ARCHITECTURAL

RECORD

Business Design Engineering
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October 1988

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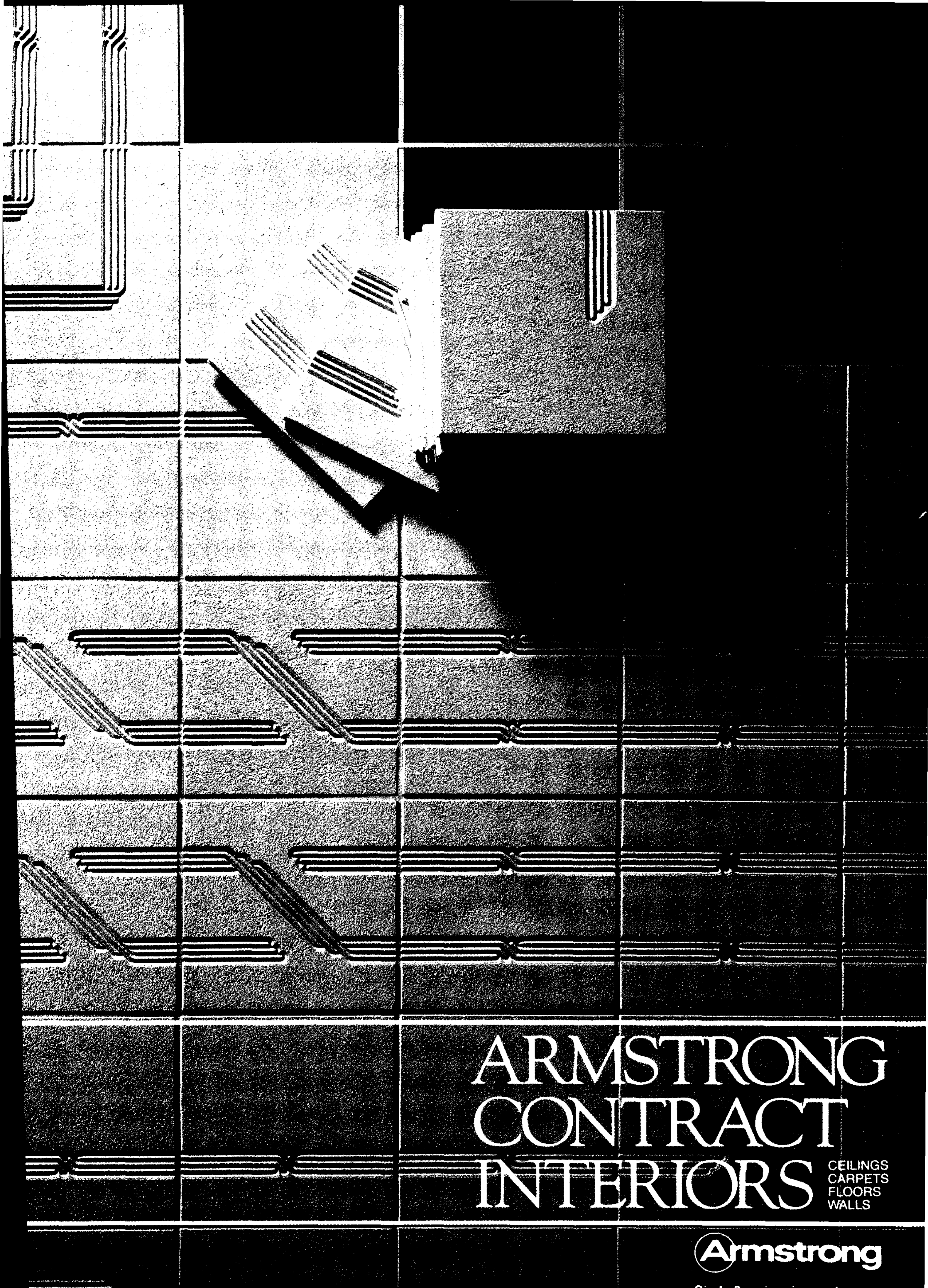

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Letters

Upon attending the recent exhibition *Deconstructivist Architecture* at the Museum of Modern Art in New York City, I was struck with very profound emotions. Although too little space was allotted for the exhibition, the displays were remarkably well presented. I was brought to laughter upon seeing the three-dimensional manifestations of designs I have only seen before in the pages of magazines such as ARCHITECTURAL RECORD. The whimsical colors and idiosyncratic shapes seemingly used at random caused great delight. I am curious to feel the impact of being in these spaces.

One of the main flaws of this exhibition is the mislabeling of Deconstructivist Architecture as "disturbed architecture." When compared with some of the extremes of Russian Constructivism, or the starkness of high Modern, Deconstructivist architecture is infinitely more humane. The forms, while distorted, are not "disturbed," and rarely disturbing. To label them as such suggests that they deviate from true architecture, which they do not. They are a logical progression most definitely inspired by our culture. We have already discarded more architectural styles in the 20th century than in the previous five hundred years.

Our culture also suffers from the trivialization of style, not from a profusion of art. We have gone a long way towards dehumanizing the earth, and the Deconstructivist architects shown in the exhibition seem to be reintroducing individualism and idiosyncracy into architecture. Thank you, Misters Johnson and Wigley, for bringing this collection to our attention.

Jeffrey Scott Penn
Huntington, Massachusetts

It seems that the year 1988 marked the victory of the *square* and the *circle* in house planning, as RECORD HOUSES 1988 shows.

The *square* appeared either as a whole or as a part in the plans of 10 houses of the 14 shown in the mid-April issue, and in elevations as a window boundary, and internally as square-gridded partitions, cabinet divisions, and even in furniture as tables. The *circle* appeared in the plans of about half of these. Although we are now living in an era of Postmodern dominance, the "purist" spirit of Le Corbusier strongly survives in these "prime geometrical shapes and forms."

How about a change? The *triangle* for 1989!

And my second remark. I wonder why, after more than a half century since Frank Lloyd Wright's houses integrated the building with its surrounding nature and site, should we see such an *un*integrated house as shown on your mid-April cover, a house completely separated from the surrounding horse farm (nature), like an alien space ship. What this house really misses is an "intermediate space," or transitional elements, that could mediate between it and the nature around, elements that produce a sense of shelter, such as an entry porch, or attracting recessions, a terrace, a balcony . . . or even shading devices that could protect the large double-story south windows from the sun.

Selim A. Nazerian
Teheran

Correction

Credits that should have been given for Western Wyoming College (RECORD, January 1988, pages 96-101) include Bruce A. Lutz, interior project manager, and Kenneth P. Scofield, AIA, project architect, both with The BKLH Group, and J. Stanley Schoen, AIA, of Anderson Mason Dale, who was the architect's manager in the field.

Calendar

Through October 30
Two exhibits of drawings, photographs, and furniture: "Saarinen in Finland," organized by the Museum of Finnish Architecture, Helsinki, and "Saarinen at Cranbrook: Designs for Cranbrook and Kingswood Schools," organized by the Cranbrook Academy of Art Museum; at Cranbrook Academy of Art, Bloomfield Hills, Mich.

Through mid-December
"World Cities and the Future of the Metropolis," the International Exhibition of the Triennale de Milano; in Milan.

October 14
"Citiscapes," installations by artists and architects addressing the issues of city life, sponsored by Olympia & York Companies (U. S. A.); at the World Financial Center, New York City.

October 19-23
42nd National Preservation Conference, "Preservation: The People's Choice," and trade show, sponsored by the National Trust for Historic Preservation; in Cincinnati. For information: National Trust for Historic Preservation, 1785 Massachusetts Ave., N. W., Washington, D. C. 20036 (202/673-4100).

October 25-28
Conference on court design issues, with exhibit of justice facilities, sponsored by the AIA Committee on Architecture for Justice; in Dallas. For information: Joanna Bache, American Institute of Architects, 1735 New York Ave., N. W., Washington, D. C. 20006 (202/626-7361).

November 2-6
32nd annual convention of the Society of American Registered Architects, "Fresh Perspectives and New Directions in Architecture"; at Plaza of the Americas Hotel, Dallas. For information: SARA National Headquarters, 1245 S. Highland Ave., Lombard, Ill. 60148 (312/932-462).

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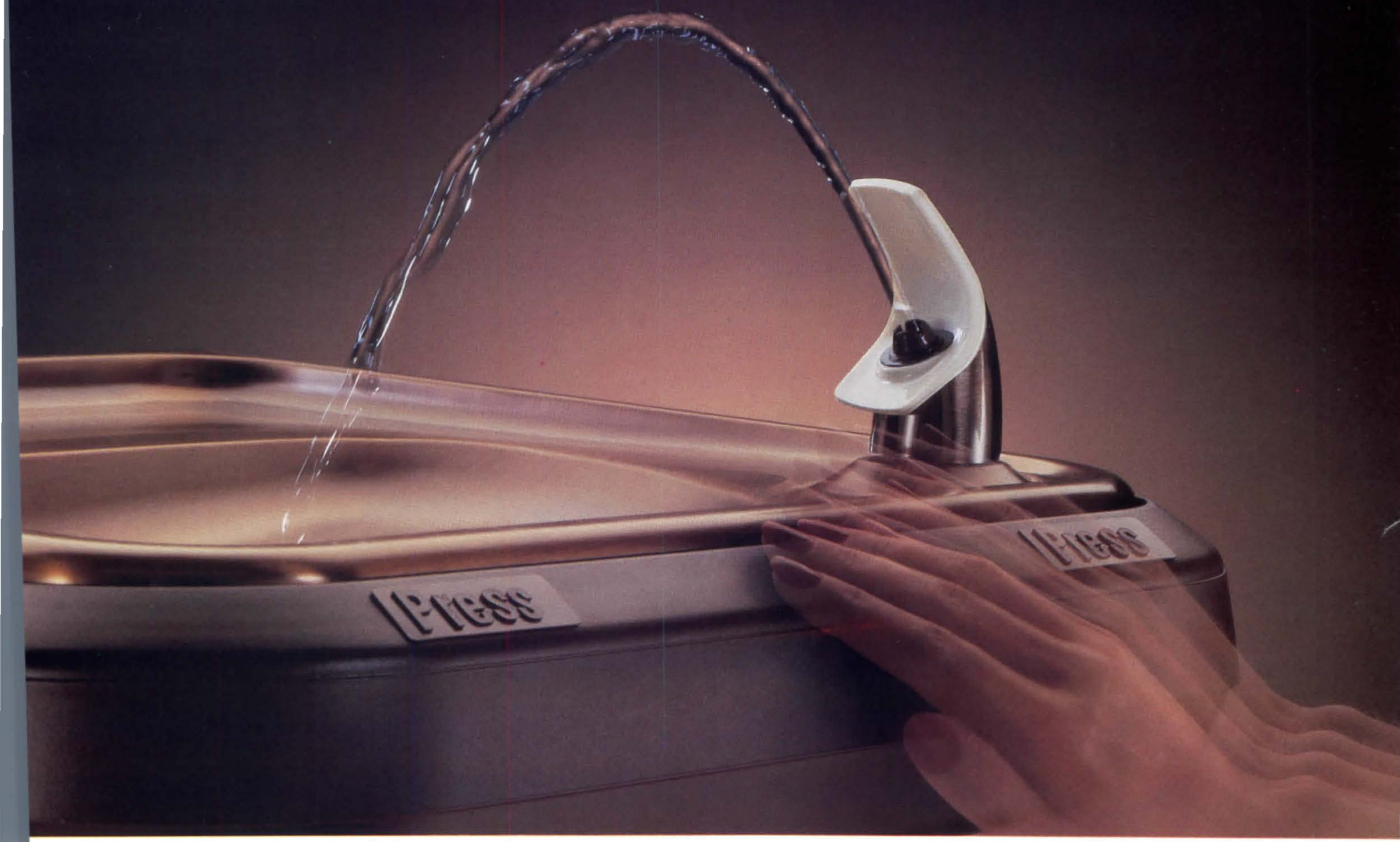

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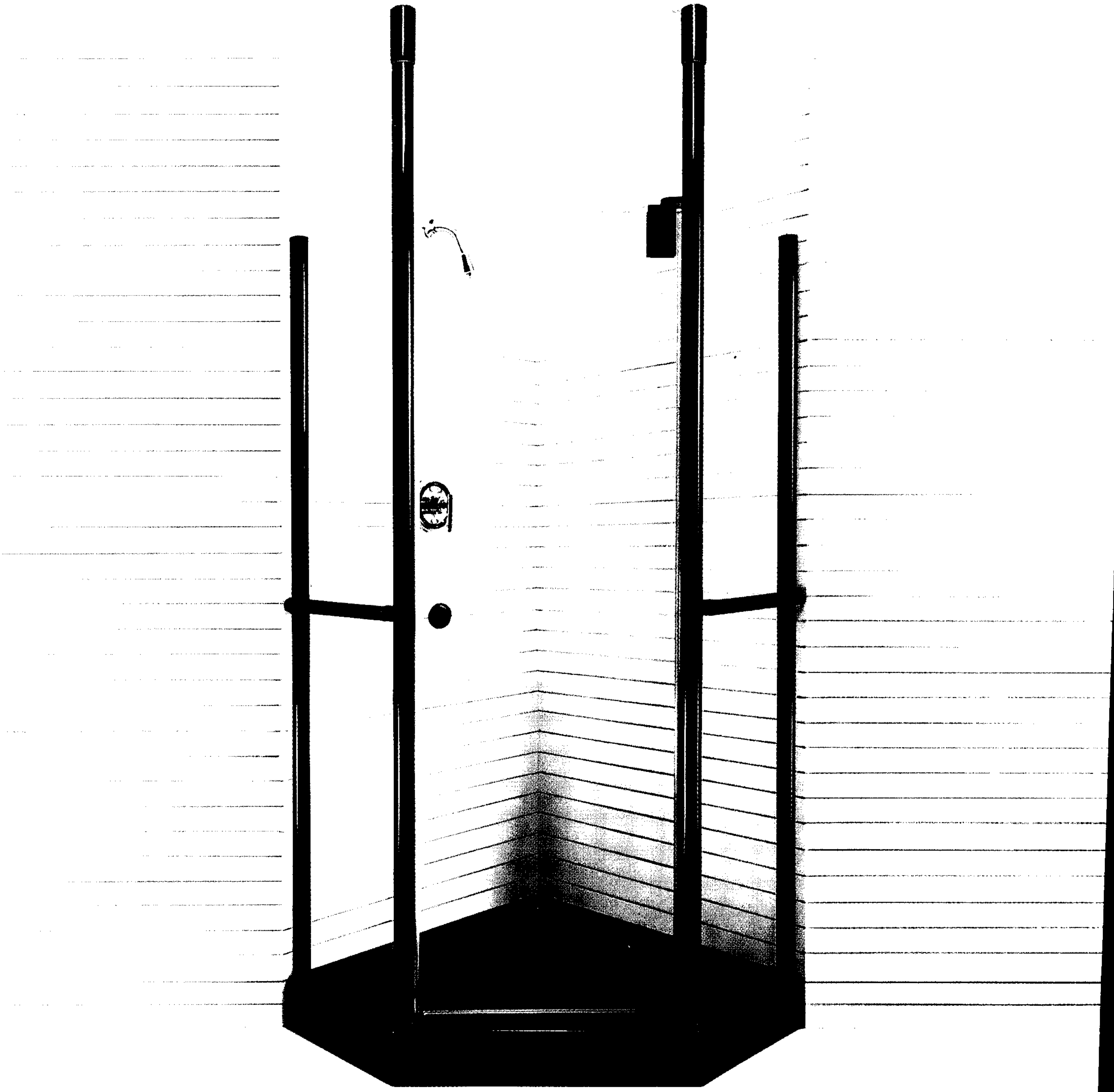

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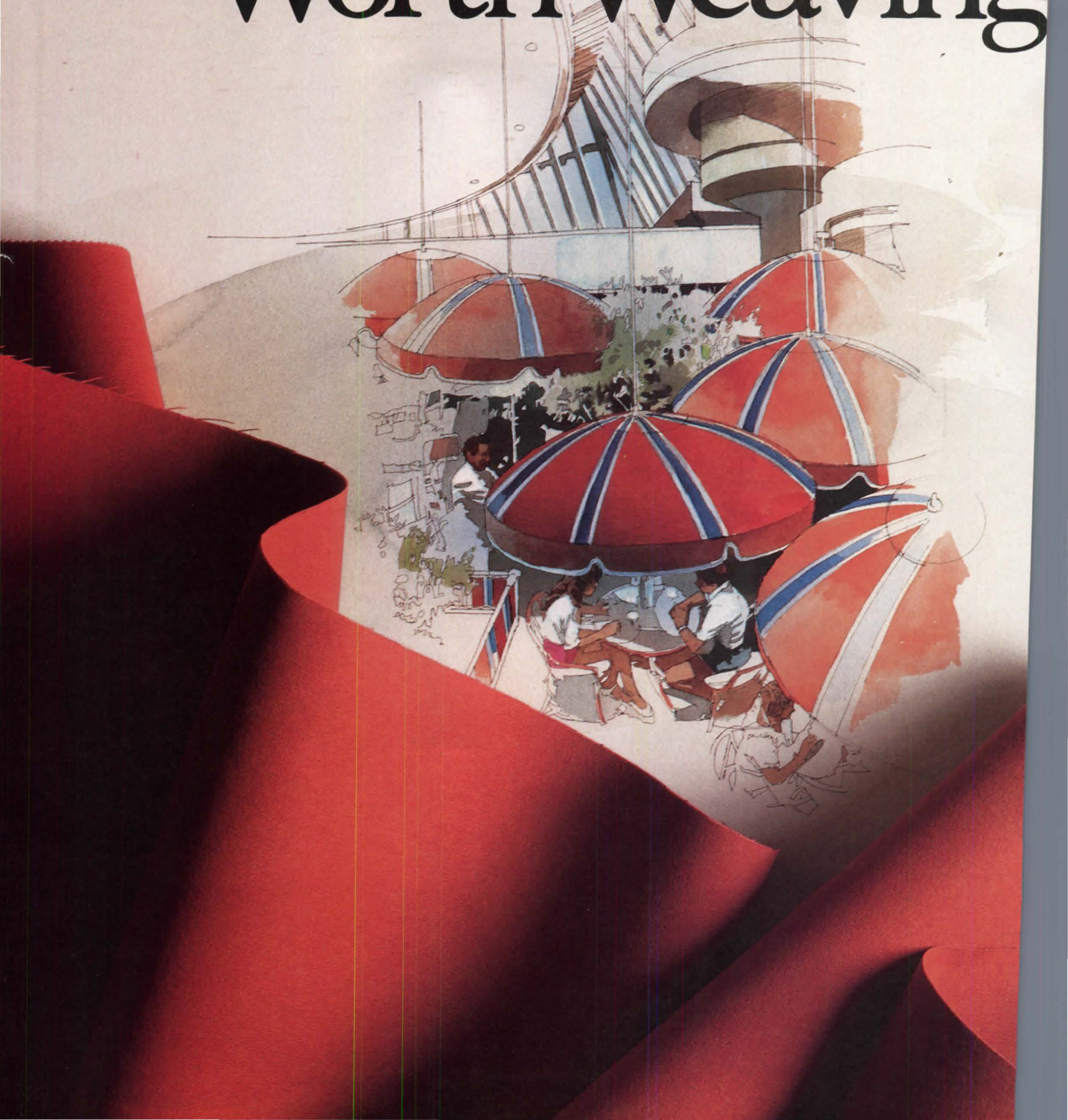

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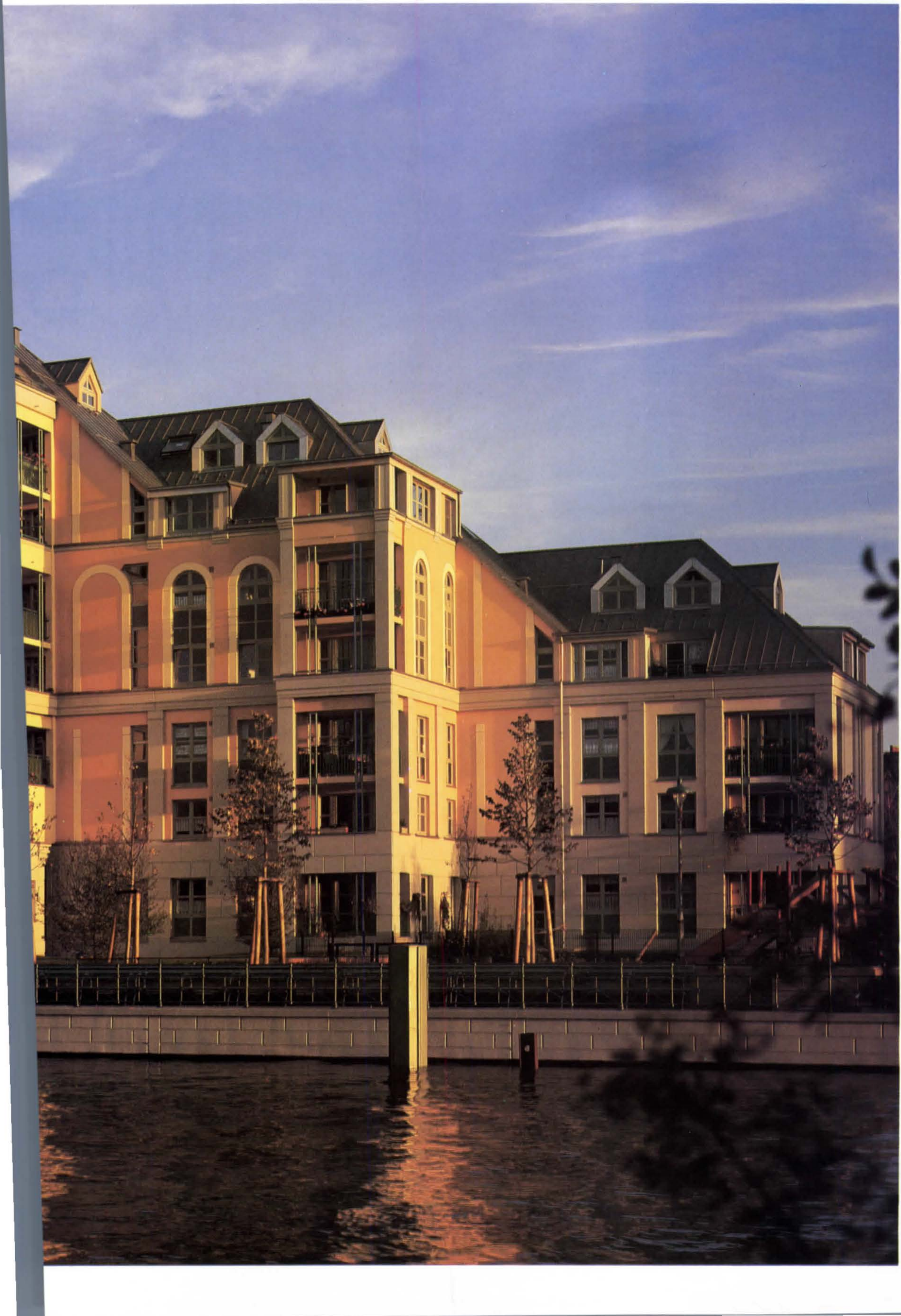

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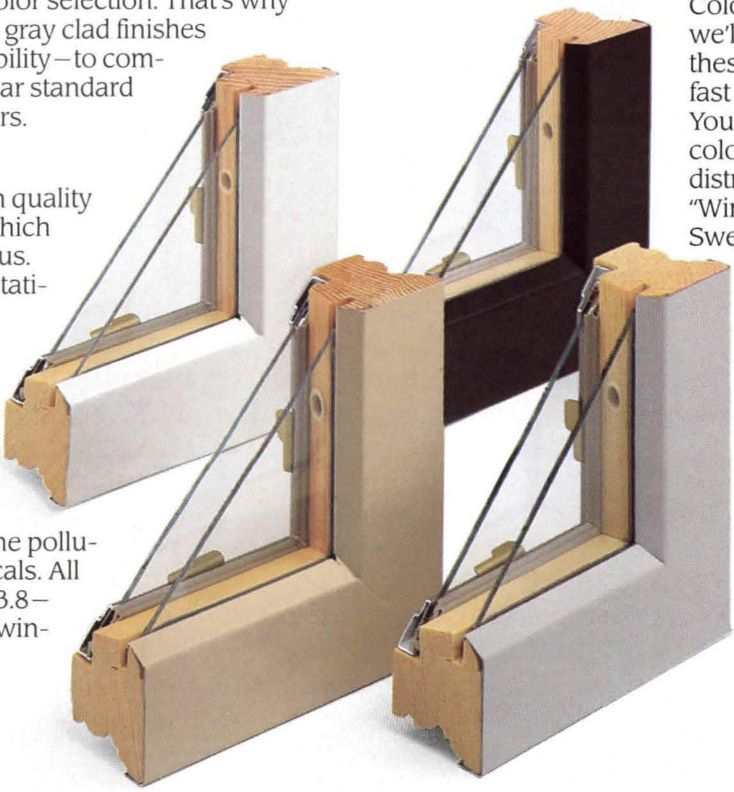

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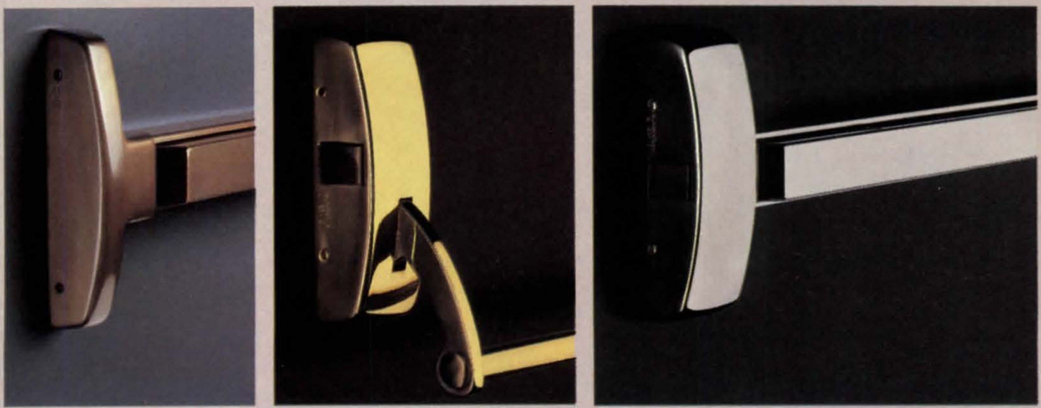

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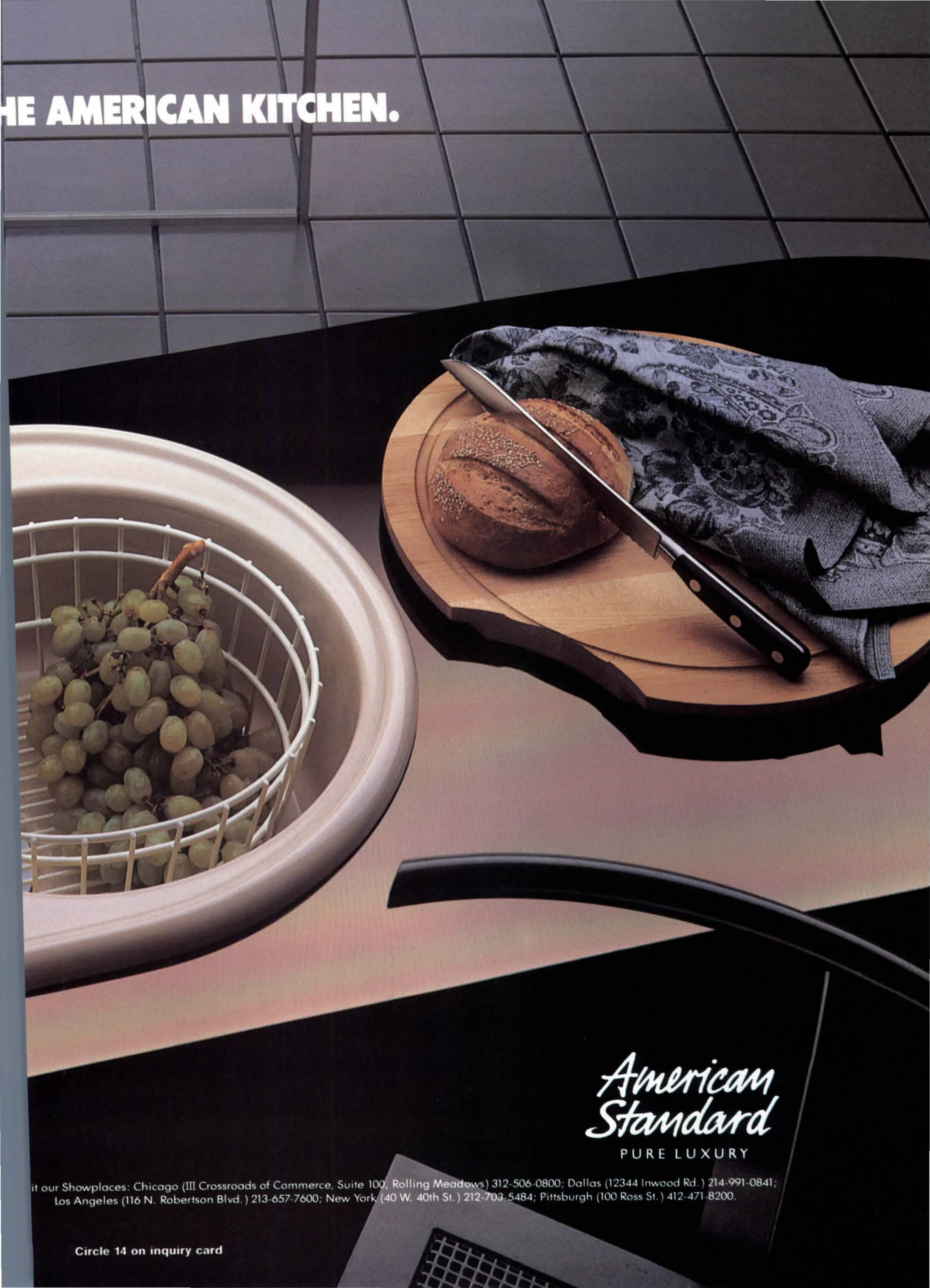
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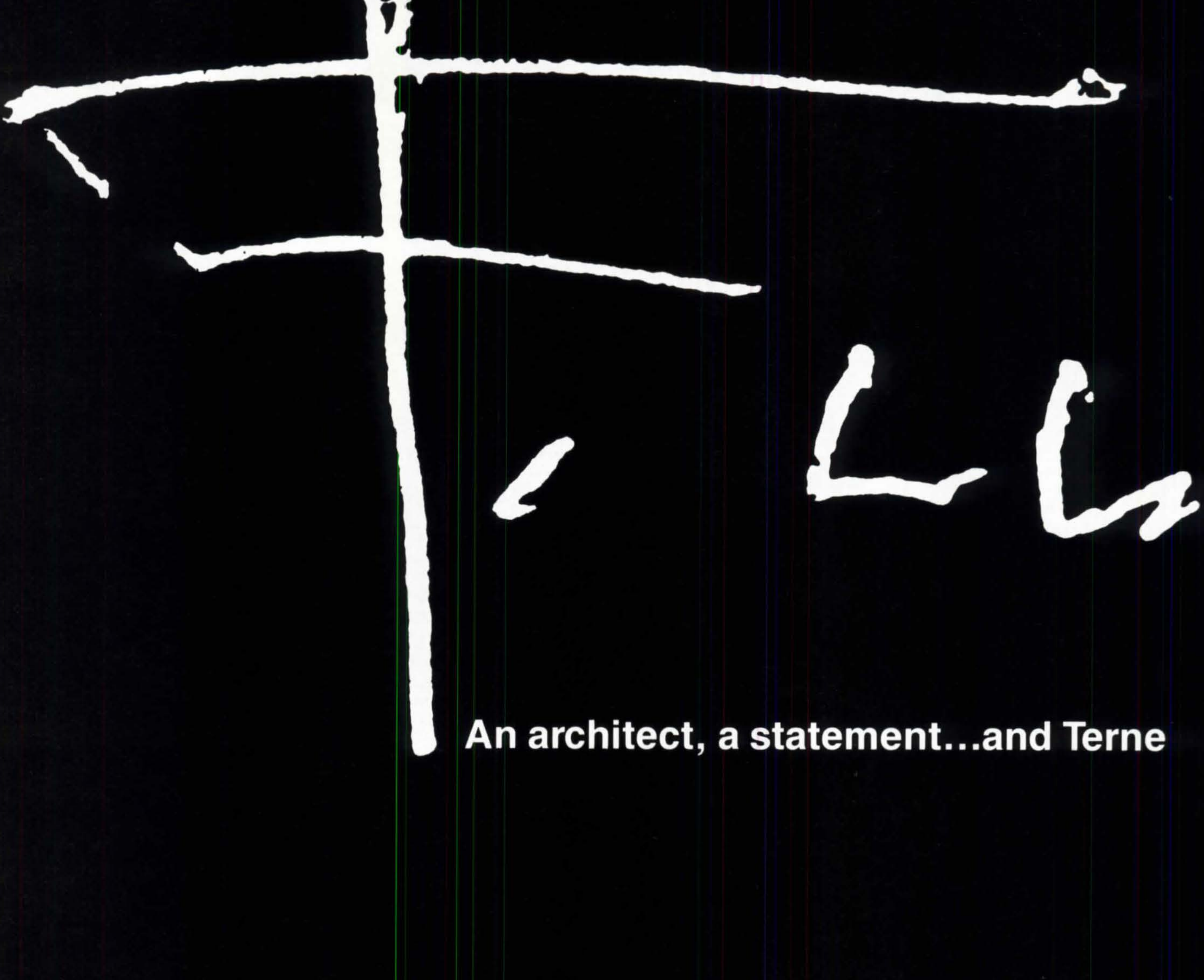

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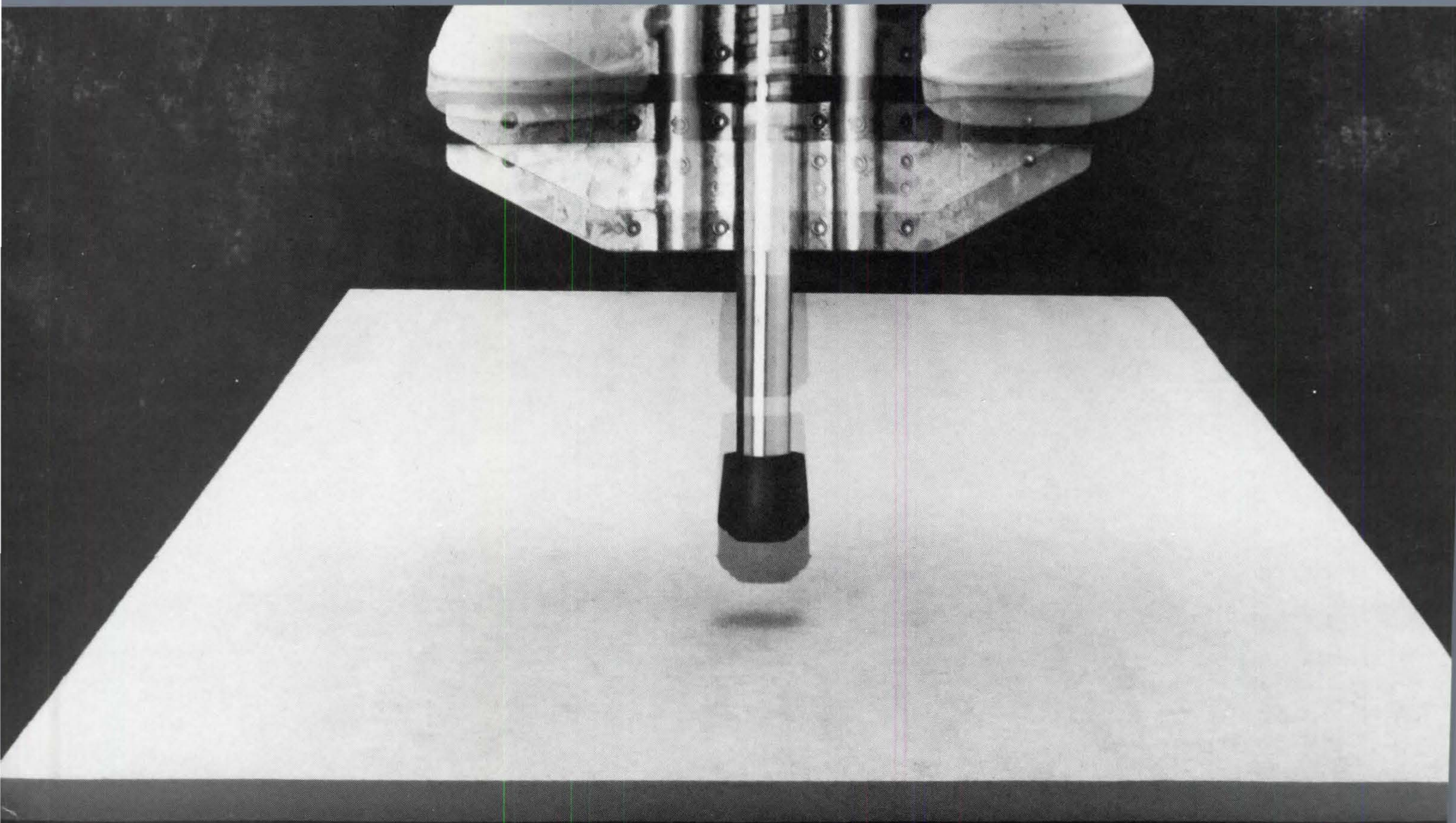

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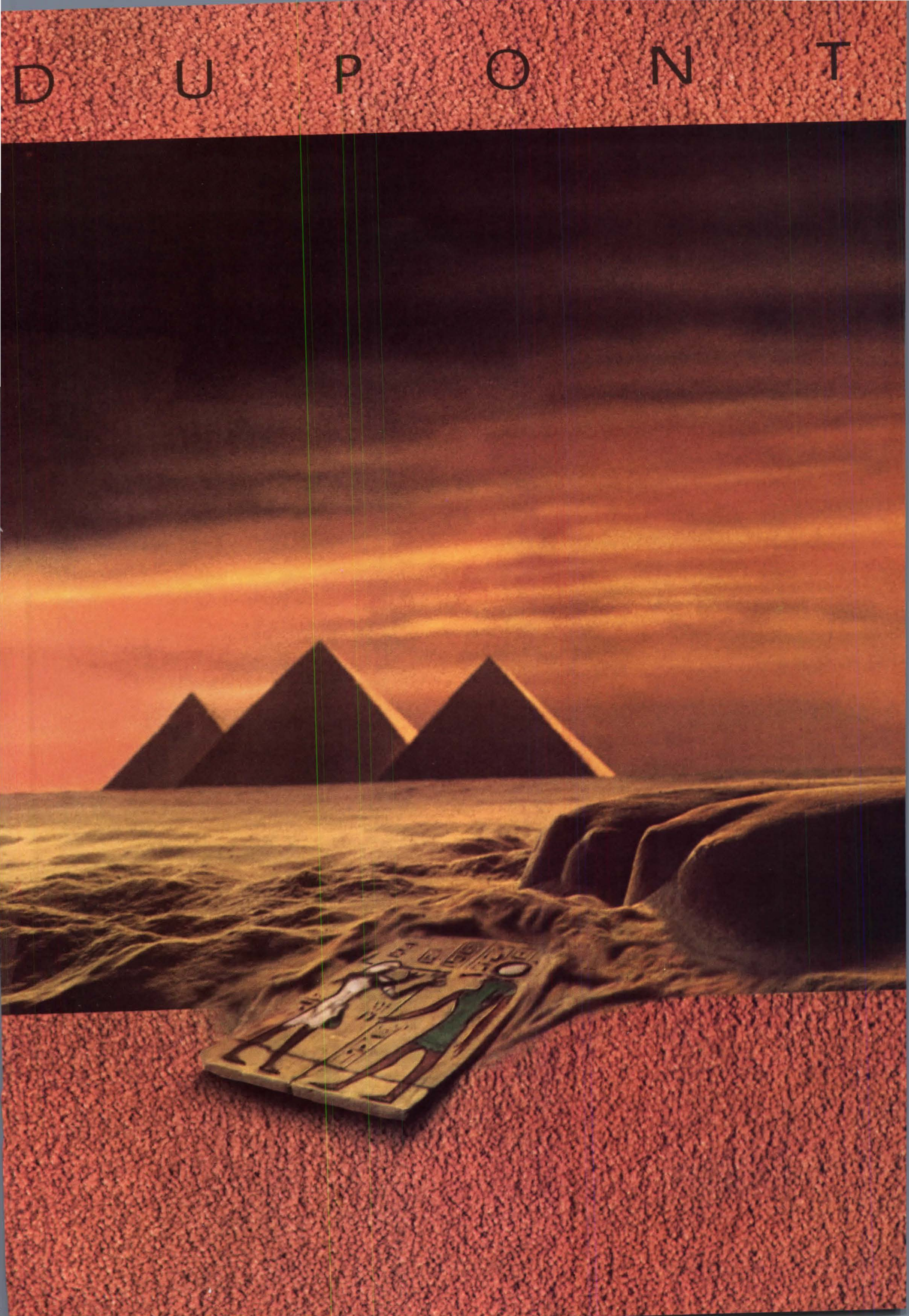
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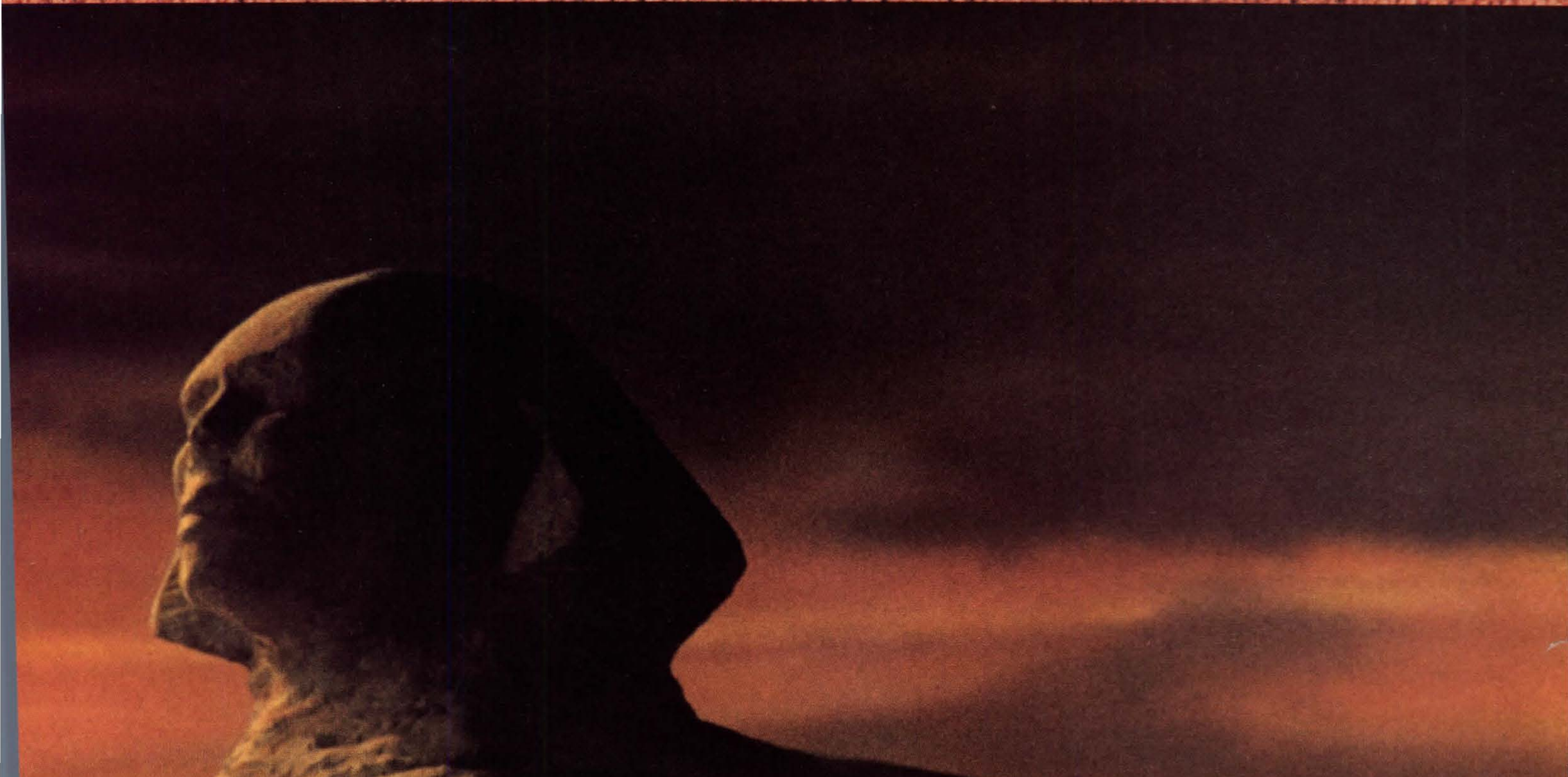


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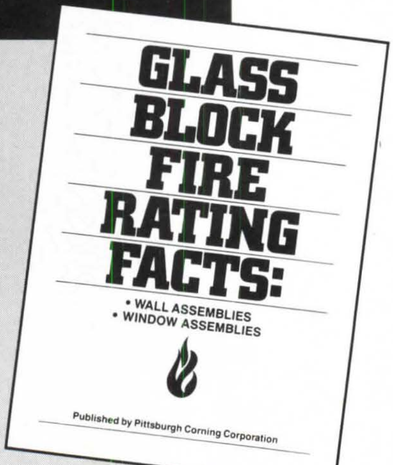

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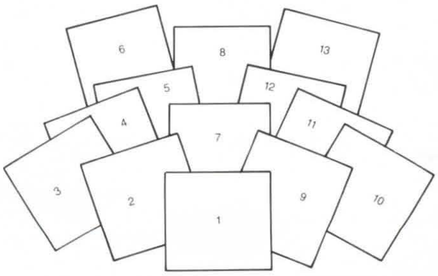

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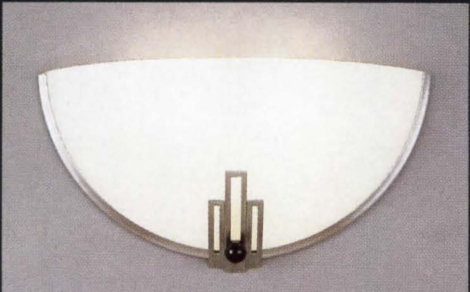

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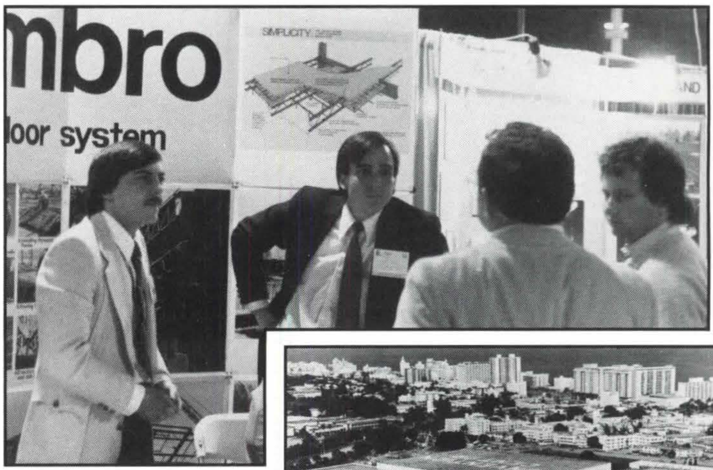

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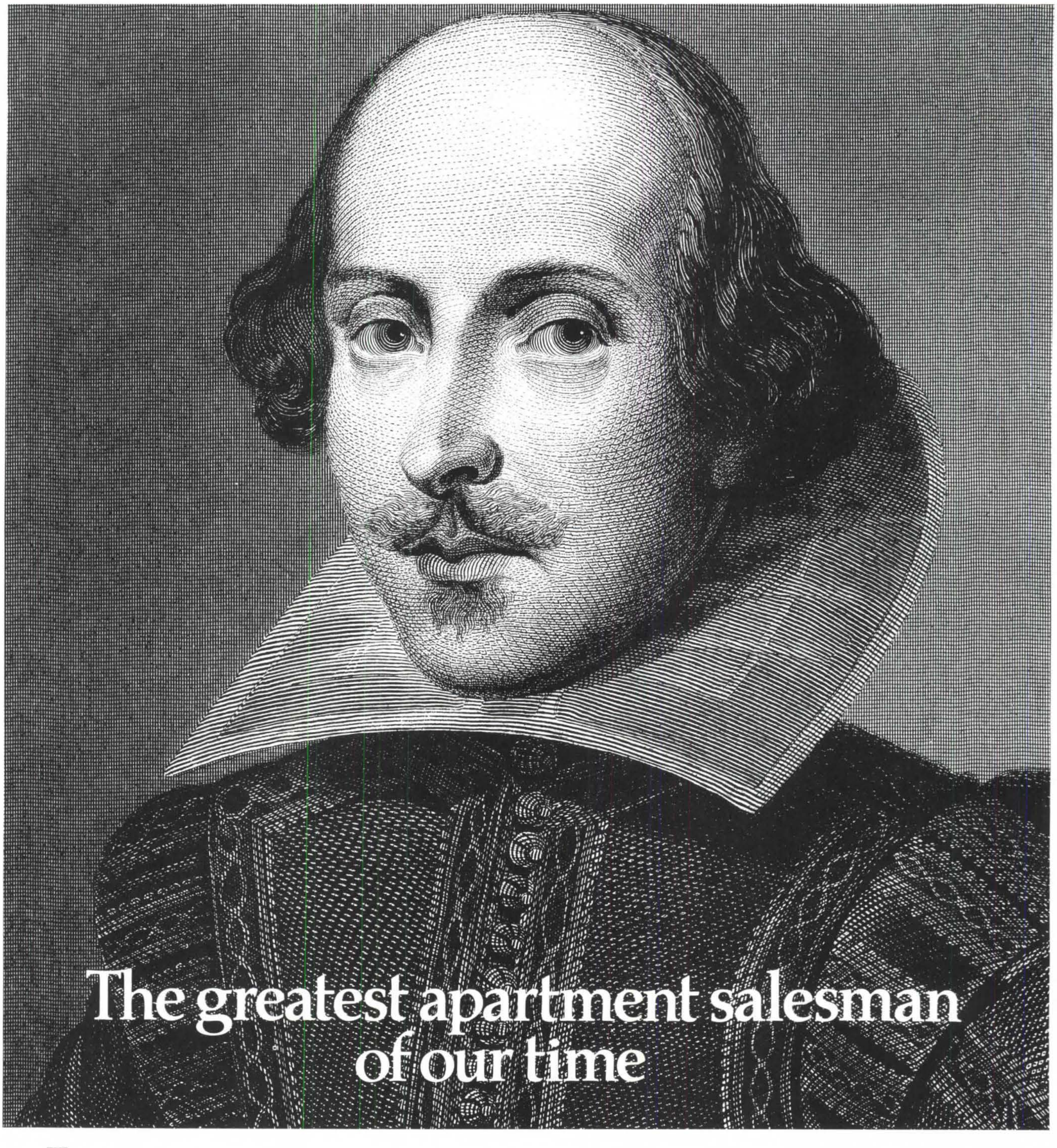

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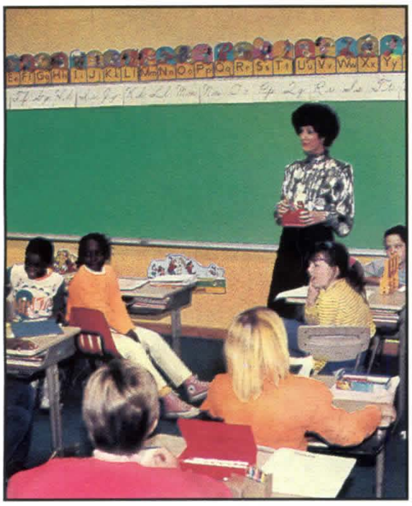

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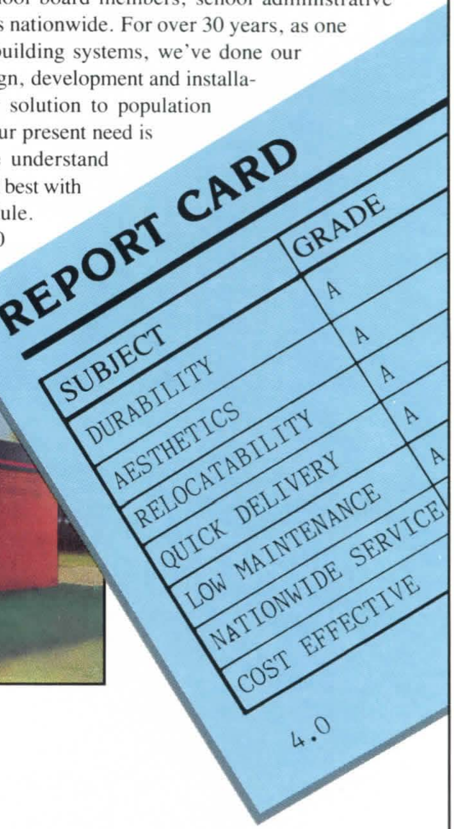

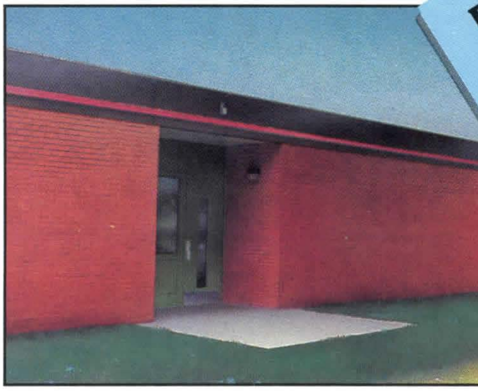

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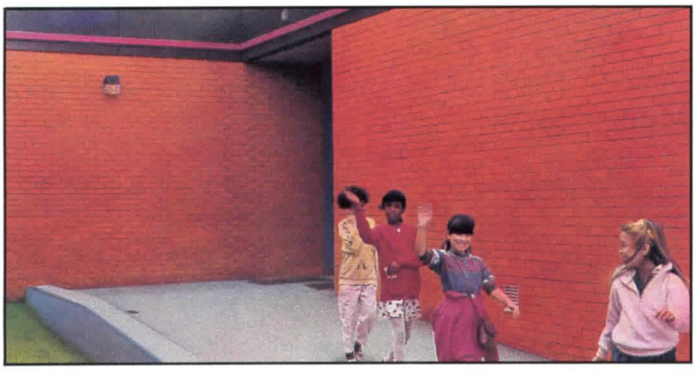

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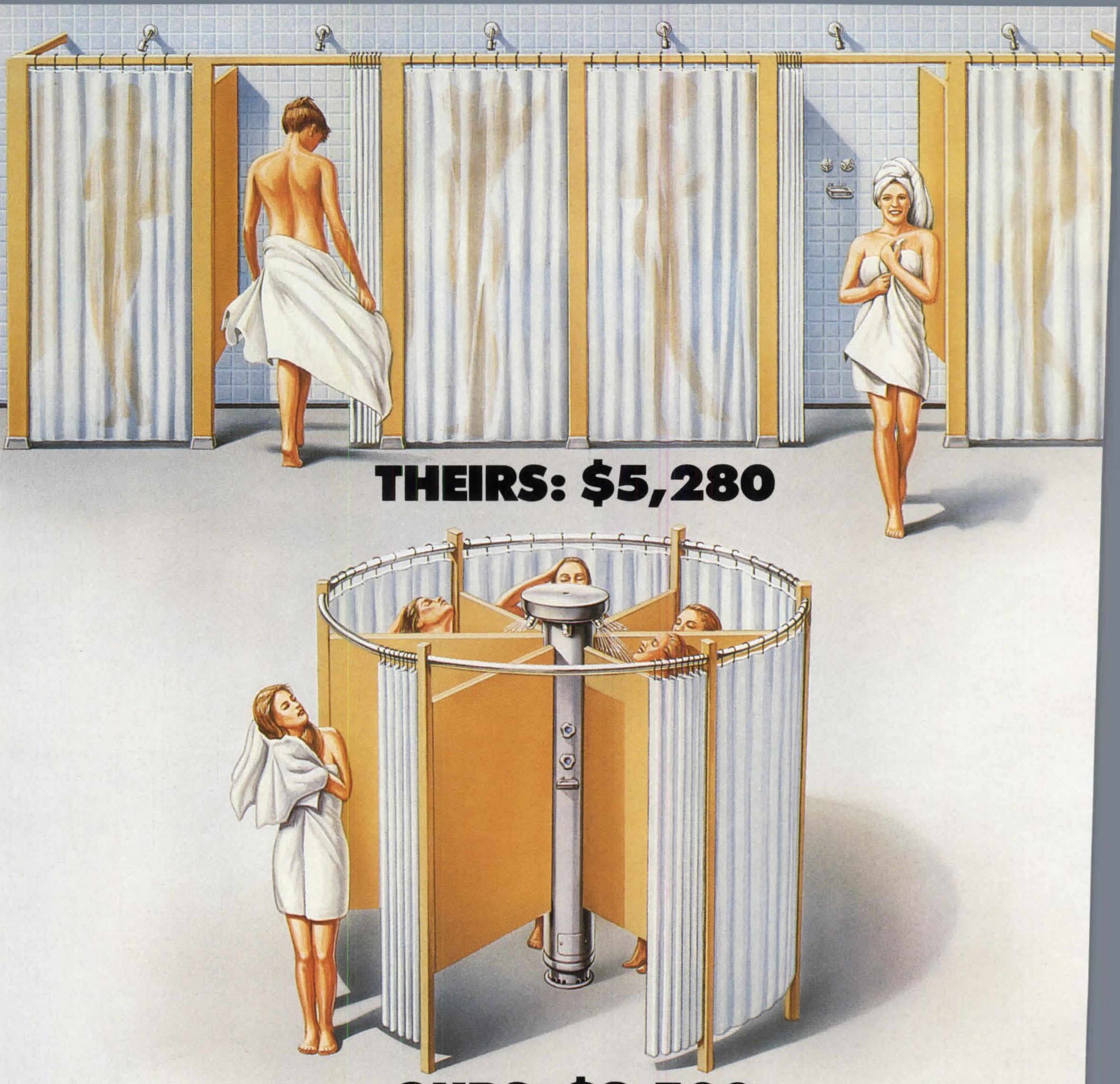

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Engineers fight limitations on their practice of architecture

The American Consulting Engineers Council is assisting the Pennsylvania chapter in its lawsuit against that state's architectural licensing board. The suit challenges the board's proposed regulations limiting practice to design firms owned by at least one-third registered architects. Although the ACEC legal defense fund committee rarely involves itself in cases until they reach the appellate level, the Pennsylvania regulations are seen as encouraging similar ones in other states and the national organization is jumping in early. ACEC president Jim Poirot explains that, in many cases, members will not be able to operate under the regulations. And, of course, architects, looking at the issue from the other side of the fence, will indeed watch the proceedings in Pennsylvania with interest.

ATRA gets its way on tort reform in the Republican platform


J. David Clem photo

Citing his testimony before the Republican platform committee as the basis, Blair Childs (photo), executive director of the American Tort Reform Association, applauded language that calls for "a reasonable state and federal liability standard that will be fair to small businesses, including professionals [and] return the fault-based standard to the civil-justice system." He says such a standard would save jobs, encourage useful and sometimes lifesaving products, and stimulate the nation's ability to compete, as well as lower costs in general.

All of this helps work being done by ATRA at the state level around the country. To date, 39 states have passed tort reform laws of some kind, but much must still be done, says Childs. One of ATRA's prime goals is the elimination of joint-and-several liability in which all parties even remotely connected to a case can be named as defendants, and plaintiff awards imposed on not the most guilty, but the richest. Other goals include limits on noneconomic and punitive damages, the elimination of double recoveries, limits on lawyers' contingency fees, and sanctions on frivolous suits.

ATRA is a coalition of some 400 organizations and claims to represent 35-million people. As to the Democratic position, "We weren't asked and there isn't one," said ATRA spokeswoman Libby Dolvin.

Senate bill would expand architects' responsibility to on-site safety

In a seeming contradiction to his own party's position that would lower professionals' liability exposure (see article at left), Senator Lowell Weicker, Jr. (R-Conn.) has sponsored S. 2518, the Construction and Health Improvement Act of 1988, which would require architects and engineers to not just check that a project is being built according to plans and specifications but to physically supervise it. In what observers regard as a well-meaning reaction to much-publicized structural collapses and faults in his state, the senator's bill would blur long-standing distinctions between design professionals and contractors that have made what gets built the former's responsibility and how it gets built the latter's.

The bill reads: "Work on a construction project shall be performed only when the engineer-architect or his certified representative is present at the site," and, "[He] shall be liable to the same extent the supervisor is liable for applicable provisions of this act." Those provisions, of course, include job safety—an issue that architects and engineers are particularly warned to steer clear of in these litigious times. "Call the owner but don't even talk to the contractor about dangerous conditions," advises one lawyer.

