ARCHITECTURAL RECORD

Business Design Engineering
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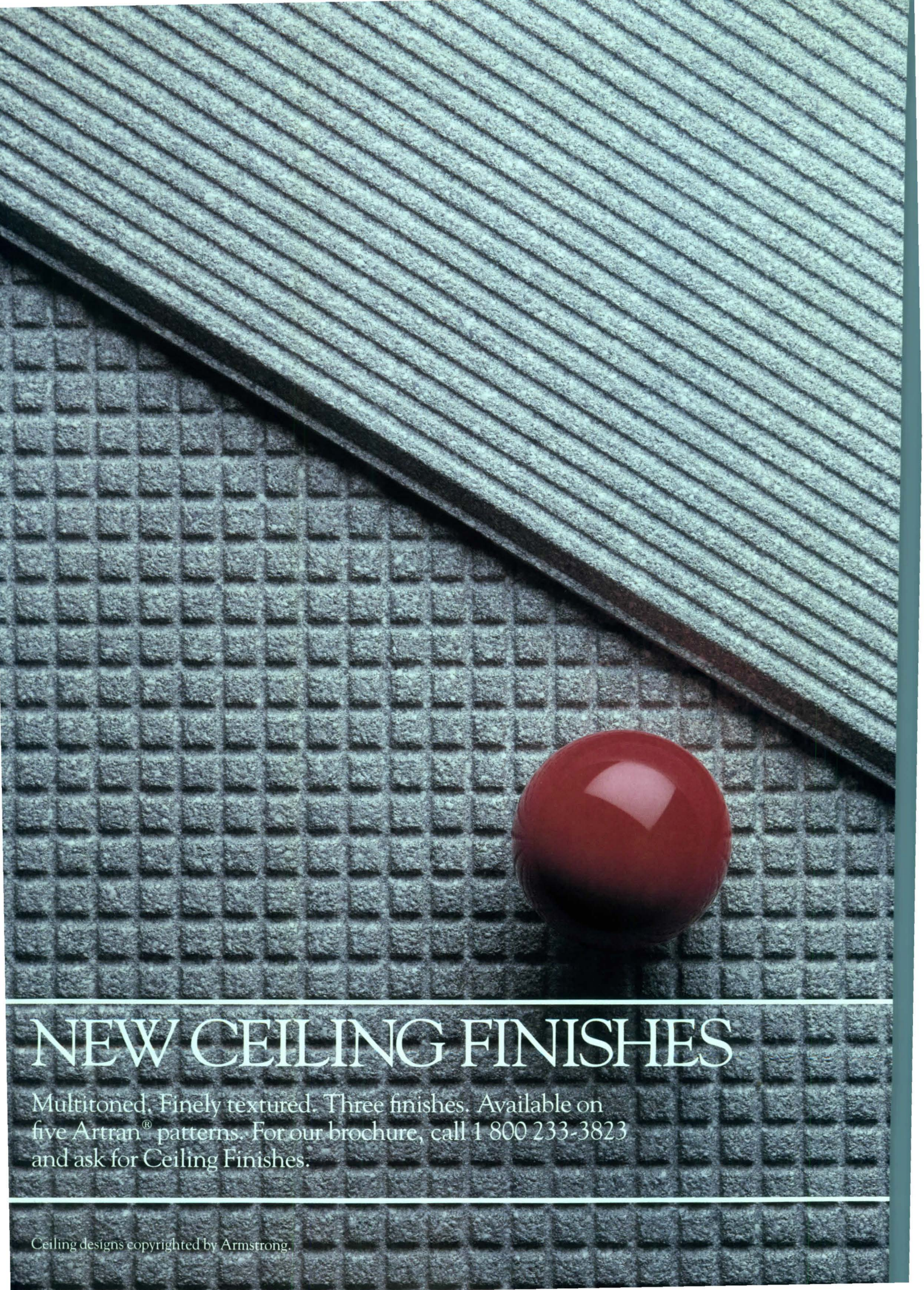
February 1989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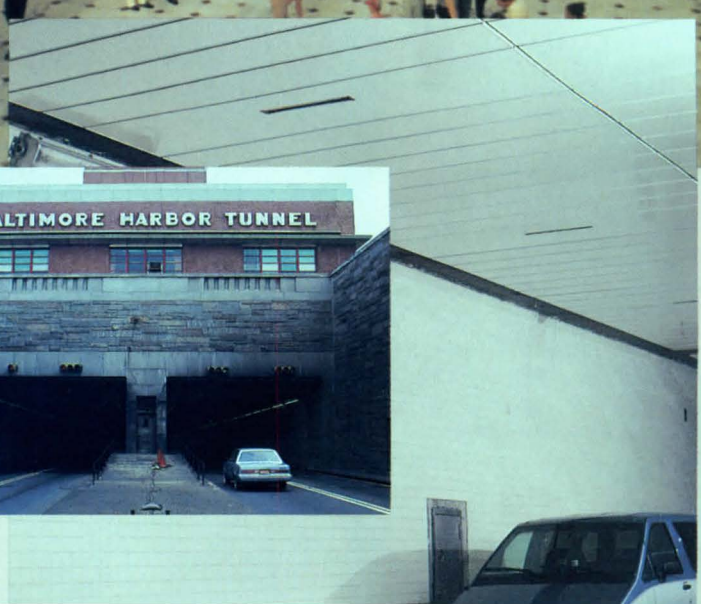

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Letters

Bravo on your truly exceptional design awards program [ARCHITECTURAL RECORD, November 1988, In the Public Interest]. Here's the one that couldn't be done, and you actually did it. ARCHITECTURAL RECORD deserves an award.

How inspirational to see so many selfless winners with character and diversity, after all the self-indulgent, self-conscious buildings of recent times. Paul Sachner's essay was also an eloquent call to action.

Tina Laver
Communications Director
American Wood Council
Washington, D. C.

I would like to offer my appreciation for your highlighting such a radically unique architectural project as the wood huts designed by Atlanta's Mad Housers in the article "Guerilla welfare," [ARCHITECTURAL RECORD, November 1988, pages 98-99]. When viewed in the context of the issue as a whole, the contrast is both troubling and inspiring. Too many of us have been able to look away from the problems of the homeless, believing perhaps that they have caused their own troubles and rationalizing that the government will take responsibility for their welfare. The Mad Housers' approach offers a practical alternative to handouts or individual charitable donations, which may temporarily ease our consciences but which in the end appear to have little effect. And as more individuals are motivated to take similar actions, one may even dare to hope that their communities, cities, and states will find the means to develop more suitable shelters and longer-term solutions. The juxtaposition of projects like the wood huts in Atlanta and the St. Vincent De Paul shelter in San Diego is evidence that a more equitable approach is necessary.

I wonder about one very critical aspect of the Mad Housers' action: that of potential liability. I am interested to know how, as architects and builders, they have dealt with such exposure, especially in the wake of the publicity that has removed the protection of their initial anonymity. Obviously one cannot be insured for illegal activities, and I am curious as to what protection is afforded such work in the public interest against both personal and professional repercussions. I am hopeful that a solution to that issue has been found, since it represents a major obstacle to the participation of many concerned professionals.

Jeffrey R. Gingold, Principal
D3 Associates
Los Angeles

The article "Guerilla welfare" surprised me. I lived in Central America for eight years and was impressed by people who got a plot of land and slowly constructed themselves a nice (three-bedroom) home. We must do this in America, since half of our people can't afford a new home. Why don't you and others do something concrete to promote self-help housing? Wood, blocks, adobe, and soil-cement can be used. America can be housed without government help when we decide to do it.

Ken Hargesheimer
Lubbock, Texas

Daniel Solomon's reference to a 1919 remark by Henry James [ARCHITECTURAL RECORD, August 1988, page 100] shows that, while California may have less history in 1988 than in 1919, James has more, for Henry James died in 1916. But then, if anyone could have spoken from the other side, who better than the author of *The Turn of the Screw.*

Jonathan Hale
Watertown, Massachusetts

Calendar

Through April 2
"Best Addresses: A Century of Washington's Distinguished Apartment Houses," an exhibit with photographs, models, and furnishings; at the National Building Museum, Washington, D. C.

February 8 through April 6
"The Experimental Tradition: 25 Years of American Architectural Competitions," an exhibit organized by the Architectural League of New York showing national competitions; at the High Museum at Georgia-Pacific Center, Atlanta.

February 10 to March 4
"Grant Mudford: The Urban Monument," an exhibit of the Australian's photographs of the United States since 1975; at the Architecture Gallery, Southern California Institute of Architecture, Santa Barbara, Calif.

February 23-25
Expo '89, seminars and exhibitions about exterior building products, sponsored by the American Architectural Manufacturers Association; at the Washington, D. C., Convention Center. For information: AAMA Expo '89, 2700 River Rd., 118, Des Plaines, Ill. 60018 (312/699-7310).

February 27-28
"Better Buildings Conference: Residential Energy Efficiency and Indoor Air Quality," sponsored by the New York State Energy Office with the NAHB National Research Center; in Albany, N. Y. For information: Jim Lafferty, New York State Energy Office, 2 Rockefeller Plaza, Albany, N. Y. 12202 (518/473-7243).

March 1-28
"Through Amateur Eyes," European Modern architectural landmarks photographed by an anonymous American in 1931; at Gallery 400, College of Architecture, Art, and Urban Planning, The University of Illinois at Chicago.

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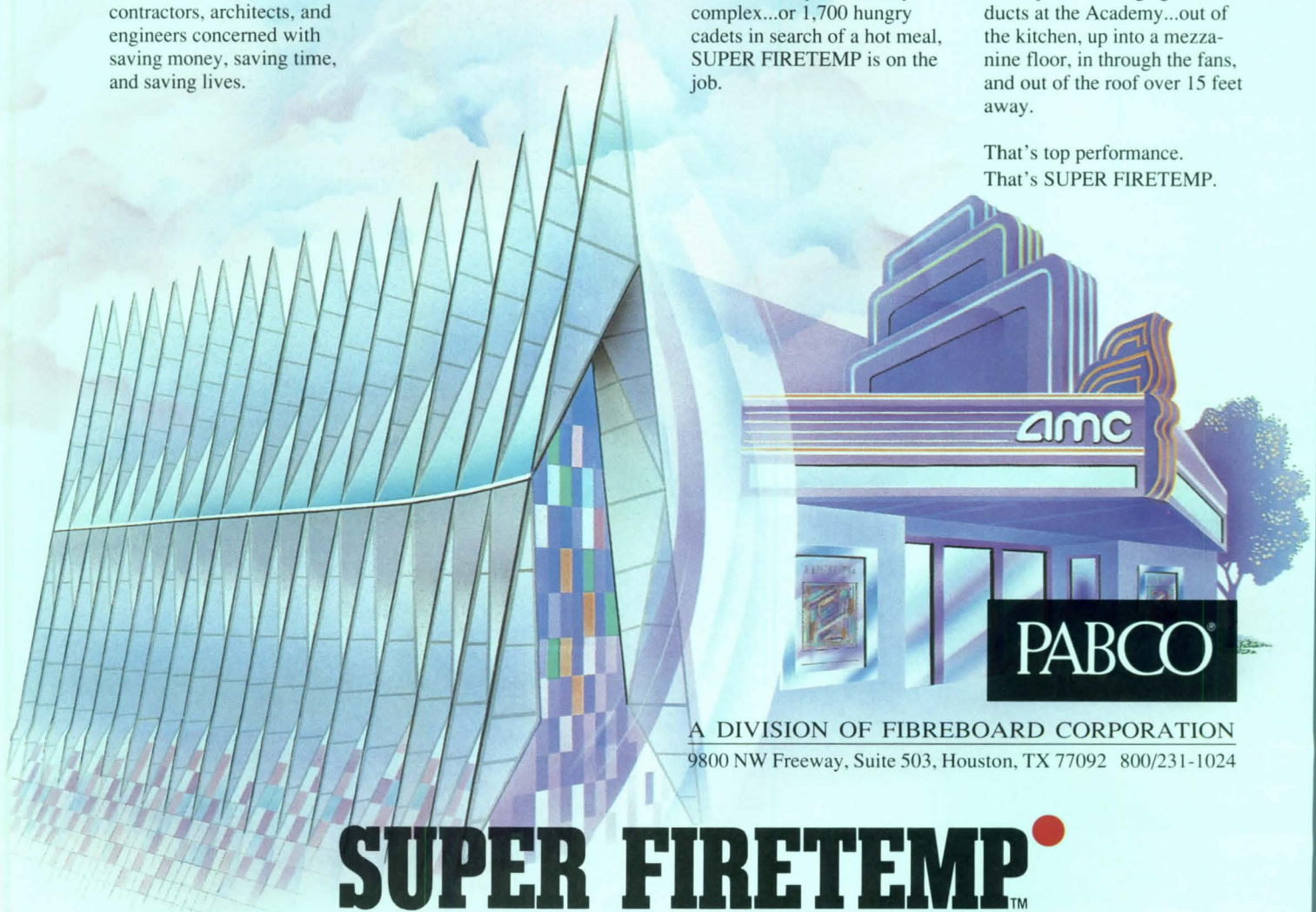

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Agreeing to try to agree

The vexing issue of interior designer licensing is at last being addressed collaboratively by the American Institute of Architects, the American Society of Interior Designers, and the Institute of Business Designers, all three organizations having formally agreed to sit down together and talk (see page 25). The bold first step leading to this promising truce was taken last March at a dinner meeting in Boston, when 1988 AIA President Ted Pappas, 1987-89 IBD President Michael H. Bourque, along with Lou Marines, then AIA Executive Vice President/Chief of Staff, jointly decided that there should be subsequent meetings on the subject and drew up a list of committed individuals to explore it. Many meetings followed at which Pappas and Bourque were joined by 1988 ASID National President Charles D. Gandy. Said Gandy: "The most important thing that happened each time we met was that we agreed to meet the next time." Early last December, in a ceremony at the AIA's historic Octagon house in Washington, D. C., the three presidents signed an accord calling for ongoing negotiations.

The peacemaking process was grounded in the decision to study the feasibility of "title acts" (also called "title registration") requiring that state-regulated minimum standards be met by anyone using the title "interior designer," but allowing others to practice interior design without using the regulated title. Shelved for now, to the satisfaction of the AIA, will be any further consideration of state "practice acts" that allow only those licensed under the act to practice the interior design profession as defined by the act, thus prohibiting architects without interior design licenses from designing interiors. Deliberations, if successful, will bring about the accomplishment of the following difficult and complex tasks: setting requirements for title registration that would include professional education, testing or its equivalent, and a monitored internship; determining whether grandfathering should be allowed, and if so, under what circumstances; devising the nature and function of joint regulatory boards; defining the role of the interior designer; establishing appropriate voluntary continuing education; and, of utmost importance, confirming the right of licensed architects to continue to perform interior design services.

Pappas, Bourque, and Gandy deserve high praise for their courageous beginning. Had they not taken this historic step—or if the effort they have launched doesn't ultimately succeed—both sides will lose, but the interior designers in particular will suffer, having no choice but to continue to pursue licensing independent of their colleagues in architecture, fighting it out state-by-state and, in the words of Bourque, "producing disunified bills or suffering disenfranchisement." By changing course and pursuing accommodation with their fellow designers, the AIA, ASID, and IBD are leading the way to much needed collaboration among all building professionals. *Mildred F. Schmertz*

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In the Public Interest

ARCHITECTURAL RECORD announces its second annual **In the Public Interest** awards program, aimed at encouraging and recognizing excellence in the design and planning of public architecture. Each year RECORD's editors select a relevant building type and solicit entries in that category from architects, private developers, government agencies, private/public development consortiums, and community design centers for building projects completed during the past three years.

The building type for 1989 is **RECREATIONAL FACILITIES**, which includes, but is not necessarily limited to, the following categories:

1. Park buildings (e.g., visitors' centers, public shelters, camping facilities, buildings for sports)
2. Public playgrounds
3. Community centers
4. Public service organizations (e.g., YMCAs, boys' and girls' clubs)
5. Public gymnasiums
6. Public swimming pools
7. Arenas and stadiums

Eligibility:
All entries must be new or remodeled construction designed by registered architects and completed since January 1, 1986. Work previously published in other national design publications will be considered.

Submissions:
More than one project may be submitted. There are no entry fees or forms, but each submission should include color photographs of the completed project, reproductions of plans, and a one-page project description—all bound firmly in an 8 1/2- by 11-inch folder. A brief statement from the client or user, a report from a civic body, and articles from local newspapers attesting to the significance of the project to the community may be included in support of the submission.

Deadline:
All entries must be postmarked no later than **May 1, 1989**.
Submissions should be mailed to:
Deborah K. Dietsch
ARCHITECTURAL RECORD
1221 Avenue of the Americas
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Publication:
Winning entries will be featured in the November 1989 issue of ARCHITECTURAL RECORD. Other submissions will be returned or scheduled for a future issue.

For additional information, call Deborah K. Dietsch at 212/512-2409.

ARCHITECTURAL
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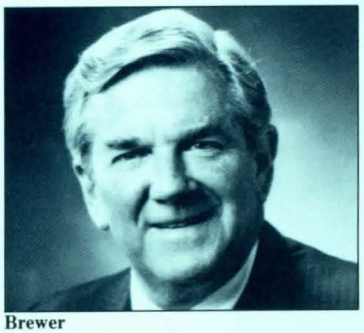
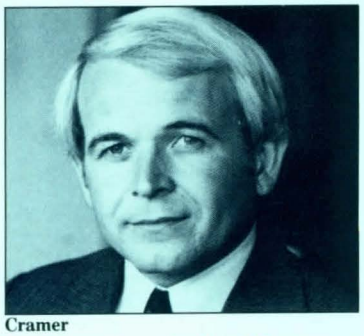
Business Design Engineering

New faces at AIA

Benjamin E. Brewer Jr. was inaugurated AIA president on December 9, succeeding Ted P. Pappas. Brewer said he looks forward to a year in which the AIA will celebrate design excellence, honor the next generation of architects, and "stir men's blood." He is ex-chairman of the AIA Design Commission and of the Planning and Budget Committee, and a self-styled "American modernist." Sylvester Damianos became president-elect.



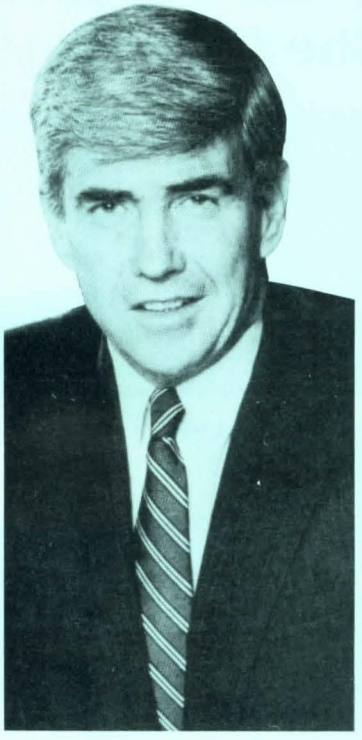
Brewer



Cramer

On December 13, the AIA board of directors announced that it had chosen James P. Cramer as new chief executive officer, succeeding Louis L. Marines. In his acceptance speech, Cramer said: "We will live good design, breathe good design, and advocate good design at every opportunity. There can be no talk about the quality of life without insisting on the quality of design." For laymen, who may be somewhat mystified by such enthusiasm, he noted that the AIA is committed to increasing public awareness. He had been president of the American Architectural Foundation. *C. K. H.*

What will be the impact on new construction under Jack Kemp's tutelage at HUD?



Whatever else it is going to be, the Housing and Urban Development Department under its new secretary, former Representative Jack Kemp, is likely to be noticed a lot more than the somnolent HUD of the Reagan years. Unlike his predecessor, "Silent Sam" Pierce, who was largely content to be a team player, activist Kemp is expected to shake up things a bit and make his presence known. "People will know that HUD is around," said Alan Beals, National League of Cities director and long-time agency critic, when President-elect Bush announced Kemp's nomination before Christmas.

It is difficult to know in exactly what way people will know it's around until after Kemp's confirmation hearings—anticipated for the middle of this month at the earliest. Until then, he's not talking (as is usual with new cabinet appointees). But enough people have had past experience with him to indicate what he may do in the future.

The choice of Kemp, best known perhaps for championing supply-side economics and urban enterprise zones (and an erstwhile Bush rival for the Republican nomination), is "a possible opportunity to have a rejuvenated department," says a cautious AIA staffer. "It's one of the most interesting appointments." Obviously, the jury is still out there, but others are more definite.

"We are very pleased with Kemp's nomination," says William D. Ellingsworth, a senior vice president of the National Association of Home Builders. "We had a very good working relationship with Congressman Kemp, and we don't see any reason for that to change. He certainly has shown understanding of housing as an issue and he will probably be very positive for housing, especially for low- and moderate-income people. As far as we can tell, he doesn't approach anything with a closed mind. Unquestionably we will suppport him in confirmation hearings."

"It's going to be a dramatic change in the department," says Charles E. Hawkins III, a vice president of the Associated Builders and Contractors. "With Kemp at HUD's helm, there will be a change in the department's emphasis—compared to the last *two* administrations. We are excited about the prospect that he will be aggressive, and look forward to working with him."

"I think it's a positive nomination," seconds Larry Bory, a director of the American Consulting Engineers Council. "Kemp will bring an interesting mix of people who have not been involved in housing-policy issues before." Bory points out that, in addition to the change at HUD, other factors will come into play in housing: For one, a senior champion of housing issues, Representative Henry B. Gonzalez, will give up his chairmanship of the housing and community-development subcommittee and move up to head the full Committee on Banking, Finance, and Urban Affairs. And the question of how the savings and loan crisis will be eventually resolved affects the picture.

Strong clues of what Kemp will do came from Bush in announcing his choice: "Kemp has offered some promising ideas: enterprise zones to create jobs and encourage investment in depressed areas, and urban homesteading to allow public-housing residents to gain a stake in their own communities," adding that these ideas offer "a new ray of hope for those left frustrated by decades of failed urban and housing policies."

Kemp, reiterating the same themes in his acceptance remarks, said the incoming administration is reaffirming the goals of the 1949 Housing Act "to help create the conditions in America for every family to have decent and affordable housing." Bush, he said, recognizes the "appalling tragedy of homelessness and joblessness," and he wants a "private-enterprise job-creation strategy for our cities," adding, "it isn't necessary to agree on everything, but it will be absolutely necessary to seek consensus on a public-private enterprise partnership to wage war on poverty."

Whether enterprise-zone concepts, implemented by some states but not by the federal government, will work is open to question. A late-December report by the General Accounting Office on Maryland's experience with its enterprise-zone program said it "did not stimulate local economic growth, as measured by employment, nor strongly influence most employers' decisions about business locations." It also said that, while there is a "theoretical basis" for employment increases, the Treasury Department, the only federal agency to make official program-cost estimates, assumed that such programs would not increase economic activity but could "shift it to new locations" only. *Peter Hoffmann, Washington, D. C.*

More Business news on page 25

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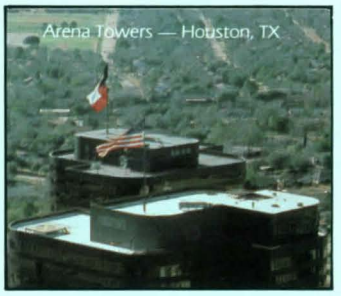

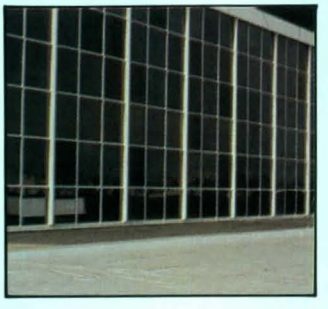

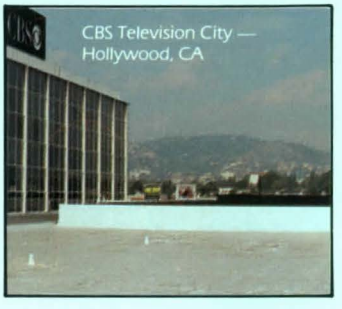

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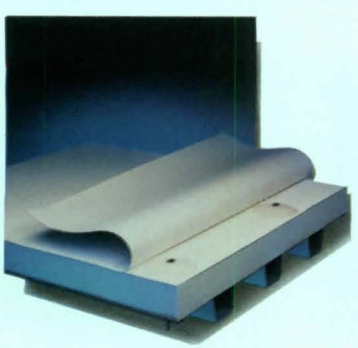

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AIA moves on designer licensing

It looks like the long-standing feud between architects and interior designers over the latter's aspirations to be licensed [RECORD, June 1988, pages 37-47] may yet come to a resolution. The AIA, which as recently as 1986 issued a white paper in opposition to licensing, has signed a joint statement with the American Society of Interior Designers and the Institute of Business Designers (photo) "laying out a process to reach consensus regarding a unified approach to title registration of interior designers." In short, the AIA has recognized the concept's right to exist.

Two major AIA objections—automatic licensing of persons already practicing and the open question of architects practicing interior design without the new license—are knocked out by the joint agreement. But thorny issues remain—such as a clear definition of interior designer. (See Editorial, page 9.)

In other acts of accord, the AIA has formed a joint task force to develop national CAD layer guidelines with the American Consulting Engineers Council, American Society of Civil Engineers, International Facility Management Association, and four federal agencies. And, in a cable to the president of the USSR architects union, the AIA offered technical and humanitarian assistance in rebuilding after the earthquake devastation in Armenia. *C. K. H.*

Signing interiors agreement are presidents Charles Gandy (FASID), Ted Pappas (AIA), and Michael Bourque (IBD).

Venturi faults bureaucrats during historic interiors preservation conference

The setting was architecturally rich Philadelphia, the audience, some of the leaders in historic interiors preservation—including an abundance of national, state and local officials. In a witty, off-the-cuff speech, Robert Venturi took aim at "overzealous bureaucrats—the perfectionists who are the enemy of the whole." Ticking off restoration projects he himself has been involved in, he criticized cumbersome regulations brought about by "bureaucratic meddling," such as "a stair-rail regulation specifying grillwork that looks as if it belongs in a mental ward." Lawyers and government officials are so big a factor on today's architectural scene, said Venturi, that "the next thing we might see is an architectural staff becoming an insurance investment. Thank God this didn't exist in the days of medieval Italy." We've seen an evolution from the "me generation to the why-me generation," he added, implying that architects are too concerned over liability insurance and not enough about good design.

Reaction from stung officials attending the early-December three-day conference was swift and sure. Michael Lynch, senior restoration coordinator for New York State's historic preservation office, speaking at a session on governmental guidelines and programs later that morning, went so far as to don a devil's mask and tell his audience, "I am the devil incarnate; I am a bureaucrat. Sometimes I wonder who died and left us in charge. But the last 25 years have brought an upsurge in saving our historical resources, so maybe we're doing something right."

Lynch went on to give some general advice on how to work comfortably with federal and state preservationists, suggesting that "we should be consulted early and often." Those seeking building restoration/rehabilitation tax credits should do a condition survey and "give us sufficient detail with photos" so that officials can determine if an application is valid. "And keep us informed," he urged. "If the project changes during the application process, tell us." Otherwise an architect might cost his client a tax credit.

Almost 1,200 architects, curators, and other restoration specialists attended the Interiors Conference and Exposition for Historic Buildings. The sessions were predictably practical and workmanlike, though too many of the speakers displayed an unfortunate tendency to diverge from the subject of their talks, disappointing some attendees who had bypassed other sessions. Generally, though, conference-goers got what they paid for. Subjects ranged from the general—preservation alternatives—to the specific—conservation and care of historic wallcoverings. A mammoth looseleaf binder containing many of the presented papers was given to each attendee in advance, an informative device that pulled together a lot of worthwhile information—and a thoughtful gesture from organizers of the conference.

The small but attractive trade show that accompanied the conference drew almost 90 exhibitors, showing restoration wares that ranged from tin-ceiling replicas to custom-built wood staircases, period lighting fixtures to paint-stripping systems. The American Wool Bureau, one of 10 sponsors of the conference, won best-in-show for its luxe turn-of-the-century office (above). Other sponsors included the National Park Service, the General Services Administration, American Society of Interior Designers, Georgia Institute of Technology, *The Old House Journal*, and several state and national preservation groups. *Carolyn De Witt Koenig*

Interior designers Ralph Stampone and Gail Winkler created the Wool Bureau's turn-of-the-century office with 20th-century furnishings. It took the Best Design award.

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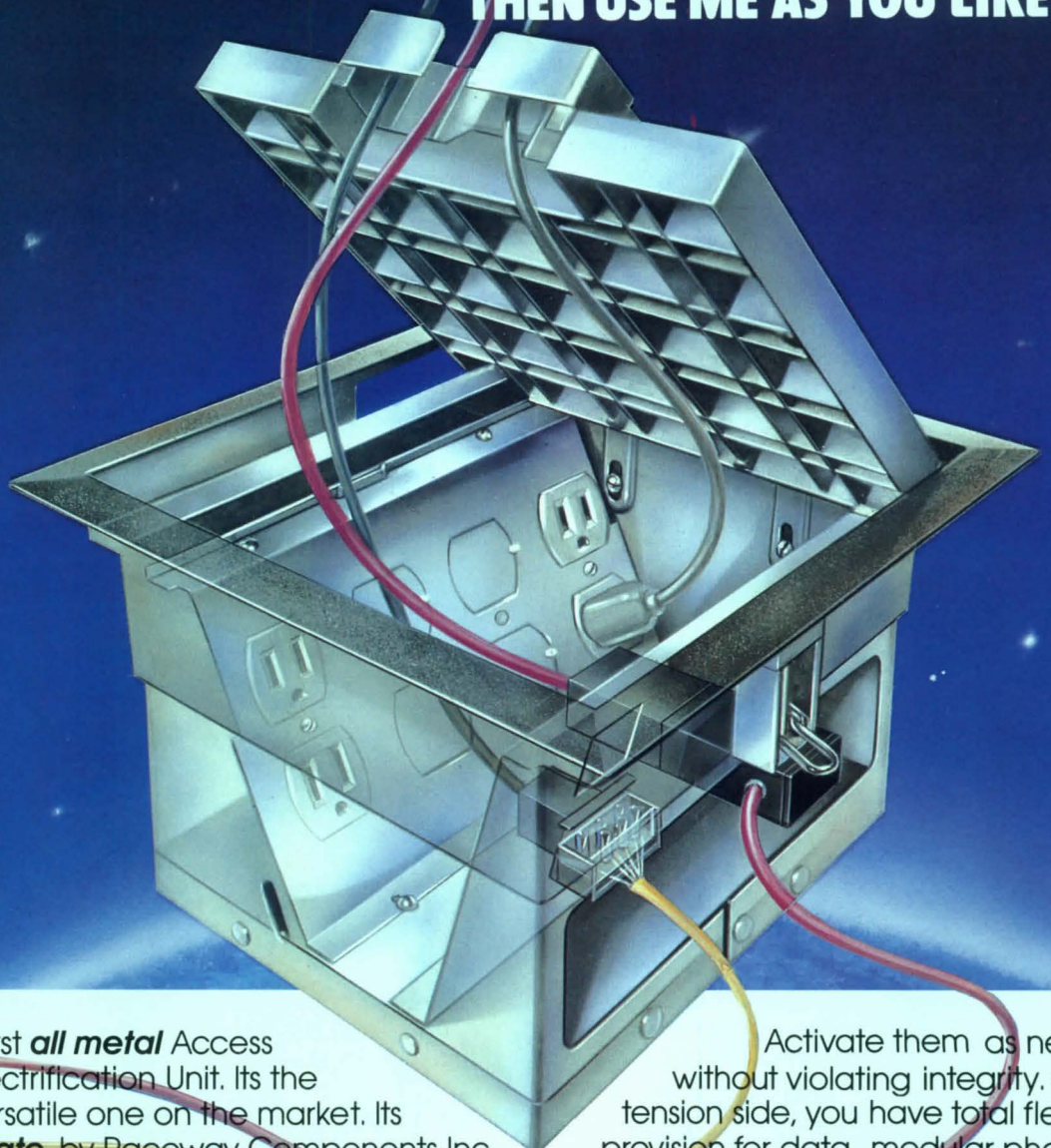

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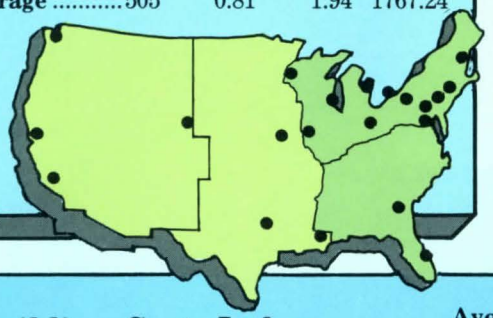
Construction costs: The Southeast pulls ahead

Summary of Building Construction Costs

	Number of metro areas	7/88 to 10/88	10/87 to 10/88	1977* to 10/88
Eastern U. S.				
Metro NY-NJ	18	0.56	3.65	1928.44
New England States	33	0.28	2.43	1831.01
Northeastern and North Central States	120	.54	1.70	1733.87
Southeastern States	106	1.89	2.92	1792.80
Average Eastern U. S.	277	1.02	2.38	1780.64
Western U. S.				
Mississippi River and West Central States	122	–0.27	0.50	1706.30
Pacific Coast and Rocky Mountain States	106	1.49	2.44	1802.36
Average Western U. S.	228	0.55	1.40	1750.96
United States Average	505	0.81	1.94	1767.24

*Using only cities with base year of 1977



What have we here? The New England and metropolitan New York-New Jersey regions have been relied upon for the past few years to pull the national average of constuction costs up by a substantial amount. And now, in this report on the third quarter of 1988, we find those regions paling by comparison with the Southeast, where costs rose by close to a whopping 2 percent. Indeed, in something of a paradox, much of the old reliable geographic distribution of cost rises is turned on its ear by this report. The rise in New England was second lowest in the nation—0.28 percent—while Pacific-Coast states, which have been lagging all of the Northeast for some time now, had the second highest rise of 1.49 percent.

All of this would seem to bolster the view of Marshall & Swift analyst Frank Benz who, in the report on the previous quarter [RECORD, October 1988, page 41], held that the effects of dreaded inflation were already being felt. The logic would follow in the current situation that there is now a seesaw process of catching up—to costs that are indeed rising nationwide.

It is true that the theory of recent large national rises skewed upward by isolated instances of high local demand would not seem to apply here. The volume of construction in the Southeast and on the Pacific Coast fell during the third quarter. And it continued to rise in the metropolitan and New York-New Jersey region and New England.

The net result of all this is the largest rise we have experienced since the end of 1984. We are still not seeing the whole-digit quarterly rises common until the end of that year. (A rise of 1.20 percent in the third quarter elicited the label of stability.) But, we are coming a lot closer. The question remains, how long will we see relatively large rises in the face of what we are assured will be slackening demand for the near future?

Dodge Cost Systems
Marshall & Swift

Historical Building Costs Indexes

Average of all Nonresidential Building Types, 21 Cities

1977 average for each city = 1000.0

Metropolitan area	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988 1st	1988 2nd	1988 3rd
Atlanta	1171.5	1712.6	1925.6	2098.6	2078.0	2360.6	2456.7	2448.7	2518.3	2561.9	2580.9	2606.8	2694.7	2697.6
Baltimore	1018.4	1107.7	1304.5	1446.5	1544.9	1639.5	1689.7	1703.7	1743.8	1765.2	1780.2	1823.8	1859.8	1860.4
Birmingham	1029.7	1142.4	1329.9	1407.2	1469.9	1468.1	1535.7	1594.7	1565.7	1587.4	1542.6	1555.5	1591.2	1603.5
Boston	1028.4	0998.6	1236.0	1283.7	1432.5	1502.0	1569.9	1646.0	1721.0	1773.6	1883.0	1945.5	1947.1	1940.2
Chicago	1007.7	1032.8	1199.7	1323.6	1344.7	1425.8	1439.5	1476.7	1528.0	1599.9	1591.4	1616.6	1636.8	1642.6
Cincinnati	0848.9	0991.0	1323.9	1385.2	1350.4	1362.6	1430.8	1484.5	1486.6	1499.4	1510.9	1523.1	1527.2	1521.8
Cleveland	1034.4	1040.8	1287.5	1388.2	1459.5	1511.4	1475.9	1464.0	1474.1	1525.7	1541.8	1537.8	1557.3	1557.9
Dallas	1042.4	1130.6	1431.9	1481.9	1750.6	1834.3	1925.9	1958.0	1963.3	1973.9	1947.2	1983.4	1980.0	1952.5
Denver	1038.8	1100.4	1495.6	1487.4	1632.2	1679.1	1800.1	1824.3	1821.8	1795.8	1732.7	1741.1	1764.6	1744.8
Detroit	1018.1	1087.3	1275.3	1447.4	1580.3	1638.0	1672.1	1697.9	1692.6	1696.6	1689.3	1688.2	1714.8	1732.0
Kansas City	1023.5	0951.5	1125.8	1233.2	1323.4	1381.8	1407.5	1447.1	1472.5	1484.7	1493.7	1504.2	1517.8	1513.2
Los Angeles	1022.5	1111.0	1255.3	1387.5	1474.3	1503.3	1523.9	1555.1	1571.0	1609.7	1675.1	1713.9	1770.1	1774.1
Miami	1004.5	1080.9	1330.1	1380.6	1369.1	1392.1	1467.6	1522.2	1540.6	1566.2	1589.2	1602.0	1594.9	1622.0
Minneapolis	1060.2	1196.8	1286.9	1327.7	1442.6	1576.8	1624.6	1640.4	1661.0	1674.0	1677.0	1698.4	1702.5	1699.9
New Orleans	1001.3	1138.8	1291.9	1505.7	1572.7	1616.9	1650.5	1691.4	1762.5	1760.2	1699.8	1706.3	1726.4	1717.1
New York	1005.4	1043.0	1247.1	1319.4	1419.2	1491.8	1672.5	1747.2	1806.7	1899.9	1980.9	2027.2	2062.7	2065.6
Philadelphia	1013.8	1074.2	1487.5	1539.5	1660.7	1769.4	1819.5	1922.1	1967.9	1992.7	2023.5	2085.0	2147.5	2176.4
Pittsburgh	1016.1	1015.0	1227.0	1341.7	1493.2	1479.5	1497.2	1576.1	1611.0	1665.8	1647.3	1662.7	1696.2	1699.9
St. Louis	1039.1	1198.8	1275.9	1320.0	1397.3	1451.2	1524.9	1625.5	1641.8	1647.4	1653.5	1661.7	1699.4	1700.2
San Francisco	1083.2	1326.8	1473.4	1644.8	1776.4	1810.1	1856.8	1935.3	1961.8	1995.5	1992.0	2007.6	2042.5	2070.0
Seattle	1142.5	1137.9	1373.4	1616.8	1814.9	1962.7	1979.0	1948.9	1937.9	1925.3	1874.7	1898.8	1932.2	1951.2

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.

Legal perspectives: Watch out for this new "model" owner/design-professional agreement

A contract proposed for public work could mean that no one but desperate or uninformed architects and engineers will take it. Here's why the new agreement is no model.

By Arthur T. Kornblut

Despite some controversy over the 1987 edition of the standard AIA owner-architect contract, B141, an alternative—namely, the client-generated owner/design-professional contract—remains the bane of the existence of architects and engineers, and clients alike. It often shows little understanding of architect's or engineer's roles in the design and construction process and it adds little to (or even detracts from) the design professional/client relationship.

Architects and engineers should be alert to one such new contract well into its gestation period and about to burst onto the scene. An organization called the National Association of Attorneys General recently produced "A Model Form Agreement Between Owner and Design Professional." The stated purpose of this document, and related construction-contract documents, is to provide a guide for the public owner. They are intended to be alternatives to the contract forms developed by organizations of architects, engineers, and contractors—which are apparently viewed as not being in the best interest of the public owner. This conclusion ignores the billions of dollars worth of public construction successfully conducted over many decades using precisely those industry-generated forms.

If the NAAG owner/design-professional model document is any indication, these documents, rather than better serving the interests of the public owner, may mean that public owners who use them will find less interest in their projects. Many in the construction industry probably will conclude (as I have) that the NAAG contracts are fraught with increased and unreasonable liabilities. For the design professional who does try to play the game, increased arguments, time, and legal expense will be the norm during negotiation.

The contract, if entered into, will generate constant controversy rather than a cooperative atmosphere during its performance. And all of this will produce more, not less, litigation at the other end.

Despite NAAG's claim that its model form is a "judicious" balancing of the interests of the parties and that it was produced by "experts in the construction industry," a careful reading of the document suggests that judicious sounds suspiciously like an owner's wish list and that the contributed expertise came from lawyers and claims consultants—not people who really know the work of designing and building buildings. Insight into the biases and attitudes of the drafters is provided by comments accompanying many clauses.

This contract is replete with problems. Here are a few of the more crucial ones:

The roles of design professional and contractor would become confused

Article 1 specifically incorporates by reference the NAAG Standard Form General Conditions of the Contract for Construction. To create a legal nexus between the owner/design-professional contract and the owner/contractor contract flies in the face of decades of construction-industry practice, related case-law, and the fundamental separation of roles between architects and engineers who design projects and contractors who build them. Design professionals are not parties to the construction contract, and it is an invitation to litigation to make a wholesale incorporation, even by reference, of the contractor's general conditions into the professional-service contract. Only a small portion of his general conditions would normally relate to the architect's role as the owner's agent during construction. Much of the construction contract has nothing to do with the rights and responsibilities of the design professional.

The design professional could assume responsibility for project-related costs

The matter of construction cost and design within budget is a recurring theme throughout the NAAG contract. This is understandable in light of the realities of public contracting and the limitations inherent in the process of appropriating public funds.

However, the drafters have an incredibly naive view of the role of the design professional in determining actual construction costs (not to mention unbridled optimism that most design professionals would be willing to accept the risks imposed on them in this regard). The NAAG presumes that every project mandates a fixed, stated "total-project cost" and that the total funds available for construction must be stated in the design professional's contract. Further, the design professional is required to give an express warranty that he "agrees to accept the owner's program and budget and further agrees to accomplish said project within the intent of the program and established budget." A subsequent warranty requires the design professional to agree "to design the project within the owner's construction budget." By making this dual reference to accomplishing the project and designing within the construction budget, it seems as though NAAG intends to hold the designer liable for staying within the appropriation for all project-related costs, not just the actual construction costs.

Even on the issue of construction costs, the NAAG model is misguided

It fails to give the design professional contractual right to adjust the project scope or quality to stay within budget limitations (as is done by B141 when the owner and architect agree on a fixed limit of construction cost). The design professional's only recourse, when it appears that the project cannot be accomplished within the budget, is to notify the owner in writing of that belief and then await the owner's review and modification "as necessary" of the project scope and/or budget.

For a design professional to protect himself, it would be necessary to innundate the owner with a constant stream of written warnings that the budget will be busted. The owner representative then has to engage in repeated reviews and modifications to protect himself. If the design professional fails to so warn, he will have to "redesign the project at no additional cost to the Owner and in a manner acceptable to the Owner"—an objective of no mean consequence for the designer because it requires prognostication about what will be acceptable. Little is accomplished by creating the need to engage in contrivance to protect oneself from contract language.

Continued on page 31

Mr. Kornblut is a registered architect, a practicing attorney in the firm of Kornblut & Sokolow in Washington, D. C., and former chairman of the American Bar Association's Forum Committee on the Construction Industry.

