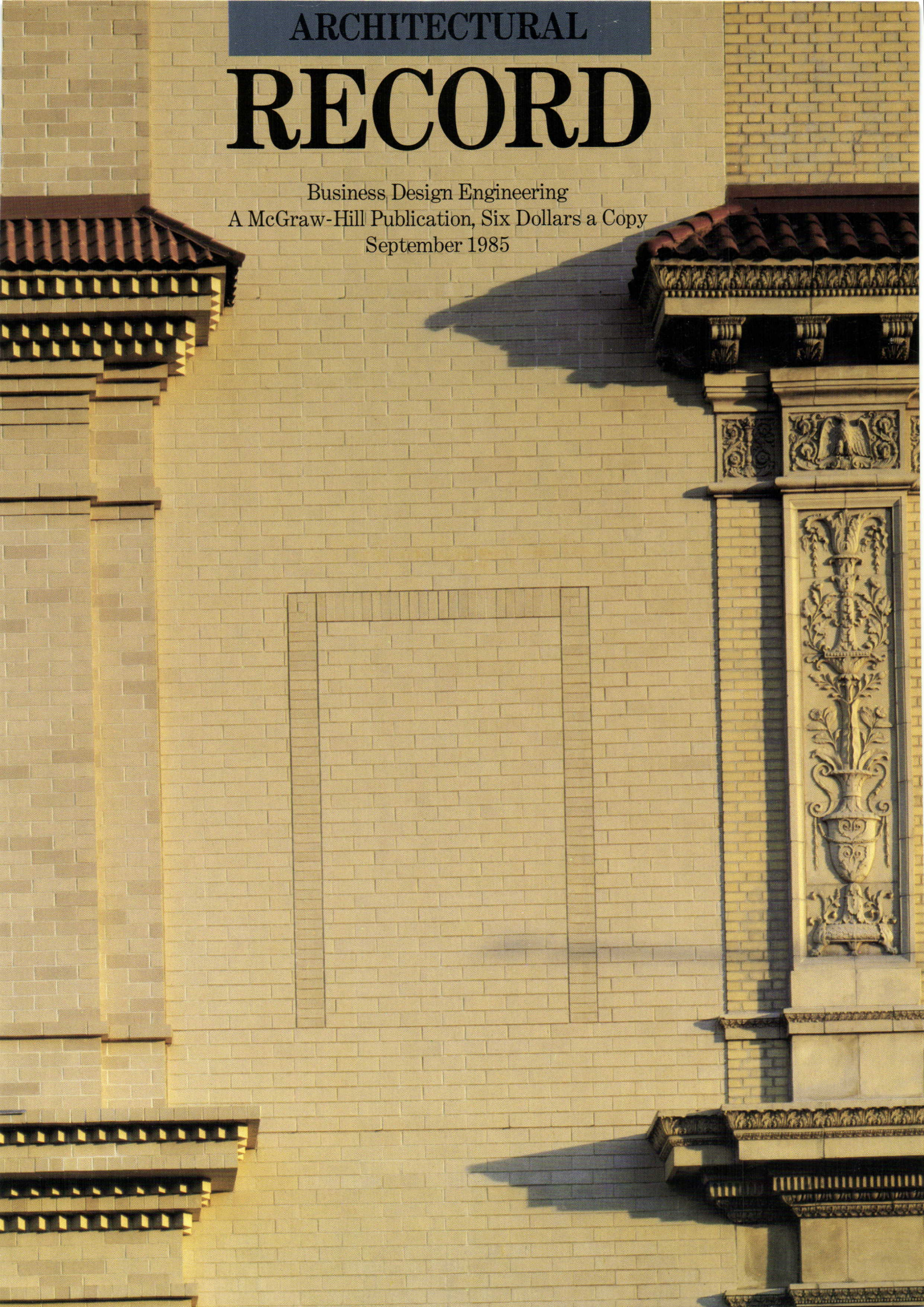


ARCHITECTURAL RECORD

Business Design Engineering
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September 1985



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Letters/calendar, 4

Editorial: Our new editor: Mildred F. Schmertz, FAIA, 9

Business

News, 23

Construction economy update: The volume cycle gets unexpected life, 27

Computers: Where you and they stand with the law, 35

Finance: Economic growth to rise soon, 41

Architectural education: Architecture and the university, 43

Design

News, 53

Design awards/competitions, 62

Observations, 67

Building Types Study 618: Physical recreation, 89

Recreational Sports Facility, University of California at Berkeley, 90

By ELS, Elbasani & Logan, Architects

Multi-Purpose Facility, Colorado School for the Deaf and the Blind, 96

By Cabell Childress Architects

IUPUI Natatorium, Indianapolis, 100

By Edward Larrabee Barnes Associates, Architects

An exhibition: "Dream and Reality," Vienna, 104

Presentation and design by Hans Hollein, Architect

George D. Widener Memorial Treehouse for the Children's Zoo, Philadelphia, 120

By Venturi, Rauch and Scott Brown, Architects

Tabor Center, Denver, 126

By Urban Design Group, Kohn Pedersen Fox Associates, RNL, Inc., Architects

Ohio Theatre Expansion and Arts Pavilion, Columbus, Ohio, 114

By Hardy Holzman Pfeiffer Associates, Architects

Engineering

The Bank of China, Hong Kong, 136

By I. M. Pei & Partners, Architects; Robertson, Fowler & Associates, PC, Structural Engineers

New products, 144

Product literature, 151

Manufacturer sources, 177

Classified advertising, 178

Advertising index, 192

Reader service card, 195

Cover:

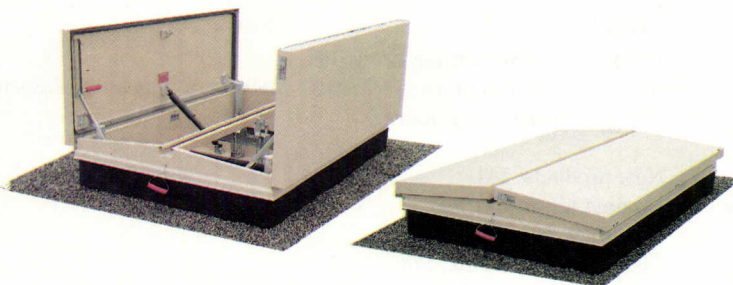
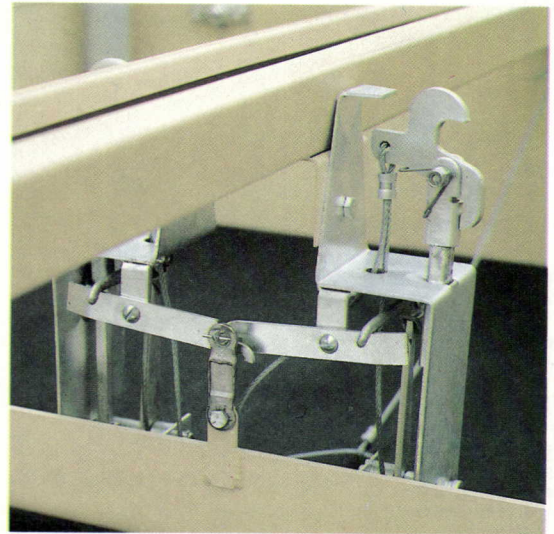
Ohio Theatre Expansion and Arts Pavilion, Columbus, Ohio

Hardy Holzman Pfeiffer Associates, Architects

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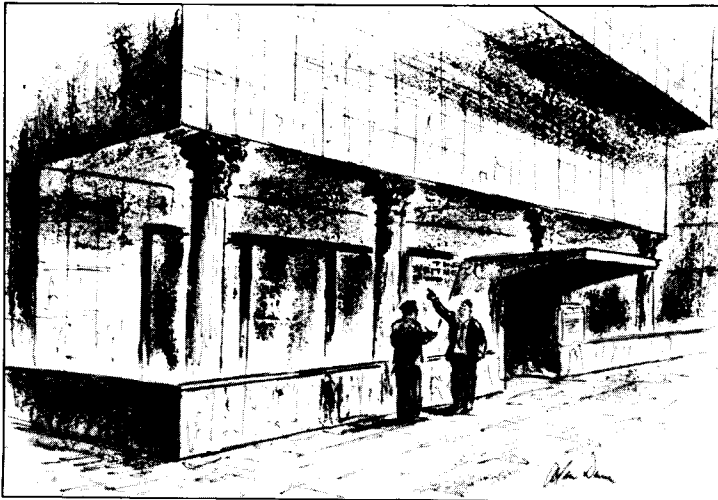
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"It happened during the night— Pure vandalism, I think!"

The Surrealist poet René Crevel committed suicide with a note pinned to his jacket reading simply, "Disgusted." The proposed desecration of the Whitney by Michael Graves causes me to ponder. I refer you to an Alan Dunn cartoon which appeared in your magazine in the 1970s (sorry, no date on the clipping, which has hung on my studio wall since its publication).

Rand Russell
Findlay, Ohio

Mr. Dunn's prescience for change was indeed remarkable. Though the Whitney did not open until 1974, this cartoon appeared in RECORD in December 1966.—Ed.

Concerning computer-aided drafting and specification writing, ARCHITECTURAL RECORD has featured a plethora of material relative to the introduction and acceptance of this new tool into our profession. We consequently receive the impression that conventional drafting aids such as drafting machines and the parallel rule have become as anachronistic as the slide rule or T-square in the average consulting office drafting room.