Asbestos abatement gets a reprieve

chools across the nation (and
eir architect and engineer
nsultants) received
stponement of an October
adline that would have made it
andatory to devise asbestos-
spection procedures and
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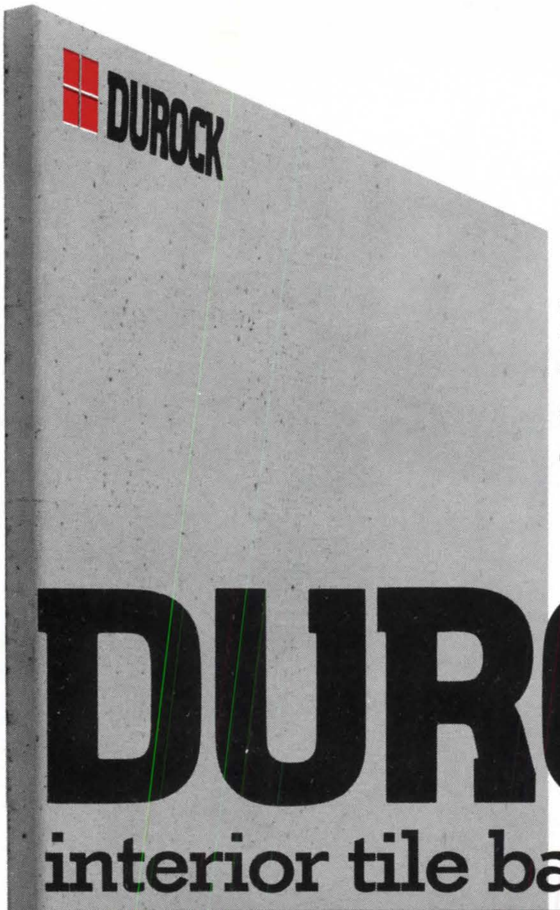
nder the provisions of a bill
ssed by Congress in early
mmer and signed by President
agan July 18, local education
encies now have until May
89 to come up with these
cedures and plans under the
bestos Hazard Emergency
t. But the date for actually
plementing school asbestos
grams is still unchanged: July 9, 1989, as written in the original act.

By and large, architects and engineers welcome the postponement. A lack of sufficiently trained inspectors and engineers has hampered implementation, according to Ed R. Bajer, director of energy and interprofessional programs for the American Consulting Engineers Council. "We would rather take the extra time to have qualified people," said Bajer. "It's good for the schools. They were under pressure, and they just couldn't meet their deadline." But he warns schools must have applied for the extension by October 12, 1988, the original deadline for filing the plans. It is not automatic.

The Environmental Protection Agency, in its July announcement of the deadline change, warned that a deferral request can be granted only when it "is accepted [by the state] as complete and acknowledged in writing."

In introducing the bill on the House floor, Representative Thomas A. Luken, chairman of the House transportation, tourism, and hazardous-materials subcommittee, said that EPA estimates there are some 31,000 school buildings across the country that contain some form of asbestos. As many as 15-million school children—almost one-third of the nation's school population—and some 1.4 million school employees may be studying and working in buildings with asbestos. *Peter Hoffmann, World News, Washington, D. C.*



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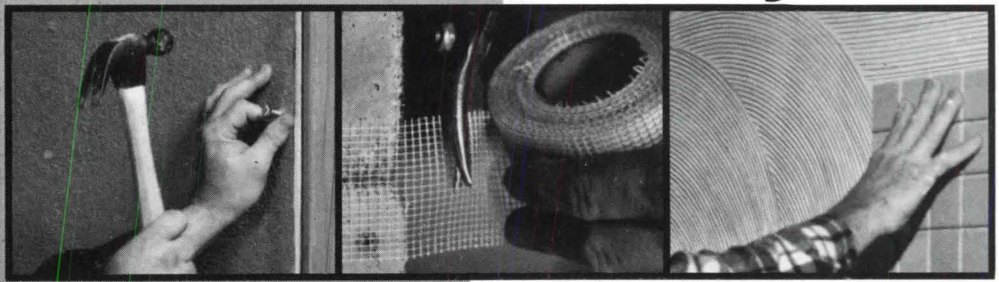

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egal perspectives: hould you decline to be the decision-aker in client-contractor disputes?

AIA contract documents require architects to act as quasiarbitrators and render decisions on these disputes as a basic service. But there are ways to protect yourself from any resulting undue liability exposures and/or excessive amounts of time spent in the process.

y Arthur T. Kornblut, Esq.

ne architect's role as the initial ecision-maker is a time-honored ne when disputes or claims ise between the owner and ntractor. In the First Standard dition of the AIA General onditions, published in 1911, a ause gave the architect the ght to make "the final decision all questions arising under is Contract," with the decision eing a "condition precedent to y right of legal action by ther Owner or Contractor." ne concept embodied in those nple words has evolved into a ndamentally important role—t with a potentially risky posure.

The logic behind the architect ng the initial decision-maker ms from the architect's imate knowledge of the project l its design requirements, and m the architect's general olvement in construction-tract administration. If the hitect were not available to ide the inevitable questions t arise during the construction cess, the owner and contractor ld be left to their own ices—with the potential for y more claims and disputes to som into full-blown legal eedings. The protection to the owner and contractor n an architect who might act improperly in this decision-making role is the mechanism within the contract that makes all such decisions (except those involving esthetics) "appealable" to arbitration. If both parties are satisfied with the architect's decision, it stands. If either or both are dissatisfied, they can resort to arbitration for a further and final determination.

The law historically has given architects immunity from liability when acting in the decision-making role. In the 1962 case of Lundgren v. Freeman, (307 F.2d 104), the court said: "If their decisions can thereafter be questioned in suits brought against them by either party, there is a real possibility that their decisions will be governed more by the fear of such suits than by their own unfettered judgment as to the merits of the matter they must decide."

Kornblut is a registered itect, a practicing attorney e firm of Kornblut & love in Washington, D. C., former chairman of the rican Bar Association's m Committee on the truction Industry.

What can happen when the architect fails or refuses to act?
Under the current AIA contract documents, the architect, as a basic service, "shall interpret and decide matters concerning performance of the Owner and Contractor under the requirements of the Contract Documents. . . " (B141, 2.6.15). Under the general conditions, the architect is required to play a pivotal role at the outset of a highly complex procedure for dealing with claims and disputes (A201, 4.3 and 4.4). These contract clauses are appropriate and sensible when the architect is presented with straightforward technical questions arising during the course of construction. They create a potential trap, however, when the architect is asked by the owner or contractor to decide a single claim involving millions of dollars in delay damages at or near the conclusion of a project that has suffered serious setbacks in its schedule for completion; when claims involve highly complex equipment systems for which the design team has relied heavily on the manufacturer's expertise representations; or when the owner and contractor have engaged in extensive claim negotiations with minimal involvement by the architect and then one or the other demands the architect's decision as a tactic to gain bargaining leverage.

To further illustrate the problem, scheduling experts are paid significant fees to document, prepare, and present delay claims, often hired at the outset and then taking the entire duration of construction to assemble their data. Yet, the architect is required to analyze and make a decision on the claim within a limited time. (The architect cannot simply make any decision to get off the hook. The decision must be based on the supporting data presented by the parties. If he acts arbitrarily or capriciously, the immunity articulated by the court in the Lundgren decision can be lost.) If the architect fails to make a rational decision, the parties can claim he breached his contractual obligation—thus forcing them to expend considerable sums on the formal legal process.

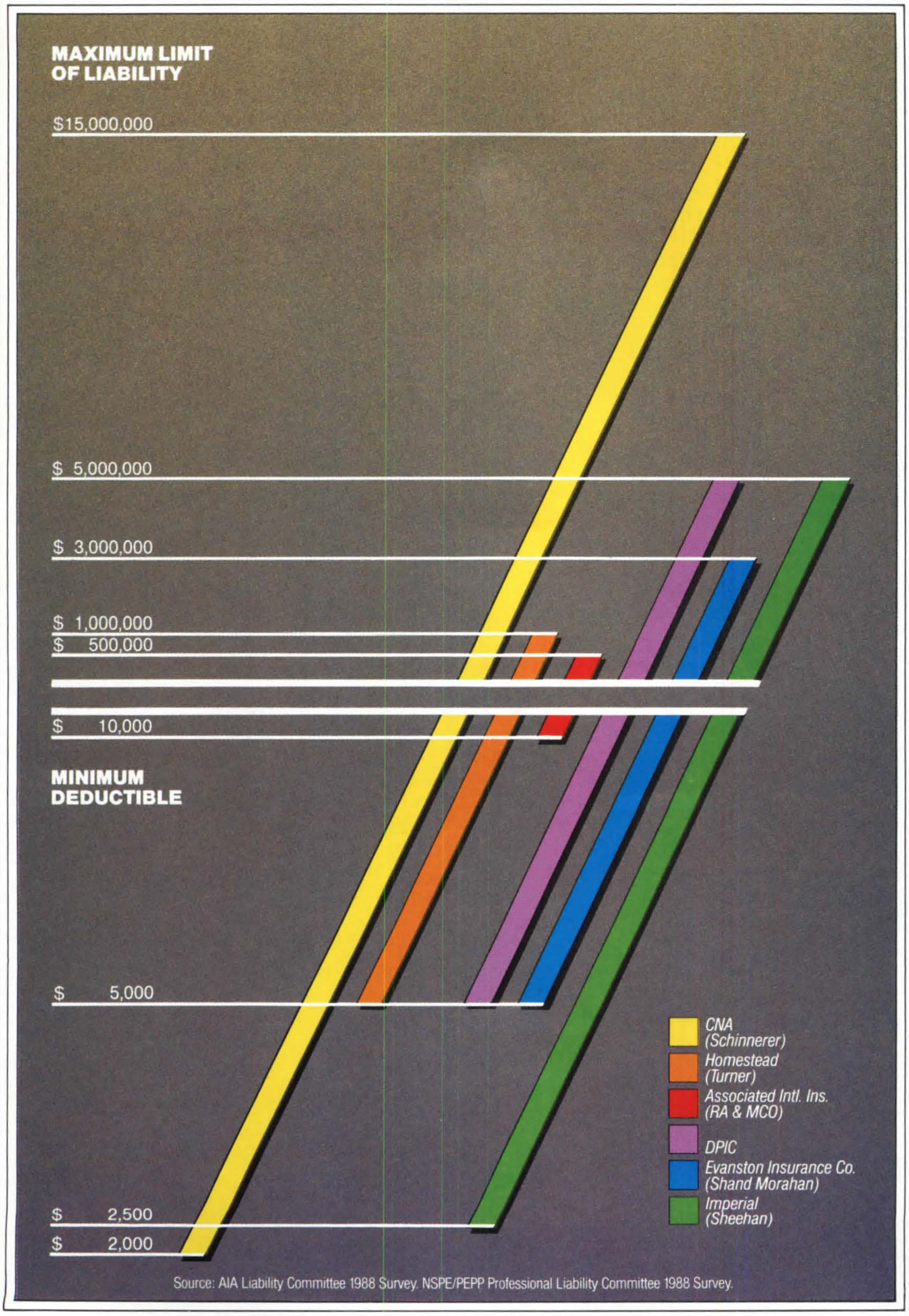
To avoid dilemma, the architect should have options when very complex claims are presented
For one, the architect's role in dispute resolution should be an additional service, not a basic service. (Under B141, it is an additional service only when the architect is required to evaluate "an extensive number of claims submitted by the Contractor or others." It is unclear whether "others" includes the owner, and "extensive number" certainly does not include a single delay or other type of claim that may be a blockbuster.) If relatively simple or minor issues must be decided, the architect always can elect *not* to bill for the time required to deal with them, but he at least should have the option to do so. To accomplish this, a clause could be added to Article 12 in B141: "If the services set forth in Subparagraphs 2.6.15 through 2.6.19 of this Agreement are required, they shall be Additional Services and shall be paid for in accordance with Paragraph 11.3." Alternatively, if the owner is unwilling to agree to this, a basic-service time limit (10 hours, for example) for dispute resolution might be offered.

The other major change that is needed is an opt-out clause to give the architect an absolute right to decline to make a decision. Consider these possible additions to B141 and the Supplementary Conditions to the construction contract:

"In the event a claim, dispute or other matter in question is presented by the Owner, Contractor, or any other party to the Architect for an interpretation or decision, the Architect shall endeavor to provide such interpretation or decision as required by this Contract. However, if the Architect determines that an interpretation or decision would be impractical under the circumstance, that the issues presented are beyond his knowledge or expertise, that there is insufficient time for him to evaluate the issues, or that satisfactory arrangements have not been made for his compensation for the services necessary to evaluate the supporting data and issues presented, he shall have the absolute right to elect not to make the interpretation or decision being requested. In such event the Owner, Contractor, and such other party shall be so notified, and they shall proceed to arbitration or take such other course of action as they may mutually agree."

An opt-out clause is far preferable to claiming an implied waiver of the obligation to serve as the initial decision-maker when declining to decide is the appropriate course.

It pays to look high and low for your liability protection.



Source: AIA Liability Committee 1988 Survey. NSPE/PEPP Professional Liability Committee 1988 Survey.

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Construction finance: Strains threaten economic expansion

Fewer consumer purchases on debt, a move recommended by the author to control upward inflationary pressures and rising construction-financing costs, would take some time to be felt. Accordingly, expect more interest-rate hikes, hampering construction activity.

By Phillip E. Kidd

As the economic expansion approaches its sixth anniversary, unmistakable signs of strain are apparent. Consumers have esumed borrowing to spend. Shortages in manufacturing mployment, materials, and roduction are appearing. nflationary pressures are mounting. And interest rates are limbing. With less and less ack in the economy, something as to give.

Starting in 1987, rapidly xpanding domestic and overseas emand for U. S. goods enerated a resurgence in U. S. manufacturing and exporting. Earlier this year, those sectors took over from consumer spending as the driving force propelling our economic growth.

Initially, there were surpluses of skilled and semiskilled labor, materials, and production capacity. Manufacturers eagerly drew on them to boost output. Equally important, starting in 1987, industrial concerns steadily increased investment. Into early 1988, however, most of those expenditures went to purchase equipment, which, when integrated into current facilities, lifted output. Meanwhile, outlays for new plants, or for additions or rehabilitation of existing structures, dawdled.

Conditions changed in the spring. The dollar, whose plunge in the previous 2 1/2 years had eventually triggered the revival in industrial production, firmed and even gained in value. Still, overseas and domestic orders flowed in. Capacity-utilization rates edged even closer to optimum production levels in many industries. In turn, manufacturers accelerated spending on structures.

Unfortunately, it will be months before those growing expenditures turn into additional operating capacity. Consequently, inflationary pressures in the industrial sector will intensify and spread through the economy—unless there is some slowing in the consumer sector.

Instead of building up their savings, consumers, who had moderated expenditures and credit use in 1986 and 1987, have revived their spending and have borrowed more to do it. A continuation of those trends could soon have several negative impacts on the economy.

Larger household purchases would fuel demand for business output, straining production capacity even more. That would fan inflationary pressures. Expanded borrowings would compete with business for increasingly more costly and tighter supplies of money. Unchecked, relentlessly rising interest rates would eventually undermine economic growth and tumble the economy into a recession.

In the coming months, fiscal policy will offer no relief. The federal deficit is no longer shrinking, having stabilized around $150 billion. Thus, the government will remain a substantial competitor for funds.

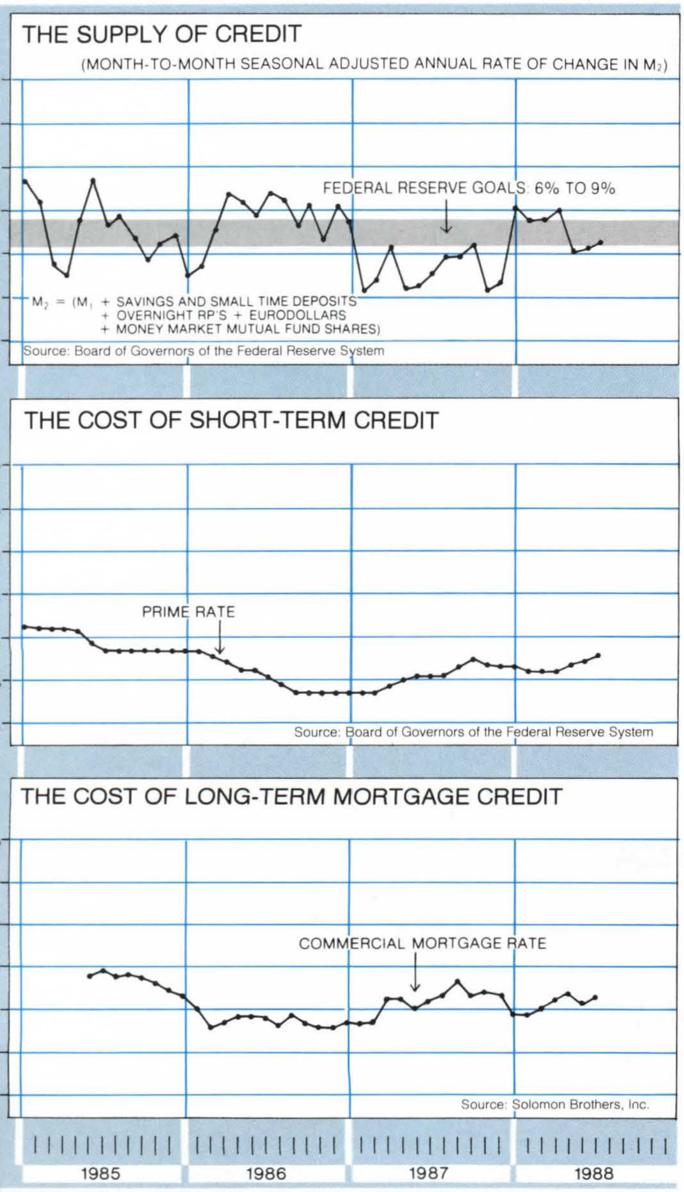
In contrast, the Federal Reserve will persistently firm monetary policy to counter inflationary tendencies. Since the spring, it has forced short-term rates up twice as fast as long-term rates.

One result of these movements is that longer-term funds have remained available for business investment at acceptable prices; whereas shorter-term loans have become more costly for consumers. By now, consumers with outstanding adjustable-rate debt (mortgages, equity lines of credit, charge cards, and other consumer loans) have felt the first pinches of the run-up in short-term rates. With less to spend from current income because of higher interest payments and with new credit more expensive, consumer borrowings will ease this quarter.

Nevertheless, the growing competition for funds among businesses, consumers, and governments will push the yield curve up another 50 to 75 basis points (one-hundredth of a percent) by year-end. Rates on quality assets will fluctuate from 8 to 9 percent for short-term instruments; 10 to 11 percent for seven- to 10-year governments; and 12.5 to 13.5 percent for mortgages.

Such rate hikes will inhibit construction activity. Industrial building will advance, but housing, retail, and office building will slip below their third-quarter pace.

Dr. Kidd is a prominent economic consultant and former director of economic research for the McGraw-Hill Information Systems Company


THE SUPPLY OF CREDIT

(MONTH-TO-MONTH SEASONAL ADJUSTED ANNUAL RATE OF CHANGE IN M_2)

Source: Board of Governors of the Federal Reserve System

THE COST OF SHORT-TERM CREDIT

Source: Board of Governors of the Federal Reserve System

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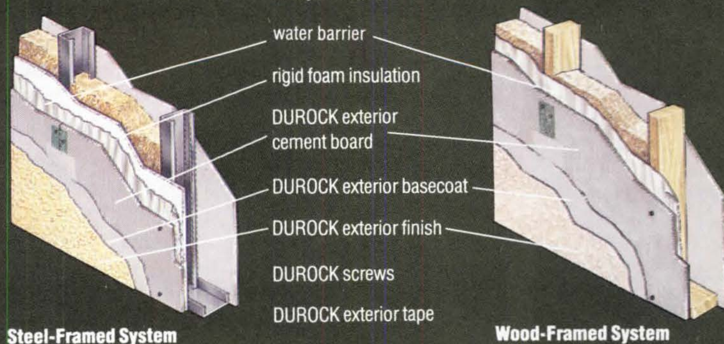
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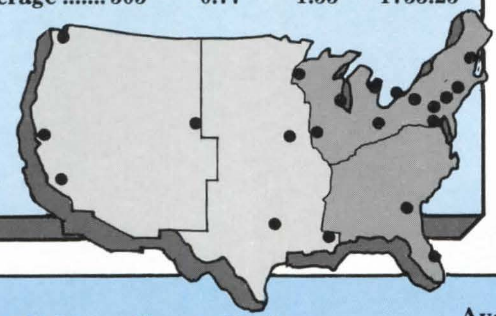
Construction costs: Should we say inflation?

Summary of Building Construction Costs

	Number of metro areas	4/88 to 7/88	7/87 to 7/88	1977* to 7/88
Eastern U. S.				
Metro NY-NJ	18	1.24	3.78	1917.76
New England States	33	0.66	2.78	1825.84
Northeastern and North Central States	120	0.89	1.57	1724.48
Southeastern States	106	0.84	1.30	1761.54
Average Eastern U. S.	277	0.87	1.76	1763.30
Western U. S.				
Mississippi River and West Central States	122	0.57	1.30	1710.95
Pacific Coast and Rocky Mountain States	106	0.73	1.30	1775.65
Average Western U. S.	228	0.65	1.30	1741.03
United States Average	**505**	**0.77**	**1.55**	**1753.25**



*Using only cities with base year of 1977

What else would account for continued strong rises in the cost of construction in the face of slackening demand? Costs in the second quarter of 1988 rose by 0.77 percent and almost matched those in the first, when the greatest rise since 1984 was hoped to be only an aberration.

While, in the opinion of Marshall & Swift analyst Frank Benz, inflation did indeed play some role in the continued run-up, that run-up can be seen to be heavily influenced by activities in just one section of the nation—metropolitan New York and New Jersey where costs rose 1.24 percent.

In the past few years, costs in both that region and the New England states have tended to drag the national averages up substantially, rising even when all the rest of the regions' costs were falling (as they did in the fourth quarter of last year). In this second-quarter report, New York and New Jersey pulled ahead of New England to almost double that region's performance. Cost increases in the remaining regions ranged from a high of 0.89 percent in the other northeastern states to a low of 0.57 in the west-central states. So how much you got depended on where you were.

Why the wide geographic cost variations? Because the old law of supply and demand may still be at play—along with any incipient inflation. Demand has wide geographic variations. While all building construction for the first half of this year was off by 4 percent from last, according to the McGraw-Hill Information Systems Company, the value of residential construction in New England rose by almost $125 million, in New York-New Jersey, by over $200 million, and by some $130 million in the Pacific Northwest. And the value of nonresidential building, beleaguered nationally because of offices, rose by some $560 million in New England.

Most material costs rose modestly. Only such rises as lumber's 0.25 percent and gypsum board's 0.047 percent were noticeable—leaving the probable repeat culprit, labor.

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	1988 1st	1988 2nd	1988 3rd
Atlanta	1171.5	1712.6	1925.6	2098.6	2078.0	2360.6	2456.7	2448.7	2518.3	2561.9	2580.9	2606.8	2694.7	
Baltimore	1018.4	1107.7	1304.5	1446.5	1544.9	1639.5	1689.7	1703.7	1743.8	1765.2	1780.2	1823.8	1859.8	
Birmingham	1029.7	1142.4	1329.9	1407.2	1469.9	1468.1	1535.7	1594.7	1565.7	1587.4	1542.6	1555.5	1591.2	
Boston	1028.4	0998.6	1236.0	1283.7	1432.5	1502.0	1569.9	1646.0	1721.0	1773.6	1883.0	1945.5	1947.1	
Chicago	1007.7	1032.8	1199.7	1323.6	1344.7	1425.8	1439.5	1476.7	1528.0	1599.9	1591.4	1616.6	1636.8	
Cincinnati	0848.9	0991.0	1323.9	1385.2	1350.4	1362.6	1430.8	1484.5	1486.6	1499.4	1510.9	1523.1	1527.2	
Cleveland	1034.4	1040.8	1287.5	1388.2	1459.5	1511.4	1475.9	1464.0	1474.1	1525.7	1541.8	1537.8	1557.3	
Dallas	1042.4	1130.6	1431.9	1481.9	1750.6	1834.3	1925.9	1958.0	1963.3	1973.9	1947.2	1983.4	1980.0	
Denver	1038.8	1100.4	1495.6	1487.4	1632.2	1679.1	1800.1	1824.3	1821.8	1795.8	1732.7	1741.1	1764.6	
Detroit	1018.1	1087.3	1275.3	1447.4	1580.3	1638.0	1672.1	1697.9	1692.6	1696.6	1689.3	1688.2	1714.8	
Kansas City	1023.5	0951.5	1125.8	1233.2	1323.4	1381.8	1407.5	1447.1	1472.5	1484.7	1493.7	1504.2	1517.8	
Los Angeles	1022.5	1111.0	1255.3	1387.5	1474.3	1503.3	1523.9	1555.1	1571.0	1609.7	1675.1	1713.9	1770.1	
Miami	1004.5	1080.9	1330.1	1380.6	1369.1	1392.1	1467.6	1522.2	1540.6	1566.2	1589.2	1602.0	1594.9	
Minneapolis	1060.2	1196.8	1286.9	1327.7	1442.6	1576.8	1624.6	1640.4	1661.0	1674.0	1677.0	1698.4	1702.5	
New Orleans	1001.3	1138.8	1291.9	1505.7	1572.7	1616.9	1650.5	1691.4	1762.5	1760.2	1699.8	1706.3	1726.4	
New York	1005.4	1043.0	1247.1	1319.4	1419.2	1491.8	1672.5	1747.2	1806.7	1899.9	1980.9	2027.2	2062.7	
Philadelphia	1013.8	1074.2	1487.5	1539.5	1660.7	1769.4	1819.5	1922.1	1967.9	1992.7	2023.5	2085.0	2147.5	
Pittsburgh	1016.1	1015.0	1227.0	1341.7	1493.2	1479.5	1497.2	1576.1	1611.0	1665.8	1647.3	1662.7	1696.2	
St. Louis	1039.1	1198.8	1275.9	1320.0	1397.3	1451.2	1524.9	1625.5	1641.8	1647.4	1653.5	1661.7	1699.4	
San Francisco	1083.2	1326.8	1473.4	1644.8	1776.4	1810.1	1856.8	1935.3	1961.8	1995.5	1992.0	2007.6	2042.5	
Seattle	1142.5	1137.9	1373.4	1616.8	1814.9	1962.7	1979.0	1948.9	1937.9	1925.3	1874.7	1898.8	1932.2	

s 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 period are 33% higher than the costs in the other. Also, second period costs are 75% of those in the first period (150.0 divided by 200.0 = 75%) or they are 25% lower in the second period.

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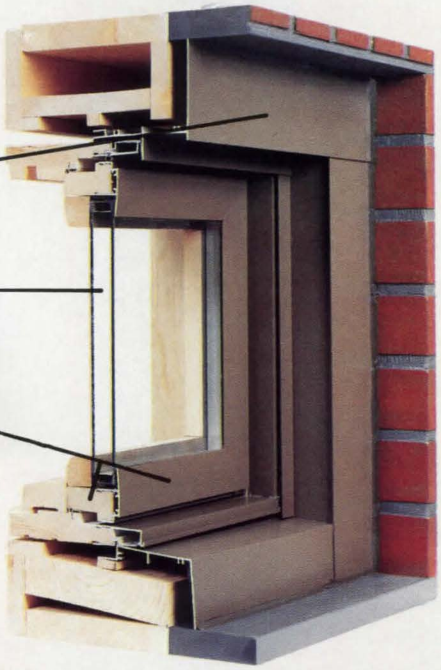

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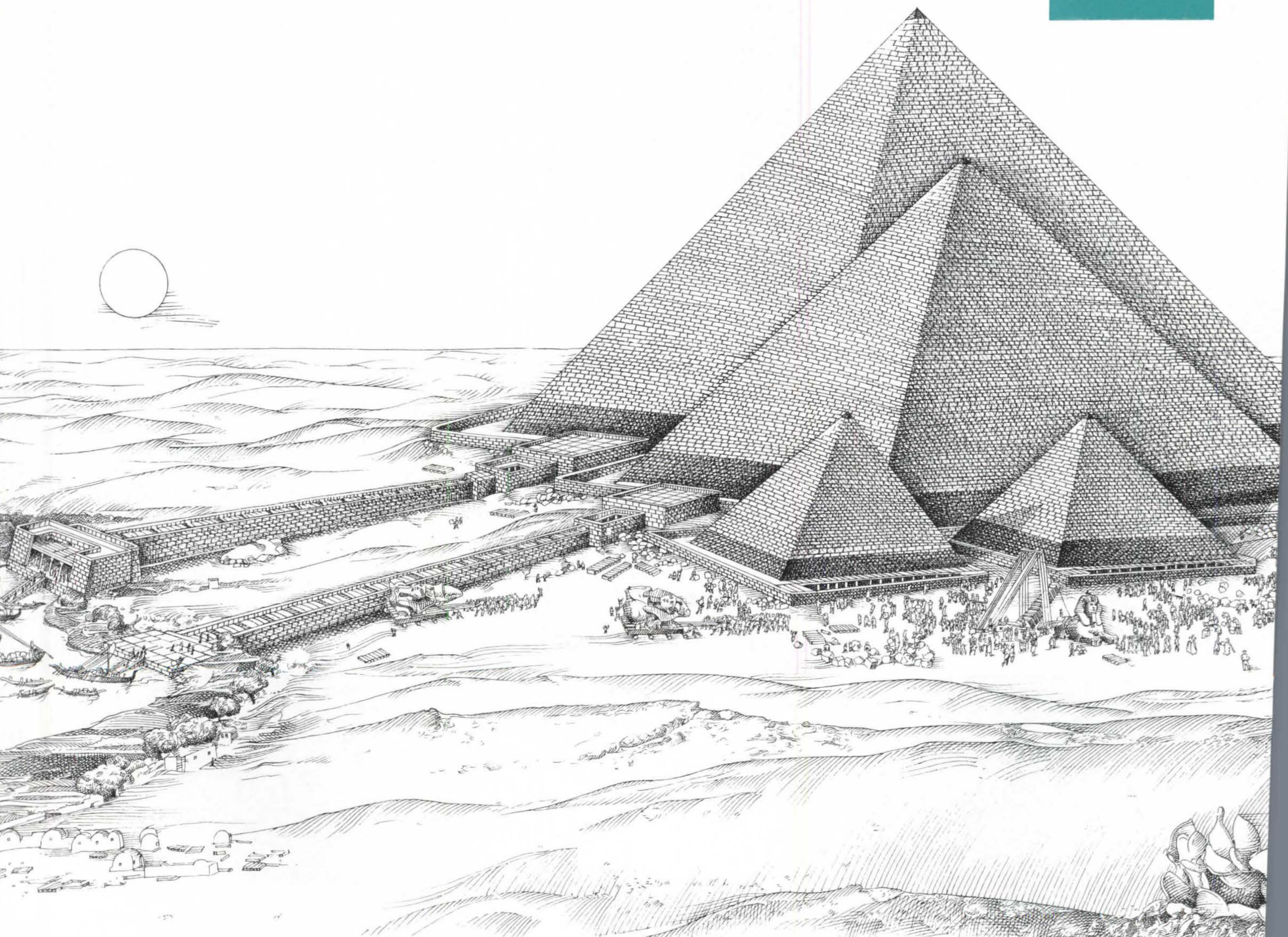

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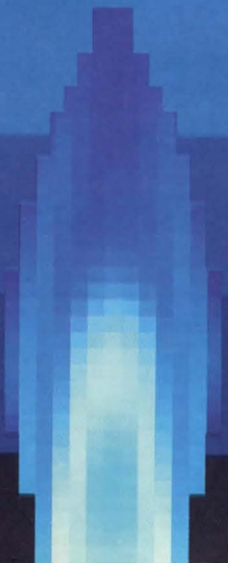

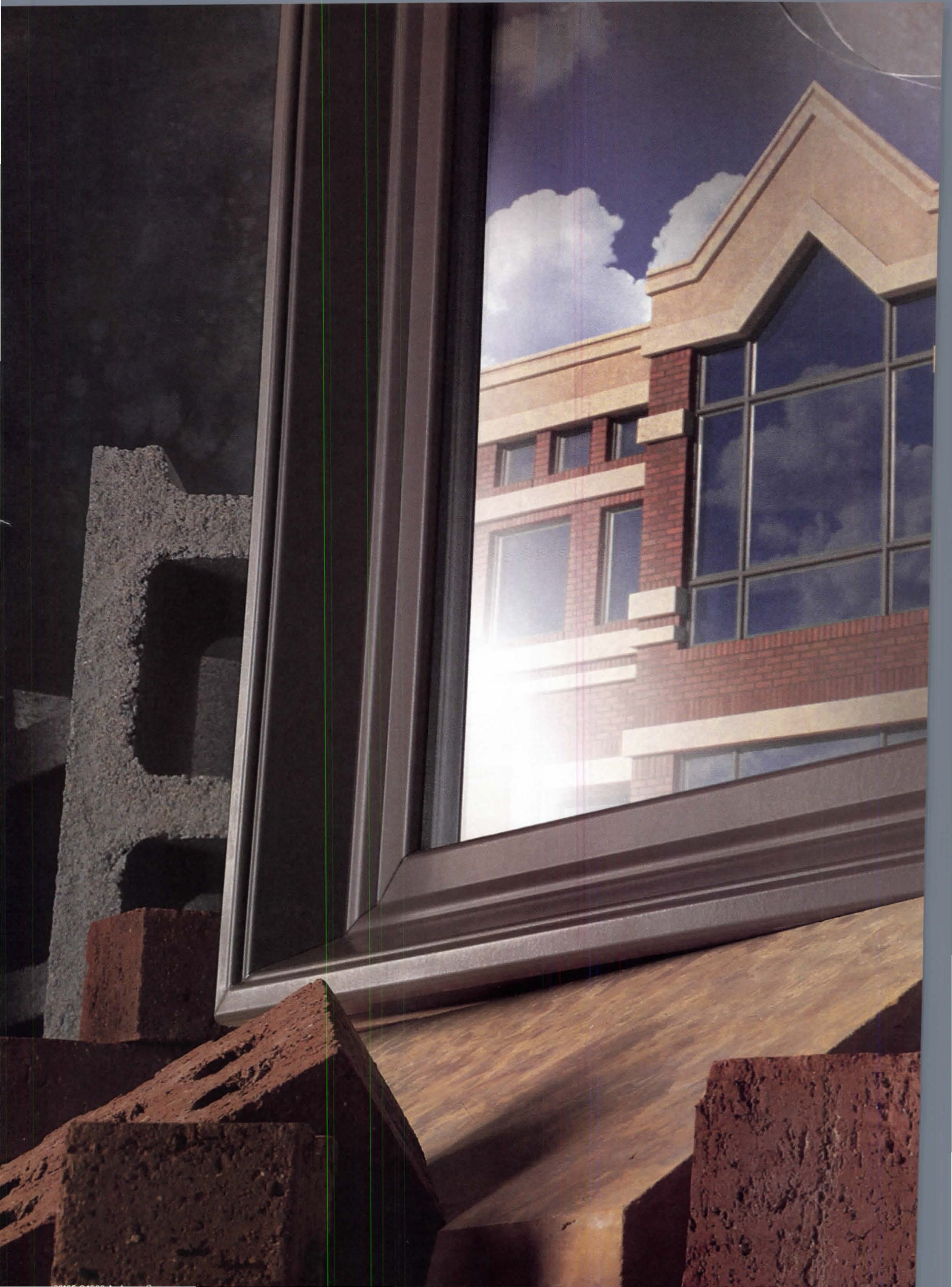

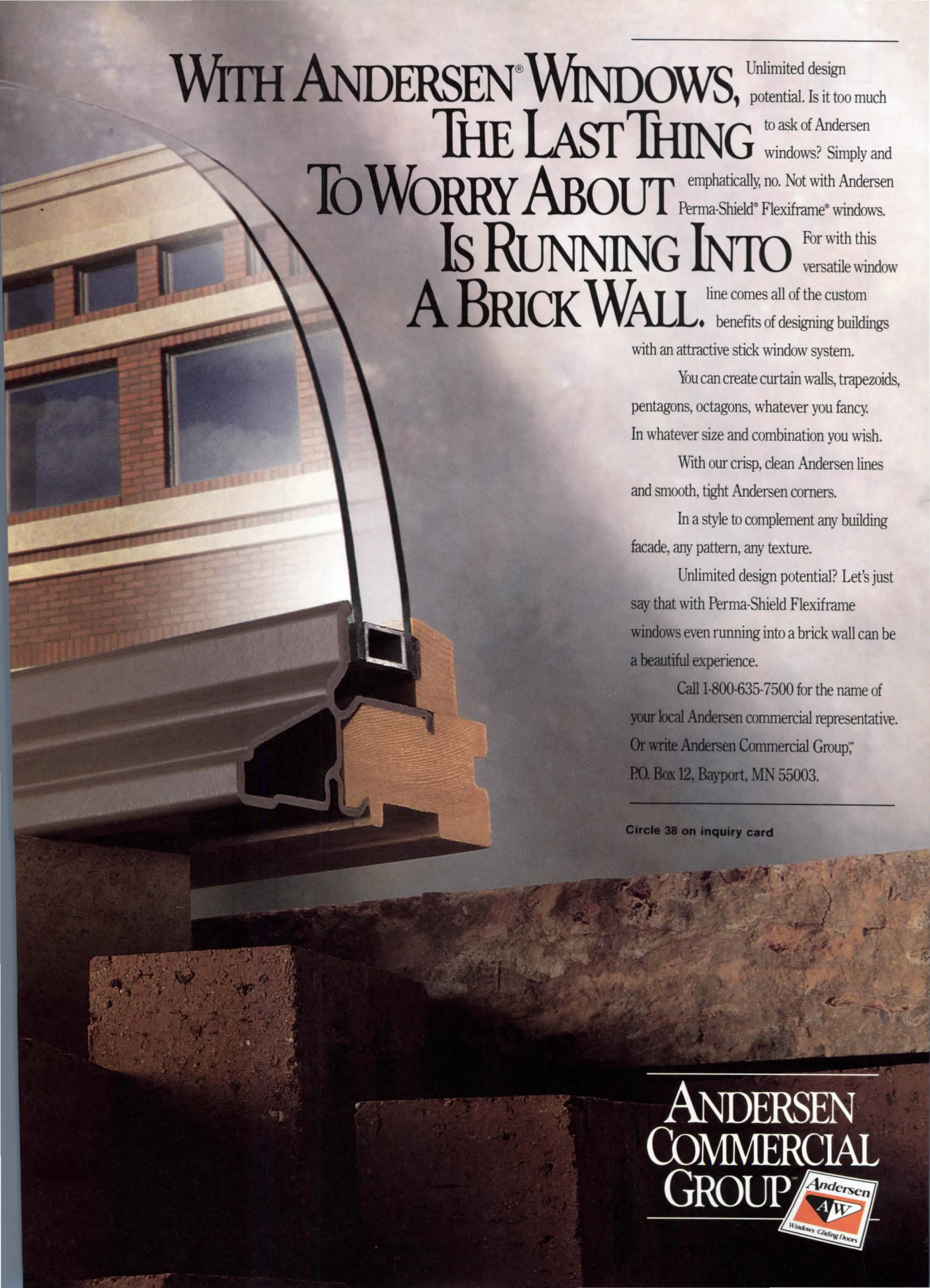

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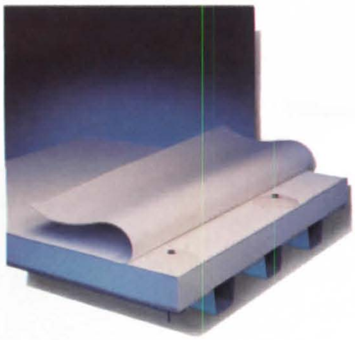

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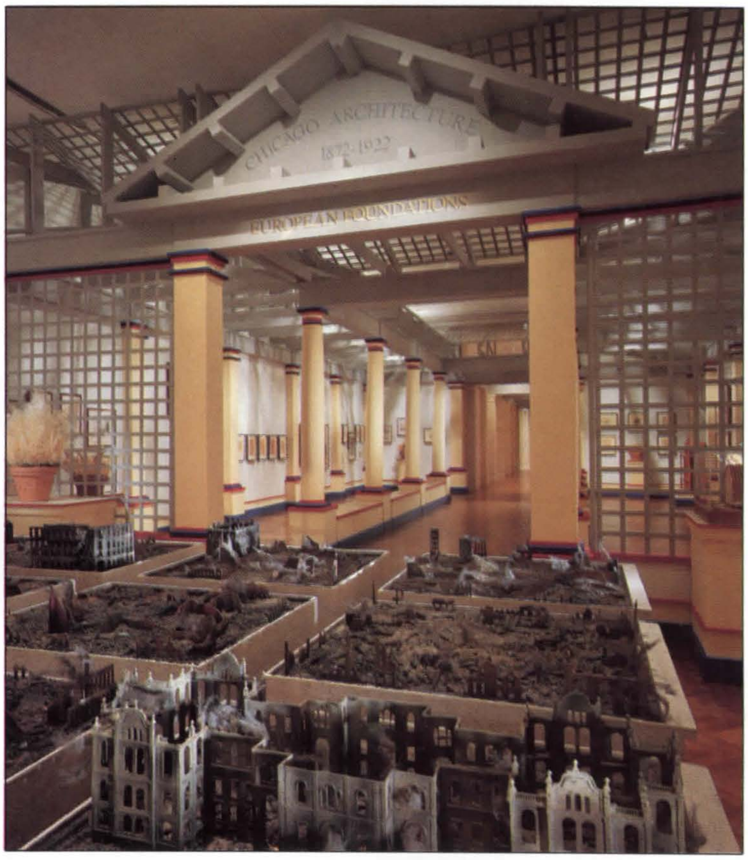
Tigerman's pictures at an exhibition

After opening in Paris [RECORD, November 1987, page 69] and traveling to Frankfurt, "Chicago Architecture 1872-1922: Birth of a Metropolis" returned briefly to its origin, The Art Institute of Chicago, in a lavish new installation designed by Stanley Tigerman of Tigerman McCurry. Beginning with a model representing the Chicago fire (right), Tigerman chose to present "pictures of architecture *within* architecture." Archways were styled to match the periods presented, and trellises enclosed thematically discrete spaces. Curator John Zukowsky did not require Tigerman to eschew didacticism, and so, for example, the European-academic roots of late 19th-century Chicago architecture were presented in columniated spaces in enfilade. The famous Tribune Tower competition occupied a room populated by street lights and benches, a reference to the Parisian-inspired planning of Burnham that prevailed as Modernism struggled to take hold (below right). The setting for Frank Lloyd Wright's work recalled the Coonley playhouse. Exhibition themes were reprised in four aediculae (containing books for sale) in the styles of Burnham, Sullivan, Wright, and Mies (below left).



Bruce Van Inwegen

The palette: Bluebell, Cameo, Lavande, Robin's Egg, Wisteria.

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The media: WILSONART Color Quest® Decorative Laminates.

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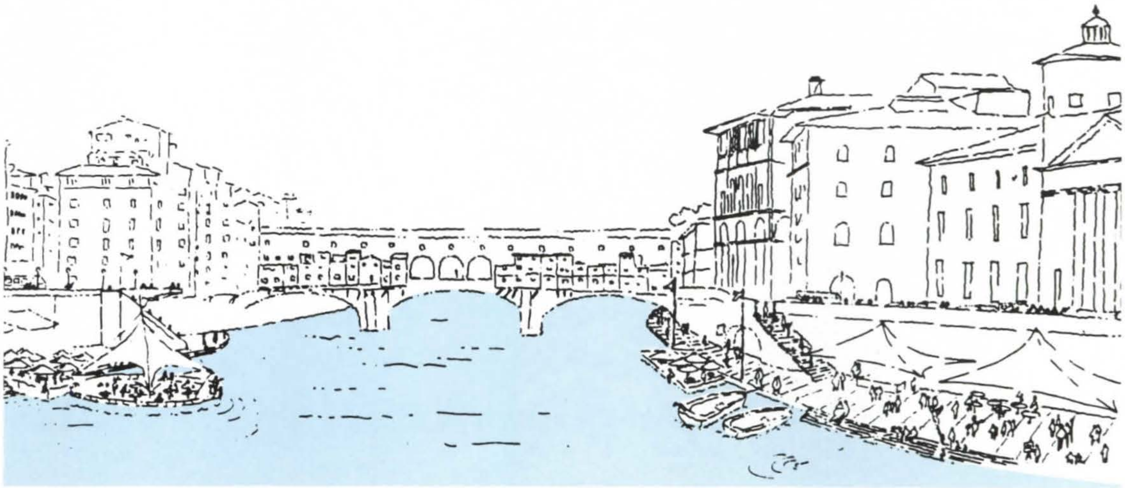
the Yerba Buena Gardens
nmercial development in the
ith of Market area. A decision
expected later this fall.

e Coney Island Cyclone, "a
vity ride of the wood-track
ster type, with six fan turns
l nine drops,"—i. e., a roller
ster—has been designated a
toric landmark by the City of
w York. Historian Gary
riazi has written that "New
rkers should consider the 1927
e [designed by engineer
rnon Keenan] as valuable as
Statue of Liberty or the
pire State Building."

ele Naude Santos's design
a 40-unit multifamily low-cost
ising prototype has won an
ted competition sponsored
tly by The Museum of
temporary Art and the
nmunity Redevelopment
ency in Los Angeles. The
test was inspired, in part, by
Case Study Houses,
erimental residences
structed between 1945 and
and designed by architects
1 as Richard Neutra, Craig
ood, and Charles Eames. A
ospective exhibition of the
Study program will be on
at MOCA late in 1989; the
A/CRA housing will be
oleted in 1990.

XVII Triennale di Milano
oresent (until December 18)
ld Cities and the Future of
Ietropolis," a thematic
sition exploring how urban
, particularly in the third
l, are being rapidly
formed. (What will it mean,
xample, if the population of
o City grows to a projected
llion people by the year
)

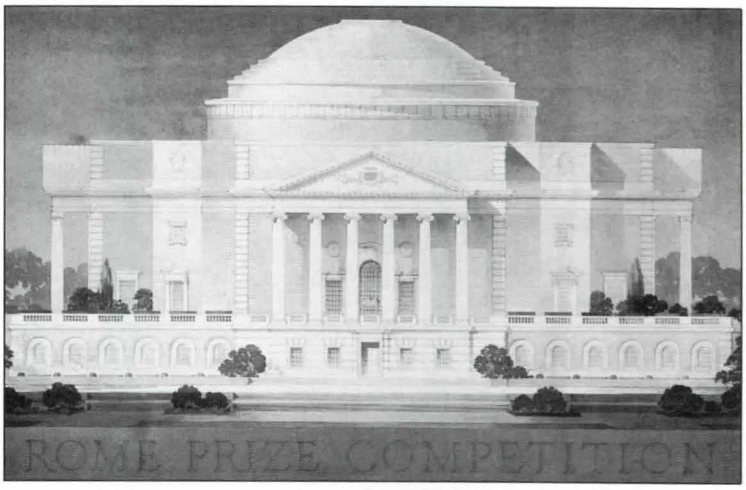
Along the Arno

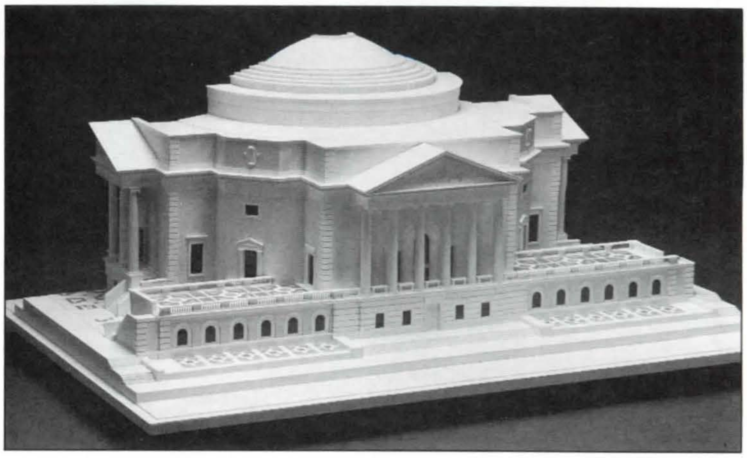


Aimed at restoring the neglected Arno River to a more vital role in the life of Florence, the Tuscan city has approved plans for a five-mile linear promenade, designed by Richard Rogers and Partners, of London, and Claudio Cantella, of Florence, that will serve as a focal point for outdoor recreational and cultural events, and a link to nearby suburbs. The river's unpredictable flow has been a deterrent to revitalization of what was once a primary commercial and industrial artery (memories of the catastrophic 1966 flood are still vivid). By analyzing the effects of 15 years of seasonal crests, the designers determined a height for new riverside promenades that should keep them above water more than two thirds of the year. Food concessions, cafés, and tourist and cultural information services will either be cut into the bank beneath a street-level quay or erected on floating platforms moored along the walkways. Demountable lightweight stairs will provide new access at key points along the quays; existing stairs, ramps, and retaining walls will be rebuilt with Pietra Serena, the characteristic gray building stone of Florence.

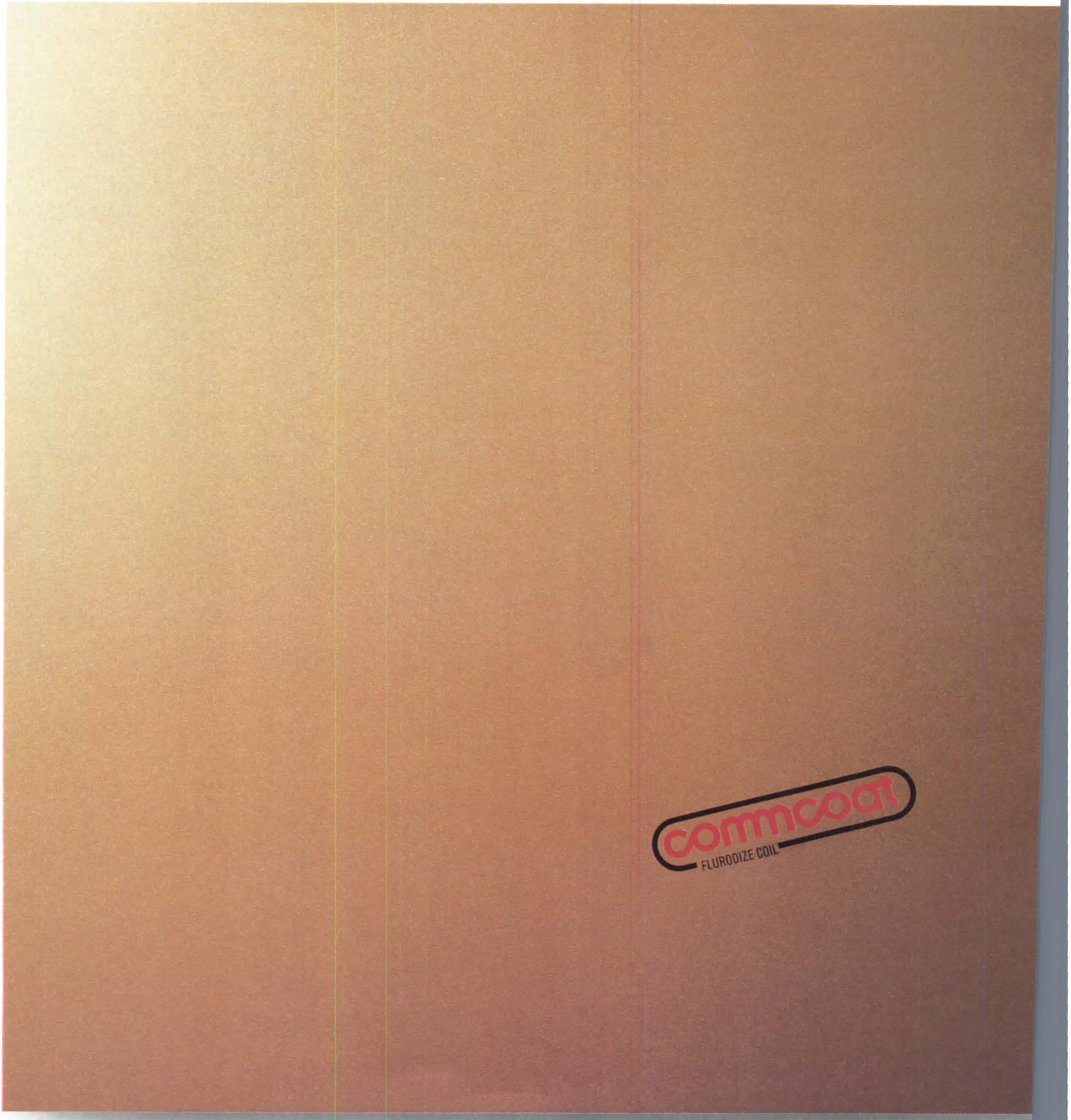
Claire Schiffman

What do you give an octogenarian architect?





Early this year, Barton Simon, a real-estate developer in Eastlake, Ohio, discovered damaged drawings that his 81-year-old father had produced as a student at Yale—a design for a symphony hall which, though delineated in a meticulous Beaux-Arts style, failed to win Sanford Simon the Rome Prize in 1933. Simon *fils* had the drawings restored, and a model constructed from them. He reports that his father (who recently resumed his graduate studies in architecture) was thrilled to receive the resurrected project as a surprise 82nd-birthday gift, but less impressed by the forgotten grandeur of his scheme or the intricate construction of the model than with the steadiness of his own youthful hand.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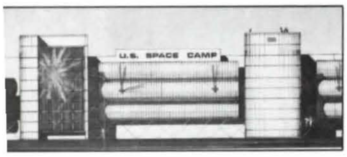
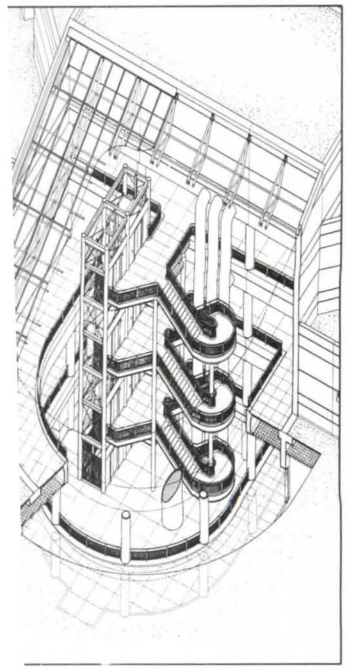
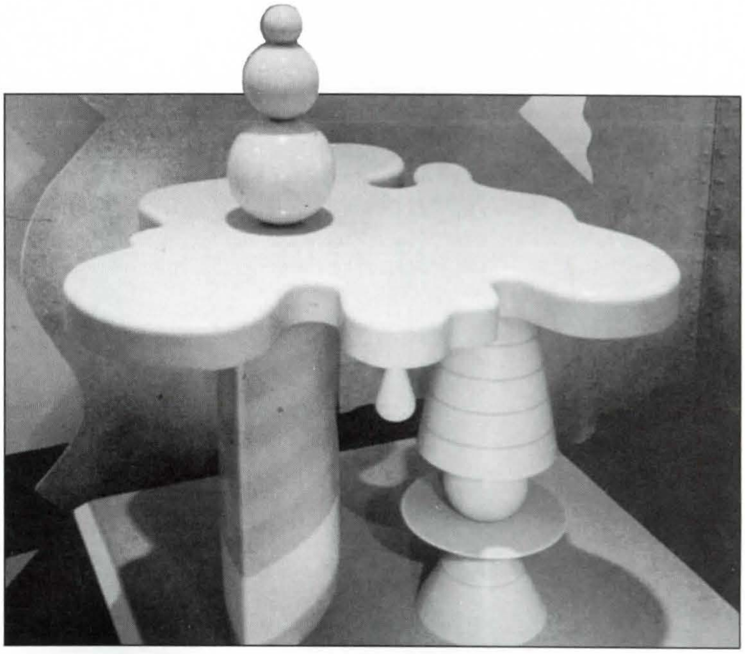


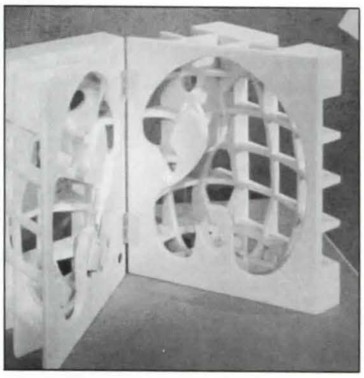


191 Peachtree Tower (1) appears to be a slender granite-clad shaft from the street sides of its downtown Atlanta location. Contending with a long, narrow, through-block site, John Burgee Architects (Philip Johnson, consultant) with Kendall/Heaton Associates have configured the long sides of the 50-story building as twin towers, reminiscent of New York's Waldorf Astoria. Construction will be completed late in 1990. **Domino's Pizza** (2) is analyzing a new prototype freestanding store, designed by Gunnar Birkerts. While the keystone-cum-pizza-slice is intended as an iconic image for the chain, the structure is also seen by Domino's officials as evoking farmhouse imagery ("natural goodness"). If it passes muster, the design is likely to become ubiquitous: Domino's has 4,600 stores in operation worldwide. **U. S. Space Camp** (3) in Huntsville, Ala., is a 4-story, 53,000-sq-ft "habitat" that will offer its youthful participants six-person sleeping modules with built-in exercise equipment and computer workstations. A series of metallic tubes, inspired by projected space-station designs, will be organized around an atrium. Several aerospace firms are contributing to the $3.65-million project which is being designed by Tom Fricker of the Space and Rocket Center and Design Compendium, Architect; it will open this year. **The Applied Technology and Training Center** (4) in Michigan focuses on a five-story atrium that provides an opportunity for casual interaction of users. Architect Perkins & Will has made the internal workings of the center visible, where possible, to the students, faculty, and visiting experts from industry who will use the Grand Rapids Junior College facility to train and retrain workers for expanding midwestern high-technology industries.

Practical, poetic



Many of the entries in Formica Corporation's *From Table to Tablescape* competition were nominally domestic items: lamps, tables, chairs. As interpreted by the likes of Mark Mack, Billie Tsien, and others in the 2000X line of surfacing material, the results were, to say the least, unfettered. One lamp both glows and heats incense (Patrick Elie Naggar); another appears to be blowing in the wind (Mark Simon); a picket fence supports a glass tabletop (Brian Murphy); a serving tray becomes an extension of clothing (Karen Van Lengen & Joel Saunders). *Fountain*, by Dan Friedman, (above) suggests a liquid solidity. Eric Owen Moss, on the other hand, has carved out the hinged, gridded cube of *One Wilshire* with organic curves (it lights when opened, below).



Competition calendar

- "Competition Diomede" seeks ideas to unite the U. S. with Soviet islands across the Bering Strait. Write to PS #1, 46-01 21st Street, Long Island City, N. Y. 11101. Entries are due February 15, 1989.
- Expressions of interest are being solicited from architects who would like to compete for the design of the U. S. pavilion at the 1992 Universal World's Fair in Seville. Submissions must reach the United States Information Agency by December 1. Additional information: (202/485-6414).
- Work that has been completed since January 1, 1982, is eligible for the American Institute of Architects 41st Honor Awards Program. The registration deadline is October 31, and forms can be obtained from Maria Murray, c/o Honor Awards Program, 1735 New York Avenue N. W., Washington, D. C. 20006 (202/626-7360).

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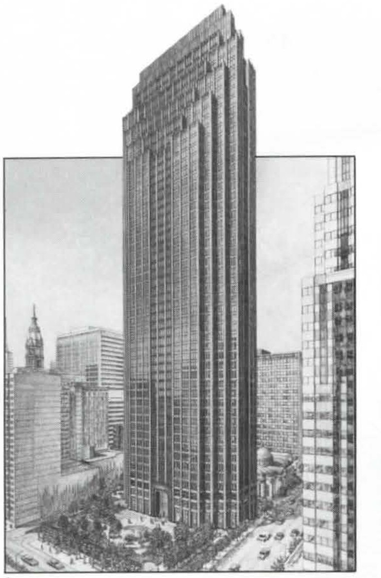
New plan for Philadelphia: trying o do more with less

he recently unveiled Plan for
enter City in Philadelphia
mbodies many current trends in
oth planning and urban design,
ut it is the clarity of this
articular city's physical form—
nherited from past pioneering
fforts—that throws urban
trategies applied elsewhere into
harp relief. Overlaid on William
enn's park-block-studded 17th-
entury grid is the diagonal
enjamin Franklin Parkway, a
aussmannesque tree-lined
oulevard that radiates from the
econd-Empire City Hall (at the
enter of Penn's plan) to the
eoclassical Museum of Art.
rom the 1940s into the '70s,
ommercial growth at the core
as guided by the ambitious
hysical redevelopment strategy
ormulated by Edmund Bacon.
o longer limited by a lethargic
conomy and a so-called
gentleman's agreement" on
eight, Philadelphia is now
eeing a spate of 50-or-more-
tory buildings—the previous
verage had been a modest 30
ories—produced by aggressive
t-of-town developers.
oordinating this expansion
ecame the impetus for the plan.

