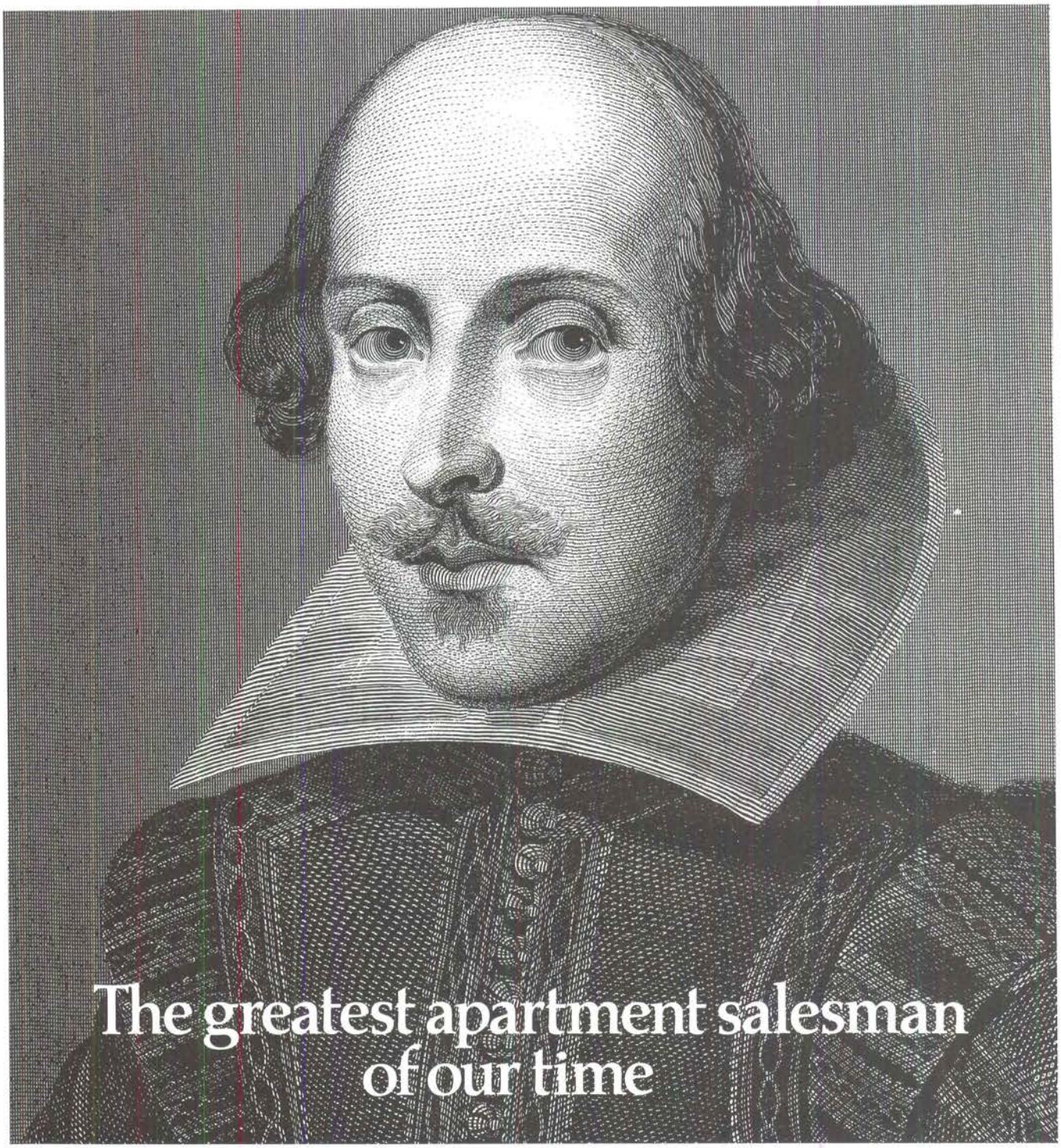

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Scarsdale copycat house helps assure stronger copyright protection from Congress

Early last month, the House of Representatives unanimously passed new legislation that would provide copyright protection for architectural drawings and extend that protection internationally. The Senate is expected to take up a bill nearly identical in its copyright provisions in the near future.

The problem with copyright protection for architectural drawings was highlighted earlier this year with reports of a copycat house in Scarsdale, N. Y., where a judge impounded the plans for a $2-million house said to be virtually the mirror image of another nearby by architects Nadler Philopena & Associates (photo).

The bills, H. R. 1623, already passed by the House, and S. 1301, to be considered by the Senate, would extend protection to architectural plans that, although covered in many other nations, are not explicitly mentioned in current U. S. copyright laws. Testifying for the AIA in early February, architect David E. Lawson told a House Judiciary Committee's subcommittee that U. S. case law differs significantly from foreign laws protecting architectural works and change is needed—partly to conform with the Berne Convention, an 1887 code to which most nations subscribe and that mutually extends copyright protection to signatories.

The new bills specifically include "architectural plans, diagrams, models, and technical drawings." These "modest changes" would allow the United States to join the Berne Convention, says Vermont's Patrick J. Leahy, cosponsor of the Senate bill. In an article published in *The New York Times* on April 21, Leahy had said that, while most other sectors of our economy show deficits in international trade, American copyright material produced a $1.5-billion surplus last year. "Berne membership is vital to the United States' interest in a global market driven by technology because the key to advances is intellectual property," he wrote.

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

Statistics out on engineers' liability premiums

In the latest issue of its *Liability & Litigation Report*, the American Consulting Engineers Council reveals that small firms spend a much higher percentage of their billings for insurance but get much more coverage for their dollar than bigger firms. Firms with one to five people pay 7.26 percent of their billings for coverage but only 4.78 percent of the amount they are covered for. As the firm size grows, those with six to ten people pay 5.81 percent of billings and 5.96 percent of coverage; with 11 to 25 people, the figures are 4.75 percent and 7.89 percent; 26 to 100 people, 3.61 and 10.67 percent; 101 to 500, 2.57 and 15.31; and over 500, 2.25 and 17.69. The ACEC points out that structural engineers can expect to pay about double those percentages. For more information, write or call the ACEC, 1015 Fifteenth Street, N. W., Washington, D. C. 20005 (202/347-7474).

Should architects enter politics?

Yes, insists architect Lee A. Martin, Columbus, Ohio, a former candidate for that state's senate. In a presidential election year, attention is focused on politics at all levels. Here are Martin's views on why architects should become directly involved.

Architects are very good about volunteering for positions on local boards and commissions that *enforce* public policy, but reluctant to seek elective offices that *establish* it. Among other reasons, we may not want to engage in what is possibly the only activity that is less certain and more time-consuming than the practice of architecture.

But if architects are to help determine the future course of civilization *and* create opportunities for architects in generations to come, we will have to use the political process towards those ends much more vigorously and effectively than we have in the past. We must make the transition from servants to masters.

Tort/insurance reform, tax reform, budget-deficit relief, low-income housing, interior-designer licensing, the selection process for design services, infrastructure replacement, and environmental, developmental, and municipal funding, to name a few, are issues that beg involvement from architects who are experienced in these areas *and* in assimilating data and optimizing solutions from inconsistent and often-conflicting program needs—the very essence of governmental decision-making.

Architects can be elected to public office. Architect Charles Harper is the mayor of Wichita Falls, Tex., having gained public exposure by chairing a task force to rebuild that city after it was hit by a tornado. He has a background in urban planning and has worked to diversify an oil-based economy and to revitalize the downtown. He points out the importance of a supportive family and business partner to anyone contemplating leaving the full-time practice of architecture to run for office.

Architect Harvey Gantt is the mayor of Charlotte, N. C., and feels that, despite unique abilities, architects do not seek public office because they cannot see the direct reward of professional advancement as do others from business or law.

While our national and state organizations lobby Congress and various state legislatures, they have not, to date, helped a political party put a viable architect candidate in a winnable race, not to mention making the stiff financial commitment that will insure victory. In advance of the 1988 elections, architects should, at the least, become active enough to influence which candidates and issues come before voters, and assure that funds from the profession go toward specific beneficial objectives rather than being thinly spread to cover all bases. If we remain silent, asking what the political process will, without our involvement, give us as a profession and a society, we will undoubtedly be very unhappy with the answer.

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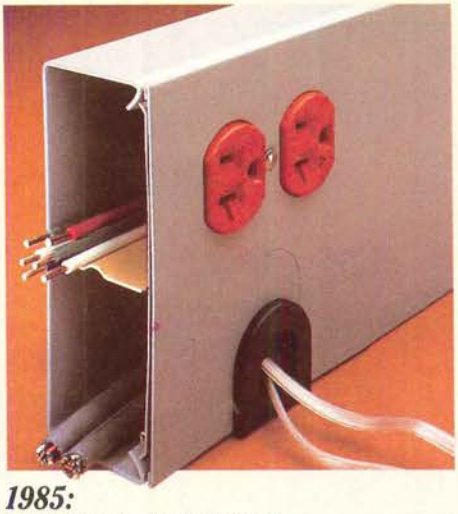

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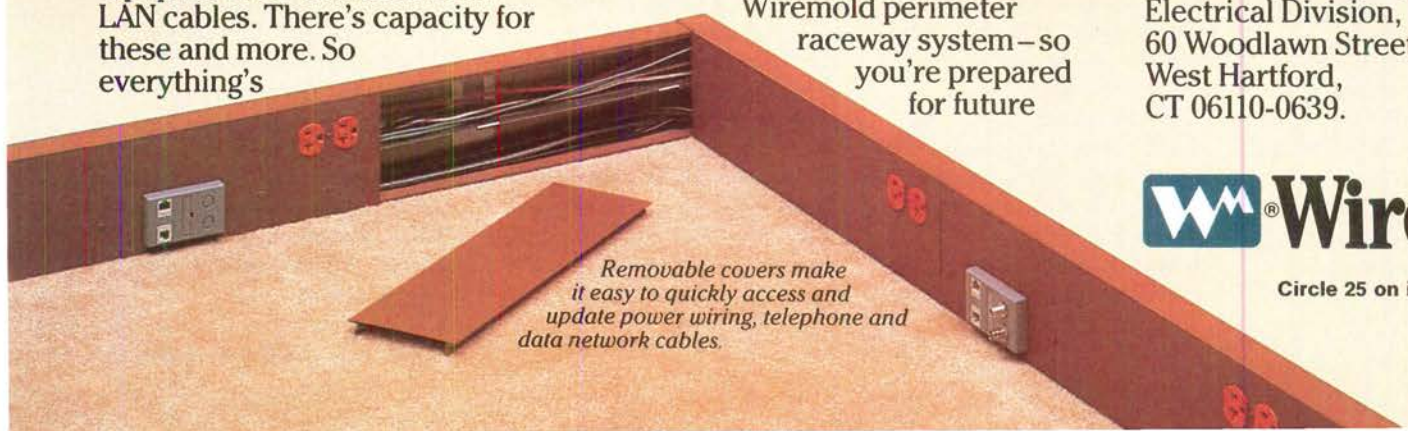

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Finance: The relation of oil, inflation, and higher interest rates

Higher interest rates in the third quarter will impact negatively on most construction activity. Industrial building will surge, however.

By Phillip E. Kidd

In mid-April, OPEC called on other oil producers to convene and discuss curbing production to boost sagging oil prices. Immediately, the specter of revived inflation transversed the financial markets, nudging interest rates higher. Such alarms have shaken the markets before and then quickly subsided as world oil production continued to exceed demand. However, this time they could portend renewed inflationary pressures later this year and next.

Demand for oil in the U. S. is rising. Unfortunately, domestic production, which fell severely with oil prices in the mid-1980s, is still slumping. In turn, our dependence on imported oil, now approaching 40 percent of our requirement, is expanding.

The U. S. is not alone. Oil demand worldwide is growing, even in Japan where efforts to conserve are extraordinary. For the time being, OPEC and the nonaligned producers are still pumping more oil than is needed. However, the financial markets (international and domestic), noticing the upward trend, are clearly concerned about the speed with which the oil glut will be eliminated, allowing oil producers to control prices again. Consequently, any hint at cooperation among OPEC and the other oil exporters in lowering supply is a signal for the financial markets to tighten, pushing interest rates higher.

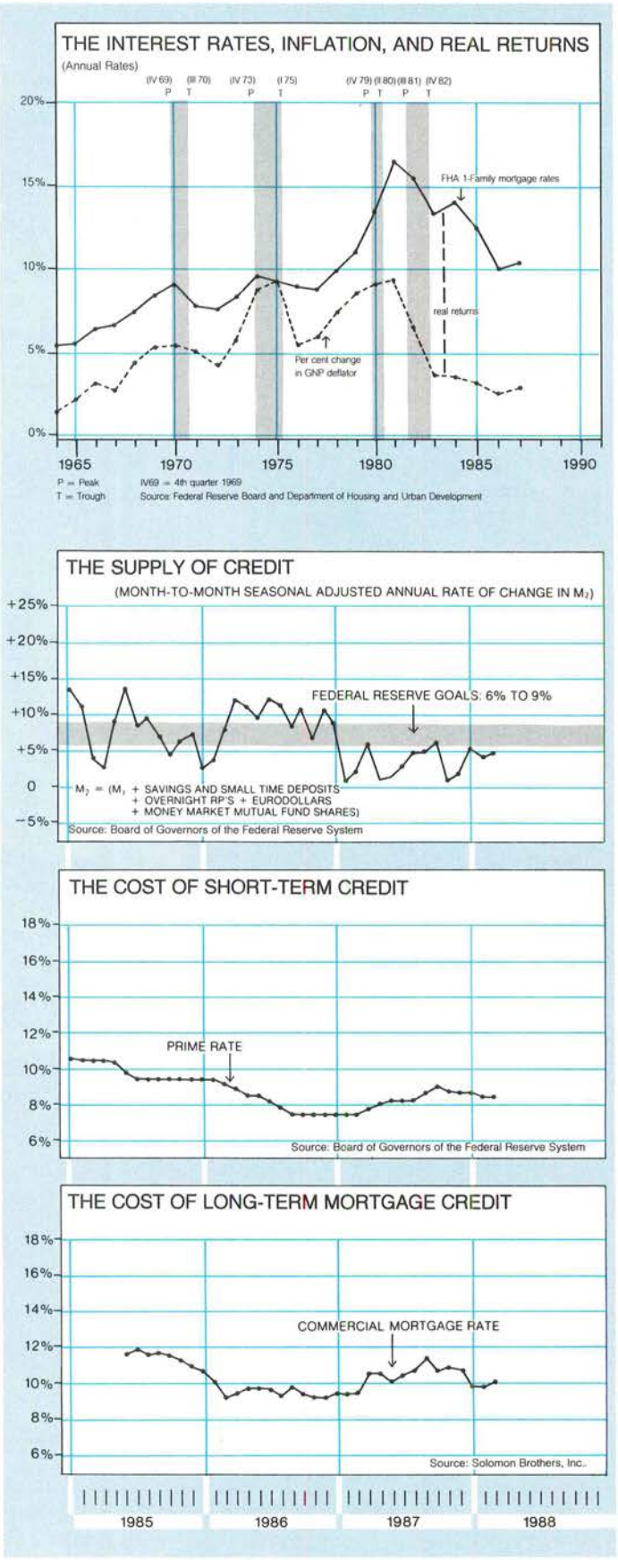
Strange as it may seem, the skittishness of the financial markets and the resulting upward pressure on interest rates may be one of our best defenses against renewed inflation. Institutions and individual investors, vividly remembering the damage of the previous two oil shocks (1973-74 and 1979-80) to the value of their portfolios, have demanded exceptionally large real returns on their investments throughout this expansion (top chart). While inflation has moderated to levels not experienced since the mid-1960s, real interest rates are more than 2 1/4 times larger.

Those enormous returns have been a factor in limiting annual real increases in GNP to less than 3 percent since 1984. Until recently, that sluggishness inhibited the development of scarcities in labor, materials, and plant capacity. However, the continued transition from a consumer-driven upturn to a manufacturing and export one is generating signs of strains of which rising oil consumption and interest rates are among the more visible indicators.

Higher interest rates, especially as they widen real returns, will quicken the retrenchment among consumers. Individuals will continue switching from expensive imports to cheaper U. S. goods, supporting domestic manufacturing. They will also reduce debt and build up savings, providing more funds for plant and equipment investment, as well as checking the magnitude of the hike in interest rates this summer.

During the third quarter, interest rates will climb another 25 to 50 basis points (one-hundreths of a percent). Rates on short-term quality assets will fluctuate between 6.25 and 7.25 percent; on 7- to 10-year governments, between 8.75 and 9.50 percent; and on fixed-rate mortgages, between 10.75 and 12.00 percent.

Although modest, such rate increases will hurt most construction activity, except for industrial building. Manufacturing awards will advance as businesses rehabilitate or enlarge existing structures and even start new ones. Single-family starts and retail construction, after a decent first half, will edge downward. Moreover, multifamily starts and office building will continue their longer-term struggle with overbuilding.



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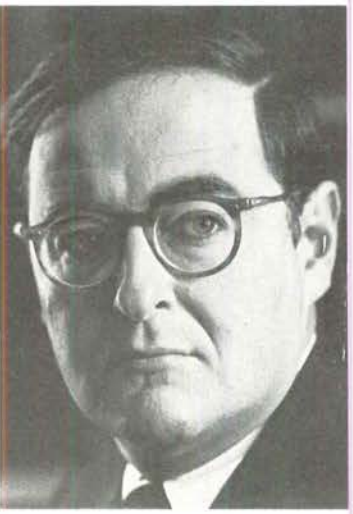
Practice: Should interior designers be licensed? An eminent attorney describes the problems

Strident controversy on this issue threatens to cloud the once-harmonious relationship of the designers and architects. Attorney Carl Sapers here presents his view of the issue—which tends to agree with the architects'—against licensing. It is followed by the view of the ASID.

By Carl M. Sapers



The prospect of licensing interior designers has stirred a passionate response among practitioners in that field and among leading figures in the profession of architecture. The AIA issued a white paper in 1986 in opposition, a paper that some have observed was drafted with a force and determination quite uncharacteristic of that venerable institution. One leader of the interior-design industry, on the cutting edge of the effort to persuade state legislatures to enact interior-design licensing laws, has responded to the white paper by writing to the Federal Trade Commission and suggesting that the AIA is engaged in a turf war that may violate some of our antitrust laws. Having in mind the recent experience of the AIA with alleged violations of the antitrust laws, such an accusation can only be understood as a major escalation in the war.

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

Where the state laws stand now

In the meanwhile, out on the battlefield, the states of Alabama, Louisiana, and Connecticut and the District of Columbia have adopted interior-designer licensing laws. Many other jurisidictions, New York, Minnesota, and Florida among them, have the question before their legislatures. There is no uniformity in the laws being proposed, although the Alabama and Louisiana statutes describe the practice of interior design as including substantially all the elements within a building shell. The draft New York legislation very carefully circumscribes the work that an interior designer may do but permits an interior designer to be the prime professional retaining an architect, structural engineer, or mechanical engineer, as the case may be, to produce those portions of the design that the interior designer may not undertake himself. The Florida draft legislation limits the interior designers even more than the draft in New York state. Under the Florida proposal, there is explicitly excluded from interior design those services that require performance by an architect. In the context of the Florida statute, the interior designer cannot act as prime professional, for to do so would involve the interior designer in offering architectural services. The Florida statute is interesting in another respect: It describes interior design work as being "within and surrounding interior spaces of buildings." One would suppose the elements surrounding interior spaces are the outside walls.

It has been observed those who have a taste for sausages, like those who admire laws in a democratic society, would do well not to watch them being made. Legislation in state legislatures is seldom an exact science, but I believe it is a fair generalization to observe that the enacted statutes seem intended to enable the interior designer to do any part of the interior build-out design, the New York statute allows the interior designer to act as prime professional, and the Florida statute would confine the interior designer to organizing nonbearing partitions, designing or selecting movable furniture, and designing or selecting surface materials. All of these statutes, enacted or proposed, allow architects to continue to practice interior design. The turf issue, then, should be understood not in terms of interior designers pre-empting a part of the practice of architecture, but rather, at least in Alabama and Louisiana, of being able to engage, in competition with architects, in seeking to be employed to do what was heretofore the exclusive province of architects.

With this background, the member boards of the National Council of Architectural Registration Boards at its 1987 June annual meeting asked the Council to study the merits and demerits of interior-designer licensing. NCARB asked its Committee on Procedures and Documents to undertake that study. The Committee in turn interviewed a number of interested parties, studied the available literature, and is in the process of preparing a report for approval by the Council Board of Directors. As counsel to the Committee, I have been extraordinarily fortunate to participate in those proceedings and to have the benefit of its preliminary report as the basis for this article. This article represents my personal views and not the views of the council or of its committee, although I am indebted to both for allowing me to listen in on the committee debate.

Rather than consider the issues arising out of the so-called turf war, the committee viewed its assignment as an opportunity to think through afresh the issues involved in licensing a trade or occupation. In using its analysis, I believe I can illuminate the foundations of licensure as understood in the 1980s in America.

What licensing means

At the outset, I submit the proposition that licensing by the state should not be used as a means of recognizing distinction in a field of endeavor. State licensing confers monopoly status on those who are admitted to practice, denying all other citizens the right to compete with those who have been admitted. (While a title act may allow others to practice provided they do not represent themselves to be professionals in the field, that prohibition has historically given paramount position—if not a monopoly—to those permitted to use the title.) This is much too serious an exercise of the regulatory power of the state to be applied for the purpose of satisfying the vanity of certain practitioners or even to reward distinguished performance. The regional office of the Federal Trade Commission, when asked to comment on a proposal to register interior designers in New Mexico, observed:

"[The proposed act] would create barriers to entry into the interior-design industry. Our experience with and studies of many similar types of restrictions indicate that barriers to entry are associated with higher prices for consumers and with fewer consumer choices."

What then are the legitimate foundations for state licensing of a trade or profession? An examination of this question in the context of interior-design licensing can make a useful contribution to the public discussion of the issue. I submit five propositions:

Continued on page 39

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Practice continued from page 37

The turf issue should be understood not in terms of interior designers pre-empting a part of the practice of architecture, but rather . . . of being able to engage, in competition with architects, in seeking to be employed to do what was heretofore the exclusive province of architects.

First, the trade or profession seeking licensing must require that practitioners master a body of knowledge, skills, and abilities, which mastery is not readily achieved by laypersons. No rational society would license typists, bicycle riders, sales clerks, or snow shovelers. To do so would arbitrarily exclude from those occupations a vast number of citizens perfectly able to master the skills involved and would confer on those licensed an unnatural monopoly (or alternatively would result in universal licensure, which is, of course, senseless).

Second, the improper practice of the trade or profession must impact substantially the health, safety, and welfare of the public. No rational society would license painters, poets, and concert pianists, even though each is engaged in a calling requiring extraordinary knowledge, skills and abilities. But the failure of each to perform properly, alas, cannot be said to affect adversely the public health, safety, and welfare of the public.

Third, the members of the public at risk must be unable to protect themselves satisfactorily from injury without the intervention of the state. This proposition may be demonstrated by various examples. Teachers of nuclear physics, for example, qualify for licensure under the first two propositions, but we look to the vetting and oversight by the dean and faculty of the physics department of a university rather than a state licensing board to afford reasonable assurance that the students of nuclear physics will be taught by their teachers to respect the dangers inherent in their activity by the time they graduate. This proposition is most commonly applied to argue against state intervention to protect consumers who are able to protect their own interests. The federal Securities and Exchange Act requires that all offerings of securities to the public be accompanied by statements filed with the SEC disclosing all material information but allows offerings to qualified persons of substantial wealth to be made without such statements. It is believed that such persons can adequately protect their own interest or will engage lawyers and accountants to protect their interests.

Fourth, the trade or profession seeking licensure must be willing to have the state develop rigorous entry criteria necessary and appropriate to protect the members of the public at risk from unqualified practitioners. Assuming each of the foregoing propositions has been met, state licensing is still not appropriate if the monopoly status is conferred on persons who do not demonstrate that they are qualified to carry on the practice specifically in those areas where the public is most at risk. For example, if architects were licensed on the basis of an examination testing their management, negotiation, and financial skills (all of which arguably are necessary for a successful practice), no knowledge would have been demonstrated of those aspects of architectural practice posing the greatest risk to the public. Such a system would make little more sense than licensing architects on the basis of their political-party affiliation.

Fifth, the trade or profession seeking licensure must be willing to have the state regulate the actual practice of license holders to the extent reasonably necessary to protect the public. No one is entitled to maintain the monopoly status if he or she violates appropriate rules of conduct or endangers the public in the conduct of his or her practice. As Ralph Nader and others have persuasively argued, rigorous entry criteria are only the first step in a regulation system—a first step that inevitably creates a small privileged group. To protect the public effectively, the state must ensure that actual practice meets appropriate standards.

I now apply the five propositions to the issue of licensing interior designers

1. Mastery of the body of knowledge, skills, and abilities required of a competent "contract-interior designer" (I use that phrase as a way of separating out from the estimated 200,000 persons* doing interior design or interior decorating those persons involved in sophisticated interior build-out work) involves matters well beyond the knowledge, skills, and abilities of laypersons. Among those knowledges, skills, and abilities is the ability to understand distribution systems for mechanical, electrical, and hvac systems, to understand interior structural elements, and to understand egress and other life-safety systems. If one grants for the moment the argument of some interior designers that they can hire mechanical, electrical, and structural engineers, and/or architects to design these systems, then it is, at a minimum, necessary for the competent contract-interior designer to understand when those complex issues arise for which mechanical, electrical, and structural engineers and/or architects must be engaged.

Conversely, it cannot be said that the vast majority of the approximately 200,000 persons engaged in the business of interior design and interior decorating must master such specialized knowledge. While it is often argued that this much larger group must understand the toxicity and flammability of fabrics and furniture, close analysis suggests that the fabric and furniture manufacturers are the parties expected to test and declare in plain language any dangerous aspects of their products. Reading the manufacturer's declaration and recommended usage is well within the ability of laymen.

2. The majority of the persons engaged in the business of interior design and interior decorating are, in fact, employed chiefly for two reasons: They afford the consumer access to products not otherwise available to the consumer, and they offer to apply for the consumer's benefit their sense of taste, style, and esthetics. In neither case can they be said, for purposes of the second proposition, to impact substantially the health, safety, and welfare if they fail the consumer in either objective.

Of course, the so-called contract-interior designer stands in quite a different relation to this second proposition. Those systems referred to in the preceding section have serious consequences for the health, safety, and welfare of the occupants of built-out space. Failing to perceive that a wall is a bearing or lateral-bracing wall (and therefore failing to engage a structural engineer to design its removal) is but one example of how improper practice may have an adverse effect.

3. Focusing now exclusively on the contract-interior designer, it is doubtful if the customer for his services needs intervention by the state to be protected from injury. The business of the contract-interior designer is, after all, focused on institutional or commercial organizations that, with the exercise of some prudence, can ascertain the past record of an interior designer proposing services and whether

Continued on page 41

**As seen in Sonet's article which follows, there is a substantial difference in the number of interior designers estimated by that group and by architects.*

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Practice continued from page 39

[Professional licensing] is much too serious an exercise of the regulatory power of the state to be applied for the purpose of satisfying the vanity of certain practitioners or even to reward distinguished performance.

r not he is likely to fulfill xpectations. This is to be listinguished from the classical ases of consumer-protection egistration; doctors and lentists, for example, deal with nsophisticated persons unable, vithout the state's help, to judge heir professional competence.

Much the same criticism has been leveled at the need for icensing architects who also deal hiefly with sophisticated ustomers. The defense of rchitectural licensing has lways been grounded on *users* ather than *customers*. In fact, nost state laws require the rchitect to design in accordance vith the code safety equirements even if to do so nay run counter to the owner's nstruction. We register rchitects not to protect a major rban developer from being oodwinked, but to protect the ublic entering the building's ffices or shops or theaters.

It is a much closer question with respect to contract-interior designers whose mistakes may affect a much narrower segment of the public than those of the architect. Nonetheless, as contract-interior designers lay claim to more complex projects (one interviewed by the NCARB Committee is currently engaged in designing a 260,000-square-foot space), it becomes evident that greater numbers of the public may come to rely on state intervention to ensure that only qualified persons control the design.

4. The four jurisdictions (Connecticut, Alabama, Louisiana, and the District of Columbia) that have enacted interior-design licensing have only vague requirements for licensing. What is most provoking is the fact that all four jurisdictions allow persons currently engaged in interior design to be licensed without any demonstration of competence. While grandfathering may be a political peace-offering to help passage of new legislation, the effect, if followed by other states, will result in the entire 200,000 (referred to above) receiving instant licenses without any demonstration of relevant knowledges, skills, and abilities.

There is little clarity in these four laws as to what future requirements will be. Currently, the National Council for Interior Design Qualifications has established a qualifying exam and experience requirements for candidates for the NCIDQ certification. The experience requirements are based upon attendance in an accredited college or university program and/or practical training. College and university programs are in turn accredited by the Foundation for Interior Design Education Research. At this time, however, FIDER accredits two-, three-, four-, and five-year programs. Thus, a FIDER-accredited program may be nothing more than a two-year program in a home-economics school. The additional years of practical training required by NCIDQ need not be in a structured training program. The NCIDQ examination focuses chiefly on esthetics, business, and communications skills with only a handful of technical questions. A candidate could fail every technical question on the written part of the examination and still pass the examination.

The states with interior-design licensing statutes have indicated that they will require passage of the NCIDQ examination as a basis for licensure in that state. Most have said nothing, however, about experience or education requirements and it is not now clear what, if any, such requirements will be established.

Unless and until the interior-design industry is prepared to require rigorous and relevant entry criteria, the proposed interior-designer licensing does not conform to the criteria of proposition four.

5. Some may judge it premature to raise questions about whether or not interior designers are prepared to have state licensing boards police the practice as it is actually carried on. After all, the four states have only recently enacted their laws. But it is fair to contrast the situation respecting interior designers with that existing 50 years ago among architects, as architectural registration was taking form in the United States. The AIA had at that time adopted and was enforcing a comprehensive set of rules of professional conduct.

The American Society of Interior Designers has published a Code of Ethics for its members containing 12 rules, several of which seem more focused on protecting interior designers from competitive practices than on protecting the public from rogue practitioners. I understand that a revision of the Code is now underway which may result in a strengthening of the Code.

When the strengthened Code is published, it will be interesting to see if members of the ASID are prepared to invite state-board discipline if they accept compensation from manufacturers when specifying the manufacturers' products. Such conduct is expressly prohibited by Rule 2.3 of the NCARB Rules of Conduct. This Rule 2.3 is one of several rules evidencing the view of state architectural registration boards that the architect is a fiduciary who accepts obligations to his or her client and to the public well beyond those expected in the marketplace. Is the interior-design industry prepared to do the same?

In any case, registration laws that merely serve to restrict entry and then disregard the performance of those enjoying the monopoly status have long since been recognized as against the public interest.

Grandfathering is easily the worst of it

Earlier I observed that all existing interior design-licensing laws grandfather substantially all persons working in the interior-design field at the time the law was adopted. These interior-design laws—generally title acts—for reasons that remain unclear, also define what constitutes interior-design practice. Since that definition ("preparing designs, drawings and specifications for selection . . . of . . . materials, equipment, [and] furnishings . . . and administering contracts for . . . installation in connection with such designs") is broad enough to include all of the design work on major office build-outs, it includes architectural, structural, mechanical, and electrical design. In short, all manner of life safety is implicated. We are here talking about 200,000 existing interior designers and decorators being grandfathered into state interior-designer registration. A substantial majority of these people have not met NCIDQ requirements; for the most part, they have no credentials other than having plied a decorating trade. If these persons, who have never passed an examination, may have no relevant post-secondary school education, and whose prior experience is helping young married couples select fabrics for their living room set—if these persons are by law empowered to design mechanical and electrical distribution systems with adequate fire safety protection, and cuts through concrete slabs for connecting stairs, it may create serious problems to the public safety. The answer that the professional knows the limits of his capacity is wide of the mark. It may indeed describe the well-trained professional; it is dubious if it describes most of the 200,000 tradespersons likely to take advantage of the grandfathering.

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Practice:
Should interior designers be licensed?
The attorney for the ASID argues yes

On the previous pages, attorney Carl Sapers points out the problems that could result from licensing interior designers. The views of an attorney active in the industry follow:

By Jerrold M. Sonet

Issues, 40 years in the making, are not readily susceptible to complete analysis in a presentation as brief as this article. Nevertheless, I will make every effort to assist the thoughtful reader in reaching his own conclusions by considering the essential facts, and the perceived basis underlying the conflicting positions of the contesting parties.

Consideration of the basic question—is legal registration in the form of state licensing for the practice of interior design warranted—necessitates objective consideration of the following issues:

1. Is such registration in the interest of the public?

2. Is it the purpose of such registration to advance the special interests of interior-design practitioners?

3. Is such registration a threat to the architects' economic base or does it otherwise infringe upon the architects' domain?

4. Will enactment of a registration law in any way limit the practice of architecture?

5. Why has such registration engendered the strident opposition of the AIA?

6. Is it in the interest of the public or the profession of architecture for such AIA opposition to continue?

7. Finally, is interior design part and parcel of architecture or a related but separate discipline?

Interior-design practitioners who are not architects have consistently presented themselves as being engaged in a distinct professional activity for which they are qualified by education, experience, and self-administered examination. The architects' position has varied from time to time. In the early days, interiors work was denigrated as being mere decoration, not in any way pertaining to the exercise of architectural expertise. The enormous increase in the built environment, particularly multi-user structures, which commenced after World War II and which has continued to the present date, occasioned a revised point of view—not only toward interior designers, but as well toward the inclusion of interiors work in the scope of the architects' activity.

Joint contract documents are one evidence that, until recently, architects and interior designers saw eye to eye

By the mid-'70s, this revision occasioned the joint establishment by the AIA and the American Society of Interior Designers of the "Interior Enviromental Committee," which had the designated purpose to create a series of contractual documents intended to govern an interior-design project whether undertaken by a registered architect or by an unlicensed interior designer. Several years of intense effort by able practitioners, consideration of numerous drafts and substantial input from the general counsel of each organization resulted in publication of joint AIA/ASID copyrighted documents respectively entitled *Standard Form of Agreement For Interior Design Services, Abbreviated Form of Agreement for Interior Design Services; Standard Form of Agreement Between Owner and Contractor for Furniture, Furnishings and Equipment; General Conditions of the Contract for Furniture, Furnishings and Equipment;* and *Abbreviated Form of Agreement Between Owner and Contractor for Furniture, Furnishings and Equipment.* Although following the format of AIA documents pertaining to design and construction of buildings, the joint documents are clearly distinct and pertain only to interior-design work.

Except for specific reference to either "Architect" or "Designer" the version of the joint documents, as published by the AIA, is virtually identical with the version of the joint documents as published by the ASID—it being the express purpose of the committee to aid the public by providing consistent documents notwithstanding the client's choice of either an architect or an interior-design practitioner for the performance of the interiors work. Consider for example, the *Standard Form of Agreement for Services,* which consists of some 17 separate articles, with any number of subdivisions in each article. The basic services of either the architect or the designer are described at length on a word-for-word basis, inclusive of programming phase, schematic-design phase, design-development phase, contract-document phase, and contract-administration phase.

There is, to be sure, a minor language but major concept difference in the description of services in that the architect is to "prepare" construction documents, whereas the designer is to be "responsible for the preparation" of construction documents. The clear purpose of this distinction is to eliminate any possibility that the designer would involve himself with structural work in the event that the project required the same and, consistent therewith, the ASID document includes architects among the several consultants whose services

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Mr. Sonet is a senior partner in the New York law firm of Levy, Sonet & Siegel and the long-time general counsel of the American Society of Interior Designers. His firm's clients include many interior, product, and fashion designers, architects, contractors, and others in related fields.

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Simple logic would seem to dictate that the public would be better protected if [interior designers] were required to prove completion of appropriate academic training and the ability to demonstrate competence by passing a qualification exam.

ight be obtained by the esigner in the performance of ie project, whereas the AIA ocument limits such consultants structural, mechanical, and ectrical engineers.

The jointly copyrighted ocuments were issued either nder the imprimatur of the IA or the ASID in the period 977 through 1980. Given this int endeavor, a disinterested bserver could only reasonably nclude that:

1. Architects, through their rganized spokesman, the AIA, ecognized interior designers as heir professional, although nlicensed, colleagues qualified perform all aspects of nterior work that did not nvolve integrity of structure.

2. Interior designers, through heir organized spokesman, the SID, recognized that nterested architects were ualified to undertake interiors ork notwithstanding absence f specific training in the pecialized aspects of interior esign.

3. Both recognized the ossible, if not probable, need r the specialized knowledge of lectrical, structural, and echanical engineers in an nterior project.

If further evidence is required attest to prior recognition by rchitects of interior design as a pecial discipline, the same is rovided by the AIA itself. The nteriors practice section of the *rchitect's Handbook of rofessional Practice*, published y the AIA in 1982, states: Interior Design, however, emands expertise outside the cope of the Architect's normal aining . . . . The purpose of this hapter is to assist the interiors ractitioner in developing and nproving the services provided y the interiors industry. While tressing the relationship etween interior design and otal-design services, the chapter lso discusses the many factors nique to interiors practice."

It was only when the push for licensing produced results that it began to create problems

It appears that, through the first few years of the current decade, all was in harmony in the interiors field with any professional differences, misgivings, or jealousies buried under a joint effort to present a unified approach to the concerned public. Enter the supposed villain in the form of interior-design licensing—not efforts to secure such licensing, which have been ongoing since at least the mid-'30s, but the successful attainment thereof in the form of interior-design title-registration acts adopted by the states of Alabama, Connecticut, and Louisiana. The result: a complete switch from the harmonious dialogue previously entertained to overt opposition by the AIA. The policy adopted by the AIA's board in 1985 opposing licensing of any design profession other than architecture and engineering was specifically predicated upon concerns for public safety and implicitly argued that licensing of other members of the design team, such as landscape architects or interior designers, was unnecessary since they either are not or should not be involved with design matters concerning public safety.

The unrealistic premise upon which this policy is based was, in the first instance, demonstrated by the prompt excision of landscape architects from the prescribed list without any published explanation for either their initial inclusion or subsequent removal. Interior design remains proscribed notwithstanding abundant evidence that interior designers confront issues of public safety in every aspect of an interior-design project. Bear in mind that there is no usual scope of work in interior-design projects, which can vary from the simple layout of a single room, or the renovation of a bathroom, to the complete design of the interior of a health-care facility, a hotel, or an office complex without, in any of such instances, necessarily confronting a change or addition to the building structure or to any of its mechanical components. Sufficient literature has circulated in recent years concerning the issues of flammability, toxicity, barrier-free accessibility, ergonomics, and the psychological wellbeing of occupants as to make it unnecessary for repetition here. Suffice to say that every choice by the interior designers of materials used to embellish or finish the walls, floor, or ceiling of any type of interior, as well as the layout of space and the choice of furniture, furnishings, and equipment to be placed in such space, has a direct bearing on public-safety issues.

It defies logic to contend that public safety in the built environment is confined to concerns of structural stability

And it defies logic that choice and location of attached materials and freestanding objects are irrelevant to the issue. It seems clear that these areas if improperly handled pose a danger to the public whether undertaken by an architect, an interior designer, or someone without any formal credentials. In the words of Dr. George Rand, associate professor at the UCLA Graduate School of Architecture and Urban Planning, even the choice of "air fresheners, solvents, adhesive building products, cleaning fluids, fire-retardant chemicals, to name a few, may be turning the inside of sealed buildings into virtual gas chambers."

It is equally illogical to contend that only architects, or perhaps engineers, have the requisite training to confront these public safety issues.

Yet, this is the very position taken in the AIA's white paper, issued in 1987, as justification for its stand against interior-designer licensing. The white paper concludes: "While the American Institute of Architects acknowledges that interior designers and others play important roles in the building-design process and are valuable members of the design team, the institute has concluded that the scope of their education and training is not sufficiently comprehensive to permit the exercise of informed judgment to warrant licensure as a matter of the public good."

In order to buttress this position, the white paper castigates interior design educational requirements as being largely concerned with "esthetics." In contrast, the Foundation for Interior Design Education Research (nationally recognized as the educational accreditor of interior-design programs) has minimum requirements for accreditation in an interior-design curriculum of training in "knowledge of anthropometrics and ergonomics; proxemics and behavioral theory; requirements for special populations, i.e., disabled and elderly; interior construction and detailing; lighting, hvac, physical attributes of materials and installation methods; building codes, fire codes, and life-safety requirements; industry-product standards; business practice; specification writing for interior construction and furnishings."

Can it rationally be said that four- and five-year degree programs centered on such subjects provide less significant training in interiors work than that provided to students of architecture who must perforce spend the overwhelming majority of their study time in subjects devoted to design and construction of buildings and their structural components?

Even if one were to accept the AIA's premise that architects

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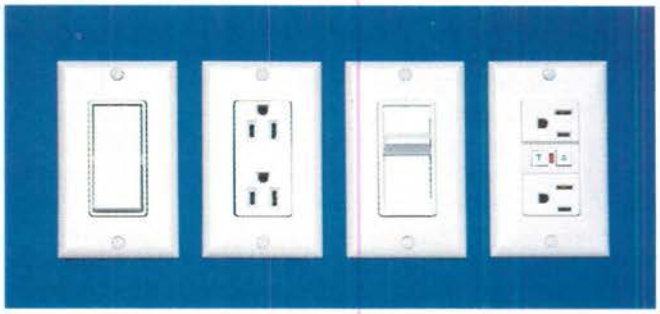

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ractice continued from page 45

It would seem appropriate and in the public interest to return to the harmonious relationships best exemplified by the issuance of joint [contract] documents.

nd engineers are better trained or interiors work than their nterior-design colleagues, the eality is that some 400,000 nterior-designers are presenting nemselves to the public as ualified to perform such work. imple logic would seem to ictate that the public would be etter protected if these laimants were required to prove ompletion of appropriate cademic training and the ability o demonstrate competence by assing a qualification xamination. It is this simple ogic which is embodied in the uest for interior-design icensing legislation.

The AIA proposition that self-certification can readily solve this problem is rebutted by 40 years of experience

Of the 400,000, only some 15 percent of current interior-design practitioners have deigned to go through a self-certification process, even though completion of the process is required for membership in either the ASID or other interior-design organizations. One might speculate on how many graduating architectural students would expose themselves to the rigors of the NCARB's examination if it were not a state-required prerequisite for the practice of architecture.

If, as the white paper suggests, the interior designer is a valuable member of the design team, then why such vigorous opposition to legal regulation of his activities? Why is the respected colleague of the late '70s and early '80s, then deemed competent to perform in all areas of interior design other than structure and building components (just read and compare the joint documents), now deemed inadequately trained to do anything other than choose and arrange the location of movables? Why has official AIA opposition become so vehement that it was necessary to suggest, at the 1987 Orlando convention, that architects fight interior-design legislation by suggesting to legislators, among other things, that: "Interior-design contracts even use the AIA contracts and just change the term 'Architects' to 'Interior Designers'. Now they want to claim more work from Architects." Rather interesting, considering the series of documents jointly developed and issued by AIA and ASID.

Pious disclaimers notwithstanding, it appears that the real nexus of the issue is turf

The white paper just about admits the same when it states: "The AIA concern does not stop here. Title restriction is typically the first step toward a law that would restrict the practice of 'interior design' to 'interior designers,' potentially prohibiting architects—the very ones most qualified to perform the service—from providing it. This is of concern not only as it affects the livelihood of architects . . . ."

This position is advanced notwithstanding that each and every bill seeking to license interior designers in any state (and certainly those that have been adopted) contain a complete and unqualified exemption for architects. This position is advanced notwithstanding that the subject licensing bills define interior design in such manner as to exclude any intrusion by a licensed interior designer into the areas of structural design or the design of building and mechanical components.

If further proof were required to demonstrate the economic basis for the AIA's position, one need only consider the equally strenuous efforts of the AIA, already successful in some states, to change the traditional definition of architecture to include not only work pertaining to buildings, their components, and the spaces around them, but to a new definition that will specifically include "the space within" such buildings. With any approval of such legislation, the wheel comes full circle. In such instance not only is the supposed threat of interior design registration obviated but the architect can reasonably claim that he is the only one legally entitled to undertake interiors work, and that the interior designer must perforce work for him if he wishes to work at all.

The reasons underlying this power play can be readily understood

Expenditures generated by interior-design activity now approach $40 billion a year, and approximately 75 percent of this volume is generated by business and commercial projects on which the overwhelming percentage of the work is performed by interior designers.

An economic plum of this magnitude certainly cannot be ignored, but the question remains as to whether it is in the actual interest of the practicing architect to attempt to gain a monopoly interest in the field. Current statistics indicate that some 41 percent of architectural firms engage, at least in part, in interiors work, but that much of this activity is undertaken by interior designers either hired or retained by such architectural firms. The interface between architects and interior designers who are engaged by the former to design the interior spaces for their buildings is well documented. Architects directly engaged in interiors work, as well as interior designers, regularly engage structural, mechanical, and electrical engineers to design building systems; another interface. Each of these professionals must necessarily interface with the contractor who is charged with making the design a reality. In many states, such a contractor (and certainly his electrical and plumbing subs) must be licensed.

Architects apparently have no difficulty in working with these licensed occupations and it is submitted that if economic monopoly were not the issue, architects would find it equally easy to work with licensed interior designers.

Should a practicing architect support the AIA's position?

Keep in mind that offense breeds defense and counterattack. Interestingly enough the only interior-design-practice act enacted to date in the United States was approved in the District of Columbia in early 1987, roughly two years after the AIA adopted its antilicensing position.

Continuation of the AIA's threat could well lead to the very thing it purports to fear the most. Given the penchant of legislators to permit everybody to work, it is unlikely that architecture will achieve the legal monopoly that the AIA seeks. The provoked counterattack, however, may seek to demonstrate to legislators that architectural expertise is not the equivalent of baccalaureate training in interior design and consequently lead to legislative action (certainly not sought at the present time) that would serve to restrict architects' participation in interior-design work.

Perhaps, even more significantly, efforts to obtain economic monopoly bespeak a public-be-damned attitude—a connotation that the architectural community should avoid.

If, instead, the architectural and interior-design communities share a public-be-served attitude, then it would seem appropriate and in the public interest to return to the harmonious relationships best exemplified by the issuance of the joint documents.

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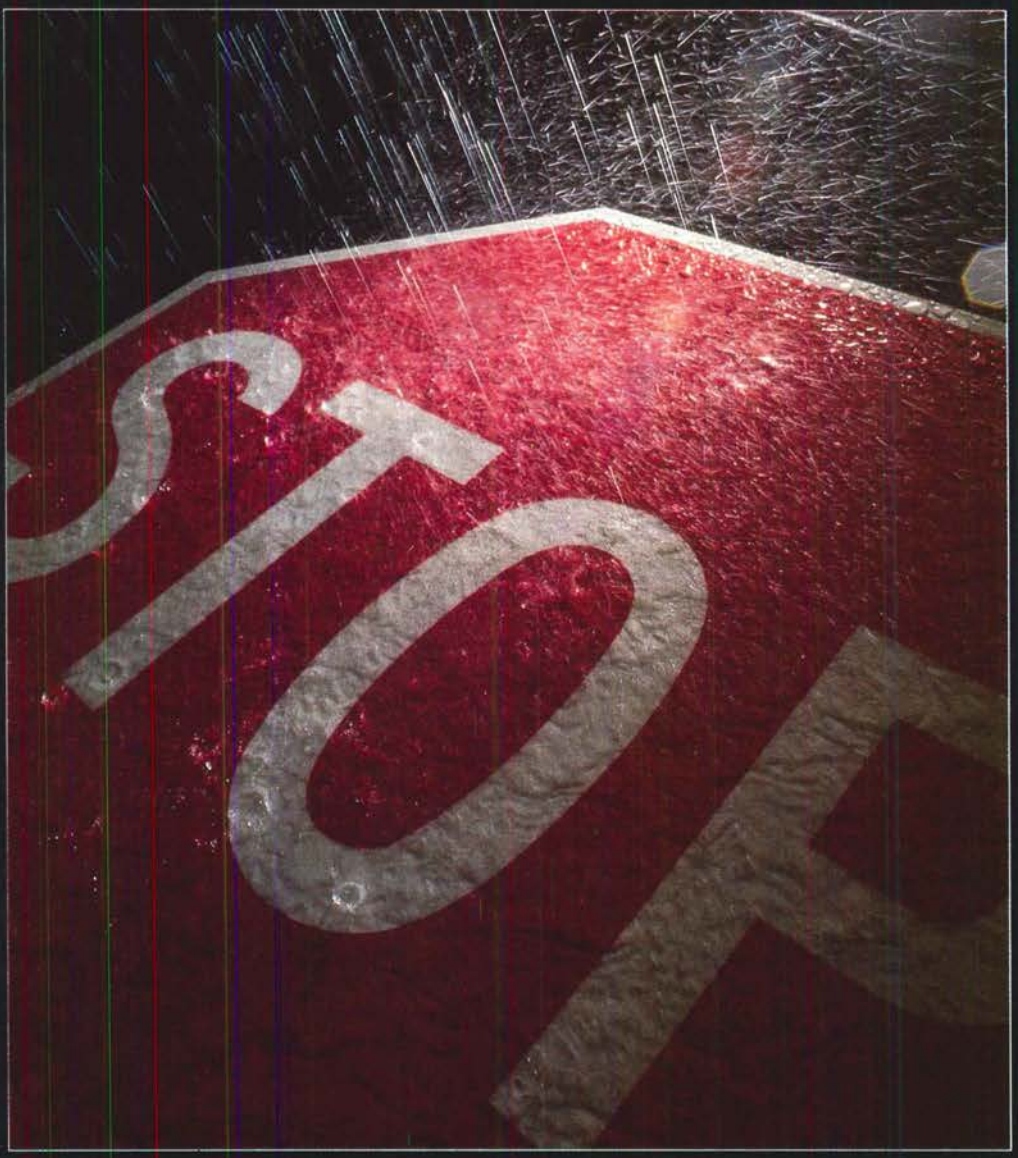

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Construction costs: Down they go, but probably not for long

Summary of Building Construction Costs

	Number of metro areas	10/87 to 1/88	1/87 to 1/88	1977* to 1/88
Eastern U. S.				
Metro NY-NJ	18	0.21	4.49	1864.69
New England States	33	0.22	4.69	1791.25
Northeastern and North Central States	120	–0.70	0.75	1692.81
Southeastern States	106	–0.60	0.09	1733.08
Average Eastern U. S.	277	–0.49	1.21	1731.12
Western U. S.				
Mississippi River and West Central States	122	–0.50	0.97	1689.56
Pacific Coast and Rocky Mountain States	106	–0.70	0.13	1746.45
Average Western U. S.	228	–0.59	0.58	1716.01
United States Average	505	–0.54	0.93	1724.30

*Using only cities with base year of 1977

If the report for the third quarter of 1987 showed a welcome easing in the rise of construction costs, this report for the fourth quarter shows what might be seen as a rout. On national average, costs fell over 1/2 percent. On the West Coast, they fell almost 3/4 percent. Only in the stubborn Northeast, where construction continues at an artificially high volume, did costs rise at all—by less than 1/4 percent.

The only materials that rose on national average by more than 1/10 percent were plywood (+ 0.014 percent), lumber (+ 0.012), gypsum board (+ 0.044), and reinforcing steel (+ 0.024). Labor costs remained stable because they were governed by prior agreements.

What can we expect in the future? Many labor agreements will be up for renewal in the late spring and early summer, and it is unlikely that labor will accept anything less than an increase. The question is how much? That will depend on the general health of the economy and specifically on the volume of construction.

Since these cost reports lag behind not only the predictions of the pundits (*Update*, RECORD, April 1988, pages 39, 41, and 43) but our knowledge of actual new construction in the pipeline, we should be able to make an educated guess on how much labor will be in demand and, therefore, can demand. What we can see ahead for construction volume is an uneven terrain of peaks and valleys with an overall downward tilt. For instance, contracts for new construction in February 1988 rose a surprising 10 percent, more than making up for an 8-percent decline in January but still leaving the two months taken together at a rate 5 percent below 1987's fourth quarter. So what labor will demand may well depend on where in this terrain its negotiations take place.

(Dodge Cost Systems studies are conducted quarterly by contact with union and nonunion sources, direct-mail suppliers, construction-labor consultants, and both general and specialty contractors in each city.)

