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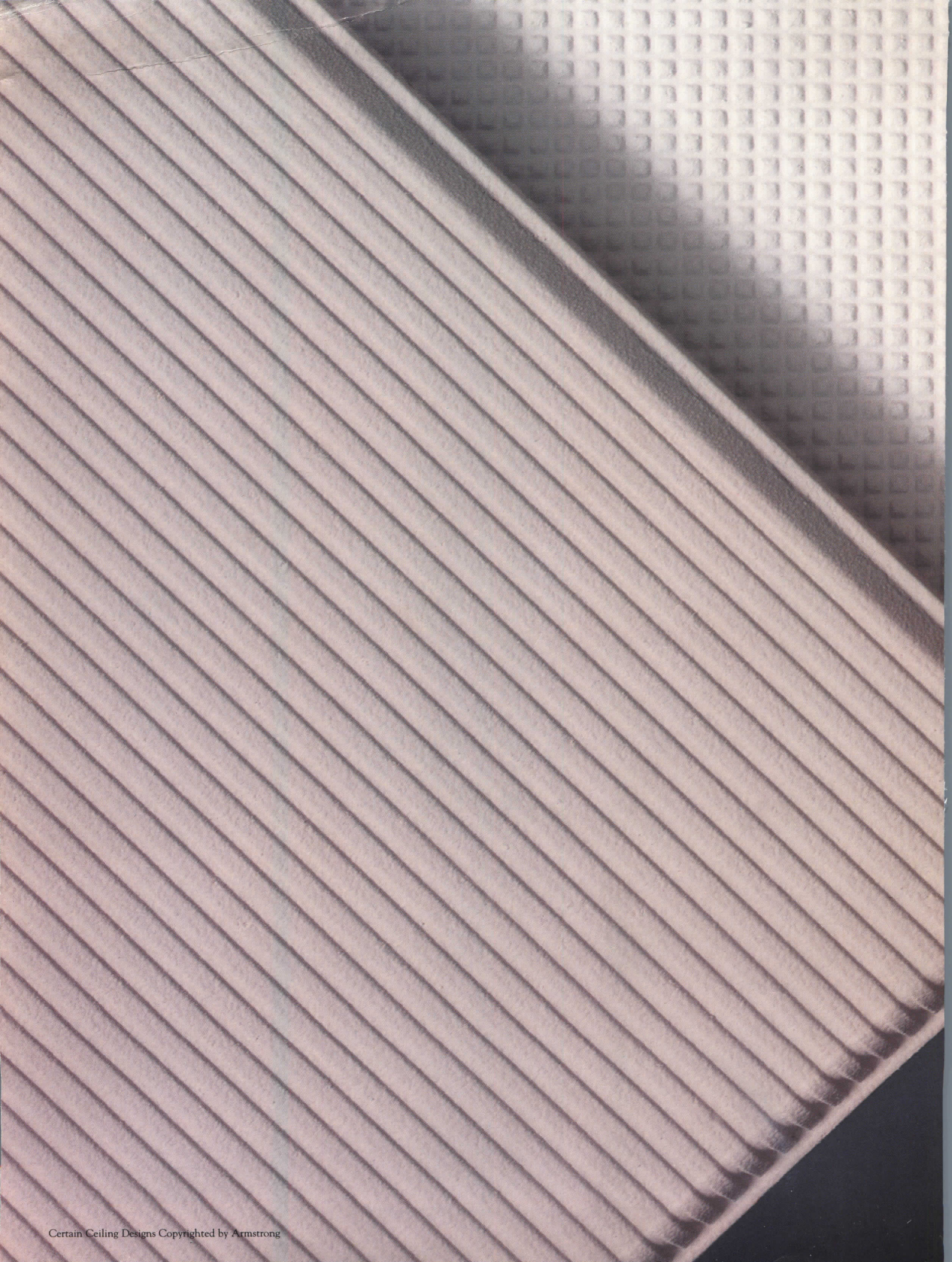

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Kurfürstendamm office building, West Berlin
Zaha Hadid, Architect

Letters

Please excuse my delay in acknowledging and thanking you for the "pro bono" editorial [RECORD, March 1987, page 9], which was personally gratifying—but that is beside the point. Your purpose, of course, was to endorse and reinforce any serious efforts by practicing architects to address the burgeoning problems of human shelter in this country and throughout the world. We cannot accomplish much, but every little bit helps.

In spite of our firm's proffer of service through letters to the pastors of 104 churches in our area, the response from the target group has been rather limited. Many of the low-income people continue to be leery about visiting an architectural office, but our spring weather and the need to fix up winter damage is starting to bring some free-clinic clients.

You may be amused to know that just a week ago a man came with photos of a small, recently purchased house, seeking advice on adding a carport and a roof overhang to control sun on the south side. He had visited the library of the Virginia Tech College of Architecture and had seen your editorial, which led him to my office. Surprisingly, he missed an article about our service in the local paper, but he saw your editorial in the library. (I thought that he looked familiar. In response to my query, he said that he worked as a barber at a shop near our office. At this point, I reminded him that he had cut my hair a few days earlier.)

Leonard J. Currie, FAIA
Blacksburg, Virginia

In writing about KPF [RECORD, February 1987, pages 126-135], your reporter speaks of the "correctness" of the Sullivan precept that a tall building should have a base, shaft, and capital. Things are rather less simple, and one has only to look a couple of blocks north of 383 Madison to the RCA building to appreciate that there is more than one "correct" formal precept for designing tall buildings. RCA remains one of the noblest forms in New York, and one whose strength and originality may well outlast the current fashions. Further, its massing largely derives from currently abhorred notions of form and function, in this case a conscious expression of the diminishing volume of the vertical transportation. Above all, its vertical masses spring from the ground rather than a base, and meet the sky not with a capital (hardly necessary to support air) but with a subtle feathering of elements. All quite contrary to Sullivan.

Your writer goes on to talk of "nonesthetic" considerations such as "structural shaping" to resolve wind loads. Surely this misses the essence of architecture (as opposed to decoration), which is to transform all the pertinent elements into an integrated esthetic. Complex wind loadings are the most important single factor in the art of constructing tall buildings, and to sweep it under a Neoclassical rug is probably against Vitruvian principles.

James Kingsland, AIA
New York City

April fool!

You pulled one over on me! I thought the cover on your April 1987 issue was an example of the month's Building Types Study (correctional facilities). I was both amused and chagrined to discover it was a school. By contrast, some of the correctional facilities featured are more conducive to education than some of the public schools that I attended.

Ironically, the visiting area of the Philadelphia Industrial Correction Center was comfortably designed (and rightly so) to keep "children visiting inmate fathers [from being] traumatized by their physical surroundings." Yet Gian-Carlo Durisch's middle school depicted on the cover appears more like a maximum-security detention facility than any of the buildings featured in the month's Building Types Study.

Has our architectural vocabulary entered an era of Orwellian double-speak, or were the photos and texts mixed up?

Thomas E. Christian
Alden W. Barstad AIA Architect & Associates, Inc.
Salinas, California

I took a look at the cover of the April 1987 RECORD, turned the magazine to the outside where it said "correctional facilities," and thought, "They just can't do anything to make these jails more attractive, can they?"

Patrick Shaw
Shaw and Associates, Inc.
Architects Planners
Chicago

We knew what we were doing. As always, we used the photo that we thought made the best-looking cover. It is from the Ticino story, not the correctional facilities study. But it does look a bit prisonlike.—Ed.

Calendar

Through July 2
Zaha Hadid: Architectural Drawings; at Max Protetch galleries, 37 W. 57th St., New York City.

June 9-12
NEOCON 19, the World Congress on Environmental Planning and Design; at the Merchandise Mart and Expocenter, Chicago.

June 14-19
"Success & Failure," the 37th International Design Conference in Aspen; in Aspen, Colo. For information: Colleen Collins, International Design Conference in Aspen, c/o Lalli Associates, Inc., 157 W. 12th St., New York, N. Y. 10011 (212/206-8816).

June 17-20
1987 Pacific Coast Builders Conference; at Moscone Center, San Francisco. For information: PCBC, 605 Market St., San Francisco, Calif. 94105 (415/543-2600).

June 17-22
"Making Cities Livable," Third International Conference sponsored by Center for Urban Well Being; in Venice, Italy. For information: Fred Volkmer (516/283-4787).

June 19-22
"Architecture '87: Fact, Future + Fantasy," American Institute of Architects' convention; in Orlando, Fla. For information: Laurie Anderson, AIA, 1735 New York Ave., N. W., Washington, D. C. 20006 (202/626-7572).

June 23-26
A/E/C Systems '87, the Eighth International Computer and Management Show for the Design and Construction Industry; at the Convention Center, Washington, D. C. For information: A/E/C Systems '87, P. O. Box 11318, Newington, Conn. 06111 (800/445-7790).

June 26-28
Construction Specifications Institute annual convention; in Detroit. For information: CSI, 601 Madison St., Alexandria, Va. 22314 (800/424-5499).

June 26 through July 1
80th annual convention, Building Owners and Managers, and The Office Building Show; at Metro Toronto Convention Centre, Toronto. For information: Charles T. Glazer, BOMA International, 1250 I St. N. W., Washington, D. C. 20005 (202/289-7000).

June 30 through September 20
Robert Adam and Kedleston Hall: The Making of a Neo-Classical Masterpiece, an exhibit including full-color drawings by Adam; at the Cooper-Hewitt Museum, New York City.

July 10 through October 12
John La Farge, an exhibit of paintings, graphics, and stained glass; at the Smithsonian Institution's National Museum of American Art, Washington, D. C.

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Preservation and Postmodernism: A common cause?

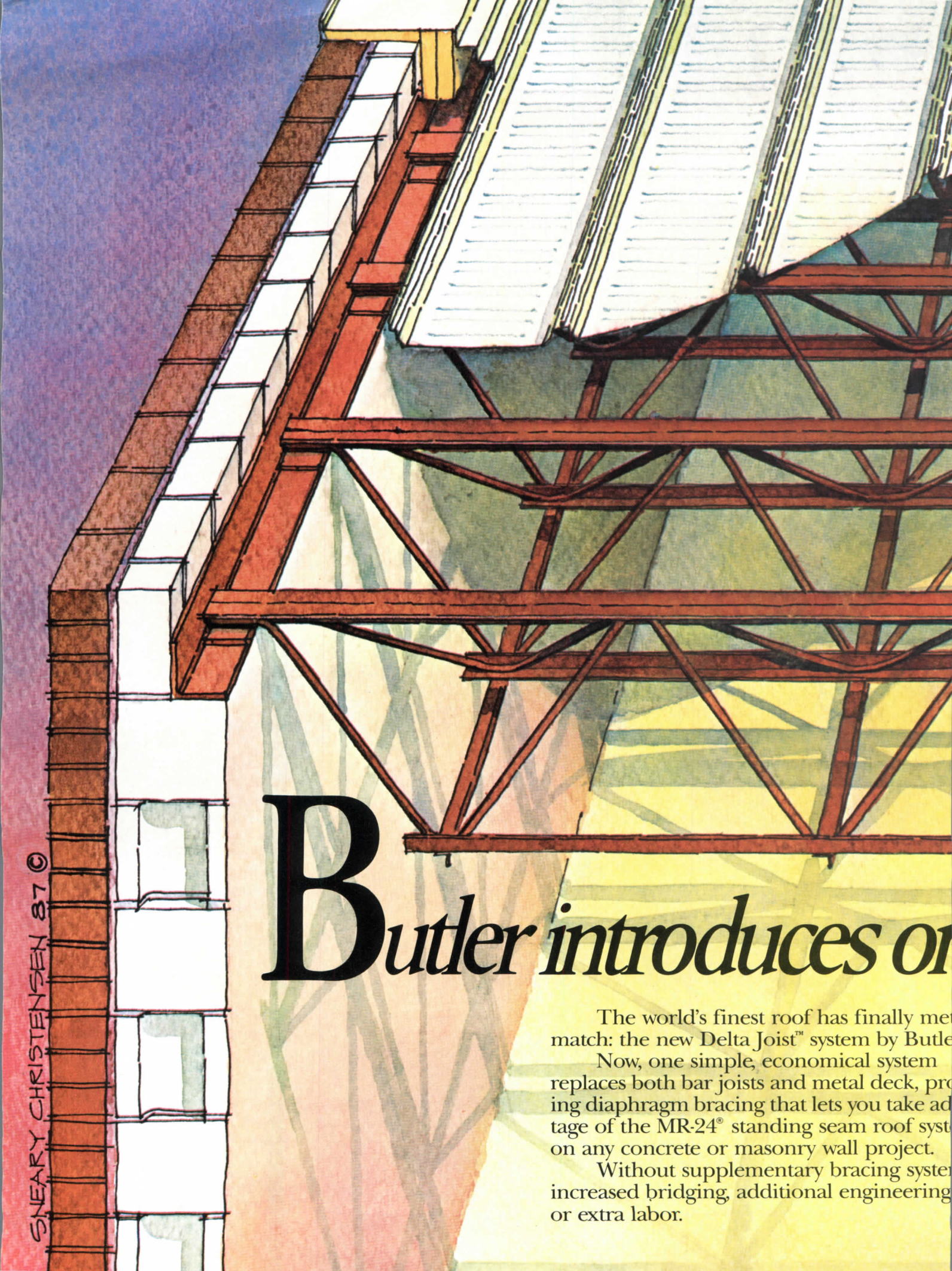
The historic preservation movement has lost its momentum, due for the most part to the new tax law changes. Concerned is architect George M. Notter, whose firm, Notter Finegold + Alexander Inc., is well known for its work in the fields of preservation and adaptive reuse. Also looking for new ways to fight for old buildings are preservationists like Nellie Longsworth, president of Preservation Action in Washington, D. C. Last month in Boston, in celebration of the 25th anniversary of his firm, Notter sponsored a public seminar titled: "Was Postmodernism the heir to the preservation movement? What will come next?" Grappling with these oddly paired questions were Notter, a few architectural principals from competing firms, some architectural journalists, including myself, planner Edward Logue, developer Ron Drucker, Harvard Graduate School of Design's architecture chairman, Rafael Moneo, and Nellie Longsworth.

Notter made the first tentative connections between Postmodernism and preservation: "They both share a certain spirit. Both speak to the past, but both must work in the present. In new work, architects may suggest the past; in old buildings, architects must find it and bring it back to life again. Why have these two movements burst upon us at the same time, and how do they affect each other?" Moderator Robert Campbell, architectural critic of *The Boston Globe*, and David Dillon, of *The Dallas Morning News*, made further definitions. Campbell: "Both were essentially rebellions against Modernism. Both rose in the mid-'60s as a reaction to urban renewal. Preservation was a rebellion against too much change too quickly and a loss of a sense of place. Postmodernism was a rebellion against abstraction." Dillon: "Postmodern architecture is the creation of architects and architectural critics. Preservation has remained connected with popular culture, politics, tax credits, and Congress."

Jane Thompson, of Benjamin Thompson and Associates, Inc., was the first to challenge fully Notter's hypothesis, calling any relationship between the two movements an unholy alliance: "Imagine that I have a daughter, little Preservationia, who is being wooed by Postmodern. What would I tell her about her swain? 'You should be wary of this parvenu,' I would say, 'He comes pretending to love your family and to honor your grandfather, but in truth he is only after your inheritance.' " Jane Holtz Kay, architectural critic for *The Nation*, made the distinction that "the camouflaging of gross scale is the kind of Postmodernism that everyone is upset about. You can go as high and as big as you want, as long as you wallpaper it with a little memento of the past." Nellie Longsworth also took a dim view of the proposition that Postmodernism could be preservation's savior, calling it a terrible threat: "What they are doing is saving only facades, with new construction behind. Such facades have no historic relevance." Campbell, ever helpful: "What is being saved is the slide, from the art-history lecture on that building."

Ed Logue broadened the subject: "Urban architecture is a part of the public realm and must be protected by sturdy guidelines for preservation and development. You cannot trust architects and developers to protect the public interest. The Boston Society of Architects should have an award for the architectural firm that has had the guts to turn a commission down because it is too outrageous." Following Logue, Ron Drucker (a perpetrator of outrageous commissions?) played the heavy: "My buildings are a product. They are products like Scotch Tape is a product, or Saran Wrap. The packaging of that product is the first thing that people see. I am selling space and renting space and it has to be in a package that is attractive enough to be financially successful. I can't afford to build monuments because I am not an institution. If my buildings are not successful, my lifestyle will be altered, and I am not interested in doing that. I was recently asked whether or not Boston needed a plan. The problem with long-term legislated development is that it can't react to the times."

The problem is that it must. As Logue pointed out, there is not enough planning in the public interest now, there is little public will affecting the process. Planning today is being done, for the most part, by and for developers. Much was said at the conference about the failure of the Modernist utopian dream, defeated in part by Postmodernism's politically conservative critique of utopian goals. But the retreat from utopia was not begun by Postmodernist theory, but by society, turned conservative, no longer interested in goals beyond its immediate concerns. The retreat was not led by architects; indeed architects are among the leaders in calling for a return of greater public control of the development process. And design guidelines are being formulated and enforced again in San Francisco, Baltimore, and a few other U. S. cities. We can hope. *M.F.S.*



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Low-income high-rises once again discredited

The New York Times

Newark, N. J., once a national leader in securing federal funds to build high-rise apartment buildings that would house its poor, now intends to demolish many of them. In a scenario of deterioration through vandalism and lack of maintenance similar to the one that destroyed the massive Pruitt-Igoe project in St. Louis, four 13-story Newark buildings, containing a total of 800 apartments (left) are scheduled to come down by year's end and seven more to follow shortly thereafter. There are currently some 37 public-housing towers in Newark that, although structurally sound, have been deemed uninhabitable. Indeed, in a city woefully short of enough low-income housing to go around, 60 percent of public high-rise units and 41.2 percent of the 12,930 public units of any type are vacant.

Problems have been blamed on poor management and, most significantly for architects, on trying to adapt conventional standards of space and use allocations to people who may need something quite different. Now, the authority proposes to use another conventional model, the town houses that cover much of New Jersey's suburbs, to replace the towers. It is busy with plans for 225 units and has applications in Washington for another 860.

California's pull-out from NCARB creates problems for local professionals

Now that California has pulled out of the NCARB licensing system and many states will not give reciprocity for that state's architectural license, as many as 40 percent of licensing candidates in California may be going out of state to take the national exam. At least, that's what the NCARB says. Not so, says Stephen P. Sands, California Board of Architectural Examiners executive. "We took a survey of potential candidates and found that, of 2,000 respondents, 800 were considering it. But not more than half would be eligible because the states they picked had residency or experience requirements that would exclude them. So I'm guessing about 200 total." The state board is actually assisting candidates who seek out-of-state licensing. For instance, it is looking for a location for the Nevada board to give its exam right in California.

Furor over embassy security points to tighter screening of architects

There is a little-noted aside to the current uproar over security at both the new (photo below) and the old U. S. embassies in Moscow—two buildings wags have suggested might be better used for broadcasting The Voice of America. The General Accounting Office has issued a report to the effect that security in handling architectural and engineering contract documents for foreign posts is—or, at least, has been—lax.

The report by the GAO, which functions as a Congressional watchdog, says that a review late last year showed that, of 16 architectural and engineering firms then under contract to the State Department to design communications centers at diplomatic posts, 10 did not have the security clearances required by the Department of Defense. Some 49 installations were involved.

The report says the State Department's explanation was that "not all responsible organizations within the department were aware of the security-program requirements."

In an appendix, the GAO explains that overseas posts usually require two architects, one to complete the basic design and the other to design the sensitive communications centers, which contain classified information and equipment. Until December of last year, the basic design firms and construction firms were not required to have, and "generally did not hold," industrial security clearances, although they were then required to do so.

But it is the communications-center architects, with access to such sensitive information as electrical-power requirements, equipment types and locations, and antenna configurations, that have been required to have security clearances for many years. The program covering this was first set up in 1960.

Appended to the report is a case study on the distribution of the contract documents for the rebuilding of the U. S. embassy in Beirut. These were initially approved in 1985, two years after the car-bomb attacks on the building in which a total of 258 Americans died. The total project is expected to cost $9 million; the completion date has slipped from September, 1987 to April, 1988 due to delays in completing the building design and selecting a contractor.

Among other things, the case study shows that the Washington, D. C., architectural firm that did the site survey and the communications-center design (and which the GAO declines to identify) did not have the industrial-security clearance. While individuals within that firm did have clearance, says the GAO, that did not mean that information passed around in the firm was secure.

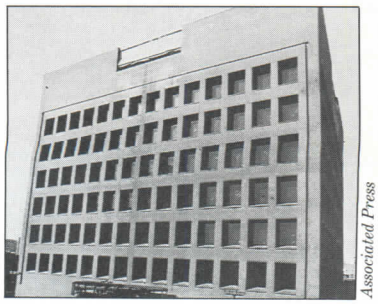
In April 1986, a set of 10 nearly completed contract documents were sent to a Lebanese cost consultant who, in turn, distributed them for bidding to 11 Lebanese contractors who were not screened prior to distribution. According to the GAO case study, the State Department's Foreign Building Office requested a screening of eight of these firms by the department's Bureau of Diplomatic Security. But officials there declined, saying that, since documents had already been distributed, the contracting process would be delayed and that, in any case, the ability to investigate firms in Beirut was "severely limited"—meaning that only the successful bidder would be screened.

Sets of documents also were distributed by the Foreign Building Office to U. S. construction firms. A short time later, in late June 1986, in an apparent change of heart, the Bureau of Diplomatic Security told the FBO that the distribution of documents to Lebanese firms presented a security risk and asked that all copies be recalled.

It was the FBO's turn to decline, saying it would be too costly and would delay the project. Eventually, the sister State Department agencies agreed that "reconfiguration of the design of the building and use of a U. S. firm for constructing the building would be impractical."

The sequel in November was a State Department statement to the GAO that the unsuccessful bidders on the embassy had returned all construction documents. In December, documents held by the successful bidder were exchanged for "sanitized" drawings at a meeting in Nicosia, Cyprus.

Stuart L. Knoop, president of Oudens & Knoop Architects, which has long been active in foreign work for the State Department and on committees looking into security in government buildings, says that the logic of requiring clearances is impeccable. "I don't," he says, "see why [the State Department] is contracting with people who are not cleared." *Peter Hoffmann, World News, Washington, D. C.*



Associated Press

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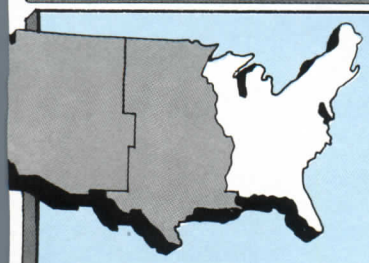
Northwestern University Law School, Chicago, Il. Architects: Holabird and Root

Construction costs: Mostly moderation with one notable exception

Summary of Building Construction Costs

Districts Eastern U. S.	Number of metro areas	10/86 to 1/87	1/86 to 1/87	1977* to 1/87
Metro NY-NJ	18	1.44	3.89	1785.11
New England States	33	0.49	2.80	1710.75
Northeastern and North Central States	120	0.48	2.04	1680.26
Southeastern States	106	0.20	1.91	1731.40
Average Eastern U. S.	277	0.44	2.20	1710.27



Western U. S.				
Mississippi River and West Central States	122	-0.20	0.91	1673.56
Pacific Coast and Rocky Mountain States	106	0.01	0.79	1744.05
Average Western U. S.	228	-0.10	0.85	1706.33
United States Average	505	0.20	1.59	1708.49

* Using only cities with base year of 1977

While costs in the last quarter of 1986 rose on national average only 0.2 percent, costs in metropolitan New York and New Jersey rose by 1.44 percent, making the region once again the leader in what might be viewed as a dubious contest (RECORD, October, 1986, page 47). Indeed, a push to get commercial projects under way before the first-of-the-year tax deadline contributed to greater-than-average rises in costs in the both the New York/New Jersey and New England regions through much of the latter part of the year.

The 0.2 percent national rise in the fourth period was certainly a marked improvement over the previous quarter when the national figure was 0.76 percent, leading to speculation that—despite the predictions of an easing in record-high construction levels—some form of inflation might be in store. Rises on the whole have been brought back in check.

Once again, material suppliers, despite pinched profits that have caused fears of healthy increases from this sector, have been more than moderate in their demands. The only material showing a noticeable rise in cost (of 0.09 percent) was gypsum board. Plywood went up 0.016 percent.

Most other materials, including concrete, concrete block, asphalt shingles, and reinforcing steel, went up less than 0.01 percent or not at all. Structural steel, conduit, and copper pipe went down in price—the pipe, by 0.013 percent.

Labor, with few contracts up for renewal, showed little increase in cost. All of which would seem to have left contractor profit as the culprit in any real rises at all.

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

Cost Information Systems
McGraw-Hill Information Systems Company

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 1st	1986 2nd	1986 3rd	1986 4th
Atlanta	1171.5	1712.6	1925.6	2098.6	2078.0	2360.6	2456.7	2448.7	2518.3	2526.3	2534.1	2561.0	2561.9
Baltimore	1018.4	1107.7	1304.5	1446.5	1544.9	1639.5	1689.7	1703.7	1743.8	1744.5	1762.2	1764.0	1765.2
Birmingham	1029.7	1142.4	1329.9	1407.2	1469.9	1468.1	1535.7	1594.7	1565.7	1578.8	1574.6	1580.1	1587.4
Boston	1028.4	0998.6	1236.0	1283.7	1432.5	1502.0	1569.9	1646.0	1721.0	1725.7	1730.0	1762.0	1773.6
Chicago	1007.7	1032.8	1199.7	1323.6	1344.7	1425.8	1439.5	1476.7	1528.0	1556.4	1559.1	1586.7	1599.9
Cincinnati	0848.9	0991.0	1323.9	1385.2	1350.4	1362.6	1430.8	1484.5	1486.6	1489.1	1494.2	1500.6	1499.4
Cleveland	1034.4	1040.8	1287.5	1388.2	1459.5	1511.4	1475.9	1464.0	1474.1	1482.6	1503.7	1516.3	1525.7
Dallas	1042.4	1130.6	1431.9	1481.9	1750.6	1834.3	1925.9	1958.0	1963.3	1964.2	1963.6	1984.9	1973.9
Denver	1038.8	1100.4	1495.6	1487.4	1632.2	1679.1	1800.1	1824.3	1821.8	1798.8	1772.5	1811.6	1795.8
Detroit	1018.1	1087.3	1275.3	1447.4	1580.3	1638.0	1672.1	1697.9	1692.6	1696.0	1708.6	1700.5	1696.6
Kansas City	1023.5	0951.5	1125.8	1233.2	1323.4	1381.8	1407.5	1447.1	1472.5	1476.9	1478.8	1487.7	1484.7
Los Angeles	1022.5	1111.0	1255.3	1387.5	1474.3	1503.3	1523.9	1555.1	1571.0	1598.4	1575.7	1601.3	1609.7
Miami	1004.5	1080.9	1330.1	1380.6	1369.1	1392.1	1467.6	1522.2	1540.6	1549.9	1552.2	1563.0	1566.2
Minneapolis	1060.2	1196.8	1286.9	1327.7	1442.6	1576.8	1624.6	1640.4	1661.0	1641.9	1647.5	1676.6	1674.0
New Orleans	1001.3	1138.8	1291.9	1505.7	1572.7	1616.9	1650.5	1691.4	1762.5	1782.0	1784.6	1773.0	1760.2
New York	1005.4	1043.0	1247.1	1319.4	1419.2	1491.8	1672.5	1747.2	1806.7	1803.3	1831.7	1863.7	1899.9
Philadelphia	1013.8	1074.2	1487.5	1539.5	1660.7	1769.4	1819.5	1922.1	1967.9	1974.2	1968.5	1968.1	1992.7
Pittsburgh	1016.1	1015.0	1227.0	1341.7	1493.2	1479.5	1497.2	1576.1	1611.0	1607.7	1619.2	1653.2	1665.8
St. Louis	1039.1	1198.8	1275.9	1320.0	1397.3	1451.2	1524.9	1625.5	1641.8	1652.4	1644.1	1647.0	1647.4
San Francisco	1083.2	1326.8	1473.4	1644.8	1776.4	1810.1	1856.8	1935.3	1961.8	1955.9	1960.2	1992.0	1995.5
Seattle	1142.5	1137.9	1373.4	1616.8	1814.9	1962.7	1979.0	1948.9	1937.9	1925.2	1916.7	1920.3	1925.3

Costs 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 one 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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Finance: Rising interest rates dim economic prospects

By Phillip E. Kidd

Late in March, the Reagan Administration announced that it would impose tariffs on certain Japanese electronic goods in retaliation for the Japanese unfairly dumping such items on the U. S. market. Immediately, the financial markets reacted negatively, sending interest rates higher. As interest rates rose, the prospects dimmed for a continuation of the current, four-year-old expansion.

Analysts and commentators pointed to the threat of a spreading trade war and the rapid fall in the value of the dollar as the reasons for the turmoil in the financial markets. However, little was said about another constraint plaguing the economy: America's failure to save enough to meet its consumption and investment expenditures.

The personal savings rate, never that high, has deteriorated sharply in the past two years. Currently, it is under 3 percent, or half the rate of the early 1980s. The potential detrimental effect on economic activity of this poor savings performance has been obscured because foreigners have been willing to lend us the additional money to finance our spending. In the three years, 1984 to 1986, overseas investors lent us $300 billion more than we lent abroad. To put that in perspective, that figure is 40 percent of the $743 billion of total net mortgage debt raised in those three years.

Currently, newspapers and news magazines are full of scare talk about foreigners owning America because of our rapidly mounting indebtedness to non-Americans. However, there is nothing economically wrong with the governments, businesses, and individuals of a country borrowing abroad, provided the imported funds are spent in productive pursuits. After all, the United States has been a debtor nation throughout most of its history. During our early years, foreign money helped finance roads and railroads, the digging of mines, and the creation of a vast manufacturing capacity.

In stark contrast, today we are piling up foreign debts to sustain our consumption desires. We are compounding our problems by consuming more and more foreign goods, while ignoring domestic products. In 1986, half of the imports in the U. S. were consumer items (automobiles, food, clothing, and other consumer durables and nondurables). Domestic producers, confronted with shrinking market shares and a harsh new anti-investment tax law, are cutting back investment expenditures, eroding even more our ability to manufacture real economic growth.

As the U. S. trade deficit has worsened, public policy, instead of trying to improve our savings performance, has focused on devaluing the dollar relative to other currencies as a means of curbing our consumption of imports. Early in this expansion, the exceptionally high value of the dollar was viewed as a symbol of America's economic strength. But an ever-widening trade deficit altered that perception. In late September 1985, the Administration changed course and, in concert with Japan, Germany, Great Britain and France (known as the Group of Five), initiated efforts to reduce the value of the dollar. As part of the plan, the other nations—particularly Germany and Japan—would stimulate growth in their economies, as well as encourage the purchase of U. S. goods.

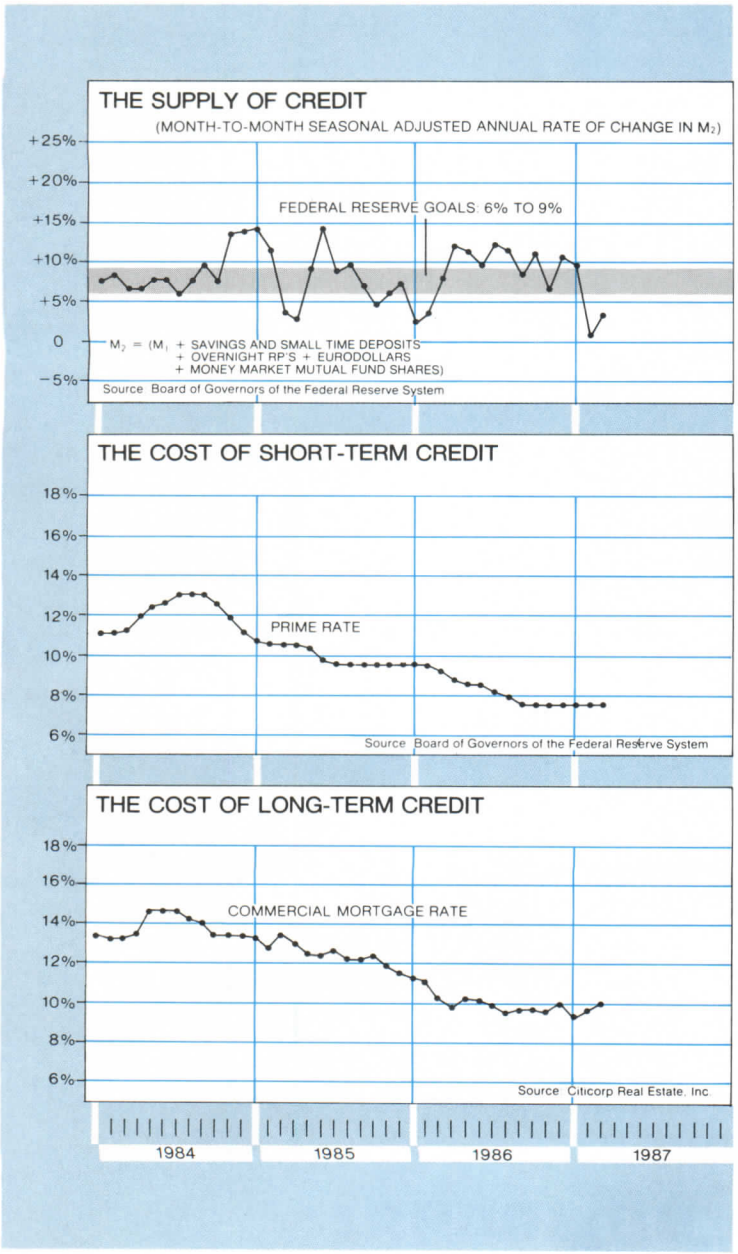
Nearly 21 months after that meeting, there is little evidence of coordination among the Group of Five; the other economies are weakening; and our goods still are not readily accepted in Germany and Japan. However, the value of the dollar slipped immediately after that meeting and has been falling erratically ever since.

Unfortunately, the crumbling of the dollar since the beginning of this year has caused foreign investors to reassess their view of U. S. financial assets. Now they demand returns that are high enough to offset the risks from adverse movements in exchange rates. Throughout the spring, overseas money moved in or out of the financial markets, depending on whether interest rates were rising or falling, which generated tremendous volatility in the markets.

To try and calm the financial markets, the Federal Reserve shifted monetary policy from aggressively supplying reserves to the banking system to supplying them very judiciously. Clearly, the Federal Reserve is sending several messages to the U. S. and world financial markets. First, it will provide no more than the necessary amount of reserves to sustain the economy's growth. Second, it is trimming back reserves to allay fears that the falling dollar, which is forcing import prices up, will re-ignite inflationary pressures. Third, it will support the dollar to the point that foreigners will believe that it is safe to invest in U. S. debt.

The ebb and flow of foreign funds and the firming of monetary policy will keep pressure on interest rates. During the summer, the yield curve will shift upward 25 to 50 basis points (a basis point is one hundredth of a percent). Short-term rates will range between 5.75 percent and 6.5 percent; seven- to ten-year government bonds between 7.75 percent and 8.5 percent; and mortgages between 10.5 percent and 11.5 percent.

Rising interest rates are not a good omen for construction activity. Consequently, housing for sale and retail buildings will slip a little more in the third quarter; and overbuilt office and multifamily rental construction will continue to slump.



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

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Computers: The electronic pencil; one small-firm approach

"We use CAD as nothing more than an advanced drafting tool."

"Man-hours are easier to find than CAD ones."

By Ian McDougall

Ian McDougall, the founder and principal of McDougall Architects in Calgary, Alberta, is determined to get the most out of his small CAD system. For him, that means more efficient drafting. As opposed to those who advocate CAD for all phases of design, he uses it only when it is a quicker method of production than drawing by hand. To achieve full efficiencies, he has developed formalized procedures that, depending on its interests and ability to invest in systems, may particularly suit the relatively small firm.

His practice, founded in 1971, has never had more than ten employees and currently numbers five. It has been using CAD for five years after using overlay drafting for the previous two. Projects have varied from the small ones we might expect up to those with a

construction budget of $5 million. The mix, in recent years, has leaned towards commercial projects. The U. S. reader will have to make allowances for the fact that, when McDougall talks about scales he typically uses, he talks about those that are usual in countries on the metric system.

It is because of the need for shared knowledge in computer use in particularly small firms that McDougall's insights make such worthwhile reading. C. K. H.

Any machine, whether it is an electric eraser or a computer, that improves our productivity will assist architects in providing better services. At first, like most new users, we tried to do all drawings on our new system, when our first work should have been to build a library of standards that would give us the basics.

Now, after such growing pains, we find that, with computers, we are providing more information on drawings in less time than we did when we were preparing them by hand. For instance, we found we could save about 20 percent of our time on wall sections. But there are limitations.

Our office has only two CAD stations and we need additional capacity to handle peak loads. (What the office has specifically [photo left] is a 20-megabyte hard-disk drive, a 32-bit microprocessor, high-resolution 19-inch screens, and a mechanical plotter with a four-pen capacity, all run by touch-control key stations).

As with any new way of doing things, there are problems of finding the right personnel. Because our office was one of the first to implement CAD in our region, we were able initially to attract people who are enthusiastic users. It's not been so easy recently. The work of those who do not adapt must be scheduled around the work on the computer or they are asked to leave the staff.

There *are* applications in which hand drawing is faster. If we are to use a drawing only once, then we usually draw it by hand. Conversely, if it is to be used again, then we will produce it on our system no matter how small it is.

Before putting a project on CAD, we evaluate the people we have available, the time we have to produce the drawings, and the availability of CAD equipment. If a project has a tight production schedule, then it may be faster to hand-draw it with a large number of people. Man-hours are easier to find than CAD hours. In a small office, we run the danger of being equipment bound. Until each architect has unlimited CAD access, the system must be managed as a scarce resource.

As we become more familiar with our system, we develop more standardization than we had when drawing by hand. We find this gives us more quality control than limits on our creativity.

Although we had originally hoped to have our engineering consultants produce their drawings on our system, its limited capacity has shown us that the production of anything but architectural drawings is impractical. The best we can do for our engineering consultants is provide coordinated floor plans for them to work on.

We have found that the final 15 percent of our working drawings are more efficiently done by hand. This includes most notations, textures, and dimension lines. Notations may be typewritten and glued onto the drawings.

No matter how it is created, the final hard-line drawing must be suitable for reproduction. The tradesman in the field does not really care how the drawing was produced as long as he can read it. The necessary final touchup and coordination on CAD would probably take twice as long as that done by hand and mean operating our computer 24 hours a day.

We do schematic design almost always by hand, mostly freehand. All plans for the design-development phase are done on CAD. This takes slightly longer than if the design-development phase were done by hand. However, we found that we are able to save up to 30 percent of our working-drawing time by reusing the design-development plans already in the system. Unlike preliminary drawings done by hand, which must be redrawn for major changes, computer-drawn preliminaries are easily changed.

Here, specifically, is how we do what during the latter two phases:

• *Design development.* Plans are developed on CAD and finished by hand. Building sections are developed on CAD if there is sufficient time and, in any case, they are finished by hand. Elevations are hand drawn.

• *Working drawings.* Plans are developed on CAD and finished by hand. Sections are developed on CAD and finished by hand. Elevations are developed on CAD only if it seems logical from the point of view of time. They are usually hand drawn.

Setting graphic standards is one of the most critical initial steps in CAD use

When drawing by hand, drawings can be no larger than the paper they are drawn on. This is not always the case when drawing with CAD. An entire building plan or section can be created and then portions of this plan or section plotted separately at various scales that fit the individual sheets.

CAD gives you the flexibility of plotting drawings at whatever scale might be appropriate. We have found it expedient to plot all drawings for the same size of drawing paper, measuring 24 by 36 inches.

The first step in setting up the computer for a building project is to determine the boundary of your drawings in the computer memory. This must accommodate the largest drawing—say the entire site plan or a big building section. Our experience has shown that the site plan usually governs. The boundries thus established are used for all of the work we produce for that particular project.

We *enter* all information in the CAD system at full size. This is especially important if we convert our final drawings from metric to other scales.

All final drawings are plotted in reverse on mylar. This allows us to complete the hand work on the front of the drawing with no conflict between the computer created drawing and the hand-drawn portion.

It is natural to want to create drawings on CAD the same way you draw by hand. Wall sections,

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"A computer can be seen as an expensive pen; we have found that our best users are those architects with the best freehand technique."

for instance, would be drawn in segments. On CAD, with little extra effort, these wall sections can be combined into an entire building section. By creating a complete building section, we confirm to ourselves that everything fits. We are also giving more complete information to our client and the contractors. They can see the entire building and how it goes together rather than just pieces.

Developing good work habits is difficult but essential

You should locate your system in your studio. Users who encounter a problem can talk to others who may have run into the same situation. There is often no need for anyone to leave their desk to assist. Even though all our architects are trained on the system, only about 25 percent of any individual's time is spent at it. We use CAD as nothing more than an advanced drafting tool.

Senior management must be trained on CAD to direct its use. It is easy for automation to get away from management. Once senior people understand the limits of CAD, they can expand the limits of their practice.

When a problem occurs, it is natural to attempt to solve it by oneself. We have had staff who spent close to three hours attempting to get out of a CAD problem. We insist that, if our staff get either themselves or the system hung up for more than five minutes, they must get assistance. If this assistance is not available in the studio, then it must be available from our software supplier. Because we have been operating our system for so long, we find almost all support in-house but, initially, we contacted our software people at least daily. It is worth a premium to assure immediate help whenever problems come up, especially in the first six months.

We give two exercises to novice CAD users after they have been trained in the rudiments. These are designed to establish good habits and to force the use of difficult functions, which will easily get the user into trouble. The natural reaction is to work around them by creating a drawing with only lines but the exercises require not only lines but textures, notations, and symbols as well.

The first exercise is to do what seems like a simple sheet—a form for shop-drawing records. But it will take a novice from four to ten hours to complete properly, leaving him somewhat demoralized. The second exercise is similar and, by showing how much has been learned, will bring back the user's self esteem. If he had been thrown straight in to do an entire project on CAD, he would have soon been able to show what the computer will not do.

Those who are enthusiastic will, at first, require close monitoring. They may try all sorts of wierd and complicated details that would never be considered for a hand-drawn project. They tend to get mesmerized and work longer than they would otherwise.

To efficiently use CAD, the person who designs or works out drawing details must be the same one who enters them in the system. All work must be developed freehand prior to its being entered. If we do not have sufficient information in sketch form to create a drawing precisely, then we do not attempt to enter it. It must be worked out first.

A computer can be seen as an expensive pen. We have found that our best operators are those architects with the best freehand technique. They seem to feel more comfortable using the system for their hard-line drawing because it gives them more time for freehand development work.

After the first information has been entered by the novice, it should be reviewed. This can be done by expanding the image on the screen or by creating a hard copy. This usually exposes sloppy thinking. In my opinion, the most important skill that we emphasize to novices is clear thinking.

Most often, sloppiness shows up as one line made up of several. When hand drafting, a single line may be created by several segments all drawn at different times, but this is not acceptable on CAD. Each straight line must be drawn as a single line or else, if we try to move it, we get a kinky line.

We find that people who think at a CAD station fiddle and make mistakes. All thinking must be done at the sketching phase. Mistakes are made when staff think at the CAD station.

We expand details on the screen to confirm that they have been drawn correctly but we require that operators not work at a scale greater than two times the size of a final working-drawing plot. For instance, if the largest scale that we will use for the final working drawings is 1 to 20, then we never work at a scale greater than 1 to 10.

We set up a three-ring binder for each job in which we keep hard copies of the most up-to-date CAD information on letter-size sheets. The binder is always kept at the CAD station and, before an operator leaves, he must insert a dated hard copy of each overlay he worked on. Unlike hand drawing, in which the most up-to-date information is readily seen, these hard copies are the only quickly visible record. Also, the operator must record the symbol menus, textures, and notes used. In our office, this editing and archiving usually takes five to ten minutes.

In a small office the scheduling of the printer can be especially tight

Never go more than two weeks without making 1-to-100-scale check prints of all drawings that have been worked on during that period. These drawings are another example of those we would do with roller-ball markers on bond paper. Changes, notes, and, dimensions are marked on the check prints and then slid under the final mylar plots to expedite completion of the drawings by hand.

When you have only one plotter, it could take a minimum of two weeks to plot a full set of drawings. For a really big project, we schedule our plotting over four weeks. And we use the following order:

Match the plotting pen to the task

The larger the scale of the drawing, the larger the size of the pen you will want to use. Other than disposable pens, ink pens smaller than 0.35mm will clog and, says McDougall, "cause no end of problems." He uses three pen sizes:

- *A 0.35mm pen with black ink for most lines on his drawings.*
- *A 0.35mm pen with blue ink for textures and grid, hidden, and background lines.*
- *A 0.70mm pen with black ink for outlines and titles.*
- *A 0.50mm pen for outlines and titles when the scale is less than 1 to 100.*

Dimension lines and notations, when done on CAD, are done with blue and black ink, respectively, so that, when there is an overlap, there will be no confusion. Quick plots that will be sent to consultants or marked up with corrections in the studio are done with roller-ball markers on transparent bond paper.

- The 1-to-100 floor plans with room and door identifications, fire separations, and basic dimensions.
- The site plan and 1-to-100 building sections which, after completion by hand, allow us to apply for a foundation permit if the construction schedule is tight.
- Building sections at 1-to-200 with indications of wall sections that we will be plotting in another phase at 1-to-20.

While the final building sections are being plotted, the floor plans are being edited and updated on CAD to agree. The final plotting is larger-scale floor plans.

We can be completing the hand work on the building sections while the larger 1-to-50 floor plans are being plotted. We find we need only two or three days to complete the hand work after the final floor plan has been plotted.

CAD sometimes means entirely new ways of working

We recommend that users work at a level slightly below their full capabilities. That most CAD work is created as portions of an overall drawing is necessary because of the limitations of screen size and resolution. This produces the subsequent difficulty in monitoring work in progress. To illustrate what may occur when a user stretches his abilities, we have discovered serious errors on drawings only after they came out of the printer in their supposedly final form scant days before they were to be issued.

When we set up our first jobs, we made a full description of what we expected would be on each sheet or overlay. So often we were wrong. What was on each sheet and overlay was continually being edited and changed. Now, we use only numbers to identify these various levels of information storage. This way, one drawing may easily be moved from one overlay to another.

How many overlays you can create for each sheet depends on the CAD system you have. On some systems, you can put only lines, notations, textures, and symbols on separate layers. On such a system you will probably need 50 overlays. On other systems, lines, textures, notations, and symbols may all be located on the same overlay. We would then suggest that 12 to 15 overlays be used.

Our particular software allows us to store lines, symbols, notations, and textures as separate identities on one overlay. But 12 overlays are about the most our software can manage. Hence, we use overlay 50 for experimenting because we will never have to use it for other functions. Any information created on overlay 50 that is worth saving must be immediately transferred to a final overlay.

The tips above should help particularly the small office get the most out of its investment in CAD.

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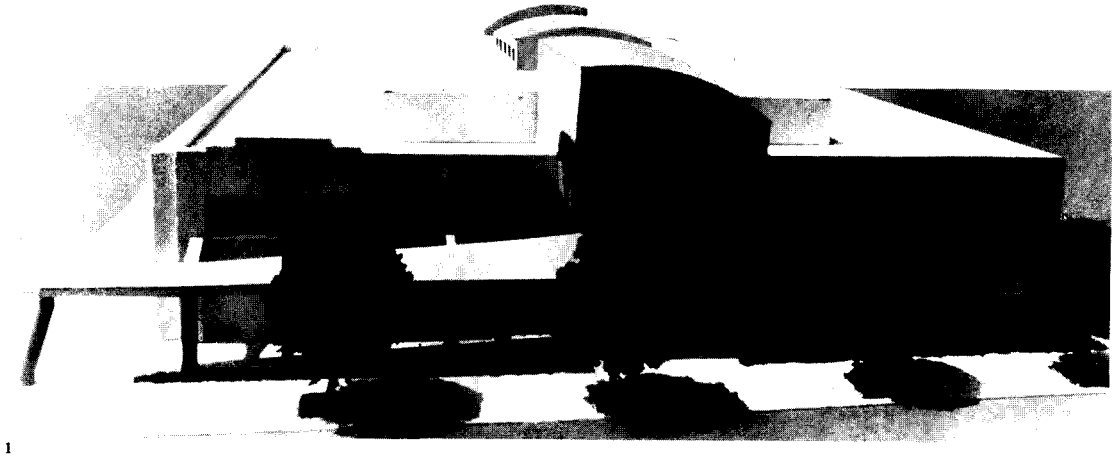
Eric Owen Moss: Watching his garden grow



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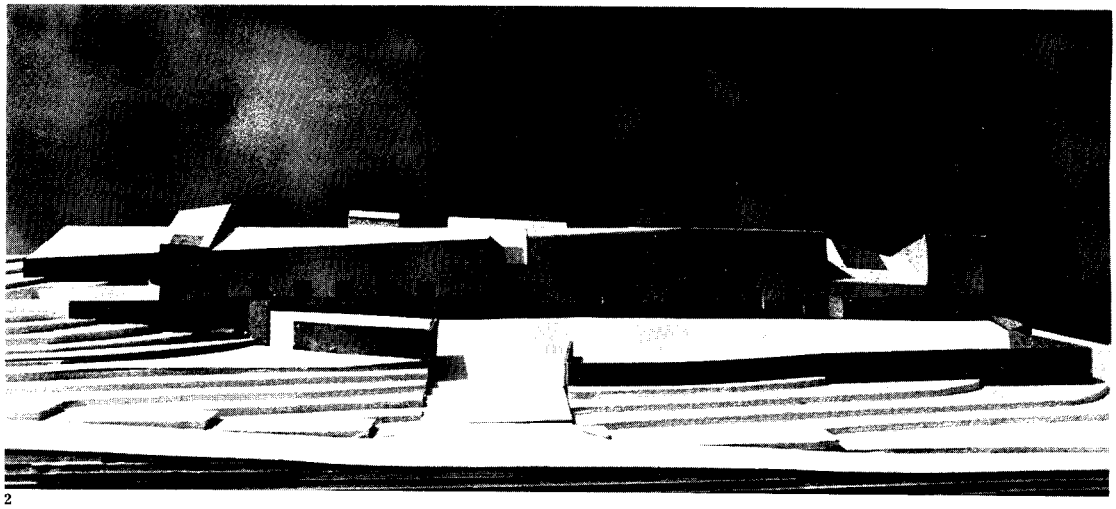

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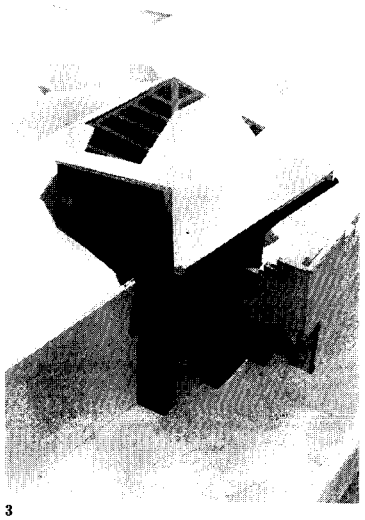
The last time we heard from this Los Angeleno enfant terrible (RECORD, July 1985, pages 132-145) he was quoting Camus, Cervantes, Dostoyevsky, and Kafka; citing India, Peru, Stonehenge, and King Tut's tomb as sources of inspiration; and building models with unlikely scraps salvaged from his studio. For those who thought then it was safe to infer that—notwithstanding his proximity to Hollywood and all that this may account for—Eric Owen Moss wouldn't be in the business of architecture much longer, think again. Instead of sealing his reputation, and his fate, as a crackpot, Moss, in fact, has landed a series of surprisingly sober commissions, including an office building for the University of California at Irvine. And although his verbal and architectonic references still cast a wide net and his models still have that ad hoc appearance, Moss is now busy at work on a record 10 projects—a sampling of which is shown here.

Though Moss's design for the Central Housing Office Building at UC/Irvine (2) appears as if it was generated on an Etch-A-Sketch—by an unsteady hand at that—a closer look reveals that the parts that comprise the whole are stitched together with assurance; the open folio on the front facade—the bookish architect's version of the school's seal, perhaps—being his only concession to overt symbolism.

Three other projects, all now under construction in Culver City, include the Ince Paramount Laundry Office Building (1), a conversion of an existing 20,000-square-foot concrete bunker previously used for industrial storage into office/warehouse space and 20,000 square feet of new construction, which will feature the "Bridge of Size" conference room (an obvious, if not slightly defamatory, reference to the Venetian Bridge of Sighs, which leads from the galleries of the Doges Palace to an underground prison); the Lindblade Tower (3), designed to mark the point of entry to a studio and film production zone; and the 60,000-square-foot National Office and Warehouse building (4), whose parti is organized around a circulation "nave" that will be "punctuated by three lobbies, including one at entry, which reveals an excruciating cruciform support covered with stainless steel in the center of a disemboweled elliptical court," according to Moss. The mixture of metaphors, both linguistic and architectonic, is by now familiar; old habits are hard to change but, luckily for Moss—and his audience—his are mostly good ones. *K. D. S.*



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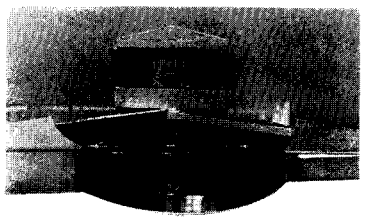

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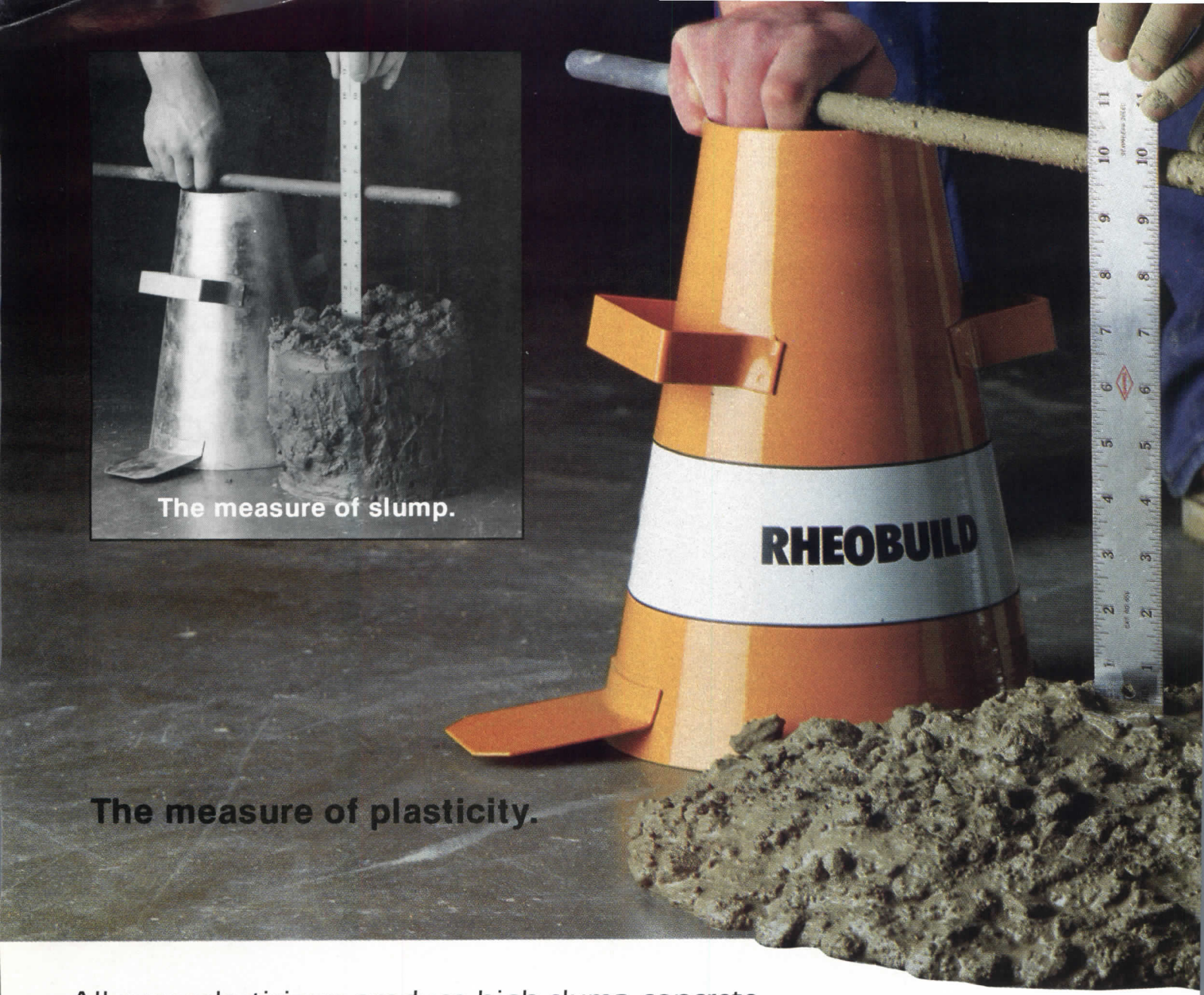

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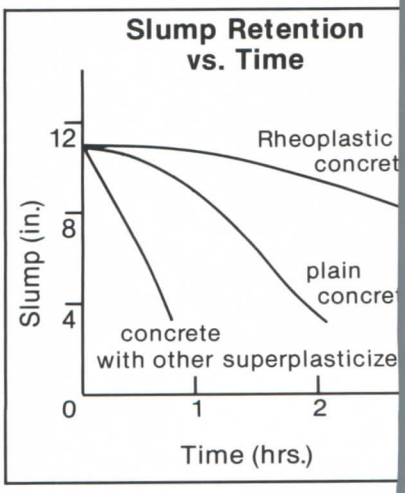

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News briefs

DIFFA (the Design and Interior Furnishing Foundation for AIDS) is sponsoring a four-day warehouse sale of contract and home furnishings. Open to the public, the sale will be held at Center 4 of the International Design Center, New York (IDCNY) in Long Island City from June 25-28. Proceeds will go to AIDS research, patient care, and housing. For further information, call (212) 580-3311.