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Owner: The Sausman Hotel Group
Architect: John Nichols & Associates
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Legal perspectives continued from page 29

If this document gets promulgated in its present form, it will give new meaning to the old canard about the road to hell being paved with good intentions. These authors could have been the authors of the contract for that project as well.

Architects and engineers would find themselves supervising construction

A single sentence regresses an industry-wide effort of more than 25 years to properly define the design professional's role: "Design Professional agrees to supervise the construction of the Work and to require Contractor to comply with Contract Documents." This ignores the legal connotation of supervision, which means a duty to direct, manage, and control the work—the clear responsiblity of the contractor. And it fails to suggest how the professional can require the contractor to comply with the documents. He has no legal mechanism, other than as an agent of the owner and as permitted by his contract, to compel the contractor to do anything. (The comment on this section: "Architectural practice is defined by statute under the licensing laws in most states. This definition is usually phrased 'supervision of construction for the purpose of compliance with the specifications and designs in connection with any building or site development'." This is lack of factual accuracy: Only a couple of states still have outdated licensing laws employing that terminology.)

The NAAG model contains a no-no express warranty

It states: "The Design Professional agrees that the plans and specifications provided to the Contractor for this project shall be adequate and sufficient for the proper construction of the project and their intended purpose." The NAAG comment states: "In the majority of jurisdictions the Design Professional does not warrant that the plans and specifications are fit or adequate to build the project. By placing language in the Contract requiring the Design Professional to provide plans and specifications adequate for use by the Contractor in constructing the project, this legal problem is eliminated." In no jurisdiction do common-law principles require a design professional in a traditional professional-service role to warrant the adequacy of the documents being prepared. The law recognizes that professionals are human and less than perfect, and the law only requires that services be performed in a non-negligent manner—not in a perfect manner. It is a subversion of well-established and time-honored legal concepts for the NAAG to try to impose this warranty on design professionals. (Because this is a risk specifically excluded from all professional-liability insurance policies, any owner that succeeds in getting a professional to agree to this warranty may be achieving a Phyrric victory if claims arise. In all cases, both in the public and private sectors, owners are far better protected by reasonable contract requirements that are fully covered by the professional's liability insurance than to use superior bargaining leverage to achieve contract clauses that may be worthless if problems ensue.)

The role of the design professional and owner would be blurred

The NAAG attempts to foist off on the design professional the owner's very real obligation to act when the contractor fails to carry out the work in accordance with the contract documents. The model contract would require the design professional to stop construction for 24 hours if the contractor fails to comply with the design professional's orders. Further, the contract says that the design professional may notify the contractor's surety when conditions exist that would justify suspension of work or termination of the contract. As any experienced construction attorney will recognize, procedures such as these are ideal for embroiling the owner and design professional in litigation with the contractor. (Even the NAAG drafters apparently recognized this risk because the comment following this section states that the owner should notify the contractor's bonding company prior to any actual suspension or termination. Because of the seriousness of involving the contractor's surety, notice always should come from the owner or the owner's attorney, and the design professional should not even have a permissive contractual right to contact the surety.)

The design professional would take responsibility for surveys and soil testing

The NAAG would have the design professional contract directly for these services, subject to "reasonable" reimbursement. Again, this is contrary to established construction-industry practice in which the owner contracts directly for this information. The owner should look directly to the providers in the event the information is faulty. There is no legitimate reason to impose a contingent liability on the design professional for faulty survey or soils information. The design professional must accept this information as it is received and has no way to corroborate it short of having another surveyor or geotechnical engineer replicate the initial effort, something few owners want to pay for. Survey and soils information, like title searches, are an owner's responsibliity.

The provision related to professional liability insurance is another example of uninformed contract drafting

It requires the coverage to apply to "this project only"—a form of coverage that requires special underwriting and costs normally treated as a reimbursable expense. (The cost of the insurance is not listed as one of the reimbursable-expense items in the NAAG contract; the cost would have to be included in the basic fee.) Because of the cost, such project insurance is not normally utilized on smaller projects, so a general requirement to this effect would create a significant expense burden on the owner for every project.

Finally, the NAAG disputes procedures would place the design professional in a very disadvantageous position

All disputes have to be "settled" first by the public procurement officer; any appeals must be made within 10 days of his decision; and an appeal must go to a "review panel" set up by the parties. (But the contract does not provide for any administration of the review panel beyond what the parties can agree to.) In addition, the design professional must agree to be a party to any dispute between the owner and contractor if there are allegations of architectural or engineering errors or omissions (which is usually the case when the contractor brings a claim.)

The above is just a smattering of the problems with this "model" contract. Virtually every provision leaves lots to be desired, with problems including vague terminology, ignorance of established construction-industry practices, and poor legal drafting. If this document gets promulgated in its present form, it will give new meaning to the old canard about the road to hell being paved with good intentions. The NAAG could have been the author of that contract. Despite what may have been the best of intentions here, the attorneys general of this country would better serve the public by having their trade association abandon this misguided effort.

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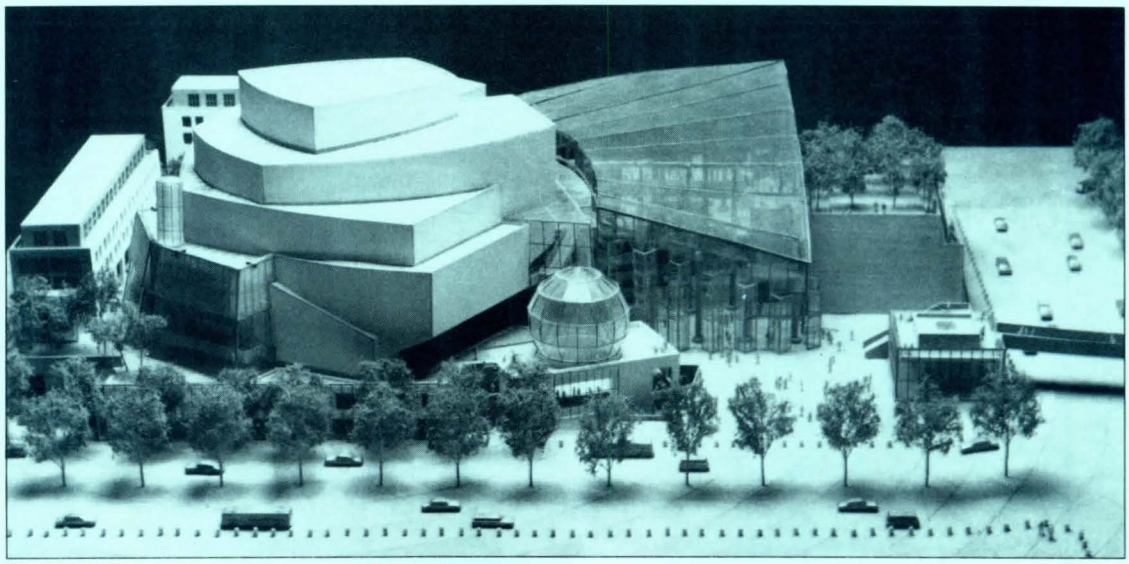


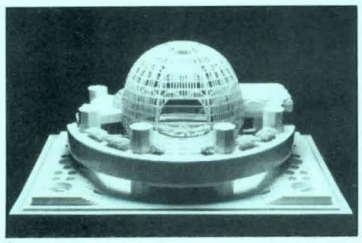
1

The world-class Los Angeles Philharmonic will take its rightful place along the city's blossoming cultural corridor in 1993. To find a design for the Walt Disney Concert Hall, made possible by a $50-million gift from Disney's widow, the Music Center of Los Angeles County asked for designs from: Gottfried Boehm, of Cologne; Frank O. Gehry & Associates, of Santa Monica, California; Hans Hollein, of Vienna; and James Stirling Michael Wilford and Associates, of London and Berlin. Fittingly, the commission went to Californian Gehry.

The Center's criteria for the design understandably led off with concern for acoustics and audience accommodations, but they also gave considerable importance to the building's place among the city's downtown arts facilities—nearby buildings include important theaters and museums, as well as offices and housing. The committee also wanted "a place for continuous day-long arts activity."

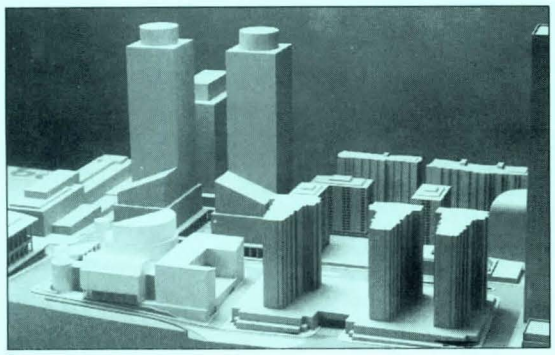
Gehry's design (1) provides the two auditoriums required—a large multifaceted concert hall at one corner, and a smaller chamber-music hall at the other, with a forested park on the roof. Most arresting, however, are the glass-roofed foyer, envisioned as "a living room for the city" both day and evening, and a glass-domed bar and restaurant. The jury particularly commended Gehry's "feel for the urban patterns of Los Angeles."

Boehm saw his design (2) as a link between the city's cultural and financial districts, and offered cascading plazas for cultural and commercial use. Stirling's design (3), with a pedestrian concourse at ground level, skewed the axis to acknowledge the nearby Museum of Contemporary Art. Hollein, while respecting social aspirations, thought that his design (4) should be read "as a unique building . . . of different use and meaning."



2

The four competing designs for the new Walt Disney Concert Hall, future home of the Los Angeles Philharmonic, were Frank Gehry's winning design (1) and others by Gottfried Boehm (2), James Stirling (3), and Hans Hollein (4).



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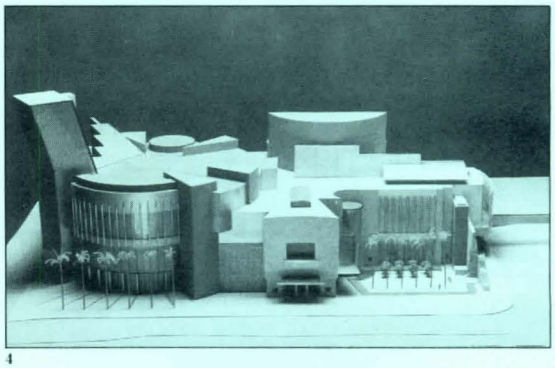

4

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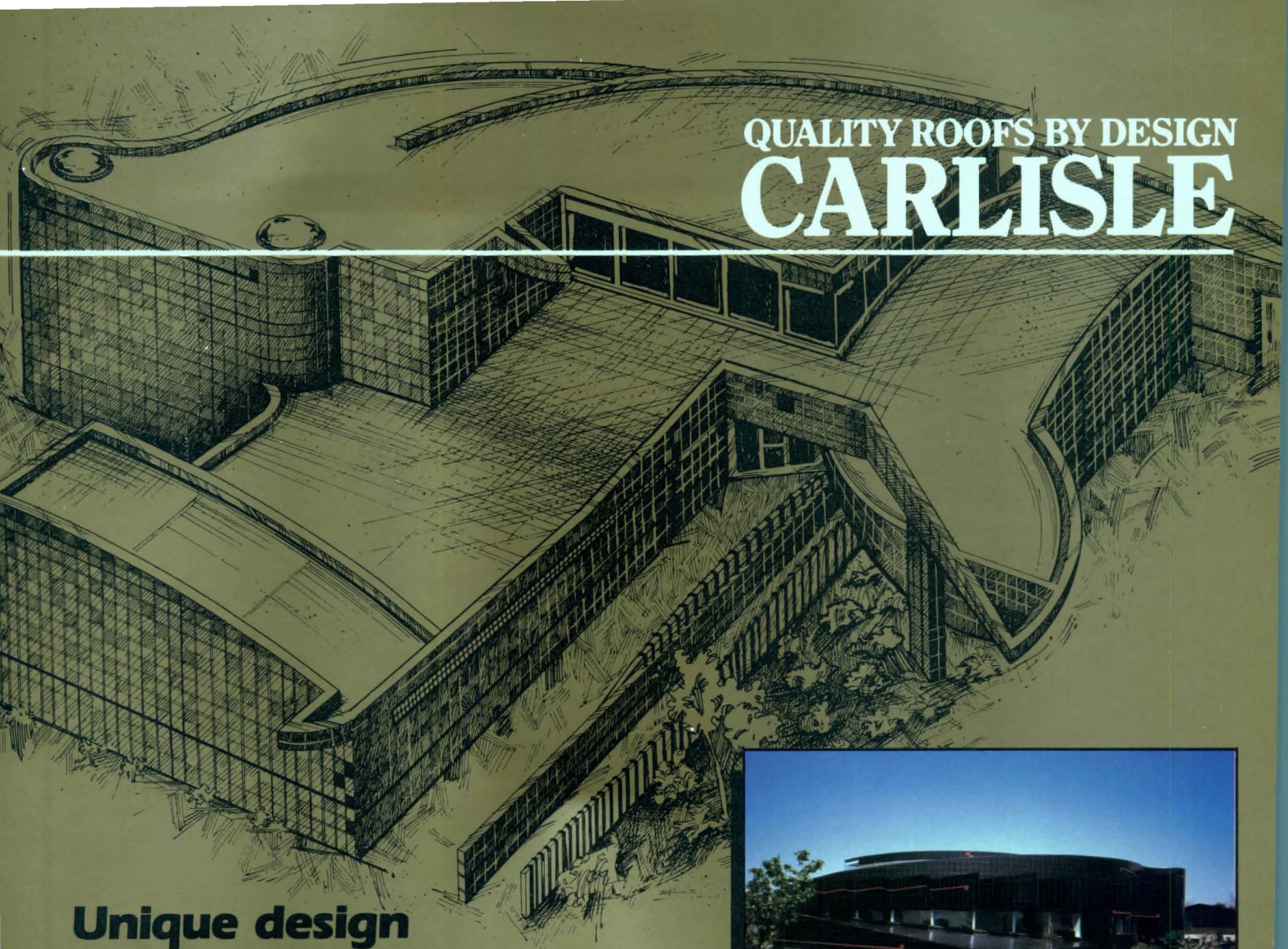

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"Design A" follows the irregular contours of the roofline—and fits them like a glove.

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Owner, Phil Brodak, Brodak Roofing of Wixom, Michigan observed "The roof has more angles than I've ever seen. It is flat, circular, barrel-shaped and juts in every imaginable direction. And because the roof is visible, it had to have a smooth, perfect, solid black surface."

Concluded Brodak, "The Carlisle 'Design A' system is the only roof I know that could perform well under such design considerations. It was the perfect solution. Its fully-adhered roofing system allowed us to go wherever the roof went." Carlisle's roofing membranes include the standard EPDM and a new polyester reinforced EPDM. Both are available in designer colors–basic black Sure-Seal® or the innovative white-on-black Brite-Ply™.

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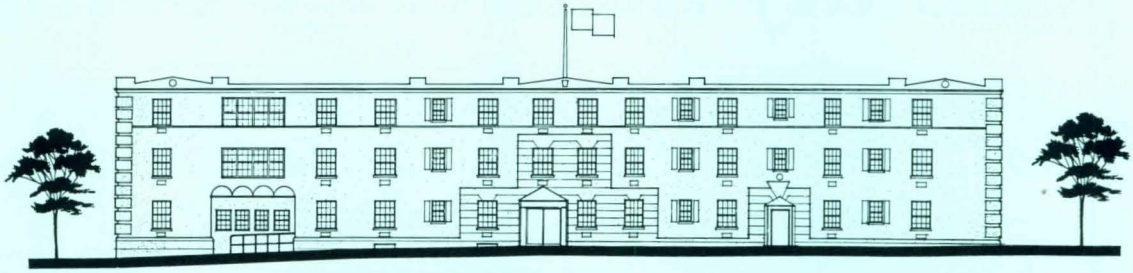
News briefs

Once again, it's the season for AIA awards. Cesar Pelli & Associates will receive this year's Architectural Firm Award; the firm, which is based in New Haven, Connecticut, has designed buildings both here and abroad. One of the Institute's highest honors, the award is presented to a firm that has consistently produced distinguished architecture for at least 10 years. Pelli, a former dean of the Yale University School of Architecture, founded the firm in 1977 with principals Diana Balmori and Fred Clarke.
Other AIA awards: Jean Paul Carlhian, of the Boston firm Shepley Bulfinch Richardson and Abbott, will receive the Edward C. Kemper Award for service to the Institute, especially for his 20 years' service on the AIA Committee for Design. The Whitney M. Young, Jr., Citation goes to John Henri Spencer, chairman of the department of architecture at Hampton University (Virginia), for his involvement with architectural programs at leading black colleges.
Glasnost and architecture: Soviet and American architectural students played opening moves in cooperation and competitition at the First International Seminar of Architecture last summer. Students from Columbia University's Graduate School of Architecture, Planning and Preservation visited the Moscow Institute of Architecture; the program of study, travel, and a shared design problem will be repeated this year.
Charles Saxon, whose cartoons RECORD was lucky enough to publish from January 1983 through last November, died December 8 in Stamford, Connecticut. *The New Yorker,* for whom he drew many cartoons, described his drafting style as "effortlessly fluid . . . with an instinctive architectural sense."

Washington, D. C., contemplates the SRO as affordable housing



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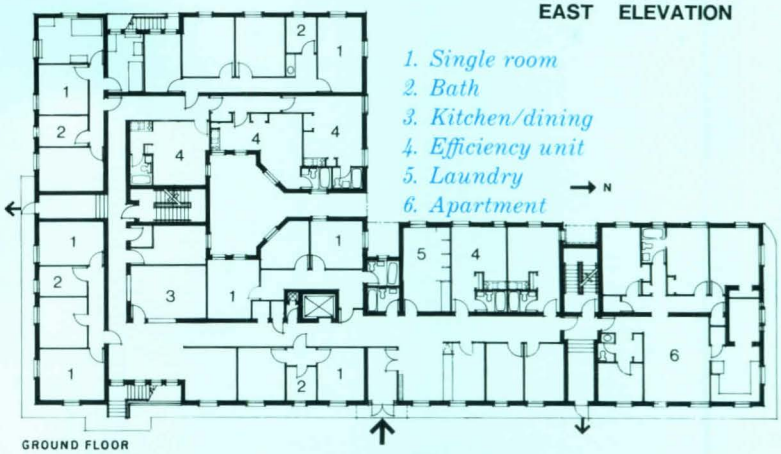

GROUND FLOOR

By Bill Black

Long reviled as flophouses, single-room-occupancy hotels are now seen as low-cost housing for individuals who might otherwise go homeless. Transforming a long-vacant, 33-unit apartment building into an SRO for some 100 persons is a far from ordinary design task. But for the design of Washington's first SRO, Shalom House, the major challenge was to win acceptance from nearby residents and from city authorities.

The nonprofit developer, So Others Might Eat (SOME), has worked with the homeless and disadvantaged since 1971, and has renovated several residential properties for job-readiness programs and as temporary shelter for the abused and neglected. In spite of this track record, the architects and developer ran into strong opposition from the project's neighbors.

Building-code officials were often uncertain how to evaluate this new building type. "The floors and walls had to be at a certain rating," said Leland Edgecombe, project manager for architects Turner Associates. "From the three different [officials] we went to, we got three different responses in terms of what was acceptable." The issue was finally resolved in a meeting that brought together the architect, the developer, and several code administrators.

Such design questions were critical because of the project's tight finances: the construction budget was only $2.4 million. The D. C. government assisted in land purchase and provided a loan for the renovation. After residents move in this spring, they will pay 30 percent of their income for their housing. The city will make up the difference between the tenants' share and actual operating expenses.

The building will have 74 single rooms, whose residents will share bath and kitchen facilities. Tenants will each have a locked kitchen cabinet for dry goods, dishes, and cooking utensils, and they will have the option of putting a small refrigerator in their rooms. The building will also contain 17 efficiency apartments that can be rented by residents whose incomes increase over time. Two more units will be provided for the property's managers and their families.

One floor of the three above-ground levels will be set aside for men, one for women, and the third for disabled persons. All of the units will be easily adaptable to meet occupants' special needs.

Aware of the project's stringent cost constraints, Edgecombe has planned the exterior renovation for the most impact with the least expenditure. A new landscaped plaza will highlight the building's main entrance. The architects enlivened the stark principal facade by adding a stuccoed relief around the main doorway.

Turner Associates also incorporated a sculptured parapet to break up the structure's long straight roof line. "These simple steps are not a lot, but they're enough to give it an image in the neighborhood," said Edgecombe.

Bill Black is a Washington, D. C., writer and consultant who specializes in real estate, housing, and finance.

Gold Medalist Joseph Esherick, Bay Area designer and noted teacher

San Francisco architect Joseph Esherick will become the 47th Gold Medalist of the American Institute of Architects at this year's national convention in St. Louis. Long respected for his design contributions to the Bay Area style, Esherick, who is a principal of the firm Esherick, Homsey, Dodge & Davis, is perhaps best known for the design of The Cannery on San Francisco's Fisherman's Wharf and of the Monterey Bay Aquarium. Additionally, he is professor emeritus of architecture at the University of California, Berkeley.

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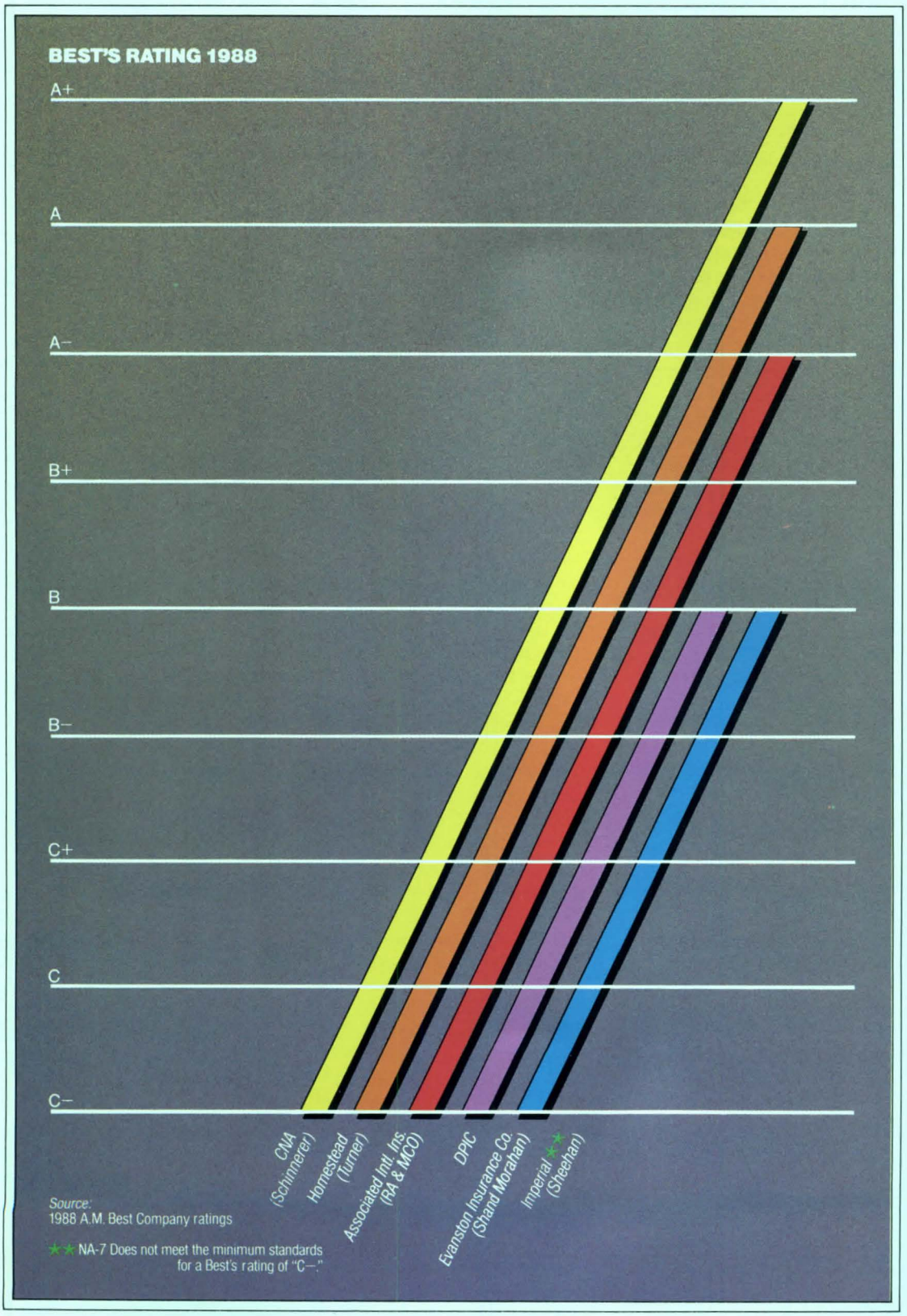

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News briefs

The Boston Custom House (1), a national landmark, will be renovated by two architectural firms—Dean Tucker Shaw of Boston and Beyer Blinder Belle of New York City. The original four stories were built by the federal government in 1837, and the office tower was added in 1915 as the city's first skyscraper. The building will acquire a three-floor sports museum at the base.

At 1100 New York Avenue, N. W., in Washington (2) a new office building will incorporate another national landmark—the Greyhound Bus Terminal built in 1939. Architects Keyes Condon Florance will support the new building on 6-foot-deep transfer girders to eliminate columns in the restored terminal; materials for the new building, such as blue granite and curly maple, were chosen to echo the originals.

Los Angeles' Waterworks Building (3) counts as still a third designated landmark newly saved. Designed in 1928 to emulate a Mexican hacienda, the building will be converted by the Academy of Motion Picture Arts and Sciences into the Margaret Herrick Library and Film Archives. The architectural team includes Frances Offenhauser and Michael J. Makeel.

Competition calendar

•An international architectural competition for the Tokyo International Forum, to be built on the present site of Tokyo City Hall, has been approved by the International Union of Architects; the project is envisioned as a "vast cultural center." Registration is due by March 15, entries by September. For information: International Forum Project Office, Citizens and Cultural Affairs Bureau, Tokyo Metropolitan Government, 3-8-1 Marunouchi, Chiyoda-ku, Tokyo 100-81, Japan.

•The Richard Kelly Grant, offered by the New York Section of the Illuminating Engineering Society, is a cash grant to lighting designers under 35. Entries showing proposed or completed projects involving light should be presented by April 12. For information: Richard Kelly Grant, c/o IES, 345 East 47th Street, New York, New York 10017 (212/705-7511).

In "classic" Hawaiian style

For the Hyatt Regency Kauai Hotel, architect Wimberly Allison Tong & Goo of Honolulu called on the "classic" Hawaiian hotel style of the '20s and '30s. The style combined elements from Spanish and Hawaiian building—as well as romantic notions of the tropics. Its characteristics included hipped tile roofs, stucco walls, deep eaves, and landscaped courtyards and lanais.

In addition to a 500-foot beach on Keoneloa Bay, the Kauai site encompasses a salt-water lagoon with several small islands, each with its own small beach. Partner-in-charge Gregory M. B. Tong reports that, in addition to such expected amenities as ballrooms, swimming pools, and shops, the hotel will have three restaurants, one of them on an island in the lagoon. Of the 605 rooms, distributed on the 48-acre site in a series of four-story buildings, 85 percent have been designed for ocean views, the remaining 15 percent for mountain views.

Developers of the $160-million resort hotel are Ainako Resort Associates.

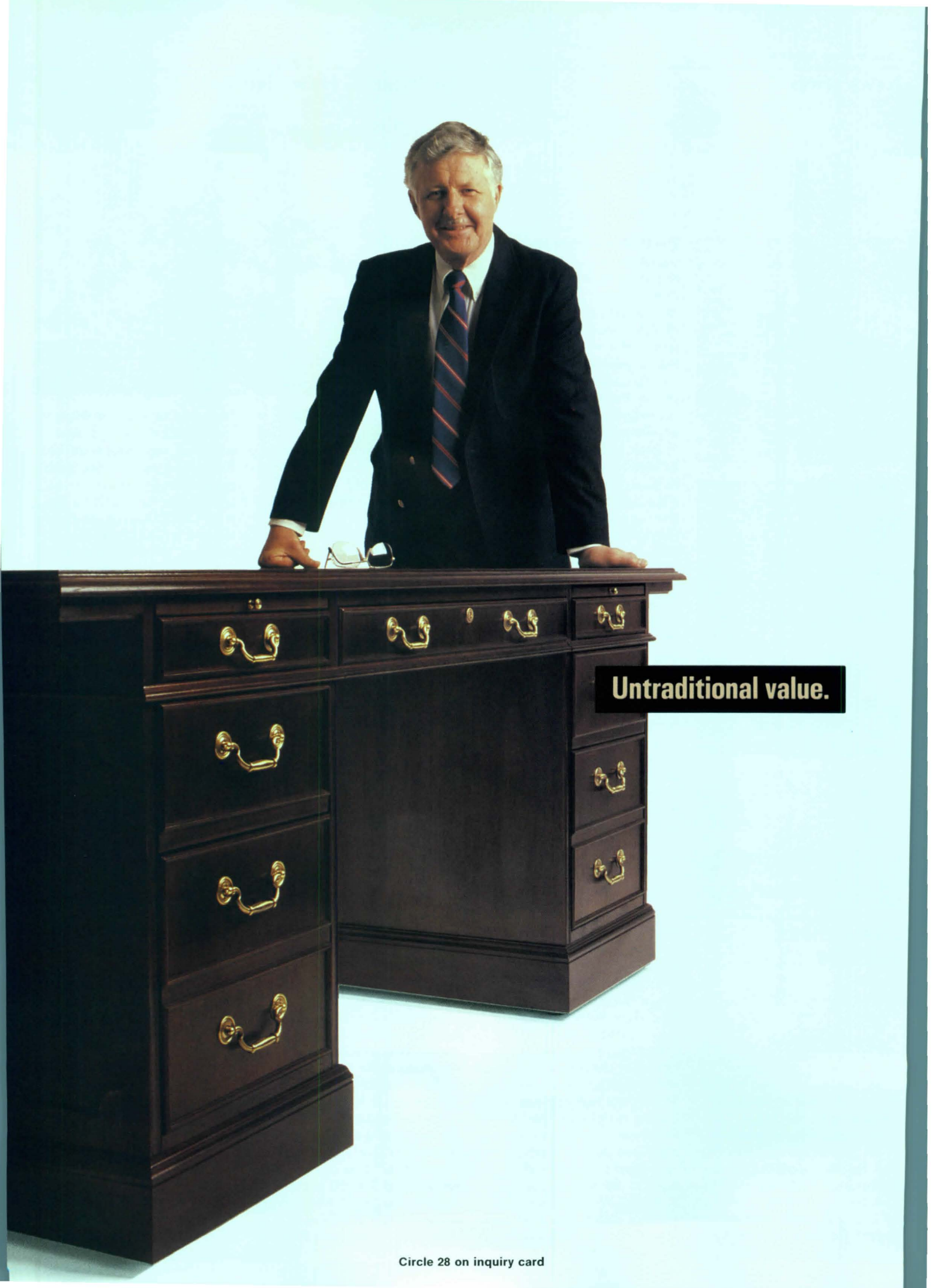
WestWeek '89 will consider architecture, furniture, and business on the Pacific Rim

The title of WestWeek '89, "Critical Choices: Intuition, and Reason in the Design Process," is, despite its sweep, too modest: in addition to design seminars, attendants will participate in a business conference and will, of course, be shown new contract furnishings. The three-day event opens March 29 at the Pacific Design Center in Los Angeles.

Design sessions, preceded by Richard Saul Wurman's opening address, will include an international array of architects, among them Ricardo Legoretta, Jean Nouvel, Kisho Kurokawa, Richard Meier, and Renzo Piano. Moreover, interior design will be discussed by such practitioners as John Saladino, Kalef Alaton, Mark Hampton, Brian Murphy, Shigeru Uchida, and Toshiko Mori. One session will analyze psychological issues in interior decorating.

WestWeek's eighth annual business conference is entitled "Will the new Administration work for the Pacific Rim?" Television reporter Sam Donaldson will deliver the keynote address.

Further information is available from the Pacific Design Center, 8687 Melrose Avenue, Los Angeles, Calif. 90069 (213/657-0800).



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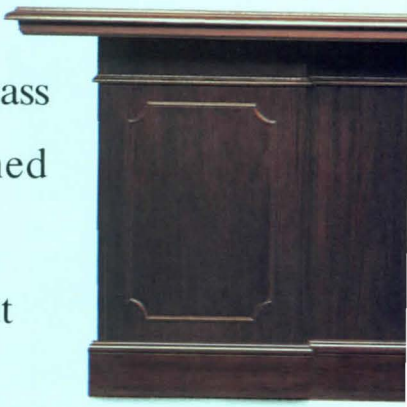

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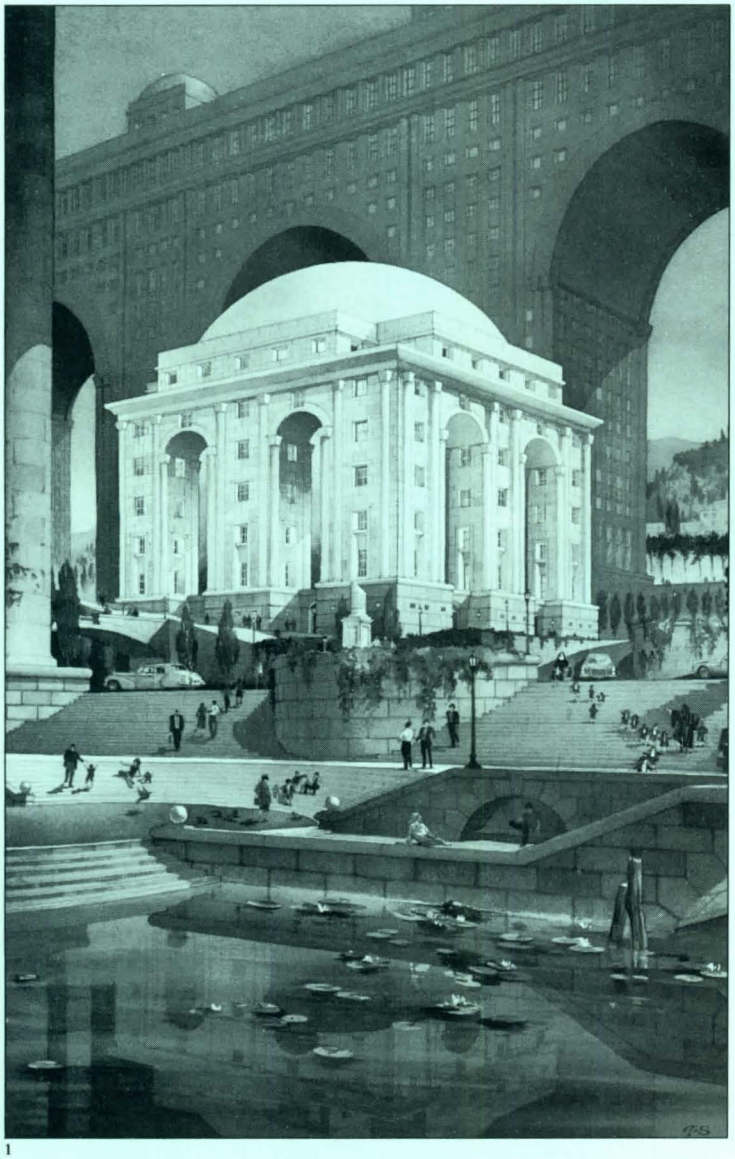
Design awards/competitions: Architecture in Perspective III

In its third annual exhibition, the American Society of Architectural Perspectivists hung 46 architectural drawings and paintings as part of its continuing effort to recognize, celebrate, and disseminate the highest achievements in architectural drawing and painting.



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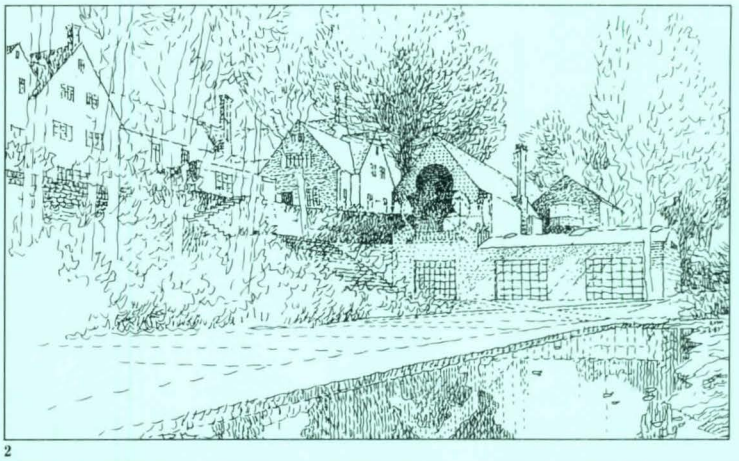

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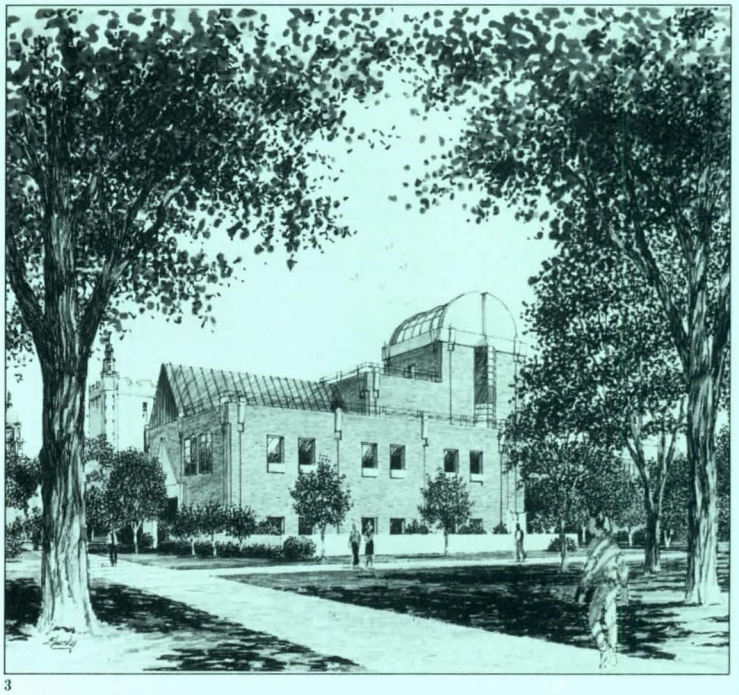

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The American Society of Architectural Perspectivists, now entering its fourth year of existence, was formed almost casually over lunch one summer day by three Boston architectural illustrators—Steven Rich, Frank Costantino, and Paul Stevenson Oles. Though the founding occurred after a long period during which the profession seemed to take only a tepid interest in architectural drawing, the modest exhibit that resulted—small photographs seen for four hours in a lounge at the Boston Architectural Center—aroused warmer interest. The society now has grown to a national membership of more than 200, and the annual exhibition has grown considerably, too: the competition for this year's hanging attracted 463 entries from 28 American states and 3 Canadian provinces; 46 examples were chosen.

The drawings included in the 1988 Competition Exhibition were selected by three jurors: Charles Bassett of San Francisco, as chairman; architectural illustrator Barry Zauss, of Los Angeles; and Ralph Rapson, dean emeritus of the school of architecture at the University of Minnesota. The jury's report, written by Bassett, commented, "Several drawings were superb examples of what happens when an artist's talent and perception of a problem mesh perfectly in method and mood with the needs of the subject.... The jury wishes to commend the members of ASAP, for the quality and number of submissions attest to a lively and continuing tradition of fine architectural draftmanship in North America."

The rules of the competition allow drawings only of "time-removed projects"; the buildings rendered may be either genuine projects or visionary architecture. At the same time, though, drawings of the Parthenon, Chartres, or any other finished building cannot be considered, however beautiful the draftsmanship.

Moreover, the techniques and media used by the perspectivists vary widely, from charcoal or gouache to felt-tip pens, from Mylar or yellow tracing paper to electrostatic copies. The renderings may be drawn by the architect himself or by a free-lance illustrator. And the same artist often chooses among different media to satisfy different circumstances.

Pride of place in this year's exhibition went to the 1988 Hugh Ferriss Memorial Prize winner,

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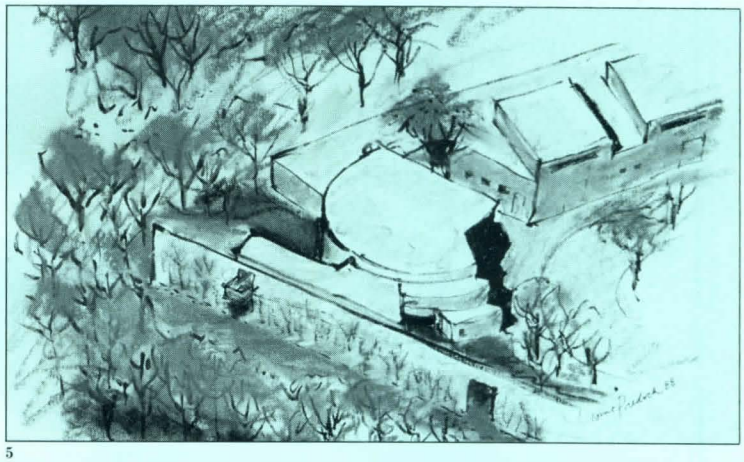

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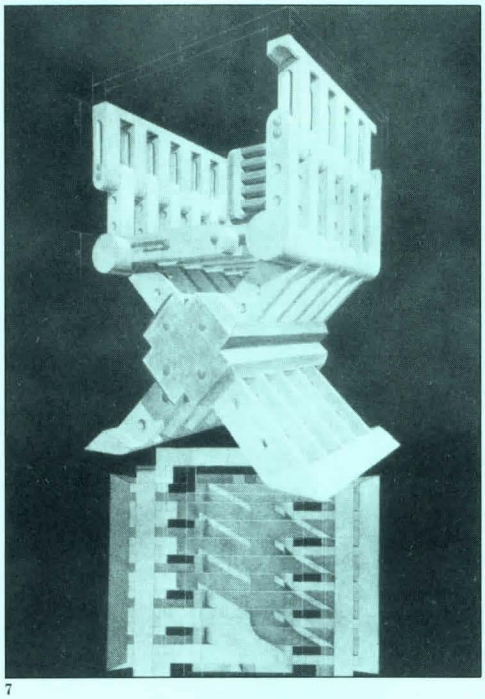

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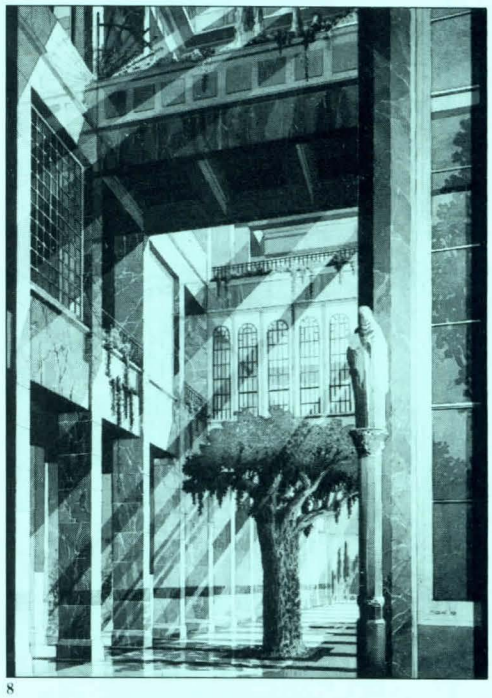

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Thomas Schaller, architect and delineator (1) of the proposed Arts and Cultural Center in Rome; watercolor, 32 by 22 in. The Ferriss award was intended by ASAP to be the nation's highest award for excellence in the graphic representation of architecture; its medallion was furnished by the Van Nostrand Reinhold Company.