Dodge Cost Systems
Marshall + Swift

Historical Building Costs Indexes

Average of all Nonresidential Building Types, 21 Cities

1977 average for each city = 1000.0

Metropolitan area	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 1st	1987 2nd	1987 3rd	1987 4th
Atlanta	1171.5	1712.6	1925.6	2098.6	2078.0	2360.6	2456.7	2448.7	2518.3	2561.9	2577.0	2584.7	2590.0	2580.9
Baltimore	1018.4	1107.7	1304.5	1446.5	1544.9	1639.5	1689.7	1703.7	1743.8	1765.2	1788.0	1800.9	1790.7	1780.2
Birmingham	1029.7	1142.4	1329.9	1407.2	1469.9	1468.1	1535.7	1594.7	1565.7	1587.4	1572.8	1568.3	1559.8	1542.6
Boston	1028.4	0998.6	1236.0	1283.7	1432.5	1502.0	1569.9	1646.0	1721.0	1773.6	1806.2	1876.8	1881.8	1883.0
Chicago	1007.7	1032.8	1199.7	1323.6	1344.7	1425.8	1439.5	1476.7	1528.0	1599.9	1599.1	1615.7	1607.0	1591.4
Cincinnati	0848.9	0991.0	1323.9	1385.2	1350.4	1362.6	1430.8	1484.5	1486.6	1499.4	1512.0	1515.4	1507.7	1510.9
Cleveland	1034.4	1040.8	1287.5	1388.2	1459.5	1511.4	1475.9	1464.0	1474.1	1525.7	1538.3	1549.4	1549.9	1541.8
Dallas	1042.4	1130.6	1431.9	1481.9	1750.6	1834.3	1925.9	1958.0	1963.3	1973.9	1995.1	1984.8	1964.4	1947.2
Denver	1038.8	1100.4	1495.6	1487.4	1632.2	1679.1	1800.1	1824.3	1821.8	1795.8	1778.5	1778.3	1749.5	1732.7
Detroit	1018.1	1087.3	1275.3	1447.4	1580.3	1638.0	1672.1	1697.9	1692.6	1696.6	1690.8	1707.1	1701.2	1689.3
Kansas City	1023.5	0951.5	1125.8	1233.2	1323.4	1381.8	1407.5	1447.1	1472.5	1484.7	1492.1	1490.8	1493.8	1493.7
Los Angeles	1022.5	1111.0	1255.3	1387.5	1474.3	1503.3	1523.9	1555.1	1571.0	1609.7	1628.8	1664.7	1683.8	1675.1
Miami	1004.5	1080.9	1330.1	1380.6	1369.1	1392.1	1467.6	1522.2	1540.6	1566.2	1567.7	1594.1	1598.8	1589.2
Minneapolis	1060.2	1196.8	1286.9	1327.7	1442.6	1576.8	1624.6	1640.4	1661.0	1674.0	1691.6	1710.1	1688.7	1677.0
New Orleans	1001.3	1138.8	1291.9	1505.7	1572.7	1616.9	1650.5	1691.4	1762.5	1760.2	1749.1	1737.1	1705.4	1699.8
New York	1005.4	1043.0	1247.1	1319.4	1419.2	1491.8	1672.5	1747.2	1806.7	1899.9	1938.1	1970.5	1976.9	1980.9
Philadelphia	1013.8	1074.2	1487.5	1539.5	1660.7	1769.4	1819.5	1922.1	1967.9	1992.7	1985.0	2029.6	2037.7	2023.5
Pittsburgh	1016.1	1015.0	1227.0	1341.7	1493.2	1479.5	1497.2	1576.1	1611.0	1665.8	1668.7	1670.2	1662.5	1647.3
St. Louis	1039.1	1198.8	1275.9	1320.0	1397.3	1451.2	1524.9	1625.5	1641.8	1647.4	1657.7	1668.2	1661.2	1653.5
San Francisco	1083.2	1326.8	1473.4	1644.8	1776.4	1810.1	1856.8	1935.3	1961.8	1995.5	1993.1	2015.0	2000.2	1992.0
Seattle	1142.5	1137.9	1373.4	1616.8	1814.9	1962.7	1979.0	1948.9	1937.9	1925.3	1915.4	1913.6	1894.6	1874.7

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


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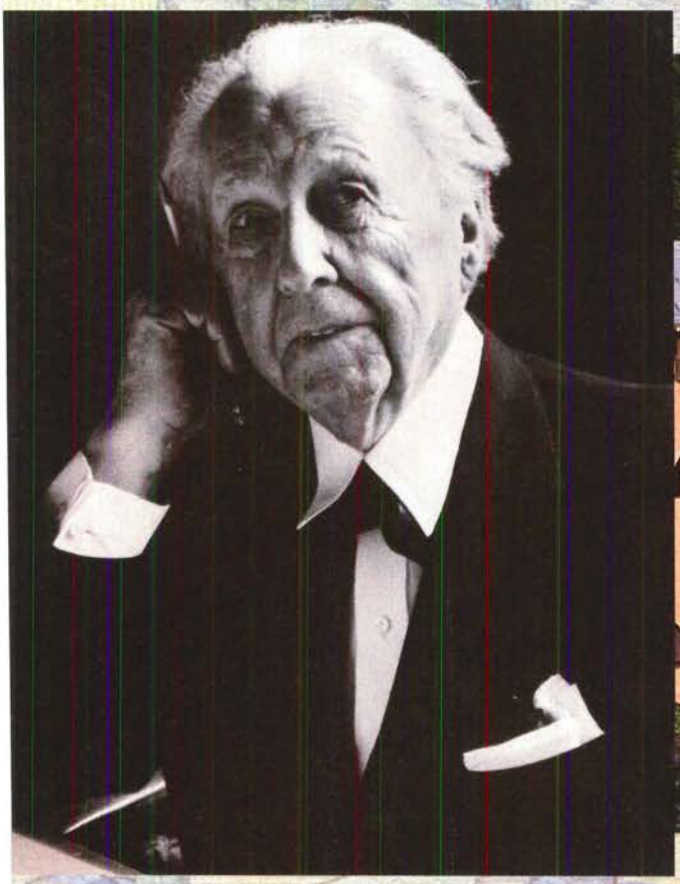

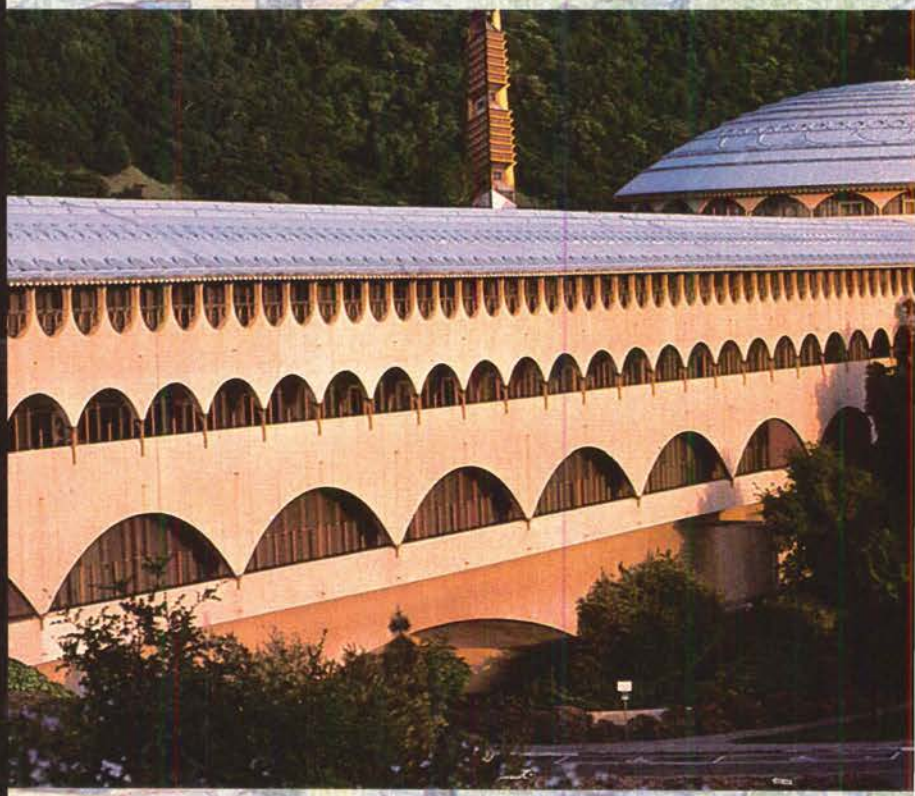

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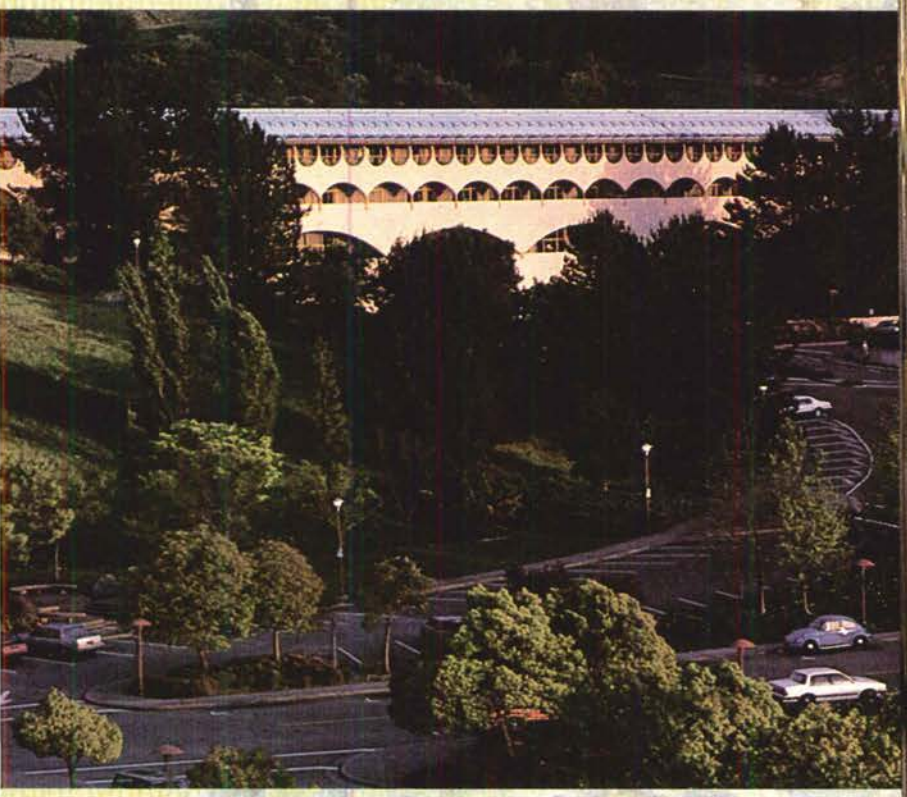

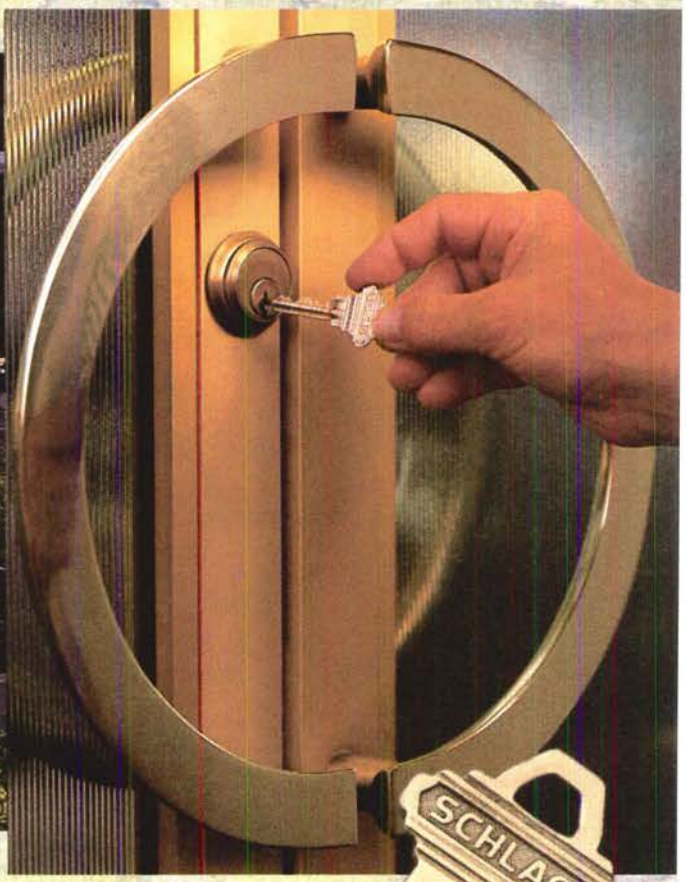

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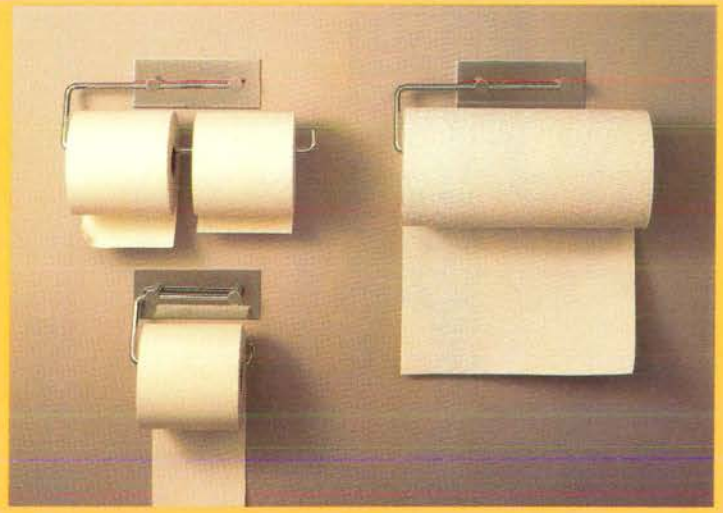

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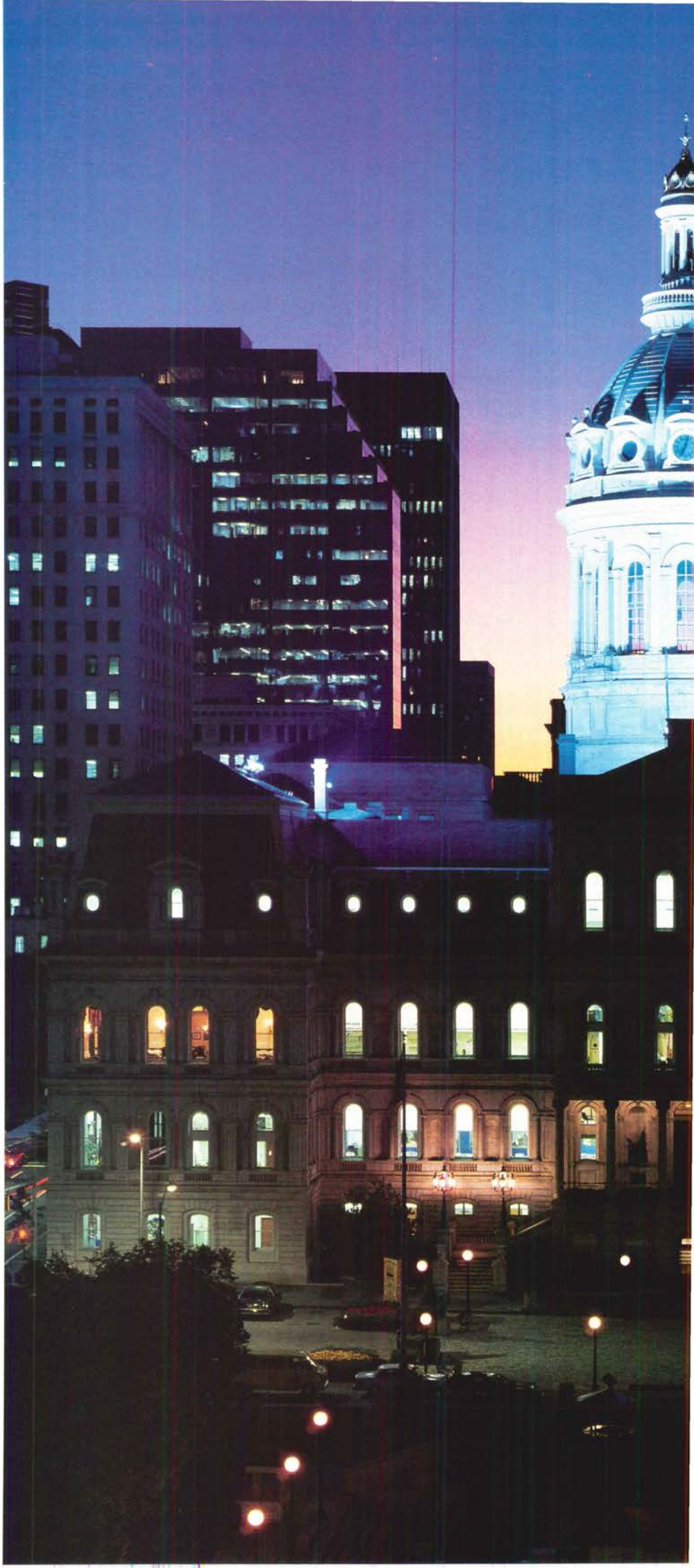

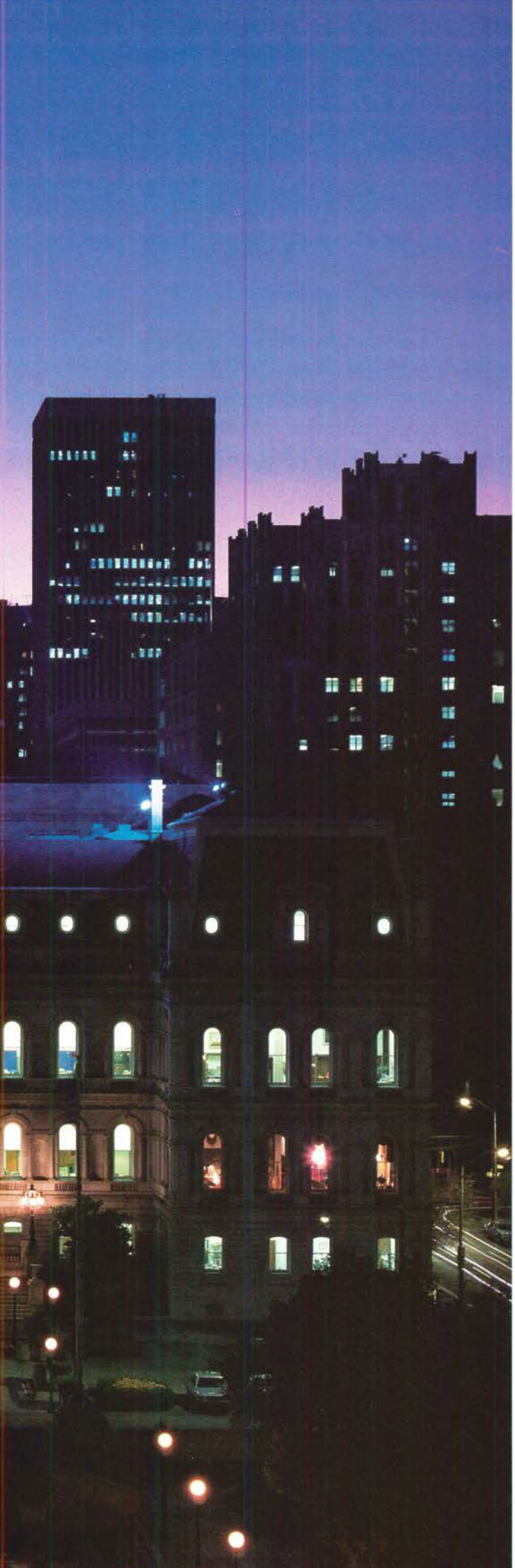

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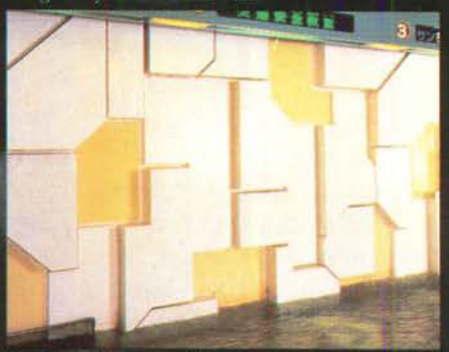

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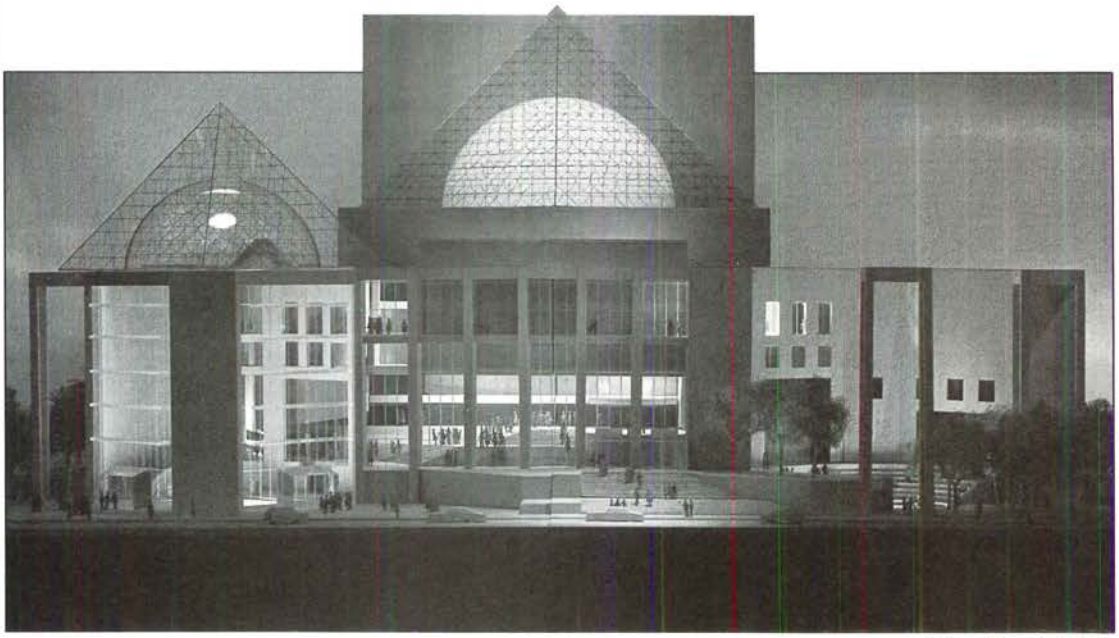
Competition-winning scheme by Safdie for Toronto Ballet Opera



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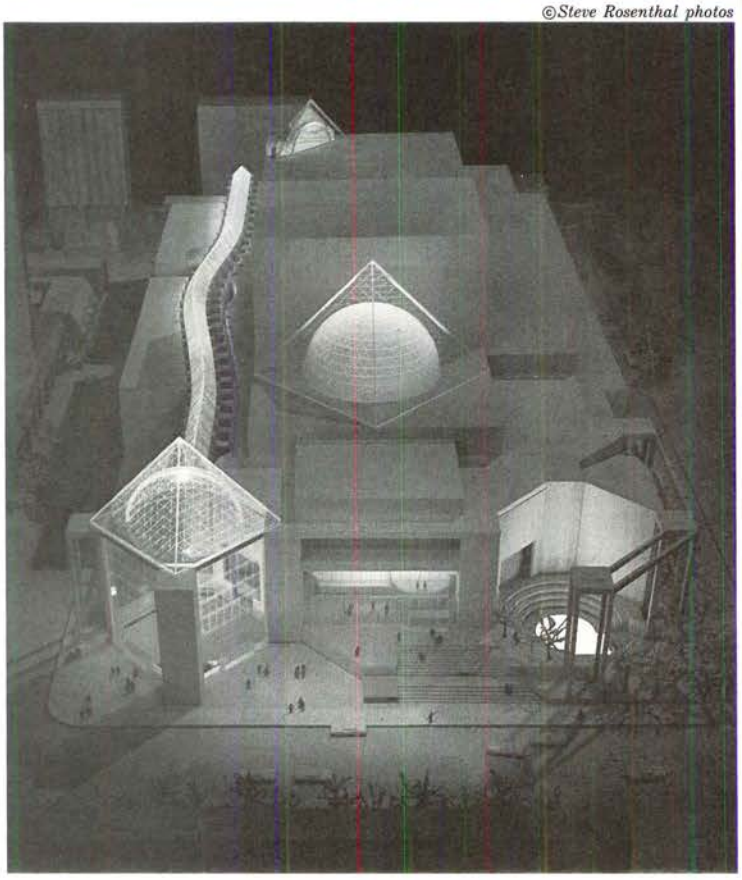

With work on the National Gallery in Ottawa nearly complete, Moshe Safdie and Associates has won another major Canadian project, the commission to design the new 2,000-seat home for the National Ballet of Canada and the Canadian Opera Company. The scheme was premiated in a three-stage process in which the selection committee winnowed out three finalists from 49 detailed proposals (the other two finalists were Barton Myers, Architect, with Kuwabara Pane McKenna Blumburg Architects, of Toronto; and James Stirling, Michael Wilford and Associates, of London, with Lyric Theatre Venture, of Toronto). These teams worked intensively with the committee over several weeks to refine initial reactions to the program. In Safdie's design, a four-square arrangement of movable stages will allow rapid deployment of separate fully erected settings. A stage can back up to an opera rehearsal hall, permitting dress rehearsals without interrupting use of the auditorium. Rehearsal spaces and offices, traditionally banished to dim basements, will all share light and views. Program refinement is now in progress; the Toronto complex will open in 1993.

Patrons will enter the Toronto Ballet Opera through the domed, pyramidal pavilion to the left (top photo), whose massing is echoed in the open yet intimate public garden to the right. The serpentine glazed roof (bottom photo) marks the Gallery of the Artists, a multistory arcade that offers public access to stores and off-hours theater functions. The auditorium — a traditional five-tiered horseshoe to minimize sightline distance — is marked by a central dome surmounted by another glazed pyramid, to be lit up at night.

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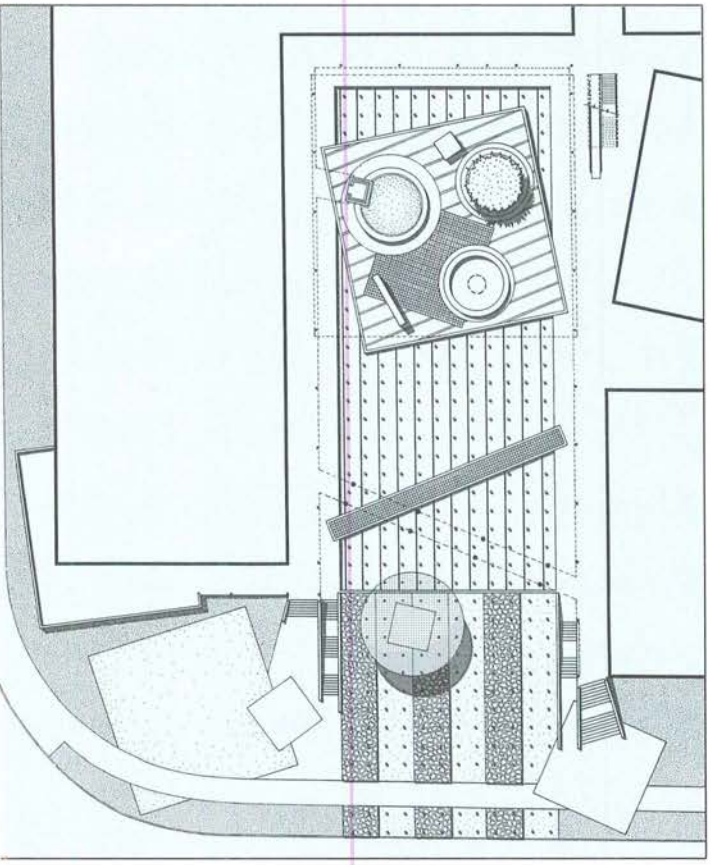
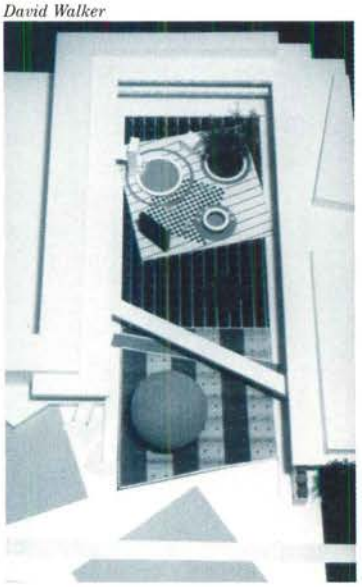
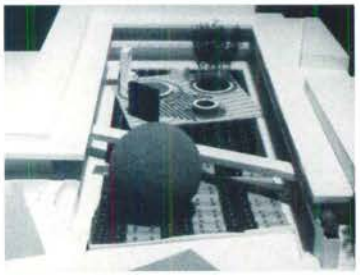
tlanta: Power shopping for the new urban gentry



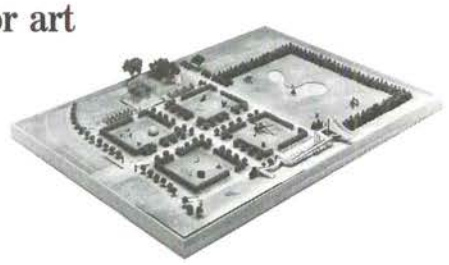
Construction is underway on Rio, a retail project that relies on an architect-artist-landscape architect collaboration to attract Atlanta city dwellers who hate mall shopping but "crave excitement." Arquitectonica has grouped a series of brightly colored metal-sided shops around a reflecting pool. The office of Peter Walker/Martha Schwartz hopes to draw passers-by with a striped garden dominated by a vine-covered, fog-emanating sphere. The garden-to-pond sequence (populated by a grid of gold-painted frogs) culminates in a rotated-square island containing a bar and a monumental wall of video monitors, to be programmed by artist Darra Birnbaum. Developer Charles Ackerman, touted by publicists as "turbo-charged, with an intellectually cosmic approach to his projects," notes that shoppers will "have an experience they can't get anywhere else."

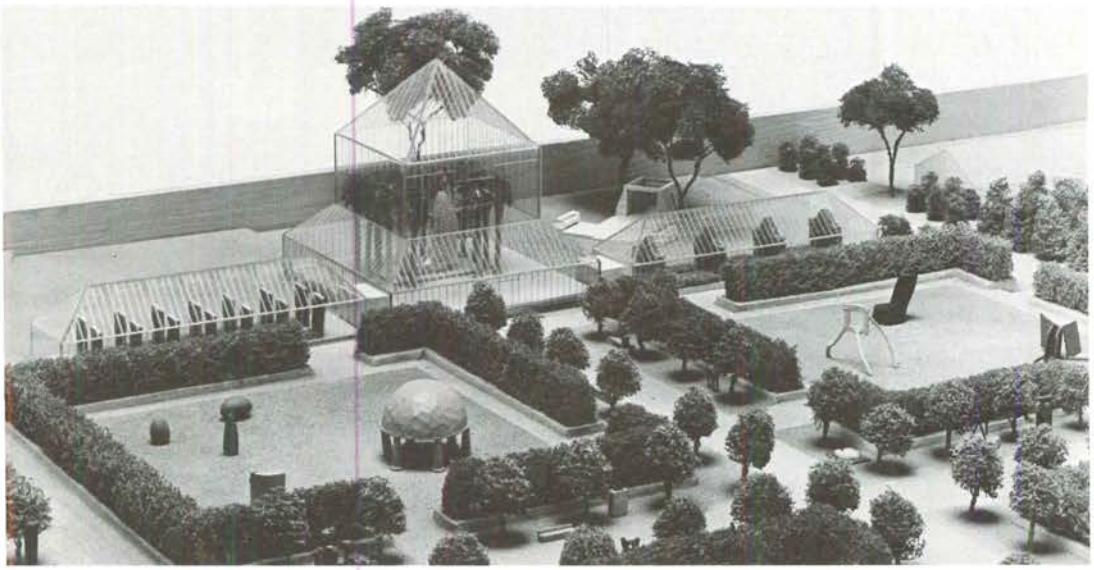
David Walker





linneapolis: The Walker grows a garden for art





Sculptures by the likes of Claes Oldenburg and Frank Gehry will find a new outdoor home in the Minneapolis Sculpture Garden, nearing completion adjacent to the Walker Art Center. Edward Larrabee Barnes, designer of the Center's 1971 home, has again been retained as architect. Landscape elements have been planned by Quennell Rothschild Associates, while planting in a new conservatory is by Michael Van Valkenburgh and Barbara Stauffacher Solomon. A truss bridge of opposed suspended arcs, designed by Siah Armajani, will link the garden to the city's extensive park system.

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ews briefs

new battle of Bull Run is veloping over plans to erect a opping center and office park jacent to the Manassas tional Battlefield Park. litorial writers, congressmen, vil War buffs, and Carter lministration press secretary dy Powell have joined to stop e scheme, located in the rapidly reading Virginia suburbs of ashington, D. C.

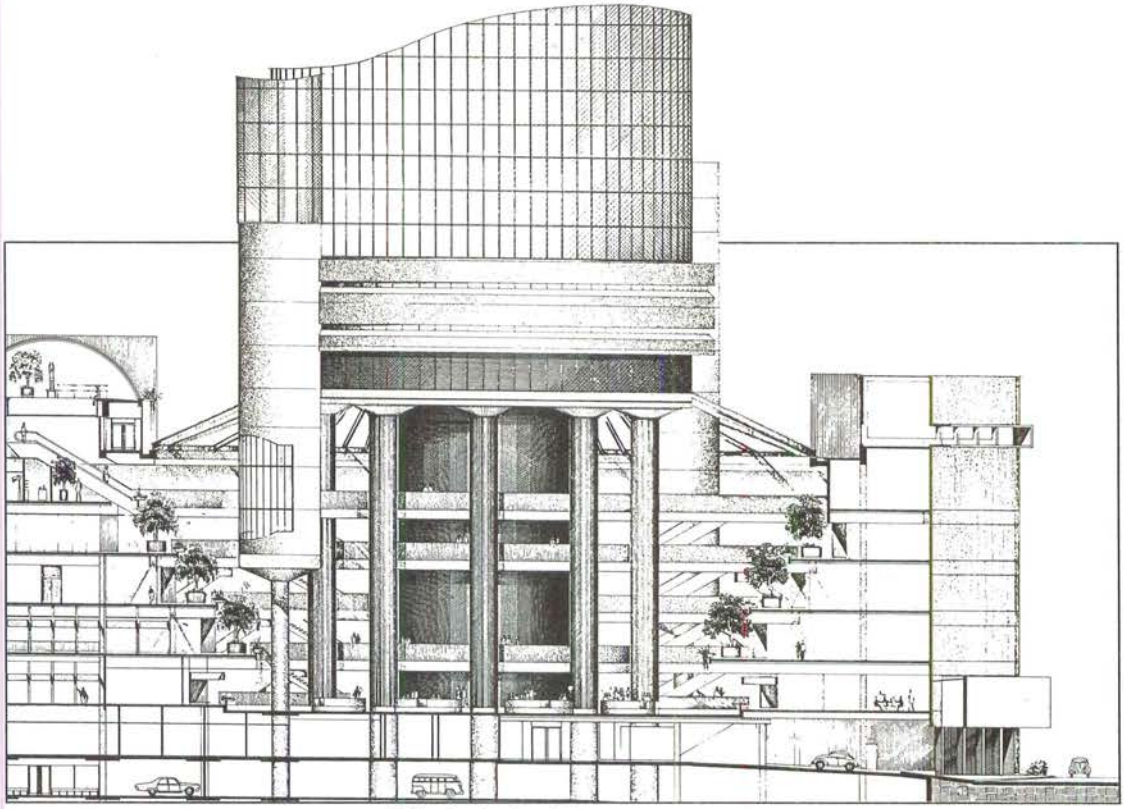
ichael Graves has been lected to develop a master plan r Los Angeles City Centre, a 00-million office, retail, and tel project to be constructed on e acres in downtown Los ngeles. Graves competed for e commission with John ndrews International and urphy/Jahn.

Salle Partners was presented th a dilemma, both moral and storical, according to *The New rk Times*, in the restoration of ashington's Union Station [see ges 140-151]. When the 1908 ilding was constructed, ilroad executives decreed that iginally nude statues of Roman gionnaires should have shields rategically placed. Should the ields now be removed? Salle's answer: a modest no.

dward Clautice, Antonio capra, Walter A. Nurmi, ark G. Stefanak, and **Philip Thompson** are recipients of e Robert Bradford Newman udent Award Medal for cellence in the study of oustics and its application to chitecture. The award program sponsored by the Greater ston Chapter of the Acoustical ciety of America.

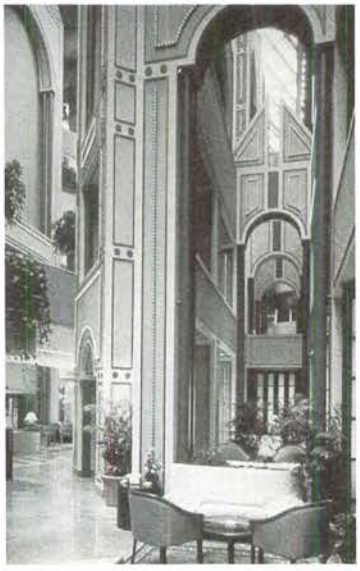
vo architecture schools are panding substantially. Ellerbe sociates with Steven Holl, chitect, will design a $15- llion addition to the 1960 cility at the University of nnesota. Eisenman Robertson chitects with Lorenz & illiams has been selected for a 0.8-million expansion and novation at the University of ncinnati.

Portman's Peachtree (Post-) modernized



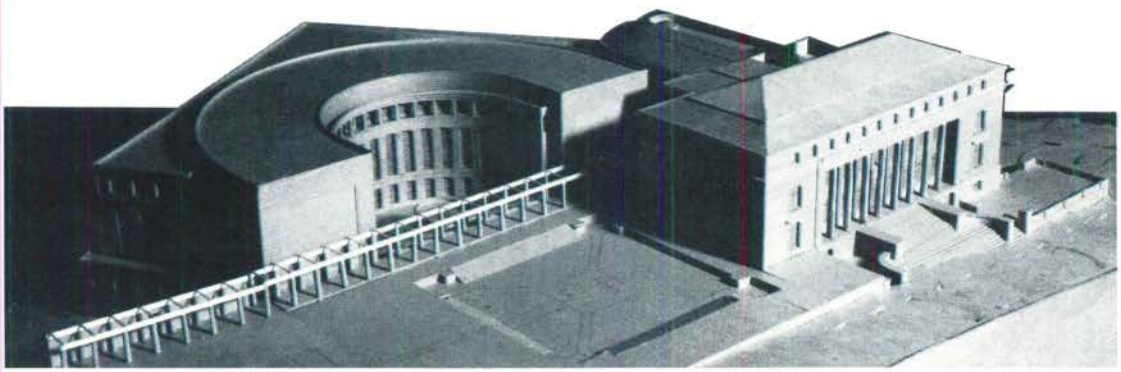
©Timothy Hursley photos

Confirming the firm's maxim that "no project is seen as an endpoint," John Portman & Associates has undertaken the renovation of its own landmark atrium-hotel, the 1976 Westin Peachtree in Atlanta (drawing). The hotel is being "repositioned" as an intimate luxury facility for small business meetings (another Portman-designed building has become the city's primary convention hotel). The Peachtree's futuristic scenic elevators and restaurant pods remain, but a pond has been replaced with a series of Postmodern "temples," reconfiguring the public spaces.



Groundbreaking for Minnesota Judicial Building

Located on the state capitol mall, the Minnesota Judicial Building will house public spaces in a renovated 1915 structure (right of model), and new courtrooms in an apsidal rear addition. A hemicycle of offices will front on a new garden plaza. The architect of the $36-million 214,000-square-foot project is The Leonard Parker Associates.



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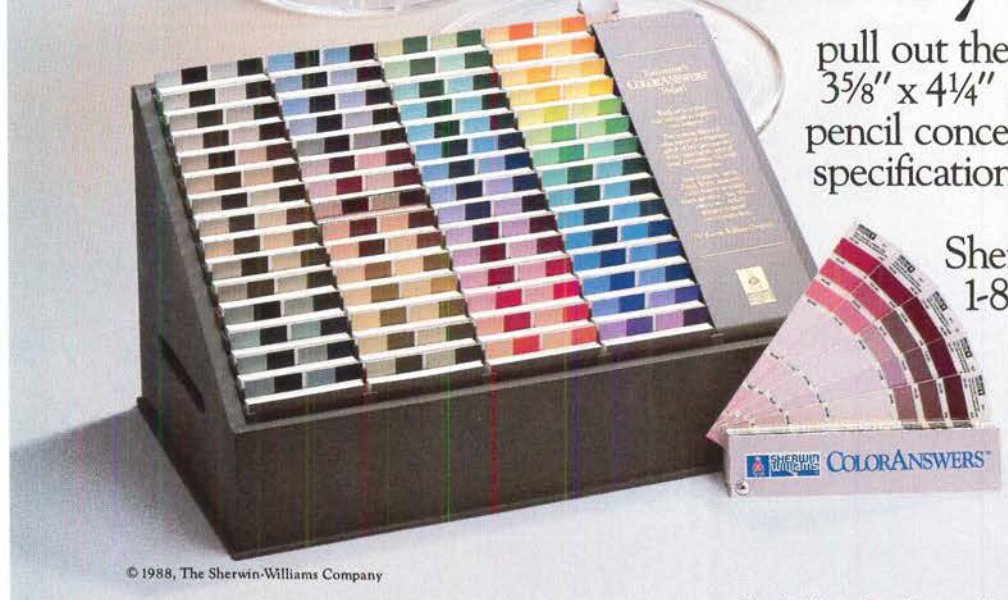

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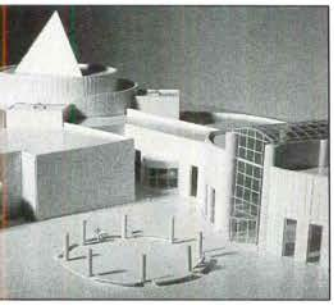
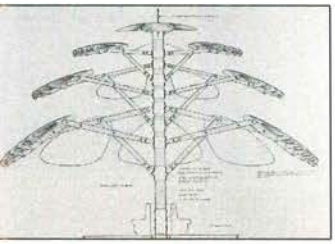




Amirali Qamar has won the commission for a new civic center in Hyderabad, Pakistan (1). A system of shaded streets and small squares focuses on a monumental clocktower off a traditional *chowk*, or marketplace, at one end and an existing mosque at the other.

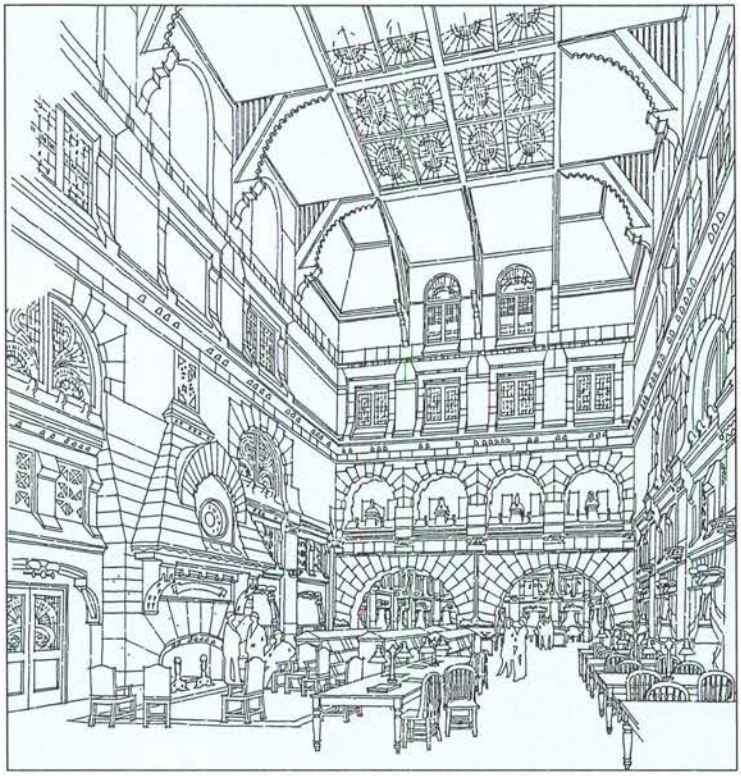
The Samuel P. Harn Museum of Art (2) is the first structure to be erected in a master plan for new fine-arts facilities to be used jointly by the University of Florida and Santa Fe Community College in Gainesville. The architect of the project, which will open in the winter of 1990, is Kha Le-Huu & Partners.

"A Gazebo Tree of Enlightenment" (3) is the winning scheme in a gazebo design competition sponsored by the Vermont Structural Slate Association. Passers-by can "reconcile the soul" under hinged laminated-plywood fronds, designed by Lee Hill. The site of the 20-foot-high construction, currently being fabricated, is yet to be determined.

The Beckman Institute for Advanced Science and Technology (4) will unite (by means of a common atrium) a center for biology, behavior, and cognition with research labs devoted to solid-state materials, computer, and information sciences. The $50-million scheme by architect Smith, Hinchman & Grylls will be completed this fall at the University of Illinois in Champaign-Urbana.

The Wilshire Tivoli (5), responding to powerful no-growth sentiment in its Los Angeles neighborhood, packs six floors of condominium units and two levels of parking within a 75-foot height limit. The setback massing of the 18-unit project, designed by Gegner Papademetropoulos Associates, ironically recalls luxury residences in the city a local anti-development group decried in its name, "Not Yet New York."

Furness unexpurgated



Removal of an added mezzanine and restoration of a roofed-over leaded-glass skylight will return the reading room of the Fine Arts Library at the University of Pennsylvania to its 1890 glory (drawing). Perhaps the most idiosyncratic building designed by Frank Furness, the structure had deteriorated over a long period when subsequent generations rejected his vision, which ranged from exotically orientalist stair details to gargoyle roof scuppers. Current work, under the supervision of Venturi, Rauch and Scott Brown with the Clio Group, also includes restoration of the terra-cotta exterior and reconfiguration of library stacks. Completion will coincide with the centenary of the School of Fine Arts in 1990.

Competition calendar

•"Boston Visions," sponsored by the Boston Society of Architects (617/267-5175), is a competition for both specific sites and unspecified ideas to define the future of the Massachusetts capital. Registration opens July 15; entries are due October 31.

•The Prestressed Concrete Institute Awards honor design excellence in precast/prestressed concrete structures. Entries to the 1988 awards program are due July 31. Contact the Prestressed Concrete Institute, 175 W. Jackson Blvd., Chicago, Ill. 60504 (312/786-0300).

•The National Glass Association is sponsoring awards in categories of design, craftsmanship, and specialty glazing. Entries must be received by December 15. Entry forms are available from the Awards for Excellence Competition, National Glass Association, 8200 Greensboro Drive, #302, McLean, Va. 22102.

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

When Opryland Hotel asked Norco to design some special windows, the results were grand

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

But Norco measured up and built custon windows, fine tuned on both the exterior and interior to capture the Conservatory's lush mood. The Conservatory is over two acr of architectural wonder – Victorian gardens with winding trails, bubbling brooks and tumbling waterfalls.

Crowning the Conservatory's elegance are Norco's custom Angle Bay Windows,

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

igned with authentic True Divided Lites,
king the rustic charm of the Old South.

igh note for each suite.
h upper level suite is graced with one
more Norco Angle Bay Window, blending
h the romantic appointments, giving
h guest the impression he is staying in a
ely Southern mansion. And each Norco
gle Bay Window was designed to create a
or-to-ceiling wall of windows, set precisely
he right angle to give a glorious view of
Conservatory.

and results brought Norco back an encore.
ryland Hotel's newest expansion, the
scades, is set for completion in 1988. It is
other major, skylighted interior space even
ger than the Conservatory. Its 839 additional
oms will enlarge the hotel to 1,896 rooms.
Norco's Custom Angle Bay Casement
ndows will again be center-stage in
addition.
Norco's performance on the original
nstruction phase was so impressive that
ryland Hotel brought Norco back for
encore.
Uncompromising quality, on-time delivery
l Norco's capability to build windows to
ryland Hotel's exacting standards (at a
prisingly affordable price) are some of the
sons Norco windows are again at the top.
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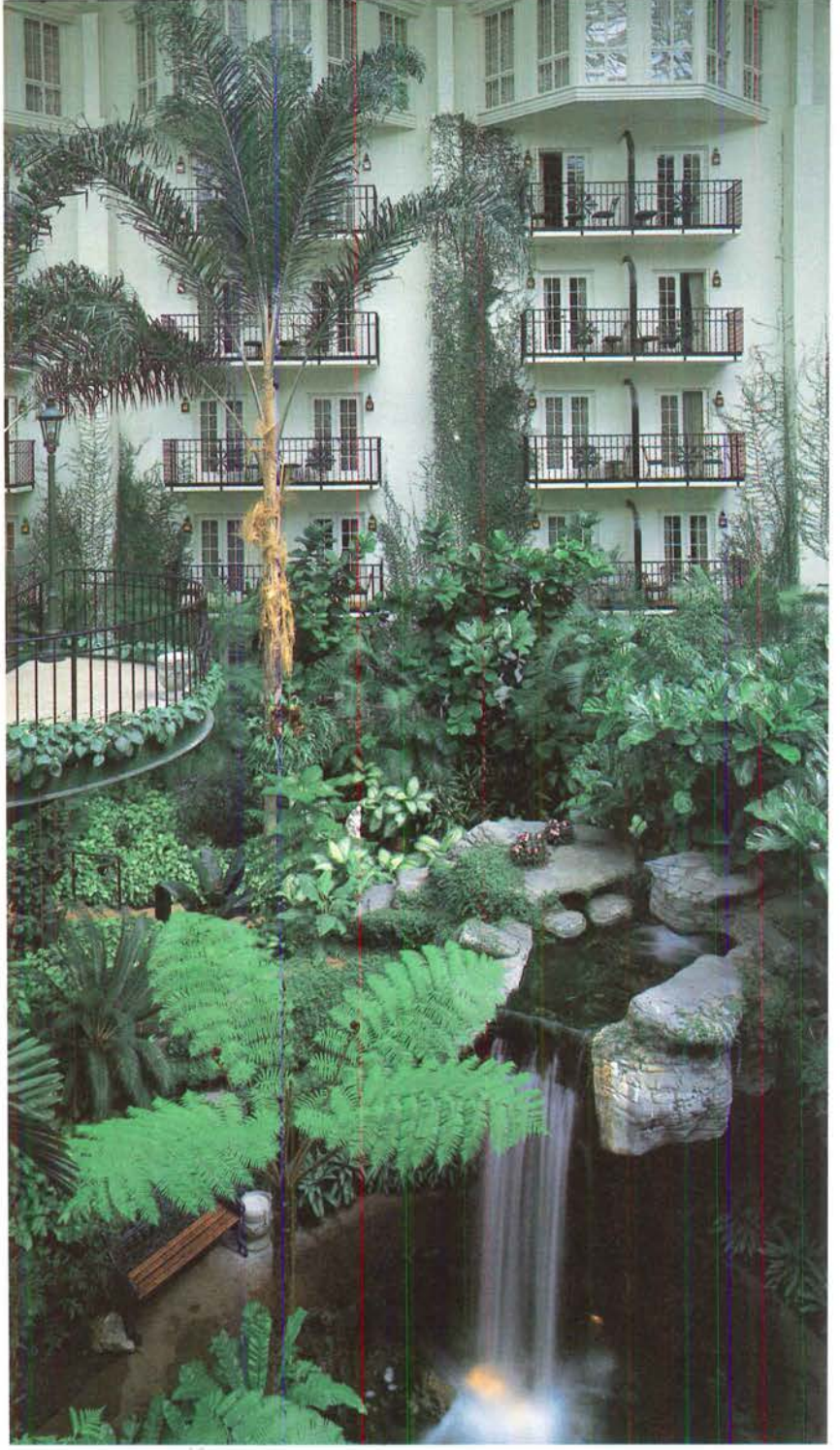

Besides meeting all the practical maintenance requirements of a modern hotel, the windows had to fit perfectly into the Conservatory's lush setting.

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Design awards/competitions
1988 AIA Honor Awards

Fifteen winning projects, located in eight states and three foreign countries, were selected from among 512 entries in this year's AIA Honor Awards program. Although no clear style or building type predominated, the premiated designs do include several examples of what jury chairman William Turnbull (of MLTW/Turnbull, in San Francisco) called "places of public domain, of gathering, and of celebration." Other members of this year's panel were W. G. Clark, of Clark & Menefee

Richard Bryant

1

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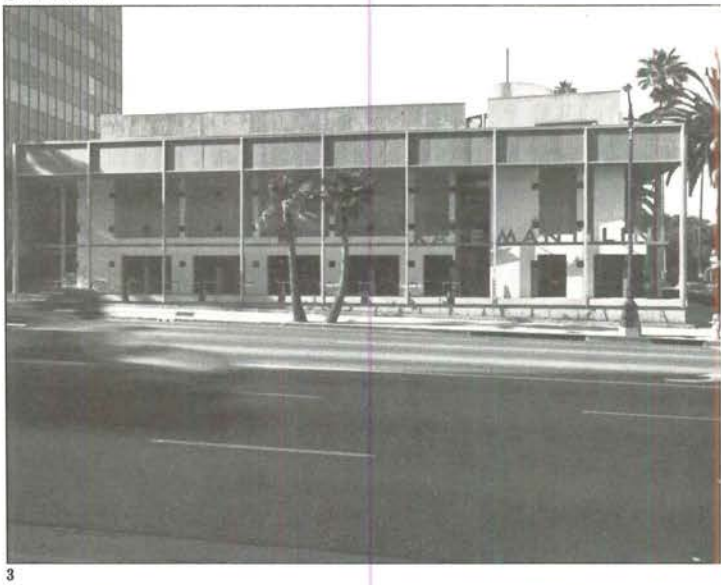

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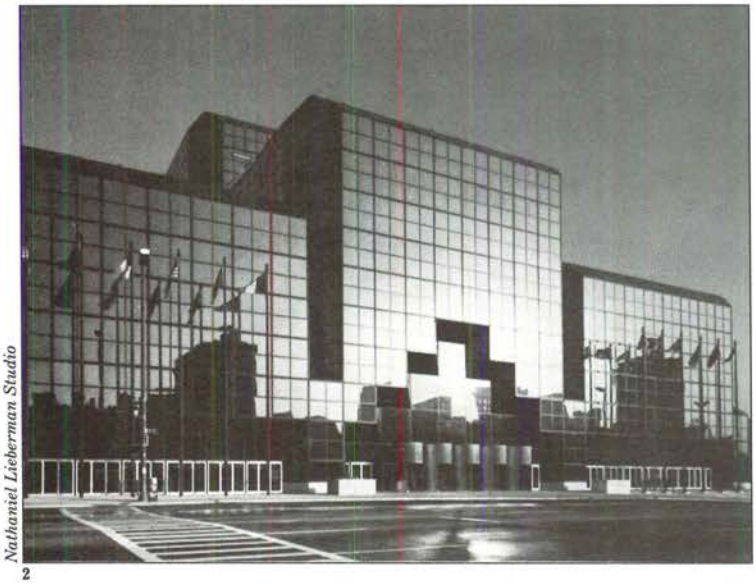
Nathaniel Lieberman Studio



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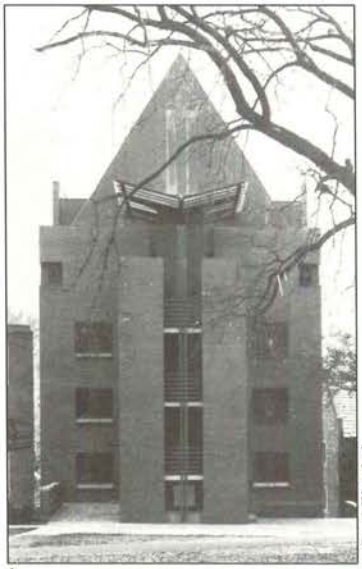

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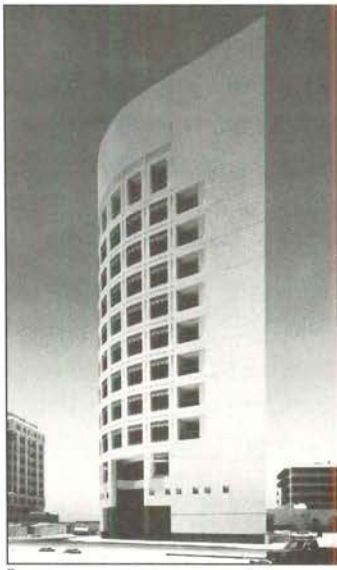

5

1. Tegel Harbor Housing, Berlin, West Germany; Moore Ruble Yudell, Architects. Government regulations mandated small apartments in this 170-unit subsidized complex, commissioned as part of Berlin's internationally designed housing program (IBA, see also item 13, page 75). Minimal interiors are relieved by loggias and common spaces that the jury praised as "generous and appealing," and which establish "a marvelous relationship with the river and the neighborhood."

2. Jacob K. Javits Convention Center, New York City; I. M. Pei and Partners with Lewis, Turner Partnership, Architects [RECORD, September 1986, pages 106-117]. A 1.7-million-square-foot exhibition-and-meeting complex, set on 21.9 acres, includes what is said to be the world's largest exhibit hall under one roof. Jurors admired the transitions between spaces of dramatically different scale and praised the entrance lobby as "a great urban space."

3. Kate Mantilini Restaurant, Beverly Hills, Calif.; Morphosis, Architects. Described by the architect as "aggressive, obsessive, though tempered by a businesslike politeness," this 6,400-square-foot eatery impressed the jury as "inventive and highly crafted, [representing] a new way of looking at form and materials." The exterior maintains some of the sobriety of the bank that formerly occupied this location; the interior focuses on a 14-foot oculus that sheds light on an assemblage which is part structure, part sculpture, and part sundial.

4. Feinberg Hall, Princeton, N. J.; Tod Williams Billie Tsien and Associates, Architects [RECORD, March 1987, pages 10 105]. Existing Collegiate Gothic dormitories are linked by this 40-foot-square mass, which is skewed to create a new courtyard. Lower floors contain four-student units, while the upper two floors house six-student duplex suites.

rchitects, in Charleston, S. C.; Mildred Friedman, editor of esign Quarterly*; Paul A. Kennon, Jr., of Caudill Rowlett* cott, *in Houston; William Morgan, of William Morgan* rchitects, *in Jacksonville, Fla.; Laurie D. Olin of Hanna/* lin, Ltd., *in Philadelphia; John T. Regan, dean of the School* Architecture *at the University of Miami; John Vinci, of the* ffice *of John Vinci, in Chicago; and Melanie White, of* ississippi State University.