Richard Meier & Associates has won, in a dramatic reversal, the competition for a new city hall and public library in the heart of The Hague, Holland. Although Rem Koolhaas's scheme was premiated by the competition jury this spring (RECORD, April 1987, pages 54-55), the city council voted to overturn the decision.

The Municipal Arts Society of New York is sponsoring an "Adopt-A-Monument" program in hopes of raising over $1 million to restore 20 of the city's most artistically significant yet badly damaged monuments. For more information, call 212/934-3960.

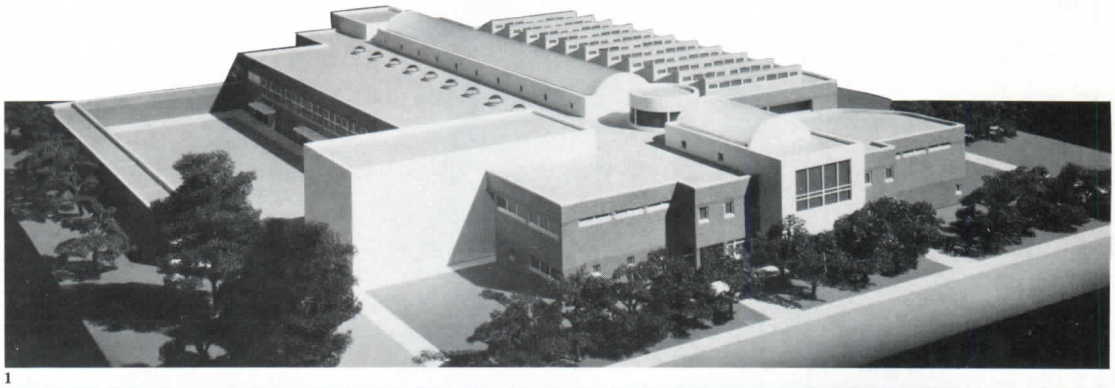
San Diego will soon have a design center of its own. Scheduled to open in the summer of 1988, the 340,000-square-foot complex, to be located on a 13-acre site northeast of downtown, is being designed by Johannes Van Tilburg; Gensler & Associates will act as consultants on the interior.

A $750 million "Resort City" is being planned by Southstar Development for an 80-acre site at the south end of the Las Vegas strip. The complex, pending approval from the Clark County Planning Commission, will consist of nine hotels, with a combined total of 6,000 rooms, surrounding a 120,000-square-foot casino (said to be the world's largest); retail shops and restaurants, an underground garage; and a convention center. "The 21st century, high-tech, space-age look is the design theme," according to the developer's office.

WalkerGroup/CNI has won an international design competition to renovate the lower level of the Galeries Lafayette flagship store on Boulevard Haussmann in the center of Paris. Construction is scheduled to begin in Janurary 1988.

Antoinette Forrester Downing, an 82-year-old scholar, planner, private activist, and public official is the recipient of the 1987 Louise du Pont Crowninshield Award, conferred by the National Trust for Historic Preservation in recognition of Downing's 55-year career.

Gwathmey Siegel & Associates: Coming soon to a school near you



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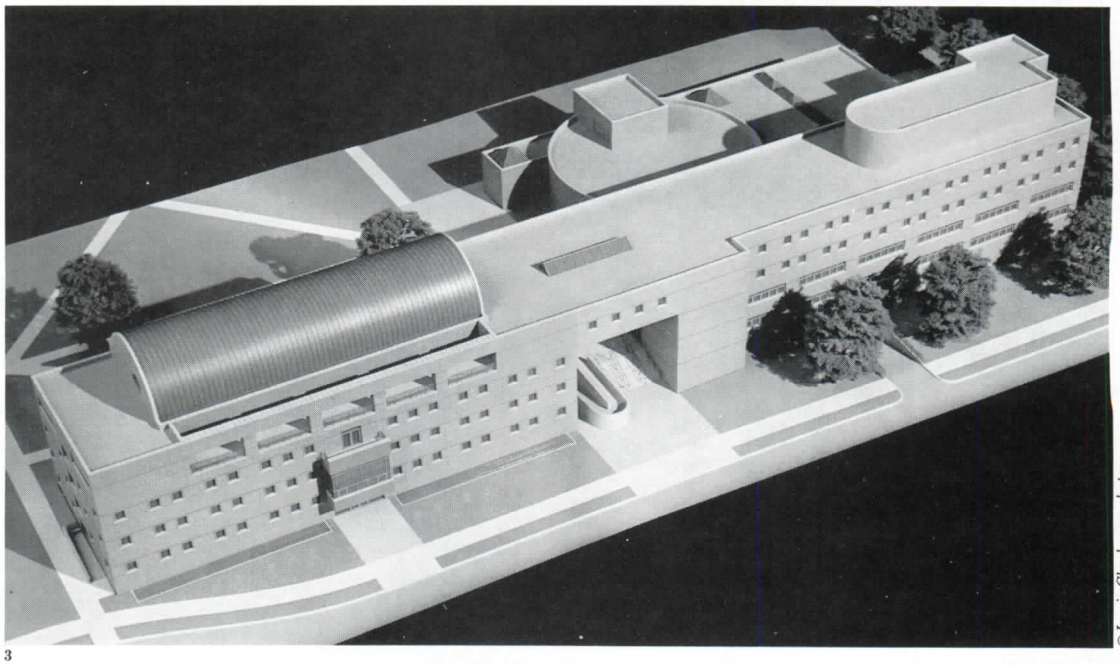

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©Louis Checkman photos

Gwathmey Siegel & Associates is hard at work at campuses up and down the East Coast these days, with its addition to the Dartmouth College gymnasium just finished and these three buildings—one at the University of North Carolina and two at Cornell University—in various stages of approval/construction. Though the firm has completed only a few academic buildings since its renovation of Princeton University's Whig Hall in the early 1970s, it's clear that whereas Whig Hall was early Gwathmey Siegel at its Corbusian best—an insertion of a stark geometrical order into the burned-out shell of a Neoclassical temple —this trio proposes a new direction, namely a material enrichment of its signature minimalist palette.

Though this development may not be news to avid Gwathmey-Siegel watchers, who have already seen its effects in recent apartment interiors (RECORD, Mid-September 1985, pages 162-169), these buildings represent a substantial jump in scale. But for those who fear that Gwathmey Siegel has abandoned its tried-and-true Modernist ways completely, a closer look will be reassuring. The architects' methods of defining space have remained the same: entry is signaled by the projection or incision of the facade and internal activities are differentiated by discrete volumes, which are layered to compose the whole. It is how these spaces are articulated that has changed. In their design of the exterior of the new building for the School of Agriculture at Cornell, for example, the architects have expanded their color and material range to include three shades of earth-tone brick, teak-framed windows, and a standing seam terne metal barrel-vaulted roof. And, at UNCC, the architects are acutely aware that generations of students would be learning about design not only in, but also from, their building. Gwathmey Siegel set out to reveal as much about its workings as possible—the elevator will be enclosed in a glass cage to expose its machinery for study and the exterior will be a juxtaposition of materials—and, as with the other two buildings, it will reveal a lot about the evolution of the firm's work as well.

1. College of Architecture, University of North Carolina at Charlotte.
2. Gymnasium Fieldhouse, Cornell University, Ithaca, N. Y.
3. Administration/Academic Building, School of Agriculture, Cornell University, Ithaca, N. Y.

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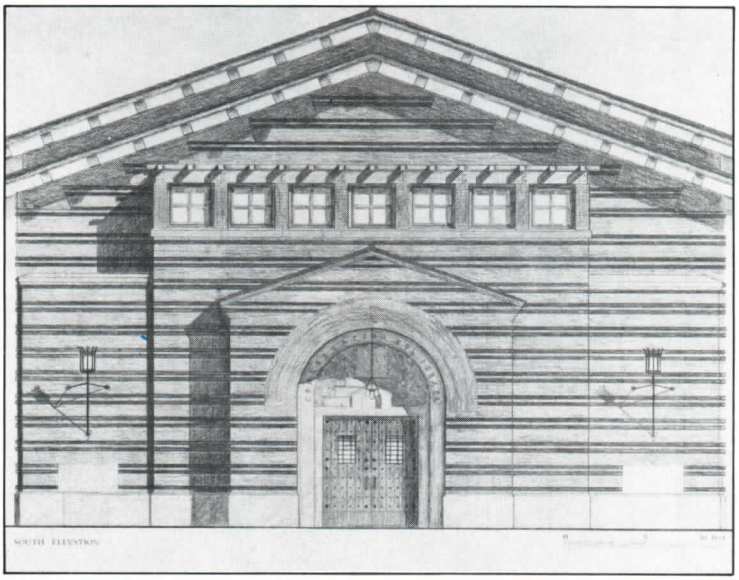
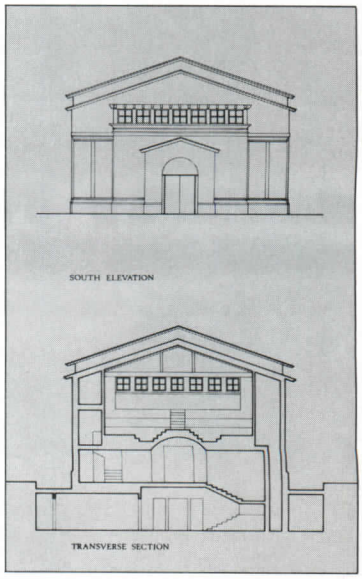
A synagogue grows in Brooklyn

The Kol Israel Synagogue, designed by Robert A. M. Stern Architects for an Orthodox congregation, is now under construction on a corner site of a residential neighborhood in Brooklyn. The small lot is being excavated to accommodate the subterranean sanctuary (section, bottom right) and to conform to the stringent zoning setback and height limitations of the district. The exterior of the synagogue will be richly, but conservatively, clad with multicolored brick banding, golden stone moldings, and mottled roof tile—a reference to the congregation's predominantly Mediterranean heritage. The interior will boast hewn oak balconies lined with intricate wrought iron and brass railings, and the ark of the covenant—the centerpiece of worship and of the design—will have bronze doors and gold mosiac tile.





"New Tendencies" on view at the Centre Georges Pompidou in Paris

How will we live through the *fin de siècle*? Celebrating its 10th anniversary, Paris' Centre Georges Pompidou is looking ahead, at "New Tendencies: The Avant Gardes of *the Late 20th Century*." Under this rubric, the Centre de Création Industrielle (CCI) invited eight designers to create "environments" of the future. Their responses are generally pessimistic.

Only half of the projects represent even abstract living spaces. Alessandro Mendini, for example, offers a kind of Postmodern/Victorian decor in a room of fancy furniture, genre paintings, and bibelots; the walls that isolate it from the other projects signal it as a retreat.

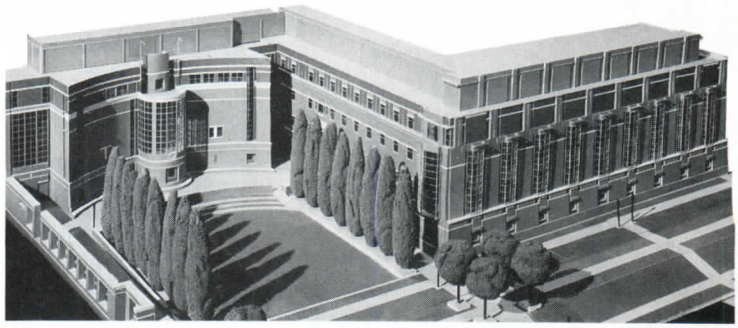
The concept and role of design itself is undermined. Ron Arad built a machine that swallows household objects (chairs by Mendini and Philippe Starck were early victims) and crushes them into small bricks. Starck's vision marries the apocalyptic and the banal: a mound of dirt littered with debris—some post-nuclear battlefield—with a flag flying above (featuring a cartoon of a happy/sad face); nearby a rusty shed sells shirts with the logo.

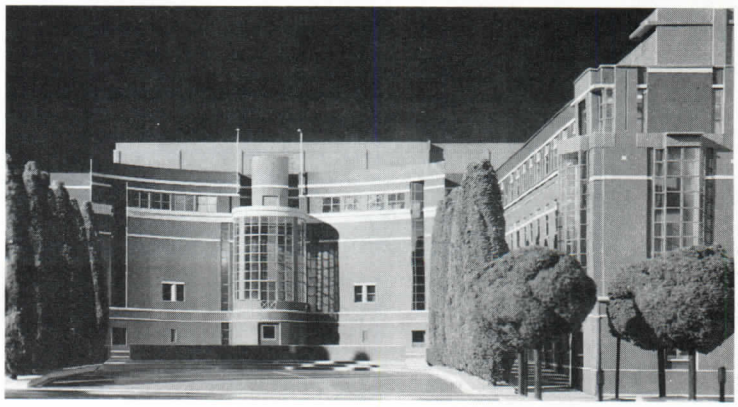
The exhibition alludes to pertinent questions: the penetration of the media, the tension between the desire for individuality and the reality of mass production, and design's evolution away from product creation towards the personalization of images. But no answers emerge. As François Burhard, CCI's director, notes, "We live in a time of contradiction and ideological crossbreeding. The only consensus is a demand for the greatest possible freedom of choice."

In his catalog essay, however, Claude Evero discerns one constant theme: "Cynicism, distance, and derision can't change the fact that these new designs are destined for department stores." Indeed, the exhibition itself is largely underwritten by businesses associated with the designers. Starck's sponsor, the mail-order company Les 3 Suisses, will feature four pages of items emblazoned with his logo in its next catalog, "thus permitting nine million customers to participate in the success of this international cultural event."

The "event" is on view until Sept. 7. The catalog, printed before the environments were executed, doesn't include photographs, but essays discuss the issues they raise and the role of design in contemporary life. With the book at almost $40 and a Starck tee shirt at $12, its cheaper to wear design than to study it. Perhaps that's the point.
Thomas Matthews

In the Syracuse tradition





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The proposed Science and Technology Center (shown above) will be the first building of a gradual expansion program for the eastern portion of the Syracuse University campus. Campus planners for this expansion, Boston-based Koetter, Kim & Associates with architect-author Michael Dennis, are projecting some 500,000 square feet of academic facilities within a complex of open spaces. Koetter, Kim & Associates is also the associated architects with the Kling-Lindquist Partnership on the design of the Science and Technology Center. The new five-story building, to be sited along College Place opposite historic Solcum Hall, will form two sides of a raised quadrangle and maintain the campus architectural tradition of brick and stone exteriors.

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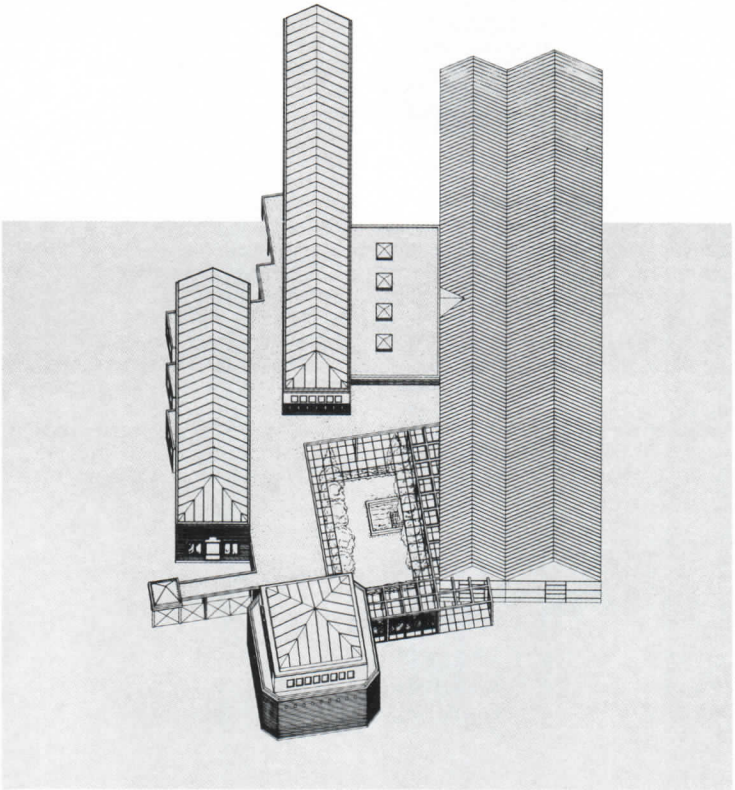
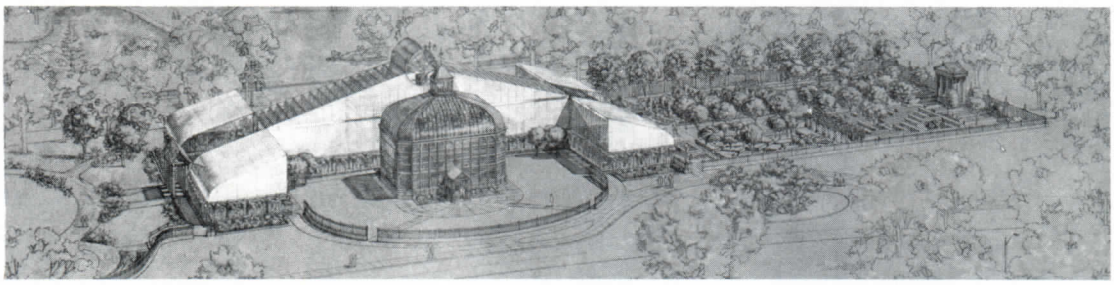
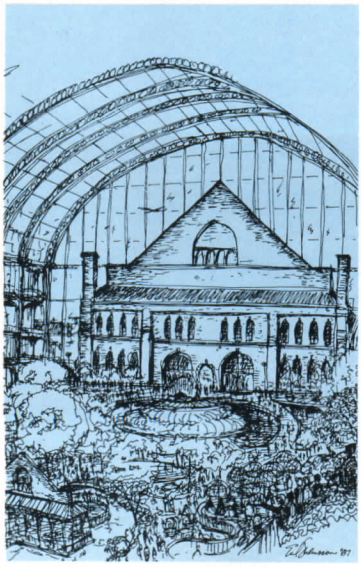


The Friendship Park Conservatory (opposite), designed by Environ, and the William Donald Schaefer Conservatory (below), designed by Cass & Pinnell, are variations on a theme. Though the results are different, the givens were similar: Environ was asked to devise a scheme for a garden education center and a glass-enclosed atrium court that would incorporate two existing sheds in Arlington Heights, Ill.; Cass & Pinnell was asked to design an extension to its client's existing greenhouse in Baltimore, which, far from a shed, is a 99-year-old landmark. Environ responded with a complex of small buildings, which, with the sheds, will form an enclosed courtyard for outdoor exhibitions; Cass & Pinnell made the landmark the frontispiece to its H-shaped building, which has four separate glass houses grouped around an orangery.



Opry under glass

Earl Swenson Associates has been commissioned by the development team of Opryland USA, Mathews Properties, and Central Parking Systems to design a mixed-use complex in downtown Nashville. The architects propose to construct a two-and-a-half-block glass bubble cum sheltered city park/shopping mall over a portion of Lower Broadway, anchored on the west by the renovated Ryman Auditorium (a historic landmark and the former home of the Grand Ole Opry) and on the east by a new entertainment center. By no means a contextual intervention into the low-scale fabric of these city blocks—although the arc of the new structure is designed to respond to the roofline of Ryman Auditorium—the scheme (which will cost an estimated $300 million) is intended to encourage investment in the district.



A match made in Minneapolis

Edward Frenette, director of design and planning for the 70-year-old Minneapolis firm of Setter, Leach & Lindstrom, has been following the career of Arata Isozaki for the last decade. And now he has the opportunity to work alongside the Japanese architect. Setter, Leach & Lindstrom and Arata Isozaki & Associates have been chosen to design the $30 million Minnesota School and Resource Center for the Arts.

"The significance of the building is that it combines programmatic issues," says Frenette. "It's a high school with theaters and recital halls and it includes housing and food service and some small retail establishments. It's virtually a city in microcosmic form." The design is now in the programming phase; schematics will not be released until late summer. *Jeff Trewhitt, World News, Chicago*

Monterey 1987: Glamour out, humanism back in

On paper, at least, the 1987 Monterey Design Conference did not seem much different from previous architectural gatherings that the California Council of the AIA has sponsored annually since 1980. But while the printed schedule listed a predictable three-day mix of speeches, slide shows, and cocktail parties, the theme of this year's conference—"People and Architecture: Is Anyone There?"—suggested that the CCAIA's powers-that-be were looking for more than the usual "beauty contest" of architects showing off their latest wares. Rather, by bringing together a combination of social scientists, psychologists, and architects, conference organizers intended to readdress architecture as a social art, a notion that seems to have virtually disappeared behind the historicizing facades and Reagan-based economics of the past decade. In the process, they produced the most successful Monterey conference in recent memory—and a powerful reminder that, beyond the L. A.-style glitz that often dominates one's perceptions of design in California, lies a notable strain of architectural humanism.

That tradition was made clear early in the conference when James Marston Fitch, a founding father of the American historic preservation movement, rose to address the group. Fitch, a native Southerner and long-time resident of New York City, came to laud California's 20th-century Modernist heritage, and he did so convincingly. In addition to praising such works as Sea Ranch, the California bungalow, and the Arts-and-Crafts houses of Greene & Greene, Fitch used the forum to lambaste recent Postmodern buildings by out-of-state architects like Michael Graves, Hardy Holzman Pfeiffer, and Arata Isozaki as "foreign bodies to the tissue of California architecture." The highly biased audience responded with grateful applause.

Speaking in less regional terms, San Luis Obispo architect Neil Deasy described architecture as "the setting in which civilization evolves," and he spoke engagingly on ways that architects "can make people be more effective at what they do" by addressing such basic human needs as territoriality, friendship, communication, and personal safety. Subsequent speakers underscored Deasy's message through specific case studies. Clare Cooper Marcus, a professor of architecture at the University of California in Berkeley, illustrated the concept of health in the environment by showing British and Scandinavian housing developments whose

Continued on page 58

Continued from page 57

design promotes personal safety through the separation of pedestrian and vehicular traffic, and psychological safety through communal cooking, dining, and recreational facilities. Victor Regnier, an associate professor of architecture and gerontology at the University of Southern California, presented a summary of findings from recent post-occupancy evaluations of housing projects for the elderly. Citing America's rapidly aging population, Regnier ticked off a list of 10 key areas—unit design, outdoor space, exercise theme, way-finding, residential corridors, socialization, centralization vs. decentralization, adaptability, management, and technology—that architects should consider in the design of housing for the elderly. Robert Marquis took the discussion a step further by describing his firm's redesign of Yerba Buena Plaza, an arson-ridden low-income residential project in San Francisco, into housing for the elderly that incorporates many of the physical, social, economic, and esthetic needs outlined by Regnier. In addition to post-occupancy evaluations, Marquis advocated the use of "take-part workshops" among users and architects *before* a building project is designed, and he cited as an example the master plan for St. Mary's High School in Berkeley that his firm drew up in joint venture with the school's students and faculty. Marquis then issued a welcome caveat: namely, that one's concern for humanism and client needs should not be used as an excuse for mediocre work. Architecture, he concluded, must always be viewed as a creative art.

One of 20th-century architecture's most creative practitioners, Louis Kahn, was the focus of a provocative talk by Robert Gutman of Princeton, who chose to analyze the architect's psychology through an examination of Kahn's Richards Medical Research Building at the University of Pennsylvania, a canonical work that is universally revered by architects and universally disliked by its users. The main problem at Richards, observed Gutman, was that the building's open-laboratory tower design was based on Kahn's idealized, neo-Platonic notions of what medical scientists should be—i.e., a unified community of researchers working together toward a noble goal—rather than what they are—intensely private, competitive, and even jealous people who wish to conceal their research from each other. At a conference dedicated to examining the needs of architecture's users, Richards represented a remarkable, if extreme, case of what happens when architectural philosophy and client concerns remain unreconciled.

During a period when American cities seem overwhelmed by the haphazard vagaries of private commercial development, it was refreshing to hear several architects describe projects which, whether publicly or privately sponsored, respond positively to the existing urban fabric. On Windward Circle in the Venice section of Los Angeles, for example, Stephen Ehrlich has designed a trio of studio, retail, and commercial structures whose imagery "tries to resynthesize the old and new," in the architect's words. Edward Lubieniecki, a landscape architect who has directed major user-analysis projects throughout the country, discussed ways that architects might deal with the esthetic and social problems afflicting such urban open spaces as Pershing Square in Los Angeles and Bryant Park in New York. His ultimate recommendation: design for people, not problems. Even more encouraging was an inspiring presentation by Virginia Tanzmann, an architect who, working with the SRO Housing Corporation, has been involved in the renovation of five single-room occupancy hotels in the Central City East area of Los Angeles into decent, long-term housing for some of the city's estimated 33,000 homeless people.

An irony not lost on many conferees was that all this talk of architectural humanism was taking place in a setting—the Monterey Conference Center—that was, at the very least, uninspiring, if not quite inhuman. The Monterey Peninsula itself, of course, is one of California's glories, blessed with a rich lode of historic architecture set into an achingly beautiful natural context. Fifty conference-goers got a first-hand look at the area's architectural heritage on a tour led by local historians Richard Janick and Kent Seavey. As the bus rolled by the Victorian cottages of Pacific Grove, Ernest Coxhead's Arts-and-Crafts St. John's Chapel, and Julia Morgan's rustic Asilomar retreat, it was difficult not to recall James Marston Fitch's earlier observation that architects of the past seemed so much better able to deal with human needs than current practitioners. Unlike the architects of today, their decisions were primarily *architectonic* rather than mechanical, and their buildings deal with climatic and contextual considerations through careful site orientation, sympathetic materials, and humane scale. Some architects working in Monterey since World War II have taken positive cues from their predecessors—one recalls, for example, Edward Durrell Stone's beautifully sited Community Hospital of the Monterey Peninsula (1963), John Carl Warnecke's harmonious additions to Asilomar (1961-68), or Esherick, Homsey, Dodge & Davis's celebrated Monterey Bay Aquarium (1983); most, however, have been sadly oblivious to one of the country's most significant regional architectural heritages. As Fitch noted, the past can be used as a model for the future. *Paul Sachner*

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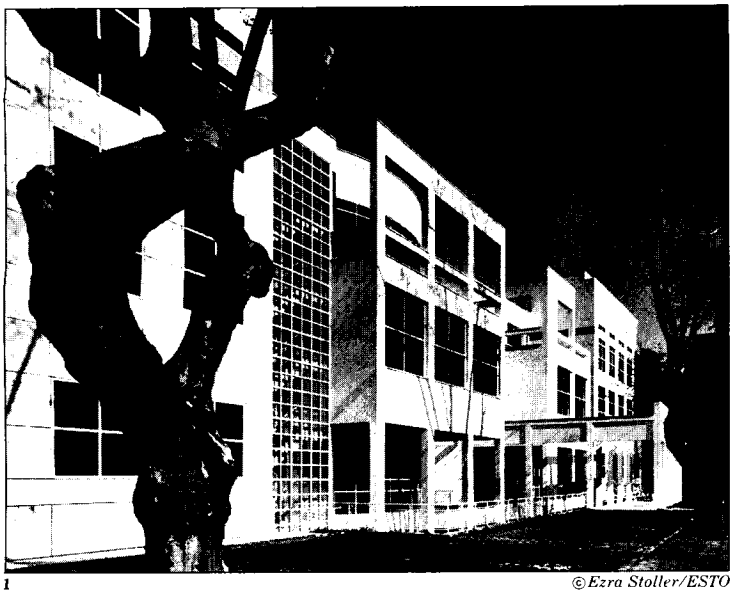
1987 AIA Honor Awards



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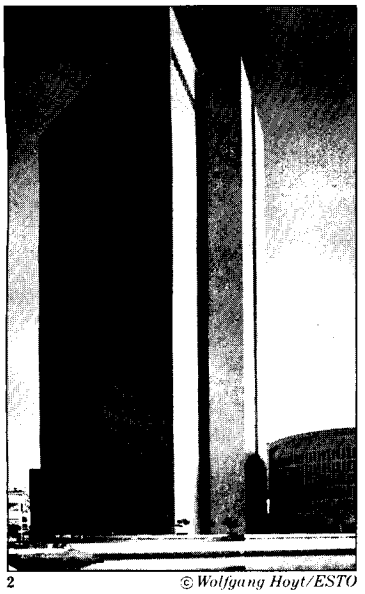

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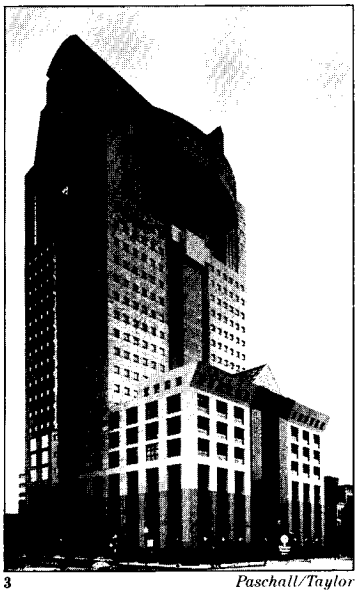

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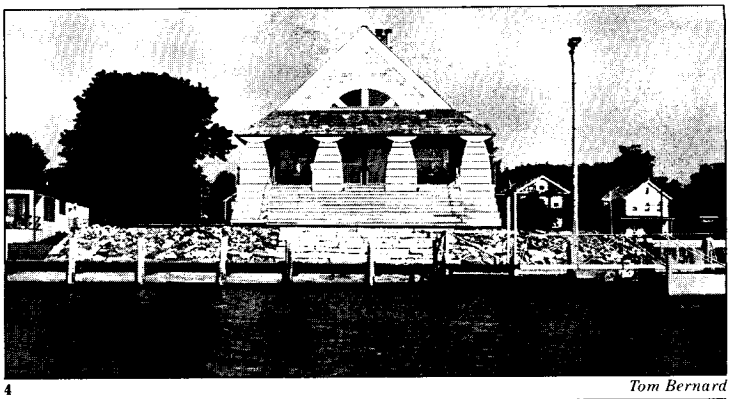
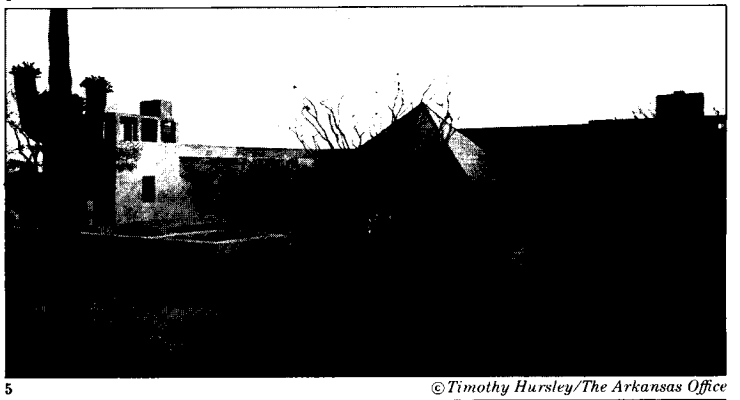


4 Tom Bernard



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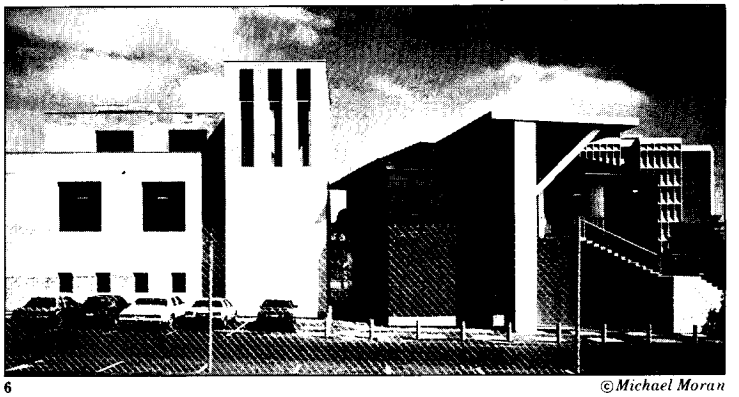

6 ©Michael Moran

1. Museum für Kunsthandwerk, Frankfurt, West Germany; Richard Meier & Partners, Architects. The jury praised this new decorative-arts museum—which is part of a scheme that also includes existing museum buildings, a park, and the embankment along the River Main—as "a mature and poetic expression of the architect's own highly disciplined language. The design, which deftly incorporates existing structures, is exquisitely related to its landscape, maintaining, in spite of its size, the scale of the original villa and its riverfront setting."

2. National Commercial Bank, Jeddah, Saudi Arabia; Skidmore, Owings & Merrill, Architects. "This monumental tower in the city of Jeddah displays remarkable ingenuity in confronting harsh desert conditions while simultaneously projecting a powerful sculptural image for the bank. The stark geometry of the triangular shape is punctuated by three monumental openings carved out of two of the walls . . . . The architects demonstrate a mastery of a minimalist vocabulary expressed in elegant, high-quality materials," declared the jury.

3. The Humana Building, Louisville, Kentucky; Michael Graves, Architect. The jury praised this 27-story corporate headquarters (RECORD, August 1985, pages 102-113) as "an important, full-blooded addition to the grand tradition of American office towers that simultaneously celebrates the city and the corporation. It presides over its downtown neighbors, offering an extraordinary silhouette and an unmistakable presence. By creating a public arcade and setting back the bulk of the structure, the architect has created a building scaled for both the street and the skyline."

4. House on Long Island Sound, Stony Creek, Connecticut; Steve Izenour of Venturi, Rauch and Scott Brown, Architect. This one-story house (RECORD, Mid-April 1984, pages 124-127) is located atop a granite loading dock on Long Island Sound and is elevated to prevent flooding. "Delightful and personal, this house . . . is replete with wonderful images inside and out. The design draws from, but does not mimic, local vernacular architectural traditions, allowing the house to strike a balance between fitting in and becoming a focal point for the neighborhood," remarked the jury.

5. Fuller House, Scottsdale, Arizona; Antoine Predock, Architect. "Located in a small community in the Arizona desert, this highly romantic and poetic interpretation of a desert encampment dips back into history and draws from nature for its inspiration. The architect has incorporated images of the land—the pyramidal study represents the distant mountains, the interior gallery symbolizes a canyon, through which precious water gently threads its way to a circular pool outside . . . . Details, colors, and materials . . . [allow] the house to look as though it grew from the surrounding desert," commented the jury.

6. ICS/ERL, University of California at Irvine, Irvine, California; Frank O. Gehry & Associates, Architects. "This cluster of buildings containing computer science and engineering classrooms, offices, and laboratories forms a high-tech village with a clear sense of place and purpose. The architect has

The buildings recently cited by the American Institute of Architects in its annual awards program are located in 12 states and two foreign countries. After reviewing the 554 entries, the nine-person jury, chaired by Henry N. Cobb, selected a winning group of 20, which, according to the jury report, represents "the considerable diversity present in contemporary American architecture." In addition to Cobb, this year's jury consisted of Janet Y. Abrams, Rebecca L. Binder, Joseph Esherick, George Hoover, Nora Klebow, Robert A. M. Stern, Anthony Vidler, and John Zukowsky.

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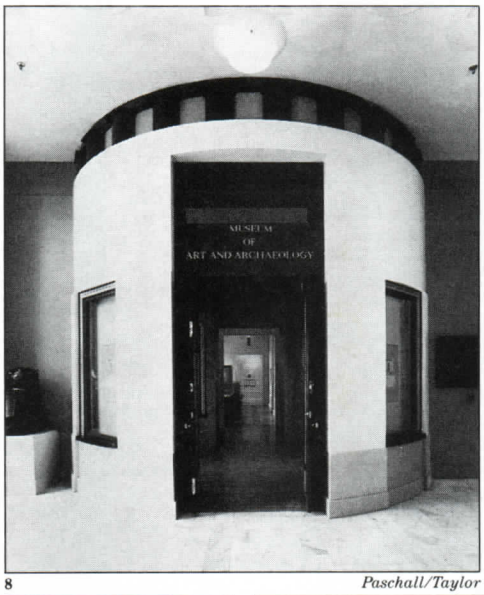

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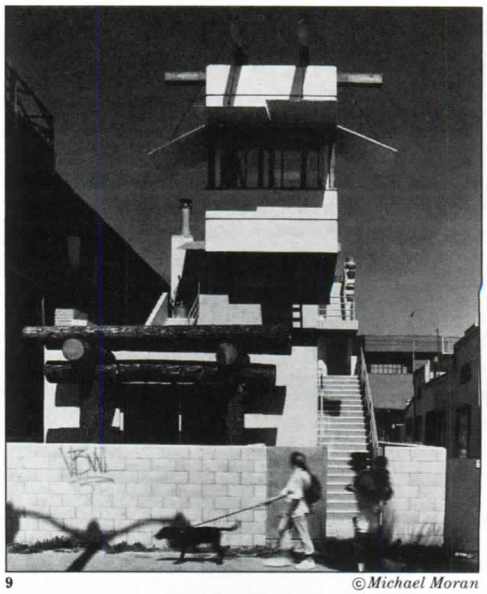

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10 ©R. Greg Hursley

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imaginatively taken a simple program and broken it up into its separate parts, creating a small campus within a campus . . . . This project shows how an architect can use a highly personal design vocabulary to gracefully organize distinctive elements into a coherent whole that maintains harmony with a campus master plan," said the jury.

7. The New York Public Library Restoration, New York City; Davis, Brody & Associates, Architects. The jury noted that "This inspired restoration of three major interior spaces in the New York Public Library . . . has almost magically revived the vibrancy and vitality of these beautiful rooms. The architect has skillfully rescued the original details and finishes from the effects of years of accumulated neglect and abuse. Expert and resourceful craft, both in new and restorative work, is evident throughout; both art and architectural detail are resplendent once again."

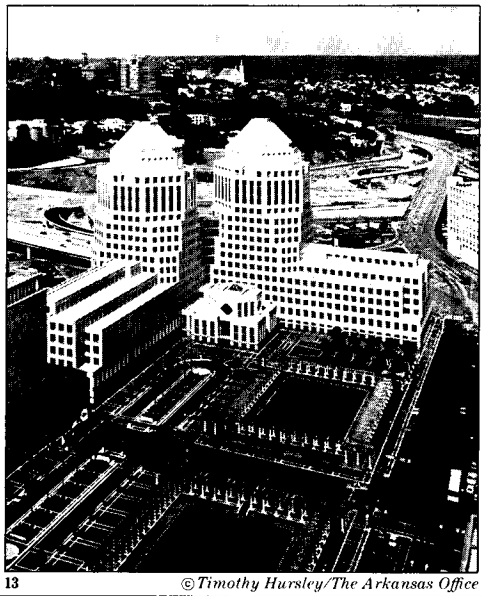
8. Michael C. Carlos Hall, Emory University Museum of Art & Archaeology, Atlanta, Georgia; Michael Graves, Architect. The jury praised this conversion of a 70-year-old landmark structure into a museum and university departments for art and archaeology as respecting "the best of the fine old building while enlivening the campus setting. Though alterations to the exterior were appropriately minimal, it now has a new presence, enhancing the university while preserving the building's historic character . . . .In the museum, the gallery spaces enrich the experience of the objects on display through the architect's skillful use of color, form, ornament, and manipulation of space, and serve to call into question the recent trend toward bland museum interiors."

9. Norton Residence, Venice, California; Frank O. Gehry & Associates, Architects. The jury pronounced this house (RECORD, Mid-April 1985, pages 86-93) "the ultimate beach shack—managing through adroit design to create a completely private living environment in this very public place. The architect has cleverly employed a collage of forms and materials in a celebration of the unexpected, which, while highly personal, is also comfortably at home in its unique environment. This house achieves the amazing feat of fitting in while standing out."

10. House for Roya and Norma Reed, Hogeye, Arkansas; Fay Jones & Associates, Architects. "This gentle house, modest and beautifully crafted, sits on its Ozark farmland site with great sensitivity, perfectly at home in the natural landscape. Though small in scale, the interior is generous and very livable, exuding a kind of old-fashioned charm . . . . Both inside and out, the house is elegantly detailed, exhibiting remarkable consistency and a skilled, careful working of materials," commented the jury.

11. Conrad Sulzer Regional Library, Chicago, Illinois; Hammond Beeby and Babka, Architects. The jury called this public library, located on a narrow triangular site, "tough and sweet, mediating well between the residential neighborhood and a busy commercial street and large park that surround it. It is a public building in the truest sense, enriching its community by providing welcoming spaces and a rich presence."

12 ©Steve Rosenthal



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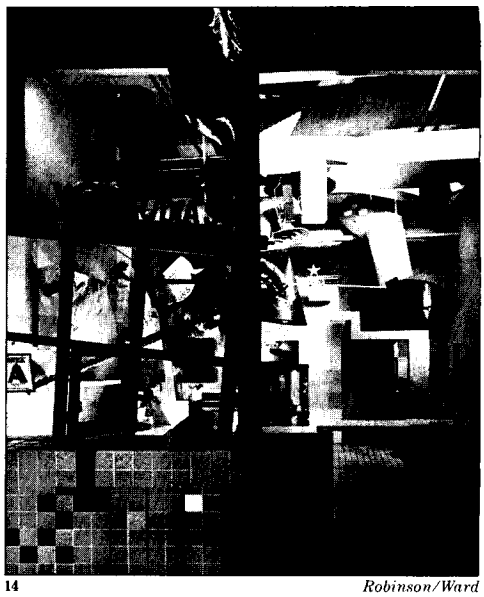

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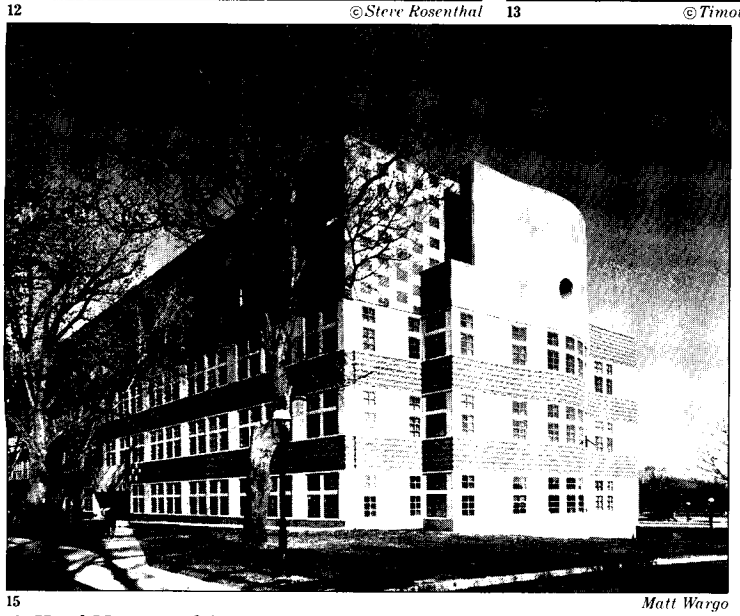

15 Matt Wargo

16 ©Tom Crane

12. Hood Museum of Art, Dartmouth College, Hanover, New Hampshire; Charles W. Moore and Chad Floyd of Centerbrook, Architects. The jury praised the architects for their siting of this college museum (RECORD, February 1986, pages 108-119), noting that the building "sits in its difficult and narrow site extremely well. It wraps around and connects two existing but stylistically different buildings, forming a series of courtyards, ramps, and gateways that allow people to walk through, under, and around this intricate and engaging structure . . . . These exhibit spaces come in a variety of shapes and sizes, their logical arrangement standing in surprising contrast to the seeming complexity of the exterior. It is a charming museum that exerts a subtle attraction to its visitors by luring them through its public spaces outside and offering the promise of mysteries within."

13. Procter & Gamble General Offices Complex, Cincinnati, Ohio; Kohn Pedersen Fox Associates, Architects. "This appealing corporate headquarters building is impressive but not overbearing, creating a powerful but restrained image for the corporation. Resisting the traditional tall skyscraper approach to office design, the architects have relied instead on twin octagonal towers that serve to frame the city rather than dominate it . . . . The design has given admirable priority to gathering places for employees and visitors, and it offers wonderful public spaces," remarked the jury.

14. Claudia's, Horton Plaza, San Diego, California; Grondona/Architects. According to the jury, this bakery "represents a new high in olfactory architecture. The delicious smells . . . are vented from the kitchen to the front door via a galvanized metal duct, enticing passers-by and drawing patrons to this witty, mad collage of colors, shapes, and images. An apparent explosion has taken place in the roll machine, with a chaotic tangle of twisted ducts and bright splatters of color on one side of the bakery and all white on the other, where the resulting rain of 'flour' has settled on walls, countertops, and floors."

15. Lewis Thomas Laboratory, Princeton University, Princeton, New Jersey; Payette Associates, Architects and Venturi, Rauch and Scott Brown, Associated Architects. The jury called this university laboratory (RECORD, August 1986, pages 104-113) "a beautifully functioning object, managing effortlessly to absorb a wide array of complex functions and to organize the interdisciplinary activity of the biology labs superbly and with great style . . . . Its subtle curves and horizontal bands of colorful patterned brick help bring the scale of the building down without reducing its strength and presence on the campus . . . . The details are interesting, well-crafted, and occasionally witty . . . which, though serving to relate the lab to the traditional architecture on the campus, also become something original and provocative."

16. Middleton Inn, Charleston, South Carolina; Clark & Menefee, Architects. "This seductive riverside inn, adjacent to a landmark garden and plantation, is a hotel that does not rely on formula solutions. The inn takes an admirable posture in the landscape; it is sympathetic to its surroundings and its historic neighbors, but is not passive. It asserts itself in subtle

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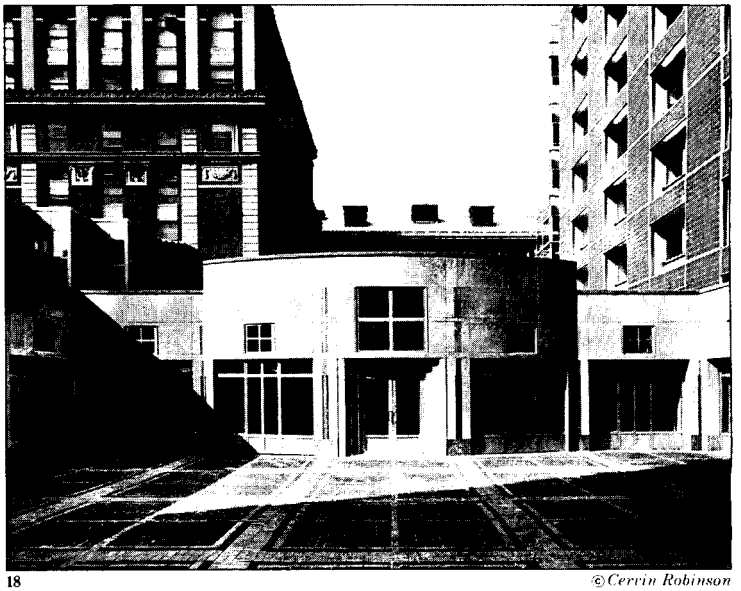

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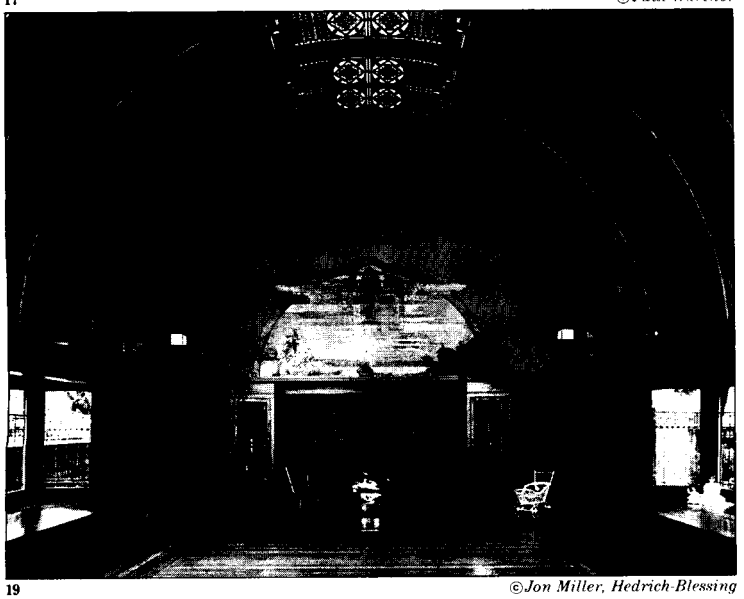

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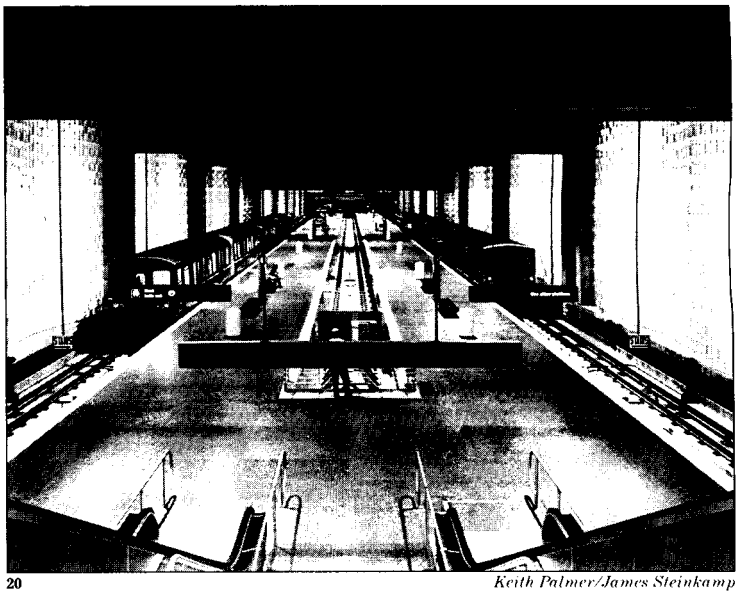

20 Keith Palmer/James Steinkamp

and unconventional ways through its abstract geometric form and its avoidance of the standard hotel's organization and details .... The finely crafted interior spaces are fresh and surprising, conveying a strong sense of warmth and coziness," according to the jury.

17. Private Residence in Western Connecticut; Tigerman, Fugman, McCurry, Architects. This house (RECORD, Mid-April 1987, pages 128-133) is, according to the jury, an "interesting and creative interpretation of an English country villa [that] works beautifully with its wooded, hilly landscape. The two symmetrical wings form a "butterfly" shape creating a dramatic entrance court on one side and a dining and entertainment terrace on the other, which opens to a view out through the woods to the rushing river below .... It is a disciplined, controlled design, which, depending on the vantage point of the viewer, offers images as refined as a grand villa or as charming as a doll's house."

18. Computer Science Building, Columbia University, New York City; R. M. Kliment & Frances Halsband Architects. The jury called this building (RECORD, March 1984, pages 126-133) a "combination of new construction and renovation [that] not only knits itself skillfully to existing buildings but also knits those buildings from different eras to each other. There is a remarkable cohesiveness to the interior as well, featuring delightful spaces such as a double-height stair hall and a student lounge that offers a view of the campus and serves as a gateway to the building through the well-designed central courtyard .... The exterior walls ... [reinterpret] the grand classical architecture of the campus in a simpler, plainer vocabulary using limestone, concrete, brick, and granite."

19. Restoration of the Frank Lloyd Wright Home and Studio, Oak Park, Illinois; The Restoration Committee of the Frank Lloyd Wright Home and Studio Foundation, Architects. The jury praised this restoration of Frank Lloyd Wright's Oak Park home and studio (RECORD, September 1986, pages 118-125), noting that the architects' work "skillfully recreates the experience of entering the working and living space of one of America's most important architects during the first decades of his extraordinary career. It is a restoration that honors not only Wright but also the architects and craftspersons who brought this important part of American architectural history back to life."

20. Rapid Transit Extension, O'Hare International Airport, Chicago, Illinois; City of Chicago/Department of Public Works/Bureau of Architecture, Architects. The jury noted that this airport rapid-transit station (RECORD, May 1985, pages 138-139) "exhibits no false monumentality; it uses light, color, and form to make the train rider's experience pleasant, interesting, and special. The undulating walls of glass block along the platform are backlit in various primary hues, drawing the passenger into the station and conveying a sense of movement and transport .... This station is a modest yet spirited statement of civic pride, a colorful and welcoming gateway to and from the city."

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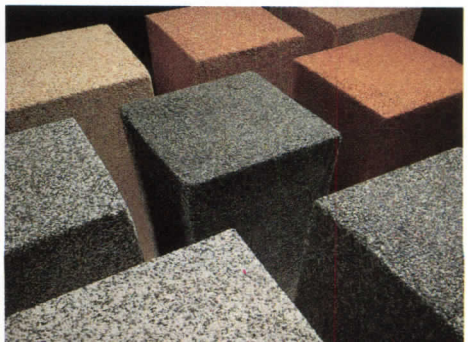

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Designing Dreams, by Donald Albrecht. New York: Harper & Row, 1986, $15.95 (paperback).

Reviewed by Richard Lavenstein

Any true fan of the Astaire and Rogers musicals knows that filming the magical "Never Gonna Dance" sequence in the movie *Swing Time* required over 40 separate takes and, due partially to the set with its huge cascade of steps, caused lacerations to the feet of Ginger Rogers. The book reviewed here is, in a sense, about the stairs that caused those famous feet to bleed. In *Designing Dreams* Donald Albrecht, an architect and curator of Production Design at the American Museum of the Moving Image in New York, traces the rise and decline and, ultimately, the meaning of modern design in the movies.

Starting with a concise history of early 20th-century European Modernism and an examination of buildings, books, manifestos, and international exhibitions, Albrecht early in his study identifies the movies as an essential vehicle by which the public came to know modern design. Citing the 1930 film *What a Widow!* as a prototypical example of modern architecture's contribution to film, "namely the vivid rendering of three-dimensional space on the flat, two-dimensional movie screen," Albrecht trenchantly analyzes the film's design from the vantage of Le Corbusier's five points of architecture. Indeed, Paul Nelson, the art director of *What a Widow!*, was an architect and a protégé and former employee of Le Corbusier's. Albrecht's analysis leads to an assertion in this and succeeding chapters: in the 1920s film-set designers, often architects by training, expressed the interests and enthusiasms of mainstream architectural Modernism. In an endless array of cinematic skyscrapers, ocean liners, offices, nightclubs, and penthouses, art directors mirrored the permanent built world with an ephemeral world supported by artistic intentions nonetheless genuine.

Designing Dreams goes on to chronicle the rapid development of set design by the avant-garde, pointing out the astonishing achievements, arguably still unequaled, of designers like Lazare Meerson *(A Nous La Liberté)*, Robert Mallet-Stevens *(L'Inhumaine)*, and Erich Kettlehut *(Metropolis)*. In these films one finds architectural composition of compelling imagery, with its highly stylized but controlled compendium of modernist elements. Those who have seen and admired these films will profit from Albrecht's introductory chapters and return to future viewings with a heightened sense of their cinematic artistry.