Among other artists included:

2. Richard Conway Meyer, architect and delineator of the boathouse at St. Andrew's School, Middletown, Delaware; Faber-Castell Uni-Ball pen, 17 by 11 in.

3. Michael Elavsky, delineator of the Earth, Space Sciences Building at the University of Notre Dame, for Ellerbe, Becket, Architects; marker and colored pencil on blackline diazo print, 18 by 20 in.

4. William G. Hook, delineator of the Franklin High School Renovation, Seattle, for Bassetti, Norton, Metler, Rekevics, Architects; watercolor, 24 by 36 in.

5. Antoine Predock, architect and delineator of the Forum Theater, University of California at San Diego; pastel, 8 by 10 in.

6. Frank Costantino, delineator of Pier Four, Boston, for Kallmann, McKinnell & Wood, architects; pencil on heavy paper, 12 by 14 in.

7. Lee Dunnette, architect and delineator of Teddy chair, a demountable chair designed for children; spray paint and pastel, 20 by 30 in.

8. Michael McCann, designer and delineator of prototypical atrium space; watercolor, 35 by 21 in.

The exhibition, which has already been seen in Los Angeles and San Francisco, will be shown by AIA chapters in Portland, Oregon, and Minneapolis before going to St. Louis for the Institute's national convention in May.

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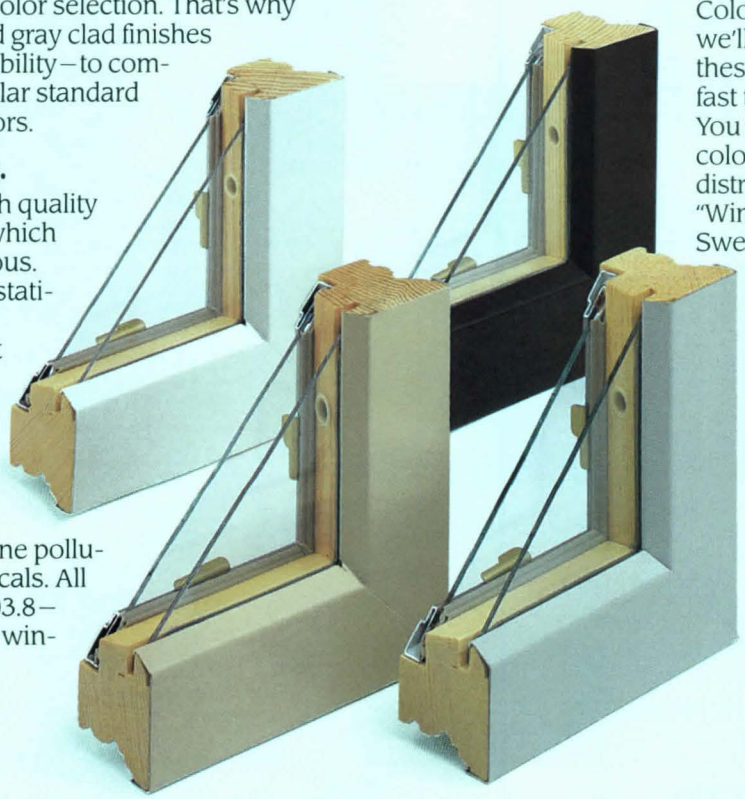

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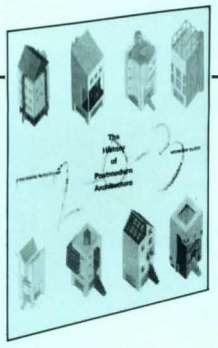
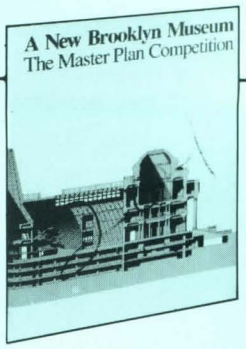
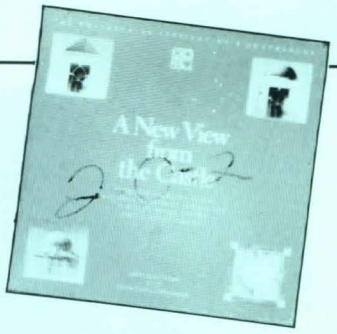






The History of Postmodern Architecture, by Heinrich Klotz. Cambridge: MIT Press, 1988, $60.

Reviewed by Ellen Posner

At a time when the meaning of the term "modern" in all the arts can still be considered a legitimate subject for debate, Heinrich Klotz, professor at the University of Marburg and director of the Deutsches Architekturmuseum, in Frankfurt, has provocatively tackled Postmodernism in architecture. Klotz first hinted at his definition in the introductory essay of the catalog for "Postmodern Visions," an exhibition that he organized and that was seen in this country two years ago. He illustrated his ideas by his selection of architects, not all of whom were obvious choices. Robert Venturi, Michael Graves, and Charles Moore were included, but so were Frank Gehry, Mario Botta, Aldo Rossi, O. M. Ungers, John Hejduk, Richard Meier, and Peter Eisenman. *The History of Postmodern Architecture* appears to have been written at about the same time (the early 1980s), and has just been translated and published here. More ambitious than the show, it is an extremely long, often lively, but sometimes meandering explanation of how Postmodernism evolved and what criteria should be applied to it. Klotz has added a postscript written in 1987 specifically for the American edition.

Arguing against Charles Jencks's distinction between Late Modern and Postmodern architecture, Klotz posits that historical allusion is only one strategy of several and that any work exhibiting a struggle with or "revision" of Modernism qualifies as Postmodern. We must move away from the "muteness" of Modernism, says Klotz, and toward the use of what he very awkwardly and unconvincingly describes as "narrative representation" or "fiction."

This premise is then undermined in the survey of Modernism that begins the book; in it the author points out that many early Modernist works *were* expressive, and far richer in detail and color than is generally accepted (or that black and white photographs from the time could show). He blames Philip Johnson and Henry-Russell Hitchcock's 1932 publication *The International Style* for its emphasis on a narrowly defined "look." This rigid codification—specific "characteristics" were supposed to identify a building as Modern—almost singlehandedly accounts for the evolution of Modernism into emptiness and blandness after World War II, Klotz claims.

There were other reasons for what happened to Modernism, but they do not interest Klotz. His distinctions are, in fact, slippery. Uncomfortable with the abstraction of Modernism, he defends abstraction in Postmodernism; citing aptness in an urban setting as one of the criteria for Postmodern architecture, he conveniently neglects the early Modernist buildings that managed similar conjunctions (or, for that matter, the buildings full of historical allusions that do not). The work of architects such as Rem Koolhaas and Richard Meier does not easily fit into even *his* broad definition of Postmodernism, so Klotz seems to have had some difficulty in deciding where to place it. Instead, he equivocates: Koolhaas's "loosely spaced high-rise slabs" in Amsterdam, for example, are deemed close enough to existing buildings to make them not quite Modernist in intention. He states that "One can hardly maintain that Meier's architecture stands in an unbroken tradition of Modernism," but later he describes Meier's (and the other New York Five architects') buildings as designed with "undiminished faith in Modernism." There are sufficient oddities of language to suggest that the text has been awkwardly translated from its original German, exacerbating the problems in Klotz's argument. Another area of difficulty is the author's insistence upon "fiction" as the hallmark of Postmodern architecture: he takes it for granted that architecture can be perceived not merely as a "text" but, one may suppose, as a text with a plot.

His argument that the expression of function leads architecture to a dead end makes some sense, but in describing the sort of expressiveness he thinks should supplant it, he winds up describing something much more like a stage set or a tableau than a novel or a story. A moment of illumination occurs, ironically, when he quotes Giorgio Grassi, who believes that architecture should not be associated with literature since in architecture "the representation and the represented object coincide."

In his postscript, Klotz brings us up-to-date with brief discussions of the work of Isozaki (but why not Maki?), Bofill, and others, including some of the participants in MOMA's recent "Deconstructivist Architecture" show who had not previously been mentioned (Coop Himmelblau, Zaha Hadid). Whether or not one agrees with Klotz's definitions and criteria, he makes the obituaries for both Modernism and Postmodernism seem premature.

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

Architects in Competition, by Hilde de Haan and Ids Haagsma. London: Thames and Hudson, 1988, $65.00.

A New Brooklyn Museum: The Master Plan Competition, edited by Joan Darragh. New York: Rizzoli, 1988, $25.

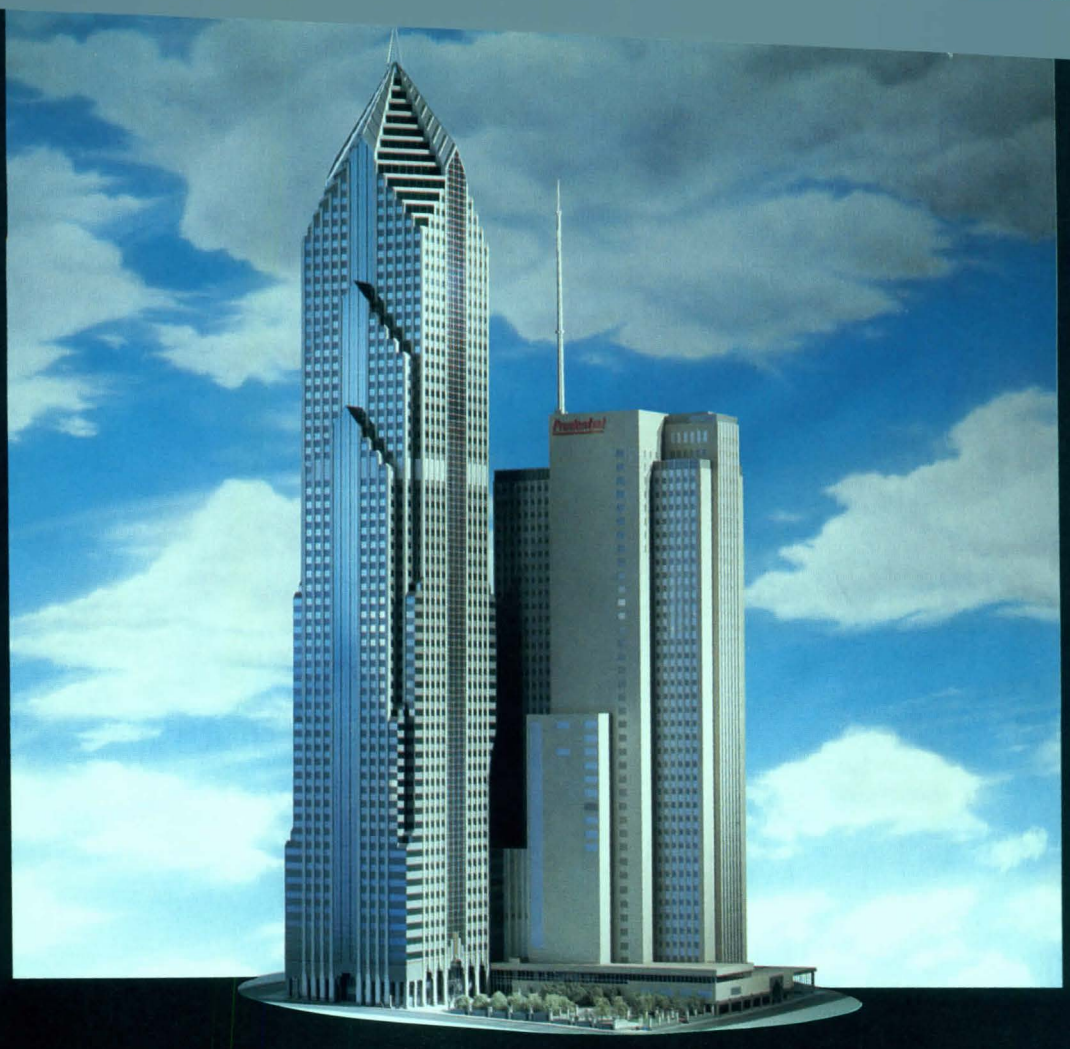
A New View from the Castle, by Edwards Park and Jean Paul Carlhian. Washington, D. C.: Smithsonian Institution Press, 1987, $19.95.

Reviewed by Scott Gutterman

When ambitious schemes are premiated in competitions, the struggle to build them is "almost always accompanied by gossip, backbiting, arguments, quarrels, reproaches and vilification," note the authors of *Architects in Competition.* This fascinating, well researched book looks behind the gleaming facades of such landmark winners as Otto Wagner's Postal Savings Bank (1903) and Jørn Utzon's Sydney Opera House (1960), to examine the tangled jury motives, political intrigues, and questionable decisions that surrounded their completion. The lure of a major commission has often drawn hundreds of entrants to these competitions, even though participation was generally time-consuming and costly; de Haan and Haagsma wisely include several intriguing schemes from little-known architects.

As Dennis Sharp explains in his concluding essay, 19th-century competitions tended to specify the style of building that would be expected from participants, whereas 20th-century competitions have left this an open question (the 1922 brief for the Chicago Tribune Tower competition, for example, asked only that participants create "the most beautiful and

Scott Gutterman is a freelance writer who specializes in art and architecture.



project: Two Prudential Plaza

location: Prudential Plaza
Chicago

owner: Prudential Plaza Associates

developer: The Prudential Property Company

architect: Loebl Schlossman & Hackl
Chicago

photography: Hedrich Blessing
Chicago

general contractor: Turner Construction Co.
Chicago

stone setting contractor: Cleveland Marble Mosaic Company
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stone supplier: Ingemar S.A.
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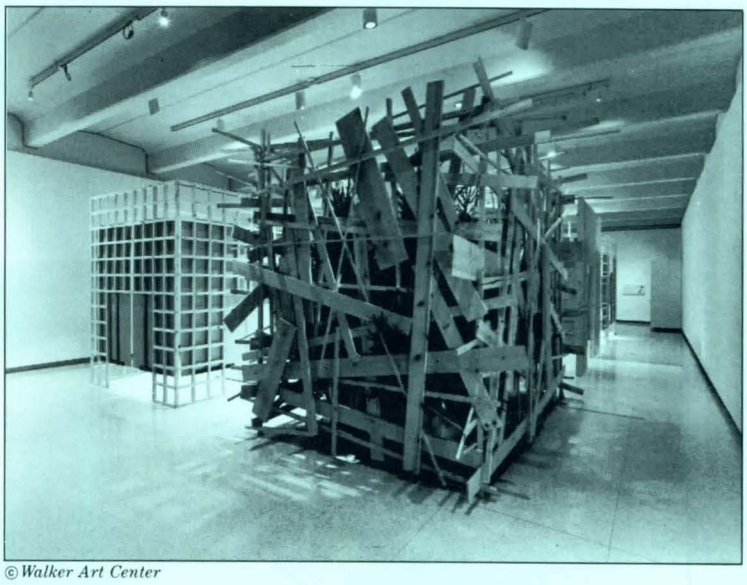
distinctive office building in the world"). Consequently, more recent competitions have turned into increasingly fractious affairs. The jury for the 1926 League of Nations debacle (covered here in an essay by Kenneth Frampton) was so divided that it could not agree on a winner, and Wilhelm Holzbauer's victorious scheme in the 1967 Amsterdam Town Hall competition had to be drastically revised after public outcry. All the competitions cited in the book have generated enough drama, and enough divergent architectural solutions, to make for compelling reading and viewing.

A New Brooklyn Museum features the schemes of all five finalists in that institution's competition for a new master plan, along with a survey of the museum's history and a report from the competition's jury. The tighter focus allows the reader to enter the review process vicariously. McKim, Mead & White's original building (itself a competition winner) provides a suitably dramatic starting point. The vast Beaux-Arts master plan of 1893 was a paragon of the City Beautiful movement, even though only a fraction of the ambitious design was executed. In 1934, the grand staircase leading up to the entrance was demolished in a modernizing frenzy; subsequent revisions have shown only slightly more sensitivity. The five entries proposed radically different solutions to the problem of "completing" the original scheme. The winning design, by Arata Izosaki & Associates/ James Stewart Polshek and Partners, was chosen unanimously by the jury for reasons clearly articulated by chairman Klaus Herdeg. He and his colleagues saw the winning entry as a Modernist response to the original building's staunch Neoclassicism, respectful but not obsequious. And just as importantly, perhaps, they found the design's striking profile, centered on a truncated obelisk, to be a vital asset for the long-term fundraising that will be required to bring the project to fruition.

On another museum front, *A New View from the Castle* is a charming account of the design and construction of two additions to the Smithsonian Institution in Washington, the Arthur M. Sackler Gallery for Asian Art and the National Museum of African Art, as well as their "roof," the Enid A. Haupt Garden [RECORD, September 1987, pages 112-121]. Written in a casual, engaging style by *Smithsonian* editor Edwards Park, the book traces the evolution of the project. The story begins with a very sensitive site—the quadrangle in front of the Castle, the Institution's main building. Jean Paul Carlhian, of the Boston-based firm Shepley, Bulfinch, Richardson and Abbott, was the architect-in-charge, and his solution—a vast, three-story underground complex of galleries with diminutive above-ground gatehouses—employs African- and Asian-derived forms described as "simple, noble, and grand." A brief afterword argues that last-minute changes forced onto the original scheme dispelled the air of perfect harmony that otherwise is described as pervading the entire project—a reminder that commissioned buildings, no less than competition winners, are seldom realized without at least a modicum of discord.

Franklin D. Israel subject of first exhibition in Walker series

By Garth Rockcastle



© *Walker Art Center*

"Architecture Tomorrow" is an ambitious three-year, six-exhibition project devoted to emerging American talent. Organized by the Walker Art Center in Minneapolis, the series was inaugurated with an installation of the compelling work of Franklin D. Israel, who practices and teaches in Los Angeles. Israel's work is consistently rich in material texture and formal play (houselike objects of various plaster finishes in the Gillette residence, for example [RECORD, Mid-September 1985, pages 86-93]). His commercial and residential projects share an allusiveness best appreciated in offices for Propaganda Films, where curious interior forms project themselves as ambiguous geometric "characters" within a barnlike existing structure. The bulk of the architect's work is residential, which is disciplined without being formulaic; no two buildings share a parti or even detailing.

Israel has created five finely crafted, raw knotty-pine pavilions for the exhibition in which the drawings, models and photographs of recent projects are mounted. A sixth (photo above) was occupied by six live, but slowly dying, fir trees and clothed in a seemingly random anarchy of wood members that might be construed as a tongue-in-cheek reference to Deconstructivism. These porous, inside-out, cubic "packing crates" (a reference Israel himself makes) are suggestive of the systematic, if sometimes complex and ambiguous, ways that architectural events can be knitted together to create cities. Their limited interior space makes viewing nearly a private affair. The overriding impression conveyed—notwithstanding a certain orthogonal gamesmanship—is of a subtle but nondogmatic design approach. Although Israel credits historical sources for inspiration, he also cites the contributions of clients and employees, a refreshing counterpoint to the "heroic" individuality so frequently promulgated by star-status architects.

The series will continue with the work of Morphosis, in spring of 1989; Tod Williams/Billie Tsien, in late 1989; Stanley Saitowitz and the team of Elizabeth Diller/Richard Scofidio, in 1990; and Steven Holl in spring of 1991.

Garth Rockcastle is a principal in the Minneapolis firm of Meyer, Scherer & Rockcastle, Ltd.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Booming L. A.: Brave new urbanism?

By Aaron Betsky

Though famous as the land of low-density sprawl, Los Angeles *does* have a downtown—one that is undergoing a building boom of unprecedented proportions, but also struggling to carve out a new kind of urbanism, simultaneously drawing from traditional European models and the futuristic imagery of some of the West Coast's younger architects. The densifying core will see a spate of new office buildings, a small acropolis of high-art destinations, and a limited amount of new housing for both the servants and the served of the business center. The city is investing more than $3.5 billion in a mass transportation system now under construction in the high-rise district, which will include high-speed trains and dedicated bus lanes.

Last year, the downtown area absorbed over three million square feet of office space (two dozen or more office buildings are currently under construction or in design), and observers estimate that between 10 and 25 million square feet will be built within the next five to seven years. Befitting the image of an international city, most of the new skyscrapers on the boards are being designed by out-of-towners. The tallest in this heretofore mostly mid-rise zone will be the 73-story First Interstate Tower (figure 2, background), designed by Henry N. Cobb of I. M. Pei and Partners. Cesar Pelli has matched the faceted form of this tubular structure in his 777 Tower (1). The 52-story Southern California Gas Building, a curved slab held between gridded planes (2), has been produced by a semi-local architect, Richard Keating of Skidmore, Owings & Merrill (whose firm replaced John Burgee Architects with Philip Johnson). The large size of both Southern California Gas and First Interstate Tower is made possible through the purchase of air rights from the nearby Los Angeles Public Library; proceeds will be used to assist in renovating that historic structure, ravaged in a devastating fire. On the next block, Michael Graves has started work on the first phase of City Centre Development, a 2.1-million-square-foot mix of office, retail, and apartments (3). Helmut Jahn is contributing two buildings, a relatively small office building overlooking the freeway and a 21-story gridded mass which will complete the framing of an axis, lined by government buildings, from the Dorothy Chandler Pavilion to the 1928 City Hall (4).

Much of the capital behind these projects comes from Japan. Japanese interests also own many of the larger buildings in the area, and are now erecting such behemoths as the 52-story Mitsui-Fudosan Building and the Kisho Kurokawa-designed Gateway Center. As Frank Gehry points out, "Los Angeles is being drawn into an orbit with the Pacific Rim, and nobody can hold it back."

While competing with each other for distinctive imagery, the towers conform to new guidelines that mandate substantial civic amenities at their base. Elaborate water gardens are planned at the First Interstate and Southern Gas Company buildings, and Bunker Hill will have a series of interconnected outdoor spaces perched on top of a multistory podium containing parking.

The powerful Community Redevelopment Authority (which, by disposing of sites assembled under postwar slum clearance programs, has been responsible for the physical shape of much of downtown for the last two decades) has been severely criticized in the past for the resources it has committed for office-building developers—in the form of tax breaks and site assemblage—at the expense of residential stock in a city lacking affordable housing. In response, the C.R.A. has recently promoted the development of thousands of new luxury housing units downtown; "affordable" dwellings, and even single-room-occupancy hotels, are now being mandated through linkage to large-scale commercial projects.

The recently completed Museum of Contemporary Art (Arata Isozaki, architect) is only

Continued on page 73

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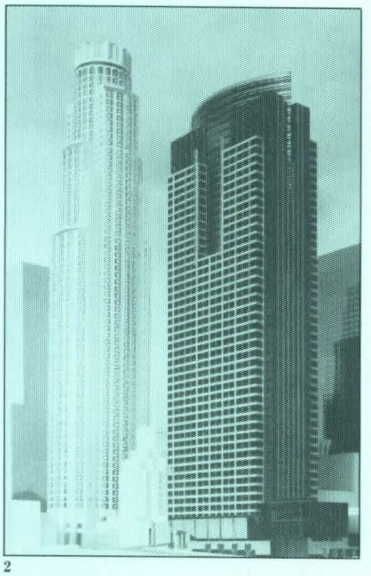

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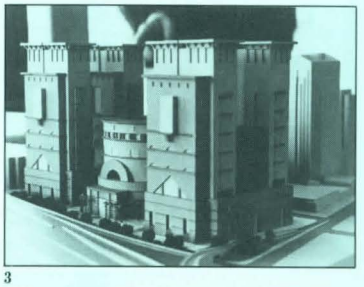

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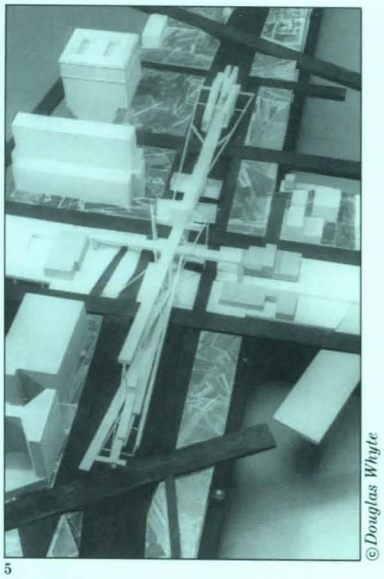

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1. 777 Tower, Cesar Pelli & Associates with Langdon Wilson Mumper, Architect
2. Southern California Gas Building, Skidmore, Owings & Merrill, Architect; in background, First Interstate Tower, I. M. Pei and Partners, Architect
3. Los Angeles City Centre Development, Michael Graves, Architect
4. Second and Broadway Building, Murphy/Jahn, Architect
5. West Coast Gateway, Hani Rashid and Lise Anne Couture with Studio Asymptote and Gruen Associates, Architects

Aaron Betsky is managing editor of Artcoast, *a Los Angeles magazine of contemporary art.*

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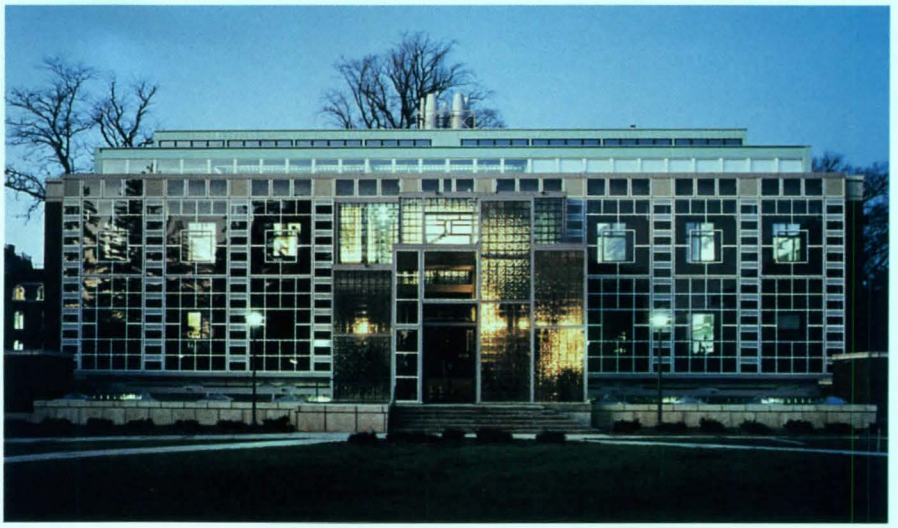

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4 Entry Deadline

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5 Categories

Existing, Planned/In-Works, Conceptual.

6 Entry Acceptance

Contingent on verification of eligibility and agreement of the entrant's client to cooperate in the competition. All clients will be contacted, and final acceptance rests with Pittsburgh Corning.

7 Awards

First and second place and up to three honorable mentions per category, at the discretion of the jurors.

8 Prize Amounts

Project Category	1st Place	2nd Place
Existing	$2,500.00	$1,500.00
Planned/ In-Works	$3,500.00	$2,500.00
Conceptual	$6,000.00	$4,000.00

9 Notification of Winners

Winners will be notified by mail or telegram no later than May 22, 1989.

First and second place winners will be honored at a banquet ceremony in Pittsburgh, Pennsylvania on June 15, 1989. For student winners, travel and hotel expenses will be paid by Pittsburgh Corning Corporation (up to 5 individuals).

10 Publishing of Winning Entries

Entrants agree that if their submission(s) wins, they release and authorize Pittsburgh Corning Corporation to use such entries in advertising, and agree to provide additional graphic materials, if needed and available.

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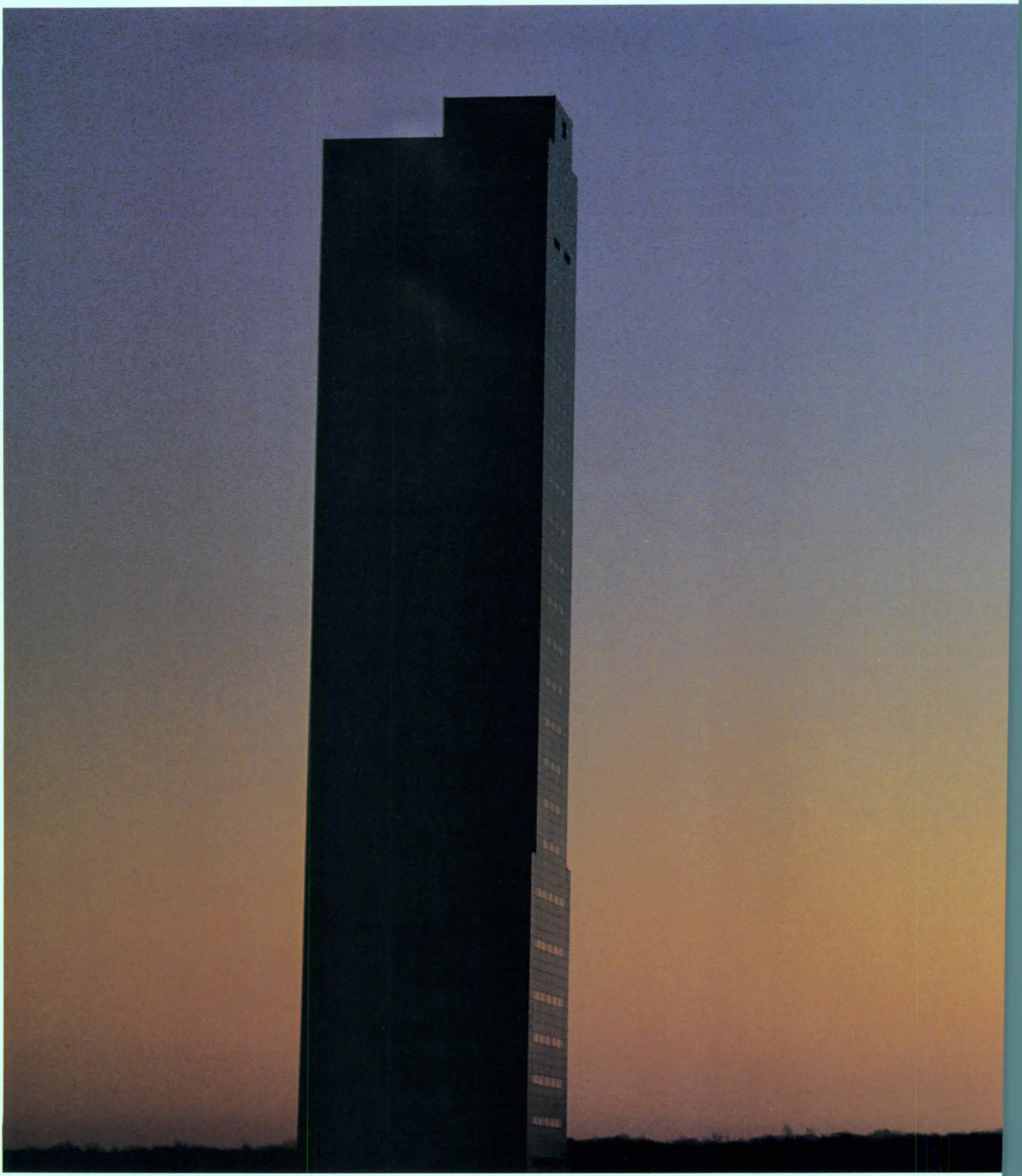
Observations continued from page 71

the first of a series of new cultural facilities on what passes for an acropolis in Los Angeles, Bunker Hill. It will soon be joined by the $50-million Walt Disney Concert Hall (home to the Philharmonic, to be erected on a site contributed by the county adjacent to the existing Dorothy Chandler Pavilion/Mark Taper Forum cultural complex; Frank Gehry was recently selected as architect, see page 41). The Central Library and the City Hall, both local 1920s icons, are being renovated by Hardy Holzman Pfeiffer Associates. Not far away, Pershing Square will be remade by SITE, once funds are in hand, and within the embrace of ramps connecting the Santa Monica and Harbor freeways, an I. M. Pei-designed addition doubling the size of the convention center is under construction.

In spite of the enormousness of this redevelopment, there is hardly a singular vision for what the city should be. "Los Angeles talks to Tokyo and New York and Paris, not to the outlying neighborhoods," says architect Kurt Meyer, former chairman of the C.R.A. He foresees a metropolis made up of a group of widely separated satellite cores connected by the freeway network. Downtown, though isolated, will be wired into distant places by invisible axes of telecommunications. Within these cores, a traditional kind of urbanism must be created. "Lawyers and bankers who work in these towers demand a rich urban life; they are used to housing and shops," declares Meyer. Richard Weinstein, dean of the Graduate School of Architecture and Urban Planning at UCLA and member of the Mayor's Advisory Group on Design, warns of undifferentiated "isolated communities," each perhaps containing necessary services and a rich panoply of experiences, yet having no overall urban identity, due to the continuing reality of the existing dispersed, auto-oriented urban geography. Unlike New York, it is the street-canyons which will be empty, while the skyscraper-mesas will be hollow and full of air-conditioned activity. To John Kaliski, the new principal architect of the C.R.A., *its* vision of downtown is one of a "garden city," made up of meandering bridges, walkways, and alleys connecting internalized neighborhoods based around courtyards developed from Southwestern prototypes. Above, the towers gesture to the city beyond—Jane Jacobs and *Blade Runner* in peaceful coexistence. Yet others envision a new scale of expression for the city: a group of civic leaders organized a competition for a West Coast Gateway, having in mind a welcoming arch which, in bridging the Hollywood Freeway, would speak to the unification of the city's scattered ethnic enclaves, and memorialize the role of immigration in the development of Los Angeles. The firm of AKS Runo, in preparing the outline for the competition, proposed instead the street grid as "subject," in order to find a larger-scale order that could be picked up in "connective moments"—related elements constructed on vacant lots throughout the city. The winning design (5), a collaboration of Hani Rashid and Lise Anne Couture with Studio Asymptote, of New York, and Gruen Associates, of Los Angeles, proposes idiosyncratic and complex shapes that defy a single reading, yet reach out to embrace the 70-mile megalopolis Los Angeles has become.



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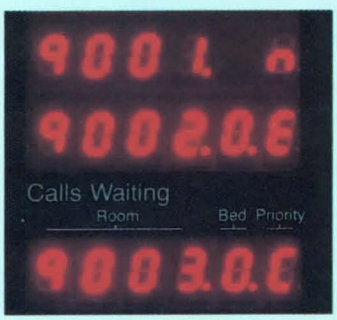

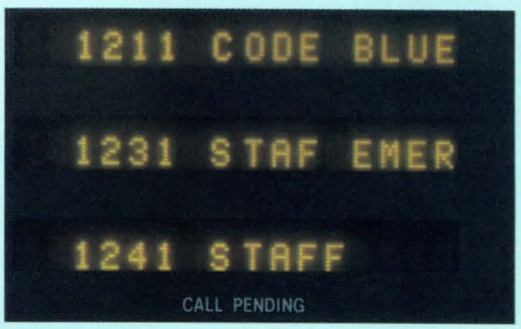

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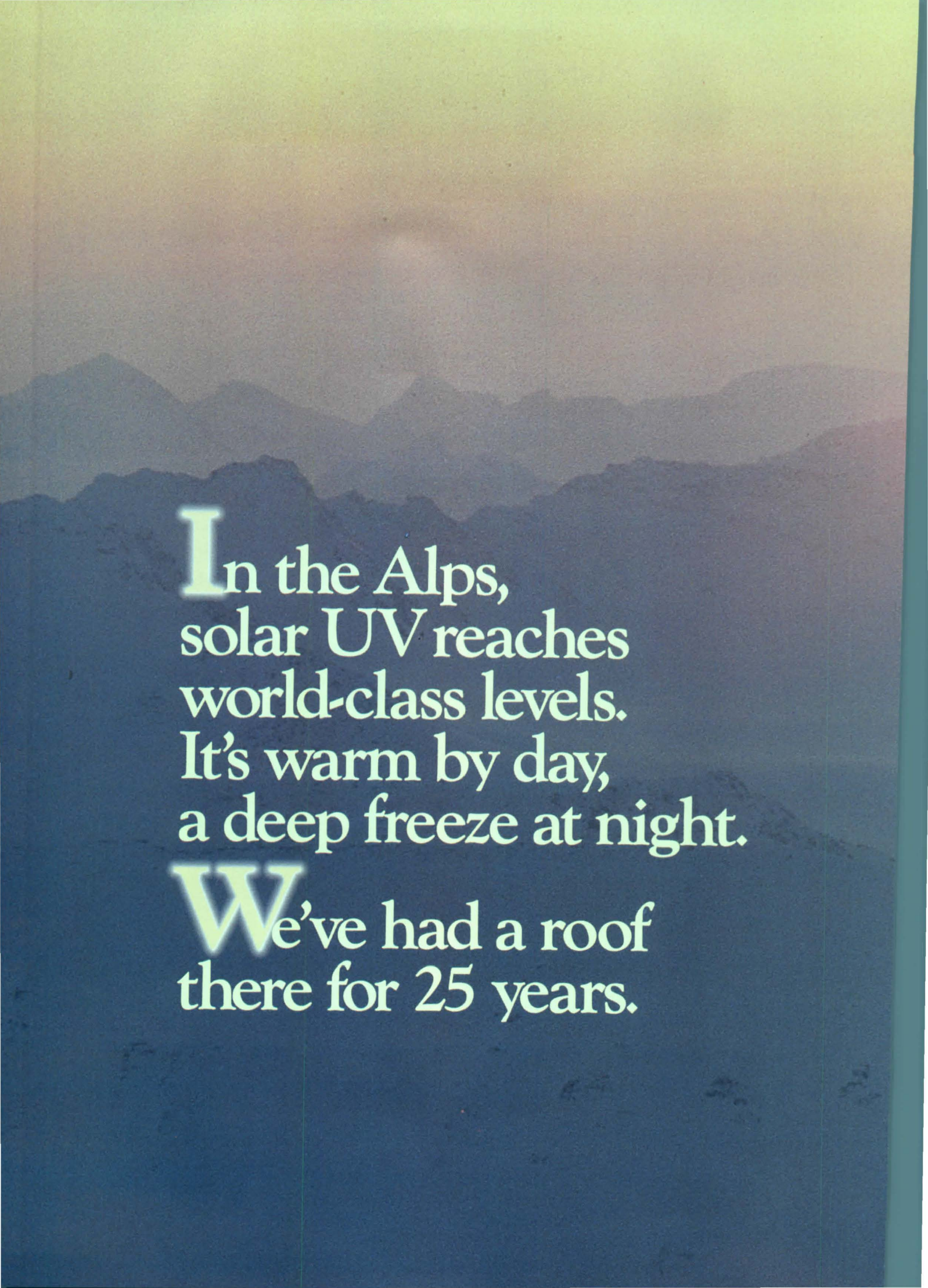
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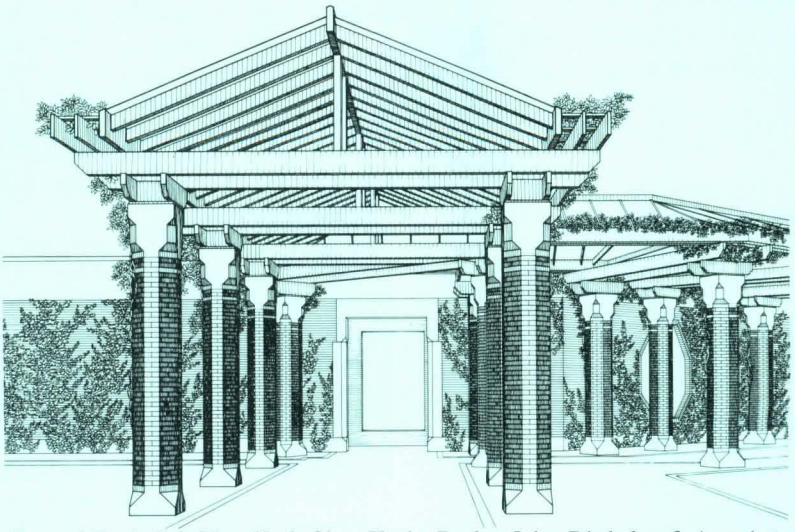
In this issue

RECORD's editors traveled up and down the Western Hemisphere to assemble the diverse group of projects featured on the following pages. For our cover story on Arquitectonica's dramatic new headquarters for the Banco de Credito in Lima (pages 90-99), Karen Stein journeyed to the Peruvian capital, where she found a building of truly international stature, blending corporate imagery and the Miami firm's distinctive brand of abstract Modernism with references to Peru's Inca and Spanish Colonial heritage.

Margaret Gaskie's assignments this month took her to four American metropolises—Houston, Dallas, Denver, and Seattle. The first three cities harbor the trio of churches, designed by Tapley/Lunow Architects, that makes up our Building Types Study on religious architecture (pages 100-111). Tapley's churches, Gaskie writes, "share an elemental directness . . . balancing rootedness with urbanity, dignity with delight." Similarly unmannered but serving a very different purpose, the new Washington State Convention and Trade Center (pages 112-117) spans Interstate 5, reconnecting downtown Seattle with the city's oldest residential neighborhood. In a much different part of the Pacific Northwest metropolis, Paul Sachner investigated Seattle Central Community College's new marine technology facility (pages 118-119), designed by The Miller/Hull Partnership to reflect its unpretentious industrial setting, the old waterfront precinct of Ballard.

Not all of this month's featured projects were so far afield. To reach Kevin Roche, John Dinkeloo & Associates' handsomely reconstructed Central Park Zoo (below and pages 84-89), James Russell simply had to leave RECORD's Rockefeller Center offices and walk north 15 blocks. The best architecture, it seems, is sometimes just around the corner.



Central Park Zoo, New York City, Kevin Roche, John Dinkeloo & Associates

Central Park Zoo
New York City
Kevin Roche, John Dinkeloo
& Associates, Architects

Zoo story

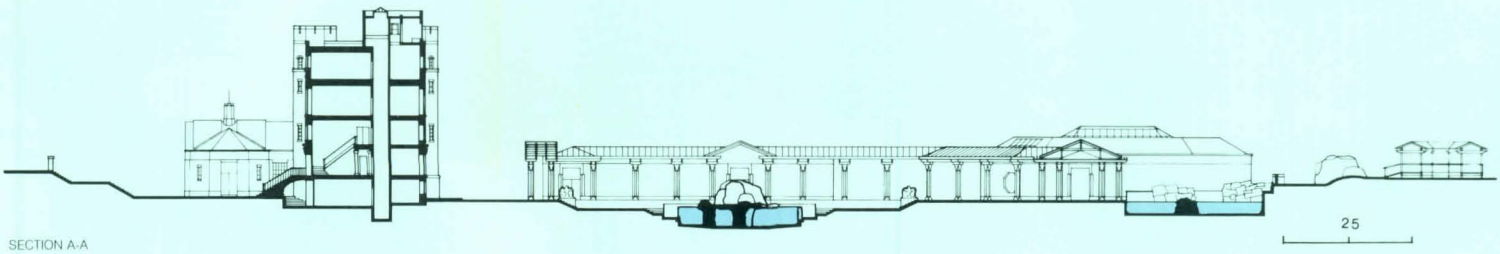
Once called the Menagerie, the Central Park Zoo by 1981 sadly represented what zoos were not supposed to be: ill-housed animals staring listlessly at visitors through layers of bars and wire mesh. Today, along the eastern edge of Olmsted and Vaux's landmark greensward, some 100 species are displayed in ecologically appropriate exhibits. Kevin Roche's welcoming architectural setting, on a site many said was too small for a modern zoo, is now expected to receive two million visitors annually.