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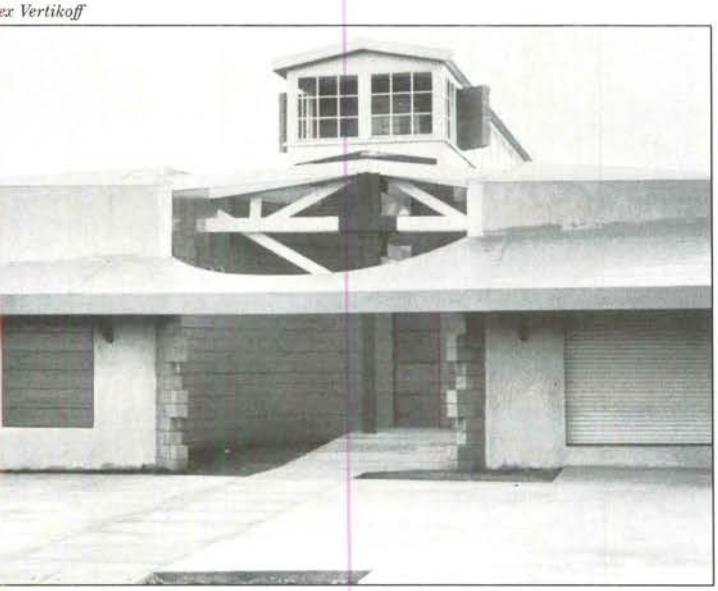

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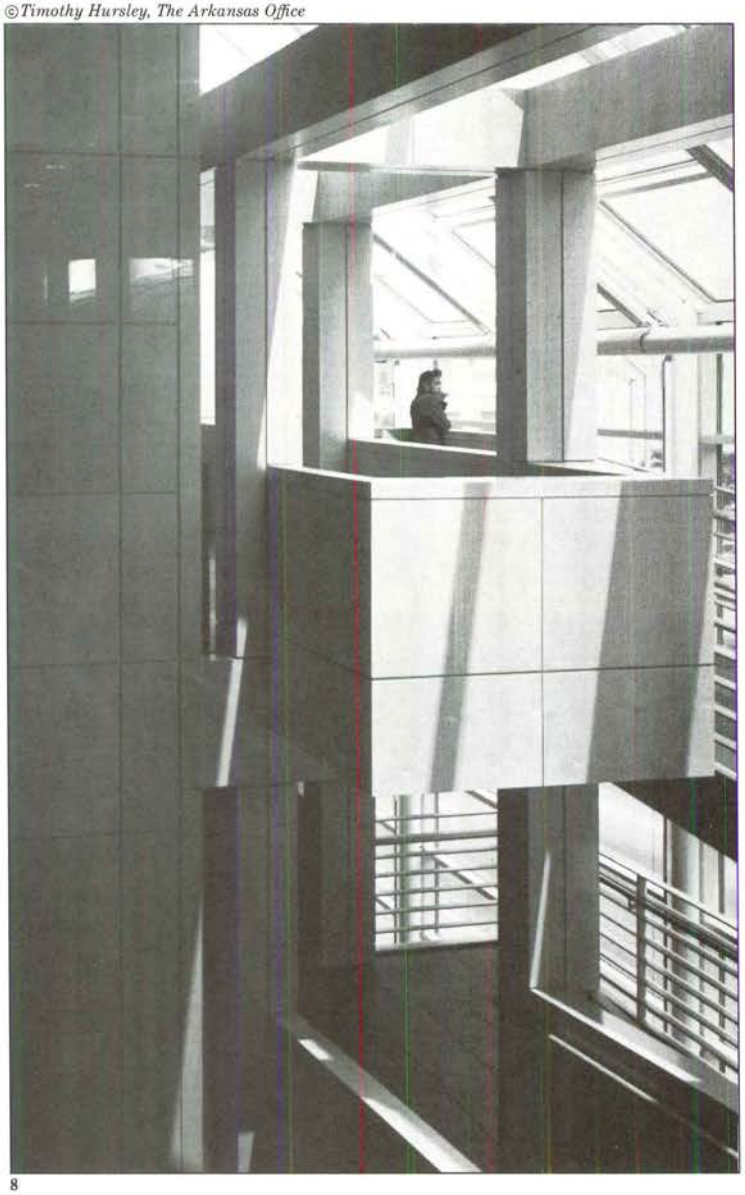

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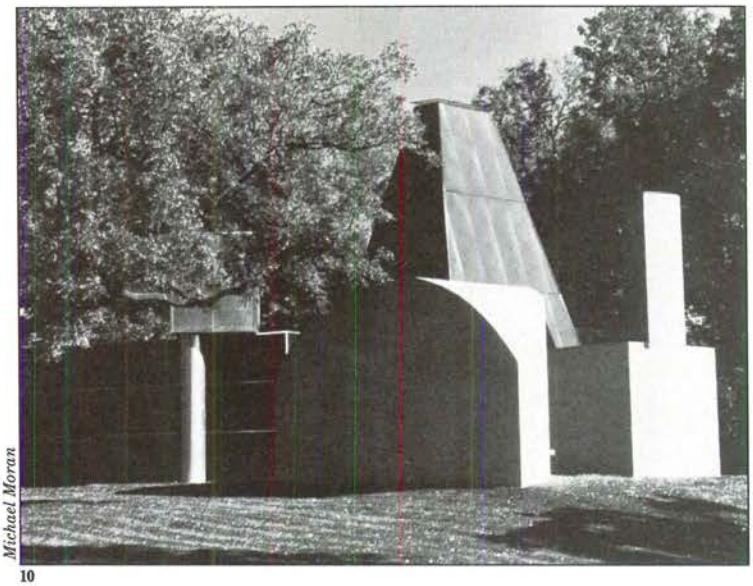
United Gulf Bank, Manama, ahrain; Skidmore, Owings & errill, Architects. Precast- ncrete screen walls, a three- ory arcade, and an indirectly lit rium space protect 100,000 uare feet of office space from e severe climate at the edge of e Persian Gulf. Architectural rms and ornament abstracted om elements of traditional uslim architecture were ndled "with skill and respect," cording to the jury, which also ted: "the building is suffused ith a wonderful sense of light."

6. 8522 National Boulevard, Culver City, Calif.; Eric Owen Moss, Architect [RECORD, April 1988, pages 90-97]. Six dilapidated warehouses, all with different structural systems, were united by a new entrance and public corridor to create "interior spaces of great clarity, richness, and variety." The project developed 60,000 square feet of office space by "using an absolute minimum of means" and yet evoked "the essential spirit of architecture."

7. Monterey Bay Aquarium, Monterey, Calif.; Esherick Homsey Dodge and Davis, Architects [RECORD, February 1985, pages 114-123]. The jury lauded the "power" of the contextual "*Cannery Row* imagery," the inventive exhibit presentation, and the deft resolution of technical issues in this regional-theme aquarium. Existing industrial structures incorporated into the new construction informed the overall massing. A nonlinear exhibition scheme alternatively allows visitors to browse through only a few of the displays or to explore the entire aquarium.

8. The High Museum at Georgia-Pacific Center, Atlanta; Scogin Elam and Bray Architects [RECORD, November 1986, pages 124-131]. "An elegant and beautiful envelope" has been erected in the narrow, skylit greenhouse space of a downtown office building. A ramp system connects the building lobby to 5,000 square feet of gallery space on two lower levels, opening to city views and to changing vistas through the galleries.

9



Michael Moran

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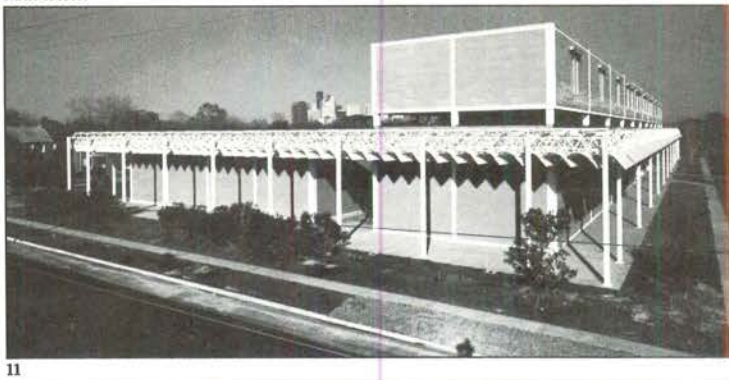
Paul Hester



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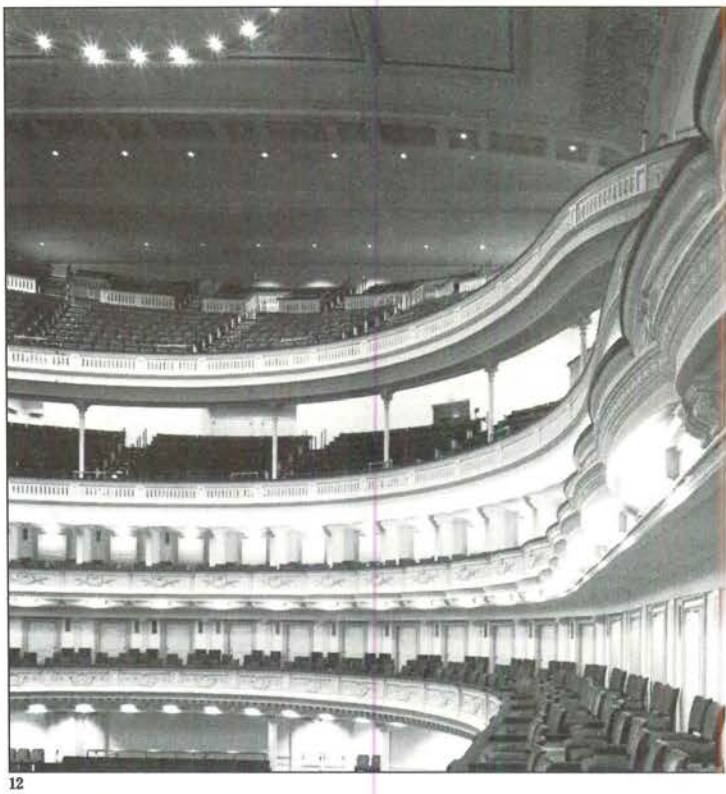


12

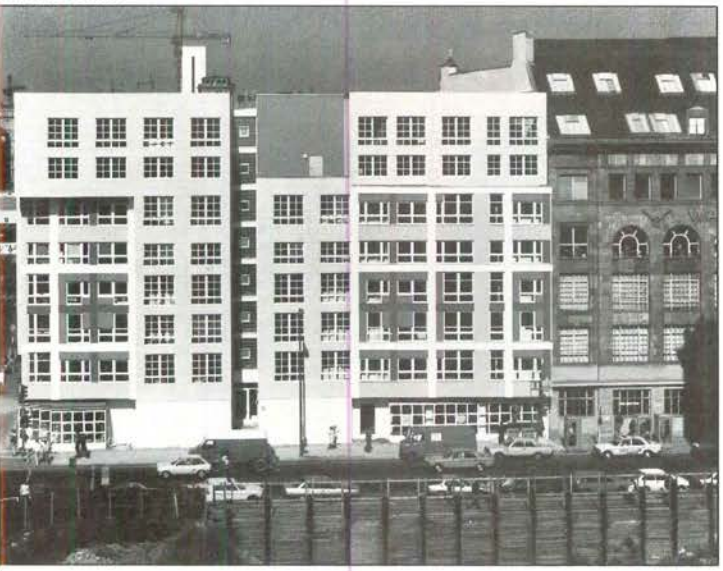
9. United Airlines Terminal, Chicago; Murphy/Jahn with A. Epstein & Sons, Architects [RECORD, November 1987, pages 148-155]. Two daylit 1,600-foot-long barrel-vaulted concourses have been added to O'Hare International Airport and are linked to each other by an underground pedestrian walkway. The jury praised the efficient and attractive accommodation of airline passengers in the 42-gate, 1.2-million-square-foot project, finding it "a joy to walk through."

10. Guest House, Minneapolis; Frank O. Gehry and Associates with Meyer, Scherer & Rockcastle, Architects. A complex play of masses—kitchen and service areas (a long Finnish-plywood box), a fireplace alcove (brick rectangles), and two bedroom-and-bath modules (one stone and curved, the other metal-clad and shed-roofed)—cluster around a pyramidal chimneylike central living/dining space of painted sheet metal. The house was judged "a remarkable exploration of space, light, shapes, volumes, and materials."

11. The Menil Collection, Houston; Piano + Fitzgerald, Architects [RECORD, September 1987, pages 124-125]. "At once deferential and inviting, self-effacing, yet celebratory," this museum project is situated in a neighborhood of bungalows and small apartment buildings. Secure permanent storage for most of the 10,000 objects in the collection was essential, since only a limited number of objects can be exhibited amid an environment of gardens and carefully controlled natural light.

12. Carnegie Hall Restoration, New York City; James Stewart Polshek and Partners, Architects. "This gentle and skilled renovation has retained the spirit and character of the original [1891] hall, while enhancing and enriching it," the jury commented. Work included restoration of deteriorated elements throughout the structure, an expanded and reworked lobby, and refurbished backstage areas.

inhard Goernek



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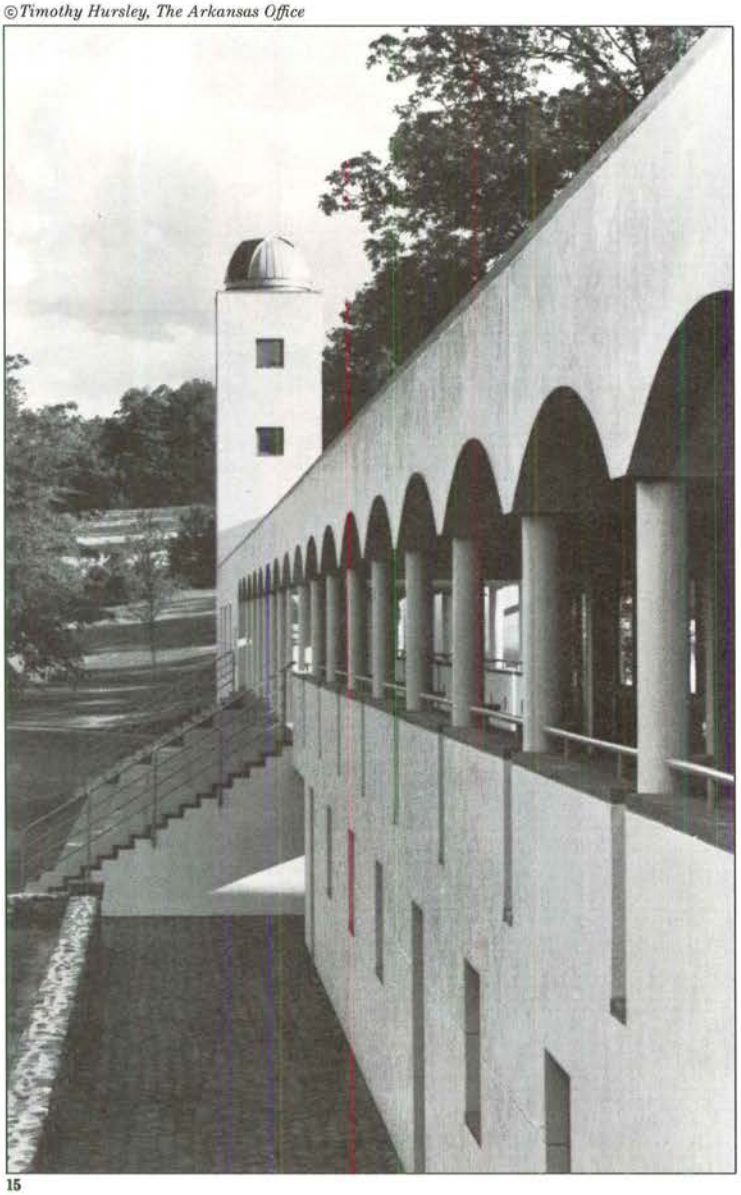

15

3. IBA Social Housing, Berlin, Vest Germany; Eisenman obertson Architects with roetzbach, Plessow and Ehlers RECORD, August 1987, pages 3-67]. "This provocative and gorous low-cost housing project ear the Berlin Wall and heckpoint Charlie projects a owerful yet artful image," eclared the jury. It is an infill roject that will eventually omplete an entire block. "The uilding is ordered without being redictable, calm and disciplined ithout sacrificing vitality. is a fusion of rationality nd vigor."

14. Residence in the Dominican Republic; Hugh Newell Jacobsen, Architect. Based on the indigenous architecture of a nearby fishing village, the dwelling comprises seven pavilions grouped together. "This bright and beautiful house by the sea respects and incorporates local traditions, materials, colors, and forms. The house is nobly scaled, timeless in its simplicity, and completely at home on its Caribbean site."

15. Library and Science Building, Westover School, Middlebury, Conn.; Gwathmey Siegel & Associates, Architects [RECORD, February 1985, pages 124-133]. A 40,000-volume library, laboratories, a greenhouse, and an observatory are united by an arched arcade that links the main building of this private school to the student activities center. The placement of the addition was hailed as "masterful and sensitive." The jury observed: "The new structure enhances its predecessors by creating a rational order; it ties what is built to what is natural, and transforms the existing environment and context into a new level of art."

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DE-ARCHITECTURE, by James Wines. New York: Rizzoli, 1987, $40.

Reviewed by Ellen Posner

The New York firm SITE put itself on the map in the mid-1970s when it began a series of structures for Best Products Company, and the attention was deserved. The tilted, partially crumbling, peeling, and invaded facades designed by the firm's principals, James Wines and Alison Sky, were witty treatments of the discount chain's standard, boxlike showroom/stores. The ironic imagery was scaled to their locations on highway strips and behind vast parking lots. SITE also created widely publicized projects for art collector David Bermant, director of Art for Public Space as well as president of National Shopping Centers. There was, for example, an "exploded" (by means of glass panels) version of a standard mansard-roofed McDonald's [RECORD, March 1984, page 135], which was made possible by Bermant's intervention.

To call attention to one of his underused parking lots, SITE arranged 20 parked automobiles and covered them with a thin layer of asphalt so that their forms were recognizable, if indistinct. SITE went on to design an undulating roadway bearing vehicles of every sort. Abstracted by the use of a uniform gray paint, the assemblage became the symbol of Vancouver's EXPO '86 [RECORD, July 1986, pages 128-31]. These projects were more closely aligned to environmental art than to the practice of architecture. In fact, SITE (the acronym stands for Sculpture In the Environment) originally had been founded to encourage and document communicative work in art and architecture. After some nibbles, commissions for built and quasi-architectural projects began to come into the office and the firm took them on. Now James Wines, who has been chairman of the Department of Environmental Design at Parsons School of Design since 1983, has published a treatise concerning all that is wrong with architecture today and, more or less, how it can be fixed. The title of the book derives from SITE's challenge to visual expectations in its disassembly of, at minimum, the *idea* of the building, if not the building itself. Wines believes architecture is now moribund as an art form because it no longer has anything to say—or at least nothing of particular relevance to the chaotic world in which we find ourselves. He acknowledges that newspaper and magazine coverage of architecture has increased enormously, but he later explains that this phenomenon is merely a first step toward a real dialogue between professionals and the rest of us. "Architecture can regain its status as an urgent public art that stimulates people to think," he says, "only by integrating multilevel insights, dialectical humor, and narrative content, elements so lacking in every aspect of its present character." According to Wines, the real problem with architecture is architects: they have, he tells us, an "insular mentality," an "incapacity to question basic principles," and most are "unable to grasp psychological elements, to respond to deeper cultural impulses and societal motivations, and to allow themselves the freedom to incorporate sources and images outside of the mainstream of rational conventions." And so on, throughout the book.

Concentrating on the idea of architecture as public art, Wines deals primarily with the imagery and symbolism of facades. He dismisses program, materials, structure, and technology; he seems to scorn geometry, and he barely mentions the molding, arranging, and lighting of spaces. He raises interesting questions, but they speak primarily to the nature of public art. The thinness of his consideration of the *practice* of architecture (especially when considered against his sweeping claims) causes his argument to founder as a theory of architecture. It is, at any rate, an argument that is not particularly well structured. *DE-ARCHITECTURE* is both terribly underillustrated and hugely overloaded with quotations from, and references to, the ideas of others. Nevertheless, contradictions and near-contradictions abound. Modernism, for example, comes in for some of the usual criticism (the poverty of its language, for example), but one of the pre-eminent icons of Modernism, Le Corbusier's Villa Savoye, is lavishly praised for being richly symbolic and communicative (which Wines attributes to Le Corbusier's being "first an artist"). Nor is it entirely clear whether Wines thinks that public art must be "readable" by everyone or that it is entitled to some difficulty and edge.

There certainly is room for the kind of work that SITE does—and what they do, they do very well. In order to be effective, though, their imagery needs something to play against. A cluster of SITE-like buildings would be as meaningless as a row of Seagram buildings. While Wines's discussion of his firm's work is welcome, his proselytizing overreaches. He may present the architecture as a manifesto, and as "part of a continuum in the recent history of polemical dialogue," but it is, in fact, a weak link.

"I was just about to remark about the spacious closet space, but it's the guest room."

Ellen Posner is the architecture critic for the Wall Street Journal.

Many Masks: A Life of Frank Lloyd Wright, by Brendan Gill. New York: G. P. Putnam's Sons, 1987, $24.95.

Reviewed by Franz Schulze

Why did Brendan Gill write this book? There is as much cause to refrain from attempting a biography of Frank Lloyd Wright as to take it up. The argument is not just that it has been done before. On the contrary, the modesty of previous efforts only underscores the need for an account proportionate to the outsize dimensions of Wright's life and work. It *is* a great challenge, but one that ought to be checked by prudence, because it requires a strong narrative writing style, a high level of both architectural and psychological interpretive insight, and far more extensive scholarship than anyone has yet undertaken. (One cannot help wondering how much archival material the guardians of the Wright cult in Taliesin West have not yet made accessible.)

Gill would seem to have the requisite skills, but everything about the book suggests that he has not used them. As a writer of long standing for *The New Yorker*, and more recently, the proprietor of that magazine's architecture column, he must know as well as anyone what the definitive Wright biography calls for. As it is, he has come up with a remarkable quantity of data new to most of us, which have been drawn chiefly from interviews with acquaintances of Wright, and from hitherto rarely examined files of correspondence.

But Gill's way with his material is dubiously selective, and he has produced a detailed but willfully incomplete image of Wright, the man, even as he omits heaps of information about Wright, the builder. To be sure, Gill makes the requisite acknowledgments at the outset: that his subject was a great architect, that he was a singularly colorful and unforgettable human being, that he was in many respects likable, and, in a few, even lovable. These sentiments are offered more or less as categorical principles, and the reader, though not surprised by them, quite naturally expects them to be documented. But Gill turns Wright into a caricature as he trots out an interminable and excruciatingly repetitive list of vanities and character flaws: Wright was an unconscionable self-advertiser who forever lived beyond his means; he grievously mistreated his wives, mistresses, children, and his rivals; he lied to his clients, and he rearranged, covered up, and distorted the facts of his life and work in his writings. Gill rarely subjects any of Wright's buildings to a scrupulous analysis, so the architectural brilliance of Wright does not come through; he emerges as a flaming eccentric, even a bit of a scoundrel.

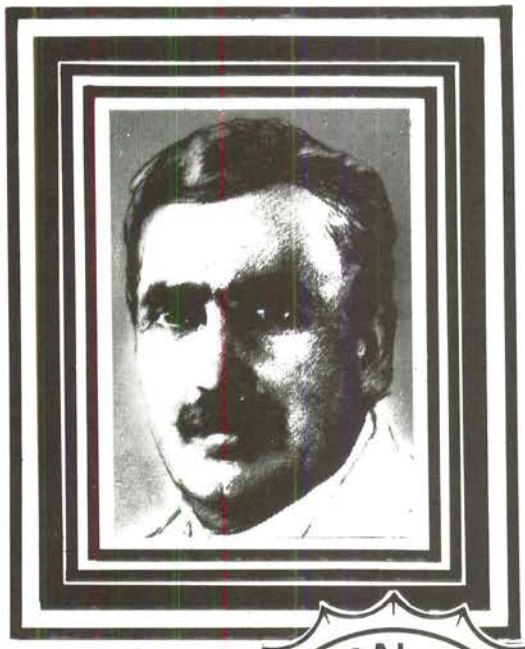
What is going on here? Did Gill feel the need to show that the "many masks" he claims Wright wore throughout his life do not flimflam Gill? Or was he simply seduced by all the juicy personal material he had dredged up? We have long known that Wright was a braggart and a womanizer, and that his famous autobiography—so often shredded here by Gill—was full of literal inaccuracies. Gill does not shy away from insinuating himself and his own acquaintance with Wright into his narrative. Is he trying in some curious and unnecessary way to show himself equal or superior to his subject?

We are not looking for a whitewash. Let Wright be Wright, and let him be blamed for all his faults. He deserves no more forgiveness than the average sinner, and most of the facts Gill cites are pertinent to the story of his life. But Frank Lloyd Wright's foibles and defects are not what interests us most. (History, in any case, can show us sinners both more vile and more fascinating.) We know few men as surpassingly original in their approach to the design of buildings or so capable of endlessly rich and varied form. Wright broke architecture's arbitrary, largely cosmetic, revivalist lockstep in the early years of the 20th century and showed how buildings could be made beautiful and meaningful through a powerful play of abstract masses. He gave a new sense to interior architecture, especially in his houses, creating an interwoven flow of decellularized spaces that was uniquely modern in its restless dynamism. The impact of his work on the European designers of the 1910s, '20s, and '30s helped to change the character of international architecture, while the very homage of masters like Mies van der Rohe inspired the inspirer to produce Fallingwater (1936, revitalizing a career that had slumped in the 1920s) and such later distinguished works as the S. C. Johnson and Son Administration Building and the Guggenheim Museum.

Nor did Wright's vision develop *ex nihilo*. His work and thought derived not just from his one-time boss, Louis Sullivan (the usually credited source), but from a host of others, including architects (Henry Hobson Richardson, Josef Olbrich, and the builders of traditional Japanese houses) and non-architects as wide-ranging as Jesus, Rousseau, Goethe, and Walt Whitman. How Wright distilled a new brew from so many old ingredients is one of the most exciting questions pertinent to his extraordinary 70-year career. Wright's own attempts to rationalize his architecture are demeaned by Gill: "Wright . . . from his teens adopted the romantic concept of striving to be several people at once. One of the masks he wore was that of the artist-architect, with his unconventional philosophy (a mingling of hand-me-down Emerson and hand-me-down Nietzsche) . . . ." But Wright was not as badly educated as Gill implies, nor was he merely a composer of vulgar rhetoric. The connection between his thinking and his architecture has been far more profitably examined by the architectural historian Norris Kelly Smith (*Frank Lloyd Wright: A Study in Architectural Content*), who had a deeper and more illuminating respect than Gill evidently does for the way Wright's thought inspired his buildings. And Gill makes only the most casual effort to establish, and account for, Wright's place in the history of architecture and of American or Western culture. The relationship of the Prairie-house plans to either the 19th-century "box" or to what came after (the famous open plan of the European Modernists, for example) is glossed over. Even the best part of Gill's contribution to Wrightian scholarship could have led to deeper levels of understanding. The most impressive asset of his biography is indeed the multiplicity of data about Wright's personal life, and we owe Gill our gratitude and respect for that. He relates examples of Wright's compulsive extravagance and his cruelties to his family, but he does not illuminate the effect of these habits on his work. We come away from this book knowing a good deal more than we knew before about what happened to a most exceptional historic figure, but what we really want to know—and Gill does not help us—is, why?

Franz Schulze, the Hollender Professor of Art at Lake Forest College, is the author of Mies van der Rohe: a Critical Biography.

The World of Rixson



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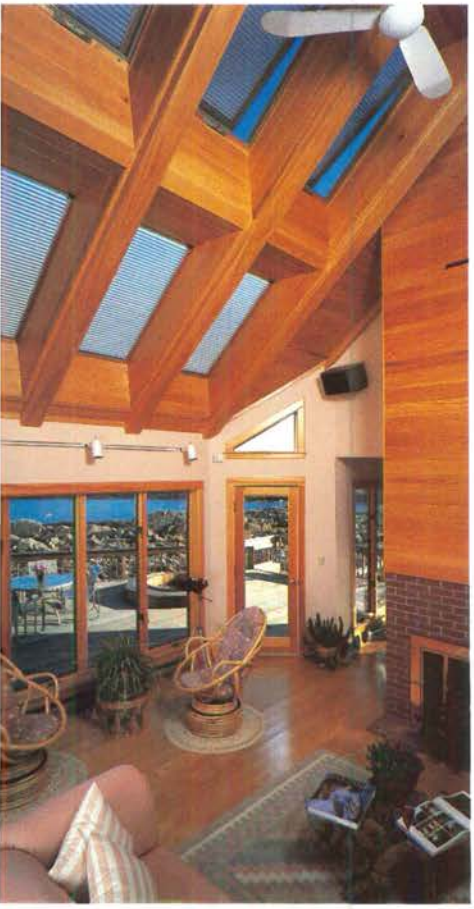

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Great Hall of
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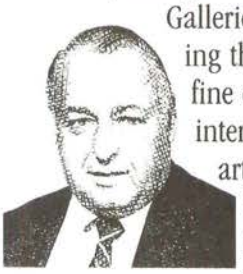

Dick Dixon,
Stanley's Dallas/Fort Worth
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The Crescent enters a new era of style. It was a pretty nice opening for Stanley.

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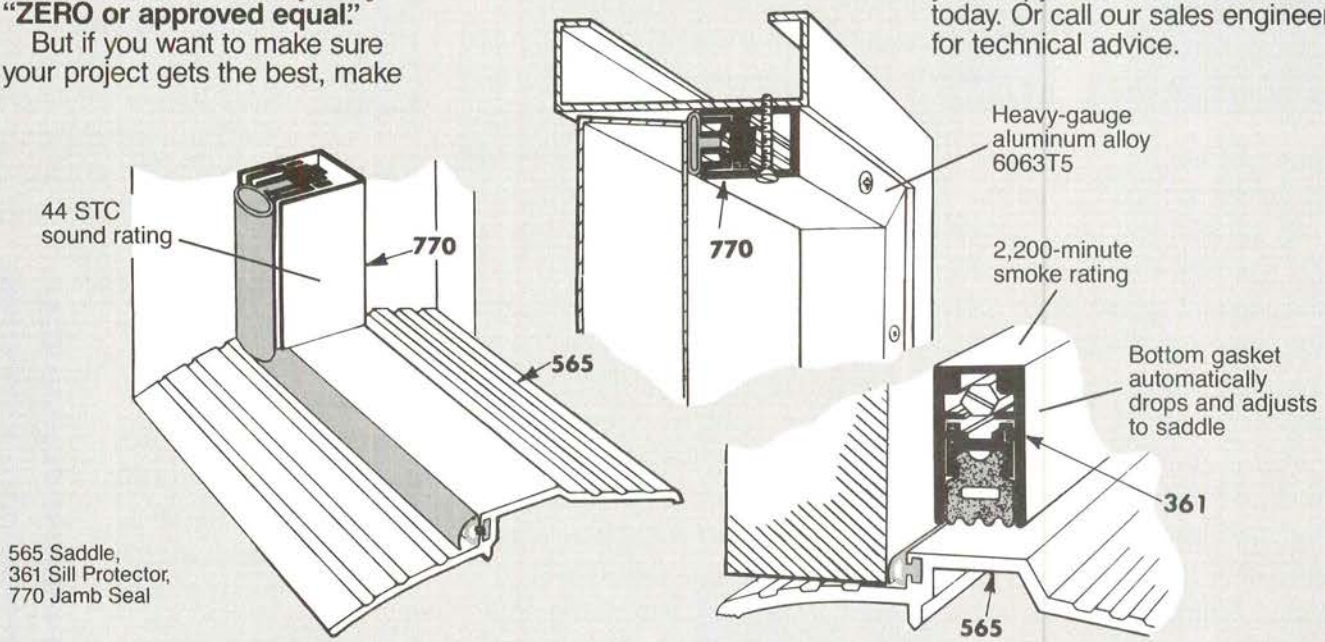

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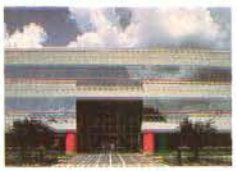

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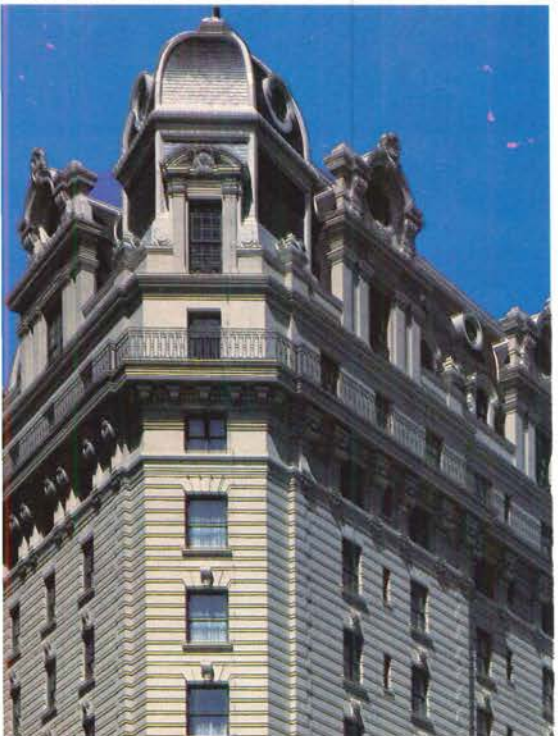

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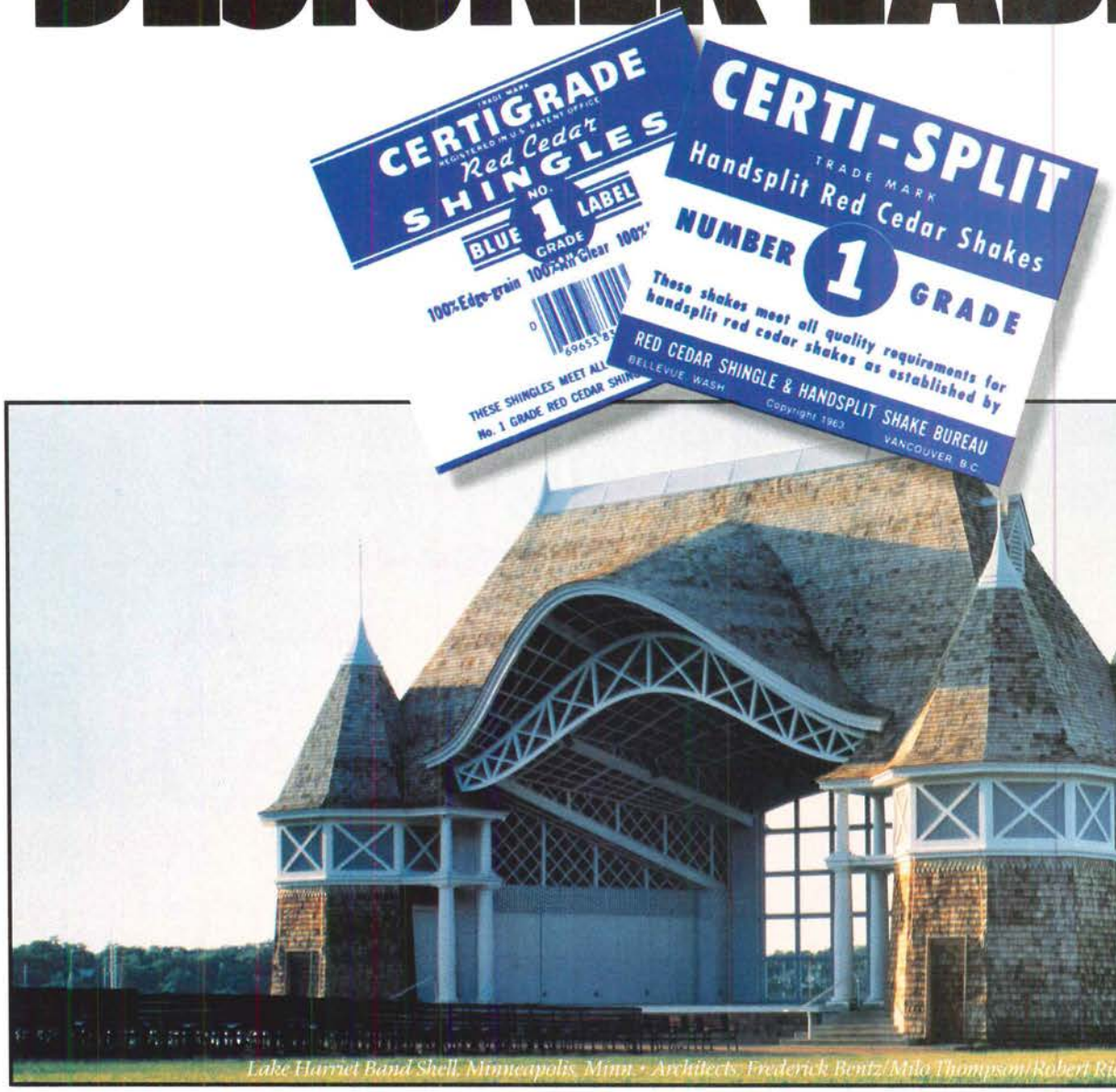

Lake Harriet Band Shell, Minneapolis, Minn. • Architects: Frederick Bentz/Milo Thompson/Robert Rietow, Inc.

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The Recognized Authority

In this issue

The dapper gent below (a lamp by the artist Dan Dailey) hangs out at the swank New York duplex known as the Rockefeller Center Club by day and Rainbow by night. As our article on pages 110-121 reveals, the interiors designed by Hardy Holzman Pfeiffer Associates for this skyscraper eyrie reinterpret the urbane elegance of 1930s American Modernism with a panache that seems as glamorous as ever today. Even though this project includes the restoration of a one-of-a-kind period piece, the Rainbow Room, the otherwise wholly new complex exemplifies how esthetic collaboration of many kinds can be extended over time, and enriched by the respectful originality of each participant.

Cross-fertilization among various media of art and craft (and the ever fuzzier boundary lines between these arbitrary categories) is a unifying theme in the portfolio of three projects in Nîmes, France, by the Parisian architect Jean Nouvel, which appears on pages 128-137. The disparate influences of postwar New Wave films, Abstract Expressionist painting, and current French politics mingle with High Tech tectonics in the conception and realization of Nouvel's provocative trio.

No architect has ever celebrated multimedia interaction more spectacularly than Frank Gehry has in his tower honoring U. S. sheet metalworkers, an art object-building-exhibit now on view at the National Building Museum, in Washington, D. C. (see pages 138-139).

The collaborative structure of American corporate life typically elicits far subtler esthetic treatment than the heroics of lone artisans. How architecture serving the collective identity of a business community can nonetheless effectively express shared aspirations—albeit with reticent "good taste"—is the implicit topic of our feature story on the Pitney Bowes World Headquarters in Connecticut, designed by I. M. Pei & Partners (pages 122-127).

Enthusiastic cooperation is crucial to far more than the formal cohesiveness of the modern urban marketplace, surveyed in this month's Building Types Study (pages 140-151). An analysis of this genre, as it has developed in the work of one key architectural firm, highlights the complicated interplay of commercial and civic enterprise in planned downtown renewal.

Rainbow
Rockefeller Center
New York City
Hardy Holzman Pfeiffer
Associates, Architects

Change partners and dance

The restored Rainbow Room understandably takes center stage amid an extensive complex of new interiors. But if the designers of the present ensemble merit a bravo for the splendid comeback of a '30s star, they also deserve applause for a virtuoso turn of their own.

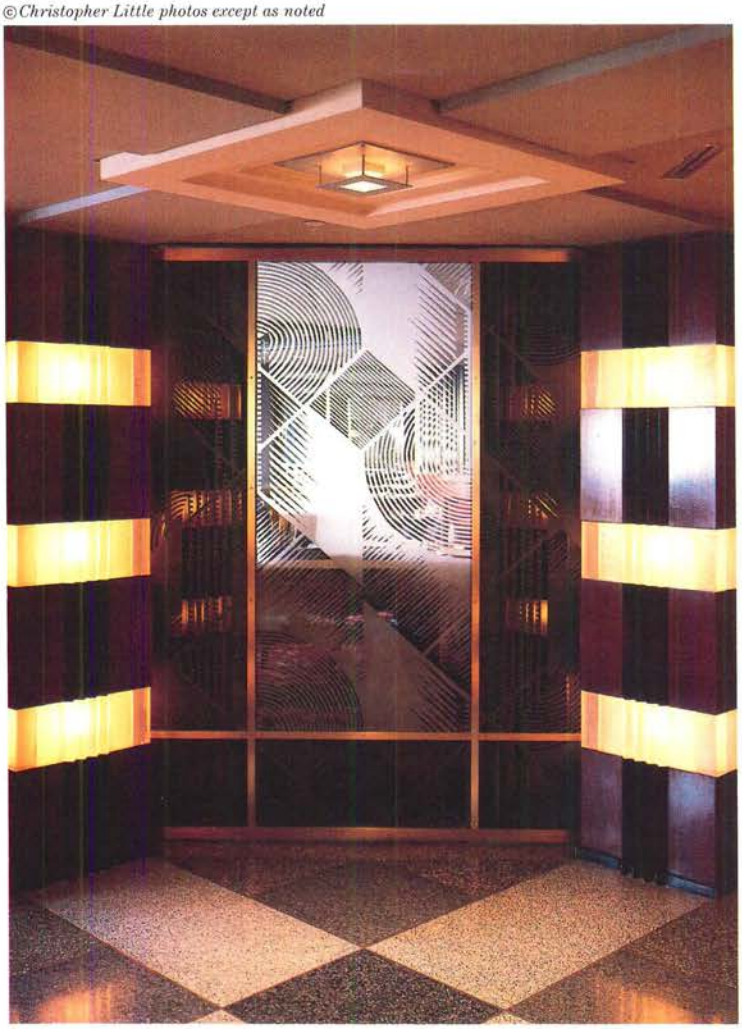
ontrary to popular myth, the architect Hugh Hardy tells us, inger Rogers and Fred Astaire never waltzed down the steps of ie Rainbow Room, atop Rockefeller Center (the actual venue as a studio set for the movie "Swing Time"). Rather than miss a oment that should have been, however, we can thank Hardy olzman Pfeiffer Associates, and a multimedia host of llaborators, for recreating a Rainbow Room in which anyone ith imagination, a reservation, and a credit card can dance his or er own way into a romantic closeup. Nostalgia of course plays a ey role in the current popular success of this Manhattan ndmark, the quintessence of urban chic when it opened in 1934 id glamorous once again, having emerged from a two-year-long storation after a slow decline into genteel dowdiness. But the al story here for architects and designers is more than another it revival. The famous ballroom is the only interior within the vo-story, 46,000-square-foot Rainbow complex that has not been esigned anew, and the rest of the public rooms and private acilities belonging to the Rockefeller Center Club are, if nything, even more ambitious than the spaces unveiled when the aytime luncheon club and nightime pleasure dome made their ebut amid the Great Depression. Now, as then, the amenities stalled at the summit of the RCA Building are meant to pitomize the lasting prestige—and tangible rewards—of ockefeller Center as a business address. John D. Rockefeller, r., set the standard in 1929, in a memorandum regarding the cipient development: "The importance of a unified and beautiful hole must constantly be kept in mind and attained, to the fullest xtent compatible with an adequate return on investment."

The extent of this continuing commitment was reaffirmed as oon as present management (under the guidance of The ockefeller Group president and CEO, Richard Voell) concluded iat an all too visible lack of unified beauty, resulting from wear nd tear and awkward alterations, cast an ominous cloud over the ainbow ("Most of the place looked like a third-rate Hilton," ardy recalls). Except for the Rainbow Room itself, which was isassembled for meticulous rejuvenation, everything in the uilding's 64th and 65th stories was to be demolished to the outer alls—a process that took nine months to complete. Deciding hat to put back and what to add was a logistical and esthetic iallenge confronted jointly by Hardy Holzman Pfeiffer, the staurateur Joseph Baum, and the graphic designer Milton laser, who orchestrated an extensive program of commissioned rt. Aside from the fact that only fragmentary working drawings urvived from the '30s, it was obvious that the extant interiors ad never added up to a period ensemble with any coherent ecorative scheme worthy of Rockefeller Center's all-embracing randeur. Furthermore, the given layout patently failed to take est advantage of the penthouse views that have always been the gnal asset of this location, at the summit of the center of the enter—and symbolically, the center of the city. Existing orridors and service areas blocked visitor access to much of the erimeter, and wherever one *could* sit down to overlook the city, one parapets outside the windows interrupted sight lines.

An exuberant reconnection of these interiors to their istinguished milieu—literally and metaphorically—became the aramount goal of the latest Rainbow venture. In Hugh Hardy's iind, the necessary linkage of past and present called for "a storation of spirit as much as a physical restoration," an ttitude fundamental to any undertaking that demands respect for the work of earlier designers at the same time that it necessitates an inventive extension of precedent to address present-day concerns. Besides researching specific motifs and materials used in the Rainbow Room and throughout Rockefeller Center, the architect attended to the cultural values they embody: above all, an optimistic faith in human industry, expressed through the confident synthesis of architecture, art, and technology. "The character of these buildings is that of crafted objects which deftly relate thousands of square feet to the scale of human beings," Hardy observed. "Decorative details abound, but they are not placed gratuitously. Instead, they reinforce entry, announce transition, or focus attention on circulation routes. In such a setting, specific works of art . . . form an integral part of the total experience, one in which public places assume a particularly personable quality." This principle is as valid as ever, Hardy argues, and by applying it in HHPA's own design he was able to honor an ideal of continuity over time without resorting to pedantic imitation.

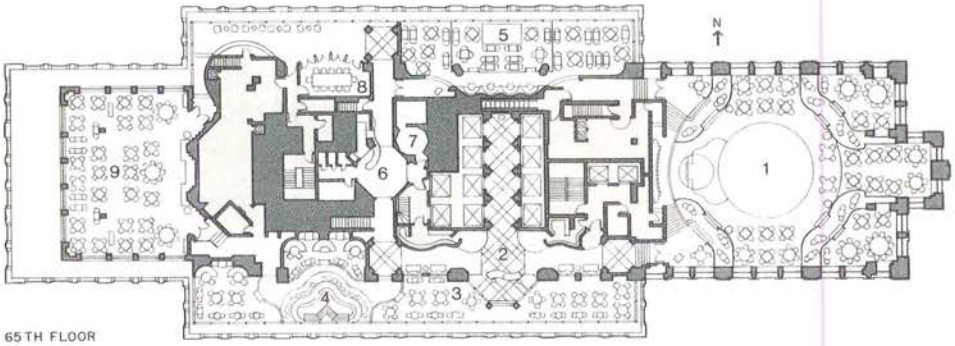
An early stint as assistant to the scenic designer Jo Mielziner, and later architectural involvement in various theater projects, stood Hardy in good stead at Rockefeller Center. Like Radio City Music Hall next door and the plaza skating rink down below, the Rainbow Room invites citizens of the American metropolis to exult in the dramatic rhythms of modern life. From the moment the elevator doors part at the new Rainbow lobby on the 65th floor (opposite), it is clear that Hardy knew the score so well he could compose a fitting overture all his own. Jazzy yet majestic, his enfilade of banded piers is a fanfare of classic Rockefeller Center themes recombined: the geometric play of verticals, horizontals, and diagonals; the emphatic counterpoint of dark and light; the harmony of sumptuous materials (terrazzo, cast glass, and mahogany); the grace note of original contemporary art; and the crescendo of a dazzling vista—in this instance, the Empire State Building looms center stage like the star of a Ziegfeld tableau (to execute this coup de théâtre, Hardy had to break through an existing masonry wall to the south). It already seems inconceivable that before the new Rainbow appeared, this fantastic proscenium was a nondescript foyer with revolving doors at either end and blank walls beyond, a passage that could have led anywhere. Now there is only an exhilarating sense of arrival and a tantalizing promise of spectacles yet to be revealed.

The spaces beyond do not disappoint. Immediately ahead is the Grill, a glass-walled belvedere whose bar serves up an intoxicating skyscraper panorama. Mirrored soffits surrealistically double the view—and illusionistically minimize low ceilings within the existing shell. By a similar sleight of hand, applied throughout the elegant rooms that now compass the entire 65th-story perimeter, Hardy raised floor levels as much as two feet to let seated diners gaze over the formerly obstructive parapets (which, as part of landmark limestone facades, cannot be altered). The climactic set piece, of course, is the refurbished Rainbow Room, with crystal-ball balustrades and bronze-rimmed mirrors aglow against aubergine silk walls, as the designer Elena Schmidt first conceived it. A computer has replaced the RCA Victor Color Organ that wowed night owls in the '30s with a changing spectrum in the dome, and a new cast-glass screen (by artist Dan Dailey) now backs up the band. But the inlaid circular dance floor revolves as before, a place where Everyman and his partner can trip the light fantastic. *Douglas Brenner*



Because the Rockefeller Center Club/Rainbow complex functions from breakfast-time till after midnight, an adaptable balance of artificial and natural light is essential to a congenial ambiance. In the 65th-floor elevator lobby (above), as in the Rainbow Room (overleaf), light levels are adjusted continually to counteract daytime glare and heighten nocturnal drama. Etched glass (in a geometric pattern inspired by Jack Lenor Larsen fabric), cast-glass pillar bands, and clear rods sandwiched between translucent-striped panes (framing the view past the reception desk; opposite and cover) all add luster to HHPA's entryway. (The midsection of the mahogany desk can be removed to extend this processional axis.) By day, Austrian blinds (replicas of the originals, now raised and lowered mechanically) help to modulate sunlight in the Rainbow Room; in the evening, computerized illumination casts changing iridescent aureoles across the dome.

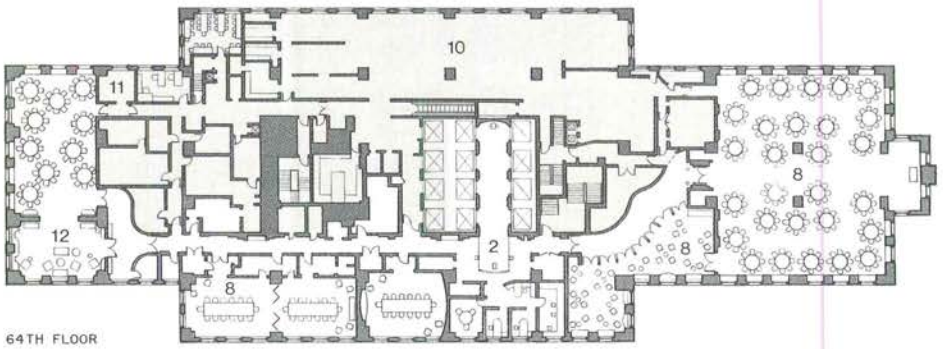

OFFICE SUITE
6700



65TH FLOOR

The only completely novel element inside the Rainbow Room is a back-lit cast-glass screen entitled "Orbit" (far left in photo right), by Dan Dailey, one of a group of contemporary artists and craftsmen commissioned to create original works for the project. New interiors in the rest of the club, such as the bar (opposite), respectfully bring 1930s Modernism up to date. Other facilities, such as a nine-screen "video wall" in Club Central, are conspicuously present-day. (Club Central is also the vantage point for a newly opened through-building vista.) More than half of the project's total cost paid for services and mechanical systems invisible to the public. Staff areas designed to the specifications of restaurateur Joseph Baum include exceptional amenities: a view from the 64th-floor kitchen and an escalator for waiters carrying trays upstairs.

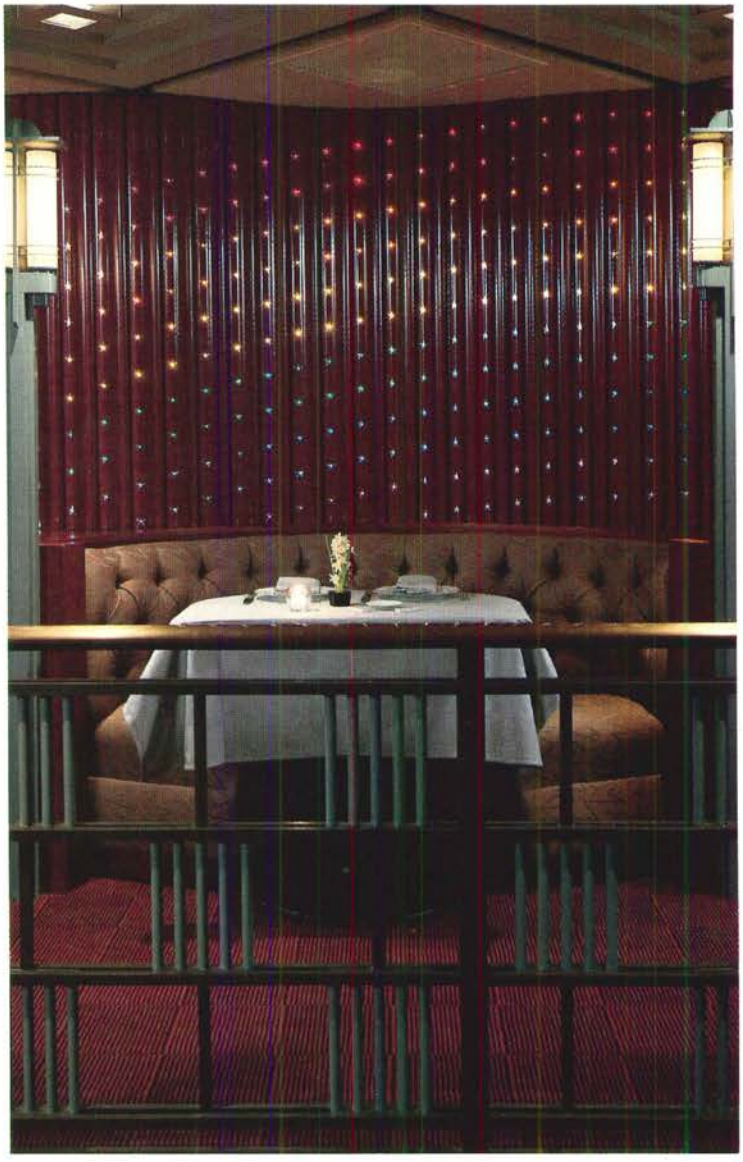
1. *Rainbow Room*
2. *Reception*
3. *Grill*
4. *Bar*
5. *Evergreen/Rainbow and Stars*
6. *Club Central*
7. *Ladies' lounge*
8. *Dining suite*
9. *Buffet Pavilion*
10. *Kitchen*
11. *Wine cellar*
12. *Radio City Suite*



64TH FLOOR

Among the most inventive contributions to the present ensemble is a series of blown-glass pieces mounted on high shelves along three sides of the Buffet Pavilion (below). Created by Dale Chihuly, the three-dimensional frieze is lighted from below. (Hardy quickly rejected an earlier scheme for a dado of neo-1930s murals as inappropriate pastiche.) Ribbed mirrored tiles, in the corners of the room (top left opposite) and behind Hardy's granite sideboard (bottom this page), add yet another layer of luminous surfaces, while

eflecting the esthetic of ematerialized volumes stablished in 1934 by Elena chmidt, the decorator of the ainbow Room. In the room alled Evergreen in daytime nd Rainbow and Stars after usk (below right and bottom ft), arcs of tiny fiber-optic stars designed by Milton Glaser form changing rainbows across the niches behind curvaceous banquettes. Before Hardy Holzman Pfeiffer's extensive rearrangement of the former layout, solid walls stood where windows now afford views northward to Central Park.



Prewar radios adorn the Radio City Suite (top left), one of the 64th-floor club dining and conference facilities. For another room on that level, Hardy designed cabinets he calls an homage to Donald Deskey, the designer of Radio City's interiors (bottom left). The ladies' lounge (opposite) is also in the manner of the master. Dan Dailey's "Bird/Fish" lamps hang over a neo-Deskey credenza (middle left).

Rainbow
Rockefeller Center
New York City

Owner:
Rockefeller Center Management Corporation—Michael J. McCambridge, senior vice president

Architect:
Hardy Holzman Pfeiffer Associates—Hugh Hardy, partner-in-charge; Malcolm Holzman and Norman Pfeiffer, collaborative partners; Victor Gong, administrative partner; Don Lasker, project manager; Lee Harris, project architect; John Reimnitz, project designer; Amy Wolk, project designer (interiors); James Akers, job captain; Cleveland Adams, Diane Blum, Stephanie Bower, David Cagle, Yann Mellet, Manuel Mergal, Susan Petit, Lindsey Reed, Craig Swanson, Brian Wurst, design team; Raoul Lowenberg, construction field representative; Chris Bercel, Setrak Ohannessian, construction administration team; Darlene Fridstein, interiors department director; Noreen O'Carroll, designer (interiors)

Engineers:
Edwards and Hjorth (structural); Edwards and Zuck, P. C. (mechanical)

Consultants:
Joseph H. Baum & Michael Whiteman Company (restaurant); Cini-Little Associates, Inc. (kitchen); Jules Fisher & Paul Marantz, Inc. (lighting); Peter George Associates (acoustics/audio); Milton Glaser, Inc. (graphics and artwork coordination); Marko Associates (electronic systems)

Construction manager:
Tishman Construction Corporation

Pitney Bowes
World Headquarters
Stamford, Connecticut
I. M. Pei & Partners, Architects

Pillar to post

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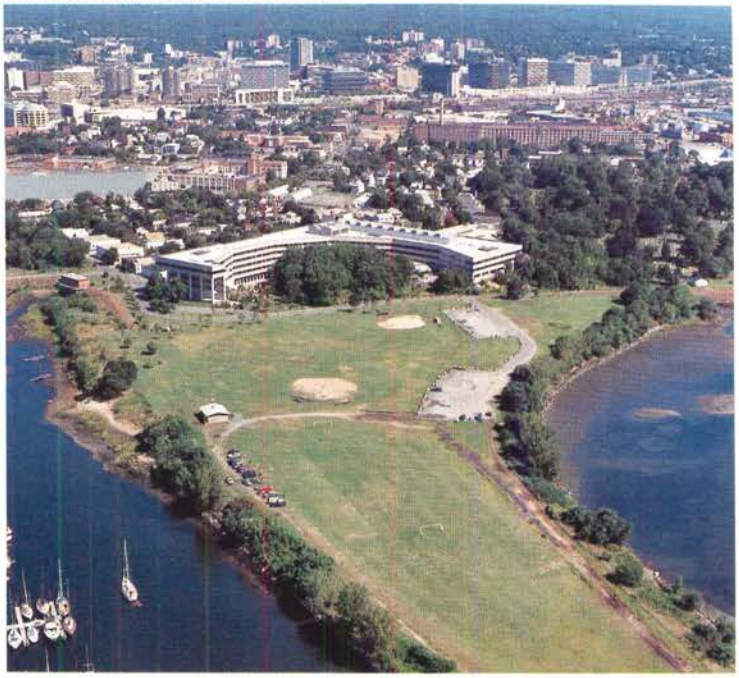


Pitney Bowes investigated 18 sites for its headquarters before settling on Stamford's South End, a 350-acre peninsula adjacent to downtown. This mixed-use area historically has been considered the wrong side of the elevated Conrail tracks and Interstate 95 (top photo), but it is now beginning to share in Stamford's building boom. By wrapping the 422,000-square-foot Pitney Bowes structure around a knoll and by recessing its 1,000-car garage 160 feet behind the street, I. M. Pei & Partners sought to minimize the building's impact on the low-rise neighborhood.