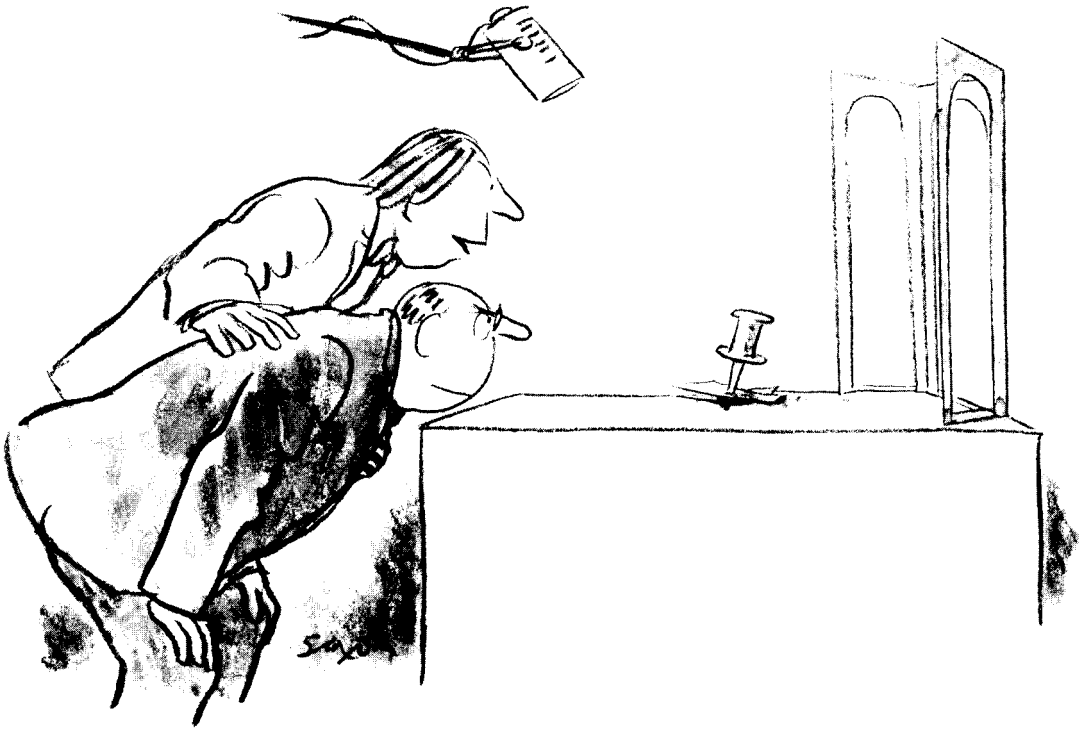
With the rise of Nazism, the avant-garde, including many artists in the film industry, dispersed. Europe's loss was America's gain, and by the early 1930s many European refugees were working in the Hollywood studio system. In the central section of *Designing Dreams* Albrecht turns to America and the great age of art moderne set design. Comparing the stylistic characteristics in art direction at three studios—Paramount, RKO, and MGM—Albrecht assesses the influence of the European influx alongside the considerable range and accomplishments of American designers, such as Van Nest Polglase, Richard Day, and the most stellar of the lot, Cedric Gibbons. These were the artists who developed the distinctive imagery of shimmering sleekness that is utterly emblematic of 1930s movies.

Yet, as Albrecht correctly insists, while modern architects saw their work heralding a new age of hygiene, egalitarianism, and technological progress, filmmakers cast modern architecture in a more equivocal role. According to the movies, Modernism was for the free-spirited, fast-moving, sometimes immoral, and undeniably rich. In its most attractive guise it offered dreams of a luxurious life, one of convenience and privilege, removed from Depression-era reality. In a less appealing (and perhaps more authentically prophetic) vision, as in *A Nous la Liberté* or *Things to Come*, Modernism promised sterility, regimentation and boredom.

The great period of modernist set design, like the studio system that supported it, was remarkably brief. By the time of New York's 1939 World's Fair, itself a late tribute to the promise of technological progress, modern architecture in the movies was disappearing. That same year the war that would eventually kill 55 million people and give us the A-bomb removed, with finality, the dreams of sleek elegance, luxury, and mobility that had nurtured audiences during the previous two scant decades.

Complimented by splendid studio photographs, *Designing Dreams* offers an engaging appreciation of sets ranging from bedrooms and bathrooms to cities of the future. And in a fitting coda to his excellent study, Albrecht looks at King Vidor's excruciating version of Ayn Rand's *The Fountainhead*. Pretentious and static, this movie, with its Frank Lloyd Wright hero manqué, caused a furor among architects when it first appeared. Incensed by its portrayal of modern architecture, design professionals protested the cinematic caricature of a serious art form. Albrecht is right, however, when he locates *The Fountainhead's* failure not in the specifics of its art direction, but in the decline of its mythic connotations, its loss of the "mystique and resonance" of Modernism.

Albrecht doesn't trace the declining course of set design, which occurs after *The Fountainhead's* appearance. One obvious cause is the advent of location shooting. Still, the movie sets of today oscillate between an unimaginative, repetitive representation of suburban reality and a futuristic nightmare where giant machines act out alien dramas in an environment of endless metal tubing. It is perhaps not so surprising then that some of the most remarkable sets in recent memory occur in *Blade Runner*. Here the image of the future is merely today's world with all its dreams magnified and intact, projected many years hence, and shown in unmistakably recognizable ruin.



Naturally, at this scale what you see is a pushpin. But blown up to 15 feet tall, the effect will be of a totality—a force that anchors the entire volume of the interior. In other words, a giant *pushpin.*

Richard Lavenstein, a practicing architect in New York City, is a movie-industry buff.

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"Die Revision der Moderne": Postmodernism on display at Williams College

By Julie V. Iovine

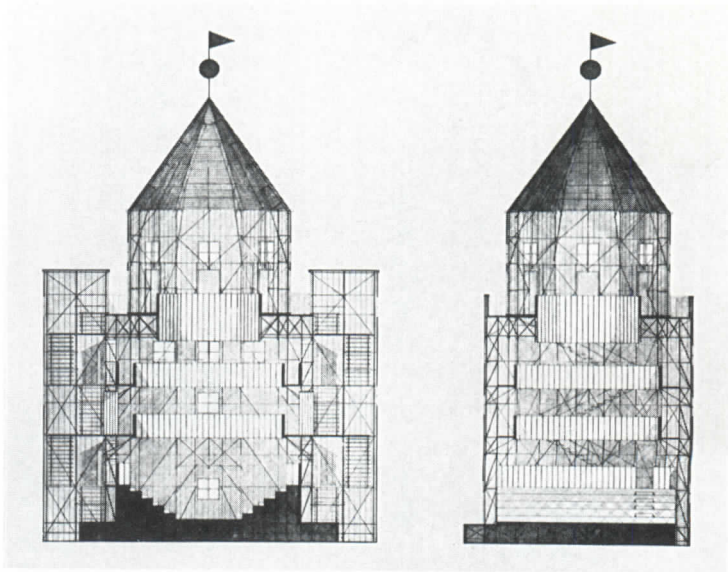
In spite of newspaper obituaries, Postmodernism is alive and well at the Williams College Museum of Art in Williamstown, Massachusetts, where "Die Revision der Moderne: Postmodern Architecture, 1960-1985" is on view though July 19. Postmodernism is, in fact, far from dead; only now it's got its own past. "There's still so much to be done," says Heinrich Klotz, visiting curator for the show, and Klotz should know. As director of the Deutsches Architekturmuseum in Frankfurt, he started collecting Postmodern artifacts in 1975, long before anyone else—including the architects involved—realized they were not only quoting, but making, history.

By 1984 Klotz had accumulated some 30,000 drawings and 500 models (many were found in basement heaps) and decided to stage "the first overview of the history of Postmodernism." The result, "Die Revision der Moderne," has its own interesting history. When it opened in Frankfurt in 1984, "the movement was still controversial and the general critics, who were *still* talking about Modernism, didn't know what to do, so they denounced it," according to Klotz. Over the next three years, the show attracted approximately 150,000 visitors in Frankfurt, 39,000 at the Centre Pompidou in Paris, and, just recently, 50,000 in Tokyo.

Today, architect-labelers have moved on and, accordingly, Williams is not planning for crowds. The giants of Postmodernism (and their monuments) have had the attention of the press for years, so most of the projects on view are not exactly unfamiliar: Robert Venturi's house for his mother, Aldo Rossi's Borgo Ticino, Helmut Jahn's State of Illinois Center, Hans Hollein's Viennese travel bureaus, and SITE's Best stores are among them. The exhibition is, however, still well worth the trip. For one reason, even though this show is one-third its size in Frankfurt, it is still huge. In addition, although the drawings and photographs of the models may well have been published before, they are not often in circulation now that they belong to the Architekturmuseum. They have become, in a sense, traveling relics: there's the model of the first ironic column (for Oberlin College) by Venturi; Rob Krier's model for the first IBA apartment block he designed in Berlin; Charles Moore's salvaged model of the Piazza d'Italia, which Moore now wants back; and six of the famed row-house models by the Chicago Seven that shook up Mies's town in 1978 with their not-so-smooth surfaces—to name a few. Even if the shock effect has long worn off, these pieces deserve homage. And more interesting is the chance to compare, up close, European and American approaches. Many of the Germans seem to interpret the Postmodern return to history in terms of reappropriating town plans from the past, while American Postmodernists more often address the subjects of symbolism and ornament. Meanwhile, the Italians investigate archetypal geometries. Curator Klotz generously accommodates them all within his sweeping definitions, which are only occasionally over-fraught with wordplay ("not just function, but fiction" is one such motto). "I don't believe in a Postmodernism that finishes off Modernism and starts something new," Klotz said recently. "The point of revision—which is the route of Postmodernism—is to keep as much, and to correct as much, of tradition as necessary. Neither all tradition nor total revolution, that's the only historical reality." Klotz went on to say that historical references are not the only options for Postmodernists; fictional, symbolic, geometric, "all kinds of references and many vocabularies are possible."

The show also intends to reassert architecture's status—and its options—as a pure art form. There are few photographs of realized work in the exhibit because, according to Klotz, completed buildings are inevitably compromises and never reveal the architect's true intent. In fact, many of the drawings shown—such as Michael Graves's tempera Triennale Triptych and Arata Isozaki's lithograph of the Tsukuba Civic Center—go beyond project presentations to become collectible art objects. The emphasis is supposed to be on process but, unfortunately, there aren't enough early rough sketches in most cases, and certain portions of the show, such as the one on Graves, have that slightly contrived look of an Arnell-Bickford monograph. The absence of architects James Stirling and Ricardo Bofill is peculiar since the show purports to cover the most important works by first-generation Postmodernists. The installation itself is a Postmodern dreamhouse within a dreamhouse, fascinating to wend through. The Williams College Museum of Art has recently been renovated and expanded with lots of effects by Moore, and, although "Die Revision der Moderne" will travel to the IBM Gallery in New York (September 1-November 7), Williams is the place to see it first, in all its revised glory.

Julie V. Iovine is a New York-based writer specializing in art and architecture.



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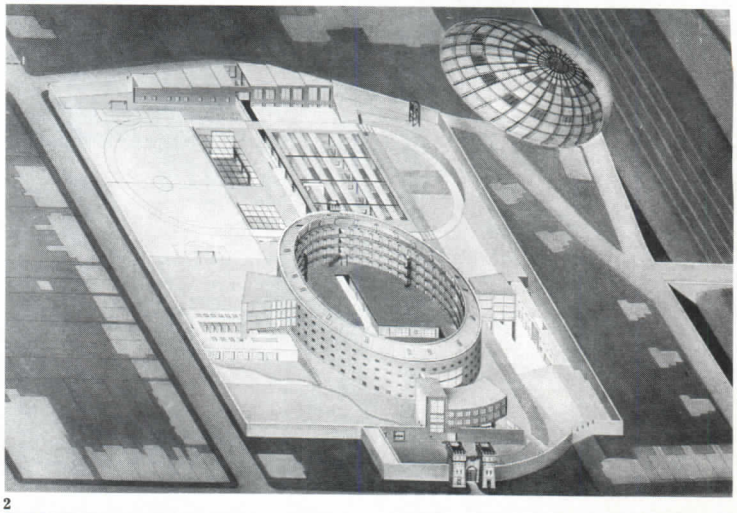

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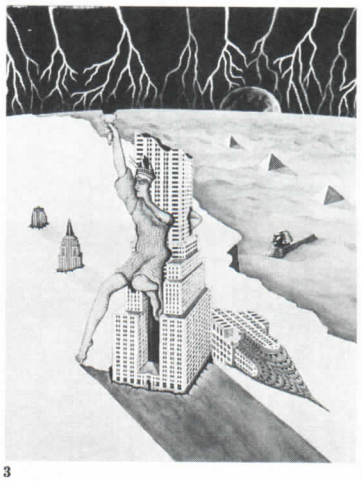

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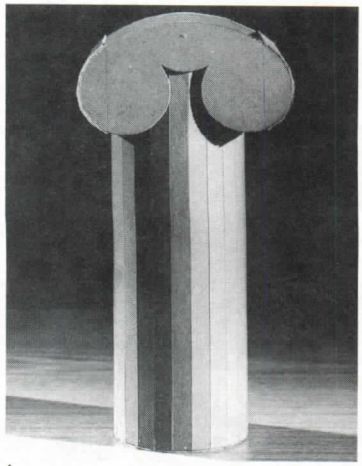

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1. Aldo Rossi, Teatro del Mondo, Venice, 1979.
2. Office for Metropolitan Architecture (Rem Koolhaas with Stefano di Mattino), project for alterations to Arnhem Prison, The Netherlands, 1977.
3. Office for Metropolitan Architecture (Madelon Vriesendorp), "Dream of Liberty," 1974.
4. Robert Venturi, model of column at Oberlin Museum in Oberlin, Ohio, 1976.

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Architects on the move

For a variety of reasons, many economic, there seem to be a lot of architects transporting themselves into new quarters these days, often into improbable (usually low-rise) buildings and neighborhoods, all over the country. A couple of things strike one immediately, while reconnoitering office after still-pristine new office, and being given a prideful grand tour. First is a big and hopeful concern with the "image" that the fresh start will project. And there is a sometimes weird-and-wonderful variety of calculated messages that the firms are trying to communicate.

Perhaps all this concern is due to the bald acceptance now that "marketing" and "selling" are no longer dirty architectural words. Doubtful prospective clients must be quickly and visually made aware of what kind of firm this is; what kind of work it does; and what kind of practicality or artistry (or whatever) they can expect. The basic message: What they see is what they should buy.

The other side of the "image" coin is a worrisome concern: to plan an efficient and organized-enough establishment to design and get out the work; and to provide a seductive-enough setting to assemble, and retain, an appropriate and happy staff. And, of course, to do all this on a relative shoestring.

Somehow, architects have never coalesced into any more-or-less standard office images, as many other professions conjure up—lawyers, doctors, bankers, for example. Architects have always settled themselves in anything from atelier garrets to corporate pomp, with a fulsome measure of the purely idiosyncratic. One thinks of Paul Rudolph's catwalks; Warren Platner's workshop filled with a barrage of yellow, tissue paper trees; the late Julian Levi's baronial Gothic chambers. But one also thinks of all those, and scads of others, as purely personal expressions and ways of working—not as a device to "sell the client." Or was it, looking back, really all that innocent?

Considering that others may be as curious as we have been about what other architects are currently doing with their new spaces—be it for image or edification—we have assembled a small sampling of what a few very different types and sizes of firms have created for themselves, in such cost-endearing but rather off-beat buildings as old truck depots, light manufacturing buildings, warehouses, and gas stations. All have, apparently, been quite successful in meeting their design and budget challenges—and the "images" they project are varied and quite provocative.
Herbert L. Smith, Jr.

Postmodern paradox

With a spirited mixture of neoclassic Postmodern and the unexpected, Robert A. M. Stern has concocted a very personal design image for his new offices on Manhattan's Upper West Side, near Lincoln Center.

The plan more or less centers on a suite of simple, but elegantly detailed spaces—reception hall, conference room, library, and Stern's own office. On entering, one is conscious of an almost 1920s aura of moldings, cornices, coved ceilings, Tuscan columns, and glazed French doors (right). An air of quiet spaciousness is augmented by soft lighting and near-monochromatic colors, plus the absence of seating in the reception room (messengers shouldn't loiter, and clients shouldn't have to wait, reasons Stern).

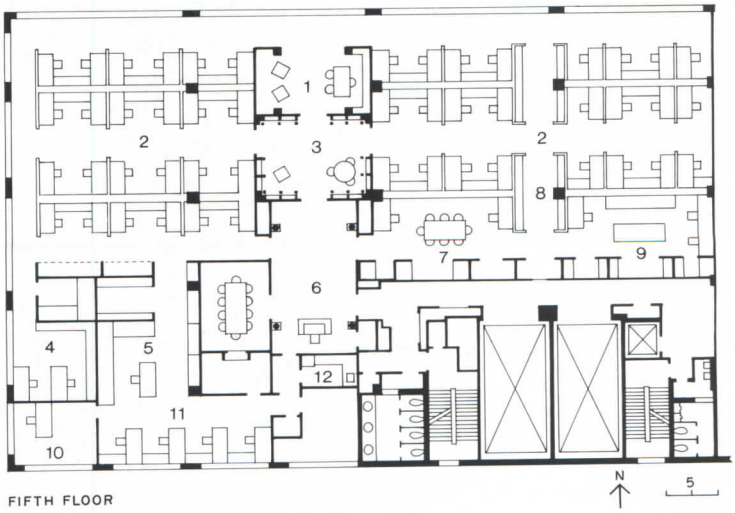
The first surprise comes as one passes by the glass doors, and glimpses open studio spaces filled with huge table lamps (page 105). Then, as a terminus of the suite, comes Stern's office—which turns out to be a sort of three-sided alcove, set in a fairly Brutalist studio loft-space (photos left). The suspended ceilings are discontinued (as they are in the rest of the floor), and the area soars to the intentionally unpainted concrete slab, which has only been wire-brushed. The open, fourth side of the office gives onto the continuous banks of original factory windows. Stern regards all this as "a dialogue, a sequence," and describes his office as "a terrace before the garden." It does serve to place him in a central, openly accessible position for his staff, with some seclusion for sessions with clients and consultants.

The offices occupy two-thirds of the fifth floor of a sturdy, six-story, warehouse and light-manufacturing building, dating from the early '20s. The tenants are mixed, including dance studios and two other architectural firms. "Lofts are the last hope for architects," Stern feels. "They are flooded with light, have great views, and are economical when outside of midtown." The location also offers less trafficked routes to Columbia University, where Stern teaches, and to the airports—as a lot of Stern's current work is in other parts of the country.

The plan of the office is fairly straightforward, with workstations, grouped by low partitions, for some 60 architectural employees—including one landscape designer—and an interiors section, which doubles as a staff conference and lunch area. An administrative group is at the back, and is equipped with word processors. More unusual is an office for three "authors," who do research for Stern's outside books and articles.

Clients' reactions to the offices seem to vary—ranging from admiring the classic elegance they imagine it "will have when it is finished," to a strong approval of the obvious cost savings of the raw surrounds. Few can help being a bit surprised. *H. L. S.*

1. *Principal*
2. *Studio*
3. *Library*
4. *Authors*
5. *Public information*
6. *Reception*
7. *Interiors*
8. *Catalog*
9. *Modelmaking*
10. *Managing associate*
11. *Administration*
12. *Kitchen*



FIFTH FLOOR

Offices of
Robert A. M. Stern Architects
New York City

Like the apparent peeling away of facades that some Postmodernists delight in, Robert Stern's offices start with a fully finished reception room (above), and progress through his own area (photos opposite), which peers up and out to the unfinished studio loft-space. The original factory windows, which look north over Manhattan and west to the Hudson, have their lower wire-glass sections replaced by clear panes.

The whimsy of the huge table lamps in the studio areas (photos opposite) stems from Stern's dislike of overall, even lighting, and his fondness for the "big lamps in old hotel lobbies." The lamps provide pools of light up and down to help counterbalance that from the banks of windows. They are supplemented by individual task lights at each board. Senior staff have priority stations nearest the windows, which have ranges of exposed radiators, retrofitted by the owner, below the glass. The existing metal window frames have all been repainted. Glimpses of these areas are visible even from the clients' conference room (below) through the glazed French doors. The room has projectors (which can be operated from an adjoining room) set in a niche. The library (bottom) is accessible from all areas.

Offices of Robert A. M. Stern Architects
New York City
Architects:
Robert A. M. Stern Architects—Thomas Nohr, project architect; Caryl Kinsey, assistant
Consultant:
Cline Bettridge Bernstein Lighting Design Inc.

General contractor:
Frank Hausler Building and Structural Consultants and Contractors

Offices of
Solberg + Lowe Architects
Santa Monica, California

Art Deco update

Glen Allison photos

The prime location of a disused 1930s gas station—at a major intersection across from Santa Monica's civic buildings—prompted architects Richard Solberg and Douglas Lowe to sign a lease, and create an attention-getting identity for their new firm of 17 people.

For practicalities' sake, all of the original structure was retained and restored with a colorful flair: the curve-fronted, glazed office is used as a computer room and a workstation for the project manager; the old lube-bay behind was adapted for a conference room (the repainted, hydraulic automobile hoist now forms a unique base for the glass-topped conference-room table).

The splayed, open, pump-island canopies were enclosed as drafting rooms, and topped with clerestories, which delineate the existing structure. An addition was built in the area in between for the two principals' offices and an open conference area; a sweeping curve of glass-block walls, in true Art Deco spirit, gives both a bright sense of the outdoors and privacy and sound protection from the busy streets.

Just as sympathetic to this period-update are the furnishings, glittery touches of neon lighting, and accents of prime red, yellow, and blue. Gas-station red, in fact, has been used as a leitmotif for the firm—for staff briefcases, sporty little cars for both Solberg and Lowe, brochure covers, and stationery logos.

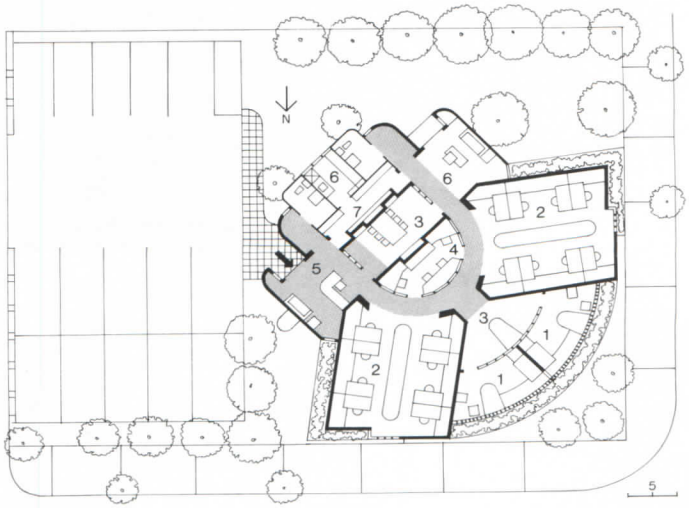
Specially designed lights at the drafting stations also flaunt the signature color, as does a projecting exterior steel beam used as a band to link old and new parts of the building.

The corner plot has been developed, with a little tree-planted garden and an office parking lot. The curving street front is edged with a bermed flower bed. The entrance and reception area are at the rear of the building off the auto turnaround. Its presence is marked from the street by an antique gas pump (painted red, of course) containing a neon "T-square lightning bolt" in its globe instead of gasoline. The only other identity sign is two horizontal stripes of red neon attached to the wall near the door.

Despite this reticence in signage, the strong appeal of the little building, coupled with its highly visible location, has caused a lot of local discussion and enquiry—and has brought several clients, with real projects in hand, walking in directly off the street. The bright scene of busy and cheerful activity within has clinched the contracts.

As an added promotional value (plus some added income), some television producers have eyed the building's fresh Art Deco qualities, and rented the space for their films and commericals. Asked if the rehab was worth it in a leased building, Solberg and Lowe say it has already more than repaid the cost and effort. *H. L. S.*

1. *Principal*
2. *Drafting room*
3. *Conference*
4. *Computer*
5. *Reception*
6. *Lounge*
7. *Library*



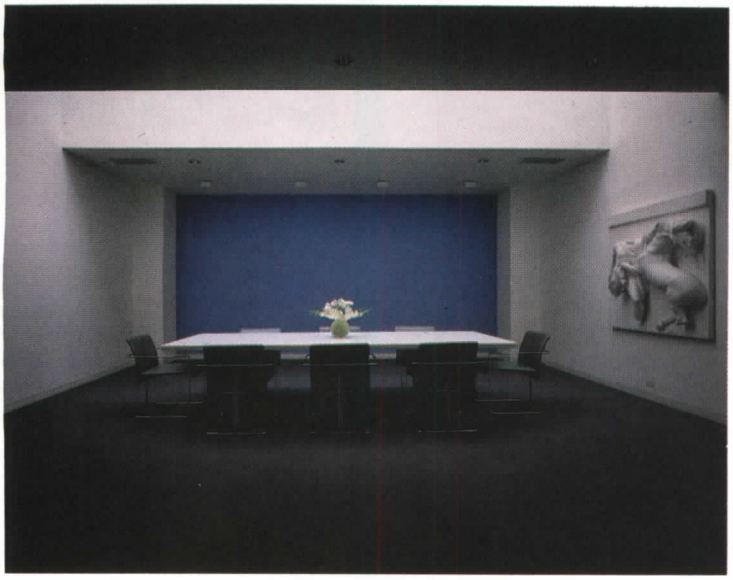
The crisp, streamline character of the original gas station has been retained both on the exterior (top) and the interiors. Two drafting rooms are fitted under the existing pump-island canopies, and focus on the original glassed-in office—now a room for CAD computers (opposite bottom). Glass block walls form offices for the partners (opposite top), which are fronted by an open conference area (above).

Offices of Solberg + Lowe Architects
Santa Monica, California
Architects:
Solberg + Lowe Architects
Engineers:
Brian Cochran and Associates (structural); G & W Electrical Engineers (electrical); A. C. C. O. (mechanical)
Consultants:
Harold T. Kushner and Associates (energy analysis)

Offices of Edward Larrabee
Barnes Associates, Architects
New York City

Contemporary cool

Robert Miller photos



The simple, serene elegance that pervades so much of the work of Edward Larrabee Barnes is also the hallmark of his new offices in a loft building on the northern edge of New York's Greenwich Village.

In the choice of location, Barnes has joined the increasing migration of architects away from the soaring rents and traffic-jammed streets of midtown Manhattan. The building was constructed earlier in the century for light manufacturing. It has typical, window-lined, open floors; tall, 15-foot ceilings; and rents of about $11 per square foot—a fraction of the cost farther uptown. Other architectural firms have also moved into the mixed-tenant building, which has had its lobby and elevators appropriately spruced up for the new clientele.

The Barnes office occupies the top, ninth floor of 18,000 square feet. The building is just enough taller than the immediately surrounding structures to afford sweeping views and abundant light. The office plan has been organized with great clarity and a constant eye toward long vistas—both real and created.

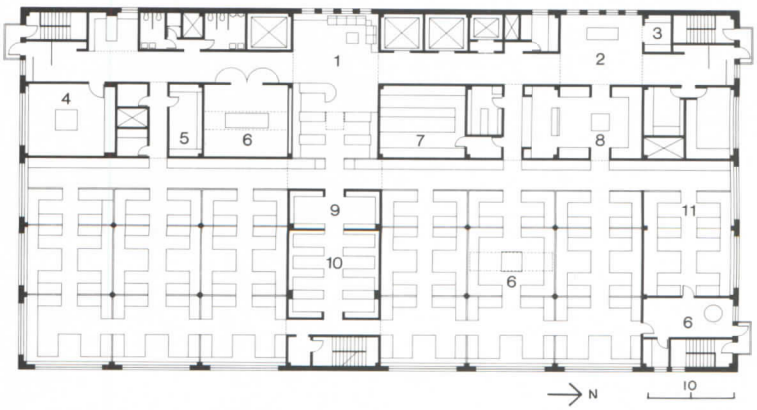
As a visitor enters the reception area, the eye is led in three directions, through a chiaroscuro of shade and light, to luminous, back-lighted plastic panels at the ends of the white-walled, gray-carpeted spaces. Ahead, the vista leads past a skylighted area for the administrative staff—each with a personal computer at commodious, white desks—and through the central working library, and a samples room. To the left, the wide corridor leads to the service areas and a lunchroom adjoining a small kitchen. The main conference room, and Barnes's own office, are off the corridor to the right. Direct access to the three studio areas is at midpoint along the halls.

These calm, simple vistas are perked up by a bowl of flowers here, a white sculpture-cast there, or a panel of deep blue. All this area has suspended ceilings of gypsum board or acoustic tile. Ceilings of the big conference room, however, rise to the roof line, and are capped with a long skylight, fitted with an electrically operated shade to darken the room for slide projection; meals are often served here, when meetings stretch through lunchtime.

The three studios have full-height, exposed ceilings, painted white. The floors are gray, the seats black, and all other fittings are white—including the architectural models. Workstations are grouped by low partitions; one of the central squares is arranged to serve as a staff conference and review area. The smallest of the studio spaces, and an adjoining small conference room, serve the interiors department.

The tidy, serene image that confronts a client visiting these working spaces should reassure him of the quality, contemporary design he can expect from the firm. *H. L. S.*

1. *Reception*
2. *Lunchroom*
3. *Kitchen*
4. *Principal*
5. *Archives*
6. *Conference*
7. *Storage*
8. *Plan desk*
9. *Library*
10. *Samples*
11. *Interiors*



A long, elegant perspective past the reception desk faces a visitor seated on the comfortable banquette of the waiting area (opposite top). The same cool ambience awaits in the nearby, skylighted conference room (opposite bottom). In contrast to the pools of light accenting those areas, the design and drafting spaces for a staff of 50 are bright and view-filled—but equally serene and well-organized.

Offices of Edward Larrabee Barnes Associates
New York, New York
Architects:
Edward Larrabee Barnes Associates—Alistair Bevington, principal-in-charge; Deborah Haffly, John Barnes, design team
General contractor:
Structure-Tone

Offices of
The Ehrenkrantz Group, Architects
San Francisco

Constructivist retrofit

Peter Henricks photos

A refurbished, 1855 coffee-bean warehouse, near San Francisco's Embarcadero, is a highly appropriate setting for this Ehrenkrantz branch office—the firm is well known, among many other architectural endeavors, for the restoration of the Woolworth Building, and the 1855 Tennessee State Capitol.

The firm's search for space had ranged from new, downtown high-rises to warehouses in less convenient vicinities. "What we were seeking was a balance between office and workshop/studio space . . . a spirit and vitality," comments Christ Kamages, director of the office. They have managed all that with great economy.

The owner had previously tidied up the Georgianish, historic-landmark building. Most of the first floor, with a separate, side-street entrance, was rented to a law firm. What remained was a big, 30-foot-high space of 6,500 square feet, with brick walls, and an exposed, wooden support structure—all well lit by multiple skylights. There was a private entrance, with lobby and stairs, off the main street.

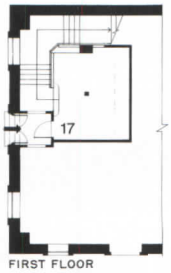
With this to start from, and a long-term lease, the front portion of the second level was arranged with reception, conference, and administration spaces; the remaining big space was converted into a sort of constructivist-fantasy studio "village." Geometric forms of white plasterboard, replete with peekaboo slots and varied profiles, were used to create workstations—giving considerable privacy while maintaining a sense of community. An integrated light band tops the partitions. The idea was to "express the new use within the fabric of the building, creating an energetic juxtaposition of old and new."

A wide balcony, created over service areas and a library at the back, provides additional work and computer-terminal space for the staff of 35. It also provides an area, when needed, to assemble members of a single project team; custom-designed furniture mounted on casters makes the area easily adaptable. The offices were done within a very tight time-and-budget framework—the entire project met a two-month design and construction schedule at a cost of $18.50 per square foot, including all built-in furnishings.

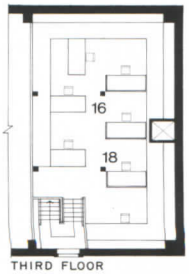
The studio "village" idea is carried further by the staff, who feel that the big, brick-walled room suggests a "courtyard." To further that idea, the skylight-dotted ceiling is painted sky-blue. Whatever the validity of those analogies, the total impact of the space is that of a lively, bright, and visually stimulating environment. Visiting clients can't help but be fascinated. The combination of the rehab and the constructivist cubicles also reminds one that, in addition to his restoration work, Ehrenkrantz first became well known during the baby boom for his schools made of stock parts. *H. L. S.*

1. *Marketing/conference*
2. *Conference*
3. *Project managers*
4. *Library*
5. *Kitchen*
6. *Programming/operations*
7. *Waiting*
8. *Reception*
9. *Files*
10. *Blueprint*
11. *Director*
12. *Office administration*
13. *Word processing*
14. *Copy machine*
15. *Office*
16. *Workstations*
17. *Entry/gallery*
18. *Computers*

SECOND FLOOR



FIRST FLOOR



THIRD FLOOR

Located in the historic former Trinidad Coffee Bean Warehouse (top), this branch office adds a lively new twist with the partitioning of the studio space (above). A balcony (opposite bottom) increases working area. The first-floor lobby, and the upper reception area (opposite top) double as display galleries.

Offices of The Ehrenkrantz Group
Trinidad Coffee Bean Warehouse
San Francisco, California
Architects:
The Ehrenkrantz Group—Christ J. Kamages, director of design; Sandra S. Turnbull, programmer; Karen A. Gibb, project architect; Karen Presting, construction coordination.
Engineers:
Forell/Elsesser Engineers, Inc. (structural); Marion Cerbatos & Tomasi; (mechanical/electrical)
General contractor:
R. Aita Construction

Offices of Simon Martin-Vegue
Winkelstein Moris, Architects
San Francisco

Well-crafted composure

©*Douglas Salin*

©*Jane Lidz photos except as noted*

"We wanted offices in a nonfussy crafts tradition," states Cathy Simon, a founder of this fairly new, progressive architectural and interior-design firm. "We wanted them informal, but non-'building-standard', and no plants."

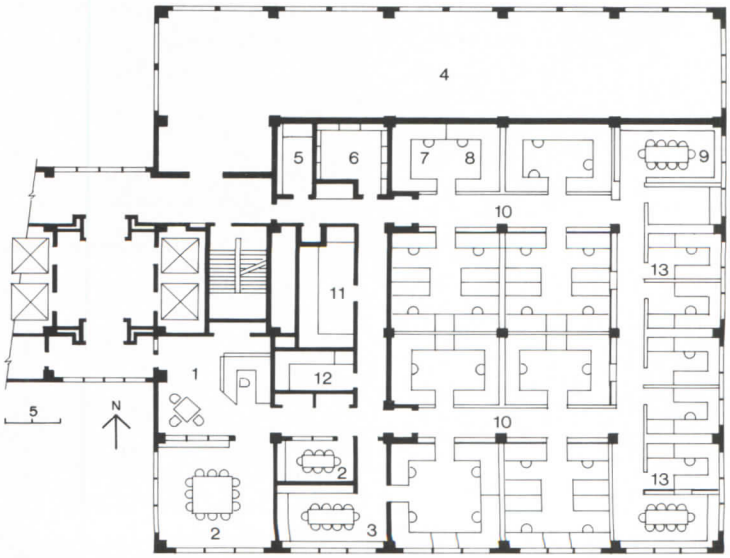
This seventh-floor office is at the top of a new, three-floor addition to a low-rise building, on San Francisco's Second Street. There are panoramic views over the town and the bay. To share those views with the entire staff of 36, and to stress the firm's plan of team cooperation, all walls were kept low in the design, drafting, and production areas. This openness extends even to the library and the bank of cubicles for the five principals, all of which also employ low partitions, that range along the back, eastern band of windows. Inside each station, the cubicles are fabric-covered, serving as tackboards as well as improving acoustics.

To augment the focus on the view and the colors outside, soft muted grays were used on all walls and cabinet work. Glare is reduced by tinted glass in all windows, and by thin-slat blinds. Square boxes for up-lighting are attached to each structural column to further create a glarefree, open atmosphere and to balance the daylight. Ceilings are white, and floors are hardwood in the public spaces, with carpet in the work areas. Furnishings have a simple craft-look and blue upholstery. "To prevent everything from being too passive, or stuffy-corporate," notes Lamberto Moris, one of the principals in charge of the design of these interiors, "a bright, red-dash motif was devised—painted on the floors, woven in the carpets, and echoed in thin lines along the walls and cabinets."

The sense of openness is continued by inserting windows and transoms on the interior walls of the main conference rooms, and by using glazed doors, with frames echoing the red accent color. The adjoining reception area doubles as a gallery, as do the conference rooms and an interior corridor along a service area, for exhibiting work in progress. All the traffic patterns are direct, uncluttered, and permit easy access for all staff members to one another, "to encourage the flow of ideas and creativity." The only areas not totally open are two conference rooms for those who need a quiet space, and areas for service, samples, and storage.

A paramount image that the founders of the firm wanted to project (all had considerable previous experience working with other firms) was of producing work of quality, as well as responsiveness to deadlines and budgets. They have succeeded with these efficient, uncluttered, and generous-sized spaces, which are well-designed, without being "artsy," and well-crafted without being "craftsy." *H. L. S.*

1. *Lobby*
2. *Conference*
3. *Interiors workroom*
4. *Expansion*
5. *Slide room*
6. *Samples*
7. *Bookkeeping*
8. *Public relations*
9. *Library*
10. *Production area*
11. *Print room*
12. *Kitchen*
13. *Partner stations*



A great sense of openness pervades these quiet but carefully designed offices. Where enclosure is sometimes desirable, as in conference rooms off the reception area (opposite top), glazed doors and windows help control sound; red door frames enliven the short corridor (below). All working spaces (below right) have low partitions, even the principals' cubicles and a staff conference area (opposite bottom).

Offices of Simon Martin-Vegue Winkelstein Moris
San Francisco, California
Architects:
Simon Martin-Vegue Winkelstein Moris—Lamberto Moris, Phyllis Martin-Vegue, principals-in-charge/ project designers; Frank Chin, project team
General contractor:
Plant Builders, Inc.

Southern panache

Gordon H. Schenck, Jr. photos

This rather astonishing office building (at least for an architectural firm) began as a nondescript, windowless 1947 trucking warehouse. It was built directly out to its lines in a declining area fringing downtown Charlotte. In its favor was 44,000 square feet of space on two floors, at a cost worth considering—plus the chance that an upgraded structure would help revitalize the otherwise convenient neighborhood. The architects decided to take the risk. But it was a building "that needed a little coaxing to make it work," wryly comments project manager David K. Wagner. There was also a very tight budget.

The firm, which has branches in Washington, D. C., and New York City, wanted its headquarters building to convey an image that would reflect the design strengths it was seeking to market to major clients—particularly in the corporate and spec-office areas. In effect, the architects wanted a full-scale example to show how they could economically solve their clients' typical problems, both creative and functional, with great aplomb—"not necessarily just a particular style, but deliberately theatrical," adds Wagner.

Their own most pressing functional problem was to introduce light and a focus into the big, boxy plan. That was solved by a central, skylighted atrium, with a hierarchy of spaces surrounding it for the staff of 140. Conference rooms and offices for the principals share its light via glass-block walls at the four corners.

As for style—one could possibly call it Postmodern Antebellum, with overtones of Art Deco and the Corporate '50s. But it does have drama, and it somehow works as a creative mix—the more technically oriented the working area, the less exuberant the design. The resurfaced, concrete-block facade evolved as a sort of very pleasant, quasi-Georgian style, with a pediment reflecting the shape of the skylight, a keyhole window to light the boardroom, and pilasters and arches to break up the expanse of blank wall.

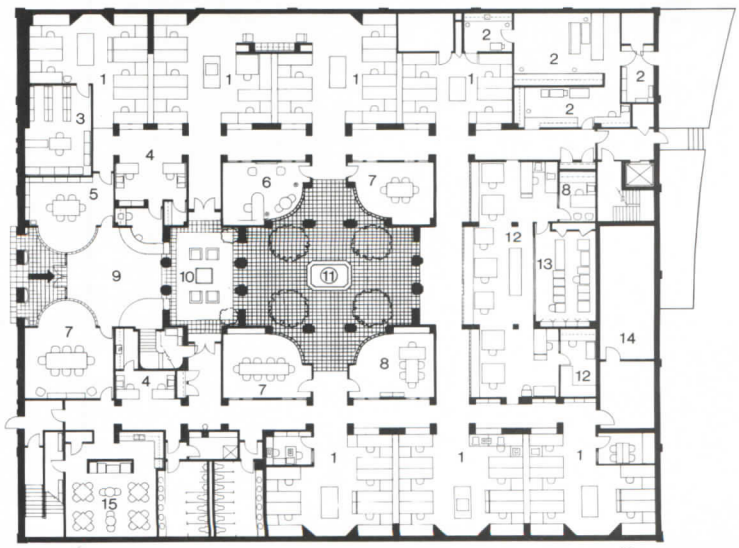
The plan divides the staff into smaller operating units, with six studios per floor; each has a complete team and a CAD operator. Engineers are grouped into areas according to discipline. All have ready access to a conference room, and to the firm's executives. Another nearby warehouse was purchased to provide space for archives, a model shop, and parking.

The architects' gamble that their building would nudge the neighborhood into change is already paying off. New structures are materializing all around: a public library, cultural buildings, a market, and an apparel trade mart. One has to agree with the North Carolina AIA, which gave it a 1986 Award for Excellence in Architecture, calling it a "tour de force that comes off." *H. L. S.*

Offices of Clark Tribble
Harris & Li, Architects
Charlotte, North Carolina

Vital to the successful conversion of a windowless warehouse into an eye-catching, functional office, a central atrium (above) gives both light and vistas to working spaces, conference rooms, and the boardroom lounge (opposite bottom). The facade (opposite top) uses simple, economical means to acquire a special new character that masks the former blank boxy structure.

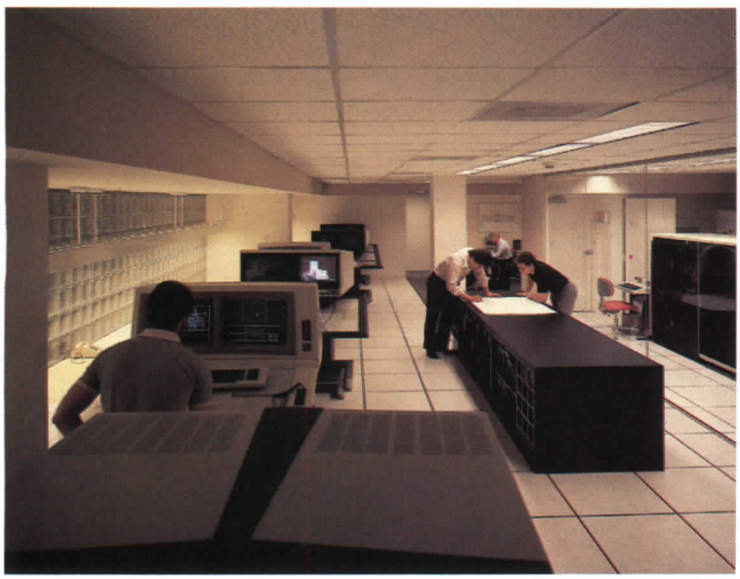
The ample space the old warehouse contained has allowed commodious, separate areas for all the firm's various working functions—as well as big "public" spaces and lounges. Partners' offices (below) on the second floor are placed for easy access by the staff. Studio areas (opposite top left) are separated from the corridors by a colonnade, and each has CAD stations. The main computer room (opposite bottom left) is enclosed for greater quiet. In addition to an impressively sized reception area and lounge at the main entrance, an even larger suite is formed by the boardroom (opposite right) and its adjoining lounge area. The boardroom is flanked by a rear-screen projection room for special client presentations and design reviews.

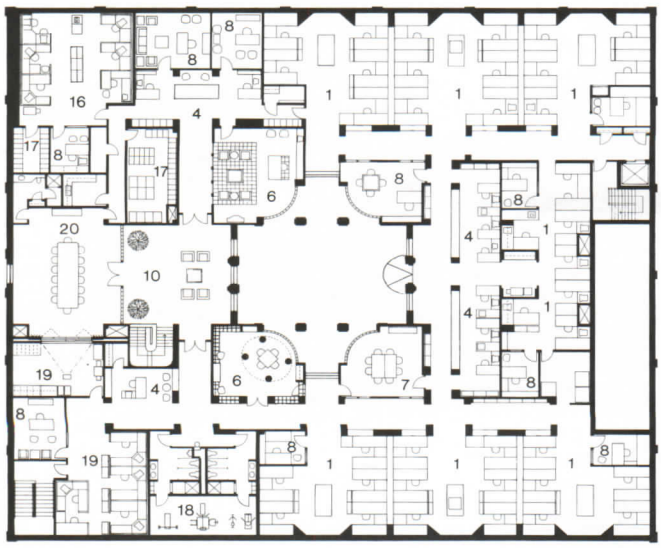


FIRST FLOOR

10

Offices of Clark Tribble Harris & Li, Architects
Charlotte, North Carolina
Owner:
CTHL Properties
Architects and engineers:
Clark Tribble Harris & Li—Joseph M. Harris, principal-in-charge; William G. Monroe, senior vice president/Charlotte; David K. Wagner, project manager; Richard Bartlett, project designer; Margaret L. Lowder, project interior designer
General contractor:
D. L. Rogers Construction Company

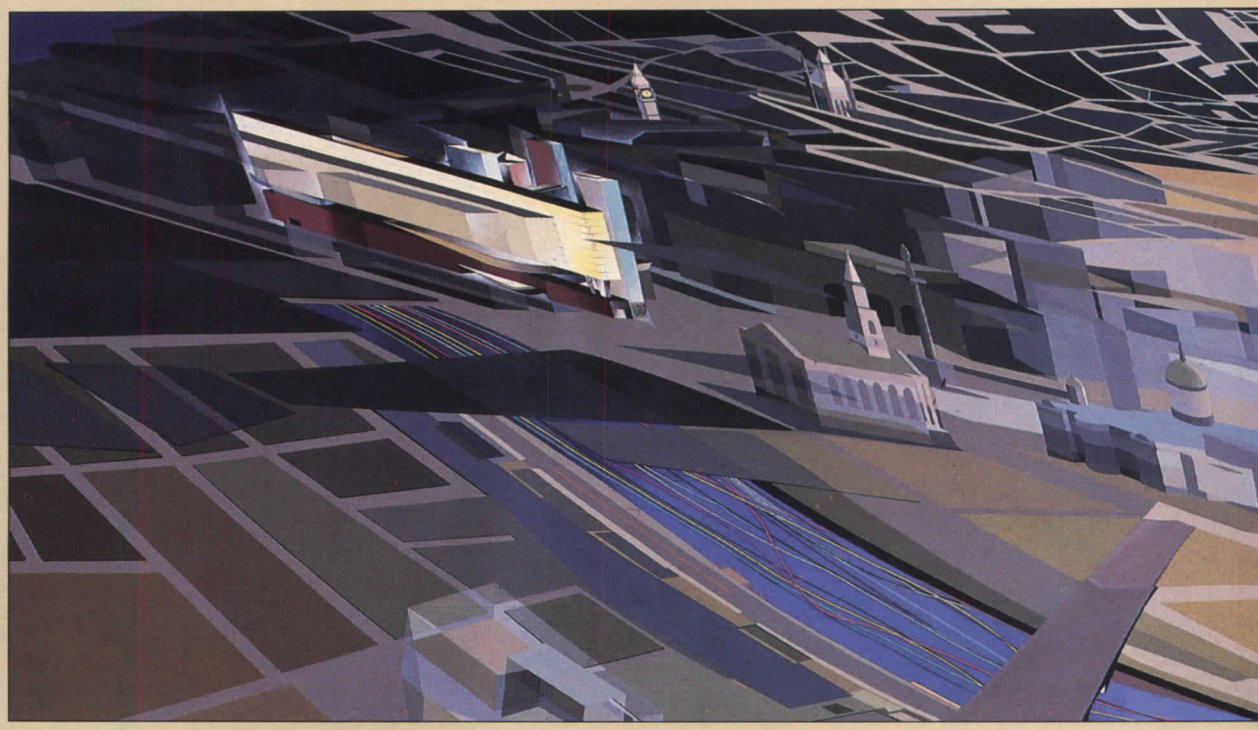




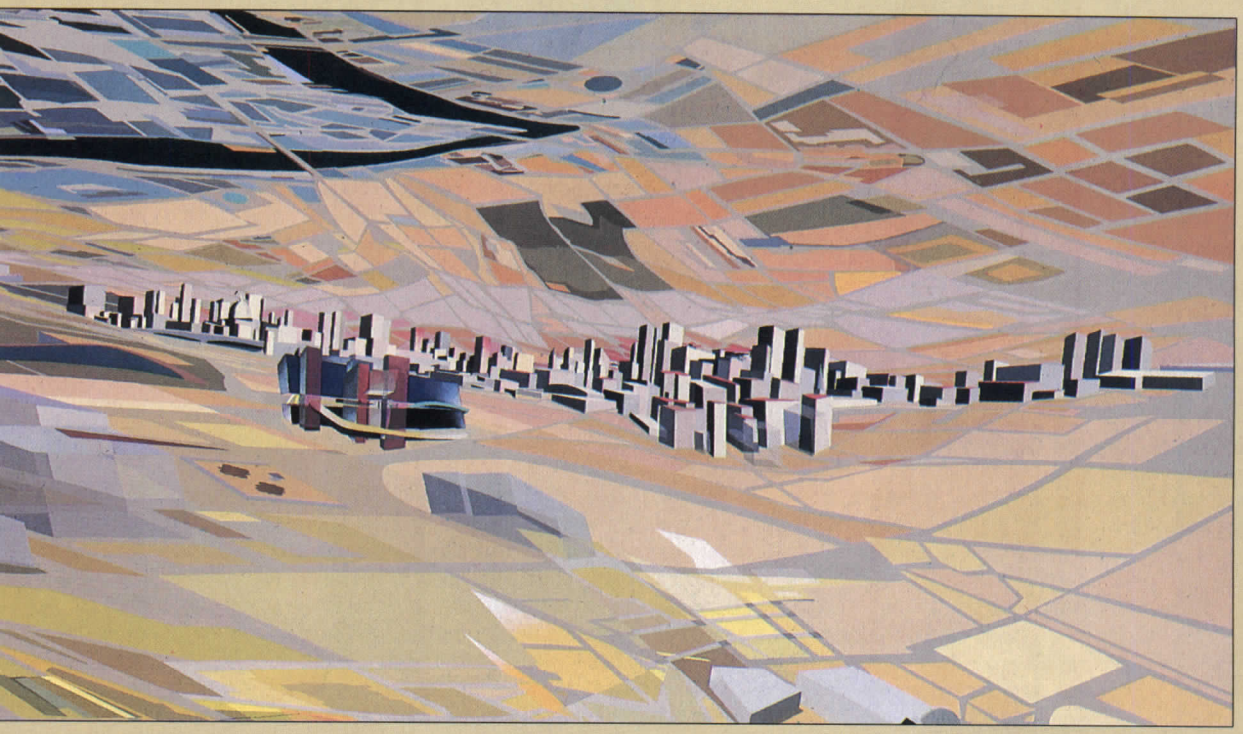
SECOND FLOOR

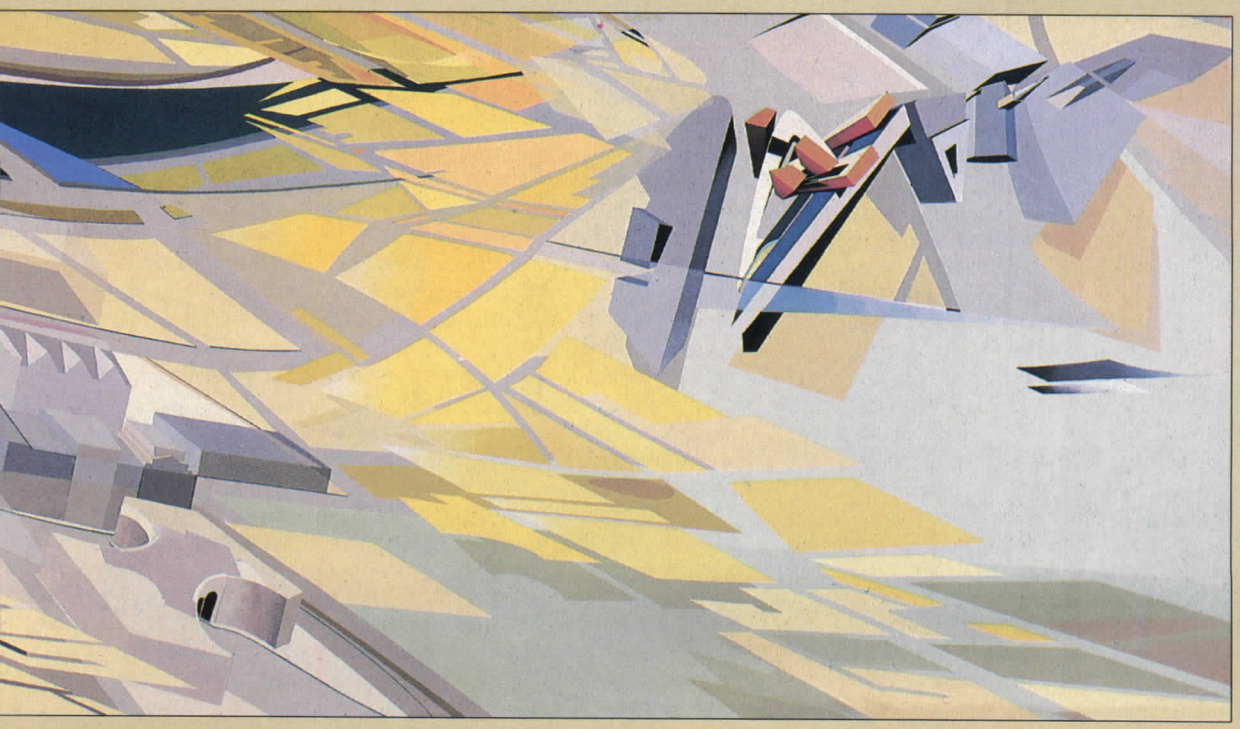
1. *Studio*
2. *General services*
3. *Interior samples/workroom*
4. *Secretarial*
5. *Library/conference*
6. *Principal*
7. *Conference*
8. *Office*
9. *Reception*
10. *Waiting*
11. *Atrium*
12. *CAD*
13. *Computer*
14. *Mechanical*
15. *Lunchroom*
16. *Accounting*
17. *Archives*
18. *Exercise room*
19. *Marketing*
20. *Boardroom*

Beyond the Peak



Three projects by Zaha Hadid, Architect





Countering the often-made claim that she is a "paper architect," Zaha Hadid says, "I wouldn't go through all the trouble it takes to do the drawings if I didn't fundamentally believe my proposals could be built."

When the winner of the Hong Kong Peak competition was announced in 1983, it was as if a bolt of Constructivist lightning had struck from nowhere. Who is Zaha Hadid? How could *she* beat out 600 entrants with wildly distorted drawings that reinterpreted the programmatic requirements? Four years later, Hadid is still shocking the architectural establishment with her new-wave modernity of dynamic forms that look as if they are about to fly off into outer space. And her reputation as a "paper architect" remains unchanged. The decision by the competition sponsors to abandon their plans for a "gentlemen's" club has left the 36-year-old, Baghdad-born architect still waiting for a client bold enough to realize her visions.

Despite the fact that she has yet to see a single one of her schemes constructed, Hadid has persevered in exploring new architectural territory through radical methods of representation. The juxtapositions of plans, sections, elevations, and skewed perspectives that she packs onto a sheet of paper or canvas have earned her international attention, including retrospectives of her work held in London, Tokyo, Berlin, and this month at the Max Protetch Gallery in New York. Brilliantly colored and defiantly explosive, they have led more conservative onlookers to dismiss her perfunctorily as an artful illusionist whose gravity-defying proposals are inherently unbuildable.

But underlying Hadid's skillful rendering is a serious commitment to build. "I wouldn't go through all the trouble it takes to do the drawings if I didn't fundamentally believe my proposals could be built," the architect insists, pointing out that the structural feasibility of every project is carefully scrutinized by the distinguished engineering firm of Ove Arup & Partners. Those who remain skeptical as to whether Hadid can survive the leap from watercolor-and-acrylic dreams to precision-detailed realities will soon be able to assess the evidence for themselves: the architect's interior renovation of a London residence is nearly finished, and her proposals for two buildings in Berlin—a seven-story sliver of offices and a residential block—have just received planning permission and are slated to begin construction next year (pages 122-129).

Hadid's unconventional design methods were first developed during her student days in the mid-1970s at the Architectural Association in London, where she has taught for the past seven years. Under the tutelage of Rem Koolhaas and Elia Zenghelis, the founders of the Office for Metropolitan Architecture (OMA), she was confronted with the task of transforming a Malevich tectonic into a building with a real site and program. "The assignment was to rewrite the script of Modernism, and in order to do it, I felt I needed a new calligraphy," the former mathematics undergraduate explains. "It led me to use drawing as research, a way of testing a design from every angle. I began to layer images to tell stories about the real intentions behind the architecture." The heroes of her fiction, of course, have remained the Russian Suprematists of the 1920s. "What interests me about them is that their experiment was never finished. They have served as a point of departure in teaching me how to liberate architecture and invent new programs," she maintains.