Many of the greatest
hievements of the Bacon years
nerged from the search for a
rm for Philadelphia, with ideas
ntributed by the likes of
maldo Giurgola and Louis
ahn. Though widely admired
d imitated in other cities, the
sult—an enormous remaking
Center City (which embraces
e commercial business district
well as close-in residential
eas)—has always been
troversial within Philadelphia.
d Bacon thought that a great
n could be a beacon that
uld survive the messy here-
d-now," asserts Denise Scott
own of Venturi, Rauch and
tt Brown. As she recalls, "We
guard planners of the social
nning movement at the
iversity of Pennsylvania were
king equity in dealing with
poor, while architecture and [Bacon-style planning] were going another way, clearing sites and rebuilding." In many parts of the country community-oriented plans did not produce the kinds of results that made headlines, however, and "concept" urban master plans, many of them simplistically derived from early European Modernism, were—like some of Bacon's efforts—shouted down. "Even [Bacon] might now admit that the vision and the reality were quite different things," notes Scott Brown. As it turned out, declining local tax revenues and federal budget cutbacks decimated the resources all planners customarily relied on, reflecting society's dwindling commitment to the city.



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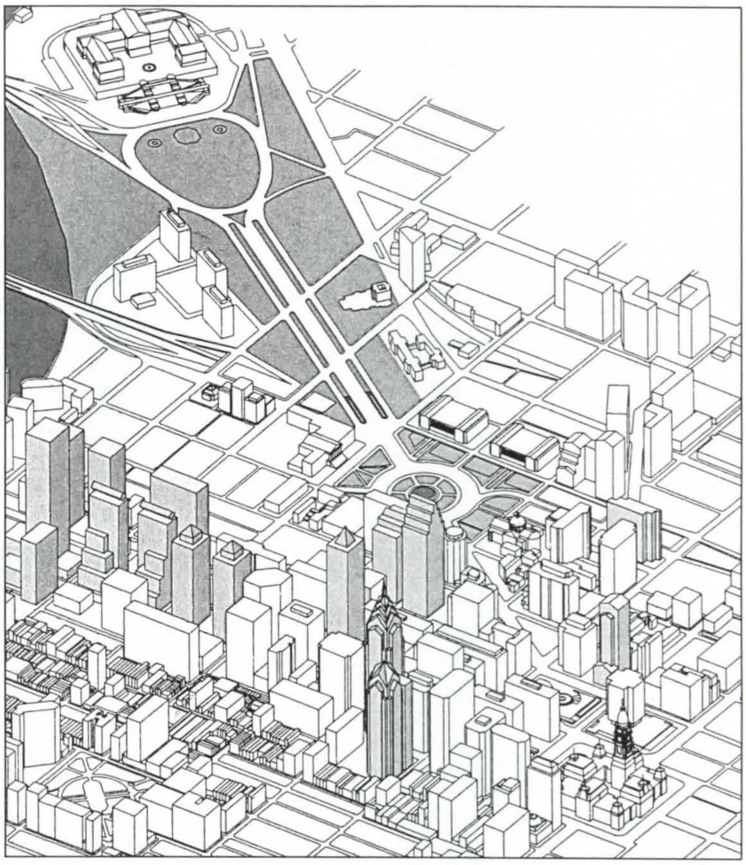

Growth under Philadelphia's new plan will extend the commercial core to the west, south of the diagonal Benjamin Franklin Parkway. Indicative of remaining problems, the Bell Atlantic headquarters (1 and center on map) avoids a height limit zone with a north-facing plaza (Kling-Lindquist Partnership, architect). The 58-story 2 Liberty Place, designed by Murphy/Jahn with Zeidler Roberts, interrupts low-rise Chestnut Street (right-facing facade in 2; low center on map).

Barbara Kaplan, Executive Director of the Planning Commission says, "We've evolved since 25 years ago. Then you really needed the city to assemble sites and write down [the value of] the land in order to get private investment. Happily, because of that activity and changes in the city's economic fortunes, you have a lot of private investment now. But we're not looking at government as the major agent of change as we were in 1964, when you had millions of dollars of urban-renewal money and you had public acceptance of the use of eminent domain on a wide scale. We are going to spend public money, but the investment will be *strategic,* to stimulate or respond to private-sector actions." In some ways, however, the new plan is actually more ambitious than Bacon's. It calls for sweeping changes in areas the untutored may not consider *planning*: new services such as job training, and a unified effort by virtually all city agencies to improve poorly delivered existing services (most obviously, sanitation and street maintenance). Critics have called Kaplan's broad approach a grab bag of disparate ideas, lacking a coordinated set of priorities. "No matter how beautiful or appropriate buildings are, these kinds of management issues get in the way of really being a great city," replies Kaplan. (A new document, *Implementing the Plan,* organizes the concepts into categories, emphasizing those items that can be accomplished soon; i.e., with little money.)

The plan also specifies detailed proposals that will affect the physical configuration of the city but at a different scale. "The '63 plan rightly emphasized structure," explains architect Robert Geddes, of Geddes Brecher Qualls Cunningham, who is a consultant to the city. "We have emphasized the *fabric,* which means carrying ideas to the scale of zoning, historic preservation, even signs and doorways." Yet it is at this scale that problems with the plan

Continued on page 63

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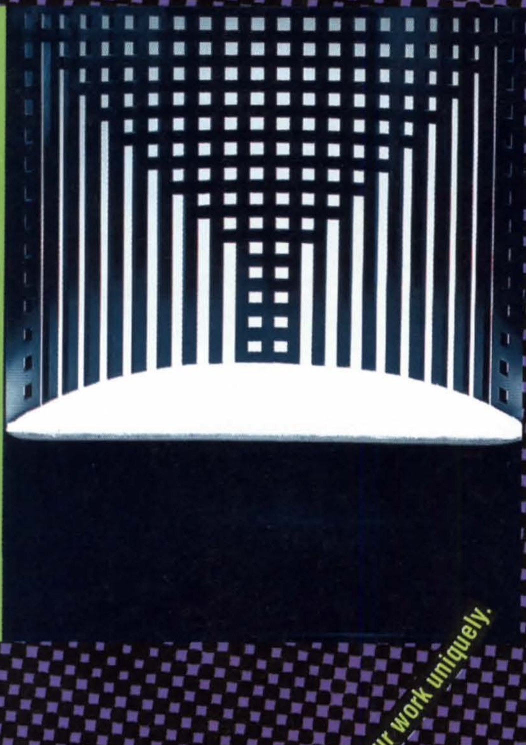

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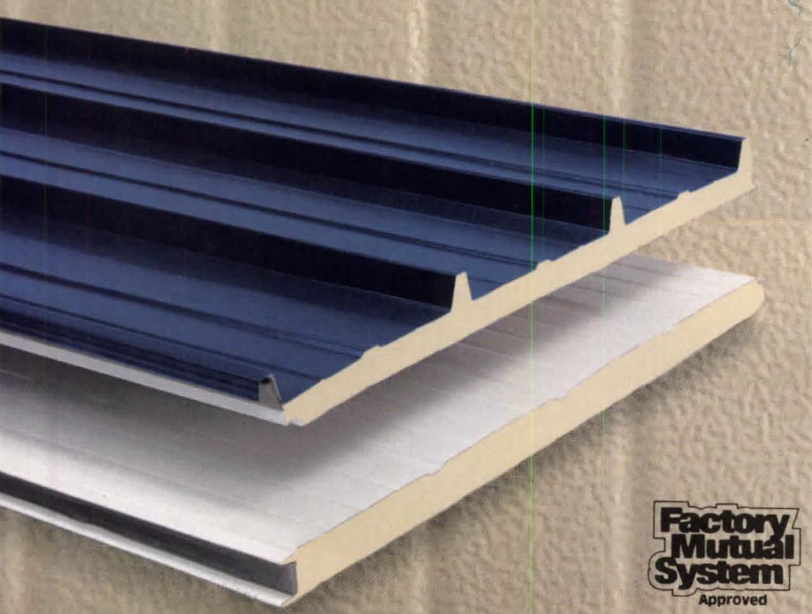

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Design news continued from page 59

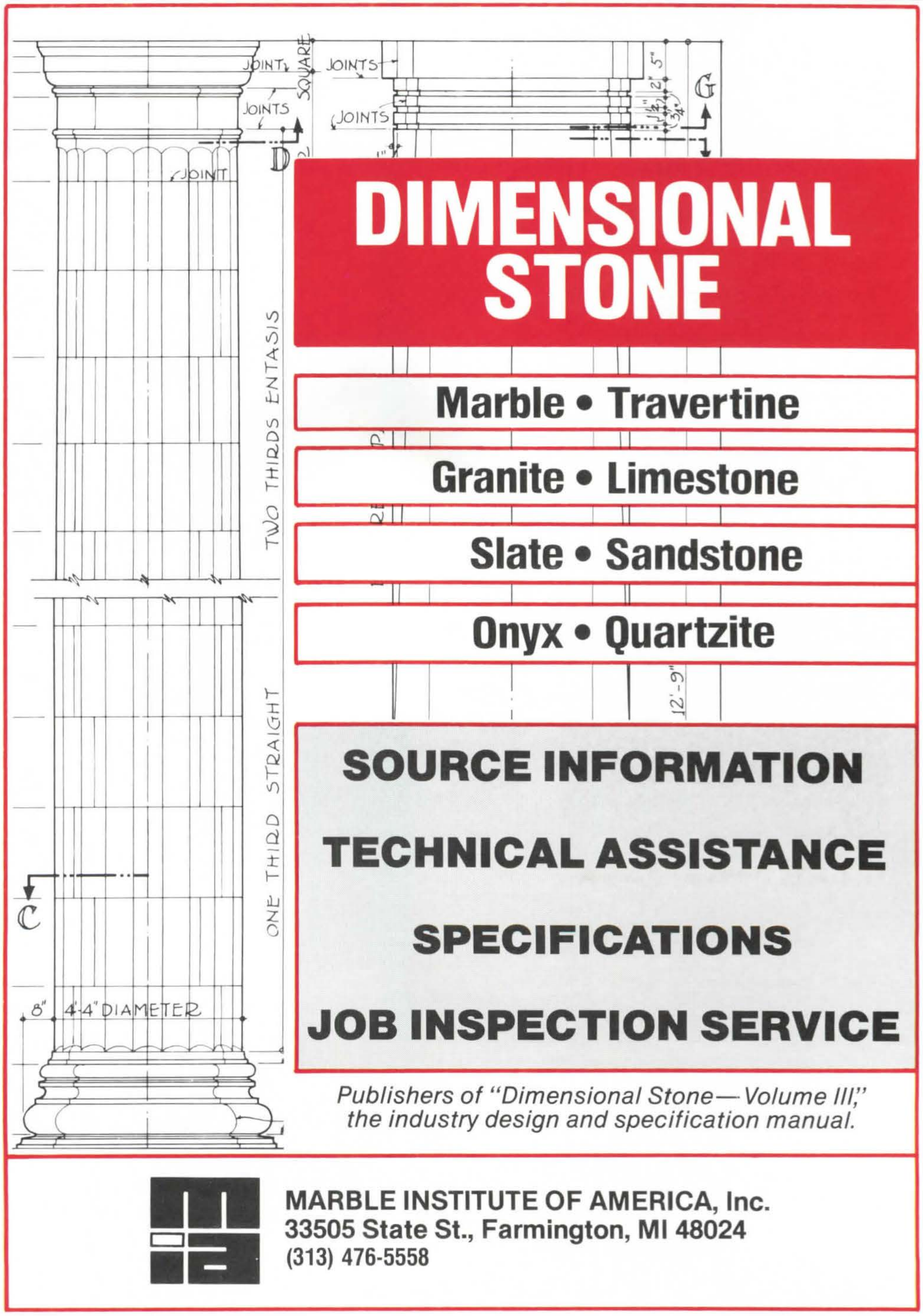
become evident. While officials claim that the plan is "in place" (as a blueprint it requires no enactment, but also has no legal force), zoning changes that implement its most critical aspects are still being formulated.

For example, height limits established for the Parkway and around the venerable City Hall (still the city's most potent symbol) will be extended to prevent erection of structures that would diminish the prominence of City Hall tower from certain vantage points. But in one case, a tower avoids the height-limit zone by stepping back behind a north-facing plaza, though new rules favor extension of street walls (figure 1, page 59). At another critical juncture, high-rises are allowed to abut three- to five-story landmarks on small-scale service streets. The 58-story 2 Liberty Place (2), for example, would not be affected by a 50-foot-high recession plane that restricts bulk on the opposite side of Chestnut Street. It is in these situations where, ironically, the lack of the kind of *architectural* vision Philadelphia has historically had seems most telling.

In devising guidelines to mprove the street-level quality of commercial projects, Kaplan and her staff are caught between the Scylla of possibly oothless as-of-right equirements for bonus-eligible ublic amenities and the harybdis of negotiating each roject through an excessively omplex process. (New York ity, a pioneer in zoning-inspired ublic amenities, has repealed any rules enacted in the 1970s ecause of the meagerness of e "amenity" usually supplied exchange for bonus square otage granted.) Philadelphia's anners have yet to come up ith a list of amenities that are oth genuine and comprehensible the average code-review ficial. "There's some risk in is approach," admits Kaplan's puty, David Baldinger, yet it so reflects an effort to put me distance between their plan d that of San Francisco other difference is that iladelphia, although a pioneer design review, will not extend review board's powers to any aspect of the new plan). While it shares San Francisco's small-scale emphasis, "This is a plan to *stimulate* growth," Kaplan declares.

It may, though, be too developer-oriented. Philadelphia streets are, with few exceptions, narrow, and yet contemplated zoning lot density is as high as in much more open cities (the maximum allowable floor area ratio, at 24, is even greater than that in overbuilt New York City, at 21). Many of the city's attractive streets, already dark much of the time, are likely to become Wall Street-like canyons. Presumably to avoid conflict within an often-contentious city council, miscellaneous actions that are either underway or were devised apart from the planners' effort have been incorporated boosterishly and uncritically, as if they had evolved in some coherent fashion—when, in truth, the city was asked to create the plan because redevelopment had been occurring in a vacuum. The plan does not tackle disconnected piecemeal development on the waterfront or in Franklintown (a privately owned 1960s urban-renewal area). And critics have questioned the location of the city's proposed convention center on a site selected by a developer rather than the city. That the plan is not very courageous about controversial issues does not surprise Scott Brown: "American planners have never had the power of their counterparts in, say, England. And look at the money that has gone *out* of planning since the '60s. It is just being realistic to say, as this plan does, that you should deal with the immediate. But something very sad has happened. This document is responding to the will of society, which is not to depart from business as usual."

James S. Russell



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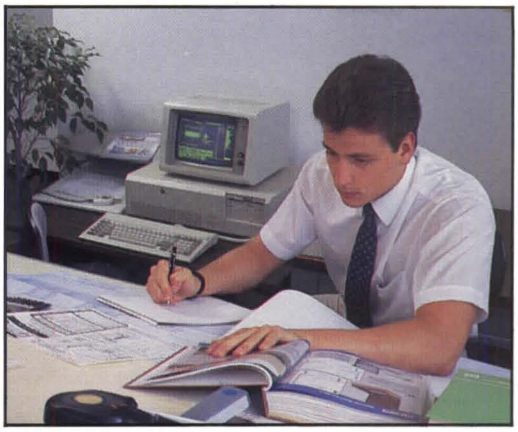

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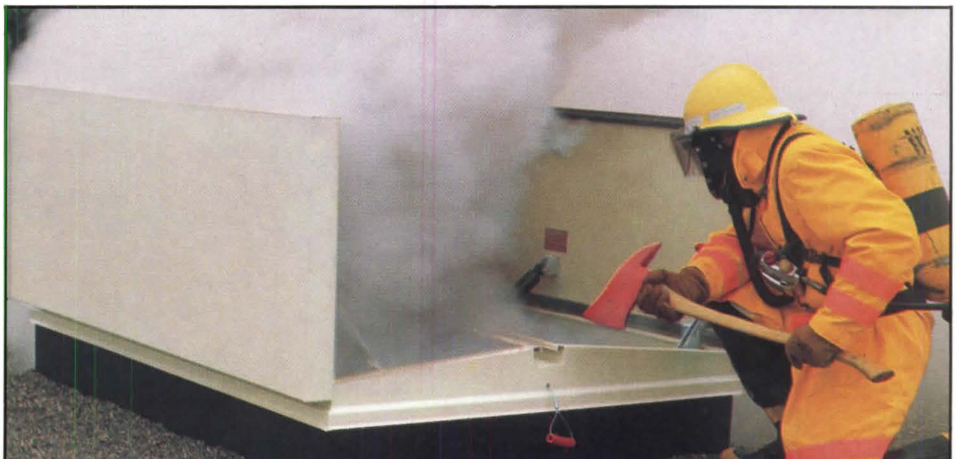

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Design awards/competitions: Building Stone Institute 1988 Tucker Architectural Awards Program

Five of the eleven buildings the Institute recognized for excellence in the use of natural stone were restoration or renovation projects, testifying to the continuing importance of this construction sector. Projects in the categories of nonresidential building, residential building, and interiors were also selected by jury chairman Philip W. Dinsmore, of Tucson, and his fellow panelists Bruce S. Fowle and James A. Kingsland, both of New York.

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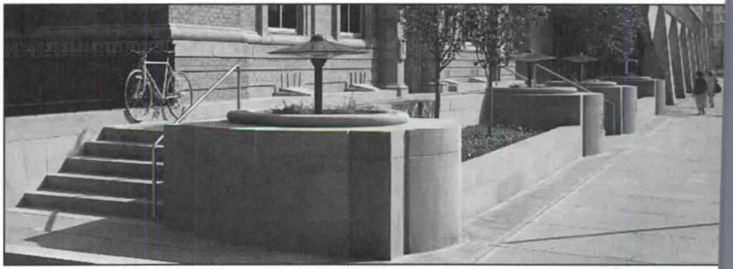

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Norman McGrath

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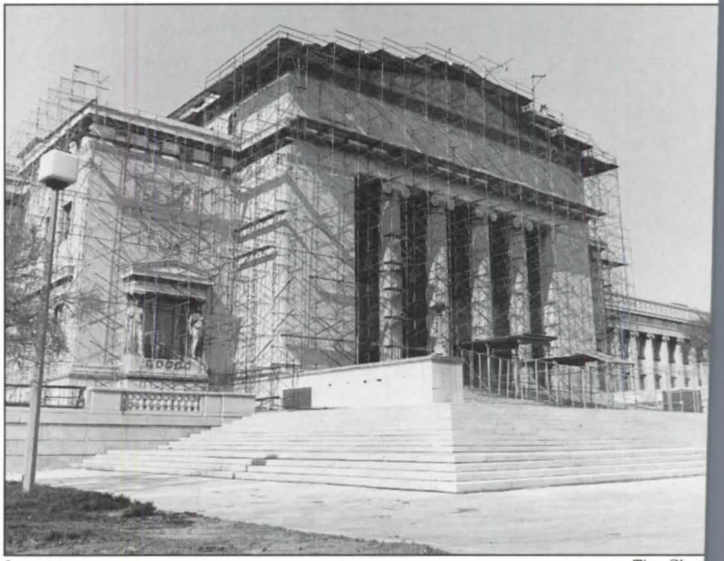


6

Tim Shee

1. Fuller House, Pinnacle Peak, Ariz.; Antoine Predock, Architect. Perched on the edge of a mesa in the Sonoran desert, program spaces in this residence allude to indigenous land forms. The kitchen and dining areas are seen as boulders, the pyramidal den (shown) as a mountain. Predock's use of stucco trimmed with native adoquin stone and his "sculptural interplay of forms" were praised by the jury as "ingenious."

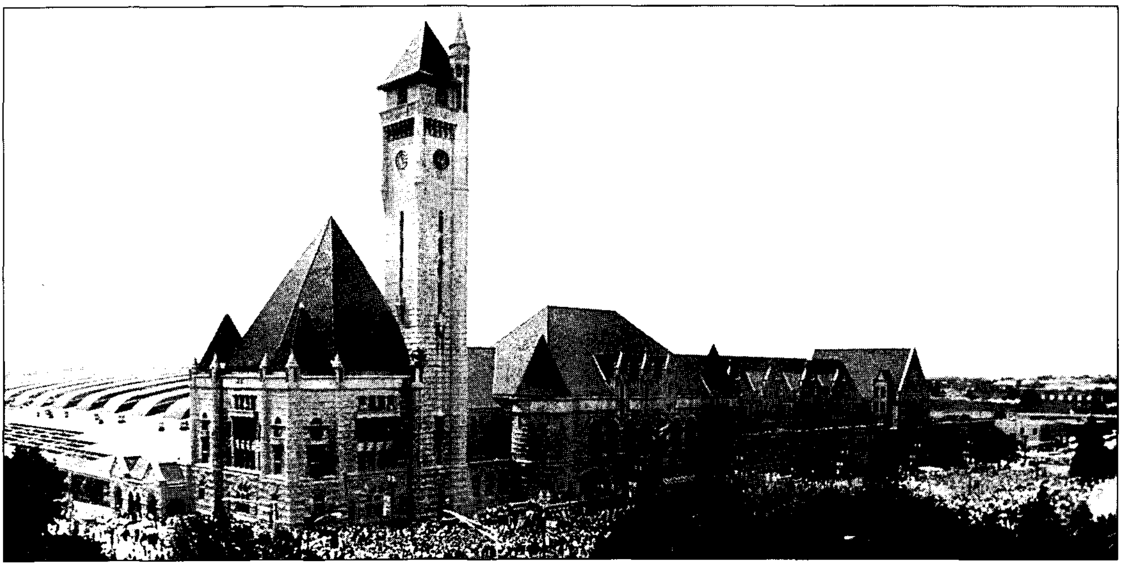
2. The Solow Townhouses, New York City; Eli Attia Architects. Panelists commended "the subtle forms and detailing" of alternate bowed and flat rose-toned granite facades for rhythmically distinguishing 11 luxury row houses. While abstractly traditional in exterior details facing the street, each of the 5,300-sq-ft residences is organized inside around a sculpturally dramatic 50-ft-high skylighted living space.

3. 61 Broadway, New York City; Skidmore, Owings & Merrill, Architect. Post-World-War-II renovations were undone and a lower-level lobby was removed in this renovation of the entrance to an office building, originally designed by Francis Kimball in 1914. The restored limestone facade and the lobby of black granite and white marble are "very much in the character of the original building and of many older buildings in New York's Wall Street area."

4. New Museum and Research Complex for the Smithsonian Institution, Washington, D. C.; Shepley Bulfinch Richardson and Abbott, Architect [RECORD, September 1987, pages 112-121]. Exhibit and support spaces are underground, but finely worked granite is prominent *above* ground on entrance pavilions and in garden elements. "No other material could have been used to achieve the delicate strength of the design," declared the jury.

5. Arthur K. Watson Hall, Yal University, New Haven, Conn Roth and Moore Architects. Masonry exterior walls were retained in this adaptive reuse an 1894 structure on campus, though the interior structure was entirely rebuilt to house Yale's Department of Comput Science. At street level, a podi of bluestone panels "creates a new base for the building and makes it a much stronger statement than it originally was."

6. Field Museum of Natural History, Chicago; Harry Wee & Associates, Architect. An $ million exterior conservation



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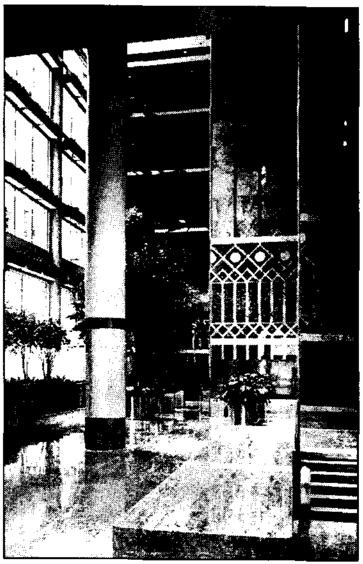

10 Harlan Hambright

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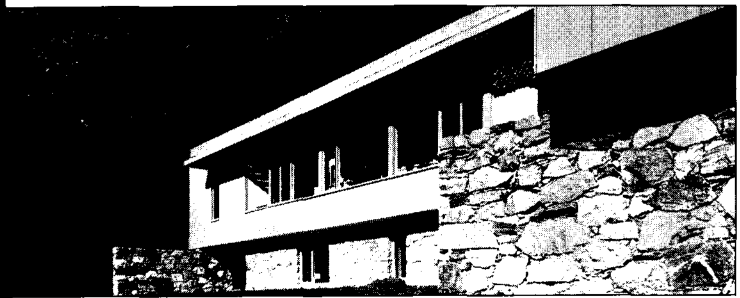

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ffort is only part of a long-ange modernization of this hicago landmark, completed in 921 to designs of Daniel urnham. "The jury is impressed ith the craftsmanship involved this project. . . . It is a true storation in its finest detail."
St. Louis Union Station; ellmuth, Obata & Kassabaum, rchitect. Formerly one of the isiest train stations in the untry, the 1891 terminal heodore C. Link, original chitect) now houses a 160,000--ft festival market and 550-om hotel, a combination of new nstruction and restoration. he architects were able to maintain what was there and create space for entirely different activities; they seem perfectly at home."
8. IBM Corporate Office Building, Purchase, N. Y.; I. M. Pei and Partners, Architects. Detailing of this 450,000-sq-ft corporate center is "very subtly but finely resolved," according to the jury, "allowing the richness of the stone itself to prevail." Travertine cladding was selected to convey solidity and a continuity with nearby masonry residences.
9. Robeck House, New Canaan, Conn.; Herbert Beckhard Frank Richlan & Associates, Architect. A 1945 Marcel Breuer design had been altered both by subsequent owners and by progressive failure of cantilevered elements. The present architect restored the residence, added a wing, and as Breuer had, shored the sagging cantilevered walls with fieldstone piers. This work, the jury concluded, "was very sensitively handled."
10. 1615 L Street, Washington, D. C.; Jung/Brannen Associates, Architect. New technology was used to bond 3/4-in-thick pieces of marble to a backing, making possible a mosaic effect without requiring mortar joints. Jurors called the project—a six-story atrium lobby in a 13-story speculative office building—"exuberant" with "an uplifting quality."
11. Riverside Convention Center, Rochester, N. Y.; James Stewart Polshek and Partners, Architect. A granite-based, glass-clad galleria links a newly developed river promenade in this revitalizing city center to a 50,000-sq-ft column-free exhibition hall. Commented the jury: "The alternating bands of granite are a unifying and enriching element to the otherwise very simple glass-enclosed components of the project."

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Books

Bruce Goff: Toward Absolute rchitecture, by David G. eLong. New York and ambridge: The Architectural istory Foundation with MIT ress, 1988, $50.

eviewed by Ellen Posner

n his lifetime Bruce Goff was iciously criticized, lavishly raised, the subject of myth, and n object of curiosity. He was alled "The Michelangelo of itsch" by Charles Jencks; Ada ouise Huxtable, on the other and, assessed his work as othing less than "one of the ost provocative manifestations f the American architectural enius." Although never ormally associated with the aliesin Fellowship, he often was escribed as having been a isciple of Frank Lloyd Wright—hom he did know well and who as an important influence on is work (Goff, in turn, was strumental in securing the rice Tower commission for right). Though Goff actively acticed for some 60 years, and any of his exceedingly strange signs were widely published d exhibited, he built primarily remote heartland locations klahoma, Kansas, Kentucky, xas, Missouri). When he rived at Yale to teach a design minar in 1976, it seemed to him at he had come to be regarded ore as an odd survivor from other time than as a practicing hitect with new ideas."

n 1987, however, five years er Goff's death, the AIA arded his spiraling, blestone-clad Bavinger House 5-Year Award. Last month, ff's Pavilion for Japanese Art he Los Angeles County seum of Art (completed by mer associate Bart Prince CORD, September 1988, pages 9]) was formally opened. The thumous debut of Goff's last work and largest public project is being marked by a retrospective exhibition, and by publication of *Bruce Goff: Toward Absolute Architecture*. The book's subtitle was used by Goff to describe his own work, but, according to David DeLong, he never gave it a precise definition. "Absolute architecture," as DeLong understands it, was really an "evolving ideal" and was meant to suggest an architecture that would not be dependent upon function or symbolism but that would be generated by the architect's own individualistic exploration of spatial possibilities.

Frank Gehry was an interesting choice as author of a short forward, perhaps because some of Goff's designs—the 1939 Cole House, for one, with its symbolic, angled, trellislike extension of the wood framing—show an affinity with Gehry's work. Gehry explains that he dismissed Bruce Goff and his "personal investigation" of form and space at the beginning of his own career, when he was preoccupied by "matters of social relevance." Now Gehry finds himself, as he says, "castigated for similar reasons by today's young 'socially responsible' architects, as though the artful manipulation of space, form, and materials in an individual's search for expression was in conflict with . . . social ideals."

David DeLong's text is an encomium, but it is also a thoughtful and careful documentation of Goff's "search." Goff came to architecture early and was turning out precocious drawings while still a teenager in Oklahoma. Largely but not purely imitative, his early designs particularly showed the influence of Wright, but also of Sullivan. DeLong indicates that ultimately a wide range of architects and styles were important: Gaudí, the Viennese Secession, Art Nouveau, German Expressionism, Russian Constructivism, even orthodox Modernism and the Medieval tradition. As Goff began to come into his own, from the late 1930s through the '40s, he explored complicated, irregular, and unconventional geometries, and incorporated found objects. (The owners of the 1947 Ford House, which was at once domed, spired, and based on the structure of a Quonset hut, installed a sign in their yard that read "We don't like your house either.") In the years that followed, Goff designed small, wood-framed craftsmanlike houses, as well as unbuilt projects that took the American roadside esthetic to zany heights: a triangular all-glass chapel set over a hexagonal pool of water, the horseshoe-shaped Cowboy Hall of Fame, and the swirling concrete-framed Viva Hotel for Las Vegas.

Goff's remarkably expressive plans are reproduced here with great clarity as are his delicate perspective drawings. Photographs of built work are not all they might be (perhaps better ones just do not exist). Since many of the schemes are "internally focused," it is unfortunate that documentation of interiors, with their podlike spaces, conversation pits, and the ritualistic placement of primitivistic fountains, pools, and plants, is frustratingly minimal.

DeLong also moves lightly over Goff's material esthetic, which ranged from goose feathers to purple-tinted mirrors and gold lamé. (In a house for a couple with a turkey farm, he employed plastic syringes—intended for poultry insemination—as sly decorative elements at the entrance.) There are few illustrations of these materials and virtually no comment by DeLong until the conclusion, at which point he volunteers that Goff "manipulated materials and finishes with a freedom that in itself constituted a kind of innovation, however brassy and unsophisticated the end result might seem."

DeLong knew Bruce Goff and was authorized to go through his papers and drawings after his death. He acknowledges that this book is just a beginning. Meticulous as it is (with extremely clear dating and indexes), it leaves critical interpretation still to come, but paves the way for it.

n Posner is the architecture ic for the Wall Street Journal

"I have listened to all the theories about communal and social values. What I want to know is this: when it comes down to actually designing, why do we always end up with a bunch of pointy skyscrapers scattered around a couple acres of grass?"

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Phyllis Lambert: Peripatetic heroine of architecture

Phyllis Lambert's first foray into the world of architecture was as a 28-year-old sculptor, called to assist her father in the selection of an architect for his company's headquarters, the now-classic Seagram Building in New York. Architecture has since become a magnificent obsession for Lambert, whose crowning achievement, the Canadian Centre for Architecture, will soon be installed in its first permanent home. RECORD*'s Douglas Brenner profiles this remarkable woman and her work.*

Laurels rest uneasily on Phyllis Lambert's brow. Although, at 61, the eminent Canadian architect has the noble, close-cropped head of an ancient Roman senator or Picasso's Gertrude Stein, she still confronts the world and all its honors with the wary frown of a precocious child unsure of being taken seriously. Marching down the streets of Montreal in denim overalls and running shoes, Lambert is ready enough to chortle over the nicknames "Joan of Architecture" and "Notre Dame de la Restauration," which she has earned at home and abroad as scholar-activist, champion of urban civility, and crusader for historic preservation. But mention the acclaim she has also won for philanthropy at every level of the built environment, and her hearty laughter turns staccato nd dismissive. As an heiress to he fortune amassed by her ather, the self-made distillery magnate Samuel Bronfman, and strong-willed loner in her own ght, Lambert has always bristled at the merest hint that her wealth and access to power might somehow diminish the authenticity of her ccomplishments. "I don't nsider myself rich," she once torted in a television interview. That's meaningless. The reality what you do every day."

The daily rigors of her self-posed agenda, and the zeal th which she attacks them, are rmidable. Active in the ternational Confederation of chitectural Museums, chairman of the board of Columbia University's Temple Hoyne Buell Center for the Study of American Architecture, an advisor to the National Gallery of Canada, and a consultant to many other institutions, Lambert presides at a continuous cycle of symposia, serves as a juror for architectural competitions, lectures, and intermittently resumes research on a history of Montreal's original walled city. For the moment, though, her supreme priority is the opening next May of the permanent headquarters of the Canadian Centre for Architecture, an international museum and research complex in Montreal that she founded in 1979.

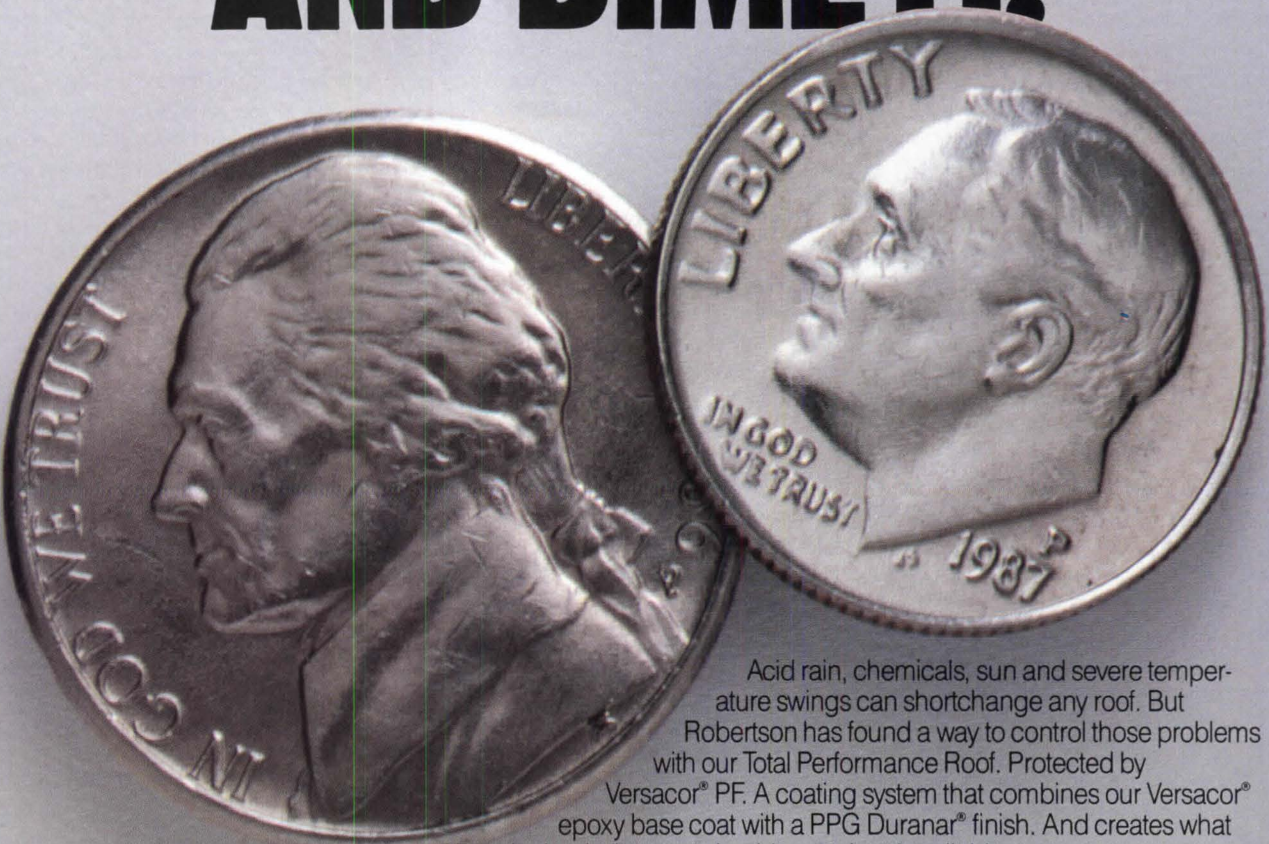
The C. C. A.'s collections of books, prints, drawings, and photographs already rival—and in some areas surpass—those of the Royal Institute of British Architects, Avery Library, and the J. Paul Getty Museum. The aim of the C. C. A., Lambert has declared, is to "make a case for architecture," to help remedy what she decries as deplorably widespread ignorance about an essential art. Lambert remains the Centre's director and chief benefactor, having single-handedly purchased its downtown headquarters site, donated more than $10 million (beyond the $8 million pledged by government agencies) towards construction of the new building designed by Montrealer Peter Rose, paid the salaries of a full-time staff that now numbers 100, and contributed the bulk of an undisclosed acquisitions budget (the value of current holdings is estimated to exceed $50 million). Nevertheless, Lambert is indignant at suggestions that the C. C. A. is her personal monument. Even without this crowning triumph, or the slim portfolio of buildings she herself has designed, Phyllis Lambert would rank among architecture's few acknowledged heroines.

"Phyllis's greatest contribution has been as a catalyst," observes architect Robert A. M. Stern, a long-time friend and now colleague at Columbia University's Buell Center. "What did Henry James say about Isabella Stewart Gardner—that she was a *force*, 'a locomotive—with a Pullman car attached'? Phyllis is that person, only more so. She believes there are things that *ought* to happen in the world, and she makes them happen. Her passion and directness can offend, but boy, can she be on the mark." Phyllis Bronfman Lambert's vision and fortitude were tested early by a domineering father, the immigrant "rum-runner" she is often said to resemble in her drive and volatile temper, if not in her esthetic sensibility. Studies at Vassar and marriage to French financier Jean Lambert briefly promised deliverance from an opulently stifling background, although, ironically, it was yet another clash with her father that confirmed the young woman's ultimate vocation.

A glimmering interest in architecture sparked by her college studies suddenly flared up in 1954 when Phyllis Lambert, then living alone in a Paris studio, read reports of a New York skyscraper to be erected for Joseph E. Seagram and Sons, crown jewel of Sam Bronfman's commercial empire. As Lambert recalls, "One article about this *very* mediocre building so horrified me that I just bashed along and wrote to my father: 'You can't do that!' I was in the midst of getting a divorce and Father was nervous about me. 'All right,' he said, 'you can come back and choose the marble for my building.' I was *enraged.* I told my mother 'I'm *not* coming back.' Mother said to Father, 'Dearie, maybe you should give her a chance . . . .' " In a historic leap of faith (or coup of paternal cunning) Bronfman offered his daughter the opportunity to advise him on the selection of a new architect. The 28-year-old Lambert plunged into her task with characteristic fervor, petitioning the counsel of renowned authorities and making pilgrimages to landmarks by the foremost living masters. A confessed tyro, she nonetheless bravely judged the great form-givers by her own lights. Of Frank Lloyd Wright she wrote to a friend: "His is not the statement that is needed now. America has grown up a bit and . . . Wright has expressed what it was when its energies were unharnessed . . . ." Of Le Corbusier: "One is fascinated by his spaces, his sculptural forms, but are not people likely to be blinded by these and skip over the surface only?" The man of the hour, she concluded, was Ludwig Mies van der Rohe: "Mies forces you in. You have to go deeper. You might think this austere strength, this ugly beauty, is terribly severe. It is, and all the more beauty in it." Her final recommendation of Mies was so compelling that Sam Bronfman not only agreed to hire him, but appointed Lambert director of planning for his bronze-clad tower.

Philip Johnson, who joined the Seagram Building project as Mies's associate, recalls that "Phyllis's pepperiness, fieriness, and lack of tact were profits for us. Of course, she was younger then, less obdurate, even indecisive. All she knew was, 'Damn it, I'm going to build the best building anyone can build.' Her father would send people over to check on what she was doing and tell her what to do, and every one of them met bloody defeat at her hands. This little girl, slight and short, could walk into a room with eight powerful men, and if she said 'Mies wants this,' it was done. Things like that don't happen in the real world, but they

Continued on page 75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1987 P

ppened in her world." While
sisting in the creation of a
asterpiece, Lambert came to
lieve that she could best play
active role in the real world
becoming an architect herself.
ies remained her mentor, both
head of the architecture school
the Illinois Institute of
chnology, from which she
aduated in 1963, and after she
tered private practice.

Lambert's most noteworthy
sign, the Saidye Bronfman
ntre-YM-YWHA, in Montreal,
mpleted in 1968, is a
instaking exercise in orthodox
iesiana. Her subsequent
ntures—as consultant to
ajor Canadian development
ms, and as independent
chitect-developer in California,
here she supervised the
novation of the Los Angeles
ltmore Hotel—showed no
vious formal debt to Mies,
though Lambert continued to
ulate the critical "logic beyond
gic" of her teacher. The focus
r this relentless analysis shifted
amatically around the time that
mbert moved back to Montreal,
ortly after her father's death in
71. Having rediscovered a
ldhood love of the city's
erable graystone buildings,
was appalled by the
olesale demolition of historic
uctures being carried out in
name of progress:
atching one building after
ther come down, I thought, 'If
disappears, you've
the city, that whole
rvelous network that forms
medium of urban life.' "

nbert soon mounted the
parts of urban conservation,
vocal leader of citizen-activist
ups, organizer of housing
eratives to save low-income
hborhoods ("*without*
trification," she stresses), and
yist. In one skirmish over the
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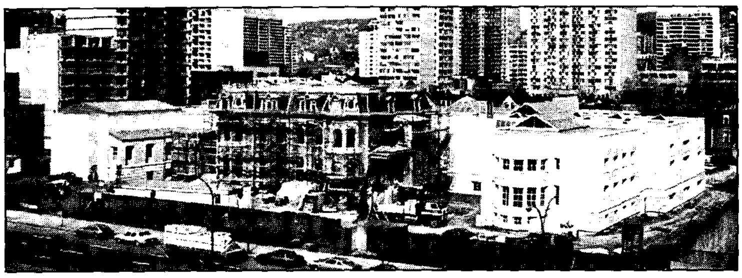
llac-Fairview, a mammoth
lopment firm backed by her
family trust.


The C. C. A. (in construction), by Peter Rose, Architect; Shaughnessy House at center

Increasingly, the actual practice of architecture came to seem less fulfilling than other avenues for her interest in pressing urban issues. "I never liked selling myself, personally or as a designer," she explained recently. "In England there's something known as 'voluntary services.' You become like a person in a religious order; you don't have to go out and make a buck. I like that idea. There needs to be a *philosophy* of architecture. When there's a body of discourse, something else happens. You can pull back and be an advocate rather than be in it for yourself." While heeding the call of her conscience, Lambert also orchestrated exhibitions, supervised a Bicentennial pictorial survey of American courthouses, and systematically photographed Montreal graystones, including the former peanut warehouse she converted into her home and office. The interiors of the loft-dwelling are a self-portrait in vignettes: spartan, almost monastic, white-walled rooms; an industrial reading lamp clamped to the finger of a Rodin bronze, at the head of a mattress on the floor; books heaped on sawhorse tables beside Mies chairs; a construction worker's hard hat; a snapshot of the owner bearing a placard inscribed "Retraite obligé." Lambert's possessions have always reflected her abiding passions, and have in part provided a nucleus for the holdings of the Canadian Centre for Architecture. Similarly, her conviction that the wealth of architectural documents she had collected ought somehow to "count," in a way they might not in a conventional art museum, helped formulate the very idea of a multifaceted study center.

"The concept of the precious object is actively repugnant to Phyllis," one C. C. A. colleague observes. "Her favorite pronouncement is: 'We collect things which show the *process* of architecture.' " Even when Lambert ran the C. C. A. from her Montreal house, she and her fellow-curators mounted full-scale traveling exhibitions, as impressive for their variety of subject matter as they were for ambitious themes that appealed to scholar and layman alike. *Photography and Architecture: 1839-1939*, an exhibition-cum-book produced collaboratively in 1984 with curator Richard Pare, drew universal attention to one of the C. C. A.'s unparalleled strengths. Now comprising some 45,000 items, this assemblage of architectural photographs at the Centre is the finest resource of its kind anywhere. Images range in scope from tiny daguerreotypes to vast compendia on the scale of a 600-picture sequence chronicling the erection of Scotland's Forth Bridge. Phyllis Lambert's fascination with building technology—be it fortress engineering or the hydraulics of Mannerist fountain design—is also apparent in the C. C. A.'s collections of books and graphics. Above all, however, it is the abundance, diversity, and richness of the whole enterprise that dazzles the visitor. The 120,000-volume library encompasses the historical spectrum from incunabula scribed in the 15th century (among them one of the first Renaissance editions of Vitruvius) to ephemera of the 20th-century avant garde. Arguably less comprehensive, the treasury of prints and drawings is equally catholic in its intended reach.

The largest object in the entire collection is the Shaughnessy House, a mansion built in 1874, rescued a century later by Phyllis Lambert, and now restored as part of Peter Rose's handsome ensemble. More than six times the size of the Victorian relic, the new 130,000-square-foot structure adroitly defers both to its elder partner and to other venerable buildings in surrounding streets. Rose and Lambert (who is consulting architect as well as client for the project) agreed that the addition should sustain the local tradition of graystone facades, exquisite craftsmanship, and essentially classical proportions without sacrificing modern technology or resorting to stylistic pastiche. "Arguments over Modern versus Postmodern are meaningless," Lambert declares. "Most architects today are just packagers anyhow—including Philip [Johnson]. The only difference between them is that some are clever and some are not. We don't need more 'symbolism.' We need to ask how does a building approach its neighbors? How can we reconstruct the city, take it back?" Lambert pursues this inquiry more vigorously than ever as the C. C. A. prepares for its new home. She has yet to address other vexing questions that echo through the unfinished halls: having dedicated a forum to her own high ideals, how generously will she endow its future—and how graciously yield the floor when others rise to speak? *Douglas Brenner*

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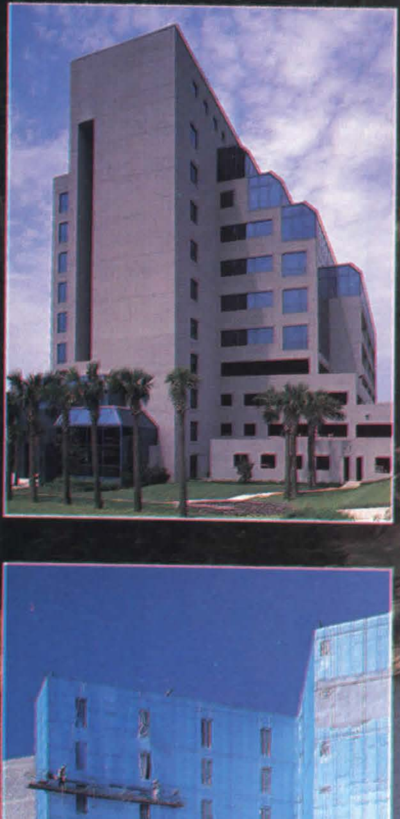

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rand results brought Norco back or an encore.

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In this issue

We are all over the map this month, so to speak, in a wide-ranging spirit personified by the well-traveled architect Antoine Predock, delineator of the sketch below and subject of a portfolio on pages 88-97. RECORD's thematic range may not stretch as far as Predock's—whose sources include music, dance, archaeology, and science fiction—but we are just as committed to exploring the diversity of our field. The journey encompassed in the following pages begins in familiar territory, a Modernist office building for IBM by Gwathmey Siegel & Associates (see pages 82-87). This project's exquisite pragmatism is a noteworthy reminder that sometimes the most successful solution to a given problem is the one that confidently honors recognized esthetic and technical boundaries, rather than straining after far-fetched allusions and special effects. The former may not proclaim its ingenuity as boldly as the latter, but may be all the more satisfying for its subtlety.

A very different perspective on the pleasure of rediscovering things we *think* we know inside and out comes with an excursion to two children's-museum installations designed by architects (pages 98-103). The respective subjects of these exhibits are the basic elements of art and architecture, charmingly devoid of capital "A"s and more fun than a Bauhaus full of monkeys. It's back to the grownup realm of corporate culture and bottom lines in a Building Types Study on design for industry (pages 104-113). A clothing distribution center, a water treatment facility, and a plant/office/warehouse are not exotic assignments, and the finished products are not glossily high-tech. Nevertheless, the architects behind our examples have all refused to turn out assembly-line structures. Efficient and economical, their buildings also respect the people who work in them and the sites they occupy; in short, they exemplify what one architect calls "industrial politeness."

Joie de vivre is not a common term in the architectural lexicon, but it's the phrase that best describes another building in this issue, the restored and expanded Michelin House (pages 114-119). Though located in London, this eccentric edifice fairly sparkles with Gallic wit. "Worth a detour," as the Michelin guidebooks say. Future guides, no doubt, will shower stars on Canada's newest landmark, the National Gallery in Ottawa, designed by Moshe Safdie as nothing less than a monument among monuments. The tour begins on page 120.

Northwest Housing, UCLA, Antoine Predock, Architect

Regional offices for IBM and tenants successfully integrate big-city refinement into the suburban spec-office landscape.

Face value

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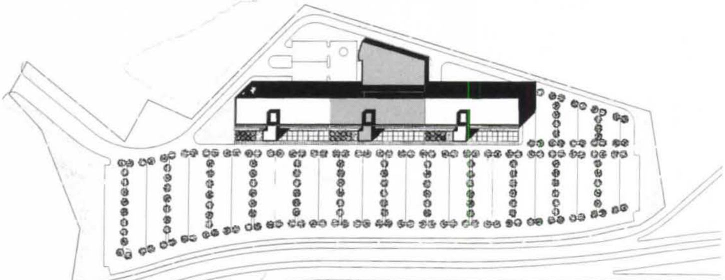


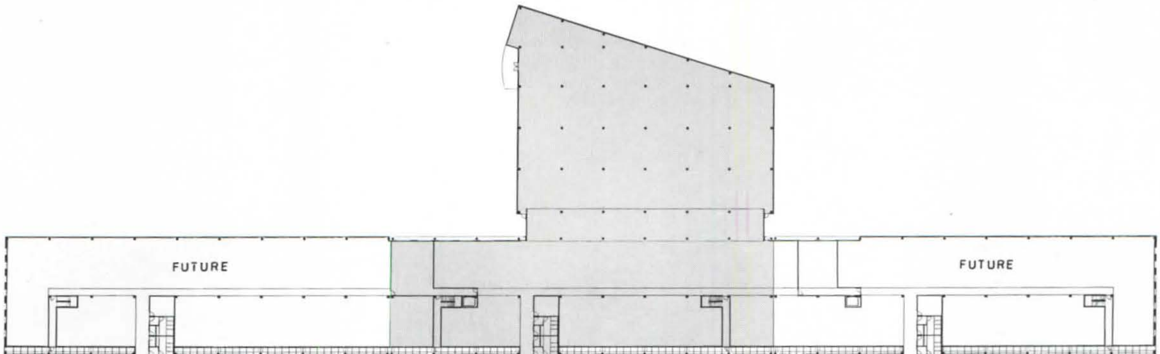
If ever there were an architect-client relationship made in heaven, it is the marriage of Gwathmey Siegel & Associates and IBM. Both artist and patron have adopted a stock in trade of functional logic and formal understatement—Gwathmey Siegel through a straightforward manipulation of materials and space-planning principals that has consistently reinforced the validity of architectural Modernism, and IBM through a corporate ethic that tempers profit-motivated impulses with the detached eye of a research scientist. Given the two firms' affinity for the poetic potential of common sense, it is altogether fitting that the computer giant turned to the New York architects for the regional offices of its marketing and national service divisions, located on a rolling 21-acre site formerly occupied by a golf course just north of downtown Greensboro, North Carolina.

Although Gwathmey Siegel has compiled an impressive portfolio of suburban office buildings over the past decade [see RECORD, July 1985, pages 100-115], Summit Green, as the Greensboro project is dubbed, presented the architects with a number of new challenges. For one thing, it was the firm's first work in poured-in-place concrete, which for reasons of climate an cost is traditionally preferred over steel-frame construction in the Southeast. Second, the 145,000-square-foot building is only the initial phase of a projected 385,000-square-foot complex, requiring the architects, in Charles Gwathmey's words, "to design something that could stand alone yet not lose its integrity" when future additions are built to the east and west (site plan left). Then, too, Gwathmey Siegel had to deal with an idiosyncratic program: five floors of offices and an attached one-story warehouse for IBM's parts-distribution component. Finally, even though IBM was the principal driving force behind Summit Green, Big Blue occupies only 70 percent of the completed first phase; the remaining space is speculatively leased. In order to attract prospective tenants, the architects had to devise a flexibl interior with as many perimeter offices as possible, keeping in mind that IBM's presence, and financial backing, also demanded higher level of design than this building type normally delivers.

Robert Siegel aptly characterizes the results as "architecture with a capital A." In response to Summit Green's setting alongside heavily trafficked Wendover Avenue, Gwathmey Siege elected to configure the building as a linear, almost two-dimensional architectural graphic meant to be easily read from the highway. The architects exploited the building's structural system by positioning the glass-walled south-facing facade five feet behind a reinforced-concrete brise-soleil, and they successfully utilized the volumetric device of a full-height entrance tower—articulated by a four-story bay window, glass block, and a clear-glass curtain wall—as a vertical counterpoint to the building's overriding horizontality (top left and opposite). In contrast to the sculptured elegance of this street-facing faca the northern elevation exhibits a far more utilitarian demeanor, shaped not only by the warehouselike character of IBM's servi and parts-storage wing but also by a tripartite storefront glazi system on the office block that comprises reflective, clear, and white spandrel glass panels set between the building's concrete floor slabs (bottom left). In real-estate terms, the payoff for Gwathmey Siegel's meticulous architecture has been 100-perce occupancy from opening day at Greensboro's highest commerc rents; for IBM's public image, however, the value of Summit Green's handsome face is incalculable. *Paul M. Sachner*

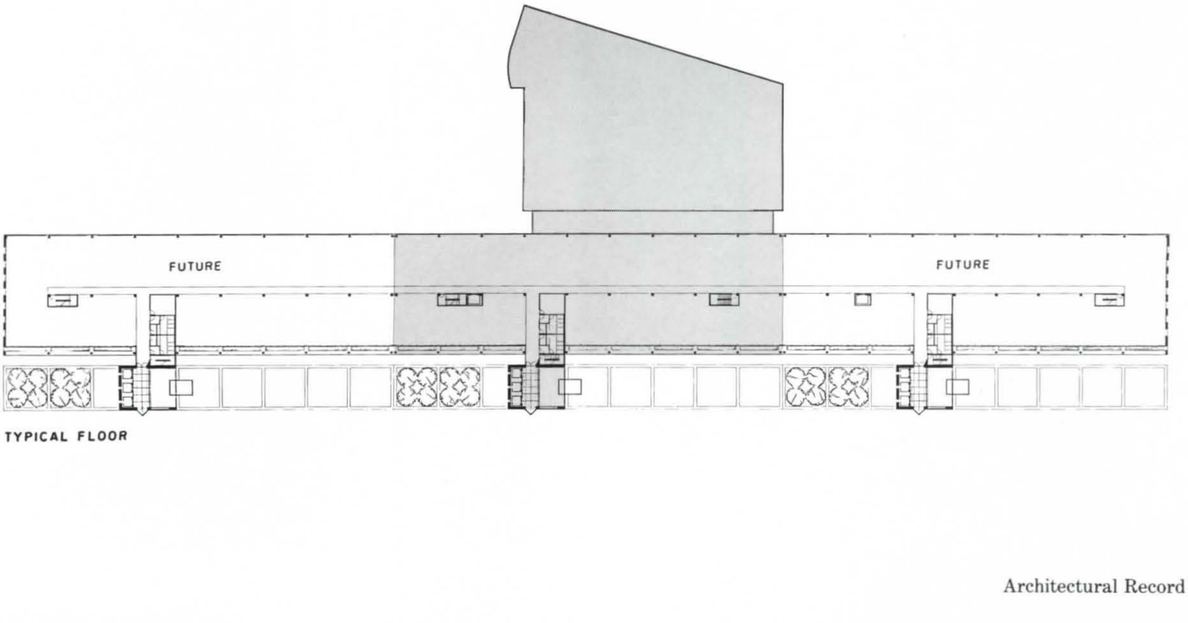
Summit Green
Greensboro, North Carolina
Gwathmey Siegel & Associates,
Architects

"In all our work," notes Charles Gwathmey, "we try to make materials a direct proposition in the design." Summit Green's material palette of gleaming white ceramic tile, porcelain-enamel panels, glass block, clear-glass curtain wall, and exposed reinforced concrete reflects the architects' decidedly Modernist roots. In addition to breaking down the scale of Summit Green's south elevation, the five-story tower housing the project's atrium lobby, elevator banks, restrooms, and fire stair



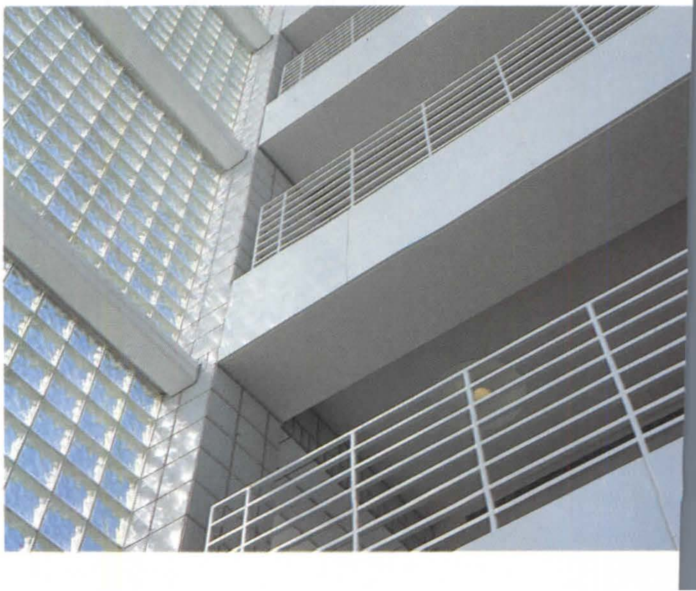
GROUND FLOOR

allowed Gwathmey Siegel to plan an uninterrupted interior of 35-foot-deep offices flanking double-loaded corridors. Elevator passengers enjoy momentary glimpses of the North Carolina countryside through two-foot-square windows punched into the tower's western wall (opposite left). Three-foot-wide metal grating set between a concrete brise-soleil and the glass window wall diffuses sunlight entering south-facing offices and serves as a convenient platform for window washers (opposite right).



TYPICAL FLOOR

Gwathmey Siegel softened the jarring juxtaposition of building and parking lot that often mars suburban commercial developments by setting the office block of Summit Green behind a landscaped forecourt whose definition will be clearer once the project's phase-two entrance tower is completed. The architects brought the outdoors into the five-story atrium lobby by sheathing the tower's eastern facade in a full-height clear-glass curtain wall (below) and its southern flank in translucent, 12-inch-square



glass blocks (opposite). Building occupants emerging from the elevators onto atrium balconies have striking views of Summit Green's concrete sunshade through crisply layered grids formed by white-painted steel balcony rails and the mullions and frame of the curtain wall.

Two-sided bay windows terminate each balcony (below) and were designed, according to Charles Gwathmey, to allow people waiting for elevators "to step beyond the building facade" and enjoy a panorama of the surrounding countryside and downtown Greensboro.

ummit Green
reensboro, North Carolina
wner:
reen Valley Associates
chitect:
wathmey Siegel & sociates—Thomas Phifer, sociate-in-charge; Richard lsor, associate; Philippe rdai, Thomas Levering, oject team
Engineers:
Sedri & Russ (structural); Jones, Nall & Davis (mechanical)
Consultants:
Jan Lorenc (signage); CHA Designs, Inc. (lighting)
General contractor:
McDevitt & Street

Out of Albuquerque

Long-distance commuting can be a chore, but for Antoine Predock, of Albuquerque, projects outside New Mexico are a welcome opportunity to prove that he has outgrown the epithet of "regionalist."

"You're a regionalist if you can't get a job out of state," quips Albuquerque-based Antoine Predock, who is quick to dissociate himself from the label by pointing to a group of recent commissions all comfortably outside New Mexico state lines (opposite through page 97). A transplanted Missourian who responded to the "lure of the West" 34 years ago, Predock has been identified with his adopted home—until recently, at least—not only as the geographic location of his built work but also as the formal and material source of his inspiration. Now, however, having successfully established his territory, Predock is eager to extend his reach. The eventual completion of the five projects shown here—all currently in late phases of design development or early stages of construction—will physically secure this wider stronghold, even though the architect's theories have already acquired an international reputation. A recent profile in *Time* magazine, for example, hailed Predock as the "first great New Age architect"—a local guru with a global perspective.

That unusual perspective is a result of Predock's diverse preoccupations. In a single bound, he is apt to leap from discussing his views on the sociological mission of architects ("Testing theoretical boundaries . . . as well as being a closet anthropologist" is only part of Predock's self-imposed mandate) to commenting on his own athletic prowess (he looks forward to skiing his Wyoming building). Although he has been a prolific sketcher since childhood (this month, the John Nichols Gallery in New York will mount a show of recent drawings and models), his insatiable urge to document his surroundings did not immediately suggest a career in the arts. In fact, Predock had no particular field in mind when he entered the University of New Mexico in the early 1960s; he enrolled in his first design course because he admired the professional commitment of the professor. Once seized by the prospect of becoming an architect, however, Predock attacked his new-found field of interest from many angles, supplementing requisite studios with painting classes and office apprenticeships. Awed by the architectural heroes of the day, especially Frank Lloyd Wright, whose "maniacal intensity thrilled and inspired me," Predock set out to emulate the master's attention to detail. Following a final year of schooling at Columbia University and a postgraduate traveling grant to Spain, Predock settled briefly in San Francisco where he absorbed the lessons of a diverse group of artists, including the choreographer Anna Halprin. Fascinated by her attempts at blurring distinctions between random and planned movements, Predock strove to create similarly "organic" compositions. After returning to Albuquerque, such methodologies continued to absorb Predock, who now attributes his own deliberate lack of a signature style to the models of indeterminacy set by Halprin and the composer John Cage. Beyond providing a forum for his own research, such extradisciplinary studies also helped Predock distance himself from the historicizing of many of his colleagues, a detachment he sums up in the assertion "I have always been more interested in Ray Bradbury than in Andrea Palladio."