Seven years ago the Pitney Bowes corporation announced plans to consolidate 1,000 employees scattered among 19 facilities in lower Fairfield County, Connecticut, into a new world-headquarters building in the South End of Stamford, just a few blocks from the spot where the company was founded in 1920. By electing to reaffirm its ties to this modest residential and industrial district, the venerable manufacturer of postage meters, facsimile equipment, and other business machinery presented I. M. Pei & Partners with something of a contextual dilemma—how to insert nearly half a million square feet of office space and parking for 1,000 cars onto a 10.5-acre building site that lies between the heavily wooded knoll of Kosciuszko Park to the south (top left) and a dense working-class neighborhood of frame houses and low-rise factories, including Pitney Bowes's own main plant, to the north (bottom left).

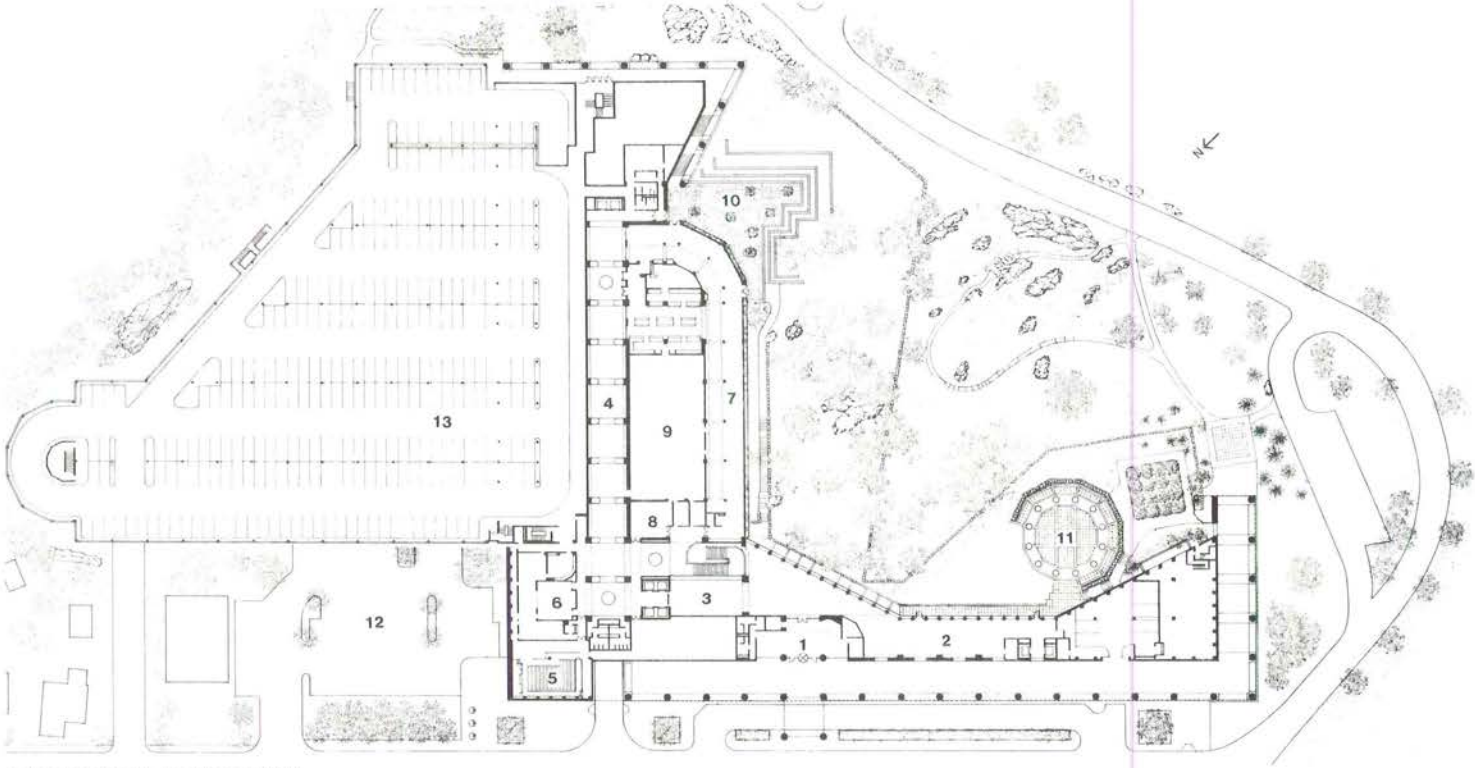
"Our strategy," explains Pei's partner-in-charge Henry Cobb, "was to acknowledge the building's scale, but use the inevitable volume to enrich the public realm." Toward that end, the architects adapted the geometry of a fragmentary dodecagon to configure the cast-in-place concrete structure as a faceted crescent embracing the knoll—a decision that preserved most of the existing trees on the site while providing Pitney Bowes with some 800 feet of perimeter offices overlooking Long Island Sound. (Although one-half of the knoll remains city property, Pitney Bowes has assumed responsibility for maintaining the entire parcel, which has been landscaped with seasonal plantings and a low fieldstone wall.) In contrast to the four-story-high elevation along the park, the building's city-facing flank rises six stories, its apparent height diminished somewhat by a 60-foot setback and its 500-foot-long street frontage counterbalanced by the vertical rhythm of a 30-foot-high colonnade.

The interior of the headquarters is organized logically around two full-height skylit spaces—designated "gathering places" by Cobb—that are meant to bring daylight into the building core and encourage interaction among Pitney Bowes staff. The smaller of these atriums, a 55-foot-square stair hall off the main lobby, rises 95 feet through the structure and acts as a spatial hinge between the two office wings (small photo page 126); the larger space, a soaring glass-enclosed arcade running the length of the east wing, functions as an interior "boulevard," complete with elevated pedestrian "crosswalks" and custom-designed "streetlamps" (page 127). While skylit atriums have become commonplace in corporate architecture over the past two decades few succeed as well, either visually or functionally, as Pei's version for Pitney Bowes. By placing such frequently used facilities as the employee cafeteria, auditorium, credit union, and company store directly off this 295-foot-long spine, and by dividing the atrium itself into attractive lounge areas set on a 30-foot module, the architects have produced an active focal point whose 13-shade palette subtly echoes the pink-and-gray hues of the building's granite-and-glass curtain wall. Within the structure's three office floors, the allocation of space follows a typical corporate hierarchy: senior executives occupy traditional enclosed offices in the building's narrow west wing, while managerial and support staff in the east wing are housed primarily in open-plan offices. Corner space normally given over to upper-level staff offices, however, has been thoughtfully turned into conference rooms, awarding everyone at Pitney Bowes the bonus of city, park, and water views. *Paul M. Sachne*

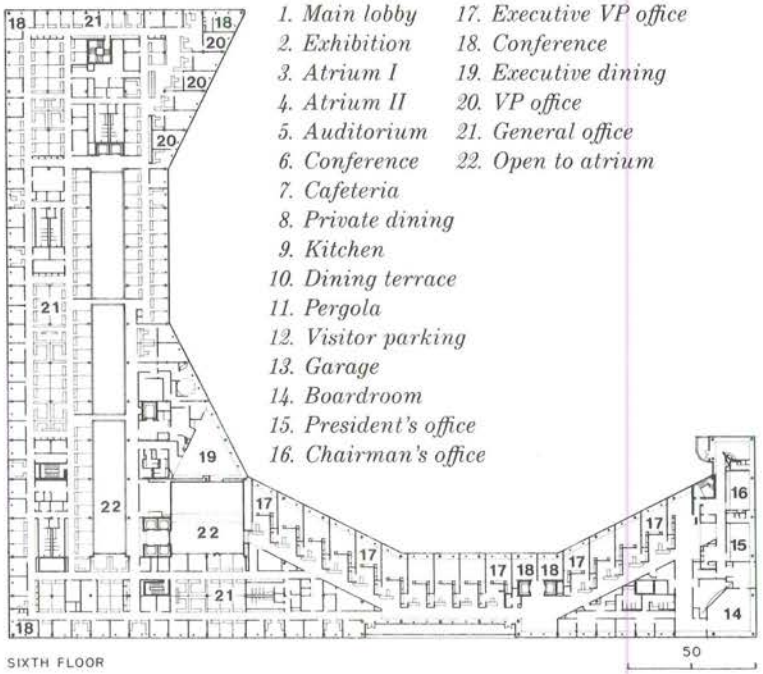
n a city where office buildings typically vie with ne another for attention, I. M. Pei & Partners' itney Bowes world headquarters reaffirms a orporate esthetic of quiet good taste.

Steve Rosenthal

Although the geometry of the dodecagon is most evident in Pitney Bowes's plan, the 12-sided figure reappears in the wisteria-draped pergola of an executive garden (top opposite) and in such interior details as the faceted skylight of the main atrium (page 127), coved ceilings everywhere, executive corner fireplaces, and selected office furnishings. The polygon also dictated the form of a one-story glass-walled pavilion housing a 500-seat employee cafeteria (bottom opposite), which opens onto an outdoor terrace used for dining during warm months. A generous portion of the ground floor off the main lobby (top plan) is given over to gallery space, occupied by a permanent exhibition on the history of Pitney Bowes and by changing shows of local artists' work. In a typical office floor (bottom plan), no employee has to travel more than 60 feet to reach one of 21 core areas containing office supplies and communications facilities, restrooms, closets, coffee stations, and conference rooms accommodating up to six people.

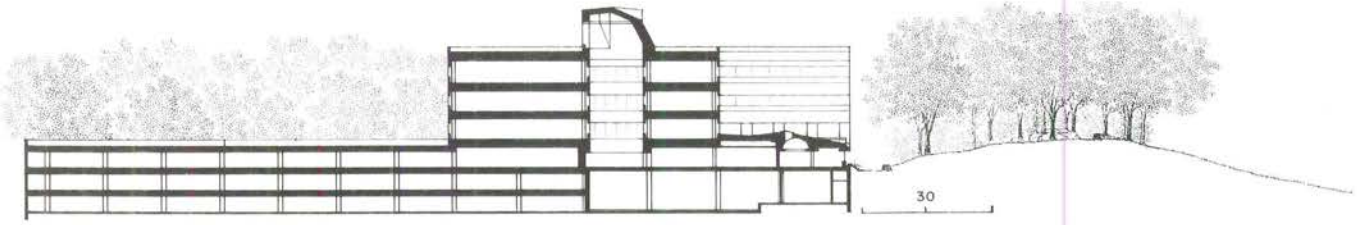


COMBINED GROUND AND THIRD FLOORS



1. *Main lobby*
2. *Exhibition*
3. *Atrium I*
4. *Atrium II*
5. *Auditorium*
6. *Conference*
7. *Cafeteria*
8. *Private dining*
9. *Kitchen*
10. *Dining terrace*
11. *Pergola*
12. *Visitor parking*
13. *Garage*
14. *Boardroom*
15. *President's office*
16. *Chairman's office*
17. *Executive VP office*
18. *Conference*
19. *Executive dining*
20. *VP office*
21. *General office*
22. *Open to atrium*

SIXTH FLOOR



Steve Rosenthal photos

According to Henry Cobb, the most significant impulses behind the Pitney Bowes building related to its "posture in the city" and to the way the design might encourage a sense of corporate community. A 500-foot-long entrance colonnade, articulated by painted-concrete columns (top right), is intended as a welcoming front porch connecting the building to the surrounding neighborhood. Inside, two primary gathering spaces are a monumental stair hall (below) and a 72-foot-high atrium that separates the east wing into 35- and 65-foot-wide office areas (below right and

©Steve Rosenthal

opposite). The atrium was programmed with lounge seating only after Pitney Bowes had occupied the building for six months and determined that it wished to use the area for informal assembly as well as circulation. A wool tapestry by artist Helena Hernmarck adorns the atrium's end wall.

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Pitney Bowes
World Headquarters
Stamford, Connecticut

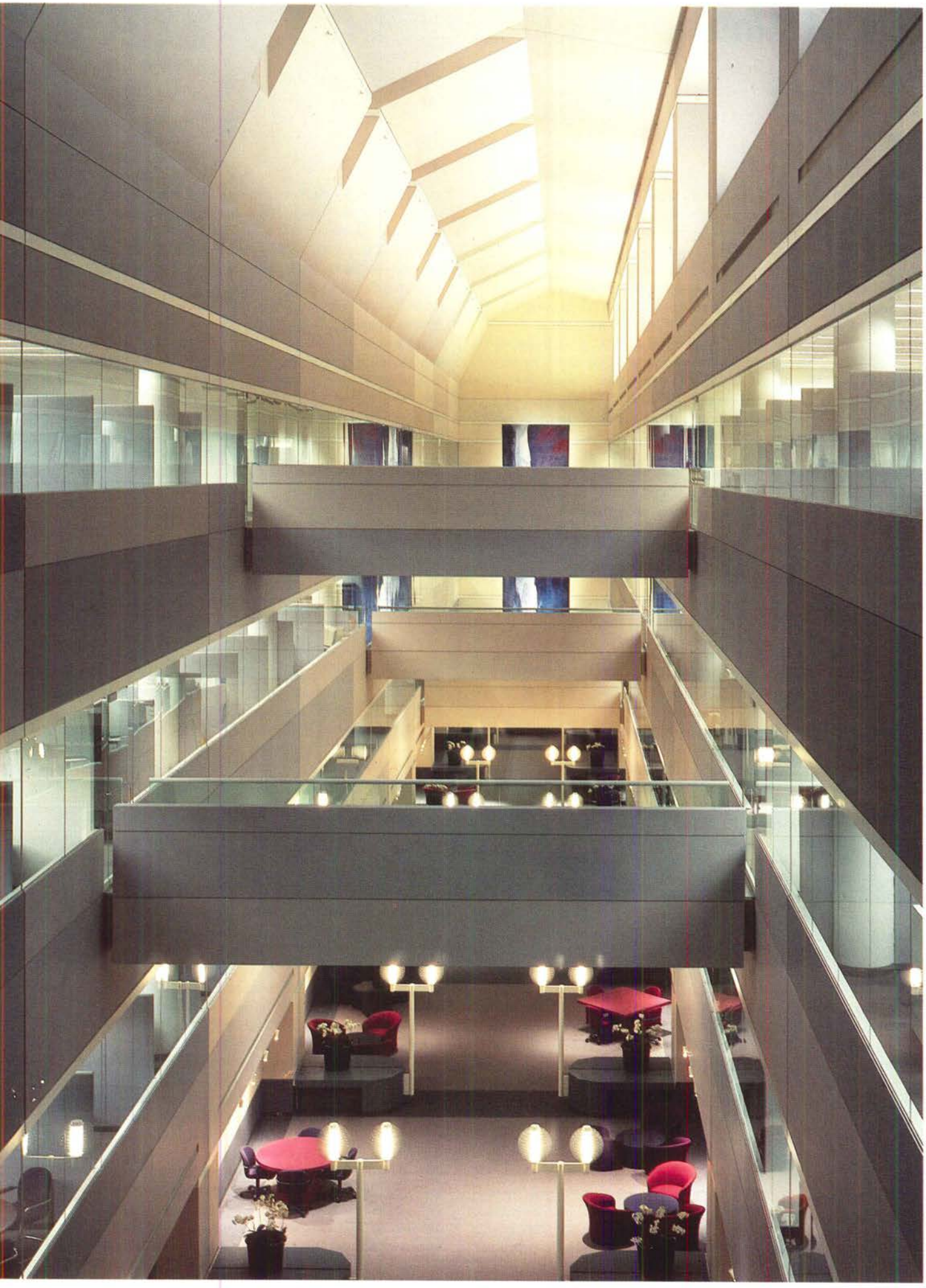
Owner:
Pitney Bowes Incorporated

Architect:
I. M. Pei & Partners—Henry N. Cobb, design partner; Eason H. Leonard, administrative partner; Theodore J. Musho, associate partner/design; Richard Smith, project manager (phases I and II); Lloyd Ware, project manager (phases III and IV) and project architect; Po-Nan Tung, job captain; Robert Heintges and Christopher Olsen, curtain wall; Steven Silverstein and Abby Suckle, interiors; Reginald Hough and Raymond Searby, specifications; Peter Ksiezopolski, Joan Andrews, Julie Salestrom, Linda Zingg, graphics and colors; Clark Thompson, site architect; Fritz Sulzer and Herb Thiessen, hardware; Stephen Carter, Glen DaCosta, Kirit Desai, Adam Dolle, Barbara Fisher, Ursula Gorczynska, Mac Gordon, Joan Hagen, Laura Heery, Diane Howell, Kazuaki Iwamoto, Peter Kramer, Robert Madey, Robert Mattox, Ivanka Mahailovich, John Muse, Alexandra Negulescu, Jeff Ng, Steve Ohnemus, Geraldine Pontius, Amiel Savaldi, Leila Seroussi, Howard Settles, Irving Sokol, Candida Smallen, Nancy Sun, Barbara Thomas, Werner Tiburtius, Tom Vail, Cynthia Williams, staff architects

Engineers:
Leslie E. Robertson Associates (structural); Jaros, Baum and Bolles (mechanical/electrical); Travers Associates (civil and traffic); Haley and Aldrich (geotechnical)

Consultants:
Cerami and Associates (acoustical); Jules Fisher & Paul Marantz Inc. (lighting); Hanna/Olin Ltd. (landscape); Boyce Nemec Designs (audio-visual); Crabtree Associates (food service); Rolf Jensen & Associates (code and life safety); John O. Meadows Associates (cost estimation)

General contractor:
Morganti-Huber, Hunt & Nichols, a joint venture (building and site); Frank Mercedes & Sons, Inc. (preconstruction/excavation)

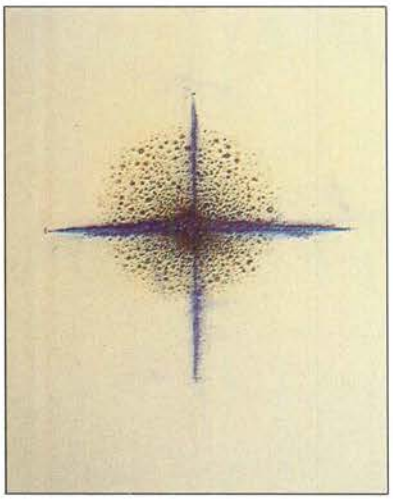


Esprit Nouvel

Three projects
Nîmes, France
Jean Nouvel et Associés, Architects

Critics have called Jean Nouvel the Jean-Luc Godard of architecture. The comparison between the designer and the director, whose self-consciously stylized films of the 1960s established him among the avant-garde, not only indicates Nouvel's new-found prominence in the architectural limelight. It also alludes to the skills that have established Nouvel's own style—most notably, a manipulation of architectonic imagery that blurs his methods with his message. Trained within the technocratic regime of France's *grands écoles*, and influenced by the exoskeletal structures of his professional mentors, Norman Foster, Renzo Piano, and Richard Rogers, Nouvel has also looked beyond architecture for inspiration. Through a succession of interdisciplinary collaborations, conducted ever since he began his practice in 1971, the now 42-year-old architect has absorbed the disparate lessons of filmmakers like Godard and Abstract Expressionist painters such as Jackson Pollock, which he has translated into his own creative medium.

Nouvel's general approach to design is cinematographic. The architect defines "context" as the social setting—"The context of any project is the epoch you build in and the people you build for," he insists—and he views his client and himself as characters in a design drama of conflicting aspirations—"My buildings do not represent the limit of my imagination, just the limit of what I can do in a specific situation." Although Nouvel has always employed the latest industrial gadgetry as his means of expression, his high-tech tendencies now jibe with France's—or, more to the point, her leaders'—current architectural preference. In fact, the pivotal role historically played by the head of state in awarding that country's most coveted commissions gives decidedly political overtones to any significant architectural undertaking, a process that has, in effect, dictated a national style that currently subsumes Nouvel's own brand of Modernism. Passed down through generations of monarchs, the tradition of pet projects is now in the hands of an equally posterity-conscious socialist. Although François Mitterand distributes his *grand projet* commissions by way of a Byzantine system of open "competitions" (whose "winners" inevitably comprise a group of established and esthetically correct architects), the president's oft-repeated credo, "A nation is great when its architecture is great," has set off a flurry of building activity across the country. His own distaste for the process notwithstanding, Nouvel has excelled under this system both in Paris, where his team won the competition for the recently completed Institut du Monde Arabe, and in Provence, where small-scale *projets* now abound.

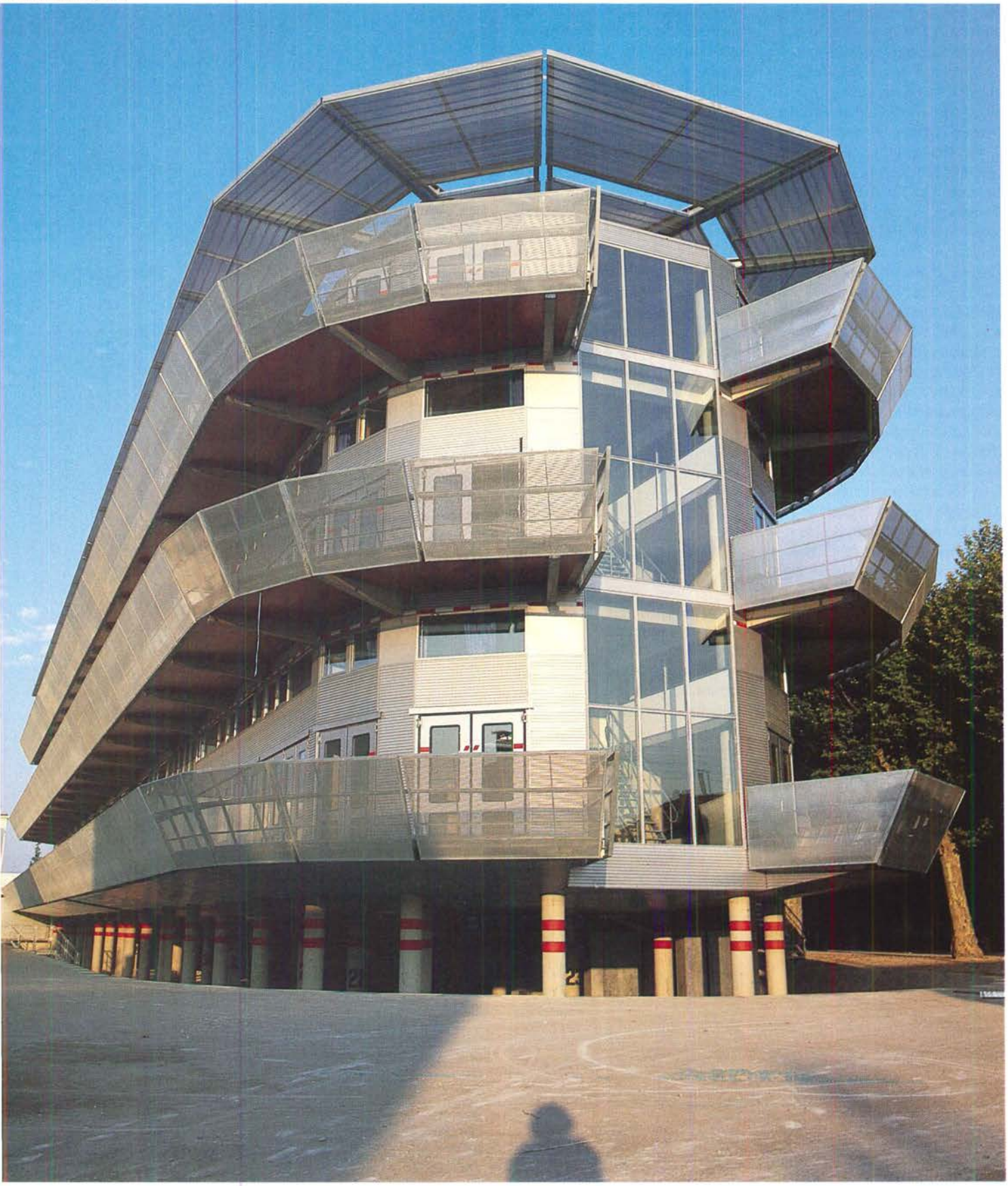


In December 1984, the mayor of Nîmes, Jean Bousquet, boldly gave Nouvel carte blanche for a housing project without conducting any competition at all. (Presumably the mayor felt justified in exercising his local authority to circumvent standard procedure because Nouvel had already secured a Parisian *grand projet* and, two months earlier, had placed second—to Norman Foster—in the southern town's own international competition for a cultural center.) That Mayor Bousquet should choose low-income housing as the building type for his first major monument probably has as much to do with how funds are earmarked in France as with Bousquet's own social-service agenda. Nouvel embraced the mixed spirit of the commission, however, and presented the town with a pair of metal-clad caterpillarlike structures, jointly called Némausus 1, that contain loft-type apartments (opposite and pages 130-135). In a radical departure from the existing local stock of stucco-and-terra-cotta-tile low-income housing, Nouvel's design effectively dismisses neighboring precedents, a move the architect justifies with appropriately leftist ideology: "Bourgeois wallpaper and curtains do not guarantee that people will be happy in such places." Having established that "a nice apartment is a large apartment," Nouvel attempted to maximize the floor area of each of the 114 units and convey the image of warehouses by using aluminum siding and garage doors. On closer inspection, the relentless industrial esthetic carries its own critique: the cheap, corrugated cladding of one building's "public" facade—applied to the concrete shell horizontally instead of in typical vertical fashion—is face to face with the expensive German-engineered accordion-doors that compose the other building's "private" facade. The cladding is treated as clothing, while staircases, balconies, and sunscreens are clipped on like so many accessories. Regardless of whether the specific manner in which Nouvel assembled these elements give Némausus 1 tenants reason to pause, the overall effect satisfies one of Bousquet's top requirements: Némausus is an *internationa* media event.

Nouvel differs from Le Corbusier and othe antecedents who challenged the mainstream approach to low-cost housing in that he does not assume his model to be universally applicable. "These apartments reinforce people's existing disposition," Nouvel explains; "If they really want wallpaper and curtains they go elsewhere." The architect's recognition of a target audience reveals mor marketing savvy than one usually expects to find among young pioneers who burst on the scene with daring ideas and then must find clients willing to back their vision. Nouvel has made this struggle to unleash creative urges a subtext of his work. In his renovation of a Nîmes vocational school annex (page 137), for example, an esthetic argument between Nouvel and the functionaries responsible for approving the project became, after the mayor intervened on the architect's behalf, the theme of Pollock-inspired paint-splatterings (above). Nouvel further established his view of architect-as-creative-director when he was asked to visually upgrade a ramshackle gymnasium. His first urge was to make the building disappear, and, with characteristic literal-mindedness, he proposed a camouflage paint job that figuratively does just that (page 136). Nouvel's sometimes facile solutions to complex problems run the risk of dismissal as mere image-making, the same criticism leveled at his role-model Godard, whom one observer blasted for seeking "not to present the *just* image, but just an image." As the government-sponsored projects on the following pages reveal, however, Nouvel has also striven—successfully, so far—to maintain at least a semblance of propriety. *Karen D. Stein*

fluenced by film, painting, and politics, the
oung architect-artist Jean Nouvel has already
ft his mixed-media mark on French culture.
vited by the city of Nîmes to design low-income
ousing, the Parisian stayed long enough to
come the talk of the town.

idi von Schaewen photos



Southern exposure

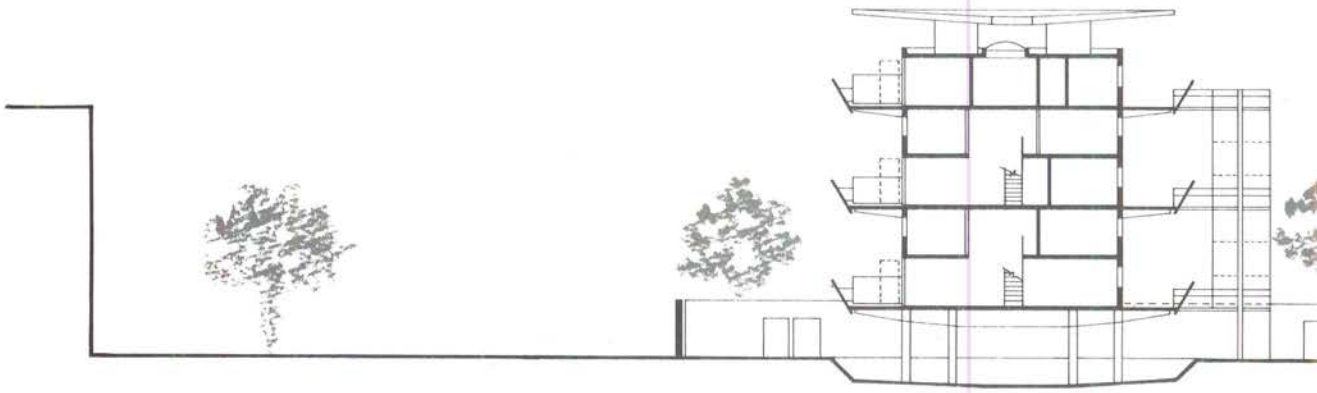
Mayor Jean Bousquet named his ambitious 500-apartment low-income housing program "Némausus" after the Latin appellation of the spring alongside which Roman settlers founded Nîmes. Bousquet, who is also the owner of the Cacharel clothing company and therefore familiar with the cachet of name designers, invited the controversial architect Jean Nouvel, of Paris, to mastermind Phase I of the program (114 units), called "Némausus 1." The location chosen for the project was a flat tract of land on the southern edge of town. Exploiting what he considered to be the site's most compelling feature, an allée of plane trees leading to a private nursery, Nouvel designed two linear buildings to flank the trees and form an interior courtyard. Although the pair appear identical on approach, Building B was truncated in the back to retain a neighboring house (below). Nouvel treated the north facades of both buildings as "public," and located external staircases and apartment entrances accordingly. The "private" southern facades were composed of full-height (or, in the case of some duplex and triplex units, double-height) accordion-fold garage doors, which open onto galvanized-steel-enclosed "balconies" that match exterior hallways on the north, (perforated partitions demarcate each individual apartment's territory).

Although Nouvel admits that Némausus 1's industrial esthetic and loft-style interiors do not hold universal appeal, pleasing all potential occupants was not a criterion of the project. French national guidelines for determining qualification for low-income housing are based on a complex calculation of family income with substantial deductions for the elderly, families with three children or more, and war veterans. Hence, citizens eligible for rent subsidies

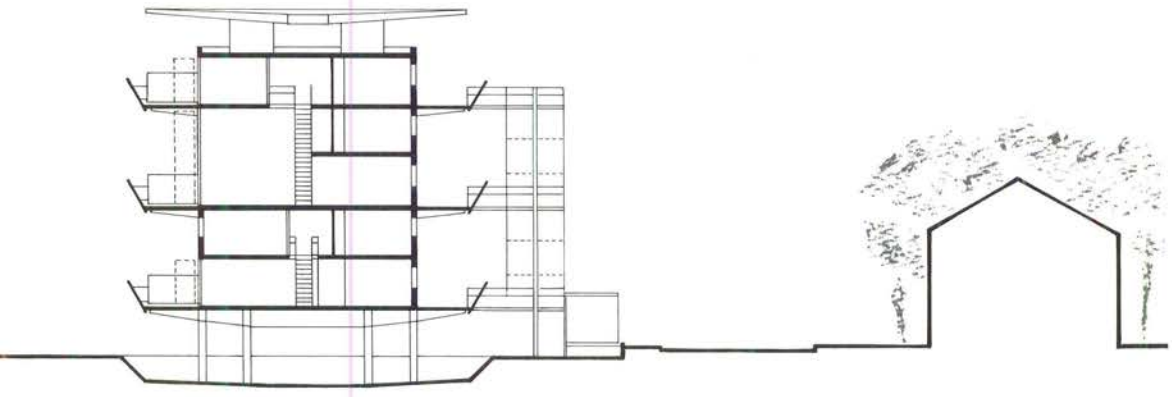
comprise an unusually varied population, including a subgroup receptive to Nouvel's vision. The architect reports that the majority of Némausus 1's tenants are under 40 and have some sort of "artistic inclination." *K. D. S.*


NEMAUSUS

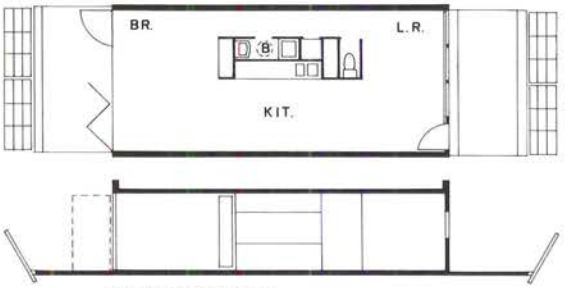
Jean Nouvel purposely made Némausus 1 look like an assemblage of industrial products, although the only "standard" prefabricated elements are interior staircases (page 135). To heighten the sense of a cataloglike collage, Nouvel separated ancillary functions from the horizontal slabs of living quarters. Self-contained exterior stair towers were clipped onto one side of the semi-enclosed hallways-cum-balconies that wrap around both buildings (below right, and opposite left), elevators were placed in openings between structural bays, and parking lots were located among the concrete pilotis that support the structures. Nouvel further reinforced this imagery of "disengagement," as local architect Frédéric Chambon calls it, by dotting the sidewalk



Longside Building A with etal boxes (page 131), which ontain, separately, power enerators, trash receptacles, nd tenants' bicycles. Nouvel lfilled a wide array of nctional requirements with a arrow range of materials: aircases, sunscreens, and balcony railings are all constructed from galvanized steel, and ribbed aluminum siding clothes the concrete shell. Nouvel applied red and white paint to accent certain structural members and to give his machine à habiter *a racing-stripe flourish. The uniform exteriors of the two buildings, however, belie the 17 different types of loftlike apartments inside, which range in size from one to four bedrooms and in volume from one to three floors (a sampling of configurations is shown on page 134).*

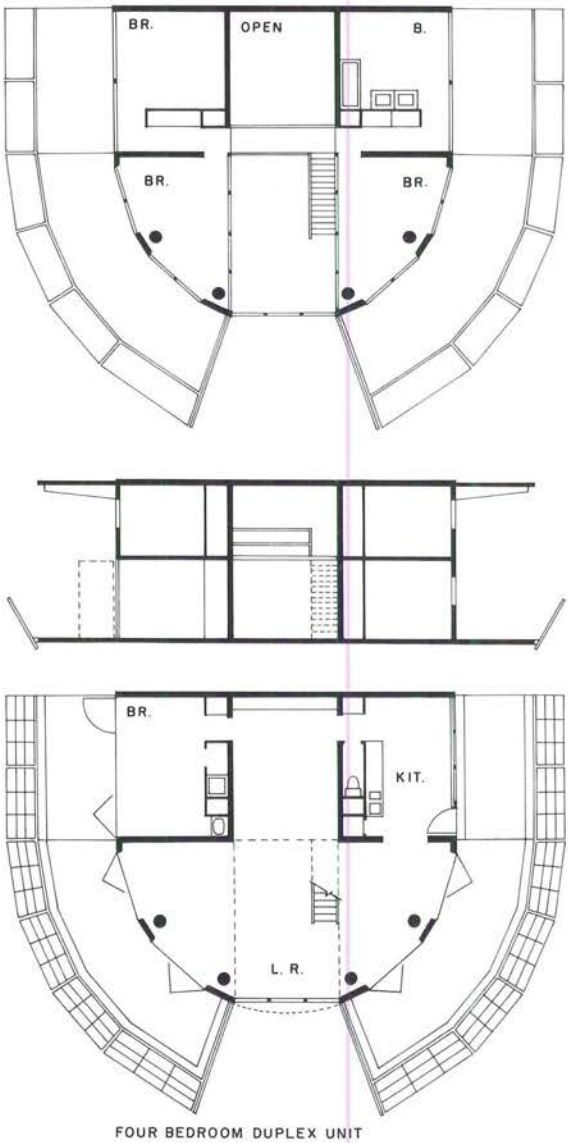


"A nice apartment is a large apartment," claims Jean Nouvel, who sought to maximize each of the 114 units contained inside Némausus 1 while keeping to his $6-million budget. Composed of roughly 16- by 39-foot modules, all apartments span the full width of each building, with entrances to the north and balconies to the south, accessible through folding industrial doors. All come equipped with a bare minimum: metal kitchen sinks, standard bathroom fixtures, and prefabricated staircases leading to catwalks above. The concrete interiors were left untouched, save for a gray thermoplastic covering on the floor and the deliberately random interventions of artist François Seigneur (opposite, top right and bottom left). Nouvel invited Seigneur to paint on the walls, because, he says, "regrettably, in social housing architecture stops at the outside." The graphically applied acrylic, also used to embellish defects in the concrete, is meant to counteract the "bourgeois banality" typical of such units and add a personal touch to otherwise anonymous interiors.



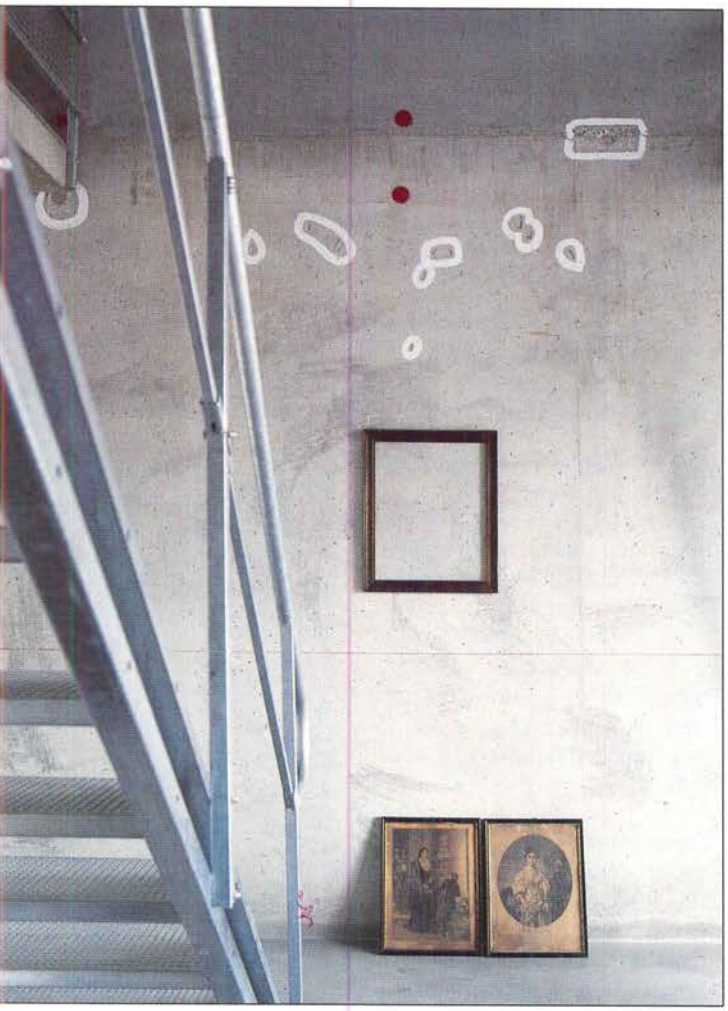
ONE BEDROOM UNIT

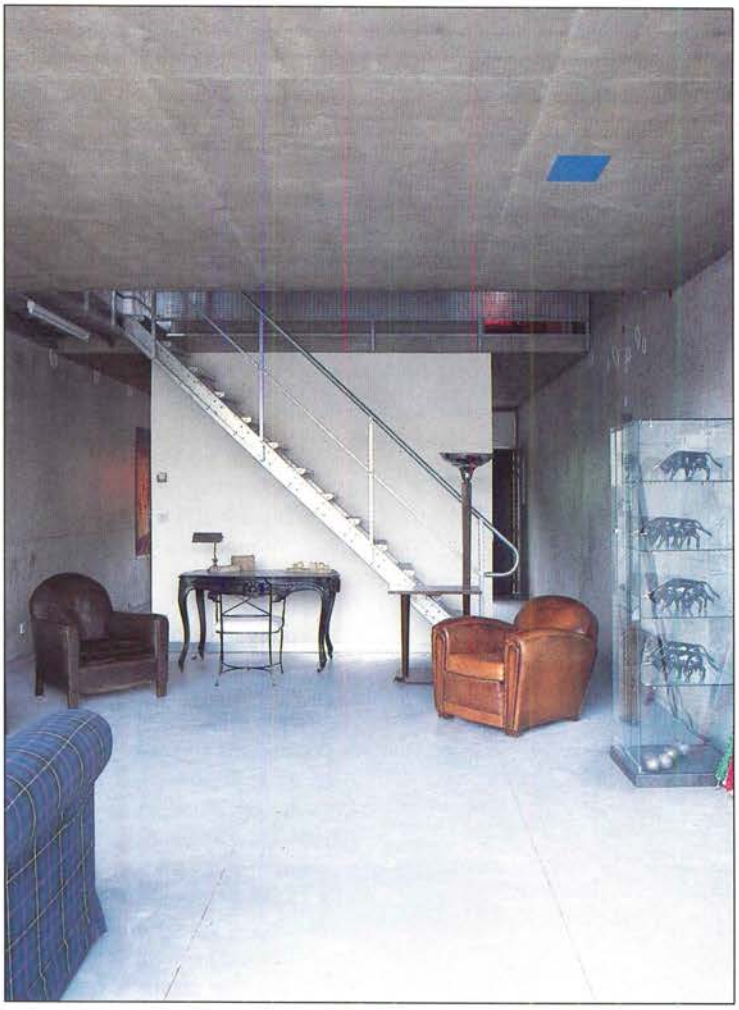
THREE BEDROOM TRIPLEX UNIT



FOUR BEDROOM DUPLEX UNIT

Némausus 1
Nîmes, France
Owner:
NEMOSEM
Architect:
Jean Nouvel et Associés—Jean Nouvel and Jean-Marc Ibos, principals-in charge; Arnauld de Bussierre, project architect; Sabine Rosant, assistant
Associate architects:
Frédéric Chambon and Jean-Rémi Nègre
Consultant:
Oth Méditerranée (thermal)
Artists:
Daniel Buren, Anne Frémy, and François Seigneur





Disappearing act

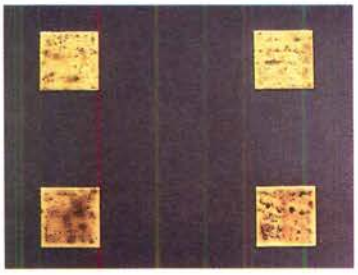
While plans for Némausus 1 were underway, Nîmes Mayor Jean Bousquet commissioned Jean Nouvel to carry out two additional, comparatively minor, projects in other parts of town (this page and opposite). Asked to renovate a ramshackle gymnasium and construct an adjoining clubhouse, Nouvel exhibited his typically literal-minded approach. Initially repelled by the existing structure, Nouvel decided to camouflage it with paint, and then proposed a "very techno" building (as yet unbuilt) to stand near the gym as a distracting contrast. The carefully contrived pattern of green and rust tones, conceived by Nouvel and executed by Alain Bony, is intended to make the gym blend in with surrounding foliage. In a classic French tale of the *belle-laide*, or "beautiful-ugly" (to which the architect-*auteur* has supplied his own moral), the once banal structure has been transformed into a work of art.
K. D. S.

Sports center
Nîmes, France
Project team:
Jean Nouvel, conception;
Alain Bony et Compagnie, special effects

A scholarly dispute

Jean Nouvel's deliberate blurring of medium and message is perhaps most apparent in his "renovation" of a vocational school annex, contained in a converted factory of the early 1900s. The architect had proposed a series of mainly graphic touchups to be rendered in chrome yellow—a color deemed inappropriate by the board of approval. Nouvel redesigned his scheme to be executed in electric blue, but upon reviewing work-in-progress, he saw to his dismay that it was being done in navy. With the mayor's permission, this esthetic "struggle" was made the theme of interventions inside, including *navy* paint drippings à la Jackson Pollock (left), and holes burnt into walls and embellished with *navy* and gold paint (right and page 128). Pollock not only provided Nouvel's scheme with a formal model, but also its raison d'être. Called an "action painter," the artist, like the architect who emulates him, let his dramatic technique be his work. *K. D. S.*

Lycée Technique Dhouda
Nîmes, France
Project team:
Jean Nouvel with Philippe Capelier; Alain Bony et Compagnie, special effects



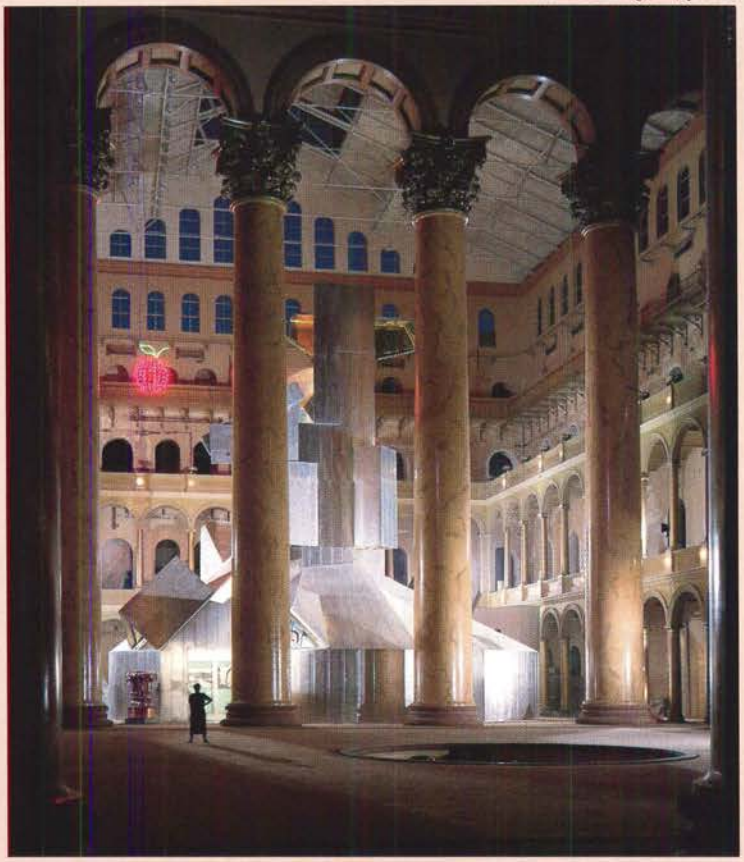
Sheet Metal Exhibit
National Building Museum
Washington, D.C.
Frank O. Gehry & Associates, Architects

Precious metals

Though the history of sheet metal seems an unlikely topic for a fanciful exhibition, "Sheet Metal Craftsmanship: Progress in Building," now on view at the National Building Museum, transcends its prosaic subject matter. Organized to honor the centennial of the Sheet Metal Workers' International Association, the exhibition not only imaginatively demonstrates the diverse applications of the material but celebrates the art of architecture. The show's success is largely due to curator David Chase's inspired choice of Frank Gehry as the designer of a structure that houses the exhibition within the vast atrium of the former Pension Building. (Designed by Montgomery Meigs in 1882, the huge Renaissance Revival pile was designated as the building museum in 1980, and its renovation should be completed this year.) Gehry's reputation for elevating commonplace materials into sculptural, often poetic, spaces is renowned, and his collisions of unadorned elements offer a perfect medium for displaying the raw beauty of sheet metal.

Clad in copper, terne-coated and galvanized stainless steel, anodized aluminum, and brass, the 65-foot-high construction was built by 600 union volunteers from U. S. and Canadian sheet-metal locals. Like many of Gehry's recent buildings whose functions are fragmented into an ensemble of separate, freestanding structures, the exhibition is divided among several different pavilions: a spired "cathedral" with three apses in which historical artifacts and archival photographs are displayed, and a trapezoidal "workshop" in which the craft of metalworking is demonstrated. To either side of these sculptural forms are vitrines containing metalworking tools that illustrate the history of the building technology. Dangling above the display is the Big Apple that descends above Time Square every New Year's Eve, an artifact intended to symboliz the sheet metal industry's involvement in fabricating illuminated signs.

Walter Smalling, Jr., photos

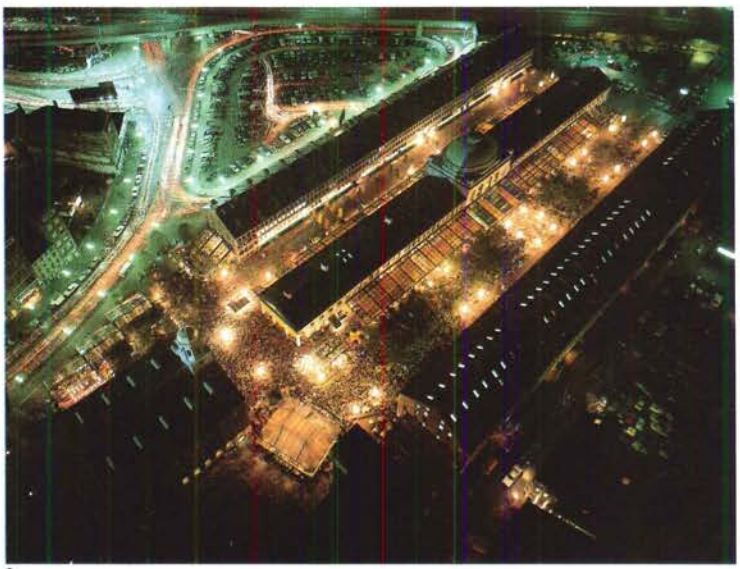


Despite the overwhelming scale of the museum interior, Gehry has managed to engage its monumentality with equally imposing means. Framed by Meigs's huge, flesh-colored Corinthian columns (left), his twisted pile of cantilevered forms thrusts upward into the cavernous space, countering its static symmetry with a twisted energy that changes from every angle. The most dynamic views of the collage are from the upp balconies (opposite), but unfortunately, owing to the ongoing renovation of the perimeter into gallery spaces, th work can be experienced only from the ground floor. The exhibition is scheduled to continue through August.
Deborah K. Dietsch

Sponsors:
Sheet Metal Workers' International Association; Sheet Metal and Air Conditioning Contractors' National Association; Nationa Training Fund
Architect:
Frank O. Gehry & Associates, Inc.—Frank O. Gehry, designer; Robert Hale, project manager; Roberta Weiser, project architect; C. Gregory Walsh, Tom Buresh, Kevin Daly, Thomas Duley, Nick Dermand, Adolph Ortega, C. J Bonura, design team
Engineer:
Kurily and Szymanski, Inc.
Consultants:
David Chase (curator); Caroly Laray (assistant curator); Mir Wright (exhibition design); Va Lewton (exhibition design/ lighting); John Blake Murphy (architectural drawings); A. Zahner Sheet Metal Co. (construction); James E. Roth Co. (structural steel)

Designing the urban marketplace

1



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For over 20 years, Benjamin Thompson, architect and merchandising entrepreneur, has been devising successful urban retail centers. Beginning with stores for his own retail business, Design Research (D/R), he soon moved on to inventing and perfecting the contemporary urban marketplace. His designs for more complex mixes of retail shops, markets, dining, and fast foods are always combined with spaces for public recreation to b enjoyed by customers and casual strollers alike. His largest built projects, Boston's Faneuil Hall Marketplace, Baltimore's Harborplace, and New York City's South Street Seaport—thronged by the local populace and tourists, most of whom buy—have been good investments for their developer, the Rouse Company, and have considerably enhanced their surroundings. Yet all this good work has not escaped criticism.

The charge most often made is that all the Thompson marketplaces are basically the same, designed to formula. The marketplaces designed by Benjamin Thompson & Associates do indeed at first glance appear as look-alikes. This is in part because the architects find certain forms, materials, and building systems appropriate to all market complexes, regardless of their location. Further, their work continuously adapts a prototype the themselves invented, through empirical discovery of what they believe to be ideal dimensions for the containment of all typical market functions—in sum, a particularized "Architectural Graphic Standards" all their own. The BTA marketplaces differ significantly from one another, nonetheless, in the manner in which they relate to site, climate, and vernaculars.

Those who dislike the big market developments also point out that too many of the tenants belong to national chains whose shops and products are bland, boring, and uniform. Although the Thompson firm advises in matters of retail tenant mix, it is the developer who makes the deals. All too often those small local merchants rich in charm just can't afford the rents.

The Thompson firm is also in a no-win game with over-zealous preservationists. If the marketplace design includes the adaptive reuse of a landmark building or neighborhood, the architects are accused of at best sanitizing it, or at worst violating its integrity. Conversely, if the downtown in question is already bereft of regional character, its spirit long since destroyed by civic and commercial leaders intent upon rampant development, Thompson is accused of imposing nostalgic ersatz. Unfortunately, there is simple answer to this dilemma, which confronts everyone engaged in modifying the historic fabric of cities under the relentless pressure of growth and change.

Not many architects are involved in retail projects as comprehensive as BTA's, and some may suspect that the overwhelming popular success of these "festival marketplaces" has something to do with magic—Ben Thompson's, of course, plus a few jugglers and balloons. This Building Types Study is intended to refute that notion. BTA has a lot to teach about reta in the city, and what it knows is learnable and do-able by other good architects.

Evolution of the urban retail center (1965-1988)

The case studies that follow include all of BTA's completed retai projects and those currently on the boards—as well as a major venture abroad, a fully mixed and balanced urban sub-center integrating business, retail, residential, cultural, and recreationa uses for the city of Dublin.

he following case studies span 20 years of retail esign by Benjamin Thompson Associates, firm whose concepts and principles f inner city renewal should be more widely nderstood and followed.

The original D/R store, opened in 1953, was located in one of ıe oldest row houses in Cambridge, Massachusetts. By emodeling the sidewalk frontage to include large windows that llow passers-by to see the activity within, Benjamin Thompson ıade his first statement of the store as an extension of the treet, and the reciprocal relation between them. In 1963, a New ork City branch of D/R opened in an 1877 town house on East 7th Street; here the 19th-century arched window surround was lled with mullionless glass, framing an uninterrupted vista of ıe entire shop. The final Cambridge D/R store (1), completed in 970, was conceived as a "non-building," a nearly invisible five-tory showcase for its contents.

After D/R, the next opportunity to design for retail grew out f the efforts of the Boston Redevelopment Authority to lease nd transform Boston's historic but virtually abandoned Faneuil lall Marketplace (2), a splendid early 19th-century Greek Revival nsemble designed by Alexander Parrish, into a successful ommercial center intended to serve the city's thriving downtown. hompson immediately sought the chance to direct the ransformation of the Marketplace and began to look for a eveloper with whom he could collaborate.

After a long search he captured James W. Rouse, who had yet) try his hand at downtown development. According to Jane hompson, Benjamin's wife and partner: "We presented him with ıe whole Faneuil Hall Marketplace package. We had the figures, ıe feasibility—the whole thing was ready-made. It came ogether in his head and he was ready to try it." Rouse saw that ıe Faneuil Hall neighborhood could become the vital center of ıe surrounding improved area. As he said at the time: "Boston is city that is still strong in its heart. I was impressed with the evelopment of the waterfront, the proposed $3.5-million park, the lercantile Building, the financial district, and the nearness of ity Hall." Completed between 1976 and 1978, the Marketplace as successfully proved the correctness of their calculations and ıe soundness of their vision.

In reconstructing the three old market buildings, a balance had) be found between standards of historical exactitude for estoration and the requirements of contemporary marketing. The hompsons, for example, in spite of relentless opposition from reservationists advising the BRA, succeeded in replacing old ten-ver-ten multipaned windows with large single panes of glass. urther, they extended the Market's first-story retail space with ntinuous metal-framed glass-roofed sheds, which can be nclosed in cooler weather by lowering glass-paned overhead arage doors. Bright yellow adjustable awnings offer additional imate control (12). Thus the genuinely old has been combined ith the frankly new, in a way that allows the Market's retail ctivity—selling and serving—to once again occupy the street as ell as the interior of this venerable commercial landmark.

Baltimore's Harborplace (3), also developed by the Rouse ompany and completed in 1980, was built from scratch. The hompson firm and Rouse, by reclaiming and extending the sefulness of an underused harborside park site through the ldition of restaurants and retail, have jointly brought quality, terest, and pleasure to a public space that initially offered no ore than the strong appeal of a water's edge. Like its Boston redecessor, Harborplace has been carefully detailed along the uilding perimeter to increase visibility and access from and to ıe street, and to encourage open-air dining in good weather (15).

©Steve Rosenthal photos except as noted

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5

6

Common to urban malls, and even to new downtown "revivals" using historic buildings and blocks, are blank street frontage, bad circulation, and the wrong mix of shops.