Judging by the projects compiled for this portfolio, Hadid's revolutionary models have taught her well. Though her language has remained rooted in Russian Suprematism, these three mixed-use buildings reflect a fragmented abstraction far more adventurous than the "delirium" of OMA, with whom she was briefly associated. Her latest work also departs from the utopianism of the early Modernists in abandoning universal space for site-specific solutions that address the larger issue of urban design. Designed as a series of extruded elements, each often containing a separate activity, her constructions are bound together by circulation systems that establish connections to neighboring streets and buildings. This approach is exemplified by Hadid's entry in the 1985 Grand Buildings competition, a cluster of office towers proposed for a block southeast of Trafalgar Square. In her painting titled "Night and Day" (preceding pages), the towers are sequentially portrayed at different times of the day, at different scales, and from different perspectives within London to explain their relationship to Trafalgar Square, to the city skyline, and, grandly, to the world beyond. Closer views of her office complex (opposite page) reveal a two-level pedestrian ramp and a subterranean lobby that extend the public spaces of the square and nearby Charing Cross Station into the complex.

Hadid colors her drawings (and intends to do the same with building materials) in order to capture the particulars of a project's location and time, rather than to signify function through a code of abstraction as did her purist predecessors. The Grand Buildings scheme, for example, is rendered in monochromatic watercolors to evoke the gray, misty weather of London (opposite page), while the Kurfürstendamm office building in Berlin is painted in primary colors appropriate to the bright lights and hard edges of its locale (page 124). The vibrancy of her palette and the flared shapes of her geometries strike a sensual note that evokes late Modernism (such as the work of Oscar Niemeyer), in addition to Suprematist sources of inspiration.

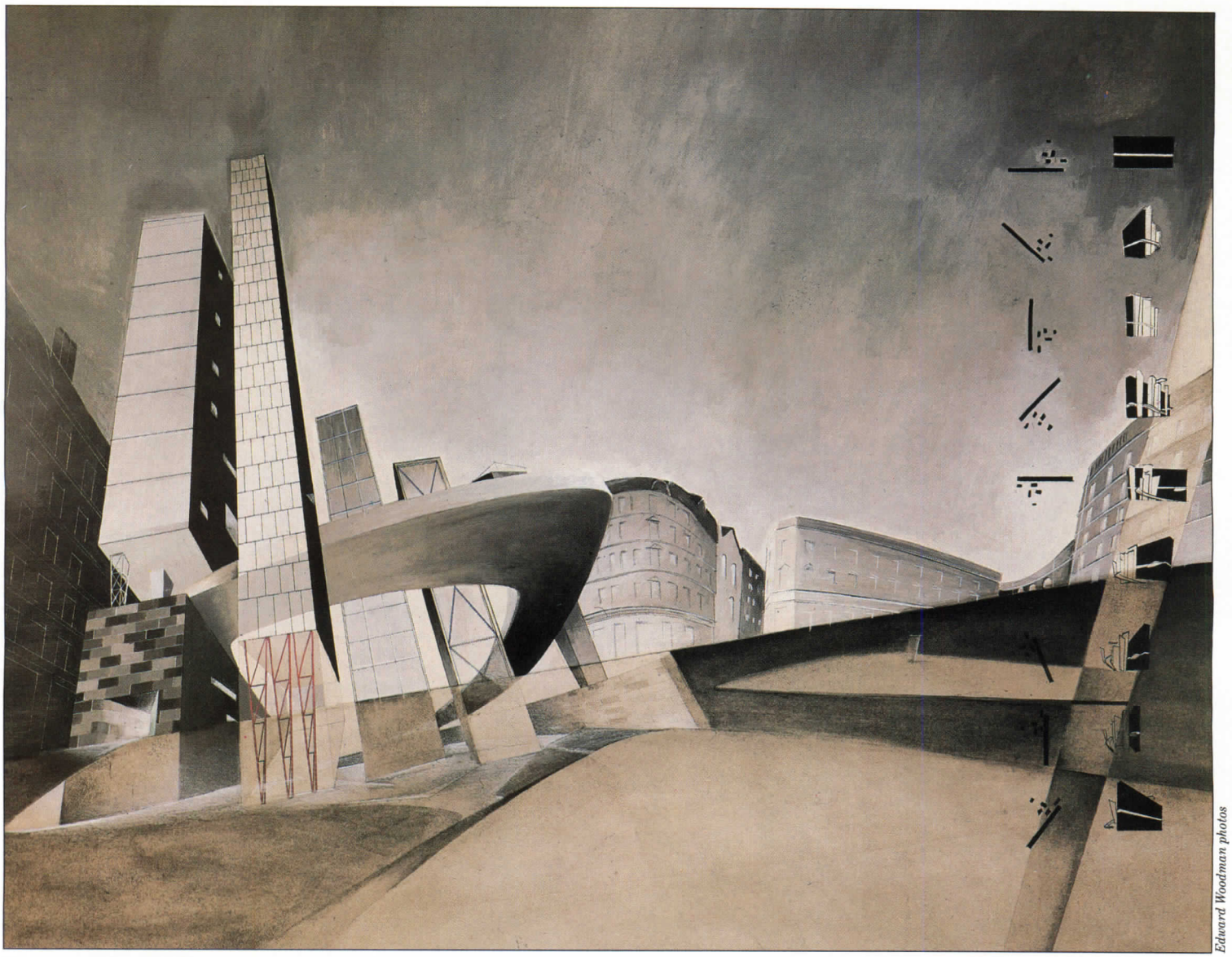
Faced with the exigencies of construction in her two Berlin projects, Hadid has scaled down her global visions without losing a sense of energy or inventiveness. The constraints imposed by IBA's (Internationale Bauausstellung) design guidelines for Block 2 (pages 122-123) and the minuscule site of the Kurfürstendamm office building (pages 124-129) have forced her to tighten her skewed language and to devise ingenious ways of structuring it. These projects reveal that Hadid is willing to compromise in meeting clients' demands for both image and functional efficiency. This pragmatic attitude distinguishes her work from the personal, artistic preoccupations of her contemporaries such as Daniel Libeskind, to whom she is often compared, and indicates that the visionary is indeed ready to build. "I probably won't like the first few projects that are finished because I'm fussy," she admits, recognizing that her splintered esthetic hinges on finely-tuned details and fastidious execution.

While awaiting the fate of her Berlin buildings, Hadid continues to argue a strong case for renewing Modernism through drawings and lectures. Though judgment as to its success remains suspended until her first project is constructed, her work, nevertheless, has already captivated large audiences of practitioners and students (made larger through recent teaching stints at Harvard and Columbia). Hungry for alternatives to the sentimental gentility of historicism, architects are attracted to the fearlessness of her provocative, futuristic vision and the sheer optimism that it projects. Like generations before them, they yearn for heroes to show them the way. They now can look to a heroine.
Deborah K. Dietsch

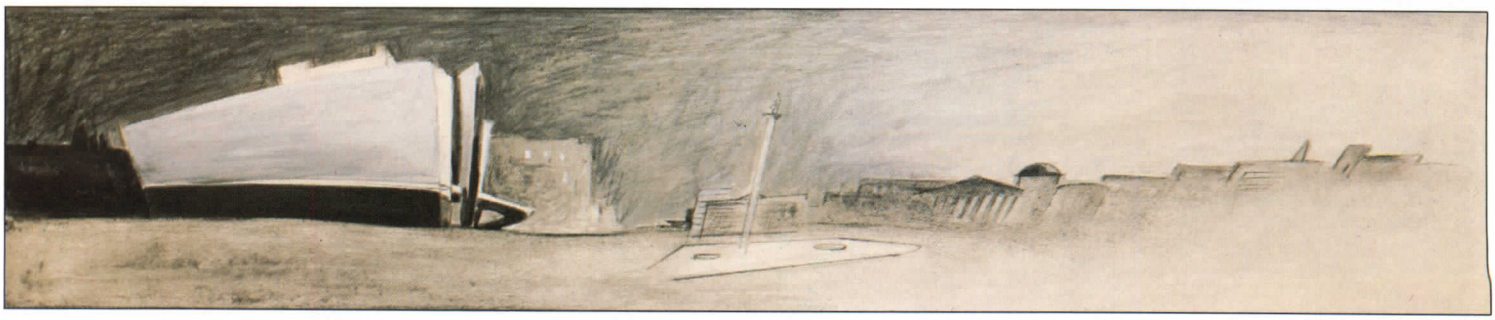
Grand Buildings competition, London

Held two years ago, this competition called for replacing a commercial block located to the southeast of Trafalgar Square with new office construction. While most of the entries, including the winning scheme, followed the perimeter typology of the existing building, Hadid boldly envisioned the triangular site as an "anti-wrap, anti-private, civic zone." Her fragmented arrangement of office towers clustered around a slab extends the public space of Trafalgar Square Station into the complex by means of a boomerang-shaped pedestrian ramp.

Competition team:
Zaha Hadid, Michael Wolfson, Brian Ma-Siy, Kar-Hwa Ho, Piers Smerin, David Gomersall, Nan Lee, and Madeleine Palme



Edward Woodman photos



IBA Block 2, West Berlin

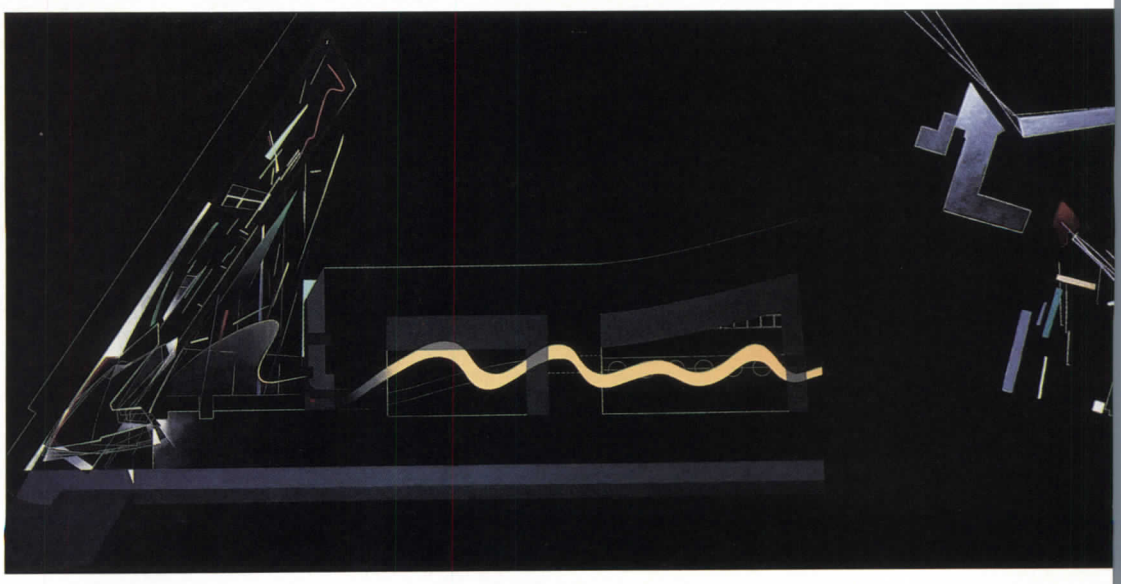
Hadid's proposed housing for IBA's Block 2 is located in Berlin's Kreuzberg district, near the late-19th-century Martin Gropius-designed Museum of Decorative Art (block at right of site plans, bottom middle drawing). It comprises a group of three-story townhouses with ground-floor shops, and an eight-story residential tower that terminates the corner of Stresemannstrasse near the Wall

IBA, the international building exhibition currently being held in West Berlin, has turned out to be a permanent facelift of the city, rather than a temporary demonstration of innovative architectural design. Under its theme "Living in the Inner City," 150 sites destroyed by war, neglect, and poor planning were targeted for redevelopment, infill, and repair. Of the blocks designated for new construction, a large percentage have already been designed and built, mostly as housing, by a star-studded list of international architects selected through limited and open competitions.

In 1985, IBA designated Block 2 in Berlin's Kreuzberg district to be designed by women and Polish architects. As one of the commissioned women (the others are Myra Warhaftig and Christine Jachmann), Zaha Hadid sympathized neither with the decision to segregate her gender within one block—"it's like being told you have leprosy"—nor with IBA's approach to urban design. "They are completing the city blocks with traditional, almost suburban, housing types," she points out. "It's not like the Weissenhof exhibition in Stuttgart [held in 1927]; nobody has made a statement about a new way of living." Despite her reservations, Hadid accepted IBA's invitation to transform 2,500 square meters into a residential block as a chance to formulate an innovative alternative to the exhibition's "toytown."

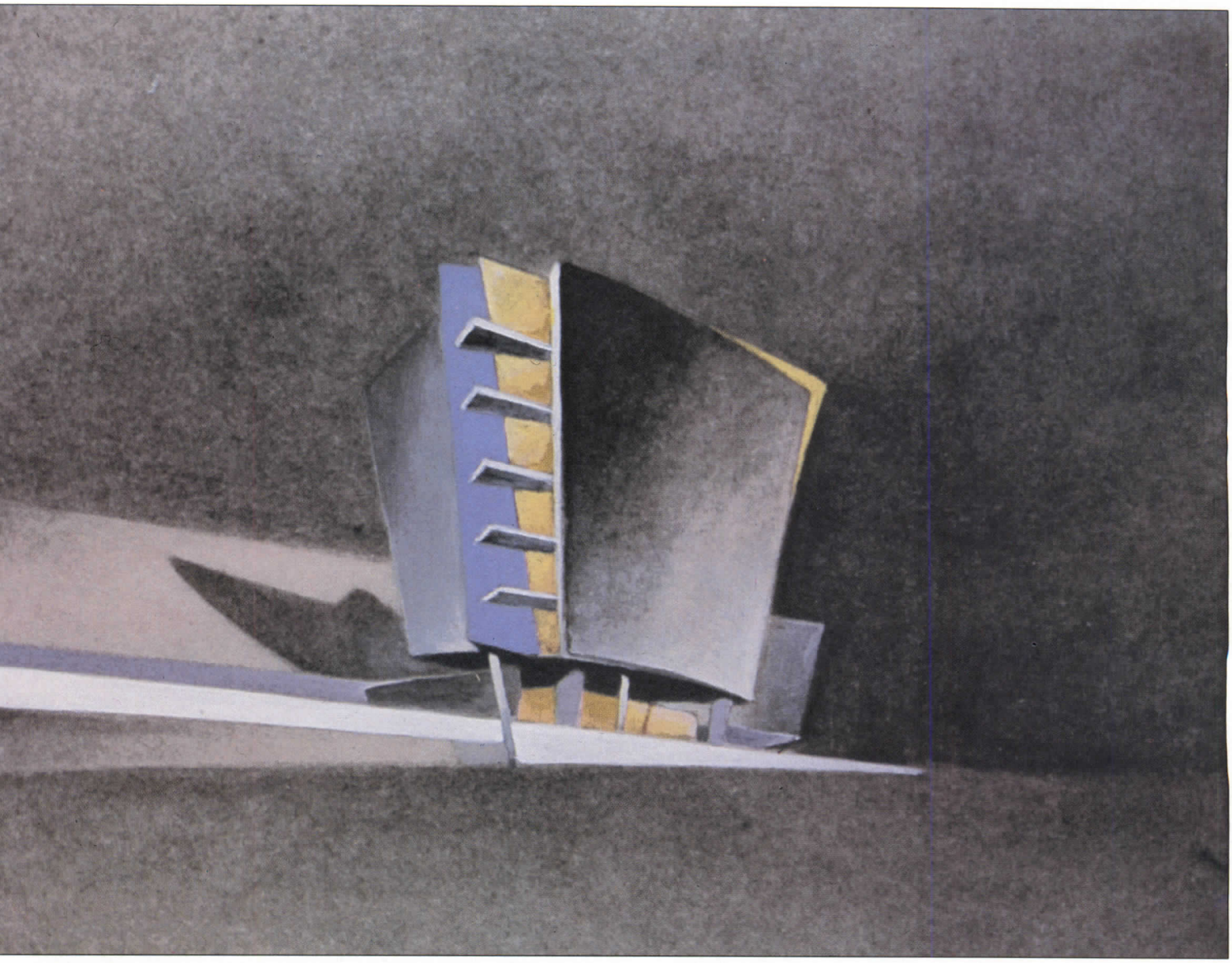
The first obstacle confronting the architect was IBA's stringent design guidelines, mandating an average building height of five stories. Her way of getting around it was to take the organizers at their word "average" by dividing the site into a three-story apartment block and an eight-story residential "tower" at the corner (opposite). "There's no logic to creating low homogeneous buildings in an erratic area surrounded by buildings of different types and periods," she asserts, suggesting a more explosive alternative to the actual site plan (bottom middle drawings).

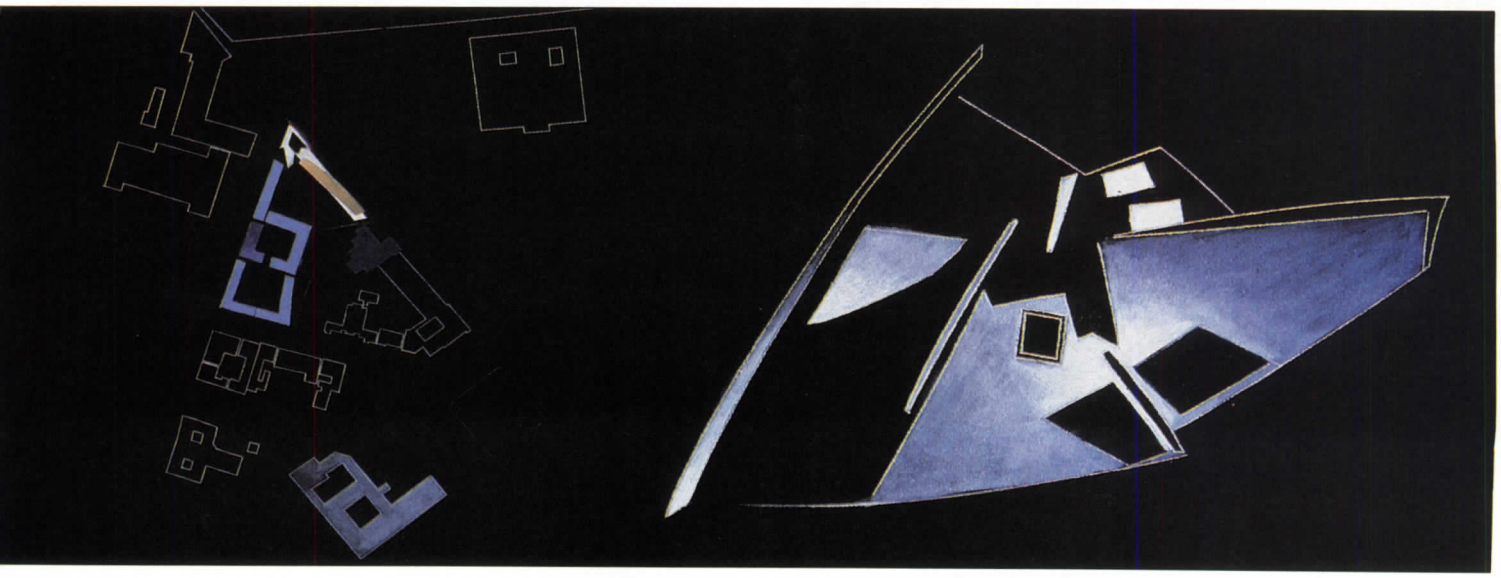
Hadid views the two buildings as a pair of dynamic opposites. The eight-story, glass-enclosed tower is divided into 25 units laid out as wedge-shaped lofts (bottom right), with a children's playground on the roof and a garden linked to the neighboring courtyard building (bottom left). The three-story block is more conventionally arranged as a group of townhouses elevated over ground-floor commercial spaces. Its front facade (opposite) is conceived as a low, solid (stucco or masonry) wall, a response prompted by its neighbor across the street, the Berlin Wall.



(below). Each floor of the tower is divided into wedge-shaped loft apartments (bottom far right); the building's roof will be utilized as a colorful children's playground (bottom left). As in all her projects, Hadid intends to establish some type of public space within the tower's private realm. It will be linked on the ground level to the courtyard of the adjacent housing block, as indicated by a yellow squiggle in her drawing.

Project team:
Zaha Hadid, Michael Wolfson, David Gomersall, Paivi Jaaskelainen, Piers Smerin, David Winslow, and Brenda MacKneson





Kurfürstendamm office building, West Berlin

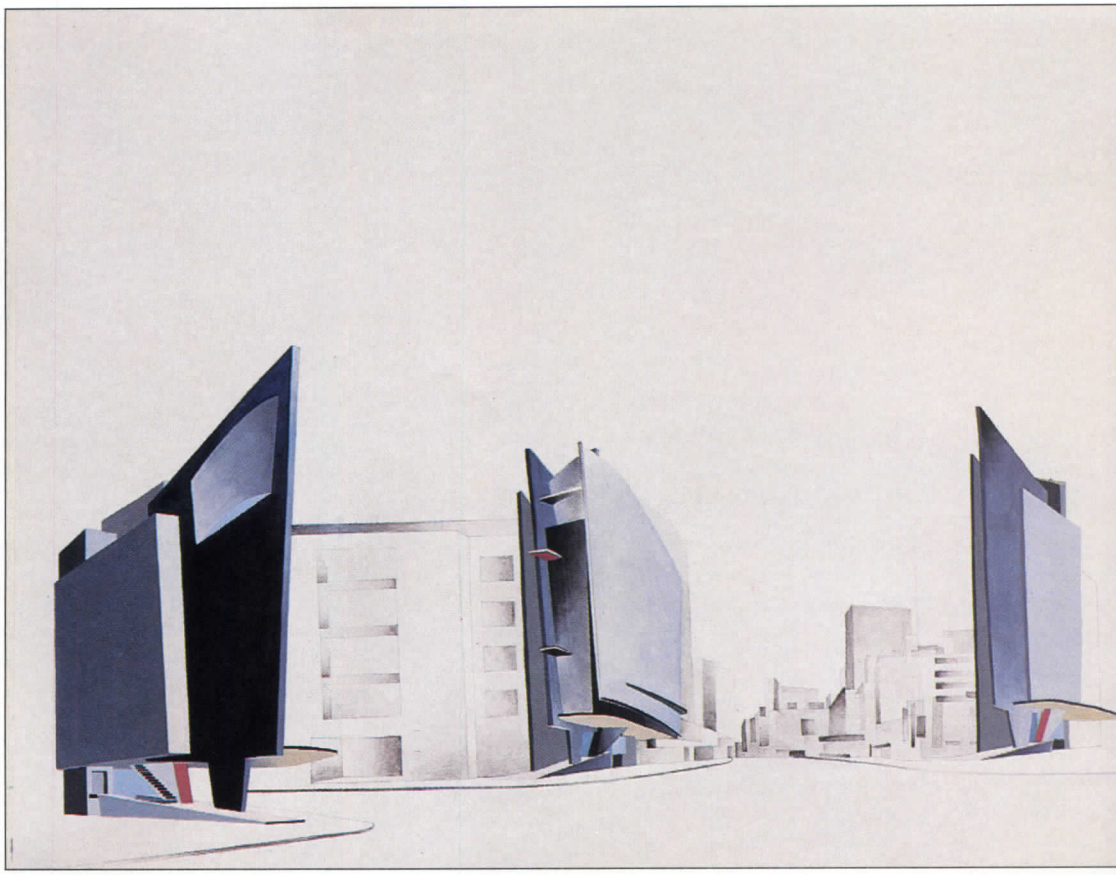
Located on a corner of a busy Berlin street, Hadid's Kurfürstendamm office building is treated almost as a three-dimensional billboard, assembled from a series of dynamic planes (bottom). Her renderings of the project emphasize the precise logic of its construction, revealing the truly Modern way in which the architect integrates structure and form. As outlined in the top sequence of drawings (right to left), a new

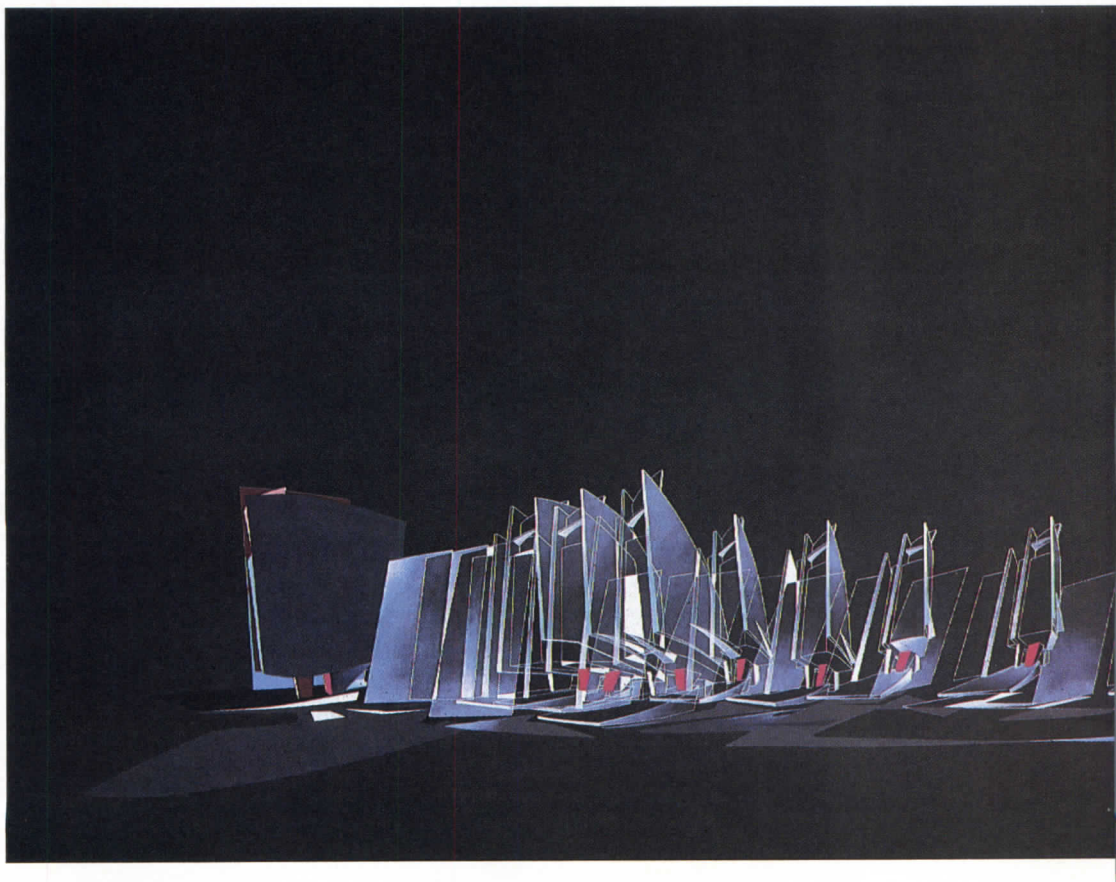
Although its site totals a mere 480 square feet, the location of this small building at the prominent junction of Berlin's Kurfürstendamm and Lewishamstrasse induced the developer to invite four local and two foreign architects to participate in a limited design competition. As the winner, Hadid demonstrates that she can logically structure her riotous proposals without compromising her visionary spirit, even when faced with a leftover corner.

"Because the site is so cramped," she explains, "the design problem became how to juggle the services and structure without duplicating any elements." Her solution avoided a conventional column grid by creating a "sandwich" of layered planes that efficiently serve as both spatial dividers and structural framework, an approach delineated in her exploded, computerlike presentation drawings (right). Aided by engineer Peter Rice of Ove Arup & Partners (the technical wizard behind the architects of British high-tech), Hadid utilized the elevator core, fire stairs, corridor walls, and building foundations as a structural system to support the adjacent office floors, which act as a vierendeel truss cantilevered out to the street corner.

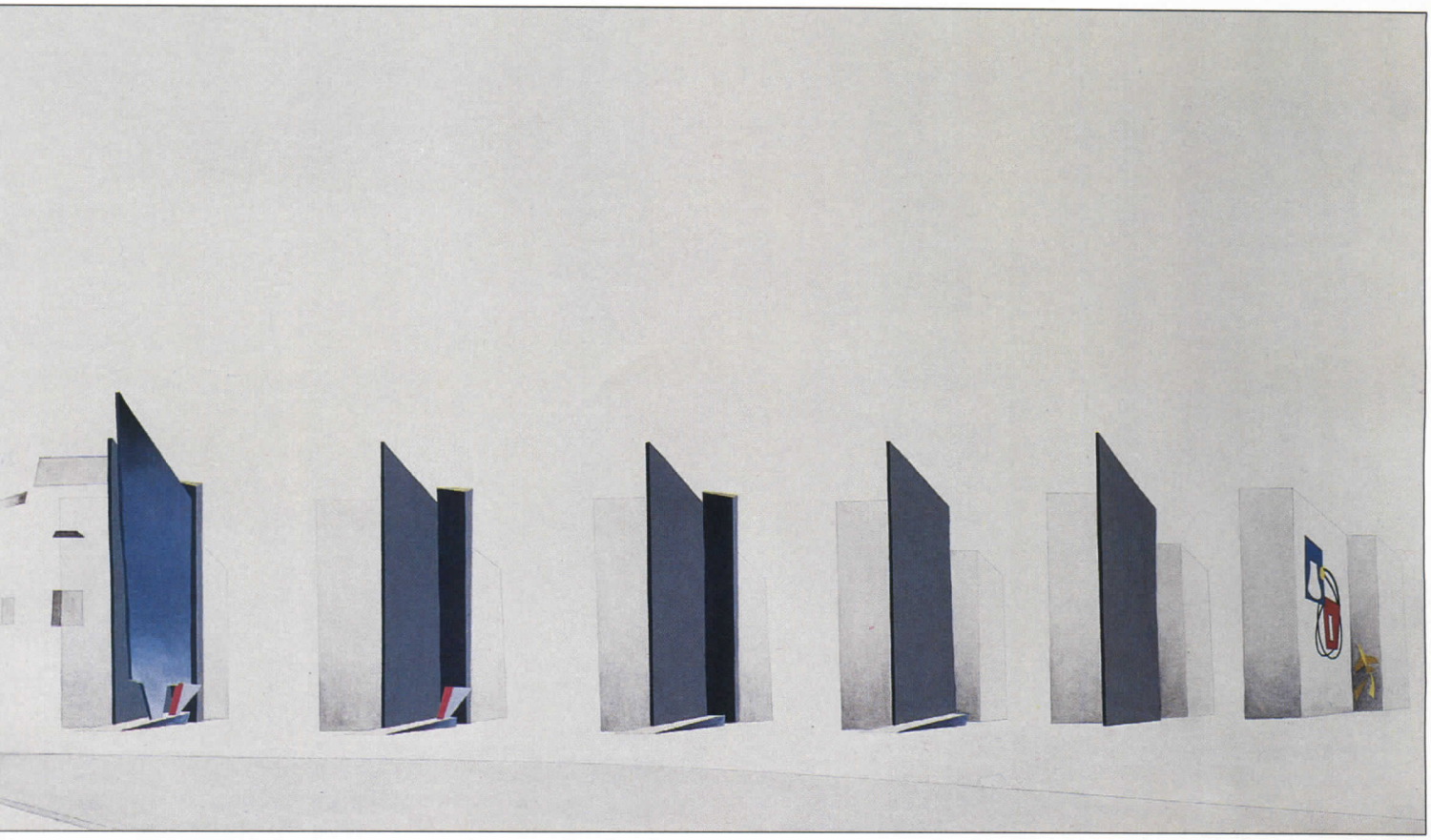
The building is entered under this overhang, up a pavement-lit ramp to a raised, glass-enclosed elevator lobby and angled staircase. By pushing the circulation to the rear, Hadid was able to disengage the side of the building from the existing party wall to gain more light and air for the offices. This arrangement also allowed the architect to create a small lobby on every floor rather than a long, dark corridor and to maximize the offices, which are treated as flexible, open spaces. The volume of the office floors is differentiated from the structure by a glass curtain wall that wraps around the corner and gently curves outward to the street, creating a plan that expands with each successive level of the building. To emphasize the transparent, "floating" quality of the exterior wall, Hadid has detailed the perimeter with horizontal planes of illuminated glass inserted between the "peel" of the curtain wall and the concrete floor slabs.

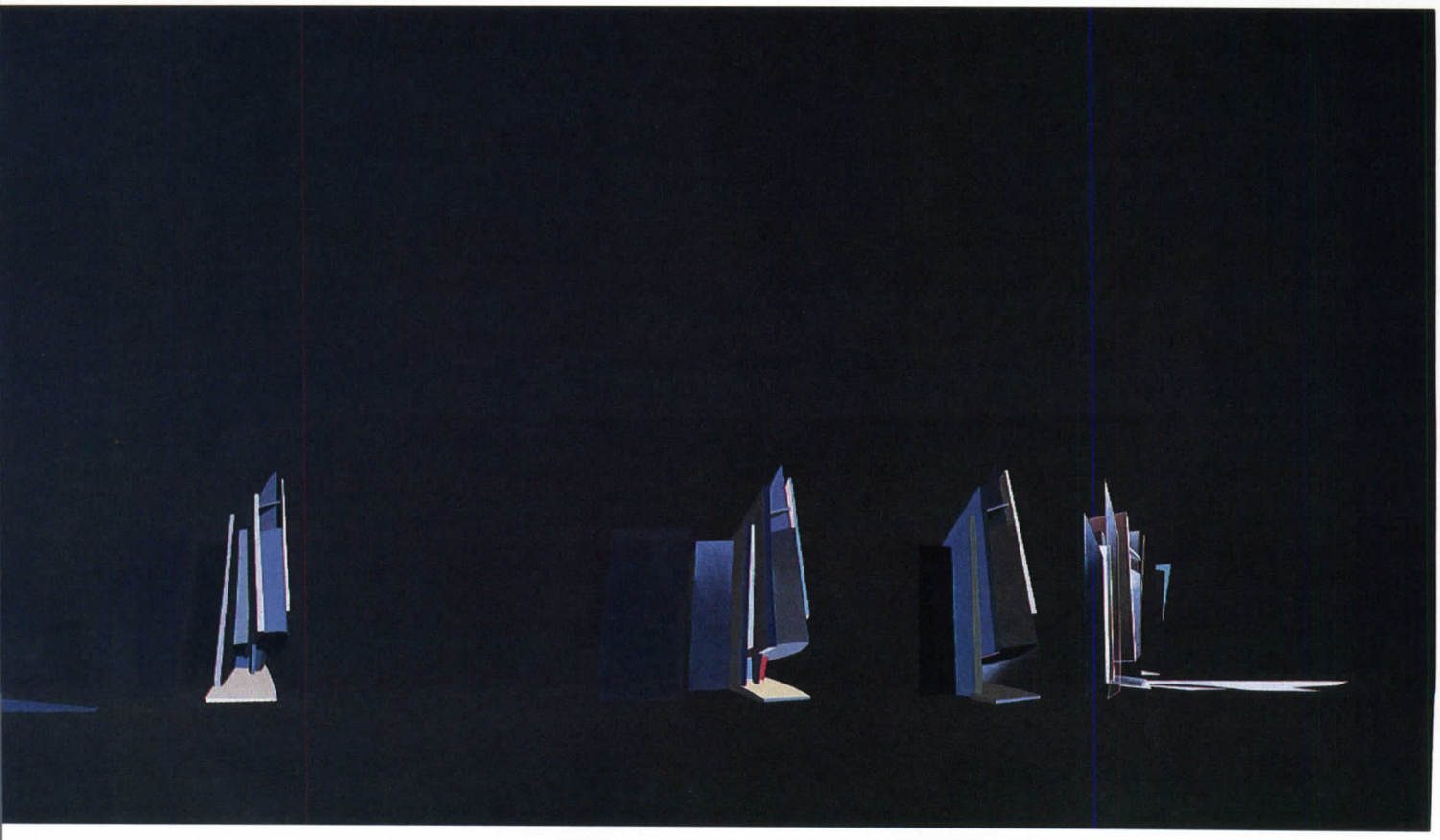
Recognizing that the unusual configuration of her design does not comply with the customary developer's demand for the greatest possible floor-area ratio, Hadid asserts that avoiding the cookie-cutter look of most offices will turn out to be more salable: "Varying the size and shape of the floors creates a dynamic quality that will encourage higher rents to offset the loss of floor area."

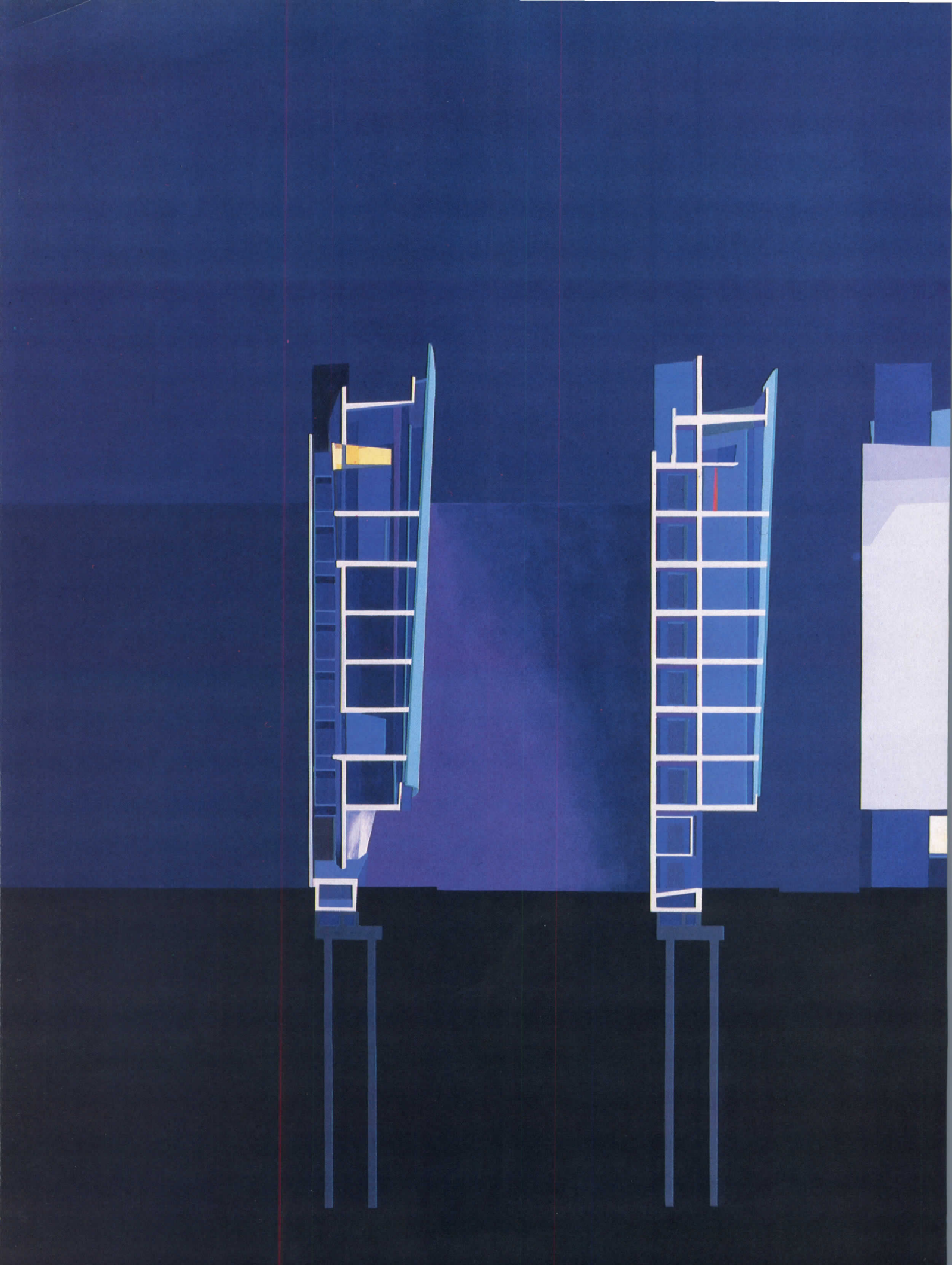


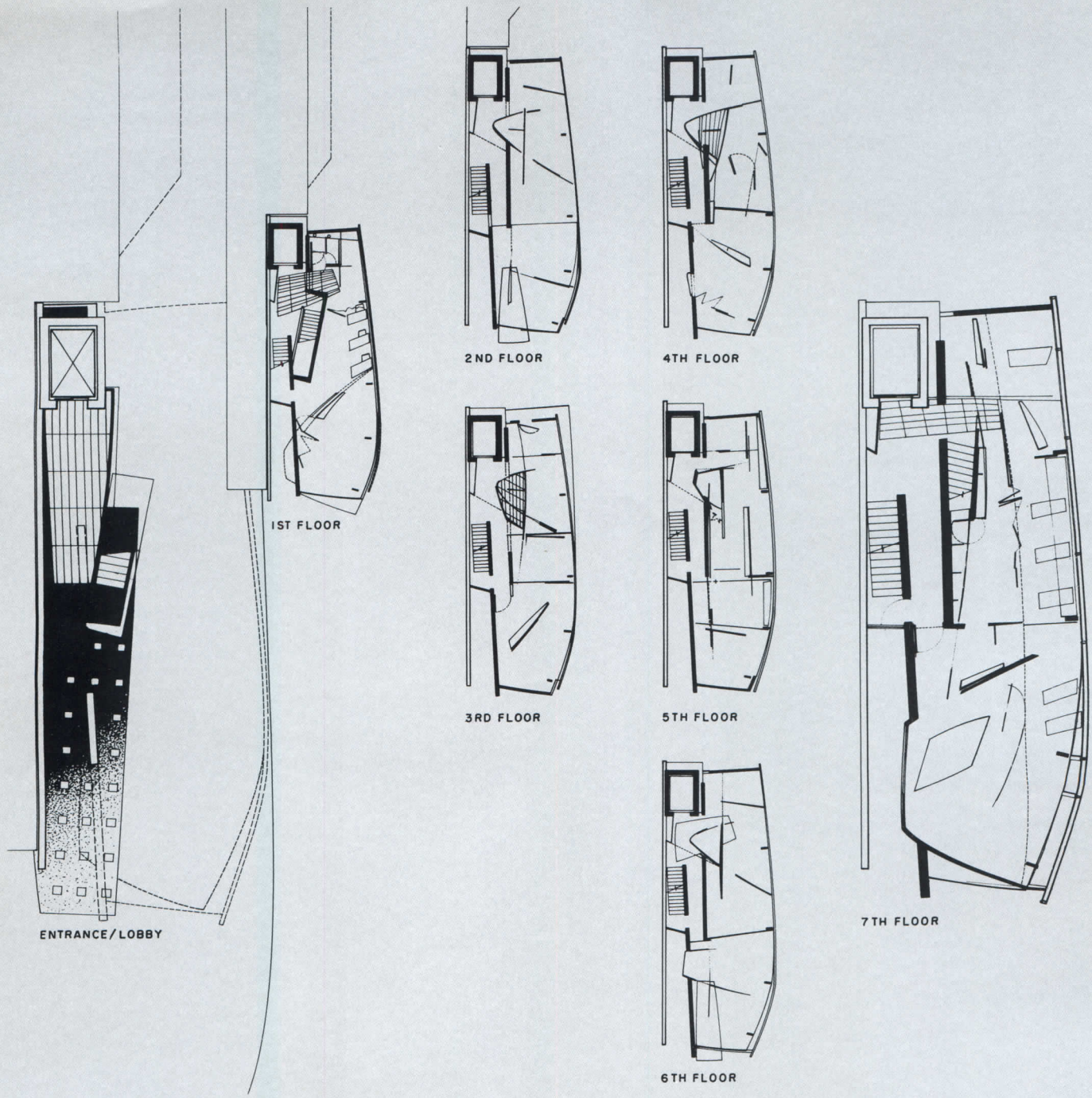


shear wall is applied to the mural-encrusted party wall of the adjacent building; the elevator and staircases at the rear are reached by means of a ramp, and the office floors are cantilevered from the structure of the corridor walls/service core out to the street and enclosed by a transparent glass curtain wall bedecked with futuristic balconies. The view of Hadid's building from its neighbor (far left of top drawing and sections, overleaf) shows how the volume of the offices is separated from the party wall, enabling the architect to provide the top-floor occupants with a double-height window. To dramatize the way in which the curtain wall "peels" away from the top of the building, the architect sketched a rotated sequence of views around the corner that evokes the futuristic motion of a computer drawing (bottom).








ENTRANCE/LOBBY
1ST FLOOR
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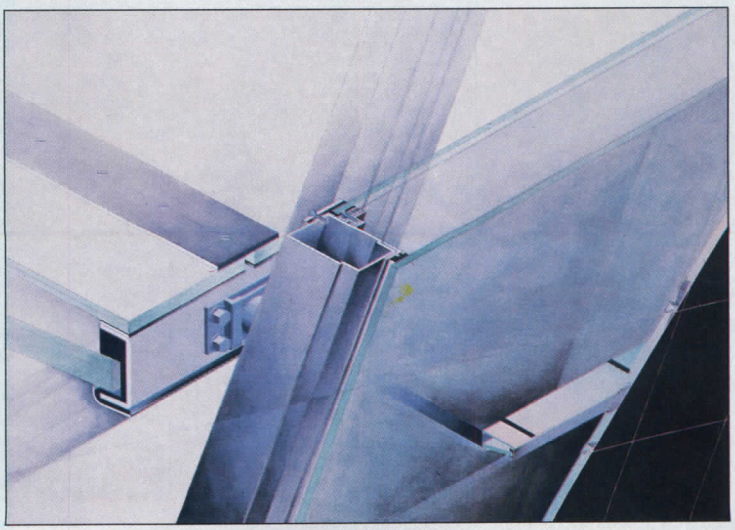
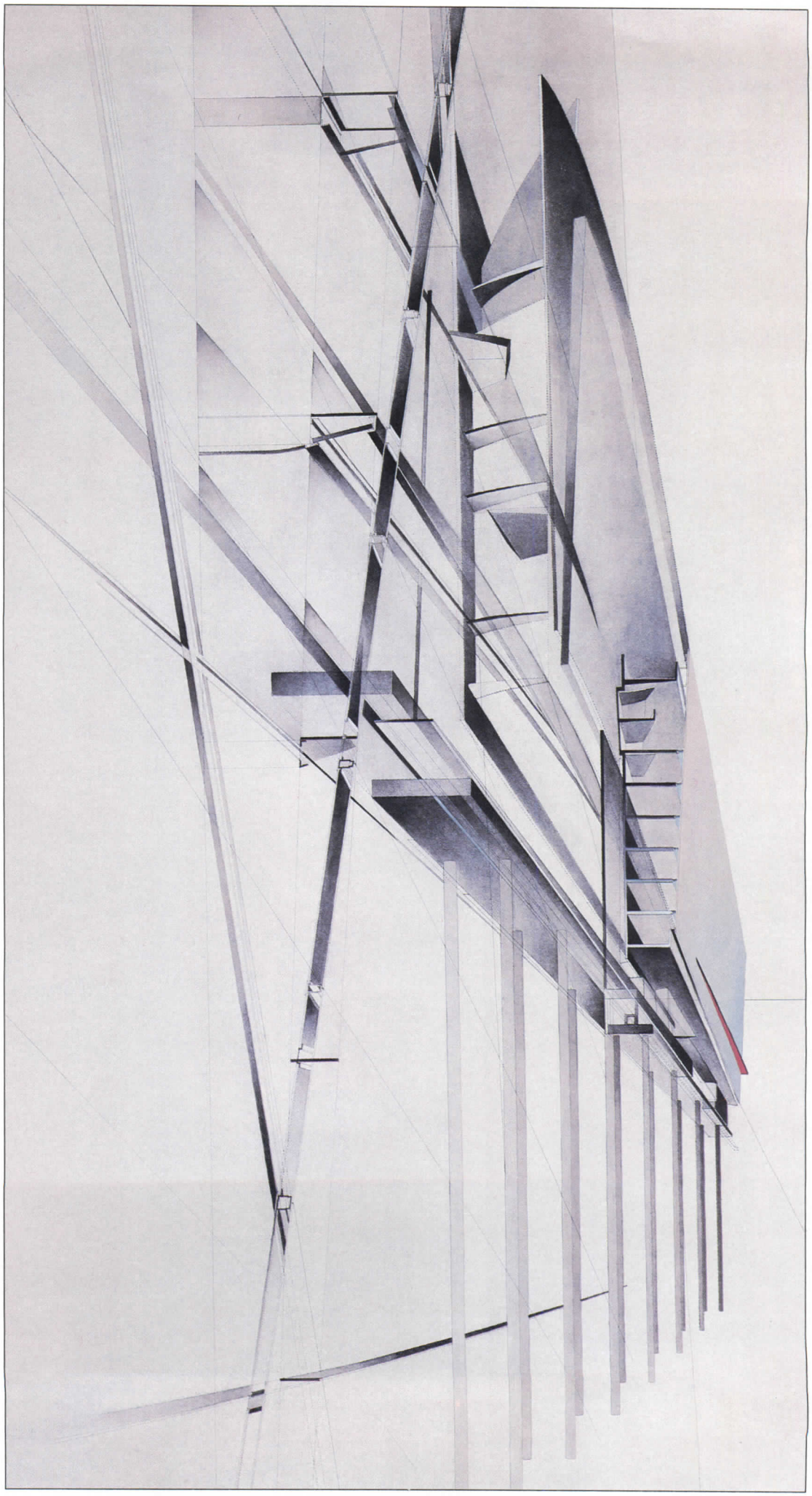


Hadid's tiny office building is entered from the street up a pavement-lit ramp to a glass lobby pavilion at the back of the building (far left plan). An angled staircase, which serves to brace structurally the cantilevered office floors above, leads to the first-floor lobby and fire stairs toward the front of the building. Adjacent to this interior circulation zone are grouped the mechanical services, housed within boomerang-shaped partitions that bulge into the elevator lobbies. Each office floor is a different size and shape, becoming successively larger than the one below as the exterior wall curves away from the corner and tilts outward to the roof (bottom of plans). The space at the perimeter where the curtain wall curves away from the floor slab is filled in with an illuminated, double thickness of glass attached to the exterior wall extrusions, a design concept Hadid has carefully detailed with the help of glazing consultant Hugh Dutton (left detail and section/perspective opposite). Sizable foundation piles transfer the axial loads carried by the corridor walls that, in conjunction with stairs and elevator, support the cantilevered office floors (section opposite page).

Competition team:
Zaha Hadid, Michael Wolfson, Brett Steele, Piers Smerin, Charles Crawford, Nicky Cousins, and David Gomersall
Engineers:
Ove Arup & Partners—Peter Rice, and John Thornton
Glazing consultant:
Hugh Dutton



Requiem and Jubilate

Restoration is always problematic when a building has been altered during various periods of its history. Respectful acknowledgment of overlapping strata of the past and deft insertion of new layers with their own identity distinguish a rebuilt Greenwich Village landmark.

Rebuilding of the
Church of St. Luke in the Fields
New York City
Hardy Holzman Pfeiffer
Associates, Architects

As this New Yorker homeward plods his weary way, there is always consolation in a walk through Greenwich Village past the churchyard of St. Luke in the Fields. No elegies immortalize St. Luke's or its rambling garden tucked behind the row houses next door, no plaques commemorate historic sermons preached here or heroic feats accomplished, and none are wanted. The tranquillity and easy welcome of the gentle brick-walled precinct—indeed, its very survival amid the metropolis—are eloquent enough to soothe the harried spirit of any passer-by, regardless of his personal creed. Just how rare, and vulnerable, a haven this is became all too poignantly evident one night in March, 1981, when a three-alarm fire gutted the 160-year-old Episcopal church. Standing beside the smoldering shell the next morning, the Reverend Ledlie I. Laughlin, Jr., Rector of St. Luke's, voiced the sentiment of parishioners and the neighborhood at large: "Everybody is coming forward and saying we're going to rebuild, and it's very clear we will rebuild." Contributions began arriving shortly after dawn, when it was still uncertain whether the scorched remains of the landmark structure would have to be torn down, or whether enough could be salvaged to warrant restoration.

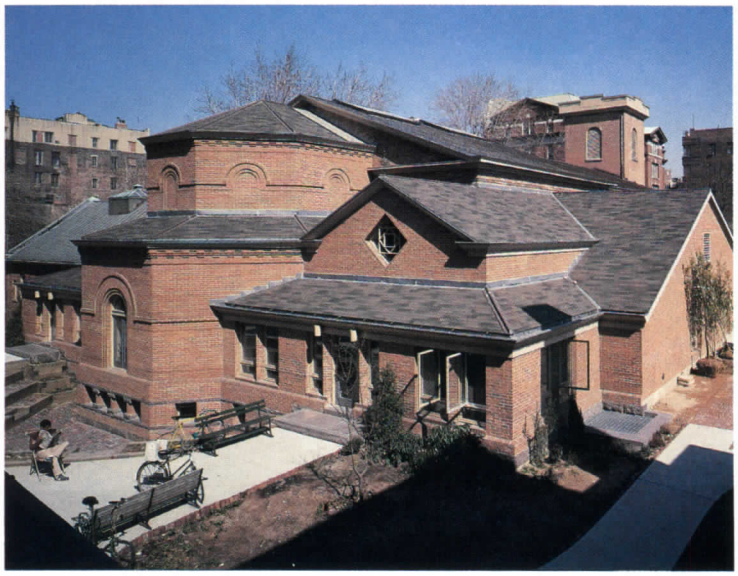
Though the bell tower on the Hudson Street facade came through the fire almost unscathed (as did, miraculously, the adjacent parish house and rectory, a school, and other buildings on the full block owned by St. Luke's), the entire church roof had fallen into the charred interior and only outer walls still stood, fairly teetering without the support of ruined timbers. When a preliminary structural analysis revealed that the 19th-century masonry could be saved with proper reinforcement, Father Laughlin and the congregation bravely elected to piece the church back together: a daunting $5-million project to which individual donors and foundations would have to contribute the $3 million not covered by insurance. Daunting also, because the architectural complications of interweaving old and new fabric would astonish many who mourned the "simplicity" of the lost St. Luke's and hoped to see it resurrected in every detail.

In fact, neither the esthetic nor the historical identity of St. Luke's was quite so simple, owing to a protracted series of alterations and additions that began only a few years after the original church (the third oldest in Manhattan) was consecrated in 1822—changes prompted by shifts in taste, ecclesiastical custom, and circumstantial necessity. Greek Revival porticoes were erected and then replaced by an ornate High Victorian veranda, whose gingerbread in turn fell victim to a later revivalist purge. Arched windows were partially, and then fully, bricked up; Dutch brick was stuccoed over and false quoins applied; a stepped wooden parapet was shorn from the tower, which briefly sprouted a 25-foot-tall cross from its crown. During the 1870s, in the sway of elaborate Anglo-Catholic ritual, a grand arcaded sanctuary was built onto the western end of the plain gabled box (and later reconstructed after a devastating fire in 1886). At some point a lowered ceiling came to hide the graceful vault of the nave, and the successive installation of a Gothic high altar and reredos, a Neo-Renaissance choir screen, eclectic side chapels, polychrome mural decorations, memorial statuary, and stained glass eventually embellished much of the chaste Federal interior. By 1981, most worshippers at St. Luke's regarded these long-familiar accretions as integral parts of the church, even though modern liturgical reform had rendered some furnishings obsolete and assigned new uses to others: Father Laughlin turned away from the recessed reredos to a temporary altar table in front of the choir screen (giving congregants a better view of services but, as he recalls, "making a cluttered sanctuary even more so"); the former high altar became a credence to hold the elements of the Eucharist; choir singers retreated from the chancel to a loft at the rear of the nave.

Because the fire six years ago obliterated physical evidence of more than a century's worth of precedent, the opportunity for an "authentic" restoration provoked inevitable disagreement over which period to restore it *to*. Father Laughlin credits architect Hugh Hardy, of the firm of Hardy Holzman Pfeiffer Associates, with setting the terms for a workable consensus. "Hugh argued that this wasn't a 'pure' church and shouldn't be," the Rector explains; "he told us it should reflect layers of history, that you should be able to see the building as a story about time and change and the nature of the church. His most useful advice was 'Never try to rebuild what you had. All you'll get is dissatisfaction. *Evoke* what you had, but do it in a fresh way.'" In the same vein, Hardy recently characterized the project as a "creative amalgam," and happily, HHPA's extensive intervention was subtle enough to sustain the metaphor, and flexible enough to accommodate divers compromises with the client.