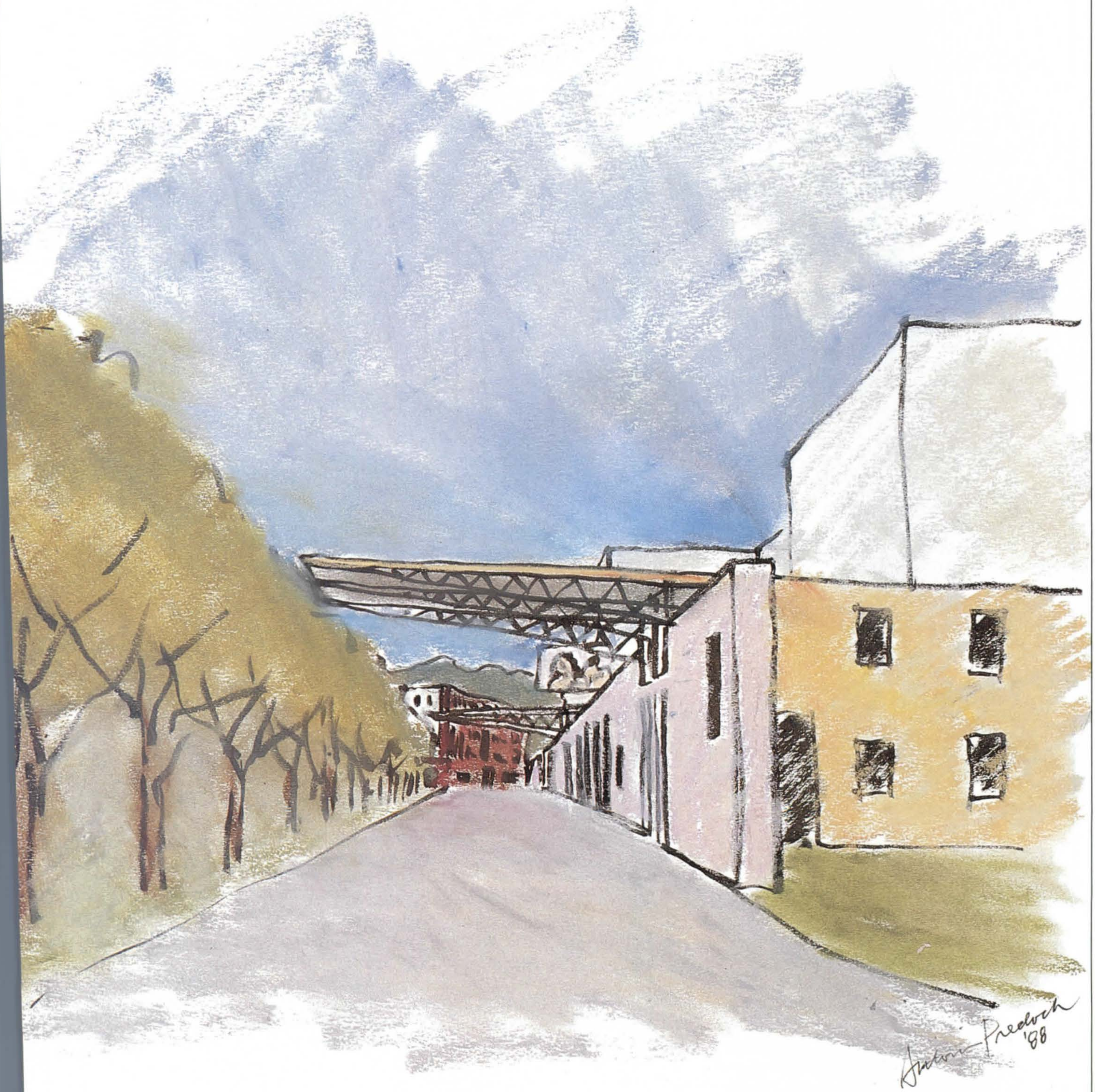
Although Predock is often typecast as an architect of single-family houses, he has maintained a steady flow of commercial and institutional projects in his 21 years of practice. But it was only after returning from a one-year fellowship at the American Academy in Rome in 1985 that Predock devoted his energies to securing larger commissions, his medium being several major "do or die" competitions. In quick succession he won the Fine Arts Complex at Arizona State University (page 94), the University of Wyoming American Heritage Center and Art Museum (pages 92-93), the Las Vegas Library and Children's Museum (not shown), and the Classroom/Laboratory/Administration Building at the California State Polytechnic University in Pomona (CLA; page 95). Predock's definition of architecture as "a surrogate land form" became more evident through the expanded scale of these projects, as did his ability to tailor his helter-skelter symbolic references to the specifics of a given location. His scrutiny of what he loosely refers to as "urban patterns" transcends the city grid to include geological formations and subcultural obsessions, providing him a vast thematic umbrella for his designs. In dismissing conventional notions of context in favor of more cosmic ones, Predock argues that "In the immense conceptual cross section, with geology at the bottom and UFOs at the top, the grid is a barely discernible event."

A scenographic assessment of place is Predock's prologue to choreographing a program. His design for the Forum Theater for the University of California in San Diego (pages 96-97), for example, relies on an almost literal assessment of the universal rituals of theatergoing overlaid with particular characteristics of the given site. Predock partially masked the main hall and adjacen practice studios with a 230-foot-long wall of mirrors intended to enhance any public spectacle. Embellished rituals also figure prominently at Pomona. There Predock devised a tripartite configuration by sorting out components of the program and identifying imagery-potent points of reference: a historic building, the flight pattern into nearby Los Angeles airport, student traffic through a rose garden. He then submitted his social musings to the pattern of archetypal forms by fitting the various pieces into chamfered triangle set atop a mesa (for all his worldly references Predock still depends heavily on the motifs of his region). Several of the projects are different incarnations of the same metaphor. Like CLA, the ASU Fine Arts Complex and the American Heritag Center and Art Museum are meant to be conceptual gateways between the desert and academic enclaves. Configured like an abstract sphinx, ASU exhibits Predock's flair for the dramatic. According to his design, one of the dance theater's facades will b elongated by a fascia that can serve as a screen for outdoor film festivals. (Predock had hoped to further his drive-in theater imagery by mounting speakers in the parking lot, but the client objected.) Shielded by rows of topiary that contrast with the overgrown foliage of a nearby cemetery, the apparently hermetic Heritage Center conjures up the domain of some James Bond foe The masonry dome will contain a maze of archives and reading rooms that form what Predock calls "a volcano of knowledge," whose crater will literally smoke with the exhaust of a central hearth. Programmatically his most prosiac scheme is a dormitory for the Los Angeles campus of the University of California (page 89-91), which Predock shaped into a pyramidal block to create an instant monument for the hillside.

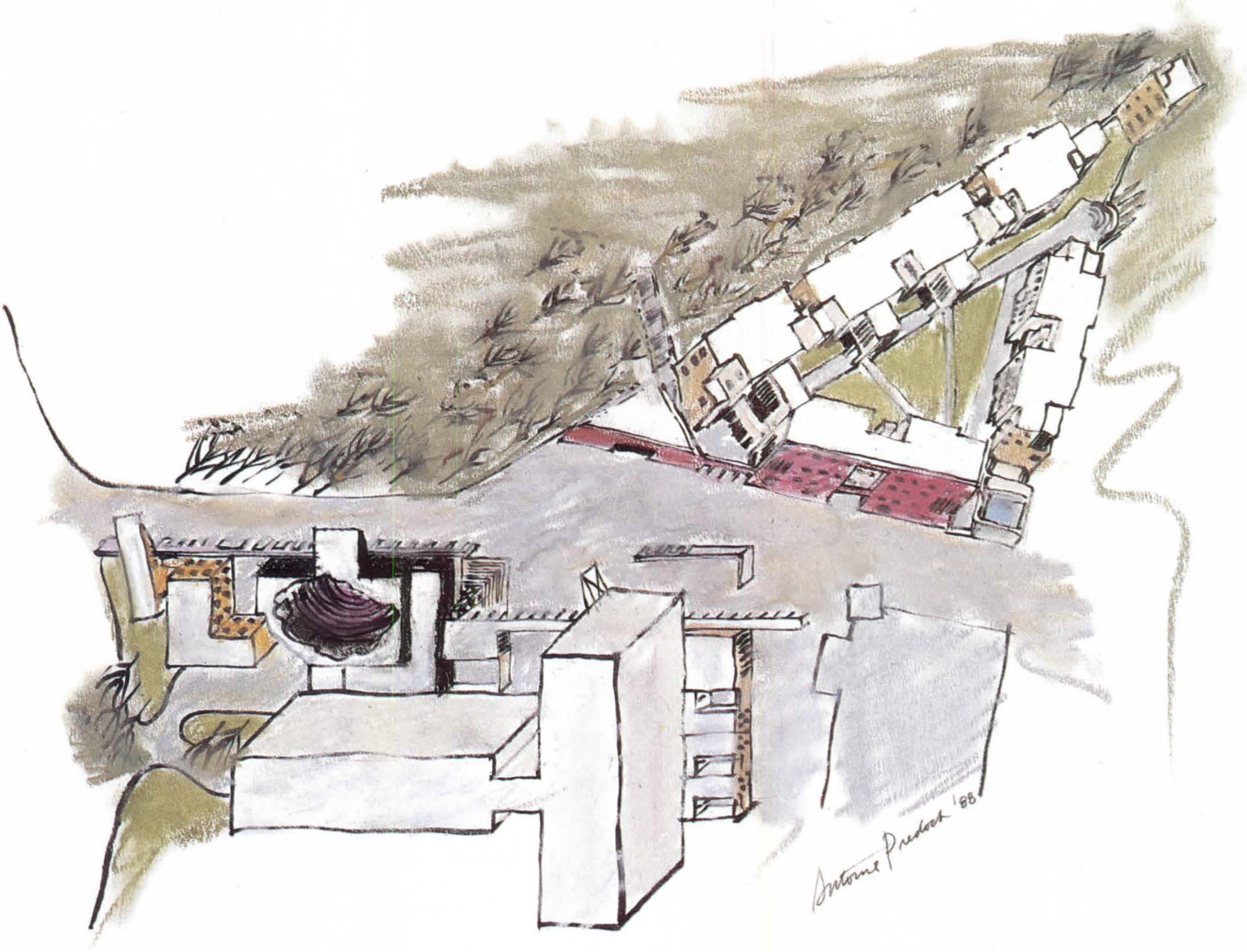
A telling example of Predock's eagerness to capture and synthes every possibly significant aspect of site and program is his purchas of a portable video camera before departing for his stint at the Academy, in hopes of replacing his pencil and sketch pad with mor up-to-date equipment. Once in Rome, shooting from the hip like a 1980s cowboy, Predock recorded some 1,000 minutes of video—besides making 500 drawings and filling 70 rolls of slide film. The effort to bring every culturally relevant form of inspiration to bear on architecture continues and Predock cheerfully confesses, "Sometimes I don't know where to stop." *Karen D. Stein*

Five projects

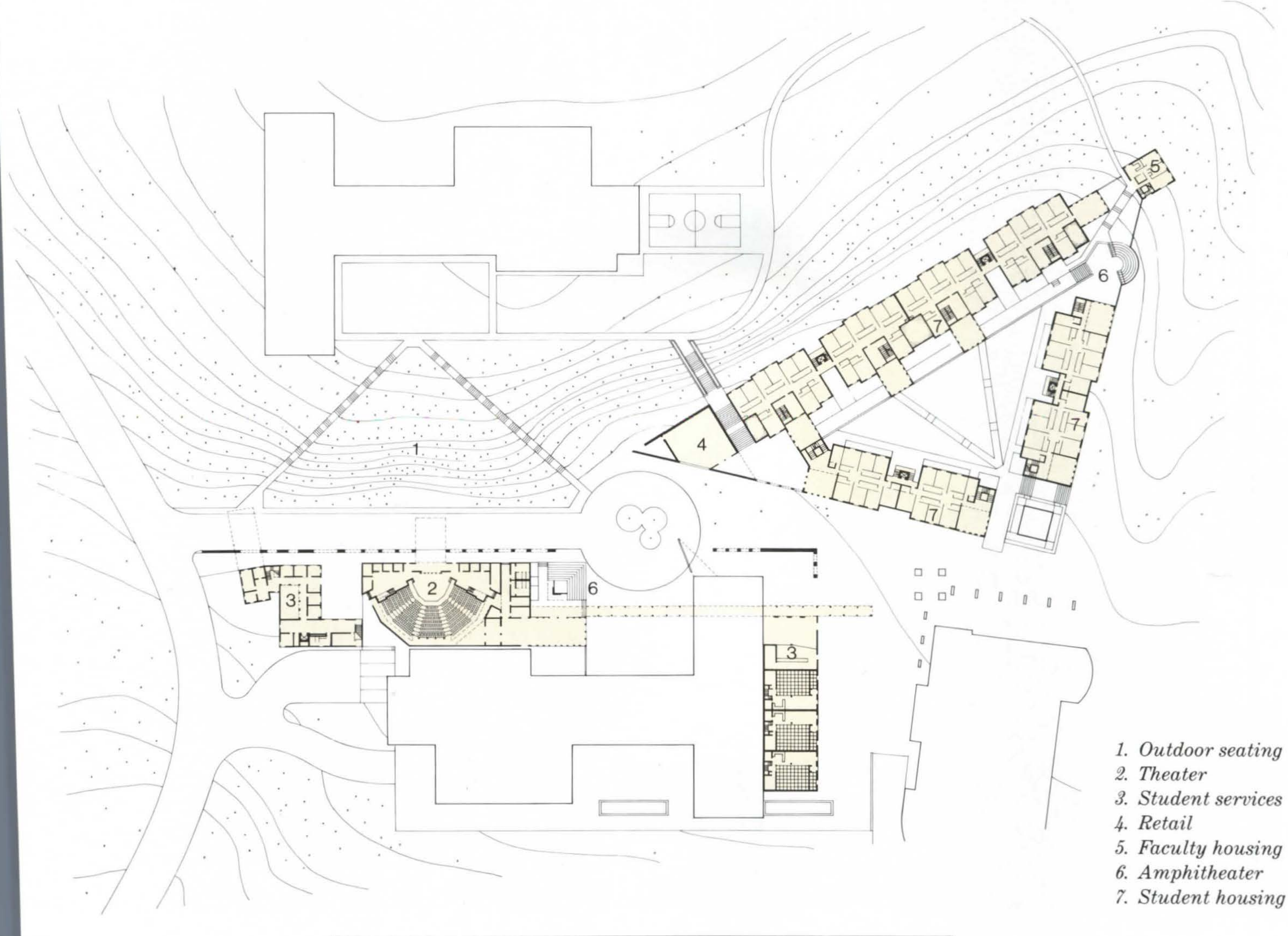
Antoine Predock, Architect



Northwest Housing University of California, Los Angeles

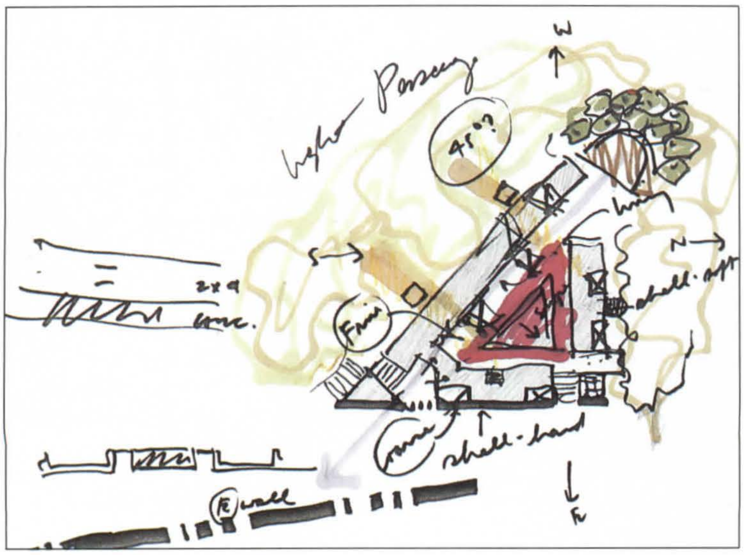


Antoine Predock's office is one of three firms currently designing 400-bed dormitories for the northwest sector of the University of California's Los Angeles campus (the other firms are Esherick Homsey Dodge and Davis and Barton Myers Associates; Gensler and Associates is the coordinating architect). In addition to housing, Predock's commission comprises assorted "infill," including an auditorium and a variety of student service offices, to be appended to a 1960s building (plan opposite). Hoping to enhance a vehicular passageway and cul-de-sac, Predock fronted the existing building with a projecting canopy that will demarcate an outdoor gathering place (drawing previous page). He likewise exploited the contours of the site by setting his triangular dormitory into the hillside. The building has eight subsections, each with its own entrance; accommodations for 50 people; and a common double-height living room that faces the heavily trafficked stairwell. While the repetitive aspect of the individual suites could not be overcome by a modest budget, the 10-foot change in grade will afford each room a different view. *K. D. S.*

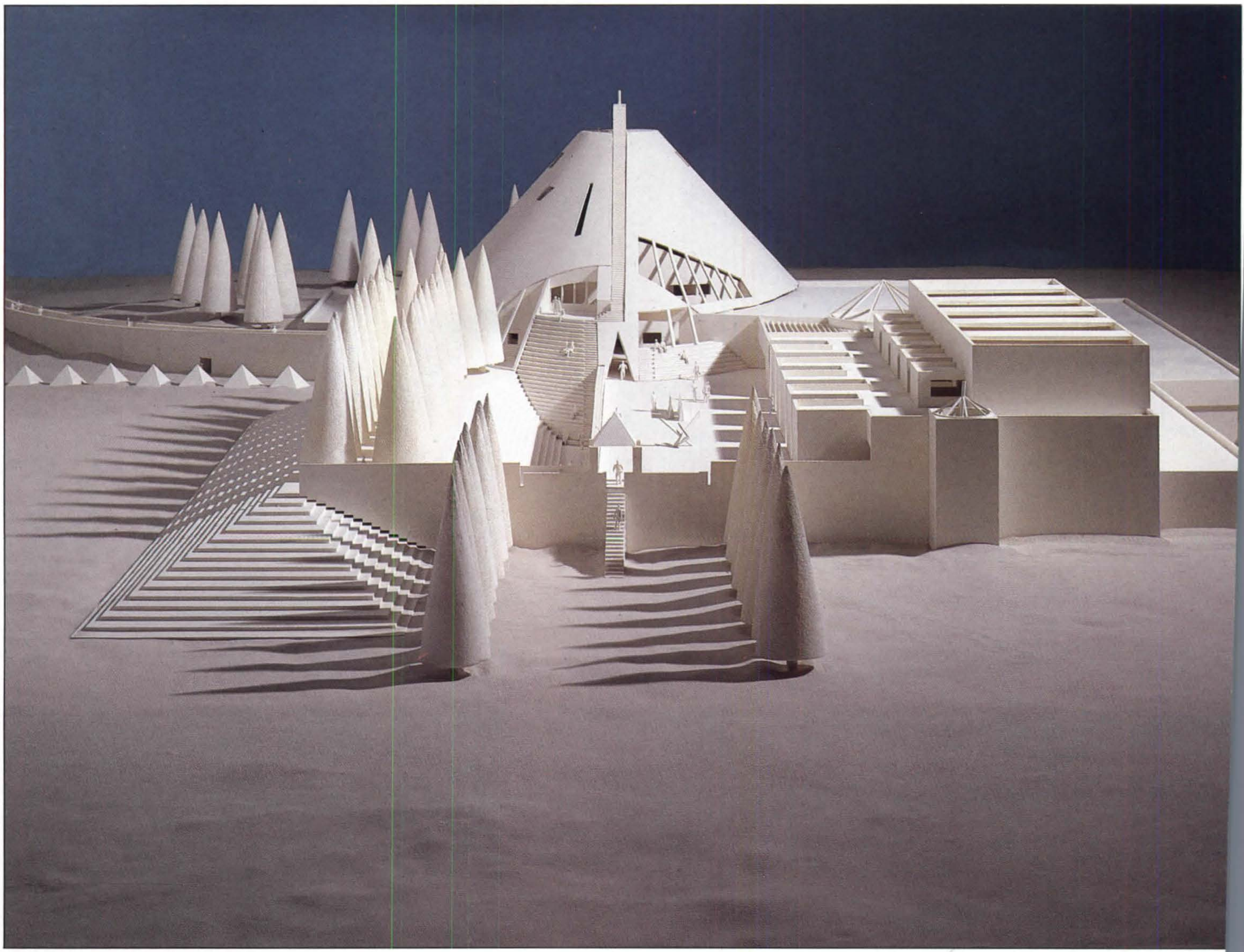


1. *Outdoor seating*
2. *Theater*
3. *Student services*
4. *Retail*
5. *Faculty housing*
6. *Amphitheater*
7. *Student housing*

roject team:
ntoine Predock and
hristopher Calott, with
ensler and Associates,
xecutive Architect



University of Wyoming American Heritage Center and Art Museum

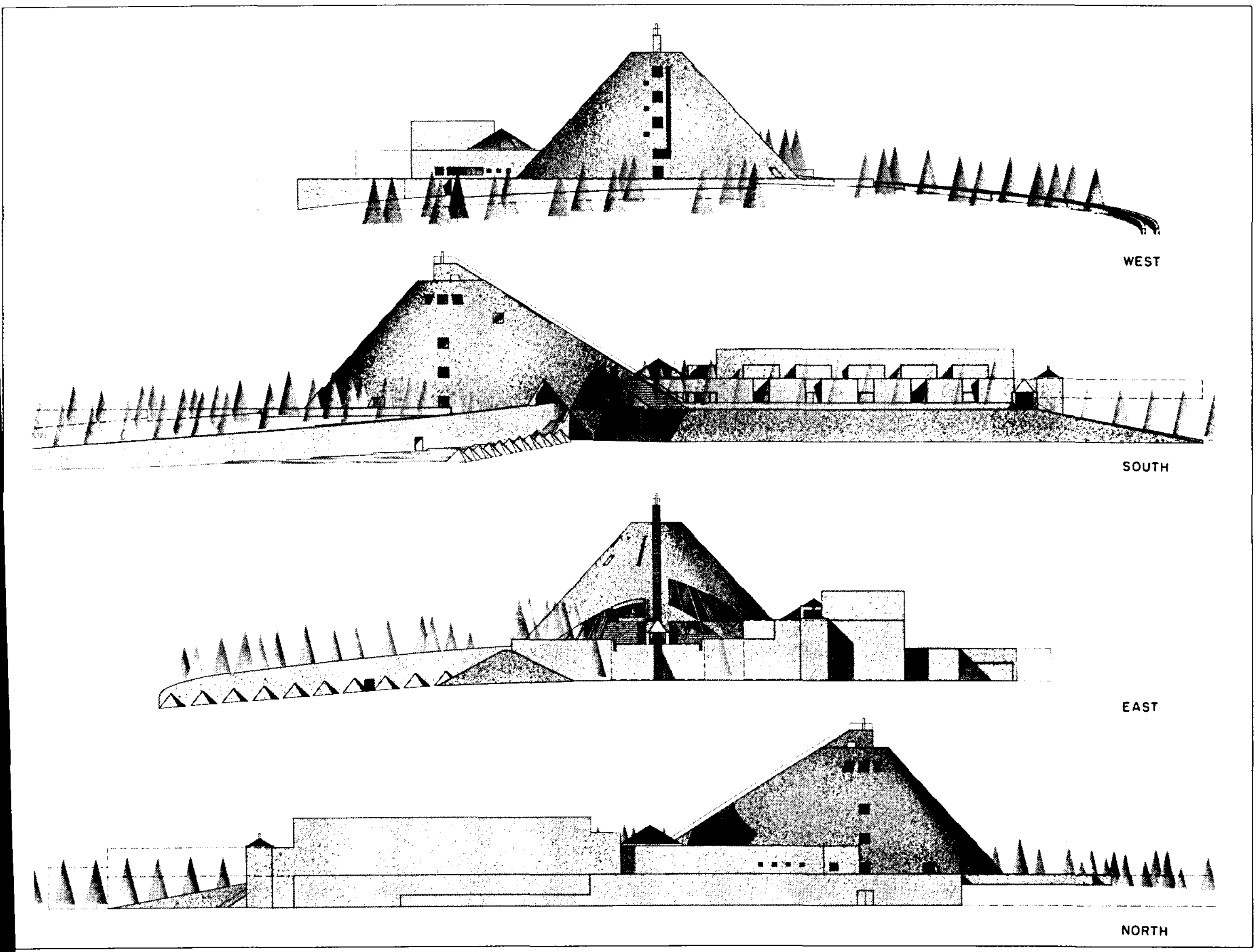


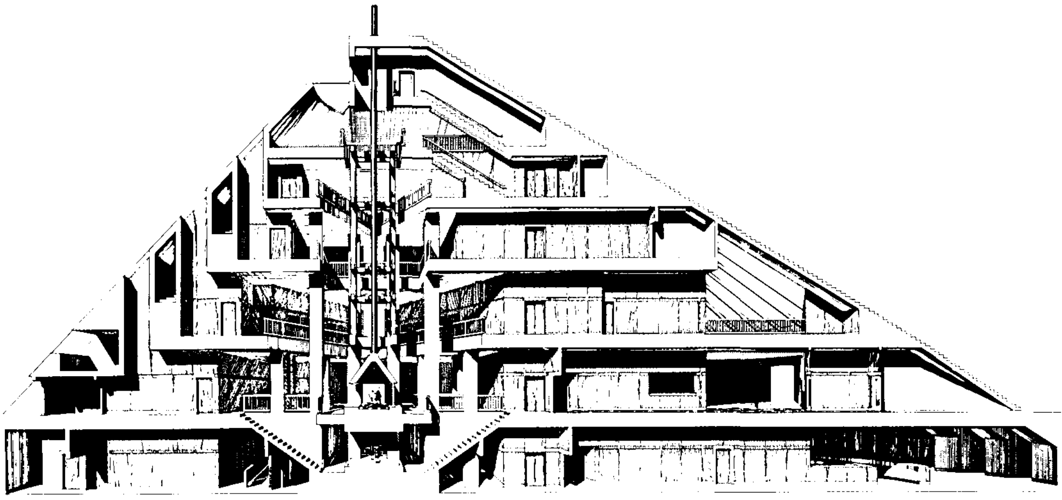
Robert Reck

Like Native Americans and early settlers before him, Antoine Predock looked to the surrounding mountains to site his American Heritage Center and Art Museum on a parcel of land on the outskirts of Laramie, Wyoming. Predock aligned the focal point of the 125,000-square-foot research and exhibition facility with the east-west line between Medicine Bow Peak and Pilot's Knob summits, which he dubbed the "rendez-vous axis." Centered on this axis, which also parallels the city grid, Predock placed the domed American Heritage Center atop a "mesa" of manuscript and artifact vaults, its cross-axis determined by the city stadium to the south. The inward-looking building will be constructed of concentric circles of brick laid on a concrete substrate, giving the exterior a serrated edge, while the more inviting wood-paneled interior, focused on a central wood-burning hearth, will recall a rustic retreat. A field of shaggy conifers and allées of sculpted topiary will funnel visiting scholars to a curved ramp that leads to the shared lobby of the Center and adjacent Art Museum. A sculpture garden will flank south-facing exhibition rooms. *K. D. S.*

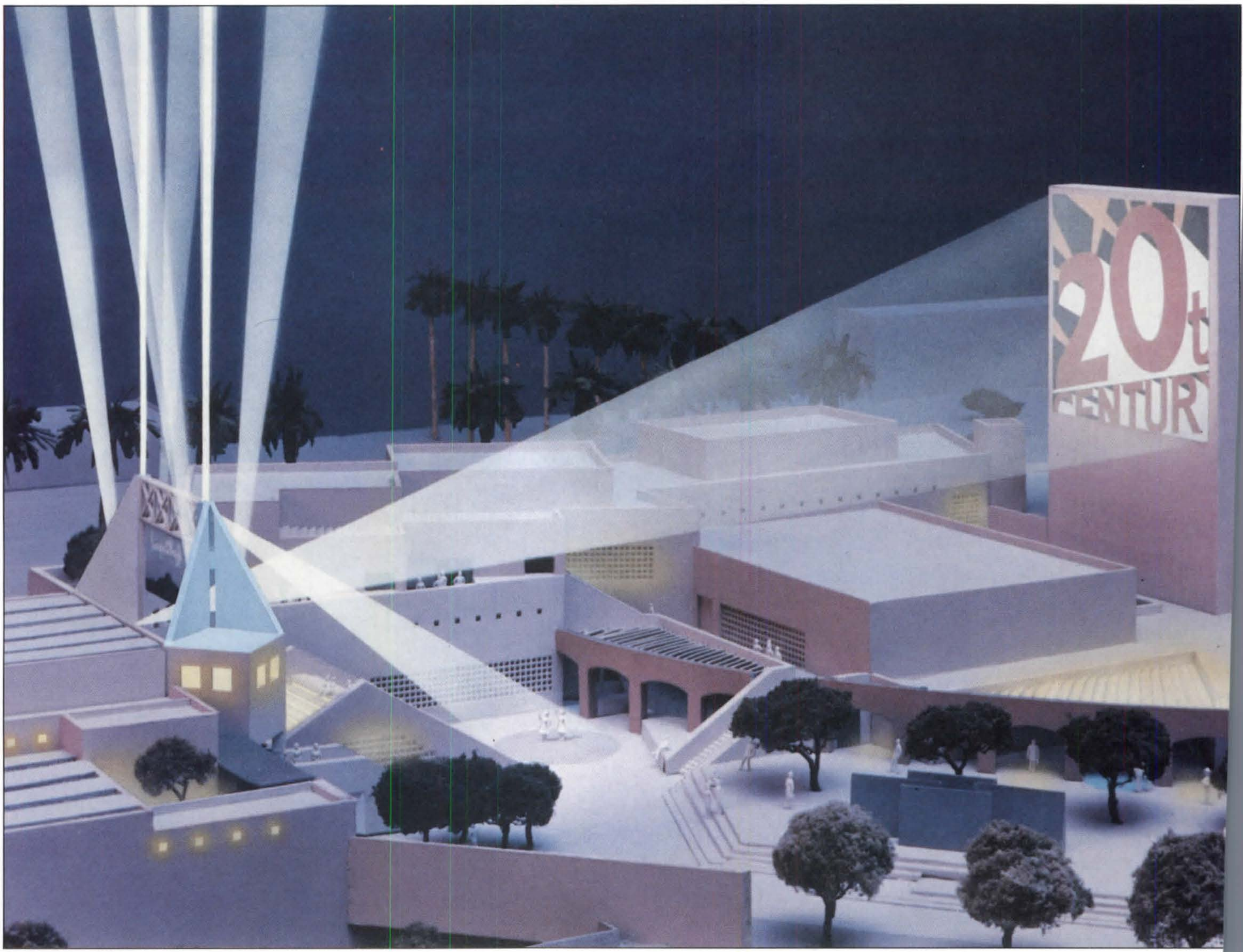
Although local building codes will most likely limit access to the stair climbing the domed Center, Predock included it in his scheme for symbolic reasons. Leading to an observation deck, it signals the complex's exploratory program.

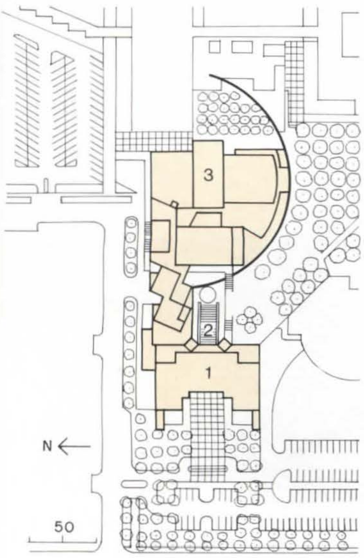
Project team:
Antoine Predock, Geoffrey Beebe, Ronald Jacob, and Eileen Devereux





Fine Arts Complex Arizona State University

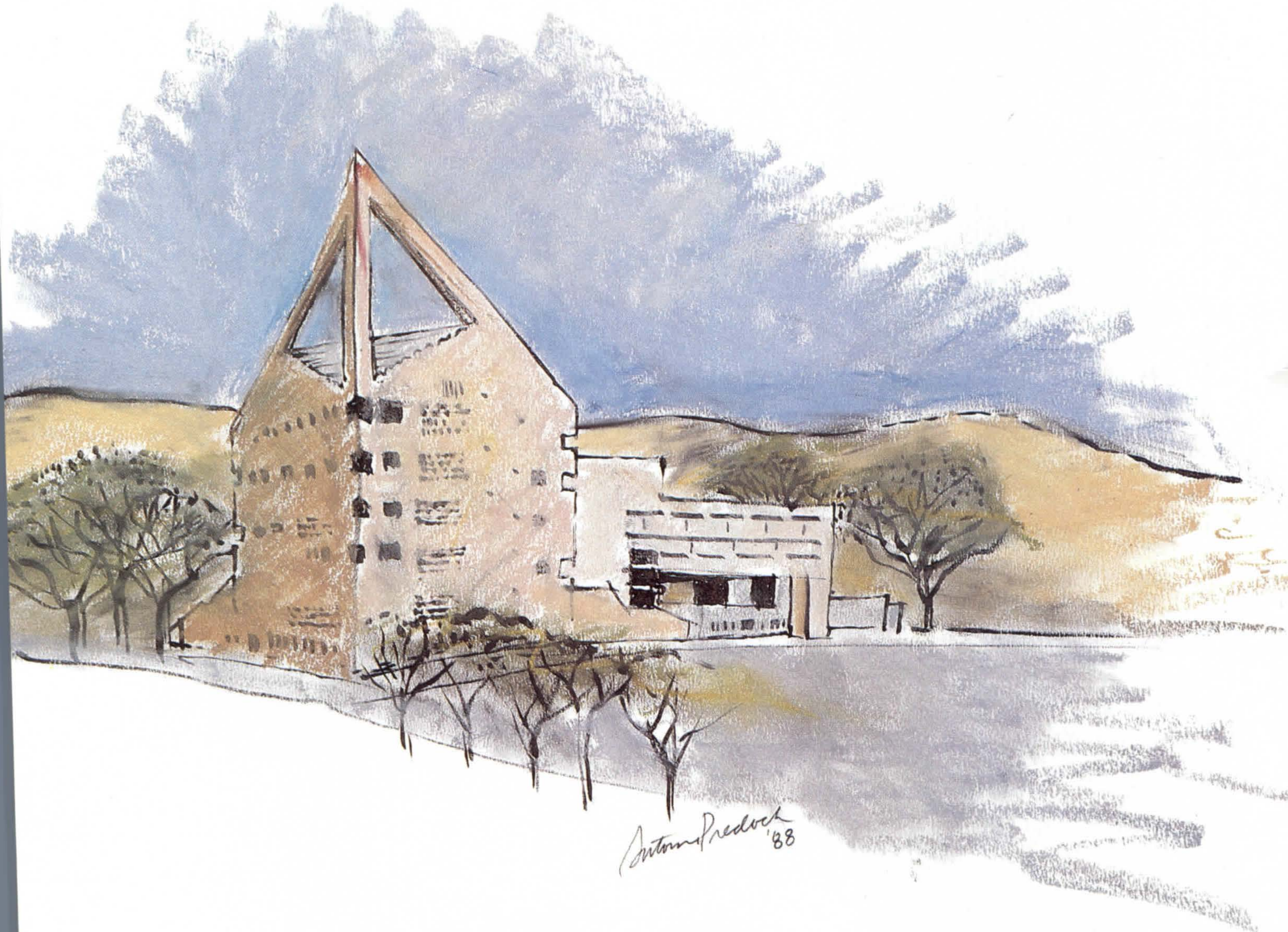


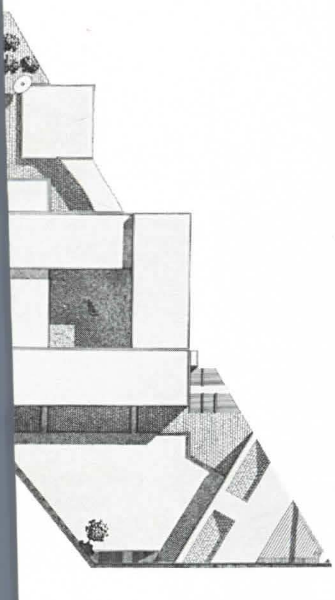


Antoine Predock conceived his Arizona State University Fine Arts Complex in Tempe as a "desert temple of the arts." Inspired by early Egyptian monuments, he organized the various program elements to resemble, on entry, an abstract sphinx, with low, pawlike galleries flanking the stacked volumes of the more massive "body" of the complex's art museum (1). The latter also includes subterranean exhibition spaces lit from above by glazed risers in a pyramidal bleacher (2). Within an inner courtyard, which will serve as a performance space, Predock overlapped the compendium of desert icons with allusions to a more site-specific theme: the frontier town. A villagelike assemblage, connected by a semicircular arcade, contains studios, classrooms, and the 500-seat dance theater. Predock extended one facade of the theater (3) like a Western false front, to compose a screen for alfresco film festivals. *K. D. S.*

Project team:
Antoine Predock, Geoffrey Beebe, Jon Anderson, and Ronald Jacob

Multiuse Building California State Polytechnic University

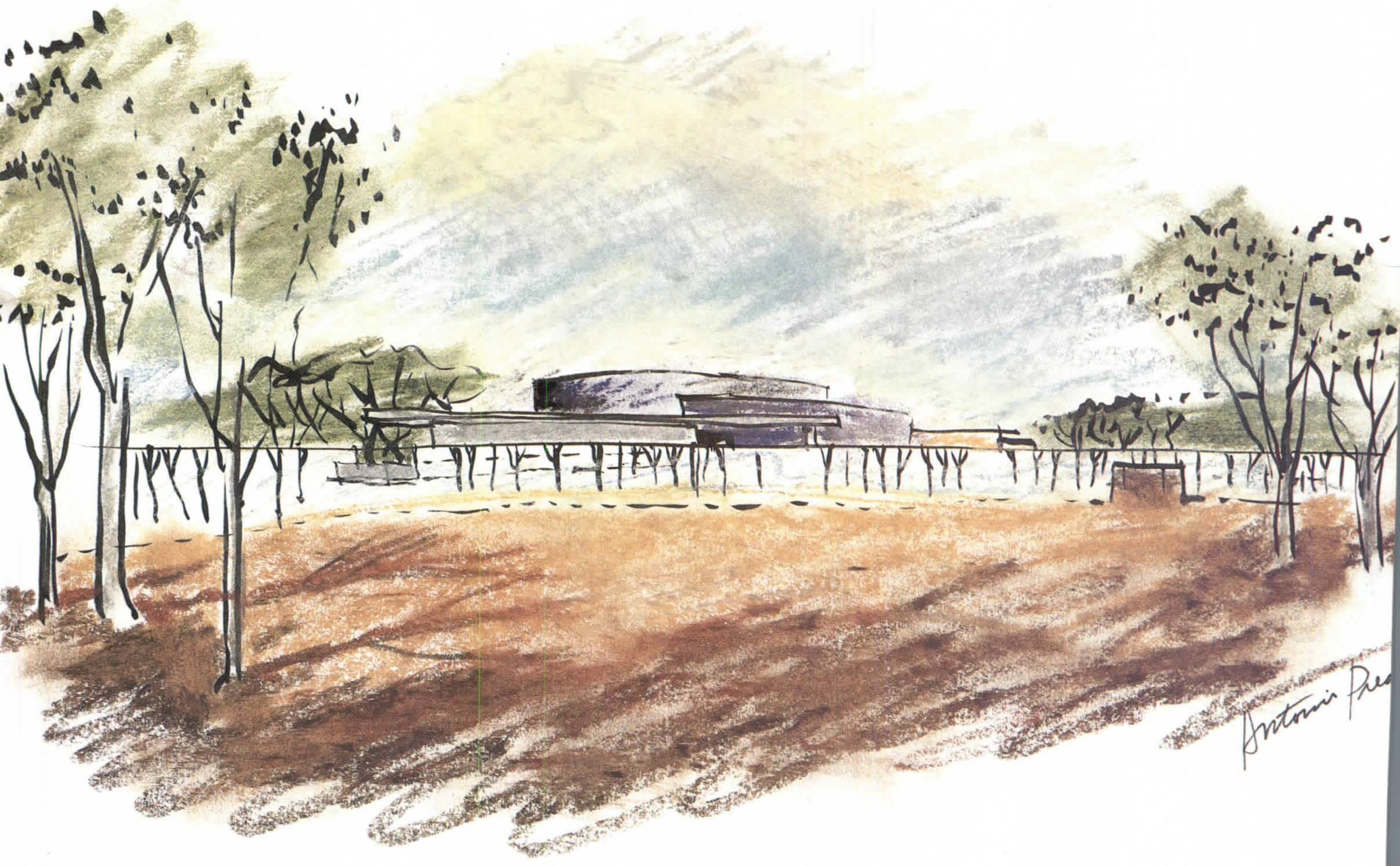




The threefold composition of Antoine Predock's proposed building at California State Polytechnic University consists of a partially subterranean laboratory base; a hollow square block of classrooms, or "the motel," as Predock calls it; and an administrative office tower. Together, the disparate functions and shapes comprise a chamfered triangle, a form echoed in the sawtooth cut-out of the tower's "sky theater." Grassy rooftop terraces (where Predock hopes sheep will graze in acknowledgment of the region's agricultural origins) will straddle various zones. The seemingly random fenestration of the tower actually indicates the varied sizes and functions of rooms contained within (for example, each matrix of tiny windows represents a secretarial pool). The "motel" will be on pilotis, enabling students to pass beneath the complex on their way to nearby campus haunts such as the barbecue pit. *K. D. S.*

Project team:
Antoine Predock, Geoffrey Beebe, Jon Anderson, and Jon Bass with Gensler and Associates, Associate Architect

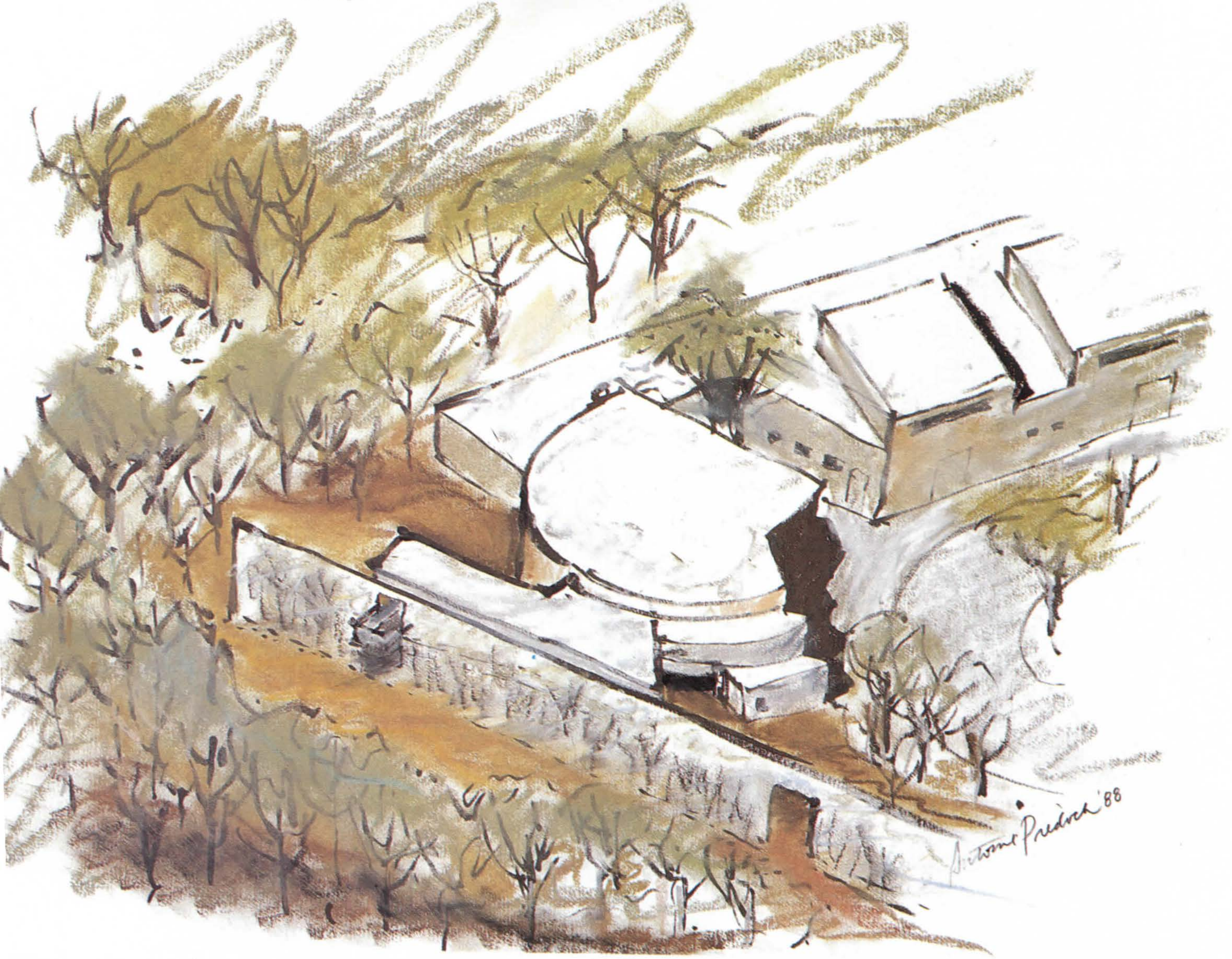
Mandell Weiss Forum Theater
University of California, San Diego

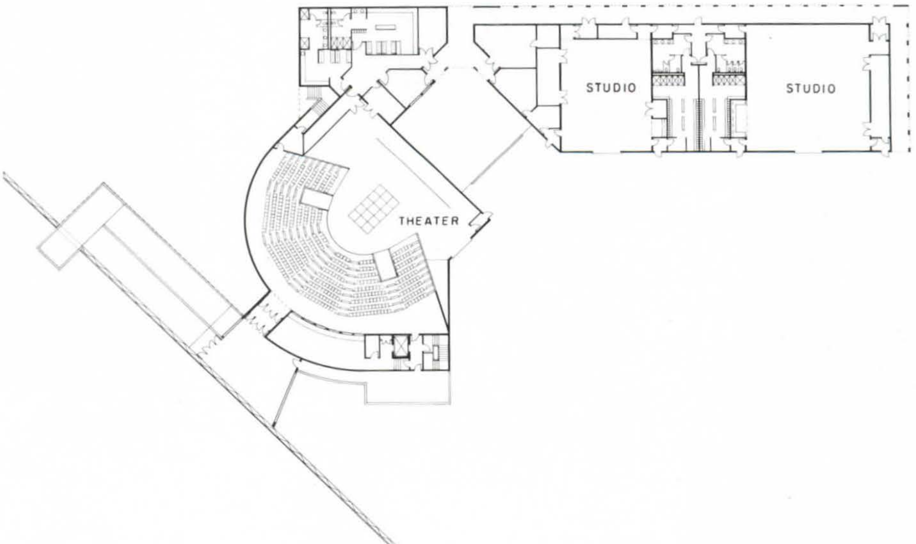


The location for Antoine Predock's 32,000-square-foot Mandell Weiss Forum Theater is a plateau at the southwest corner of the University of California's San Diego campus, overlooking Louis Kahn's Salk Institute. Set in a gravel-covered clearing in a eucalyptus forest, the building is fronted by a 13-foot-high, 230-foot-long mirror intended to emphasize the dramatic spectacles of arriving theatergoers and of the site itself. After passing through a doorway cut through the glass wall and crossing what Predock refers to as the "threshold between dream and reality," visitors arrive in a semienclosed courtyard, which is intended for outdoor performances. A curved ramp leading into the 400-seat theater provides additional entertainment for spectators, who can look back toward the grove through the one-way mirror and observe late arrivals. On the second-floor of the theater, a balcony pierces the glass wall. Connected to the backstage is a horizontal slab containing a variety of rehearsal spaces, classrooms, and faculty offices joined by an arcade.
K. D. S.

Predock hopes to construct the Forum Theater's 13 1/2-foot-high, 230-foot-long mirror wall in such a manner that it will appear, on approach, to be a mullionless reflective plane. From the interior courtyard, however, the wall will be transparent.

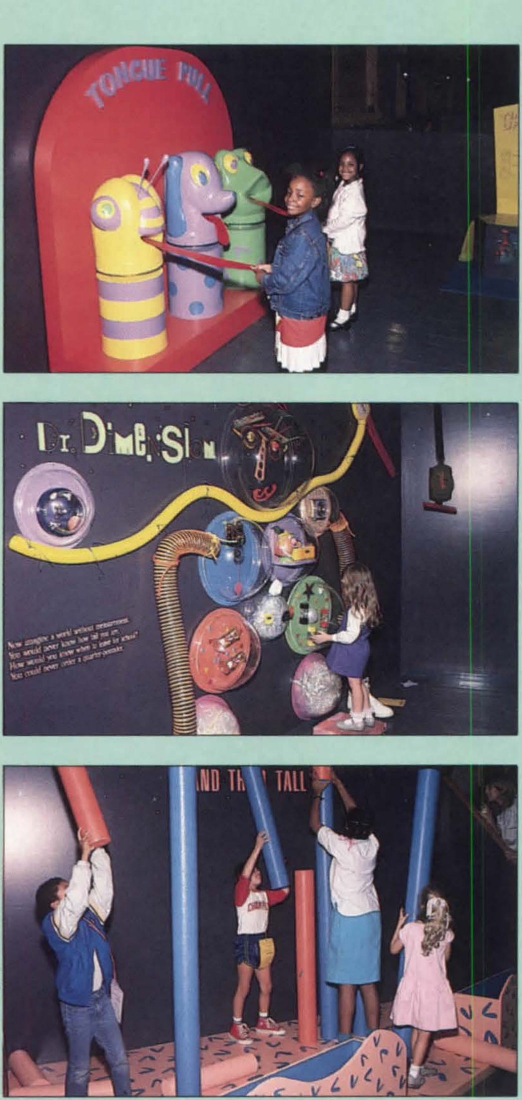
Project team:
Antoine Predock and John Fleming with CLEO, Associate Architect





Children's museums must nourish prodigious amounts of physical and intellectual energy— a daunting assignment that the architects of these two exhibits clearly relished.

Hands on, heads up



Photos courtesy of the Brooklyn Children's Museum

Children's museums do not offer ruminative contemplation but rather engage all the senses, muscles, and intellect. At the Brooklyn Children's Museum, the exhibition "Dr. Dimension and the Rulers of the Universe" encourages kids to measure time and distance with such deliberately wacky devices as retractable tongues of various lengths, egg timers and other gadgets, and lightweight columns of assorted heights (from top to bottom above). At the Mississippi Museum of Art (opposite), a girl watches the silhouette of a capering friend on a Tannenbaum screen, to which a computer transmits a delayed colored picture.

How does one reach the mind of a child? Through the eye? The ear? Words? Numbers? The stride? The grasp? The poking finger? Color? Rhythm? Smell? Logic? The spirit?

All okay, but still not enough.

According to Linda Trobaugh, architect, art teacher, and designer of one of the children's exhibits shown here, the ideal design team for a children's museum comprises "the perfect educator, the perfect architect, and a lot of money." According to Lee Skolnick, architect, sometime teacher of grade-school pupils, and designer of the other exhibit here, only when you've finished designing do you realize all you *might* have done, and will do the next time.

The increasing number and growing popularity of children's museums seems more than just a fad. In part, the phenomenon may be demographic, the need of many working mothers for supervised after-school activity, or the need of numerous divorced fathers for children's indoor entertainment. In any case, the form occurs nationwide and encompasses an enormous range of size, from big, old institutions like those in Boston, Brooklyn, and Indianapolis, with their large, museumlike collections of valuable artifacts, to small, almost ad hoc facilities like those in Pawtucket, Rhode Island, located in a former mansion, and Oak Ridge, Tennessee, in an adapted school building. (An astonishing number of these institutions are instigated by local Junior Leagues, whose young women members perceive a genuine community need.) And the groups designed for vary, too—most children's museums serve young people up to the age of 12 (adolescents tend to lose interest), who generally arrive in large school groups but who may, at some museums, come in by ones and twos after school. At the same time, the very names Kidspace (Pasadena, California) and Please Touch (Philadelphia) suggest sensitivity to the needs of preschoolers.

And one must not forget the grown-ups who drift in on their own—after they've taken the children home. On its press releas the Children's Museum of Indianapolis prints, almost as a motto, "... where children grow up and adults don't have to."

The design of children's museums requires more than ordinar architectural skills and more than art-display expertise. Though complex, both disciplines are far too simple. What's more, the most sophisticated knowledge of child development is not enoug either; the architect's three-dimensional thought processes are essential to these designs, which must allow for the active physical participation of youthful users.

A number of key words recur when insiders talk about children's museums, among them *hands-on* and *interaction*. Th vocabulary reflects not only the educational philosophy of learning-by-doing but the indisputable fact that the museum use share an abundance—some might say a plethora—of physical energy. Educators of course welcome this energy, which they hope to put at the service of the mind. But it is the architect wh is technically best equipped to channel it. Because so many peop today concentrate on architectural style, they sometimes forget that a basic architectural skill is the accommodation of space to physical use. The architect is accustomed to arranging space as pre-ordained route, freeing the user's mind for more important concerns than ambulation and orientation.

Most wonderfully, though, these designers speak of the fun— the joy—of working with sizes and shapes and ideas that just don't arise in conventional commissions. *Grace Anderson*

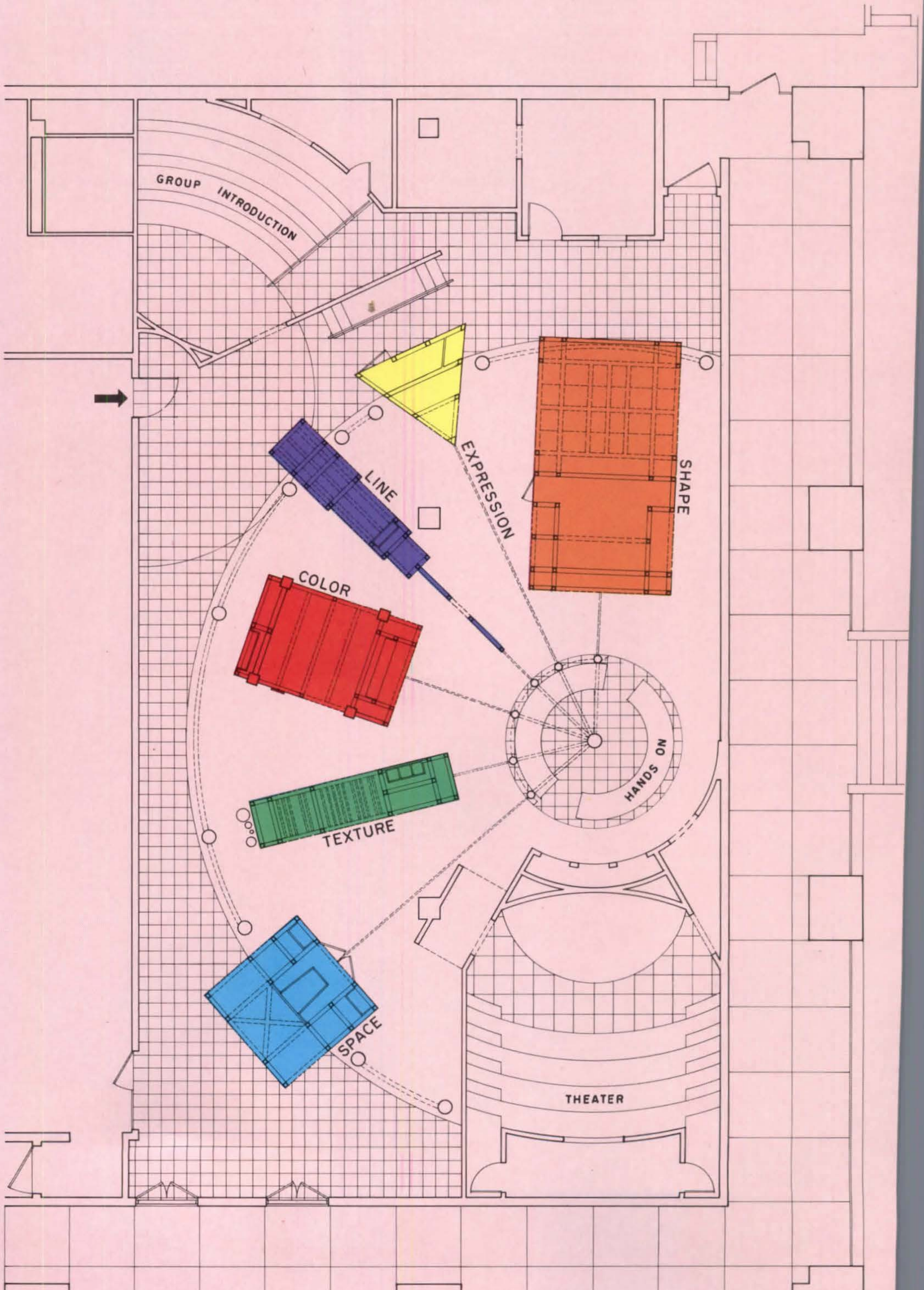
Joynt

Playing around with art works

The Impressions Gallery, a children's exhibit within a larger conventional art museum, deliberately repeals the don't-touch rules that apply elsewhere. Architect Linda Trobaugh's design actively demonstrates the elements of art—color, line, shape, light, and texture—with stationary and moving examples.

The exhibit itself occupies pavilions colored and shaped according to the theories of Bauhaus master Johannes Itten, whose writings discuss the interaction of color, shape, and visual and emotional effects. Visitors here learn not only about artistic theory but also about the physical consequences of manipulating textures and light. (Did *you* know that if you stand in a red light you cast a green shadow?) In the purple Line pavilion, visitors shape string on plastic pegs to learn about both two and three dimensions, while in the green Texture pavilion clear plastic columns filled with assorted materials show the visual aspects of texture. The gallery also houses active exhibits with names like Tannenbaum's screen, Benham's wheel, and laser pinball.