Jane Lidz

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The restoration and transformation of New York City's 18th- and 19th-century South Street Seaport (4), opened to the public in the summer of '83, was deemed feasible because the 11-block remnant of New York City's once great maritime district lies within walking distance of Wall Street. The $351-million waterfront development consists of a museum, shops, restaurants, offices, and a small number of apartments. Another project by the Rouse Company, it was master-planned by the Thompson firm, which also designed two new buildings for the complex. In mediating between the preservationist's philosophical and esthetic values and the retailer's pragmatic demands, the Thompson architects strove to find what they call a "critical mass" for the retail area without disrupting historic scale. This they achieved by stretching 125,000 square feet of leasable space onto Pier 17, an elongated three-story glass-and-steel pavilion completed in 1985, which juts into the East River on a new platform. The historic portion of the Seaport is on the opposite side of the elevated FDR Drive, and here the Thompson firm designed a smaller retail building, Fulton Market, similar in overall proportion if not in detail to the early 19th-century Schermerhorn Row it confronts. Both new structures are completely modern retail buildings, contemporary in their expression, yet in scale with their older neighbors. Both are ingeniously designed for all-weather adaptability, visibility, and easy access at the sidewalk edge, as a detailed section of Fulton Market indicates (16). The pedestrian zone was continued under the FDR Drive to the water edge, thereby reducing the barrierlike effect of the expressway.

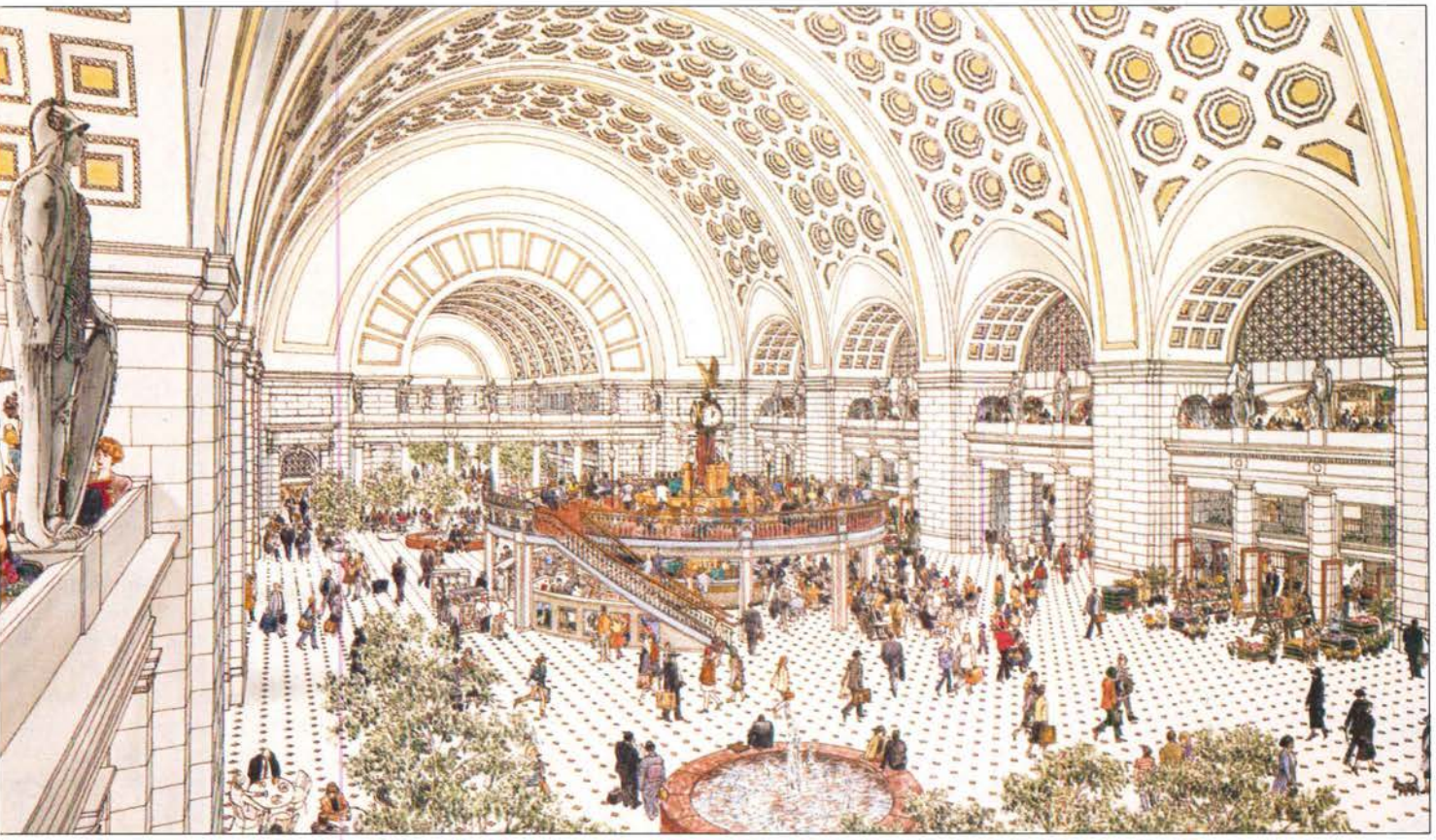
Miami Bayside Marketplace in Miami, Florida (5), completed in 1987, is the centerpiece of the restoration of that city's 60-acre Bayfront Park. The 15-acre development site makes new connections between the city and the harbor, providing an active and diverse waterfront for an ethnically mixed urban society that finds few common gathering places.

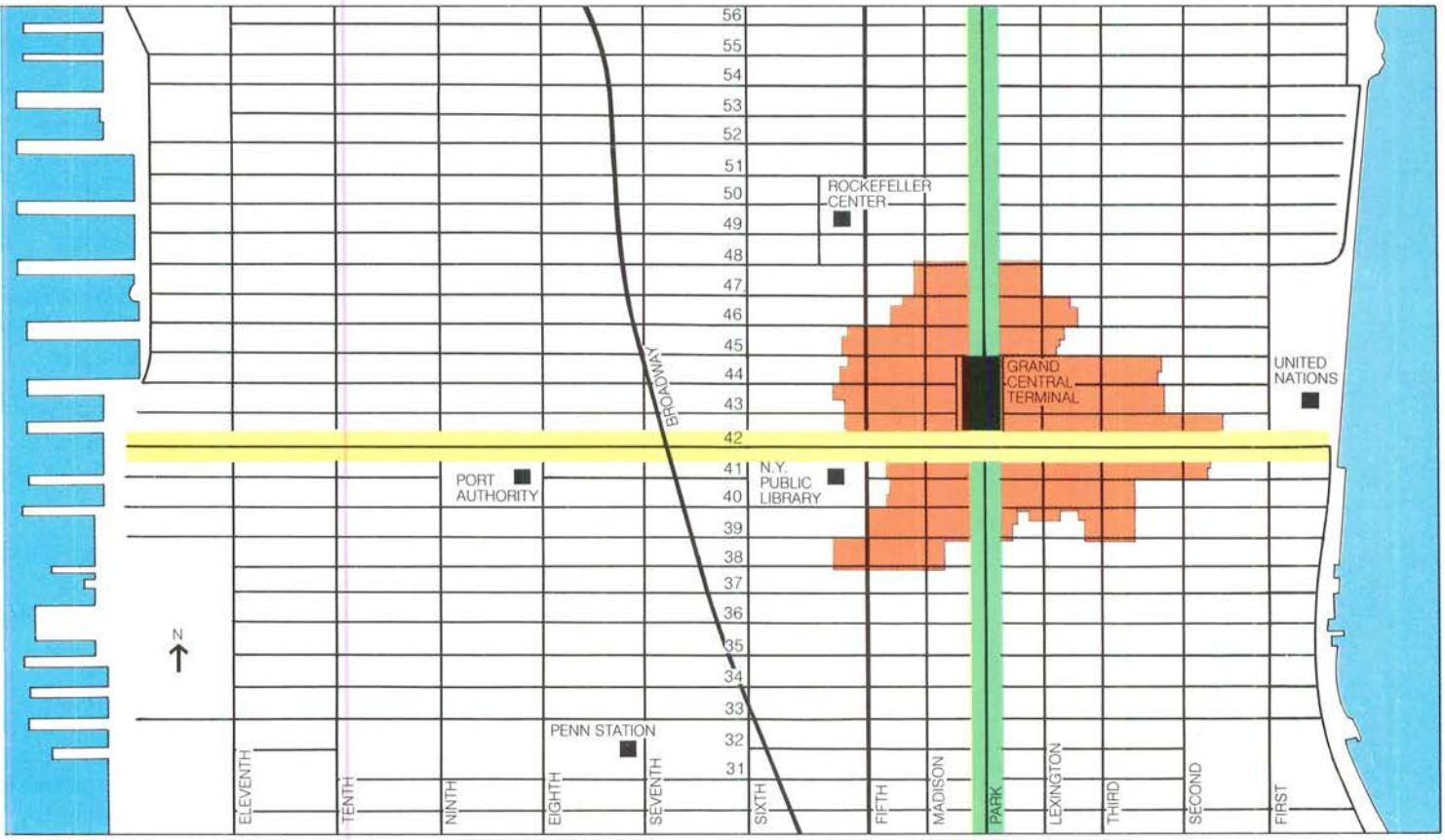
Until Jacksonville Landing (6) opened in 1987, downtown Jacksonville was without a focal point. Over the past several decades, this North Florida city had lost its urban department stores to regional shopping malls and sacrificed what remained of its entire architectural past to center-city high-rise office buildings, garages, and parking lots. The city needed a place where people could gather and enjoy its single remaining public amenity, the broad and beautiful St. John's River. Once again the Rouse Company seized the marketing opportunity, and Benjamin Thompson & Associates designed the complex in the form of a circular retail pavilion embracing an open public plaza linked to an existing riverwalk system. (For more on Miami Bayside Marketplace and Jacksonville Landing, see pages 146-151.)

Special urban retail problems

San Francisco's Ghirardelli Square (7), the first of the "festival marketplaces," is also the first to be substantially renovated to counteract declining retail revenues. Benjamin Thompson had nothing to do with the original adaptive reuse back in the early '60s, but since a branch of D/R had been an early tenant there, he knew how it was supposed to work. In 1984, invited by the owners to launch a turnaround, he recommended fine-tuning rather than a major overhaul. Because retailing on the boundary streets had from the beginning been underplayed, BTA caused the entire frontage of the waterside street to be "remerchandised" and announced with new signs and awnings.

Unfortunately, such problems of retail visibility and exposure are hard to solve and too often take second place to formal issues.





BTA's development of the market shed reflects a methodical pursuit of the most open, yet protected, perimeter at the juncture of buildings and sidewalk. Designed to bring people out of doors and the outdoors in, the shed concept continues to be refined.

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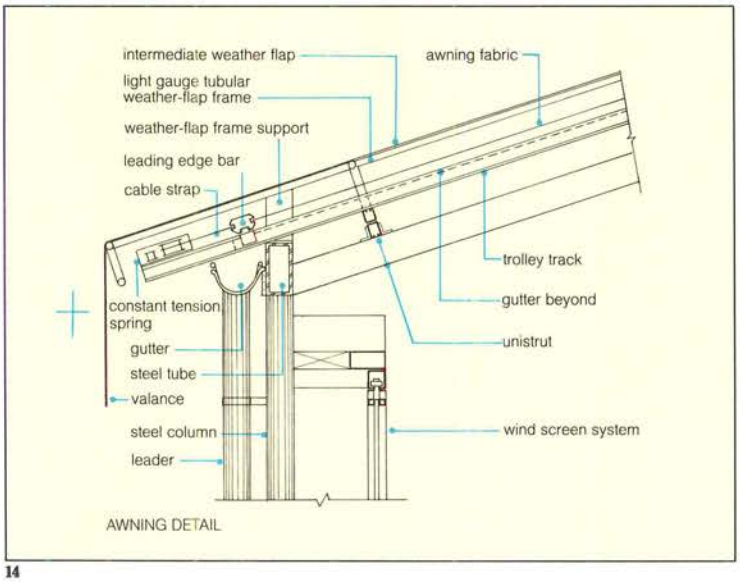

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Elsewhere, entrances were made more visible, more open and inviting, easier to get into and out of. BTA programmed types of use in various areas, with particular emphasis on improving customer access to food and beverage services on or near the main level, and also developed a full program of graphics and identifying images. The strategy is working well.

A classic old-fashioned 1960s shopping mall in Century City, Los Angeles, now boasts a new Market Hall (8) designed by the Thompson firm, whose work also included a food-merchandising plan. Since the market's opening in 1987, Angelenos have been crowding into what Jane Thompson calls "this small humanized corner of a vast mechanized city"—and buying. The mall, originally of the indoor-focused type typical of the suburbs, has been reoriented outward by means of the new pavilion, to face its major street, Little Santa Monica Boulevard. Rimmed by open-air shops and four restaurants with open-air seating on the street side, and sited opposite one of the mall's main attractions, a 14-screen multi-cinema, also by BTA, the Market Hall is a powerful lure. Retractable fabric awnings are well-suited to the Southern California climate (13, 14, 17).

Custom House Docks (9), named after its principal landmark, a handsome 18th-century customs house, is the single most extensive urban development proposed in Ireland for more than 100 years. To be located on a 23-acre prime waterfront site in Dublin, on the River Liffey, this project expands the idea of mixed-use activity in the city to comprise a balance of business, retail, recreational, cultural, and residential uses. A direct integration of historic structures (docks, warehouses, vaults) with modern construction of various types, it will integrate financial offices, town-house-scale housing, and a waterfront hotel, all new with three museums, a cinema complex, and a food center in old structures. Perimeter retail development and river-edge activities and amenities will be carefully woven in.

BTA is currently urging the Irish developers to include more retailing than they presently plan. Thompson argues that the dominant office components that fuel the project also need the diverse services and activities he proposes in order to create a genuinely appealing workplace. Moreover, he explains, this lively environment would help compensate for downtown Dublin's present dearth of places for dining, entertainment, and other amusements. The River Liffey, long isolated as a walled corridor running through the city, is hardly used at all now, but the BTA masterplan calls for a pedestrian embankment that will give direct access to public boating and canoeing, and promises to revive recreational use of the waterway. The entire project is carefully gauged to the low scale of Dublin and the Custom House—a nine-story maximum with three-to-five stories prevailing around the docks.

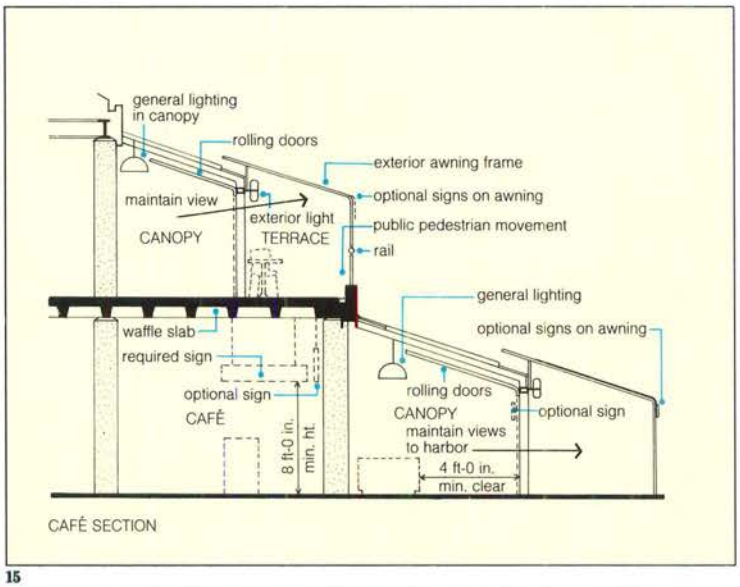
Meanwhile, in the United States, Benjamin Thompson Associates is one of four members of Union Station Venture, a team of developers who have paired with the Union Station Redevelopment Corporation to save and restore the Washington, D. C., landmark. Essential to this venture is the economically productive revival of an obsolete federal building without imposing further burdens on the taxpayer. The cost of simply heating and maintaining the vast spaces of Daniel H. Burnham's magnificent Beaux-Arts monument (10) demanded new means of generating substantial income and, of course, attracting people in sufficient numbers to justify the building's continued existence.

) start with, it will remain a train terminal. Amtrak has served the central corridor from street to tracks for train cess and much improved commuter and long-distance travel cilities. The developers believe that even though the location is t "central" to a downtown or business district (very little *is* in ashington), Union Station's relationship to Capitol Hill and the all, and its position as a multiuse transportation nexus (Metro d bus lines as well as intercity railroads) will provide a dynamic w of people though the building.

Planning the retail layout to wrap around the Amtrak center, d to better use the cavernous concourse and Metro-level sement, required ingenuity and some bold strokes. Restraints posed by Washington's many preservationist organizations ere formidable and often seemingly at odds with proven retail rinciples. The Thompson firm, however, was persuasive and ventually several significant interventions and transformations ere allowed. When the great landmark reopens later this year, e public will discover that cafés and shops have been inserted ithin the majestic colonnade along the principal facade (in good eather, outdoor diners will be able to gaze down Delaware venue at the Capitol dome). A two-level circular kiosk providing nvenience retailing below and a café above now occupies the ry center of the main hall, and a mezzanine for retail has been serted in the station concourse, which will have a new grand air linking all three of its levels. New arched openings in the ncourse ceiling open views and service connections to the cafés the main-hall mezzanine.

New York City's Grand Central Partnership is a coalition of roperty owners, tenants, and city officials that aims to ramatically revive the commercial district within a 50-block area ounded generally by Fifth Avenue, 48th Street, Second Avenue, d 39th Street (11). As the heart of Manhattan's central business strict continues to move uptown, the gap in office and retail nts between the area around Grand Central Terminal and the laza District (so-called after the noted hotel), has in turn wngraded the quality of the former area's stores and staurants. In 1986 the partnership hired BTA to study the area d propose ways to reverse these factors. The Thompson firm as recommended small obvious improvements in the street vironment and more sophisticated retail-leasing practices rather an major new planning and construction. Though site-specific, ese proposals spell out general principles as well as detailed rategies that could apply to retail planning in the downtowns of ost cities. On 42nd Street, in front of Grand Central, BTA roposes a parklike setting for the landmark; for Vanderbilt venue, heightened activity and diversity along a street of cafés; r the stretch of 41st Street on axis with the Public Library cade, a transformation of two blocks into a promenade to be own as Library Way; for Lexington Avenue, a fairer share of rculation space for people on sidewalks; for 43rd Street, velopment as the major pedestrian access and visual corridor om the Terminal to the U. N.; for the Post Office, new retail tivity with links to the Terminal; for Pan Am Plaza, a more pscale mix of shops in the plaza area including the Helmsley alks; for the six Terminal entries, canopy repair where cessary, and new lighting and graphics designed to express the ndmark's symbolic importance as gateway to the city. And as ie key to enhancing environment and image—upgraded retail.

ildred F. Schmertz



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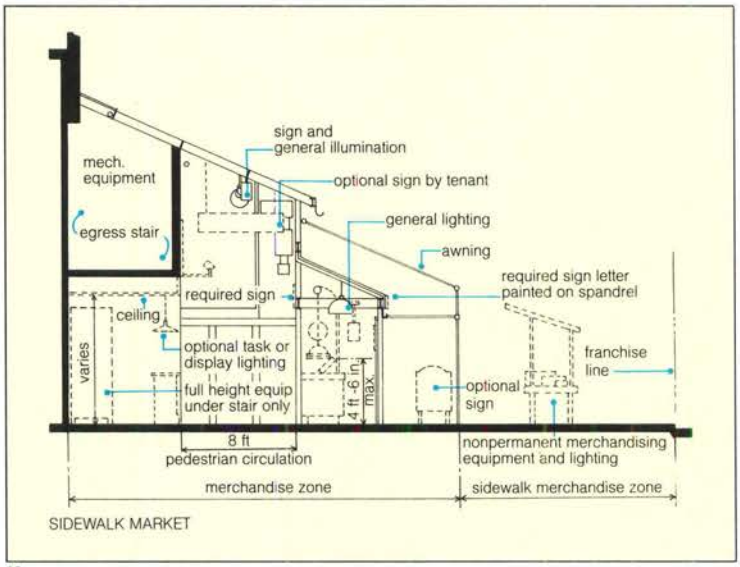

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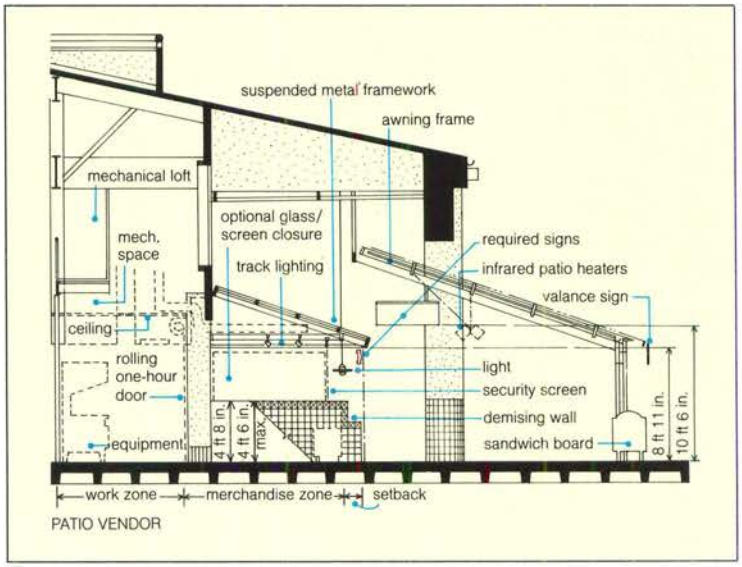

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Miami Bayside Marketplace
Miami, Florida
Benjamin Thompson &
Associates, Inc.,
Architects

A retail boost for a waterfront park

©*Steve Rosenthal photos*

Following the contours of an active city-owned small boat marina on the shore of Biscayne Bay (top photo and site plan left), and making the most of the rich existing landscape of Bayfront Park, this downright pretty retail center, colorful in the sun, alluring by night, is the happy product of fresh cues the architects have taken from South Floridian, Bahamian, and Caribbean architectural vernaculars.

A 200,000-square-foot development covering a 15-acre site, it consists of two sets of paired pavilions that follow the edge of the marina with an open market shed at the elbow, two smaller pavilions on opposite sides of a flag-lined entry court leading to a waterside plaza (top photo opposite), a 20-year-old octagonal marina building, now a restaurant, and a 1,200-car parking garage. Most visitors to the marketplace will arrive by car since the places they come from are not within walking distance. The chance to bring public transportation to the site was lost. When the county planned the route of its new Metromover, it ignored the city's proposed new marketplace, locating the nearest stop several blocks away. The alternative Metrorail is no more convenient.

Customers are nevertheless, coming in steadily increasing numbers, to the major retail shops and restaurants in the north pavilion, the street-level boutiques and huge second-story food hall of the south pavilion, and the high-quality stores and restaurants on either side of the entrance promenade (photo below left).

For this marketplace, BTA sought and achieved low, intimate scale, changing open vistas, a variety of activity zones and spaces, and access to the water, all based upon a concept of retail that enhances rather than impedes the enjoyment of the out-of-doors.

The architectural expression grew out of the climate and the locale. Wherever they could, the architects used the time-tested vocabulary of indigenous materials, forms, and details that respond to a subtropical climate. Open verandas, overhanging shed roofs, shutters, operable louvers, and breezeways have been composed into practical and unpretentious shelters, conceived as open sheds. The colors and textures of the chosen materials—white steel framing, wood and wood lath, apricot stucco walls, brightly colored tile—recall a familiar regional character, skillfully reinterpreted and transformed for contemporary use.

he fourth downtown marketplace designed by TA for the Rouse Company, this like the thers—Boston's Faneuil Hall Marketplace, altimore's Harborplace, New York City's South treet Seaport—has been conceived as a catalyst or the revival of a larger segment of the city.

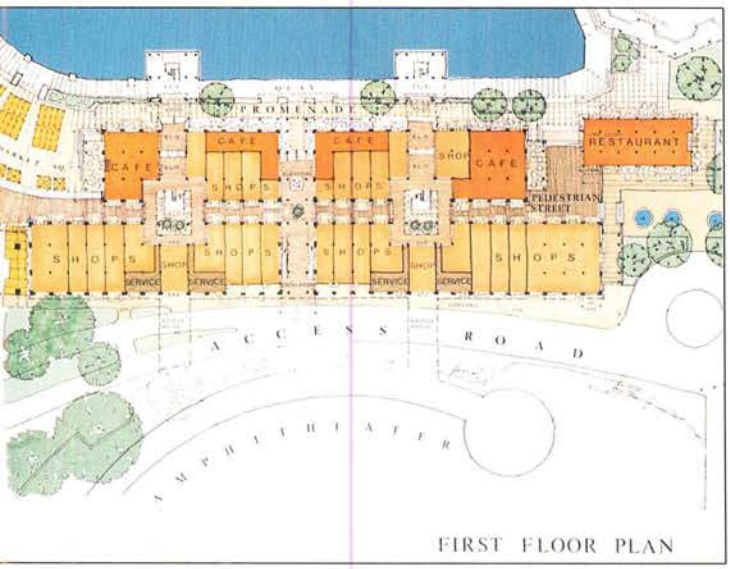
All the pavilions have been designed to be energy-efficient. To minimize mechanical cooling, public spaces have been kept as open as possible and naturally ventilated. Tree-shaded open streets with fountains play an important part in climate control, as do exterior breezeway corridors and viewing platforms extending out over the marina, which are cooled by prevailing winds. The market sheds (photos below left and opposite) are completely open. The two main pavilions at opposite ends of the curved shed have naturally ventilated shed roofs, open verandas toward the water and exterior walls of open or operable elements to capture air movement. Fixed sun louvers on exterior porches and Bahama shutters on most windows control heat build-up. Skylights are of insulated tinted glass.

Only individual shops and restaurants are air-conditioned, as is the large food hall.

Miami Bayside Marketplace
Miami, Florida
Developer:
Rouse Miami/The Rouse Company

Architect:
Benjamin Thompson & Associates—Benjamin Thompson, Bruno D'Agostino, principals; Hank Haff, Phil Loheed, Charles Izzo, Hans Strauch, Tom Quirk
Associate architect:
Spillis Candela & Partners

Landscape architect:
Alberto Perez Associates
Contractor:
H. C. Beck Contractors

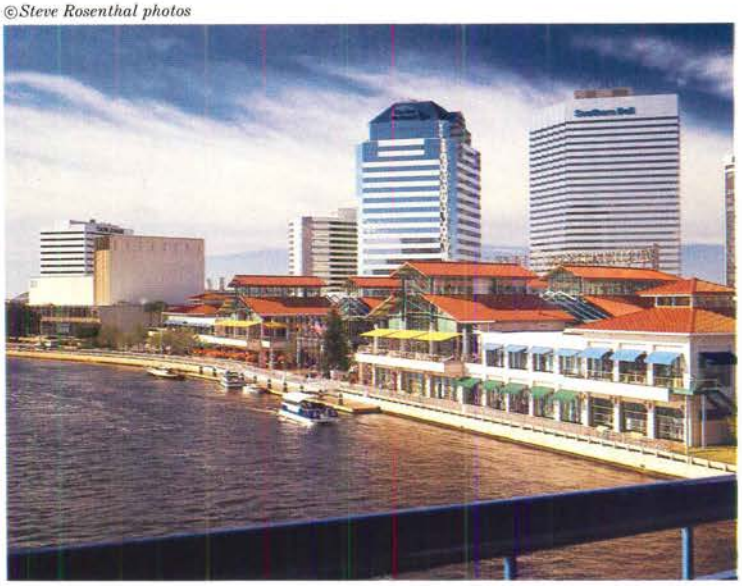


FIRST FLOOR PLAN

Jacksonville Landing
Jacksonville, Florida
Benjamin Thompson &
Associates,
Inc., Architects

Retail revived down by the riverside

©*Steve Rosenthal photos*



In recent years Hemming Plaza, the former retail core of Jacksonville, lost five department stores to the attractions of suburban shopping centers, thus destroying the viability of the smaller downtown specialty shops, and seriously depleting retail tax revenues.

During the same period, however, vast quantities of new downtown office space were constructed, increasing the office work force to over 75,000 workers—more than twice the number in Orlando or Tampa. Recent projections have indicated that approximately 3,000 additional office workers per year over the next 10 years will further expand the downtown retail market.

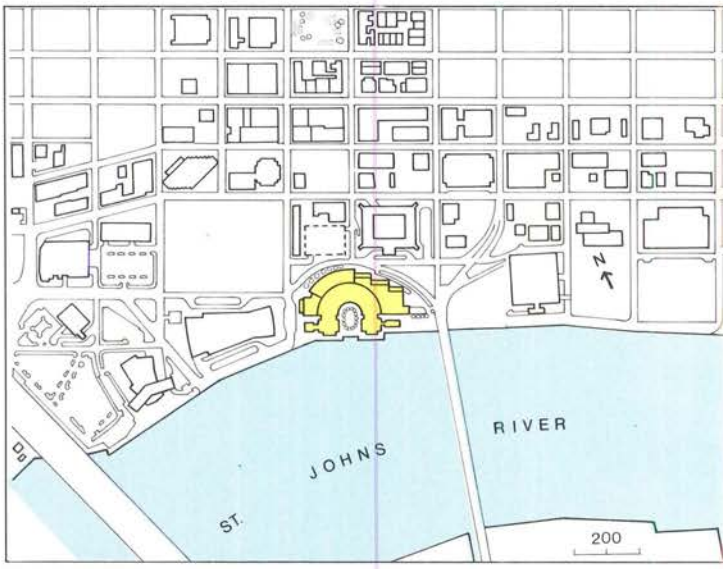
It was clear to Jacksonville's Downtown Development Authority that the downtown retailing environment could be profitably improved. To this end, a riverside site was selected, and a package of incentives was then put together and a small list of developers invited to submit proposals. The Rouse Company, working once more with BTA, was chosen to develop the market.

Jacksonville Landing offers more than 100 retail shops, restaurants, food markets, and stalls housed in a two-story horseshoe-shaped building flanked by two one-story rectangular wings. The horseshoe shape, a bold break away from the traditional rectilinear mall layout, embraces a broad public landing.

The building design takes maximum advantage of its river-edge setting. Activities within the landing can be comfortably watched from a second-story public terrace screened by a wood trellis.

The food hall (opposite), located on the second floor of the horseshoe gallery, is connected to covered porches with dining tables for casual picnicking, dining, and boat watching.

As in the rest of BTA's marketplace work, the language of Jacksonville Landing is reminiscent of the indigenous architectural expression of the region, in this instance the southern veranda. Hans Strauch, associate-in-charge of the project, is proud of the public significance of his work. "We designed the Landing courtyard to be a place offering relief from the hardness of city life. Here people find softer and more inviting spaces filled with flowers and trees."



. new marketplace on a curve of the majestic
t. Johns River reunites downtown Jacksonville
ith its greatest amenity.

Jacksonville Landing
Jacksonville, Florida
Developer:
The Rouse Company
Architect:
Benjamin Thompson & Associates—Benjamin Thompson, principal; Hans Strauch, associate-in-charge; Jack Palanjian, job captain
Engineers:
Gomer Kraus & Associates (structural); Paxson Electric (electrical); W. W. Gay (mechanical)
General contractor:
The Auchter Company

ASHRAE and IES revise energy standards for new buildings

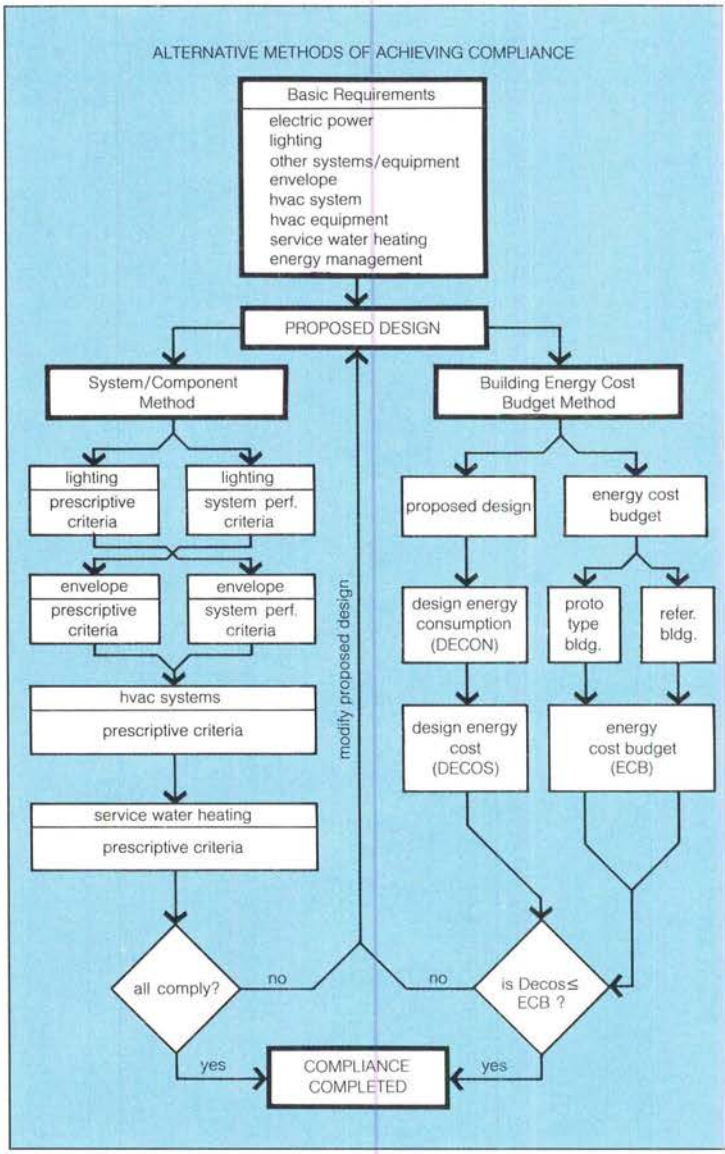
When ASHRAE meets this month, it intends to grant final approval to Standard 90.1P, a new set of energy guidelines that will affect nearly everyone who designs or uses buildings. The following articles explain the aims and interworkings of this comprehensive standard.

More than any other set of documents, the AHSRAE 90 series of standards has made the design community aware of energy's critical relationship to design practice. Published in collaboration with the Illuminating Engineering Society (IES) in 1975, the standard (then known as ASHRAE/IES Standard 90-75), has been adopted, in some form, into the building codes of all 50 states and was used as a model for several other countries. This first attempt at a national energy standard, which called for thermally tight buildings with as little surface area and as few penetrations as possible, served the years immediately following the 1973-74 oil price increases very well. However, as designers began to accumulate energy-conscious design experience, a number of problems with the 1975 standard began to emerge. In particular, it had become apparent that the "prescriptive component" approach, on which Standard 90-75 is based, failed to take into consideration the dynamics that exist between the many components of a building.

In the late '70s, cognizant of these problems, ASHRAE, along with IES and the American National Standards Institute (ANSI), undertook a revision of Standard 90. Two new sections were proposed to provide a more flexible design approach through the inclusion of renewable energy strategies such as daylighting and passive solar heating, and the use of whole building energy performance, which accounts for the interaction of all the thermal factors in a building. Unfortunately, those new sections failed to gain consensus. With the exclusion of the new sections, the 1980 revision of Standard 90 (known as ANSI/ASHRAE/IES Standard 90A-1980) seemed to many to be little more than a slight facelift of the 1975 document.

During this same period, the U. S. Department of Energy (DOE) was developing its own energy standard, called Building Energy Performance Standard (BEPS), which many critics of Standard 90 thought would soon be incorporated into national and local building codes. Although most experts agreed that the performance-based approach that BEPS took was far superior to that of Standard 90, its advocates could not overcome the deregulatory philosophy of the incoming Reagan Administration. By mid-1982, realizing that BEPS was dead, DOE began to refocus its standards research, establishing with ASHRAE a technically sound basis for revising Standard 90. A major component of its research involved extensive energy analysis of 10 test buildings located in eight different climates around the country. The results of this project demonstrated that significant cost-effective improvements could be made to the existing standard. These findings were submitted in late 1983 to ASHRAE's Standing Standards Project Committee-90 Revision. The committee had been organized to develop two standards—one for commercial and high-rise residential (90.1P) and the other for low-rise residential buildings (90.2P)—to replace Standard 90A-1980.

Building on the ASHRAE/DOE recommendations, extensive public review periods, and more than four years of committee deliberation, proposed Standard 90.1P has undergone three draft revisions. RECORD invited Thomas Wutka, Hayden McKay, Harvey Bryan, and Steven T. Taylor, design professionals who served on the committees that drafted the proposed standard, to focus upon and assess the specific differences between past standards and Standard 90.1P. (A discussion of the envelope section of the standard will appear in a future issue.) One point that is made by all is that, by allowing interactions and tradeoffs among various



building components, this draft makes a major break from the closed, inflexible approaches of the past. In so doing, it may provide the design community with a model standard that will go beyond energy concerns—a model of flexible compliance that can be followed by other building standards.

Inevitably, many misgivings remain. However, in lieu of the tremendous breakthroughs embodied by Standard 90.1P, at present, such shortcomings seem minor. By mandate, once approved, the standard will be revised in five years. During that time, research, debate, and fine-tuning will continue. Since the first energy standard in 1975, 20-million households and 15-billion sq ft of commercial and residential floor space have been added to our national building stock. Heating-fuel demand has, however, dropped by 1.2-million barrels of oil per day, an amount equivalent to two-thirds of the output of the Alaska pipeline. The building community has most decidedly addressed our national (and global) concern for conservation, and with this new standard, continues to do so with an even more effective and sophisticated architectural response. *D. R.*

Standard 90.1P: An overview

Standard 90.1P may slightly increase first cost, but the lower operating costs of an energy-efficient building will result in a relatively short payback. Thomas Wutka

By Thomas Wutka

ASHRAE's 1980 energy-conservation standard for new buildings is being revised as a two-standard series. As committee chairman for one of those standards, proposed Standard 90.1P, "Energy Efficient Design of New Buildings Except Low-rise Residential Buildings," my comments will primarily cover commercial, industrial, and high-rise residential buildings. The purpose of this standard is as follows:

- Set minimum requirements for the energy-conscious design of new buildings so that they may be constructed, operated, and maintained in a manner that minimizes the use of energy without constraining the building function or the comfort or productivity of the occupants.
- Provide criteria for energy-conserving design of new buildings, and provide methods for determining compliance with these criteria.
- Provide guidance for energy-conserving design that demonstrates good professional judgment and exceeds minimum standards criteria.

The design requirements covered include those for the exterior envelope, and for the system and equipment for heating, ventilation, air conditioning, service water heating, distributing energy, lighting, energy management, and auxiliary systems and equipment.

Development of Standard 90.1P has been a time-consuming process because the final document will be dramatically different from previous versions. It has become more technical due to advancements in the industry and is more encompassing than in the past. All who recognize the need to conserve energy will be in favor of this standard. For architects and engineers presently designing energy-efficient buildings, only a minimal extra effort will be required to show compliance.

Standard 90.1P is intended to offer more opportunities for flexibility and creativity on the part of the designer. The flexibility is in the form of two parallel and alternative compliance paths: system/component and building-cost budget methods (see compliance flow chart, page 152). The system/component method offers the designer two options: a prescriptive or a system-performance approach. The prescriptive-component approach requires the minimum amount of work and provides a series of prescriptive procedures.

Designers can use the system-performance approach when they desire greater flexibility or opportunity for innovativeness. Procedures using this approach are given for determining the lighting and building-envelope compliance. Envelope compliance is achieved if the calculated annual heating and cooling performance of various elements is less than or equal to the values that have been determined through the use of compliance calculations.

The approach providing the most flexibility for the designer is the building-cost budget method. The energy cost of a reference or prototype building is compared with the building being designed. The buildings must have the same operating conditions and be comparable in size and location. Under the building-cost budget method, energy-costs savings derived from innovative energy design stategies such as daylighting, solar heating and cooling, and thermal storage can be used to allow greater energy expenditure in other areas. Compliance under this method is achieved when the designer is able to show that the total calculated annual energy cost for a proposed building is less than the calculated annual energy cost of the referenced or prototype building.

Standard 90.1P's requirements are cost-effective over the life-cycle of the building. Due to the complex assumptions or projections necessary in a true life-cycle analysis, however, a minimum life-cycle cost standard is not imposed. These assumptions and/or projections include the life of the building and equipment, the future costs of energy and money, maintenance and replacement costs, and judgments about the state-of-the-art for various building and system components which may affect replacement decisions. A life-cycle cost approach can be taken, and in fact is encouraged, by using the building-energy cost-budget method, where various alternative designs can be compared and used, provided that the building-energy cost does not exceed the building-energy-cost budget. While this method does not require the lowest life-cycle cost, most building owners will select designs based on life-cycle costs.

The standard will guide industry in the delivery of goods and services to the public. For ASHRAE to approve the revised standard, the committee must show that it has achieved consensus: substantial agreement reached by concerned interests according to the judgment of a duly appointed authority after a concerted attempt at resolving objections. Consensus implies much more than the concept of a simple majority, but not necessarily unanimity. Consensus-building requires coordination with other organizations and public review of draft documents. The typical public review period is 60 days. At its conclusion, each comment received is considered by the project committee. If public comment indicates the need for substantive change, a new document is prepared and another review period is held. Standard 90.1P completed its third public review last January. The standards-writing procedures of ASHRAE are approved by the American National Standards Institute.

ASHRAE's procedures call for reviewing the need for reaffirmation, revision, or withdrawal of a standard within five years of its publication. Because state-of-the-art technology in energy conservation is advancing so rapidly, the project committee will need to work continually on revisions of this standard. For this reason the committee for Standard 90.1P has been made the only *standing* standards project committee in the society. Once the standard is published, technological advancements can be addressed in addenda to the standard. Addenda are subject to the same public and administrative reviews as ASHRAE standards.

Even with the advancements that are recorded in the revised standard, many new building designs today would meet the design criteria. The standard will simply require good engineering design. All of these developments point toward a future of more energy-efficient and economic building environments. This will require, however, a planned and coordinated effort on the part of all members of the building community, beginning with manufacturing, through design and construction, to operation and maintenance.

Thomas Wutka, head of engineering for CIGNA Real Estate Investments, is the Chairman of ASHRAE Standing Standards Project Committee 90.

Standard 90.1P: Electric lighting

Paeh Bros., N. Y.

By Hayden McKay

While the lighting portions of Standard 90.1P exhibit the same general philosophy and approach as previous versions, there are some distinctive differences. New and extensive requirements for lighting controls have moved the standard from a power-based to an energy-based procedure. The inclusion of a computer program to perform the calculations virtually eliminates previous criticism of the longer budgetary method as time-consuming and prone to mathematical error. Revised unit power density (UPD) values, in watts per sq ft, for space functions reflect the impact of improved sources, ballasts, and design strategies. Finally, the inclusion of an alternative prescriptive path has created a good deal of controversy, and is now intended primarily for speculative buildings.

Format

The lighting portion (Section 6) contains two paths for compliance: a prescriptive path, which provides a single watts-per-sq-ft value for each of a limited number of building types, and a system performance path, or "budgetary method," which provides a lighting-connected load limit for the whole building, the limit derived from the space types and geometry found in the budgeter's actual project. This second path will look familiar to those acquainted with the 1980 version of the standard, or with the Illuminating Engineering Society's lighting energy management (LEM) publications. In addition to the two paths of compliance, the lighting section contains mandatory requirements for all buildings as related to ballasts, wiring, and switching, plus some trade-offs for use of more sophisticated lighting controls. The procedure continues to be narrowly applicable for energy budgeting only, and does not pretend to be a guide for design, especially on a space-by-space basis. Since there can be a vast number of lighting solutions for each building, the owner and designer are free to select the most appropriate to fit their needs, as long as the design wattage does not exceed the total building wattage allowance. A computer program that accompanies the standard has provided the most significant advancement over previous standards, and includes both compliance paths as well as control requirements.

Hayden McKay is an architect and partner in the firm Howard Brandston Lighting Design Inc. She is a member of the IES, and is currently Director of the International Association of Lighting Designers (IALD).

System performance method (budgetary)

As with other budgetary methods, the revised lighting section retains the basic format of a summation of space budgets, comprised of a UPD (watts per sq ft) value based on space function, and a geometry adjustment based on room proportions.

The space budgets are added together to obtain the total building interior lighting power allowance (ILPA). Designers need only comply with the wattage allowance for the total building, not with each space budget. A separate exterior lighting-power allowance is determined for the building perimeter, facade, road, and grounds lighting. Trade-offs between interior and exterior allowances are no longer allowed.

The committee reconfirmed the use of space functions (e.g., meeting room) rather than task illuminance categories (e.g., visual tasks with high contrast or large size) as the basis of the UPD values. Thus, although a hotel lobby and its loading dock might have the same visual requirements for task illuminance, the requirements for percentage of task area, color rendering, glare, comfort, stimulation, focus, flicker, noise, layout, architectural compatibility, etc., are quite different. Consequently, the UPD values were developed to consider such variations. The lighting requirements for typical space uses were explored in considerably more depth than ever before.

A rather simple "formula" with a limited number of variables was used as the framework to collect and document consensus opinion of design professionals for the up to 30 factors that can be considered in the lighting design of any space function. It should be noted that illuminance (footcandles) is only one such factor, and seldom the most important. This consensus method of establishing values grew out of the lack of mathematical calculations or meaningful statistical data available that equate power needs with acceptable lighting quality.

Unit-power density (watts per sq ft) values is listed in the revised standard for approximately 130 interior space functions, from auditoriums to retail dressing rooms. The energy effect of partial height partitions in open-plan work has been newly considered in the space descriptions for offices. The UPD values for all space functions include assumptions regarding percentage of area allotted to task light and ambient light coverage. This eliminated such factors as workstation areas and space utilization factors used earlier in Standard 90 A-80. The geometry adjustment, which relates to the room cavity ratio (RCR) used in lighting calculations, is here called the "area factor" and is presented as a series of curves relating to average square footage and ceiling heights. Instead of requiring a room-by-room takeoff, as was previously necessary, the revised standard allows the budgeter to combine spaces of similar space use and ceiling height. Thus the square footage of all the conference rooms of whatever size or shape could be combined and multiplied by the relevant UPD. The average area is determined by dividing the total square footage by the number of conference rooms, and the area factor found from the curves, based on the common ceiling height. The computer program requires even fewer pieces of information: space function, average area, ceiling height, and number of similar rooms. The building allowance can be determined by any person with access to this information, and does not require staff time for senior, or even experienced, personnel.

Prescriptive path

The original format proposed for this revision of the earlier Standard 90 included the requirement for prescriptive procedures for hvac, envelope and lighting components, that is procedures which included limits of the single-value-for-building-type variety and minimum efficiency requirements for equipment.

It is believed that a simple, easy-to-use procedure is more likely to be followed, and has a great deal of appeal to code officials and users alike. Determining energy allowances can be a time-consuming and costly effort for budgeters. However, on the basis that a little knowledge can be a dangerous thing, the degree of simplification and compromise required by the format resulted in problems and tensions within all components of the standard. Although the format is most appropriate to hvac components the latest prescriptive section for hvac does not provide single

he challenge is to conserve energy while also reating a comfortable and productive nvironment for the occupants. To fail to do so to waste all the energy used. Hayden McKay

ilding Btuh values, although it es contain requirements for uipment coefficients of rformance. A good deal of position was heard when the st public review version of the vised standard (issued prior to SHRAE/IES co-sponsorship) ntained a prescriptive lighting PD table (single-watts-per-sq-ft lue for each building type) and inimum efficiency quirements for lighting tures and lamps. The ntroversy brought out some gnificant philosophical and actical differences between the sciplines of hvac and lighting, me of which are described low.

Good lighting-design practice cludes energy conservation ong with appropriate lighting ality for performance and mfort. The key is to find the oper balance in order to use nited energy resources to the eatest overall benefit.

nfortunately, achieving such a lance is not easy, and the nowledge and experience to do is not widespread. Although ducation is slowly making roads, the vast majority of ghting specifiers has only the ost rudimentary understanding the quantitative aspects (e.g., commended footcandle levels) nd none of the qualitative pects that make the difference tween a successful and failed sign.

There have been some major provements in lighting chnology over the last decade, imarily in the areas of lamps, llasts, and controls. Since ghting equipment (as opposed most hvac equipment) must erate almost entirely within e view and hearing of the room cupants, increases in uipment efficiencies can have severe negative impact on the minous environment. Energy-inimizing solutions that have en primarily equipment-based ve led to many failures. While is in fact quite easy to specify a lighting system at a very low connected load, the challenge is to conserve energy while also creating a comfortable and productive environment for the occupants. To fail to do so is to waste all the energy used. Setting minimum equipment efficiencies not only is contrary to achieving a balance between energy concerns and lighting quality, it emphasizes equipment solutions and could encourage inappropriate applications when better design strategies are called for. 1990 values for the prescriptive UPD values and equipment efficiencies were strongly opposed in public review since they are impossible to predict for equipment and are detrimental to balanced design solutions. The equipment efficiencies were finally removed from the text of the standard to an appendix.

Common requirements

There are numerous requirements applicable to the lighting compliance for all buildings, regardless of whether the prescriptive or the budgetary path is chosen. The exterior lighting power allowance (ELPA) is determined very simply, using a table of individual unit allowances, in either watts per sq ft or watts per linear ft, for exterior features such as entrances, parking, and building facades. Once the total exterior allowance is established, the designer can use the watts in any combination on the exterior, as long as the allowance is not exceeded. The requirements for mandatory lighting controls are the most significant improvement to the lighting section since the 1980 version. Minimum control requirements, called "control points," are determined for each space, based on the area and number of task locations, usually resulting in a minimum of two control points required for each small workspace, and many more for larger spaces. There is a chart of "equivalent" control points used to show compliance with actual installed controls. For example, a typical wall switch is equivalent to one control point, an occupancy sensor is equivalent to two control points, and so on.

In addition, after the minimum control requirements are met, an actual design can receive a form of credit for the use of more sophisticated lighting controls. During compliance, the actual connected load in a space can be reduced by the use of a power adjustment factor (PAF), selected from a table, which varies for each type of control device or combination of controls. This compliance procedure is taken almost entirely from the work done for California's Title 24 Energy Standard. Although the "credits" are modest, it clearly encourages the use of controls, and should have a far greater impact on energy conservation than constraining connected load alone. Finally, there are restrictions on fluorescent ballasts to discourage or disallow the most inefficient products, which is again based on California Title 24. A national bill currently before Congress on ballast certification is expected to achieve the same end, if it is passed.

Conclusion

Throughout the laborious task of refining Standard 90.1P, there has been considerable ancillary activity to promote energy-conserving design and set the foundation for the next generation of standards. The IES Energy Management Committee has developed a lighting energy-management series of documents, three of which form the recommended procedures for energy budgeting and analysis, and three educational guidelines for energy-conserving design, maintenance, operations, and controls. In addition, the committee has initiated several research proposals to provide a more scientific basis for establishing future UPD values. One of these, a postoccupancy evaluation study for lighting quality, is in its second phase and promises a wealth of new and valuable information. The International Association of Lighting Designers (IALD) provided the Standard 90.1P task group with numerous case studies to provide the core of a lighting database. Finally, the jointly sponsored ASHRAE/AIA/IES Whole Buildings Energy Targets project is currently in its second year. The proposed methodology will include a wide range of lighting factors related to quality, and will set customized energy-related targets which consider energy use in a totally integrated way. The methodology not only will be used to set targets, but will also be used to test and analyze actual designs, leading to a significant increase in designers' education, intended thereby to promote creative, innovative energy-conserving solutions.

Education is crucial to successful energy-conserving design. As the revised Standard 90.1P becomes accepted as a mandatory standard or code by individual states, mandatory educational programs, related to integrated systems and lighting quality, would be an effective way to achieve a wiser use of energy resources.

Standard 90.1P: Daylighting

Standard 90.1P achieves significant energy savings while allowing flexible methods of compliance as well as trade-offs and interactions among various component loads of a building.
Harvey Bryan

By Harvey Bryan

In the early 1980s the Department of Energy (DOE) and ASHRAE collaborated in an extensive analysis of numerous energy strategies, the results of which recommended, in order of importance, those strategies that produced the most cost-effective improvements to the existing standard. High on this list was daylighting—the conscious use of natural light to offset the need for electric light. While no one in the daylighting community was surprised by this high ranking, many outsiders were, and began for the first time to take notice of daylighting's potential for energy savings.

Draft Standard 90.1P makes a radical departure from the earlier Standard 90, by taking into consideration many of the dynamics that exist between the two most important component loads in large buildings, i.e., loads generated through the building envelope and those generated by internal loads (particularly electric lighting). With this linkage now integrated into the body of the standard, daylighting, as well as several other energy strategies, could be used without penalty.

Systematizing the trade-offs

Daylighting can be addressed in several ways within Standard 90.1P's two parallel and alternative compliance paths: the system/component method and the building-energy cost-budget method (see compliance flow chart, page 152). While such flexibility offers options that were not present in Standard 90, the cost and time constraints involved in the building-energy cost-budget method will limit the vast majority of designers to the system/component method.

Harvey Bryan is an architect, researcher, associate professor at Harvard's Graduate School of Design, and member of both ASHRAE and IES.

System/component method

The system/component method is used in determining lighting, envelope, hvac, and service-water heating compliance. However, lighting and envelope are the only two areas that are impacted by daylighting. Within these two areas a designer has the choice of using either the prescriptive or the system-performance criteria, both of which can be employed interchangeably.

Lighting compliance under the *prescriptive criteria* section provides incentives for the use of daylighting by allowing the designer to increase the unit lighting power allowance (ULPA) through the use of automatic daylighting controls. This approach allows the adjustment upwards of the ULPA (expressed in watts per sq ft) within the daylit areas for a given building type to between 10 percent (for an on/off daylight sensor) and 30 percent (for a continuous dimming daylight sensor). Higher increases can be achieved if the daylight sensor is used in conjunction with other control devices (e.g., occupancy sensor, lumen maintenance, and programmable timer).

Envelope compliance under this section provides daylighting incentives by allowing the designer to increase the area of exterior glazing. This approach allows the designer to select the percent of allowable glazing for either a base case or daylit option. Compliance is easily determined through the use of precalculated prescriptive tables known as alternative component packages (ACP), which have been generated for 30 U. S. climates.

If greater design flexibility is desirable, a designer would likely choose to use the *system performance criteria* section instead of the prescriptive criteria section. Lighting compliance under this section provides the same incentives for daylighting as in the prescriptive section. The only difference is that the automatic daylighting control adjustment is applied to the electric lighting system's unit power density (in watts per sq ft), which has to be determined for each area/activity in a building rather than on a building-type basis.

Envelope compliance under this section takes into consideration the factors that impact daylighting in a much more dynamic manner than the ACP tables. Here such factors as shading coefficient, projection factor, visible transmission, U-values for windows and walls, heat capacity of the walls, position of insulation within the wall, and the lighting and equipment loads within 15 ft of the perimeter, can be manipulated in any order and for every 45 deg in orientation. Compliance is achieved if the total heating and cooling loads for the proposed design are less than the total that has been determined through the criteria calculation. While the envelope compliance using the prescriptive approach can be done easily by hand, the system-performance approach will require the use of a microcomputer. Thus, a spreadsheet-like program was developed for determining envelope compliance, and is being distributed with the draft standard.

Building-cost budget method

Of the two compliance paths the building-cost budget method is the most flexible, but will require a more involved analysis. This method would be used by designers who want to take advantage of the benefits of energy-design strategies which cannot be adequately evaluated under the system/component method (some daylighting strategies might include innovative reflector devices, dynamic window controls, etc.). Thus, this method requires the use of an energy simulation program, such as DOE-2, which has the potential to model such strategies. Compliance under this method would involve the proposed building design being simulated by computer, which results in a value called design energy consumption (DECON). This value is then adjusted by the various costs of the fuel types that will be used to get th design energy cost (DECOS). Compliance is achieved when DECOS is less than the energy cost budget (ECB) of a prototyp or reference building configured to meet basic and system/component compliance.

Conclusion

After two years of preparation and another three years of publ review, Standard 90.1P has become the most scrutinized document ever to have been generated by an ASHRAE committee. While its nearly 300 pages (in its double-spaced draf form) of text, tables, charts, an appendices will seem overwhelming at first, it becomes less intimidating with use. Standard 90 was designed restrict extremely wasteful pre-oil-embargo practices and, in so doing has unduly restrained innovative design strategies suc as daylighting. Standard 90.1P makes an important break with such a closed approach in that achieves significant energy savings (well above Standard 9 levels) by allowing flexible methods of compliance as well trade-offs and interactions among the various component loads of a building. While the issue of how much flexibility ca be present without overburdening the standard has been partly mitigated by the va base of microcomputers that ar in today's practice, there remai a number of new concerns with which the design community wi have to familiarize itself. In the process, engineers and architec should not only be interested in the mechanics of compliance bu also in how best they can marke the value-added design services that Standard 90.1P will generat

tandard 90.1P: Hvac systems nd equipment

/ Steven T. Taylor

Romaine Photography

After years of massaging and fine-tuning, the current draft provides an excellent balance of the interests and concerns of the energy design community, and truly reflects the state-of-the-art in the design of energy-conserving buildings. Steven T. Taylor

he hvac systems section of the andard addresses the basic ndamentals of hvac system iciency, such as its ability to atch output with load, to take vantage of cool weather to ovide "free" cooling conomizer), or "free" heating eat recovery), to reduce or minate simultaneous heating d cooling for zone temperature ntrol, and to reduce heating d cooling system distribution sses. The section is aggressive lative to previous versions of andard 90 but yet offers asonable and practical nitations that still leave hvac sign engineers the flexibility meet design constraints and quirements.