On the other hand, in your March 1985 issue, the Levolor Vertical Blinds advertisement on page 202 illustrates a small drafting or design office completely devoid of CAD computers and attractively furnished only with parallel rules on conventional drafting tables. Page 225 in the same issue featured a standard drafting table and parallel rule, produced by the Dataprint organization, that were offered for sale.

Over the past decade, some of us have heard of very sophisticated CAD systems being removed from several offices in preference to a return to conventional drafting

tools. Many of us acknowledge that progress cannot be impeded in these areas of high technology. At the same time, we wonder whether or not architectural practice is going through some form of innovative phase that will ultimately die out?

During the past few years Canadian architects have mastered and produced a great deal of work using the metric system. However, a raging controversy still goes on about its over-all and final acceptance, particularly because the United States still works almost completely in the Imperial system, and obviously disdains the metric. Are computer aids in architectural and engineering offices slated to follow the same course?

Creighton Aquin, MRAIC
Chief of Planning and Design
School Buildings Branch
Department of Education
Province of New Brunswick
Fredericton, New Brunswick

Corrections

Photographic credit for the First City Bank in Houston (RECORD, July 1985, pages 101 and 108-109) should have gone to Richard Payne, AIA.

Credit for the design of Harborplace in Baltimore, cited in "Toward a return of the public place: An American survey" (RECORD, April 1985, pages 87-95), should have included Wallace Roberts & Todd for the open space associated with the project.

Architects for Riverplace in Minneapolis (RECORD, July 1985, page 77) consisted of three firms: Miller Manson Westerbeck Bell, Korsunsky Krank Erickson in joint venture with PSA Architects.

Through September 29

Exhibit, *William Lescaze: The Rise of Modern Design in America*, sponsored by the American Institute of Architects; at the Octagon, Washington, D. C.

September 7 through October 6

Exhibit of entries in the 10th annual Architectural Design Awards Competition, sponsored by the Los Angeles Chapter/American Institute of Architects; at City Room, California Museum of Science & Industry, 700 State Dr., Exposition Park, Los Angeles.

September 30 through October 1

Conference "Downtown Turnaround," on downtown revitalization, sponsored by Planners Training Service, American Institute of Certified Planners; at Holiday Inn-Inner Harbor, Baltimore. For information: Christine Barbetta, AICP, 1313 E. 60th St., Chicago, Ill. 60637 (312/955-9100).

October 1-18

Past Futures: Two Centuries of Imagining Boston, an exhibit of visionary plans, co-sponsored by Harvard University and State Street Bank and Trust Co., Boston; at Gund Hall Gallery, Harvard University Graduate School of Design, Cambridge, Mass.

October 2-4

Training conference on downtown revitalization, sponsored by National Main Street Center, the National Trust for Historic Preservation; at the Ramada Hotel, East Hartford, Conn. The sponsors will offer the same course October 22-24 in San Bernadino, Calif. For information: National Main Street Center, National Trust for Historic Preservation, 1785 Massachusetts Ave., N. W., Washington, D. C. 20036 (202/673-4219).

October 2 through December 2

Athens, European Concern, exhibit reflecting the influence of Greece on neoclassical urban design throughout Europe, sponsored by the Ministry of Culture and Science of Greece and by the Commission of European Communities; at Zappeion Megaron, Athens, Greece.

October 9-13

39th National Preservation Conference, including workshops and exhibits, sponsored by the National Trust for Historic Preservation; at Seattle. For information: Kate Merlino, National Trust for Historic Preservation, 1785 Massachusetts Ave., N. W., Washington, D. C. 20036 (202/673-4141).

October 11-13

Designer's Saturday, exhibits of contract furniture at manufacturers' show rooms; New York City.

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Our new editor: Mildred F. Schmertz, FAIA

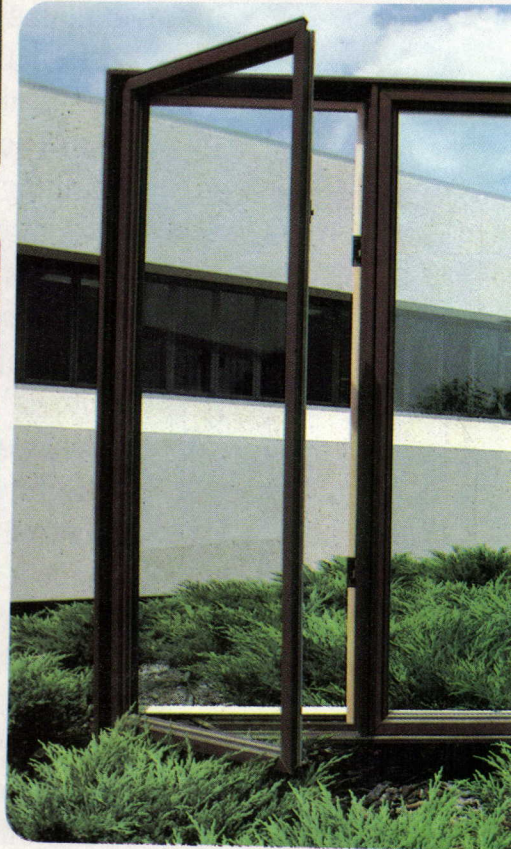
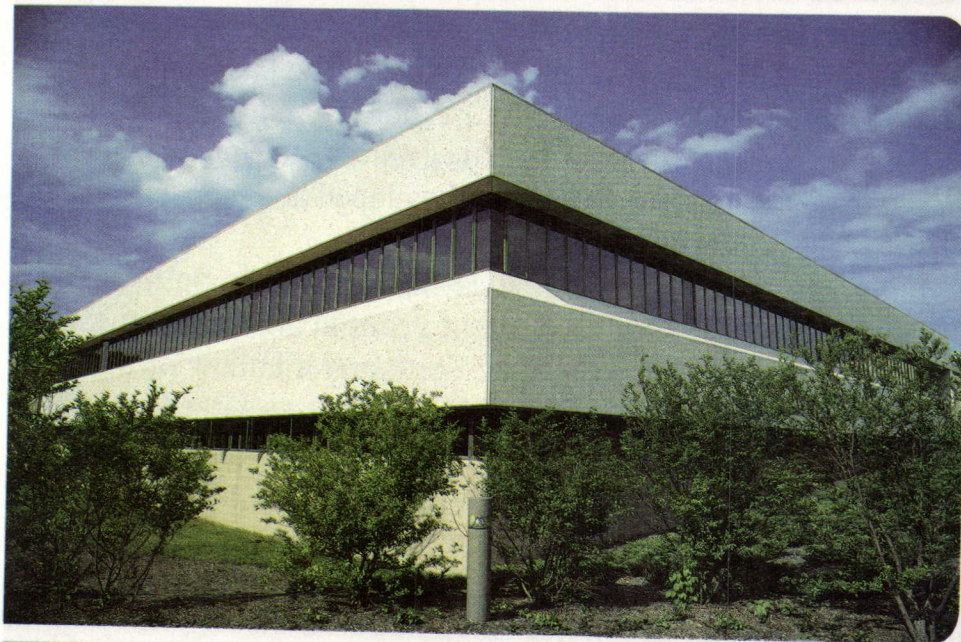
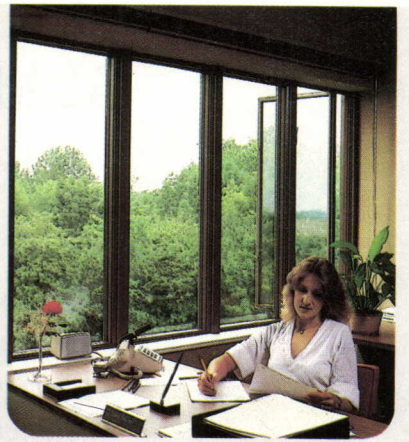
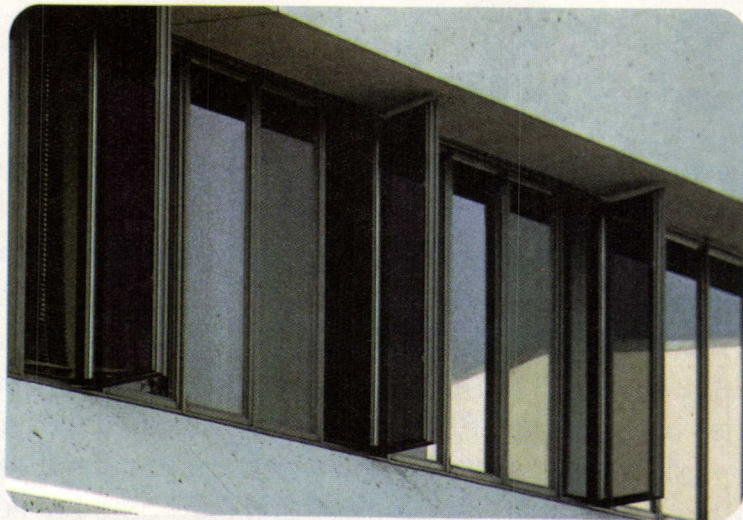
In the 94 years ARCHITECTURAL RECORD has existed, there have been only 9 editors at the top of the masthead. I have appointed Mildred as the 10th. She came to the magazine in 1957 as a graphic designer, but switched to editorial as fast as she could. "Editors travel more," she explains, "and get invited to more parties." Today, now that she has visited all the countries in the world at least once, or so it seems to me, and all the cities in the United States over and over, and met more architects than you might think there are, and written more about architecture and planning than even she remembers, I think it's time for her to spend a little more time in the office.

She is good in the office. As executive editor for the past five years, she helped initiate and implement RECORD's graphic format redesign and encouraged and established procedures for greater staff participation in editorial decisions. During that period she developed new departments and supervised graphics and content.