In a word association game, even a well-versed architect would not necessarily answer "Kevin Roche" to the cue "zoo architect." Best known for monumental corporate projects like the General Foods world headquarters [RECORD, September 1984, pages 104-119] or museums (the firm's ongoing relationship with New York's Metropolitan Museum of Art dates back to 1968), Roche might at first glance seem ill-suited to the difficult task of rebuilding Central Park's dilapidated 5.5-acre zoo. The challenges to Roche were formidable. Evolving standards of animal care demanded larger, environmentally more accurate exhibition spaces (some zoos have single enclosures as large as this zoo's entire acreage) and technically sophisticated off-exhibit holding areas. Furthermore, animal needs are highly individual, and experts on the design of species-specific exhibits are virtually nonexistent. But in the voluble Richard Lattis, a director brought in from the Bronx Zoo when the New York Zoological Society began managing the Central Park facility for the city, Roche found a kindred spirit. Roche's attention to the profile of a column capital or the proportion of a door opening meshed with Lattis's preoccupation with the appropriate slope of an artificial-rockwork bedding plane or the accurate rendering of tropical tree trunks. More important to the ultimate success of the project, the team developed a straightforward working method in which Lattis constantly refined the curatorial, managerial, and design issues as they came up to transform the zoo's 150-page rebuilding program into architecture.

"We started with a theme of three biomes—tropical, temperate, and arctic," says Lattis. "From this we backed into the animals." Jerry M. Johnson, a zoo designer in Boston, interpreted the raw data for the architect's benefit. Hundreds of models were prepared by the architects and The Larson Company, a prominent zoo-exhibit designer and contractor. "Larson would do models and we would redo them," recalls Lattis. "We would give Roche information, and two days later he would return drawings. They were great 'how about' people."

This often-intense collaboration helped create the rich visitor experience the zoo has become. Although many of the structures remaining from the zoo's previous remodeling in the 1930s have been demolished, the new layout is a classically formal reworking of the original U-shaped plan. Organized around the sea-lion pool and a parterre garden, Roche's design guides visitors from exhibit to exhibit through a monumental trellised colonnade—framed in nearly rot-proof purple heartwood—that also screens structures and more picturesque outdoor enclosures beyond. The admirably seamless transition between the visitors' path and the exhibits, often an area of weakness in other zoos' designs, is particularly evident in the snow-monkey island (foreground of facing page and pages 87 and 89).

Roche selected the zoo's palette of brick, limestone, slate, and granite to match materials found in existing structures, producing an appealingly civic "garden architecture," in his words, of gateways, trellises, and building entrances. These devices orchestrate the passage of as many as 17,000 daily visitors (nearly as many as the much larger Bronx Zoo, which is among the nation's busiest) from small exhibits to large displays, from the tropics to the arctic, while echoing in their distinctive way the Beaux-Arts set pieces and verdant vistas of the great Frederick Law Olmsted and Calvert Vaux park design that inspired them.
James S. Russell



SECTION A-A

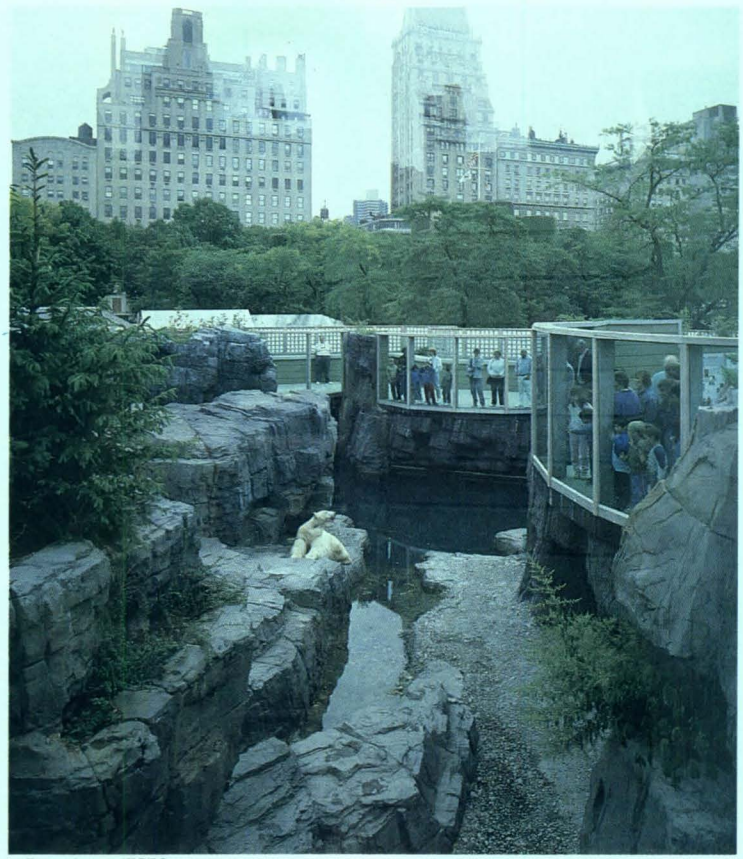
1. *Entrance*
2. *Visitor services*
3. *Intelligence Garden*
4. *Snow monkey*
5. *Panda and muntjac*
6. *River otter*
7. *Polar bear*
8. *Seal and arctic fox*
9. *Penguin and puffin*
10. *Central Garden and sea lion*
11. *Zoo school*
12. *Arsenal (offices)*
13. *Zoo shop and gallery*
14. *Administration*
15. *Café*
16. *Staff and animal facilities*

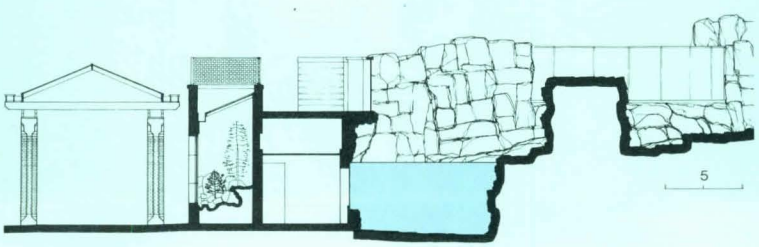
A. *Tropic Zone*
B. *Temperate Zone*
C. *The Polar Circle*

East Park Drive
Public Walk
Transverse Road
Fifth Avenue
N
50

A cafeteria was removed from the area now occupied by a snow-monkey exhibit, opening a considerable area to the west where outdoor temperate-climate enclosures have been created (plan opposite). Viewed from the Arsenal, the sea-lion island (top left) is framed by a gateway (middle left) loosely derived from Chinese models. Axial views of the island are also framed by an opening from the Intelligence Garden (middle right) that contains a gazebo where groups assemble for lectures on conservation (top right). The choice of brick color, roof slate, and limestone banding along the cornice was in part derived from existing 1930s structures, whose monumental character is reworked into an aedicular vestibule-cum-exhibit window (bottom right). A greenery-festooned enclosure for the central formal gardens will be created once vines grow up the brick piers of a glass-roofed colonnade that shields visitors from the weather (bottom left).

"Details are *important," says Richard Lattis, who ordered up dense ground-level foliage for the Tropic Zone (to screen visitors from each other), mist heads in the ceiling (for summer cooling and so birds can wash themselves on wet leaves), a waterfall (to disguise air-handling noise), and open branches at the upper reaches, where exhibited birds are most likely to perch. Artificial tree trunks cover a skewed grid of structural columns (bottom photo). In a departure from the "small is beautiful" philosophy of most of the exhibits at Central Park, polar bears gambol within a generous enclosure, assuring a variety of opportunities for viewing this popular exhibit (from above, top photo, and underwater, section below). The trellised colonnade, the zoo's most prominent architectural element, conceals a one-and-one-half-story structure containing off-exhibit holding rooms for bears, as well as underwater viewing areas (section below; bears enter these spaces through unobtrusive doors located under the right-hand viewing window in top photo). Visitors descend from its roof to view harbor seals and arctic foxes (opposite), but are screened from other visitors at the colonnade level by a granitelike cliff. From this vantage point even small children may observe seals under water through a purple heartwood-topped glass rail, across a moat, and through a glass rim set at water level.*





Central Park Zoo
New York City
Owner:
New York City Department of Parks and Recreation; New York Zoological Society, Dr. William G. Conway, general director, Richard Lattis, director, City Zoos Project;
Architect:
Kevin Roche, John Dinkeloo & Associates—Kevin Roche, design partner; James P. Owens, Jr., managing partner; Nicholas Ohly, John Owen, associates
Engineers:
Weiskopf & Pickworth (structural); Jaros, Baum & Bolles (mechanical/electrical)
Consultants:
Howard Brandston Lighting Design (lighting); 212 Associates (graphics); Philip Winslow (landscape); Lynden Miller (Central Garden architect)
Contractors:
Lehrer, McGovern, Bovis (construction manager); The Larson Company (exhibit features construction); Central Park Zoo Horticulture Department (exhibit planting, design, and installation)

Banco de Credito, in Lima, marries Arquitectonica's distinctive brand of Modernism with formal references to Peru's Inca and Spanish Colonial heritage.

Bankers' trust

Set into the Andes, Banco de Credito dominates Lima's La Molina section. Bank officials anticipate that many of the institution's 1,200 employees will relocate nearby to avoid long commutes on the city's overburdened public transportation system.

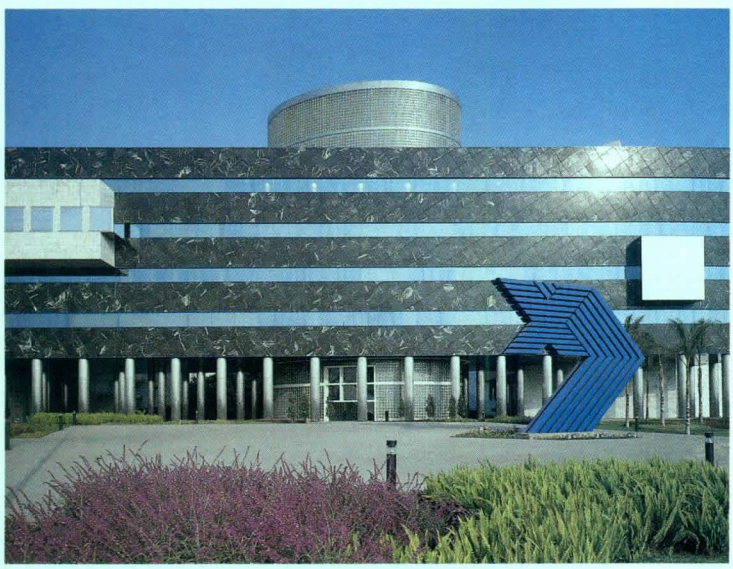
Rare is the building that can so effectively embody its context—especially one located in a city as rife with conflict and contradiction as Lima. But Arquitectonica's dazzling new headquarters for the Banco de Credito does just that, defining a place where ruling-class opulence and popular squalor stand in eerie juxtaposition. To be sure, the Miami-based firm probably was not chosen to give physical form to the economic disparities that have characterized the City of Kings since its founding by Spanish conquistador Francisco Pizarro, an illiterate swashbuckler, but rather for its ability, in the words of principal Bernardo Fort-Brescia, "to give the bank an image." That talent, desperately needed by a company whose previous headquarters was an unimpressive assortment of offices dispersed among some 15 downtown locations, has produced more than a neatly packaged lowrise office building in the suburban section of La Molina. Today, seven years after the project began, the site is surrounded by the sprawl of a modern city, and yet, the structure upon it looms as a deliberate tribute to Peru's ancient Incan empire. Less intentionally, perhaps, Arquitectonica's building has also become the ironic new symbol of a country presently under political siege.

With an annual inflation rate a staggering 2,000 percent and its currency still reeling from a recent 50-percent devaluation, Peru seems an odd place indeed for an expensive new building dedicated to the virtues of saving. The country's grim financial statistics, moreover, are matched by widespread lawlessness, namely a thriving cocaine trade and the activities of a terrorist group known as The Shining Path. Not surprisingly, recent reports from Peru strongly suggest that the country's nine-year-old democracy may be on the verge of dissolution.

The national mood was substantially different, however, when construction on the bank began in 1984. At that time, newly elected President Alan García enjoyed popular support, and the Banco de Credito, as the nation's most venerable financial institution, was eager to demonstrate its trust in García's adminstration by making what eventually amounted to a $54-million investment in Peru. "Things here change very quickly," says local architect Enrique Chuy, explaining the bank management's decision to proceed with a plan that, in restrospect, seems unduly rash. All things considered, though, Arquitectonica could not have been a better choice of architect, given how the firm's series of slick, instant monuments on Miami's Brickell Avenue [RECORD, July 1983, pages 92-95] has elevated brashness to an art form (Fort-Brescia's Peruvian ancestry was no doubt added incentive to commission the firm). Selected from an international group of competitors, Arquitectonica was first asked to produce a master plan for the eight-acre site and develop three alternate schemes. The directors approved the most compelling of Arquitectonica's proposals—a hollow square building surrounding an existing rock formation. (The other proposals, a tower and a horizontal slab, were inappropriate to the scale of the mostly residential neighborhood.) Although the client had planned to level the site completely, the architects wisely chose not to dynamite the picturesque hillside, which, during construction, was discovered to contain Incan ruins. The courtyard parti was developed not only to accommodate the exigencies of the site but also to pay homage to 16th-century Spanish Colonial structures. Subsumed within Arquitectonica's highly original Modernist abstraction, the historical prototype allowed the firm to create, according to Fort-Brescia, "something more than a 'building-as-object.' " In addition to responding to the

Banco de Credito
Lima, Peru
Arquitectonica International
Corporation, Architects

Black Peruvian marble tiles set at 30- and 60-degree angles add texture to Banco de Credito's 203-foot-long facades (below and opposite). Blue-tinted glass, white marble, and stainless-steel column covers complete the exterior's restrained material palette.



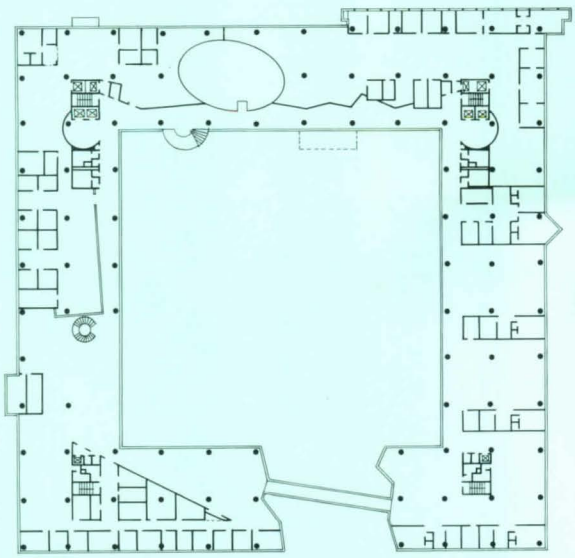
Peruvian tradition of clearly delineating "outside" and "inside" territories, the courtyard scheme also allows light and air to enter interior offices.

Banco de Credito's suave corporate exterior is sheathed in black marble tile, set at 30- and 60-degree angles, and bands of blue-tinted glass. Each side of the building is enlivened by quirky window projections (left), including a white marble "tickertape" extrusion of executive suites located adjacent to the stock-market trading room (opposite). Relatively restrained, the bank's public face barely hints at the visual exuberance released within. By raising the structure on pilotis, leaving only an auditorium sometimes used for public events and a branch bank office with ground-floor access, the architects not only satisfied stringent security requirements but also were able to exploit a change in grade to intensify further the building's dramatic setting. Arquitectonica subdivided the eastern side of the square into two faceted blocks, suggesting that the courtyard rock garden is the result of a landslide that crashed through the building from the adjacent Andean foothills. The shaky-ground metaphor is, in fact, not far from the truth: Banco de Credito occupies an active earthquake zone, and its setting makes the structure especially vulnerable to shock reverberations from the hillside. As if to mock potential danger even more, Arquitectonica bridged the opening by a narrow marble-clad slab which, considering the necessary expansion joints, is a tour de force of structural virtuosity.

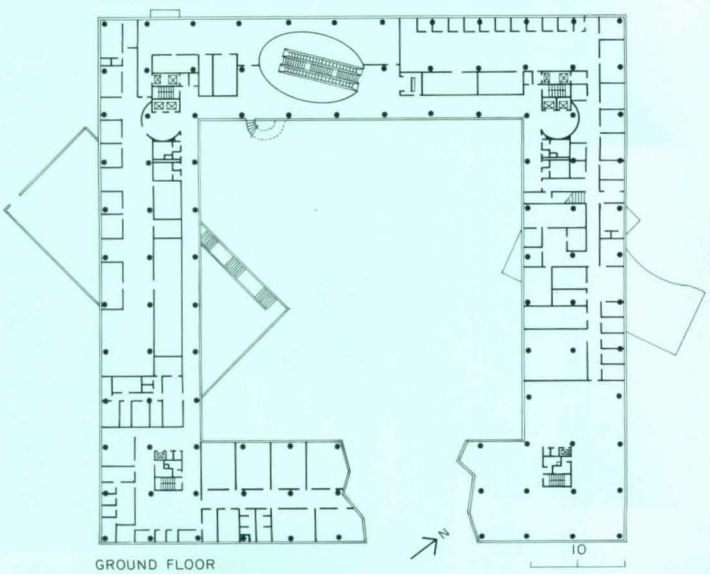
In contrast to the orderly arrangement of the exterior skin, the bank's courtyard facades are clad in an intricate puzzlework of pastel pink slate secured to a concrete substructure in irregular 10-foot-square panels. Elevations are punctured by a seemingly random arrangement of square windows, and articulated by an artful assortment of carefully sculpted appendages housing vertical circulation. The cynosure of this grand outdoor space is a lush tropical extravaganza comprising several hundred varieties of trees, bushes, and flowering ground cover culled by landscape architect Mercedes Beale de Porcari from some of the city's finest private gardens (top photo, page 95). Water emanating from the apex of the rock formation flows down eight channels and is recirculated by three separate pumping systems at a rate of 1,500 gallons per minute. One would hardly suspect from this lavish aquatic display that water is a scarce commodity in the city; in fact, a local adage that roughly translates "When it rains in Lima, Lima is no more" explains why the architects were not required to waterproof the roof.

The sheer audacity of it all is perhaps what attracted García. During construction, rumors circulated that the president coveted the building as his new palace or, maybe in acknowledgement of a job well done by an American security company, as the department of defense. Fort-Brescia dismisses such talk as "unsubstantiated gossip," yet its mere existence underscores how Arquitectonica's idiosyncratic esthetic has successfully captured the national spirit. Bold in conception and creation, the design remains firmly rooted in Peru's indigenous craft tradition (vibrantly colored executive suites [pages 96-99], for example, were based on a palette of Incan textiles). And though a ban on all foreign imports forced the architects to employ more local products than they might otherwise have preferred, the building, as a result, is a truer reflection of its context. Arquitectonica may fashion itself a facile image-maker, but Banco de Credito's arresting presence is anything but superficial. *Karen D. Stein*

The elaborate articulation of the Banco de Credito's courtyard, with its reflective-glass surfaces (right) and sumptuous tropical vegetation, belies the building's straightforward plan. The bank is a five-story square of office space (equipped with mostly movable partition systems to respond to rapid changes in departmental requirements) punctured by an elliptical glass-block atrium (plans below). The courtyard's exterior, however, does boast several sculptural embellishments: A fin-like projection supports a fire stair

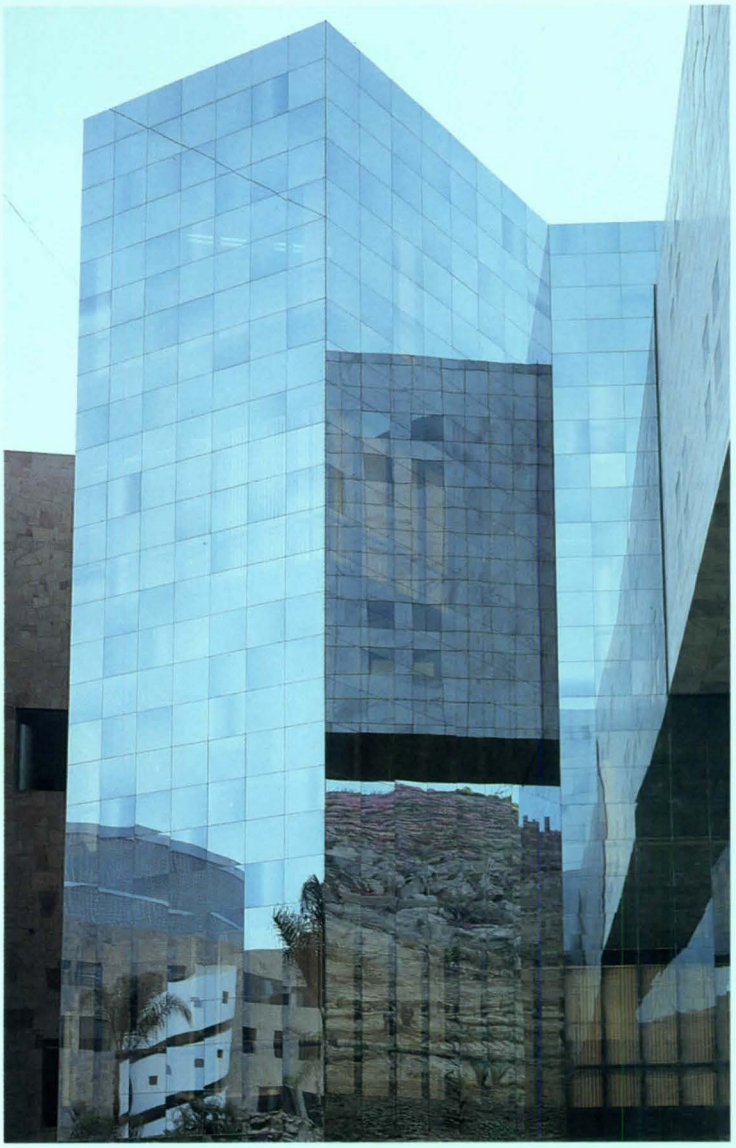


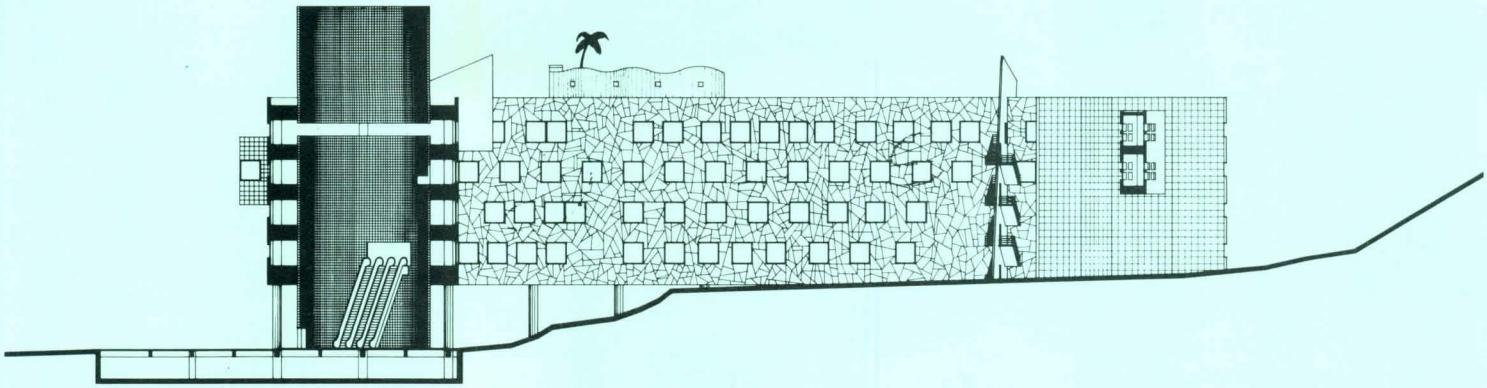
THIRD FLOOR



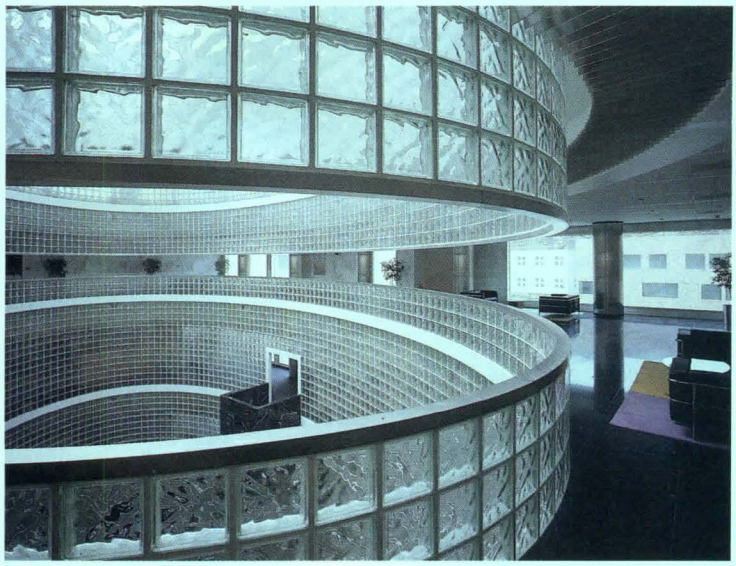
GROUND FLOOR

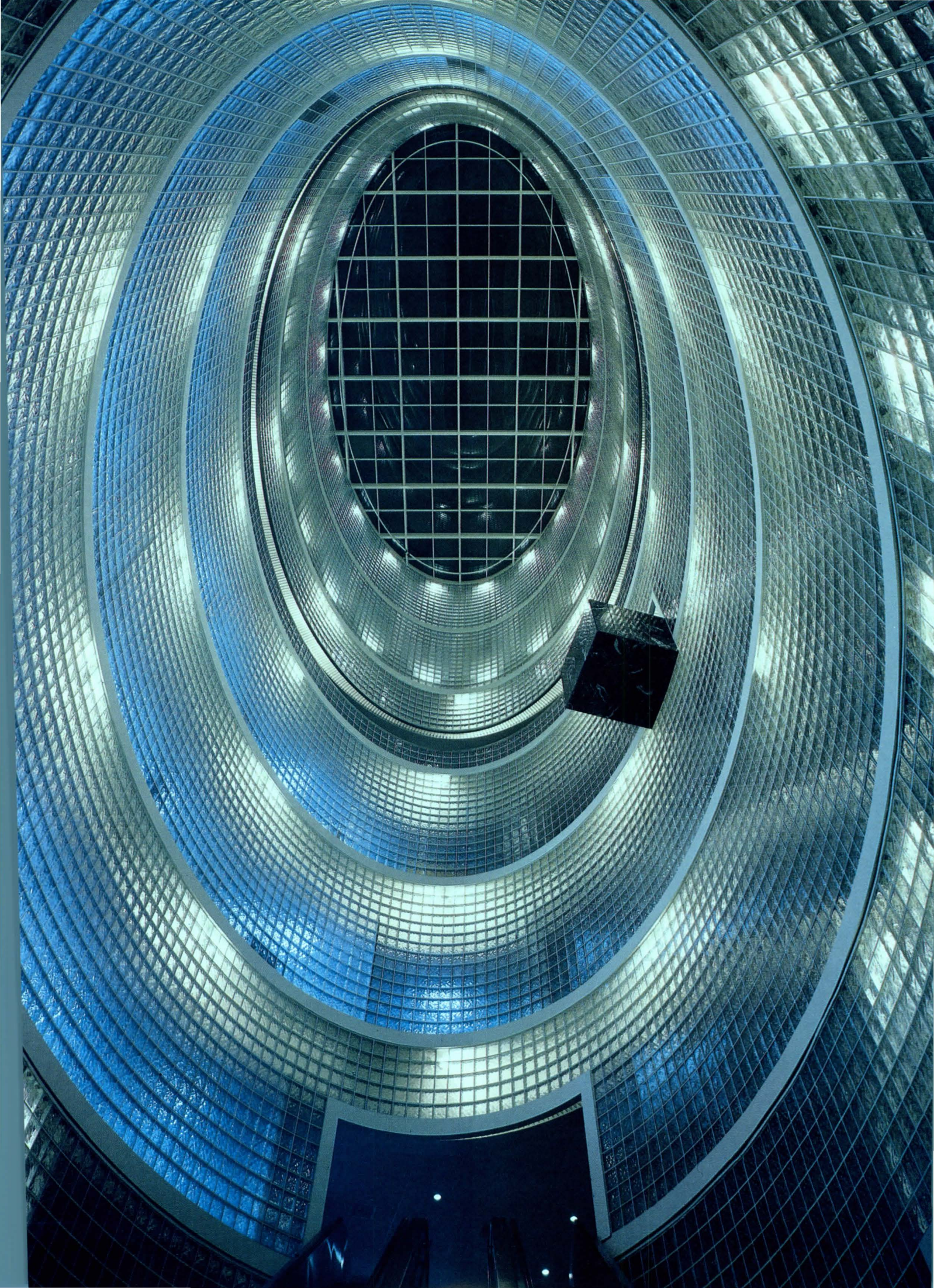
(top and bottom left opposite), while a tightly wrapped, white-painted spiral (below right) accommodates interior circulation. Access to the company cafeteria is by way of an outdoor staircase that climbs the building's southern flank (opposite right).





After passing through a somewhat prosaic stainless-steel colonnade, employees and visitors enter the bank's most inspired interior space—a 119-foot-high glass and steel atrium whose awesome presence is only hinted at on the exterior (cover and opposite). Built of some 8,000 glass blocks set in two layers to facilitate cleaning, this soaring tube contains escalators to the first-floor security checkpoint. Midway up the cylinder, a black marble balcony provides another vantage point from which to admire Arquitectonica's structural virtuosity. In the executive waiting room (top and bottom), where the elipse's upper portion appears to float magically, locally produced Le Corbusier settees complement rugs and tables designed by Arquitectonica principal Laurinda Spear (a government ban on imports required that all specified goods be manufactured in Peru). Unable to import any office systems from abroad, the architects drew on their knowledge of Peruvian handicrafts to design desk and panel systems that were executed in blond wood with mahogany accents and aqua panel fabric (small photo far right).





Banco de Credito
Lima, Peru
Owner:
Banco de Credito del Peru
Architect:
Arquitectonica International Corporation—Bernardo Fort-Brescia and Laurinda Spear, principals-in-charge; Martin J. Wander, project architect (design); Enrique Chuy, project architect (production); David DiGiacomo, Bill Holt, Jr., Ziyad Mniemneh, Richard Perlmutter, Janice Rauzin, and Fernando Villa, project team
Engineers:
Gallegos, Rios, Casabonne, Ucelli, Arango Ingenieros Civiles (structural); Friba Ingenieros (electrical); Lagomasio Vital & Associates (mechanical)
Landscape architect:
Mercedes Beale de Porcari
Consultant:
Phillips Export B. V. International Projects Division (lighting)
General contractor:
La Inmobiliaris, S. A.
Construction manager:
Jorge Costa

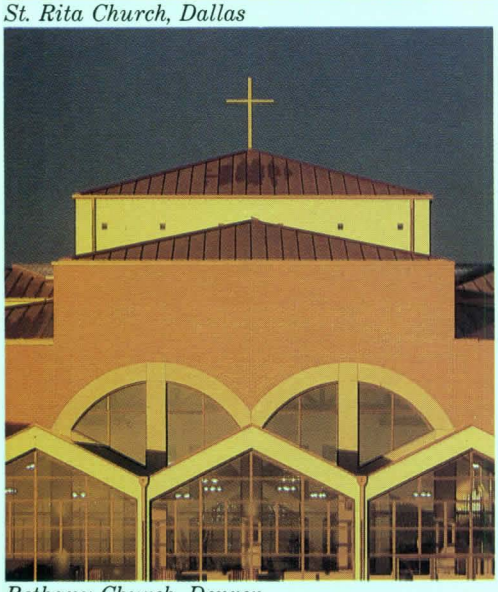
Jutting out from the building, the board of directors' room (opposite) is command central. A canted ceiling provides some eerily effective acoustics: a softspoken voice at the table's head can be clearly heard 30 feet away at the other end. Surrounded by Incalike paneling typical of the executive suites (above right), directors face the courtyard and Andes beyond. Says Fort-Brescia of the carefully composed view: "We wanted to remind them of the country they are serving and the original source of its wealth."

Three churches
Tapley/Lunow Architects

In a right spirit

Paul Hester photos

St. Rita Church, Dallas



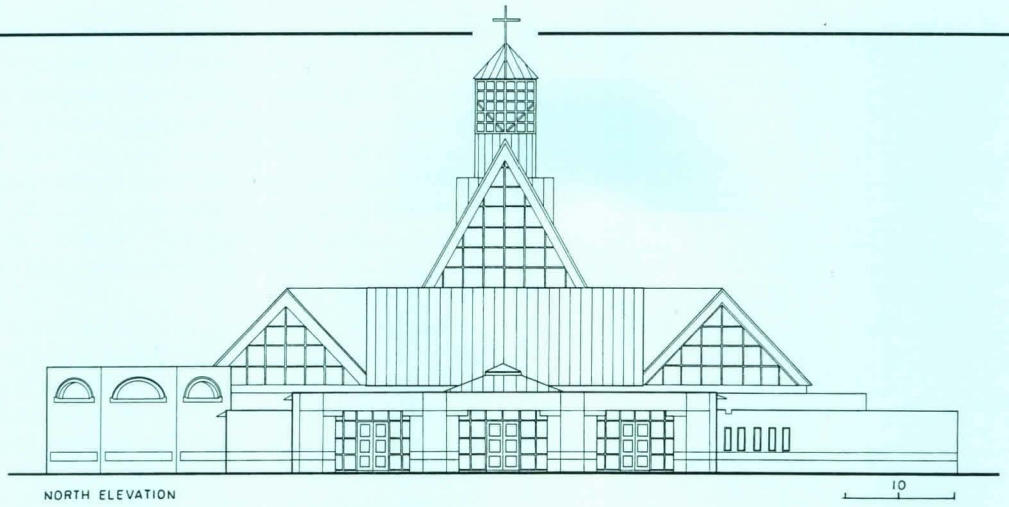
Bethany Church, Denver

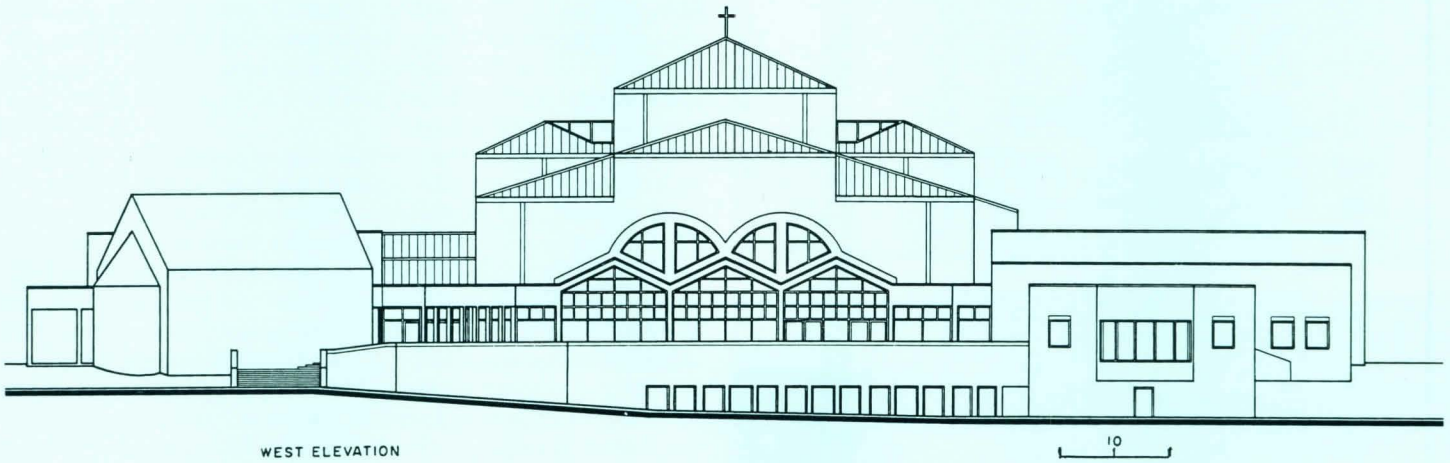
Covenant Church, Houston

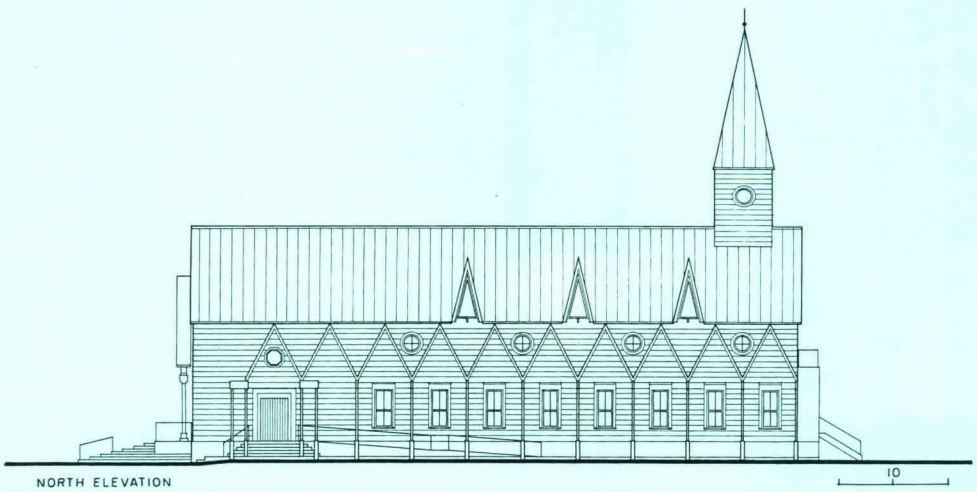
Throughout his career, architect Charles Tapley has made places of worship an abiding concern. So the growing mastery manifested in his burgeoning religious portfolio is perhaps to be expected. Its achievement through ever more refined means, though, is not. Like his own deep-rooted faith, Tapley's design approach has been honed to a back-to-basics integrity of expression that illumines with special brilliance the evolving forms of worship through which Christians of all denominations affirm: "We are the Church."

Never overblown, his newest churches, exemplified by the three introduced here, share an elemental directness that mocks the mannered abstractions too often paraded as simplicity. Despite differences in rite and liturgy, all are lean, muscular enclosures defining softly radiant spaces so focused as to edge on immanence. Art is welcome: indeed, Tapley has turned his own hand to the design of ecclesiastical furnishings and stained glass. But it is set against unadorned structures that scale grand spaces to human dimension by baring their materials—natural brick, exposed concrete, heavy timber—and the seams and connectors of their joinings. In the same vein, special places—always denoted by light and often by tectonic devices as well—are reserved for such powerful artifacts of Christian observance as altar, pulpit, and baptismal font, although their specific placement and relation to one another vary with their respective meanings to each congregation, as does their treatment as art or, more simply, furniture.

Behind the revelation of churchly verities is an understanding of the church not as "a secret Sunday place" but as an arena open to daily life. Before all else, these are places of assembly: for worship, for celebration, for the conduct of the church's business. Himself favoring a plan typology of "disciples around a table," Tapley gives even configurations far from that ideal a centered quality that subsumes self-awareness on the part of the congregation without vitiating an awareness of the exalted. More, he sees churches as communities within communities, whose mission may encompass service, education, even recreation, and so views the sanctuary itself as first among equals in a built ensemble embracing many forms of religious endeavor. The examples here assume just such a constant and commanding role within their campuses, balancing rootedness with urbanity, dignity with delight. *Margaret Gaskie*

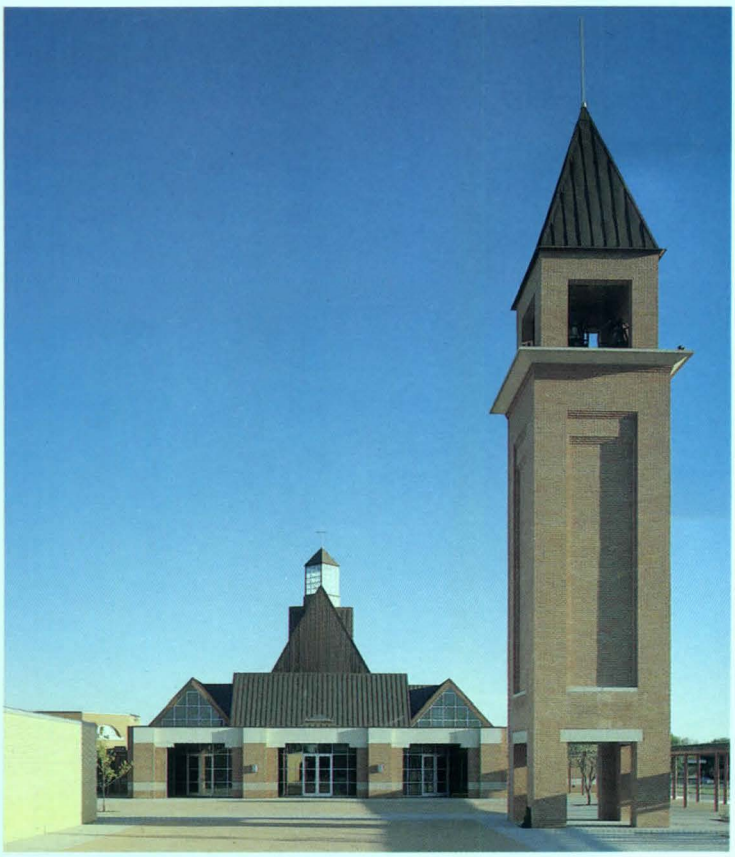

NORTH ELEVATION
10

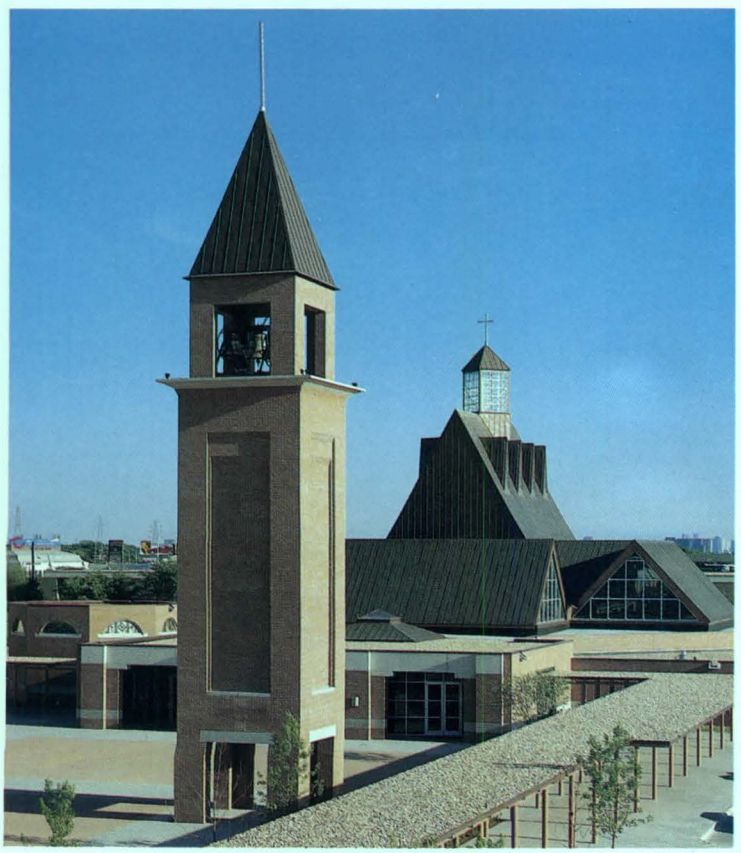

WEST ELEVATION
10


NORTH ELEVATION
10

St. Rita Catholic Church
Dallas
Tapley/Lunow Architects

To gather together





Last Palm Sunday, congregants of Dallas's St. Rita Catholic Church assembled at the foot of the bell tower on the plaza fronting the church to hear the gospel before thronging, palm branches aloft, to the narthex, where other worshippers joined in their celebratory procession to the sanctuary. Like most since their church's completion, it was more than just another Sunday for St. Rita's clergy and parishioners, who only months before had boasted neither courtyard nor campanile—nor, for that matter, a dedicated sanctuary—and just four years earlier had questioned the very viability of the parish.