Hvac systems requirements e organized in much the same ay as other sections of the andard. General requirements, hich are mandatory regardless compliance path selected ee compliance flow chart, page 2) include equipment-load lculation procedures, mperature and off-hour ntrols requirements, and aterials and construction ecifications. The prescriptive-iteria section includes strictions on oversizing uipment, limitations on the use simultaneous heating and oling for space-temperature ntrol, economizer quirements, and fan and mping systems design criteria. nlike the envelope and lighting ctions of the standard, there is systems-performance option r hvac systems. (The mmittee attempted to develop is approach but could not find suitable compromise between nplicity and technical curacy.)

even T. Taylor, P. E., is a oject engineer for the design/ ild mechanical contractor nford Air and Refrigeration ., and chairman of the hvac bcommittee currently revising SHRAE Standard 90.

Some of the new features of the hvac systems general requirements section:

- Systems serving areas which require special process temperature or humidity-control requirements are restricted from also serving spaces requiring only comfort control.
- Zone-temperature-control requirements are strengthened. Independent perimeter systems (separate systems usually designed to offset only envelope-conduction heat losses and/or gains) must now be controlled by space thermostats with at least one control zone required for each major building exposure. In the past, such systems were often controlled solely as a function of outside air temperature, which led to inefficient "fighting" between the perimeter and interior systems due to variations in solar and internal loads throughout the building.
- Thermostats controlling the supply of heating and cooling to a zone must be adjustable to provide a temperature range or "dead band" within which the supply of heating and cooling energy is shut off or reduced to a minimum, allowing the space temperature to float within a range of comfortable temperatures (e.g., 70F to 75F).
- Automatic off-hour (time clock) controls are now required for most hvac systems. Past versions of the standard allowed manual switches, but people usually make poor timeclocks and systems often are left running many hours longer than necessary.
- A new section of the standard now requires hvac systems to have the ability to isolate different parts of the building which operate on different time schedules to allow only those areas which are occupied to be conditioned.
- Radiant heating systems must be considered in lieu of convective or all-air systems for areas which experience high rates of infiltration of outdoor air, such as loading docks or automobile service areas.

Some of the new features of the hvac systems prescriptive-criteria section:

- Hvac systems and equipment, with some exceptions, must now be sized according to calculated equipment loads. This restricts the oversizing of equipment which, in addition to increasing system first-costs, can also increase energy usage.
- Systems which use simultaneous operation of heating and cooling systems to maintain space comfort conditions are severely limited compared to past versions of the standard. Most central, multiple-zone systems must now be variable-air-volume (VAV) systems.
- The requirement for economizer systems (the ability of a cooling system to take advantage of cool weather to reduce mechanical cooling requirements) has been expanded to include some "water side" economizers as well as traditional outside air economizers. A water economizer cools supply air indirectly through a cooling coil. There are many exceptions to the economizer requirement, including some to allow alternative designs such as internal-zone recovery and natural ventilation through operable windows.
- For large VAV systems, a part-load-performance requirement was added. This section effectively requires the use of variable-speed drives for variable-volume pressure control on large air-foil centrifugal fans in lieu of inlet vanes or discharge dampers.
- Many pumping systems serving multiple heating or cooling coils must now be designed for variable flow. This can save considerable pumping energy, especially in large distribution systems such as those serving multiple buildings.
- A new section of the standard requires the use of supply temperature reset controls on central air and hydronic heating and cooling plants except for those using variable flow. Reset controls adjust air and water supply temperature, increasing the efficiency of primary equipment such as boilers and chillers, and reducing piping heat losses.

Hvac equipment

The hvac equipment section establishes minimum primary-equipment performance requirements, both at full load and, for the first time, at part-load conditions. Equipment covered by the standard ranges from small window air conditioners to very large chillers and boilers.

The addition of part-load requirements is a major innovation. Hvac equipment is typically selected to meet "design" heating and cooling requirements that seldom (sometimes never) occur in the life of the building. Thus the real test of equipment performance is not how it performs at full load, but how it performs at unloaded conditions. For most equipment categories, a part-load criterion called the integrated part-load value (IPLV) was established and added to industry-standard equipment-certification tests. Full-load-performance criteria were substantially toughened towards state-of-the-art levels, balanced by practical market considerations through responsible input from industry groups. Part-load criteria were established at a relatively mild level of stringency due to the recent creation of the IPLV comparator and the resulting lack of data from existing equipment lines. Future revisions to this section, however, will emphasize the importance of part-load performance over full-load performance.

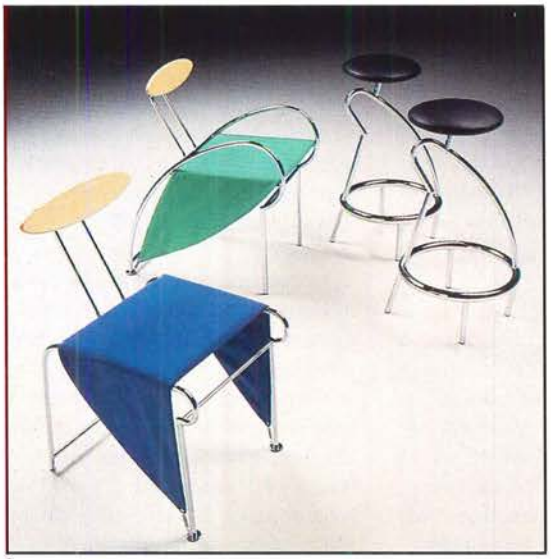
New products

For more information, circle item numbers on Reader Service Card

Shooting star
Combining imagery of 1950s American car tail fins and up-to-date manufacturing techniques, Massimo Iosa-Ghini's new line of furniture is aptly named the *Dinamic Collection*. The 28-year-old Bolognese architect, furniture designer, painter, and cartoonist takes further credit as a founder of "Bolidism," which he defines as a "way of thinking and a lifestyle" (the Italian word *bolide* means "shooting star"). In design terms, the movement picks up where Italian Futurist Antonio Sant'Elia left off at his untimely death in 1916, the revised goal being "to break the right angle and the straight line in order to find the sinuous curve, the spiral, and shapes that can be obtained from complex equations because now we have the ability to memorize and use them." Although Bolidism was officially born on July 12, 1986, from the professional union of 15 designers, Iosa-Ghini firmly established his own name among the cognoscenti with his contributions to the 1987 Memphis collection, previewed last September during the Milan Furniture Fair. The nine pieces Iosa-Ghini has created for Moroso (a sampling of which is shown here) elaborate on the streamlined shapes he explored earlier for Memphis. Designed with mass production in mind, the arm- and side chairs, tables, sofas, and stools are constructed from tubular steel, wood, and wicker, and are clad in an array of brightly colored leathers and fabrics. Moroso, Tavagnacco, Italy; available through Modern Living, Los Angeles. *K. D. S.*
Circle 300 on reader service card
More products on page 171

1. Balzo 5 *couch*
2. Velox 4 *side chair,* Notorious *armchair, and* Guizzo *stool*
3. Flusso 6 *table,* Velox 4 *side chair, and* Norma 2 *armchair*
4. Futuro 3 *chaise longue*


1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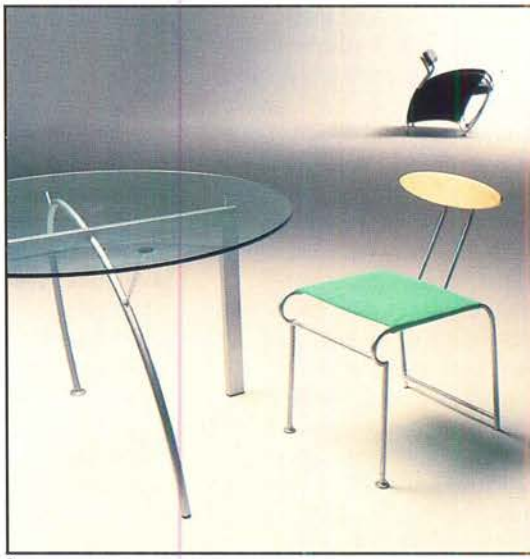
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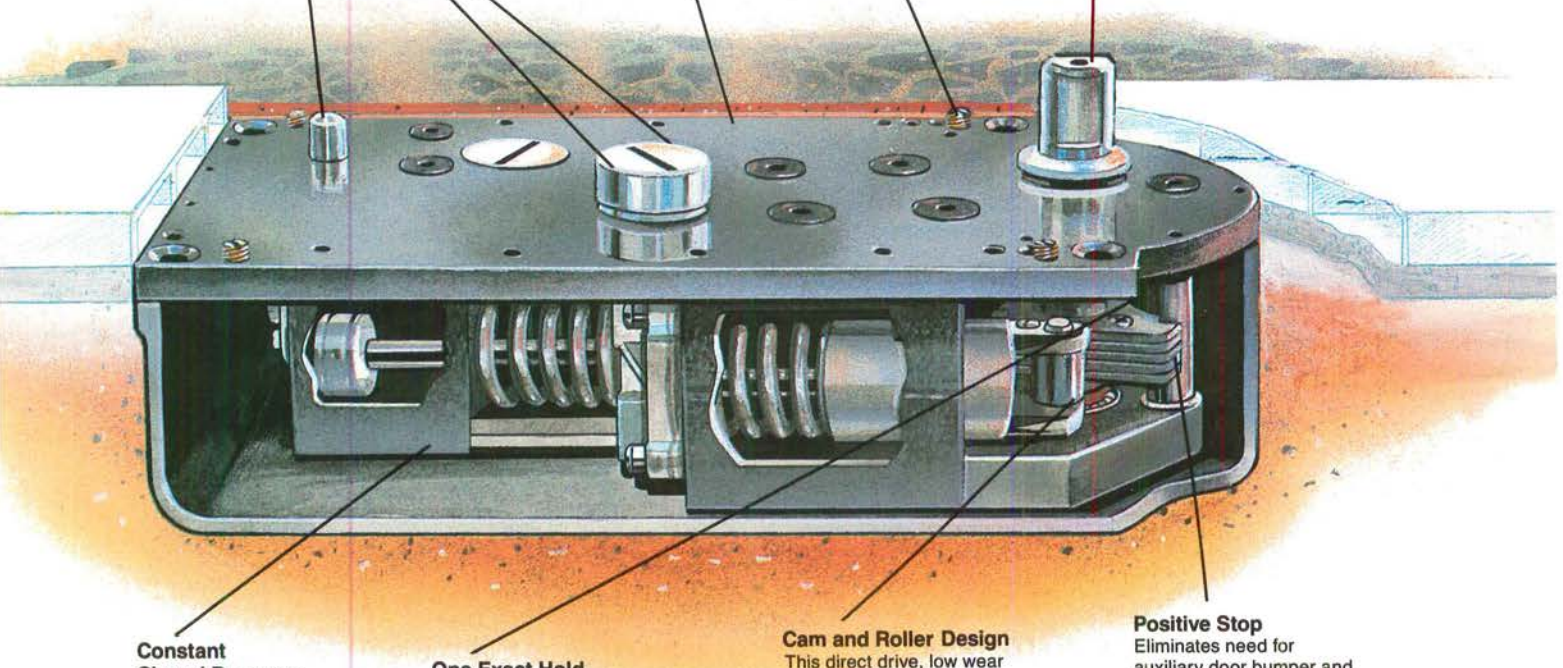
4

HEAVY DUTY DOOR CONTROL



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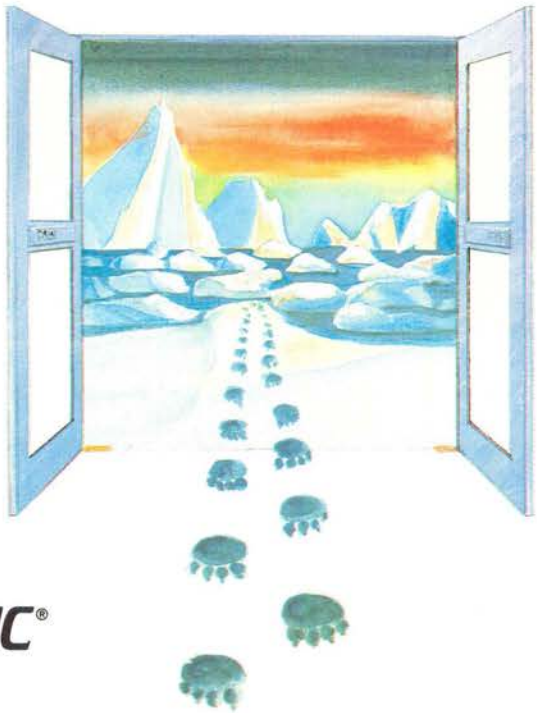

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oftware reviews for architects

Steven S. Ross

hen it comes to software for heduling and project anagement, there's a tension tween packages that are easy use but aren't very flexible, d packages that offer to llow a project's every twist t force the user into a rrespondingly tortuous data-try path. The two titles viewed this month are cellent compromises. They e more powerful than most, sy to use, and run mfortably on inexpensive MS-OS and PC-DOS computers.

rimavera Project lanner ersion 3.10

ll-featured project-anagement software with easy put and impressive output ports and on-screen displays. andles 10,000 activities with limited relationships among em. Handles schedules, lculates resource loading, and acks project costs. French and alian versions available.

quipment required: IBM PC, T, AT, PS/2 and compatibles, 2K (640K recommended; the ftware takes 480K, leaving tle room for DOS), one floppy sk and one hard disk, graphics onitor (color strongly commended). MS-DOS or PC-OS versions 2.0 or higher. pports most commonly used inters. Version also available r VAX systems and many BM-incompatible" MS-DOS mputers such as the TI ofessional, Zenith Z100 and 0, and Wang PC without IBM nulation board.

ndor: Primavera Systems, c., Two Bala Plaza, Bala ynwyd, Pa. 19004 15/667-8600).

rice: $2,500 for Project Planner, $1,500 for Primavision graphics plotter software, $2,000 for Parade, to allow better reporting of results, especially for earned-value analysis. VAX site licenses from $12,000 (MicroVAX II) up to $72,000 for VAX clusters. Annual maintenance contracts are available.

Summary

Manual: Good. Clear setup instructions, a detailed tutorial, and good explanation of advanced features. The reference manual is comprehensive, and includes a good text on planning and scheduling. There's also enough detail about Primavera's file structure to allow programmers (even talented amateurs) to tie the files to Lotus 1-2-3 or to dBase III.

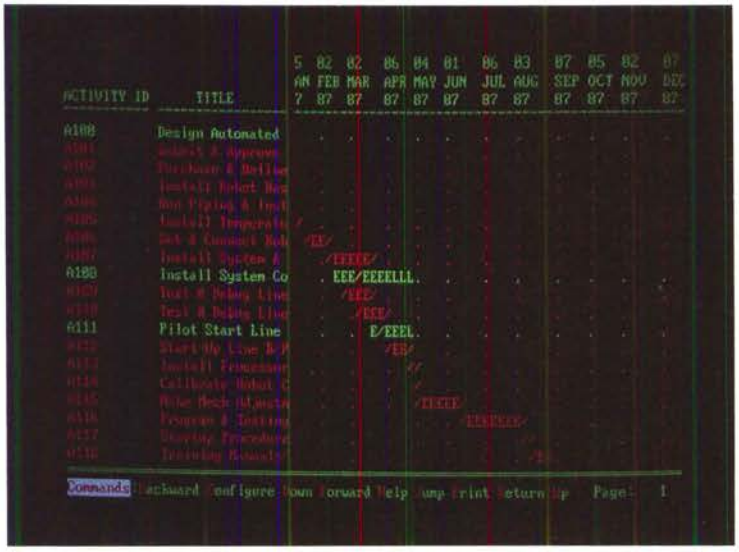
Ease of use: Surprisingly easy interface for a package this comprehensive; each data-entry screen calls for related information. HELP is context-sensitive and reasonably complete; HELP messages often extend through several screens of text. As spelled out in the tutorial, it is wise to do "what-if" analyses on a copy of the schedule rather than with the original. That's because new data is constantly being written to disk over earlier files.

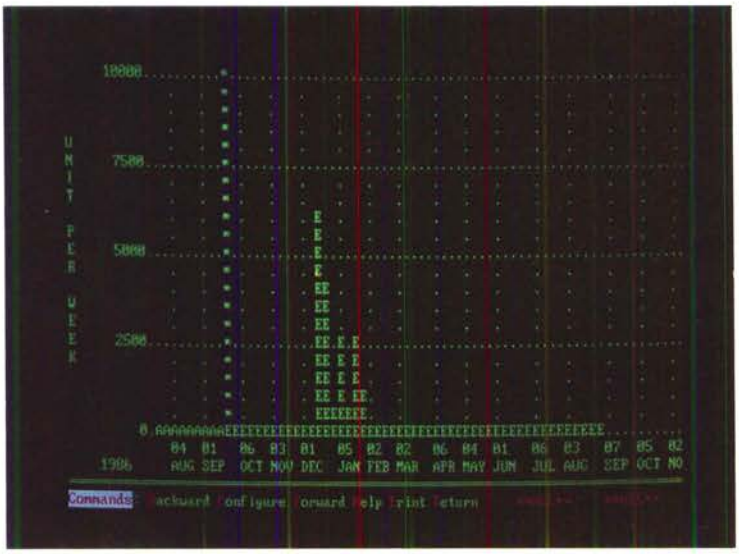
Error-trapping: Fair to good. Many "illegal" data entries are refused by the software as they are being entered. It is possible to leave a screen without adding that screen's data to an update, however, and without being prompted with a second chance to save the data.

It is difficult, but not impossible, to miscalculate costs against budget quantities. You should budget a specific number of units and define the units (man-hours or dollars) for each activity. If you don't, the software naturally calculates it the first time you store the data by multiplying the remaining duration of the activity in days times the units per day. As the days pass, Primavera does not recalculate the budget. Nor does it notify the user to check budget vs. actual. If some of a budgeted resource was spent before the plan was entered into the computer, you'll come up short.

Primavera Project Planner offers all the standards: critical path scheduling (the CPM chart can be printed out, but not displayed on-screen); calculation of lags and constraints (which activities must be done before which); verification of resource constraints (is there enough labor, cash, or other resource available at the time the work is scheduled?); networking of interrelated tasks; and cost calculation. The CPM chart can be output in "precedence" (PDM) or connected by arrows to represent activity order (the arrow diagramming method, ADM for short). Lags cannot be

(Continued on page 167)





Primavera's displays for Gantt (bar) charts can be customized to change characters and colors for client presentations. (The letter E—for early tasks—could be converted to a color block.) Resource-use chart (bottom) can be recalculated, for example, to find out the impact of a changed cost.

r. Ross is a prominent mputer consultant and a gular contributor to RECORD.

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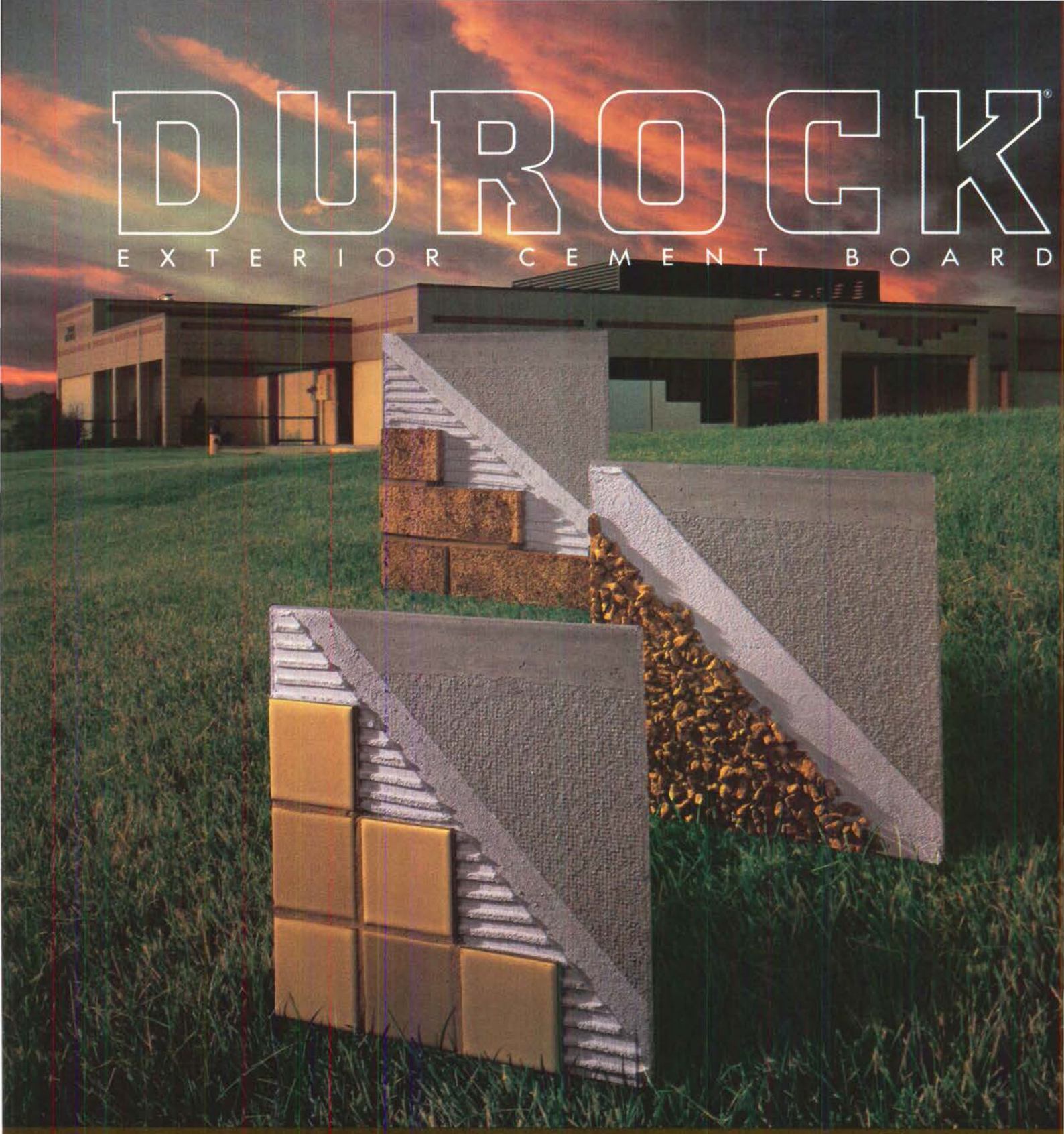

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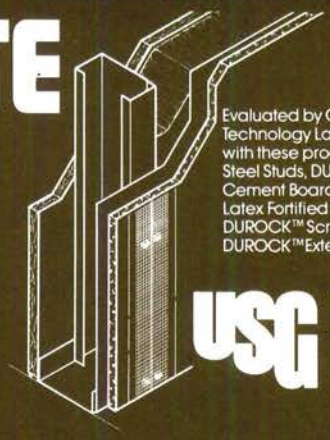

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oftware reviews continued from page 165

reater than 999 working days ardly a constraint). It is easy to efine an overall project lendar, with holidays and onworkdays. If you try to set o an entire schedule utomatically, though, you'll robably have to redefine some oliday dates. Weekend holidays re all handled alike—moved ther to closest workday or left n the calendar date.

Users can tie any number of esources (various classes of orkers, materials, and so forth) a given activity, up to 10,000 ctivities, with an unlimited umber of links between ctivities. Primavera utomatically detects loops (self-ontained paths of activities that old back on themselves) and pen ends (unconnected ctivities). Each activity can be ed to as many as 20 codes epresenting such things as a ngle union's work, a supplier, ontractor, or supervisor). This akes it easy to sort out specific ctivity sequences without roducing reports on an entire roject.

Any cost account or activity udget can be as large as $10 illion. Primavera calculates esource loading easily, and lets ou juggle schedules—manually r automatically—to smooth esource use and avoid verscheduling a resource.

The on-screen displays for esource-loading charts and for antt (bar) charts are elightfully easy to move around ith the arrow keys and PAGE-P/PAGE-DOWN. For quick utput of a specific section of a creen, the DOS PRINT CREEN function worked fine n computers equipped with oarse CGA color graphics and ith an EGA graphics card.

That's because Primavera uses he standard ANSI.SYS screen raphics. By the way, rather retty color blocks could have een easily substituted for the haracters in the screen shots uplicated on page 165—and then plotted for a presentation. But the characters relate important information (E for early tasks, L for late tasks, etc.).

The installation process automatically adds the line DEVICE=ANSI.SYS to your computer's CONFIG.SYS file. This may, in rare instances (especially on non-IBM-compatible MS-DOS machines), interfere with the use of other system files on the same computer. If it does, you can arrange your system with a special CONFIG.SYS file under another name, then rename it and reboot your computer when you run Primavera.

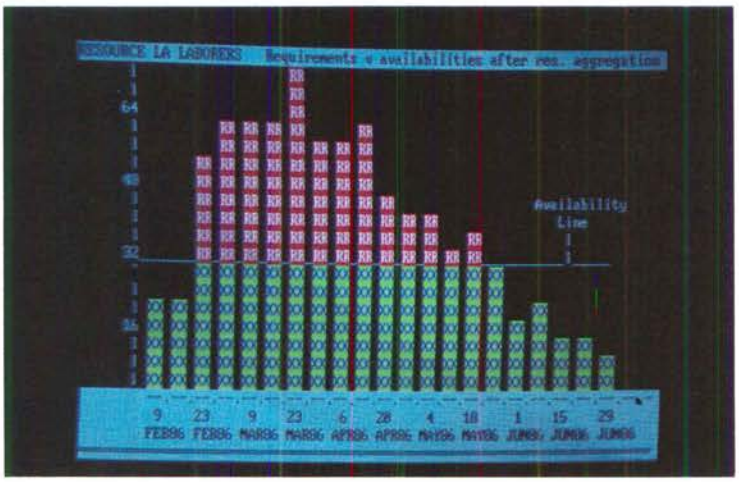
Primavera's "engine," the database software underlying the whole package, is a standard one as well—Btrieve. Many third-party suppliers work with Btrieve, so the files are easy to exchange with standard applications such as Lotus 1-2-3 and dBase. Each project "file" is actually nine separate files that are pulled off the disk as needed.

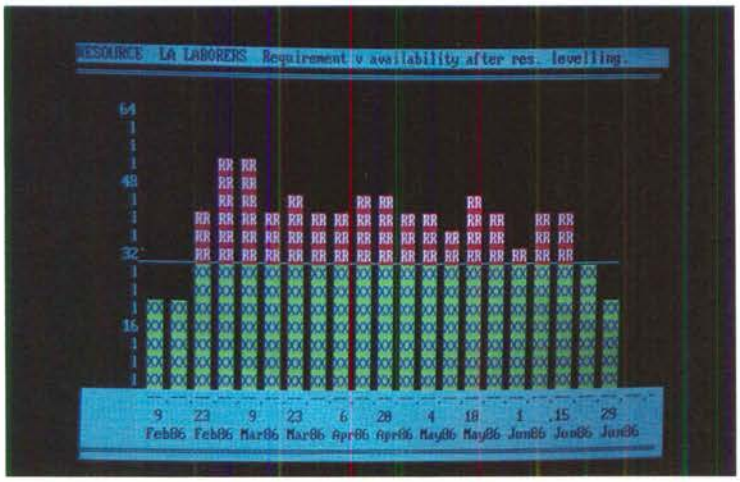
One of the nicest tricks that Btrieve makes easy is "Boolean," a selection of choices to output in a report—defined by up to 30 parameters. Perhaps you might want all items to be performed under a certain supervisor and after a given date. Primavera makes it simple.

Output of the basic package is quite good. But the Primavision option makes spectacular reports, especially on a color plotter (all major plotters and laser printers are supported). Another add-on package, Parade 1.1, picks up Primavera Project Planner files directly (earlier versions did not) for almost seamless analysis of, and reporting on, a project's earned value. Finally, an add-on not reviewed, Finest Hour ($5,000 including Primavision graphics), allows *hourly* scheduling of projects, and handles projects with multiple calendars.

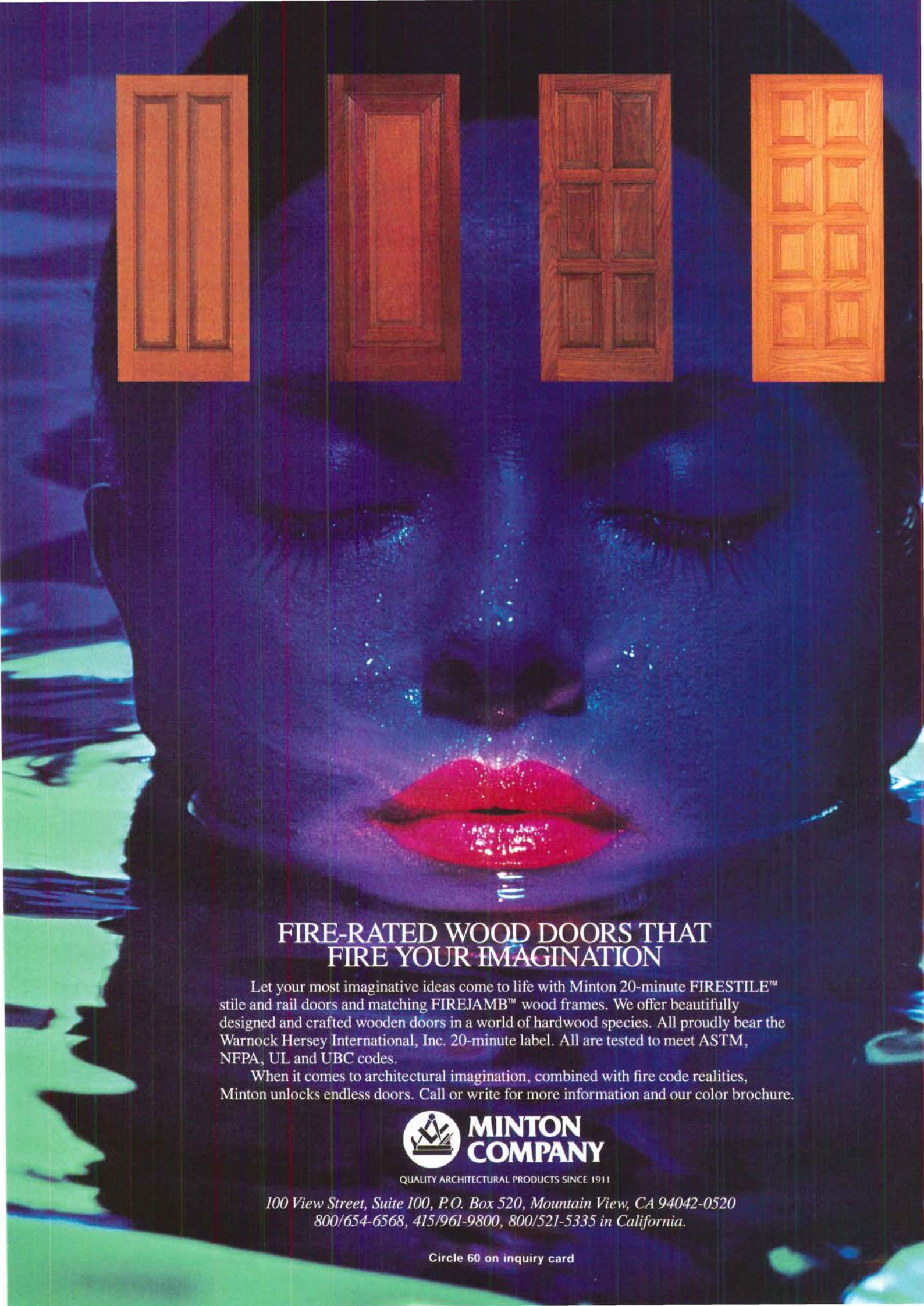
Plantrac 4B

A full-featured project-management program that's more graphically oriented than most. Allows on-screen creation and display of critical-path networks. Interchange with AutoCAD files is possible with optional add-on. Allows "what-if" analyses without destroying integrity of existing program files and without need to create a duplicate set of files first.
Equipment required: IBM PC, XT, AT, PS/2, or compatible, 256K (640K recommended; use the extra memory for a RAM disk to store program files, thus speeding operations), hard disk, CGA or EGA monitor or compatible (color strongly recommended). Version also available for VAX and Sun computers. The plotter interface handles all standard systems.
Vendor: Computerline, Inc., P. O. Box 308, 52 School St., Pembroke, Mass. 02359 (617/294-1111).
(Continued on page 169)





Plantrac, like Primavera, also allows user to substitute blocks of color for characters. Top: Resource chart shows a project as originally scheduled. Bottom: After Plantrac has taken original project schedule and automatically changed starting and stopping times of some of the tasks to make labor use more uniform over the project life while still meeting deadlines. Using the software with a color plotter enables conversion to transparencies for overhead projection.



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Software reviews continued from page 167

Plantrac is a management program that's more graphically oriented than most, using "what-if" analyses to flag seemingly insignificant tasks that could delay the whole project.

Price: $695 for Plantrac with Easyplan; $3,000 for system including resource and cost control. Opentrac is $750 and batch command system, $1,500. $99 for demonstration system. $395 for Cadlink to .DFX files; $395 for DBtrac link to dBase III files.

Summary

Manual: Four in all, but badly arranged; none clearly marked "installation" or "startup." Nevertheless, once you find the information you need, it is clearly explained. A new start-up manual has been promised; it should be shipping with the product by now.

Ease of use: Once users get past the nonstandard key configuration (the ESCAPE key, of all things, is the normal key to accept or initiate an action from a menu rather than to escape from it), use is reasonably intuitive. The on-screen display is excellent. Exchange of files with other programs requires several steps (see below); file interchange with Lotus 1-2-3 is difficult. The CAPS-LOCK key must be engaged for most letter commands because the program is written in compiled BASIC. There's a pop-up calculator, calendar, and word processor—a built-in Sidekick-like program called "Windows" (not to be confused with Microsoft Windows). No on-line help is available.

Error-trapping: Good. It is difficult to leave a data-entry screen with incomplete information. Loops and unconnected tasks can be entered, but they are caught by the software as it calculates schedules. The installation program does not prompt users to load the disk containing Opentrac and Batcher. Nor does it distinguish among the nine other program disks, although it prompts for them. This does not matter, because all the disk files end up in one subdirectory on the user's hard disk.

One of the best things about Plantrac is a program that is included with it: Easyplan. Easyplan can handle up to 175 activities and relationships. Those, in turn, can be combined as modules or sections of a larger project. Easyplan allows exceptionally easy data entry, including on-screen "drawing" of CPM networks. Activities can have multiple start and endpoints, so there's no need to add "dummy" activities to tie activities to a single endpoint.

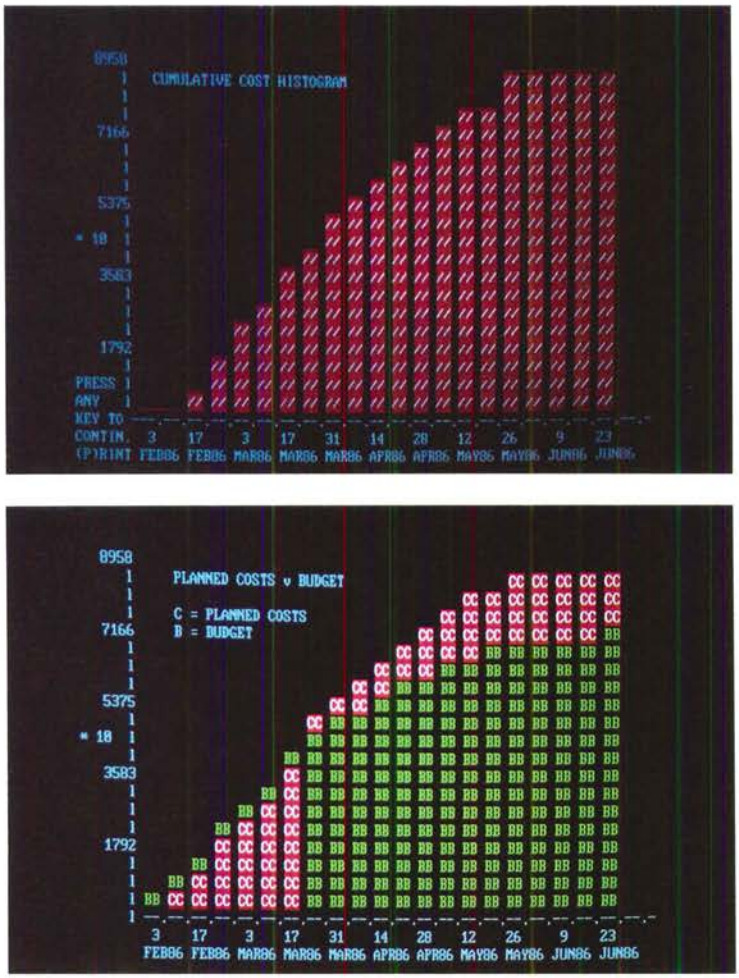
What happens when the 175-activity limit is exceeded? Simple. Plantrac automatically switches over to the "comprehensive" full-blown system. If subprojects are kept small enough, they can be kept separate and combined automatically for an overall analysis with Batcher, an optional menu-driven program that maintains a list of all the subprojects, specification codes, and so forth, along with instructions for doing various analyses you might desire.

Inside the main program, limitations are essentially those set by the version of BASIC in which the software is written. Users can have 5,000 activities in a subproject with numbers from 0 to 32,767; a project can be up to 32,767 periods long, with up to 32,767 units of overhead costs. For inputs that are not handled as separate file records, however, there is more flexibility. Contracts up to $999,999,999 can be accommodated, as can 9,999 separate calendars with various holiday schedules. Resource codes can be two characters long—more than 400 possibilities. Up to 100 subprojects can be combined (500,000 activities in all).

Assignment of keys definitely takes some getting used to. The "?" does not invoke HELP, for instance; it brings up the report-printing menu. ESCAPE usually accepts actions, although in some cases it moves the user back one screen in a multiscreen display. When the cursor is on an activity node, the > and < keys allow viewing of succeeding and preceding activities; the arrow keys move the entire screen.

Opentrac moves data between Plantrac disk files and ASCII files so that they can be used by most word-processing programs. ASCII files can, in turn, be read by and written to Lotus 1-2-3, as long as there are no more than 240 characters per line. Resource and cost files cannot be changed while in ASCII and then moved back into Plantrac, however.

Among the features that make Plantrac easy to use: A global search-and-replace feature (great for changing the name of a project manager, for instance), the ability to extract part of a network of activities and put it into another project, and intuitive resource leveling.



Cumulative-cost histograms can help architect and client plan progress payments and cash flow. Top: Cumulative cost is worked up before the project has begun. Bottom: Actual-vs.-budget analyses track the progress of project, allowing the user to verify projections.

Impact on cash flow later in the project can be checked as actual delays are encountered, for example. "What-ifs" can also be done at the start of a project to discover what factors, such as a missing part, might create delays, affording more time to order a back-up part.

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2

4

Composite stone

A conglomerate of 97 percent crushed marble in a polyester resin matrix, *Stonit* was developed using data from a market survey that asked architects and specifiers what design characteristics they wanted in a manufactured stone product. Made in Italy, *Stonit* is now available in stock in this country, in a range of colors, textures, and sizes for all applications on interior and exterior walls, floors, and horizontal surfaces. Murano glass chips, pieces of mother of pearl, and brass filings, incorporated throughout the composite during manufacture in a vacuum-vibro press, provide sparkle and random pattern. The 26 standard colorations range from a *Stonperla* Bianco to a black-granite-like Nero Stone; both the marble and the resin are dyed before agglomeration. Custom colorations and admixtures are cost-effective for orders of 10,000 sq ft. Face-finish options include polished, honed, bush-hammered, sandblasted, and etched, permitting the use of different surface textures in the same color. The standard product is a square or rectangular tile, from 12 by 12 in. to 4 by 4 ft, in thicknesses of from 3/8 to 1 1/4 in. Thicker, dimensional sizes are also available. Dense and very abrasion-resistant, *Stonit* has an absorption rate of 0.27. The 3/8-in. thickness weighs about 5.1 lb per sq ft.

1. Architects Mymax Inc. combined *Stoneperla* Nero (with mother of pearl), sky-blue Azzuro, and polished Fildoro Nero in a retail boutique.
2. Close-up photo shows the green Murano glass chips imbedded in a sample of *Stonglass* Grigio tile.
3. Stonit may be installed in a "floating" floor assembly, which lets the owner rearrange color patterns or remove the entire floor when a lease expires. For this application, tiles are mounted on wood and inserted into a pedestal-mounted track. The resulting floor is said to have the same solid feel as a standard tile installation directly on the subfloor.
4. A high-traffic retail store uses two contrasting colors to create a diagonal pattern. Innovative Marble and Tile Inc., Farmingdale, N. Y.

Circle 301 reader service card

More products on page 179

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Pittsburgh Corning has developed new Tapered FOAMGLAS® Roof Insulation Systems which satisfy today's Performance Criteria and are Priced Competitively.

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PC PLUSYSTEM 1

Tapered FOAMGLAS® with FOAMGLAS® insulation underlayment. This All-FOAMGLAS® system offers the highest resistance to moisture, ensuring constant thermal efficiency and maximum compressive strength. The tapered top layer provides slope to drain water and is compatible with built-up-roof or adhered single ply membranes.

PC PLUSYSTEM 2

Tapered FOAMGLAS® insulation with PF (phenolic foam) Underlayment provides the highest R-value available in these systems. The Tapered FOAMGLAS® insulation shields the PF Underlayment from extremes of thermal expansion and contraction and distributes loads evenly.

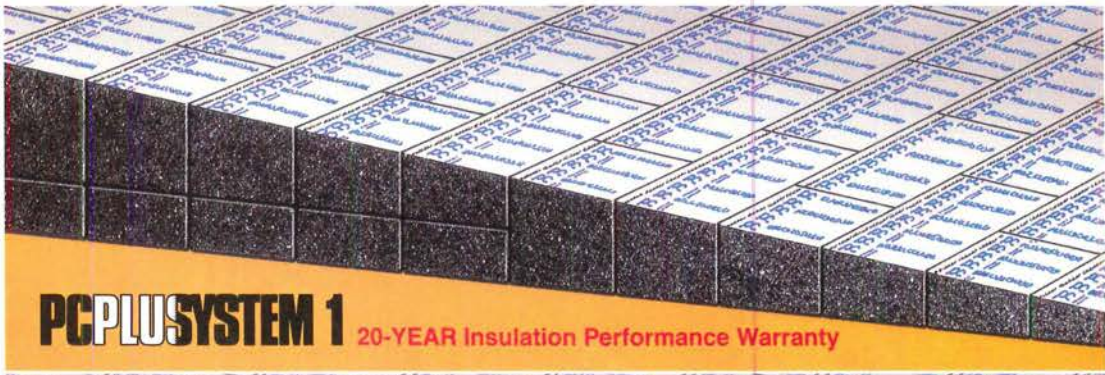
Guaranteed Performance!

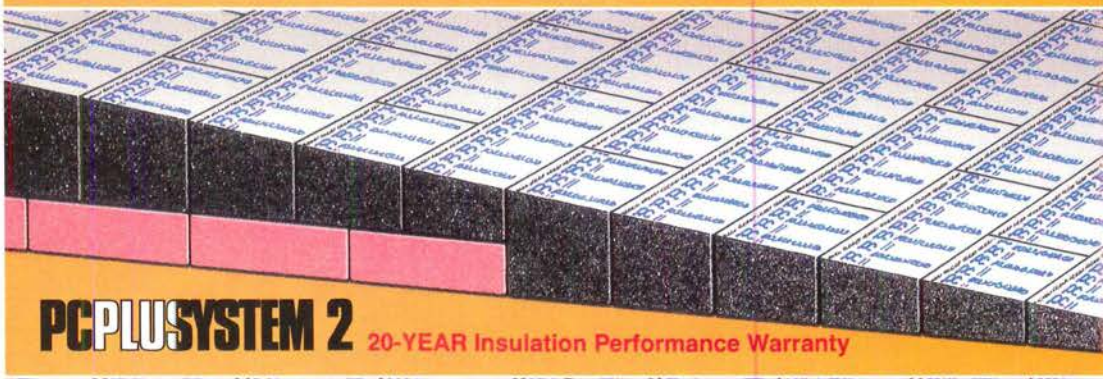
PC PLUSYSTEMS® 1 & 2 offer 20-year insulation performance warranties. Copies of the warranties are available from Pittsburgh Corning.

PC PLUSYSTEM 3

Tapered FOAMGLAS® insulation with PI (polyisocyanurate foam) Underlayment produces a high R-value system. The Tapered FOAMGLAS® insulation reduces thermal loads on the PI Underlayment which results in a stable substrate for the roof membrane.

Your Pittsburgh Corning representative will recommend the PC PLUSYSTEM that best meets your performance criteria and cost restrictions.





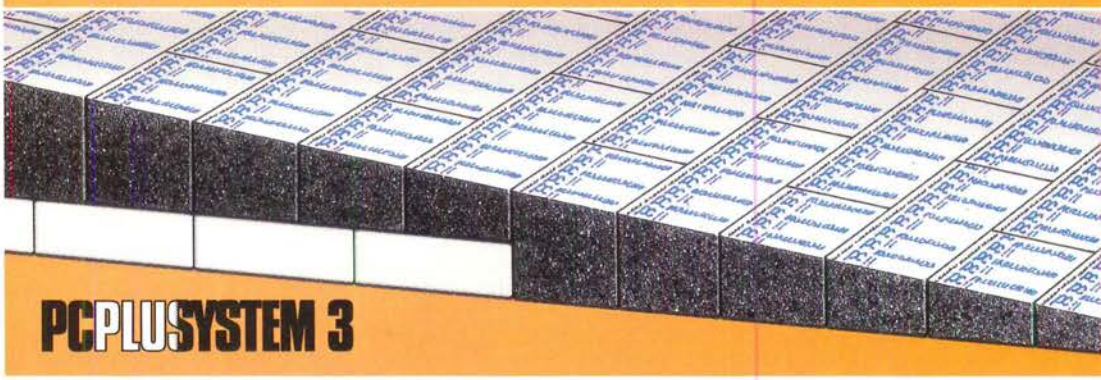


Illustration not to scale

For more information call our ARCHITECTURAL PRODUCTS HOTLINE at 800-992-5769 (in Pennsylvania, 800-992-5762). Or write Pittsburgh Corning Corporation, Marketing Department FB-8, 800 Presque Isle Drive, Pittsburgh, PA 15239. In Canada, 106-6 Lansing Square, Willowdale, Ontario M2J 1T5, Tel.: (416) 222-8084.

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Product literature

For more information, circle item numbers on Reader Service Card

Mexican accessories / Hand-carved wooden doors, lighting fixtures, wrought-iron grilles and stairs, casework, seating, and decorative objects made in Mexico are featured in a 20-page catalog. Arte de Mexico, North Hollywood, Calif.
Circle 400 on reader service card

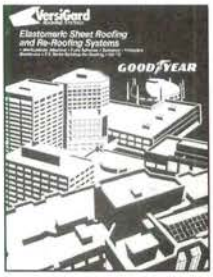
Elevator cab railings / Door saddles and handrails for elevator cabs, made in aluminum, bronze, stainless steel, *Colorail* pvc, and acrylic/wood composite finishes are shown in a specification brochure. Julius Blum & Co., Inc., Carlstadt, N. J.
Circle 401 on reader service card

Architectural wall systems / A 12-page technical brochure outlines the installation, design, and cost advantages of the *Surewall* insulating wall system, and explains *Bonsal* weather- and water-proofing products. W.R. Bonsal Co., Charlotte, N. C.
Circle 402 on reader service card

Cedar shingle siding / A 12-page design guide charts new panelized siding backing material, shingle spacing, and butt line configurations, and illustrates shingles on homes and commercial buildings. Shakertown Corp., Winlock, Wash.
Circle 403 on reader service card

Exterior renovation / Before-and-after case studies demonstrate how the *R-wall* exterior insulation and finish system improved appearance and reduced energy costs for remodeled commercial buildings. Ispo, Inc., Mansfield, Mass.
Circle 404 on reader service card

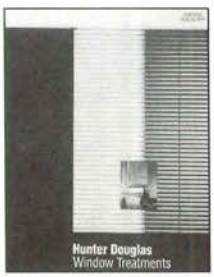
FRP building components / A bulletin explains the corrosion- and fire-resistant properties of lightweight *Tuff-Span FM* roofing and siding panels, which permit unrestricted installation without sprinklers. Composite Technology, Inc., Fort Worth.
Circle 405 on reader service card



EPDM roofing systems / *Versigard* rubber-based roofing is described in an 18-page brochure. Products include mechanically attached, fully adhered, protected membrane, and ballasted systems. Goodyear Roofing Systems, Akron, Ohio.
Circle 406 on reader service card

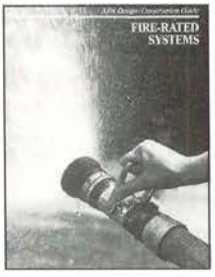
Composite floor system / Step-by-step photos show the *Hambro* steel joist and concrete floor system installed in wood-frame structures. Fire- and sound-transmission ratings are listed. Canam Steel Corp., Needham Heights, Mass.
Circle 407 on reader service card

Vaulted skylights / A 20-page 1988 architectural catalog covers a full line of sloped, vaulted, and modular skylight systems, as well as entranceways and walkways with polycarbonate or acrylic glazing. Sunglo Skylight Products, Inc., Kansas City, Mo.
Circle 408 on reader service card



Window treatments / Contract applications of mini-, micro-, and vertical blinds, and dual-pleated fabric shades are illustrated in a 12-page design brochure; energy control and light diffusion data are included. Hunter Douglas Inc., Smyrna, Ga.
Circle 409 on reader service card

Hardwood veneer paneling / A 6-page specification guide covers blueprint-matched architectural paneling, doors, and transoms. Particle-core plywood products have a Class 1 UL label. Eggers Industries, Two Rivers, Wis.
Circle 410 on reader service card



Fire-rated plywood / An 18-page design/construction guide covers safety criteria, protection methods, code requirements, and insurance provisions for plywood used in roofs, floors, and walls. American Plywood Assn., Tacoma, Wash.
Circle 411 on reader service card
More literature on page 175

Before you look at another insulated door, just look at one of the places Tri-Core has insulate

The Eagle River, Alaska, Municipal Building has to work in extremes that can range fifty degrees on either side of freezing.

That's why you see Raynor Tri-Core doors on it. Every Raynor Tri-Core comes with a unique, three-inch thick insulated core of polystyrene that retains its insulating properties over time. A patented mechanically interlocked thermal break for maximum thermal performance. And perimeter seals to reduce air infiltration. It's as close as you can come to keeping t weather just like Spring on the inside. No matter w the weather is like on the outside.

For free design manual, call 1-800-545-0455 look in the Yellow Pages under "Doors".