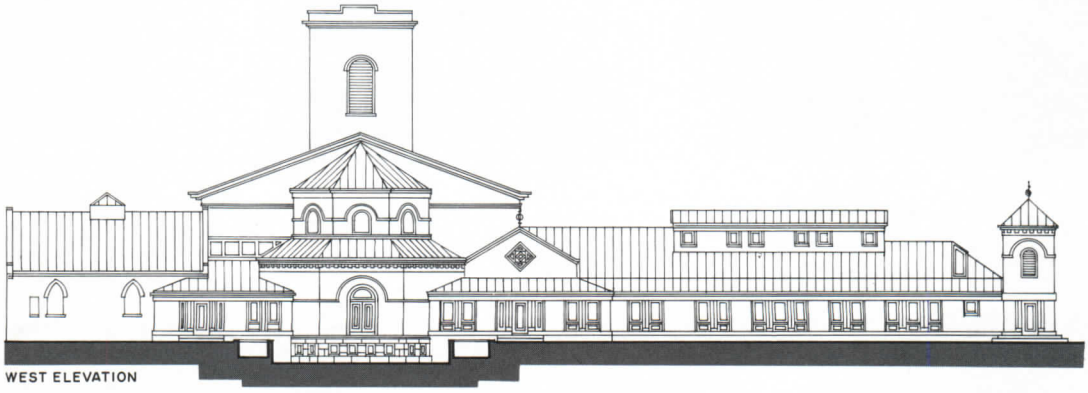
Hardy took pains to ensure physical and symbolic continuity with the past by keeping as much as possible of the original brick fabric on the east front and north and south sides (site plan on page 133; floor plan on page 134). Immediate replacement of the roof frame stabilized these fragments without recourse to buttresses, while permitting demolition of a featureless western wall pressed against an erstwhile lot line. Renovation of the three extant facades closely follows the model of Federal antecedents (including a replica of the long-lost tower cornice shown in old prints), although there was no attempt to conceal irregularities of color, texture, and sealed openings that display the pentimenti of later repairs. The unmistakably newest stratum in this formation is a cluster of polygonal bays at the west end, harmonious in color, scale, and decorative tone with the rest of the church but indeterminate in style—in effect, rather the sort of addendum that *might* have been designed by a very late Late Victorian. What various observers have described as neo-Early Christian, Byzantine, or Romanesque, Hugh Hardy playfully terms "closet functionalist"; i.e., expressive (up to a point) of internal volumes and their structure. If one must stretch such logic to account for the ornamental flourishes of molded impost blocks and corbeled cornices, it becomes apparent as soon as one steps indoors that the arches and angled projection of the central apse do reflect salient aspects of the spaces they enclose.

Inside, as well, the western sanctuary bears the most obvious mark of a modern transformation—obvious, of course, only to those who knew St. Luke's before the fire. The arrangement of apsidal chapel and ambulatory is completely new, whereas the layout of altar and colonnades calls to mind the general outlines of the former chancel but adapts it wholly to current usage. In contrast to the unbroken flat rood beam of the previous choir screen, which definitively separated clergy from laymen according to the tenets of another era, the rising curvature of Hardy's open Serlian arch suggests a gateway to less hierarchical relationships within the present-day church. A similar metamorphosis occurred at the eastern end of the main aisle, where the baptismal font that used to stand in a side chapel off the chancel is now the centerpiece of a tabernacle-portal framed by columns supporting a choir and organ loft. Iconographically, Father Laughlin explains, the new location of the font just inside the entry affirms that "this is where Christian life begins," and the alignment of font and altar "reclaims the equal importance of baptism and communion as communal events." At the same time, the traditional cast of the architectural surround duly acknowledges that, however open St. Luke's may be to liturgical evolution, this congregation also venerates its heritage: "We keep Anglo-Catholic ceremony with the contemporary rite," says Father Laughlin. "We embrace the new Prayer Book but use the same vestments and incense as before." Processions remain as important as ever in these rituals, again and again retracing the major axis of the original church. Hardy Holzman Pfeiffer's interior discreetly dramatizes the ceremonial pathway with focal skylights and side windows glazed with handmade panes in various hues of pale rosy amber, which gradually darken toward the altar—a fittingly ambiguous emblem for a modern pilgrim's progress. *Douglas Brenner*

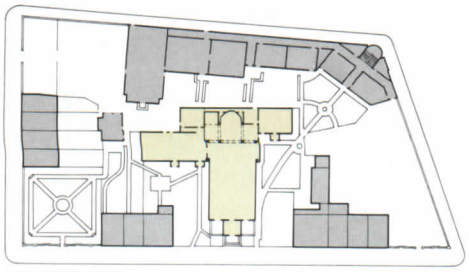


Despite development on the churchyard perimeter (which now comprises the rectory, parish house, a school, and income-producing property for St. Luke's), the site exudes the suburban air of early 19th-century Greenwich Village. HHPA's master plan extends southward beyond the church proper to include a social hall and solarium, projected for construction during the next five years. Besides a new sacristy and meeting room, the rebuilt church houses a basement choir room and support spaces. An outdoor amphitheater, for informal gatherings or classes, admits light to lower-level windows at the base of the polygonal apse. Subtly irregular bricks and colored mortar on the new west gables and bays harmonize with earlier fabric. Arches repeat a leitmotif throughout the church, and rotated-square patterns echo a medieval symbol for infinity.

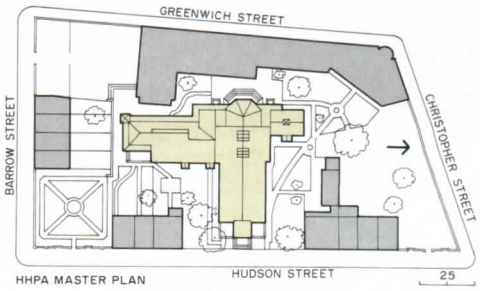
EAST ELEVATION



WEST ELEVATION

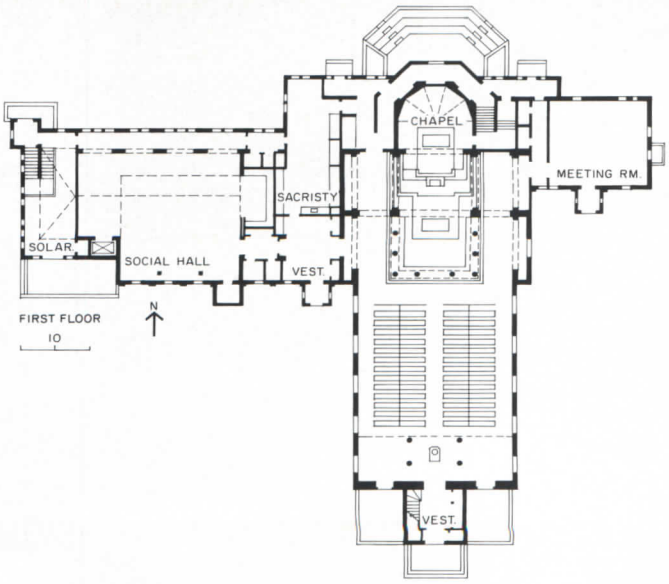


PLAN BEFORE 1981



HHPA MASTER PLAN

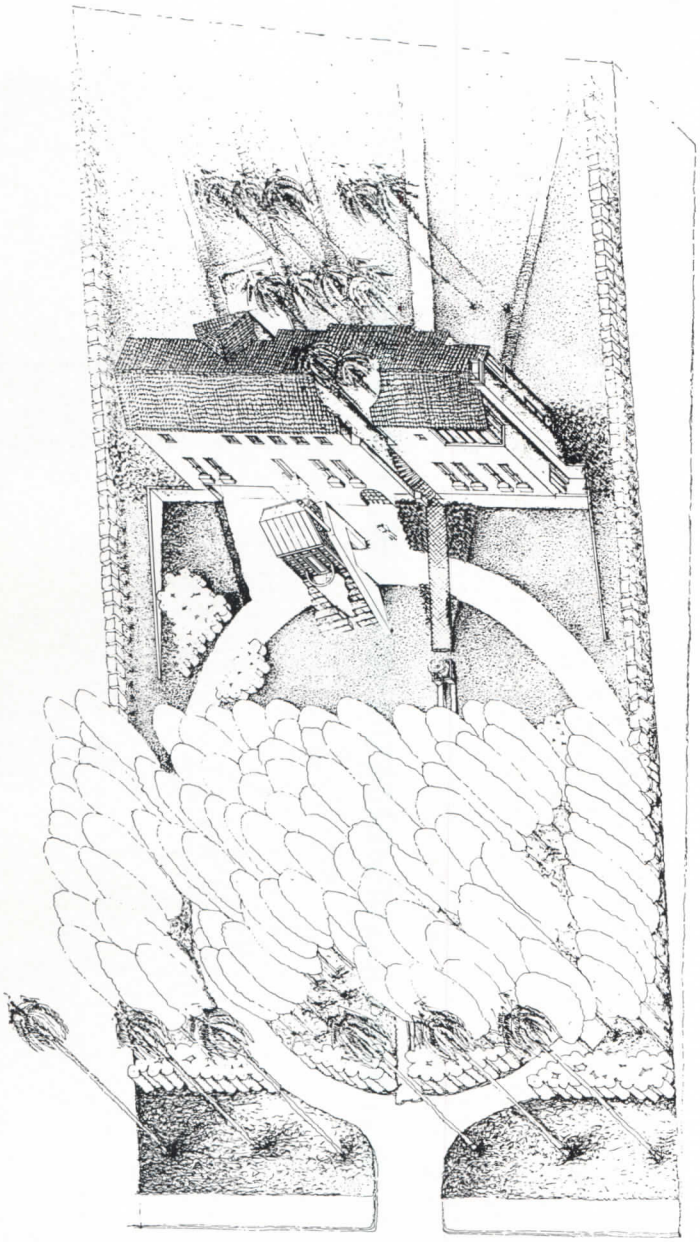
Except for a few relics that survived the fire, such as the marble altar and font and two wooden angels atop the altar arcade, the present church interior is wholly new. Mahogany-crowned pews, reproportioned to modern standards of comfort, evoke rigorous Federal prototypes. Custom-made brass chandeliers, scaled to the 30-foot-high room, hang from plaster medallions whose guilloches incorporate downlights and circular air vents (natural ventilation makes air conditioning unnecessary; horizontal wainscot grilles conceal radiators). Tinted windows suffuse the nave with warm light, and oculi create a luminous focus above the sanctuary. Only after the fire exposed original roof timbers did it transpire that St. Luke's was meant to have a vaulted ceiling—now reproduced below laminated trusses.



Rebuilding of the Church of St. Luke in the Fields New York City
Architect:
Hardy Holzman Pfeiffer Associates—Hugh Hardy, partner-in-charge; Victor H. Gong, administrative partner; Richard Ayotte, project architect; Alan Schwartz, John Lowery, construction architects

Engineers:
Purdy & Henderson, P. C. (structural); Piccirillo & Brown, P. C. (mechanical/electrical)
Consultants:
Peter George Associates (acoustical); Jules Fisher and Paul Marantz (lighting)
General contractors:
John E. Mitchell and Son, Inc. (interior); Structure-Tone, Inc. (exterior)

After Arcadia



Miraflores

Oxley House

Over the past decade, while theorists and practitioners have jostled for position in the polemical parade of Modernists and Postmodernists, a small group of architects has been quietly marching to its own tune along a nearby back street. Laurinda Spear and Bernardo Fort-Brescia of Miami's Arquitectonica are there; so are Antoine Predock and Bart Prince of Albuquerque, Turner Brooks of Vermont, and Rob Quigley of San Diego. Though not connected in any formal way, the members of this "club" share the bond of age (most are in their 40s) and, more significantly, an attitude toward region that has nothing to do with either archaeological replication or arbitrary historicism. To be sure, each of these architects is keenly aware of his or her area's distinctive qualities—its topography, history, climate, and building heritage—and each produces work that is unabashedly regional. But beyond a concern for the obvious trappings of materials and ornament, these architects offer up provocative buildings that frequently mirror the ironies, paradoxes, and unlikely juxtapositions of late 20th-century America—the luxury condominium tower amid inner-city squalor, the neon-lit commercial strip before a pristine mountain backdrop, a shiny steel train traversing pastoral New England, ramshackle beach cottages against an endless sea—producing architectonic form that, for better or worse, addresses the physical and spiritual essence of a particular American region with all its contradictions fully exposed. Far from being provincial, they are among the most sophisticated architects currently practicing in this country.

Perhaps more than any other of these "regional Modernists," Rob Quigley celebrates the architectural eccentricities and urban ironies that characterize his hometown. Born and raised in Los Angeles and educated at the University of Utah, Quigley came to San Diego in 1971 after serving for two years in Chile as a Peace Corps architect. He established his own practice in 1972, and 15 years later, at the ripe old age of 42, he is the acknowledged leader of an idiosyncratic group of local architects comprising Randy Dalrymple, Ted Smith, and Tom Grondona, all of whom share Quigley's affinity for design that, as the architect himself puts it, "grows out of the immediate neighborhood." Although his work has attracted some attention outside San Diego—foreign design publications in particular discovered his buildings early on, and *Esquire* magazine cited him along with six other young architects in 1984 as one of the "men and women under 40 who are changing the face of America"—Quigley remains a proudly regional architect, committed to "building a body of work that is identifiable by the way it responds to location and culture."

To understand Quigley's architecture then, one must know something of San Diego, the metropolis that local boosters like to call "America's Finest City." While many might wish to believe this bit of simple-minded hyperbole, which is part of a long tradition of land promoters engaged in the selling of California, the city today is a far cry from the climatic paradise that once billed itself as having "the shortest thermometer in the world." Beneath San Diego's sunny visage are a panoply of urban paradoxes: a politically conservative, largely Anglo-Saxon border city, dominated by the U. S. Navy and a large group of retirees, that has deliberately linked itself to Mexico via an innovative new trolley line; a decentralized Sunbelt metropolis which, despite being ringed by shopping malls and suburban sprawl, nevertheless boasts one of our most successful new *downtown* retail and entertainment centers, Horton Plaza, and one of the country's greatest inner-city pleasure grounds, Balboa Park; a collection of urban-but-woodsy canyons and backwater beach resorts that now make up the eighth most popuious city in the nation; and finally, a major Pacific port which, while just 90 freeway miles from Los Angeles, somehow feels isolated and "landlocked." (Many, in fact, characterize the city's location as "south of Southern California," protected forever from the spreading urban behemoth to the north by the 20-mile-wide buffer of Camp Pendleton, an undevelopable U. S. Marine Corps base.)

San Diego's golden age may be dissolving into a faceless web of freeways and condos, but three houses by Rob Quigley show how one architect has produced regionalism that reconciles a longing for the past with the realities of the present.

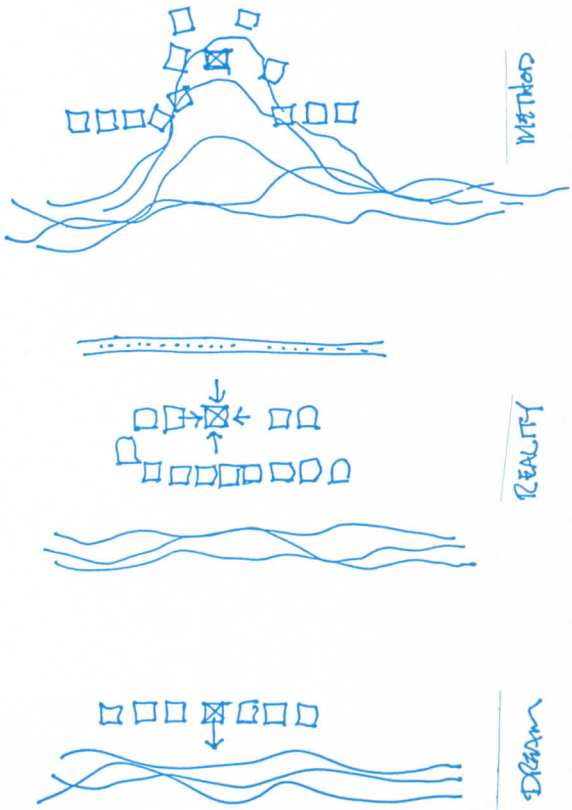
San Diego's isolation, together with a history that saw strait-laced East Coast and Midwestern settlers first witness, and then become intoxicated by, the area's indigenous just-north-of-the-border charm, have produced one of America's unsung architectural treasure troves—a distinctive urban hybrid that boasts the sublimely rationalist work of Irving Gill, the exuberant Spanish Colonial Revival buildings that Bertram Goodhue designed for the 1915 Panama-California Exposition, James and Merritt Reid's wood-crafted Hotel del Coronado, and, more recently, the Salk Institute, arguably Louis Kahn's finest building. While Rob Quigley's work has been profoundly influenced by the specific historicist language of these architectural progenitors, it also reflects something a bit less tangible: a San Diego that promises, in Quigley's words, "a better life synthesizing Yankee practicality and expediency with Latin graciousness and love of life."

His own charming-yet-pragmatic personality the embodiment of this philosophy, Quigley happily transforms these Arcadian aspirations into a post-Arcadian reality, working out of rough-hewn quarters in a nondescript office park at the edge of town. That these dreams can assume a variety of forms, even within one building type, is revealed by the engaging portfolio of single-family houses, all completed within the past two years, that are reviewed on these and the following pages.

The newest, and by far most lavish, of the three structures is a speculative siren of a house, dubbed Miraflores and located in the glitzy suburban development of Fairbanks Ranch, that beckons the prospective buyer with 19th-century "come to California and be a *padre*" allure (pages 140-143). Though Miraflores at first seems to be merely a stylish variation on a classic stucco-and-red-tile-hacienda theme, the house exhibits a variety of architectural quirks that esthetically isolate the building from Spanish Colonial antecedents—and physically separate it from its garish neighbors. At the other end of the economic scale is the little house that Quigley produced for Sue Oxley (pages 144-145), a building-on-a-budget (situated, ironically, in rich La Jolla) whose tasteful modesty and underlying common sense make it a residential archetype for single people wishing to escape apartment living for a house of their own. Finally, there is the weekend home that Quigley designed for Bill and Lila Jaeger in coastal Del Mar (pages 146-149). More than any other recent project by the architect, this landbound beach house—an architectural oxymoron if there ever was one—sums up Quigley's ability to turn a major liability into an advantage. In a delightful series of pen-and-ink drawings, Quigley has articulated the "dream" of an ocean view for this seaside retreat, the "reality" of the clients' hopelessly landlocked site, and his ultimate "method" of designing the house as if it had traveled to Del Mar atop a towering Pacific roller—or, perhaps in recognition of his debt to the asceticism of traditional Japanese architecture, as a cluster of pavilions caught like flotsam and jetsam in the mighty curl of Hiroshige's famous *tsunami*. The apparent randomness of Jaeger's final form is anything but adhoc, its kinetic qualities typical of the calculated naïveté that characterizes much of Quigley's work.

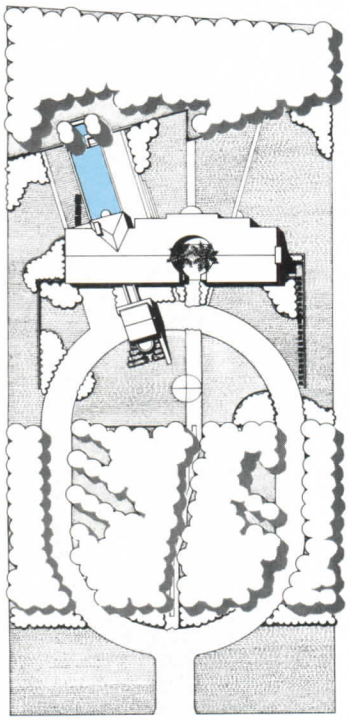
Although these buildings clearly reveal the range of Quigley's thinking, it would be a mistake to typecast him as a residential architect. On the contrary, his list of current projects includes a modest library in suburban Linda Vista and three buildings in downtown San Diego—a 180-unit market-rate apartment house called Marina Palms; a new single-room-occupancy hotel, the Baltic Inn, that will accommodate 209 of the city's low-income and homeless population; and a five-story commercial building that will house, among other things, Quigley's own new offices. That so much of his work is focused on the frayed edges of San Diego's reviving central business district is especially significant: Quigley's distinctive brand of regionalism, applied to small-scale buildings for a variety of income groups, might be just what San Diego needs if it has any hopes of regaining the Arcadian impulses that once determined its urban form. *Paul M. Sachner*

Jaeger Beach House



Palmy days, starry nights

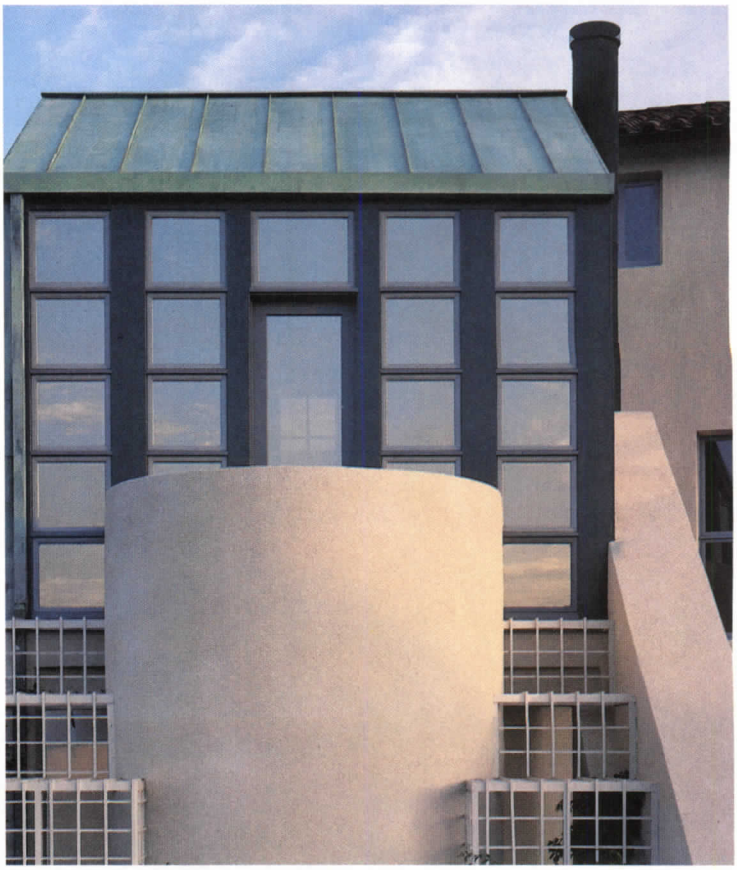
Miraflores
Fairbanks Ranch
San Diego County, California
Rob Wellington Quigley, Architect

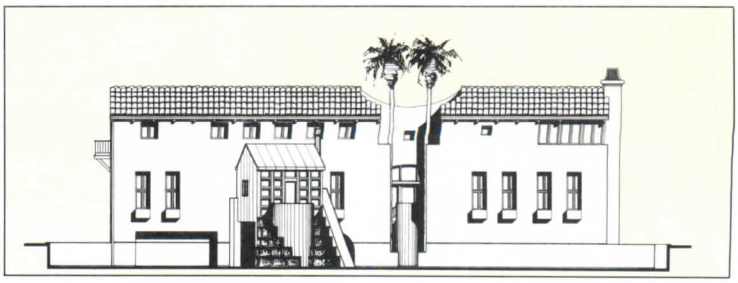


Given that Fairbanks Ranch was once the 2,000-acre preserve of actor Douglas Fairbanks, Jr., it is not surprising that the eclectic architecture of this expensive new residential development would seem more at home in Hollywood than in northern San Diego County. Though project planners had originally intended Fairbanks Ranch to conform to the rural image of nearby Rancho Santa Fe, a comely enclave of early California architecture built during the 1920s and '30s, standards were relaxed when property buyers seemed reluctant to adhere to design guidelines. The result is stylistic anarchy, Arcadia subverted by the vagaries of taste and the exigencies of the bottom line.

While profit was certainly a motivating factor when the developers commissioned Rob Quigley to design Miraflores, a speculative 6,690-square-foot house that remains unsold, the architect has been able to balance the client's financial concerns with his own esthetic predilections. In order to cut costs (and to make the house appealing to as many potential buyers as possible), Quigley configured the structure as a simple rectangle—a 100-foot-long, stucco-clad box, placed at the back of its 1.2-acre site behind a dense grove of alder trees (site plan left and top photo right). When fully grown, the trees will shield overflow guest parking along a circular drive and, more importantly, insulate the house from the surrounding visual cacophony. In his design, however, Quigley has created a visual stir of his own by incorporating striking architectural "events" which shatter any notions that this house is simply a nostalgic exercise in Mediterranean revivalism. Although the graciously arched rear facade (facing page) conveys just that impression, the street elevation deals provocatively with masculine and feminine themes that Quigley contends are traditional elements of Spanish architecture. The motifs are either frankly sexual—tall Washingtonia palms brought to the site and inserted into a womblike entrance cylinder (page 142)—or, in the case of a glass-enclosed library wing juxtaposed against the sturdy wall plane (bottom photo right), coolly abstract. The semicircular terrace of this copper-roofed element begins an oblique secondary axis that runs through the kitchen and a backyard swimming pool before terminating in the requisite Southern California hot tub. The question is, can imagery this strong find acceptance—and a willing buyer—among the stylistic excesses of its overwrought neighbors? *P. M. S.*

©Paul Warchol photos

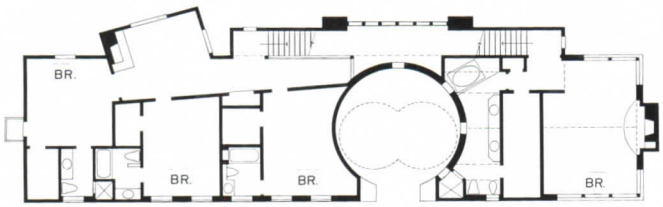




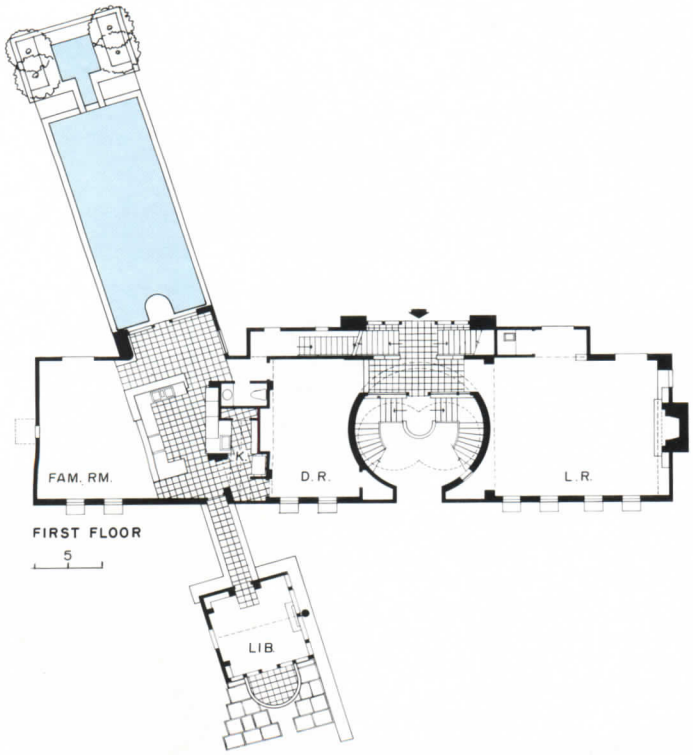
Although Miraflores's distinctive entrance cylinder results in some oddly shaped first-floor spaces, its real impact occurs on the second floor, where the master bedroom suite is separated from three other bedrooms by the wide gulf of a double interior stairway.

Miraflores
Fairbanks Ranch
San Diego County, California

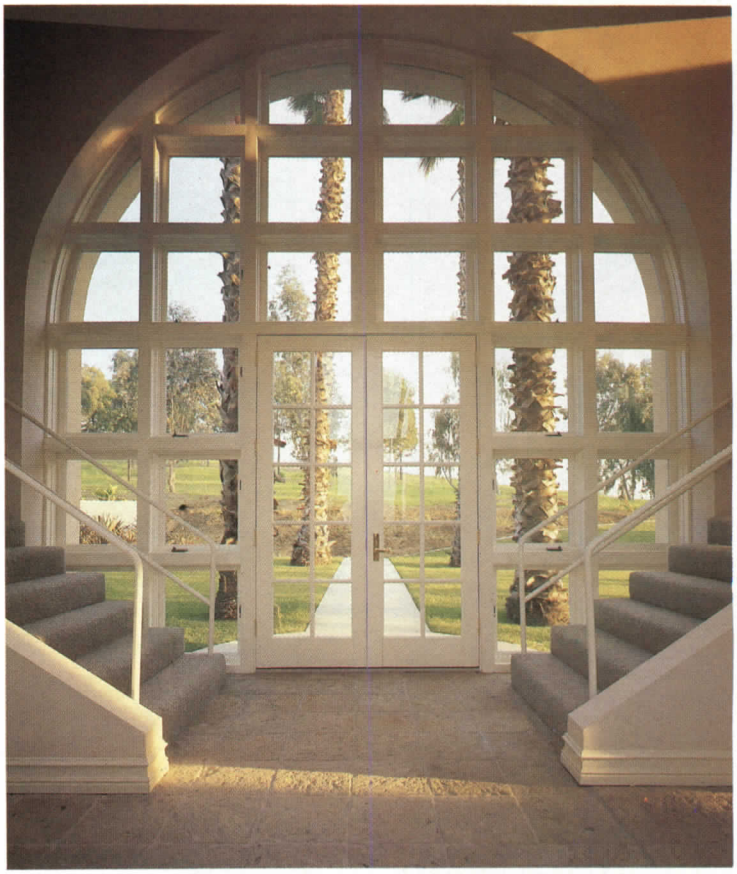
Owner:
Iven Partnership
Architect:
Rob Wellington Quigley—
Bob Dickens, project architect
Engineers:
Sowards Engineering (structural);
Patrick B. Quigley & Associates (lighting)
Consultants:
Land Studio (landscape); Kathleen McCormick (colors, interior design)

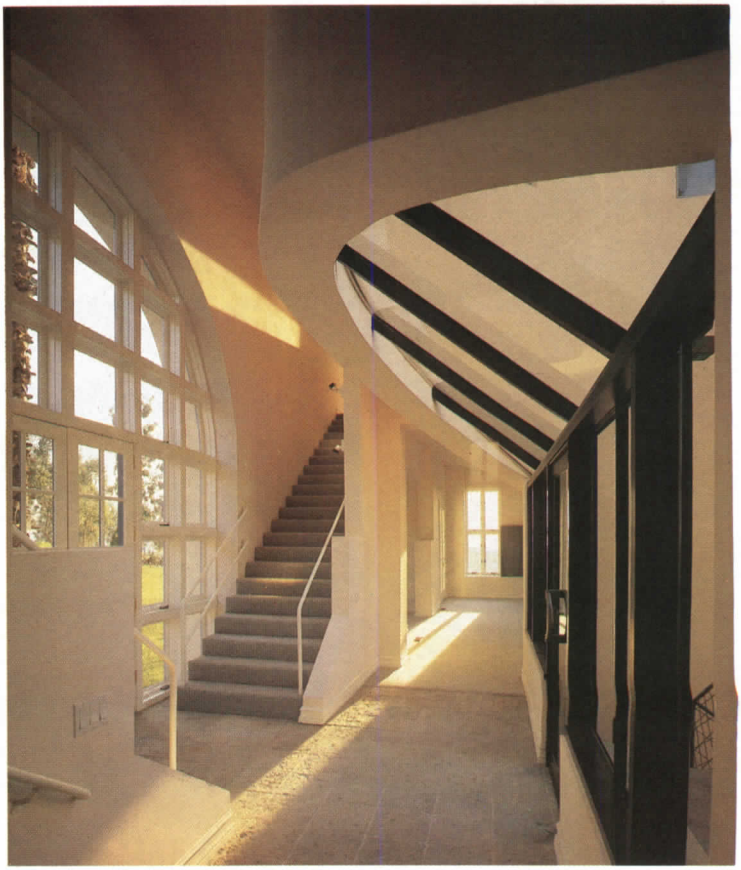


SECOND FLOOR



FIRST FLOOR



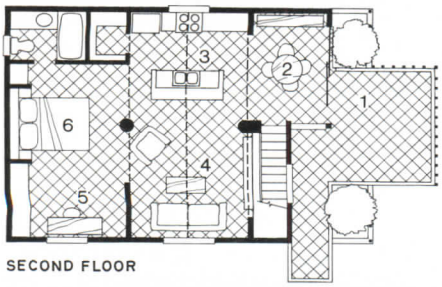


A simple place of habitation

If the voluptuous curves and subtropical landscape of Miraflores embody the Latin strain of the California dream, the diminutive 1,400-square-foot house that Rob Quigley designed along a busy residential avenue in La Jolla Shores exhibits more practical, almost Yankee aspirations: namely, to produce affordable housing for Sue Oxley, a retired woman living in one of San Diego's most expensive neighborhoods. Although Oxley had unusually high architectural standards (her previous house was designed by Richard Neutra), she was willing to sacrifice the luxury of space in order to keep total building costs under $100,000.

Quigley's ultimate solution—a two-story rectangular box that encloses a one-room living studio on its upper level and a separate guest apartment on the ground floor—is altogether remarkable, both for the inherent logic of its plan and for an exterior monumentality that belies the building's modest proportions. In order to create the feeling of separate rooms in the client's 36-by-24-foot living area, the architect divided the second floor into three parallel usage zones of sleeping/study, living/cooking, and dining/terrace (plan facing page). Lacking the financial wherewithal that allowed for the architectonic complexity of Miraflores, Quigley relied instead on a prosaic tract-house vocabulary of standing-seam metal roofs, standard 2-by-4 framing, and three sizes of stock windows. The goal, says Quigley, was to produce "a simple place of habitation that doesn't depend upon craftsmanship, but doesn't come off as careless either." The result is essentially a builder's house which, ironically for a design that deals with one client's specific needs, could be replicated endlessly in any one of San Diego's middle-class suburban developments.

What clearly separates the Oxley House from its less accomplished split-level cousins, however, is its palette of abstract, regionally influenced detail: a gently curving stainless-steel band embedded in the street facade, for example, subtly suggests a Mission Revival arch; a trellis over the second-story terrace modestly evokes the lath house that Bertram Goodhue designed for the 1915 Panama-California Exposition in nearby Balboa Park; and the building's chaste exterior might be considered a reference to the spare, "proto-modern" houses that Irving Gill designed in San Diego early in the 20th-century. A copacetic blend of economy and imagery, this house seems an especially apt reflection of its time and place. *P. M. S.*



SECOND FLOOR

1. *Deck*
2. *Dining*
3. *Kitchen*
4. *Living*
5. *Study*
6. *Sleeping*
7. *Entry*
8. *Utility*
9. *Family room*
10. *Bedroom*
11. *Garden*

Oxley House
La Jolla, California
Rob Wellington Quigley, Architect

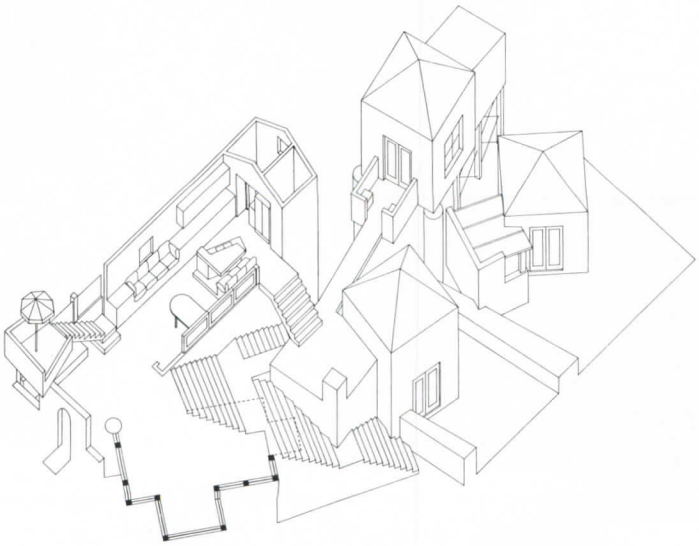
By positioning the Oxley House at the rear of its narrow lot, behind a curving driveway and planted earth berms (top photo facing page), Rob Quigley was able to establish a buffer between the structure and street traffic. The principal living quarters, located on the second floor, take advantage of west-facing views toward the Pacific and southern vistas of Mount Soledad from the terrace, or lath house, whose quintessentially San Diegan wood trellis is entwined with flowering bower vines (bottom photo facing page). A roll-up shade screens out the strong afternoon sun during summer, while allowing direct-gain passive solar heating in winter (left). Inside, the client has furnished the house with her collection of classic Modern furniture, including Greta Von Nessen floor lamps, an Eero Saarinen side table, and a George Nelson slatted coffee table.

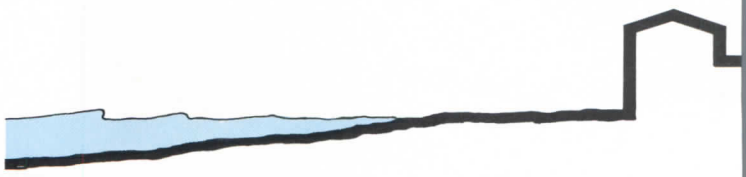
Owner:
Sue Oxley
Architect:
Rob Wellington Quigley—
Bob Dickens, project architect
Consultants:
Todd Fry & Associates (landscape);
Kathleen McCormick (colors)
General contractor:
Wodehouse & Associates

A coastal contradiction in terms

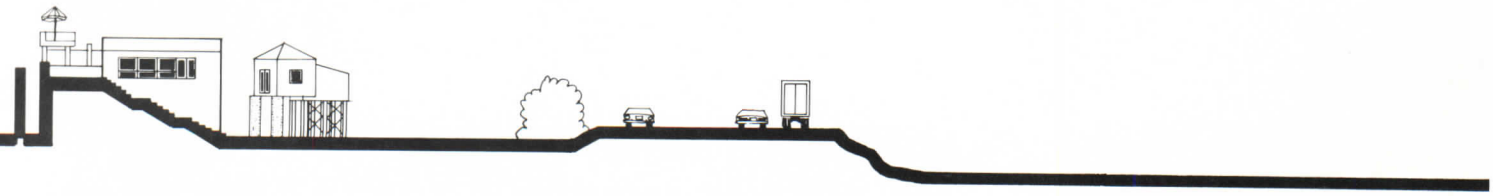
Just north of San Diego lies Del Mar, a seaside resort where eucalyptus-covered hillsides and flat estuaries laced by highways and railroad tracks coexist in a characteristically Californian clash of man and nature. In Del Mar's densely settled beach community, man seems to have won the battle, developing a spontaneous, sometimes ramshackle enclave that might be considered the dream of a house-by-the-sea gone a bit haywire. The eastern flank of this 150-foot-wide strip is defined by heavily traveled Pacific Coast Highway, the ocean edge by a solid wall of post-war vernacular cottages that blocks littoral access to all but a fortunate few. In between lies the landlocked beach house that Rob Quigley designed for Bill and Lila Jaeger, a middle-aged couple who spend most of their time overseeing a winery in Northern California's Napa Valley. More than the Oxley House or Miraflores, this idiosyncratic group of buildings exemplifies Quigley's interest in architectural paradox—the notions of permanence versus transience, timelessness against expediency, beauty juxtaposed with banality—and his stated wish to convey "the hedonistic idea of what life on the edge of California can be."

While "hedonistic" might be a bit strong for the Jaegers, ("relaxed" is probably a better word to describe the time they spend in Del Mar), their 1,854-square-foot retreat fits admirably into a context where rules are few and where disparities between the natural and the manmade are striking. Although the clients' program for a quiet second home with three guest bedrooms to accommodate occasional visits by their grown children was relatively uncomplicated, Quigley elected to replace what he calls "drafting-board geometry" with an assemblage of buildings whose aggressive asymmetry suggests that they had been tossed ashore by ocean waves, but whose cascading circulation plan also evokes the random orderliness of an Italian hill town. By placing the guest bedrooms in three separate pavilions, grouped around a communal interior court but each with its own entrance, bathroom, and small yard, the architect has created a place where the Jaegers and their children can be together, yet apart. The effect is that of a small motel or motor court, its skyline of pyramidal roofs a metaphor for the cabanas at a seaside resort or the nomadic tents of some North African caravansary. (Quigley's original plans actually called for canvas roofs on the pavilions.) If the nearby highway and cheek-by-jowl density of the neighborhood demanded an introverted house, Quigley turned unhesitatingly to adjacent structures for Jaeger's brick, cedar-shingle, concrete-block, and sheet-metal material palette. (Even seemingly idiosyncratic "weeping" mortar joints in the concrete-block walls—dubbed "juicy joints" by the architect—are a direct quotation from a 1950s house across the street.) Meanwhile, the low-slung profile and generous eaves of the living room/study reflect Quigley's debt to Japanese architecture and to early 20th-century California bungalows. Here, in a single building, is the embodiment of Quigley's "unrepentant romanticism," as he calls it, "based on both the mnemonic abstraction of our heritage and the fascinating reality of our contemporary automobile-dominated city."
P. M. S.



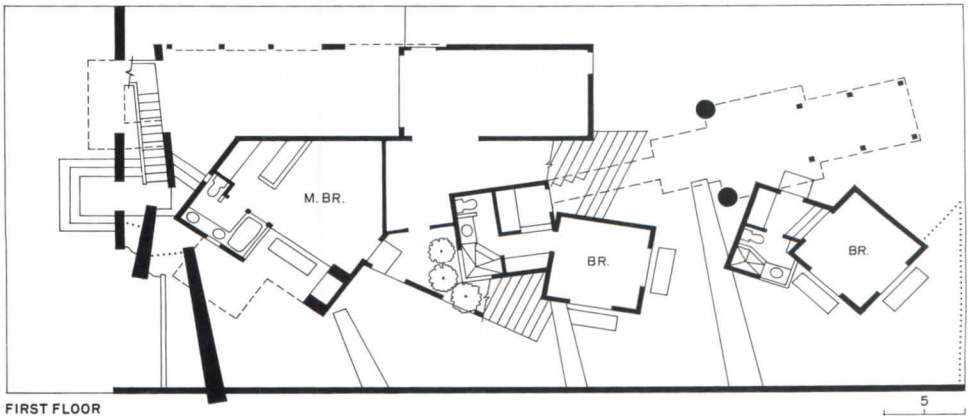


Jaeger Beach House
Del Mar, California
Rob Wellington Quigley, Architect



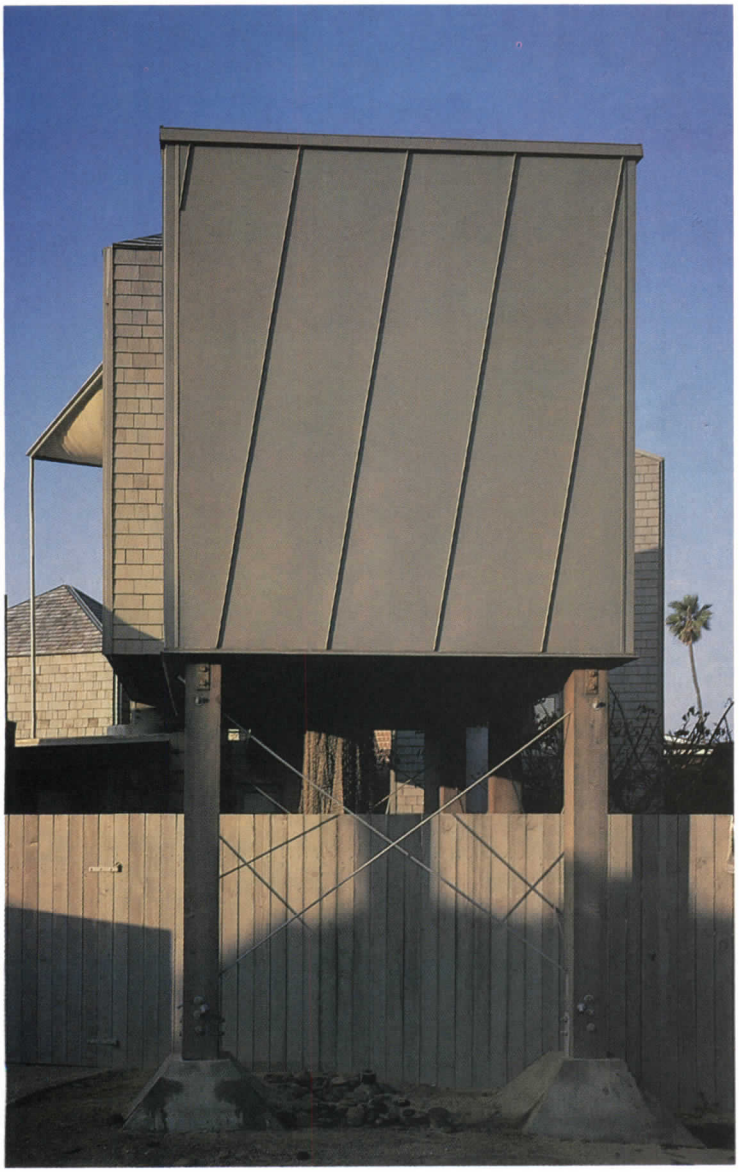
Animated elevations bearing an almost hyperactive agglomeration of materials and shapes turn eerily mute inside the Jaegers' courtyard (small photo top), where concrete pylons and masonry-block walls give one the impression of standing under an abandoned freeway—a tongue-in-cheek prediction, perhaps, of things to come in car-culture California.

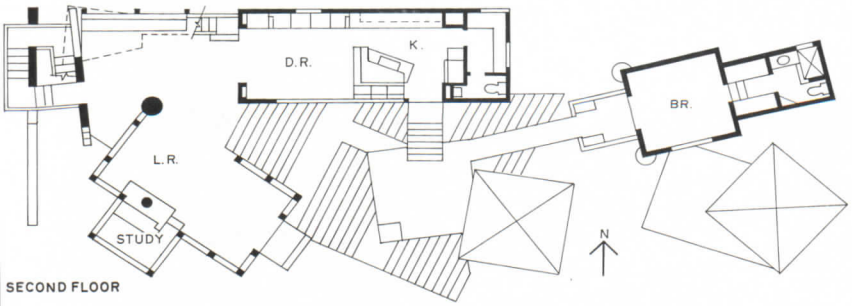
Difficult to document in any single photograph, a kinetic collection of open terraces, outdoor stairways, and catwalks rises up from the street, seeking an elusive ocean view over adjoining rooftops (left this page and top right facing page). The need for privacy, however, dictated the placement of bedroom pavilions around an interior courtyard. One bedroom is tucked away into a recess beside a cascading brick stair (right this page); the rather public location of another bedroom pavilion just a few feet from a four-lane highway demanded walls covered in windowless, standing-seam metal sheathing (left facing page). Heavy timber living-room trusses (bottom right facing page) pay homage to the California Craftsman houses of Greene & Greene.



FIRST FLOOR

Jaeger Beach House
Del Mar, California
Owners:
Bill and Lila Jaeger
Architect:
Rob Wellington Quigley—
Melvin McGee, project architect
Engineers:
Sowards Engineering (structural);
Burt Adams (mechanical)
Consultants:
Evie Avinante (interior design);
Adams Wyckoff & Brown
(landscape design)
General contractor:
Wodehouse & Associates—
Richard Wodehouse, Terry Wardell





SECOND FLOOR

Windows: Techniques for restoration and replacement

By Wesley Haynes

Whether or not Le Corbusier's statement that "the history of architecture is the history of the struggle for the window" is something of an overstatement, the humble window has at least been a litmus indicative of cultural and technological trends in the evolution of buildings. From mere slits in medieval fortifications to the curtain wall of Philip Johnson's glass house, the design and use of the window has been a measure, among other things, of a period's ability to provide security through its political institutions and manipulate the natural environment through technological advancements. In the United States, the earliest windows were often carefully handcrafted objects displaying exceptional joinery and a frugal use of precious glass. Mid-19th-century improvements in millworking and glassmaking technologies, followed by improvements in steel-rolling, led to the availability of mass-produced windows in an ever widening variety of sizes and shapes. Until the mid-20th century, however, the design of windows lacked a scientific basis. While the earliest industry standards specified the quality of materials and workmanship and thus differentiated grades of sash, it was not until the 1940s that pioneering methods to measure the physical performance of windows, namely air and water infiltration and thermal conductivity, were developed for wood and steel windows. Together with the advent of the use of extruded aluminum in manufacturing window units, the design, fabrication, and appearance of windows was significantly changed.

With regard to replacement, the struggle for the window still rages. The problem is that contemporary windows generally do not look like their elder counterparts, which is an important concern in rehabilitation projects subject to design review by local landmark commissions or certification by state and federal agencies for the Investment Tax Credit (ITC) under the provisions of the 1976 Tax Reform Act and its successor, the 1981 Economic Recovery Tax Act. At one local level, for example, it is estimated that 40 percent of the 2,000 applications for permits in 1986 to the Landmarks Preservation Commission (the New York City agency responsible for regulating changes to landmark properties) were proposed alterations to windows. The Secretary of the Interior's Standards for Rehabilitation, which are used to evaluate the appropriateness of rehabilitation measures, in nearly all cases encourage the preservation of windows as distinguishing building features of historical, cultural, and architectural value while returning the buildings to "efficient contemporary use." This double-edged directive, needless to say, has presented challenges of interpretation and execution, pitting preservation, an essentially qualitative approach, against more easily quantifiable amounts of energy or dollars lost or saved. In general, appropriate solutions respect the windows' original proportions and glazing divisions when known, and materials whenever possible, for these characteristics place the window within the stylistic demands and technological constraints of its historical context.

Environmental simulation

Contemporary window efficiency, defined within the context of the building as a whole—its siting, shape, patterns of occupancy and activity, security, relevant building, fire, energy, and, recently, acoustical codes—is situational. The goal of most window rehabilitation projects, which encompass repair, retrofit, and replacement measures, is to upgrade the unit's physical performance in addition to the esthetic objectives.

Design standards for windows are based on laboratory simulation of environmental forces. Without question, lab testing has made windows today far more efficient. The pioneering efforts of the American Architectural Manufacturers Association (AAMA) toward integrating such research in product development, and the establishment of industry standards, have already influenced practices in the construction industry. Lab testing can and should continue to provide a means for measuring improvements in product design and fabrication.

There are limits to lab testing however, for it only indicates performance under ideal conditions. The tested unit is typically set in a plumb and square opening with exacting tolerances, conditions rarely encountered in the field. Frequently, the tested unit is the result of careful assembly by hand, and not the product of the assembly-line production that will later be employed to fabricate it on a large scale.

Since the mid-1960s, concerned leaders of the replacement-window industry have developed portable instrumentation to simulate environmental conditions and measure comparative performance in the field. To date, field-testing has primarily been used as a quality-control measure in replacement-window installations. In the past decade it has also been used analytically to develop and evaluate appropriate retrofit solutions for existing windows. Results are promising, indicating that in many cases existing windows can meet or exceed industry standards through the selective repair or replacement of components and/or the application of weatherseals, secondary glazing systems, and minor adjustments to operation.

Air, water, and noise infiltration

Excessive air leakage is frequently encountered in old windows. Air leakage, or infiltration, affects the performance of the building envelope, making it more difficult to mechanically control interior temperature and humidity levels. Infiltration typically occurs in windows where the sash meets the frame (also called *crack perimeter*), and where glazing compounds and/or caulking are missing or have failed.

The standard test used to measure air infiltration determines how well a replacement unit adheres to voluntary standards set by the industry for the maximum allowable amount of air leakage for its product class. Existing windows are field-tested with self-contained portable instrumentation. The test is conducted by creating a temporary air-tight chamber around the window, establishing a constant pressure in the chamber, and measuring the amount of air drawn into the chamber at a constant rate that simulates a typical wind speed. When one or more typical windows are measured this way, the average value is applied to the cumulative crack perimeter of those types of windows throughout the building to estimate the total amount of existing air infiltration. Leakage in many older windows is so severe that maintaining a pressure equivalent to 25 mph (1.56 lb/sq ft) is not possible. Leakage rates obtained at lower pressures can be mathematically extrapolated at 25 mph to compare the results with predetermined criteria.

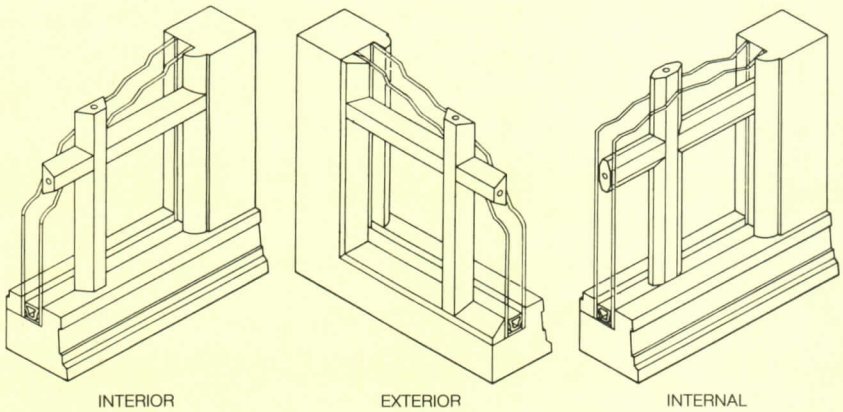
When older windows leak water they are likely to damage interior finishes and furnishings as well as encourage possible structural deterioration. Controlling water penetration in the immediate environment of the window is critical to reducing maintenance costs. Water penetration typically occurs in the same areas of a window frame subject to air infiltration, especially at the section of the crack perimeter where sash meets sill.

In a water-penetration test, the unit is pressurized to simulate a constant wind speed, which is typically 34 mph, though it is frequently higher (60 to 70 mph). While the window is pressurized, a spray of water equivalent to an 8-in./hr rainfall is directed toward it. If a window does not leak any water during a 15-minute time period, its performance is considered acceptable.

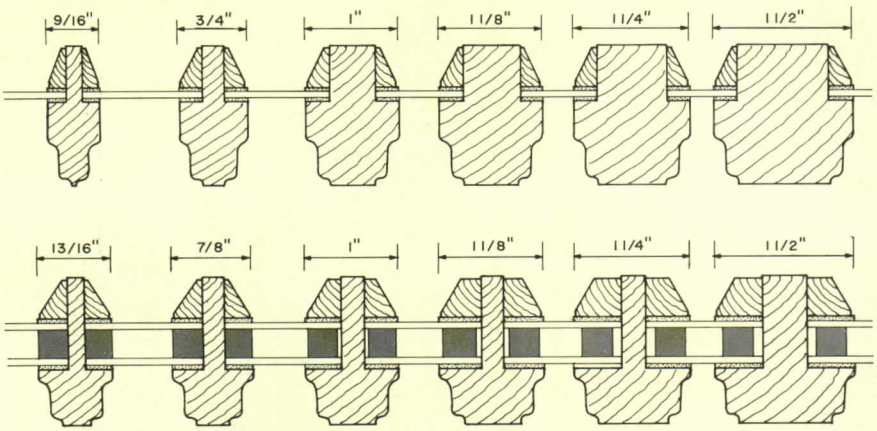
Old windows can be a major source of noise infiltration, a growing problem in urban areas. The major trade associations in the United States have not yet developed standardized noise requirements, though

Wesley Haynes is the manager of the Technical Preservation Services Center for the New York Landmarks Conservancy. He has served as the project director for the Conservancy's three-year study on window replacement in landmark buildings, a study funded in part with a grant from the National Endowment for the Arts.

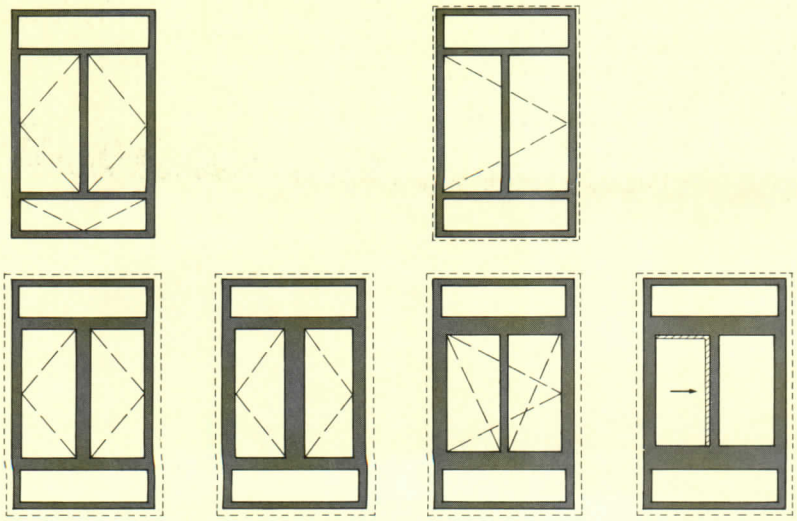
The projects profiled on the following pages represent solutions to the problem of rehabilitating the most common American window type, the wood double-hung. Each isolates the window project from a broader rehabilitation completed or underway in buildings ranging in scale from a massive federal office building to an urban row house. Taken as a group, the solutions address the spectrum of typical window problems, including thermal and acoustical insulation, conservation of original material, and limited budgets. Some restorations, such as Carnegie Hall, break new ground, while others, such as the Riverside Buildings in Brooklyn, N. Y. are the result of several years of product development to meet a growing market.