Pavilion axes, marked by colored neon tubes overhead, converge at a circular black hands-on work area. *G. A.*

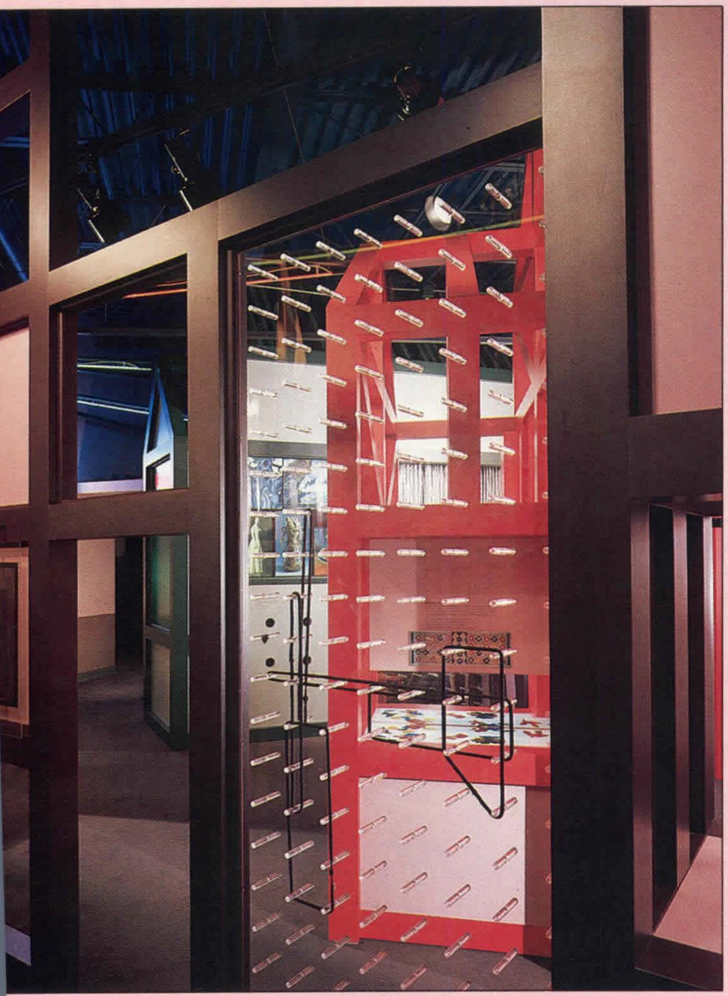


Impressions Gallery
Jackson, Mississippi

Owner:
Mississippi Museum of Art, Jackson, Mississippi—Janice Andry, director of education

Architect:
The Joint Venture Firm of Linda S. Trobaugh, Architect/ Samuel Mockbee, Architect—Linda S. Trobaugh, principal-in-charge; Michael Barranco, Al Lawson, Jr., Marliene D. Taylor, assistants

Contractors:
Dunn Construction Co., Inc. (general construction); Freeman Design Display Company (exhibit fabrication)



oynt photos

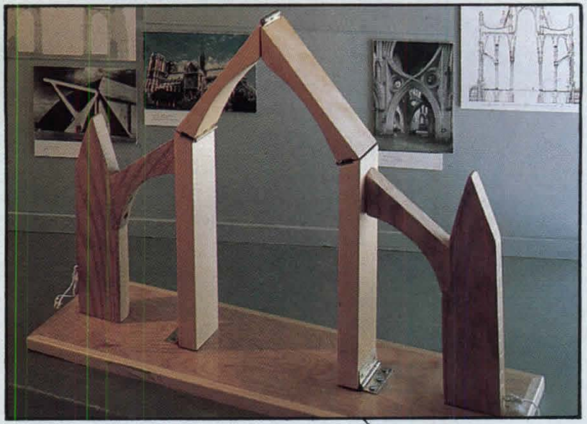
The many faces of architecture

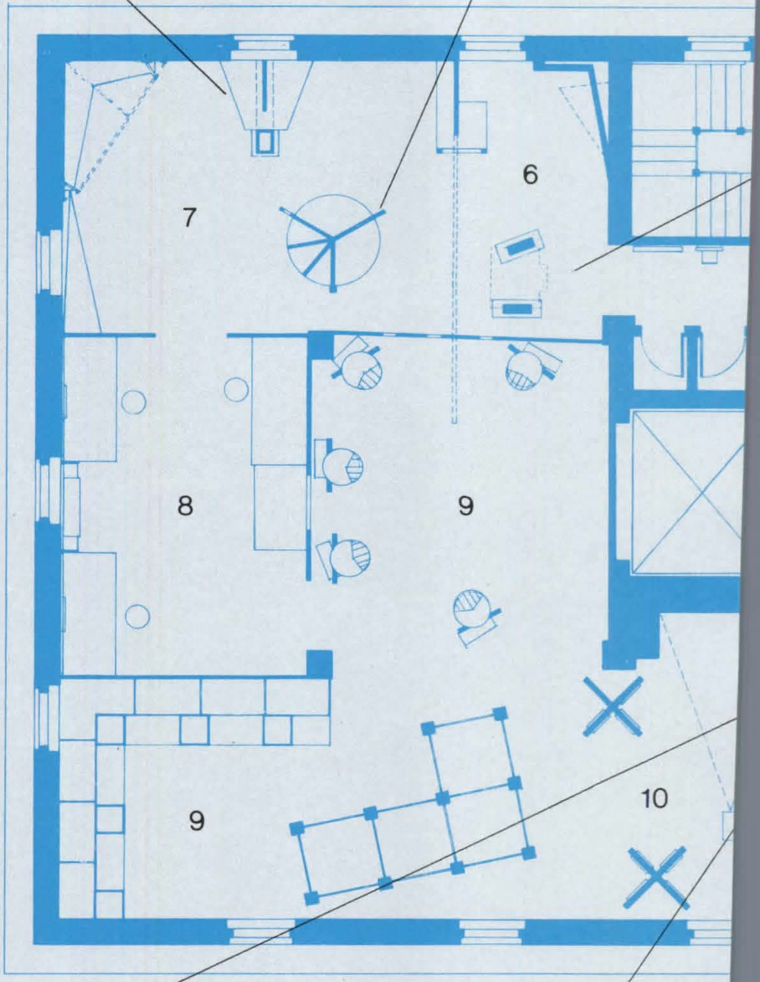
Perhaps no architect can truly gauge the manifold complexity of his art/craft until he tries to see it through the eyes of a child. But before designing this exhibit, Lee Skolnick spent seven years as a volunteer teacher of architecture (grades 2 through 7), and had ample opportunity to think of ways to convey at least part of what he knew.

At the Staten Island Children's Museum, the visitor to the Building Buildings exhibit first sees four columns at the Entrance (tree trunk, Ionic, I-beam, steel truss), and then enters a make-believe house with blueprint facade and breakaway interiors that show a balloon frame and plumbing. After learning in Where Do We Build that we don't build igloos in the desert, the viewer gets some tough lessons about the way Buildings Speak—models and silhouettes illustrating composition and visual rhythm, as well as such ornamental artifacts as a Wright window and a Chinese roof tile. Then, after passing The Colossus with models of wiring and hvac, the visitor learns How Buildings Stand Up, and is enticed to build and balance structures with hinged wood domes, arches, and buttresses (devised by Philadelphia's Franklin Institute). And after meetings with architects and the trades in "office" and "field," there is finally an encyclopedic burst of historical buildings and events. *G. A.*

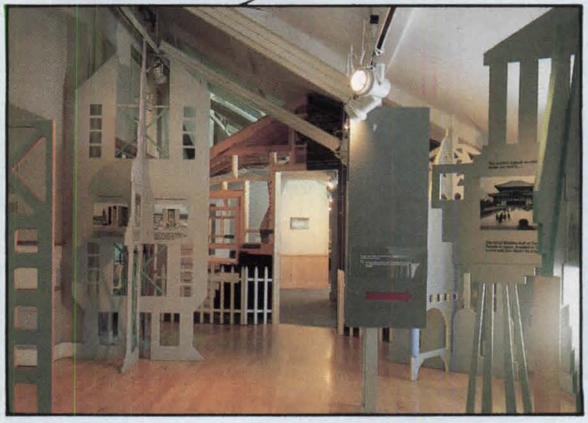
"Building Buildings" Exhibit
Snug Harbor, Staten Island
Owner:
Staten Island Children's Museum, New York City
Architect:
Lee H. Skolnick, Architecture + Design—Lee H. Skolnick, project architect; Jessica Dobrin, design assistant; Robert Bunkin, exhibit coordinator; Jo Ann Secor, project director

Mick Hales photos except as noted





1. *Entrance with Columns*
2. *Orientation/The Unbuilt House*
3. *Where Do We Build?*
4. *How Do Buildings Speak To Us?*
5. *What Goes On Inside?*
6. *How Do Buildings Make Us Feel Comfortable?*
7. *How Do Buildings Stand Up?*
8. *Who Builds Buildings?*
9. *The Construction Site*
10. *Amazing Facts and Feats*



frey Clements

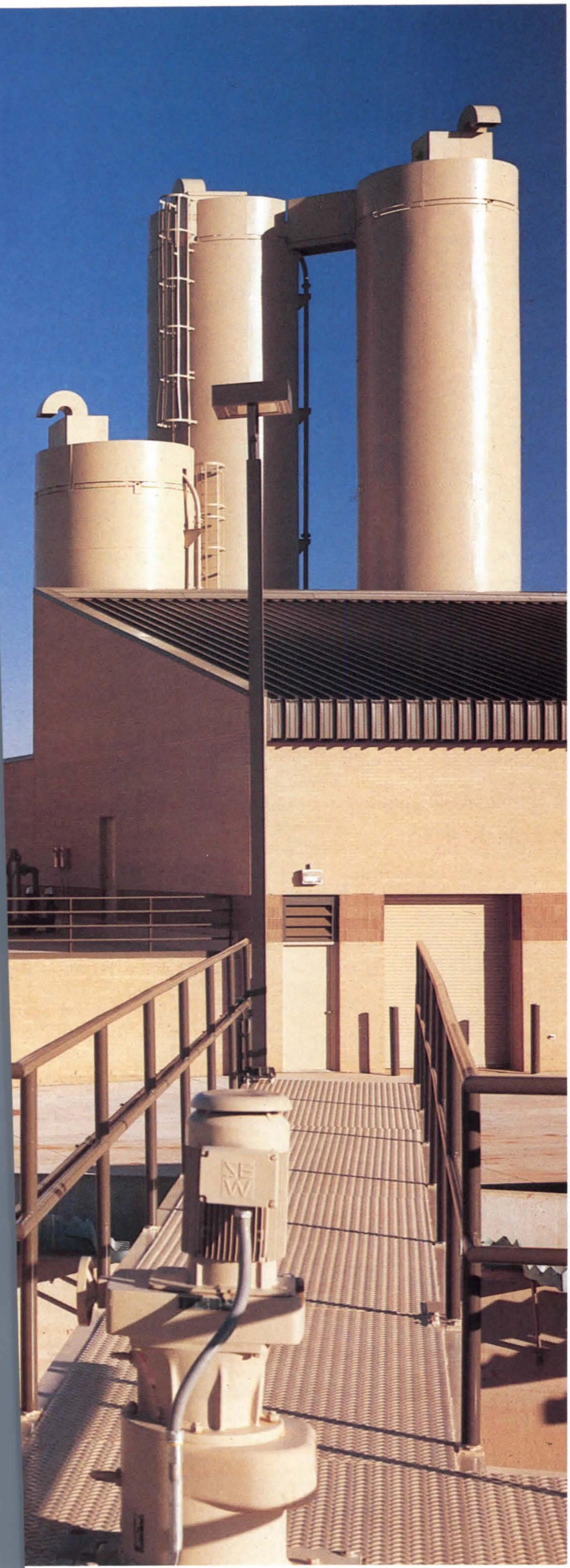
Productive politesse

Just yesterday the pundits were consigning not only our wheezing "smokestack" industries but most American manufacturing to the bin where the Model T and the vacuum tube gather dust and nostalgia, passing the country's economic keys along to wave-of-the-future technology and a burgeoning service sector. Today, they watch an industrial machine fast churning its way toward full capacity. The resulting demand for capital expansion is reflected in spending forecasts that see manufacturing buildings, and related facilities for warehousing and distribution, as one of the few still-vital spots in a generally static or sagging construction economy.

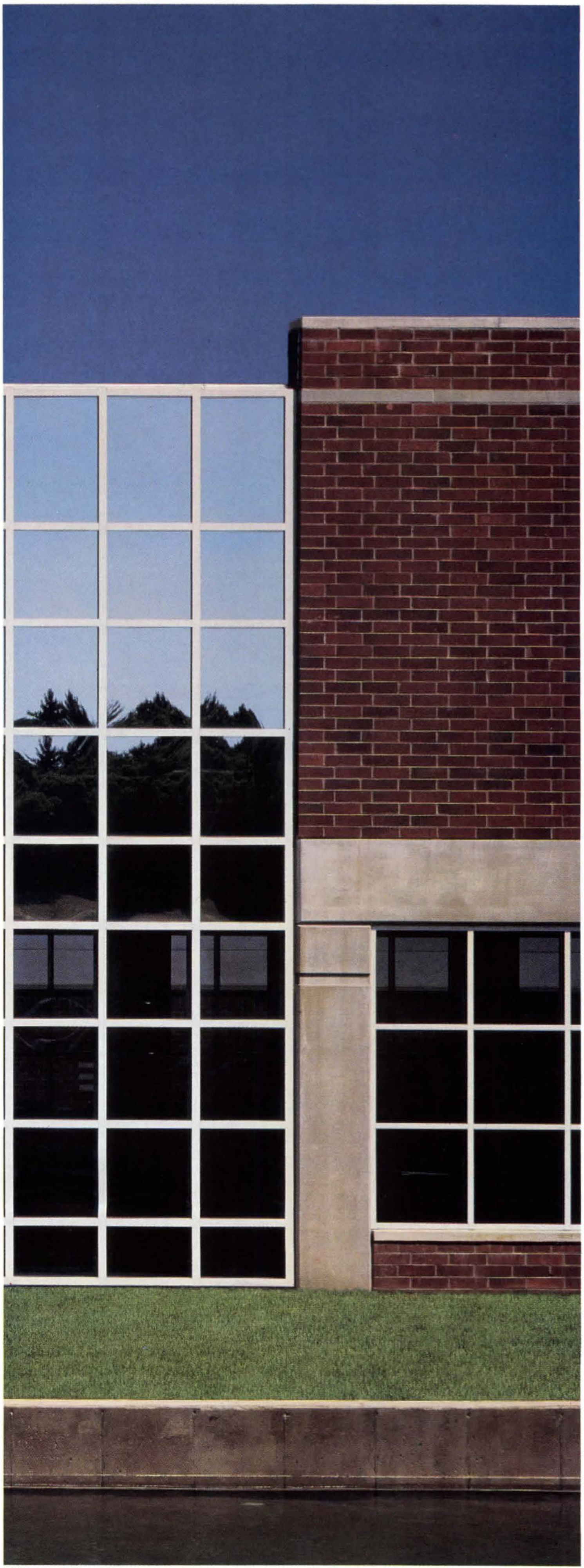
The renewed drive for industrial growth is necessarily yoked to gains in productivity, which managers increasingly perceive as interdependent with factors more encompassing than efficiencies of physical operation alone. Those who have moved toward computer-integrated manufacture, for example, have made the unsettling discovery that highly computerized operations tend to demand of the people employed by them higher skills and/or better training than before. Attracting and holding an able workforce being crucial, plant managers are beginning to appreciate, as their home offices did before, the importance of a positive company "image" backed by a congenial work environment. Even on the more superficial level of public appearances, the image conveyed by quality (read good design), or its lack, is no frivolous consideration for land-hungry industrial enterprises that must compete with such other, traditionally higher, uses as farming and housing for favorable sites. Once the town bullies, the factory and its gang of related facilities are learning that politeness pays.

Margaret Gaskie


©Otto Baitz



. Peterson

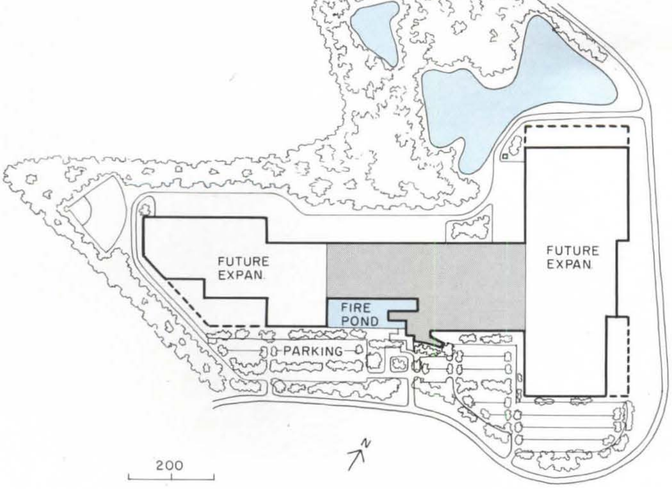


©Richard Mandelkorn

Talbots Distribution Center
Lakeville, Massachusetts
Symmes Maini & McKee
Associates, Inc.,
Architects and Engineers

As handsome does

©*Richard Mandelkorn photos*



When Talbots, which markets upscale womenswear through both catalogs and shops, decided to move its distribution and fulfilment center to a semirural area 50 commuting miles from the existing facility, holding old workers and attracting new ones rose high on the corporate agenda. Accordingly, the brief given Symmes Maini & McKee Associates called not only for a suitably stylish public face and up-to-the-minute plant, but for a work climate notably more congenial than the industrial norm.

SMMA's initial charge was actually master planning for a projected 1.3 million enclosed square feet on the 88.5-acre site. But to meet a do-it-yesterday construction schedule, the A/E firm at the same time began rough studies for the 360,000-square-foot first-phase facility—reversing the more common practice of limiting the late-arriving architect to wrapping a pretty shell around a prefixed plan. Working with CAD, the designers settled on a rolled-section and bar-joist framing system with over-sized bays to maximize flexibility, and suggested a basic scheme for plant layout. "There's no mystery about these operations," says project architect Robert McNair. "The industrial experts are great at figuring out what comes in, what you do with it, and how you get it out, but they tend to forget about people." Agreeing, Talbots not only gave SMMA unusual design control, but upped the budget enough to include in the processing areas such amenities as natural lighting and (unheard of!) air conditioning. SMMA, in turn, set an example for architect-consultant collaboration by fine-tuning the plant's column spacing, configuration, and mechanical/electrical systems in close coordination with the industrial engineer responsible for the plant's highly sophisticated computerized conveyance systems.

The key layout determinant was the client's need for the abilit to expand or rearrange both the retail distribution and catalog fulfilment operations according to demand. So the solution reject conventional straight-line processing, with receiving at one end and shipping at the other, in favor of a central receiving area with distribution and fulfilment on either side and shipping at both ends. To maintain flexibility for space trade-offs despite the considerably higher bays required for fulfilment, ceiling heights are kept constant, and "waste" height in retail areas recovered through structurally independent mezzanine floors (bottom opposite). For the same reason, ceiling ducts were obviated by circulating conditioned air through vertical air rotation units.

Despite its generous overall height and L-shaped footprint, th plant's three-quarter-mile length gives its profile all the verve, McNair observes ruefully, of a pancake. The first step in leavening it was the attention-focusing entry element containin offices, meeting rooms, and employee dining facilities overlooki a reflecting pool. The themes of concrete-trimmed brick and bro expanses of glazing, with mullions in a bright red-and-white tattersall pattern, were then chorused over the full facade. Risi from a continuous brick base, white metal walls with accent lin at two levels are punctuated by pairs of familiarly proportione colorfully framed windows, and accented with precast sills and coping, to temper the building's relentless expanse.

The 10- by 12-foot windows, with punched "attic" openings above, bring daylight deep into the plant, while offering glimps of sky and weather almost as welcome to employees as the benign inner climate provided by the air conditioning. But then such courtesies are perhaps to be expected from a company th refers to its largely unskilled workers as "associates." *M. F. G.*

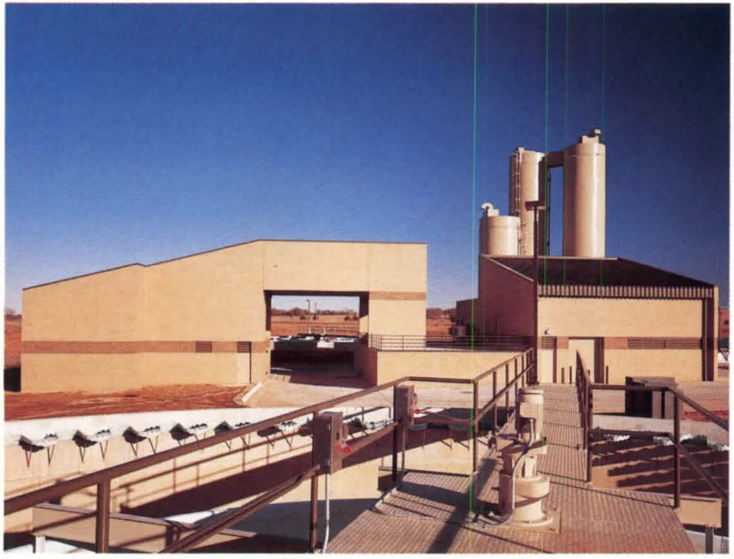
Tying the large reflecting pool—an ingeniously transformed fire pond—to the employee dining room (opposite top), rather than the executive suite, mirrors the company culture as well as the surrounding scene. So, if only symbolically, does the employee entrance (opposite center), appropriately placed at the head of a wedge-shaped court between the curving wing that houses top executives, and the plant itself. The devices used to animate the building's endless facades are prefigured in the administrative unit's sprightly overlapping planes: brick faces brightened by precast-concrete arcades and trim, white metal panels with "spandrels" and "lintels" suggested by recessed accent lines, and variously sized sheets of glazing framed in alternating grids of "Talbots red" and white.

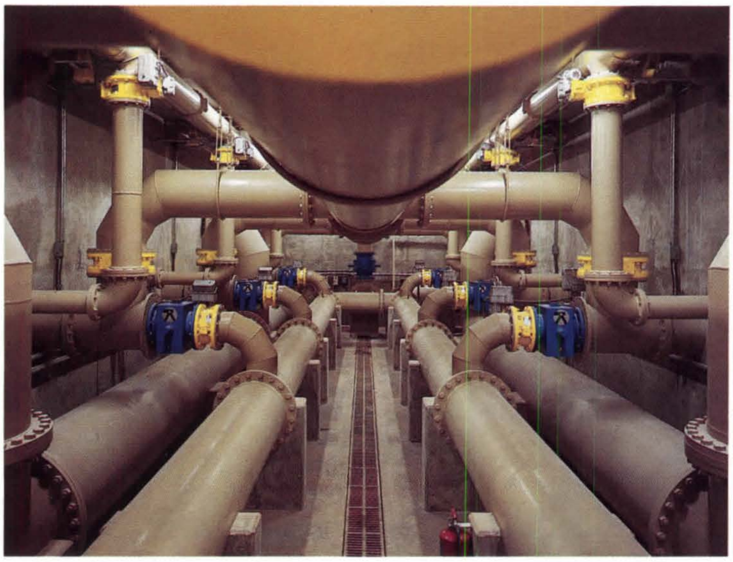
Talbots Distribution Center
Lakeville, Massachusetts
Owner:
Talbots
Architect and engineer:
Symmes Maini & McKee Associates, Inc.—Michael K. Powers, principal-in-charge; Robert McNair, project architect; Reynold Boselli, project manager
Consultant:
Joseph A. Sedlak Corporation (industrial engineering)
General contractor:
Algonquin Builders

City of Edmond
Water Treatment Plant
Arcadia, Oklahoma
HTB Inc., Architects and
Engineers

Hush! The neighbors . . .

Jon B. Peterson photos





Such inescapably industrial elements as chemical silos and flocculation tanks (top foreground), and the tidy maze of pipes below the filtration gallery (above), are softened by buildings with buff brick cladding and houseform shed roofs of standing-seam metal.

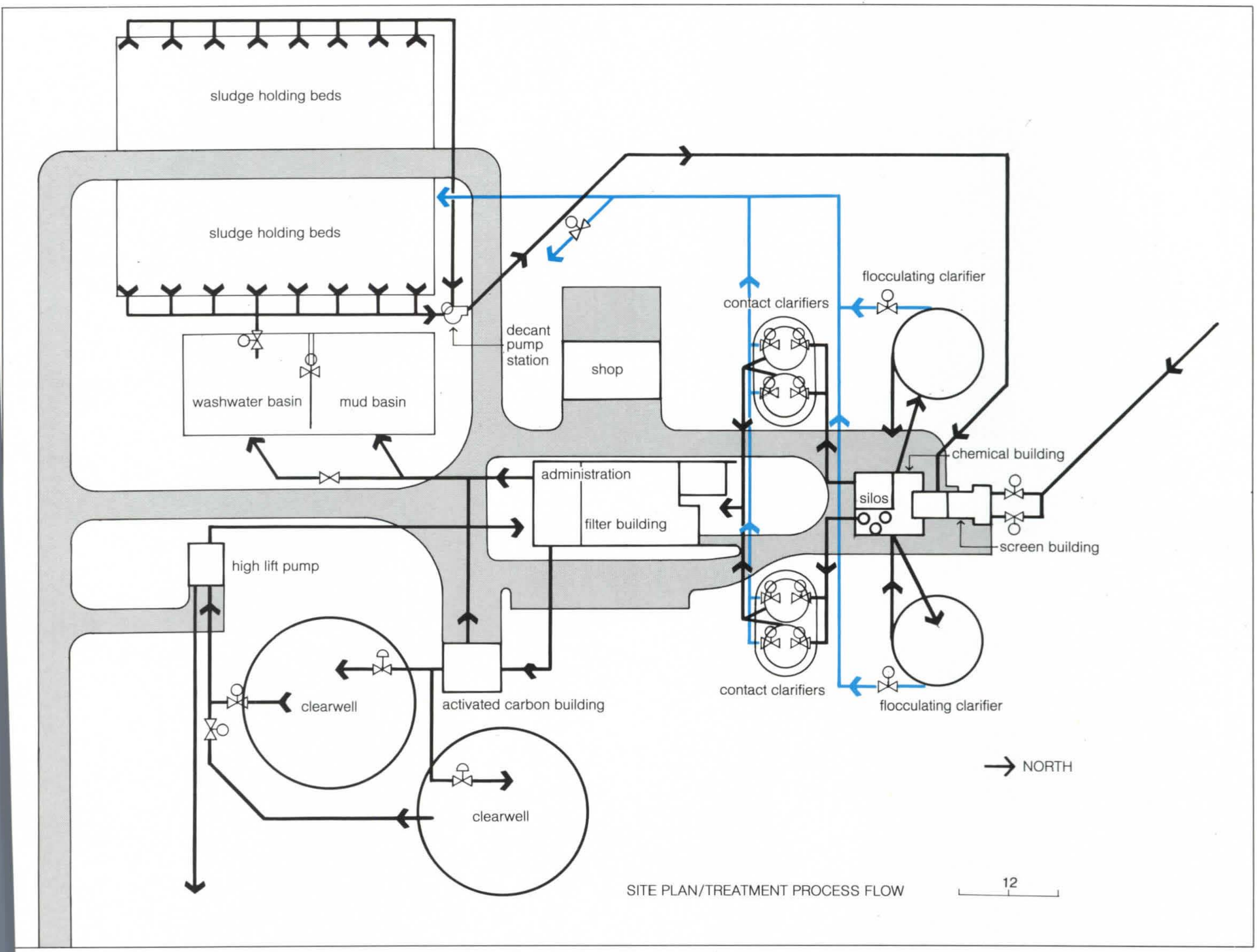
Early in the century, when cities began to replace scattered individual wells powered by hand pumps with central systems for treating and distributing water, the water works, no less than a post office or bank, was considered a structure of high public importance—often prominently located, and cloaked in architectural fashion befitting its status as a civic institution. (The third-graders' tour of the local water plant is no come-lately custom.) As new sources were sought, and treatment methods became more sophisticated (and space-consuming), the water works moved farther from the heart of town, but the tradition of treating such plants as community commodities, as well as merely utilitarian necessities, continues.

Motives beyond tradition, however, prompted the careful design of recently completed treatment facilities for the city of Edmond, a fast-growing bedroom community in the lightly wooded rolling meadowlands on the "good"—i.e., verdant—side of Oklahoma City. Anticipating that continued expansion would outstrip the water supply it could draw from existing wells (rationing was, in fact, required before the new plant came on line), the city established an additional source by damming a nearby creek. The resulting reservoir, Lake Arcadia, and associated recreational offerings already in place, are expected to stimulate a surge of residential development, within which the water-treatment plant and its 40-acre site will be inescapably prominent. Moreover, the facility is a recognized technological showpiece for its use of ozonation to purify the water, a state-of-the-art process pioneered in Europe but until now virtually untried in this country. (Predictably, the plant's register of visitors reads like a who's who of prominent figures in the water utility industry.)

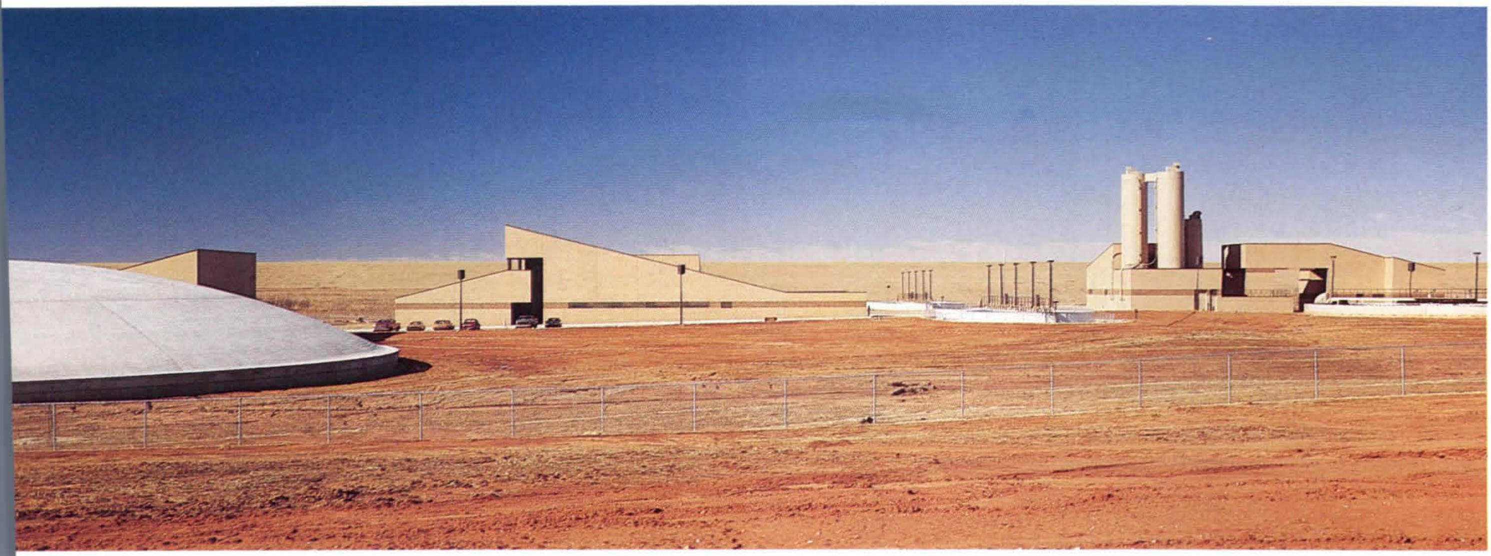
As is all too common—and despite HTB's responsibility for both architecture and engineering—project designer Edward Riley confronted the fait accompli of a site plan that stretches th plant across the face of the dam in an arrangement based almost solely on a straight-line process flow—as though the plant were exempt from the third dimension. Yet massing was particularly important in light of the client's insistence that the facility be compatible with the housing-to-come, despite such distinctly unhouselike features as towering chemical silos and four-million-gallon water-storage domes. Rejecting a high-tech glorification o process, Riley aimed instead for "industrial politeness," deployin a strong geometry of outsize houseforms to link the plant's disparate components into a coherent profile. The buff brick, ubiquitous in the community's residential neighborhoods, contributes a subtler domestic note, reinforced by a brown-brick soldier-course that establishes a unifying one-story band across vari-sized elements, as well as an ordering frame for their assorted, irregularly dispersed openings.

In the main building (center left in photo opposite), which combines the filtration gallery and a smaller unit housing administrative spaces and laboratories, the overlap of facing sheds permits insertion of a tall clerestory to light the lobby between them. Unusually large in keeping with the anticipated flow of visitors, the lobby opposes rugged, angled, split-block walls against a slick black terrazzo floor that joins an arced podium rising to the gallery. The juncture is a portal of grid-framed glass penetrated by immense glass-block columns—a dramatic foil for the gallery itself, which reverts from the over plant's neighborly reticence to the spare purity and drama of a set from a Fritz Lang film. *M. F. G.*

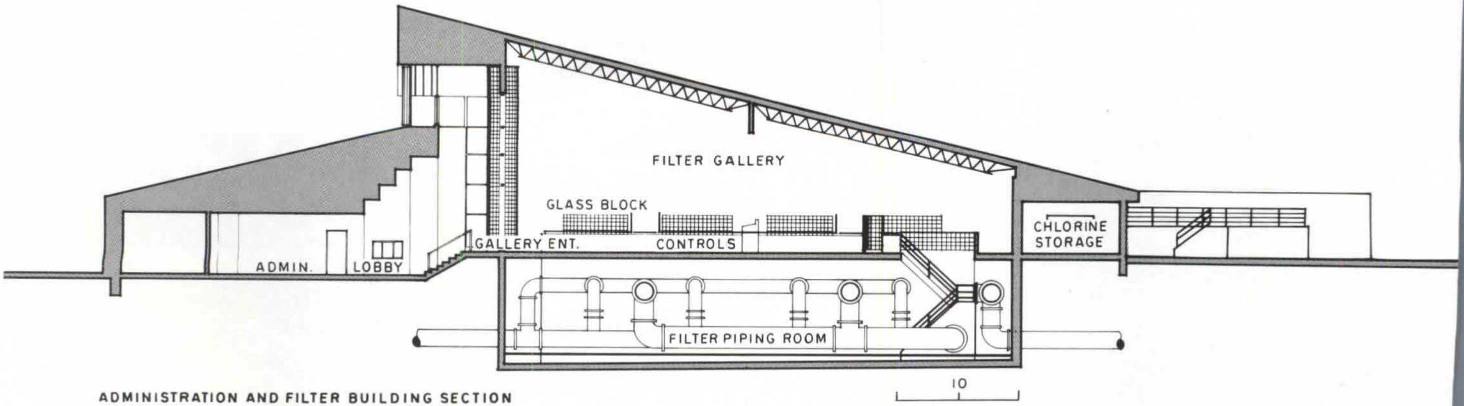
Following its process flow (diagram below), the plant layout is basically linear. For visual variety as well as containment, however, the sloped shed roofs of the ancillary units—e.g., chemical-feed and ozone building, shops, and storage—all orient to the central structure housing the filtration gallery and laboratory/administration wing. Such massive unenclosed facilities as two 4-million-gallon domed storage tanks (bottom photo, far left) and extensive sludge-holding beds flank the plant's core.



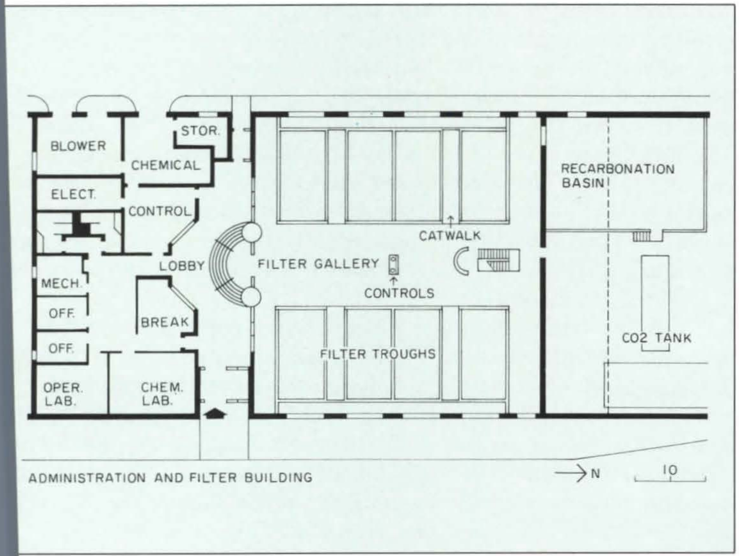
SITE PLAN/TREATMENT PROCESS FLOW



When the raw red Oklahoma earth gives way to meadow, Edmond's domesticated plant, seen from the vantage of the main road, will (save for the beacons of its silos) retreat into its landscape. All the greater, then, the impact of the main building's lobby (opposite far left), the ceremonial greeting area for visitors. Rough-hewn split-block walls against a gleaming black floor set off the grid-framed glazing of clerestory, side openings, and filtration gallery wall, while huge sparkling glass-block columns link the lobby with the gallery proper, where rows of filtration beds lie between gleaming white floor and ceiling planes (opposite near left). Glass-block also fills the windows, and fences the stair to the pipe-filled undergallery with a backdrop for the central computer's "altar."



ADMINISTRATION AND FILTER BUILDING SECTION



ADMINISTRATION AND FILTER BUILDING

ity of Edmond
ater Treatment Plant
rcadia, Oklahoma
wner:
ity of Edmond
chitect and engineer:
TB, Inc.—Larry J. Keller, rporate director of design; lward J. Riley, project signer; Bob Marx, project nager; Paul Lewis and Essy lmaghani, project team; rk Hughes, project engineer; Jim Slade, project liaison; Rex M. Ball, principal-in-charge; Rick Garner, resident engineer
Consulting engineer:
Collins & Soter (mechanical/ electrical)
General contractor:
Lippert Brothers

Technical Center
Franklin Township, New Jersey
Beckhard Richlan/Brandt-Kubida, Joint Venture
Architects

Industrial rowhousing

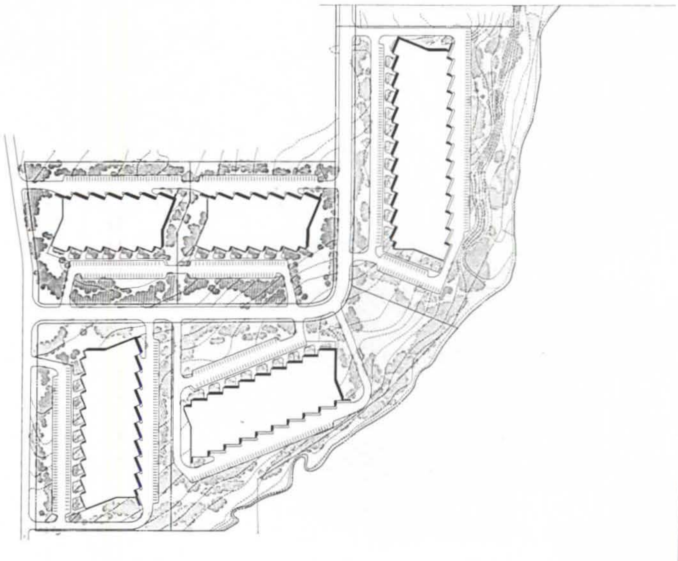
© Otto Baitz photos

The sawtooth configuration that makes trucking activity more efficient and less space-consuming also lends visual variety to the buildings' street facades by breaking their repetitive modules into clearly defined entities livened with deeply molded precast panels.

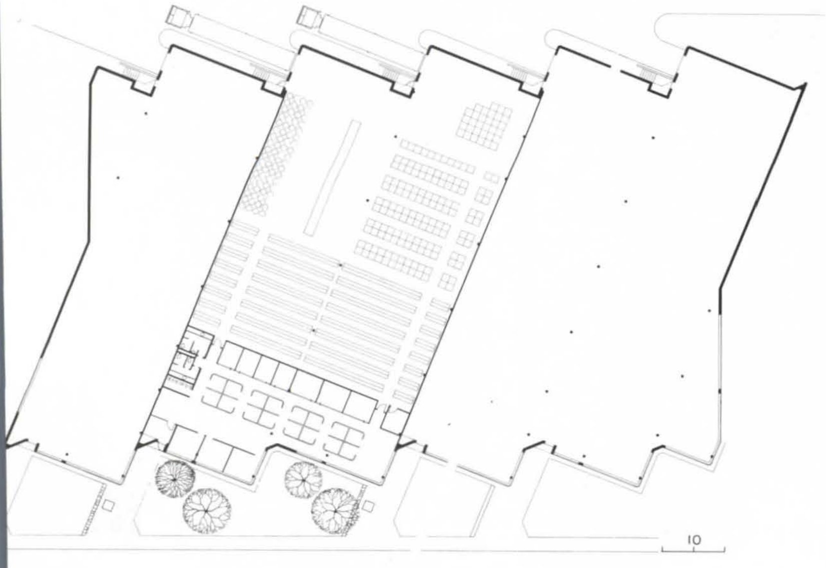
"There was nothing arbitrary or frivolous about it." Designers Herbert Beckhard and Frank Richlan ascribe the sawtooth configuration and boldly modeled facades of the structures comprising the Franklin Township Technical Center not to indulgence in pure form but to rational evolution from specifics of program and site. In addition, though, the buildings hold promise of wider applicability as a protogeneric facility combining offices with warehouse and industrial space—a flexible mix with particular appeal for the small manufacturers and distributors often neglected by conventional industrial and office parks.

Like many areas no longer content to watch complacently while open farmlands (and the water supplies that often depend on them) vanish in a tide of development, the township has imposed stringent limits on the permissible extent of building and paving in relation to land left permeable. Since the division of the 40-acre site into five separate development parcels (site plan below) meant an extensive—and irreducible—network of access roads, achieving a profitable building volume hinged on minimizing such other impermeable surfaces as parking lots, drives, and walkways. The ratio of 20 percent office space to 80 percent industrial space, for example, was set by the relative amounts of parking each required. But the decisive ploy was offsetting the repeated 9,000-square-foot long-span modules in a sawtooth configuration. By allowing trailer truck movement to be handled with a one-way traffic system and minimal maneuvering space, the zig-zag plan cuts paved areas by a third, at the same time making loading-dock activity less conspicuous by tucking truck parking tight against the building. Carried through to the street elevations, the sawtooth configuration improves on the usual slab faced industrial box by shaping a well-defined individual entrance for each 50-foot-wide bay.

Similar esthetic advantage wrung from a pragmatic solution gives the precast-concrete facades their strong sculptural quality Exaggerated for horizontal emphasis, the projecting ribs that stiffen the panels during handling double as an integrated decorative element, enhanced by their continuation around curve or chamfered corners. On site, the self-supporting units, cast wit integral window openings to eliminate added sills and lintels, nee only be stacked, fastened, and sealed. *M. F. G.*



Technical Center
Franklin Township, New Jersey
Owner:
C. L. D. Associates
Joint venture architects:
Beckhard Richlan/Brandt-Kubida—Herbert Beckhard, Frank Richlan, design; Steven Ting, associate; Louis Brandt, production; Robert Strebi, Stephen Carrozza, project team
Engineers:
Paul Beck & Associates (structural); Design/Built (mechanical)
Contractor:
C. L. D. Associates



Rubber soul

Michelin House
London
Conran Roche and YRM
Architects & Planners

Once the London branch of a French tire company, historic Michelin House has been rejuvenated, expanded, and converted to new uses. A meticulous restoration preserved or recreated every eccentric detail.

A comparison of Michelin House as it appeared in 1911, complete with the company's promotion van (top), and today (above) reveals how accurately Conran Roche and YRM restored the exterior to its original tire-studded splendor. The present architects respectfully stepped back their metal-paneled addition behind the older structure, bridging a former loading dock with a screen of butt-jointed glass (page 114).

Any traveler in search of haute cuisine and local lore will instantly recognize the corpulent fellow on the front of this London landmark. He is Bibendum, the merry cartoon character of stacked pneumatic tires who emblazons every Michelin tourist guide. Conceived in 1898 by Edouard and André Michelin as a logo for their tire distribution firm, the "Michelin man" quickly grew into an internationally recognized emblem of motoring and gastronomy. By 1911, the Michelin Tire Company had expanded its operations to include a headquarters in London, designed by the architect of its Paris offices, François Espinasse. One of the first reinforced-concrete structures built in Britain, Michelin House was exuberantly decorated with polychromatic brick, scenic tiles, stained-glass windows, and illuminated glass cupolas. A year after it opened, a three-story garage was constructed at the rear of the site, followed by a four-story addition a decade later. In 1985, the Michelin Company decided to move its Chelsea premises to a London suburb and sold the building to housewares and design magnate Terence Conran and publisher Paul Hamlyn, who commissioned the joint venture of Conran Roche (an architectural offshoot of the Conran organization) and YRM Architects & Planners to convert the historic complex for their own commercial enterprises. The architects increased the existing 90,000 square feet to 118,000 square feet by lacing a steel framework within the older structure to support four levels of office space and a curved penthouse, which projects above the original roofline. The original building, transformed into a showcase restaurant, serves as a frontispiece to a ground-floor Conran shop (inserted into a former loading dock) and upper-stor offices, primarily used by Hamlyn's Octopus Publishing Company. Clad in buff-colored, powder-coated aluminum paneling to match the adjacent brick stringcourses, the sleek, stepped volumes of the new addition serve as a minimalist foil to the unabashed decoration of the Michelin building's facades.

Conran Roche and YRM restored the 1911 landmark to its former glory by painstakingly repairing and replacing all its original features after scholarly research. Exterior brickwork wa repointed and lightly sandblasted to remove layers of silicone sealants, and faience tiles were consolidated with pigmented resins (opposite, bottom left). Although the 34 ceramic panels depicting victorious racing cars equipped with Michelin tires required few repairs (opposite, bottom right), the damaged tilework surrounding them demanded complete replication. The most complicated preservation task was the reconstruction of tw glass cupolas and three stained-glass windows on the front faca (left and opposite, top), which had been removed during World War II and subsequently lost. Designed to resemble stacks of tires, the domes were reconstructed from double-curved sections of sandblasted glass and internally lit by sodium fixtures to simulate the yellow glow of gaslights. Cartoons for the stained-glass windows were redrawn from early black-and-white photographs and posters, and their color scheme derived from Espinasse's tilework for Michelin's Paris headquarters, which s stands intact. Within the porte-cochère, which now serves as a generous entrance lobby, wrought-iron gates, chandeliers, and a mosaic floor spelling out the tire company's motto "Nunc est Bibendum" ("Now is the time to drink") were reinstated. Raisin his glass to the shoppers, office workers, diners, and curious visitors who flock to the building, the Michelin man now happily toasts a four-star restoration. *Deborah K. Dietsch*

Alastair Hunter photo, previous pages

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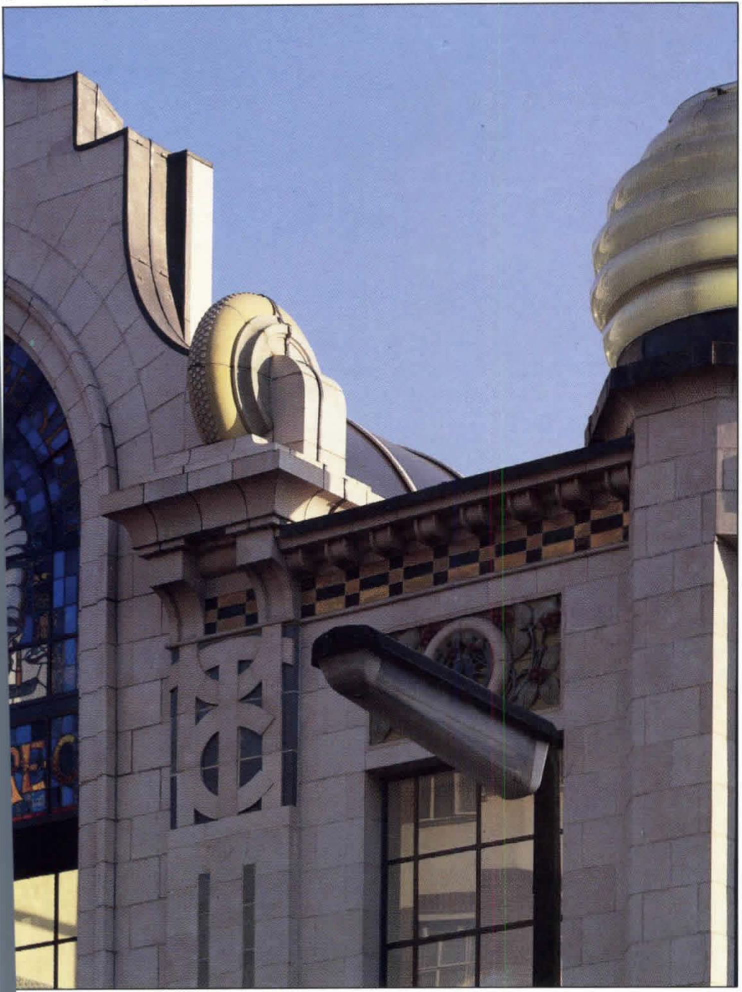
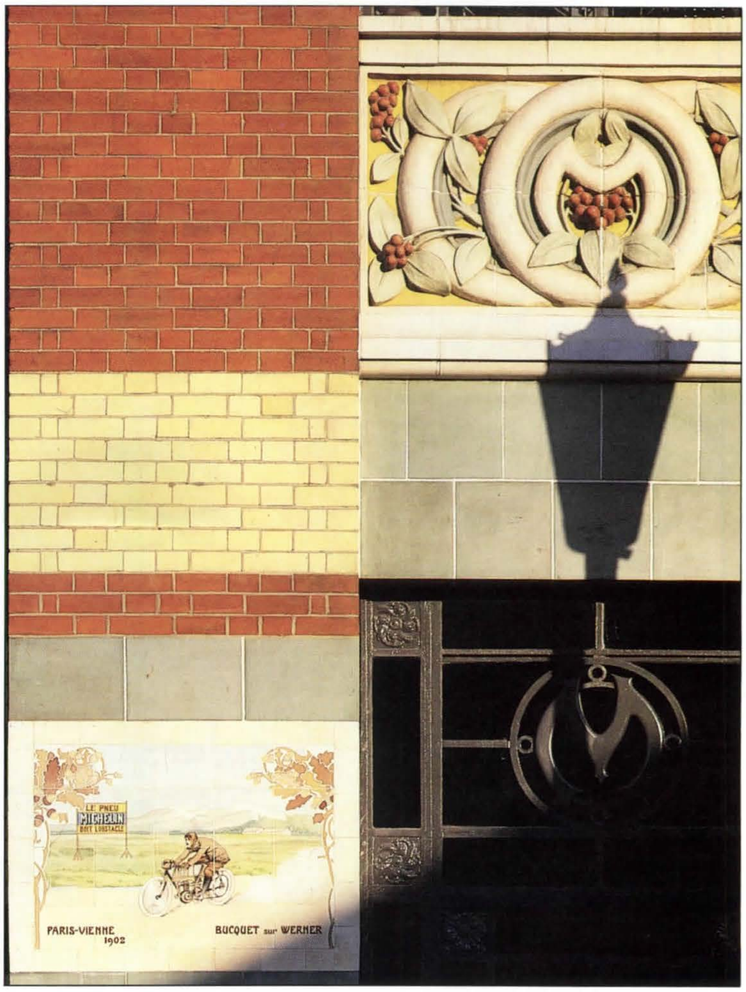
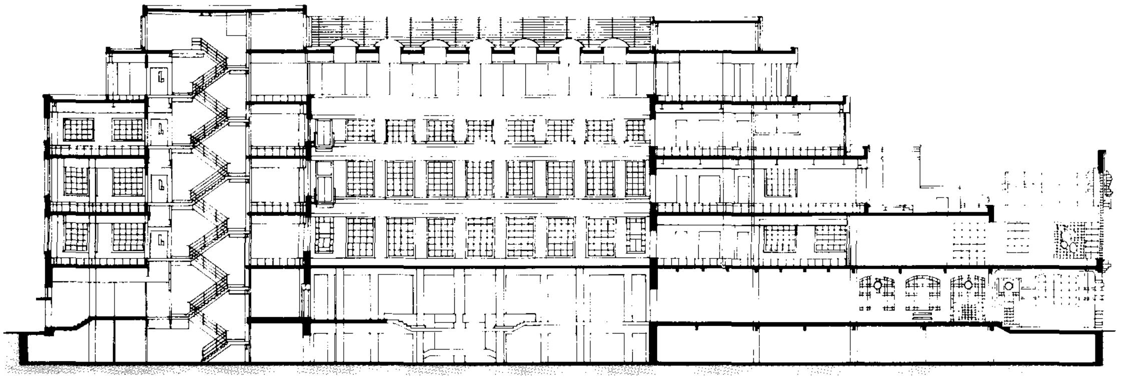


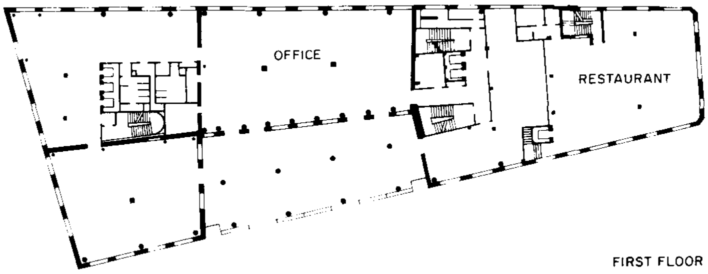


The 1911 Michelin building houses a lobby with refurbished pendant fixtures (opposite, bottom right), the Bibendum restaurant (opposite, top), and an oyster bar (opposite, bottom left). In the new addition, offices are arranged around an atrium.

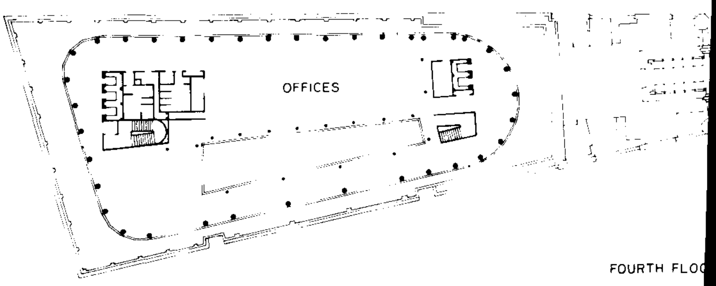
Michelin House, London
Architects:
Conran Roche—Stuart Mosscrop, project director; YRM Architects & Planners—Brian Hardcastle, project director
Interior designers:
Conran Design Group (restaurants/shop); YRM Interiors (offices)
Engineers:
Felix J. Samuely & Partners (structural); YRM Engineers (mechanical/electrical)
Cost estimator:
Wakeman Trower Partnership
General contractor:
Bovis Construction Ltd.
Subcontractors:
Art Tile Co., Cole Brand (tiles); Marriott & Price (mosaic); T. & W. Ide (cupolas); Godard & Gibbs (stained glass); Kensington Art Metal, Acmex Doors (metalwork)



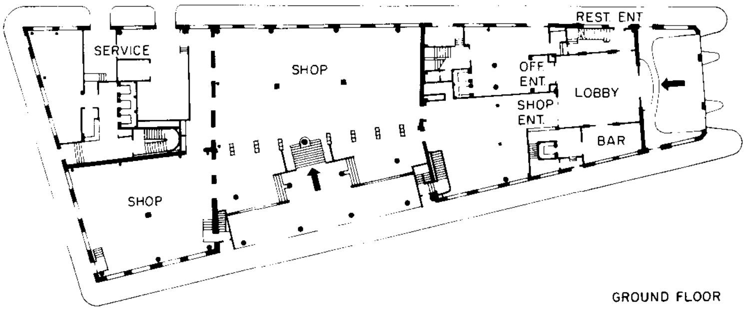
SECTION THROUGH ATRIUM



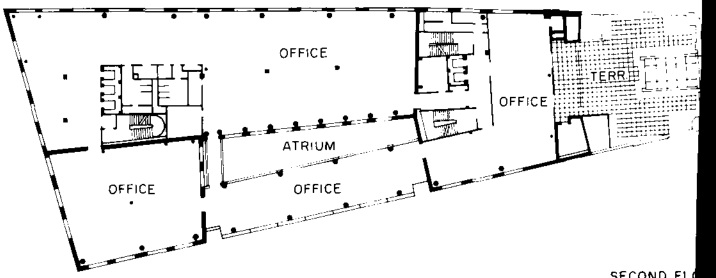
FIRST FLOOR



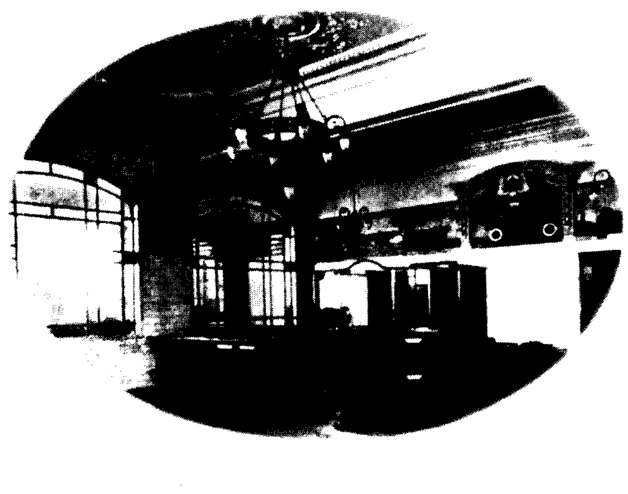
FOURTH FLO



GROUND FLOOR



SECOND FL



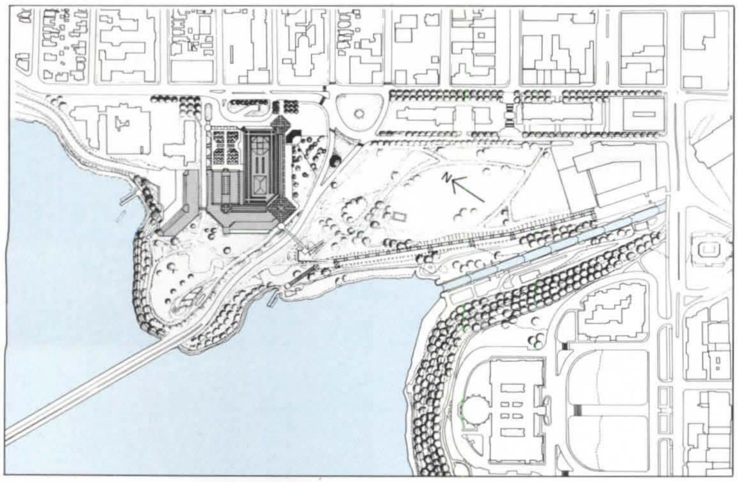
The ground floor was originally a Michelin guide salesroom.


LOUIS RENAULT

National Gallery of Canada
Ottawa, Ontario
Moshe Safdie, Design Architect
Parkin/Safdie, Architects and
Planners

Collective significance

© Timothy Hursley photos



The collection of monuments near the escarpments of the Ottaw River (photo above) commands the skyline of Canada's capital as it is seen from the city of Hull on the opposite bank. Taken in turn (left to right in photo), the Ottawa buildings celebrate art, worship, language, and governance. The newcomer to this iconi ensemble is the building for art, the recently completed Nationa Gallery of Canada by Moshe Safdie, whose crystalline Great Ha he designed as a tribute to the building for language, the Parliamentary Library, which is itself a Victorian reinterpretati of a polygonal Gothic chapter house. Safdie could not have selected a more prominent symbol to evoke. The library and adjoining Parliament Buildings are sufficiently eminent to have been engraved on the Canadian dollar bill. (Tim Hursley shot ou photo from the same vantage point used by the engraver, but denies having taken a cue from the Royal Canadian Mint.)

It took nerve on Safdie's part to choose a great work so clos by as his inspiration, thereby running the risk that his spunky upstart in concrete, steel, and glass would suffer invidious comparison with its august predecessor decked out in stone

Moshe Safdie designed Ottawa's immense new showcase for art to be a monument among monuments on the skyline, with a network of noble spaces connecting relaxed and friendly galleries conceived as a series of small museums.

nnacles and finials. Safdie has nerve to spare, however—and so, turned out, did his client, art historian Jean Sutherland Boggs, en head of the Canada Museums Construction Corporation Inc., crown corporation specially created to recommend sites and chitects and to supervise design and construction of the ational Gallery as well as the National Museum of Man, now aring completion.

"The relationship with the Parliament Buildings was the most litical idea I had," admits Safdie, "and the one that Jean was ost concerned about. When I first proposed it she was very rigued, but worried that the politicians would find it acceptable, an inappropriate affront to the Parliamentary brary. Even though the Great Hall is smaller and lower both in vation and absolute height, and in effect takes second place, it l has an enormous presence on the skyline. Yet, when we sented the sketches to the Cabinet, the ministers fell in love h the idea, so we went ahead with it. Pierre Trudeau recalled er that, at the time, none of us realized that we had made an iitive move that would allow Ottawa to become one of the few capitals in the world where an institution of culture shares symbolic prominence with government. And no capital that he or I could think of has art, almost equal to governance, as a symbolic element on the skyline."

The Great Hall is the National Gallery's principal public ceremonial space, located where the major galleries converge; in these functions, if not in shape or placement, it is akin to the classical domed rotunda at the cross axis of Karl Friedrich Schinkel's Altes Museum in Berlin, or the similarly centered and domed foyer of John Russell Pope's National Gallery of Art in Washington, D. C. Such spaces are analogous to plazas in a townscape, nodes intersected by avenues and streets. Safdie's singular gesture was to place the Great Hall on an outside corner of his building, projected into the small park overlooking the water toward the Parliament Buildings. Too far away from the edge of the downtown street system to serve as the entrance foyer, it is replicated in form but at smaller scale by the actual entrance pavilion, located at the corner where the building touches the city. Linking the two is a 278-foot-long granite ramp

The gallery has two public faces. The more dramatic and fanciful (photo below) consists of two pavilions, connected by a 278-foot-long ramped colonnade, all constructed in concrete, steel, and glass. The principal entrance is located in the smaller pavilion. Ceremonial, community, and festive functions, an important adjunct to today's museums and galleries, take place in the larger. Pavilions and colonnade overlook a public park and newly created plaza. The other public face (opposite bottom) presents the L-shaped

within a 62-foot-high poured concrete colonnade.

Although there are short cuts to the galleries, Safdie hopes that visitors will elect to use the ramp, a walk of one minute or longer depending upon eagerness and energy. Offering views of the park and the Parliament Buildings along its route, the ramp still strikes some as a needlessly long and steep approach to the art. (The architect counters this criticism by pointing out that the leg of Bernini's colonnade in St. Peter's Square that leads to the steps of the Scala Regia and thence to the Vatican Museum within the Pontifical Palace, is also a long route to the art—and by coincidence, Safdie claims, has the same slope he devised for Ottawa.)

Behind this processional approach, the galleries form an L-shape enclosed by solid walls and penetrated by three skylit courts, so placed as to subdivide 132,700 square feet of exhibition space into smaller areas, rather like a sequence of compact museums. Safdie prefers galleries scaled to provide a sense of intimacy and simultaneously allow the visitor to comprehend the whole complex of which they are a part. He particularly likes, among other museums, New York City's Frick Collection, by Carrère and Hastings, and Fort Worth's Kimbell, by Louis Kah "The big museums," he asserts, "partly because they are built piecemeal like the Met, tend to be totally chaotic and disorientin There are some exceptions like Washington's National Gallery which, though a big building has a clear sense of order, orientation, and circulation—a public series of spaces which really make it easy to find your way through. I was very much preoccupied with making an enormous building, with a gross ar of 600,000 square feet, legible and friendly. I tried to achieve these qualities by establishing a series of public spaces that would serve as streets and squares with different buildings entered from them. I have ended up with *five* Fricks or Kimbells—all the same size. These read as buildings you enter go through, and come out again."