Before Mildred came to RECORD she earned degrees in both architecture and fine art. A veteran of eight years in an architectural firm, she is a registered architect in New York State and a Fellow of the AIA. She learned long ago from hands-on experience that architecture isn't easy. This has made her a gentle critic, but a deeply knowledgeable one.

In her 28 years at RECORD she worked for two chief editors preceding Walter Wagner—John Knox Shear, who invited her to join the magazine, and Emerson Goble—both of whom many of you will remember. Her list of publishers is a bit longer. I am her sixth, she tells me. By choosing her I am choosing continuity. The magazine is the best it has ever been and under her direction it will remain fundamentally the same. Just as important, however, by choosing her, I am inviting still more creative change. You will be seeing it.

Paul B. Beatty



The rehabilitation of existing structures accounted, on a national basis, for almost one-third of nonresidential construction in the past year. This according to estimates by the Chicago Title Insurance Company. Such additions and alterations constituted an even larger share in many individual metropolitan markets. For example, Chicago's \$800-million worth of rehab represented over 51 per cent

of all local construction. Other leading cities were Philadelphia with \$260 million in rehab, representing 47 per cent; Baltimore with \$335 million, representing 45.1 per cent; New Orleans with \$200 million, representing 40.1 per cent; New York with \$350 million, representing 29.5 per cent; and Los Angeles with \$750 million, representing 29.3 per cent.

Insight into future manufacturing facilities given

America's traditional bigger-is-better philosophy on the appropriate size of manufacturing facilities has given way. Today's smaller facilities result in higher productivity and improved labor relations, according to the results of a survey by accountants and management consultants Alexander Grant & Company.

"Our economic foundation has been rebuilt, and the components of that new foundation have been in place for some time," says John Naisbitt of the Naisbitt Group, the economic consultants who produced an overview and regional analysis as part of the published survey report. "The new information economy is steadily outpacing the old industrial economy, which is certain to bring about significant changes for all business people," added Naisbitt.

"Across the country, cities, states, and regions have so diversified their economies that few are dependent on any one industry for their survival," he continued. "In most areas, if one set of industries is experiencing a slump and threatening to put a drag on the economy, another set of industries is experiencing a growth spurt, which brings the economy back up again.

"While this seesaw of growth and decline may appear to indicate a fundamental instability, it is actually a sign of vitality that helps to restore consumer confidence in our over-all ability to withstand what once would have been devastating economic pressures."

The Naisbitt Group credits "entrepreneurial activity," which creates more than 600,000 companies per year—including manufacturing companies—and two to four million new jobs with them

as the mainstay of America's new economy. And despite the effects of foreign competition, American manufacturers and governmental units are designing and implementing creative strategies to remain competitive. Among the strategies cited that would affect construction were automation and robotics, and steps taken to set up special enterprise zones by some 24 states.

While noting that Alexander Grant's 1984 survey does show a continuing urge of Americans to "follow the sun," the Naisbitt Group pointed out that the frost belt "will not be turning out the lights. Ohio, Indiana, Michigan and Iowa are growing again after losing population in 1981 and 1982. All New England states recorded some gain in 1984. In addition, constraints to growth are already apparent in some southern areas that may stem the tide of outmigration from the northern areas.

"Water shortages cast doubt on future growth for some sunbelt states, especially Florida, California, and Texas. In other areas, civil and social services are stretched to the breaking point, and infrastructures—all but abandoned in the wake of Federal support-program retrenchment—are badly in need of repair if they ever are to accommodate growth. Additionally, some residents in fast-growing areas are questioning the value of bigness, and pushing for growth management and, in some cases, growth control."

The Sixth Annual Study of General Manufacturing Climates of the 48 Contiguous States of America, complete with Naisbitt's analysis and regional rankings, is available at \$35 per copy from Alexander Grant, Prudential Plaza, Suite 1700, Chicago, Ill.

Asbestos teleconference scheduled

"How clean is clean?" This may sound like another line from a detergent commercial. But the question posed in conjunction with asbestos in buildings takes on a much more serious, in fact, potentially deadly meaning.

It is, in the words of architect Steven L. Biegel, vice president for program planning at the National Institute of Building Sciences, one of the "fairly difficult questions" being asked when it comes to ridding a building of this cancer-causing material.

Asbestos in buildings and the whole series of subsets connected to it—professional liability problems, how to identify and assess physical risks, and how to deal with the risks by encapsulation, removal or both—have increasingly occupied the attention of building professionals during the last year or so.

To assess the role of architects in the asbestos abatement issue and to answer nuts-and-bolts questions from the field, the American Institute of Architects plans to stage its first satellite teleconference ever. Scheduled for October, it is to broadcast a symposium to almost a dozen stations around the country. Architects and other design professionals would be able to phone in their queries via toll-free 800 numbers.

The teleconference is to be staged in Fort Lauderdale, home base of the event's co-sponsor, Seagull Environmental Co., an asbestos abatement contractor doing work for numerous architects, according to Chip Levy, AIA's director of professional development.

A dry run of sorts was held in early July at AIA headquarters in Washington in which some 65 architects in a day-long session tangled with representatives from the asbestos as well as the asbestos removal industries, from the Environmental Protection Agency, and from academia. The give-and-take produced a lot of highly technical questions which seemed to generate even more questions than answers—a reflection of the technical and legal uncertainties surrounding this troublesome issue. For example: why should architects be involved at all, and why not let others do risk assessment? (Answer: architects are in fact already doing it and should at least understand the intricacies of the process.) Are there any EPA-approved labs to do testing for asbestos? (Answer: EPA doesn't approve labs, but labs can participate in an EPA-approved testing program.) What are some of the standards that must be complied with? (Answer: some states have drawn up or are

Continued



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Construction economy update: The volume cycle gets unexpected life

By George A. Christie

After stalling in 1984, the building market is expanding again.

The sideways movement of the Dodge Index of construction-contract volume during 1984 strongly suggested that, after two years of expansion, the upper limit had been reached. Between 1982's second quarter and 1984's first, the index rose from a depressed 103 to a healthy 148. But by 1984's fourth quarter it had advanced no further than 149.

Then, like a whiff of oxygen to a tired athlete, falling interest rates revived the market. Contracting advanced five per cent in 1985's first quarter (to a new high of 152), and was doing even better in the second quarter—a very possible 160 in the making.

At mid-1985, the outlook for the remainder of the year is a mixture of promise and concern. The promise of still lower interest rates by year's-end implies continued improvement in the reviving residential building market. The cause for concern arises out of the very reason why interest rates are being nudged down—to counteract deep-seated problems in the economy's industrial sector. With falling interest rates as the catalyst, 1985's gains in housing are coming at the expense of commercial and industrial building.

The case for lower mortgage rates lies with the need to get economic growth going again

The economy clearly needs lower interest rates to restore its growth. The hard dollar (a side-effect of high interest rates since the early 1980s) is seriously inhibiting industrial expansion, and business capital spending is faltering. The opportunity for monetary stimulus is also available. Inflation is dormant, and the Administration and Congress are finally coming to grips with the deficit. There are no credible arguments left for maintaining artificially high interest rates, and there is every reason for the Fed to lean in the direction of monetary ease for as long as the economy needs support. That need could linger throughout most or all of 1986.

The Federal Reserve's timely cut of its discount rate in May left little doubt as to the intent of current monetary policy, and cleared the way for a continued decline of long-term interest rates during the second half of 1985. Prior to this latest easing, it appeared that mortgage rates would be settling in the range of 12 1/2 to 12 3/4 per cent this year, down from 1984's third-quarter peak of 14.11 per cent. Now, with the Fed's encouragement, it is reasonable to

look for 12 per cent mortgage money (maybe lower) by the end of 1985, with little upward pressure in 1986. *The implication: an already favorable housing outlook becomes even better.*

The drag of growth recession means a deteriorated outlook for business capital spending

A recent study by Data Resources, Inc., offers some dimensions of the impact that the appreciation of the dollar since 1980 is having on the economy's industrial sector. Export sales are approximately 15 per cent lower, and imports 15 per cent higher than if former exchange rates still prevailed. This translates into a reduction of nearly 10 per cent in industrial output, and a loss of some two million production jobs.

The handicap of a large trade deficit will persist in retarding real GNP growth as long as the overvalued dollar makes imported goods attractive to consumers. Even with the help of monetary stimulus, it will take the rest of 1985 and most of 1986 to revive the economy from its lapse into "growth recession," and a period of subnormal GNP growth (two to three per cent in constant dollars) must be seen before the more desirable 3 1/2 to four per cent rate is restored. For this year's second half, growth should be between 2 1/2 and 2 3/4 per cent—not much different from the first half rate.

Because the term "growth recession" literally means insufficient economic expansion to absorb excess capacity (whether labor or plant and equipment), the outlook for business capital spending has deteriorated since the rate of capacity utilization began slipping back toward 80 per cent. *The implication: a setback for commercial and industrial building.*

Housing's outlook is to respond to mixed signals of the public psyche and tax reform

The turnaround of the housing market early in 1985 was, of course, the main thrust behind this year's renewed advance of construction contracting. By May, the value of residential starts had topped \$100 billion for three consecutive months, regaining a level that had not been reached since early in 1984.

The revival of housing activity since the end of 1984 has been dominated by the multifamily side of the market, which delivered 100,000 of the 150,000 unit improvement to date. The second half of 1985 should belong to single-family housing, which still has a lot of catching up to do.