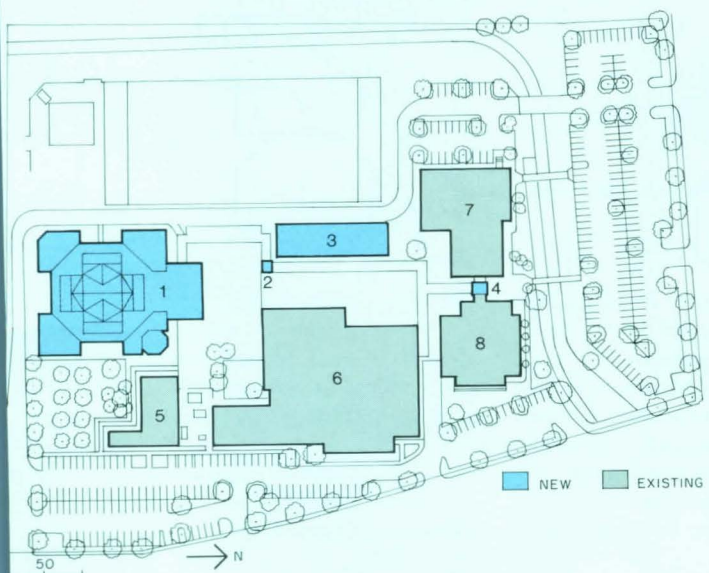
Founded to serve the rapid influx of new families to a suburbia so raw that the first, temporary church was known as "The Chapel of the Weeds," St. Rita added over the years a school, a convent (later converted to administrative offices), a fellowship hall, and a gym that doubled as a sanctuary, but deferred building a church. By the time a "real" place of worship, better able to accommodate a growing congregation and changing liturgy, at last rose to the top of the parish agenda, other buildings had preempted the obvious sites for a church, and the once-isolated campus had become a clearing in a forest of shiny 25-story office towers, overlooked by an elevated tollway. The building committee was exploring possible new sites when architect Charles Tapley proposed instead tucking the church well inside the complex and anchoring it with a great outdoor space toward which both new and old buildings, interwoven by walkways, could be turned.

An oasis of retreat from encroaching development, the plaza nonetheless hums with the bustle of a village square as clergy, staff, students, and parishioners criss-cross it on their daily rounds. (Tapley particularly relishes the church's found role as benevolent guardian to the schoolchildren who have made its dooryard their playground.) Punctuated by church spire and bell tower, the square is strong enough to meld together the campus's otherwise unprepossessing assemblage of yellow-brick buildings, while providing the church proper a platform that dramatizes its skyward climb and extends its outreach to the larger campus.

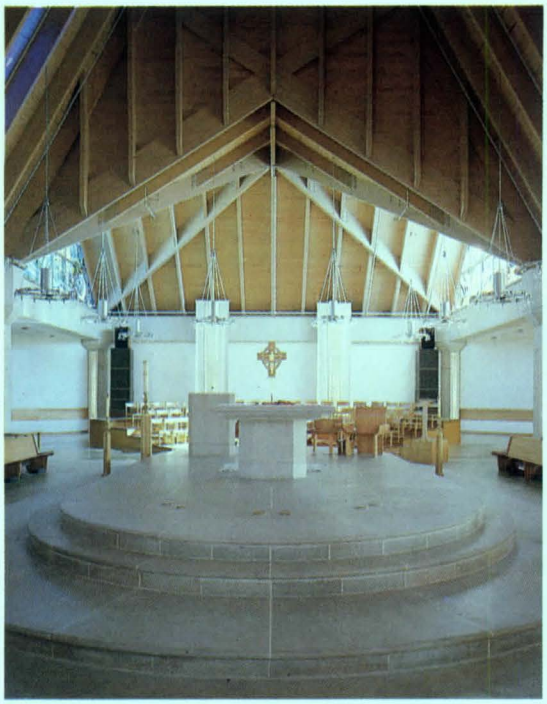
A hybrid of circle and Greek Cross, St. Rita rises from low-roofed support spaces at the corners to a quartet of angled stained-glass sheds that in turn loft a steep-pitched central gable and crowning spire, its upward sweep reinforcing the inward tug of the light-washed altar and predella at the hub of the nave's radiating pews. Though the sanctuary is large, with seats for 1,000 (plan page 104), the measured progress toward its octagonal enclosure, from a narthex capacious enough for gatherings before and after services, through a baptistry whose font recalls the primary rite of entry to the church, builds a sense of ingathering heightened by an encircling ambulatory that traces a processional path around the ring of worshippers. East of the baptistry, the ambulatory becomes a "sacred corridor," where rooms of reconciliation (once called confessionals) flank the smaller engaged octagon of the room of reservation, which houses the tabernacle of the eucharist and also serves as a day chapel.

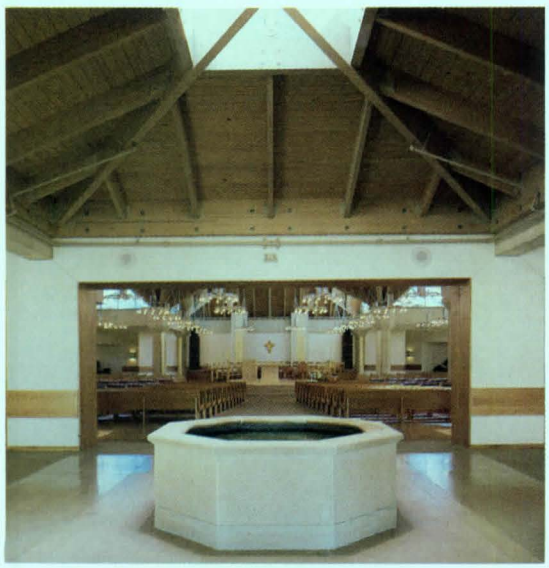
Sturdy loadbearing masonry forms a sober backdrop for the tracery of exposed timber, the gleam of polished wood and stone, stained glass and flooding daylight, and the incidental color introduced by the congregation and the blazonry of the liturgical seasons. It is the kineticism prefigured by the wheel of the nave, however, that most pleases St. Rita's flock. "We are learning," says their pastor, Father Lawrence, "to celebrate with action and movement and music as well as words." *M. F. G.*

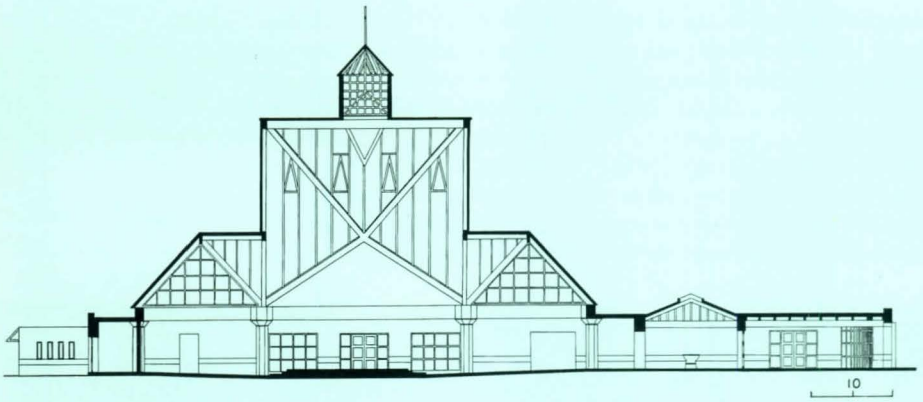
Announced by a sentinel bell tower, St. Rita commands its newly introverted campus—including school, social, and administrative elements as well as a grand plaza—from the ruling height of a spired lantern perched atop a steeply pitched dormered roof rising from corner sheds. Though most subsidiary spaces nestle under modest concrete roofs, timber-framed ceilings mark the baptistry and eucharistic chapel as well as the nave, itself an expansive volume that gathers light as it radiates from the central predella.

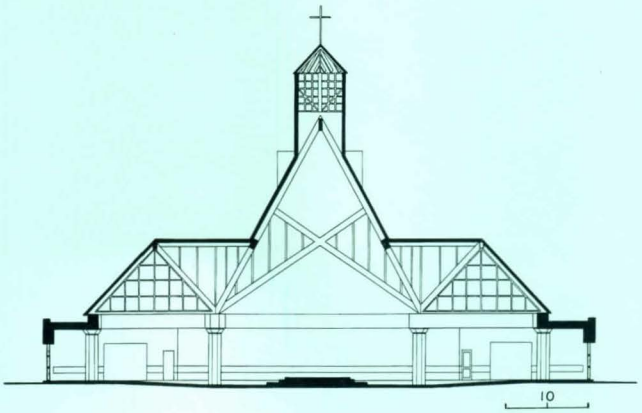


1. *Church*
2. *Bell tower*
3. *Cafeteria*
4. *Entrance pavilion*
5. *Administration*
6. *School*
7. *Activity building*
8. *Gym*

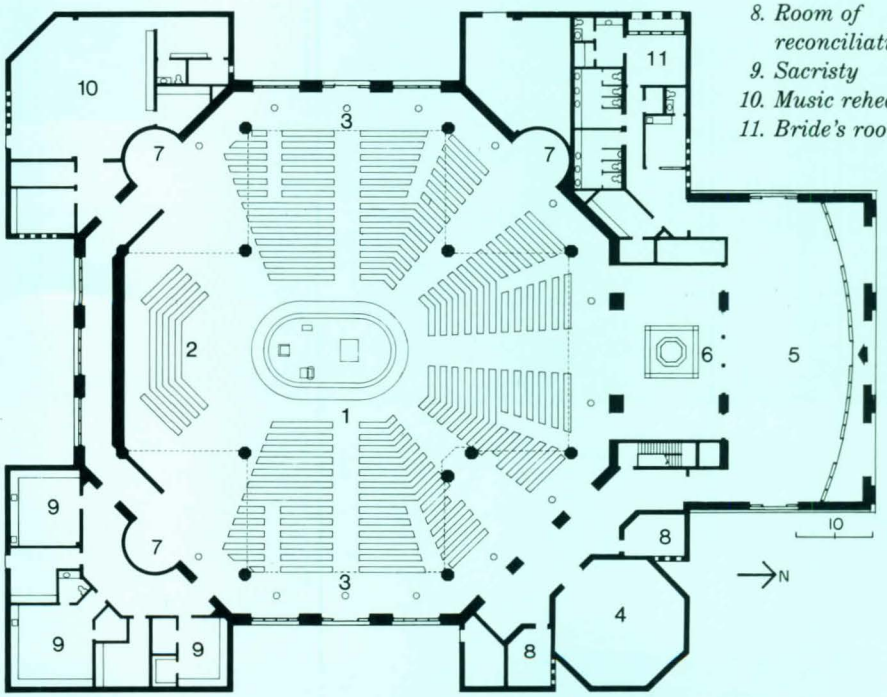








1. Nave
2. Choir
3. Ambulatory
4. Chapel of reservation
5. Narthex
6. Baptistry
7. Shrine
8. Room of reconciliation
9. Sacristy
10. Music rehearsa
11. Bride's room

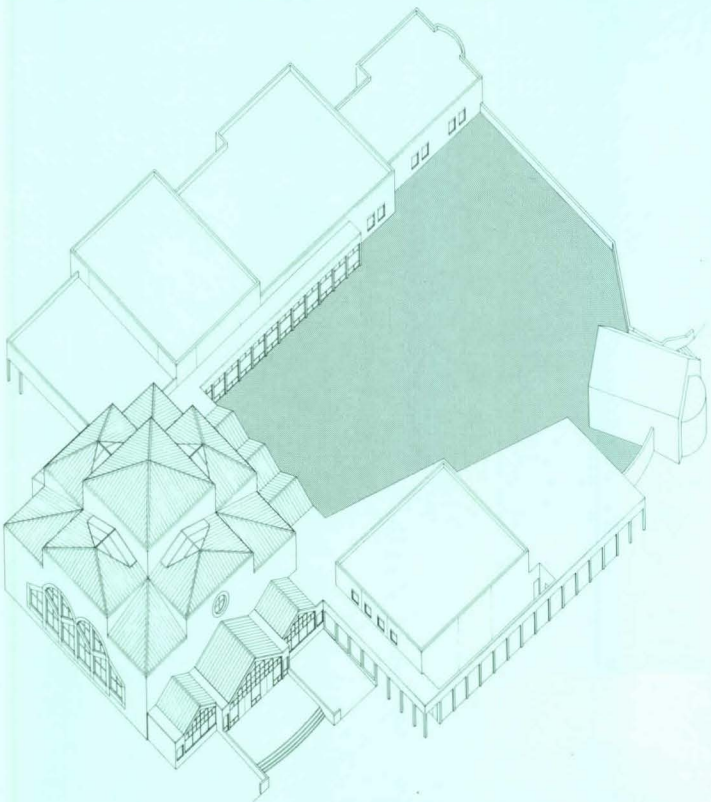


St. Rita's holiest preserves include the eucharistic chapel (center left above) baptistry (bottom left), and predella (top left and opposite). Each is illuminated by an overhead lantern and centers on a liturgical sculpture—tabernacle, font, and altar respectively.

St. Rita Catholic Church
Dallas
Owner:
Diocese of Dallas, Texas
Architect:
Tapley/Lunow Architects—Charles Tapley, principal-in-charge; Carl Brunsting, project architect; Ken Griesemer, Robert Hubbard, Dean Johns, project team
Engineers:
Ashkar Engineering Corp. (structural); Smith Duncan & Associates (mechanical/electrical/civil)
Consultants:
Charles Boner and Associates (acoustical)
Artists:
Lyle Novinski (stained glass); Don Schol (sculpture); Charles Tapley (liturgical furnishings and font)
General contractor:
Linbeck Construction Company


LECTIONARY

A city upon a hill



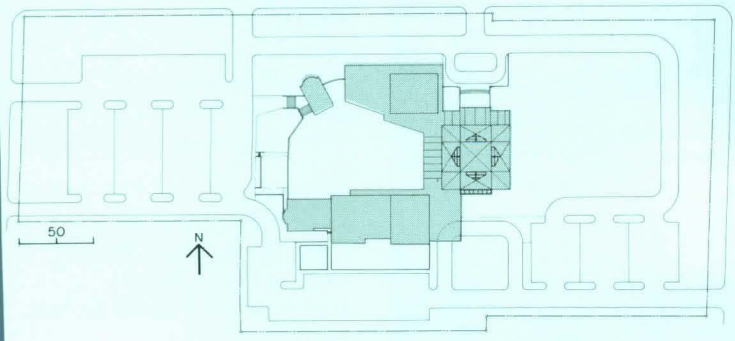
Rising phoenix-like from the ashes of a fire that destroyed its original building, Bethany Lutheran Church elaborated on the legend of renewal by seizing the painful process of rebuilding as an opportunity to embody a larger sense of mission. Located in Englewood, Colorado, a southwestern suburb of Denver, the church was (and is) set atop the crest of a ridge that joins others in a wave rolling toward the Rocky Mountain foothills. The seclusion offered by a generous site, however, extends only as far as the church's north face, which fronts a heavily traveled east-west artery that cuts through a crazy-quilt of residential, commercial, and retail development, both new and established. Prompted by its crossroads position, the church aspired not only to minister to its own congregation but to serve as a resource to the broader community; in Charles Tapley's hands, its plans for new facilities soon came to reflect the vision of a community within a community, bustling weeklong with people and activity.

More Byzantine than basilican in mass, the resulting complex (see site plan opposite and axonometric at left) evokes a "city on a hill," dominated by a lofty church that draws on the classic form of a cross within a square as it piles pyramid-capped masses of brick and stucco upward to a central cross-crowned lantern, and spreads its wings toward the mountains on the west. The outstretched arms, a fellowship hall on the north and activity and administration areas on the south, embrace a courtyard approached via a series of broad stairs from the main parking lot, which adjoins a lower-level education wing resurrected from the original Sunday-school basement. (A natural suntrap usable even in winter, and well-buffered from traffic noise, the courtyard is now being landscaped as a garden columbarium that will also be used for outdoor services and assemblies.)

Though not centered in the complex, the church is not only a constant presence at the heart of the "city," but is physically knit into its daily life by narthexes on north and west, which double as passages between the sanctuary's street-facing front door and circular automobile dropoff and the much-frequented buildings on the courtyard. Although wrapped by these deep inner porches, with their distinctively sawtoothed folded-plate roofs, the worship space itself is elevated so that movement alongside is well below eye level, sensed rather than seen. Seated worshippers instead look to windows whose silhouette and tracery suggest clouds over mountains, infilled with blue-on-blue stained glass on the east and clear glass on the west, where the view opens to the courtyard and the distant Rockies. The same geometrically patterned stained glass sweeps across the apse wall on the south, washing the altar with light that subtly changes in hue as the sun traces its daily circuit.

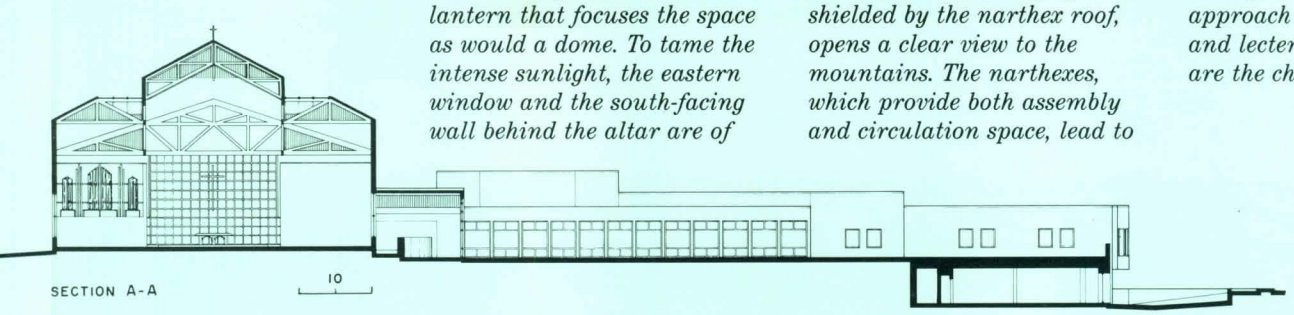
Although the conceit of a circle of worship was anathema to the powers-that-be within the Lutheran hierarchy, among whom even the square plan was suspect and a central altar unthinkable, Bethany's congregational ideals of wide welcome and of linkage between its sacred and secular missions inform the precincts dedicated to both. Even within the sanctuary, the space welling up to the skylit reaches of pyramidal timber trusses centers on the assembled flock—the true body of the church—while font, lectern, and even altar have been made approachable by their placement in the direct path leading from courtyard and narthex to nave. Since taking possession of its new home, Bethany Church has grown to encompass more than a dozen special ministries, from socials for singles to bedside care. Says pastor Keith Swenson, "We are becoming the church we built." *M. F. G.*

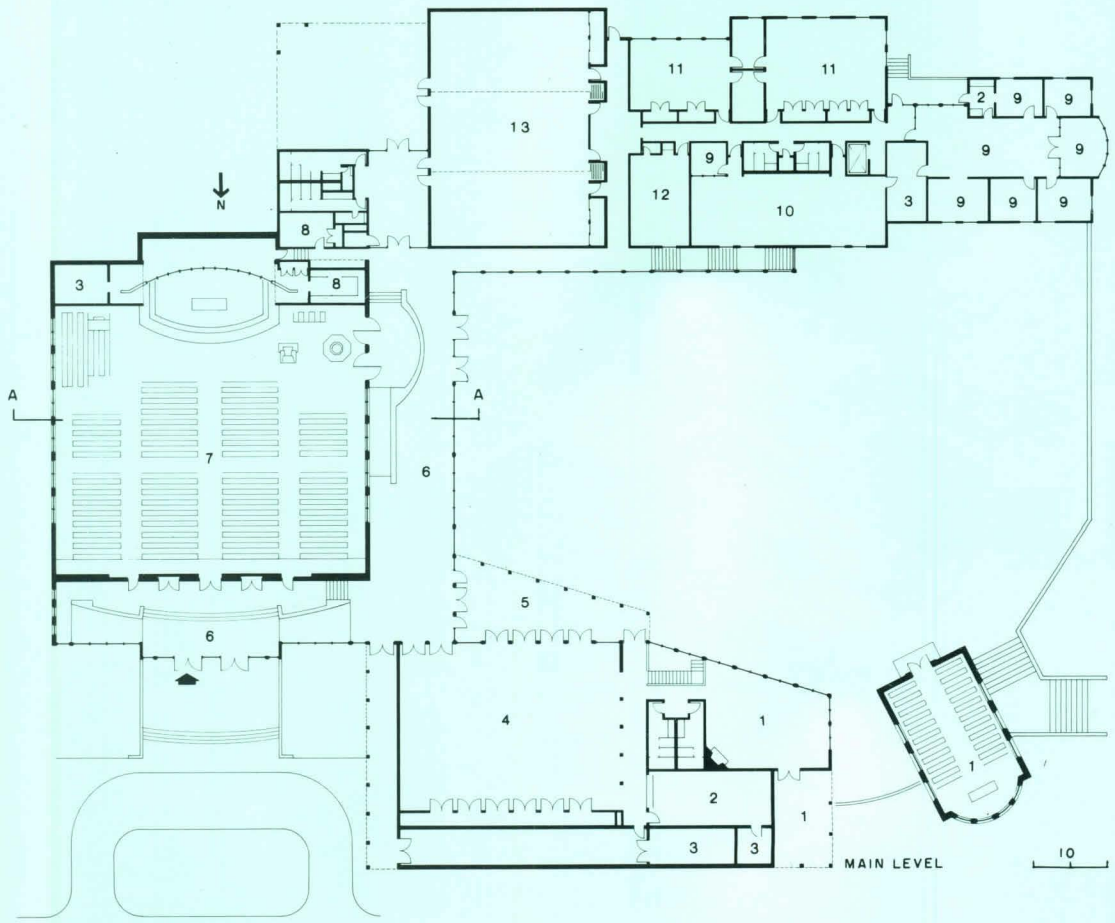
Bethany Lutheran Church
Englewood, Colorado
Tapley/Lunow Architects, Design Architect; Richard A. Lehman, Architect



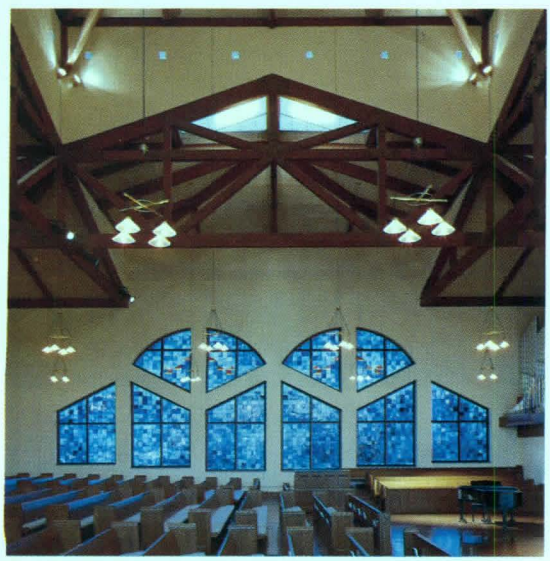
Cresting its hill, the upreaching brick and concrete mass of Bethany Church's primary worship space culminates a progression that takes churchgoers up a sweeping stair to a sheltered courtyard that opens to the mountain view as well as to the wings housing fellowship, activity, and administration, which flank the narthex and sanctuary. The alternate entry, by way of a similar glass-fronted narthex and auto court, addresses from its height the major artery below.

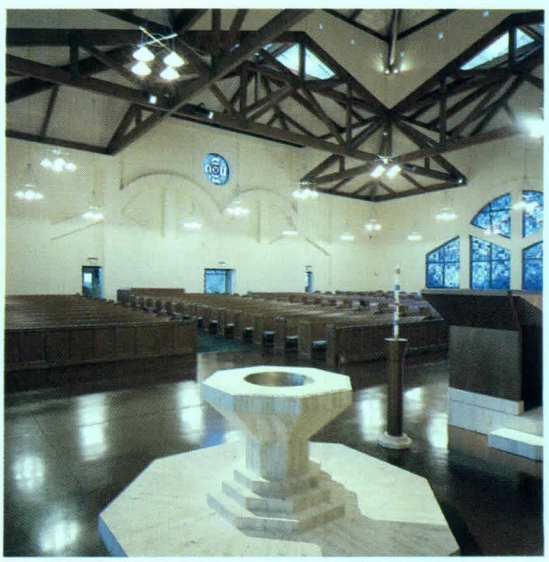
Bethany's sanctuary rises from its square plan in a succession of skylit timber pyramids culminating in a central lantern that focuses the space as would a dome. To tame the intense sunlight, the eastern window and the south-facing wall behind the altar are of stained-glass in a dense grid designed by the architect and executed in richly varied blues; the western wall, largely shielded by the narthex roof, opens a clear view to the mountains. The narthexes, which provide both assembly and circulation space, lead to the elevated sanctuary by way of stepped and ramped platforms. Entering from the courtyard, worshippers approach the baptismal font and lectern. East of the altar are the choir and organ loft.





1. *Future chapel*
2. *Kitchen*
3. *Storage*
4. *Fellowship hall*
5. *Porch*
6. *Narthex*
7. *Worship*
8. *Sacristy*
9. *Office*
10. *Media center*
11. *Music rehearsal*
12. *Nursery*
13. *Great room*

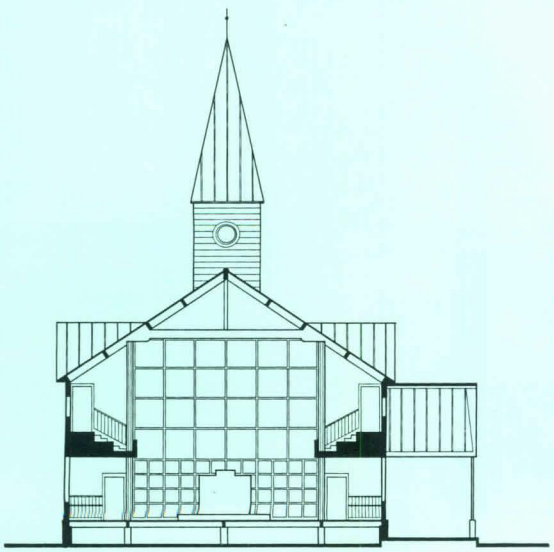




Bethany Lutheran Church
Englewood, Colorado
Owner:
Bethany Lutheran Church LCA
Architects:
Tapley/Lunow Architects (design)—Charles Tapley, principal-in-charge; Mark Hoistad, project architect
Richard A. Lehman, Architect—Richard A. Lehman, principal-in-charge; Rick Lawrence
Engineers:
AD&C Group (structural); Gary Curry & Law Powell (mechanical); Clay & Associates (electrical); Battjes Engineering (civil)
Consultants:
Engineering Dynamics (acoustical); Charles Tapley (stained glass, chancel furnishings)
General contractor:
Adolfson & Pederson, Inc.

Covenant Presbyterian Church
Houston
Tapley/Lunow Associates,
Architects

Plainspeaking



That the rippling green meadow lapping against the Covenant Presbyterian Church in the view above is really a weedy vacant lot (and not even a very big one) suggests the exigencies of setting and circumstance from which Charles Tapley wrested for this small church its large measure of dignity. The new building joins the congregation's original makeshift prefab on a site at Houston's western outskirts, its back door separated from a major freeway by one-lot-deep strip development, and its entrance fronting a curving street thick with garden apartments. But it addresses its motley surround with an aplomb belying its modest size (only 300 seats) and budget.

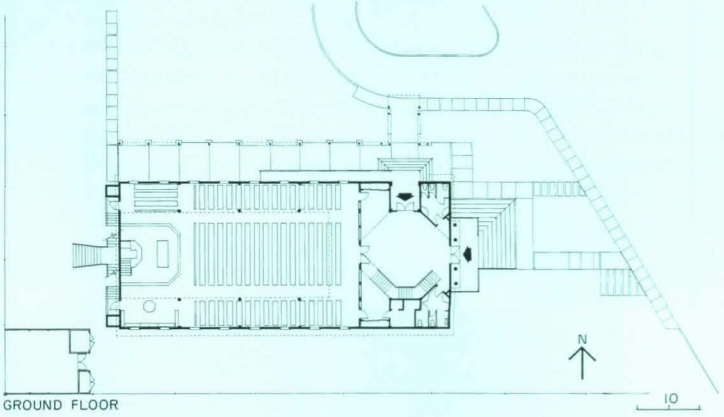
The building gains both stature and (to Tapley, de rigueur) generous gathering space from a plan that incorporates within the principal volume an atrium narthex overhung by a mezzanine housing staff and service areas (opposite left). On the north, the narthex extends outward to a glass-canopied porch and a walkway linking the new church to its predecessor.

Its scrupulous honesty of expression, however, lends the structure an astringency more evocative of New England than of

Covenant Presbyterian Church
Houston
Owner:
Covenant Presbyterian Church in America
Architect:
Tapley/Lunow Architects—Charles Tapley, principal-in-charge; Greg Harper, project architect; Robert Hubbard, Dean Johns
Engineers:
Ashkar Engineering (structural); Olive Engineers (mechanical/electrical/plumbing)
Consultant:
Charles Boner and Associates (acoustical)
General contractor:
Paisan Construction Company

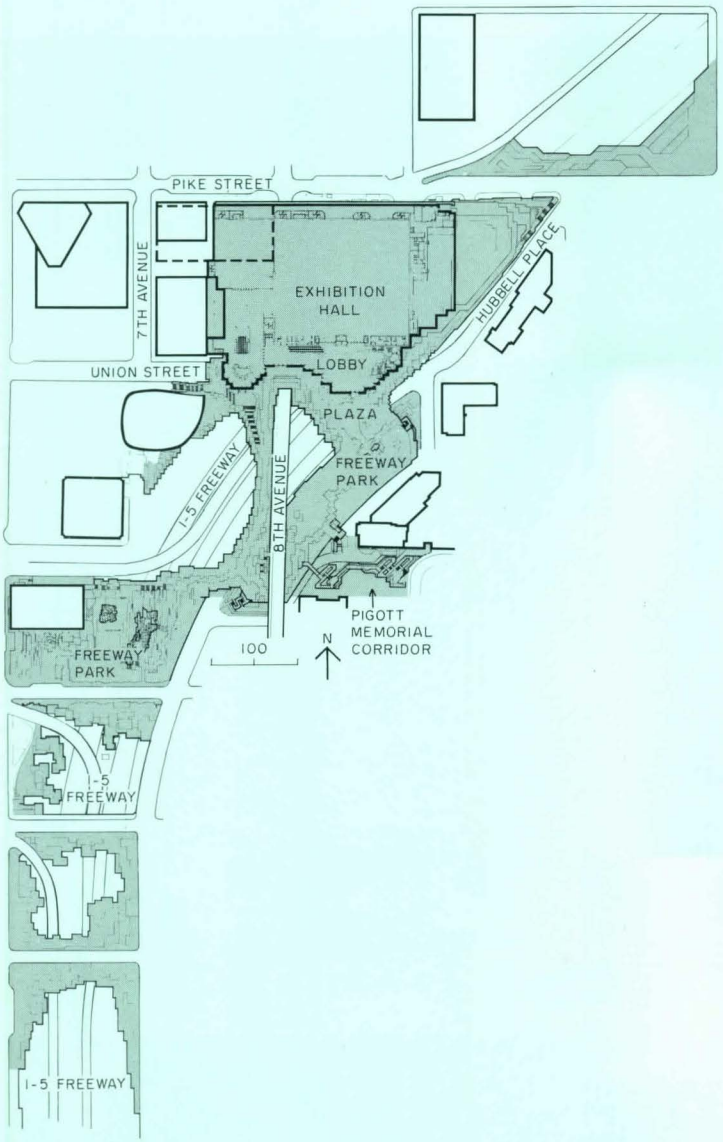
the steamy Gulf Coast. On the exterior, weathered wood siding and a seamed metal roof are pierced by windows—kept small to combat the searing Texas sun—that progress from rectangle to lozenge to gable to a "rose" window bisected by a symbolic limestone steeple and portals at the street entry. For economy, the straightforward laminated timber framing is left exposed in the nave (above right), where engaged octagonal columns at the outer walls are paired with matching freestanding columns that demark side aisles and a not-yet-furnished U-shaped balcony.

After seeing the structure in place, Tapley eliminated even the token adornment planned for the wall behind the altar, leaving as the sanctuary's sole decorative flourish an eight-foot-tall pulpit, picked out by daylight from the steeple lantern above, to symbolize the congregation's emphasis on the Word as salvation. For all its Scots-descended plainspokenness, though, the interior of the Covenant Church is far from dour, its austerity warmed by the rich mahogany of wood framing and fittings, aglow against an antique-blue ceiling, golden oak floor, and walls clothed in the sunny gray-blue-streaked peach of a dawn sky. *M. F. G.*



Washington State Convention
and Trade Center
Seattle
TRA + HNTB, Architects;
Danadjieva & Koenig
Associates, Associated
Designers

Only connect



The principal element in Seattle's master plan for freeway air-rights development (above), the recently completed Washington State Convention and Trade Center reinforces and expands on the concept first germinated by Freeway Park (1976) and the adjoining Pigott Memorial Corridor (1984): to ameliorate the impacts of Interstate 5 and reunite the downtown neighborhoods it divided.

Even the most ardent local booster would hesitate to tout a 400,000-square-foot convention hall plunk in the heart of a city as a public benefaction, except perhaps in the narrowest economic sense: the size and insularity intrinsic to the breed make it an awkward neighbor at best. But Seattle's Washington State Convention and Trade Center (WSCTC), though intended as an "economic generator" to offset declines in such resource-dependent state industries as timber and fishing, has also proved to be a remarkably friendly newcomer to the downtown core.

Though Seattle is not the last city to recapture lost downtown land by claiming highway air rights, it was among the first. Freeway Park, completed in the mid-1970s, was an early and imaginative attempt to heal the wounds inflicted when the interstate system began scything 12-lane swathes through urban centers across the country. A floating island of lush vegetation and moving water, framed by crags and nooks of textured concrete, the park (and underlying garage) spanning the freeway tempers traffic noise and pollution. More importantly, it bridges—both physically and symbolically—the chasm Interstate 5 carved between Seattle's thriving business district and the once-contiguous First Hill residential area to the east.

Leading from this strength, the state legislature, which established the nonprofit corporation that built and operates the trade center, accompanied its charge with a strong recommendation that the Freeway Park concept be considered for the new project as well. Locations near Seattle's Kingdome arena and the former World's Fair grounds were also evaluated, but the advantages offered by the still-hypothetical freeway site proved persuasive. Air-rights development would place the center squarely downtown, within walking distance of major hotels, shops, and restaurants as well as the park's attractions. It provided the most promising opportunity for complementary private development; and it was expected to cost little more than acquiring and clearing land elsewhere.

Despite its many civic virtues—not least an enviable reputation for livability—Seattle's soggy northwestern corner is neither crossroads nor Mecca in the eyes of the rest of the country. So the preliminary planning that preceded the legislature's launch of the center also included an unflinching look at the city's competitive position. To assure the volume of business needed to make it pay, it was decided, the WSCTC should not be gargantuan, only gigantic, aiming at a market niche of middle-sized conventions drawing 2,000 to 10,000 delegates. And to make the most of its downtown setting, marketing should focus on people-oriented gatherings rather than great expositions.

The proof of the pudding is a convention hall that opened fully booked and almost immediately began detailing plans for expanding its meeting facilities. What sets the complex apart, however, is not simply the freeway site—a significant planning tour de force for Seattle but little more than a curiosity to most convention-goers. The difference between an interesting urban experiment and a stimulating urban experience lies rather in a development that capitalizes on its "found" central site without insult to the city around it. Far from further estranging freeway-torn downtown neighborhoods, the building reunites them, generating new layers of connective tissue to reinforce the strands spun earlier by Freeway Park. The center adds only two acres to the park itself but multiplies its network of pedestrian circulation routes, not only within the project but through it to

On a listing of potential hazards to the health of a tight-knit urban community, the blank bulk of the typical convention center would rank high. So would an inner-city freeway. But by combining them, Seattle has domesticated both.

James Housel photos except as noted

Courtesy Danadjieva & Koenig Associates

other downtown areas. Moreover, in addition to incorporating the park extension as plaza and vestibule, the building draws on themes from its structure and landscape to liven both interior and exterior. Though massively and unmistakably "there," it is for the most part a benign presence within the city's streetscape, largely because each facade responds individually and appropriately to its immediate neighbors around the site.

The most striking aspect of the complex, certainly, is the gem-faceted emerald-glazed expanse it turns to the freeway approach from the south (photos at top and bottom, page 113). Limpid in shade, lucent in sun, the stepped glass enclosure over the convention-center lobby opens major spaces up to the sky and out to a view that reaches across the freeway's hanging gardens to the distant waters of Puget Sound. At plaza level, the lobby is a stunning reception area for the public as well as convention-goers.

The project's most intimate ties to the city, however, occur on east and west. To the east, where the center faces existing apartment buildings, the tree-lined terraces of the south plaza continue at smaller scale, cloaking the wall in a veil of greenery that muffles the impact of the main service entry below. On the west, the complex meets the city core via the landmark Eagles Building, a historic structure that will be restored as part of an adjoining private high-rise development slated to include office, hotel, and retail facilities. The focal point of the west facade, though, is an intricately stepped green-glass corner entrance from which a sculptured "fire fountain" and glimpses of the interior will beckon pedestrians on Union Street, a major route through the downtown area, to the galleria that forms a north-south spine linking pedestrian and vehicular entries with all levels of the complex. Even the north face (at right in bottom right photo, page 113), whose hermetic bulk defied disguise, is scaled to the major buildings expected to rise on the underdeveloped properties opposite. At street level, pedestrian activities dominate; the upper elevation is a composition of solids, voids, and planes that articulate the building's internal organization.

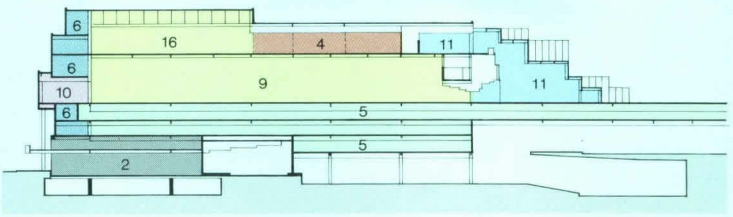
Joined with the cunning of a Chinese puzzle, the facilities within the project are so knit together that entrances from any level lead visitors to their destinations by way of a continuous, often dramatic, vertical and horizontal circulation route. The most important of these connectors is the galleria, which ascends through a succession of public spaces, merged at the jewel-like southwest corner with small parks on each level, culminating in the plaza-level lobby. In its own right a splendid hall for assemblies and displays, the soaring lobby introduces the center's principal exhibition and meeting facilities—two floors of efficient, flexible space subdivisible to accommodate a variety of functions.

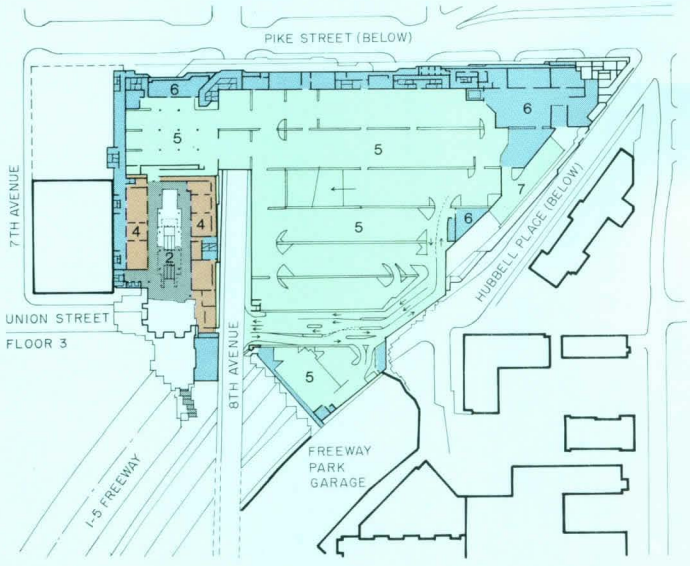
Vehicular circulation, too, is handled with dispatch. One thousand parked cars are tidily encapsulated in a two-level garage directly over the freeway, with entry from an existing elevated street that cuts across I-5, then plunges through the WSCTC complex. Below it, an access road paralleling the freeway provides a street-level auto/bus drop-off at the lobby to the galleria and adjoining shopping arcade. Even trucks, though hustled out of sight and sound, enjoy a direct route to the exhibit floor.