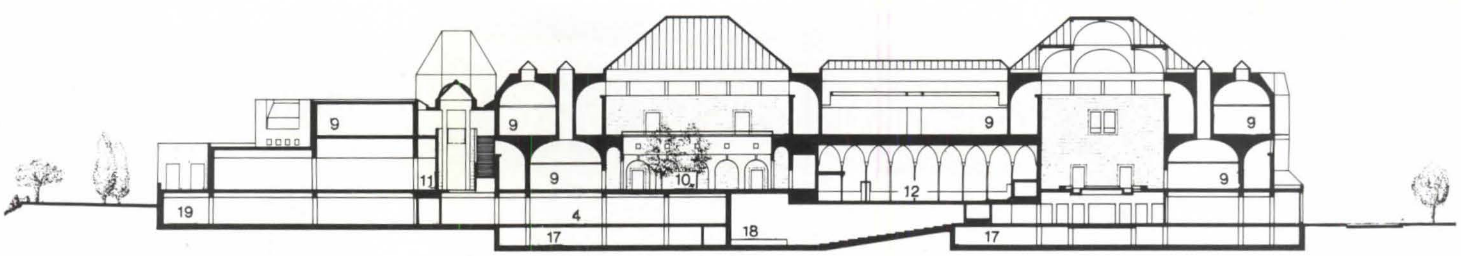
The National Gallery is Safdie's best built work, and its creation was a rich experience for him. Generously, though, he attributes his ultimate success with this project to his client, Je Boggs. "Jean developed a good program—and it works. She

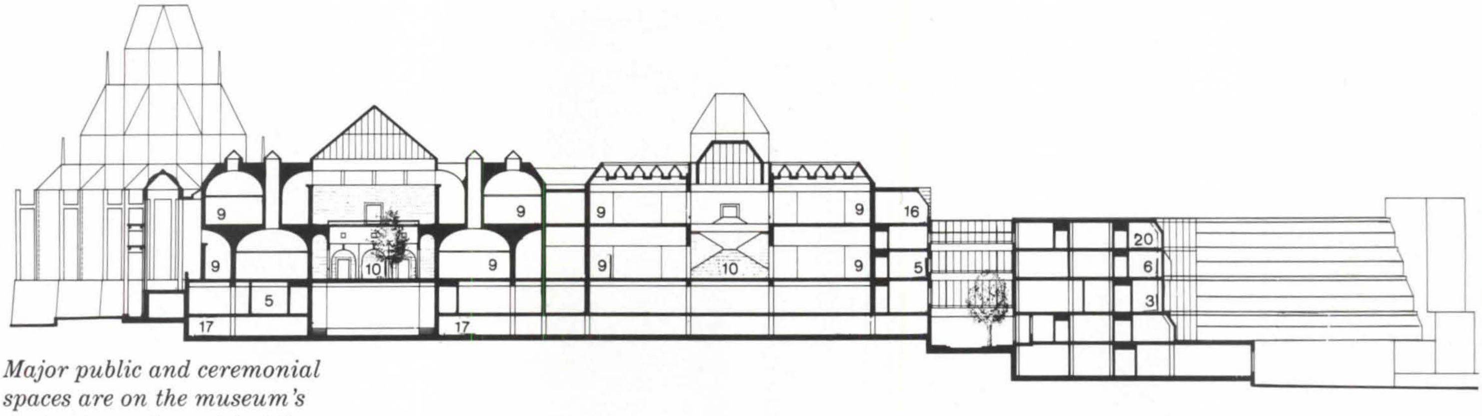
nfiguration of the galleries,
hich are sheathed in rose
adoussac granite. To the right
f the gallery, across a
ndscaped plaza, is the
ndmark Canadian War
useum. The honeycombed
ome forms (below left and
ght), a gesture toward the

conical shape and spiky surfaces of the Victorian Gothic Parliamentary Library, have little to do with Gothic Revival, but are derived instead from the muqarnas *vaults found in the early Islamic architecture of Iran, a long-time interest of Safdie's.*

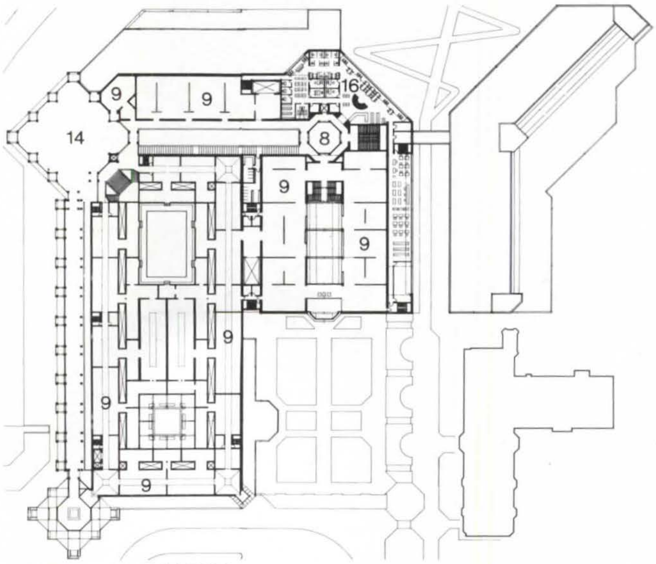
w, for example, that too many museums put the curators in
basement. So, in Ottawa, the curators have the right kind of
ce in their own wing oriented toward the river. Too many
seums mix food and art, but in Canada's new gallery patrons
e spaces to party outside the exhibition areas. Even though
construction was fast-tracked, we looked and relooked at
rything together, and Jean kept the project from being nibbled
y by cost cutters. I had only one big argument with her. I had
vn the Great Hall stepped down to the river—the upper level
to be circulation, the lower where parties and ceremonies
ld happen—and she kept saying that a great room shouldn't
tepped. She overruled me and said it should be flat. Now I
at the results and think she was right. It would have been
omplicated. The architect's search for perfection is supported
client who is after it too."

grateful Canada would do well to honor this search and its
tiful result. Perhaps the Royal Canadian Mint might issue a
y engraved dollar bill that includes this remarkable new
ıment in the celebrated vista. *Mildred F. Schmertz*

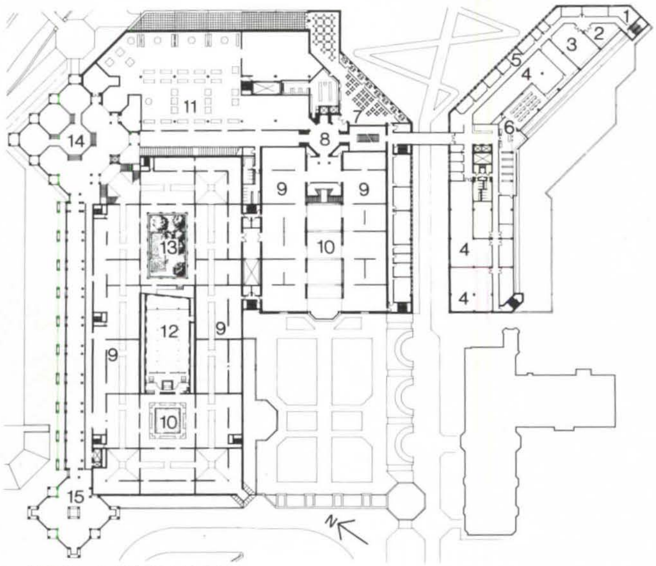




Major public and ceremonial spaces are on the museum's perimeter and consist of three interior plazas or nodes connected by multistory skylit passages (opposite). These spaces are not required to meet the standards of humidity and temperature control maintained within the gallery proper, the latter being enclosed by masonry walls with vapor barriers and every opening glazed. Exhibition rooms surround skylit courts, and rectangular slots in the upper gallery-level floor admit natural light to the main gallery level below. The curatorial wing connects with the gallery by means of a bridge spanning a path to the riverfront. The L-shape of the gallery defines a public garden to the south, a new setting for the old War Museum. Day and night, the Great Hall cupola identifies the gallery from vantage points within the city as well as from across the river in Quebec.

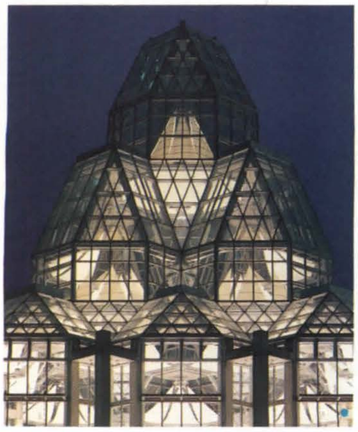


UPPER GALLERY LEVEL



MAIN GALLERY LEVEL

1. Photography studio
2. Workroom
3. Conservation studio
4. Art storage
5. Offices
6. Study
7. Restaurant
8. Rotunda
9. Galleries
10. Court
11. Special exhibitions
12. Chapel
13. Rest area
14. Great Hall
15. Entrance pavilion
16. Library
17. Parking
18. Auditorium
19. Library stacks
20. Administration

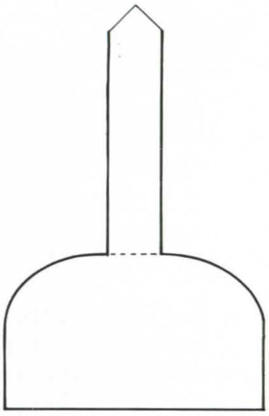


The Great Hall (top right and opposite) is 143 feet high at its interior peak. Fabric panels, operated by remote control, modulate light. Each vertical support of the Great Hall dome and the colonnade is a cluster of four poured-in-place concrete columns 30 feet high, tied together at the top with concrete beams. The steel frames above this concrete cornice are wrapped in an aluminum-and-glass "blanket," which is separated from the steel by thermal breaks in the form of gaskets. Safdie calls the system a blanket because it sustains appropriate indoor temperatures with 50-percent humidity, and without condensation, in Ottawa, the coldest capital in the world. Concrete columns aligned with the curtain wall are divided between inside and outside by neoprene inserts that also receive the glass, contributing another mode of thermal separation. The courts (bottom left and right), in deliberate contrast to the Great Hall and colonnade, are of a scale and character typical of smaller, more intimate museums.

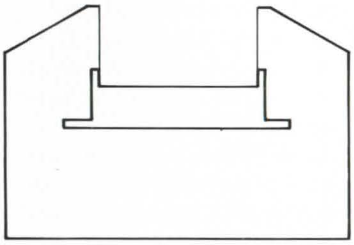
National Gallery of Canada
Ottawa, Ontario
Architects:
Moshe Safdie, design architect; Parkin/Safdie, architects and planners;
Philip Matthews (Safdie office), Jack Mar (Parkin office), project managers;
Rainer Goeller, Gaston Korulis, project architects;
Kent Duffy, Michael Guran, Uri Shetrit, Steve Kersey, Gary Hoyt, Hazel Wong, Deborah Fennick, design team
Consultants:
Parkin/Halsall (structural);
H. H. Angus & Associates, Ltd.

The curators found controlled daylight desirable in the rooms displaying traditional works (photos opposite). The curators of contemporary art, however, agreed only reluctantly to introduce even a limited degree of natural illumination to their collections (photos this page). As soon as he knew that the museum was to be two stories high, Safdie began working with lighting consultant Paul Marantz to research ways to bring controlled daylight through the upper gallery level downward to the main gallery level. Unlike conventional skylight and laylight combinations, which use more glass surface than the floor areas of the rooms they illuminate, Safdie's system limits skylights to a width of six feet, owing to Ottawa's cold climate. Safdie and Marantz keyed these openings to six-foot-wide shafts lined with mirrored acetate, extending from the skylights through the upper floors to the lower-floor ceilings. At first, Safdie recalls, the proposed two-story light-shaft system was greeted with skepticism. "The people with the slide rules accused us of wasting precious square feet of floor area in the pursuit of an idea that wouldn't work. They all warned that light wouldn't carry more than 25 feet down." Even after a model was built and successfully tested (opposite bottom right), the clients announced that they were not going to build a lighting system based on a model. Safdie and his consultants finally won their case by creating a full-size mockup with the mirrored acetate in place. "We refined all our details in that mockup," notes Safdie. "In fact, I don't know how to do that without *a full-size mockup. It also helps us with the contractors: you can hold them to it. Just as important, though, it brings up the unforeseen."*

(mechanical);
The ECE Group, Ltd. (electrical and audio-visual);
Jules Fisher & Paul Marantz, Inc. (lighting);
Cornelia Hahn Oberlander (landscape); Gary Banks (specifications);
McRostie, Genest & Middlemiss (geotechnical);
Valcoustics Canada Ltd. (acoustical);
Tudhope Associates, Inc. (graphics);
Rolf Jensen & Associates, Inc. (fire protection)
Construction manager: *Ellis-Don Ltd.*

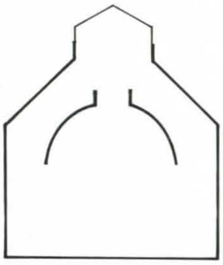


CANADIAN ART GALLERY



CONTEMPORARY ART GALLERY

EUROPEAN AND AMERICAN ART GALLERY



CANADIAN ART GALLERY

A flexible approach to fire-code compliance

Equivalency is the key to maintaining design freedom while complying with fire codes. Clifford S. Harvey explains how to demonstrate graphically the safety equivalence of a building with the Measurement of Building Safety concept he has developed.

By Clifford S. Harvey

It is possible to design any building or other large project with nearly total control over your own creative process, and at the same time meet the intent of any nationally recognized building, fire, or life-safety codes. Sound too good to be true? In Boulder, Colorado, we have found that this seemingly unattainable goal can be met in virtually every case when designers, architects, developers, planners, building officials, and fire marshals get together and agree to abide by the Measurement of Building Fire Safety concept, which has been in active use in Boulder for eight years. The key to this cooperation is *equivalency,* a principle that the nationally recognized codes allow wherever it is accepted by authorities with local jurisdiction.

The equivalency process

Codes were not originally written to be flexible. They established design conventions and expected buildings to be built in the manner specified. Today, however, all codes have an equivalency section which generally states that nothing in the code is intended to prevent the use of any system, device, or method equivalent or superior in quality, effectiveness, or safety to those prescribed by the code. The only stipulation is that technical documentation be submitted to the Authority Having Jurisdiction (AHJ) over that code, and that the AHJ approve of that alternative method.

Additionally, some codes say that requirements for existing buildings may be altered as long as the alteration will ensure as nearly equivalent safety to the occupants as practical. Clearly, it is up to the AHJ to determine this, but architects and designers can assist the process by knowing how to make necessary evaluations of the alternative they are trying to get approved. For example, you might like to design a building with lots of plate glass walls in the corridors, whereas the code requires wire glass. Or perhaps you would want approval for a large, open atrium or flowing, open stairways which the code will not allow. Recognizing that the code has reasons for not allowing these configurations, you need only understand the *intent* of the code in these instances, and provide some alternative to ensure equivalency with that intent.

If, for example, you propose an automatic sprinkler system to control a fire where the code does not require one, instead of the rated walls or other enclosures required by the codes, your substitution should be allowed. Once you have gained a firm understanding of the various aspects of fire, its growth and control, it will be easy to determine what alternatives are indeed equivalent, and you will be able to present them to the AHJ in a precise, intelligent manner.

It is important to mention the negotiations that must go hand in hand with the use of the Measurement concept. Part of this interchange, perhaps the most important part, is educating your local code officials in the application of the Measurement concept after they have been exposed to its various elements. The utility of this concept is not "cut and dried"; it takes ongoing practice, and it must be fine-tuned on every project because every project is different.

All building, fire, and life-safety codes have one specific goal in mind: limiting the spread of a fire in a building to some level where the fire department can fight it successfully. This critical level is usually expressed as some maximum square footage, or occupant load based on square footage. Stated differently, the fire has to be limited to a specific area. As long as the method used accomplishes this end, it can be considered equivalent to the prescriptive sections of the codes, and should be allowed.

Any fire will go out in one or more of only three ways. First, it might go out by itself, a probability that can be presented in graphic form using something called an "I–curve" (see page 131). Second, if the fire continues to grow and does not go out by itself, it might be extinguished by automatic means (automatic sprinklers). The probability of sprinkler-system fire control can also be presented graphically, in the form of an "A–curve" (page 132). Finally, if the fire has not gone out by itself, and the sprinkler system (if present) has not extinguished it, then manual attack (the fire department) enters the picture and adds its probability of success, plotted as the "M–curve" (page 133).

Because all three of these probabilities are working at the same time, they can be combined into a cumulative limit-of-flame spread, referred to as the "L–curve" (page 134). Remember that as long as the fire has a high probability of being terminated within certain allowable floor areas, it meets the criteria the codes have established. Applying the concept referred to above, one is able not only to graph the potential success of code requirements, but also to graph any alternatives that the designer might find desirable. When comparing the two, if the alternative is at least as strong as the code requirement, the AHJ should have no reason not to accept it.

Self extinguishment: the I–Value

All fires go out sooner or later. But we are really most concerned with terminating the fire shortly after ignition, or as soon as possible after "established burning." Established burning is generally considered to be a flame 10 in. high—once this level of burning has been reached, it is highly probable the fire will continue to grow. If the fire is not interrupted soon after established burning occurs, the fire will reach the ceiling and progress very rapidly throughout the room where it originated. When only the I–value is considered, this "ceiling phenomenon" will happen every time, regardless o the size of the room of origin.

The fire growth hazard in a room is the natural combustion characteristic of the fuel in the space. The ease with which a fir can develop or terminate within space depends on the type and arrangement of the fuel in the room, the air supply to and in t room, and the configuration of the space itself. Configuration takes into account ceiling heigh room shape and volume, and ho well the space is insulated.

In order to create a strong I–value, the amount, type, and configuration of the fuel in the room must be carefully monitored. "Fuel packs"—anything that will burn—obviously must be kept away

Clifford S. Harvey is the chief fire marshal for the city of Boulder, Colorado, and has been the principal of his own fire-protection and -prevention consulting firm.

rom other fuel packs, so that vhen one ignites the others will iot.

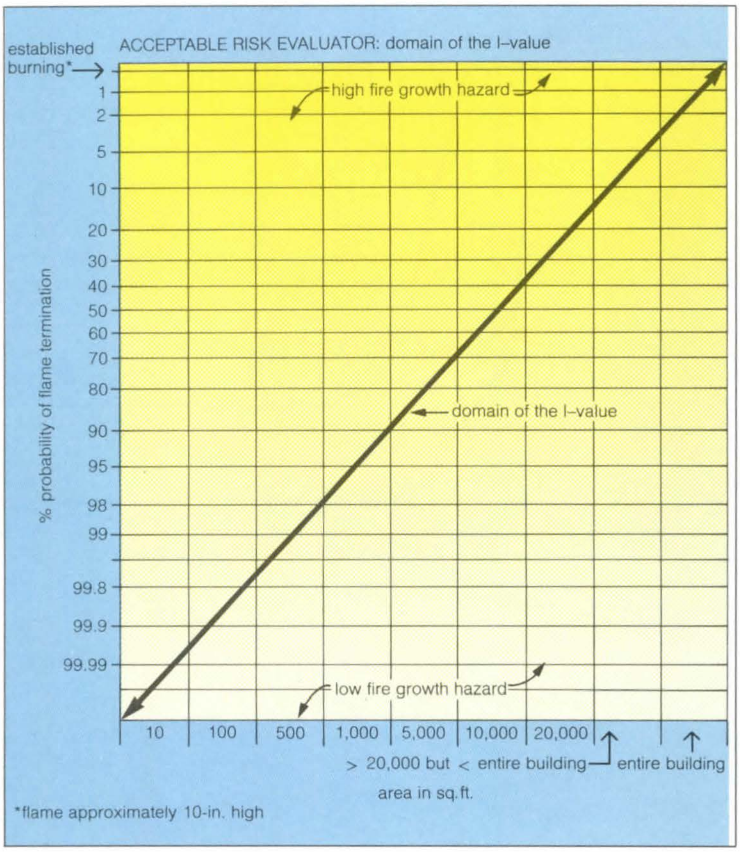
The lower the ceiling, the igher the probability that a small fire will grow into a big one. Once a fire begins to spread out across a ceiling, all the other uel packs will be preheated and, very quickly, begin to burn on their own. If the room of fire origin is tightly built and well nsulated, and the doors and windows are tightly shut during the fire event, the fire may run out of oxygen before it gets very arge. The fire will therefore probably not advance to a langerous level, and can ensure a high probability of flame ermination, and provide a high -value.

Fire growth potential is lesigned into the room, either consciously or unconsciously. Paying attention to a few basic principles can reduce that hazard within any room. For example, mall fires self-terminate more eadily and easily than do large ires. When designing a space, ttempt to select materials that ncourage small, slow fire evelopment and spread, and rrange possible fuel in a pattern iat will also serve as a etardant.

Wherever you can, interrupt ie continuity of fuel in the pace. This can be accomplished y using noncombustible ements, such as metal cabinets, separate combustible urnishings. Or, simply provide me space between the fuel cks. Any fire in the space of igin will then have a greater ndency to stay small, and will more likely to self-terminate. any event, avoid large fuel cks, as they act as continuous el, allowing fire to spread by ect flame contact alone.

Seek out energy-absorbing her than energy-generating terials when deciding on erior finishes and furnishings.

When a graph is created for the "domain of the I-value," which represents an I-value for any specific space, that domain might be found anywhere over the entire spectrum of the graph. When the area being evaluated has a high fire-growth hazard the I-value will be found at the top of the graph, while a low-hazard area will be found toward the left side and bottom of the graph. Notice that the chart allows the user to illustrate a specific probability of success (flame termination) at some predetermined area, represented in square feet.



(Remember that furnishings also include any goods the occupants put into the room.) This might mean specifying concrete or decorative brick walls, or gypsum-board walls, instead of wood or nonrated paneling. It might also mean metal furniture rather than wood or (worse yet, *much* worse) plastic. If it becomes necessary to use energy-generating materials for esthetics or livability, be certain to place them in such a way that it will be as difficult as possible for a fire in one to spread to the next. Probably the two most significant factors affecting fire spread are the wall coverings and the ceilings. You should avoid any combustible material in both parts of the enclosure if you are to obtain anything close to an effective I-curve.

Do not despair if, by this time, you are convinced that the I-curve is impossible to generate with any degree of lasting integrity. There are so many variables to generating an accurate I-curve that such a graph will, at best, represent only a very rough estimate. You will see later on that other curves must be strengthened to compensate for the relative impossibility of ensuring an acceptable I-curve.

The uninitiated continually tell me that their building is "noncombustible," and therefore will not burn. This statement, taken alone, is true. Most large buildings today are built of materials that are indeed noncombustible, and few of these buildings will collapse during the fire. It is the contents that burn. A fire some years back in São Paulo, Brazil, demonstrated this quite clearly. Everything in the 32-story building was destroyed, even though the structure itself remained intact. Cleaned out and refurbished, the building stands today.

Going out automatically—the A-curve

If a fire has not already gone out on its own, and established burning (a 10-in. flame) has grown to a fire about 5 to 6 ft tall, the next thing that comes into action, assuming it is present, is the sprinkler system in the room. As noted above, that system's probability of success can be shown as an "A-curve." Before we discuss A-curves, however, it is important to understand some basics about sprinkler systems in general.

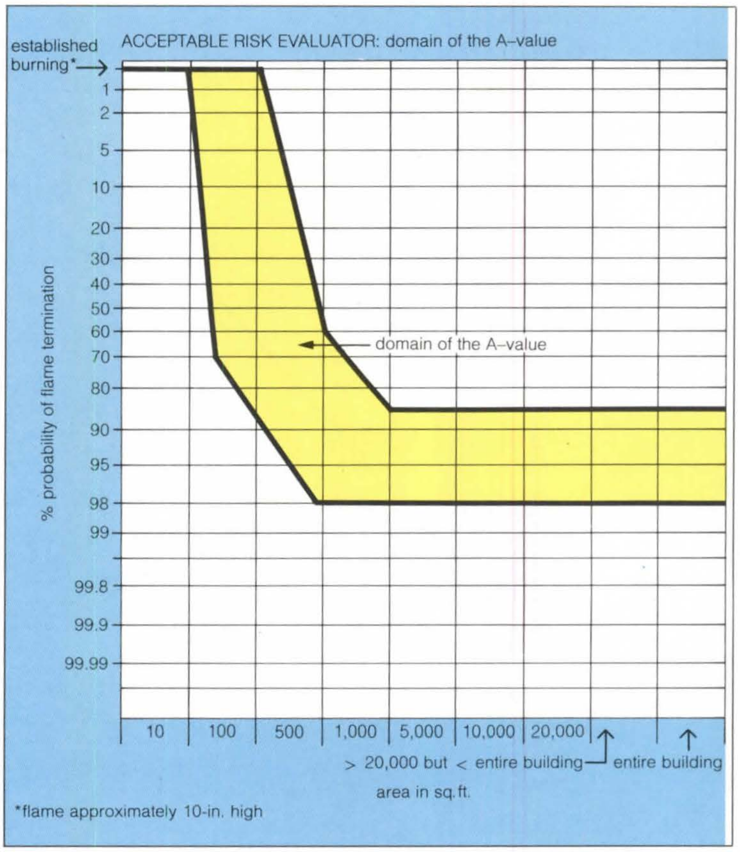
Sprinkler systems are designed to stop a fire from reaching the ceiling of a space. Although this was probably an unconscious effort on the part of the designers, it is a fact, and one that has a *very* positive effect on the life-safety levels of the building.

Sprinkler systems have an inherent reluctance to go off at all. In a room with a normal ceiling height, say 8 to 10 ft, a sprinkler system will activate when a fire in that space is about 5 to 6 ft tall. A smaller fire would present an opportunity for the occupant of the room to extinguish the fire himself.

Automatic sprinkler systems are the most effective method of controlling fire. They are over 90-percent effective at controlling or extinguishing the fire before the fire department arrives—and those statistics are even better (somewhere over 95 percent) in countries such as Australia where all sprinkler discharges are required by law to be reported.

More importantly, there has never been a multiple loss of life caused by fire in a building provided with a complete sprinkler system that was properly designed, properly

When the A-value is charted, nothing happens for the first 10 to 100 sq ft. This is because a sprinkler head takes a certain amount of time to open, and during that time there is no probability of success. Notice also however, that when the sprinkler system does react, that reaction results in an extremely high probability of flame termination, at or below the 500-sq-ft level.


ACCEPTABLE RISK EVALUATOR: domain of the A-value

*flame approximately 10-in. high

installed, and in service at the time the fire occurred. There is no other form of fire "protection" that can boast a record nearly as good as that, especially when the allowance for flexibility of design is also considered.

Since automatic extinguishment can be accomplished most efficiently within the room of fire origin, sprinklers have proven extremely effective in controlling the fire in compartmentalized buildings. In much larger, unseparated spaces, the sprinkler system is imperative in keeping a fire from becoming completely unmanageable by the fire department. For these reasons, and others discussed below, the use of voluntarily installed sprinkler systems and trade-offs is becoming increasingly acceptable for proper building protection.

In order to create a strong A–curve, a sprinkler system must do several things. The system must be geared specifically to the space it is protecting, to ensure that water will, in fact, reach and discharge from the sprinkler heads. Equally important, the system must be designed for the hazard it is to protect. A sprinkler system originally designed to protect a low-hazard space will have a very low probability of success if that space now stores flammable liquids or other highly flammable material. The architect needs to consider this variable not only when a building is first being designed and built, but also when major renovation takes place for a new tenant.

Even with convincing statistics relative to the success of sprinkler systems, some designers are reluctant to install them. Their concerns usually focus on appearance, fear of water damage, and anxiety over accidental operation of the system.

The appearance of sprinkler heads has improved substantially over the past few years, mostly in an attempt to overcome designers' esthetic reservations. Fear of water damage almost always arises from a misunderstanding of how a sprinkler system actually works; in fact, only the head or heads nearest the fire actually discharge water. When one compares the water discharged from one or two heads, to the water discharged by fire department hose lines, the former is clearly less damaging. Unnecessary discharge of a system head "just going off" happens so rarely that its discussion is unwarranted; that sort of discharge usually results from a weeping head, which can be recognized by building maintenance staff and quickly repaired.

In our experience, when the cost of a sprinkler system is coupled with the cost savings from trade-offs which are allowed in sprinklered buildings, it can actually result in a net saving in the total cost of the building. Also, many times insurance companies will quote lower premiums for sprinklered buildings than for nonsprinklered buildings, resulting in a substantial cost saving over the life of the building.

When sprinkler systems do fail, it is usually due to a control valve being closed, or a change in the configuration of the space served or in the type of fuel being protected. The former problem can be addressed simply by chaining the valves open and having both tamper and flow switches monitored by an approved central receiving station; and the latter by always being aware of what the system was designed to protect.

Additional benefits of sprinkler systems

A sprinkler system is by far the strongest component of the building's entire fire-safety system, and sprinklers' proven success has made them generally accepted in lieu of many code requirements, allowing the designer much greater flexibility.

Sprinkler systems are also less easily compromised than most building code requirements. Once a sprinkler system has been properly designed, installed, and inspected, and once steps are taken to ensure that the system will always be in service, it really doesn't matter whether provisions of the building code are met. An A–curve is much stronger than even the most stringent building code for building occupant safety. The fact that it takes about two seconds of unconscious effort to prop open a required fire door with a wedge, thereby eliminating the function that door was intended to perform, illustrates my point. The larger the building, the lower the probability that it meets the building code, even immediately after it has received its final inspection. Even small plumbing access holes left open in a rated wall destroy that rating, which therefore allows a false sense o security. Sprinkler systems, on the other hand, are usually out of sight and out of mind, and a hence much less easily disabled

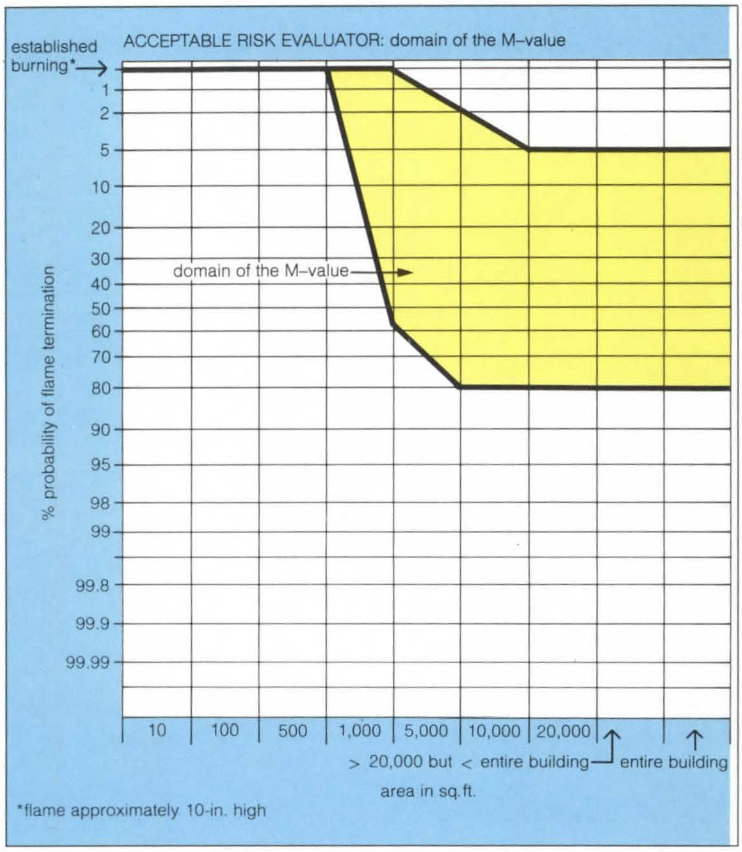
The role of the fire departmen the M–Curve

The fire department's effect on the fire (the M–curve or value, page 133) is the last factor to consider when generating the L–curve. Having been a memb of the fire service for 20 years, recognize perhaps more than most how hard the firefighters of this country wo to do their jobs as well as is

When the M–value is applied in graphic form, a relatively long delay precedes any effective action by the fire department. This is because it takes a fair amount of time, under the best of conditions, before the proper extinguishing agent (usually water) is applied, therefore beginning the effect of the manual attack. A comparison of this chart to the one on page 131 shows that the M–value really represents a medium-to-high fire growth hazard; i.e., of limited fire-suppression value, especially for the costs involved.

umanly possible. That is the ey to the strength of the I–value: firefighters are only uman, and they are able to do nly so much to extinguish a re. I don't make many friends the fire service by saying this, ut this method of flame ermination is by far the least ffective. When one considers all ne aspects of the manual uppression effort which must ork in order for it to succeed, it a small wonder that epartments around the country o as well as they do. The best re department in the world, egardless of its level of edication, is capable of xtinguishing a maximum of bout 5,000 sq ft of structure re. As you read this, you may e thinking of a large fire eported on the nightly news, a laze that the fire department eemed to put out, and that far xceeded 5,000 sq ft. Not true. he actual event saw the fire epartment protecting a barrier series of barriers long enough r the fire to consume most of e fuel contained within, after hich the fire department wet wn the remaining fuel with the sources it had. It therefore ked as though the firefighters tinguished the fire, when they ally only helped it go out by elf. All manual suppression es is hold the fire to some size tated by construction or nfiguration.

In evaluating this human ect of fire control, one must nsider three crucial phases. st, someone must notify the department. For this to pen, the fire must be ected in some manner, a ision must be made to contact fire department, and then d upon, and department sonnel must receive the message accurately when they are notified. Think of all that can go wrong with just this one small subsystem of manual firefighting! There may be no one around to discover the fire. If there is, he may decide to try and fight the fire instead of first reporting it. He may decide to report it, only to find that the phones are down, or he cannot find one. He may get a line to the fire department, only to find he is too excited to give an accurate description of what is wrong and where it is.



*flame approximately 10-in. high

Assuming the fire department has been notified adequately enough to respond to the fire, there are variable probabilities of success associated with getting to the scene of the fire: time of day (for traffic purposes), day of the week, weather conditions, etc. The "response time" of the fire department and its status as a volunteer or paid force both affect the M–value. Finally, given that the squad arrives at the fire, it still has to lay out hose lines, find the room (or rooms) of fire involvement, stretch those hose lines to those rooms, and apply the proper amount of water to extinguish the fire.

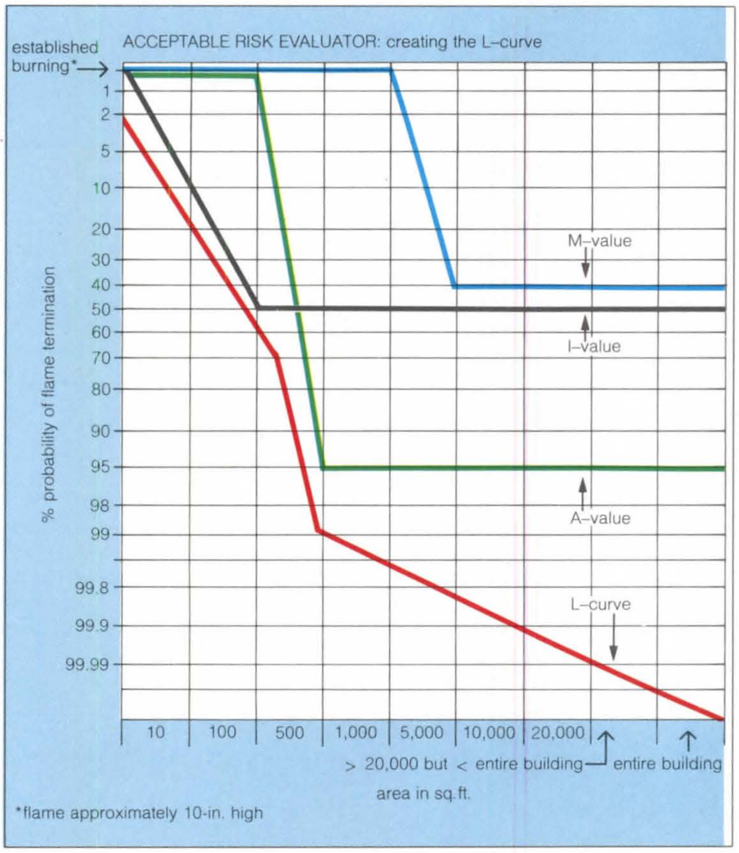
When evaluating the entire fire-protection system of a community, it is interesting to note that the very subsystem that we have seen to be the weakest is also, by far, the most expensive to provide and maintain. To keep personnel and equipment available for even small communities costs millions of dollars each year, whether or not they ever fight a fire. It is becoming clear that the costs of providing manual fire protection to a community cannot be allowed to increase year after year. In fact, many communities have actually had to reduce the amount of funding they allow their fire departments, but they have not increased other areas of fire protection to make up for that reduction. This means that those communities believe they still have the same levels of fire protection when, in fact, they do not. This fact alone should be enough to convince local governments to allow alternatives to the codes. With the recognition that: 1) the I–value is fragile and generally impossible to predict for any period of time; 2) the M–value is, due to its large number of subsystems, very weak and of limited value; 3) strict adherence to the adopted building code is unlikely; and, 4) the A–value, when present, is by far the strongest of all, the authority having jurisdiction who is seriously concerned with overall fire and life safety has no real choice but to determine how best to protect his community through equivalency utilizing the A–value.

Putting it all together—the L–curve

We have discussed the three elements of a building (or any space) evaluation. These three elements—the I–, A–, and M–values—all work together to give some measurable probability of successful flame termination. Given that a fire has some small probability of going out by itself, and that automatic sprinklers are attacking the fire, and manual suppression is attacking the same fire, all these strengths and weaknesses can be combined mathematically to create a graph that shows the cumulative limit of flame spread, an L–curve (page 134).

Keep in mind that the requirements of an adopted building code can also be graphed to show its acceptable levels of flame spread. The building code graph can be compared to your L–curve and, as long as the L–curve, which is generated by alternatives, is equal to or greater in safety

When the I–, A–, and M–values are combined, and the L–curve is generated, the L–curve is always more effective than the other three, because more than one of the values is working to make the fire go out. This specific L–curve reads as follows: Given established burning, this fire has a 70-percent chance of being extinguished at about 300 sq ft in size. Should it not be extinguished at that point, it has about a 99-percent chance of being extinguished at just under 500 sq ft, and so on. Conclusion: this is a relatively safe space.



than the "code-generated" graph, that requested alternative is at least equivalent to the code, and should be allowed.

In theory, adoption of this philosophy would permit virtually unlimited flexibility in the design process, and would allow architects and owners to determine their own equivalency. All they would have to show the authorities would be the graphs created by the adopted code and the graphs generated by evaluating the various alternatives. As long as the alternatives were at least as strong as the code, the authorities could give an approval.

The process works, and has been used in my jurisdiction and other communities around this area to create a harmonious working relationship between the city and the developers, as well as slowly building a city that is actually safer than the nationally recognized, locally adopted codes would require. Further, the projects built using this concept are usually less expensive than those built strictly to code.

Considering trade-offs with equivalency: the key to L–curve success

With all the codes architects are asked to meet, it is increasingly difficult to meet them all. It is clearly in everyone's best interest to begin looking at all new and existing buildings as systems, and to address their use and protection using a systems approach. In essence, what you create by doing this is a city where not one building meets all the codes, but every building meets the intent of all those codes. No building would meet the same identical requirements of any other building in that city, but all would meet the intent! I believe that, regardless of whether or not your AHJ buys into this concept at this time, the evaluation process described in this article will be put into place throughout this country anyway, because we as a society simply cannot afford to continue paying the costs of building strictly to code.

What sorts of trade-offs are allowed when a person agrees to provide a sprinkler system that is not required by code? Certainly the most widely accepted trade-off is a reduction in rated separations. Most jurisdictions will allow at least one hour of required separation to be eliminated, while others allow even more. Where a one-hour rated wall is required, that wall may be traded off, and be nonrated. Wire glass no longer becomes necessary, and plate glass may be substituted. Other trade-offs include lifting requirements that stairways and other vertical openings be enclosed, sometimes within any five floor levels. Reductions in the severity of interior finish requirements are already seen written into the codes, when buildings are sprinklered throughout. Openings on property lines, where none are allowed, are also seen more often these days. Some jurisdictions even allow conduit to be eliminated in certain occupancies and sizes of buildings, when the building is provided throughout with a complete sprinkler system. This one alone goes a long way toward paying for the sprinkler system.

What is, or might be, allowed to be traded off in a building that is also required to be sprinklered? Those who have seen the L–curve concept work still allow many of those trade-offs, even though the system is required. They do so because the sprinkler system will, statistically, limit the size of the fire to a manageable range. By providing a well-designed, properly installed and monitored system, those other requirements are simply not necessary, even though they are written into the code. This is what I mean when I urge cities to begin looking at all building projects as systems, instead of structures that must be built to minimally acceptable national standards. By evaluating the relative strengths and weaknesses of all code requirements (that is, assigning each some sort of relative numerical value), authorities could require projected buildings to meet some total numerical value. Clearly the value would be heavily dependent on a strong A–value but, given that, all the other values would be easy to meet, even with greatly increased design flexibility allowances.

What the future must hold: development review teams and beyond

How can you begin to implemen a review process such as this? The most important first step would be to include a member o your local fire department on your design team for specific projects, and get his input from the very beginning. Clearly that person should be at a level whe his input can be counted on for acceptance. This person's contribution can be invaluable a this early stage, not only in pointing out concerns that the fire department might have, bu also in suggesting alternatives within the design which may be more attractive to you, the designer.

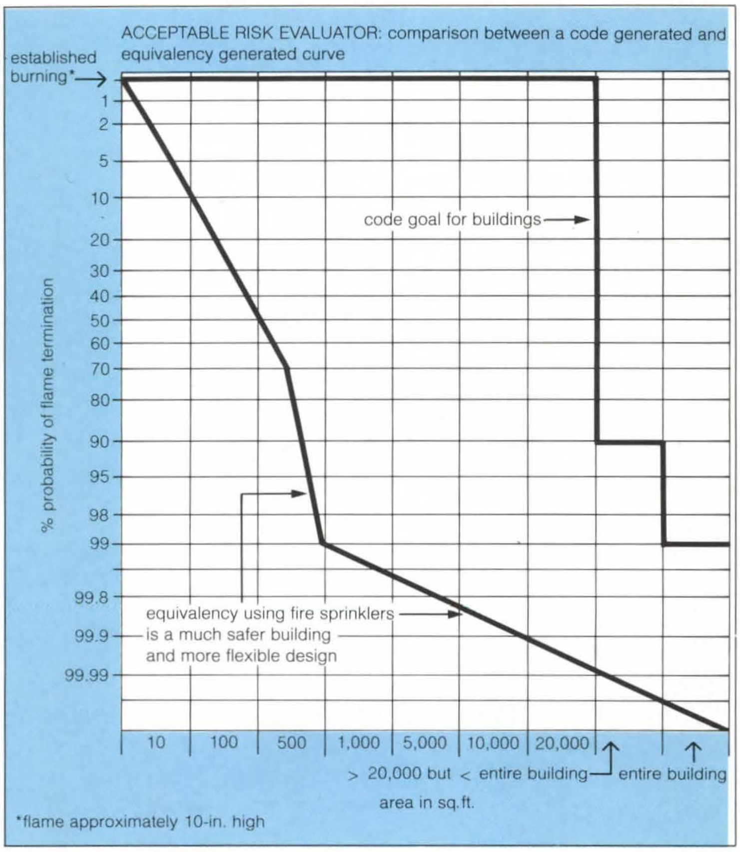
Approximately every two weeks, sit down as a team with that member of the fire department, and be sure to include a responsible member the building department as we preferably the chief building official. Discuss your coming projects with them. With this simple process, you will be amazed at how much more cooperation you receive from them in the overall acceptance of your project. And if alternatives are discussed and agreed to at this early stage of development, think how many thousands of dollars might be saved.

See if the following sounds familiar. Most communities afford their architects and developers almost no time for consultation and review until the nitial set of building plans is ubmitted. At that time, each department gets to go over those lans, and make any necessary omments, suggestions, dditions, deletions, or changes. Many creative design features ave been erased, replaced with ode requirements and estrictions. The architect isn't appy and the members of the ity organization who reviewed is plans aren't happy either, ecause they had to spend time hanging plans to meet their pecific codes, codes they feel e designer should already now! How can this interchange friendlier, less adversarial, d more productive? One ssibility follows.

About five years ago, the city Boulder noticed a marked lack coordination not only between chitects and developers and the rious city departments, but o among the city departments emselves. A committee was rmed of representatives from city departments with a say in velopments proposed in ulder. It was called the velopment Review Committee RC), and its success was given priority by both the city nager and the city council.

The DRC meets every week to ilitate scheduling. presentatives from over a en city departments attend. fire, building, water and te water utilities, nsportation, real estate and open space, city attorney, parks and recreation, public service, telephone and cable TV utilities, and the planning departments all send representatives. After a two-week period within which to review individual or series of plans, the entire team sits down to discuss each one. It is at this point that inconsistencies in the various codes surface and are ironed out.

The code-generated curve allows an unseparated area of as much as 20,000-sq-ft before an area separation wall needs to be built. The long vertical line represents that barrier. The curve indicates that, if the building is built to code, no probability of success is necessary prior to the first 20,000 sq ft—a dismal approach. The other curve represents not only a much safer building, but one that can reflect much greater flexibility in the design process.



The planning director or his designee often takes the position of devil's advocate, attempting to weed out supposed code requirements that might actually be nothing more than desires of a specific department, instead of genuine code requirements.

When this elimination is completed, any remaining conflicts are taken to the city manager for review and determination of policy. This is all done before the applicant has seen any response, so the city can present a clear, concise plan for approaching the specific project. The applicant is then given a specific period of time in which to respond to the concerns expressed in the city's report, and to make necessary changes. When that has been done, the proposed design is sent to the planning board for review and, ultimately, it is hoped, approval.

A final thought

I believe the next logical step in revising code policies is for cities to adopt a minimum value for acceptance, rather than minimum codes that need to be met. The decision process for such a review would have to start with assigning values to the concerns of both the fire and building departments. The applicant for a project would answer a series of questions—every possible answer having had a value assigned to it by the community's governing body. The system would be constructed numerically to weed out those projects that do not meet the intent of the code through some form of equivalency, but would still allow the virtually unlimited flexibility I have referred to above. At some time in the future, all departments would supply their input through their own lists of questions, all of which had been assigned values.

I believe that the L–curve concept is the beginning of a total review process, and that sometime, perhaps even within the next 10 years, a computer program allowing even greater sophistication will become a reality. Boulder has already generated such a program where fire department issues are concerned, and we feel comfortable with its operation. There is no reason why the same sort of program could not be developed with other city departments in mind, and make the construction of any community a safe, flexible, and enjoyable process.

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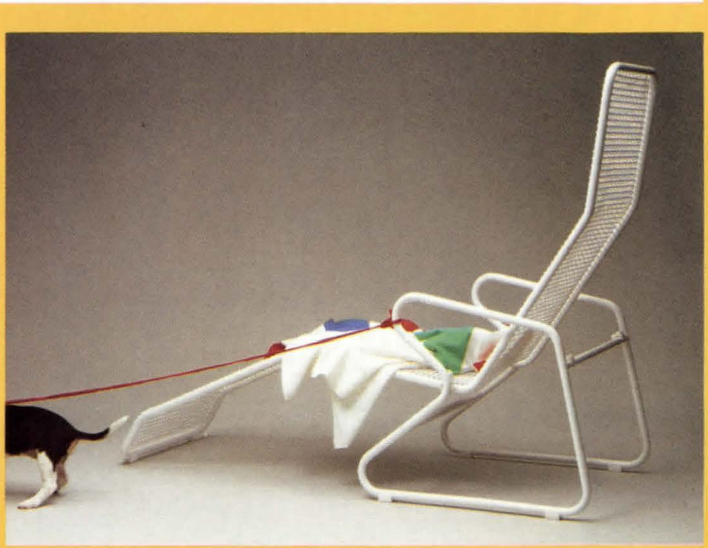

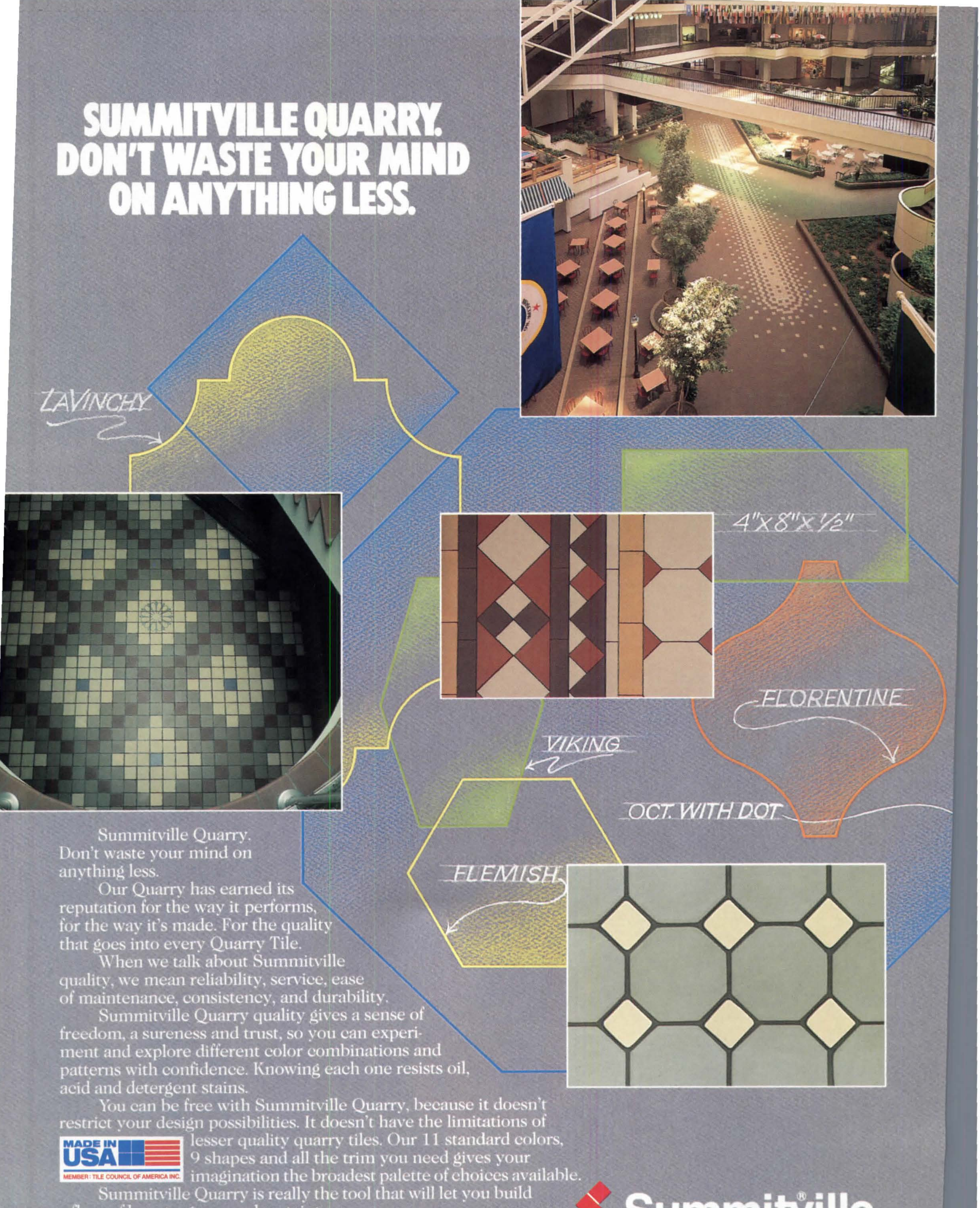
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Glick/Boehm uncovers normally-hidden appeal of steel joists in new "power" shopping center.

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Lincoln Developers, Inc. Raleigh, N.C.
Architect:
Glick/Boehm & Assoc. Charleston, S.C.
Engineer:
T. G. Padgett & Assoc. Charleston, S.C.
Structural Fabricator:
Palmetto Steel Co. Charleston, S.C.

Steel joists, colorfully painted, will replace the traditional ceiling in North Charleston's new Festival Centre. "Not only will this add interest," said the architect, Gary J. Boehm, A.I.A., "but it will help us achieve the open, gutsy feeling we and the owner want."

A combination strip shopping center and enclosed mall, known more popularly now as a "power center," Festival Centre will initially include 350,000 sq. ft., with 80,000 enclosed. An additional 250,000 is planned.

Eye appeal was a bonus feature. The primary reasons for choosing steel joist construction were typical. It was the most economical way to meet the needs, and the availability of steel joists helped meet occupancy dates—critical in shopping centers.

But it also made possible construction features important to the major "anchor" tenants—wide spans and a minimal number of columns, allowing the "wide-open" feeling the big stores want. In every important way, steel joists "looked good!"

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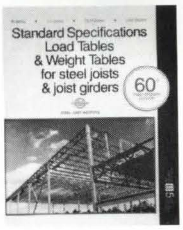

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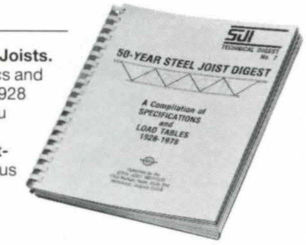

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New products: Frit glass— more than decorative

A colored ceramic coating—frit—is used on two surfaces of skylight glazing to create glass that is decorative, diffuses daylight to reduce glare, and directs the sun's rays into the interior in a precisely controlled pattern.

Ceramic-enamel coated frit glass is made by applying a pigmented ground-glass powder to a sheet of float glass. One can flood-coat the powdered frit to produce a solid color, or screen-print it in a standard or custom pattern, such as dots, stripes, or holes. The "painted" glass is then placed in an oven and heated until the glass almost softens. Once the powder melts, it becomes permanently fused to the glass surface. The sheet is then carefully cooled to heat-strengthen the glass. Frit-coated glass must be made in the size to be installed; it cannot be cut after heat strengthening.

Both the pattern and the color of the frit act to control daylight, glare, and heat transmission through the glass, without affecting the quality of the light. Patterned glass is, therefore, particularly suitable for the sloped glazing of atriums, skylights, and other overhead structures.

Light frit colors, such as white, peach, or pastels, are translucent, and more effective in diffusing and even amplifying usable daylight, according to Peter McQuillin, product manager for commercial products of PPG Industries' Glass Group. Dark colored or black frit is better at reducing glare, and cannot be read as easily from the interior, producing a clearer view out. Of course, the total amount of frit, and its spacing in relation to the clear areas, also affects the amount of light transmitted.

For example, architects Murphy/Jahn used frit glass extensively for the United Airlines Terminal at O'Hare International Airport, in Chicago. There, a white frit applied in a grid pattern diffuses daylight from the west-facing vaulted concourse, and creates a sense of enclosure at night when the frit reflects light from interior sources [RECORD, November 1987, pages 148-154].

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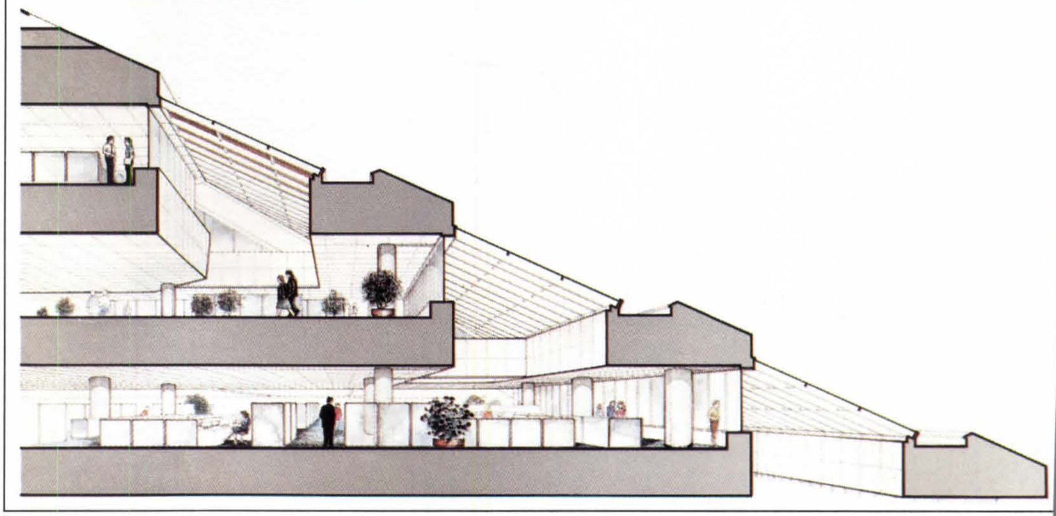

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The WBDC Group of Grand Rapids, architects for the Steelcase Corporate Development Center in Gaines Township, Michigan, had to work with a fast-track program that included a number of seemingly contradictory requirements: a light-filled and airy space that would take maximum advantage of the views of the surrounding Michigan countryside, as well as a comfortable, low-glare environment for the designers working at light-sensitive CAD workstation CRT screens. The building itself, a 7-story, 500-ft-sq-pyramid, has 31 skylights with a total of 50,000 sq ft of glass (1). The interior is a series of setback mezzanines, with each ascending level containing open-plan drafting stations lit directly by overhead sloped skylights. (elevation, 2). And the client did not want any mechanical screening devices used to control sunlight, or obscure the clean lines of the building from the outside. (Months before occupancy, the dramatic shape of the Center has already made it a landmark for airplane passengers into and out of the nearby Grand Rapids airport.) Consequently, Donald J. Koster, AIA, designer of the building for WBDC, had to focus on glass detailing. His elegant solution: horizontal lines of ceramic frit (Patternlite Glass from PPG Industries) alternating on two surfaces of the inboard, laminated glass light.

Koster started with a hand-made mockup, using masking ta on small glass panes placed at t 23.96-deg angle of the skylights be. Analysis of solar azimuths throughout the year on the southern-facing half of the building determined that the fr louvers should be positioned to most effective against the most severe sun load: overhead on th 21st of June. At that time, dire rays of the sun are completely blocked by the 7/32-in.-wide lin of frit. The width of the frit lin was the most important factor determining the shading effect, with the bending of light throu the glass taken into account. T

Black frit on surface 6 is staggered with white frit on surface 4, each 7/16-in.-wide line separated by a 3/16-in. clear space. The frit-glass lights (one bronze-tinted, one clear) are then laminated into a 9/16-in.-thick sandwich.

Dark gray frit was used as an integral solar shade to screen low-angle sunlight on the clear glass of the vertical windows surrounding the terraces.

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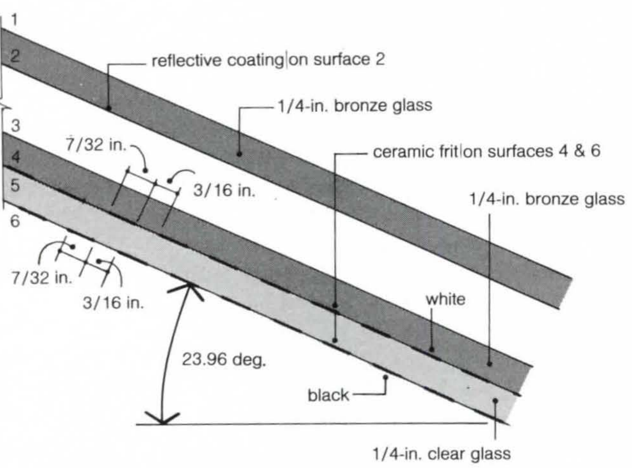
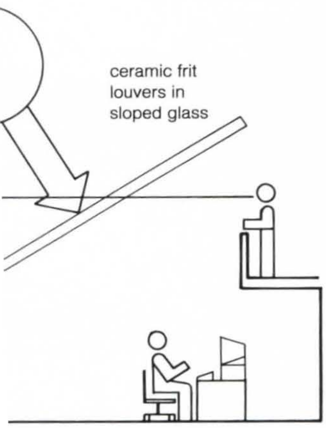
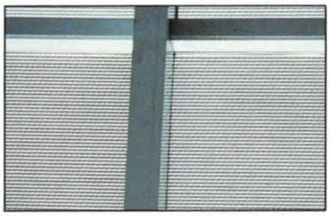


SECTION THROUGH SKYLIGHT GLASS





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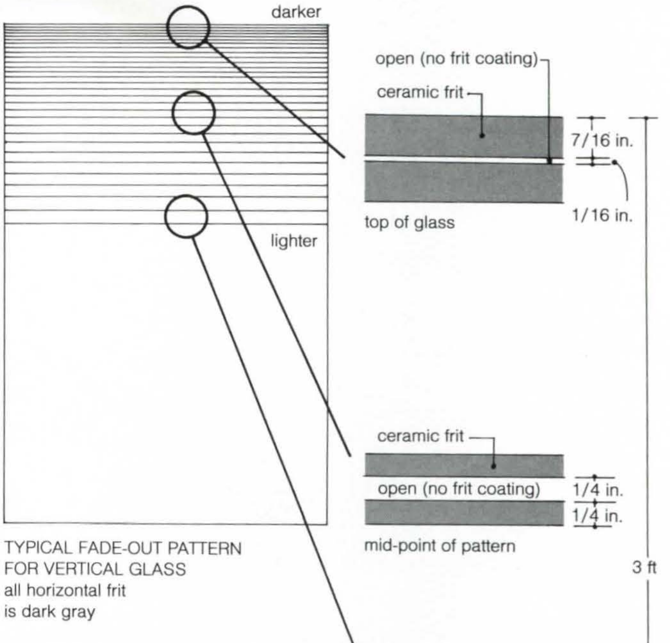
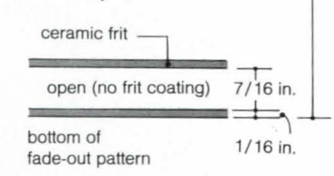


TYPICAL FADE-OUT PATTERN
FOR VERTICAL GLASS
all horizontal frit
is dark gray



5

d-crafted mockup was then ne in paint, and tracked ough CAD studies to confirm degree of sun control possible various combinations of lines spaces. After the frit solution approved by Steelcase, PPG e up full-scale production ples of the glass, with icular attention to the precise llel alignment of the frit to ent a moiré effect.

the building is sited 15 deg ue north, the lower angles of arly morning and evening ould be difficult to block ely. Therefore, the white frit on the top horizontal tier of skylight were replaced by a white laminating interlayer between the two panes of the inboard glass light. A copper-toned reflective coating was specified on the inboard surface of the single-pane exterior light for additional energy savings, and a uniform exterior appearance.