Single-family housing: Based on recent experience, by the time the "standard" mortgage rate winds

down to 12 per cent (tentatively in the fourth quarter of 1985), the rate of one-family housing starts should be approaching 1,150,000 units by F. W. Dodge's calculations (see footnote below on how these differ from the Commerce Department's).*

Through mid-1985, however, the response by home builders and buyers has been something less than recent experience would lead you to expect. With mortgage money now getting close to 12 1/2 per cent (down from last year's 14 per cent), one-family starts ought to be comfortably above 1 million units instead of struggling to reach 975,000.

It is not hard to rationalize the shortfall. Buyers could be responding to lower mortgage rates by substituting condos (i.e., multifamily units) for single-family housing. Buyers probably expect rates to go still lower, and may be holding back a while longer. Buyers might feel insecure due to the threat of recession.

Any of these reasons could explain a delayed response to the improving credit environment, but in time, lower mortgage cost will generate more one-family demand. An annualized rate of 1,150,000 starts remains a good probability by fourth quarter, 1985, but due to sluggish response during the middle quarters of the year, 1985's total is not likely to exceed 1,040,000 one-family units.

If 1986 begins where 1985 ends, and if mortgage rates hold steady as expected, next year's one-family building volume should be closer to 1.1 million units.

Multifamily housing: A very strong 750,000-unit rate of apartment and condominium starts in 1985's second quarter requires a further upgrading of the year's full potential to 735,000 units.

A rate of building this high is considered to be at least 100,000 units above basic demographic requirements for multifamily housing, as evidenced by the rising vacancy rate. Like offices, apartments have been overdeveloped since ERTA's accelerated depreciation provision offered a highly attractive tax advantage. The probability that

Continued

*The total number of newly started dwelling units reported by F. W. Dodge covers virtually the same universe as represented by the U. S. Commerce Department's data. However, due to definitional differences in the part of the housing market that takes in townhouses, condominiums, and other newer forms of housing which do not fit neatly into traditional stereotypes, Dodge data typically show a higher proportion of multifamily units than Commerce does, and correspondingly fewer one-family units.

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1985 National Estimates Dodge Construction Potentials

		Second Update July 1985		
Nonresidential Buildings		1984 Actual	1985 Forecast	Percent Change 1985/84
Floor Area (millions of square feet)	Office Buildings	318	295	- 7
	Stores & Other Commercial	478	531	+ 11
	Manufacturing Buildings	144	142	- 1
	Total Commercial & Manufacturing	940	968	+ 3
	Educational	90	95	+ 6
	Hospital & Health	70	71	+ 1
Other Nonresidential Buildings		122	131	+ 7
	Total Institutional & Other	282	297	+ 5
	Total Nonresidential Buildings	1,222	1,265	+ 4
Contract Value (millions of dollars)	Office Buildings	\$ 23,035	\$ 22,025	- 4
	Stores & Other Commercial	18,496	20,925	+13
	Manufacturing Buildings	7,163	7,150	-
	Total Commercial & Manufacturing	\$ 48,694	\$ 50,100	+ 3
	Educational	\$ 7,588	\$ 8,300	+ 9
	Hospital & Health	7,128	7,500	+ 5
Other Nonresidential Buildings		9,948	10,500	+ 6
	Total Institutional & Other	\$ 24,664	\$ 26,300	+ 7
Total Nonresidential Buildings	\$ 73,358	\$ 76,400	+ 4	
Residential Buildings				
Dwelling Units (thousands of units)	One-Family Houses	994	1,040	+ 5
	Multi-Family Housing	759	735	- 3
	Total Housekeeping Residential	1,753	1,775	+ 1
Floor Area (millions of square feet)	One-Family Houses	1,567	1,632	+ 4
	Multi-Family Housing	725	701	- 3
	Nonhousekeeping Residential	90	88	- 2
	Total Residential Buildings	2,382	2,421	+ 2
Contract Value (millions of dollars)	One-Family Houses	\$ 66,526	\$ 72,850	+10
	Multi-Family Housing	27,973	28,400	+ 2
	Nonhousekeeping Residential	6,325	6,350	-
	Total Residential Buildings	\$100,824	\$107,600	+ 7
Nonbuilding Construction				
Contract Value (millions of dollars)	Highways & Bridges	\$ 17,075	\$ 18,600	+ 9
	Sewer & Water	8,079	8,700	+ 8
	Other Public Works	8,135	8,400	+ 3
	Total Public Works	\$ 33,289	\$ 35,700	+ 7
Utilities	\$ 2,518	\$ 2,500	- 1	
Total Nonbuilding Construction	\$ 35,807	\$ 38,200	+ 7	
All Construction				
Contract Value (millions of dollars)	Total Construction	\$209,989	\$222,200	+ 6
	Dodge Index (1977 = 100)	149	158	

* F.W. Dodge basis.

Prepared July 1985 by
the Economics Department
McGraw-Hill Information
Systems Company,
George A. Christie, vice president
and chief economist

current proposals for tax reform will lead to a lengthening of depreciation in 1986 will have two effects: to encourage excessive building for the balance of 1985, and to precipitate a sharp decline in 1986 when the rules change.

It will take several more months of debate before Congress and the Administration agree on the details of their tax-reform program. Meanwhile, without firm bad news, the booming apartment-building market is headed for another exceptional year in 1985.

Total residential building: As single-family building continues to respond to falling interest rates through 1985's second half, the year's dwelling-unit total is forecast to reach 1,775,000. The 1985 value of all residential building—including hotels, motels, and dormitories—will total \$107.6 billion, a gain of some seven per cent over the year just passed.

Nonresidential construction volume will slacken except for isolated building types

Commercial/industrial building: The economy's lapse into "growth recession" since mid-1984 is taking its toll on commercial and industrial building. From a strong 11 per cent advance in 1984's first half, contracting eased to a six per cent gain through last year's second half, and then all but ceased expanding in the first six months of 1985. A mere one per cent gain during the most recent six-month period brought the annualized rate of contracting for offices, stores, warehouses, and factories to 982 million square feet—the probable peak of the current cycle. As this sensitive market is subjected to continued stress in the quarters ahead, contracting for commercial and industrial building is expected to decline by three per cent (to a rate of 950 million square feet) in 1985's second half.

Office building heads the list of vulnerable markets, but as the deadline for tax reform nears, contracting for offices could go either way. Responding more to the laws of taxation than to the law of supply and demand, new office starts again topped 300 million square feet (annual rate) in 1985's first half despite a national vacancy rate well above 15 per cent. However, with starts of large, high-rise projects diminishing, it is presumed that the interaction of two conflicting motives—the urge to qualify for 18-year depreciation, and traditional concern about soaring vacancies—will bring the rate of contracting down to about 285 million square feet in the second half (still a lot more than the market can digest). In

1986, a considerably lower rate will be appropriate.

Industrial building, another vulnerable category, may already have made its adjustment to the limitations of the mid-1980s. After a promising recovery in 1983, contracting for manufacturing buildings plateaued in 1984 at 144 million square feet—roughly three-quarters of its potential for expansion. With little prospect that capacity utilization in the manufacturing sector will rise above its current 81 per cent in the next 12 to 18 months, contracting for industrial construction appears stalled in the range of 140-145 million square feet through the rest of 1985 and all of 1986 as well.

Contracting for stores, shopping centers, and warehouses is providing a stabilizing influence in the commercial and industrial building market. Linked closely to homebuilding, construction of retail facilities will be averaging a solid 450 million square feet through 1985's second half and into 1986 while residential building benefits from declining mortgage rates.