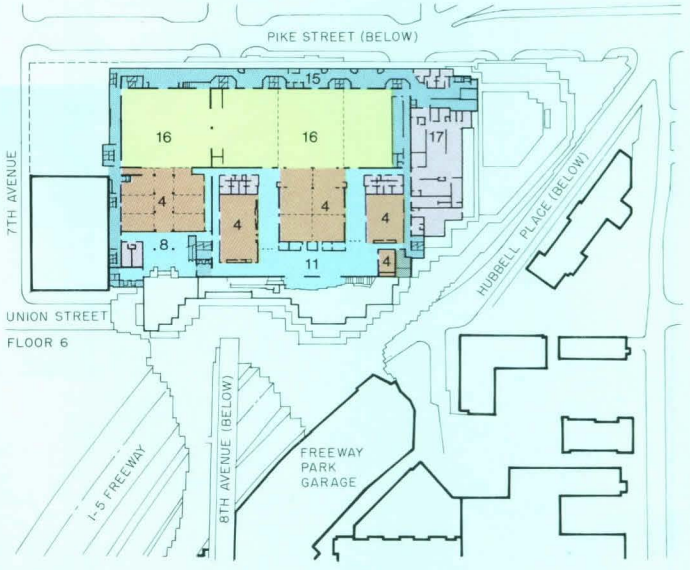
The project's final conquest over the highway, however, awaits the planned extension of the surrounding park to the convention-center roof, which will feature among its plantings, pools, and fountains a visitor information center—downtown Seattle's version of the roadside rest. *Margaret Gaskie*

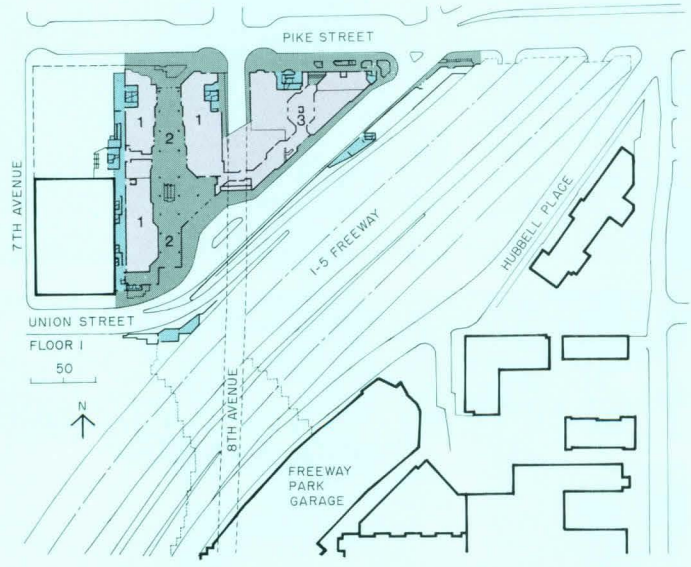
Emerald in cut and color, the glass and aluminum curtain stretched across the square-faceted space frame at the convention center's south face both veils and reveals the underlying structural "tree." Similar—but vastly larger—Vierendeel trusses bridge the freeway, at the same time framing the 1,000-car parking garage that underpins the wider spans of upper-level meeting and exhibition spaces. A new two-acre garden plaza that carries Freeway Park to the convention center's front door also extends its boldly

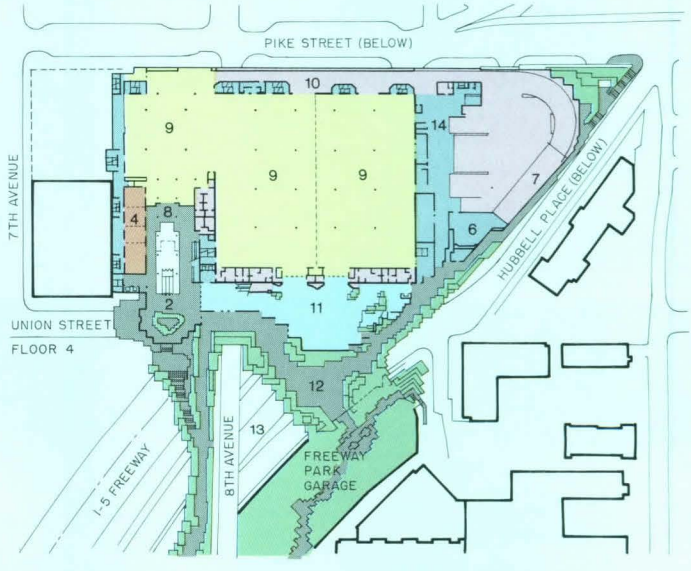
sculpted and lushly planted terraces to street level, creating outdoor pedestrian pathways to augment interior circulation through the project. The primary corridor is a galleria that joins a street-level shopping arcade with the upper lobby, tying in parking and other functions along the way. The galleria's upper-floor spaces, originally reserved for retail, are now being converted to provide additional meeting rooms, but shops and other pedestrian-oriented services continue to animate the center's street-level perimeter. Truck and car traffic are segregated by placing truck access at freeway level and the garage access one level up, entered from 8th Avenue. Other vehicular entries also maintain existing streets while extending their reach into the complex. The principal convention facilities occupy the two top floors facing the park. The 100,000-square-foot exhibition area can be divided into up to three halls for concurrent displays; the 50,000-square-foot meeting space above is flexible enough to accommodate groups of from 50 to 4,000 people.











1. *Retail*
2. *Galleria*
3. *Future retail*
4. *Meeting rooms*
5. *Parking*
6. *Maintenance/mechanical*
7. *Truck ramp*
8. *Prefunction*
9. *Exhibition hall*
10. *Truck access/service*
11. *Lobby*
12. *Terrace*
13. *Open to freeway*
14. *Loading dock*
15. *Banquet service corridor*
16. *Meeting/exhibition*
17. *Kitchen*

MEETING ROOMS
EXHIBITION AREA
TERRACE/GALLERIA
PARKING
ADMINISTRATION/STAFF/SERVICE
CIRCULATION/STORAGE/MECH
LOBBY

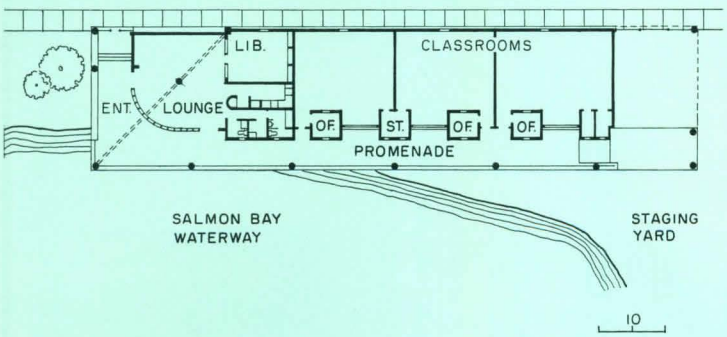
A continuation of the adjacent park, the convention center lobby deploys similar forms, materials, textures, and landscape to modulate the scale of the huge 60-foot-high expanse by recalling the yet more imposing natural features of the Pacific Northwest. The lobby also serves as a major circulation node, joining the terminus of the galleria's ascent (opposite) with the park-level plaza and the main convention spaces. The sculpted and cantilevered north wall (below and bottom left) overhangs the doors to the exhibition hall; its mezzanine (bottom right), reached by escalator and stair, is a prefunction area for upper-level meeting rooms.

Washington State Convention and Trade Center
Seattle
Owner:
State of Washington
Architects:
TRA + HNTB
TRA—Allen D. Moses, partner-in-charge; Phillip L. Jacobson, design partner; Roger Schultz, project directors; James J. Sanders, project designer; Charles M. Hartung, project architect; Carol Deal, interiors; Kelly Brandon, Andrew Goulding, graphics
HNTB—Hugh Schall, partner-in-charge; William C. Meredith, programmer
Associated designer:
Danadjieva & Koenig Associates—Thomas R. Koenig, principal-in-charge; Angela Danadjieva, design principal; Jeffrey L. Gross, project director; Roland S. Aberg, project director (landscape)
Design consultant:
Pietro Belluschi
Engineers:
Skilling Ward Magnusson Barkshire (structural); HNTB (civil, electrical); TRA (mechanical)
General contractor:
Paschen Contractors, Inc.

Marine Technology Facility
Seattle Central
Community College
Seattle, Washington
The Miller/Hull Partnership,
Architects

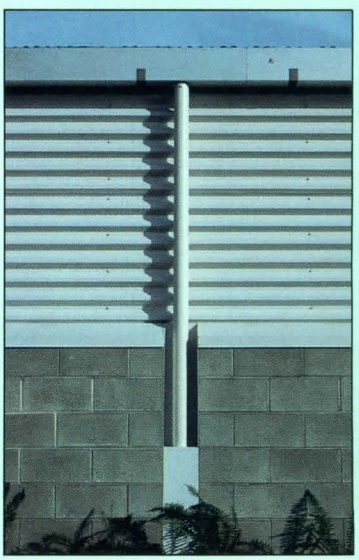
Maritime maneuvers

David Miller photos except as noted



In Seattle's old waterfront quarter of Ballard, amid a hard-working agglomeration of drydocks, commercial fishing fleets, and marine-propeller manufacturers, the Miller/Hull Partnership has produced a building that takes its stylistic cues from the straightforward vocabulary of its industrial setting. The 6,000-square-foot structure, situated on Lake Washington Ship Canal in the shadow of the Ballard Bridge, houses Seattle Central Community College's marine-technology program, a six-quarter course of study that prepares students for maintenance and operational positions aboard the tugs, ferries, and fishing boats of Puget Sound, as well as larger ocean-going vessels.

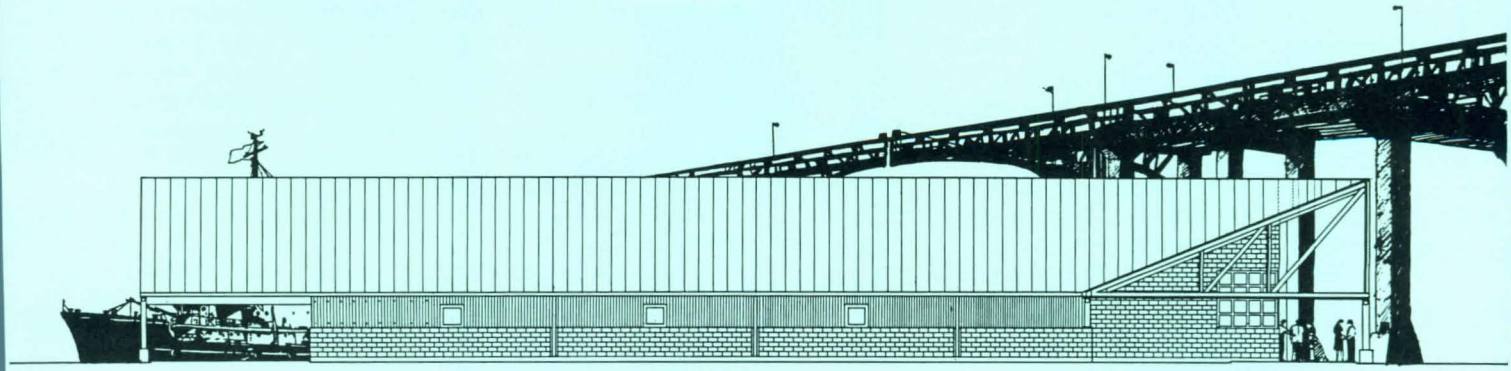
In order to simulate the experience of being on the deck of a ship and to take advantage of Seattle's year-round temperate climate, Miller/Hull positioned the steel-framed structure atop a platform directly at the canal's edge, and organized circulation along an outdoor promenade that connects the school's three classrooms, library, and student lounge to college-owned instructional craft moored just off a marine-apparatus staging yard. In contrast to the security-fence solidity of its concrete-block and corrugated-steel northern elevation (small photo bottom left), the building's principal south-facing elevation (top left and opposite) is a largely transparent, two-dimensional graphic meant as a welcoming signpost for boaters cruising the canal. Although off-the-shelf materials helped the architects stay within a strict $65-a-square-foot budget, the building's low-tech palette also reflects Miller/Hull's effort to marry the bold scale and metal-based esthetic of the neighborhood's prosaic industrial landscape with the delicacy of a hand-crafted wood sailing vessel. Bright-red threaded steel tie rods juxtaposed against a glue-laminated fir sunscreen, for example, suggest the sturdier cross bracing of the adjacent bridge, while office and storage modules sheathed in medium-density overlay plywood are trimmed in unpainted galvanized-steel flashing that evokes, in David Miller's words, "the banding on an old steamer trunk." If the teak handrail that crowns a stainless-steel-cable deck rail (small photo bottom right) is yet another bit of water-born imagery, classroom and lounge window walls ingeniously fabricated by butting together and battening standard two-foot-square garage-door panels bring the building back to solid ground. *Paul M. Sachner*



Seattle Central Community College's Marine Technology Facility is the second phase of a master plan that the architects drew up for the school in 1980. Phase one involved the development of the two-acre site, including a new bulkhead and dock for the college's instructional ships and improvements to a lagoon that shelters hundreds of ducks and Canada geese. Phase three will replace a cluster of portable buildings east of the site (right in photo below) with a mirror-image administration and laboratory structure.

Marine Technology Facility
Seattle, Washington
Owner:
Seattle Central Community College
Architect:
The Miller/Hull Partnership—David Miller, partner-in-charge; Debra Battle, project manager
Engineers:
H. K. Kim, Engineers, Inc. (structural); Anne Symonds & Associates (civil); Larry Atkinson & Associates (electrical)
General contractor:
C. E. & C. Inc.

Gary Ochsner



Metal roofing: New versatility

Four projects—utilizing both traditional metals and coated ferrous panels—reveal new esthetic possibilities in metal roofing as well as inventive detail strategies.

Once consigned only for use in "tin" utility structures, coated sheets of steel or aluminum have been transformed by manufacturing improvements into sophisticated system components, suitable for wall panels, fascias, and entire prefabricated buildings. Such panels, when used on roofs, are frequently referred to as *structural* because they have been designed to span openings in framing without the support of an underlying deck. Nowadays they are typically preformed by fabricators and are available prefinished in a bewildering variety of generic films and custom colors. Under these decks, industrial-type batt insulation can be draped over purlins to achieve a system that is highly insulated, attractive, and relatively inexpensive (many systems even incorporate a spacer between purlin and deck to avoid thermal bridging at the panel supports).

The principal alternatives, traditional metal roofs in copper (sometimes lead-coated) and stainless steel (sometimes coated with terne metal) have been proven to last decades, but because these types (called *architectural* to distinguish them from the panels capable of supporting roof loads) must usually be installed over separate structural decking, first costs may be higher. Nevertheless, their tectonic appeal is being rediscovered, and their relative permanence offers substantial life-cycle cost advantages over many inexpensive-to-install systems. Even their visual quality can be an advantage: materials with highly reflective surfaces can lower cooling costs noticeably, for example.

Architects of the four projects shown on these pages originally chose metal roofing on esthetic grounds, but have found even highly cost-conscious commercial clients receptive to the virtues of the material. While problems with older systems are now handled more straightforwardly, several areas merit detailed attention. The roof pattern and seam configuration affect appearance as well as performance (manufacturers offer myriad sizes and shapes); the transition between sloped metal roofing and a flat roof or parapet is also critical. Use of a traditional product, such as sheet-metal roofing, with components developed for other kinds of installations raises new issues. Among them:

Materials compatibility
Elastomeric membranes are seeing greater use in place of metal flashings and gutters, offering construction economies and, when used with care, a less problematic interface with rigid materials. Vendors should be consulted as to the appropriateness of sealants, mastics, and adhesives. Materials incompatibility can also cause staining and galvanic corrosion. Copper-laden air-conditioning condensate, for example, should not be allowed to fall on aluminized surfaces. Likewise, aluminum skylights should be isolated from copper roofing materials; chemicals used in wood treatment can be deleterious to some metal surfaces, while copper will stain masonry surfaces. Acid-rain deterioration of metal roofs has not yet been seen as significant, but severe industrial environments *can* be harmful to many metals.

Fire safety
Although metal roofing materials are noncombustible, no metal roof constructions—not even flat ones—have been tested by code-approved laboratories for timed fire ratings. With the requirements for one-hour-or-more roof assemblies becoming prevalent in codes, early consultation with local authorities is advised. Two of the illustrated projects, the Central Park of Lisle, in Illinois, and an addition to Philadelphia's Franklin Institute (pages 122, 123), were accepted as equivalent to rated construction.

Humidity
Where significant interior humidity will be present, insulation must be placed below the deck and faced with an effective vapor barrier installed toward the interior to prevent condensation inside the roof. Alternatively, the metal deck itself can be vented, as Lohan Associates has done at the Central Park of Lisle. Within the Omnimax theater at the Franklin Institute, mechanical ventilation removes any condensation that may form inside its unvented deck in order to maintain exacting humidity conditions required by computerized projection and sound systems. Among component manufacturers, W. P. Hickman offers a vented roof-panel system.

Thermal movement
With a high coefficient of expansion, all metal roofs must be designed to take thermal movement into account. Fortunately, manufacturers' details have addressed this problem more thoroughly than in the past. Most movement in architectural sheets takes place through slippage within field-formed standing seams; structural systems frequently use clips with sliding tabs, allowing the roof to float over its supports. Because of the latter characteristic, however, such a system cannot act as a structural diaphragm. Correct alignment of the tabs is critical to prevent binding of the machine-fabricated movement seams. While standard details provide for normal movement, an atypical roof configuration or fixed penetrations must allow two-way expansion and contraction under counterflashing, a situation manufacturers' details may not address.

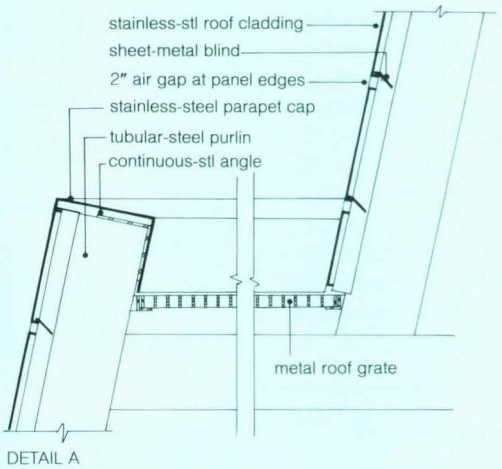
Finish
Durable baked-on finishes for steel or aluminum panels have become numerous in recent years. Steel is available galvanized or with zinc-aluminum coatings, such as Galvalume, that offer superior protection. Most manufacturers offer a variety of finishes that are baked onto coiled rolls of preformed material (hence, coil-coated). The choice of film type often depends on a tradeoff between first cost and longevity. Most component manufacturers consider 70-percent Kynar-based fluoropolymers their most durable products, but sometimes offer 20-year guarantees for siliconized-polyester finishes. The National Coil Coaters Association rates both of these finishes as well as other generic coatings (from good to excellent) under various conditions, including abrasion resistance, corrosion resistance, formability, and gloss retention, in the CSI monograph *Precoated Metal Building Panels.*

While manufacturers are always the architect's first source, other publications that offer useful information include the Copper Development Association's manual of *Sheet Copper Applications* and the SMACNA *Architectural Sheet Metal Manual.* In a system as critical as the roof, however, judgments based on catalog data or length of warranties can be chancy. "It's the manufacturer's technical backup that we look for," says Michael Kauffman of Lohan. "When they support us, we support them by making sure theirs is the product named in the spec."
James S. Russell

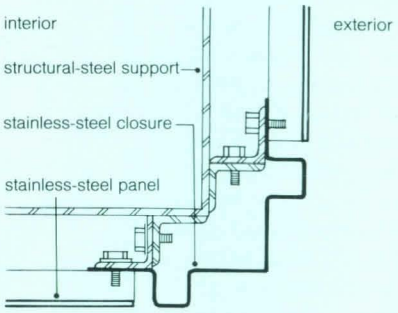
Reflective steel crown for a tower

While it will appear solid from a distance, the reflective stainless-steel roof of Society Tower, in Cleveland, will be a permeable enclosure for air-handling and other mechanical equipment. Cesar Pelli & Associates with Kendall/Heaton Associates are studying various embossed patterns for the panels, which are self-supporting. Gratings will be set at horizontal planes, allowing the escape of exhaust air and vapor; the sloped surfaces will have gaps at all panel edges.

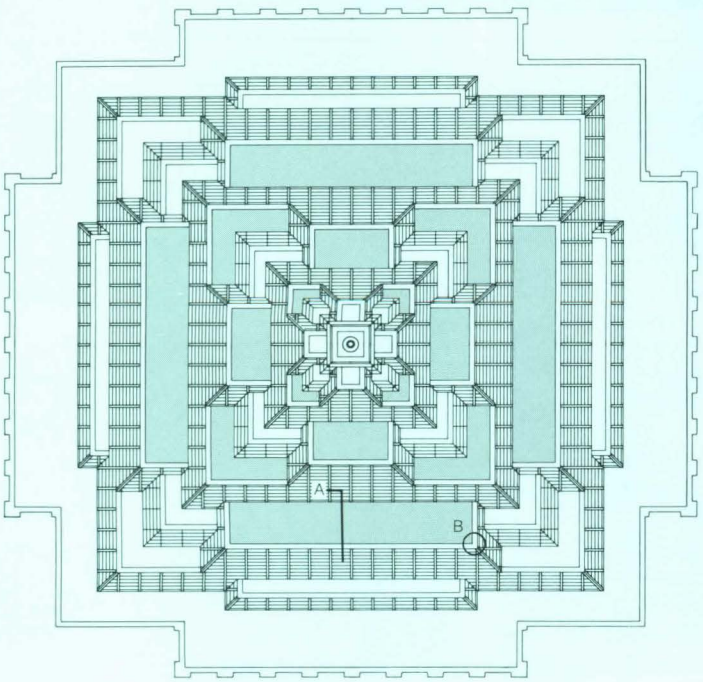
© Wolfgang Hoyt

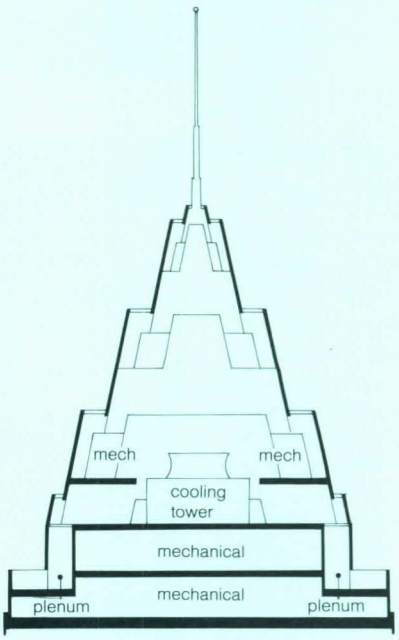


DETAIL A



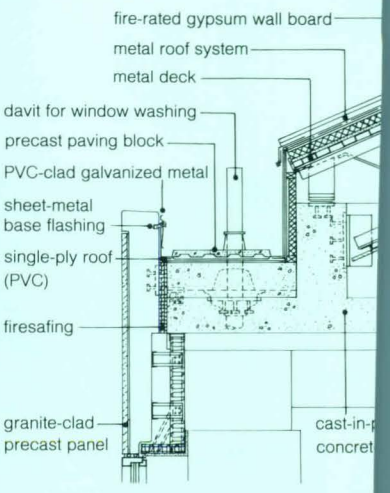
DETAIL B





Vented roof in Illinois

Cold winters and moisture produced by mechanical equipment convinced Lohan Associates to vent the roof at the Central Park of Lisle, a phased office and retail complex in Illinois. Galvalume, in a fluoropolymer color, was selected (PVC coats metal flashings for compatibility with the gutter membrane), and is attached to a plywood substrate, which in turn is fastened to 2-1/2-in. sleepers laid normal to the slope. The rigid board insulation is fitted between the sleepers, leaving 1/2 in. for ventilation.

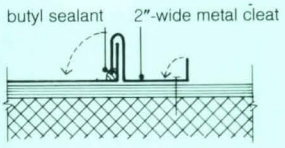


DETAIL A

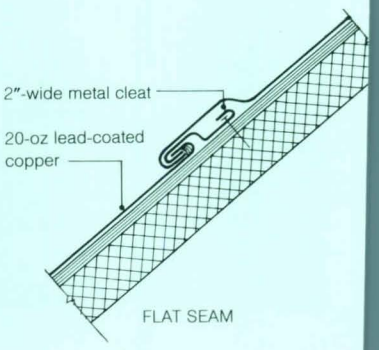
Bermuda roof for a museum

For its strongly geometric addition to the Franklin Institute, a science museum in Philadelphia, Geddes Brecher Qualls Cunningham designed a lead-coated copper, Bermuda-type horizontally seamed roof over an Omnimax multimedia auditorium. To create a larger-scale pattern, every third seam is formed over a wood batten. The roof is attached to a poured concrete substrate that was selected to meet very low noise-transmittance requirements. Ventilation under the deck will prevent condensation.

©*Christopher Ransom*



SEAM PRIOR TO FOLDING

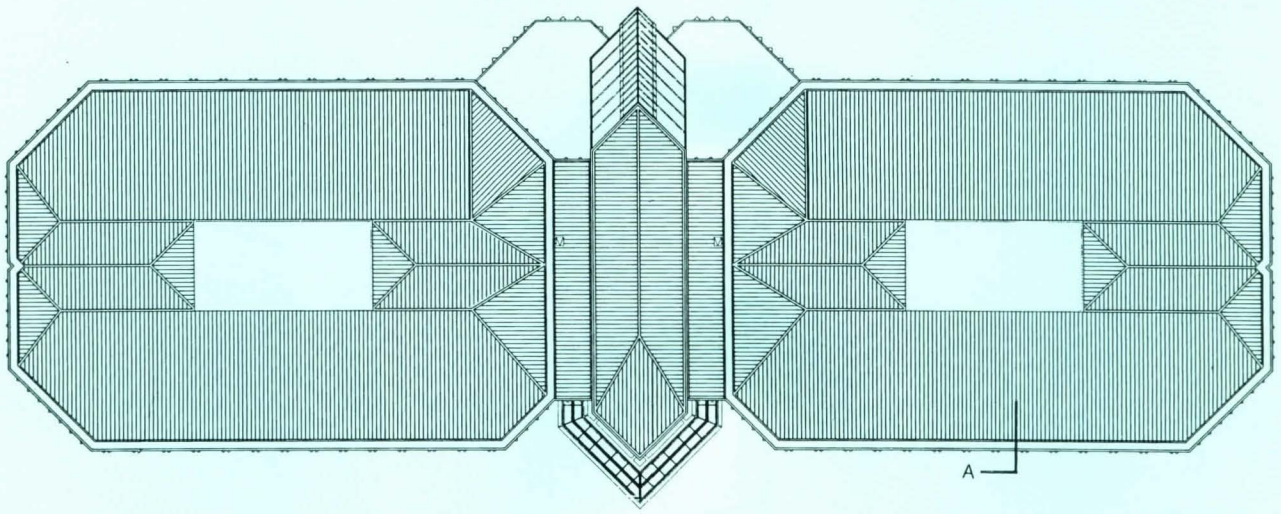


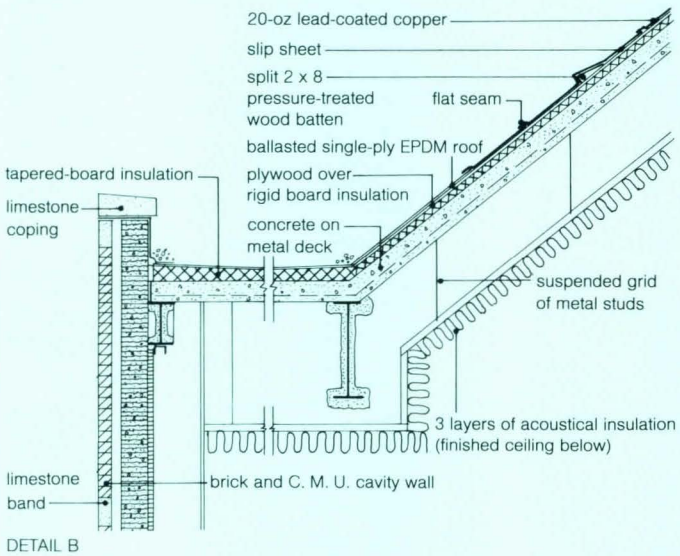
FLAT SEAM

Waterproof system over an atrium

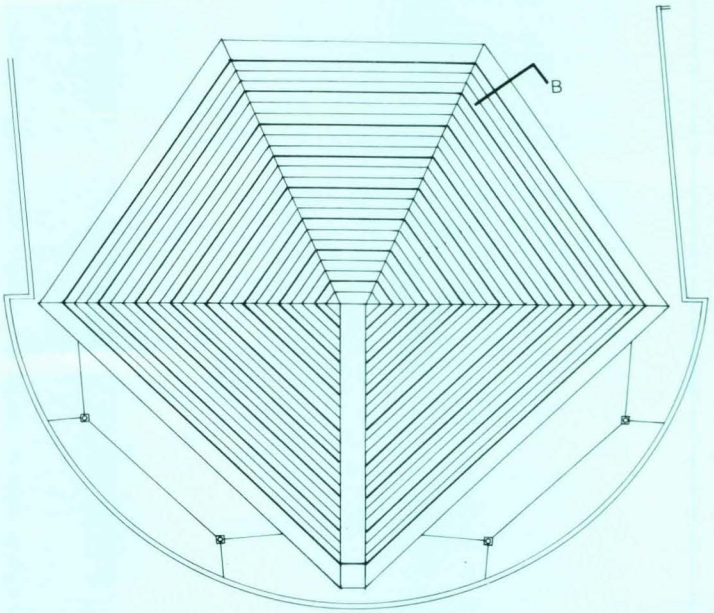
To prevent penetration of wind-driven ice and snow, the barrel-vaulted roof of Gaviidae Common, a five-story downtown Minneapolis retail mall, has been detailed by Lohan Associates as a waterproof system—rather than a typical water-shedding steep roof—through use of a sheet (rubberized asphalt on a polyethylene film) under the standing-seam galvanized panel. The seamed connection between sloped roof and vault takes up thermal movement. The design architect is Cesar Pelli & Associates.

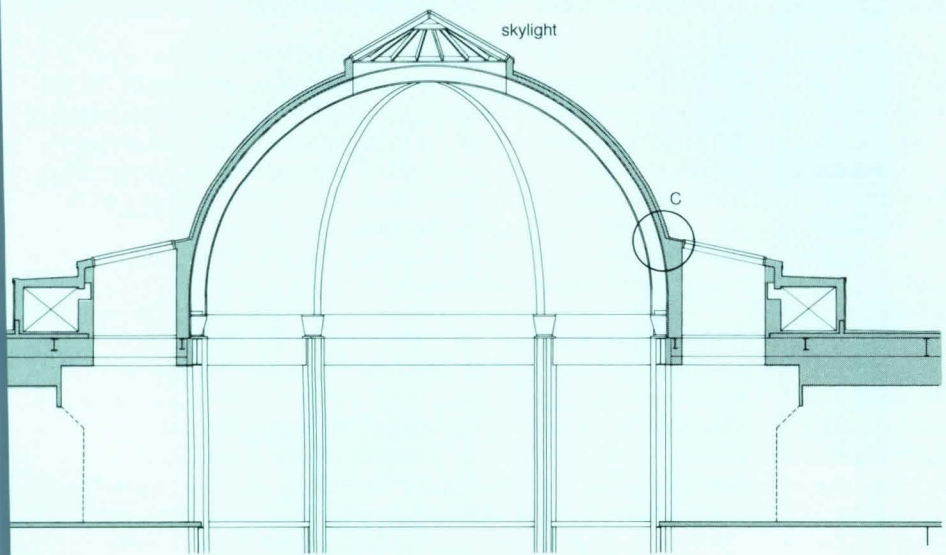
Kristin Hawkins

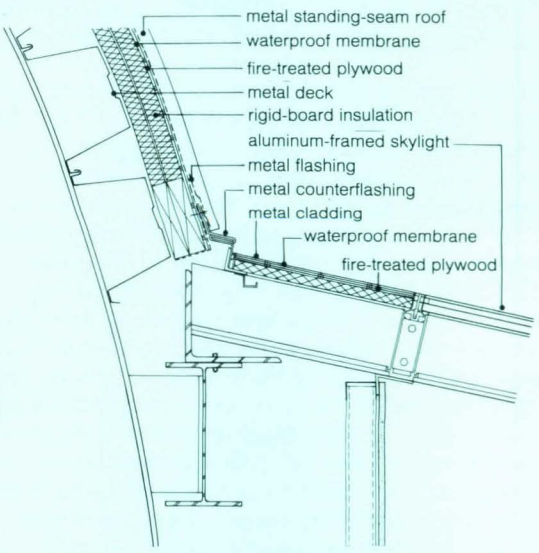




DETAIL B







DETAIL C

Reroofing a landmark

New roofs for the pavilions of Thomas Jefferson's University of Virginia replicate the original tinplate.

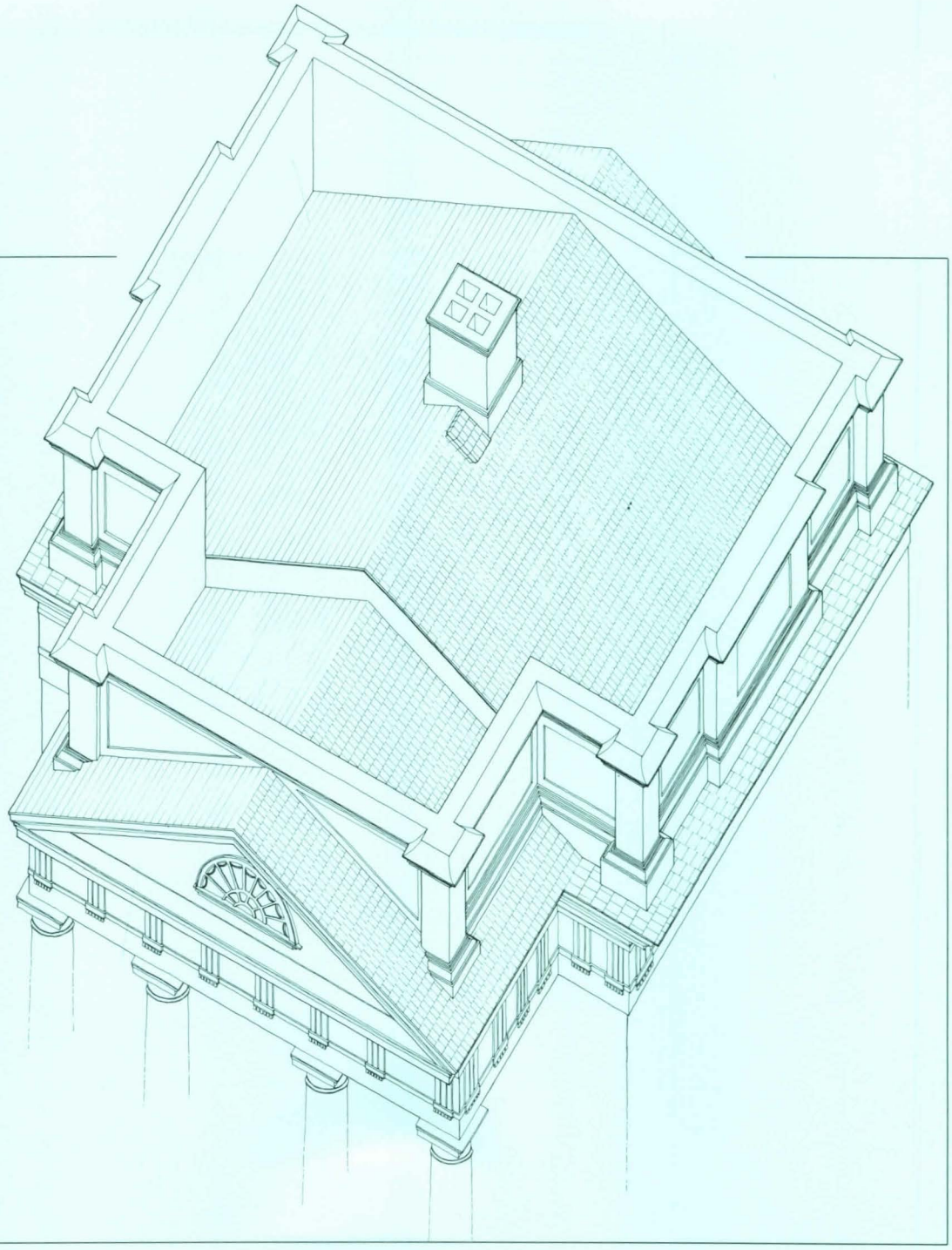
Clay S. Palazzo

Mesick, Cohen, Waite Architects photos, except as noted

The main campus of the University of Virginia in Charlottesville, designed by Thomas Jefferson between 1817 and 1826, is one of the most successful architectural ensembles in North America—a stately "academical village," as Jefferson called it, that has inspired design professionals for nearly two centuries. Architects practicing today continue to look to Jefferson's best-known buildings—including his own house at Monticello and the Virginia State Capitol in Richmond, in addition to the University—as high-minded formal and theoretical symbols of American participatory democracy. But Jefferson was also preoccupied with building technology, and much of his correspondence on the subject of architecture was devoted to engineering and the practical aspects of construction. His buildings, particularly Monticello, were spirited investigations into new materials, forms, and methods of construction. "Architecture is my delight, and putting up and pulling down, one of my favorite amuzements [*sic*]," wrote the architect. Jefferson apparently drew strength, and no doubt a measure of inspiration, by concerning himself with *how* to build. He loved working out complex details of construction, from foundations to roofs. In fact, Thomas Jefferson's efforts to develop weathertight, architecturally sophisticated roofs for his buildings provide an interesting insight into his understanding of the building technology of his time, as well as his pioneering efforts to innovate new architectural materials and construction techniques. The preservation efforts currently underway at the University of Virginia and Monticello are bringing to light aspects of Jefferson that should significantly expand his already considerable architectural reputation.

A surprising discovery

In 1985, the University of Virginia commissioned Mesick, Cohen, Waite Architects, an Albany, N. Y.-based firm specializing in historic restoration, to prepare a comprehensive historic structures report on the academical village. John Waite, a principal in the firm, was at the University doing field studies for the report when he was asked to examine a badly leaking roof on Pavilion X. While inspecting the roof, he removed several damaged shingles. To everyone's surprise, rusted metal came into



Pavilion X (top left opposite) was the first building at the University of Virginia to have its roof restored to its original metal-sheathed appearance. To complete the restoration, the University has plans to reconstruct a wooden parapet (drawing right) that once crowned the pavilion. Although it is not known when or why the parapet was taken down, evidence of the parapet's method of attachment—bolt holes and mortises for metal brackets—was revealed when a slate roof installed in the late 19th century was removed, exposing the original tinplate roofing (right opposite). In order to give the University's roofs a flat profile, Jefferson developed an unusual system of serrated ridges and furrows, which are often referred to as rooflets (bottom left opposite). Constructed of wood, the rooflets were used on two of the 10 pavilions facing the Lawn and on all the student rooms connecting the pavilions. Problems with this rather unorthodox roofing system soon arose, however, and as early as 1830, conventional pitched roofs were built over the rooflets.

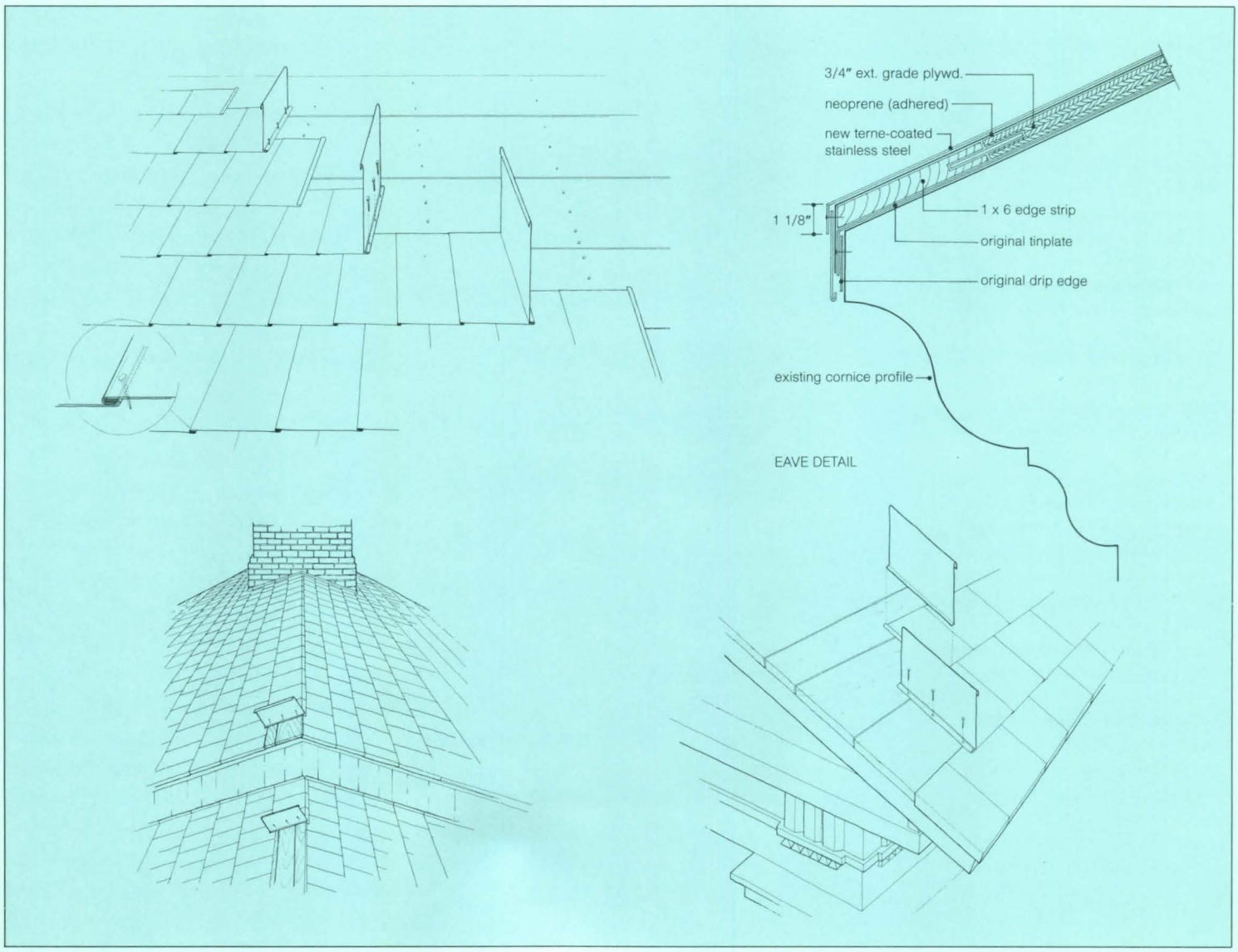
view. As more shingles were taken up, more folded metal was revealed. What could this mean? As far as anyone knew, the buildings had always been covered with either red-painted standing-seam metal roofing, or slate. The evidence of an earlier material led to a research effort proving beyond a shadow of a doubt that Jefferson had actually devised two roofing systems for the University—one of tinplated metal shingles for eight pavilions, and a second of serrated wood ridges (bottom left opposite) for two of the pavilions and the student dormitories.

Replicating Jefferson's tinplate roofing

Jefferson became interested in metal roofing while living in Europe. In addition to being visually attractive, this particular material, Jefferson observed, offered a number of highly practical benefits: it was lightweight, it was fire resistant (unlike wood shingles), and it was durable (Jefferson predicted that the tinplate roofs he designed for the University of Virginia would last at least 100 years). Soon after he returned to America, Jefferson began experimenting with metal roofing at Monticello. He first investigated a system based on cast iron pressed into thin sheets, but the unprotected iron, particularly when used as gutters, soon rusted. Experiments with tin, copper, and zinc followed. Tin, though more expensive than iron, seemed the most promising in terms of durability. Jefferson knew of factories in Wales that coated sheet metal with tin, and he eventually discovered a foundry in Philadelphia that could plate thinly rolled sheets of wrought iron with the weather-resistant metal.

The system of tinplate roofing that Jefferson developed for the University by 1819 (illustrated on page 126) consists of paired shingles formed from a single 10- by 13 1/2-in. sheet, a size that tinplaters of his day could easily manipulate. In this system, each shingle is slipped into the vertical fold of the adjacent shingle. At the folded connection, three nails are then driven into heavy wood planking used as decking. Finally, the top shingle is folded down to receive the next one. In terms of construction, this system is remarkably innovative. Early 19th-century metalworking usually required the sophisticated and expensive expertise of a tinsmith. Striving to adapt this advanced material to the constraints of

Jefferson became interested in metal roofing while living in Europe, during a five-year term as Minister to the Court of France. Upon returning to the United States, he began a series of successful experiments with metal roofing at Monticello, eventually perfecting the tinplate system employed at the University in the early 1820s. Jefferson's system is based on 10- by 13 1/2-in. plates of thinly rolled wrought iron dipped in tin (drawings below). The edge of each plate is fitted into the fold of the adjacent plate, nailed to heavy wood planking, and folded down to receive the next plate (drawings top left and bottom right). The system's simplicity is underscored by the fact that no special pieces for ridge, drip, or flashing details are needed. In restoring the pavilion's roof to its



what was then the western frontier, Jefferson conceived details whose execution required nothing more complicated than basic carpentry skills. The system's simplicity is underscored by the fact that no special pieces for ridge, drip, or flashing details were needed. Other tin roofs in North America existed at that time, but none was as advanced as Jefferson's.