The precisely spaced lines act as fixed louvers, letting people standing directly opposite (and about 25 ft away from) the sloped skylight see out clearly (photo 4), while appearing as a light-diffusing surface to workers seated below (photo 3). There is still some "view" through the glass for the CAD-based Steelcase designers, as passing clouds, birds—and airplanes—are seen from below. The low-glare, diffuse light through the skylights does not read as a monolithic, luminous ceiling.

The dual-surface frit is obviously most useful for solar control on sloped glass of over 15 deg, where the different viewing angles can exploit the looking-through-the-slot effect of lines placed on two surfaces. But the Steelcase building makes extensive use of vertical glass as well, especially surrounding inset terraces on three levels of each side. There, the Patternlite frit on the upper portion of each window acts as a shading overhang. Dark gray frit is used in horizontal lines 7/16 in. wide at the top, separated by a 1/16-in. space, with the frit lines getting narrower and the spaces getting wider as the pattern fades out in the bottommost patterned section. (Photo, 5, shows a view out through the sun-shaded vertical glass).

An extra benefit of Patternlite frit on sloped glazing: it hides the dirt. *Joan F. Blatterman*

PPG Industries, Inc., Pittsburgh.
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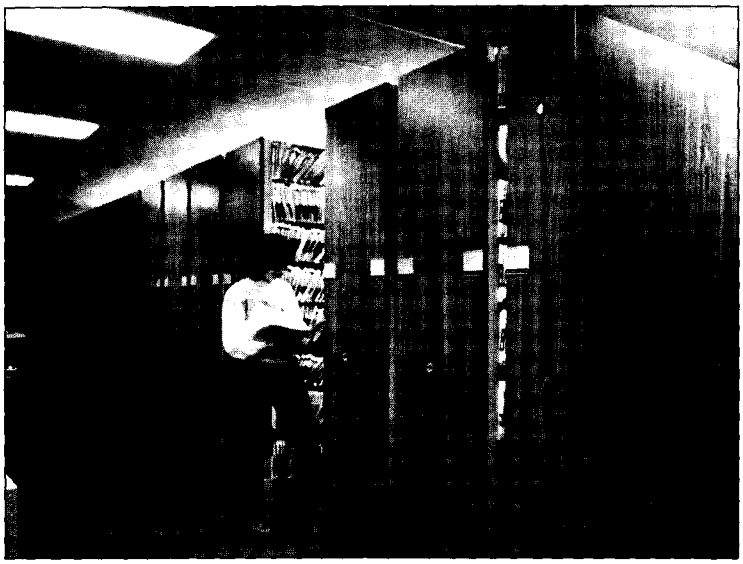
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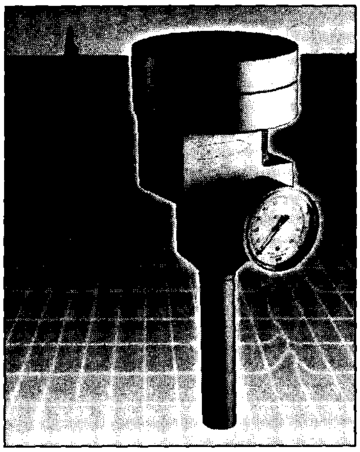
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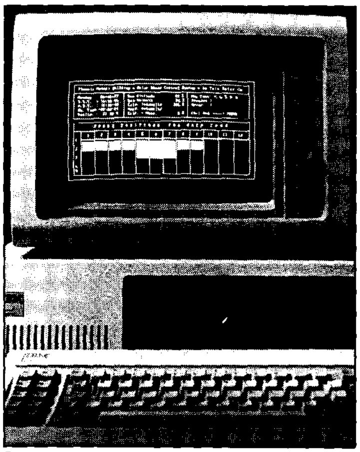
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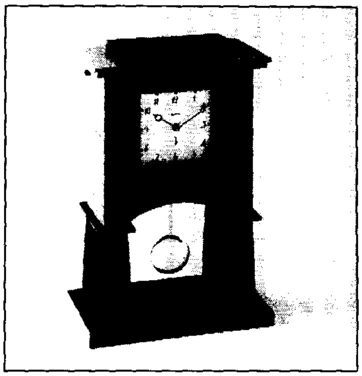
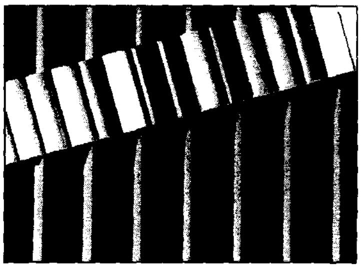
3


6


4


7

4. Wood/laminate office
The freestanding Stratum Desk System uses bridges, display shelves, and cabinets, such as this credenza-mounted unit, to provide the flexibility and vertical storage space of panel-hung components. GF Office Furniture, Youngstown, Ohio.
Circle 304 on reader service card

5. Computerized shade control
PC-based software can position motorized roll-type window shades, awnings, louvers, and blinds in response to real-time solar angles and intensity. Automatic adjustment of these sun-control devices is said to reduce glare and heat gain, and improve the building's esthetics. Tait Solar Co., Tempe, Ariz.
Circle 305 on reader service card

6. Classical clock
Architect Michael Graves describes the design of his mantel clock, made of ebonized wood and maple veneer by Alessi, as incorporating proportional divisions which can be seen as both allegorical and miniaturized versions of a larger architecture: the clock as cabinet, the clock as architecture, and finally, the clock as clock. The Markuse Corp., Woburn, Mass.
Circle 306 on reader service card

7. Surfacing materials
A new laminate profile intended for larger spaces and trim, Large Half Rounds from the Contours Collection include laminates in gray and black, a natural unfinished wood suitable for staining, and Pewter, a matte-finish metallic. Nevamar Corp., Odenton, Md.
Circle 307 on reader service card

More products on page 157

It only looks like a pen plotter.

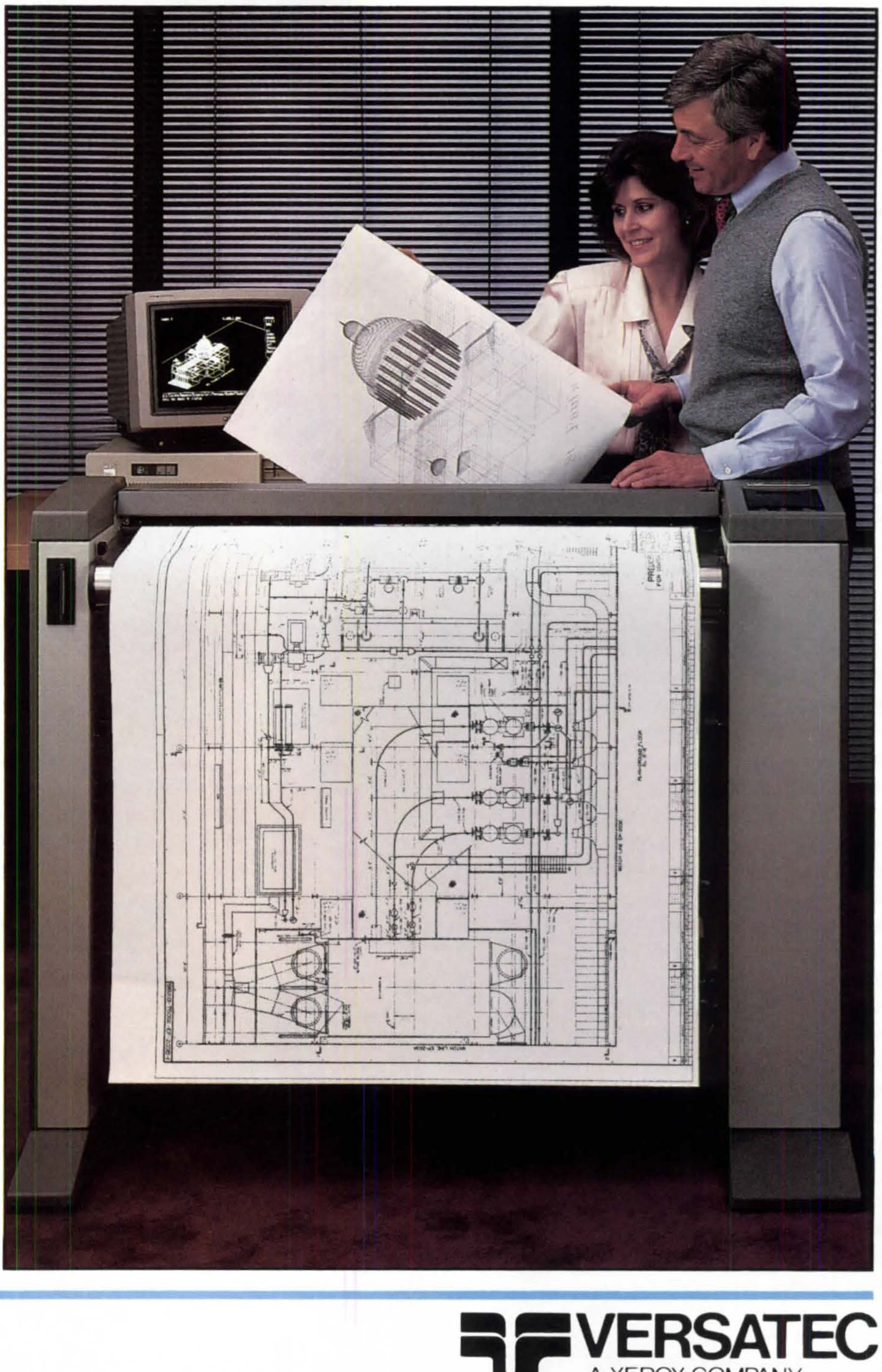
But look again. It emulates pen plotters, reading popular 906/907 and HPGL data formats. It comes in pen plotter widths – 24 and 36 inches. And you can use it with your favorite CAD packages, such as AutoCAD, VersaCAD, or MICRO CADAM.

But the Versatec 8500 series is like no pen plotter made. It is more reliable, because it plots with electrons, not pens. It's faster, plotting D or E size drawings in less than a minute. It can plot an unlimited number of vectors, variable line widths (to ½ inch wide), dashed lines, or text without reducing speed.

A built-in rasterizer and full-page buffer enable fast output at a constant rate for outstanding quality. Plot an original in fifty seconds. Make copies without retransmitting data. And plot over one hundred drawings without changing paper.

So fast you can share one plotter among several users. So quiet you can run this plotter at your desk. So reliable you can plot unattended at remote sites. This is the revolutionary new 8500 series of electrostatic plotters. Prices start at under $20,000.

Circle our readers' service number or call toll-free 800/538-6477* for a free product application brochure.



*In California, call toll-free 800/341-6060

HPGL is a trademark of Hewlett-Packard. 906/907 is a trademark of CalComp. AutoCAD is a trademark of Autodesk. MICRO CADAM is a trademark of CADAM Inc. VersaCAD is a trademark of Versacad Corporation. Versatec is a trademark of Versatec, Inc. Xerox is a trademark of Xerox Corporation.

Plot data courtesy of Autodesk.

VERSATEC
A XEROX COMPANY

Circle 60 on inquiry card

oftware reviews for architects

y *Steven S. Ross*

ersaCAD/ Macintosh 1.11

2- to 2.5-D CADD program vith bill-of-materials processing or the Macintosh. It offers full ile compatibility with VersaCAD or MS-DOS and UNIX systems, nd with DXF and IGES files roduced by other software. The urrent version is not as ersatile as VersaCAD 5.3 for IS-DOS computers, but mprovements are promised. And he choice of a Macintosh rogram, HyperCard, to carry dd-on programs assures that nany third parties will find it asy to create and offer such nhancements. Version 2.0, eleased as we went to press, nhances 3-D capabilities.

endor: VersaCAD Corp., 2124 Iain St., Huntington Beach, alif. 92648. 714-960-7720.

rice: $1,995. Deeply discounted ite licenses available.

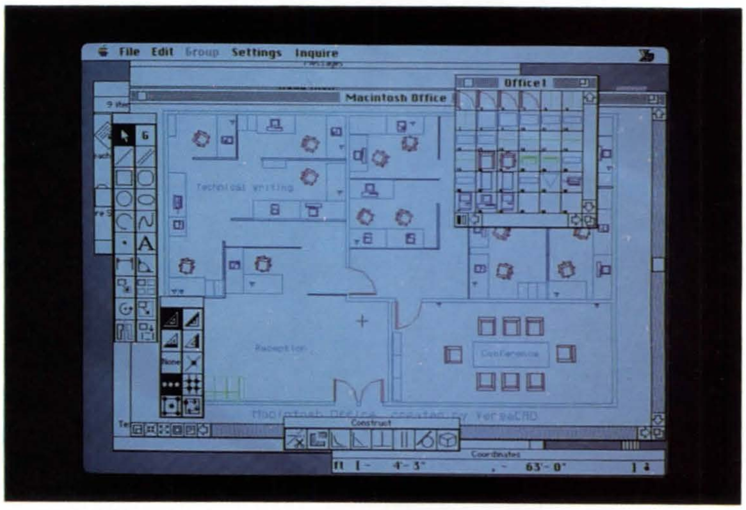
quipment required: Apple Iacintosh Plus or SE with 1 negabyte of memory, or Iacintosh II (highly ecommended) with 2 megabytes. ard disk. HyperCard software vailable free with new acintosh computers). oprocessor, standard in the acintosh II, highly commended. Macintosh Finder 5 or later. Works with acintosh Multifinder (4 egabytes of random-access emory recommended). pports digitizers, but only in ouse mode, not with absolute gitizer coordinates. Supports a de range of printers and tters; can "plot" on a serWriter or ImageWriter.

mmary

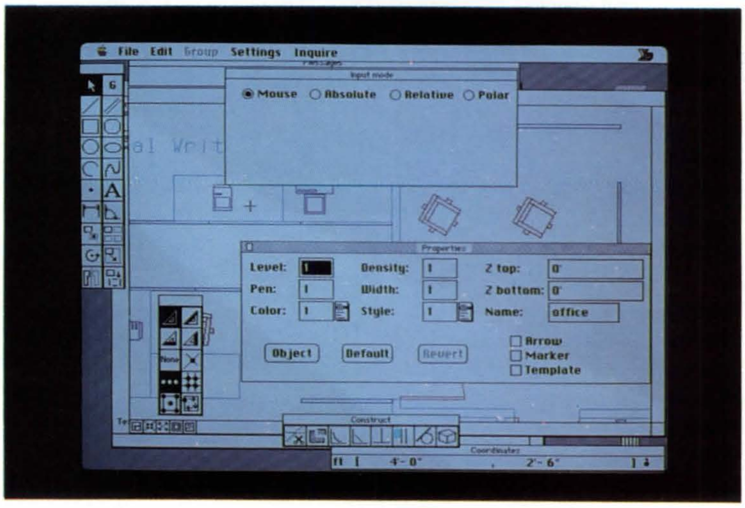
nual: Terrific. The separate d well-done) tutorial manual, ile not aimed at architects, ces users to explore most of the drawing tools.

Ease of use: Remarkable. Makes excellent use of the Macintosh interface (the software is completely rewritten for the Mac; it is not a DOS adaptation). This version is the first to allow on-screen viewing of symbols from a symbol library (earlier versions, released through the spring of 1988, showed only index numbers on-screen). The standard Macintosh mouse works better than expected; palettes of drawing "tools" can be moved to convenient positions on the screen for easy mouse access. Sometimes, objects are initially drawn in pale yellow, difficult to see on a Macintosh II color monitor. This configuration can be changed. Seasoned Macintosh users may find the technique for defining multipoint objects (click on the point, move the mouse, click at new location) unusual. The norm for the Mac is click-drag-click. The VersaCAD method allows users to redefine settings in the middle of a move—a useful feature.

Error-trapping: Good. The Macintosh is a tough taskmaster for software developers, generally leading to more unintentional freezes or crashes than would be expected on an MS-DOS computer. This is especially so when using the new Multifinder on the Macintosh II (the Multifinder allows more than one program to be running at once). VersaCAD proved to be way above average in its stability, however. We were able to crash the system by intentionally doing stupid things such as continually offsetting and placing a plane in an isometric image, over and over. Restarting the Mac from the initial SETTINGS menu generally worked in such cases. VersaCAD, like its DOS cousin, saves changes to a temporary workfile on disk as each is entered on-screen.



Choose the desired symbol from the VersaCAD library with the Mac mouse (right in top photo).



● Mouse ○ Absolute ○ Relative ○ Polar

Level: 1
Pen: 1
Color: 1
Density: 1
Width: 1
Style: 1
Z top: 0'
Z bottom: 0'
Name: office

☐ Arrow
☐ Marker
☐ Template

Some of the settings can remain active while other work is being done (bottom).

Most of the reviews published about VersaCAD for the Macintosh since it was released (without HyperCard interface) in February 1988 compare it—favorably—to other Macintosh CADD software. But the true comparison is with mainframe and MS-DOS alternatives. This is especially so because the Macintosh II with color monitor, 4 megabytes of random-access memory, and a 40-megabyte hard disk can cost $8,000 or more. That's more than twice the price of an MS-DOS or PC-DOS computer based on the 80286 chip—a computer offering about the same on-screen resolution and redrawing speed. VersaCAD helps by selling its Mac version at about $1,000 less than most full-featured DOS CADD software.

VersaCAD/Macintosh, nevertheless, offers enough in the way of features, flexibility, and future promise to make it a worthy competitor indeed—in both the DOS and the Macintosh worlds. The VersaCAD/Macintosh package actually contains two full versions: one for the Macintosh Plus and SE without coprocessor chip, and one for the Mac II and earlier Macs with coprocessor. Running the Plus/SE version may be necessary in a pinch, to show off

Continued on page 147

Ross is a prominent puter consultant and a ılar contributor to RECORD.

To keep your roof from coming apart, go to pieces.

We'd like to assume something for a minute. You put a roof over your head so you can stay dry. And warm. (Or cool, for those of you in more tropical climates.)

Now, if a roof is going to do all this, it has to be put together with all the right pieces. In all the right places. By all the right people.

Introducing the Stevens Hi-Tuff Plus™ Total Roofing System.

Hi-Tuff Plus is a fully-integrated roofing system.

We started with the membrane itself. (45 mils of white scrim-reinforced Hypalon*.) We included the most popular insulations. (100% UL labeled.) The fasteners. (Stainless steel and ceramic coated.) And the roof-edge fascia. (In a variety of metals and colors.)

And that's not all, folks.

Once we got all the right pieces together, we made sure only the best applicators would be allowed to put them together. So we picked our most experienced contractors and made them authorized Hi-Tuff Plus applicators. They, in turn, make sure your roof meets our inspectors tough standards. For at least 15 years.

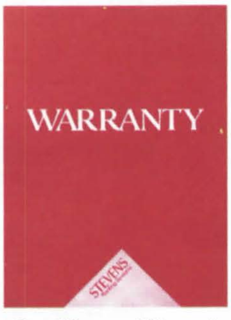
We'll back it into the 21st century.

O.K., so a 15-year warranty's nothing new in the roofing business. What is new is what it covers.

Our warranty doesn't just cover the membrane. It covers the insulation. The fasteners and plates. The adhesives. The fascia. And the workmanship. In short, every part of the system. Even against winds up to 70 m.p.h.

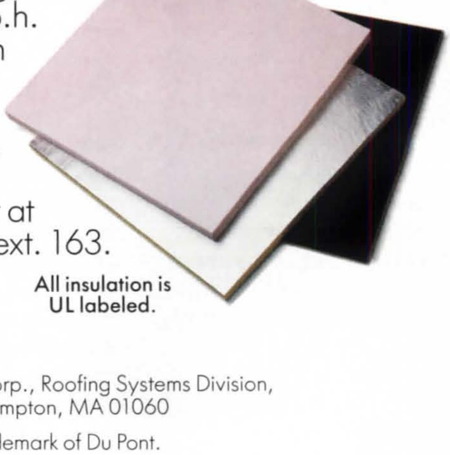
And if, within 15 years, your roof leaks, we'll fix it. Period. Our Sweets brochure can tell you more. Ask for it at 1-800-848-4400, ext. 163.

Corrosion-resistant fasteners. What goes down won't come up.



Our 15-year, 70 m.p.h. warranty covers all system components.

Our color-coordinated fascia has the edge in fighting high winds.



All insulation is UL labeled.

© 1988 JPS Elastomerics Corp., Roofing Systems Division,
395 Pleasant Street, Northampton, MA 01060

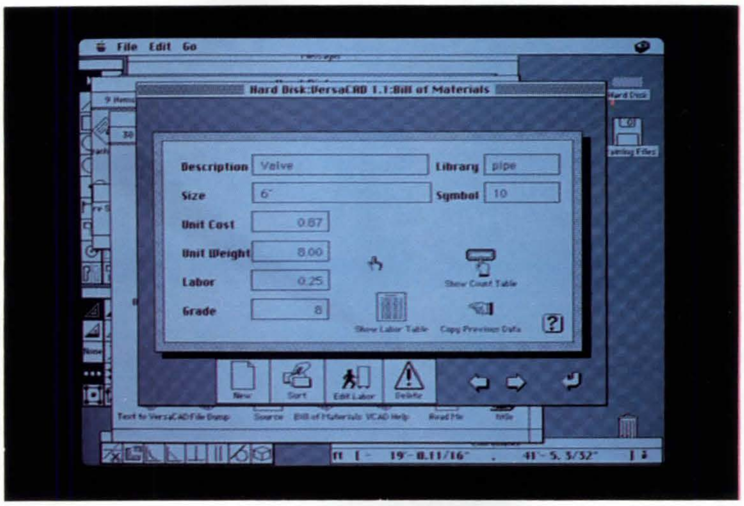
*Hypalon is a registered trademark of Du Pont.

Circle 61 on inquiry card

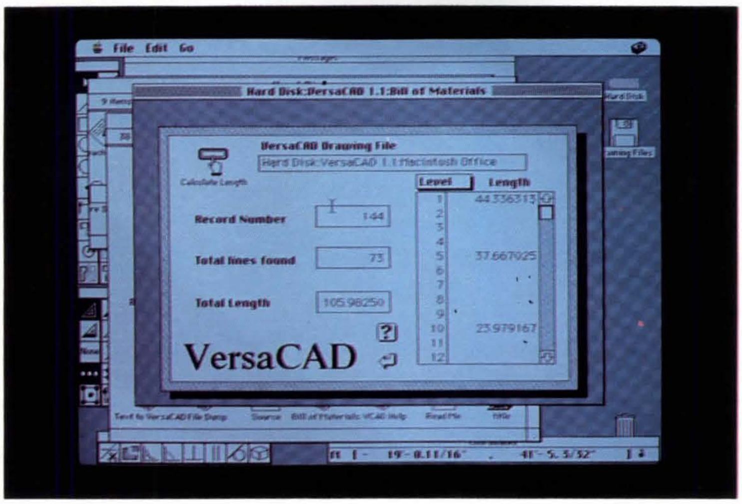
The "construct palette" in VersaCAD's Mac version can create parallel lines, cap them in various ways (great for walls), trim unwanted lines, and create lines tangent to existing ones.

design at a remote site or to do ome quick work at home, but no ADD software can be seriously onsidered a professional tool on hese smaller computers. For hat you need the color, speed, nd extra memory of the Mac II r upgraded SE. The Macintosh I also allows easy use of the ew Apple Multifinder. That, in urn, allows users to keep the IyperCard program running at he same time as VersaCAD. And that, finally, allows users to ccess HyperCard "stacks" ontaining such goodies as a bill-f-materials processor, superb elp files, and other add-ons sure o come.

Installation is easy. Create a ew empty "folder," then copy ll the relevant files (Mac II or Plus/SE versions) into it. The older is roughly equivalent to a DOS subdirectory. But there is ne difference. In DOS, there is "pathmand" that allows ubdirectories to be linked. In he Macintosh world, users have o "open" several folders and ctivate software within them. ne cannot activate a folder om another folder. Thus, when ersaCAD is first activated, it oes looking for HyperCard only the VersaCAD folder, and lls the user to put a copy of yperCard there—even if it ready exists in another folder a hard disk. The help stack orks well, although it is not ntext-sensitive. That is, the lp software does not "sense" at is being done on-screen, en give the right "help" tomatically, as does, say, tus 1-2-3. Instead, type in a word and have the software rch the stack for relevant ormation. Or move through stack by choosing topics in cession of menus that tinually narrow the focus il homing in on what is ght. At the beginning, the cessive menus are best. As program and its terminology arned, key words would bably be faster.



Description Valve
Library pipe
Size 6"
Symbol 10
Unit Cost 0.87
Unit Weight 8.00
Labor 0.25
Grade 8



VersaCAD Drawing File
Hard Disk:VersaCAD 1.1:Macintosh Office
Record Number 144
Total lines found 73
Total Length 105.98250

Level	Length
1	44.336313
2	
3	
4	
5	37.667925
6	
7	
8	
9	
10	23.979167
11	
12	

Editing descriptions in the bill-of-materials processor is intuitive, due to HyperCard (top). The BOM processor can calculate length of walls, wiring, etc. even if items were not in the library (bottom).

In operation, VersaCAD has all the standard drawing tools, and then some. The "tool palette," which is always on-screen when a drawing is started, offers Bezier and spline curves and a "multiline" option that can draw up to 255 parallel lines at once. The "construct palette," which can be switched on and off (with the settings menu), allows the user to create parallel lines, cap them in various ways (great for walls), trim unwanted lines (necessary when one wants to draw lines parallel to an existing one that's snapped to an object), insert fillets and chamfers, and create lines tangent to existing ones. Items and groups can be copied, rotated, mirrored, or exploded. The break-up even works with symbols pulled from a library of common objects created by the user.

The construct palette also allows users to break an existing object apart. A quasi 3-D isometric image can be pulled together using the palette's "isometric" tool, modified while an isometric, then "un-isoed" with the modifications still intact. The "constraints palette," which can also be switched on and off, allows users to snap new elements to a grid, spaces between the grid lines, grid intersections, objects, and so forth. Double-clicking on a palette tool generally opens a dialogue box that allows setting up defaults for each tool. Dialogue boxes often open up when a menu choice is selected as well. Some of the dialogue boxes can be kept open for switching between options. That leads to the downside of not requiring users to wade through a rigid hierarchical menu system to perform a function: moving to the keyboard to change settings or write text in a dialogue box, a user can end up typing what VersaCAD interprets as an entirely different command. One quickly learns to check that a box is active, or simply to click the mouse over the field in the box to be changed.

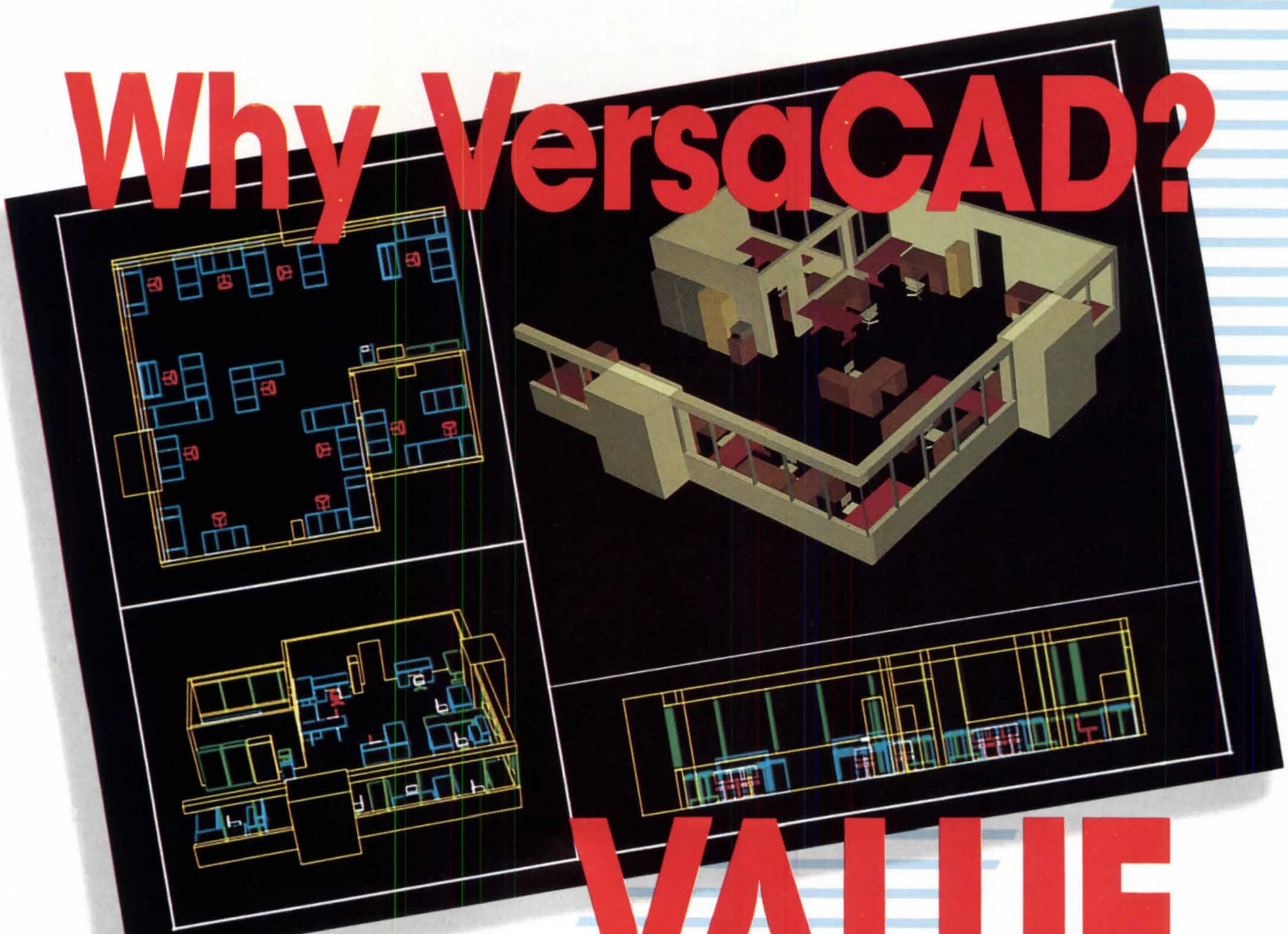
VersaCAD (like most microcomputer CADD software) is a layer-based system, with 250 separate layers available for, say, putting nonbearing walls on one layer, structural elements on one, electrical systems on another, and so forth.

What is seen on-screen is not necessarily what can get printed or plotted—again, necessary because of the wide range of printers and plotters that can be used with VersaCAD. The on-screen font is a clean Leroy-ish, Hershey-ish character set. There's only one line width on screen as well. The Apple LaserWriter, a Postscript printer, can produce an almost unlimited variety of fonts, however. As with DOS VersaCAD, there's an "undo" option (on the Mac, it is in the Edit menu), and a "crunch" option. Crunch removes all the deletions made on-screen from the file itself. This saves disk space but, of course, no longer can a deletion be undone.

The bill-of-materials processor benefits from the flexibility built into HyperCard (a free-form database program), but suffers

Continued on page 149

Why VersaCAD?



Multiple 3D viewports let you work in up to 16 views at once. Programmable template available for automated architectural design.

VALUE.

1. **Everything you need.** VersaCAD® DESIGN integrates 2D drafting, true 3D with color shading on any screen, bill of materials and universal translators. No need to buy extra-cost add-ons.

2. **Aggressive pricing.** VersaCAD value includes affordable site licenses that grow with your company. Quantity discounts. Low-cost upgrades. They stretch your design power, not your budget.

3. **Total support.** The industry's most respected technical support staff is just a phone call away. You can always get direct help from the experts, no matter what your question.

4. **Fast productivity.** VersaCAD is consistently ranked the easiest to learn of the full-scale CAD systems. And our CAD programming language works just like BASIC. So you can do it yourself.

5. **Use all your computers.** VersaCAD runs on MS-DOS, Macintosh and UNIX platforms, with complete drawing transfer. Plus proven 2D/3D IGES and DXF translators, all built into the system.

And every VersaCAD system is backed by the strength of Prime Computer, Inc., one of the two largest CAD companies in the world.

Find out why 60,000 users have committed to VersaCAD value. See your authorized dealer today, or call Customer Service at **(714) 960-7720.**

"Top Value Rating"
—Infoworld

VERSACAD®
Design
The Total Design Solution

Versacad Corporation, 2124 Main Street, Huntington Beach, CA 92648
A Company of Prime Computer, Inc.

Circle 62 on inquiry card

Software reviews continued from page 147

from HyperCard's current lack of good ways to ensure absolute file integrity. That is, it is easy to inadvertently change "cards" in a HyperCard "stack."

The VersaCAD manual contains good advice in this regard. The BOM works by counting the number of symbols used in a drawing. Thus, the symbols have to be predrawn and entered into a library first. There are any number of libraries, and up to 1,000 symbols per library. Users of the BOM associate a description (including labor costs) with each symbol. The BOM processor then counts the symbols, associates the correct descriptions, and adds everything up. Even the total length of objects, such as piping and shelving, or the lines that make up wall plans can be calculated. The output reports are easy to customize.

But beware, not everything on a drawing is normally a symbol.

Version 2.0 supports 3-D visualization—not designing in 3-D but taking an existing 2-D drawing and extruding it for presentation and visualization urposes. A floor plan, for nstance, can be extruded pward along the Z-axis to isualize walls. Once in 3-D, the isplay can show isometric, erspective, wire frame, and dden line views with up to four ews on-screen at once.

e capabilities come from haca Software's HOOPS utines. Version 2.0, like rsaCAD 5.3 for the DOS rld, has light-source shading ith up to 256 colors on the Mac . Users can't really change a, however, while in 3-D.

True 3-D design capabilities, if y're really needed, can be d if VersaCAD is run in junction with Visual ormation's Dimensions tware. Visual's erpreter/VersaCAD— link between the programs— romised for this fall at $295.

Draw it again, Sam..., 2.04

An easy-to-use painting and drawing program for the Macintosh. It allows pixel-based art (like those created by a "paint" program) and objects (like those created by CADD software) in the same drawing. This software supports up to 10 drawing layers and eight "QuickDraw" colors. Zooms and screen redraws are very fast.

Equipment required: Macintosh 512 Enhanced, Plus, SE, or II with one 3.5-inch drive. Supports color monitor for the Macintosh II. Supports the usual Macintosh printers, such as the ImageWriter dot-matrix and LaserWriter laser printer. Works with MultiFinder.

Vendor: Aba Software, Inc., P. O. Box 850, Frazer, Pa. 19355. 800-234-0230.

Price: $150 (Version 2.1, due soon, will cost $195).

Summary

Manual: Good. Well-organized, clearly written, and indexed. As with many Macintosh manuals, installation is so easy that it is not mentioned at all. Simply start up the Macintosh with the Draw it again, Sam... disk in the drive. With a hard disk, start with the 3.5-inch drive empty, get the initial Macintosh screen, and slip Sam in. The Sam disk's menu should appear on-screen.

Ease of use: Excellent. Despite some minor quirks, such as the inability to precisely specify values for zooming in and out (image magnification doubles or halves each time a zoom option is selected), users can start creating Sam drawings approximately 30 seconds after loading the disk.

Error-trapping: Good. The software warns about leaving without saving drawings. There's the standard undo-last-command feature. Contrary to user expectations for the Mac, what you see is not always what you get. On a standard Postscript printer (and most laser printers for the Mac are), drawing layers obscure one another. The less expensive (and much, much less fast) dot-matrix ImageWriter does, however, produce the printed image that's expected. We managed to crash the program by selecting too many fill patterns for one object, then zooming in the maximum five times (for 32 times original image magnification).

What can Draw it again, Sam... do for you? Well, now that you've made the plunge and bought an expensive Macintosh II CADD system for the office, you may want to do some musing at home, too, on an older and cheaper Mac. Or you've discovered that the super-capable CADD program won't produce nice shading—only cross-hatching that can be plotted, but that doesn't suit the style demands of a rendering.

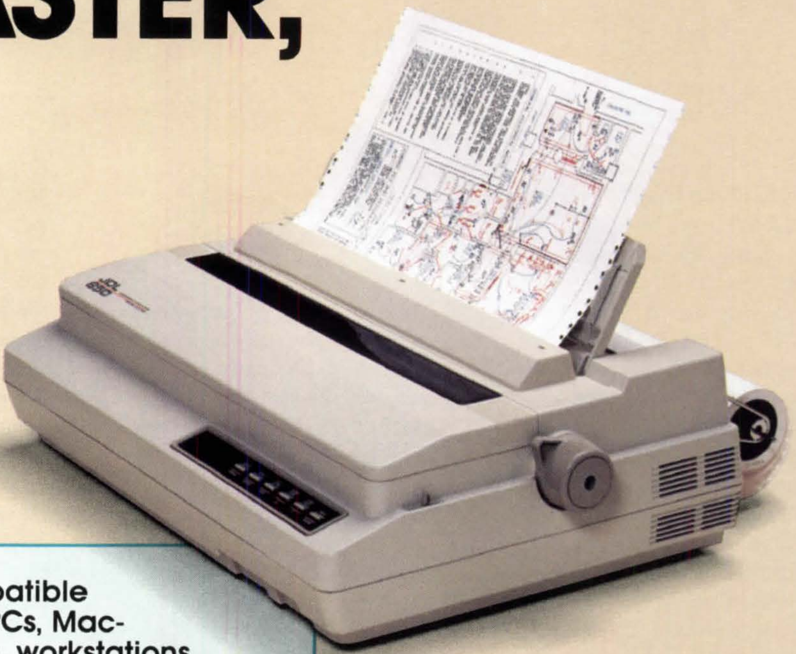
If so, Sam may be for you. The best thing about Sam (and other inexpensive programs that use the Apple Macintosh QuickDraw routines) is speed. Those lines go up on the screen as fast as you can move your mouse. Sam also uses the wide variety of fill patterns available with QuickDraw. There's the ability to try a pattern, then almost instantly change it (by moving to the menu at the bottom of the screen, clicking the pattern display, then selecting a different pattern). Everything happens faster than with similar "paint" programs for IBM-compatible computers.

Sam has some features that seem to have been added with architects in mind, too—building unlimited numbers of "libraries" with up to 250 images in each, for instance, or creating a drawing pixel-by-pixel (that is, as a "painted" or "bit-mapped" image), then converting it to "objects" that are easily stored. In short, Sam combines most of the features of a "paint" program like MacPaint, and a "draw" program like MacDraw or MacDraft. And one can work on 10 layers at once—numerous office layouts can be overlaid onto the office plan itself, for instance.

Sam has its own file structure, and can also save images in the PICT format that is to the Macintosh world what DXF is to DOS. You can save each layer in a multilayer drawing separately. That's useful, because changing to the PICT format collapses all the layers into one. Current CADD software for the Macintosh can usually throw off a PICT file for Sam to chew on, but can't always receive one in return. MacDraw and MacPaint exchange files freely back and forth with Sam, however.

The QuickDraw fill patterns are a bit quirky. Fill a wall with a brick-like pattern, for instance, then zoom in. The wall is magnified but the bricks are not! Thus, some experimenting is necessary to get an acceptable rendering.

PLOT FASTER, LONGER, EASIER!



The JDL 850 GL+ Plotter/Printer makes plotting more productive in every way

- Compatible with PCs, Macintosh, workstations, mainframes and LANs
- HP-GL compatibility: 7585, 7580, 7550, 7475
- High speed plot file transmission over serial or parallel ports
- Standard 1.0 MB or optional 2.5 MB plot spool buffer
- Long axis, "free size", plotting
- Continuous, unattended plotting with automatic cut sheet and roll feed
- AutoShade™ compatible

Plot faster than pen plotters –

The 850 GL+ combines a one megabyte plot buffer with new high speed parallel plotting to produce plot output speeds up to five times faster than a pen plotter. Quick check plots save time and increase your system productivity. And the unrivaled plot speed comes with no loss in quality. You get D and E-size readability at C-size. Mini check sets are easier to handle and save on media costs too.

Plot as long as you like –

The 850's new long axis, "free size", plotting lets you plot up to 78 inches long. Or, with the new plot-append feature create unlimited length plots. Ideal for mapping, project management or any design that requires an extra-long plot.

Automatic cut sheet feed and roll feed mean reliable, unattended, continuous plot production. Plot over lunch, plot all night long or plot remote on your network.

Plot easier than ever –

The 850 GL+ can be automatically configured to run with many popular CAD and graphics packages. The new, simplified menu provides for quick set-up and flexible image control, including enlargement and reduction and a multiple copy selection. The 850's proven technology gives you color hardcopy in 14 colors with crisp consistent lines, without the bother of pens and special media, or the worry of running out of ink or constant pen maintenance. You can plot for weeks without so much as a thought to anything more than changing the paper.

Plus added value – 3D rendering and text printing

The 850 GL+ doesn't limit your design or business potential. Full color, 3D rendering compatible with AutoShade™, VersaCAD Design™, CADkey™ and others, it can produce over 2000 colors, the only low cost C-size plotter capable of true shaded output.

For your business needs the 850 GL+ quietly delivers letter quality text at 144 cps and draft printing at 360 cps for bills of material, estimating, word processing and spreadsheets. No need to spend money on a separate printer.

Find out why more design professionals are specifying the 850 GL+ as their workstation plotter/printer of choice. Call us for specs, plot samples or a demo.

See us at COMDEX Booth 2826

JDL
Japan Digital Laboratory

2649 Townsgate Road, Suite 600
Westlake Village, CA 91361

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Circle 63 on inquiry card

Project: Grand Hilton Hotel
Owner: The Sausman Hotel Group
Architect: John Nichols & Associates
General Contractor: Hardin Construction Co.
Roofing Contractor: Roth Bros. of Florida
Color: Terra Cotta

Terra Cotta PAC-CLAD

Terra Cotta PAC-CLAD was selected for installation on the Grand Hilton Hotel in Deerfield Beach, Florida. The architect, John Nichols & Associates, responded to the owners desire for use of vivid color and post-modernist form in their design. The roofing panels were roll-formed on-site by Roth Brothers of Florida, Inc.

PAC-CLAD is a full Kynar 500® finish ideally suited for use in tropical climates. PAC-CLAD is available with a non-prorated warranty covering finish fade, peeling and chalking. Terra Cotta is one of sixteen standard colors available on steel and aluminum.

For complete information regarding the Petersen product line, please call for specifier's service toll-free, **1-800-PAC-CLAD**.

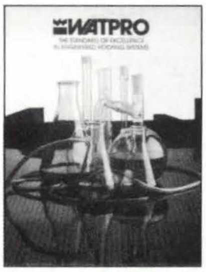
PAC Petersen Aluminum Corporation

955 Estes Avenue • Elk Grove Village, IL 60007 • 1-312-228-7150
1-800-PAC-CLAD • FAX: 1-312-956-7968
Other Plant Locations: 8735 Bollman Place • Savage, MD 20763 4295 Hays Drive • Tyler, TX 75703
See our catalog in Sweet's: file numbers 07610/PET, 07715/PET and 10440/CHC.

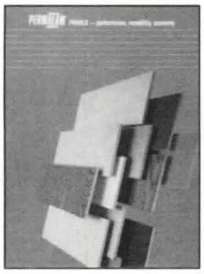
Circle 64 on inquiry card

Product literature

For more information, circle item numbers on Reader Service Card



Engineered roof system
A brochure explains how roof design must consider each building's specific environment, including roof traffic, wind, temperature, and atmospheric contaminants. WatPro Roofing Systems, Manasquan, N. J.
Circle 400 on reader service card



Laminated paneling
An 8-page brochure explains the performance benefits, application versatility, and cost economies claimed for Permalam decorative panels, offered in fire-rated and standard forms. American Laminators Assn., Seattle.
Circle 401 on reader service card

Hydraulic door closer
A bulletin describes how the TS 93 surface-mounted closer's cam and roller mechanism makes door opening easier, with a low-profile housing that blends well with its surroundings. Dorma Door Controls, Inc., Reamstown, Pa.
Circle 402 on reader service card

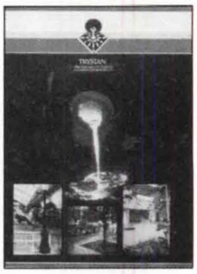
Pre-finished metal roofing
A 16-page architectural catalog shows how PAC-CLAD roofs and fascias work in a variety of building applications; detail drawings and finish options are included. Petersen Aluminum Corp., Elk Grove Village, Ill.
Circle 403 on reader service card

Interior/exterior cladding
Flexible Una-Fab honeycomb core panels are described as providing exceptional flatness, flexibility in edge depth, shape, and design, and custom-painted and anodized finishes. Copper Sales, Inc., Minneapolis.
Circle 404 on reader service card

CCTV security system
A design kit helps the architect select a functional security management/CCTV system, including security hardware, data signals, power needs, and mounting options. Javelin Electronics, Torrance, Calif.
Circle 405 on reader service card

Lighting/energy management
The PC-based INCOM system is said to be a cost-effective means of controlling both the consumption and peak-demand components of electric power usage. Westinghouse Electric Corp., Pittsburgh.
Circle 406 on reader service card

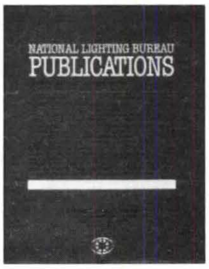
Built-up sloped roofing system
Technical brochures introduce aggregate- and smooth-surface asphalt systems designed for roofs with a slope of up to 6 in. per ft. Drawings of each roof type are included. Koppers Co., Inc., Pittsburgh.
Circle 407 on reader service car



Site furnishings
A 4-page brochure highlights cast-iron tree grates, tree guards, wood and cast-iron benches, receptacles, and bicycl racks—all part of a complete li of site-improvement products. Trystan, Ayr, Ont.
Circle 408 on reader service car

Outdoor lighting
Technical literature on Infiniround luminaires includes full fixture specifications, photometrics, and mounting options. EMCO Environmental Lighting, Milan, Ill.
Circle 409 on reader service ca

Standing-seam metal roofs
A booklet presents a life-cycle cost and energy analysis done 8 types of roof assemblies, an explains how standing-seam metal roofs can lower such co American Iron & Steel Institu Washington, D. C.
Circle 410 on reader service ca



Lighting publications
A directory lists brochures th explain what a lighting syste does and describes techniques enhance the value of correct design. National Lighting Bureau, Washington, D. C.
Circle 411 on reader service c

More literature on page 154

GE Plastics

There's a New Global Leader in ABS Resins...

It's Also the World's Leading S

With the recent acquisition of Borg-Warner Chemicals, GE Plastics can now supply worldwide markets with the broadest line of ABS resins in the industry. Combined with our total resources in high-performance engineering polymers, this expansion forms a global product offering that is unmatched in its scope and versatility —a product range totally supported by the technologies which made these ABS resins and engineering polymers the world leaders in sales.

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Now designers and manufacturers all over the world have one source for a wider choice of products and properties to fit specific application needs—products that provide a new dimension of design possibilities and manufacturing efficiencies. LEXAN® resin, NORYL® resin, VALOX® resin, XENOY® thermoplastic alloys, CYCOLAC® ABS,

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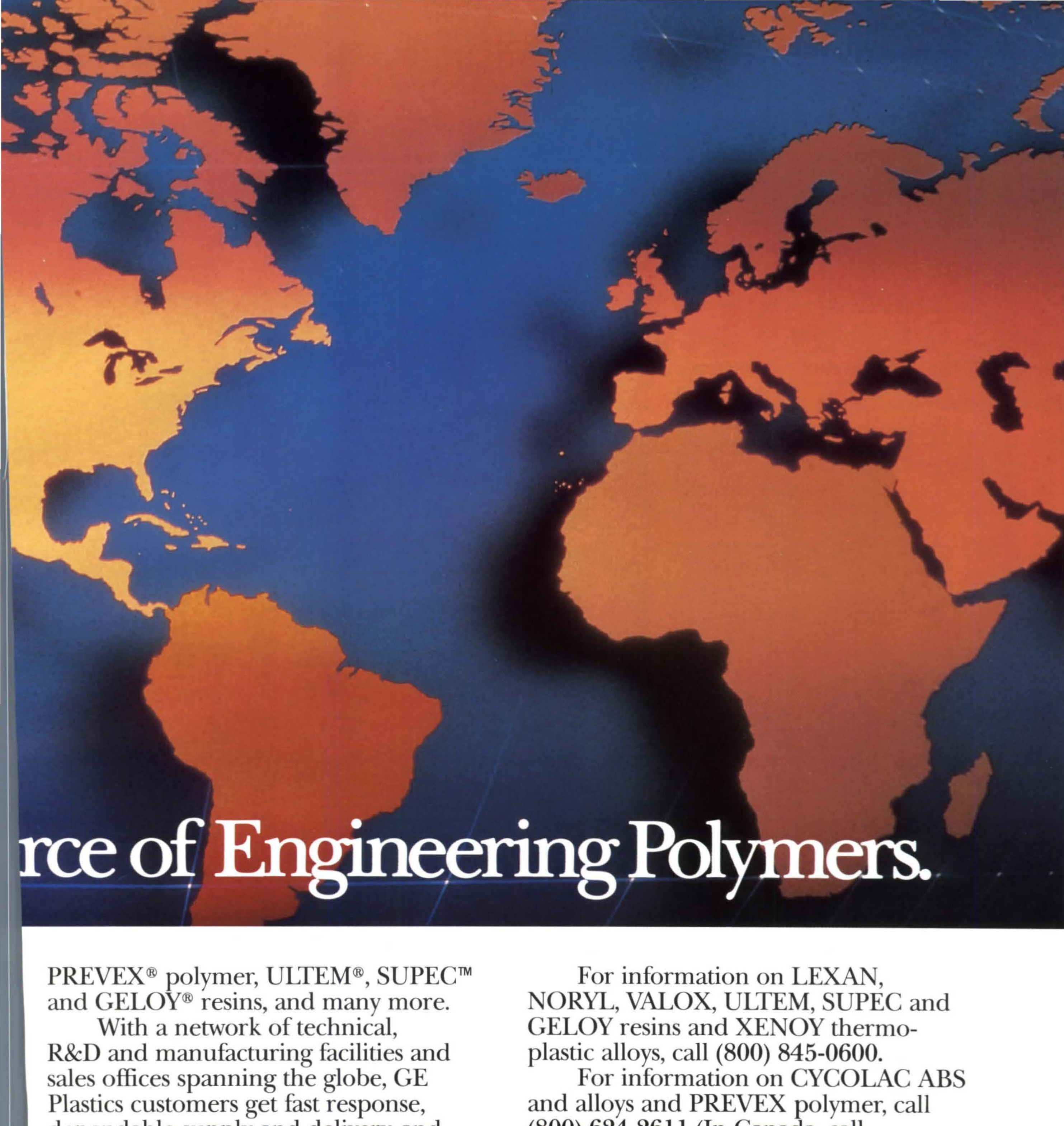
rce of Engineering Polymers.

For information on LEXAN, NORYL, VALOX, ULTEM, SUPEC and GELOY resins and XENOY thermoplastic alloys, call (800) 845-0600.

For information on CYCOLAC ABS and alloys and PREVEX polymer, call (800) 624-2611 (In Canada, call 416/372-6801).

GE Plastics

HEAVY-DUTY DOESN'T HAVE TO MEAN HEAVY-HANDED.

Style. Commercial faucet manufacturers don't usually talk about it. And no wonder. Most heavy-duty commercial faucets are real lightweights when it comes to design.

But Delta HDF™ is different. The **Delta HDF** line withstands the demands of commercial and institutional usage, without looking institutional. Take the sleek, continental styling of our widespread, two-handle lever models, for example.

And the good looks are backed up by a reputation for reliability and durability. In fact, **Delta HDF** faucet standards always surpass those established by the plumbing industry. Our designs undergo a punishing series of tests, in the industry's most sophisticated testing laboratory. Life-cycle testing regularly exceeds a million cycles—the equivalent to a twenty-year life span in lavatory usage. And we insist that our faucets stringently adhere to energy conservation codes.

The result: **Delta HDF** faucets perform—beautifully.

Which is important. Whether your application demands a commercial quality faucet, or you simply appreciate the value of a product that not only works better but looks better doing it.

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HEAVY-DUTY COMMERCIAL FAUCETS

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Product literature *continued*

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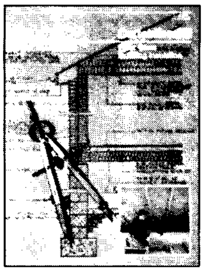
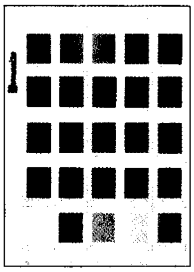


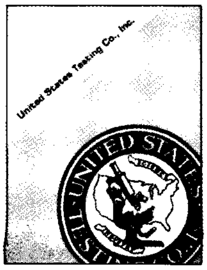
Thermal/acoustic insulation
Fiberglass insulation products for residential and commercial buildings are covered in an architectural catalog. Fire and sound ratings for typical wall assemblies are given. CertainTeed Corp., Valley Forge, Pa.
Circle 412 on reader service card

Cedar shingles
Decorative uses of cedar shingles and panels, such as chimneys, side-wall accents, entryways, window treatments, gable ends, and interiors, are shown in a brochure. Shakertown Corp., Winlock, Wash.
Circle 413 on reader service card

Spanish stone
Marbles, granites, and other stones from quarries in Spain and elsewhere are highlighted in an 8-page brochure, illustrated with close-up color photos of individual stones. Ingemar Corp., Dallas.
Circle 414 on reader service card

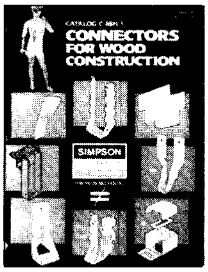


Colored concrete paving
A color chart provides samples of 25 standard colors available in imprinted concrete paving, including 13 new colors ranging from dark tones to pastels. Bomanite Corp., Palo Alto, Calif.
Circle 415 on reader service card

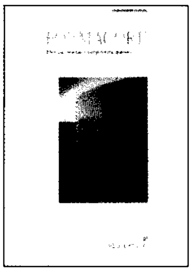


Materials testing
A publications guide describes 27 booklets from an independent laboratory, covering topics such as materials evaluation, textile flammability, and paints and coatings testing. United States Testing Co., Hoboken, N. J.
Circle 416 on reader service card

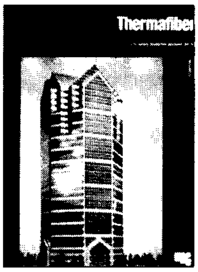
Plotter/computer connections
An 8-page brochure explains how to connect Versatec plotters to IBM computers of all sizes from mainframe to micro, including on-line, off-line, and LAN processing applications. Versatec, A Xerox Co., Santa Clara, Calif.
Circle 417 on reader service card



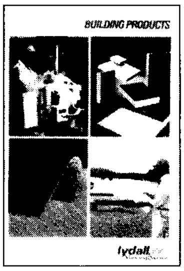
Wood construction connectors
A 48-page timber connector catalog features 16 new products, including a field-slope-and-skew-adjustable hanger and a nonwelded truss hip/jack connector. Simpson Strong-Tie Co., Inc., San Leandro, Calif.
Circle 418 on reader service card



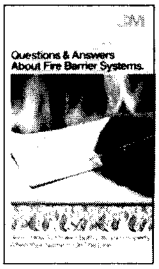
Aluminum panels
A color brochure provides desig
and product data for the Formacore noncombustible laminated composite panel. Span/load figures are listed on
structural capacity chart. H. H. Robertson Co., Pittsburgh.
Circle 419 on reader service car



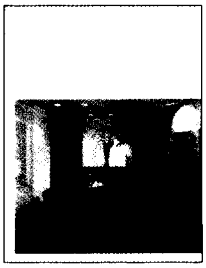
Life-safety insulations
A 15-page catalog covers a full line of Thermafiber insulation products, said to provide effective fire and sound protection in commercial and residential high-rise constructio
USG Interiors, Inc., Chicago.
Circle 420 on reader service car



Glass-fiber nonwoven sheets
A brochure explains building a
construction uses for glass-fibe
nonwovens, such as a flame barrier used in UL-listed roofi
systems and liners that preven
degrading of ductwork insulati
Lydall, Inc., Troy, N. Y.
Circle 421 on reader service ca



Firestop systems
Two brochures, "Questions an
answers about fire barrier systems" and "Fire barrier penetration sealing systems,"
supply UL and other code dat
on a line of penetration firest
3M Electrical Products, St. Pa
Circle 422 on reader service ca



Compact fluorescent fixture
Recessed and wall-mounted fixtures specifically designed
make the best use of the PL compact fluorescent lamp are
illustrated in a 38-page techni
catalog. Marco/Marvin Elect
Los Angeles.
Circle 423 on reader service c

h-performance new Donn® access floor from USG Interiors.

est Drive the New "Quatro"...

SolidFeel™ II access floor system, with Quatro Strength, will drive your business toward increased productivity.
ck these features:

r-on-the-Floor...Unique 4-in-1 support structure significantly increases rolling load capacity.
at in high traffic areas!

et and Comfortable...Advanced cementitious fill and increased welds provide quiet comfort and solid feel underfoot.
erior cornering with fully drawn corners.

ependent Suspension...New FreeStanding understructure allows quick, easy changes in wiring and furniture layouts.
ional Cornerloc® understructure.

Road Capabilities...Stronger bottom pan provides improved resistance to concen-
ed loads—files, desks—in non-traffic areas.

sh Tested...Higher compression fill, coupled with a hardened steel top sheet and un-
d construction, provides superior impact load resistance.

zingly Affordable...Our exclusive DesignAid™ cost analysis *proves* access floors can
our most cost-effective wire management system.

t lock yourself into a wire management system that
t grow with your business. Ask USG Interiors for a
drive" in the new high-performance SolidFeel II
m...the only one with Quatro Strength.

riors from every angle.

G Interiors, Inc.

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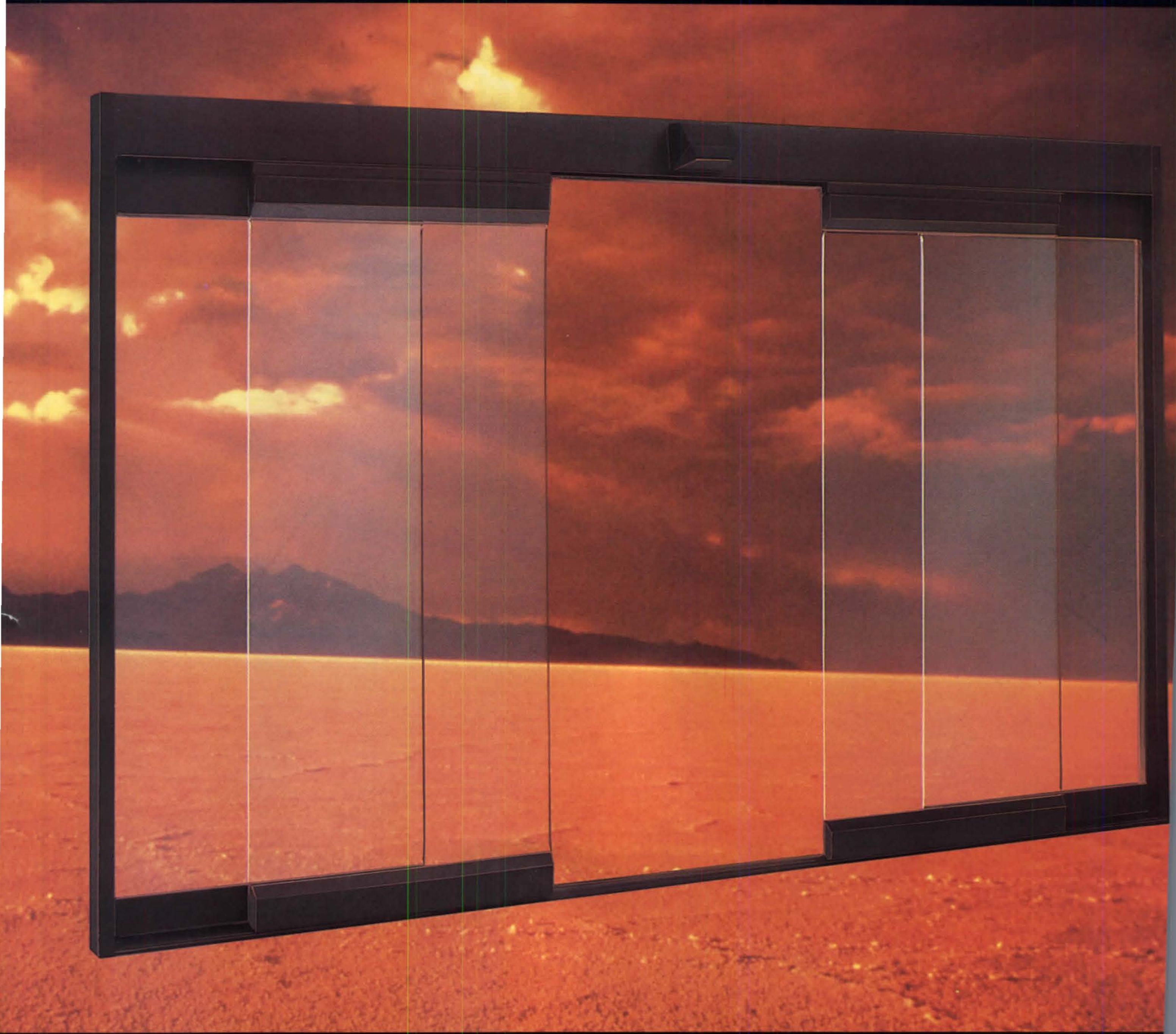

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The Unbroken View

New Astro-Glass® Automatic Sliding Door Package From Dor-O-Matic

The Astro-Glass® automatic sliding door package is unique in what it includes. And what it doesn't.