Source: Harbrook Associates



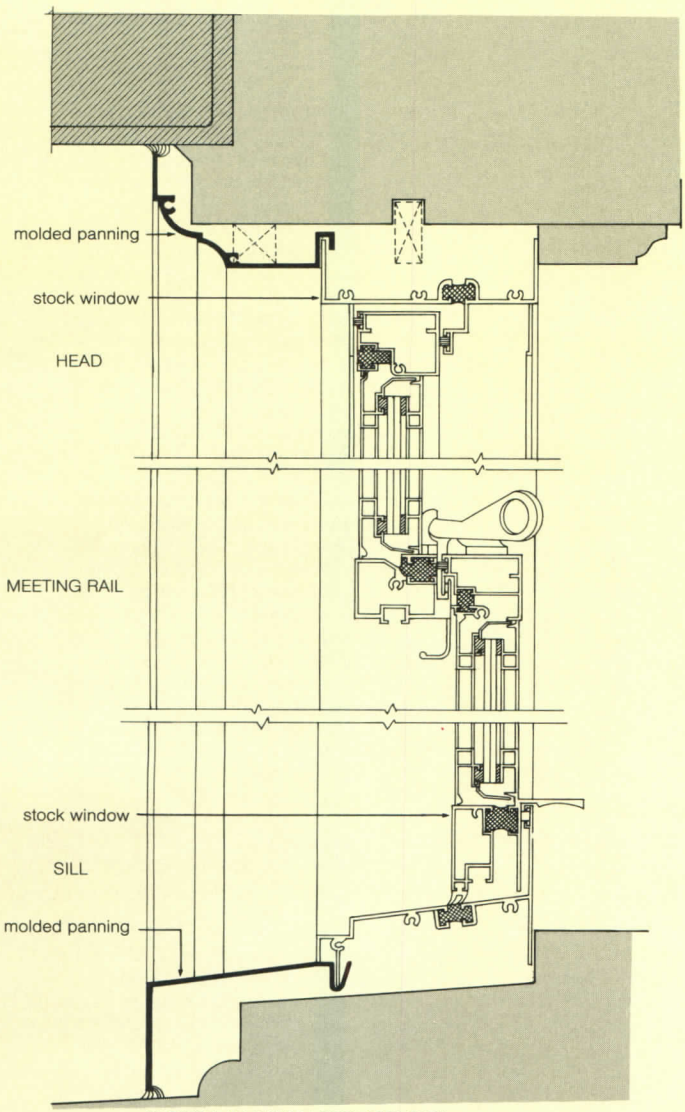
Source: Point One Windows



Nonstructural muntin systems are typically fixed or removable grilles intended to simulate glazing divisions in sash equipped with insulated glass. Exterior grilles, available molded as glazing putty lines, introduce shadows on the window while the other systems do not. Each system, however, displays a uniform plane of reflectance in front or behind, and the dimensions of most are flattened to accommodate the sash operation or the air space in the insulated glass. Moreover, dirt tends to collect behind exterior applied muntins. For these reasons, nonstructural muntin grilles, although widely available, are usually not considered appropriate in rehabilitating landmark properties.

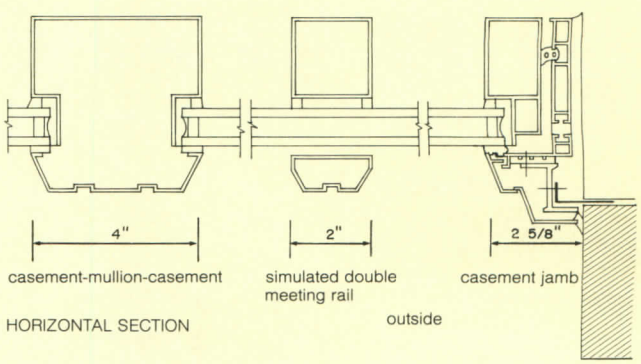
There are limits to using structural muntins with insulating glass in replacement sash. A 5/8-in. muntin profile, for example, typical of those used in the early 19th century, may have the strength to carry the increased weight of a standard-size pane of insulating glass, but lacks the width required to cover the glass spacer, typically ranging from 1/4-in. to 3/8-in. It is structurally possible to overcome this problem with a 7/8-in. muntin if a Class B rating is acceptable. Class A ratings are attainable in some simpler configurations using thin dimensions, but usually require profiles approaching 1 1/2-in.

The variation in "sight lines" of replacement options for common steel windows, evident in this diagram of a mid-20th century combination casement/hopper unit measuring approximately 3- by 5 1/2-ft, is factored by the material used and the method of operation. The difficulty lies in replicating the delicate 2-in. sight line formed by Z-sections of the original frame and sash at the perimeter and meeting stile. After installation over an existing frame, a contemporary steel casement would measure 2 1/4 in. at the perimeter and 3 3/4 in. at the stile, compared to a 3 1/2-in.-perimeter and 5-in.-stile in the aluminum casement. Using a nonstructural stile, such as that in the aluminum "tilt-and-turn," or the meeting stile in a horizontal slider reduces this dimension but further increases the width of the rails. One possible solution lies in increasing the section of the frame members along the depth of the jamb, modifying the operation to a single-leaf casement, and applying a nonstructural stile (above right).



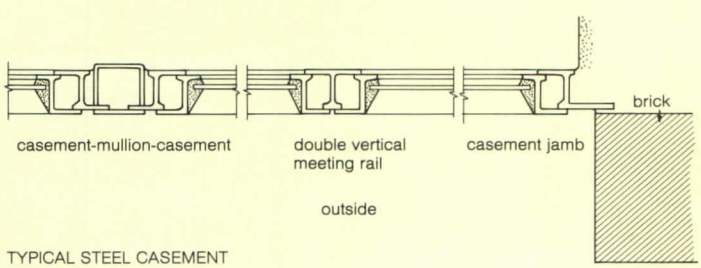
CUSTOM ALUMINUM REPLACEMENT

A growing vocabulary of molded aluminum extrusions is now available that pans over existing casings and interlocks with stock aluminum double-hung replacement units (right). The visual impact of the necessary loss of sightline with such a system is minimized in buildings with monumental windows or deep masonry reveals. Despite the more limited range of options for in-kind replacement, the development of stock aluminum panning systems for steel casements (below) has lagged behind those available for wood double-hung sash frames. This is currently under study by several manufacturers. One solution proposed for two landmark high-rise buildings in New York, as yet not fully tested, would pan over the existing frame in a manner that minimally increases the jamb section by approximately 3/4-in. while maintaining mullion and meeting stile dimensions and the relationship of the glass to the frame and sash members. To accomplish this, however, may require setting the unit farther back in the opening and deepening the framing sections.



HORIZONTAL SECTION

Source: Harbrook Associates



TYPICAL STEEL CASEMENT

Source: Point One Windows

this is currently under study. Sound performance is measured to establish a sound transmission class (STC). STC, measured in terms of decibels, represents a single-figure rating based upon the amount of sound transmission lost in a window exposed to a range of noise levels at different frequencies.

Noise infiltration is measurable in the field by mounting a sound source on the exterior or "source" side of the test window and measuring the noise reduction with instrumentation on the interior or "receiving" side. These tests are performed in such a way that the only significant sound transmission between the two sides is through the window being tested.

Operating force

The amount of force required to operate a window, measured in the lab and field with a strain gauge, depends greatly upon its weight and operating type. Sliding sash typically requires greater effort than hinged or pivot sash. The amount of effort is also directly related to the physical condition of the sash, frame, and counterbalance hardware. *AAMA's* maximum allowable operating force for residential windows is 35 lb. While sash racking or warping is a difficult problem to correct, improvements to operation can be made by removing excessive paint build-up, deteriorated weatherstripping, and adjusting or repairing balance mechanisms and other hardware. The introduction of gas-operated balances in the course of the next few years may provide a solution to the problem of increased weight when additional glazing layers are added to the sash.

Design issues

While rehabilitating old windows often proves more economical than replacing them, existing units cannot be salvaged in all cases. The condition of the windows, scale of the project, and availability of competent and willing trades are generally considered mitigating factors. Until recently it appeared that the gap was widening between the look of new and old windows. Developments in the past five years, however, have resulted in the availability of replacement units that are both thermally efficient and visually appropriate for landmark buildings.

One of the few traditional building suppliers to survive into the 20th century is the custom millwork shop and, since wood is extremely easy to shape, the custom shop remains a viable option in the replacement window market. When the project is large enough to bear the cost, it is relatively inexpensive to cut a new knife for a custom molding if required. Many local shops maintain a collection of regionally popular profiles. When equipped with proper weatherseals and insulated glazing, custom-replacement sash or units satisfy most performance and esthetic demands.

The sizing of integral muntins equipped with insulated glazing remains problematic in replacement sash with divided lights. Replicating early muntins, which typically range from an extremely delicate 5/8 in. to 5/4 in. in width, is not structurally possible if a heavier and deeper glazing system is used. Such systems usually require a minimum of 1 1/2 in. to provide a sound tenon and glazing rabbet deep enough to cover the insulated glass spacer. (Specifying an anodized bronze finish on the aluminum spacer helps reduce its reflectance). Affixing an interior storm panel to a single-glazed unit with integral muntins, until recently a custom modification, is a way to maintain the structural integrity of thin muntins.

"The solution to this problem," according to Russell Brooks of Harbrook Associates, a window-replacement contractor, "ultimately lies in using nonconductive materials stronger than wood that are easily machined with common woodworking equipment." Brooks foresees the use of strong, lightweight, thermosetting resins reinforced with fiberglass as a potential material on the horizon.

Aluminum windows, first introduced in large volume in the 1950s as an extruded substitute for rolled-steel windows, permitting more cost-effective finishing, have not been considered visually compatible replacements for wood windows until recently. Aluminum sections can be wider than wood or steel elements of comparable structural and thermal characteristics, resulting in assemblies that perceptibly reduce the glazed areas or "sight lines" within the opening.

The problem with integral muntins is even more pronounced in aluminum, where thermal breaks are required to inhibit condensation. Nonetheless, the industry has made valiant strides to solve the problem, although there is still room for improvement. Molded integral and thinner applied muntins, complete with exterior putty lines, and a broadening vocabulary of molded panning systems and interior trim, are now available. Panning systems, applied directly to wood frame require a thinner extrusion, and have been tried out but with limited success, frequently resulting in an unfortunate "oil-canning" effect. The impact of the reduced sight line is minimized in one-over-one units that have been installed in monumental openings with deep reveals. Soon, an increased use of cast-aluminum components is expected.

Rehabilitating steel windows, which contain some of the thinnest sections used, presents greater problems than wood, for the ratio of glass to wall surface is typically greater, and the availability of steel replacement units is far more limited. Recent design trends suggest new possibilities for solutions in aluminum. "For years architects requested slim profiles, but the industry would only deliver them fat," said independent window consultant Harry Frambach, whose design solution developed for combination sash units in two highrises in New York is indicative of current trends. Although not yet fully tested, Frambach's proposed solution pivots at the mullion, and modifies the operation to maintain the existing sight lines.

Maintenance

The designs of many replacement window systems eliminate some traditional maintenance characteristics, notably renewing paint and glazing compounds, while adding new, often more expensive ones, such as repair or replacement of proprietary balance mechanisms, weatherseals, and insulated glazing units. In any case, periodic labor is still required to recaulk the window unit where it meets the building. Maintenance characteristics, in other words, depend to a great degree upon the quality of the individual components the replacement window is fabricated from, as well as how well the unit is detailed to exclude water. Standard laboratory tests are used to measure this performance requirement.

Conclusion

The advent of field-testing has provided a means to better understand and improve the physical performance of older windows, thus theoretically closing the gap between contemporary efficiency and historical esthetics. New replacement windows are available today that range from replicating the details to approximating the sight lines of unavailable older systems, and greater strides in this direction are expected in the next five years.

Will the struggle continue? Probably so, because few features are as critical to establishing a sense of time in a landmark building as its windows. The technological limitations of a given historical period and aging process of a building are fully exposed in the window through the subtlest of clues, such as the reflectance, texture, and tint of old glass, molding profiles, and proportions of muntins. As specific guidelines for rehabilitating windows are developed by regulatory agencies, more thorough review of the physical condition of existing units, and exploration of means to preserve them, are likely to be demanded. The process will continue to raise questions about the appropriateness and veracity of substitute materials and nonstructural details.

Riverside Buildings
Brooklyn, New York

Riverside Buildings
Brooklyn, New York
Client:
Penson Development, Inc.
Architects:
William Field & Son, original architect; R. M. Kliment & Frances Halsband, restoration architects

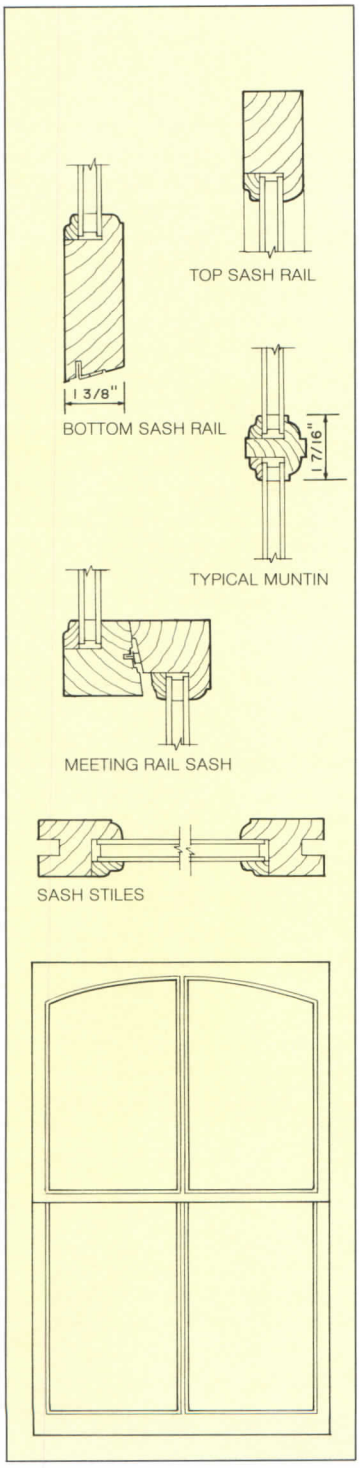
Construction manager:
National Realty Systems Inc.
Window contractor:
Harbrook Associates
Window installer:
The Greenland Studio

The Riverside Buildings were developed in 1890 by a Brooklyn philanthropist, Alfred T. White, as a limited-profit housing venture for industrial workers. Originally surrounding a central garden (prior to its truncation by the Brooklyn-Queens Expressway), the massive Romanesque revival apartment complex is remembered today as a pioneering attempt at providing a salubrious and affordable alternative to the tenement slum.

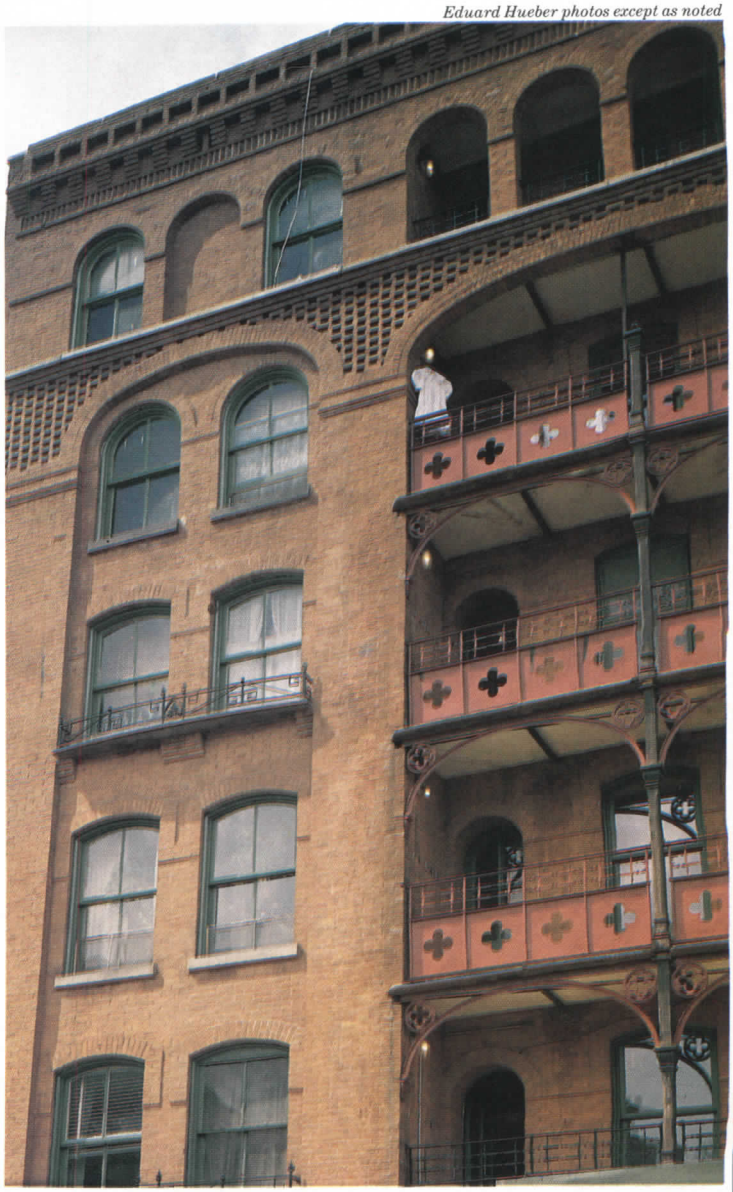
Behind the Roman and segmental masonry openings were pocketed 2-over-2 double-hung sash of generous proportions to provide abundant daylight and ventilation. Following a survey of the existing condition of the more than 750 surviving windows, a matrix was presented to the client comparing rehabilitation options within a framework of regulatory controls and cost considerations. In addition to meeting the requirements of the New York (City) Landmark Preservation Commission and the local community board, the Secretary of the Interior's Standards were adopted so as not to preclude certification of the project for the Economic Recovery Tax Act.

Repair of the sash was ruled out due to the need to replace an estimated 50 percent of the sash members because of earlier non-matching replacement and general deterioration. The project's preservation objectives discouraged complete unit replacement given the generally fair condition and ornamental quality of the casings. The solution selected was to repair the casings and replace the sash. A relatively short-term payback is anticipated.

The dimensions of the stops in the casing permitted the use of a stock 1 3/8-in. commercial grade sash. Moreover, the original 1 7/16-in. and 3-in. muntin profiles easily allowed the incorporation of stock insulated glazing with a 3/8-in. airspace. The quantity of the order allowed the manufacturer to remain competitive in tooling up for the arched cut-outs, a detail which otherwise would have been expensive. The total cost of the project was comparable to that of installing new stock-wood units. The greatest challenge in the project, and one of its greatest costs, was the coordination between the workers performing the on-site repairs to the casings, and the occupants in the fully tenanted building. The epoxy consolidation, requiring several steps over time and occasional sill replacement, depended upon the cooperation of the weather and tenants. Unlike unit replacement, however, this approach required less disruption of the exterior masonry and interior finishes.



Eduard Hueber photos except as noted



An energy-efficient and noise-reducing solution to the deteriorating, yet physically extrovert, windows was found in assembling a replacement sash from available catalog parts. With minor custom enhancements to match the arched cutouts, the 1 3/8-in. rectilinear replacement sash was divided with a 1 7/16-in. muntin matching the original to carry the 2-over-2 insulating glass. Existing counterweights were increased in weight to carry the extra glass, and the arch-headed frames restored to their original dimensions.

22nd Street Row House New York City

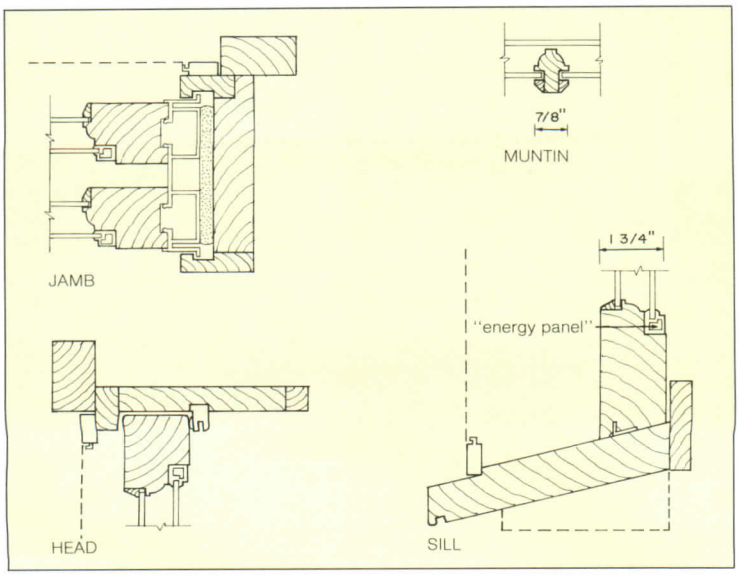
22nd Street Row House
New York, New York
Client:
346 West 22nd Street Corp.
Window contractor:
Harbrook Associates

The now forgotten architect-builder of 346 West 22nd Street had probably intended the windows of this handsome Greek Revival row house to read as voids. Limited, however, by a glassmaking technology that could only produce small panes, the sash was divided by delicately thin muntins to maximize daylighting and minimize structural millwork. The muntins on this and countless other period row house establish, albeit inadvertently, a scale and texture now closely associated with the historic style. Widening or eliminating the muntins frequently results from attempts to improve the window's energy performance, but in the process severs the building's connection to its temporal and technological origins.

Over the years this single-family row house was carved up into small apartments and subject to extensive exterior alterations. On the eve of its recent rehabilitation into cooperative apartments it was vacant and extremely deteriorated. The cost-conscious developer, desiring to upgrade the buiding to make it attractive to prospective new occupants while conforming to the requirements of the Landmarks Preservation Commission, decided to restore the facade to its original appearance. These requirements included thermally and acoustically upgrading the windows while maintaining the thin muntin lines. "Although most of the windows had been removed before the project started, surviving material in the basement units provided enough information to determine the dimensions and setbacks of the original windows," said Robert Ferra, the project manager for the window contractor.

The 10 double-hung windows on the front facade, eight of which were 6-over-6, and the two parlor floor units, 6-over-9s, were replaced with a slightly modified commercial-grade stock window unit installed brick-to-brick. Single glazed 1 3/4-in. sash, divided by structural 7/8-in. stock muntins, were equipped with an interior "energy panel" mounted into a rabbet on the stiles and rails. The units were equipped with a recessed stock spring-loaded block and tackle counterbalance hidden behind a fasciated casing similar to the original. Modifying the counterbalance provided the additional opportunity to insulate the weight pockets.

This solution is indicative of growing industry trends to build flexibility into stock products to meet the demands of existing buildings. The result fully preserves the character of the building from the exterior while improving the performance of the windows.



The ten 6-over-6 and 6-over-9 windows of this typical midblock row house give it a character and scale that its neighbors have lost (and added to its marketability as cooperative apartments). In replacing the missing windows, a brick-to-brick installation was required. In replacing the dimensions of the original 7/8-in. muntins, the use of insulating glass was ruled out. A stock secondary glazing system, mounted to the 1 3/4-in. sash interior, was applied to provide thermal and acoustical insulation. The new unit is balanced with a contemparary spring-loaded block and tackle system recessed in discrete channels clad with simple fascias.

Main Building Ellis Island National Monument New York City

The glazing divisions of the wood double-hung and fixed-sash of the principal elevations reinforce the dominating iron sash used in the giant arches and Diocletian openings of the center pavilion. Because the program calls for a multiuse program interior, the complex window replacement strategy for the Main Building included adding insulating glass in some units. Following numerous discussions with window contractors, the option of modifying the existing sash to accept the new glass was ruled out since deepening the glazing seat without damaging the molding profiles could not be guaranteed. The replacement units diagrammed below compare the single and insulating glazed solutions for a double-hung sash with fixed transom and sidelights. To maintain the operation of the unit

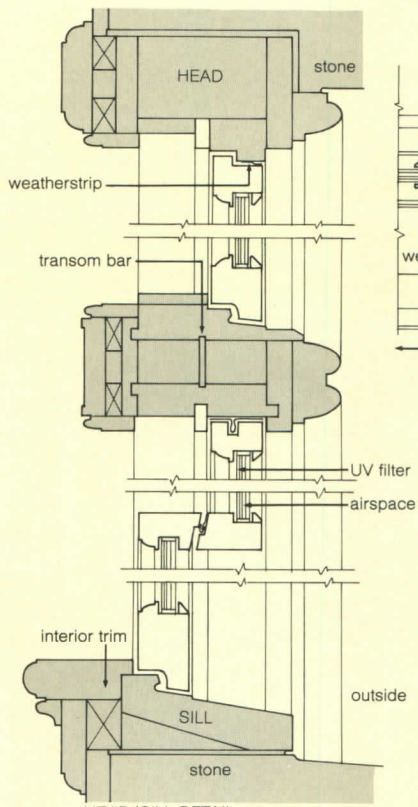
Between 1898 and 1954, some 14 million immigrants entered the United States through the Main Building at Ellis Island. In the 25 years that followed its abandonment, Boring and Tilton's handsome buildings began to deteriorate to noble ruins in the hostile marine environment of New York harbor. By 1979, the deterioration of the roof and windows had resulted in extensive build-up of salts on the interior and in high humidity levels, which would subsequently take two years to mechanically control.

In 1982, planning commenced for the $120-million mixed restoration and rehabilitation of the building into a Museum of Immigration and History of the Island. Scheduled for completion in 1989, in addition to a strict restoration of the exterior elevations, its program includes period interpretation of monumental and many typical spaces, and adaptive use of others to serve the needs of a contemporary museum. The planning process included a conditions' survey and archival research of the building's 410 windows. The retrofit measures included introducing new weatherseals and additional glazing equipped with an ultraviolet filter. Several options were initially considered, such as interior and exterior storm windows, both of which were ruled out due to the visual impact.

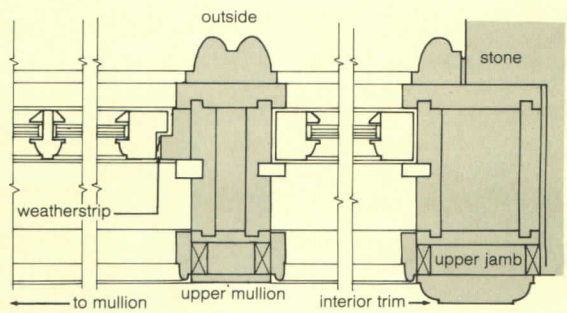
Following unsuccessful attempts to add insulated glazing into the existing 2 1/4-in. sash, the decision was made to retain and restore the existing yellow pine sash with single glazing in spaces where interior controls were not critical, and to replace the sash elsewhere. New sashes are being fabricated in preservative-treated sugar pine equipped with a 5/8-in. insulated glass system comprised of a uv film filter laminated between two layers of 1/8-in. glass and a 1/4-in. air-space, and a third layer of 1/8-in. glass. Apart from the filters and layers, the new sash will look identical to the existing units. The new central hvac system has been balanced accordingly.

The replacement sash will remain operable despite the central hvac. To solve the problem of balancing the heavier glazing, the upper sash will be fixed in place, and the lower sash will be doubly counterweighted in both pockets. All missing hardware is being replaced with replicas.

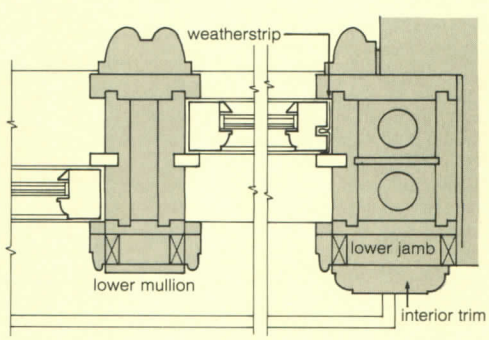
The cast-iron sash, located in the building's center wing, while in relatively better surviving condition than the wood, proved not possible to thermally glaze or weatherstrip, and has been restored to its original condition.



HEAD/SILL DETAIL

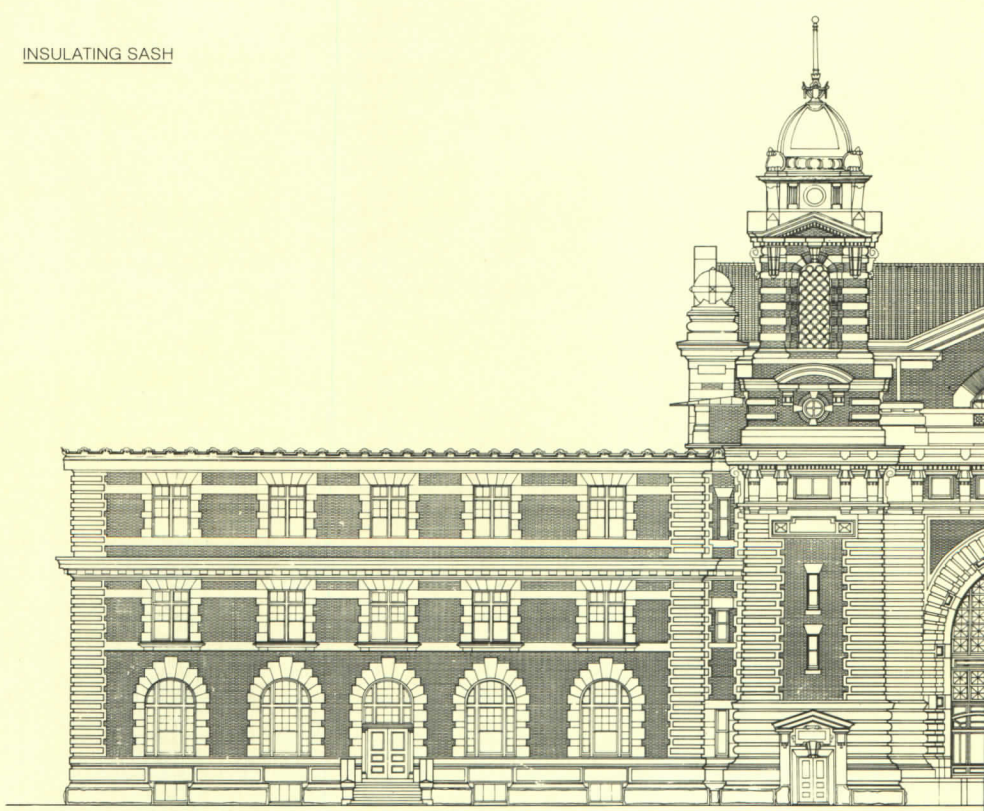


UPPER MULLION/UPPER JAMB



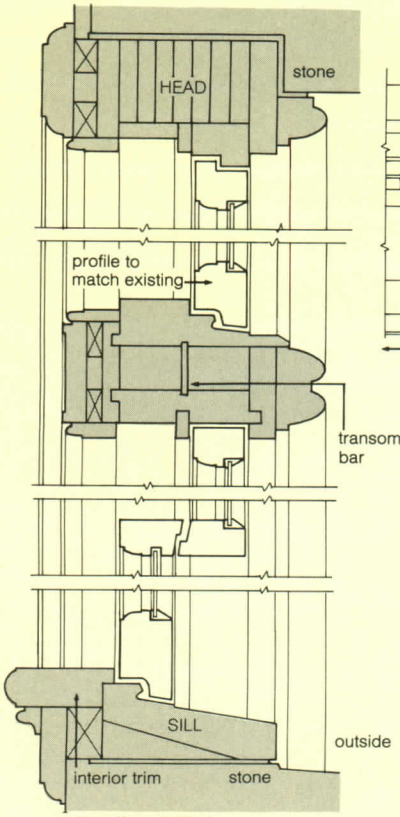
LOWER MULLION/LOWER JAMB

INSULATING SASH

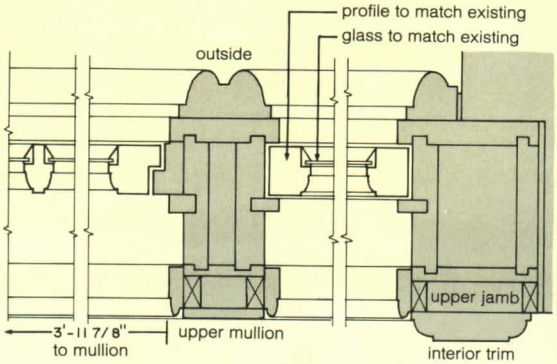


equipped with insulating glass, the upper sash is fixed in place and its counterweights have been added to balance the lower sash.

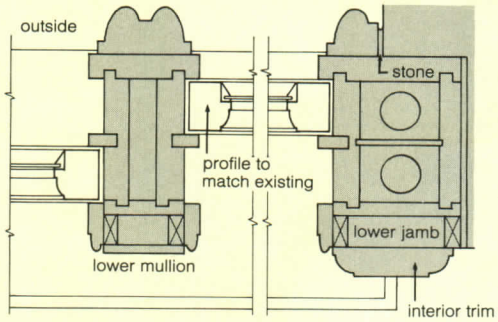
Main Building
Ellis Island National Monument
New York, New York
Owner:
U. S. Department of the Interior
National Park Service
Client:
Statue of Liberty/Ellis Island Foundation, Inc.
Architects:
Boring and Tilton (1898-1902), original architects; Beyer Blinder Belle/ Notter Finegold + Alexander, Inc. Architects & Planners, restoration architects
Construction manager:
Lehrer/McGovern, Inc.
Window contractor:
Schlegel Retrofit



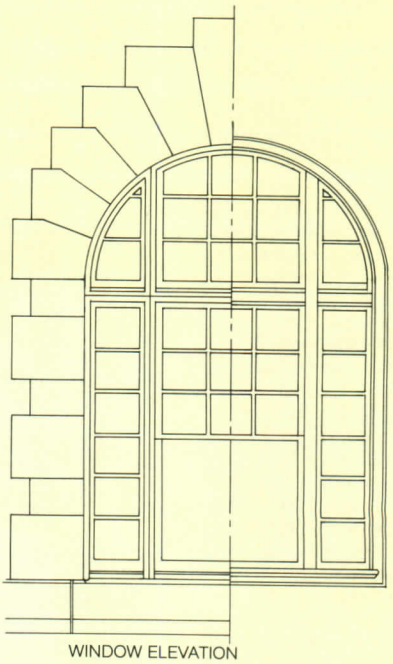
HEAD/SILL DETAIL



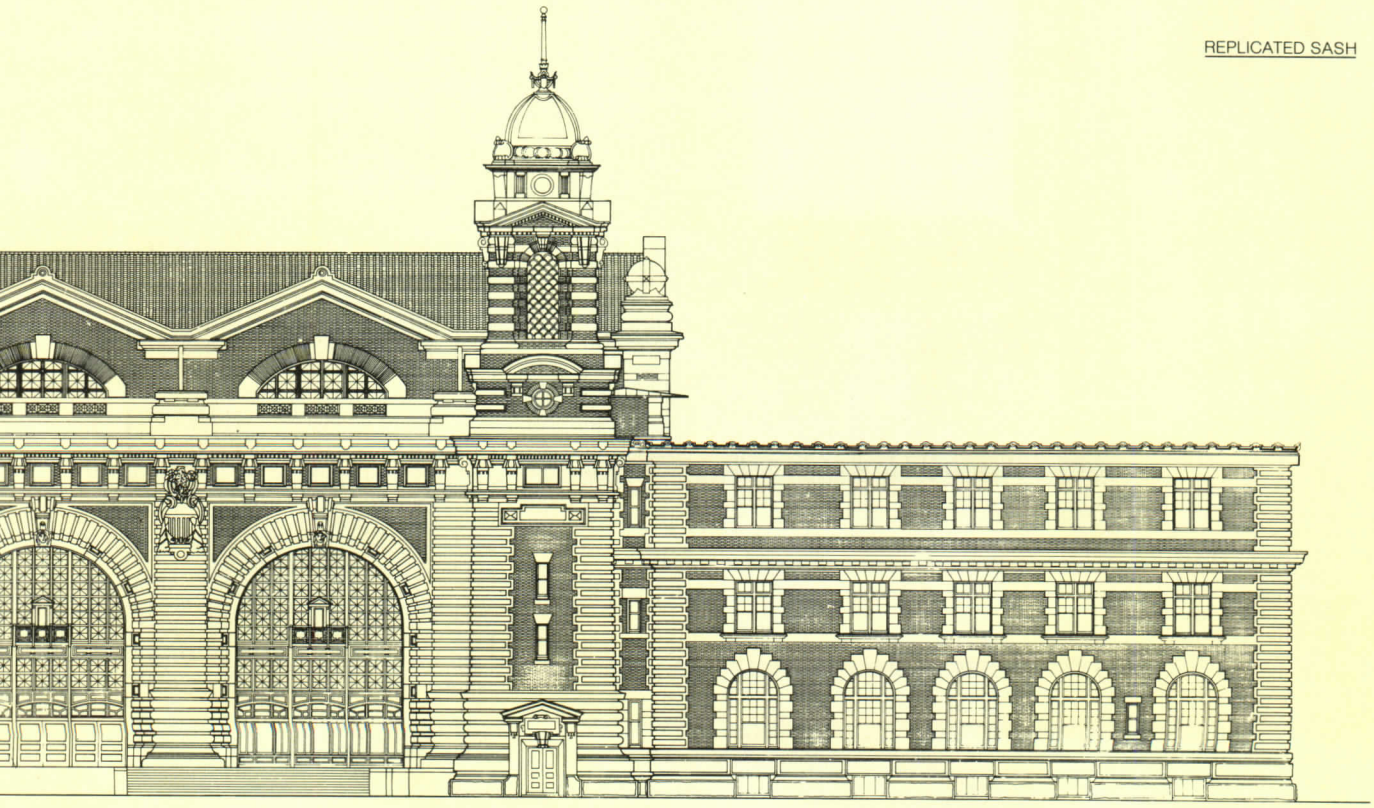
UPPER MULLION/JAMB DETAIL



LOWER MULLION/JAMB DETAIL


WINDOW ELEVATION

REPLICATED SASH



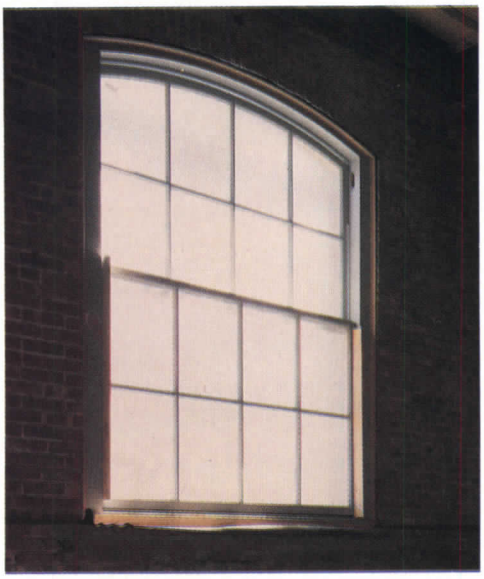
Power House
Ellis Island
National Monument
New York City

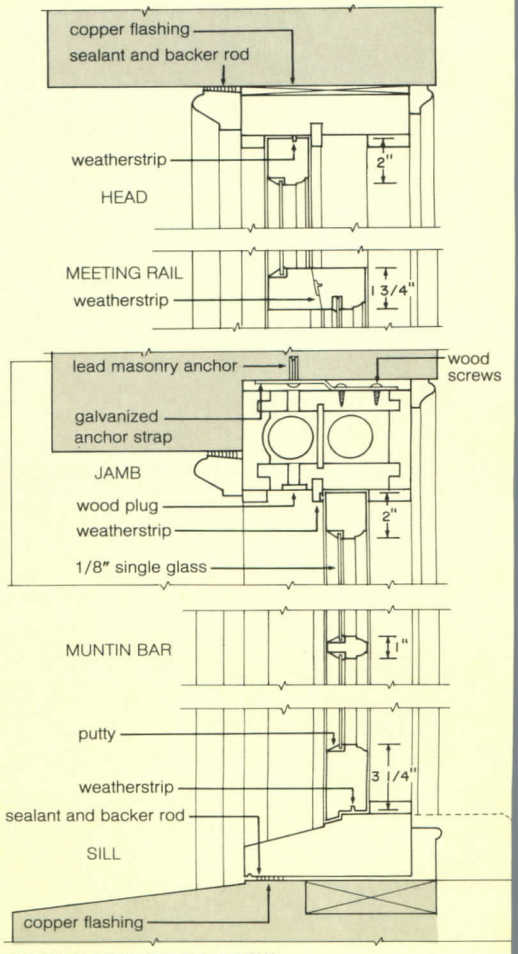
Unlike the Main Building to the south, the windows of the more modest Power House, which were not stabilized in the 1970s, were determined to be beyond repair. The interior of this support building, which is being returned to its original use to house the island's central power plant in Phase One, will not be open to the public.

All windows in the building, mostly double-hung including the most minor casements and a group of horizontal pivot sash, have been replaced brick to brick with new operable units. As in the Main Building, the objectives of exterior restoration were balanced with interior use. Most windows did not require insulated glazing and, apart from the introduction of vinyl weatherstripping, matched the original millwork exactly. Several units in spaces planned for office use were equipped with insulated glass, requiring an enlargement of the center muntin from 1-in. to 1 1/2-in., a modification that is visible upon close inspection.

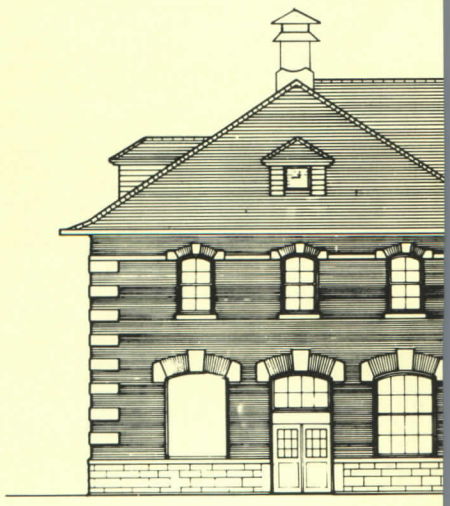
A greater visual impact, however, resulted from the substitution of the original clear plate glass with obscure glass in windows where the incinerator storage will be housed. "In this case, it was better to obscure the interior from the public by adding the glass," says Ralph Carmosino, an architect on the restoration team. While the pattern used, "Florentine 401," had never been used on the exterior in this building, it had been commonly used elsewhere on the island. By introducing a nonuniform pattern of glazing, the effect, whether intentional or not, softens the hard edge of the new windows in this otherwise weathered building.

Ralph Carmosino





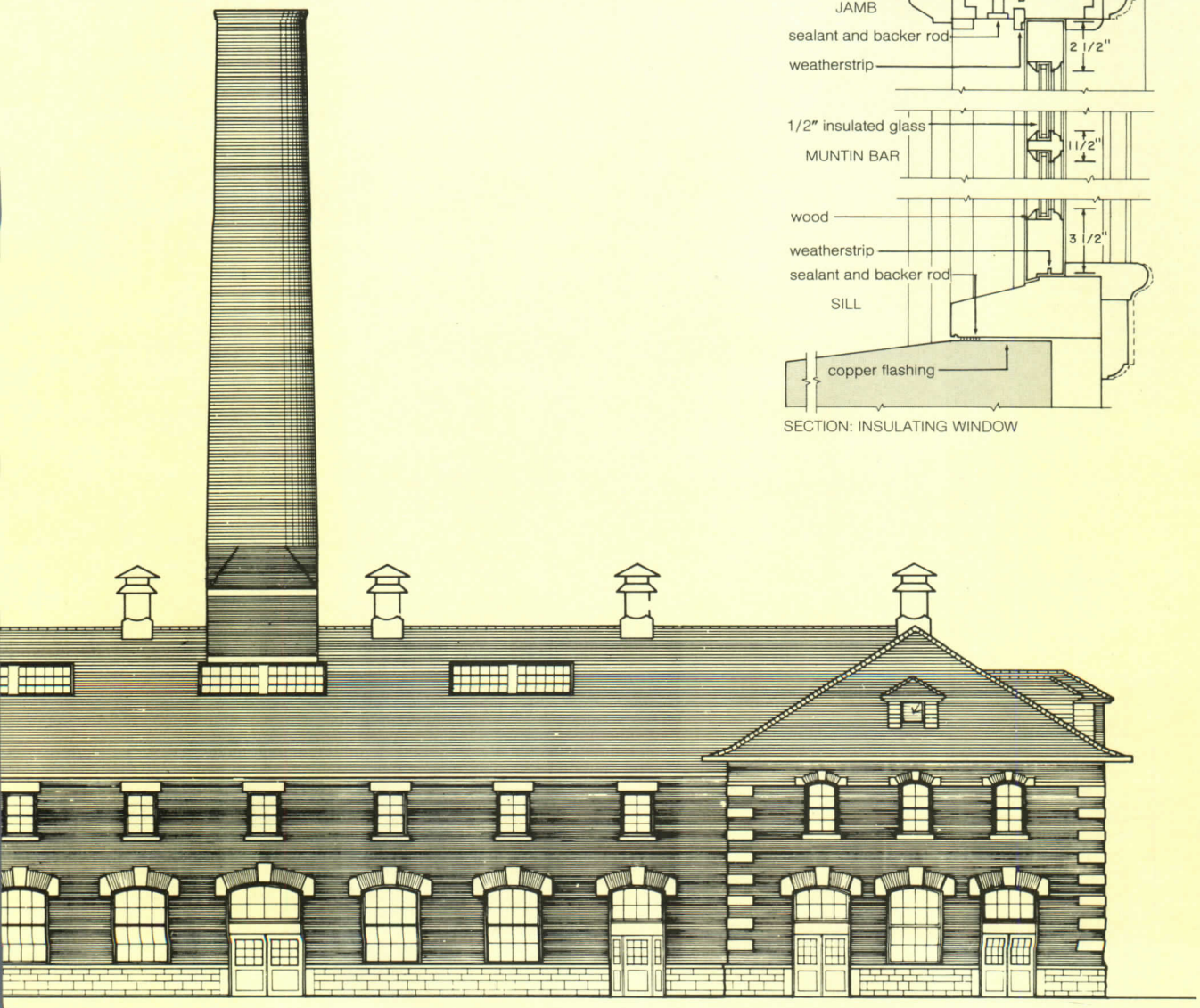
SECTION: REPLICATED WINDOW

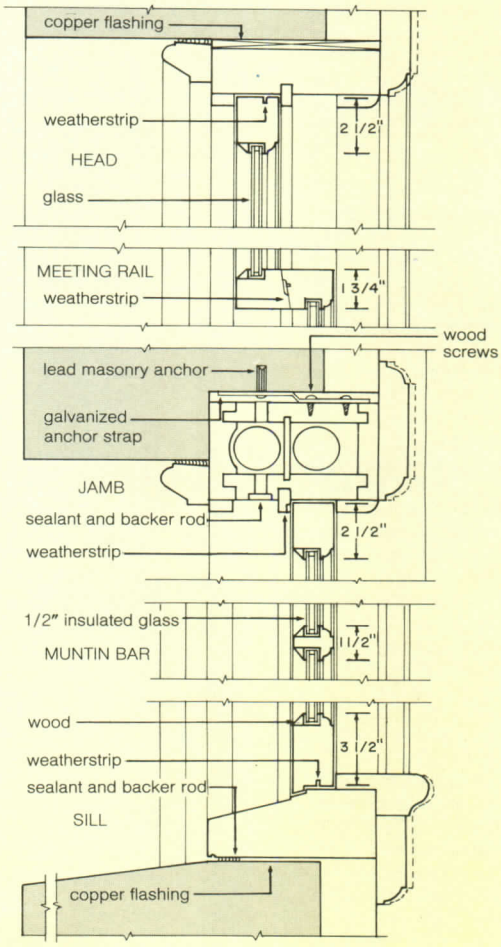


The deteriorated condition of the Power House windows, the result of some 30 years without maintenance, necessitated their replacement. In most openings the custom replacements exactly match the originals, which were built of 1 3/4-in. sash divided by 1-in. muntins. Obscure glass was introduced as required to screen incinerator functions from the exterior. Where second-floor spaces were converted to office use, the new windows were equipped with insulating glass, necessitating an increase in the muntin dimension to 1 1/2-in., and stiles and rails by 1/4-in. and 1/2-in. All new units were weatherstripped on site in milled kerfs. Note the placement of weatherstripping, concealed when the sashes are closed, at the head, sill, and meeting stile to reduce infiltration.

Power House
Ellis Island National Monument
New York, New York
Client:
National Park Service
Architects:
Boring and Tilton (1898-1906), original architects; Beyer Blinder Belle/ Notter Finegold + Alexander, Inc. Architects & Planners, restoration architects

Construction manager:
Lehrer/McGovern, Inc.
Window contractor:
Schlegel Retrofit





SECTION: INSULATING WINDOW

U. S. Department of Agriculture South Building Washington, D. C.

The graceful 1 1/16-in. muntins of this otherwise severe Neoclassical public office building also assist in buffering its massive scale. Fortunately, the frames and sash of the 9-over-9 and 12-over-12 units were in fair enough condition to explore retrofit options to correct drafts and stem further deterioration. Following the encouraging results of a testing program, it was decided to repair the frames, replace the sash, and install new weatherseals in the occupied building. The continued use of single glazing permitted replication of the original muntin profile. The new Honduran mahogany sash and parting beads were milled with kerfs to accept weatherstrips installed at the site. A rigid vinyl weatherstrip was applied at the head, meeting rail, and sill, while a concealed compression seal was introduced into the parting stop.

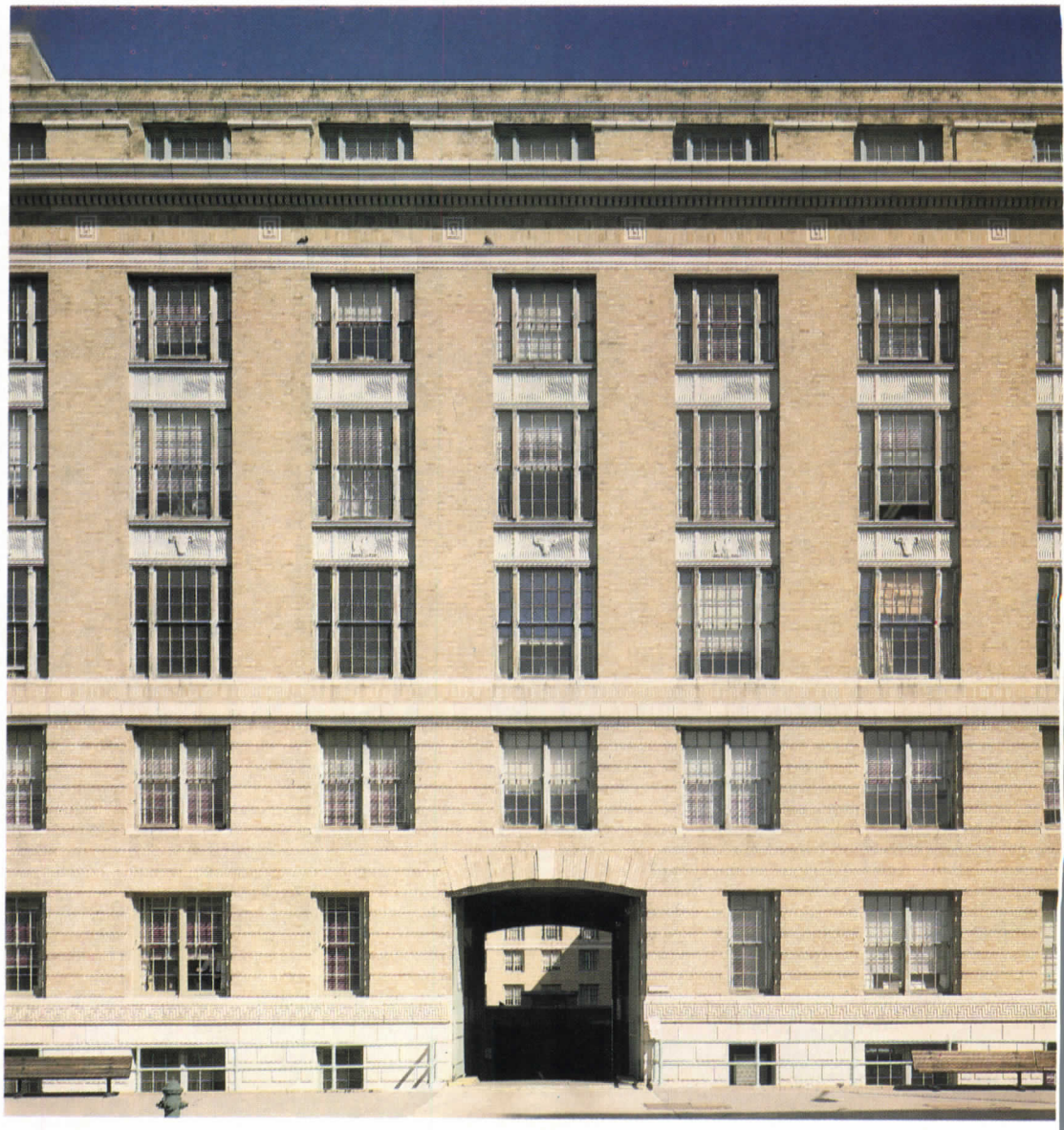
The U. S. Department of Agriculture Building, constructed between 1905 and 1930 following the design of Rankin, Kellogg and Crane, was the first formal element derived from classical antecedents to be built on the Mall after the adoption of the McMillan Plan for Washington, D. C. In 1934, the "south forty" acres of additional office space was complete.

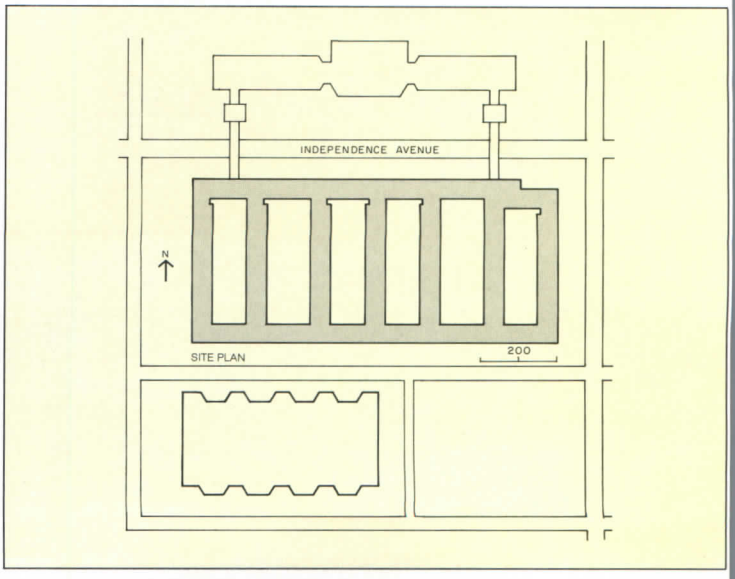
Balancing energy and preservation requirements on a limited budget was the immediate objective of the needed window rehabilitation project. A retrofit of the existing sash was proposed. The double-hung windows, measuring 36-in. wide by 87-in. high, contained single glazed 9-over-9 sash. The frames were found to be in satisfactory condition, with deterioration typically confined to the bottom rail of the lower sash, where paint failure had led to moisture absorption and exterior cracking of the rail. It was decided that two windows would be retrofitted as prototypes and field-tested for air and water infiltration by an independent lab.

In one unit the paint of the sash was chemically removed, the bottom rail and jambs consolidated with epoxy to 8-in. height, the glazing reputtied where needed, the frame recaulked with a paintable silicone sealant, and sash and frame repainted. The unit was further equipped with a foam-filled compression weatherseal installed on the vertical surface of the frame; a single leaf of rigid vinyl at the bottom rail of the bottom sash, top rail of the top sash and meeting rail; and a new sash lock at mid-span of the meeting rail. The upgrade was intended to meet the requirements of Class B according to the National Woodwork Manufacturers Association (NWMA) Standard for Wood Windows.