In restoring Pavilion X's roof, Mesick, Cohen, Waite had four principal goals: to preserve as much of the original tinplate as possible, to correct irregularities in the roof plane that were the result of deflected rafters, to replicate accurately the appearance of Jefferson's tinplate, and, at some future date, to reconstruct a wooden parapet (drawing page 125) that presumably was removed when slate roofing was installed in the late 19th century. To accomplish these aims, the architects first removed the slate roofing. Three-quarter-in.-thick plywood sheets joined by wood splines were then laid over the tinplate, providing an even, rigid plane onto which the weathertight layers could be attached. A membrane of uncured, single-ply neoprene was then placed atop the plywood decking as a secondary line of protection should failures occur in the new metal roofing. Finally, terneplate roofing shingles—10- by 6 3/4-in. aluminum sheets coated with 60 percent tin and 40 percent lead—were shaped and attached with nails extending no further than the plywood. Like pure tin, the shiny new terneplate will darken to a rich, pewter-like patina as it weathers over time.

The future of the past

The University of Virginia intends to restore the roofs of the other nine pavilions facing the Lawn, utilizing the system developed for Pavilion X. (Work, in fact, is already underway on a new terneplate shingle roof for Pavilion VII.) The University's effort to restore Jefferson's roofs is part of a comprehensive conservation program for all the academical village's buildings and grounds. This long-overdue program was begun in 1981 by Jaquelin T. Robertson soon after he assumed the post of Dean at the University's School of Architecture. Since then, an advisory board of concerned professionals and laypeople from around the country has been established. The board's role is to guide the

original appearance, the architects removed slate added in the late 19th century, revealing the original tinplate (photo top left). Three-quarter-in. plywood sheets joined by a wood spline were laid over the tinplate to provide a rigid, even plane (top right). A single-ply layer of neoprene was then attached to the plywood decking to act as a secondary line of protection should failure occur in the new metal roofing (bottom left). To replicate the original tinplate, the architects utilized 10- by 6-3/4-in. aluminum sheets, coated with 60 percent tin and 40 percent lead, which were connected in a manner similar to Jefferson's system. (below right and top right opposite). As an added defense against water penetration, lead paste was applied to the joints where the pitch of the roof is shallow.

ongoing restoration and care of the historic district, and to oversee a campaign that seeks to raise $10 million for restoration purposes and a permanent endowment—the latter fund especially crucial to the University's long-term future. Moreover, in 1983, the University established the position of Architect for the Historic Buildings and Grounds. Since then, James Murray Howard has energetically filled this critical administrative post. Together with the Jefferson Restoration Advisory Board, The Garden Club of Virginia, professional architectural and engineering consultants, and scores of alumni and concerned individuals, Howard has effectively brought an end to a 160-year erosion of the University's historic fabric. With the preservation of Jefferson's crowning architectural achievement now assured, the University can once again turn to its founder's other, by no means less significant, legacy—an egalitarian system of education based on "the illimitable freedom of the human mind, [where] we are not afraid to follow the truth wherever it may lead or to tolerate any error so long as reason is left free to combat it."
Darl Rastorfer

New products: Roofing

For more information, circle item numbers on Reader Service Card

Modified bitumen: Tar wars
Introduced to the American market from Europe within six months of each other in the mid 1970s, the two main types of bituminous modifiers—plastic APP and synthetic rubber SPS—continue their sibling rivalry. After two years of meetings, the members of the Asphalt Roofing Manufacturers Association are almost ready to recommend a uniform testing protocol to the ASTM. But agreement on true performance standards remains a long-term goal.

There are advantages and limitations for both types of modifiers, a fact recognized by the increasing number of manufacturers now offering both APP and SPS roofing products. In general, the SPS-type products stand up better to heavy foot traffic, are more flexible at very low temperatures, and recover after stretching, recommending SBS for roofs subject to substantial, continuous movement. However, APP materials may be more confidently torch-applied (2), a "clean" installation method of particular benefit on less-accessible roofs or smaller, more cut-up layouts with many penetrations. Torching provides a tight bond and is the preferred

1 *Courtesy U. S. Intec, Inc.*

2 *Courtesy U. S. Intec, Inc.*

3 *Courtesy Dibiten USA*

4 *Courtesy Dibiten USA*

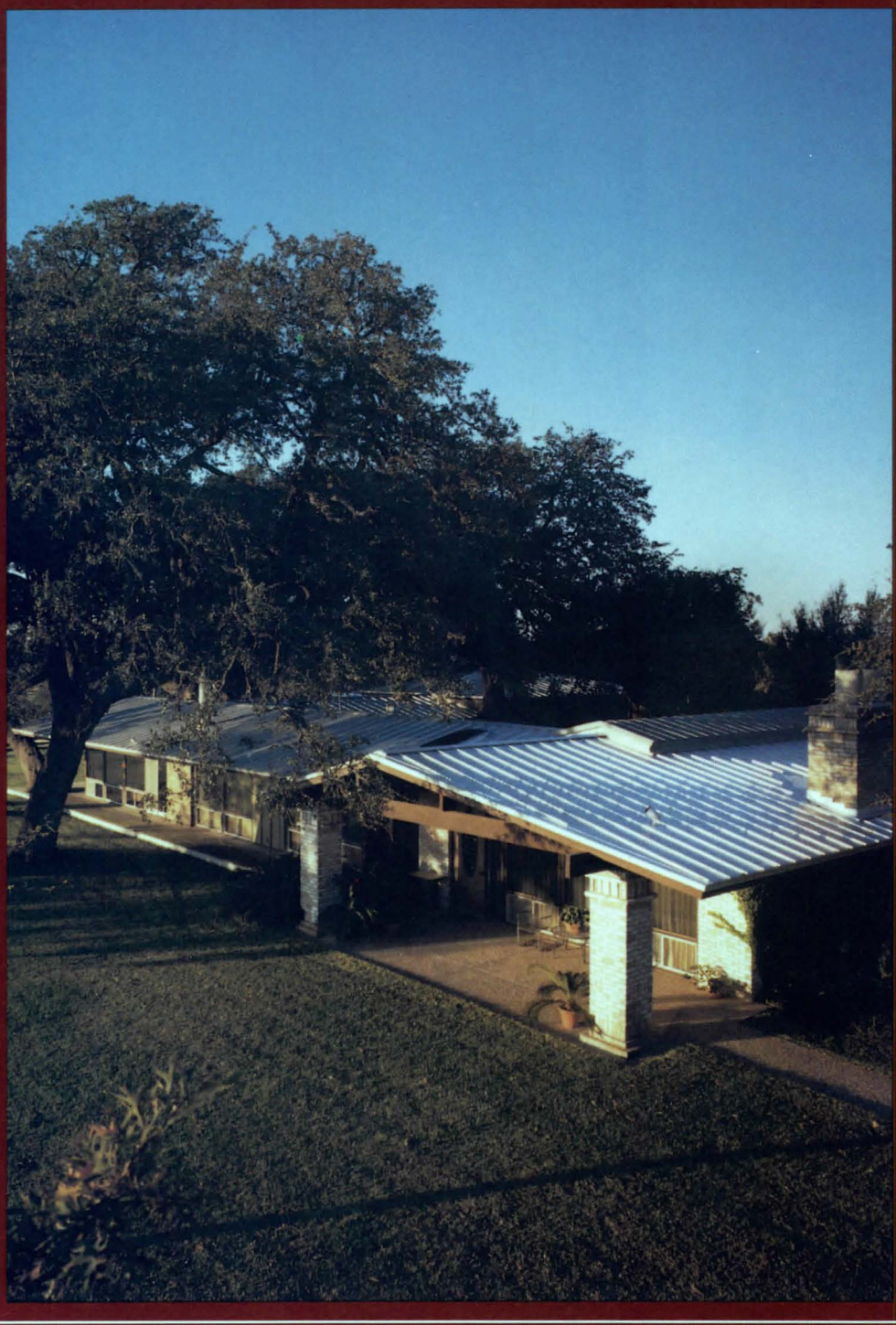
flashing technique for many contractors. Manufacturers now are insisting that positive slope be designed into the roof deck to ensure quick drainage; many roof guarantees are voided for areas that pond water. Illustrated are trends in modified bitumen specification and product improvement.

The domed Sam Houston State University Coliseum (1) and the barrel vault of the USAir facility in Pittsburgh (2) demonstrate the versatility of modified bitumen roll roofing, even on steeply sloping roofs. Troweling the laps of torched-on material is recommended to correct any voids or fish mouths (3). For roofing that used to offer the same choice as the Model T Ford, new products offer more colors, provided by the embedded granules that protect the bitumen from UV damage (4, 5). Further performance improvement, especially in weathering, will come from even more sophisticated matching of modifier with asphalt. Modified bitumen is now specified for 17 percent of all commercial roofs in this country, a proportion that may increase—at the expense of traditional built-up systems—when The National Roofing Contractors Association, meeting in New Orleans in March, releases its projected 1989 use figures for all types of roofing. A joint publication of the NRCA and ARMA, "Quality Control Recommendations for Polymer

5

Modified Bitumen Roofing" details application procedures and suggests substrates, membranes, and flashings. Asphalt Roofing Manufacturers Association, Rockville, Md.
Circle 300 on reader service card
More products on page 137

Would You Trust Metal To Perform On Your Own Home?



"As an architect, I have had the opportunity to work with MBCI on several projects, and did not hesitate to specify their materials on my own home. MBCI delivers a fine, quality product, and I am well pleased with the end result," says architect Travis Broesche, AIA.

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Architect & Owner: *Travis Broesche, AIA*
Brenham, Texas

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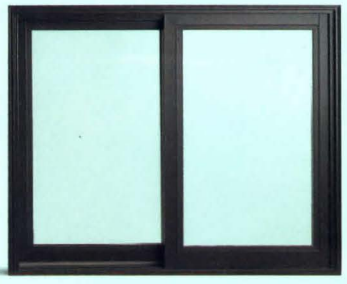

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ergy-efficient options, you'll have provided that homeowner with an investment that will stand him in good ead for years to come.

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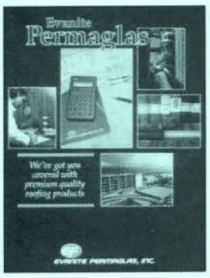
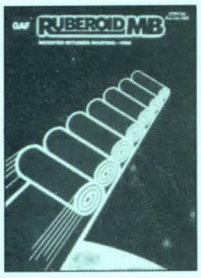
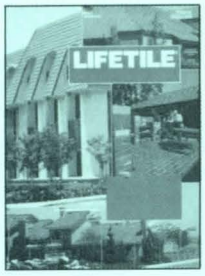
Product literature: Roofing



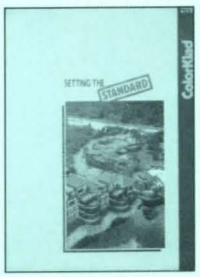
Commercial roofing products
A six-page folder highlights the major components of this maker's roofing line, including built-up emulsions and sheets, SBS-modified asphalts, and EPDM membranes. Evanite Permaglas, Inc., Corvallis, Ore.
Circle 400 on reader service card



Modified bitumen roof design
A 20-page catalog supplies performance data, design criteria, and installation details to help choose the correct Ruberoid MB system for specific roofs. GAF Building Materials Corp., Wayne, N. J.
Circle 401 on reader service card



Extruded concrete roof tiles
An architectural catalog shows all tile colors and shapes, from wood-look shakes to high-barrel Mission styles, and introduces new Lightile, which weighs half as much as standard concrete tile. Lifetile Corp., Fremont, Calif.
Circle 402 on reader service card



Coated metal roofing
A technical brochure illustrates various projects using both types of ColorKlad metal roofing: preformed galvanized steel, available in 11 colors, and an aluminum-based, corrosion-resistant metal. Vincent Metals, Minneapolis.
Circle 403 on reader service card

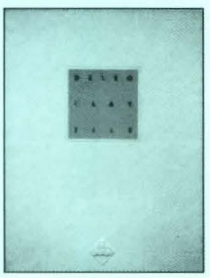
Lightweight roofing pavers
Roofblok interlocking pavers provide wind, puncture, UV, and fire resistance to single-ply roofs. A brochure explains a no-cost architectural project design-review service. Roofblok, Ltd., Fitchburg, Mass.
Circle 404 on reader service card

PVC single-ply membrane
A 338-page specification manual includes color cutaway views of mechanically attached, fully adhered, ballasted, and IRMA assemblies, complete product data, and step-by-step details. Sarnafil, Inc., Canton, Mass.
Circle 405 on reader service card

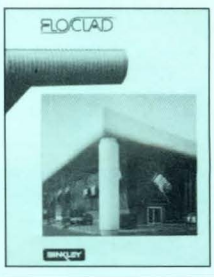
Mechanically attached EPDM
A brochure on the Grabber nonpenetrating attachment explains how it transfers uplift stresses from the membrane to produce a relatively clear FM I-90 EPDM roof. GenCorp Polymer Products, Toledo, Ohio.
Circle 406 on reader service card

Modified asphalt roll roofing
A comprehensive 40-page catalog supplies specifications, flashing details, application advice, and technical data on modified bitumen, fiberglass, and organic built-up roofing systems. Tamko Asphalt Products, Inc., Joplin, Mo.
Circle 407 on reader service card

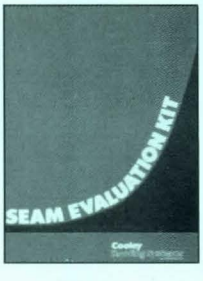
Single-ply systems
Five EPDM roofs are detailed in a 12-page capabilities booklet, which also discusses production facilities, research and development, and technical assistance provided by the manufacturer. Carlisle SynTec Systems, Carlisle, Pa.
Circle 408 on reader service card



Clay roof tile
Tiles in through-body and glazed colors, including traditional earth-tones as well as deep blues, greens, and black, are shown in a 12-page brochure. Custom colors are a specialty. DeLeo Clay Tile, Lake Elsinore, Calif.
Circle 409 on reader service card



Radiused roof treatments
A 12-page architectural brochure illustrates the visual impact of Floclad curved-radius metal panels on otherwise standard low-slope commercial structures. The Binkley Co., St. Louis.
Circle 410 on reader service card



Seam evaluation kit
An evaluation kit provides a comparative overview of the seaming characteristics of CPE, CSPE, and EPDM single-ply membrane, based on independent test results. Cooley Roofing Systems, Inc., Pawtucket, R. I.
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FANTASTIC

The flame-like shapes pictured here form the roof structure for a multi-story electric power pavilion at the Tsukuba Expo. After dark, floodlights with rotating color create a vibrant effect of flickering flames. By day, the roof structure remains a striking eye-catching design, though quite different from its nighttime appearance. The white translucent fabric reduces daylight lighting requirements and conserves energy.

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Product literature: Roofing *continued*

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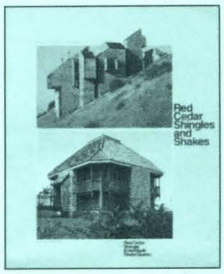
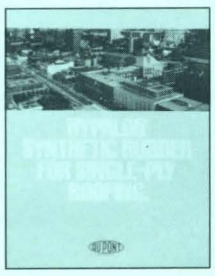


Cedar roofing
An eight-page architectural booklet includes color photos that suggest the versatility of shingles and shakes on sloped, curved, and undulating roofs. Red Cedar Shingle & Handsplit Shake Bureau, Bellevue, Wash.
Circle 412 on reader service card

Single-source roofing
Manville's 1989 full-line catalog contains 80 pages of technical, design, test, installation, and warranty information on built-up, modified bitumen, and single-ply EPDM roofing systems. Manville, Denver.
Circle 413 on reader service card



Hypalon membrane
The long-term, weather-resistant and energy-efficient properties of Hypalon thermoset synthetic-rubber roofing systems are highlighted in a color brochure. E. I. duPont de Nemours & Co., Inc., Wilmington, Del.
Circle 414 on reader service card

Modified bitumen roofing
A 10-page brochure describes the quality control, technical assistance and contractor training, and product warranties offered by this line of APP-modified bituminous roofing. Dibiten, South Gate, Calif.
Circle 415 on reader service card

Architectural roof panels
A new technical catalog supplies dimensional, span, and finish data on the Pro-Loc series of standing-seam metal wall and roof panels. Metal Sales Mfg. Corp., Louisville, Ky.
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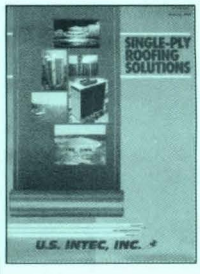

Bitumen-based roofing
APP- and SBS-modified asphaltic roofing products, for torch and mop application at all slopes and angles, are introduced in an architectural brochure. U. S. Intec, Inc., Port Arthur, Tex.
Circle 417 on reader service card

Phenolic foam roof insulation
A revised catalog explains the increased production capacity and superior thermal and fire-resistant characteristics offered by Rx board deck insulation for roof systems. Koppers Co., Inc., Pittsburgh.
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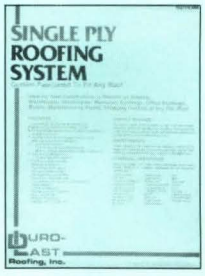
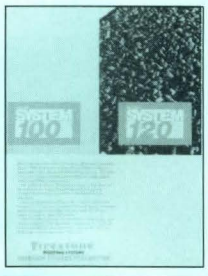
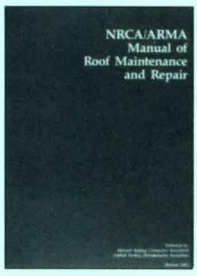


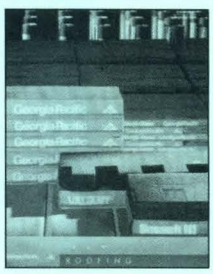
Heat-welded single-ply roof
The chemical- and UV-resistant features of the Duro-Last membrane are explained in an eight-page technical catalog. The system includes many preformed roof details. Duro-Last Roofing, Inc., Saginaw, Mich.
Circle 419 on reader service card



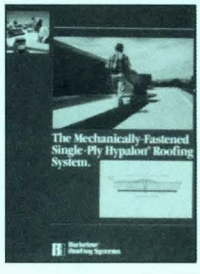
Fully adhered EPDM system
Components of this maker's Premium System roofing assemblies, including standard and fire-resistant membranes, are featured in a four-page technical brochure. Firestone Building Products Co., Indianapolis.
Circle 420 on reader service card



Roof maintenance and repair
Solutions for such common built-up roofing problems as wind damage, weathering, design flaws, and flashing are covered in a manual co-published with ARMA; $15 charge. National Roofing Contractors Assn., Chicago.
Circle 421 on reader service card



Shingles and roll roofing
Fiberglass and asphaltic products for residential and light-commercial buildings are covered in a 16-page color catalog; other components include gypsum and high-density fiberboard decking. Georgia-Pacific Corp., Atlanta.
Circle 422 on reader service card



Single-ply system
The increased marketing and distribution efforts that will make the Burkeline Hypalon membrane roofing available nationwide are explained in a color catalog. Burke Rubber Co., San Jose, Calif.
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Bowing in
At January's NAHB Convention in Atlanta, Marvin Windows announced that curved glass is now available, at standard lead times, for nine wood-framed single-hung and picture units. Glazing configurations, on a 6-ft radius in widths up to 5-ft 8-in, include single pane, laminated, and 5/8-in. insulating units, produced by Dlubak Studios, Inc. Curved windows, particularly applicable for renovation use in Victorian-era homes, can be incorporated into radiused walls or used in place of a conventional bow or bay shape. Marvin Windows, Minneapolis.
Circle 301 on reader service card

Sheet-copper tour de force
The restoration of Thomas Ustick Walter's 1846 courthouse in West Chester, Pa., by D. K. Architects involved replacing the original copper cladding of the clock tower, damaged over the years by faulty temporary repairs. The new sheathing had to accommodate over a foot of movement, as the tower sways in heavy winds, and simultaneous temperatures that can range from 150F on the sunny side to below freezing in the shade. To accept these stresses, sheet-metal craftsmen joined the copper sections with folded and bent flat seams that held lock fasteners, one on each edge. These fit into cleats nailed directly into the wooden tower. Nothing penetrates the cladding, and the copper can react freely. All historical details were meticulously recreated, working from a scaffolding that never touched the tower. Revere Copper Products, Rome, N. Y.
Circle 302 on reader service card

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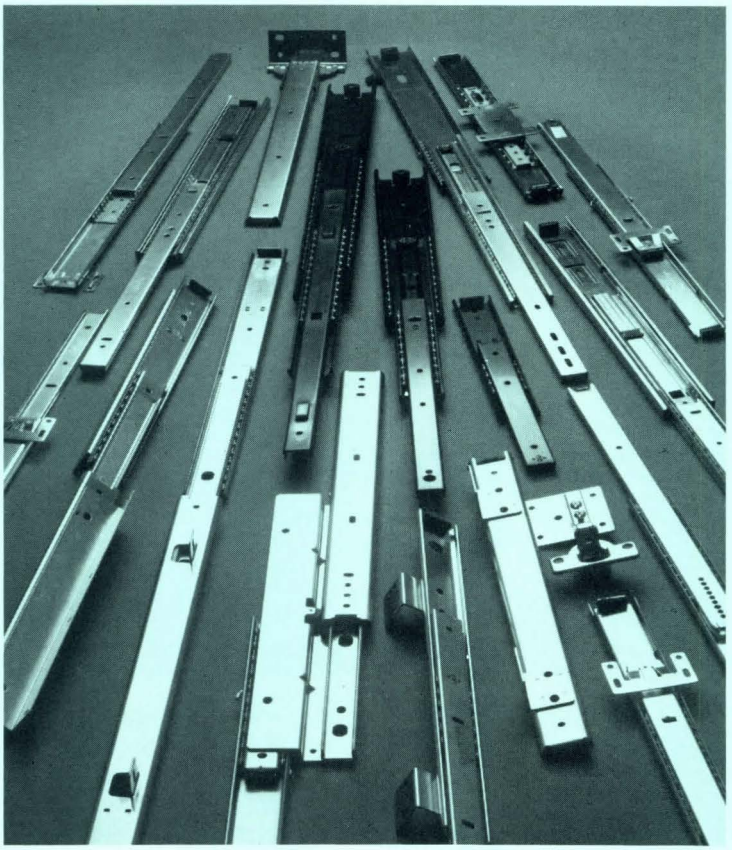

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e 52 on inquiry card

Computer products for architects

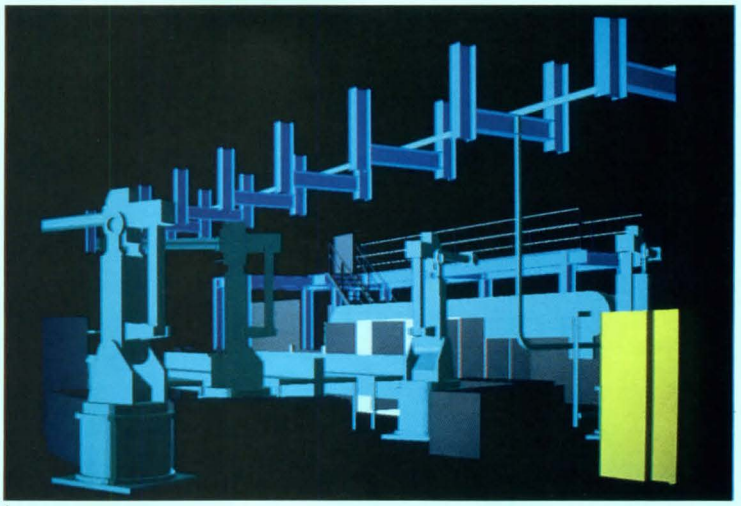
AEC Expo showcases PC software, hardware, and add-ons

By Steven S. Ross

Intergraph dominated the recent AEC Expo show in New York, with large booths at the entrance displaying new products by the company and by various suppliers of add-ons. The big news: A new low-cost desktop workstation, the InterPro 120, running what Intergraph calls its "professional series" software.

The InterPro 120, with 156 megabyte hard disk, 6 megabytes of RAM, MicroStation 32 CAD software, UNIX V, a command "shell" designed for AEC applications, 19-in. monitor, network capability, and computer-aided tutorials, costs about $21,000. About half the early sales are to architects using them as stand-alone computers, and half to firms that are networking them.

Intergraph has tightened its relationship with Bentley Systems, too. The Bentley Systems new MicroStation 32 software runs on Intergraph UNIX workstations such as the InterPro 32 and 120, while the original Bentley MicroStation PC runs on PC-DOS and MS-DOS computers as small as an IBM XT or compatible. All of the software creates drawing files in the IGDS format readable by Intergraph's original VAX-based graphics packages.
Circle 303 on reader service card



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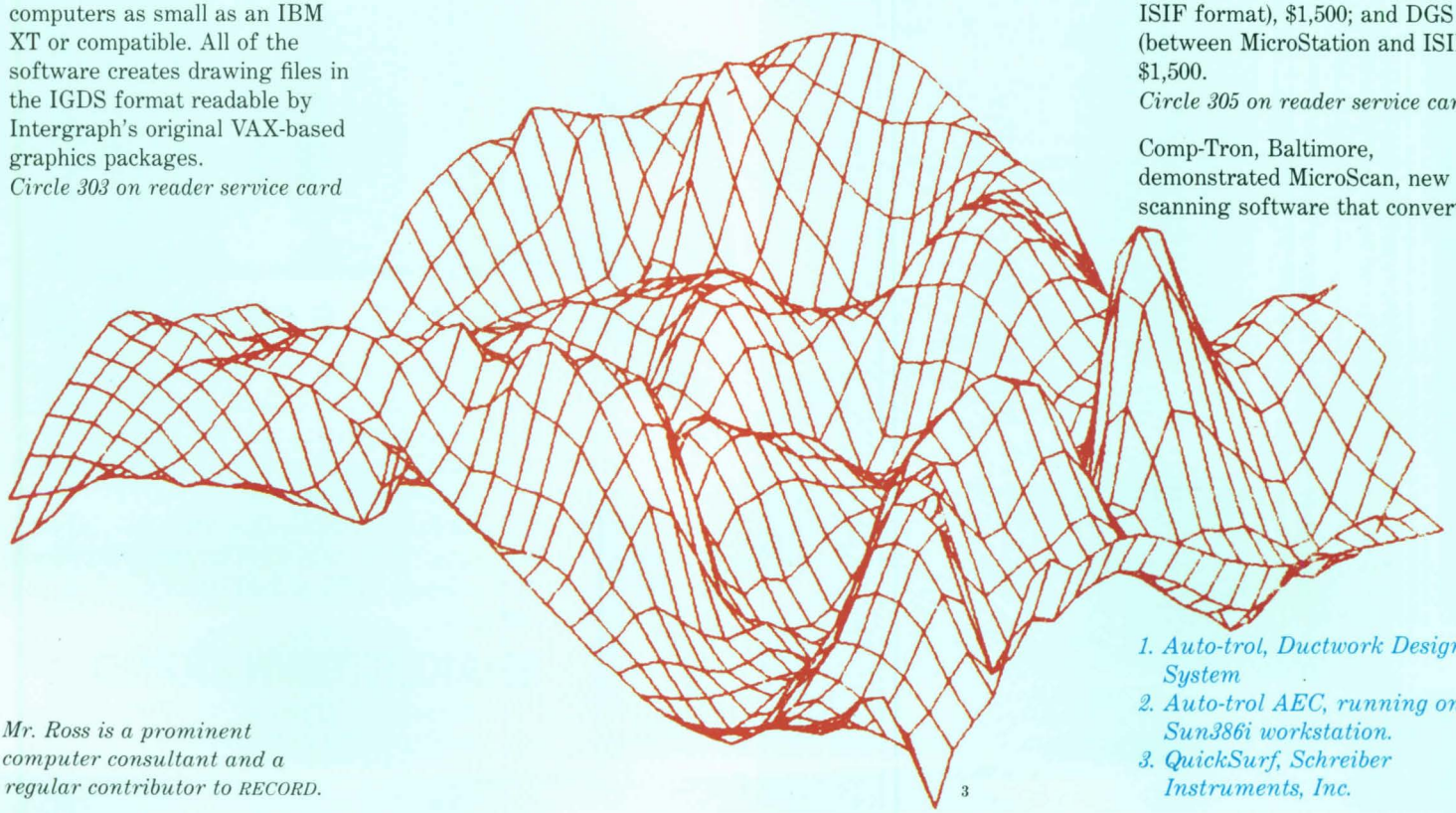
Caddshare Corp. of Atlanta introduced a voice command system for personal computers using the Intergraph MicroStation PC and Caddshare's add-on Facility Design and Management Software. The system, dubbed BUG, consists of an expansion card that fits any 8-bit or 16-bit slot in an IBM PC, XT, AT, 80386-equipped computer or compatible. The card has its own microprocessor and memory, so it takes up only about 15K of workstation memory. The software itself creates intelligent drawings by transferring user-defined attribute data in design elements, so that users can create cost estimates, inventories, and other management reports out of the drawing database.
Circle 304 on reader service card

Decision Graphics of Huntsville, Ala., announced that it has joined with Intergraph to develop software for converting MicroStation files to files that can be used by other CAD software—and vice versa. DGI also plans to develop versions of its existing PC-DOS/MS-DOS conversion software for use on Intergraph workstations. The DOS versions now include ACI Connection (between AutoCAD DXF and Intergraph binary design files), $4,500 for VAX/VMS systems and $1,750 for DOS computers; ACS (between DXF and Intergraph's ISIF format), $1,500; and DGS (between MicroStation and ISIF), $1,500.
Circle 305 on reader service card

Comp-Tron, Baltimore, demonstrated MicroScan, new scanning software that converts



3

1. Auto-trol, Ductwork Design System
2. Auto-trol AEC, running on Sun386i workstation.
3. QuickSurf, Schreiber Instruments, Inc.

Mr. Ross is a prominent computer consultant and a regular contributor to RECORD.

Software and hardware suppliers exhibiting at the trade show held out the promise of seamless links between CAD on personal computers, and CAD on minis and dedicated engineering workstations. And there was color and more color, providing rendering-quality repros.

drawings up to E-size to Intergraph DGN files for use on Intergraph MicroStation and Workstation systems.
Circle 306 on reader service card

Equipment
Iris Graphics of Bedford, Mass., showed a spectacular inkjet printer, the 3024, with color rendition good enough to have been used for the past year in printing plants for making color proofs. The system is fast, too, producing 11 by 17 prints in about 10 minutes, for about $2 worth of materials. "We have just begun to see interest in this among architectural firms," said Mark Macudzinski, an Iris sales rep at the show. Maximum print size is 24 x 24.

The system isn't cheap—$75,000 for the printer, and another $50,000 or more for the computers to run it. But the output rivals a rendering in quality—and a rendering can cost $5,000 to $10,000 and take weeks to produce. That makes it cost-effective for firms ordering more than two or three renderings a month, especially if the image to be rendered already exists in electronic form from CAD software. Iris hopes to place the machines at service bureaus and in larger architectural firms. The system accepts files for printing in the Targa format and several others, but not Postscript. "We will add that as demand requires," a company spokesman said.
Circle 307 on reader service card

Canon's Color Laser Copier also attracted interest. Not only can it copy in four colors; it can also rearrange and combine images, so that the output looks quite different from input. For instance, colors can be changed, contrast enhanced or reduced, and portions of a color original can be combined with a black-and-white image. An optional 35mm projector allows output from slides onto paper as large as 11 x 17. The copier will even print an image across many sheets of paper that can then be combined to make mural-size presentations.
Circle 308 on reader service card

IsiCAD announced a link with Hewlett-Packard to sell its UNIX-based Prisma CAD system combined with the HP 9000 series 300 computer to facilities management accounts. IsiCAD also demonstrated v. 3.0 of its Cadvance IBM-PC compatible CAD software. The new release features the Visual Guidance System (VGS), a brilliant 3-D interface that orients users easily in the drawing on-screen. It also offers a tighter link to dBase III and IV files; a change in the database now shows up in the drawing, as easily as a change in the drawing shows up in the database. The new version is $2,995.
Circle 309 on reader service card

4

4. Wavefront display, designed by Osan a Hashem, printed on the 3024 inkjet printer from Iris Graphics.
5. InterPro 32 workstation, Intergraph Corp.

Macintosh
Numerous suppliers of Apple Macintosh-compatible systems were also active at the show. One of the first CAD packages to take advantage of the Macintosh's new-found digitizer support is SNAP! 3.0, a fast midrange 2-D program listing for $695 (Forthought, Sunset, S. C.). Digitizer support allows fairly complex menus to be tapped at the touch of a digitizer cursor on the tablet. Several digitizer menus compatible with the Kurta ADB series tablets are to be included with SNAP! 3.0. The menus come from Layout Design of New York City. The price for v. 2.0 has also been reduced $200, to $495, with the upgrade to 3.0 just $69 more. A fairly good translator to and from Intergraph IGDS files costs only $195.
Circle 310 on reader service card

5

Layout Design has written a $95 bill-of-materials processor for SNAP!, too. It produces files for Filemaker 4, a popular Macintosh database program. Support for Hewlett-Packard and Houston Instruments plotters is built into SNAP!
Circle 311 on reader service card

Amiable Technologies, Philadelphia, introduced FlexiCAD for the Macintosh II and IIx at the show. This 2-D package creates a drawing file with all changes intact, so that users can undo and redo sections. The price is $895, and $100 more with a conversion utility to and from DXF files.
Circle 312 on reader service card

CAD software is now being sold not only as a drawing tool but also as a way of creating large databases to represent all facets of projects, including scheduling.

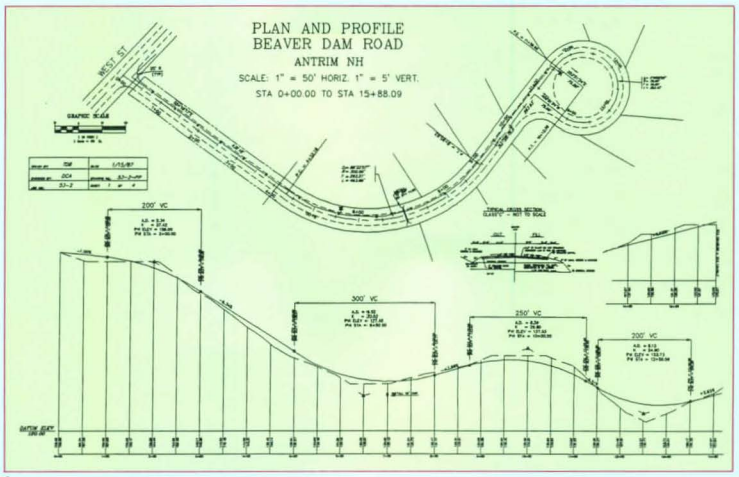
Mac Architrion 4.0 was introduced by Gimeor, Inc., Washington, D. C. Despite the new numbering, v. 4.0 is an evolutionary step from version 3.56 of this French-developed software, introduced early in 1988 in the U. S. The package allows easy moving between 2-D and 3-D modules, and a third module that handles bill-of-materials processing. One particularly nice feature is that the software allows rough "sketching" on-screen, before drafting begins.
Circle 313 on reader service card

DynaPerspective by Dynaware (Foster City, Calif.) imports 2-D files in the DXF format and allows users to turn them into 3-D shaded, color perspective views on the Macintosh II. The DynaPerspective files can then be exported to any standard Macintosh software that handles PICT files, such as Aldus PageMaker, MacPaint, and MacDraw. They can also be displayed on-screen for guided "walkthroughs," or printed on ImageWriters, LaserWriters, the Tectronix 4693-D color printer, or H-P Paintjet color printer. The price is $1,495. Dynaware has promised the ability to import 3-D files in the DXF format for early release this year.
Circle 314 on reader service card

AutoCAD add-ons
Cadcraft, an authorized AutoCAD dealer from Old Saybrook, Conn., demonstrated its Auto-Architect, a replacement or supplement for AutoCAD AEC. Auto-Architect offers a good digitizer menu and library of architectural details. A bill-of-materials processor is included. Attribute information for the 370 symbols in the library can be adjusted to provide as much or as little information as required. The price is $495.
Circle 315 on reader service card

The Precision AutoCAD Interface from Timberline Software allows data to pass easily from AutoCAD drawings to Timberline's Precision Estimating Plus software. As you work on a drawing, you pull down a menu that lists work packages or assemblies that are already in the estimating software's database. You then assign the proper package to the drawing element or group.
Circle 316 on reader service card

Carrier Corp. announced DuctLINK, a two-way interface between AutoCAD and micro-computer duct-design software.



6

The software helps size the duct system. In use, the duct system is drawn with AutoCAD in single-line form. The simple schematic is then passed to DuctLINK to calculate duct sizes, air flow rates, and pressure losses. DuctLINK handles rectangular or round ducts, using static regain or equal friction methods. DuctLINK then writes the calculations to an AutoCAD script file, which contains the instructions for AutoCAD to automatically draw the double lines representing the full duct system, complete with diffusers and descriptive text annotations. The cost is $795, with a $120 annual renewal fee.
Circle 317 on reader service card

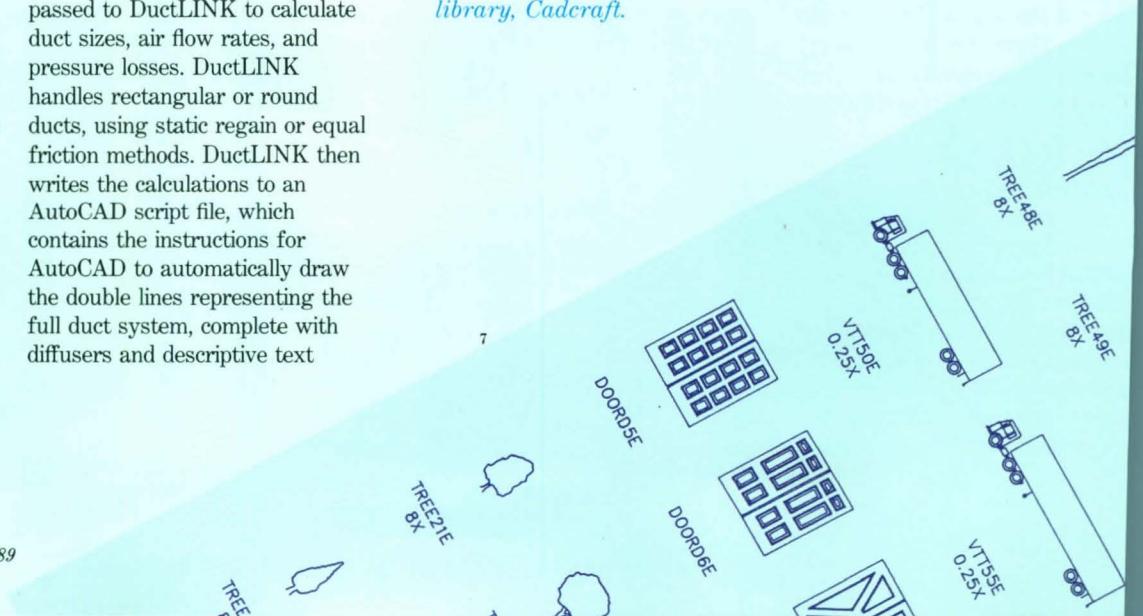
Auto-trol of Denver introduced its Ductwork Design System at the show, along with release 4.0 of its Vectorpipe chemical plant modeling package. The company also announced that it is distributing Imperial Chemical's Isogen design software. The packages run on DEC, Sun, and Apollo workstations.
Circle 318 on reader service card

Behind the scenes
Booths showing equipment and software for managing the back office were busy indeed—mainly with architects from practices with about 10 professionals. Harper and Shuman, Cambridge, Mass., displayed CFMS, a series of related packages for payroll, accounts payable and receivable, workload forecasting, and project planning. The software was originally developed for Prime 50-series and DEC VAX minicomputers, but versions are now available for IBMs and compatibles, the Wang PC, and DEC Rainbow.
Circle 319 on reader service card

Welcom Software Technology of Houston demonstrated its new Open Plan 3.0 project management software. The PC version stores files in the dBase III format, allowing flexible add-on reports to be generated. On a PC, Open Plan can handle 10,000 activities (32,750 in the extended version), unlimited resources per project, and up to 255 calendars per project. The integrated report writer offers a wide range of outputs, including multicolor charts and graphs. The stand-alone PC version is $4,200. Networked versions for PCs start at $13,200 for four users; VAX/VMS configurations range from $17,200 to $183,000.

One new extension to Open Plan, Opera, should be of particular interest to architects

6. D. C. A. Engineering Software
7. Architectural details from Auto-Architect symbol library, Cadcraft.



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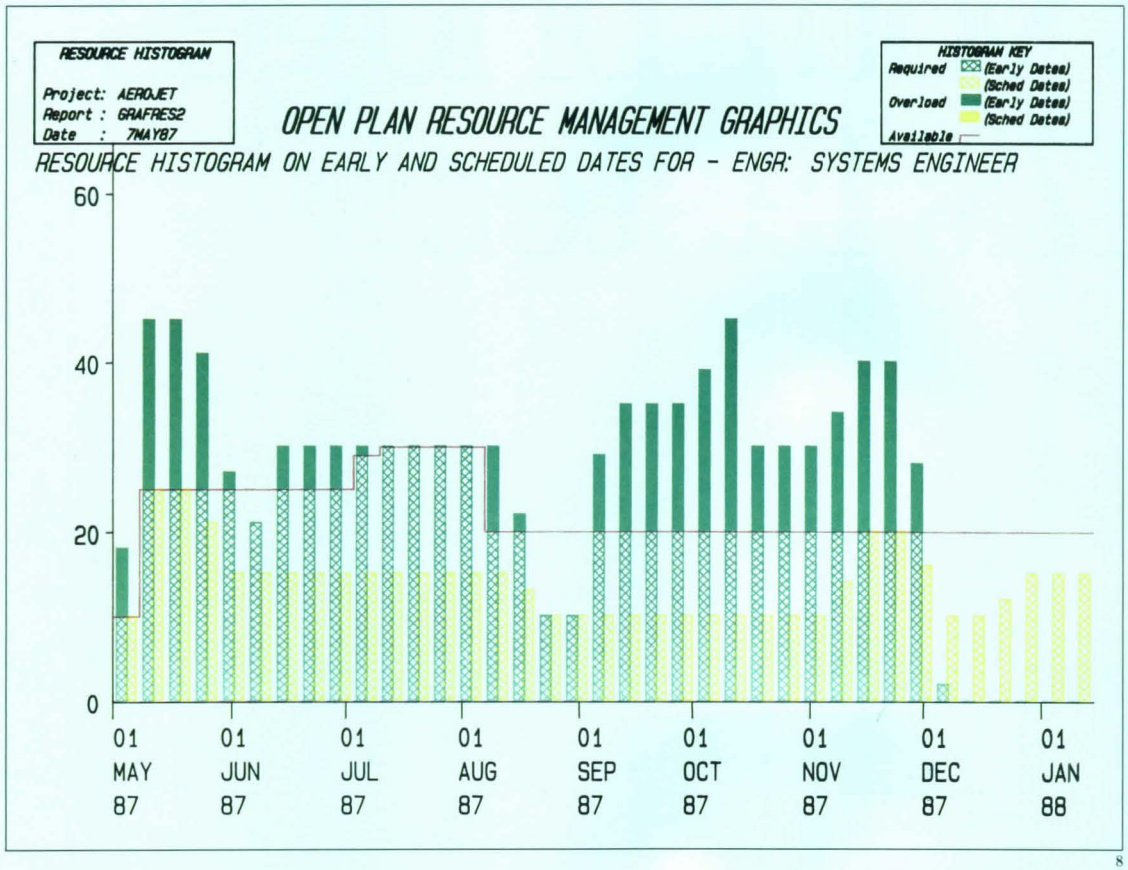
COGO is suddenly quite practical on a PC; some systems rival mainframes in speed and detail, at least for small projects.