First, the package comes **complete** with ½″ clear tempered glass in doors and sidelights. Yet the ensemble of glass doors and sidelights has **no vertical stiles** to intrude on the panoramic view!

All Astro-Glass packages come complete with safety reversing and two horizontal safety beams.

To meet exit code requirements, the two sliding glass doors can be opened to 90° in an emergency from any position in their cycle thus complying with N.F.P.A. #101.

A manual lock in the bottom door rails is available for night security.

For information, call toll free 1-800-543-4635 or write for our new Astro-Glass Package Brochure.

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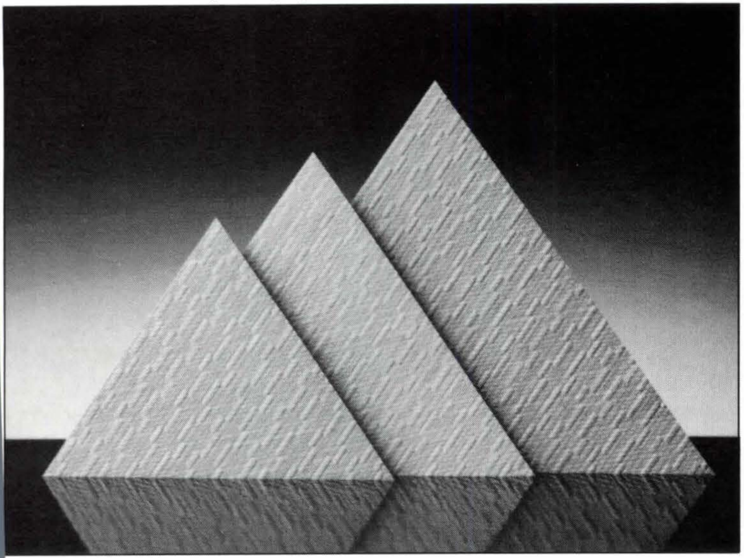
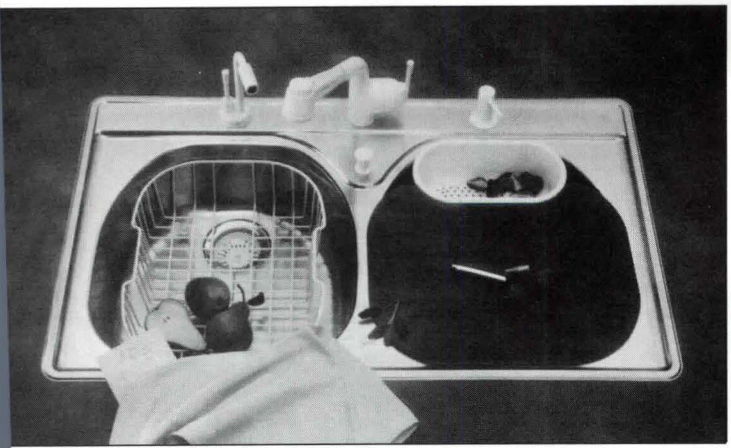
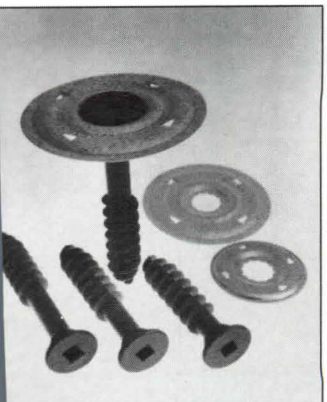
Products continued from page 143



Vinyl-covered wall panel
Mirage is a new texture in the Durasan line of vinyl-surfaced gypsum wall panels. The prefinished wall treatment, offered in tan-gray, plum-beige, and soft gray tones, has a pattern of embossed diagonals and crossing filaments that seem to shimmer as viewing angles change. Gold Bond Building Products, Charlotte, N. C.
Circle 308 on reader service card



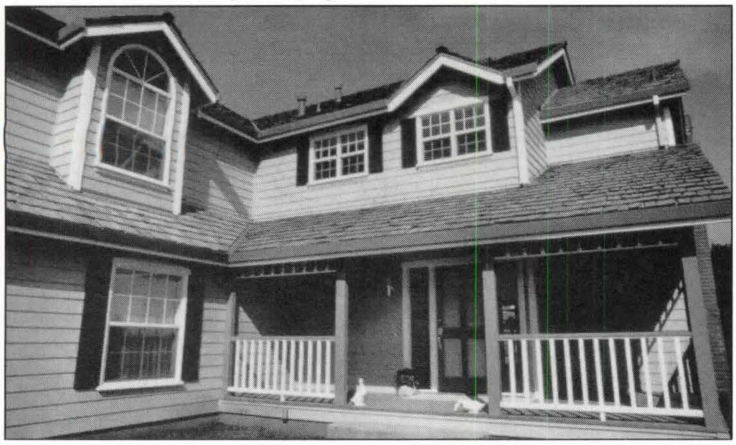
ainless-steel sink
ne Nobel kitchen sink features curved bowl shape, said to ovide the largest capacity thin a given overall dimension: is 38- by 22-in. unit will fit a 36-in. sink cabinet. Both single- and double-bowl sinks are included in the line. Franke, Inc., Hatfield, Pa.
Circle 309 on reader service card



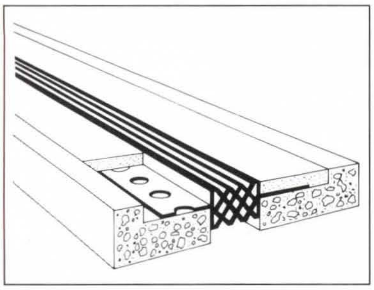
Roof fastener
Made of Zytel hard nylon, the Rawlite fastener is said to install quickly in lightweight roof decks with excellent holding power and backout torque. The steel plate used for insulation or single-ply membrane has a one-way rachet that allows the locking tabs of the fastener to rotate clockwise only. The Rawlplug Co., Inc., New Rochelle, N. Y.
Circle 310 on reader service card

More products on page 158

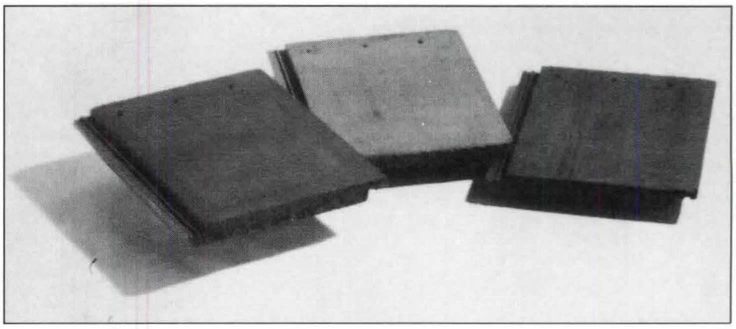
Products continued from page 157



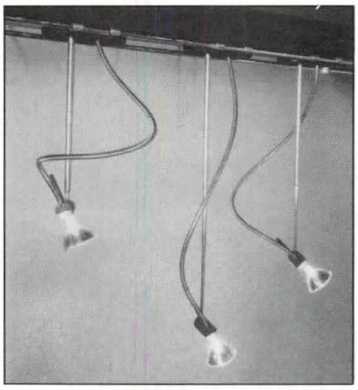
Economy wood windows
A new narrow-frame wood line that includes single-hung, slider, and round-top windows, NorthStar windows are said to be easy to install and priced competitively. The low-maintenance, factory-applied exterior finish comes in white, beige, earth-tone, or bronze. WENCO, Mount Vernon, Ohio.
Circle 311 on reader service card



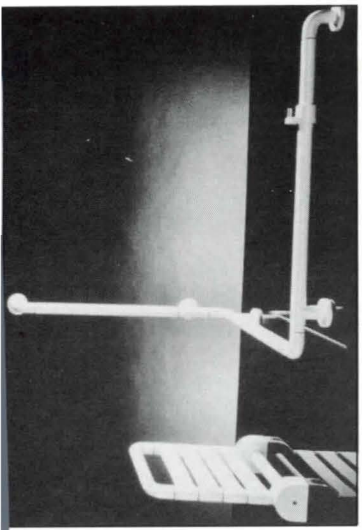
Deck expansion joint
For traffic-bearing decks, the Therma-Flex Polycrete joint has perforated flanges capable of being permanently embedded in nosing mortar and a flexible standard web compression seal. Emseal Joint Systems, Ltd., Stamford, Conn.
Circle 312 on reader service card



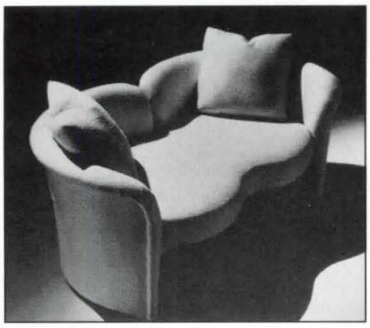
Concrete roof tiles
Monarch roof tiles are made of integrally colored concrete, in blended shades of red, gray, and brown. Tiles within each color range are randomly sorted at the factory to eliminate color shading problems on the installed roof. Available in the Western states, Monarch concrete tiles carry a 50-year performance warranty. Marley Roof Tile Corp., Hollister, Calif.
Circle 313 on reader service card



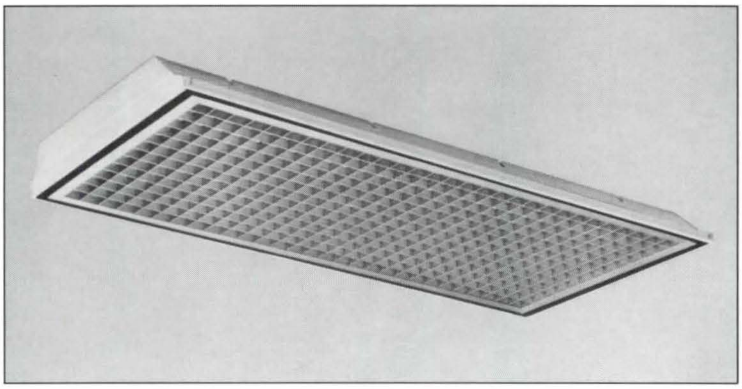
Low-voltage track lighting
The Light Rayl system consists of field-cuttable rails that carry 12-volt current from a remote transformer to MR-16 lamps set on telescoping arms. Each light can be adjusted to within 18 in. of the ceiling, can be moved to any point on the rail, and can be rotated over 360 deg. Geo International, New York City.
Circle 314 on reader service card



olding shower seat
art of this German maker's
ew "support program" for the
lderly and handicapped, a fold-
p shower seat made of steel-
einforced tubular nylon comes
12 colors, which coordinate
ith textured-nylon grab bars.
ormbau, Inc., Addison, Ill.
ircle 315 on reader service card



Loveseat/settee
Furniture designer Randy Culler describes his new upholstered piece for Thayer Coggin Institutional as an updated version of the Victorian settee. Appropriately called "Tete-a-Tete", the wood-framed sofa back can be slid easily from a closed, sofa position to a double-sided, loveseat configuration. RCR Development Corp., High Point, N. C.
Circle 316 on reader service card



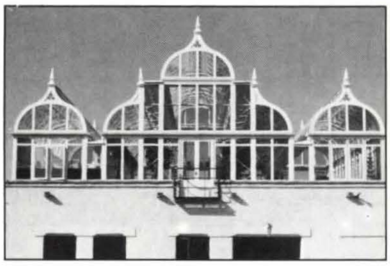
Electronic sensor faucet
Built for high-volume commercial use in transportation, restaurant, and health-care facilities, the Hands Free faucet has an infrared-activated solenoid valve that dispenses a flow of preset-temperature water as needed. Central Brass Mfg. Co., Cleveland.
Circle 317 on reader service card

Low-brightness fluorescent
Described as an especially shallow luminaire ideal for minimal-depth plenums, the Designer VDT-CF-15 specular aluminum louver is said to eliminate glare in VDT environments, while delivering 66 fc at 1.4W psf. It is available in static, heat-transfer, and supply/return models. Day-Brite Lighting Co., Tupelo, Miss.
Circle 318 on reader service card

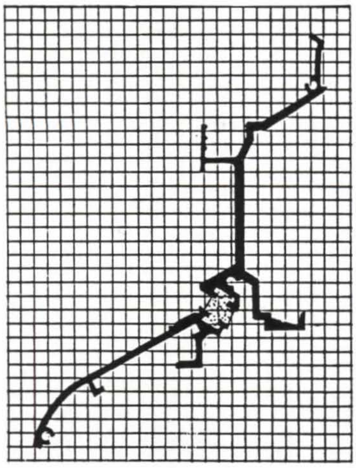
More products on page 160

MACHIN

Architecture in glass



In 1986 we created this fantasy in glass and aluminum



We also designed extrusion MD6

One of fifteen new extrusions created in 1986 used in Machin Conservatories. Fifteen out of 2000 different components each designed with the enthusiasm, innovation and refinement that distinguish the extraordinary from the commonplace and take our architecture into the next century.

Every day we are exploring and developing new technologies and principles with the same uncompromising commitment to excellence and the continuity of an outstanding style.

Whether you want to build a fantasy or a future (or both) *there* are over 2000 ways we can help you.

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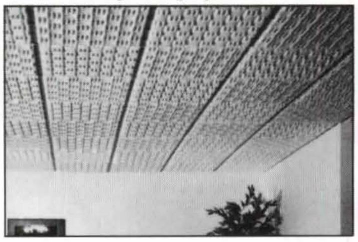
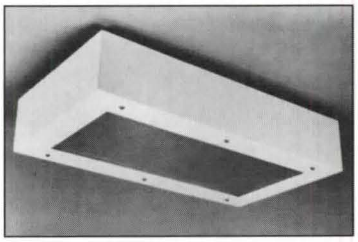
Continued from page 159



Acoustic ceiling
The Sonex acoustical ceiling, made of flame-resistant melamine resin foam that meets all Class 1 codes, is available in a new alternating anechoic-wedge design. Ceiling tiles in white, beige, or gray come in a 24- by 24-in. size that fits all standard and fine-line suspension grids. Illbruck, Minneapolis.
Circle 319 on reader service card

High-back sled-base
Peter Buhk has designed a pull-up version of his 100 Series seating, with 9 finish options for its aluminum frame. The chair comes in high- and low-back styles. Allsteel Inc., Aurora, Ill.
Circle 320 on reader service card



Maximum-security light
The optical design and low-glare lens of the Maxim task light provide a 20-fc light level with only two fluorescent lamps. The compact fixture comes in ceiling- (shown), wall-, or corner-mount models; all components are durable enough for close-custody detention units. Holophane Div., Manville, Newark, Ohio.
Circle 321 on reader service card

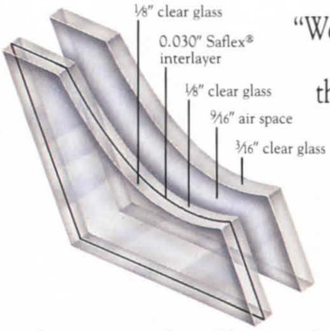
More products on page 163

Architect John Minden on sound control with laminated glass.

"We knew this site had a severe traffic noise problem. But we wanted this to be a quality development. So did our client.

"We considered a triple glazing system. But it just didn't have enough sound control. Our glazier recommended laminated glass, so I called Monsanto to get more information.

"They sent me their Acoustical Glazing Design Guide, and the software to go with it. That helped me get the configuration I wanted.



"We're happy with the results. It's a nice development. With apartments that are very leasable . . . and that makes our clients happy.

"In fact, the only complaint I've heard so far is that the installers can't hear each other through the windows."

John Minden, AIA
GMS Architectural Group
Bellevue, Washington

Architect's rendering of Victorian Apartments in Seattle, Washington.

Circle 72 on inquiry card

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 r good architecture on the other.

The solution: windows of laminated architectural glass with Saflex® plastic interlayer, like these being stalled 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 py 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.

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3-100

Yes, please send me free information on laminated glass for sound control.
☐ Send the Acoustical Glazing Design Guide.
☐ Send the computer disk.
NAME ____________
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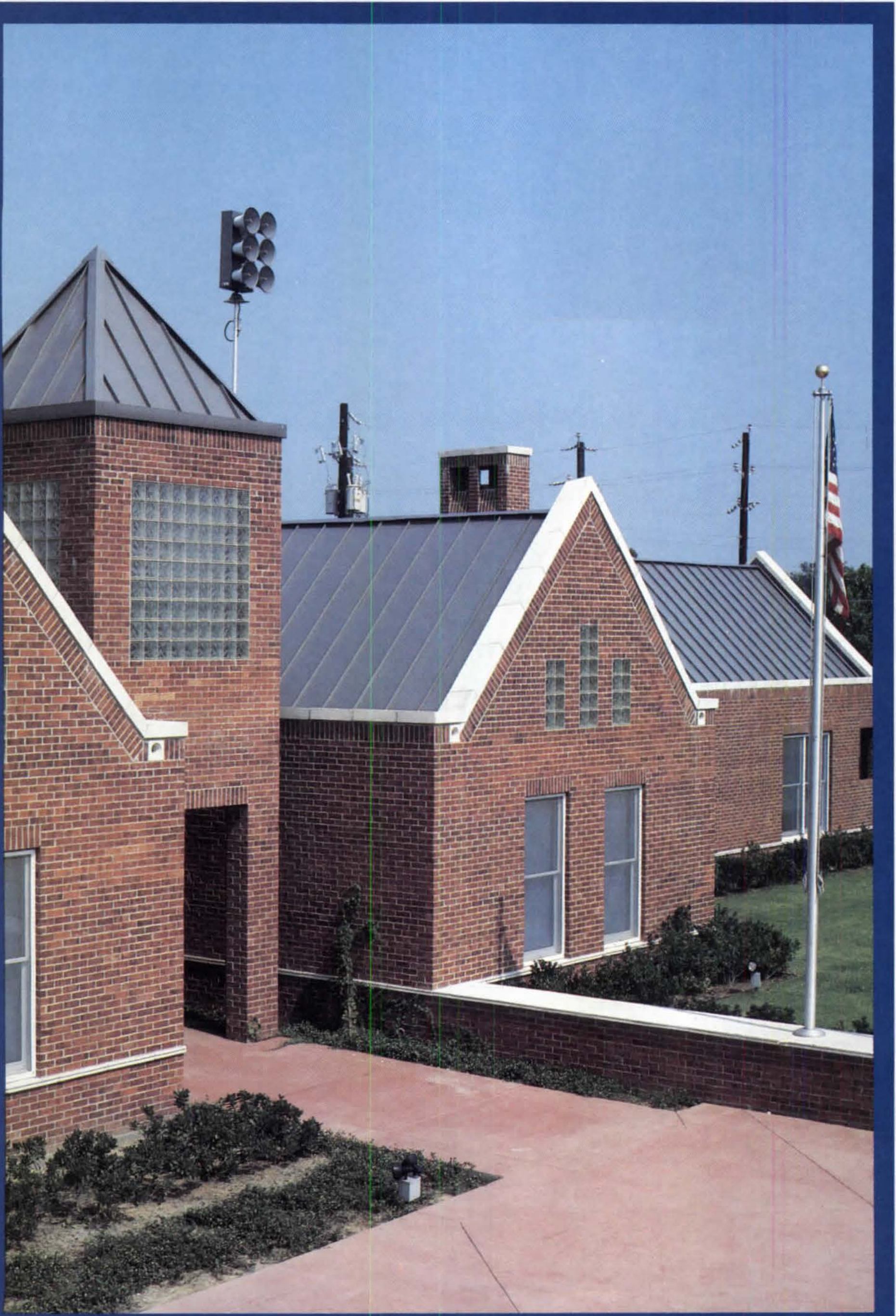

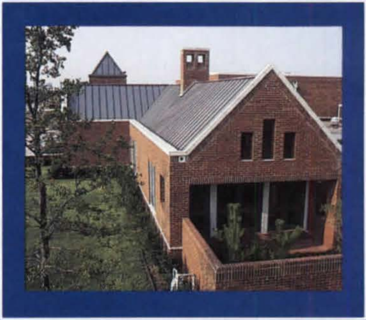

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Architect: *Dillard Architects, Inc., Dallas, Texas*
Project: *Fire Station #2, Coppell, Texas*

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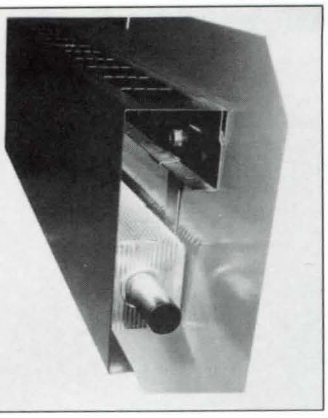
roducts continued from page 160



ow-profile heat enclosures
he Thinvector perimeter eating enclosure consists of 3/4- n. copper tubing and 2- by 3 1/4- n. aluminum fins in a low-rofile, wall-mounted steel xture. The enclosure is vailable with eight different aked enamel finishes. Dunham-ush, Inc., Commercial Products ivision, Harrisonburg, Va.
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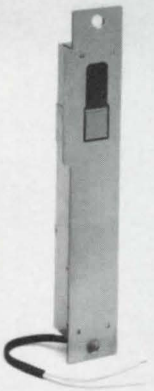
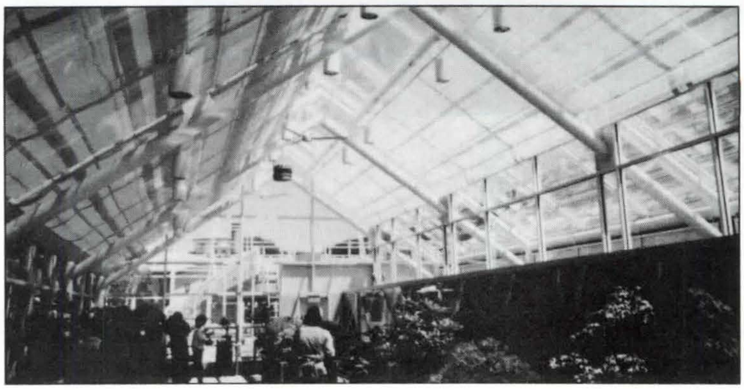


ccess control
ne manufacturer has troduced the Series 8800 Slim-em Operator, a smaller version its electronic-access control stem. The controller is ailable in 1 1/4-, 1 1/2-, and 3/4-in. sizes for installation on llow metal or wood door ames. Architectural Control stems, Inc., St. Louis
rcle 323 on reader service card



Shade for a greenhouse
Sol-R-Veil, Inc., which makes screens, and Somfy Systems, Inc., which make controls for automated windows, jointly produced a shading system for the Brooklyn Botanical Garden's new greenhouse. Somfy Systems, Inc., Edison, N. J.
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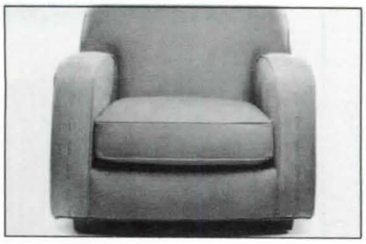

Easy chairs
The Salon Series, designed by Gary Lee, comprises three upholstered club chairs, including one detailed with embossing and woven stitching. Niedermaier Contract Furniture, Chicago.
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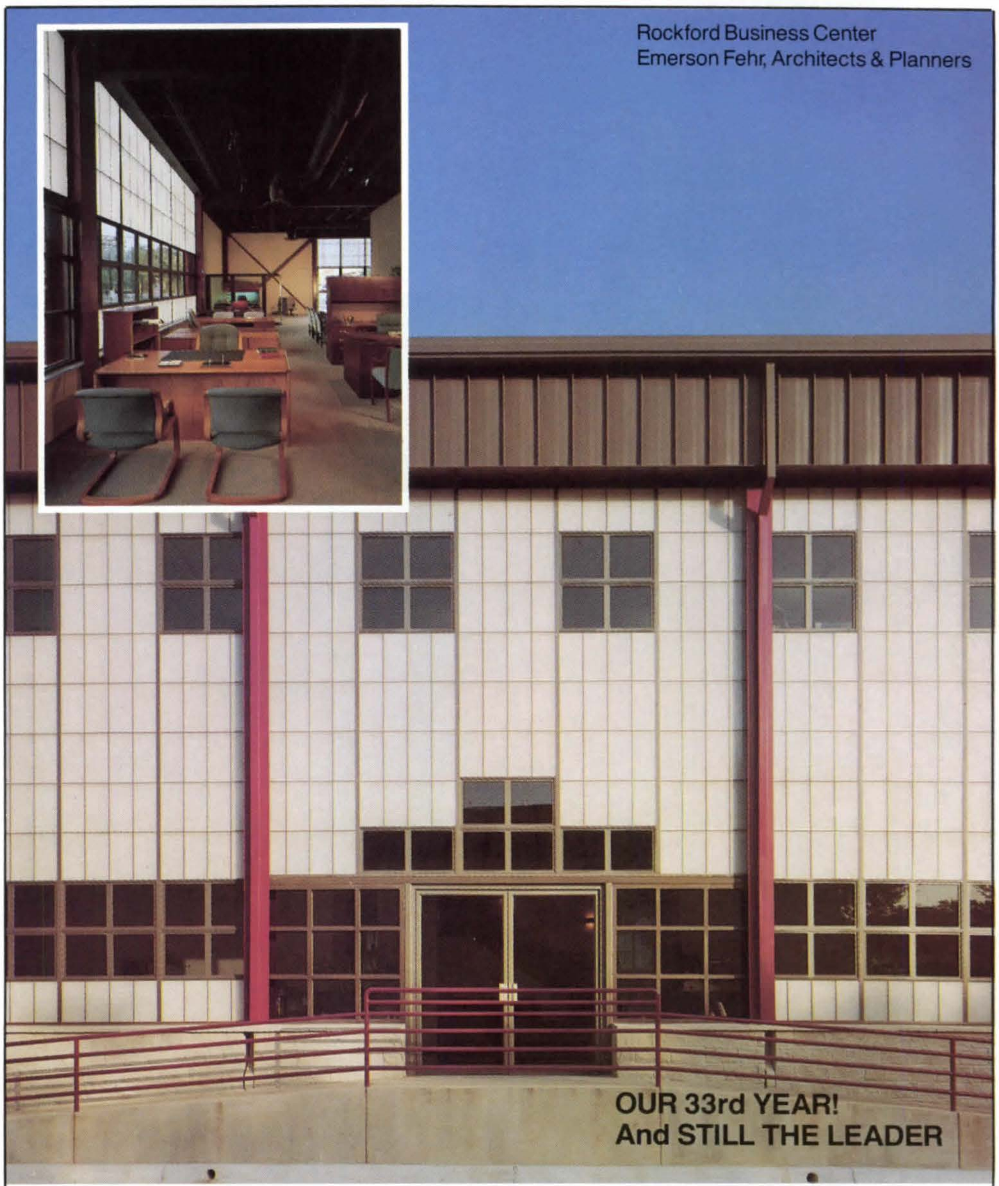
More products on page 165



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000 comes ready-mixed, and can
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he sealant is nontoxic and
leans up with water. Protective
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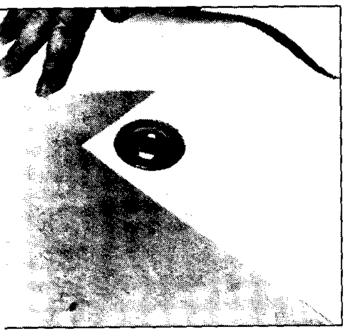

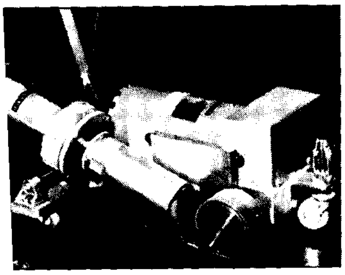

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the most oil- and chemical-
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to), and needs no adhesives,
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ıgation of over 500 percent
it conform to roof contours
resist tears at the covered
eners. Syenergy Methods,
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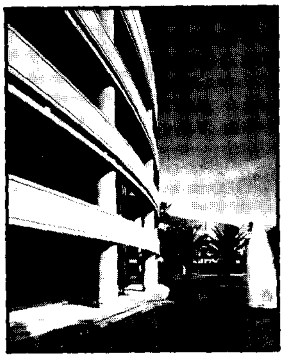

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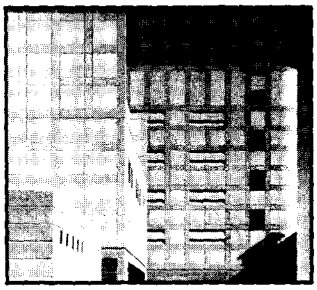
Smallwood, Reynolds,
Stewart, Stewart & Associates



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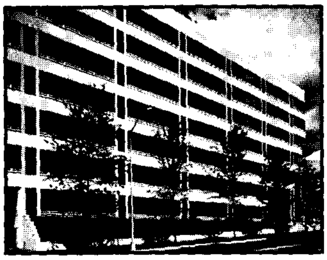

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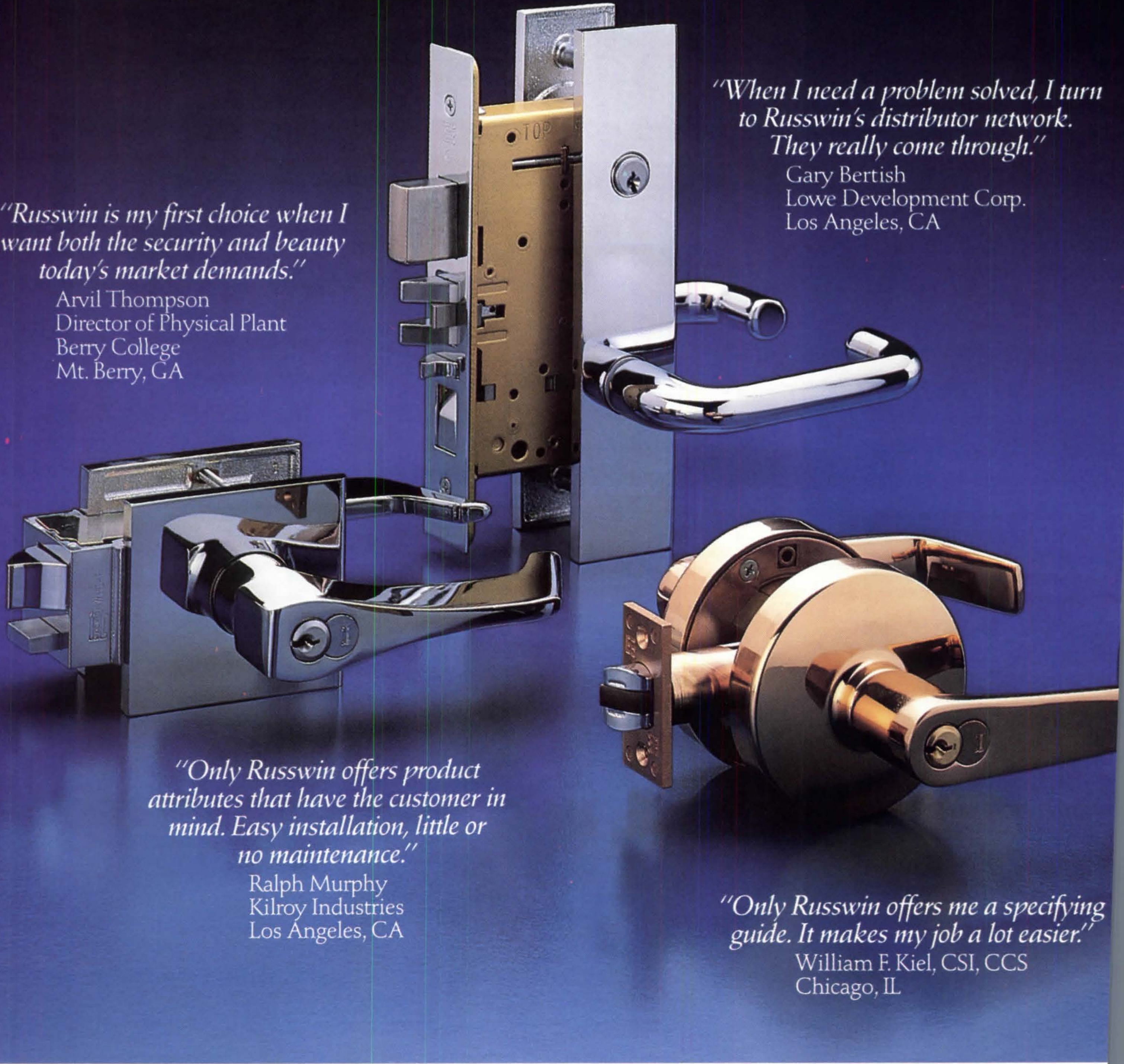

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Pages 82-87
Summit Green
Gwathmey Siegel & Associates Architects
Aluminum-framed curtain wall, storefront windows, and entrance: Vistawall Architectural Products. Reflective, clear, and white spandrel glazing: Ballenger Glass. Ceramic tile: Gail International Corp. Panel system: David Allen Co. Glass block: Pittsburgh Corning Corp. (Vue; Decora). Porcelain enamel panels: Miller Clatterton. Membrane EPDM roofing: Carlisle SynTec Systems. Exterior luminaires: Stonco Lighting.

Pages 106-107
Talbots Distribution Center
Symmes Maini & McKee Associates, Inc., Architects
Metal cladding panels: E. G. Smith (Foamwall). Curtainwall/ torefronts: PPG Industries, Inc. Reflective glazing: Libbey-Owens- ord Co. (MirrorPane). Pavers: deal Concrete Block. Metal ntrance doors: custom by owner, abricated by Centco. Bollard ighting: Hubbell Lighting Div. Magnaform II). Pond fountain: Otterbane Barebo Inc. (Rocket). ond liner: Staff Industries. **age 107**—(bottom) High-bay ghting: Sylvania Lighting oducts. Conveyor/pick system: gan. Mezzanine systems: erlake. Trusses/web joists: nam Steel Corp. Paints: Devoe Raynolds Co.

ges 108-111
y of Edmond
ter Treatment Plant
B, Inc.
hitects Engineers Planners
al roofing: Zip-Rib, Inc.

rces continued on page 176

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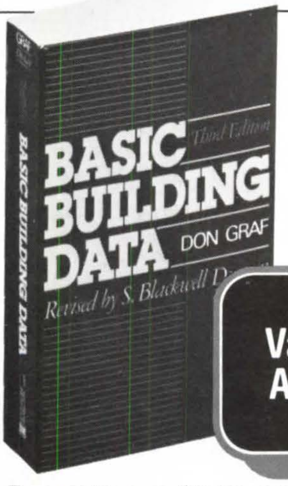

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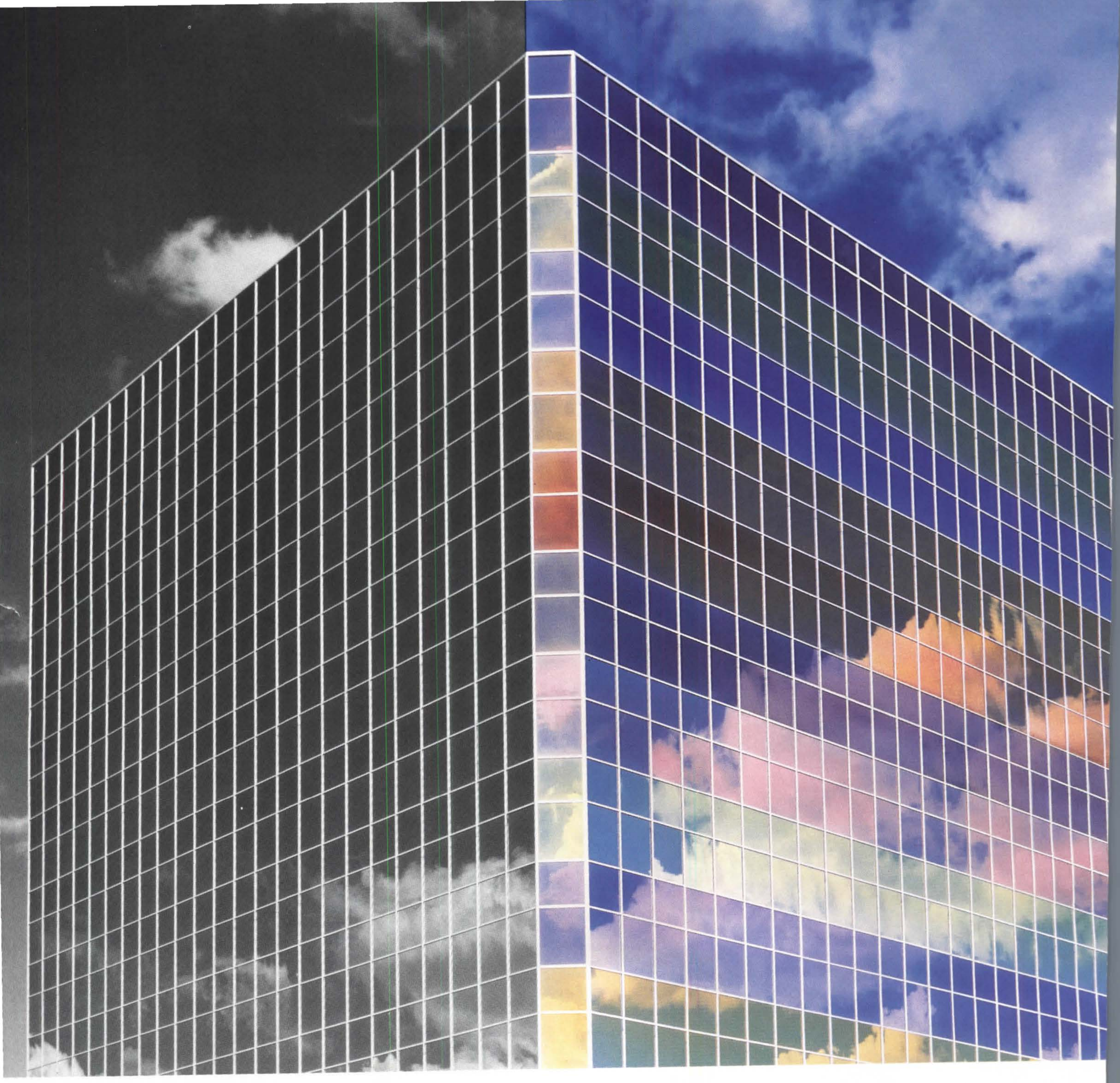

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Mr. John Barry
Assistant Director — Capital Budget
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New York City Health & Hospitals Corporation
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(212) 566-8859

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Pages 112-113
Franklin Township Technical Center
Beckhard Richlan/Brandt-Kubida, joint venture architects
Precast concrete panels: Beavertown. Windows and doors: Kawneer Co., Inc. Wall-mount lighting: Trimblehouse Corp. Pavers: Merritt Brick Co.

Pages 120-129
National Gallery of Canada
Moshe Safdie-Design Architect
Parkin/Safdie Architects and Planners.
Pages 120-123—Atrium framing: Ford Motor Co., Glass Div.; IBG Co. Tinted glass: Ford Motor Co., Glass Div. Laminate interlayer: Monsanto Co. (Saflex). Stone cladding on facade: Tadoussac Granite. Architectural precast coping: Schokbeton Quebec, Inc. Stainless-steel entrance: C. J. Rus Inc. Pavers: Ottawa Precast.
Page 126—Fabric sun baffles: Mecho Shade Co. Pendant lightin Metallumen, Inc. Stone paving: Granicore. Recessed lighting: Lightolier.
Page 128—Railings: Mometal, In Track lighting: Metallumen, Inc. Cast-gypsum vaulted ceiling: Formglass. Paint: Pratt & Lambert, Inc. Light diffusing screens at skylight: General Electric Plastics (Lexan). Wall covering: Stretch Wall Canada. Fabric: Scalamandrè.


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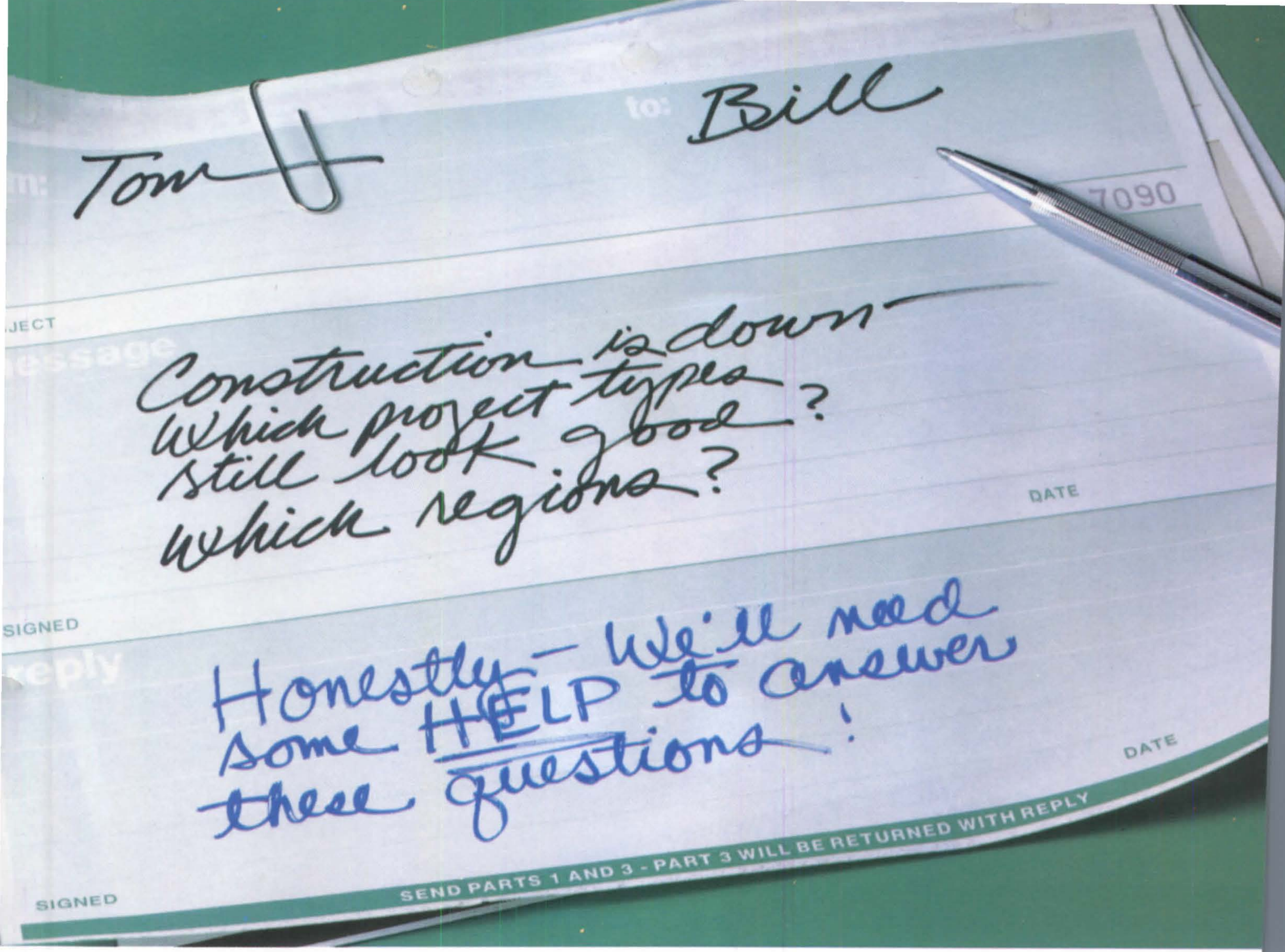

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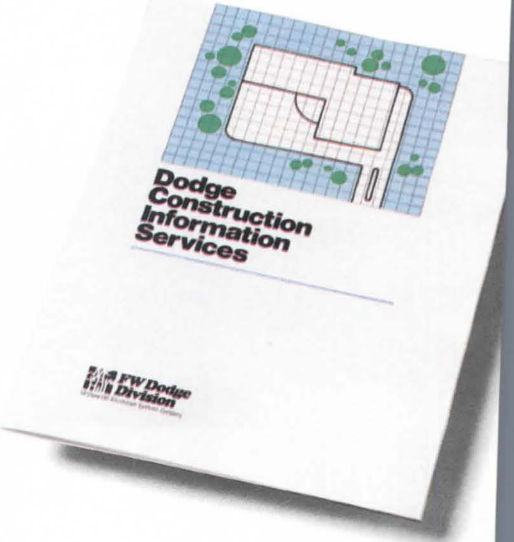

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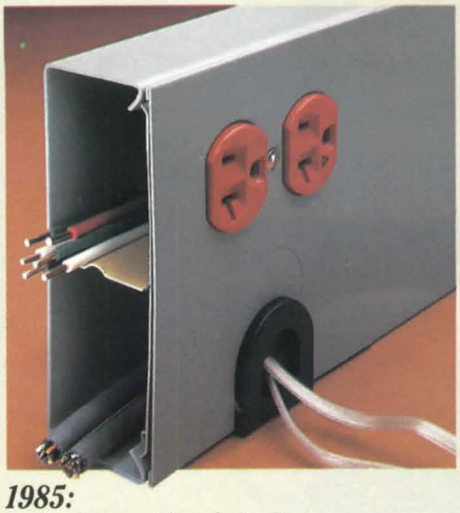

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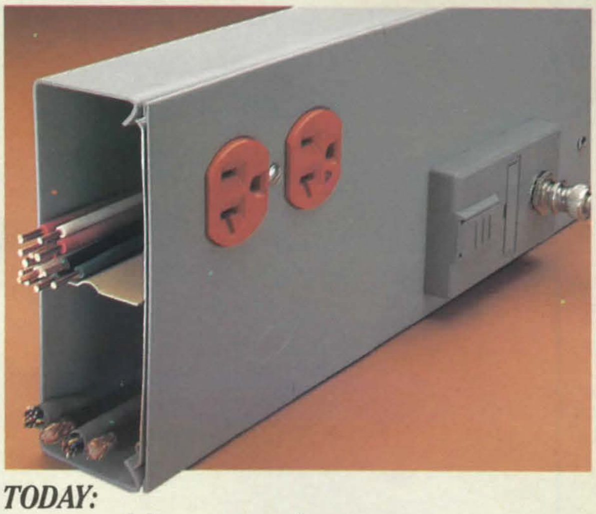

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John Sorce is Senior Director of Architecture for Reynolds Smith & Hills, a Jacksonville, FL architectural, engineering and planning firm with over 1600 employees. Founded in 1941, Reynolds Smith & Hills has recently become one of the Hunter Companies.

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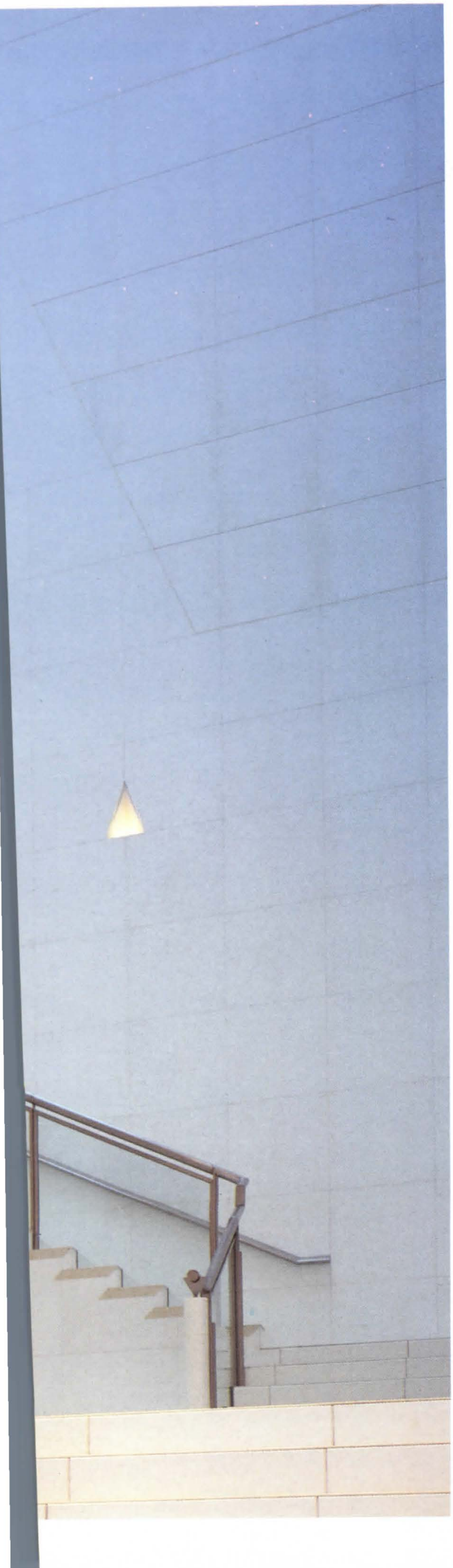
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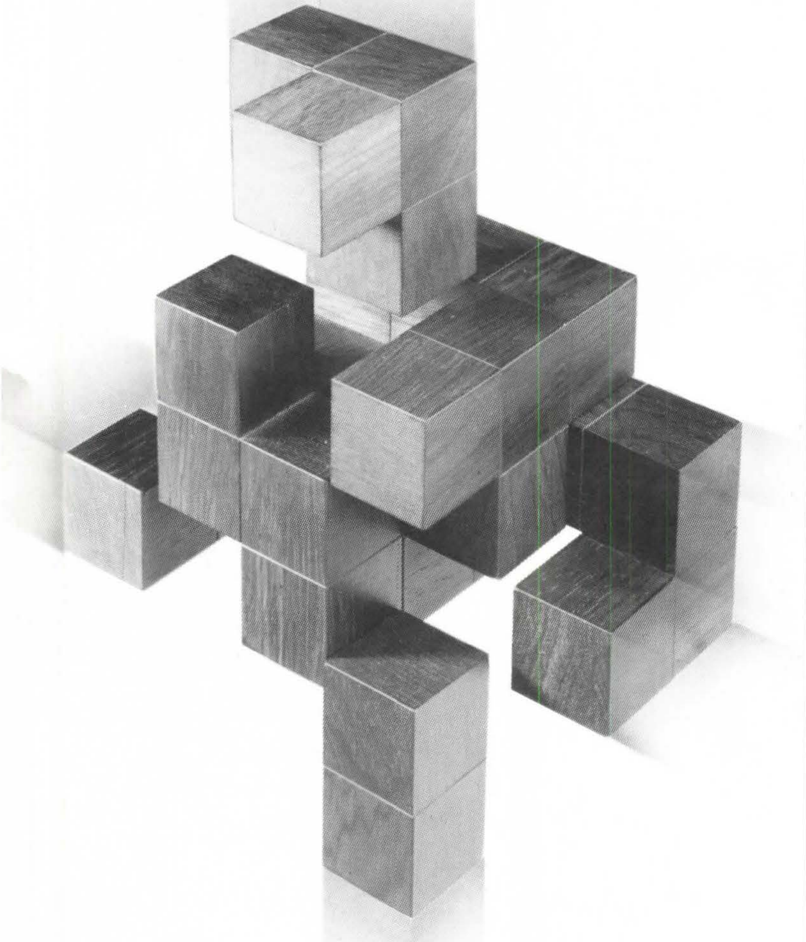

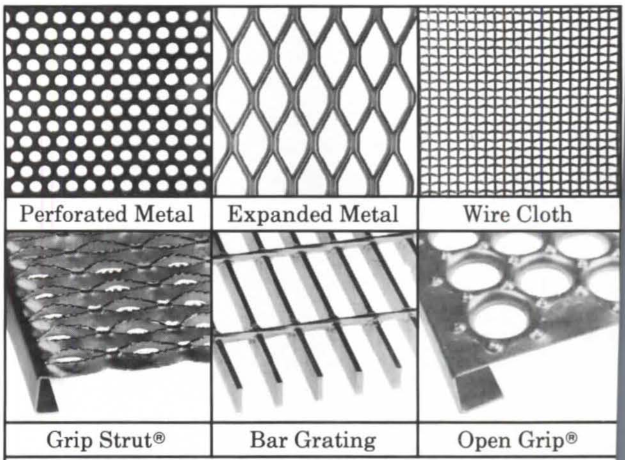
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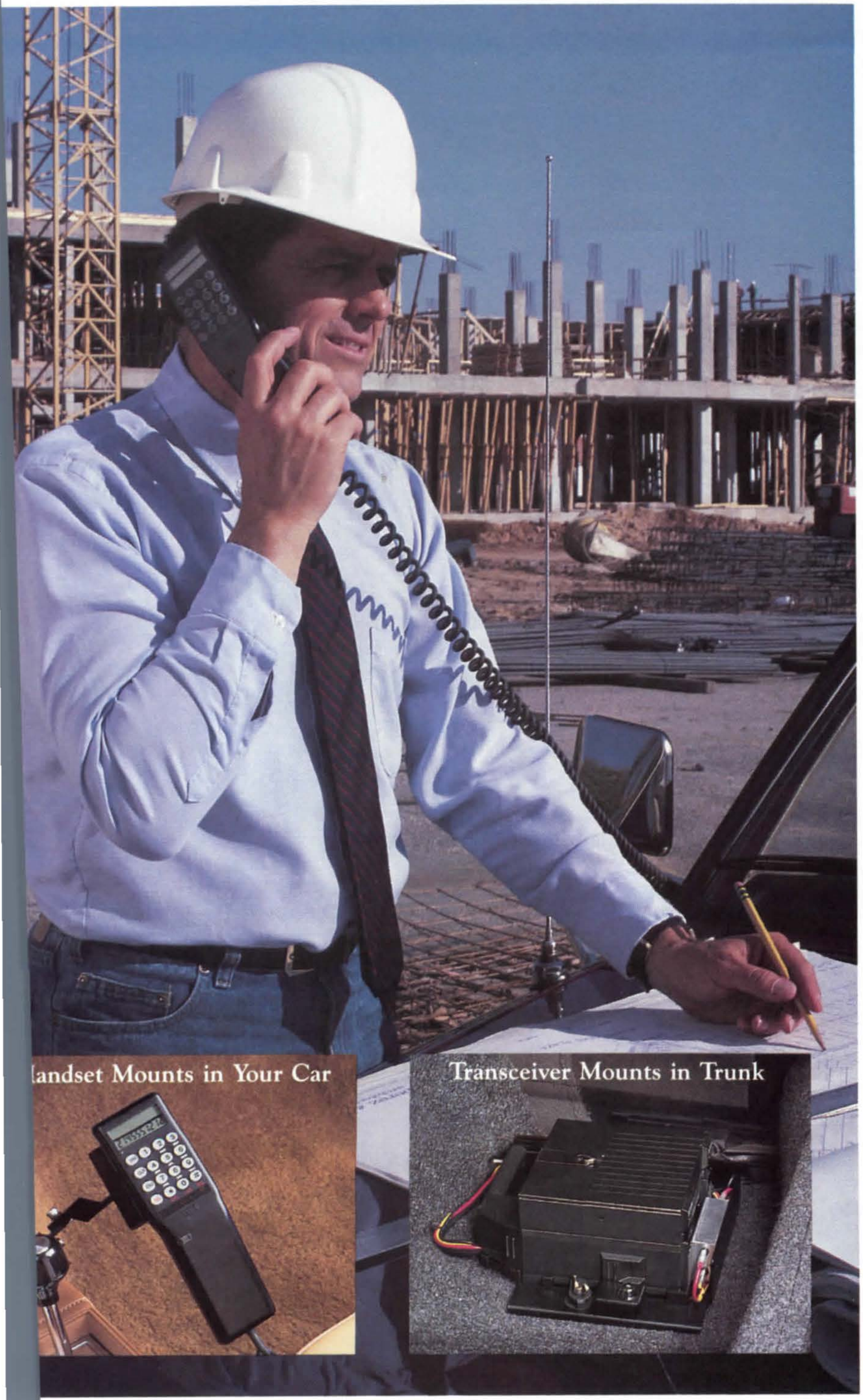

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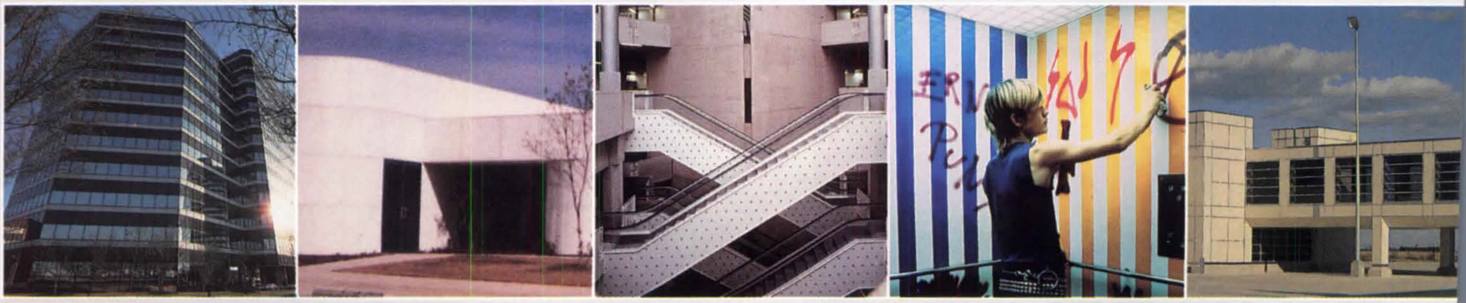


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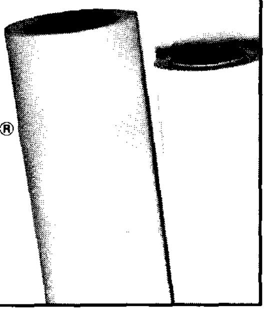
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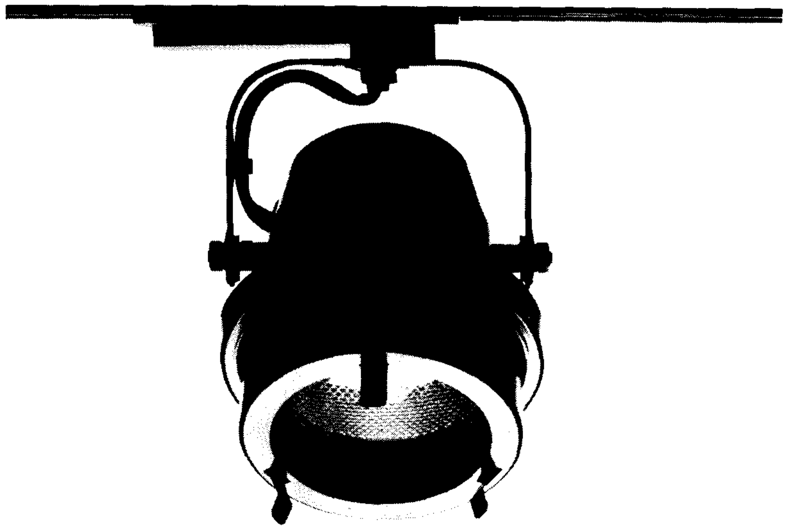

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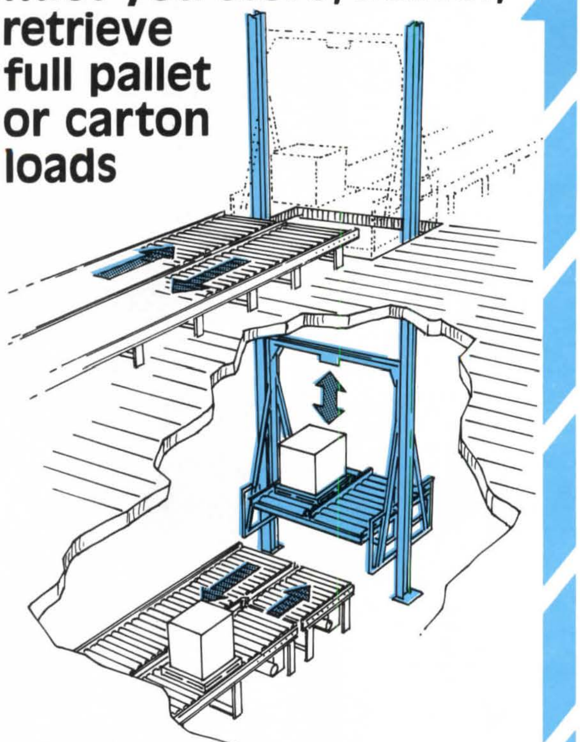

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