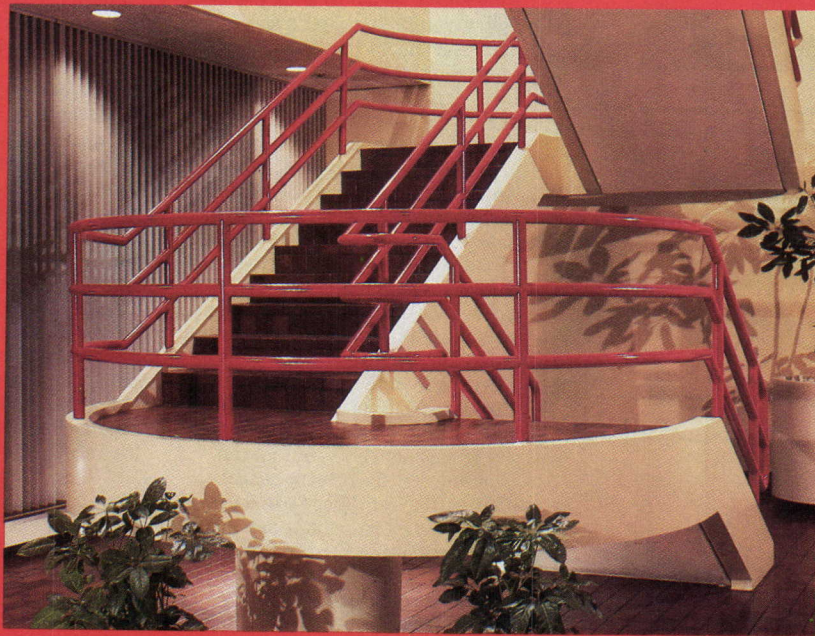
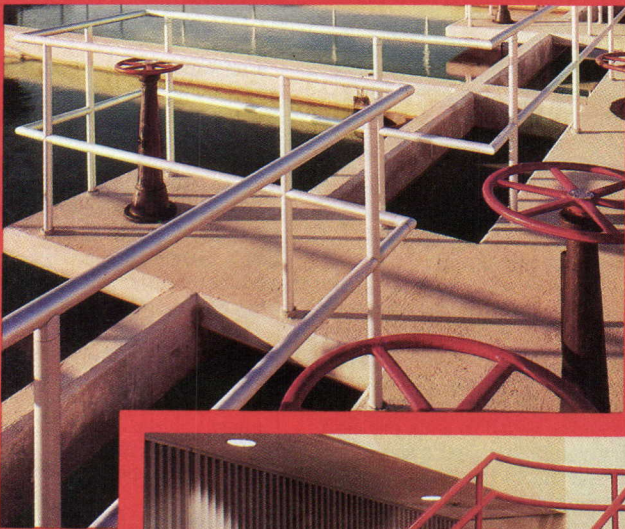
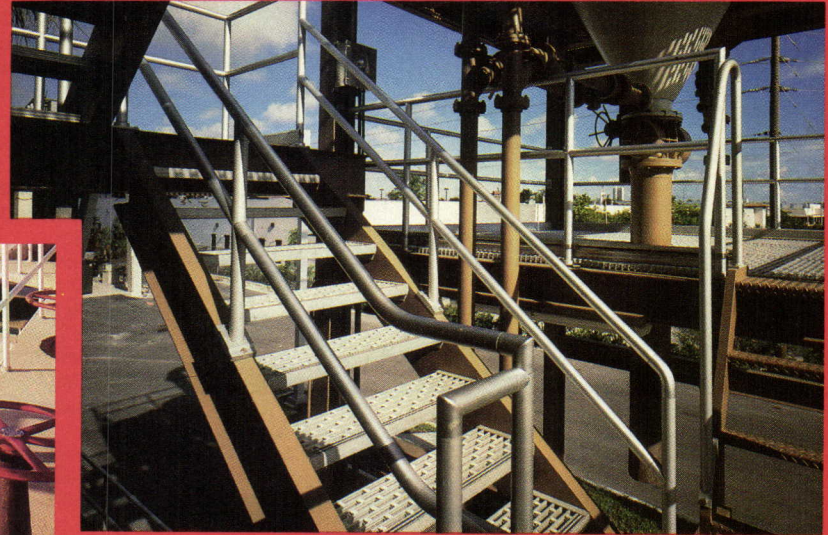
For the full year 1985, contracting for commercial and industrial building is forecast to reach 968 million square feet, the highest volume achieved since 1979. Construction contract value will advance three per cent this year to \$50.1 billion.

Institutional building: The improved flow of revenue to state and local governments and the reduced cost of municipal finance together have greatly improved the outlook for institutional building. A "breakthrough" was achieved during 1984's second half when the rate of contracting for schools, hospitals, and public administration buildings escalated 10 per cent to 300 million square feet for the first time in the five years of depressed building in that field. Educational construction delivered most of the rebound.

After a temporary setback in first quarter 1985, contracting for institutional building appears to be steadying at close to 300 million square feet this year.

Total nonresidential building: Coming off its cyclical peak of 1,293 million square feet in 1984's fourth quarter, contracting for nonresidential building is slackening in 1985 while residential building recovers. Compared with the first-quarter rate of 1,280 million square feet, total nonresidential square footage will still be relatively strong at 1,250 million by the final quarter, yielding a full year total of 1,265 million square feet.

The value of 1985's "mix" of
Continued



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1985 Regional Estimates Dodge Construction Potentials

Second Update
July 1985

North-east	CT, ME, MA, NH, NJ, NY, PA, RI, VT	1984	1985	Percent Change 1985/84
		Actual	Forecast	
Contract Value (millions of dollars)	Nonresidential Buildings			
	Commercial and Manufacturing	\$ 8,286	\$ 8,350	+ 1
	Institutional and Other	4,447	4,925	+11
	Total	\$12,733	\$13,275	+ 4
	Residential Buildings			
	One-Family Houses	\$ 8,683	\$10,575	+22
	Multi-Family Housing	3,596	3,875	+ 8
	Nonhousekeeping Residential	847	850	—
	Total	\$13,126	\$15,300	+17
	Nonbuilding Construction			
Highways and Bridges	\$ 3,216	\$ 3,250	+ 1	
Other Public Works	3,120	3,350	+ 7	
Utilities	316	300	- 5	
Total	\$ 6,652	\$ 6,900	+ 4	
Total Construction	\$32,511	\$35,475	+ 9	

North Central	IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI	1984	1985	Percent Change 1985/84
		Actual	Forecast	
Contract Value (millions of dollars)	Nonresidential Buildings			
	Commercial and Manufacturing	\$ 9,433	\$ 9,525	+ 1
	Institutional and Other	5,095	5,525	+ 8
	Total	\$14,528	\$15,050	+ 4
	Residential Buildings			
	One-Family Houses	\$10,493	\$11,500	+10
	Multi-Family Housing	3,585	3,775	+ 5
	Nonhousekeeping Residential	930	825	-11
	Total	\$15,008	\$16,100	+ 7
	Nonbuilding Construction			
Highways and Bridges	\$ 4,755	\$ 5,225	+10	
Other Public Works	3,668	3,700	+ 1	
Utilities	208	250	+20	
Total	\$ 8,631	\$ 9,175	+ 6	
Total Construction	\$38,167	\$40,325	+ 6	

South	AL, AR, DE, DC, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV	1984	1985	Percent Change 1985/84
		Actual	Forecast	
Contract Value (millions of dollars)	Nonresidential Buildings			
	Commercial and Manufacturing	\$18,520	\$19,575	+ 6
	Institutional and Other	9,425	9,650	+ 2
	Total	\$27,945	\$29,225	+ 5
	Residential Buildings			
	One-Family Houses	\$30,301	\$32,000	+ 6
	Multi-Family Housing	12,611	12,125	- 4
	Nonhousekeeping Residential	2,666	2,800	+ 5
	Total	\$45,578	\$46,925	+ 3
	Nonbuilding Construction			
Highways and Bridges	\$ 6,086	\$ 6,875	+13	
Other Public Works	5,826	6,275	+ 8	
Utilities	1,416	1,200	-15	
Total	\$13,328	\$14,350	+ 8	
Total Construction	\$86,851	\$90,500	+ 4	

West	AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY	1984	1985	Percent Change 1985/84
		Actual	Forecast	
Contract Value (millions of dollars)	Nonresidential Buildings			
	Commercial and Manufacturing	\$12,455	\$12,650	+ 2
	Institutional and Other	5,697	6,200	+ 9
	Total	\$18,152	\$18,850	+ 4
	Residential Buildings			
	One-Family Houses	\$17,049	\$18,775	+10
	Multi-Family Housing	8,181	8,625	+ 5
	Nonhousekeeping Residential	1,882	1,875	—
	Total	\$27,112	\$29,275	+ 8
	Nonbuilding Construction			
Highways and Bridges	\$ 3,018	\$ 3,250	+ 8	
Other Public Works	3,600	3,775	+ 5	
Utilities	578	750	+30	
Total	\$ 7,196	\$ 7,775	+ 8	
Total Construction	\$52,460	\$55,900	+ 7	

commercial, industrial, and institutional contracting is estimated to reach \$76.4 billion.

The public works outlook is for a modest gain this year, but watch out for next year Slow but steady improvement in contracting for public works construction is evidence that this market is adjusting to the withdrawal of Federal funding (once called the "New Federalism"; now becoming known as the "New Localism").

In constant-dollar terms, 1985's first-half rate of contracting for transportation-related projects, water and sewer facilities, and other public works advanced two per cent, extending the three-year recovery that began in 1982. With the support of additional user taxes and a greater degree of local government participation, the current level of public works construction has climbed back to within five per cent of its pre-1980 strength.

Highways and bridges: Once the backlog of interstate work that was delayed by last year's ICE (the Interstate Cost Estimate) hassle is reduced, contracting for highways and bridges will be stabilizing at a rate just over \$18.5 billion for the balance of the year. For 1985 as a whole, this means a gain of four per cent in constant dollars, or eight per cent in current dollars.

Water resources: The budgets of the two Federal agencies that are responsible for most of the nation's water resource development are giving conflicting signals in 1985. Increased outlays by the Bureau of Reclamation are currently more than offsetting cutbacks in the Corps of Engineers' construction programs for dams, reservoirs, and river/harbor development. As a consequence, this year's contracting will be up five per cent in current dollars (but unchanged from 1984's constant dollar value).

Sewer/waste disposal: A higher required rate of local government participation in EPA's construction grant program (45 per cent since last October versus the previous 25 per cent) is temporarily sustaining total contracting for waste-water treatment facilities despite Federal budget cuts. In 1985, current dollar contract value will be up seven per cent, three per cent of it "real."

Total for all public works construction: Although next year's proposed "budget freeze" gives reason to doubt that the recovery of public works construction can continue much longer, 1985's contracting is headed for a three per cent gain in constant-dollar value. A four per cent inflation rate will boost dollar contracting seven per cent to \$35.7 billion.

This is the time to appreciate an uncommon late-cycle revival, but beware 1986

Midway through 1985, falling interest rates are breathing new life into the building market. This year's newly started construction, now estimated at \$222 billion, will exceed 1984's total by six per cent as the construction sector rounds another cyclical peak.

By 1986, conditions will be changing. Tax reform threatens to curtail commercial building. The proposed reduction of the Federal deficit could mean deeper cuts for all publicly funded construction. Interest rates will not decline indefinitely. Meanwhile, the benefits of lower interest rates easily outweigh any or all of the mounting threats to the continued prosperity of the construction industry.

October's Outlook will be the appropriate time and place to assess next year's risks. For now it is enough to appreciate the bonus of an uncommon late-cycle revival.