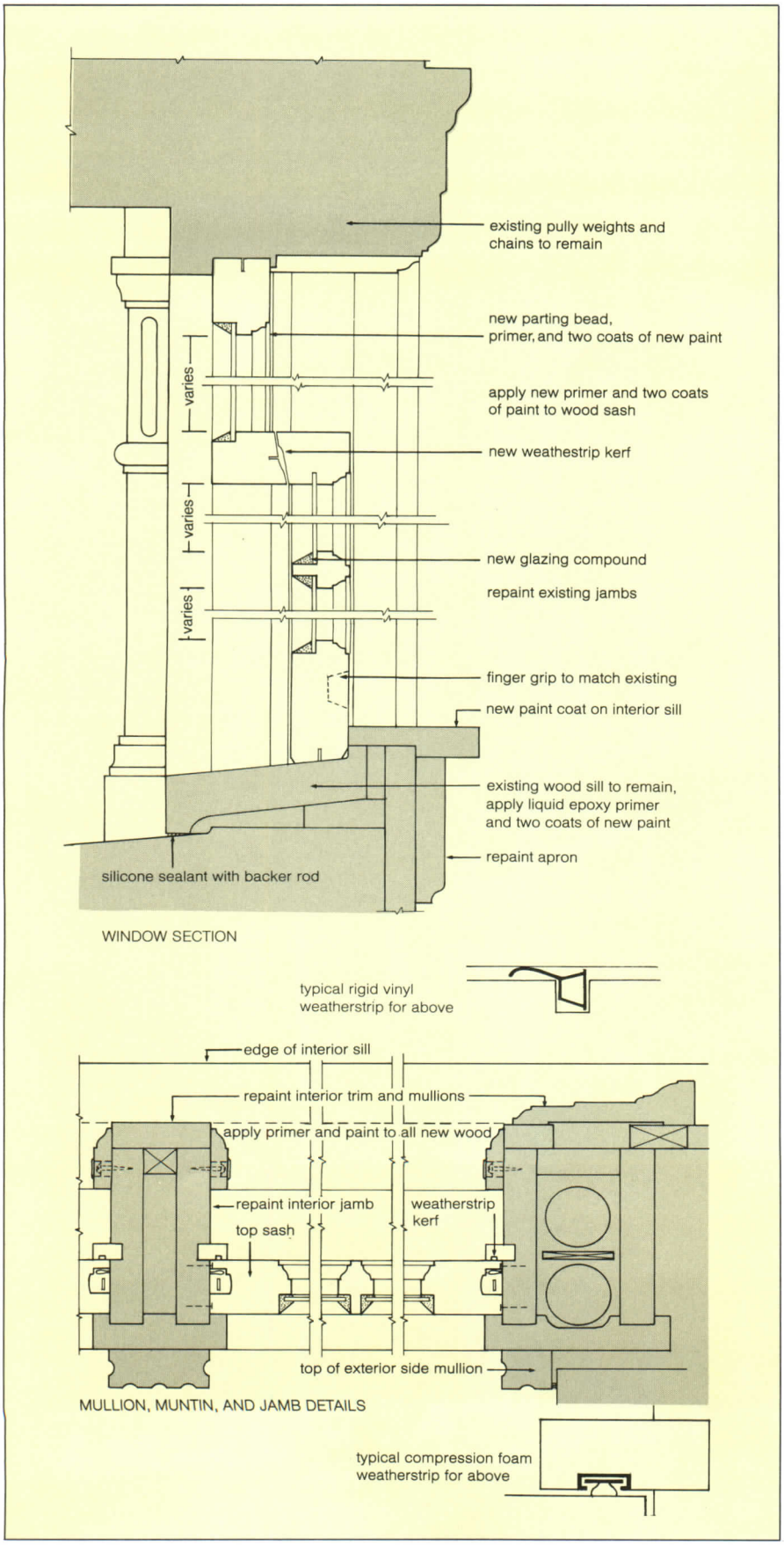
In the other unit, the sash was replaced with replicated sash equipped with the same weatherstripping hardware and stool modification in a similarly upgraded existing frame.

The allowable air infiltration rate for a replacement wood unit (sash and frame) at 25 mph was .50 cfm/fcp. The retrofitted existing sash in the existing frame tested at .36 cfm/fcp. The replacement sash in the existing frame tested at .19 cfm/fcp. Both windows performed satisfactorily when tested for water infiltration. The ability to field-test the prototype eased concerns about the solution's efficacy and encouraged GSA to embark upon a pilot retrofit of 1,100 windows on the south elevation using replacement sash of Honduran mahogany, a decay resistant species.





U. S. Department of Agriculture
South Building
Washington, D. C.
Client:
General Services Administration
Architects:
Supervising Architect's Office (Edwin Bateman), original architects; Kemnitzer, Reid & Haffler, restoration architects
Window contractor:
Schlegel Retrofit Corporation



Union Theological Seminary New York City

Even in their newly restored condition, the lead cames of the seminary's windows continue to exhibit broken reflected light patterns which appropriately bespeak the energetic intelligent life within. Although the overall impression is one of romantic randomness through arrangement in isolation or grouping in pairs and trios, the orderly dimensions of the sash allowed for an economical restoration in an orderly manner, combining current conservation practice with assembly-line methods. The diagram (opposite page) illustrates the typical procedures employed in consolidating, tightening, and rebuilding the sash with epoxy resins and blind doweling. The photographs show the successful results, both in maintaining the spirit of the exterior, and preserving the interior

Carefully integrated into the rock-faced granite and limestone facades of Union Theological Seminary's 1910 Collegiate Gothic quadrangle are more than 1,300 double-hung glass windows. The irregular groupings and reflectance of the sash, divided into 8, 9, and 12 lights set in lead cames, subtly and pleasantly enliven the massive complex.

Deferring necessary maintenance on the windows for several years had left the sash in need of more than paint. The failure of the paint surface had led to exposure and deterioration of the sash and frames, typically limited to the lower third of the exterior. Replacing the windows with new leaded glass units would have been too costly; replacement with undivided sash would have adversely changed the scale of the masonry and intimate textural pattern of the facades. Faced with deteriorated but salvageable sash, Union's administration decided to embark upon establishing an unprecedented in-house restoration program. The quality of the leaded glass sash, as well as the number of identically repeating units, were factors that the administration took into account.

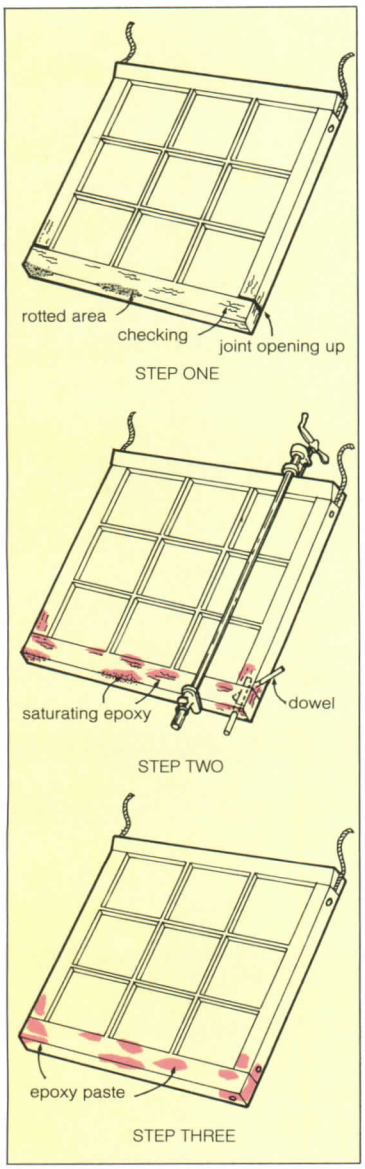
To plan the restoration, each window was surveyed and its condition was graded on a three-part scale that related to three standard sets of specifications. Once the scope was determined, a small shop was set up and maintenance personnel were recruited to be trained in restoration techniques by an architectural conservator.

The repairs consisted of removing the sash to the shop, temporarily replacing it with a holding sash, scraping off residual paint where damaged, treatment with an epoxy consolidant and filler, and priming. Where needed, the lead cames were resoldered and flattened. The sash was reinstalled, repairing existing bronze weatherstripping where damaged.

The scale of the project and the systematic approach applied resulted in a cost-effective solution with a surprisingly dramatic impact on the exterior. "The work was done at a fraction of the cost of replacement and without disturbing the existing adjacent interior or exterior walls," says William Stivale, the project's conservator.

finishes. In step one, the lower sash has been removed from the frame to the stop for analysis. Typical conditions include checking (opening up of the wood grain), separation of joints, and loss of section due to rot. Following removal of the paint from the deteriorated area, the sash is clamped and the separated corners drilled and doweled. Checked and rotted areas are treated with a saturating epoxy resin. The sash is set aside for a period of time, usually a day, before the application of a thicker epoxy paste in areas of lost section. When the paste sets, it is sanded, primed, and ready for reinstallation. In addition, where the lead cames were badly deformed, they were removed as a unit, flattened, repaired, and reinstalled in the repaired sash.

Union Theological Seminary
New York, New York
Client:
Union Theological Seminary
Architect:
Allen & Collins (1908-1910), for the original building
Conservator:
William Stivale
Window contractor:
In-house program



Carnegie Hall
New York City

Increasing the acoustical insulation, while limiting the consequences to the existing 5-in. jamb recess, presented the greatest challenge at Carnegie Hall. Field-testing (opposite page, bottom photo) of several possible modifications demonstrated that the project's spec could be exceeded by installing a 1 3/8-in. insulated-glass system comprised of 1/4-in. laminated glass, a 3/4-in. air space, and 3/8-in. laminated glass. The use of the 2 1/2-in. preservative-treated poplar sash required to carry the insulated glass was made possible by the removal of the parting stops. Although the upgraded windows are inoperable, the exterior appearance of double-hung sash has been maintained and the heavily molded interior casings were untouched.

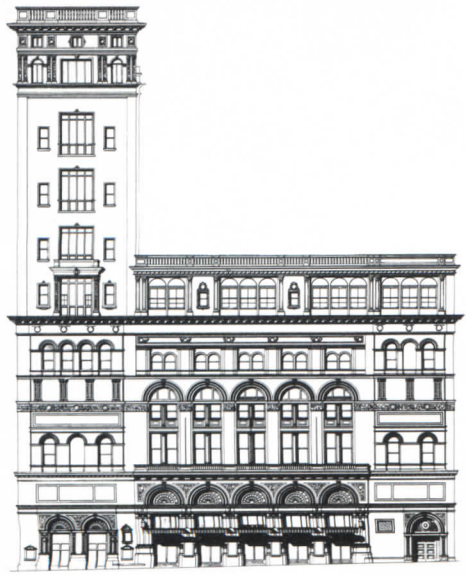
From the outside the neo-Renaissance facades of New York City's venerable Carnegie Hall do not immediately attest the fact that two of the nation's premiere recital spaces and a small cinema are contained within. Nor does its meticulously restored present condition hint of the building's precarious past prior to the passage of the city's Landmarks Preservation Law. The hall's renowned acoustics, hailed as "magnificent" by Pyotr Ilyich Tchaikovsky, who conducted his own works on opening night in 1891, provided impetus for a successful campaign to save the building from demolition as nearby Lincoln Center neared completion in the 1960s.

Given its busy urban location, insulating the building shell against street noise was a primary objective in the exterior-restoration program. Rehabilitating the one-over-one single-glazed windows provided the greatest opportunity. It was first assumed that a replacement unit with a minimum 3-in. glazing section in the sash would be required to attain the project's performance specification resulting in an enlargement of the stiles, rails, and frame and an undesirable alteration of the windows' appearance.

The performance spec, however, was flexible enough to allow alternative means to be proposed, and a contractor (who was subsequently awarded the contract) proposed a retrofit solution, a prototype of which was tested in the field. The test was conducted by suspending a noise source (in this case, a 1/3 octave filter set on the exterior, replicating white noise in a range from 125 to 4,000 Hz, and measuring the reduction in the interior with a sound-level meter. Over 16 bands, the STC was 44, 2 dBA greater in insulating properties than specified.

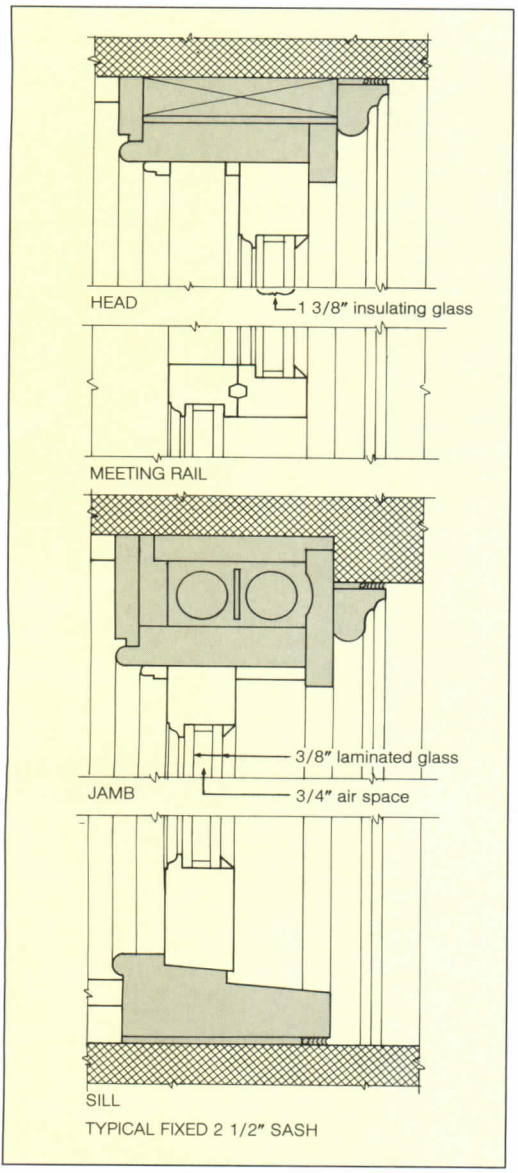
The solution derived as a result of this initial field-testing included retaining the existing frames while installing new fixed wood sash that replicated the original in form and profile. The new sash was equipped with hermetically sealed insulating glass comprising 3/8-in. glass to the exterior, a 1-in. air space, and 1/4-in. laminated glass to the interior. The new sashes were made inoperable.

By implementing this strategy, the integrity of Carnegie Hall's facades and interior trim was maintained. There were a number of hidden benefits beyond esthetics and acoustics in this solution. "The installation period was reduced from an estimated three days for a replacement unit to one day, earning us a credit on demolition," says Diane Kaese, project manager for the construction manager.



Carnegie Hall
New York, New York
Client:
Carnegie Hall
Architects:
William B. Tuthill/ William Morris Hunt and Dankmar Adler (1891), original architects; James Stewart Polshek and Partners, restoration architects

Construction manager:
Tishman Construction
Window contractor:
Schlegel Retrofit



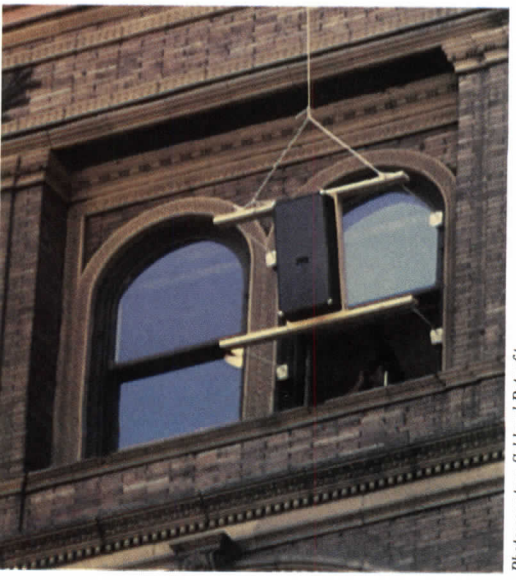


Photo courtesy Schlegel Retrofit

New products

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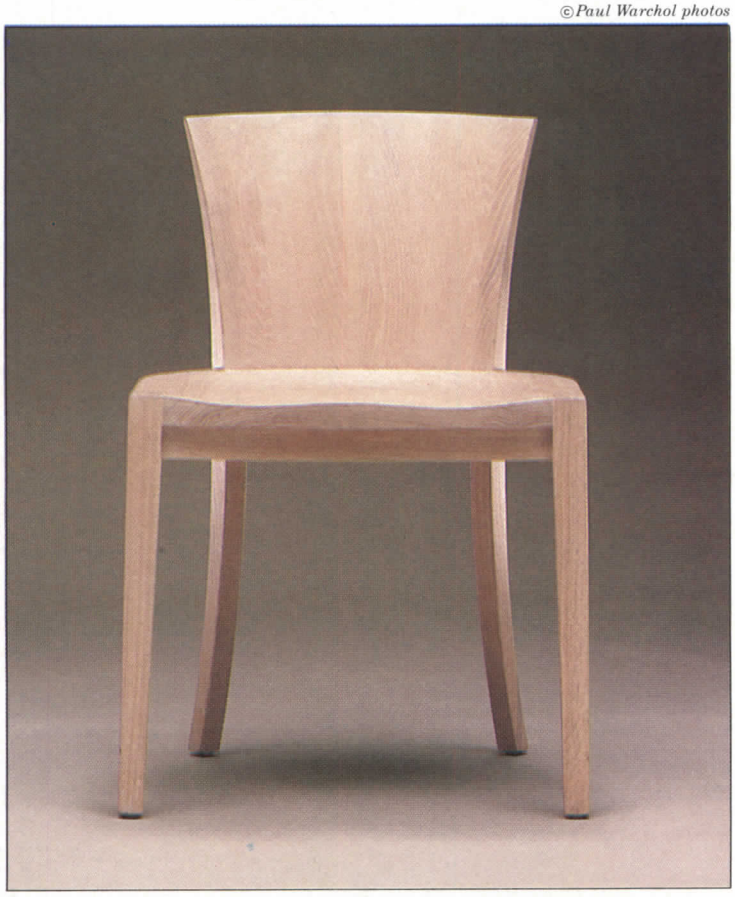
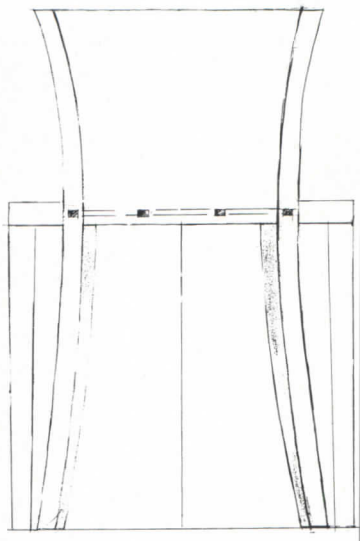
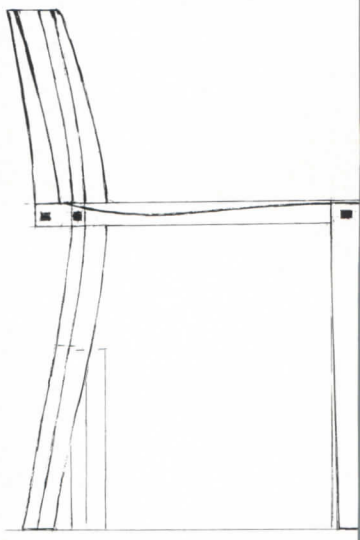
Sitting pretty
The *Tavern Island* chair (top) was initially intended to be one of a dozen designed by New York architect Tod Williams as a dining set for a residential commission. Pleased with the results, Williams had an extra made for himself, which he brought to Pat Hoffman, executive vice president of International Contract Furnishings (ICF). Hoffman, who reviews over 1,000 submitted designs a year and never selects more than one to be an addition to the company's product line, reports that after examining what was clearly the architect's lucky 13th she was convinced that his was "the one." Impressed by what she calls its "contemporary proportions and classic curves," Hoffman had the chair immediately put into production with only slight modifications (the contours of the seat were refined and a Czechoslovakian oak—whose rich wood grain softens the rigorous geometry that guides Williams's work, including his furniture designs—was specified as the material of choice). If the *Tavern Island* chair's delicately arched back and oh-so-gently splayed legs are reminiscent of one of Eliel Saarinen's creations—another architect who has long been associated with ICF—that's more than just happy coincidence; although Williams had no particular precedents in mind while he was working on his chair, he does admit that the master's Cranbrook chair is one of the first objects he sketched as a kid.

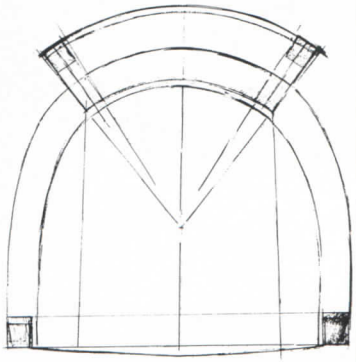
While designing the *Tavern Island* chair, Williams was interested in minimizing its components, as his early sketches of it illustrate (drawings, far right). Support requirements, however, forced him to add a "skirt" beneath the front and sides of the seat, which he then continued, for appearance's sake, all the way around. This solution was neat enough, but it had not explored the possibility of a minimalist chair to Williams's satisfaction. Enter the second chair (bottom), the *Whitney*—initially designed for an annex to the museum—which picks up where the first left off. The chair's curved back with armrests added stability, freeing Williams to remove the skirt and create a seat that is a seemingly suspended plane.

Williams hopes to fill out the furniture collection and, in fact, is now collaborating with his partner Billie Tsien on—you guessed it—a conference table.
International Contract Furnishings, Inc., New York City.
Karen D. Stein
Circle 300 on reader service card



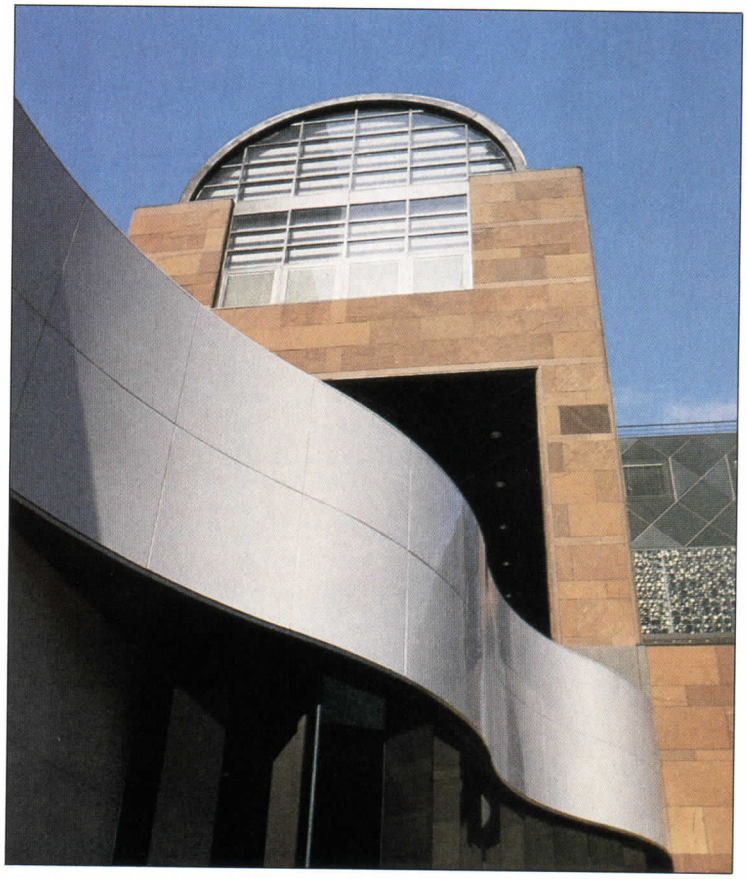


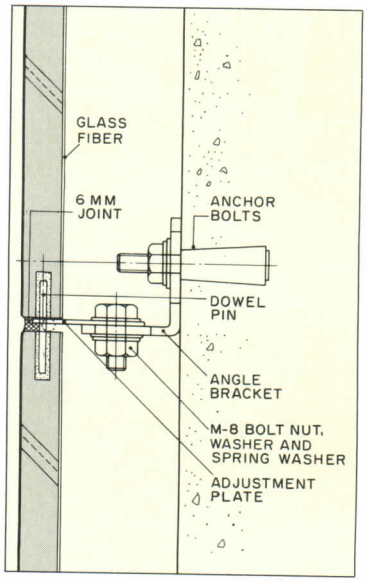




For more information, circle item numbers on Reader Service Card

Crystallized glass panels
Manufactured in Japan by Nippon Electric Glass, *Neoparium* building panels are formed of a special glass, melted in a furnace, and then granulated in water. These granules are heated again in refractory forms at rising temperature gradients, until, at 1,100 C, needle-shaped crystals are formed. It is these crystals that give the product the qualities apparent in the photographs: a soft, opaque, light-reflecting white shade, absolutely uniform from panel to panel; and the design potential to form undulating curves of the same material as the wall. The standard *Neoparium* panel is white, an observed color due to the difference in the refractive indices of glass and crystals. Light and dark beige, brown, gray, and pink are created by adding inorganic colorants to the glass matrix. Curves up to a radius of 154 in. are created by reheating the slab on a curved form. Square and quarter-round corners are also available. Panels measure 15mm thick, and are perfectly flat on the finished side, slightly irregular on the back. Polished after firing, the glass is said to be very abrasion-resistant. A fiberglass scrim laminated to the back of exterior panels prevents loose pieces from falling in the event of breakage. The crystalized glass will not absorb water, lessening the chance of damage from frost or stains; it is almost impervious to acid and alkali. *Neoparium* has about the same density (2.7) as granite and marble, but with three times the bending strength, permitting same-size panels to be thinner and 30 percent lighter than stone panels. Installation techniques are similar to those used for thin-set stone veneer, and insure that the panels are isolated from the structure itself. The top and bottom edges of each panel come predrilled with dowel holes, the number and placement of which are determined by panel size and wind-load requirements. (Most drilling, chamfering, and cut-outs must be done at the factory.) Small photographs and detail (far right) illustrate the most common attachment method for exterior walls of steel or reinforced concrete. Two-part SUS 304 clips are used: an angle bracket anchored in the structure (either masonry or 16-gauge steel) and an adjustment plate. This plate fits over a steel dowel set in epoxy; the next tier is aligned with the protruding end of the dowel on the lower course. Joints are caulked with elastomeric sealant. Forms + Surfaces, Santa Barbara, Calif.
Circle 301 on reader service card
Continued on page 181





Neoparium *is shown here as specified by architects Arata Isozaki/Gruen & Associates for the Museum of Contemporary Art, Los Angeles.*

The best seller.

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File this under nonfiction:

The Macintosh™ Plus personal computer now tops the best seller list in business.

That is to say, in retail business sales, Macintosh Plus out-performs computers of every name. And letter.

Of course, none of this should come as too big a surprise. After all, with Macintosh technology, we created a whole new set of standards for what a personal computer can do.

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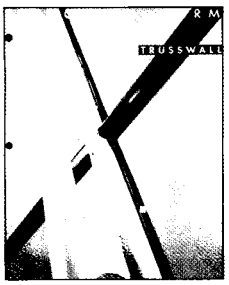
The fact is, today you'd have to go a long w to find a more powerful computer for business.

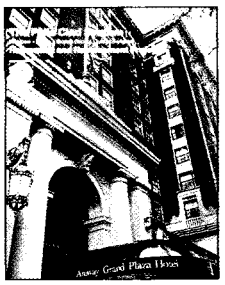
At least a page.

Product literature

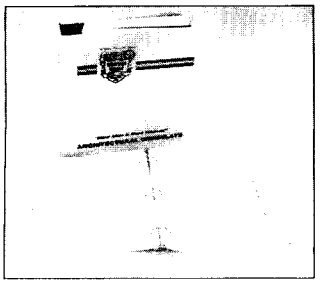
For more information, circle item numbers on Reader Service Card



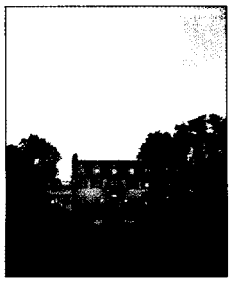
Vertical mullion assembly
A color folder illustrates the four web configurations available in the *2800 Trusswall* aluminum glazing frame, which can be installed in a clear vertical span of up to 30 ft. Various *Fluropan* color finishes are illustrated. Kawneer Co., Norcross, Ga.
Circle 400 on reader service card



Replacement windows
Renovation and replacement projects using *Pella Clad* windows and other glazed units are illustrated in a 16-page color brochure. Constructed of wood for appearance and thermal efficiency, windows have an exterior aluminum cladding to resist weathering. Rolscreen Co., Pella, Iowa.
Circle 401 on reader service card



Windows and doors
A specification-format binder contains complete dimensional, detail, and test data for this maker's wood windows, wood and steel insulated entrance systems, and retrofit products for commercial and residential applications. Finish and energy-efficient glazing options are described. Weather Shield Mfg., Inc., Medford, Wis.
Circle 402 on reader service card



Burglar-resistant windows
Mahogany-framed residential windows designed to resist a number of forces—impact, wind, moisture, sound, and solar-radiant heat—are described in an 8-page brochure. Cutaway drawings explain such product features as a two-chamber weather seal and custom design. Tischler und Sohn, Greenwich, Conn.
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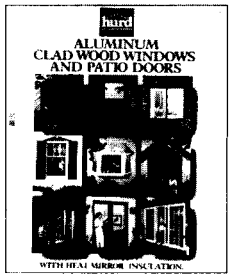
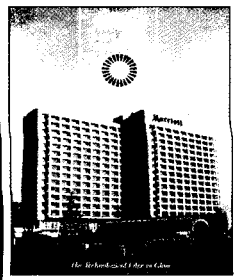


Wood windows and doors
A 16-page brochure describes this manufacturer's entire line of aluminum-clad wood windows and patio doors. For the differing insulation requirements of northern and southern climates, all windows may be supplied with either *Heat Mirror 88* or *Sunbelter 66* clear insulating glass. Hurd Millwork, Medford, Wis.
Circle 404 on reader service card



Insulating glass units
Ful-seal double-glazed units used in commercial, industrial, and institutional buildings are shown in an 8-page booklet. Charts and detail drawings explain the insulating and light-transmission characteristics of different glazing options. Downey Glass Co., Los Angeles.
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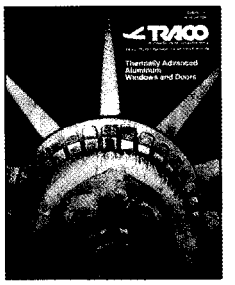
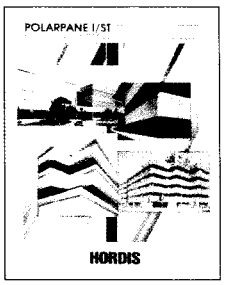
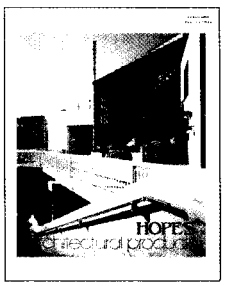


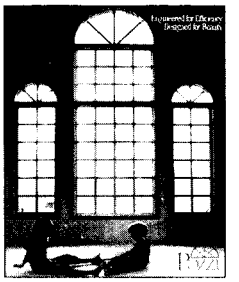
Monumental windows
Renovation of the windows in the Statue of Liberty is the retrofit project featured in a 24-page architectural catalog from *Traco*. High-performance aluminum-framed commercial window products are shown in on-site photos and cutaway drawings; test data and glazing options are included. Traco, Warrendale, Pa.
Circle 406 on reader service card



Butt-glazed ribbons
An illustrated folder describes the *Polarpane I/ST* window system, said to present an uninterrupted glazed surface both inside and out. An aluminum structural jamb spacer allows the units to be installed without a supporting interior vertical mullion at each joint. Hordis Brothers, Inc., Pennsauken, N. J.
Circle 407 on reader service card



Steel-framed windows
An 8-page catalog introduces custom architectural window and door designs for commercial, institutional, and special requirement applications. Various finish options explained include epoxy primers, pvc and urethane coatings, and *Kynar 500* pvf. Hope's Architectural Products, Inc., Jamestown, N. Y.
Circle 408 on reader service card



Residential windows
Product features such as an extra-strong wood frame and commercial-grade boot glazing techniques are explained in a 34-page window selection guide book. Casement, awning, bow, and double-hung windows for residential and light commerical applications are covered. Pozzi Window Co., Bend, Ore.
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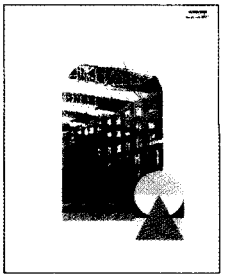
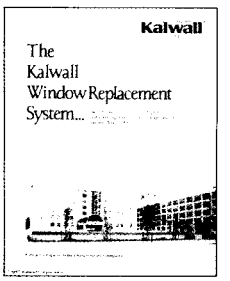


Aluminum-framed windows
Architectural casement and sliding windows for new and retrofit commercial applications are presented in an 8-page color catalog. Drawings illustrate head and jamb details; thermal performance, hardware options, and glazing characteristics are listed. Winco Mfg. Co., St. Louis.
Circle 410 on reader service card



Translucent glazing panels
Several rehab projects, including New York's International Design Center, are shown in a folder on the *Kalwall* window replacement system. Units have fiberglass face sheets of varying light transmission levels bonded to aluminum I-beams. The windows are said to achieve high insulating values. Kalwall Corp., Manchester, N. H.
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STYROFOAM Brand Insulation Directly on Metal Decks

It is now possible to install STYROFOAM* brand insulation directly onto metal decks by using a new system developed by Dow; no thermal barrier is required.

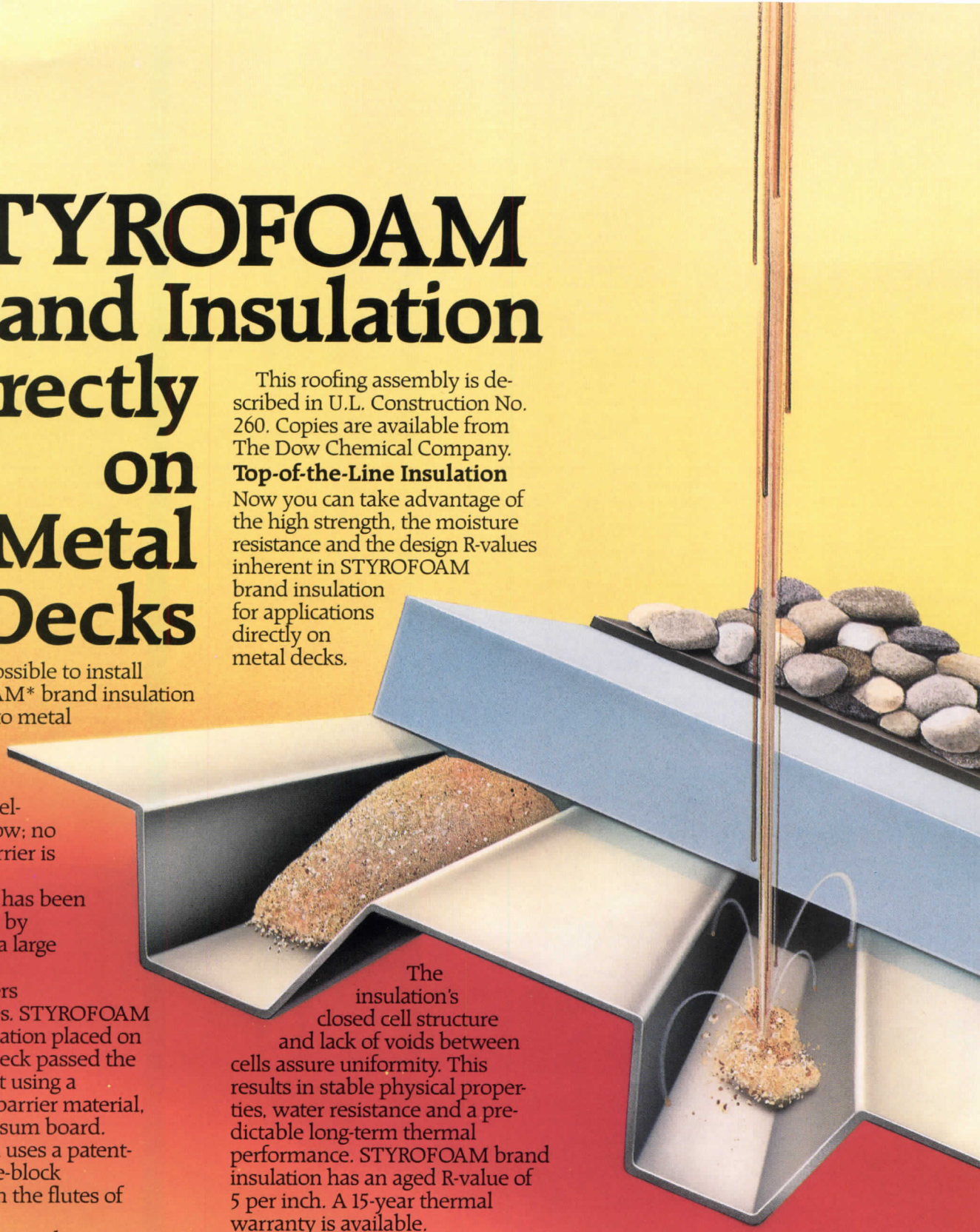
That fact has been established by conducting a large scale test at Underwriters Laboratories. STYROFOAM brand insulation placed on the metal deck passed the test without using a traditional barrier material, such as gypsum board. The system uses a patent-pending fire-block technique in the flutes of the deck.

This U.L.-tested system—STYROFOAM brand insulation, non-bituminous single-ply membrane, ballast and the inorganic fire block — provides time and material savings. Only non-bituminous membranes are appropriate.

This roofing assembly is described in U.L. Construction No. 260. Copies are available from The Dow Chemical Company.

Top-of-the-Line Insulation

Now you can take advantage of the high strength, the moisture resistance and the design R-values inherent in STYROFOAM brand insulation for applications directly on metal decks.



The insulation's closed cell structure and lack of voids between cells assure uniformity. This results in stable physical properties, water resistance and a predictable long-term thermal performance. STYROFOAM brand insulation has an aged R-value of 5 per inch. A 15-year thermal warranty is available.

For a description of U.L. Construction No. 260, plus additional facts on the advantages of using STYROFOAM brand insulation over metal decks, contact The Dow Chemical Company, STYROFOAM Brand Products, P.O. Box 1206, Midland, Michigan 48674.

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

Dow Styrofoam BRAND

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Product literature *continued*

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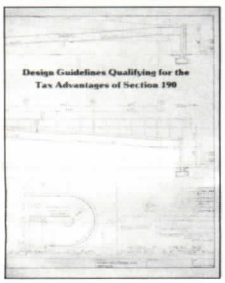
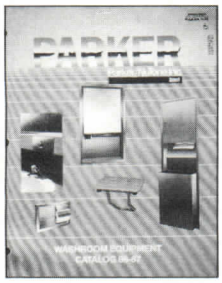
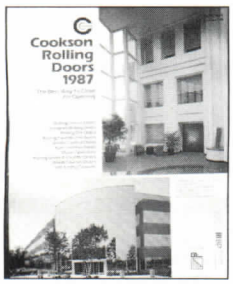


Barrier-free design
Written to help the architect improve access to commercial facilities and housing for all handicapped persons, an 8-page brochure gives design guidelines to qualify for the tax advantages of Section 190. Entrance, signage, and parking standards are included. Paralyzed Veterans of America, Washington, D. C.
Circle 412 on reader service card



Washroom accessories
A full-line 48-page catalog illustrates bath accessories, towel dispensers and bars, shower fittings, and other washroom products for commercial, hospital, and hospitality applications. Parker Division, NuTone Inc., Cincinnati.
Circle 413 on reader service card



Rolling doors
A 24-page architectural catalog provides color installation photos, detail and cutaway drawings, and complete specifications, including fire ratings, for this maker's rolling service and fire doors, smoke control doors, rolling grilles, and other special door products. The Cookson Co., Gastonia, N. C.
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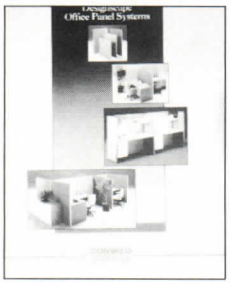

Office panels
Designscape office partitions are presented in a color brochure, which explains how the system provides maximum design flexibility and visual and speech privacy. Both acoustical and economy surface options are included. Conwed, Minneapolis.
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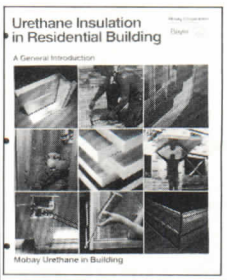

Residential insulation
A 20-page booklet describes the ways in which polyurethane foam can improve a home's thermal resistance. Products include sheathing, nailing board, siding, foam-core doors and windows, wall panels, and fill-in aerosol foams. The combustibility and installation requirements of urethane are discussed. Mobay Corp., Pittsburgh.
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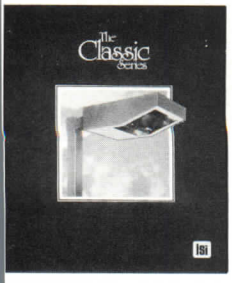

Outdoor luminaires
Photometric data on *Classic Series* pole-mounted large-area lights is given in a 6-page folder. The aluminum housing, offered in bronze, black, sandstone, or white, is said to be weather-tight; the tempered glass lens produces a high oblique light pattern from any of several HID light sources. Lighting Systems, Inc., Cincinnati.
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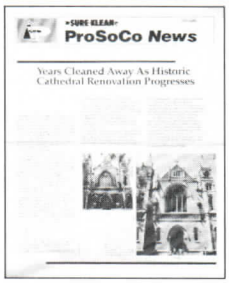

Restoration products
Each edition of the *ProSoCo News* features case studies illustrating various successful applications of *Sure Klean* restoration products for masonry, wood, and stone. Projects range in scope from massive St. Paul's Cathedral, Pittsburgh, to a narrow-front brownstone in Brooklyn. ProSoCo, Inc., Kansas City, Kansas.
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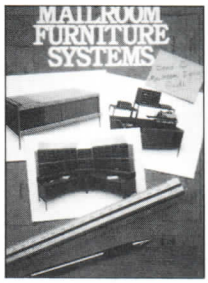
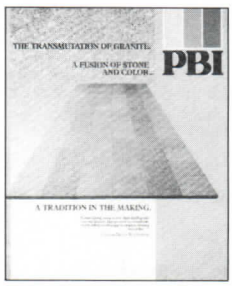


Mailroom furniture
Casework for heavy-duty mailroom requirements is presented in a 16-page color booklet. Constructed of extruded aluminum and laminates, the furniture line includes sorting tables and modules, dumping tables, and carts, all of which can be arranged in efficient mail-sorting configurations. Hamilton Sorter Co., Inc., Fairfield, Ohio.
Circle 419 on reader service card



Composite paving stone
Architectural paving stone installations of *Polymer-Granite* are pictured in a color folder; separate technical data sheets are included for each color, showing both ground-finish and split-face pavers. The composite product is guaranteed for complete freeze/thaw resistance. PBI, Inc., Greenwich, Conn.
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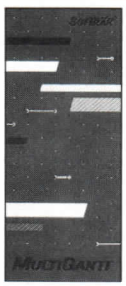

Project management
A pocket-size folder describes how *MultiGantt* software creates professional project management graphics—both time-scaled network diagrams and Gantt charts—that may be plotted on transparency film, or dot-matrix-printed using the *GSS* drivers supplied with the program. SofTrak Systems, Salt Lake City.
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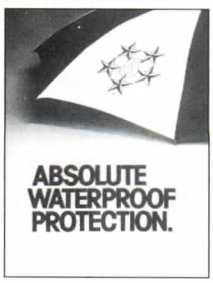
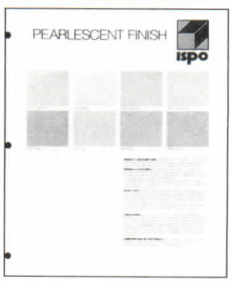


Waterproofing
The advantages of waterproofing over dampproofing are explained in a specification brochure. A cement product that can be applied on either side of a masonry wall is described; one coat is said to provide complete protection against water penetration. A chart lists sample applications. Five Star Products, Inc., Fairfield, Conn.
Circle 422 on reader service card



Textured wall coating
A catalog sheet provides complete product specification data on *Pearlescent* acrylic-based interior and exterior coating, with a quartz sand aggregate said to give wall surfaces a radiant finish. Eight standard colors are illustrated; application techniques and limitations are included. ISPO, Inc., Mansfield, Mass.
Circle 423 on reader service card

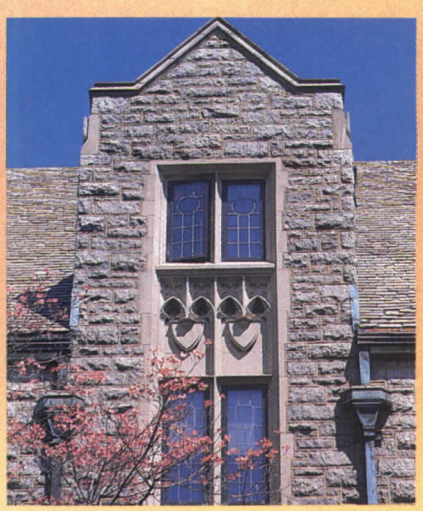
WAUSAU

We replace windows, not traditions.

Meet a few of our old friends.

Widener Library, Harvard University. Original casement, awning and fixed windows were reproduced. Precise physical dimensions and projections for all profiles were maintained within 1/32 of an inch as specified.

Architects and building owners charged with renovating America's finest institutio inevitably turn to Wausau Metals for high quality, custom-built replacement windo Because they know Wausau's engineeri expertise and broad product line can he preserve a building's architectural integr while lowering energy, maintenance an security costs. They also know they'll get Wausau's 10-year guarantee, on-site technical support, sample window progr and prompt delivery. **For more informat about how we replace windows, not traditions, write for our free brochure "Wausau Renovates."**



St. Thomas Monastery, Villanova University, Pennsylvania
Wausau came through with a high-performance, thermally broken aluminum window system featuring an innovative and cost-effective leaded glass look that's an exact replica of the old windows.

Guardian Building, Detroit
Wausau's high-performance, energy-efficient 2250-T vertically pivoted units with insulated panels above the operable portion reduced annual energy costs by 15 percent.

505 Park, New York City
Our high-performance Visuline operating and fixed windows withstand 15# water tests and meet all requirements for narrow sitelines.

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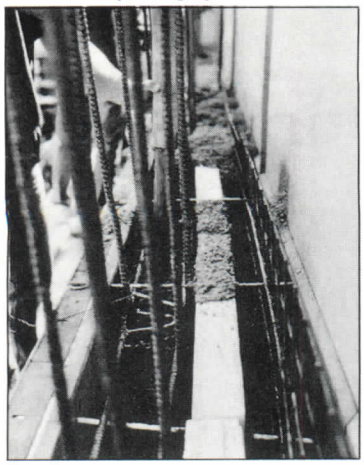
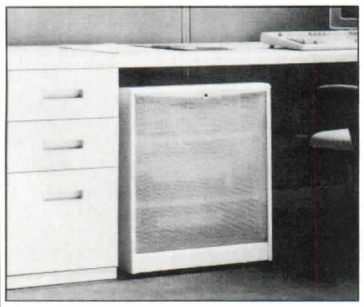
Window Fabricating Division apogee Apogee Enterprises, I

Circle 73 on inquiry card

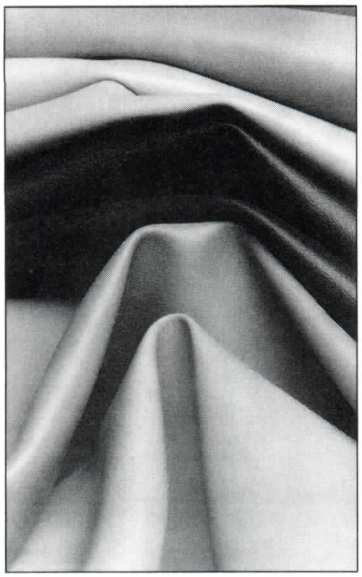
Continued from page 173



Concrete building panel
The *Thermomass* wall system is said to substantially improve the thermal performance and reduce the corrosion potential of precast and cast-in-place concrete walls. It is a composite sandwich, using high-strength, pultruded glass-fiber rods held by plastic snap-lock devices to position UL-listed *Amofoam* extruded polystyrene panels inside poured-in-place concrete. It can be used with any type of forming system, with or without form liners. The low conductivity of the plastic tie rods eliminates "thermal short circuits," heat loss through the panel wall. The system can achieve R-values of from 10 to 20. Amoco Foam Products Co., Atlanta.
Circle 302 on reader service card



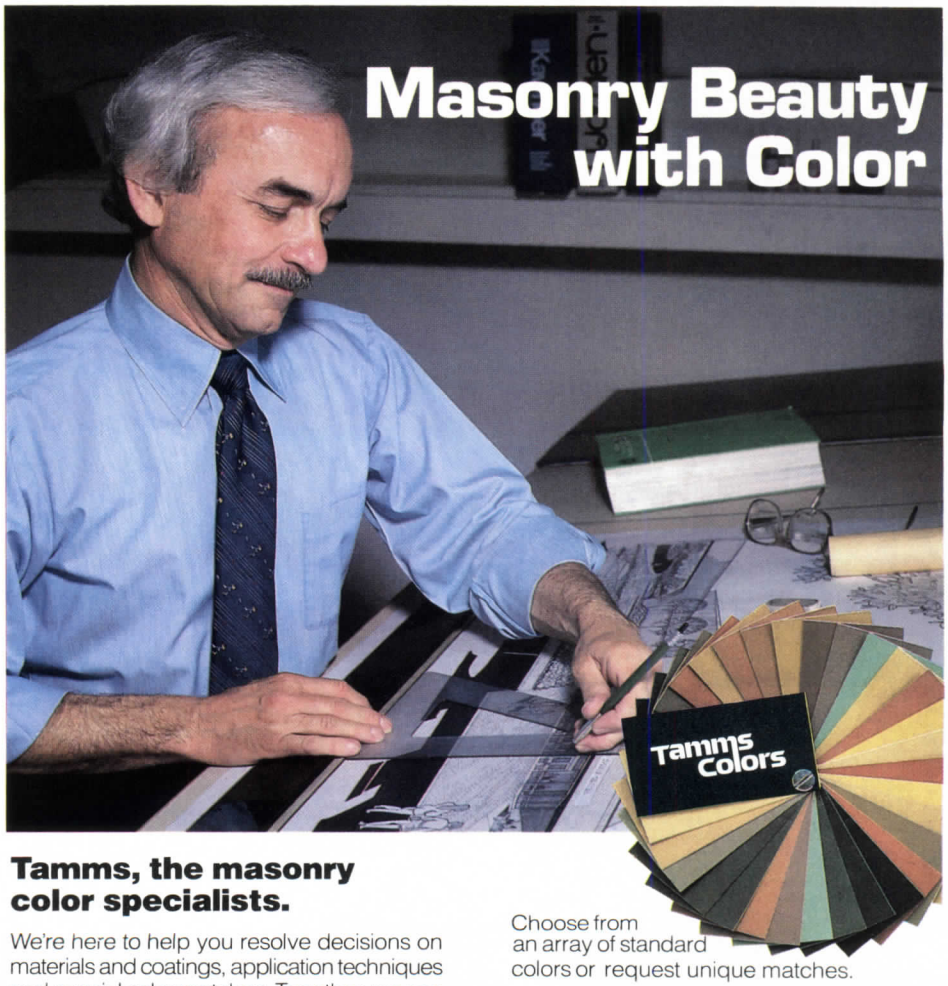
PC security
The *PC Safehouse* has been designed in conjunction with *IBM* to provide secure storage and convenient access for the new *Model 30* and *50* processors, and the *IBM Proprinter* (or any other similar-size equipment). A built-in motorized fan and a mesh tambour door provide the ventilation needed for proper operation of the computer. One switch turns on the printer, processor, and fan. Printer and processor sit on two pull-out shelves; the 24-in.-high storage unit fits under desk tops. The mesh door can be locked for security. Steelcase Inc., Grand Rapids, Mich.
Circle 303 on reader service card



Vinyl upholstery
Manufactured to meet a number of state and federal flammability codes, the *Ambassador* line of expanded vinyl upholstery is offered in 23 new colors. The additional shades, part of a total of 84 in-stock vinyls, include *Chalk*, *Bisque*, *Plum*, and *Fire Red*. For contract applications, the material is mildew- and sulfide stain-resistant, and has an anti-static finish. Morbern U. S. A., High Point, N. C.
Circle 304 on reader service card

Alvis Upitis photo

Cast stone
Seven colors—from *Pepper White* to *Blued Carnelian*—have been added to the *Armstone* line of resin-bound marble aggregate floor and wall tiles for commercial interiors, for a total of 28 in-stock shades. *Armstone* is described as an economical alternative to natural stone. ArmStar, Lenoir City, Tenn.
Circle 305 on reader service card
Continued on page 183



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We're here to help you resolve decisions on materials and coatings, application techniques and special color matches. Together, we can make it easy for you to enhance almost all of your masonry projects with color.

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. . . a wide-variety of pre-colored, coatings and stains for many exterior and interior decorative/protective applications.

. . . "no maintenance," pre-measured integral colors for concrete, mortar, stucco and plaster.