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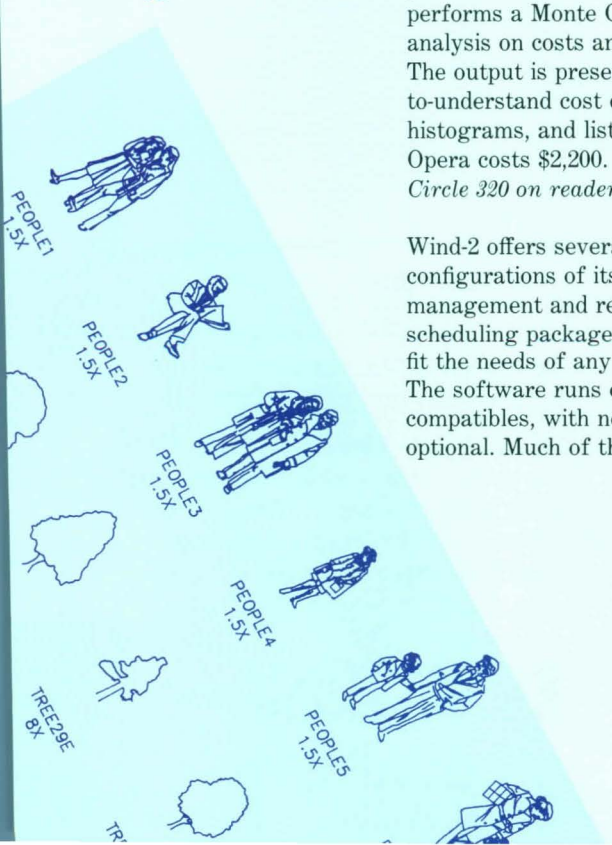
8. Opera extension, Open Plan 3.0, Welcom Software Technology.



angling for government contracts. It takes the project plan from Open Plan and performs a Monte Carlo risk analysis on costs and end-dates. The output is presented in easy-to-understand cost curves, histograms, and listed reports. Opera costs $2,200.
Circle 320 on reader service card

Wind-2 offers several configurations of its financial-management and resource-scheduling packages, meant to fit the needs of any size firm. The software runs on IBMs and compatibles, with networking optional. Much of the inputting is intuitive, through a "three-dimensional spreadsheet" that links various items together. There's also a new report writer for output, the Custom Report Query (CRQ). It generates reports based on near-English questions like "active projects more than 80 percent complete and larger than $5,000,000." Typical prices run from $1,750 for a complete single-user system for up to 10 employees, to $6,990 for a multi-user system for firms with over 25 employees. Some individual modules, such as for general ledger and payroll, are under $400. The CRQ module is an additional $795 for single-user systems, $995 for multi-user configurations.
Circle 321 on reader service card

COGO to Go

AEC Expo confirmed that site-planning coordinate-geometry software (COGO) has arrived for small systems. A/E MicroSystems, Inc., of West Chester, Ohio, introduced AutoCOGO release 4 for civil engineering and site design. They work interactively within AutoCAD, expanding upon AutoCOGO 2.2 to offer profiles, cross-sections, and bulk input from digitizers and other data-collection systems.
Circle 322 on reader service card

QuickSurf is another AutoCAD gridding and contouring add-on for AutoCAD. V. 2.0 was displayed at the show for the first time. The developer, Schreiber Instruments of Denver, claims the software can generate 1,000 control points per minute on an old 8 MHz IBM AT. On a 20 MHz computer with Intel 80386 chip, response seemed almost instantaneous. QuickSurf contours can be shaded with AutoSHADE. The price is $499.
Circle 323 on reader service card

Plus III Software, Atlanta, demonstrated its terraCADD, a package for COGO contouring and other site-planning functions. It accepts DXF files from AutoCAD, and data input from a wide range of electronic data collectors, including the Zeiss REC 500, Leitz SDR-2 and SDR 22, Topcon FC-1, Wild GRE-3 and -4 and GIF10, Geodimeter 126, and Pentax DC-1. Complete packages are available for under $10,000.
Circle 324 on reader service card

D. C. A. Engineering Software of Henniker, N. H., also offers data collection and COGO for AutoCAD. A complete package is $3,595, with some modules selling for under $500.
Circle 325 on reader service card

Data terrain modeling as well as COGO software are available for IBM PCs and compatibles from GWN Systems, Edmonton, Alberta, Canada. The systems are compatible with Intergraph and Intergraph Microstation software.
Circle 326 on reader service card

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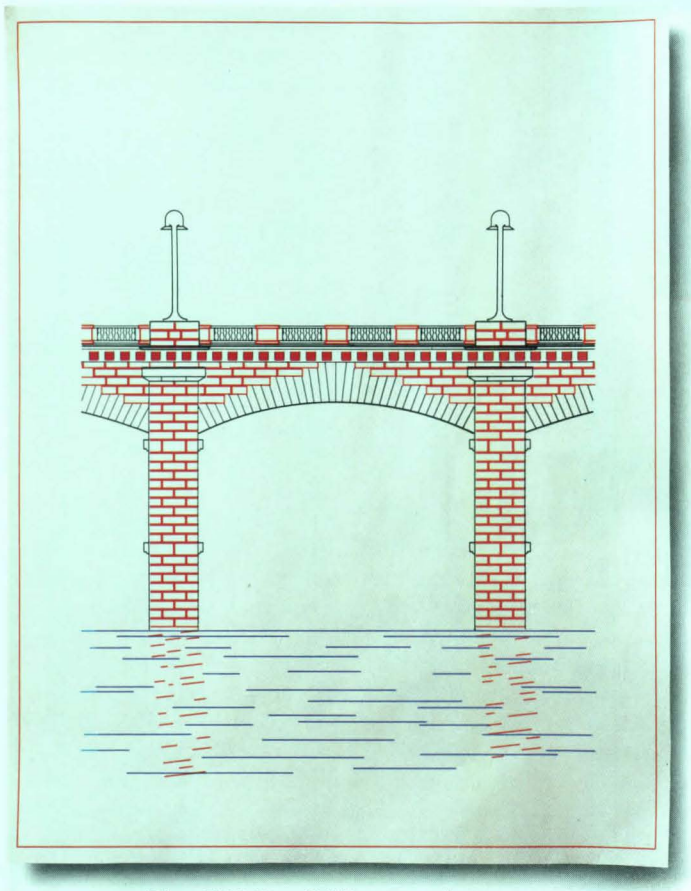
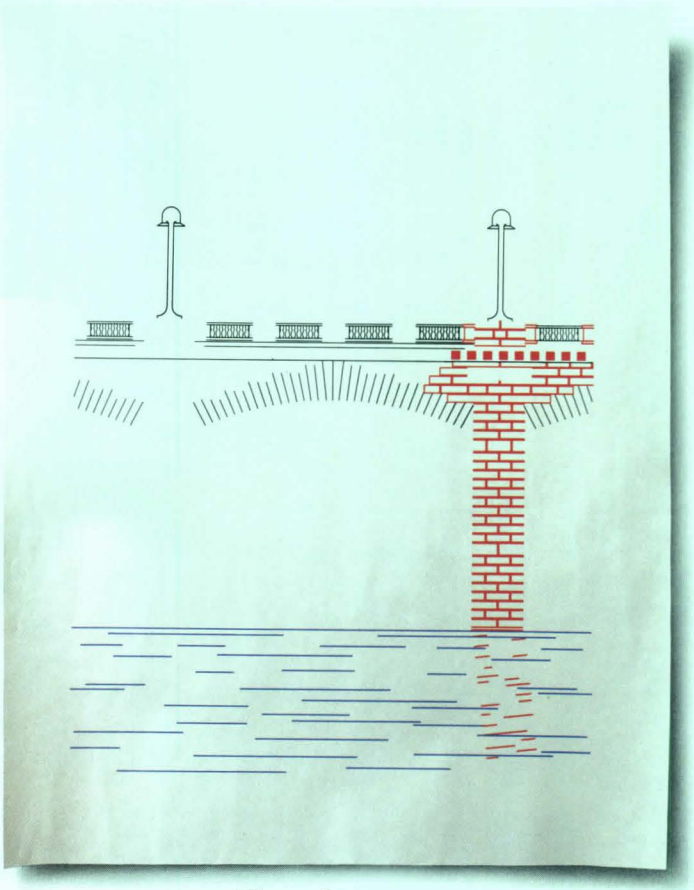


The HP DraftMaster plotter.



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Circle 56 on inquiry card

Hardware reviews for architects

It has been almost cumbersome to use the Mac mouse for engineering applications. Now digitizing tablets have come to the rescue, allowing users to zip through multilevel menus without taxing arm muscles.

Digitizing tablets for the Mac

Use of the Macintosh SE and II as engineering workstations has been held back by the lack of a good pointing device. The ubiquitous Mac mouse feels rather imprecise. And sophisticated CAD software requires multilevel menus; moving a mouse through the menus forces users to develop good arm muscles—or to rely on the keyboard for entering commands. Besides, a mouse cannot be used to trace an image into your CAD program.

No more mouse

Summagraphics and Kurta, two major distributors of digitizing tablets, released versions for the Mac this past fall. Both work in true digitizer mode. That is, each spot on the tablet corresponds absolutely to a spot on the screen. And both tablets plug into the Apple Desktop Bus (the plugs at the side of the keyboard and behind the computer), allowing the mouse to remain. From then on, however, operation is quite different. *Equipment required:* Apple Macintosh SE, II, or IIx, System 6.0 or higher. Apple MacroMaker (included with System 6.0 and higher) is strongly recommended.

Kurta IS/ADB series

Vendor: Kurta, P. O. Box 60250, 3007 East Chambers St., Phoenix, Ariz. 85082. 602/276-5533. 8.5 by 11, $395; 12 by 12, $595; 12 by 17, $965; all come with 1-switch corded stylus pen and interface kit. Other pointing devices are: 4-button cursor, corded or cordless, $100; 12-button cursor, corded or cordless, $195; cordless pen $100.

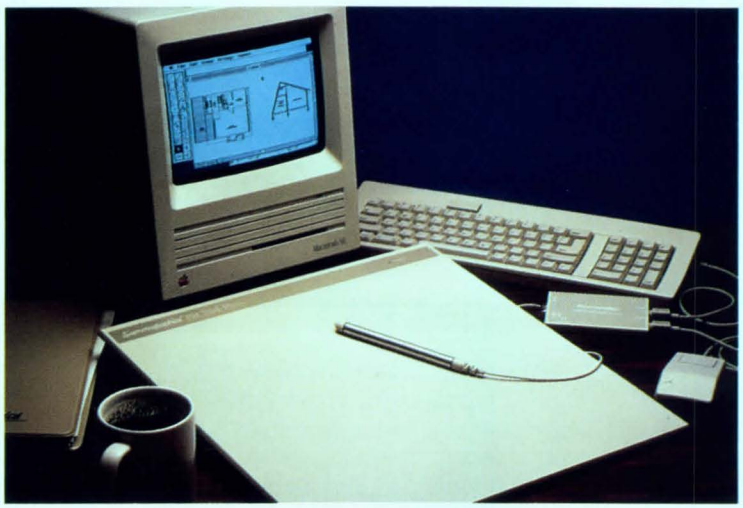
Summagraphics Bit Pad Plus

Vendor: Summagraphics, 60 Silvermine Rd., Seymour, Conn. 06483. 203/881-2000. 12 by 12, $495. Includes 4-button cursor and 1-button stylus pen.

Review

A digitizing tablet should be accurate. It should be easy to set up and to match with various software packages. And it should be usable with software that allows users to modify the tablet's active area to accommodate various monitors and on-tablet menu schemes. Both companies' products fill the bill, but in different ways. And they both require more setup time than most Macintosh users are used to.

The Summagraphics entry



(photo) is a straightforward digitizing tablet with a 12 by 12 in. active area. Plug it in and turn it on (actually, push in the on-off switch in back, then turn the Mac on; the Mac supplies the power), and the Bit Pad Plus operates in mouse mode.

Next, insert the utilities disk that comes with the tablet, copy the Bit Pad Plus utility to your hard drive, and click on it to open it. The resulting menu allows you to choose whether you want to use mouse or tablet mode. It also allows you to select the size and position of the active area of the tablet, so you can leave room for menu buttons.

Summagraphics provides a quick way to reset the active area's size without going through the utility—just click the stylus or cursor anyplace away from the active area of the tablet. As the instruction manual points out, this is actually too easy. You can reset the size without even knowing it. This shortcut can be disabled from the utility menu, fortunately.

Users have to calculate the tablet scale themselves. That is, they must calculate the number of screen pixels to be represented by each inch of tablet surface. The setup utility should include at least the defaults for SE monochrome screen and the II color screen for full-screen active areas. Users must also make a change on the Apple control panel, setting the mouse mode to SLOW (tablet).

The stylus is good for tracing, but for just about any other purpose, the 4-button cursor is ideal. As with Summagraphics products for the DOS world, both pointing devices are included.

Kurta offers a more ambitious product, at a higher price. Installation was flawed, however. First, the user must go to the "Special" choice on the Apple menu bar and reset the system to start up on the finder, not Multifinder. As Kurta warns, the installation program will not run at the same time as Multifinder.

Next, the installation disk simply would not work with System 6.0.2, the latest available when the review was done in December. The problem: The installation disk came supplied with an earlier version of the System. Start with 6.0.2 or later on your hard disk, and your Mac will refuse to pass control to the earlier system on the Kurta disk. Without control, the installer would not install.

Moving the installer to the hard disk did not help. Only by making a backup copy of the Kurta disk, deleting the System, Multifinder, and Finder on it, and copying the hard disk's corresponding files in their place could the installation process proceed.

The Kurta tablets have an extra feature that makes it easier to use the standard 1-button stylus pen. At the top of the tablet there's an extra menu strip containing boxes that can be touched by the stylus to change input configurations. The box labeled DRAW, for instance, activates only the switch on the stylus point, corresponding to the button on a mouse. There are also boxes (11 on the small tablet, 13 on the 12 by 12, and 23 on the 12 by 17) that can be loaded with macros that cover common commands for whatever software you are using. All this is a big help, because multibutton cursors are extra-cost options for Kurta.

Other boxes on the tablet menu strip allow quick resetting of tablet scale and position of the active area. The tablet can even be set up to have part of the active area cover one monitor, and part cover a second monitor. In operation, the on-screen cursor moves smoothly from one screen to the other.

Kurta also offers a cordless stylus pen and cordless cursors.

Steven S. Ross

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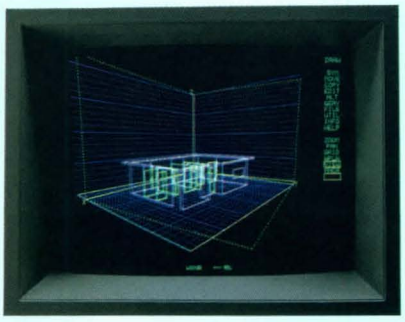

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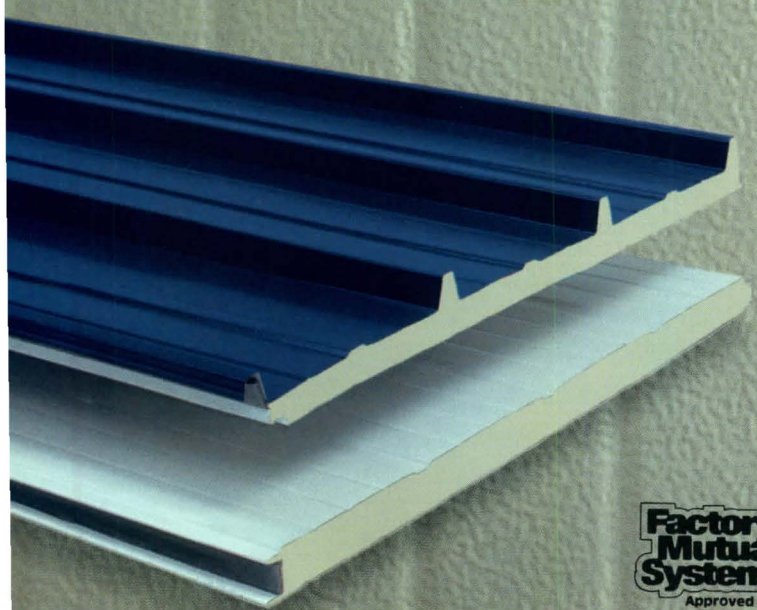

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Computers: Roundtable tackles the difficult issues

Why aren't we doing more with CAD? A group of panelists long active in the field goes to the roots of the problems and gives us some expectations for the future.

Panelists

Chuck Eastman, moderator
Professor
UCLA Graduate School of Architecture and Urban Planning

Donald Fullenwider
President
Fullenwider CAD Services
LA/AIA computer committee co-chair

Terry Poindexter
Director of computer services
Skidmore, Owings & Merrill-Los Angeles and computer committee co-chair

Donald Gibbs
Principal
Hugh Gibbs & Donald Gibbs, Architects

John Johnson
Computer consultant

Duane Koenig
Vice president
Bentley Engineering Company

Tom Lazear
President
Versacad, Inc.

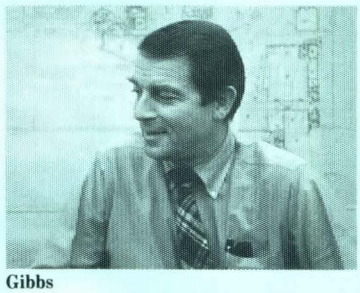
James Lefever
Director of computer services
Ellerbe/Becket Associates

Murray Milne
Professor
UCLA Graduate School of Design and Urban Planning

Anthony Ngai
Executive vice president
Leidenfrost/Horowitz & Associates

Kenneth Sanders
Director of computer services
Leason Pomeroy Associates

Milne



Gibbs

Sanders

Lazear

Taking cues from a roundtable conducted by RECORD *in California almost six years ago, the Los Angeles chapter of the AIA recently sponsored its own roundtable on the current state of CAD use organized by architects Terry Poindexter and Donald Fullenwider. The conclusions were that, despite much progress since 1983, there is still much unused potential.*

Moderator Chuck Eastman got the ball rolling: "There are many horror stories of failures in the use of CAD in architectural offices. Often, it is used for drafting with no change in design development." (It is estimated that, of the 50 percent of offices with CAD, 40 percent use it for less than two hours per day and most, only for production drawings. And it can be argued that any system use that does not integrate alphanumeric functions and modeling is not cost-effective.)

CAD's success in interior design illustrates its problems in architecture

"I've thought for a number of years that CAD systems were really developed to do interior design," said consultant Donald Fullenwider. "And using them to do architecture was an interesting way to adapt that technology."

Engineer Duane Koenig agreed. Although engineers are often thought to be among the primary beneficiaries of automation, he said it was in his company's work with interiors that "we certainly can track and see the greatest progress of CAD." Architect Ken Sanders didn't necessarily find interiors the best use: "I'd clarify that as the most efficient use."

Then why aren't the efficiencies found in interiors work directly translatable to the design of buildings? "Interiors work involves discrete elements composed in previously defined spaces," explained Eastman. The elements don't interact with each other. "It's very manageable." The conclusion: Despite advances, computer use still is not quite up to managing all the loose-knit, complex aspects of architectural design—especially in the initial phases.

Basic problems stem from lack of management

Eastman described a classic example of why architects do not get optimum use out of CAD. As a professor at Carnegie-Mellon, he was called in to straighten out computer use for a firm that, because of increasing mandates from many government agencies for computer production, had bought a well-known system, but devoted minimal personnel time to making it productive. The firm failed to build a database and efficient ways of working. Costs were about twice as much as if the projects had been done without CAD. "And this went on for two or three years." So, problems can stem from commitment by management to getting jobs with computers but not to making them work.

Skidmore has one set of big-firm management answers

One computer group manages purchasing and maintenance for the many offices. With their feedback, it sets application standards, but leaves the development of symbol libraries and layering techniques up to each locale. The resulting software applications form a system that SOM is launching on a commercial basis with IBM.

All projects go on the computer as early as possible. "The only limitation," pointed out SOM's Terry Poindexter, "is the number of terminals or trained people we can get up and running in time to meet project deadlines." Out of 65 architects and engineers in the Los Angeles office, there are nine CAD specialists, architects all, salted around the job teams.

But everyone gets trained. New employees get a two-week, two-hour-per-day course to start. And, for people in the trenches, proficiency is "one of the skills needed very quickly," said Poindexter. After a couple of months of daily use, this skill sinks in and is not forgotten.

There are 24 workstations at Skidmore, Los Angeles, which means some user rotation, although the same people stick with a project from start to finish. Some 70 to 75 percent of all drawing is done on CAD, although things like exterior-wall details tend to be done manually.

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"You should be flying with modeling at the beginning of a design. Our product is a design idea. It's not a piece of paper. But a lot of architects are focusing on that piece of paper."
—Terry Poindexter

Hugh Gibbs & Donald Gibbs Architects has a two-tier organization

"We've gone through the cycles," said Donald Gibbs. "We started off training architects to be operators, but we had our CAD system separate from our studio. We've put it in the middle just within the last year. It used to be showtime when clients came in. We had two cabinets. One was for the electronics and the other, to hang coats in.

"Now, we have two different kinds of users. One is a trade-tech who's not an architect, but an operator. They're the guys who don't mind operating all day and all night, whatever shift they're on. Then we have the guys who won't sit there. They want to be architects. So, it's all day for some and two- and four-hour segments for others."

Gibb's firm works in shifts to get the most out of the costs of its system and offer employees flexible hours. Eastman was unsure about shifts: "They transform a firm into a factory."

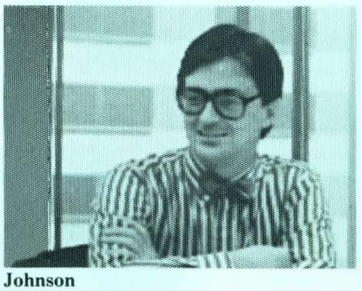
What about communications with shifts? "Set information," explained Gibbs, "keeps going from schematics through the whole job"—helping designers and technicians communicate without physical proximity. The firm uses computers through 95 percent of working drawings. "Then the system slows down," meaning that the last 5 percent is a "judgment call."

What beyond drafting should computers do?

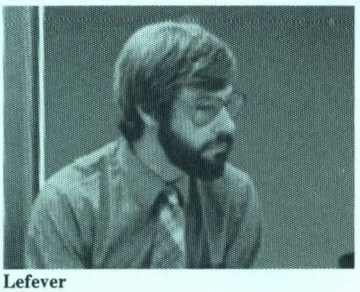
"Color computer graphics on a video tube still knocks [clients'] socks off," said consultant John Johnson. But he saw a limited life before the novelty wears off.

Koenig's firm is into facility management. But architect Ken Sanders recommended simply licensing databases' use by clients—except for ongoing design: "Keeping track of somebody else's facility is not my high priority."

Ngai



Johnson



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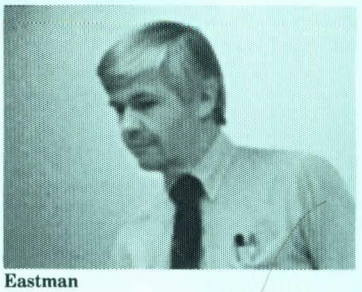


Eastman

There were visionary ideas of what computers can do. Versacad president Tom Lazear talked about Macintosh's forays into voice control.

But most of the discussion focus, as it had been in 1983, was on use in design. "Using CAD in the schematic and conceptual phases traps errors earlier," pointed out Johnson. Gibbs reminded that design takes more time, but, after the initial floor plans are created, "you can be further along than you think."

Still, architects expect more than mere efficiency—namely, a boost to their creativity.

The big interest was modeling

Sanders was dubious about modeling on currently available PC software—blaming suppliers for lack of innovation *and* architects who "have failed to communicate what they want."

But Poindexter thought that even on PCs the opportunities in modeling are there. "If you only automate the drafting exercise, you only can go to a limited extent of improved productivity. At the beginning of design is where you should be flying—with modeling. Our product is a design idea. It's not a piece of paper. But a lot of architects, I think, are focusing on that piece of paper."

He also suggested a holistic concept of what computers should do: "Architects should be concerned with a three-dimensional building and let computers produce the working drawings. It's not a complex thing. Well, it's complex, but you can conceive of it."

Eastman described work he had done to make 3-D models generate working drawings as early as 1975. "But it hasn't happened very widely. We can model in two dimensions. And maybe, in certain cases, that's more appropriate than three. In dealing with information management, such as producing working drawings, multiple-overlay, 2-D modeling with one consistent geometry, at least on the big systems, is do-able."

Sanders described his firm's success with this approach—and why 3-D does not work for any but the smallest projects: "For, say an airport, it's unreasonable because of the detail you'd have to bring into that model."

"Another problem," said Gibbs, "is that some fancy drawing aids that do nice walls and door and window tricks are not a 3-D kind of item. The 2-D model is our standard way."

On the other hand, Poindexter asserted that SOM's current way of working is fully 3-D. But is it? Plans, for instance, are 2-D "located in 3-D space." Working drawings become even more complex: There is some conversion to 2-D modeling and, of course, work on the flat for notations. "You're bearing the computer overhead," warned architect James Lefever, who clearly thought the whole process too complex.

"What's interesting in advising architects and engineers buying PC systems," said Fullenwider, "is that there's almost no interest in 3-D. They've seen it and found out they can't make hard copy." Not even cost was considered a factor. Perhaps, pointed out Poindexter, inadequate capacity in the systems being purchased had a lot to do with that observation. Sanders added lack of familiarity as another factor.

"At first," said Lazear, "nobody asked for it." When they did, his company made it. But they still didn't buy it.

What modeling capabilities should we be looking for?

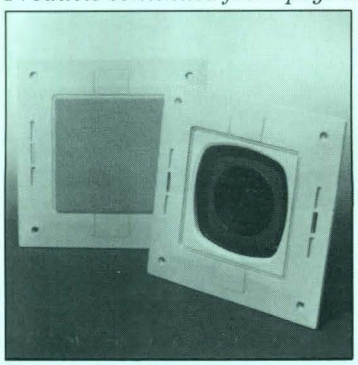
Despite reservations, the big interest was clearly in getting design into three dimensions and, as Poindexter had suggested, getting the machines to do more of the gritty production work.

Eastman discussed problems with getting varied line weights in models. Sanders wanted to be able to look at only isolated parts: "There needs to be a mechanism to filter out information you don't want." Architect Anthony Ngai said he could answer both needs through layering at different scales.

Responded Sanders: "You shouldn't have to trick systems into what you want to do. These sorts of features need to be built into the guts. Information needs to be shared between drawings, between projects, and between people in a better way."

Charles K. Hoyt

Products continued from page 137



Flush-mount speakers
The Thindy-II loudspeaker incorporates a honeycomb-ring driver that produces a frequency response in the 65 Hz to 20,000 Hz range. The unit is only 1 3/4-in. deep; built-in spring-load brackets are said to make it easy to install in walls or ceilings. The frame is 9-in.-sq, and comes in black or ivory. OWI Inc., Compton, Calif.
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Roof vent tiles
PVC vents install just like a standard roof tile, eliminating trimming, flashing, and sealing. Vents will not admit rain or snow, and come in models to fit many types of clay and cement tiles and slate and wood shingles. Klober Plastics, Inc., Costa Mesa, Calif.
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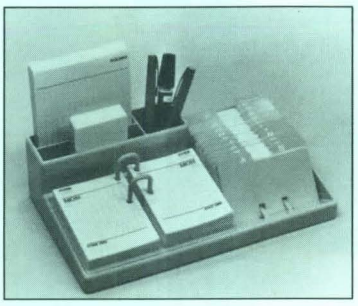

Desk accessories
An expanded finish and color range is available for both the Modu Plus and Leather desk fitting lines. Metallic beige and grays match the Knoll Morrison office; a new accent red is also offered. KnollAccents, New York City.
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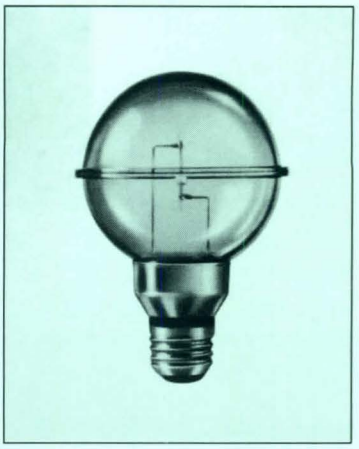

Energy-saving incandescent
A silver sputter-coat on the interior of the MI-T-Wattsaver bulb allows the transmission of visible light while reflecting infrared heat back to a special filament. The spherical shape of the optically finished bulb centers the filament, recycling the reflected heat for more efficient, cooler light production. The 65W bulb uses 35 percent less electricity than a standard 100W, while producing the same light; it has a rated life of 2,500 hours. Duro-Test Corp., North Bergen, N.J.
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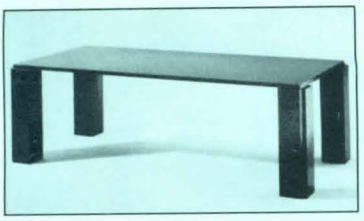

Granite desk
Massimo Vignelli's Power Table comes in a choice of colors and standard and custom sizes for conference, dining, or office use. Interna Designs, Ltd., Chicago.
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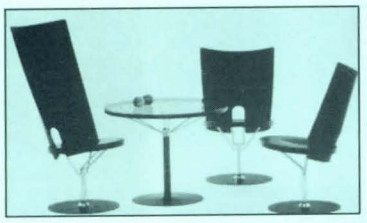

Scandinavian design
Made in Sweden by Bla Station, Borg Lindau's distinctive swivel chairs have leather backs in two heights, with seats of black painted birch set on stainless-steel bases. Poltronova International, Long Island City, N. Y.
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Rated deck assembly
A newly patented assembly permits the installation of Styrofoam insulation directly on metal roof decks under a single-ply ballasted membrane without a separating underlayment. Ribbons of sand distributed perpendicular to the length of the flutes prevent the flow of combustibles during a fire, enabling the assembly to achieve a UL 260 fire rating. Dow Chemical U.S.A., Midland, Mich.
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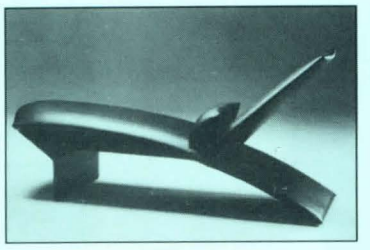

Upholstered chaise
Designer Dakota Jackson says that his Ke-Zu chaise combines the tension of an animal about to spring with an atmosphere of repose. The wood frame is completely covered in leather. Dakota Jackson, Inc., New York City.
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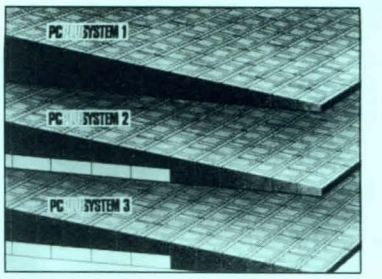

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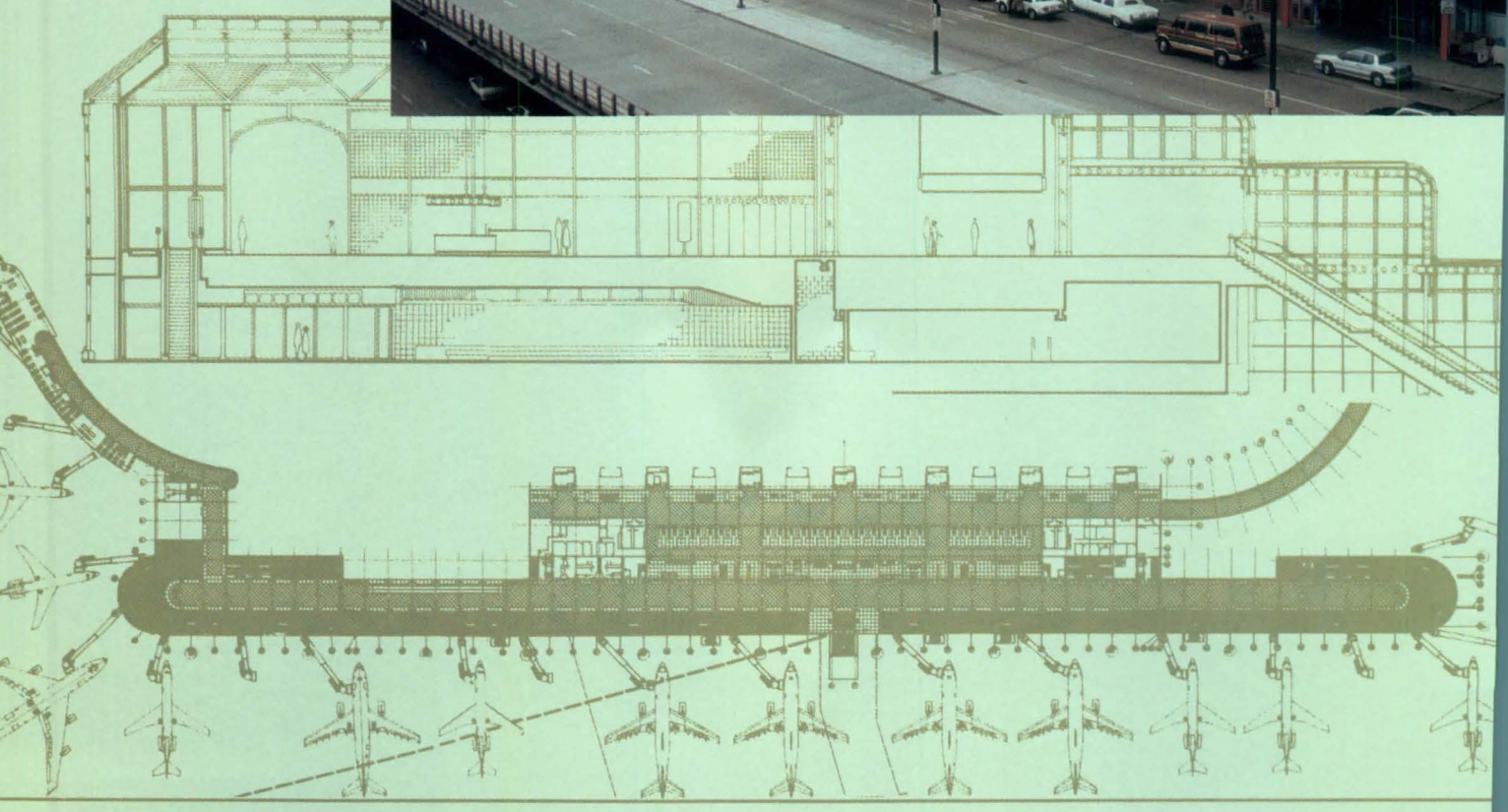

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Manufacturer sources

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

Pages 84-89
Central Park Zoo
Kevin Roche John Dinkeloo and Associates, Architects
Brick: Glen-Gery. Granite: Cold Spring Granite Co. Limestone: Indiana Limestone Co., Inc. Tempered laminated glass: Falconer Glass Industries, Inc. Hammered wire glass: Hordis Brothers. Built-up roofing: Koppers Co., Inc. Lead-clad copper: Abbott Sommer. Slate shingles: Pennsylvania Slate.

Pages 102-105
St. Rita Catholic Church
Tapley-Lunow Architects, Inc.
Page 102—Brick: St. Joe (Rose Blend). Stone: Indiana Limestone Co., Inc. Standing-seam copper roofing: Revere Copper. EPDM single-ply: Firestone Building Products Co. Aluminum-framed windows: Haley-Greet, Inc. Aluminum entrances: Vistawall Architectural Products. Locksets and closers: Sargent. Hinges: McKinney. Pavers: Pavestone.
Pages 103-105—Laminated beams: Structural Wood Systems. Wood paneled ceiling: Potlatch Corp. Stained glass fabricators: Smith Studios. Lighting fixtures: custom by architects, fabricated by Metalrite, Inc. Drywall and plaster: Flintkote. Paints and stains: Sherwin Williams. Pews: Central Mfg. Co. Emergency lighting: Lithonia.

Pages 106-109
Bethany Lutheran Church
Tapley-Lunow Architects, Inc./ Design Architect; Richard A. Lehman, Architect
Pages 106-107—Weathering copper metal roofing: Colony Metal. EPDM membrane: Carlisle SynTec Systems. Brick: Robinson Brick. Stucco: Dryvit System, Inc.
Sources continued on page 172D

RECORD INTERIORS 1989

The editors of ARCHITECTURAL RECORD announce the 20th annual RECORD INTERIORS issue. Architects and interior designers are invited to submit recently completed interior design projects in all categories; work previously published in other national design magazines is disqualified. There are no entry forms or fees; however, submissions must include photographs (transparencies), floor plans, and a project description—bound firmly in an 8 1/2- by 11-in. folder—and be postmarked no later than April 30, 1989. The winning entries will be featured in the 1989 Mid-September RECORD INTERIORS. Other submissions will either be returned or scheduled for publication in a future issue.

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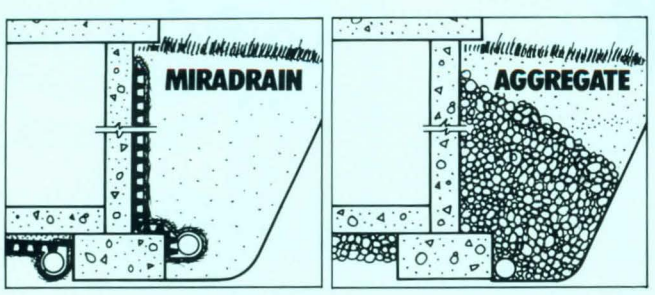

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Store fronts and aluminum-framed doors: Kawneer Co., Inc. Skylights: Kalwall Corp. Aluminum windows: Efco Corp.
Pages 108-109—Laminated structural beams: Timberweld. Paints and stains: Kwal Paint. Concrete stain and wax: Minwax Construction Products. Carpet: Bentley Carpet Mills. Chandeliers: D'Lights. Pews and frontals: Sauder Mfg. Co. Stained glass: Fremont Glass, installed by Creative Stained Glass.

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Covenant Presbyterian Church in America
Tapley-Lunow Associates, Architects
Hand-rolled standing seam roofing: Berridge Mfg. Co. (Galvalume). Windows: Wenco. Laminated structural wood: Unit Structures. Exposed wood ceiling: Potlatch Corp. Locksets and hardware: Sargent Mfg. Co. Drywall: Gold Bond Building Products. Paints and stains: Diamond Paint Co. Pews: L.L. Sams & Sons. Liturgical furnishings: Kodama Woodworks. Lighting: Halo; Artemide.

Pages 112-117
Washington State Convention & Trade Center
TRA/HNTB Architects
Danadjieva & Koenig Associates, Associated Designers
Pages 113-114—Curtain wall: Harmon Contract W.S.A., Inc. Glass-fiber reinforced concrete: Buehner Concrete. Architectural precast: Associated Sand & Gravel Co. Granite: A&G Bignasca, SA (Verde Laguna). Tinted glass: PPG Industries, Inc. Wired glass: Central Glass Co. Sound-attenuating glazing: Guardian Industries. Dual-glazed units: Viracon, Inc. Built-up roofing: Owens-Corning Fiberglas Corp. Elastomeric roofing: Barra Corp. Entrances: Grand Metal Products. Locksets: Schlage Lock Co.; Adams Rite. Hinges: Hager. Closers: LCN. Exit devices: Von Duprin. Paints and special coatings: Glidden Paint Products.
Pages 116-117—Linear metal ceiling: Hunter Douglas, Inc. Suspension grid: Chicago Metallic. Slate flooring: Burlington Slate Ltd. Escalators: Montgomery Elevator Co.

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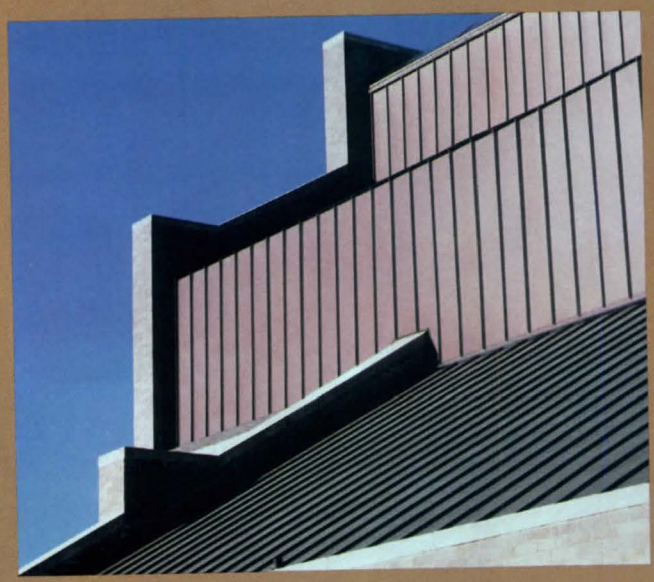

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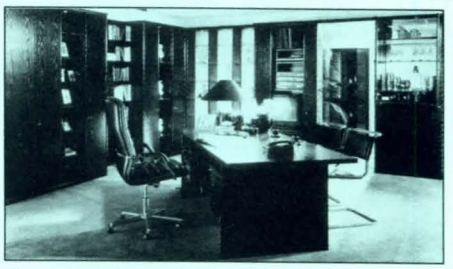

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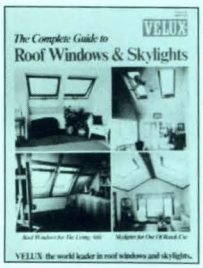

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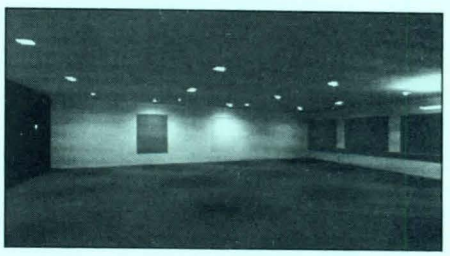

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5. When the recording says, "Enter magazine code and issue code..." enter these numbers and symbols:

2 5 # 2 9 # #

ENTER YOUR INQUIRIES:

6. When the recording says, "Enter (next) inquiry number..." enter the first Inquiry Selection Number, including symbo from your list below. Ign blank boxes. Wait for the pr pt before entering each sub quent number (maximum numbers).

1. ☐☐☐☐#☐
2. ☐☐☐☐#☐
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17. ☐☐☐☐#☐

END STAC SESSION:

7. When you have entered al Inquiry Selection Number the recording prompts, " next inquiry number," En call by entering:

# #

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