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Computers:

Where you and they stand with the law

An experienced attorney in the computer field gives the basics on how failures in your system may be treated if you have to take them to court

By Paul A. Mathew

It is no secret that the American construction industry is in the process of assimilating the current generation of computer technology. Architects and engineers are getting their professions involved for design purposes, even as construction contractors are applying computer management, scheduling, and production methods to getting buildings built.

Still, the introduction of computer technology in the construction industry comes at a time when the computer industry is in its infancy. Hence, the legislative and judicial systems have not fully established policies on the related problems.

Let us see where you, as a design professional, are when you venture into these waters.

There are traits of both the construction and computer industries that set them apart

The American construction industry reflects an ancient heritage. Although means, methods, and skills have varied, the primary effort of the industry remains to mesh labor, capital, and materials.

Consider the nature of the efforts required to build the first trans-continental railroad, our telephone system, our interstate highways, and the support structure required for the MX missile. Incredibly diverse, the construction industry plays a vital role in our national economy. At the same time it is the subject of extensive external and internal controls.

The American construction industry is relatively mature. Fluctuations in materials pricing, interest rates, and world events directly affect construction output. The long operational history of the industry has resulted in accurate appraisals of the risks and the rewards. The failures of men and material can be predicted with some accuracy. Even so, the construction process remains particularly bloody. For instance, on the average, 400 persons are maimed or killed each year in accidents when construction cranes contact overhead power lines.

It is in hopes of obtaining productivity and financial rewards that contractors are engaged in the effort to bring computers to their operations. While large sums of money are being invested in the

purchase of computer equipment, systems, and the training to use them, the industry is learning a new language.

Unlike the construction industry, the computer industry has little record of operations. Growth has been the result of three decades of very generous Federal sponsorship and intensive private development. Even so, inexpensive computer technology has only become available for use in the construction community in the last few years.

The computer industry seeks to provide the means necessary to manipulate and report data using highly sophisticated equipment and a specialized jargon, generally unknown to anyone but insiders. At present the computer industry consists, with very few exceptions, of many small organizations bent on phenomenal growth. For survivors, growth rates are often projected as high as 40 to 50 per cent per year. The industry is hardly immune to failure; one of the pioneering corporations has just gone into court-ordered reorganization.

The industry is becoming extremely competitive. National advertising campaigns "proudly announce the arrival of a 12-pound addition to the family." Very few internal standards regulate industry operations. With the exception of a few state statutes regulating criminal activities such as theft of information, the Federal government and the states have not yet sought extensive controls.

The short operational history of the industry has been a turbulent one. Very rapid obsolescence of equipment is the norm. Failure rates range as high as 40 per cent. Fraud and misrepresentation have been encountered. The industry is infested with systems pirates, and there are horror stories of operational problems, "near misses," and actual damage.

What do these traits mean for how the construction industry is controlled?

As a reflection of long interaction with the political and judicial systems, construction liability law is very well developed:

- Careful consideration is given to appropriately sharing the risk of loss in construction contracting.
- State licensing bodies have developed detailed operational and ethical standards governing construction industry conduct.
- Specialized statutory treatment has been given to construction industry operations.
- Insurance coverage is available for practically every aspect of the process.
- Statutory law and the common law related to construction industry

operations has been analyzed in a large body of reported cases.

• A significant portion of the legal profession serves the industry.

• National societies lobby for favorable legislation and promulgate widely used, standard contracting documents.

Three primary bodies of law govern most construction industry operations—the law of contracts, the law of negligence, and the law of products liability. In order to discuss problems that will result from the use of computer technology, it is necessary to briefly discuss each of these doctrines.

The law of contracts. The commercial structure of the United States is based upon an ability to seek legal enforcement of commercial promises. The law of contracts, the result of ages of commercial case law and express statutory rule-making, has been developed to analyze and enforce certain promises. In most elementary terms, the law of contracts seeks to insure the enforcement of bargained for, reciprocal promises. Typical construction industry contracts center on the exchange of promises involving the performance of construction services for the payment of money.

The quality of contractual performances can be evaluated by analyzing the terms in which the promises were expressed, customary industry performance standards, and performances rendered by the parties. The long history of the construction industry has resulted in an industry-wide appreciation of the quality of performance required by typical construction industry promises.

The law of negligence. It is also the policy of the law to regulate construction industry operations not involving the exchange of promises. The law of negligence regulates non-contractual relationships by requiring each party to the process to perform activities using a required minimum level of skill. Loss resulting from a failure in the proper degree of skill is recoverable.

Most construction contracts carefully separate the various promises made by the construction contractor, the workmen, the owner, and the architect. That is, although each of them contractually agrees to perform certain portions of the over-all process, they rarely enter into contracts with one another.

In such situations there is no contractual relationship between the architect and the construction contractor, the subcontractors, or the workmen. Nonetheless, according to the terms of the contract with the owner, all of the

parties are required to perform acts which, if improperly done, could cause loss to one another.

Should an architect fail to use the minimum required level of skill in his approval of a shop drawing, for instance, he could cause an improper substitution of materials or injury to a workman. The architect would then be held liable in negligence to the construction contractor for the costs of material substitutions or to the workman for the cost of injuries suffered.

The law of products liability. The widespread impact of modern mass production and marketing has led to this new legal doctrine. As a recognition of the fact that consumers cannot know the details of the design, construction, and operation of products, and that they cannot bargain effectively with remote manufacturers on specs, responsibilities, and liabilities, it was determined that the traditional negligence law based on required minimum skill was too burdensome.

To remedy the imbalance, products liability law proceeds on the assumption that sellers of products that are in a defective or dangerous condition are liable for physical harm caused to the user or consumer of the product. That is, if a product user is injured by a defective or dangerous product, the manufacturer is liable for the loss, whether or not he complied with any minimum required skill in producing it.

In fact, such jurisdictions as California have stopped requiring a product to be "in a defective or unreasonably dangerous condition" to allow a consumer claim, and a growing minority of states now allow recovery of economic loss.

The products liability doctrine has been applied to the construction industry on many occasions. Construction contractors, using mass-production techniques and widespread advertising promotions to produce and sell housing units, have been held liable under the products liability law for injury suffered to users of housing units that contained defective or unreasonably dangerous conditions. Under several California rulings, there is no meaningful distinction between the mass production of homes and that of other goods, such as automobiles. The law has also been applied to manufacturers of building products.

Here is where the laws governing construction and computers intermesh

Recovery for loss sustained in construction or computer disputes, whether based on the contractual, negligence or products liability laws, is conditioned upon proof of

Continued

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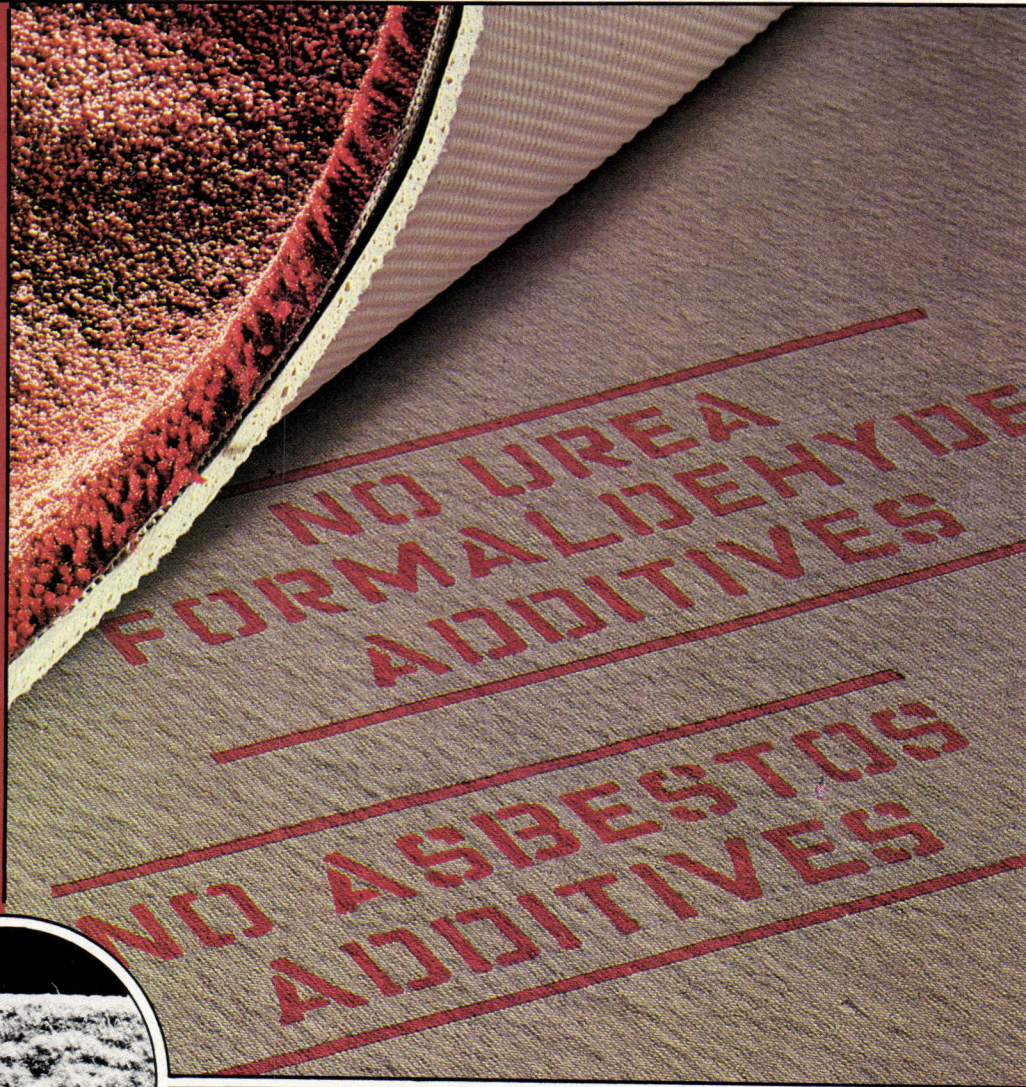
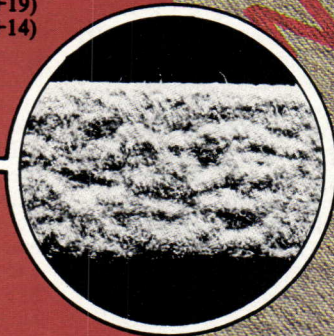
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"legal cause of loss." That is, the party seeking compensation must provide evidence showing that the loss was the result of the substandard performance of another, *and*, under the products liability law, must provide evidence showing that the loss was the result of the product's use.