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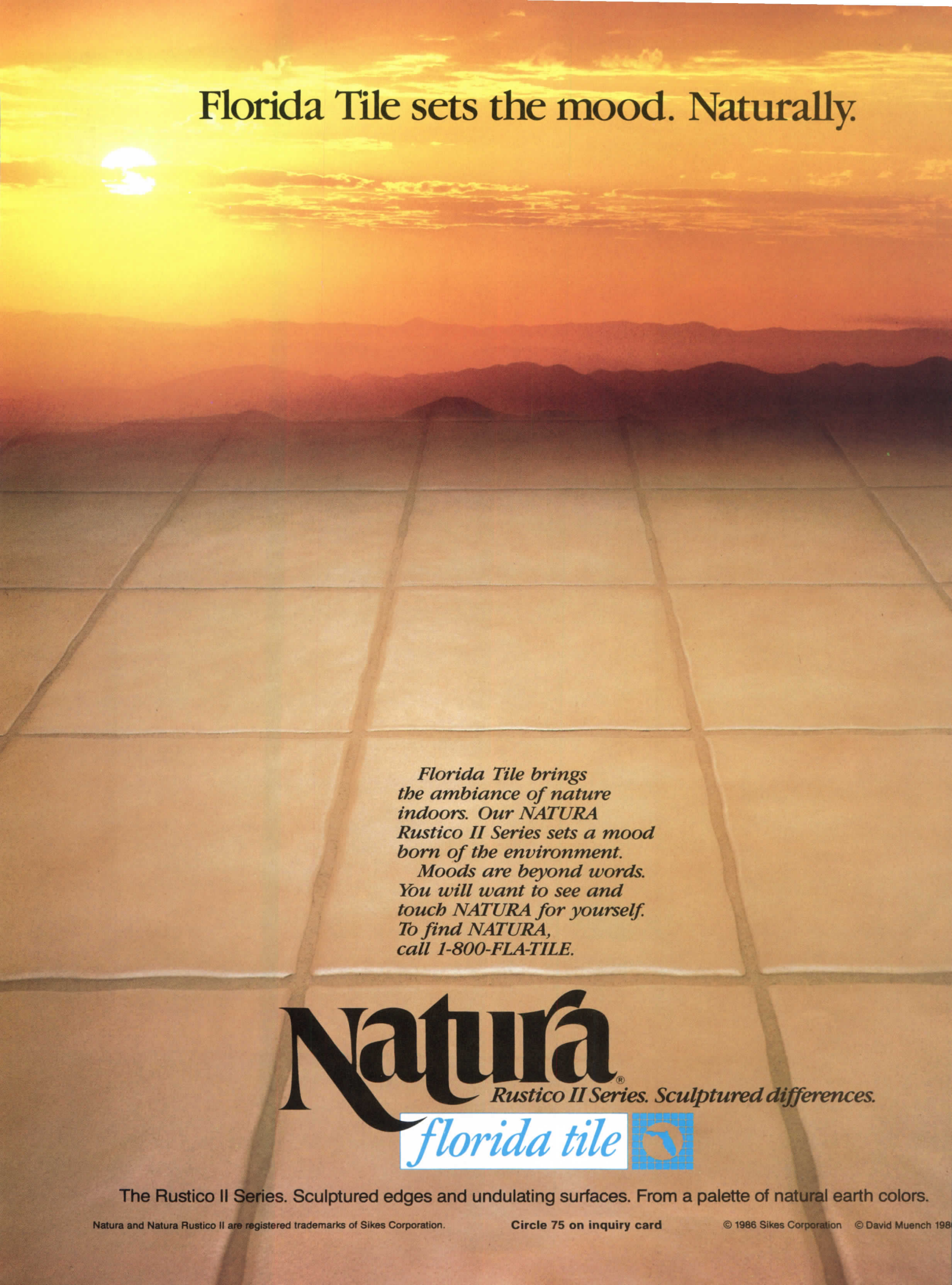
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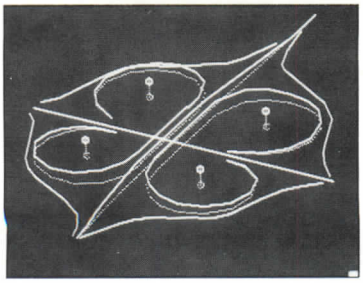
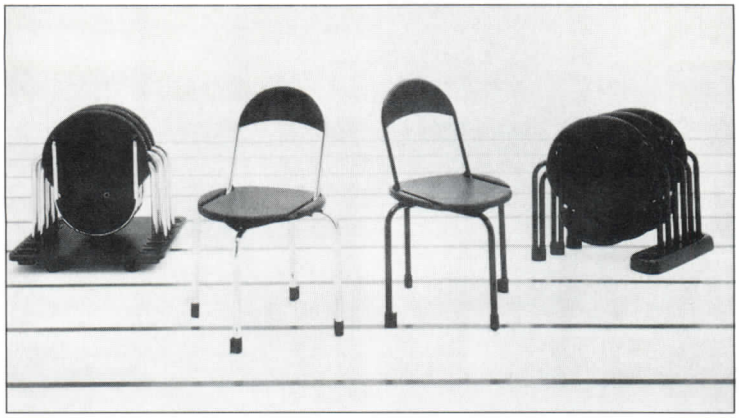
Continued from page 181

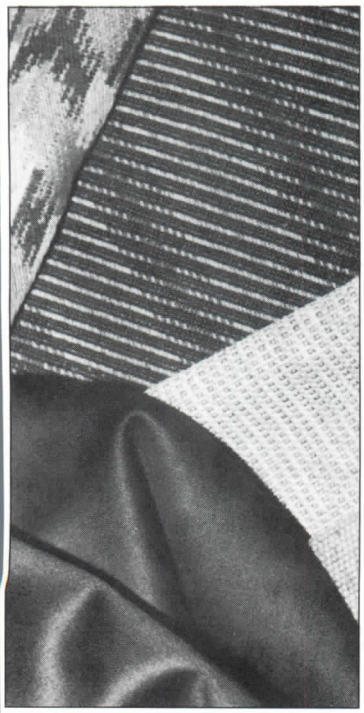


Lighting design software
A PC-based graphics tool, *CALA* helps in the design and analysis of a variety of lighting layouts including indoor, outdoor, roadway, sports, area, and office. Specific design requirements are input using either the keyboard or a digitizer; any portion of a line-defined area can be studied for maximum, minimum, or average illumination. The luminaires, the room, the sketch, the plane and/or lines to be analyzed can be shown in plan or perspective view. Subsequent changes in a layout can be calculated for the add-on luminaires alone. The *CALA* program comes with over 800 *Holophane* photometric files, but can use any manufacturer's disks that are IES formatted. Holophane, Denver.
Circle 306 on reader service card

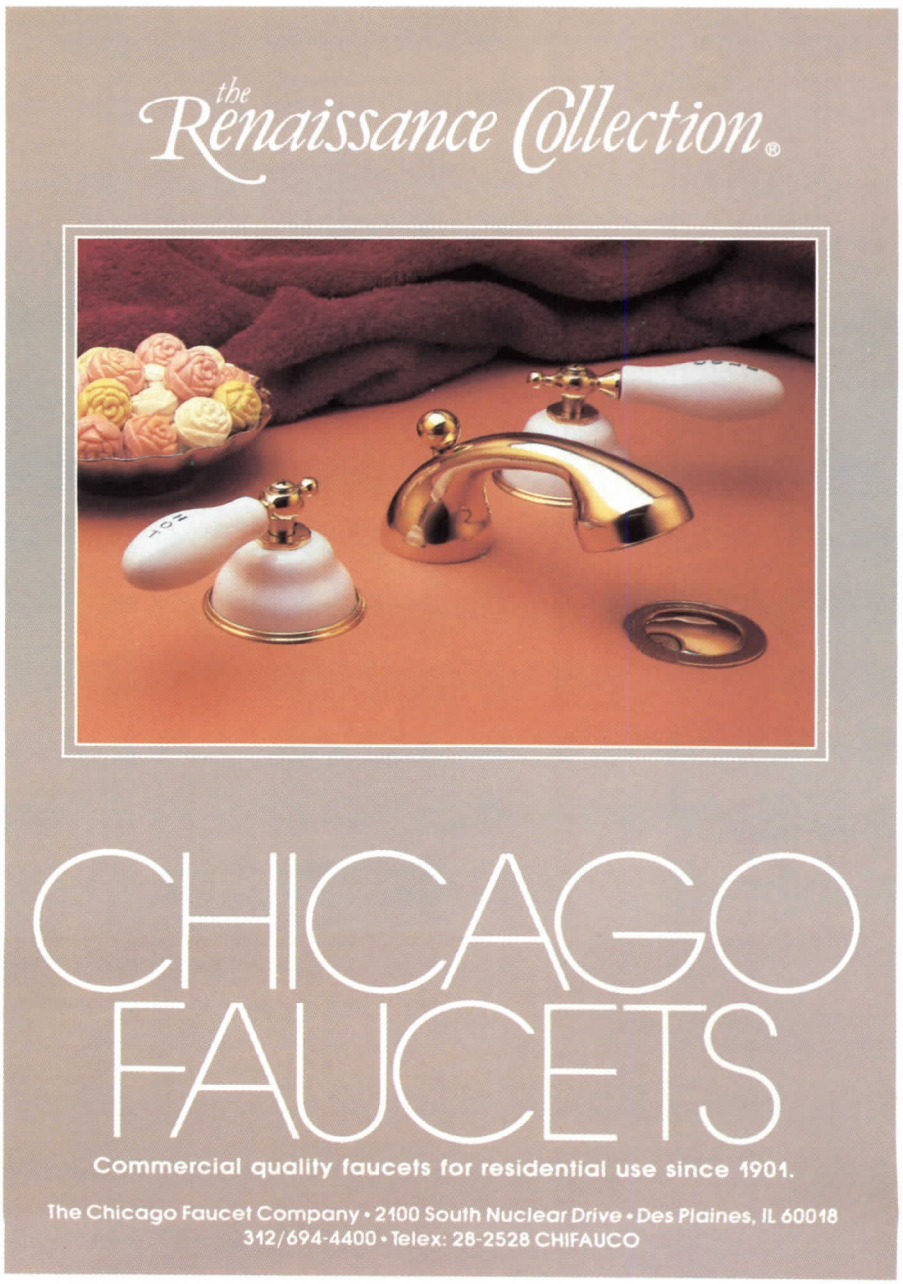


Folding chair
The Italian-made *clack* chair saves space folded and unfolded: its round seat is set obliquely on four chromed legs; when closed, it takes only half the space of other folding chairs. To fold, the back frame slots into grooves in the seat, which folds down on the legs. Fixtures Furniture, Kansas City, Mo.
Circle 308 on reader service card

Parabolic troffer
The *Meter Miser* pre-lamped lighting troffer is said to decrease eyestrain and improve productivity, especially for users of CRT display screens. The *A. L. P.* parabolic grid is a 3/4-in. cube louver with an acrylic overlay, providing low brightness without reflections. Graybar Electric Co., St. Louis.
Circle 309 on reader service card
Continued on page 185



Contract fabrics
New all-wool and wool-blend textiles for office seating, hospitality, and institutional applications have been added to the *Momentum Library* contract line. These "Rodeo Collection" patterns include a worsted wool satin, *Teflon*-treated; a nylon/wool blend twill on a striped ground; and a flame-stitch design. Momentum Textiles, Cerritos, Calif.
Circle 307 on reader service card



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The Real Beauty Is Unsee

Pozzi Wood Windows are beauty defined. Architecturally correct. Soundly crafted. Elegantly designed.

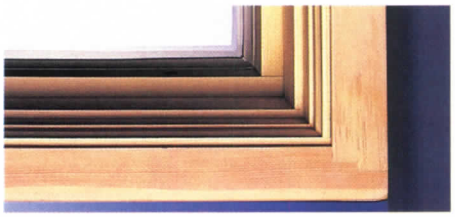
But beyond the surface, form and function combine to make this the finest, most perfectly engineered wood window made.

Commercial Grade Boot Glazing

Pozzi's insulated glass is surrounded by a vinyl boot that keeps out moisture, controls noise and cushions against the natural movement of the structure.

More Wood

Pozzi puts more wood into both its sash and frame to increase their natural insulating qualities, enhance structural integrity and make possible more attractive detailing and shadow lines.



3-Way Moisture Control Systems

Pozzi windows use a built-in gravity fed weep system, high-tech breather tubes that eliminate moisture and dust from the insulated glass compartment and the special boot glazing—to form an effective 3-way moisture control system.

Ease Of Maintenance

A phillips screwdriver, a rubber mallet, a nearby hardware store and a willing owner are all that are required to fully maintain all window components.

Learn More...

Pozzi offers a very detailed, full-color booklet, **The Differences Defined**, which will familiarize you with all the unseen beauties of this remarkable wood window. Call 1-800-821-1016 today to receive your personal copy.

POZZI
WOOD WINDOWS

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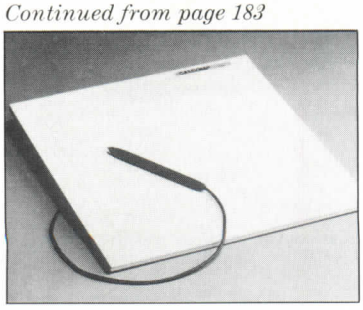
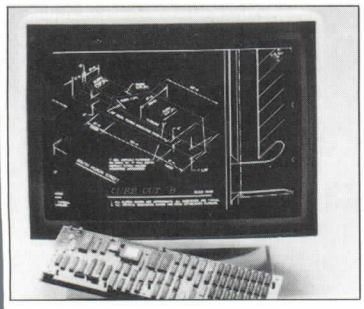
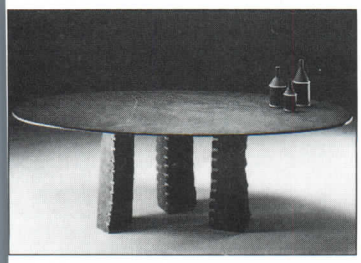
Continued from page 183



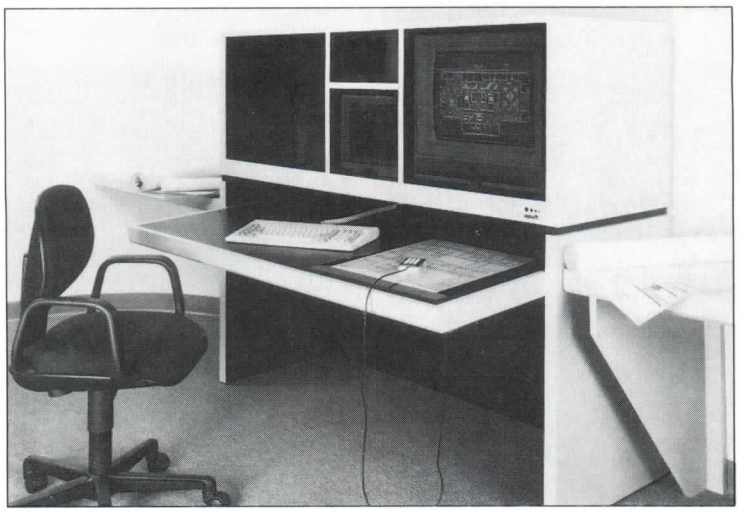
Digitizer
This A-size *DrawingBoard* digitizer is the first introduction in this manufacturer's line of high-performance products priced for the low end of the market. Plug-compatible unit supports most major CAD and graphics software; the pen stylus has a DIN-type connector. Resolution is selectable up to 1,016 lines per in. The digitizer package includes an external wall-mount 110/220v power supply; 4- and 16-button cursors are options. CalComp, Anaheim, Calif.
Circle 310 on reader service card



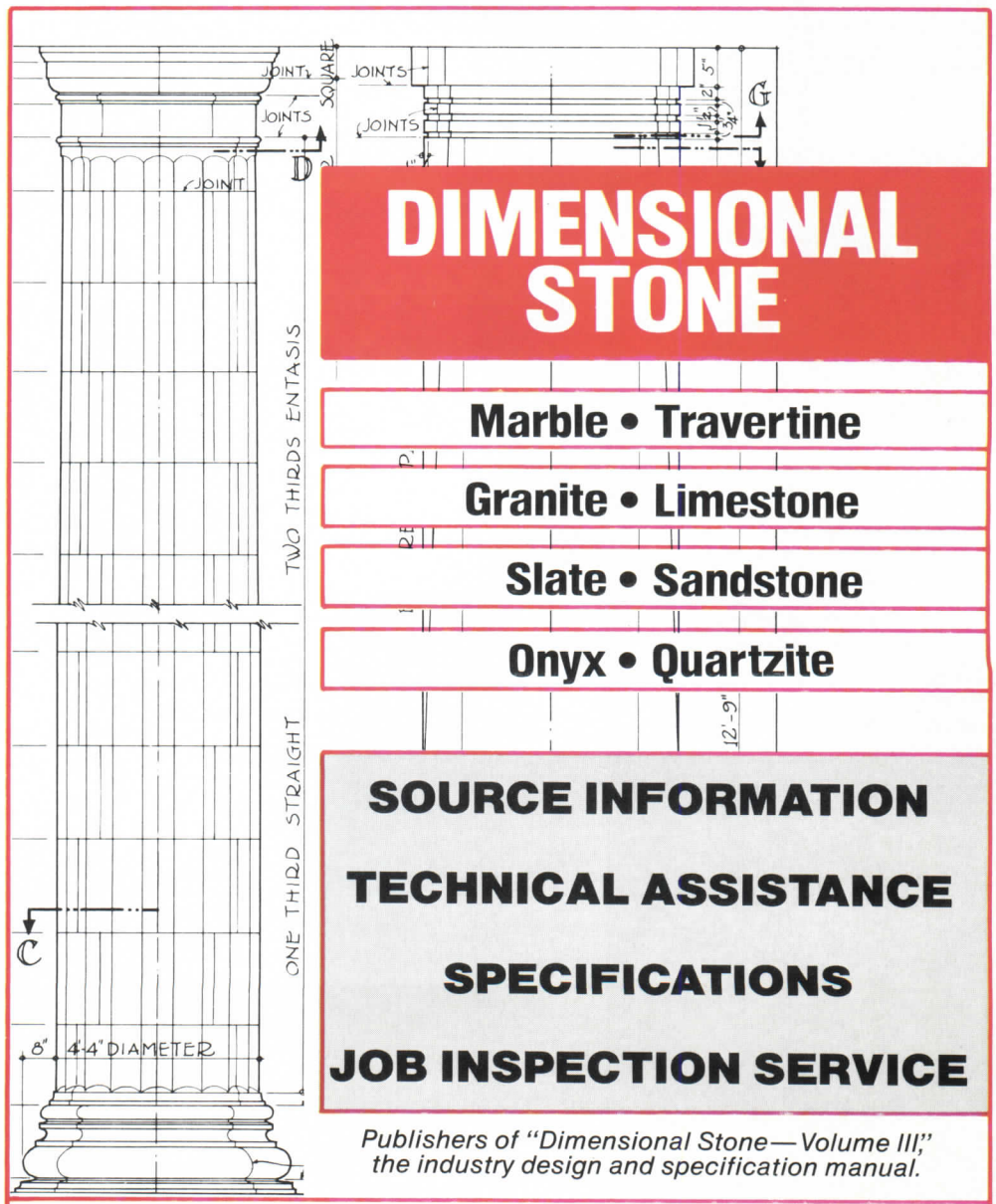
Graphics display controller
Designed for the requirements of line- and symbol-oriented drawing, the *Nth Engine* increases the speed of PC-based CAD systems by a factor of over 200. The controller fits into a single expansion slot of an *IBM PC-AT, XT* or compatible, and works with such software as *AutoCAD* and *VersaCAD*. It pans or zooms through most complex drawings in less than two seconds, producing a flicker-free display resolution of 1024 x 768. A windowing feature allows placement of multiple views of a drawing on the screen at once. Teledyne Post, Des Plaines, Ill.
Circle 311 on reader service card



Stone tables
Designer Giulio Lazzotti's *Marciapiede* table sets a smooth, gray marble top onto large, rugged stone legs. Other tables in the imported *Mageia* series have grooved stone tops like millstones, or use single pieces of cleft black slate. Many are available in stock for commercial and residential applications. Koch + Lowy, Inc., New York City.
Circle 312 on reader service card



Workstation console
Designed by designers for designers, this high-rise workstation places monitors, printer, disk storage, and wiring out of the way at an efficent height. The tiltable worksurface holds a digitizer and keyboard. Constructed with plastic laminate surfaces, the console has polarized glass doors to reduce glare and improve color of the monitors, and a single-key on/off switch for all electronic components. The *CADapult* workstation will be available either stand-alone; turnkey with hardware as shown; or in conjunction with the maker's *AutoCAD*-compatible facilities software. CADapult Services, Wilmington, Del.
Circle 313 on reader service card
Continued on page 187



DIMENSIONAL STONE

Marble • Travertine

Granite • Limestone

Slate • Sandstone

Onyx • Quartzite

SOURCE INFORMATION

TECHNICAL ASSISTANCE

SPECIFICATIONS

JOB INSPECTION SERVICE

Publishers of "Dimensional Stone—Volume III," the industry design and specification manual.

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Casual sophistication. Furniture to indulge your sense of style.
MAYLINE
Mayline Company, Inc., 619 N. Commerce Street, Sheboygan, WI 530
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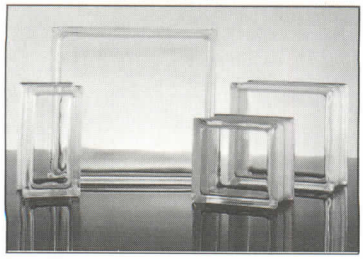
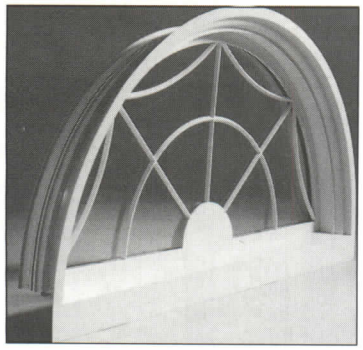
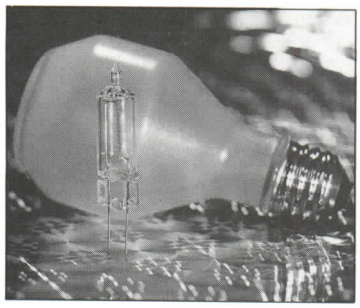
Continued from page 185



Rectangular glass block
A 4- by 8-in. size has been added to the *GlassBlock Standard Series* line of architectural glass products. Offered in the *Vue* pattern, the glass provides for maximum light transmission and visibility; the rectangular shape allows for tighter curves in panel construction and wall partitions. Pittsburgh Corning Corp., Pittsburgh.
Circle 314 on reader service card



Half-circle window
Marketed as a replacement unit for traditional-style buildings, the *ProComm Model 681* half-circle window features an aluminum curved panning system with curved external grids. A custom size, the window comes with either insulated or panel glazing; finish options include paint, duranodic finishes, or special colors. Season-all Industries, Inc., Indiana, Pa.
Circle 315 on reader service card



General service halogen
The first in a line of general service screw-base lamps, the *Performance Plus* 90W bulb has a compact tungsten-halogen tube set into an outer bulb of heavy glass. It produces the same amount of light as a 100W incandescent, with a rated life of 2,000 hours versus 750 hours for the incandescent bulb. The white light of the halogen lamp has a color temperature of 2950K, making it particularly suitable for display, office, and restaurant applications. General Electric Co., Cleveland.
Circle 316 on reader service card

Tile base
Marketed as a replacement for Portland cement tile backer boards, *Dens-Shield* fiberglass-faced gypsum board is said to be virtually unaffected by water and moisture. When used with a Type 1 mastic, as shown, *Dens-Shield* achieves a moisture resistance rating of only 0.5 perms. The board is a third of the weight of Portland-type backers, and can be scored or snapped like conventional gypsum board. Georgia-Pacific, Atlanta.
Circle 317 on reader service card

Floor tiles
Made by hand in Santa Fe, N. M., sealed and polished floor tiles have flat backs and may be thinset or conventionally installed. Each tile is slightly different from the next; there is a wide range of shapes, sizes, colors, and textures available for residential and commercial applications. Tiles de Santa Fe, Inc., Santa Fe, N. M.
Circle 318 on reader service card
Continued on page 188

The Kalwall® Window Replacement System . . . The Leader Since 1955!

Will beat every type of light admitting window rehab product . . . in any kind of test!

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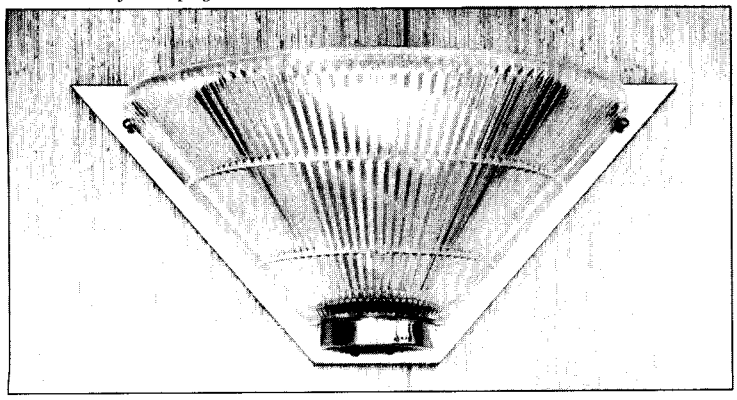
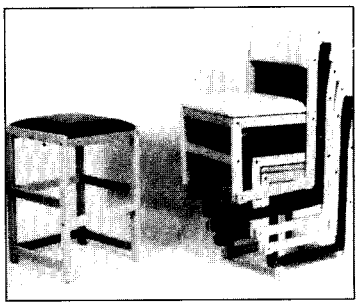
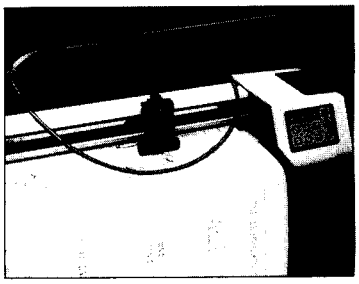
Continued from page 187



Emergency fixture
From a new line of decorative fixtures using compact fluorescent lamps and a concealed built-in emergency battery, this *Prisma* half-cone sconce provides both regular and emergency-mode wall-wash lighting. The *Sconce Designer* line is said to meet building safety code requirements decoratively at a reasonable cost. Siltron Illumination Inc., Cucamonga, Calif.
Circle 322 on reader service card



Oak stacking chair
The solid-oak *Olympic Chair* is available in an armless stacking version, as well as a stool. The frame may have a natural finish, or be lacquered in a number of colors; John Boos & Co., Effingham, Ill.
Circle 323 on reader service card
Continued on page 191



Add-on scanner
Marketed as an affordable upgrade accessory for this manufacturer's *DMP-50* series drafting plotters, the *Scan-Cad* input device can automatically scan detailed architectural and engineering drawings from paper, vellum, acetate film, or blueline. The 200-dot-per-in. scan head snaps onto the plotter without any modification; it can detect lines as fine as .007 in. *Scan-Cad* comes complete with cable and support assembly, controller expansion card, scanning software, and document carrier. Houston Instrument, Austin, Texas.
Circle 319 on reader service card

Enhance the beauty of your landscape with the elegance of superbly crafted lighting posts by Spring City

You will be in good company when you light the way with our historically accurate, heavy duty, *Cast Iron* lighting posts. Independence Hall in Philadelphia, for example; the U.S. Military Academy at West Point; Boston Common and William and Mary College in Williamsburg to name just a few of the thousands of locations where these lighting posts are prominent.

The light sources available are: incandescent, mercury vapor, metal halide or high pressure sodium.

Write or call for further information and literature that will illustrate and describe why we are the leading manufacturer of ornamental lighting posts in the United States.

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HANCOCK - Boston, Mass. 9' to 13' heights (excluding luminaire) with 10½" O.D. base. Available as a 46" high bollard.

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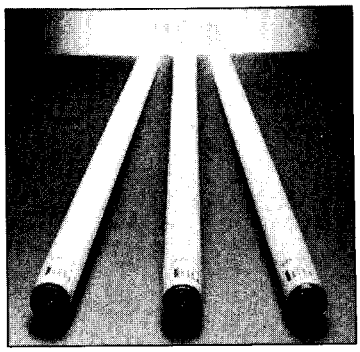
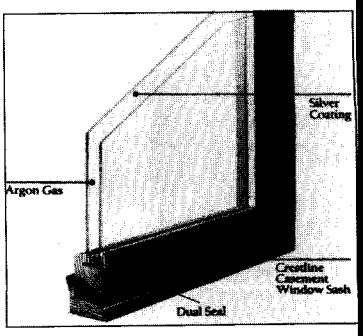


Brighter fluorescent
Described as a technological advance in fluorescent lighting, the *Advantage X* F40 lamp yields 17 percent more light (3700 lumens) than a standard F40 cool white; its rated life of 24,000 hours is 20 percent longer. *Advantage X* lamps come in three color temperatures, all with a CRI of 80; they operate on all standard F40 ballasts. North American Philips, Edison, N. J.
Circle 320 on reader service card



Insulating glazing
Available with this maker's wood-framed windows, *iPlus4* glazing replaces the air in the insulating space between two glass panes with argon gas, which has a 30 percent higher insulation value. A silver film on the outer surface of the interior glass invisibly reflects interior heat and exterior cold. Crestline, Wausau, Wis.
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Unlimited Editions.

Color from Sherwin-Williams, the color expert. Unlimited choices in paint, floorcovering, wallcovering, and window treatments. As a member of the Color Marketing Group, we keep up-to-date on the newest color trends and incorporate them into our products. Which makes it easy for you to select the newest trends. All readily available through our national network of 1,700 stores. For expert assistance, call **1-800-321-8194** (in Ohio, 1-800-362-9181).

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Manufacturer sources

For your convenience in locating building materials and other products shown in this month's feature articles, RECORD *has asked the architects to identify the products specified*

Pages 102-105
Offices of Robert A. M. Stern Architects
Pages 102-104—Paints: Benjamin Moore. French doors: Eisenhardt Mills. Custom casework, reception desk: GMS Master Cabinets. Millwork: W. F. Sherman & Sons. Hardware: Baldwin. Closers: LCN. Carpet: Deans Carpets. Drywall: U. S. Gypsum (Type X). Cove lighting: Wiremold (R-strip).
Page 103—Pendant fixture:—glass shade: Sirmos; brass fittings: Bergen Art Metal. Chairs: Stendig Nienkamper. Tables Stendig Puccio. Diffusers: Titus. Upholstered seating: custom by architect.
Page 104—Pendants: Fotia Stone. Picture lights: Koch + Lowy.
Page 105—Lamp columns: Hampton Cabinets. Shades: Domus. Drafting lights: Luxo. Track-mounted spotlights: Edison Price.

Pages 106-107
Offices of
Solberg + Lowe Architects
Glass block: Forms & Surfaces. Locksets: Baldwin. Custom woodwork: Richard Ritter. Decorative hardware: Hewi. Paints: Frazee. Ceiling: Forms & Surfaces (Wood Grid). Neon lighting: Archi-Graphics—Eric Zimmerman. Track fixtures: Lightolier.

Pages 108-109
Offices of Edward Larrabee Barnes Associates, Architects
Paints: PPG Industries; Martin-Senour. Acoustic tile ceiling: Armstrong. Carpeting: Pacific Crest Mills. Conference seating: Breuer chairs by Knoll International.

Pages 110-111
Offices of The Ehrenkrantz Group, Architects
Track lighting: Lightolier. Carpet: Stratton. Decorative hardware: Forms & Surfaces. Laminates: WilsonArt.

Pages 112-113
Offices of Simon Martin-Vegue Winkelstein Moris, Architects
Paints: Fuller O'Brian. Ceiling: Armstrong (Georgian). Carpeting: Patrick (Grand Talmage). Fabric: OJVM Fabric. Ceiling fixtures: Lightolier; Bell; Lytespot. Glazing: PPG. Wallcovering: Henry Calvin. Laminate: Laminart. Vinyl tile: Grani-Flex T. M. Closers: Norton.

Pages 114-117
Offices of Clark Tribble Harris & Li Architects
Page 114—(top) Exterior finish: Dryvit. Wood and glass doors: custom by architects, fabricated by Blanton + Moore Millwork. Mortise hinges: Hager. Locksets, closers, and exits: Sargent. Aluminum skylight: Howmet. Glazing: Guardian. (bottom) Paint: Devoe. Carpet: Whitecrest (Vel Tuff). Lounge seating: Graphos. Wallcovering: Genon (Sand Stipple). Downlights (throughout): Lithonia. Aluminum windows: custom by Cartner Glass.
Page 115—Glass block: PPG. Fountain: Cobles Carolina Studio, Inc. Flooring: Architectural Marble Importers, Inc. HID fixtures: N. L. Corp.
Page 116—Hanging light: Atelier International. Desk chair: Brayton International. Pull-up seating: Donghia. Table/desk: Charles McMurray Designs. Drywall (throughout): U. S. Gypsum. Sconces: Kurt Versen.
Page 117—Doors: Weyerhauser. Fluorescent pendant lighting: Versa Tech. Elevators: Dover. Conference table: Cold Spring Granite. Seating: Brayton International.Vinyl flooring: Armstrong (Imperial Texture Excelon). Ceiling suspension systesm: Celotex. CADD installation: Intergraph.

Pages 130-137
The Church of St. Luke in the Fields
Hardy Holzman Pfeiffer Associates, Architects
Pages 130-133—Granite cornice: A. Ottavino Corp. Fiberglass shingles: Johns-Manville. Metal-clad awning windows: Pella. Pine-framed windows and glazed exterior door: Mutual Lumber Co. Sanctuary windows: Eisenhardt Mills Inc. Patterned glazing: Rohlf Stained and Leaded Glass Studios, hand-blown by Fremont Antique Glass. Brick: Glen-Gery Corp. (Colonial). Lead-coated copper flashing: Revere Copper & Brass Inc. Fabric flashing: Neruastral 400. Roof and sacristy ornament: Metal Specialties Co. Panic bar hardware: Ives. Locksets: Schlage.
Pages 134-137—Architectural woodwork, white oak and mahogany organ loft and pulpit; birch and mahogany pews: J. P. Redington & Co. Custom plaster work: Superfine Industrial Plaster by Morrel Brown. Decorative painting, chapel ceiling and reredos: Ronald Millard. Nave and chancel lighting: Edison Price, Inc. Chandeliers and sconces: Lester H. Berry, Inc. (Bergen Art Metal Work, Inc.; Rambusch; CGL Industries; Louis Baldinger & Sons, Inc.). Air diffusers: Titus. Skylights: Kalwall Corp. Recessed downlights: Lightolier.

Pages 140-143
Miraflores
Rob Wellington Quigley, AIA
Pages 140-142—Entrance: custom glazing system by McFarland Mfg. Inc. French doors: T. M. Cobb. Grid windows: custom. Floodlighting: Hubbel. Accent light: Hydrel. Standing seam roofing and walls: Acid-treated weathering copper.

Pages 144-145
Oxley Residence, La Jolla
Rob Wellington Quigley, AIA
Windows and sliding glass door: Window Master.

Pages 146-149
Jaeger Beach House
Rob Wellington Quigley AIA
Brick: Pacific Clay Mini-Brick. PVC windows and doors: Trocal. Railings: custom. Sunshades: BCR Plastics. Sheet metal roofing: RNP. Hardware: Forms & Surfaces.

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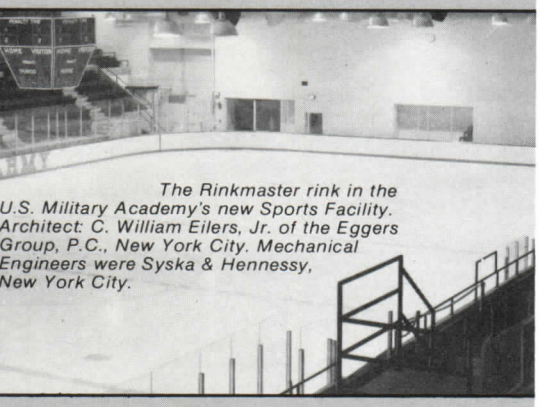

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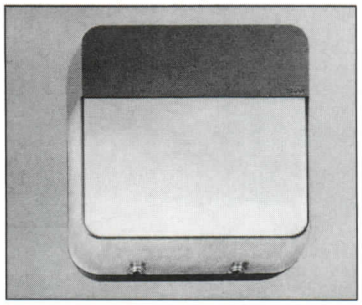

Exterior lighting
The *AWP160* wall fixture features a field-adjustable reflector that directs the light beam in a range of from 65 to 85 deg vertical cutoff. Suggested for perimeter lighting applications requiring wide illumination with precise beam control, the wall pack comes in several HID lamp types in wattages up to 150W. The vandal-resistant aluminum housing has concealed fittings; mounting options include semi-recessed or surface, pole, and ceiling. Devine, Kansas City, Mo.
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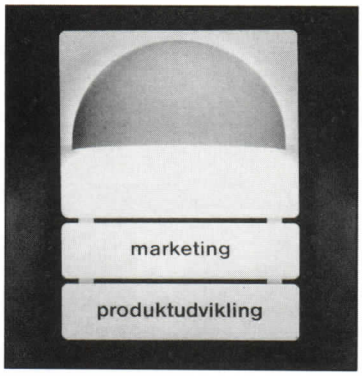

Dual-purpose fixture
One of this year's winners of the Danish Industrial Design Prize is a corridor lamp by Alfred Homann for Louis Poulsen & Co. The light, a quarter-sphere of cast aluminum placed off a backplate of the same metal, is UL-listed for wet locations. Backplate and add-on plaques may be used for signage as shown. Vandal-resistant light comes in either a sand-blasted aluminum or baked white enamel finish. Poulsen Lighting Inc., Miami.
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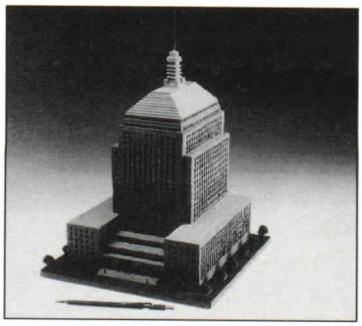
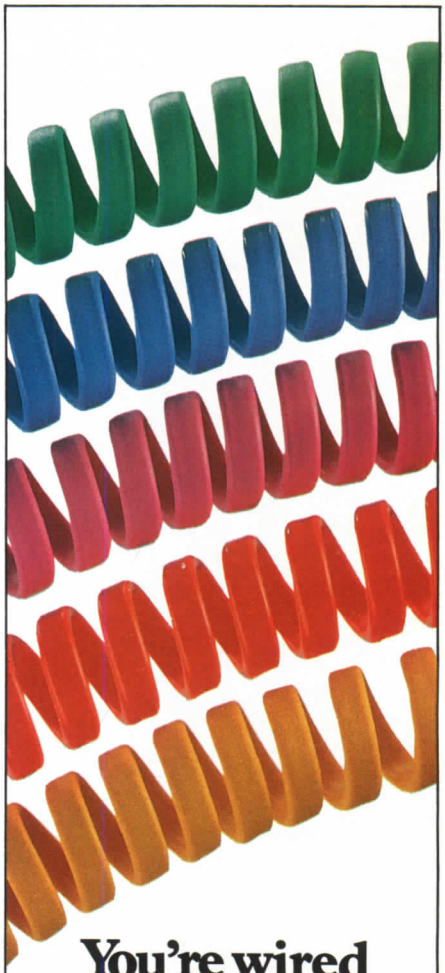


Model-building foam
A non-abrasive phenolic material, *Jiffy Foam* is suggested for making architectural and topographical models. Lightweight and dimensionally stable blocks may be machined, cut, shaped, sanded, and painted. Jiffy Foam, Inc., Newport, R. I.
Circle 326 on reader service card
Continued on page 193



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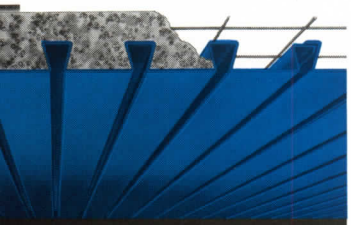

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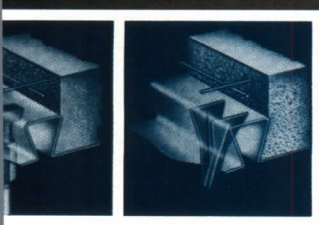

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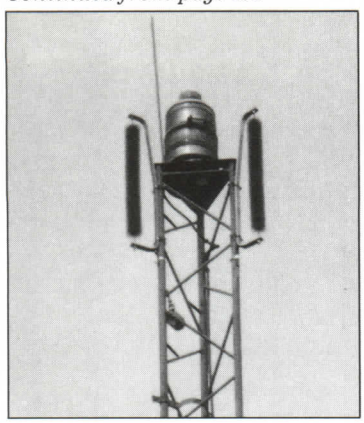

Lightning prevention
Conventional lightning rods attract electric strikes, and route the charge to ground. The *ALS-3000 Lightning Prevention System,* based on ion dissipating techniques similar to those on aircraft, is said to actually repel lightning by removing the lightning-attractive charge from the protected structure. Consisting of stainless steel elements (two are shown here mounted on a communications tower), each with over 5,000 dissipating points, the system can be installed by a two-man crew on any structure exposed to damaging lightning strikes. Lightning Prevention Systems, Berlin, N. J.
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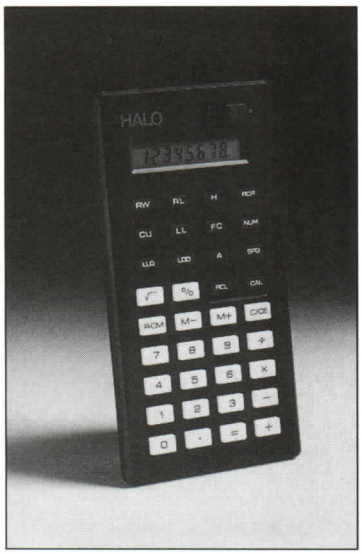

Lighting calculator
The *Halo Lighting Calculator* helps determine fixture quantity and spacing at any illumination level. The designer enters room dimensions as well as luminaire performance, illumination levels, and lamp and luminaire depreciation data from product specification sheets; the *HLC-1* compares alternate layouts utilizing different fixtures, lamps, and trims. It also provides five-function arithmetic calculations. The Cooper Lighting Group, Elk Grove Village, Ill.
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Continued on page 195

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Continued from page 193

Transitional office
This maker's *Geva* office line is said to permit dozens of layout variations, bringing the flexibility and efficiency of open office furniture to the executive suite tradition of custom wood desks and credenzas. A transitional fluted design, the *Volute* desk has an either-sided bridge joining it to the matching credenza, shown here with a vertical storage unit. The Gunlocke Co., Wayland, N. Y.
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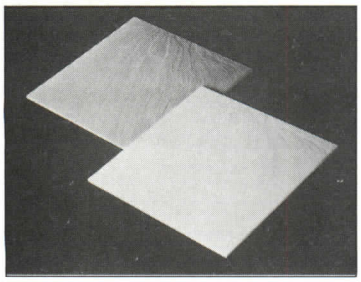

Textured-surface tile
The *Secura* line from *Emil Ceramica* is described as an extremely hard product with a high level of friction resistance, even when wet. Offered in sandstone (pictured) and pebble textures for interior and exterior commercial floors, the tile has no surface porosity; its scratch-resistant hard glaze has a Mohs 9 rating. Amaru Tile, Inc., Great Neck, N. Y.
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Elliptical-top window
Part of a line of casement, double-hung, and awning windows for residential, multi-family, and light-commercial use, this elliptical-top unit carries a 25-year warranty. Standard features of all *Century* windows include *Sungate* insulated glazing, concealed stainless-steel hinges and brass-plated exposed hardware, and *Tedlar* coating on the exterior aluminum cladding. All window frames are molded of a low-maintenance wood fiber/resin composite. Century Windows, Mount Vernon, Ohio.
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Continued on page 197

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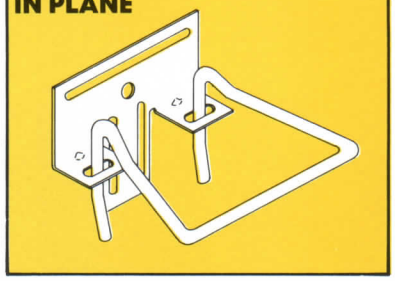

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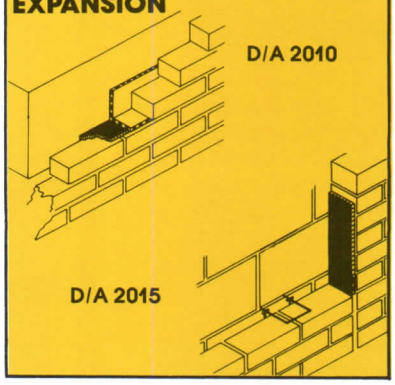

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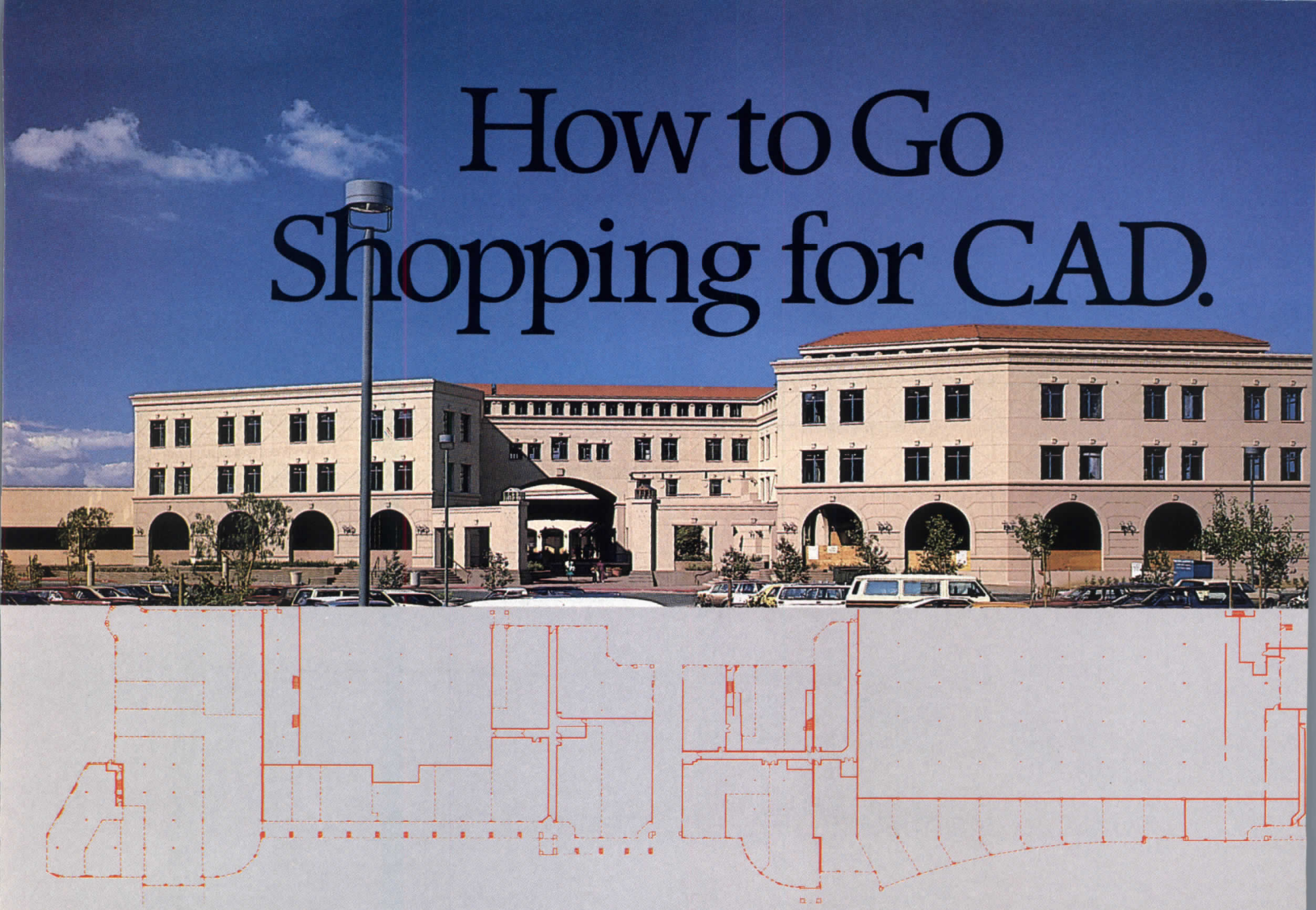

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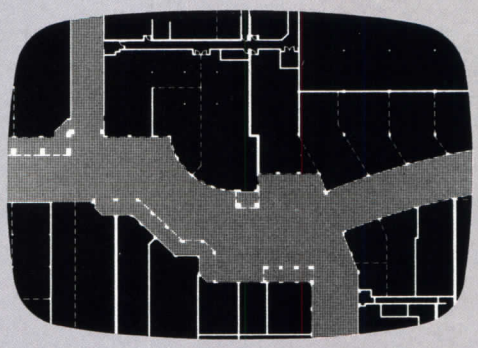

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Continued from page 195

Vinyl tile flooring
Offered in black and white colors described as a cleaner, more subtle version of the classic 1950s checkerboard floor, *Excelon Imperial Texture* vinyl composition tiles have color and texture spread evenly throughout. Floor is said to be durable and easy to maintain, and is recommended for retail, hotel, and other high-traffic floors. Armstrong World Industries, Inc., Lancaster, Pa.
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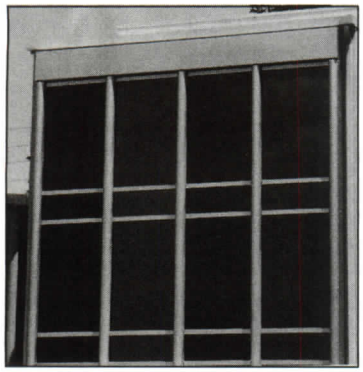

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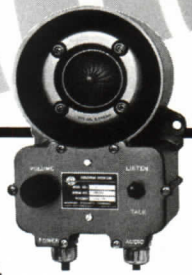

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"Elevette®"
your condos' most practical status symbol

The "Elevette" home elevator is so distinctive, it puts your condo in a class by itself. But that's the *least* of its advantages. It's also:

Convenient . . . Instead of trudging up and down stairs, you go from floor to floor with the push of a button (and save all that extra energy for tennis!).

Handy . . . Have something bulky to take up-stairs? "Elevette" does the job quickly, quietly, effortlessly.

Helpful . . . It saves time and effort. And best of all, it increases your condo's value. Sure, the "Elevette" is a status symbol. But no other status symbol has ever been this practical.

When planning your next project, don't just allow space for "Elevettes" to be installed in the future. Have them installed as original equipment. Make the "Elevette" a selling feature.

Designed specifically for single family use.

Write for Full Information and Free Literature.

INCLINATOR COMPANY OF AMERICA
DEPT. 66
P. O. BOX 1557
HARRISBURG, PA 17105-1557

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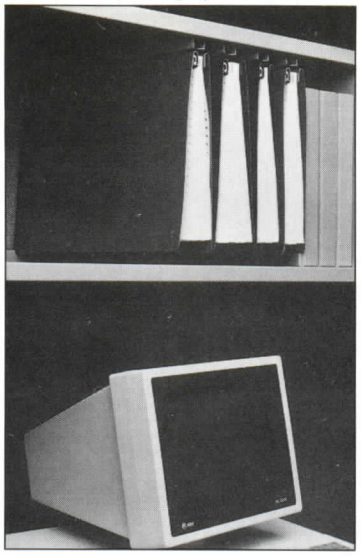

Panel system accessory
Offered as an add-on component for use with this maker's *System 2Plus* shelving units, data binder hangers provide convenient storage of oversized computer printouts. The units mount on rails either inside the shelves, as shown, or underneath; sliding hangers come in colors to match the shelf. Panel Concepts, L. P., Santa Ana, Calif.
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Reflector fixture
A screw-in R40 chrome aluminum reflector incorporating a 72W *Sylvania* halogen *Capsylite* lamp, the *Reflectocap* is designed for direct replacement of 150W R40 incandescent floodlights in recessed can fixtures and track lighting. The new reflector/bulb unit is said to offer substantial energy savings; whiter, more colorful light; and a 75 percent increase in lamp life over the incandescent bulb. Westerfield Co., San Diego, Calif.
Circle 332 on reader service card
Continued on page 244

Our windows have the beauty...

Season-all has the brains.

It's simple. How attractive a window looks doesn't matter if it leaks, warps, rusts or stops performing ahead of its time.

ProComm aluminum replacement windows from Season-all are designed to last.

Choose from a full line of: single, double and triple hung models, sliders, casements, projected, and picture models in thermal and non-thermal frames.

And, if there's a "special" window project on the horizon, we've got the most beautiful windows in the land...with the brains to back them.

For more information call:
1-800-245-1404

SEASON • ALL®
WINDOWS AND DOORS

Forty Years of Window Innovation

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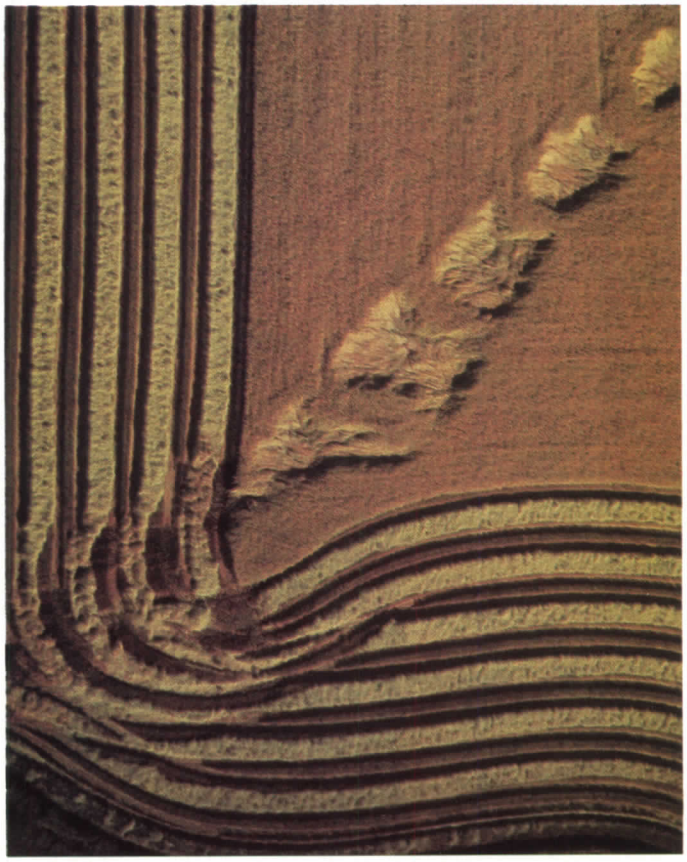

An added dimension.

How the eye can fool the mind!

You're really looking at an aerial photograph of a plowed field.

At first glance, many exterior insulation and finish companies appear to offer the same things.
But look closely. Get the entire picture.
You'll soon see why Senergy product quality and commitment to service are no illusion.

For further information about Senergy wall systems please contact Bob Olson, Vice President, at 1367 Elmwood Avenue, Cranston, Rhode Island 02910, or call 1-800-221-WALL.

SENERGY™

The ability to see things differently

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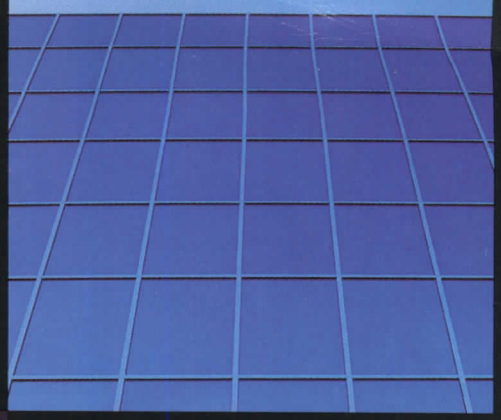
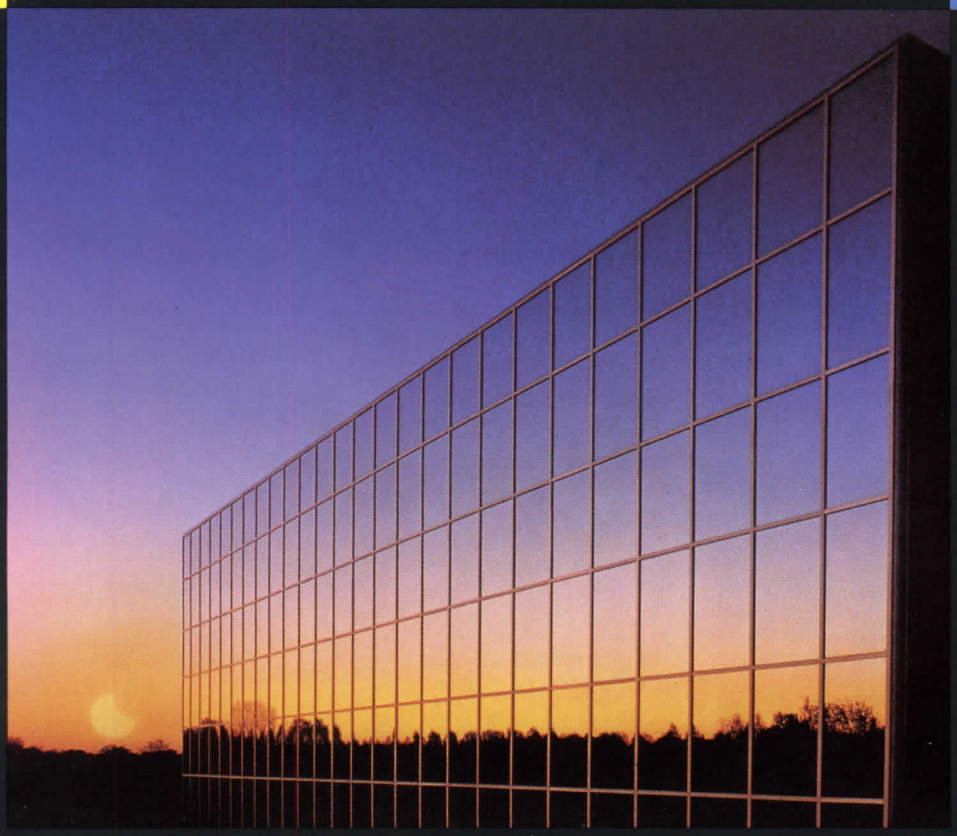
Sun,
sky,
space,
stone,
steel.

And now, ECLIPSE® reflective from LOF.





You design a structure with certain basic elements in mind. • Now there is a powerful—almost elemental—new design material to consider: • ECLIPSE reflective from LOF. • Until now, pyrolytically coated glass has lacked presence. It was designed to blend with any architecture. Any materials. Any surroundings. • But ECLIPSE reflective is bold. Dramatic. Without the milky, yellowish cast of some other architectural glass. • Yes, there are other, more practical reasons to choose ECLIPSE glass. Reasons like solar control. Post-temperability. A remarkably low absorption characteristic. And availability that verges on the immediate. • Not to mention the fact that ECLIPSE reflective can be used in low, mid or high rise structures, with the coating glazed to either the first or second surface. • Still, the best reason to choose ECLIPSE glass is the simplest: *It looks so beautiful on a building.*

ECLIPSE®
Reflective Glass

Libbey Owens Ford

A member of the Pilkington Group

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fashion first!

frost

Acoustone Ceiling Panels

Textured understatement never looked better overhead.

New Frost pattern in the ACOUSTONE® ceiling collection earns a special niche among today's finer natural textures. Its unique low key surface, enhanced by soft shadow line edges, provides visual harmony to the eye; just as an NRC range of .70 to .80 offers comfort to the ear. Available in 2'x2' and 12"x12" sizes, these superior mineral fiber products deliver a flame spread rating of 15; install easily in standard or narrow grids. Available in Canada. See our representative. Or write to **USG Interiors, Inc.,** at 101 S. Wacker Dr., Chicago, IL 60606-4385, Dept. AR687.

New Strata pattern in ACOUSTONE® ceilings brings subtle linear interest to 2' x 2' panels.

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USG Interior Systems

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