RAYNOR GARAGE DOOR

Product literature *continued*

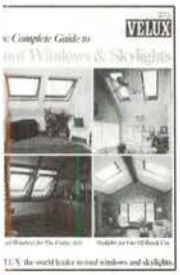
For more information, circle item numbers on Reader Service Card

Outdoor furniture / Aluminum-framed seating and a wide range of occasional and dining tables are presented in a 30-page catalog. Photos show the furniture used in hotels, resorts, and clubs. Tropitone Furniture Co., Inc., Sarasota, Fla.
Circle 412 on reader service card

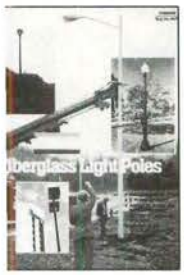
Identification products / OSHA warning signs, name plates, markers, barricades and other facility identification, and maintenance and safety signage products are covered in a 124-page catalog. Seton Name Plate Co., New Haven.
Circle 413 on reader service card

Custom skylights / *Plasticrafts'* 1988 architectural brochure illustrates new octagonal and half-round plastic-glazed skylights, as well as custom units used in new construction and renovation projects. Cadillac Plastic, Troy, Mich.
Circle 414 on reader service card

Wood in interiors / A colorful 44-page design booklet illustrates fine hardwood, including custom flooring, wall paneling, millwork, staircases, and cabinetry. Wood products are shown used in banks, offices, stores, and homes. Hardwood Institute, Memphis.
Circle 415 on reader service card



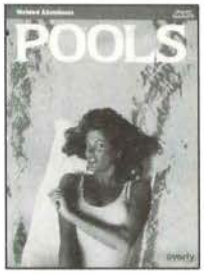
Residential skylights / The 1988 edition of *The Complete Guide to Roof Windows and Skylights* contains 28 pages of design ideas, product information, and technical details on pivoting, fixed, and venting units. Velux-America, Inc., Norcross, Ga.
Circle 416 on reader service card



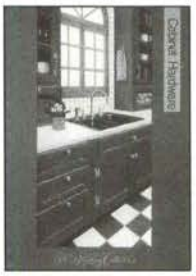
Fiberglass light poles / Low-maintenance, wind-resistant fiberglass poles are shown in an 8-page catalog, which includes decorative *Presidential Series,* tapered round, and straight and tapered square poles. Shakespeare, Newberry, S. C.
Circle 417 on reader service card

Plumbing fittings / Faucets, valves, food-service fittings, and accessories for commercial, industrial, institutional, and residential use are covered in an 82-page specification catalog. The Chicago Faucet Co., Des Plaines, Ill.
Circle 418 on reader service card

Lath and plaster products / A 16-page architectural brochure has specification and installation information on base-coat, veneer, and molding plasters; bases, corner, and other beads; lathing; and structural accessories. USG Industries, Inc., Chicago.
Circle 419 on reader service card

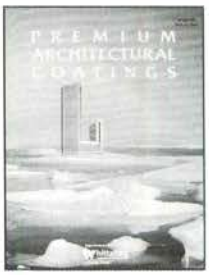


Aluminum pools / Recreational, ornamental, and theraputic pools constructed of welded aluminum are covered in an 8-page design brochure. In-ground and above-grade pools are said to resist seismic motion. Overly Mfg. Co., Greensburg, Pa.
Circle 420 on reader service card

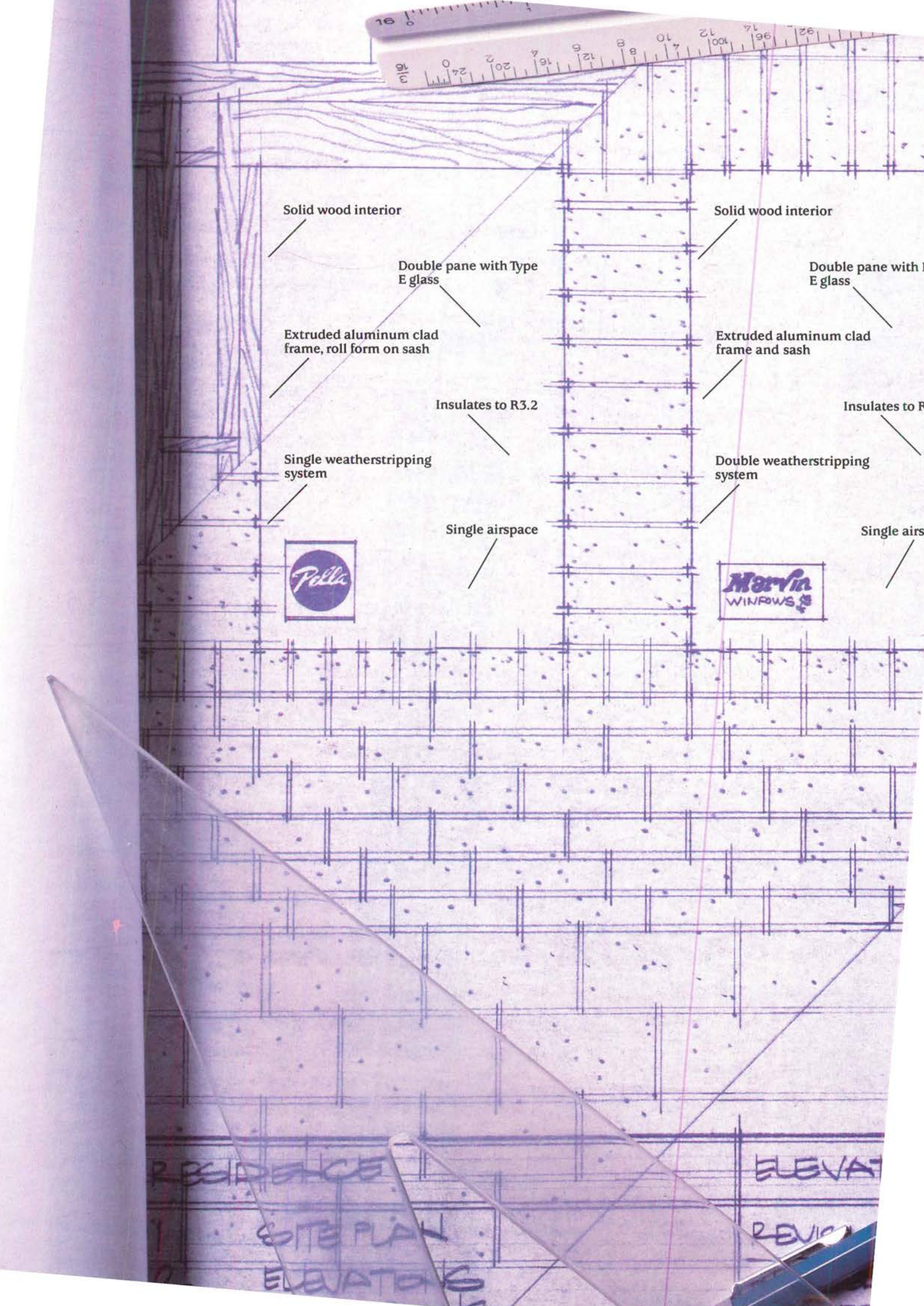


Cabinet hardware / Knobs, handles, pulls, and escutcheons in solid brass, crystal, porcelain, and wood are shown in a 14-page brochure. Styles range from an ornate *French Scroll* to a sleek *Taliesen Suite.* The Broadway Collection, Olathe, Kan.
Circle 421 on reader service card

Desk accessories / *Radius One* and *Radius Two* letter trays, desk pads, pen sets, and other designs in metals, melamine-plastic colors, stone, and marble are featured in a 70-page catalog. Smith Metal Arts, Buffalo.
Circle 422 on reader service card



Metal coatings / The appearances of various exterior metal coatings are compared in a 4-page brochure. *UltraMet 2* is said to have a radiant, almost iridescent look, consistent from batch to batch. Whittaker Coatings, Los Angeles.
Circle 423 on reader service card


Solid wood interior
Double pane with Type E glass
Extruded aluminum clad frame, roll form on sash
Insulates to R3.2
Single weatherstripping system
Single airspace
Pella
Solid wood interior
Double pane with
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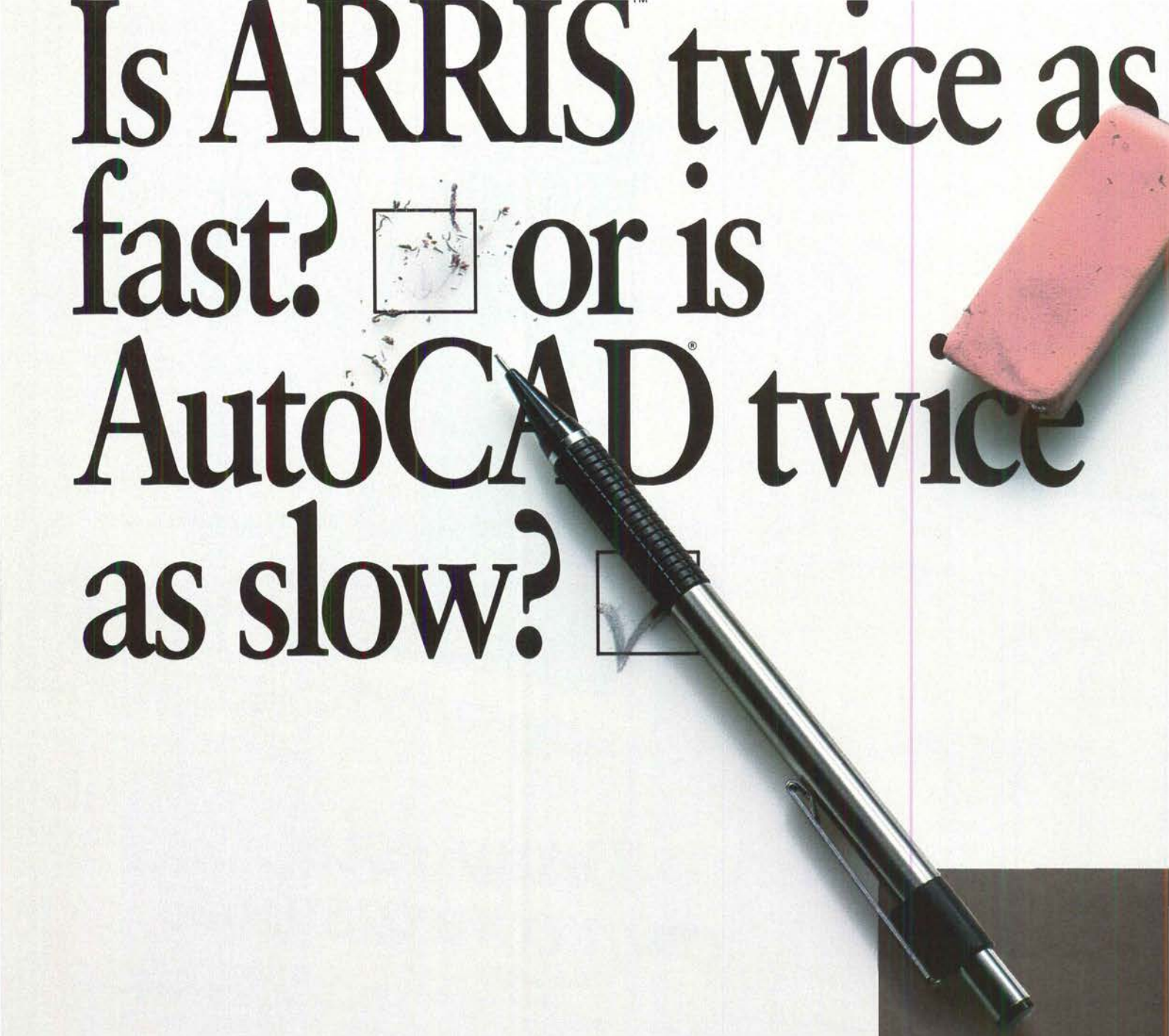

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ARRIS offers you the most advanced techniques available for 2-D production drafting on a PC or workstation. It lets you complete drawings faster, make changes more easily, and manage your projects more efficiently. Plus, ARRIS lets you create dramatic 3-D models and renderings that can't be matched by any other CAD system.

Yet the ARRIS package costs the same as the AutoCAD package it beat. Ask your ARRIS Power Dealer for a summary of our recent benchmark study, or call **1-800-356-4568.***

We think you'll agree, viewed from any perspective, there finally is a clear alternative to AutoCAD.

ARRIS

*(MA and Canadian residents, please call 1-617-429-8908). Sigma Design, Inc. Corporate Headquarters, Reservoir Place, 1601 Trapelo Rd., Waltham, MA 02154.
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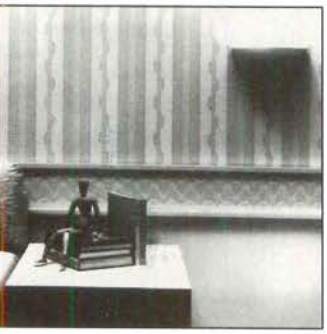
Circle 72 on inquiry card

ntinued from page 171

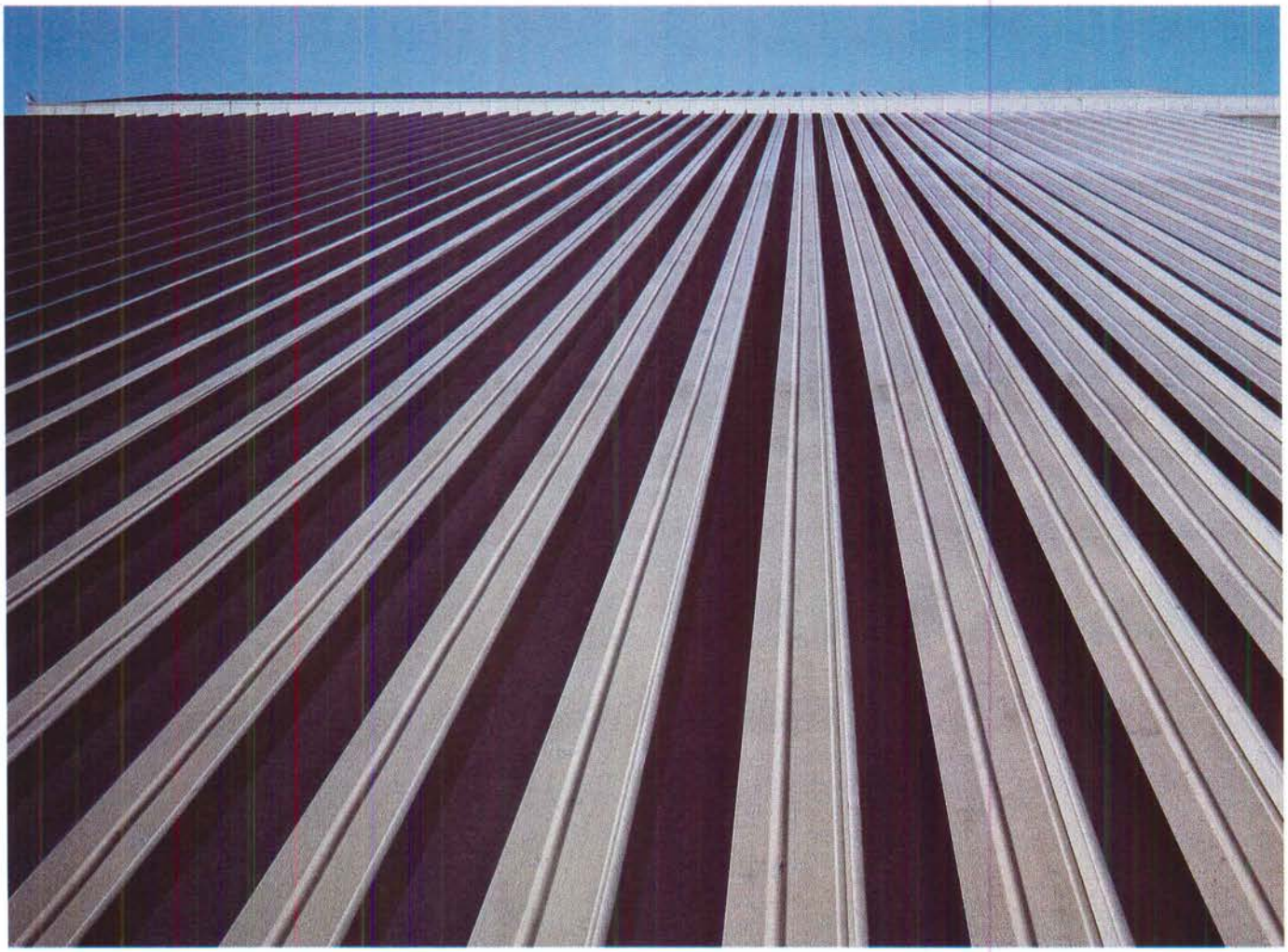
wer
yled to give a sense of closure and privacy, the *thick* garden seat has a erglass roof made to imitate d. The back and framed-lattice es are constructed of tongue-d-groove timber. Also available from this British maker are traditional trellis panels, on either fixed or freestanding supports, said to be easy to erect using a system of posts and spacers. Machin Designs (USA), Inc., Stamford, Conn.
Circle 302 on reader service card

Restaurant seating
Lightly scaled with a tubular metal frame in black, white, or chrome, British-made chairs have a higher-than-normal back. Primo Furniture Ltd., Enfield, England.
Circle 303 on reader service card



Contract wallcovering
Milestone 27-in. patterns are offered in categories for specific contract-market segments: hospitality, health care, and corporate. Prints and borders are color-coordinated with 54-in. vinyls. Essex Wallcoverings, Hackensack, N. J.
Circle 304 on reader service card

Fabric-faced panel
Designed as an economical appearance upgrade for commercial interiors, *FabWrap* walls are 9-ft-high by 30-in.-wide mineral fiberboard panels covered in heather-textured, tackable fabric. Special clips attach the panels directly to the wall. Armstrong World Industries, Inc., Lancaster, Pa.
Circle 305 on reader service card
More products on page 181



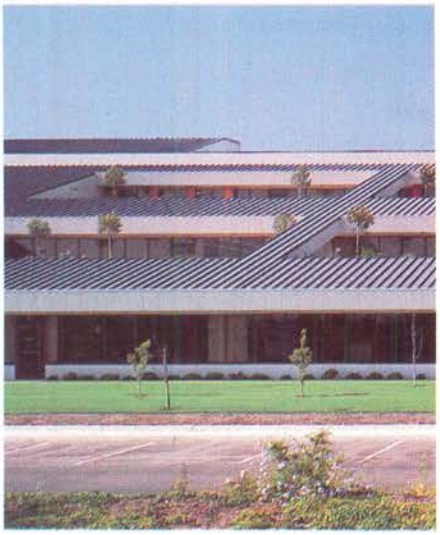
HOW MUCH LONGER CAN THIS GO ON?

On and on and on. For as long as 150 feet without stopping. That's the beauty of Cot-R-Cap® exterior surfacing. Its patented construction offers continuous battens and panels that keep going. Even over ridges and other direction changes.

Think of it as metal sculpture. One you shape at the actual job site, with on-site roll forming by Alumax. A method that eliminates dimensional errors, along with freight damages and costs. That lets you go from roof to fascia to soffit and siding, if you like. With a clean, uninterrupted flow of lines.

Cot-R-Cap is available in steel and aluminum. In time-tested, full strength 70% KYNAR® 500 standard color finishes. Plus an unlimited choice of special colors.

And Cot-R-Cap is as practical as it is beautiful. Its unique construction also means no leaking problems. Because there are no horizontal end laps, folding and bending panels or face penetrations.



The interlocking pans and battens also assure watertightness. And the concealed fastener system allows thermal movement for excellent positive and negative loading, with a UL class 90 rating. And Cot-R-Cap can be installed directly over purlins, or over plywood and other decking.

Cot-R-Cap. The design possibilities are as endless as the product. And it's available from thousands of Alumax dealers, located nationwide. Each prepared at any time to go to any length to please you.

Alumax provides a twenty-year finish warranty on KYNAR 500 coatings. For your copy of this warranty, write to Alumax.

MADE TO LAST. GUARANTEED TO PROVE IT.

ALUMAX
BUILDING SPECIALTIES DIVISION

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(214) 285-8811

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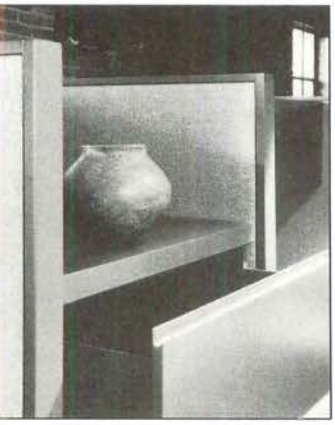
For more information on other Alumax roofing systems refer to Sweet's 07410/ALU.

ntinued from page 179



ood and steel office
oordinating steel, wood,
d laminate finishes from
isting lines, *Prism* wood
rniture is now offered with
pectrum steel components,
eating an office system
escribed as a highly cost-
fective solution for a range of
atus levels. Units are designed
that perpendicular corners fit
to work surfaces without
odification. CorryHiebert
orp., Irving, Tex.
ircle 306 on reader service card

inyl siding
-lok vinyl siding products are
vailable in an expanded range
f patterns, panel profiles, and
ccessories, as well as darker,
uranyl-II polymer colors such
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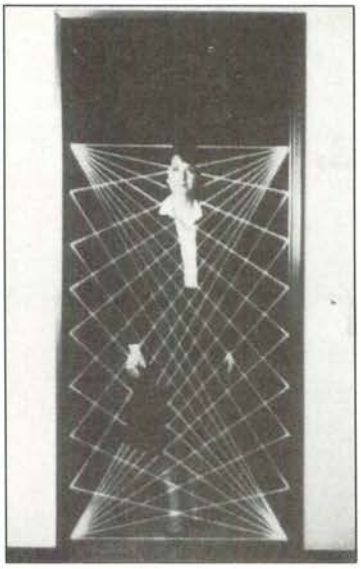
rchitectural details are offered
complete the siding
stallation in styles from
olonial to Contemporary.
lastic, South Bend, Ind.
ircle 307 on reader service card

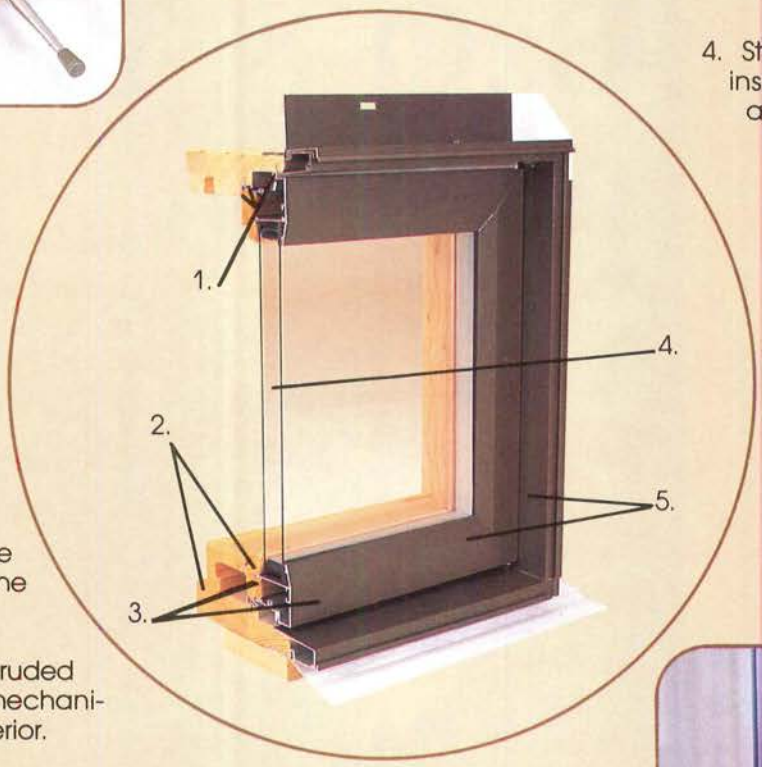


Mid-rise elevator
Developed by this manufacturer's Japanese subsidiary and now available for installation in the United States, the *SPEC60* is a new geared-traction elevator for buildings 3 to 24 floors high. It incorporates a variable-frequency drive system that operates on the same three-phase power supply as a building's other utilities, with the speed of the motor automatically controlled by adjusting the frequency and amount of AC voltage. The drive system is said to provide a smooth, accurately leveled ride at 350 feet per minute, with a compact configuration that requires minimal mechanical space, shortens installation time, and facilitates maintenance. A standard feature of the *SPEC60* elevator, the *Lambda 950* door protection device (dramatized in photo, left) creates a scanning infrared net of light beams across the open elevator door, reopening the doors before an obstacle is touched. Otis Elevator Co., Farmington, Conn.
Circle 308 on reader service card
More products on page 183

Contempra Casement Wood Windows

The best just got better! Weather Shield's new Contempra casement wood window will change the way yo think about casement windows. Consider the exceptional features described below. Isn't it time you steppe up to Weather Shield quality and proven performance?

Dual arm operator with concealed hinges for effortless operation.



1. Double weather stripping with three points of contact.

2. Sash interior and frame milled from Ponderosa pine that is preservative treated.

3. Architecturally styled extruded aluminum sash exterior mechanically interlocked to sash interior.

4. Standard 1" insul or 1" trip insul dual sealed glass. Al available with "hard coa Low "E" glass. Low "E" gla SUNGLAS HRp (heat refle tive) glass, is a produ of Ford Glass Division.

5. Extruded aluminum cla frame and sash exter electrostatically coate with acrylic enamel.

Cam action sash lock with extended reach for positive, secure locking action.

Quality wood windows and doors deserve a quality warranty. That's why all Weath Shield products are backed by our 20 Year Limited Warranty.

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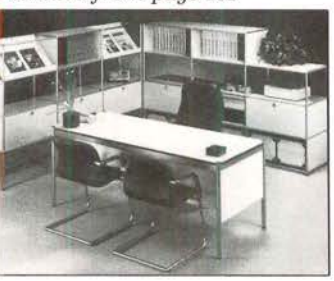
All Weather Protection - Always!

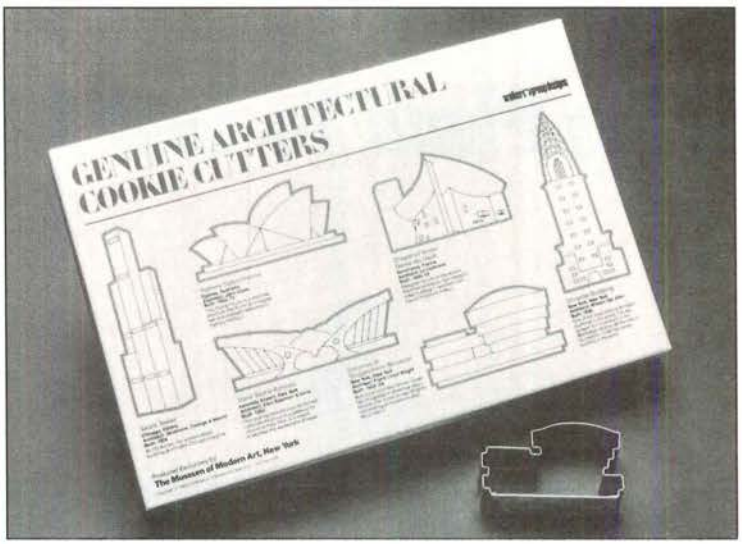
WEATHER SHIELD MFG., INC. MEDFORD, WIS.

ntinued from page 181



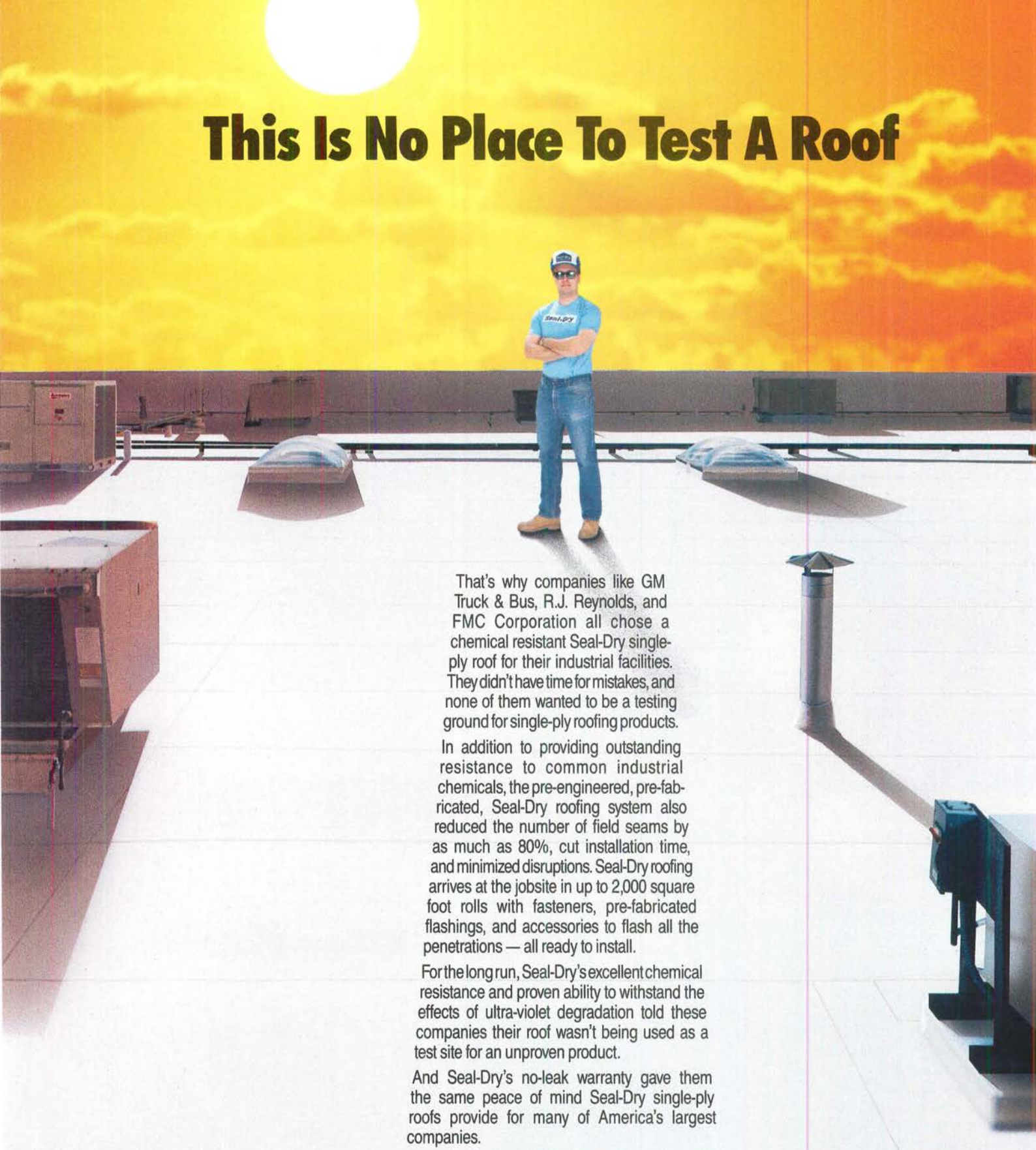
odular workstation
terchangeable components
ailable for immediate delivery
clude a desk in white laminate,
gled display shelves, enclosed
es, and mobile file baskets. All
aller System frames, panels,
d storage units can be
sembled and rearranged with a
w simple tools. Haller Systems,
c., Irvine, Calif.
ircle 309 on reader service card

ownlights
ll of the more than 20 different
ambusch *Downlite Series*
xtures have the same
in.-diameter aperture, providing
uniform appearance regardless
f the light source or mounting
nfiguration. Models are
ffered for incandescent, H.I.D.,
d tungsten halogen sources,
d for a variety of recessed,
endant, bracket, and surface
ounted installation options. The
nit pictured, for tungsten
alogen/quartz lamps of from
0 to 500 watts, comes in either
narrow or wide beam spread,
d can be recessed in any
iling configuration, including
opes to 45 deg and nonfireproof
nstruction. Rambusch Co.,
ew York City.
ircle 310 on reader service card



Architectural cookie cutters
The distinctive outlines of six landmark structures have been translated into cookie shapes by WalkerGroup/Designs for sale by the Museum of Modern Art, New York City, and other museum gift shops. Buildings-as-bakeware include the Chrysler Building by William Van Alen, and Le Corbusier's Chapel of Notre Dame-du-Haut. Museum of Modern Art, New York City.
Circle 311 on reader service card
More products on page 185

This Is No Place To Test A Roof



That's why companies like GM Truck & Bus, R.J. Reynolds, and FMC Corporation all chose a chemical resistant Seal-Dry single-ply roof for their industrial facilities. They didn't have time for mistakes, and none of them wanted to be a testing ground for single-ply roofing products.

In addition to providing outstanding resistance to common industrial chemicals, the pre-engineered, pre-fabricated, Seal-Dry roofing system also reduced the number of field seams by as much as 80%, cut installation time, and minimized disruptions. Seal-Dry roofing arrives at the jobsite in up to 2,000 square foot rolls with fasteners, pre-fabricated flashings, and accessories to flash all the penetrations — all ready to install.

For the long run, Seal-Dry's excellent chemical resistance and proven ability to withstand the effects of ultra-violet degradation told these companies their roof wasn't being used as a test site for an unproven product.

And Seal-Dry's no-leak warranty gave them the same peace of mind Seal-Dry single-ply roofs provide for many of America's largest companies.

Pre-engineered, pre-fabricated, and guaranteed leak-proof for up to 15 years, — isn't it about time you found out about the Seal-Dry single-ply roofing system that's right for your building and budget?

Call or write today for complete information.

Seal-Dry®

Single-ply Roofing Systems

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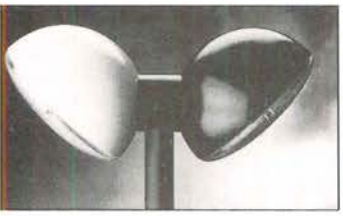
1-800-Seal-Dry In MI 1-800-762-3464

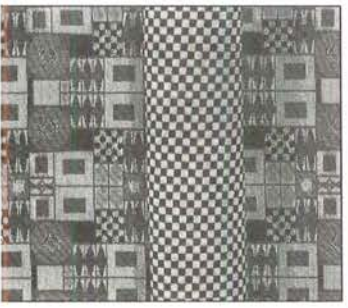
Circle 78 on inquiry card

ontinued from page 183

pholstered stack chair
he *Waveform Chair*, designed
y Peter Danko, incorporates
ymetrol elastomeric material
s both seat decking and support
ystem, which works with a
entwood frame to let the
Vaveform flex in seven
ifferent ways to accommodate
ne sitter. Peter Danko &
ssociates, Inc., Clinton, Md.
ircle 312 on reader service card



ersatile luminaire
he weatherproof *Luna* fixture
an be wall-, ceiling-, or pole-
ounted, for direct or indirect
ghting indoors or out. The one-
iece die-cast aluminum housing
omes with a polyurethane finish
white or black. mcPhilben
ighting, Melville, N. Y.
ircle 313 on reader service card



osef Hoffmann fabric
ne of the growing number of
ontract textiles based on Vienna
chool documents, geometric
Hoffmann works with the small-
quared *Hoffmann Check*.
abric is a viscose/cotton/
olyester blend. Kirk-Brummel
ssoc., Inc., New York City.
ircle 314 on reader service card

Corner block
Weck glass block is available in a 90-deg bullnose shape, said to solve many installation problems associated with corner treatments. Integral, continuous channels allow room for both reinforcement and the amount of mortar needed for structural strength. Glashaus Inc., Elk Grove Village, Ill.
Circle 315 on reader service card
More products on page 187

Now, with an Overly pool the Holiday Inn is the coolest splash in Milpitas.

Out in Milpitas, California, earthquake country, where the desert air is hot and the sun bakes the ground all day, the Holiday Inn came up with a cool solution. A new welded aluminum pool from Overly — where guests can really make a splash.

With an Overly pool, Holiday Inn got in the swim the the *right* way — with custom-design and factory prefabrication by Overly engineers and quality-control specialists, and custom-installation with supervised field welding and finishing. After extensive seismic analysis, the pool was also equipped with seismic restraints. Overly even provided a complete package for water treatment and conditioning — *plus* anode covers that meet all safety requirements. Installed over the main lobby on the third-level recreation deck, the Overly pool gave the Holiday Inn a maximum sense of leakproof security, minimum liability, and *great* outdoor swimming — even in an area of high seismic activity. Plus, Overly warranted the pool for five years.

So for virtually any pool design — hotel or motel, condo or community, on the ground or on the roof — take the plunge and specify a solution that really holds water. Overly welded aluminum pools, custom-engineered to let you make the coolest splash wherever you want to — safely.

Call or write for our latest pool catalog, monograph, and guide specification. They'll tell you the rest of the Overly story.

One hundred years of product excellence

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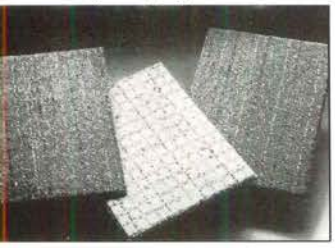
(412) 834-7300
TWX 510-468-0539
FAX (412) 834-8221

(West)
P.O. Box 947
Fallbrook, CA 92028
(619) 723-1105
FAX (619) 728-7512

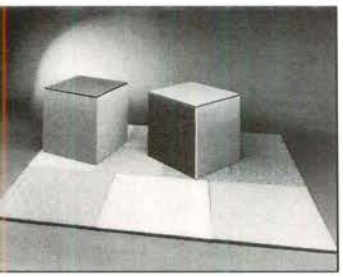
Circle 80 on inquiry card

ntinued from page 185

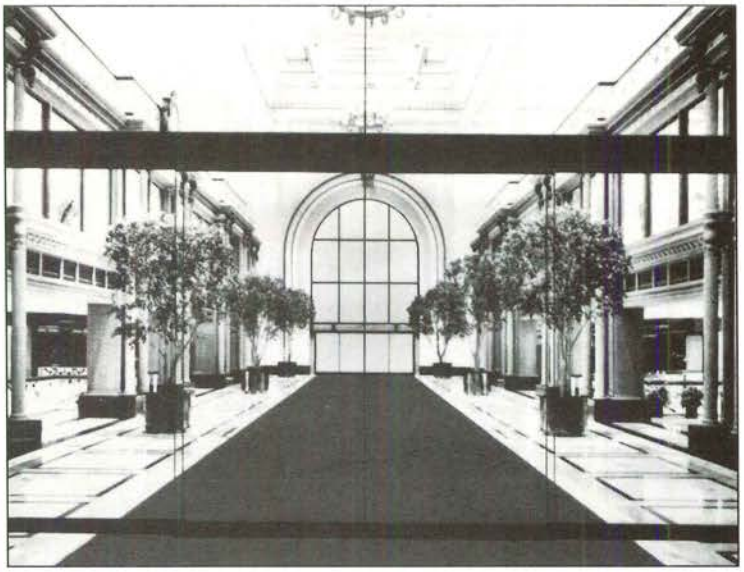


ntract carpet
rue Grid combines three stinct yarn colors in a graphic ttern, and places the pattern a solid-color, contrasting ckground. A cut-and-loop pile *Zeftron* nylon, *True Grid* mes in 10 colorways. Princeton chnologies, Atlanta.
ircle 316 on reader service card

ubber tile adhesive
two-part epoxy adhesive, *lenry 191* is intended for onding standard and studded ubber tiles to dry concrete oors above, on, or below grade. roduct is supplied in gallon ails for one-to-one mixing. The . W. Henry Co., Huntington ark, Calif.
ircle 317 on reader service card

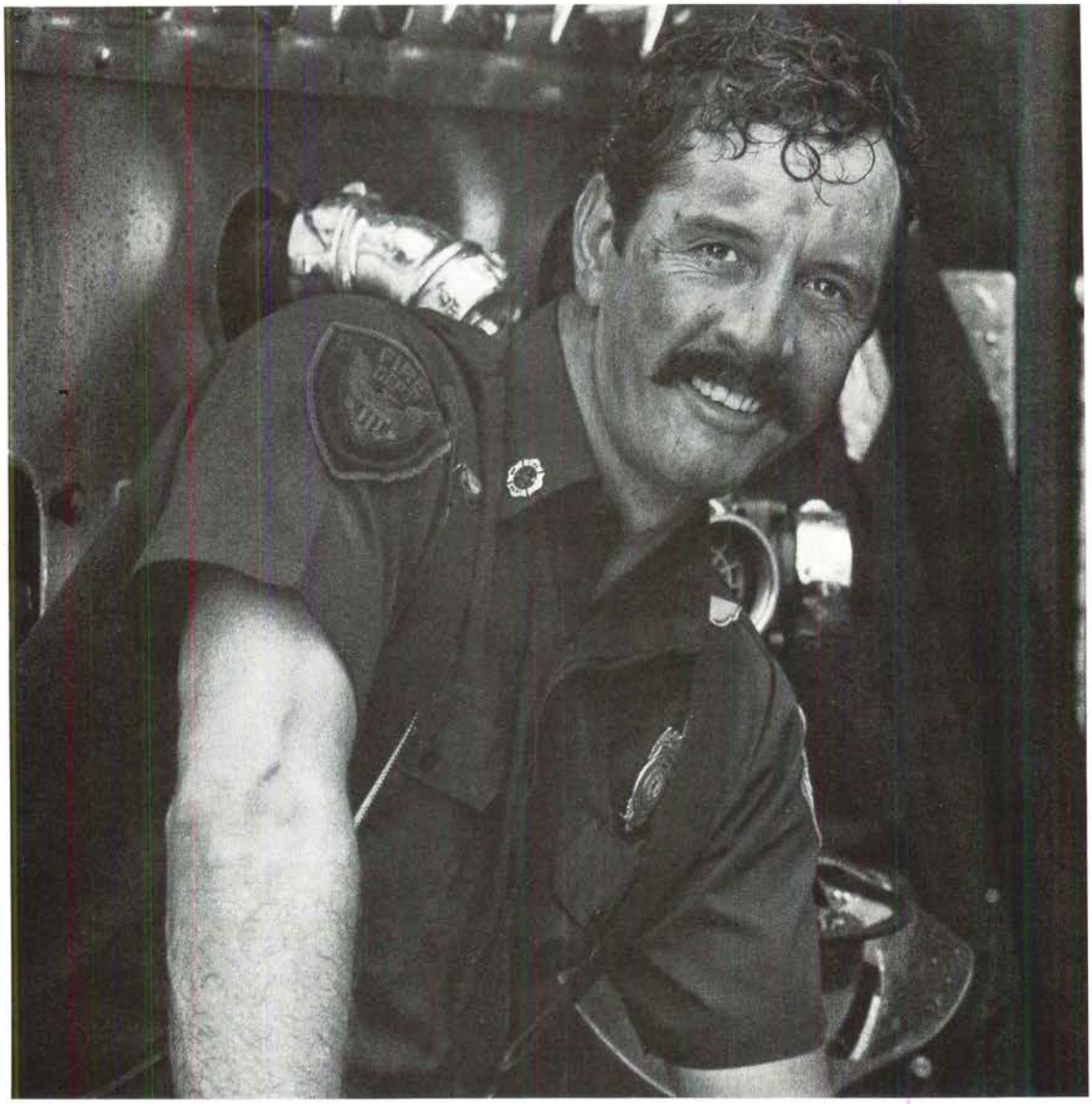


Porcelain tile
A large-granule color pattern aid to duplicate the grain of atural granite, *Corindo Ceramic Granite* porcelain tile s available in new colors and a arger 16- by 16-in. size. Colors ange through the beige and ray tones to black and light lue, all in either matte or olished finishes. Trans Ceramica Ltd., Elk Grove illage, Ill.
Circle 318 on reader service card



All-glass entrance
A new type of structural header carries the 1/2-in.-thick tempered glass panels of the *Elegant* entrance, which slide open automatically, guided by stabilizers in the bottom of the door. The hardware-free panels can swing out from any point of travel during the slide operation, providing emergency egress and meeting exit code requirements. The *Elegant* comes in widths of from 8 to 14 ft, either 7 or 8 ft high. Horton Automatics, Corpus Christi, Tex.
Circle 319 on reader service card

Portrait of the Great American Investor



Daryl Tanner has put out 48 fires, rescued more than his share of neighborhood cats, and on July 4th lets all the kids ride on the fire truck. While Daryl spends his life helping others, there's one thing he does to help himself—he invests in U.S. Savings Bonds.

More than 30 million people like Daryl invest in America while helping themselves. They buy U.S. Savings Bonds. Bonds pay competitive rates, like money market accounts, when held for five years or more. They're free from state and local income tax. And they're one of the safest investments around.

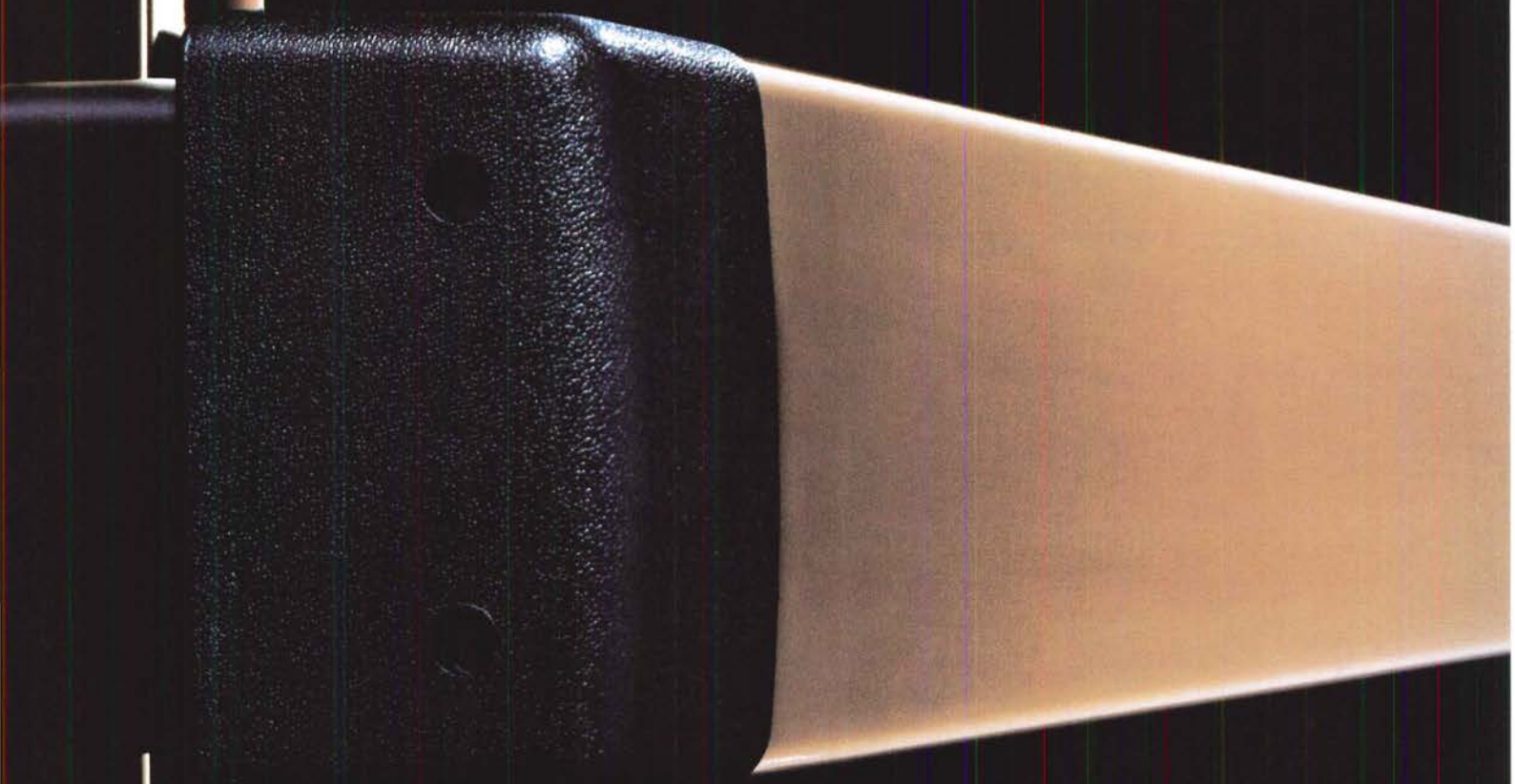
You can purchase Bonds for as little as $25. So no matter how much you're investing, buy U.S. Savings Bonds. The Great American Investment. Find out more, call 1-800-US-BONDS.

U.S. SAVINGS BONDS
THE GREAT AMERICAN INVESTMENT

Bonds held less than five years earn a lower rate.

A public service of this publication.

After your grand entrance, how about a beautiful exit?



US3	BRIGHT BRASS
US9	BRIGHT BRONZE
US10B	OIL-RUBBED BRONZE
US 32	BRIGHT STAINLESS

UL LISTED

You put a lot of effort into designing beautiful entrances. So why overlook the exits? They can be beautiful, too, with our new fire-rated exit devices. Adams Rite now offers a complete package of UL-listed (both fire-rated and life safety) exit hardware and trim for wood, metal and glass doors.

All devices feature attractive, full-width push bars with no-load actuation of only 8 pounds anywhere along the bar. Each bar is either anodized or metal-clad in a wide choice of popular finishes: brass, stainless and bronze.

Whether you choose Rim, Mortise, Surface Vertical Rod, Concealed Vertical Rod or all four, you'll be choosing the name that originated the MS® Maximum Security Deadlock. Count on Adams Rite for innovation in safety and security, plus fast delivery and competitive prices, too.

Write or call for complete information and specifications.

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Duro-Last, the leader in single-ply roofing, wants you to see for yourself why the Duro-Last Roofing System is so much in demand.

Duro-Last . . . A Cut Above

As you can easily see, Duro-Last fabricates the entire single-ply roofing system . . . everything you need to meet all your new and retrofit roofing requirements.

Duro-Last Saves You Time And Money

Duro-Last's custom fabrication means 80% fewer field welded seams. Fewer field seams means faster and easier installation. Research shows many customers find the Duro-Last Roofing System will cut labor and installation costs up to 50%!

Duro-Last Gets To You Exactly As You Want It

The Duro-Last Roofing System Comes To You Complete. All materials arrive:

- on site
- pre-measured
- pre-cut
- welded into sheets up to a maximum 2,500 sq. ft.
- with all fasteners, custom stacks, custom curbs and other accessories

Duro-Last Gets To You Fast

Your Duro-Last roof will be in production within hours of our receiving your order. And your complete roofing package will be on its way to you within days.

Duro-Last . . . Lasts

Duro-Last isn't afraid to put its money where its roof is. Your Duro-Last Roofing System comes with a 20 YEAR WARRANTY plus a $6,000,000 LIABILITY POLICY on your building and its contents.

A View From The Side Shows Why Duro-Last Is Tops

No Matter How You Cut It . . . Duro-Last Is Tops

When you're ready for a new roof, call the roofing innovators first. Call Duro-Last TOLL FREE.

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UL Class A (New and Retrofit Construction); FM Class 1, I-60 and I-90. CODE APPROVALS: ICBO, SBCCI, BOCA, and Metro-Dade. MEMBER: NRCA, SPRI.

Circle 84 on inquiry card

Cool

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one.

Today, a new generation of advanced gas cooling equipment brings to commercial air conditioning the same economy and reliability that gas brings to heating. Before you design your next project, let your gas company show you how right gas cooling can be. Gas. America's best energy value.

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1	Exxon
2	General Motors
3	Mobil
4	Ford Motor
5	IBM
6	Texaco
7	E.I. du Pont
8	Standard Oil (Ind.)
9	Standard Oil of Cal.
10	General Electric
11	Gulf Oil
12	Atlantic Richfield
13	Shell Oil
14	Occidental Petroleum
15	U.S. Steel
16	Phillips Petroleum
17	Sun

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 110-121
Rainbow
Rockefeller Center
Hardy, Holzman, Pfeiffer Associates, Architects
Pages 110-113—Ceiling fixture: Jules Fisher & Paul Marantz, Inc. Light columns: custom by architect, fabricated by Midhattan Woodworking Corp. Cast glass: Blenko Glass. Coffered ceiling: custom by architect. Ceiling fabric: Dongia. Suspension grid: TSI. Terrazzo: D. Magnan & Co. Wall fabric: J. Robert Scott. Etched glass panels: Elmont Glass/ Designer Glass.
Pages 114-115—Chandelier refurbishment: Greene Lighting. Downlights: Edison-Price. Spot and theatrical lighting: Ludwig-Pani.
Page 116—Railing glass: Rambusch.
Page 117—Illuminated ceiling: Elmont Glass/Designer Glass. Windows: Wausau Windows.
Page 118—Chairs: custom by architect, fabricated by Beaver Furniture. Carpeting: Jack Lenor Larsen. Ribbed mirror tiles: MBC Glass.
Page 119—(right and bottom) Seating: Thonet. Torchères: custom by architect, fabricated by Bergen Art Metal. Fabric on banquette: Jack Lenor Larsen.
Page 120—Cabinetry: custom by architect, fabricated by Midhattan Woodworking Corp. (Bottom) Drapery fabric: Boris Kroll. Wall fabric: Kirk Brummel. Chairs: Donghia. Torchère: original piece by Donald Deskey. Carpet: Jack Lenor Larsen/Hardy Holzman Pfeiffer Associates.
Page 121—Chair: Peter Danko & Associates, Inc. (*Marvins Chair*). Fabric: by Jack Lenor Larsen, custom by architect. Ceiling fabric: Kirk Brummel. Wall lights: custom by architect, fabricated by Jules Fisher & Paul Marantz Inc. Pedestal lavatories: American Standard.
Continued on page 213

Laminated glass. Because Victorian Apartments wanted high style, not high decibels.

It's an increasingly common problem. A site so noisy you're not sure you can make it habitable. Let alone marketable. So you're stuck, between the need for sound control on one hand and the need good architecture on the other.

The solution: windows of laminated architectural glass with Saflex® plastic interlayer, like these being talled in the Victorian Apartments.

Laminated glass lets you put in the windows you want, and ep out the sounds you don't. All at a cost that makes sense. Find out more. Send in the coupon and we'll send you a free oy of our Acoustical Glazing Design Guide, plus IBM* PC-mpatible software to help you with the cifications. For more information technical assistance, call 00-325-4330.

Yes, please send me free information on laminated glass for sound control.

☐ Send the Acoustical Glazing Design Guide. ☐ Send the computer disk.

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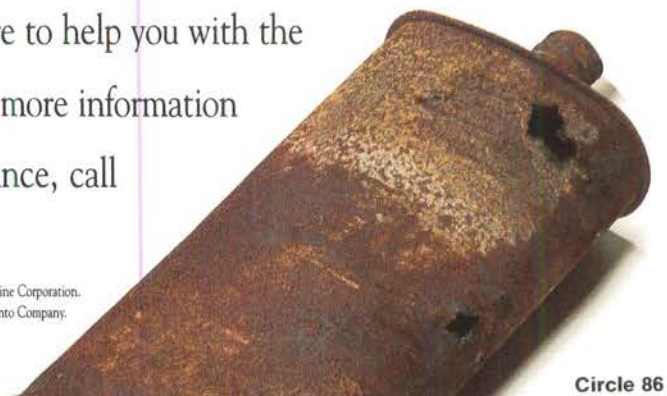

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Mult-A-Cell II: The single source solution for access floors. From the makers of Steel City® products.

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Give American Electric a call today at (412) 323-5400. Or write: American Electric, Construction Materials Group, P.O. Box 1548, Pittsburgh, PA 15230. After all, what office doesn't have something to hide?

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Ultra-smooth slides for butcher blocks, two-way drawers, kitchen drawers, pull-out pantries, over-sized pan drawers and adjustable shelves. 32mm systems available.

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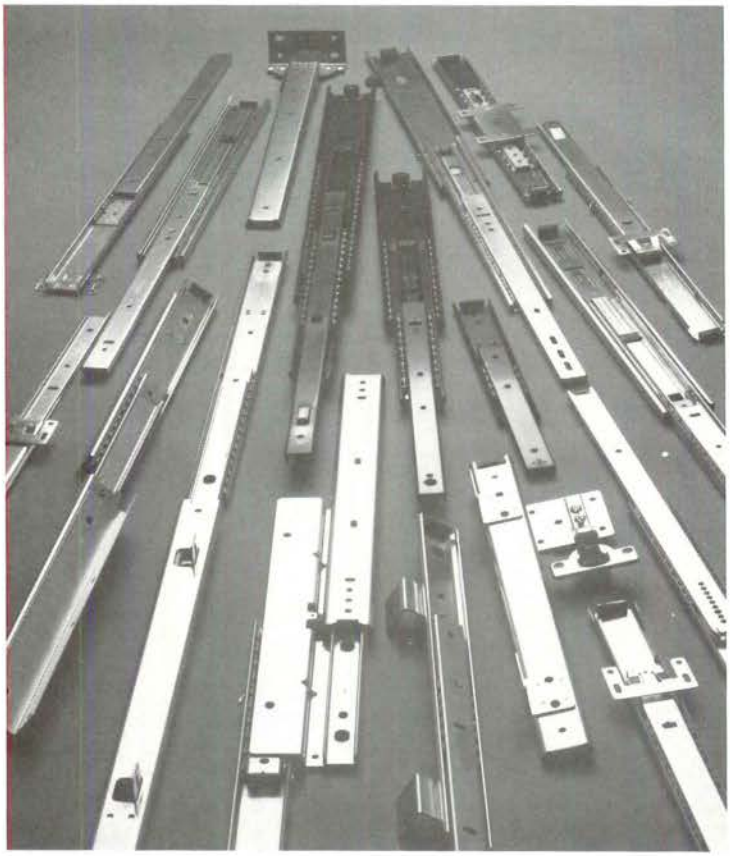

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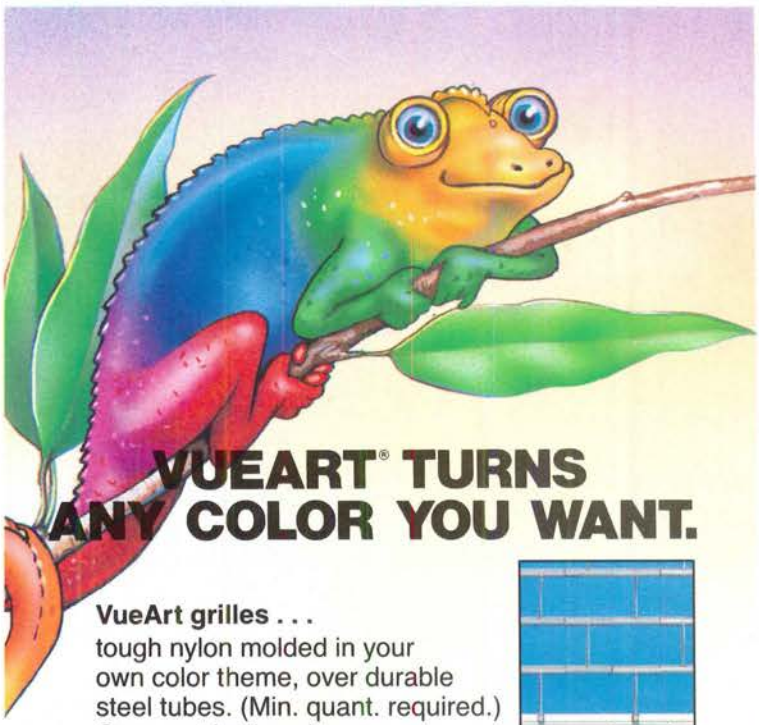

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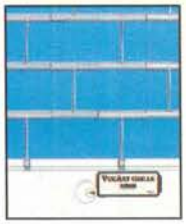

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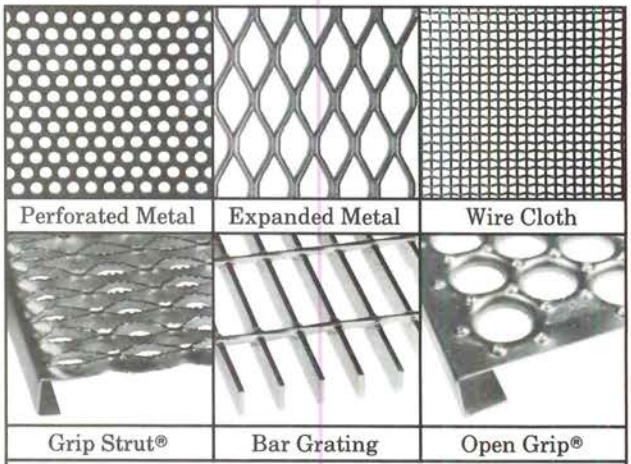

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STYROFOAM* brand insulation, the Blue* rigid foam insulation manufactured exclusively by The Dow Chemical Company, has given buildings worldwide outstanding durability and long-term energy savings for 40 years.

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40 YEARS 1948–1988

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Caution: STYROFOAM brand insulation is combustible and should be handled and installed properly according to Dow literature available from your supplier or from Dow.