Various means of proving legal cause of loss are in use. According to one method, should the injured party present proof that "but for" the acts of the defendant the loss would not have occurred, the injured party has met the burden of proving legal cause of loss. This method works well when the particular events are sequential in nature, a good example being the loss caused by an architect's improper approval of a shop drawing cited previously. In such situations, the trial judge makes the decision on whether the injured party has properly proven legal cause of loss.

More difficult questions of legal cause of loss are encountered when complex, non-sequential acts of the parties involved combine to cause a loss. In those instances, the question of adequate proof of legal cause of loss is resolved by the use of a second approach, that of "causal factors."

Under this approach the jury must determine whether, by the particular facts presented, the actors' conduct properly took into account (1) the likelihood of harm, (2) the seriousness of the threatened injury, and (3) the burden of taking adequate precautions or the options open to minimize or eliminate the risk of harm. Should the jury conclude a particular actor's acts failed to comply with the minimum required level of skill in lieu of the causal factors, legal causation exists and the injured party may recover his loss.

A recent California case illustrates how the "casual factors" method can be applied in construction. A person using a telephone booth located 15 feet from a six-lane highway was severely injured when a car struck the booth. The injured party sued the telephone company, contending that the design, placement, and maintenance of the telephone booth were responsible for his loss. The Supreme Court of California ruled that it was for the jury to determine whether the telephone company had adequately exercised the required minimum level of skill in addressing the likelihood of harm, the seriousness of threatened injury, and the burden of taking adequate precautions in the design, placing, and maintenance of the booth.

As can be seen, complex questions of legal cause of loss often hinge on the ability of the

injured party to present evidence of the events resulting in his loss. In that regard, proof of loss in construction industry activities is made easier due to the existence of a large body of written records normally kept in the course of construction. Practically any document prepared in the normal course of that process can be used as admissible evidence in legal proceedings.

There are large areas of activity in the computer industry where the law is not so well developed
The state of development of this law contrasts sharply with the state of development of law in the construction industry. In comparison, this law is undeveloped and imbalanced as evidenced by the following conditions:

- The computer industry seeks to shift the burden of loss resulting from the use of computer technology onto others. In fact the ability of the industry to shift the risk of loss to others continues to expand. Most recently, the Federal government agreed to assume the liability of certain hardware and software contractors for disaster liability losses in excess of \$500 million per occurrence.
- Computer-industry operations are not subject to state-imposed licensing or ethical restrictions.
- Industry standards respecting minimum required skill levels, with the exception of certain certification programs, do not exist.
- Very few statutes exist for computer-industry operations.
- Insurance is not widely available for industry losses, although some policies may be tailored for them.
- Computer-industry operations have been the subject of comparatively few legal decisions.
- Very few lawyers are skilled in resolving computer-industry legal problems, and only now are computers being recognized as a separate legal specialty.

Many factors contribute to this state of affairs; the newness of the computer industry, its relatively small economic impact on the national economy, the rapidly changing state of affairs within the industry, the complexity of industry technology, and an unstated policy that the industry should be given deferential treatment in order to encourage its development.

Because American legislative bodies have thus far failed to establish specific policies governing the use of computer technology, the courts have been without specific guidance. Consequently, the courts have attempted to resolve computer industry disputes using policies of law originally formulated to solve other types of legal problems.

For the most part, the courts now

use the law of contracts to resolve computer-related disputes. With further development in the law, the courts may begin to apply the law of negligence and the law of products liability in computer-related disputes.

Typical contracts for the sale of computer technology involve the exchange of money for the delivery of a variety of operating devices (central processing units, keyboards, display screens, printers, and programmed magnetic storage devices). A bewildering variety of methods exist to exchange money for computer technology. Generally speaking, the majority of computer technology exchanges occurs on a "licensing" basis. That is, the person or entity obtaining the technology acquires only the right to use it, not the right to sell or otherwise transfer it. Most formal computer-related contracts contain a host of contractual terms designed to greatly limit the liability of the seller and reduce the remedies available to the buyer.

Terms of sale heavily favoring the computer-industry seller are often found in computer-industry contracts. Consider the terms used to "license" one leading manufacturer's software:

"The program is provided 'as is' without warranty of any kind. The entire risk as to the quality and performance of the program is with you. Should the program prove defective, you (and not the company or authorized dealers) assume the entire cost of all necessary repair or correction. Limitations of Remedies: the company's entire liability and your exclusive remedy shall be:

1. *The replacement of any diskette or cassette not meeting our 'Limited Warranty,' or*
2. *If the company or the dealer is unable to deliver a replacement diskette or cassette which is free of defects, you may terminate this agreement by returning the program and your money will be refunded."*

It should be noted that this company's software must be used to program its personal computers to operate applications software programs (more specialized programs used to generate specific data processing needs).

Should a buyer of this software suffer serious loss caused by its use, the company would seek to enforce the very limited contractual rights it grants limited to, at most, the purchase price of the software. It is possible that this argument would be accepted by a court in a tendency to evaluate such contracts as commercial sales.

The courts have sanctioned the use of the uniform Commercial Code, a statutory summary of the

historical law of commercial sales, in some types of computer-industry disputes. As a reflection of ancient commercial practice, the Code evaluates commercial sales contracts on the basis of contracts made for the sale of "goods" (physical, tangible items). Under the Code, contracts for the sale of "goods" are subject to very extensive provisions regulating quality, procedure, and liability for loss. Contracts not involving the sale of "goods" do not qualify.

For the most part, the courts have had little difficulty reaching the conclusion that the term "goods" includes the physical/tangible aspects of computer technology—a computer keyboard, for instance. As a reflection of the code, the courts have also had little difficulty determining that systems analysis and computer programming do not constitute "goods," those activities being predominately service-oriented.

Here is where current practice and definitions begin to break down

The courts have had much more difficulty than with hardware in deciding whether a programmed software diskette constitutes a "good." Programmed software diskettes combine physical and non-physical elements. As such, programmed software diskettes don't fall neatly into the definition pattern of the code. Nor could they, for they represent a technology unknown to the drafters of the code.

Until a sufficient number of judicial decisions reach the conclusion that programmed software diskettes are "goods," or until specific legislative action declares programmed software diskettes to be "goods," the question will remain open. Moreover, should the courts be forced to continue adjudicating computer disputes without legislative guidance, they will likely resolve them using artificial legal definitions from another age.

The courts have also considered the application of the law of negligence to computing industry operations. As discussed, the central premise of negligence law is the assumption that the law can appropriately allocate the responsibility for loss between non-contracting parties by determining whether the injury-causing activities were performed without the required minimum level of skill. Said another way, persons injured by the act of another not involving a contractual relationship may recover their loss upon proof that the loss resulted from a substandard performance.

Continued



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The computer industry presently operates in a regulatory vacuum. The industry is not subject to external law or regulation establishing minimum industry-required levels of skill. Further, work performed by computer-industry "workmen," i.e., computer-systems analysts and programmers, is not subject to internal industry standards defining minimum required levels of skill. Although the absence of internal computer-industry standards suggests that a recovery for negligence is not procedurally possible, the very absence of standards is itself an indicator of negligent conduct and could sustain a recovery under negligence law.

The time may be nearing when the courts begin to apply the law of products liability

It can hardly be questioned that most, if not all, computer users do not know the details of the design, manufacture, and distribution of the equipment they use. Further, most consumers have no bargaining power to negotiate terms defining computer-equipment specifications, standards of performance or legal responsibilities. The products liability doctrine was specifically conceived to apply to such situations. Thus, arguments favoring the application of the doctrine to industry operations that manifest mass production and marketing techniques would seem to be appropriate.

Two barriers remain to the wider application of products liability law in a computer environment. First, in the absence of a statutory law that defines the term "product," the courts are free to determine what types of computer equipment qualify as "products" for an application of the products liability doctrine. The development of the doctrine originally focused on the use of manufactured, physical items. Custom-produced or intangible items have not ordinarily qualified as "products" for the purpose of applying the products liability doctrine.

There would be little argument that loss caused by the use of a defective or unreasonably dangerous computer keyboard was recoverable under current products liability law. Loss caused by the use of a defective or unreasonably dangerous computer program might not be recoverable, it being argued that the computer program was not a "product" within the accepted definition of the term.

The author of *Product Liability and Software* (Rutgers, 1981), Michael Gemignani, is of the opinion that injury caused by a defective computer program might be recoverable

under the products liability doctrine:

"But why, in this technological age, should data not be a product? One who sells information upon which others' lives and fortunes depend, perhaps should be held strictly liable if that information proves harmful because it is, in fact, wrong. If an injury from a wheel or from a fan blade made from impure steel can subject the maker to products liability, it is difficult to understand why harmful and erroneous data produced by an incorrect program should not subject its maker to comparable liability."