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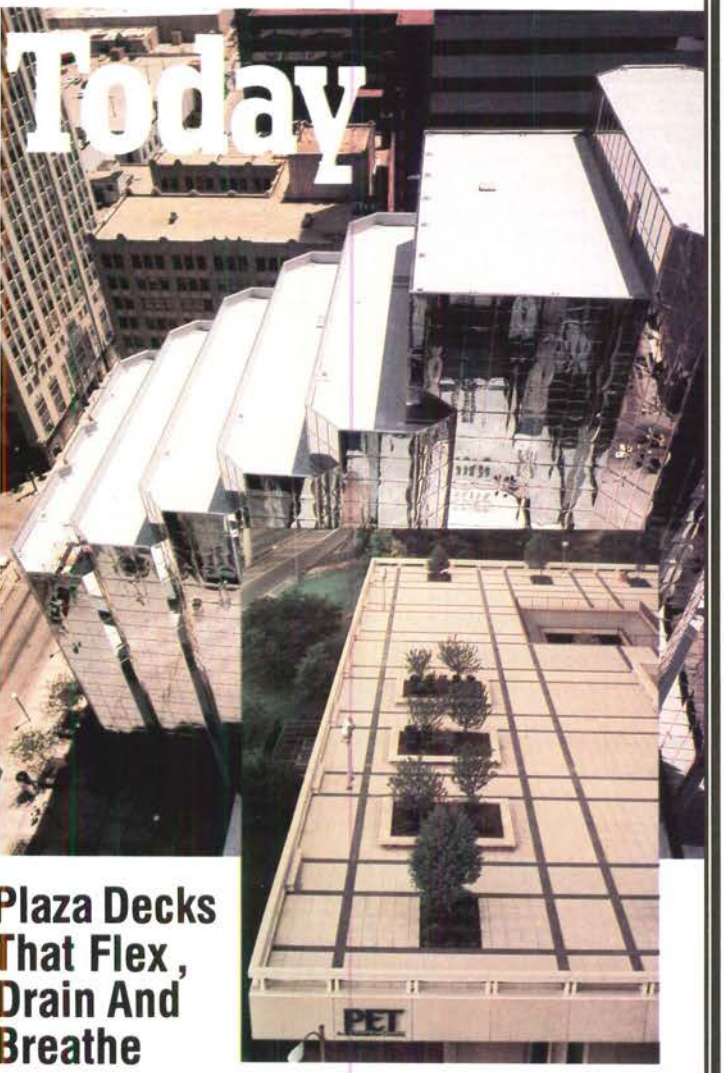

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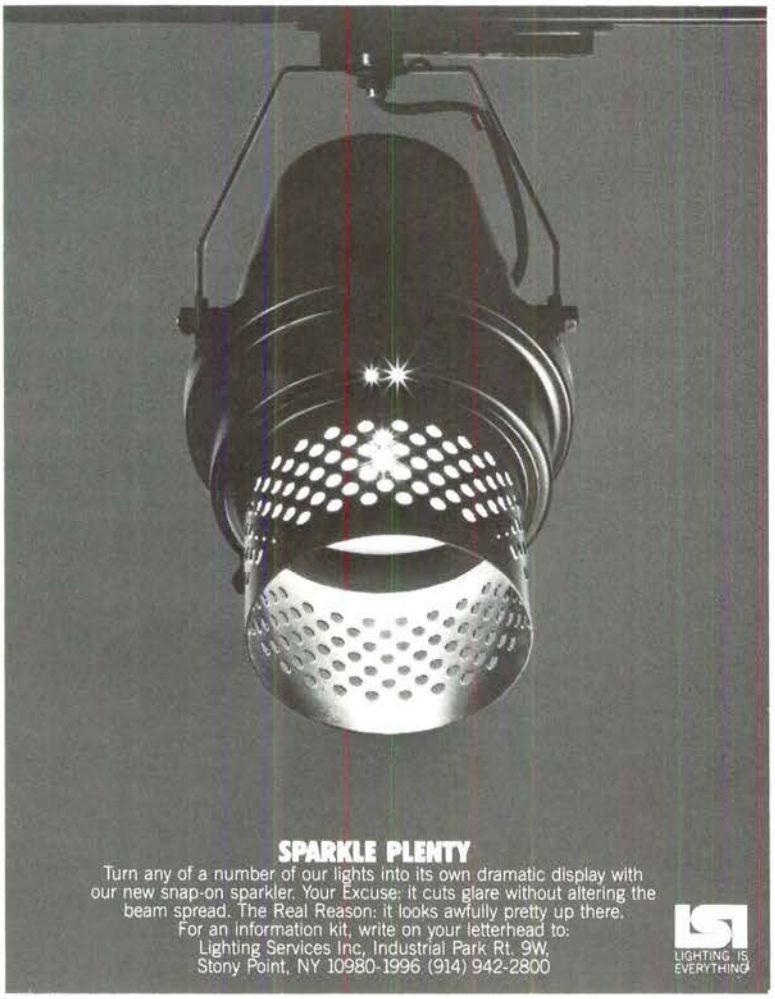

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Turn any of a number of our lights into its own dramatic display with our new snap-on sparkler. Your Excuse: it cuts glare without altering the beam spread. The Real Reason: it looks awfully pretty up there.
For an information kit, write on your letterhead to:
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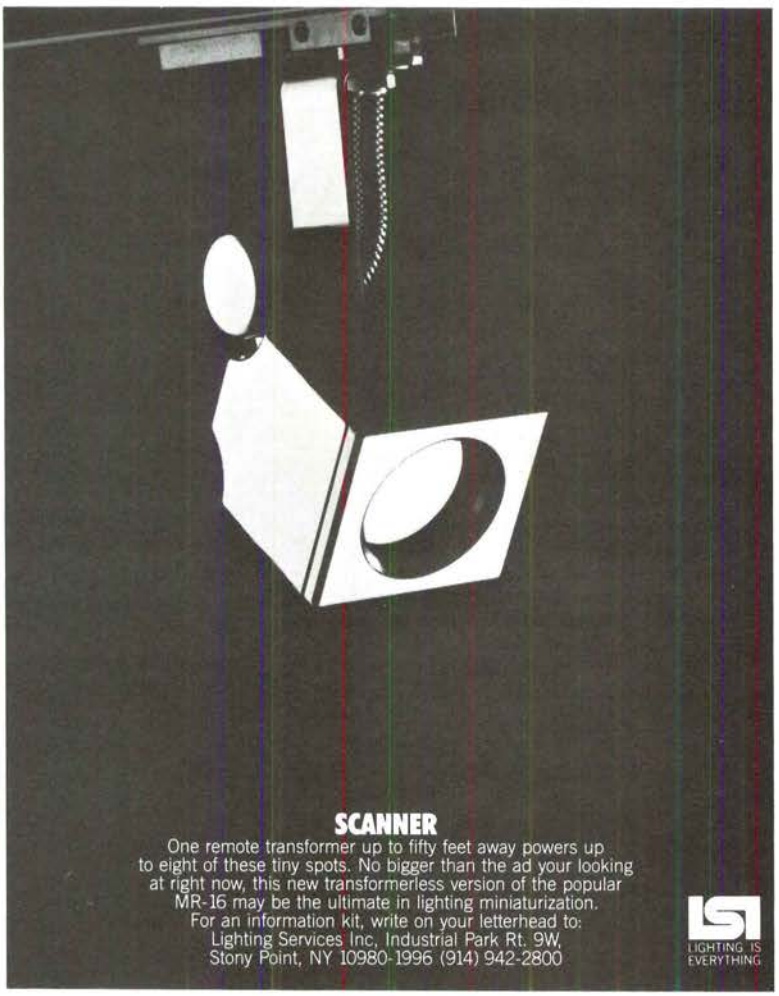

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One remote transformer up to fifty feet away powers up to eight of these tiny spots. No bigger than the ad your looking at right now, this new transformerless version of the popular MR-16 may be the ultimate in lighting miniaturization.
For an information kit, write on your letterhead to:
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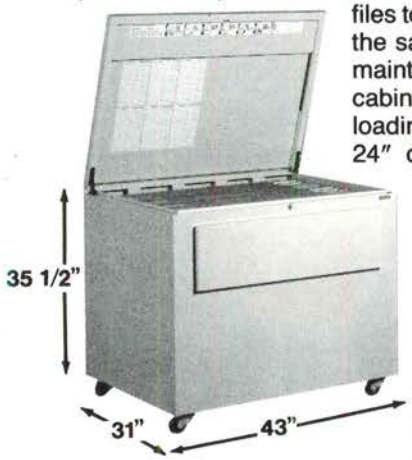
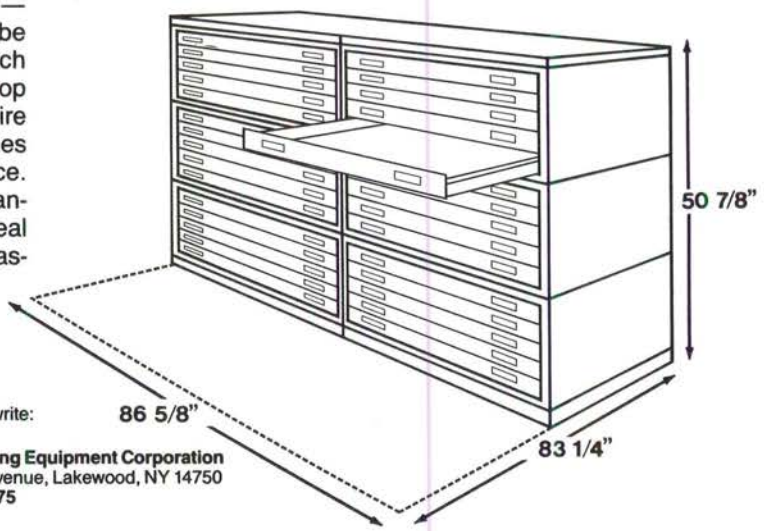
Buy Ulrich Planfile and Get FREE Office Space

When you choose the right kind of large document filing system you can actually get extra office space for free. Ulrich's vertical filing cabinets not only keep your drawings organized in perfect condition, they take up far less space than any alternative. In fact it takes 6 five drawer flat files to store 3,000 drawings — the same number that can be maintained in just one Ulrich cabinet. And Planfiles are top loading so they only require 24″ of aisle space. Flat files need 50″ of clearance. There are other advantages besides free real estate. Planfiles are caster mounted for easy relocation. Flat files are not designed to be moved. Ulrich cabinets offer fire protection. Flat files don't. The list goes on — easy filing access, water protection and more. For all this you would think Ulrich Planfiles cost more, but they don't.





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Spectra-Glaze II®
FACTORY GLAZED MODULAR WALL UNITS

Roman Doric Order

TRUE ARCHITECTURAL COLUMNS

ENTASIS

One distinguishing feature of a true architectural column. The entasis is the curved or bowed outline of the shaft which counteracts the optical illusion of straight lines which appear to lean inward. Simply lay a straight edge along the length of our column and note the slight entasis.

We show not only the top half but also the bottom half of our column so that the entasis can be shown. This is one reason more people are choosing Chadsworth architecturally correct columns.

Authentic Replication of Greek and Roman Orders

Chadsworth Columns and Capitals available in redwood, pine and other species.
Diameters – 6″-36″ Heights – 18″-40′

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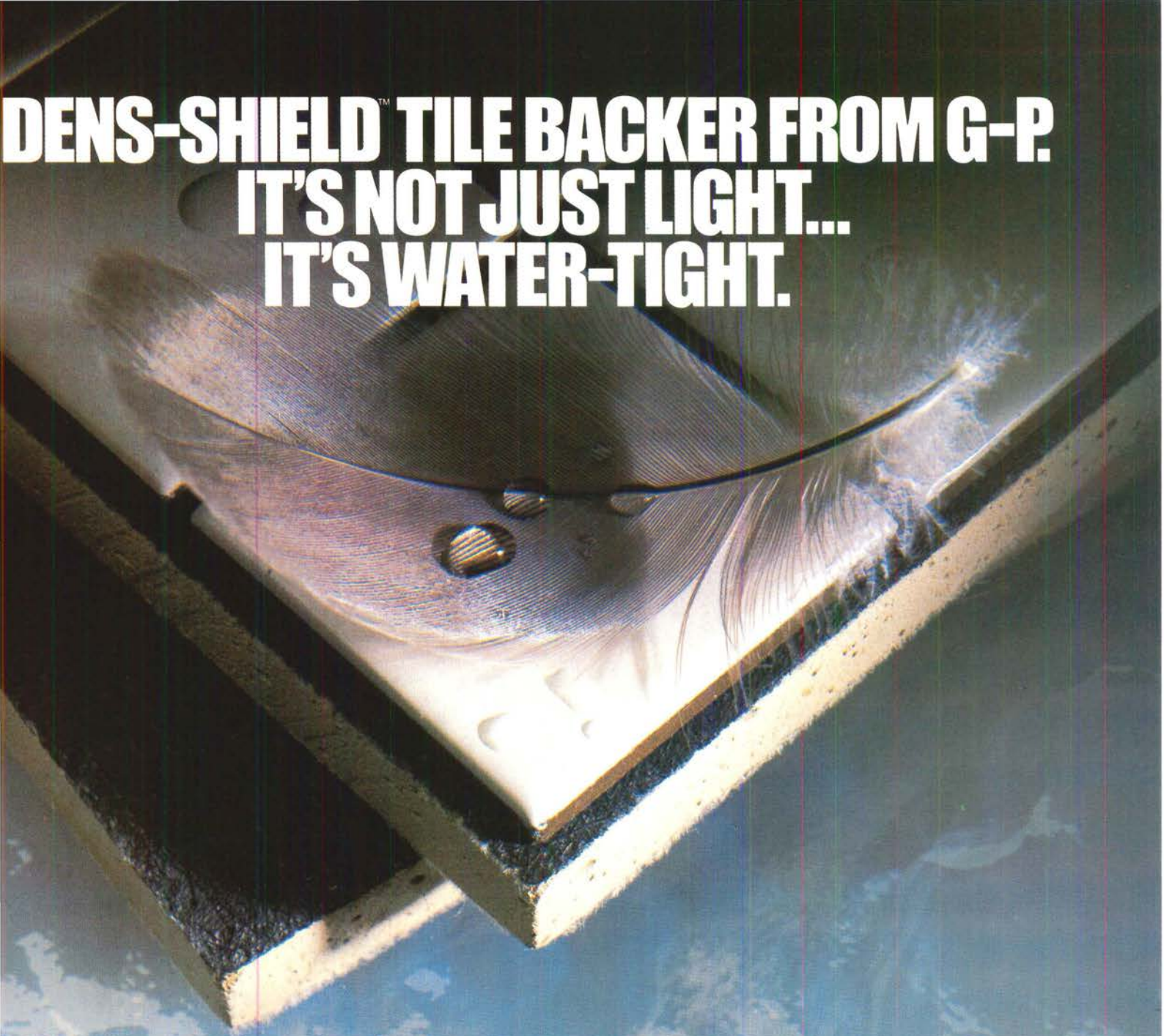
DENS-SHIELD™ TILE BACKER FROM G-P. IT'S NOT JUST LIGHT... IT'S WATER-TIGHT.



The lightweight, water-resistant properties of the common duck feather make it one of nature's most perfect designs. At Georgia-Pacific, these same features served as our inspiration in the development of Dens-Shield™ tile backer.

Easier To Handle And Less Expensive Than Cement Board.

Dens-Shield is a full 33% lighter than Durock® or Wonder-Board® –and far less expensive than cement board, as well. Because it's lightweight and easier to cut, Dens-Shield is easier to handle and easier to install. Dens-Shield gives the same 1 and 2-hour fire rating as cement board, yet saves you installation time, effort and cost–and no special cutting or drilling tools are required. Dens-Shield is also less brittle than cement board, so it's less likely to chip or break–especially at the corners.

Tougher On Moisture Than Conventional Gypsum Board.

Dens-Shield's revolutionary core consists of a unique gypsum material that provides greater water-resistance and remains dimensionally stable year after year. Fiberglass mats on the front and back add even more protection, and an exclusive water and moisture-resistant coating makes the face absolutely waterproof. Properly installed, Dens-Shield requires no additional water or vapor barriers to prevent moisture from entering the wall cavity.

Dens-Shield is ideal for use as a backer board for walls or ceilings in tile baths, showers, locker rooms, or other high-moisture areas. It can be tiled, painted or papered and is available either 4′ × 8′ × 1/2″ or 4′ × 5′ × 1/2″.

Check out the light-weight, tough-performing alternative to conventional tile backer. Specify Dens-Shield–the revolutionary material inspired by one of nature's most perfect designs.

For more information and the location of the Georgia-Pacific Distribution Center or Sales Office nearest you, call 1-800-447-2882, ask for operator #1.

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MORE POWER to you!™

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Circle 106 on inquiry Card to Speak with a Sales Representative

A BAD ROOF CAN BE THE RUIN OF A GREAT IDEA.

Consider the Parthenon. Then imagine its beauty today if the roof had stood the test of time.

HOW HYPALON* HELPS PUT YOUR BRIGHT IDEAS ON TOP.

With roofing systems based on HYPALON® synthetic rubber, imaginative colors and inventive design can make the roof an integral part of your architectural statement. Roofing systems based on HYPALON are easy to install, even over complex shapes. They're simply unrolled, secured in place, and heat or solvent welded—all at competitive installed costs. And even when systems are fully cured, additions and repairs are easy to do.

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With HYPALON, design versatility does not diminish roofing integrity. The sunlight that can weaken other roofs actually strengthens roofing systems based on HYPALON. When installed, these roofing systems exhibit high strength and flexibility—and resist attack from snow, ozone, acid rain, corrosive chemicals and temperature extremes.

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SPECIFY HYPALON AND PROTECT YOUR CLIENTS' MONUMENTAL INVESTMENTS

For over 20 years, HYPALON synthetic rubber for single-ply roofing systems has been proving itself in hundreds of installations throughout the world. To give yourself and your clients the security and value of a long-lasting roof, specify roofing systems based on HYPALON. To learn more just call 1-800-441-7111.

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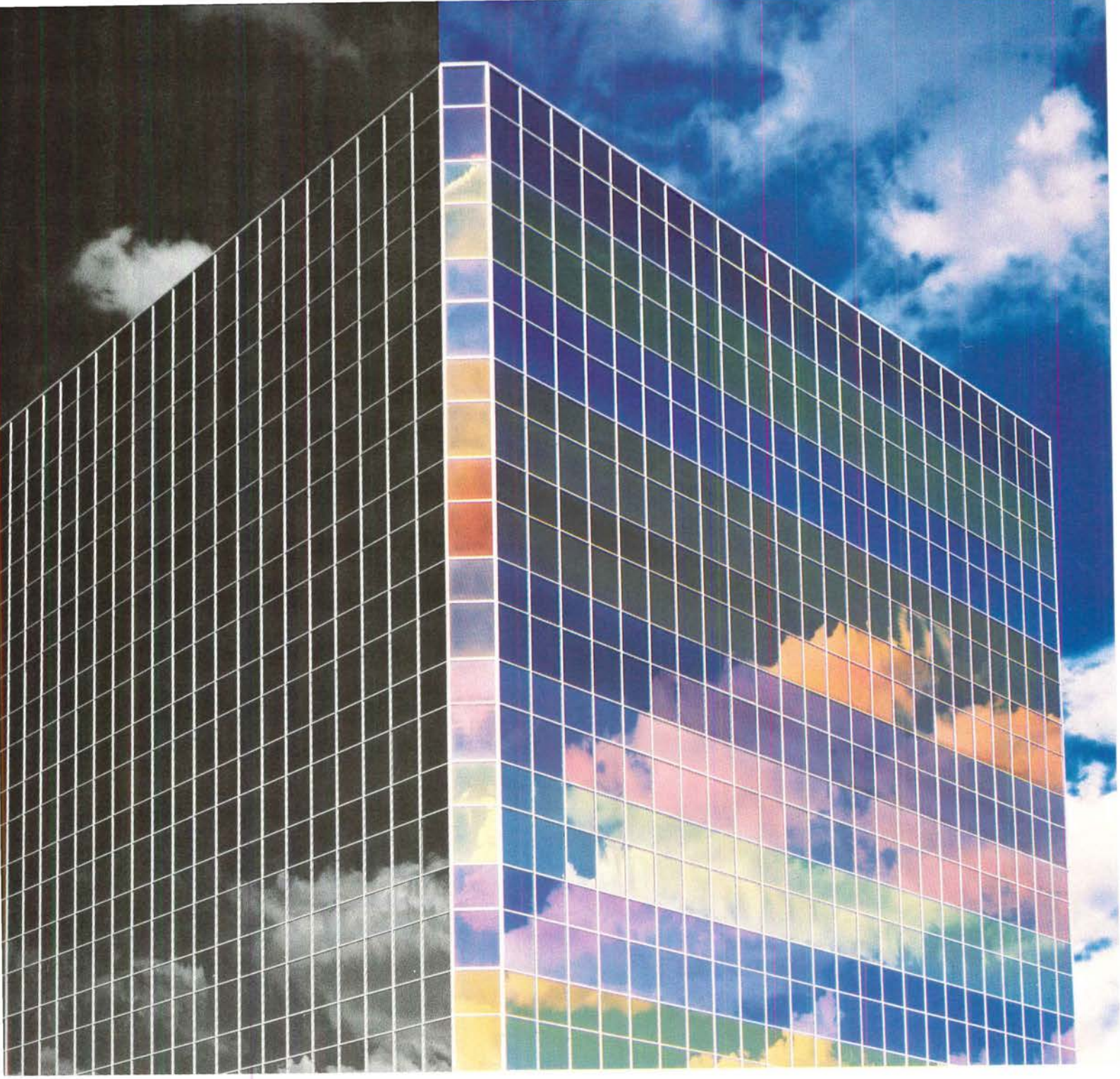

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When you need a high performance glazing but you also want an exclusive hue to set your project apart, specify an Interpane glass coating.

Each of our unique multi-function coatings, for example, combines an attractive color and low-emissivity characteristics into one, single-surface coating. The process is based on our advanced European technology. We call these products IPASOL PLUS. You'll call them amazingly flexible.

An IPASOL PLUS coating can help retain cooled or heated inside air while promoting the desired solar control. The net result is a very favorable Energy Balance.

Interpane's total line of proven coatings offers you high or low light transmission and reflectance, superior shading, neutral appearance, the finest in Low-E glass, and a rainbow of colors — from a readily available rich blue to a 24K gold.

To reflect your unique sense of architecture, specify an Interpane coating. For more information contact us at 201 Interpane Lane, Deerfield, WI 53531. Or phone 608 764-5461. You'll receive a colorful response.

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It tilts forward, keeping him comfortable all day long. It helps prevent backaches from uncompromising positions and difficult stretches which studies reveal could affect his productivity.

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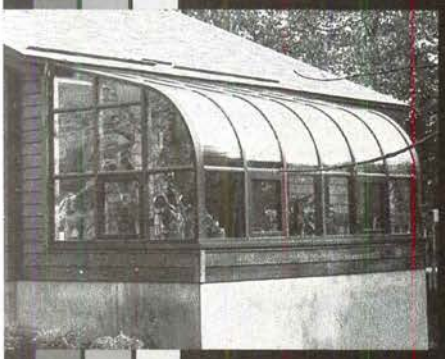

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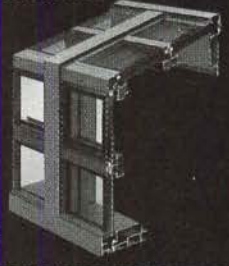

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SUBMISSION: First Stage seeks two 30"x 40" boards.

AWARDS: $50,000 in prizes, plus opportunity for office towers commissions.

PROFESSIONAL JURY: Ricardo Bofill: *architect* Regula Campbell: *landscape architect* John Morris Dixon: *architectural journalist* Richard Meier: *architect* Rai Okamoto: *urban designer/city planner* James Wines: *artist/designer*

PROFESSIONAL ADVISOR: Michael John Pittas

ELIGIBILITY: First Stage is anonymous and open to *any* interested party. Up to five finalists will be invited to compete in the Second Stage.

SCHEDULE: Program plus video available May 30. First Stage deadline August 26. Second Stage finalists announced September 12.

INFORMATION: Contact Deborah Rosenthal **Phone** 1-800-451-7270 • 213/312-3600 **FAX** 213/479-3086

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Pitney Bowes World Headquarters
I. M. Pei & Partners, Architects
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Exterior cladding—pink granite: Stony Creek. Gray granite: Cold Spring. Glazed curtain wall and entrances: Ampat Eastern, Inc. Precast architectural concrete: Blakeslee, Inc. Elastomeric roofing: Tremco *(Tremproof 150)*; Gates. Terne-coated stainless-steel roofing: Follansbee Steel Corp.Custom flashing: Manville (*Expand-O-Flash*). Laminated glass skylights and dome: Super Sky Products, Inc. Aluminum-framed windows and insulating units: Cardinal Glass. Tinted glazing: PPG (*Solargray*). Tempered glass: Falconer. Exterior lighting: mcPhilben. Wall fixtures: Custom Metalcraft. Finish on concrete columns: TNEMEC.
Pages 126-127—Wall finish: Zolatone. Paints: Pittsburgh. Blue planters: Fitzpatrick Ceramics. Tables: Intrex. Seating: SunarHauserman; Vecta Contract. Upholstery: Scalamandré. Light fixtures: Gio Ponti design, by FontanaArte for Interna Designs; custom assembly and pole: Custom Metalcraft. Carpeting: Mohawk. Air grilles: Krueger.

Pages 146-149
Miami Bayside Marketplace
Benjamin Thompson & Associates, Inc., Architects
Site furniture: Bench Manufacturing. Planters: White's Concrete and Pottery; St. Germaine Antiques, Inc. Trash receptacles: Canterbury.

Pages 150-151
Jacksonville Landing
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Low-voltage lighting: Sentinal Lighting. Awning fabric: UltraFab. Windows: Kawneer. Column, pole-mounted, and cylindrical lighting: custom by architects, fabricated by Valley Lighting. Pavers and floor tile: Metropolitan Ceramics. Paints: Glidden; TNEMEC. Truss system: Abolite. Facing tile: American Olean. Stand-up tables: Barrera.

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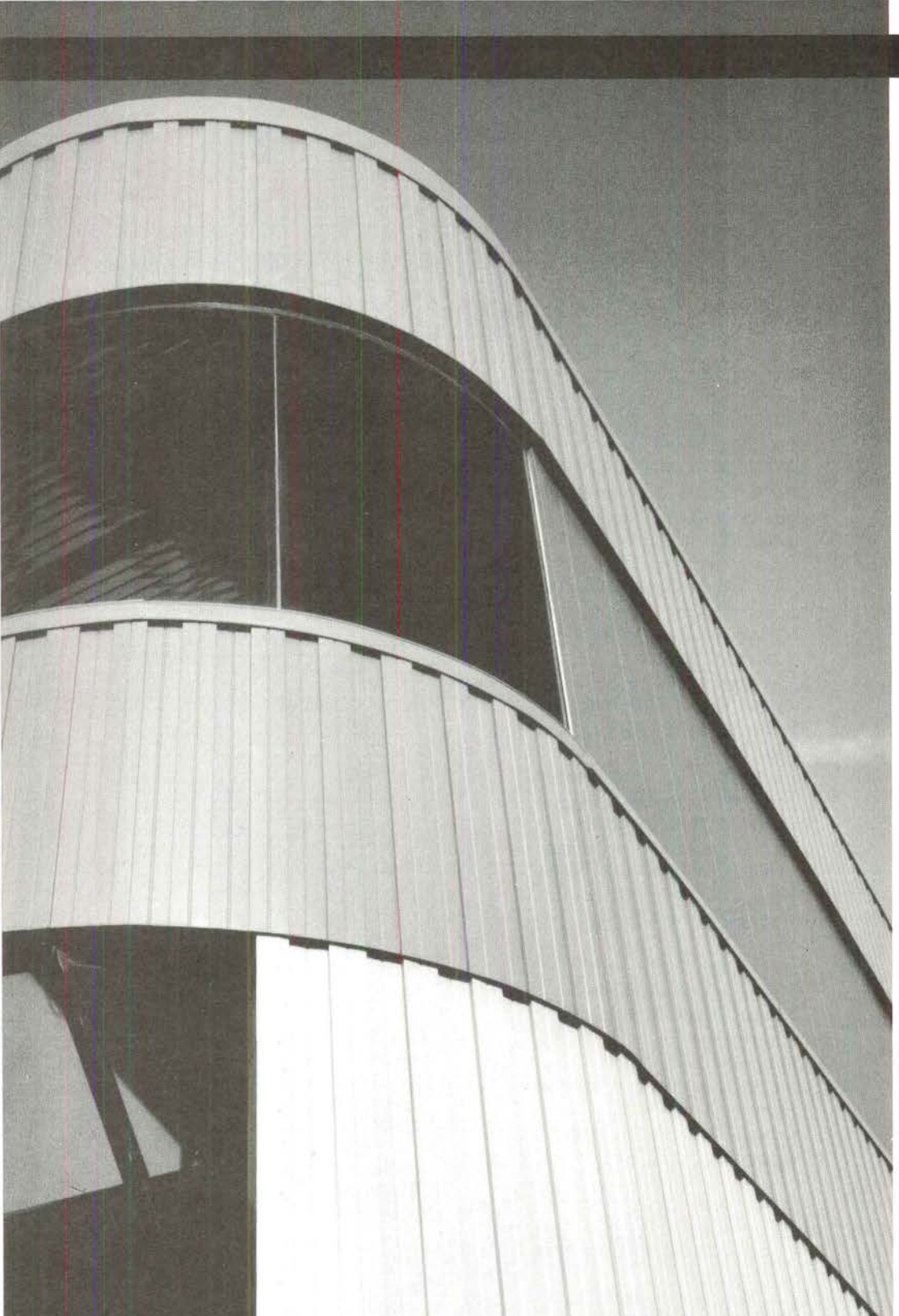

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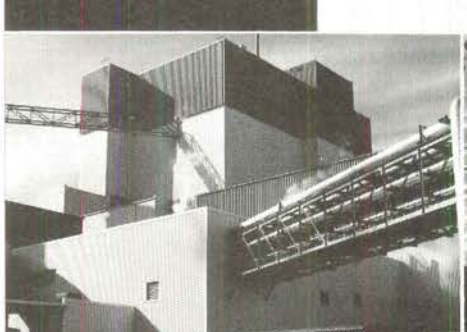

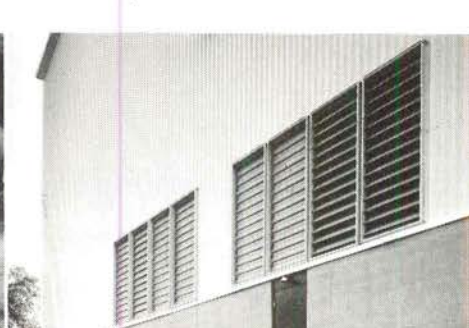

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He goes over the roof to make sure it meets our tough standards. He checks the big things. Then he checks the not-so-big things. And if our inspector approves the job, we issue the Stevens Hi-Tuff warranty.

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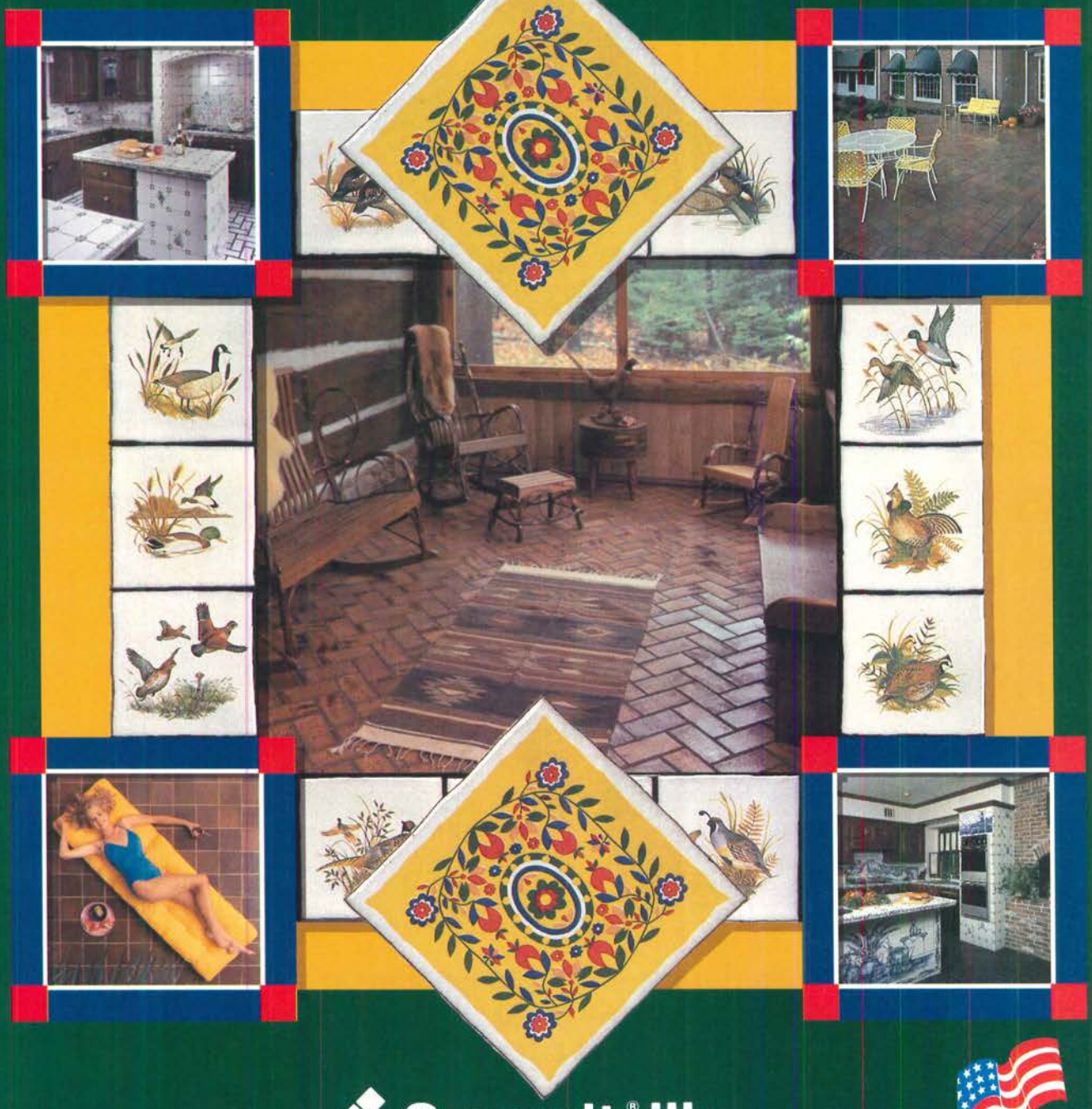

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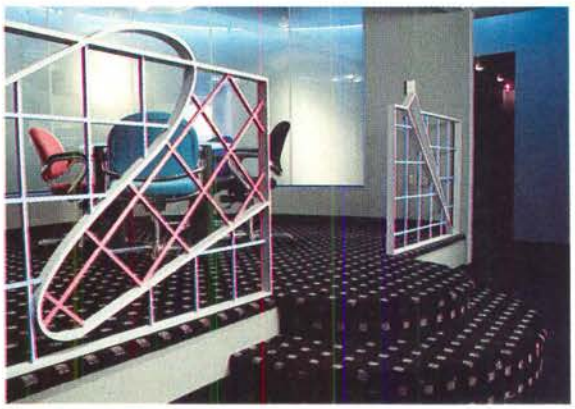
GRAND PRIZE. Design Team: Phyllis Martin-Vegue, Lamberto Moris and Cindy Kupka of Simon Martin-Vegue Winkelstein Moris, San Francisco. Client Site: Packard Foundation. Carpet Mill: Patrick. Styles: Tradition, Heritage. Contract Dealer: Conklin Brothers.



OUTSTANDING ACHIEVEMENT, PUBLIC SPACES CATEGORY. Design Team: Jane Garland Lucas, Janice Fanya Lewbin, and Edwin J. Steel of JGL Interiors in association with Stahl Associates, Boston. Client Site: Boyd Corporation's Advantage Showroom. Carpet Mill: Harbinger. Styles: Confetti, Classic Square, Fifth Avenue.

OUTSTANDING ACHIEVEMENT, HEALTH CARE CATEGORY. Design Team: Raymond F. Stainback, Jack Plaxco, and Paula Stafford-Cloutier of Thompson, Ventulett, Stainback and Associates, Inc., Atlanta. Client Site: Ronald McDonald House at Emory University. Carpet Mill: Designweave. Style: Marquis. Contract Dealer: Carnes Brothers.

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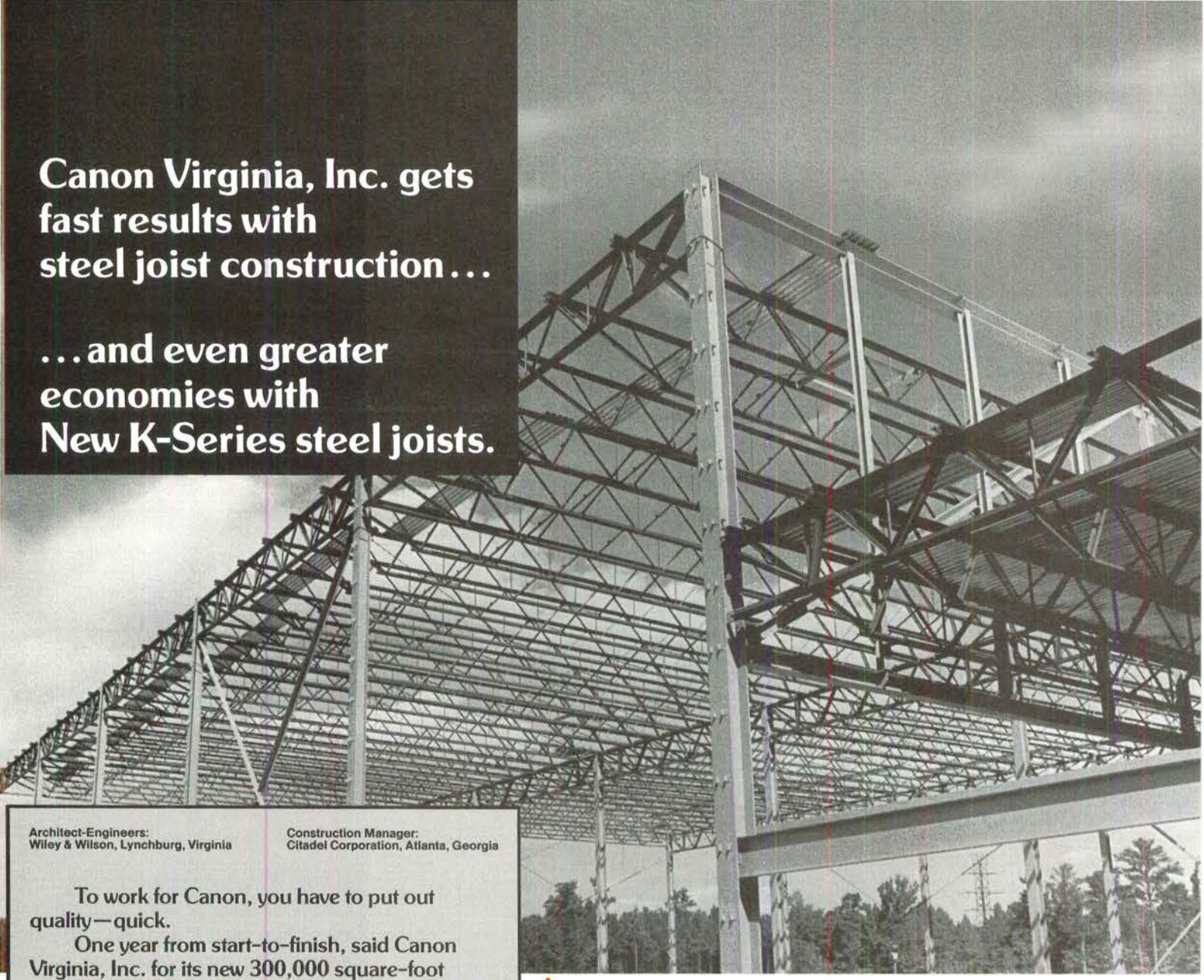

Architect-Engineers:
Wiley & Wilson, Lynchburg, Virginia

Construction Manager:
Citadel Corporation, Atlanta, Georgia

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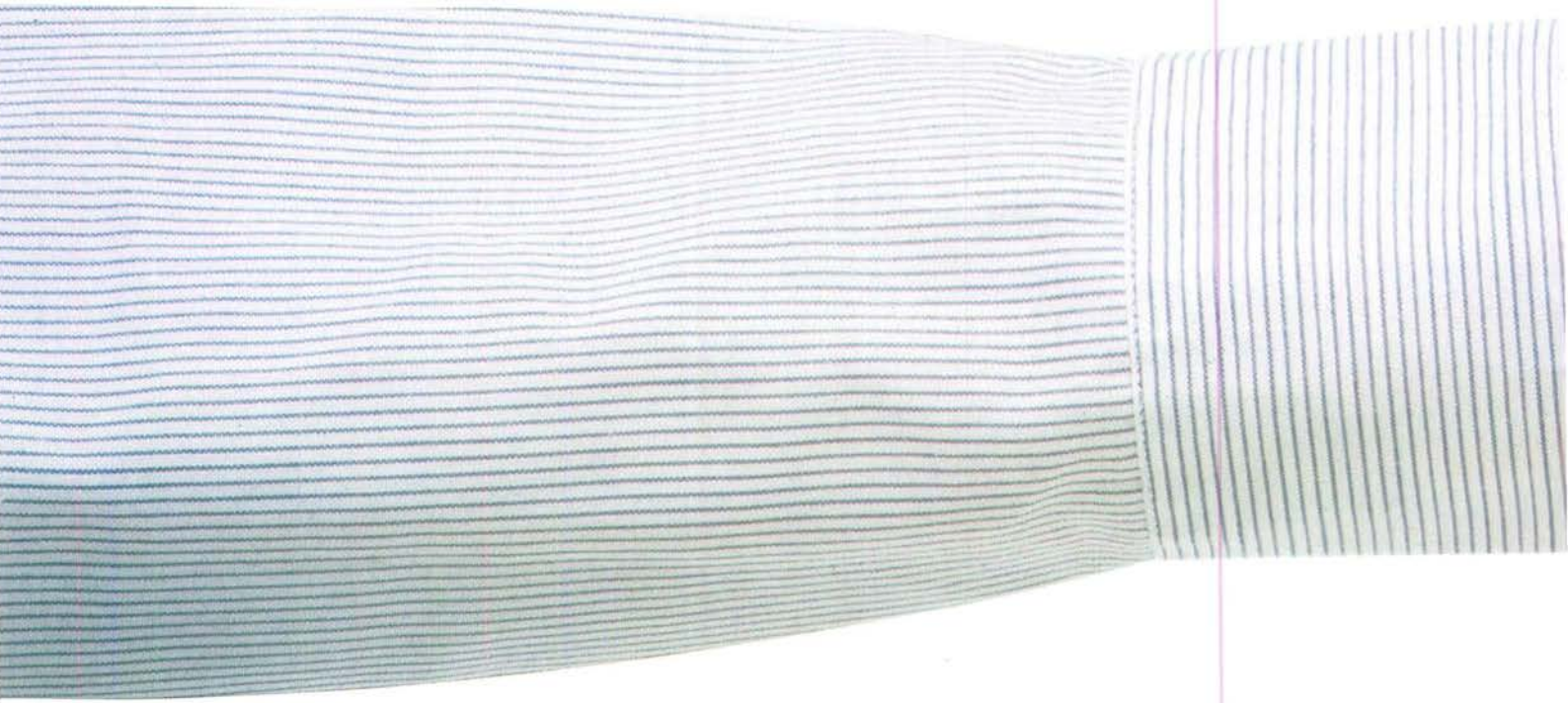

A building product reference source that thinks like you do is right at the beginning of your Sweet's General Building & Renovation Catalog File.

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If you are an experienced designer

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2 roof/floor assemblies & components

3 wall assemblies & components

4 materials– specific use

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see front cover for complete list of headings

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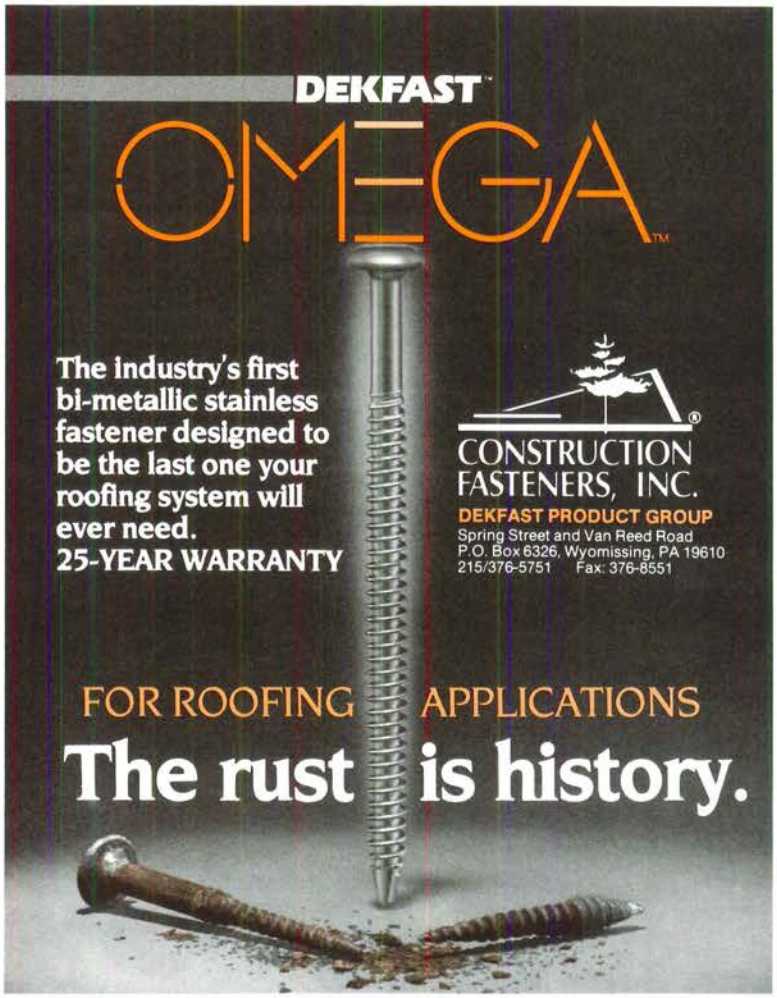
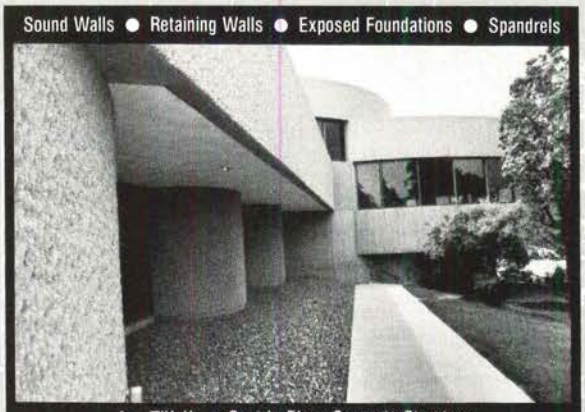
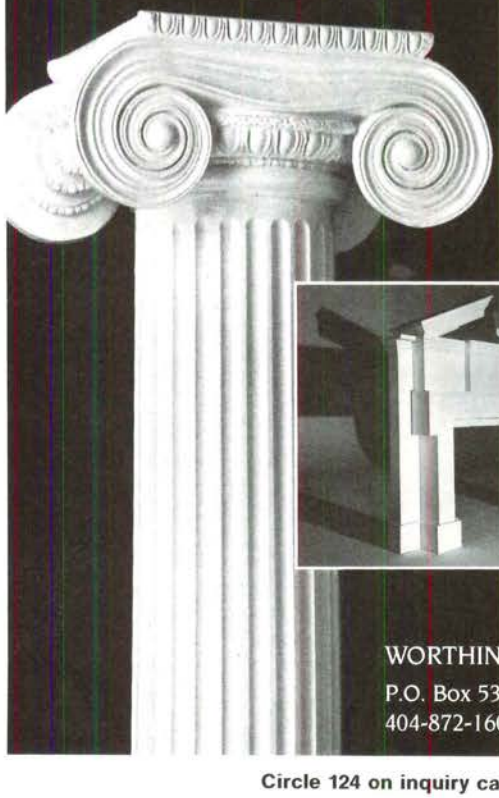
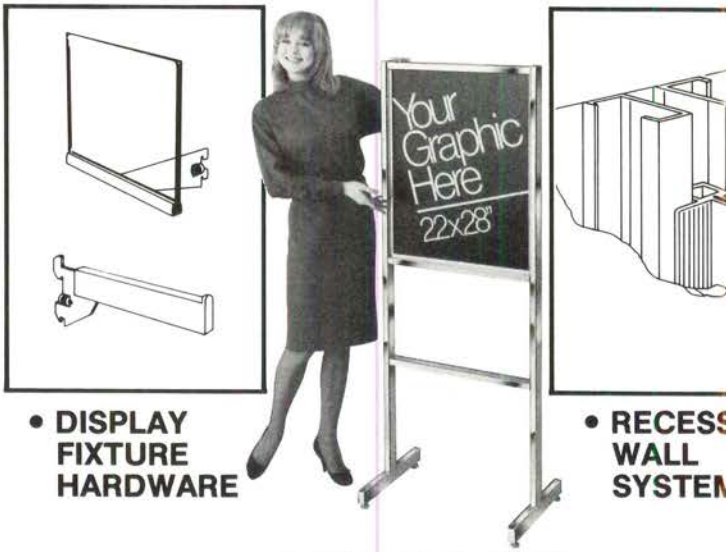
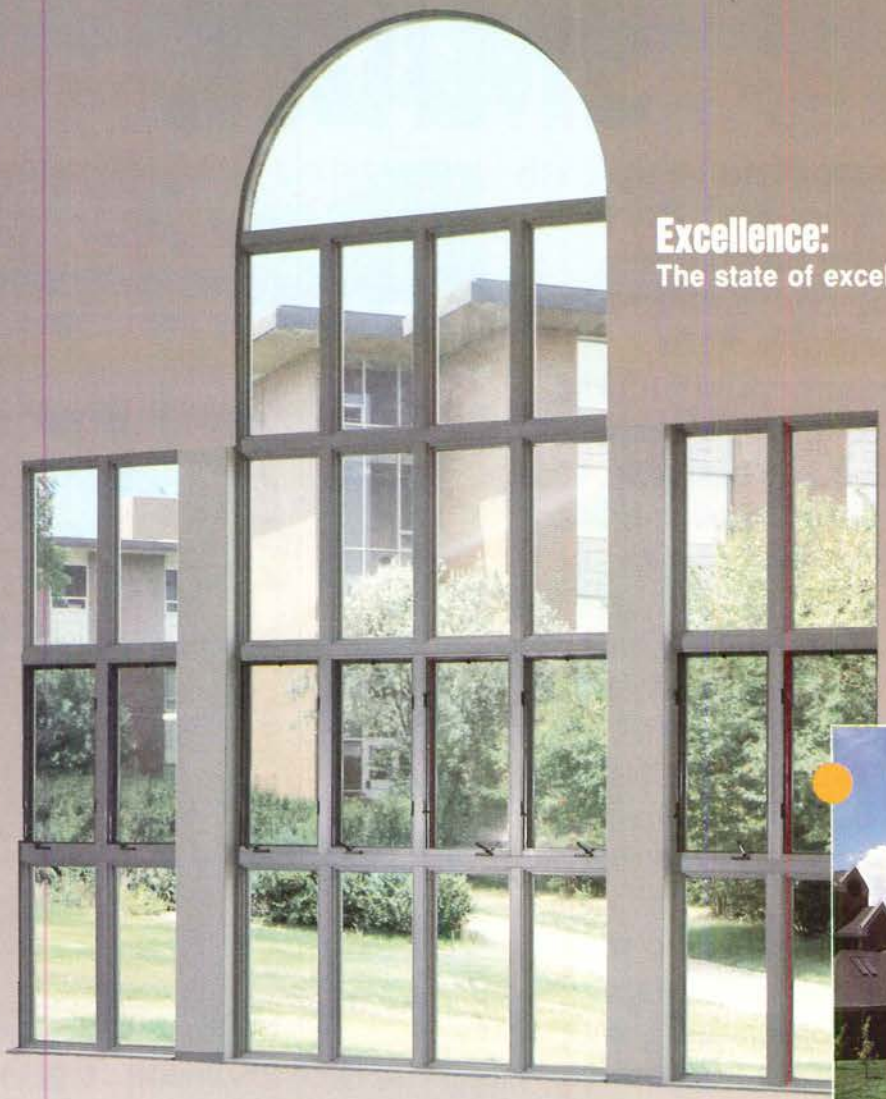




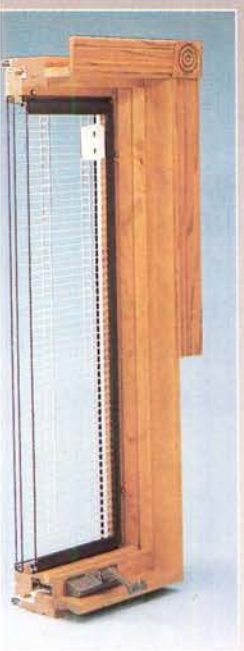




The Circular Definition of Excellence



Excellence:
The state of excelling; superior merit.



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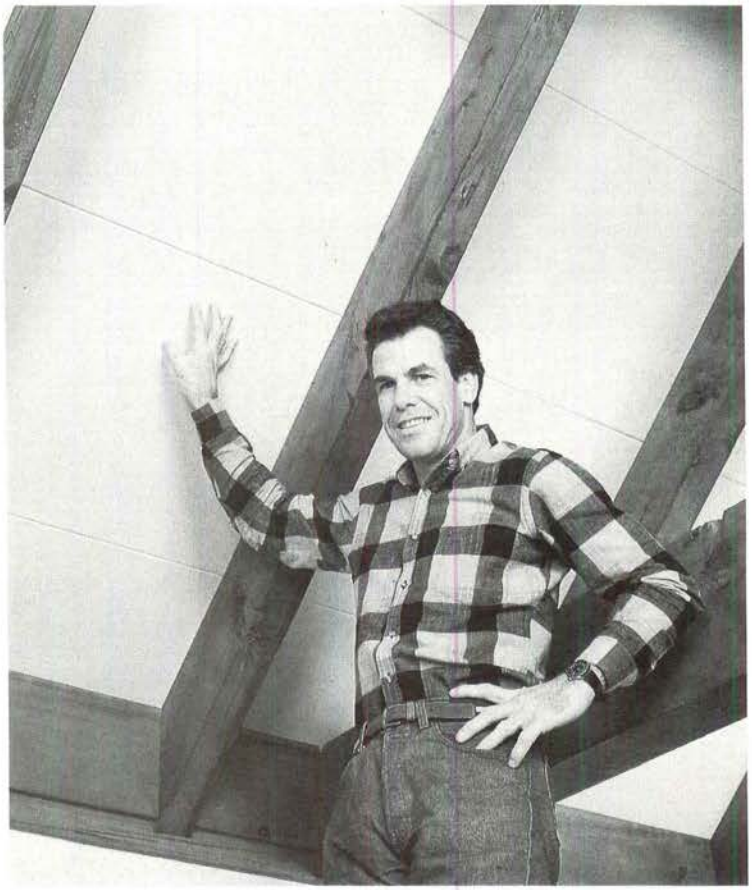

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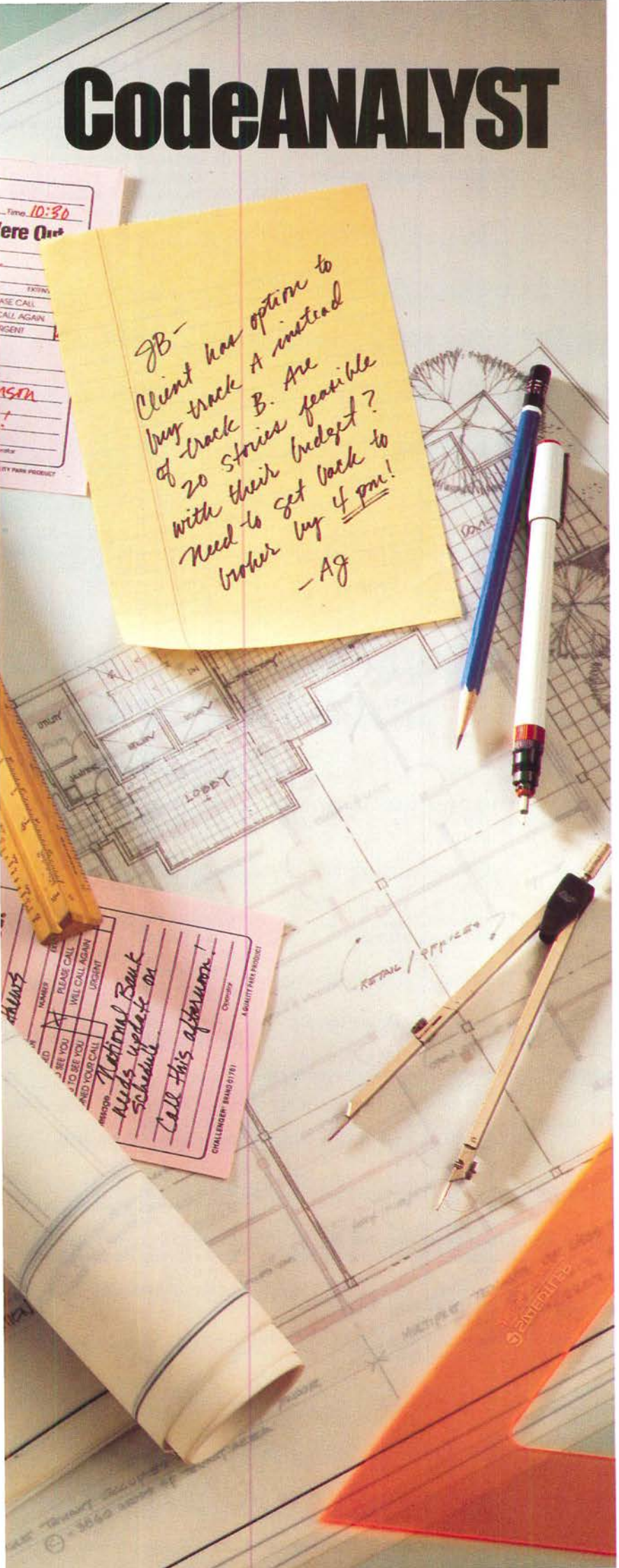

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