The second barrier to be overcome concerns the type of injury recoverable in products liability law. In the earliest cases the court sought to restrict recovery to loss involving physical injury to the human body. Economic loss (loss of profits, disruption of the workplace, etc.) was not recoverable. Although the position still holds true as the majority rule today, a small but growing minority of jurisdictions allow recovery of economic loss.

Finally, it should be noted that proof of "legal cause of loss" is required in computer-law matters just as it is in construction-law matters. The "but for" test and the "causal factors" test could be used to establish cause of loss. Similarly, the rules of evidence would probably allow the introduction of most types of written materials used in the computer process.

Just how much should the legal situation with computers concern you?

Computer systems are highly susceptible to failure—such as the inability to generate data, the loss of supplied data, or the generation of erroneous data—which can result from a variety of causes inside and outside of the system.

A system is best envisioned as no more than a machine capable of performing specific tasks upon proper instruction. Those instructions (or programs) are used by the system to perform those specific tasks. Because systems operate in precise conformance with supplied programs, errors in programming necessarily result in computing failure.

The precise method (or algorithm) used to accomplish the task must be created. Then, the algorithm must be translated into a format (or source code) capable of being generally understood by the system. After that, the source code must be translated into a format (or object code) particular to the characteristics of the system.

Successful computer use also depends upon the operating

characteristics of computer programs. Advanced task structures often require the sequential or simultaneous operation of a number of programs. In such situations, should the programs fail to properly interact, failure occurs.

Factors other than programming error can also cause failure. Systems must be given data to analyze, manipulate, and report. Errors in the type or value of data supplied will result in failure.

Similarly, mechanical or environmental conditions such as loss or fluctuation of electrical power, extremes of temperature or humidity, the presence of dust or hair, lack of equipment or program maintenance, or even stray cosmic rays, may cause failure.

Failure can be passed on to subsequent users by intermediate parties. For example, architects and engineers are becoming accustomed to the use of systems maintained by remote service agencies. Should such use result in the creation of erroneous construction documents, and should the parties to the construction process fail to observe and correct the deficiency, failure could be passed on to others as a constructed defect.

In such situations, third parties harmed by a constructed defect could be expected to seek damages from all parties involved in the construction process, i.e., the service agency programmer, the service agency's system manufacturer, the service agency, the architect/engineer, the architect/engineer's system manufacturer, the construction contractor, the construction subcontractors, the project owner, and the public agencies empowered to regulate construction and operation of the project.

The performance of each party would be evaluated—contractual obligations assumed, levels of skill employed, and use of mass production and marketing techniques. Evidence of the process employed would be admissible.

As can be seen, the use of computer technology introduces a new risk factor in construction-industry operations. Most certainly, the trend of modern law is to allocate loss to those who create or share in the cause of loss. With those facts in mind, how should the construction industry react? First, contracts are of grave importance. As has been discussed, the current state of legal development places very heavy emphasis on their terms and conditions. It cannot be emphasized too heavily to seek the advice of competent counsel. In view of the variety of ways in which systems may fail, contracts for construction-industry computer

technology should be structured to include diagnostic checks by the supplier, program error checks, program updates, error notification services, program maintenance services and escrow arrangements.

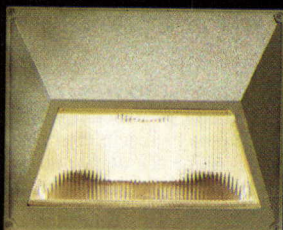
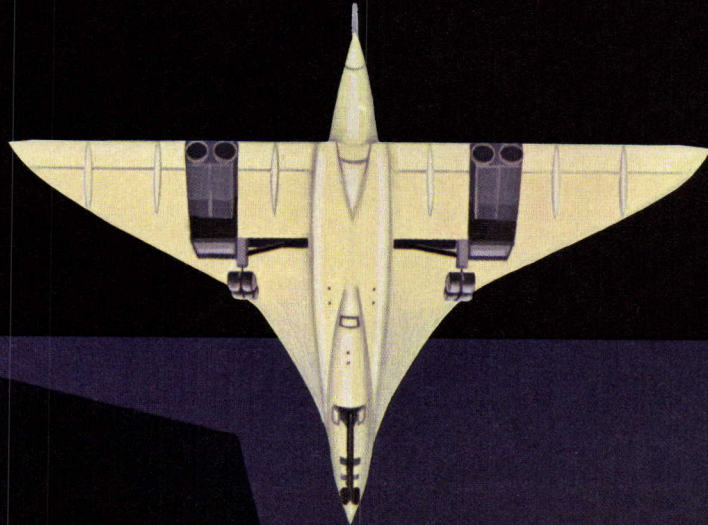
It should be noted that the construction industry is favored here. Classic tripartite contractual arrangements, which separate design and construction of design, allow opportunities for multiple review of computer data used in construction. Moreover, practice tends to be conservative in emphasizing the use of design and material safety factors. Insurance for computer use is available.

Perhaps the most troublesome issue stemming from the use of technology is the ability of users in the construction industry to prove that their use of the technology was the "legal cause of loss." Many computer techniques are conducted at tremendous speed. They are not usually documented, and they should be. Most major systems can now be programmed to generate documentary evidence.

Finally, people are perhaps the best risk-management tool. Human failure may result from a use of novel techniques together with the absence of proper restraint, deliberation, patience, and the assistance of peers. We would be well served by heavily reinforcing and rewarding the concept of "team" performance.

It will do little good to hide our heads in the sand on the legal issues. With computers flooding into construction, almost every task will be accomplished by or influenced by their use. This injects new risk. Parties to the construction process must now so orient their thinking, and conduct contract negotiations and internal production processes to account for this risk. Should the construction industry fail to do so, it will shoulder the burden of loss caused by this newcomer to its ancient processes.

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autonomous professional school. Yet surely one of the greatest achievements of the modern university—and nowhere more brilliantly demonstrated than at Harvard—is that it has been able to enlarge its conception of its task to include those areas of knowledge, or perhaps we could better say those ways of knowing, that are both instrumental to and nourished by certain modes of acting which human society has come to see as central to its well-being. Each of these linked modes of knowing and acting, which we call professions, is characterized at least to some degree by the ancient wisdom that “practice is the basis of theory.” Hence in welcoming professional schools into their scholarly precincts, universities have inevitably had to face the problem of how to connect themselves intimately and productively to ongoing professional work while still preserving an appropriate critical distance from current practice.

The mechanisms developed for making these connections while maintaining that distance have been various and by no means uniformly effective. Probably the outstanding success story is the teaching hospital in its role as a link between medical schools and the medical profession. Yet even this seemingly superb institutional invention has come under attack in recent years as being obstructive to progress in the sociology if not the science of health care.

But to return to the subject of our concern here, it is notable that in the case of architecture, although some serious efforts have been made to invent comparable mechanisms linking the schools to the profession, none has been more than marginally successful. This failure is of course not a cause but a symptom of the condition of misfit that I am trying to define. When we look for causes, we can identify two distinct circumstances that lie at the root of the problem.

The first of these is that architecture, though it encompasses in practice many modes of thought and action, is at its center a visual art. And while scholarly study and appreciation of the arts may flourish in a university, the *practice* of an art, inasmuch as it engages suprarational processes that are essentially alien to the intellectual mode of scholarship, is condemned to remain a stranger there. This condition is of course not specific to architecture; it defines the predicament of any art that aspires to practice in an academic setting. But in the case of architecture the problem is compounded by a further circumstance that contributes to the peculiar misfit I am speaking of.

For whereas in other arts or professions important contributions can often be made through individual work or at least through institutional mechanisms that are more or less compatible—as is the teaching hospital—with the norms and style of the academic world, in architecture the opposite is true: Important contributions almost always require an operative apparatus that cannot be accommodated within the structure of the university and almost always involve engagement with a broad array of activities and interests that seem entirely alien to its norms and style.

Yet deprived of that apparatus and that engagement, architecture is reduced to a kind of shadow of itself. And although history records a few examples of such shadows that have moved the world—the contributions of Piranesi, Boullée, and today perhaps Leon Krier, come to mind—these remain extraordinary exceptions that in the end serve only to prove the rule.

Thus architecture in its engagement with the university seems caught in an unresolvable paradox: on the one hand the academic setting would seem to separate architecture from its vital sources of nourishment in the “real world” of practice, while on the other hand its entrepreneurial, practice-orientated character would seem to devalue architecture as a discipline, crippling its capacity to establish a fruitful discourse with other less “contaminated” disciplines within the university.

In fact, the record shows that American schools of architecture—and we should not forget that the university-based architecture school is an American invention—have always existed precariously on a kind of ideological seesaw between the two terms of this paradox—tipping now toward the norms of the practicing profession, now toward those of the academic world—but rarely and only fleetingly able to create the kind of engagement between the two that would enable one to assert that the university has been in any real sense *useful* to architecture or architecture *useful* to the university.

At this point, it may be objected that I have created a meaningless “straw-man” in this vague concept of reciprocal usefulness—that it is in fact a trivial notion and should not be allowed to divert us from the only important question: Do we or don’t we provide a sound program of training for entry into the profession?

But to answer this question affirmatively, as I hope we can, is only to invite another: Inasmuch as

there are no fewer than 91 accredited schools of architecture in North America, with a total enrollment of close to 21,000 students, and inasmuch as three-quarters of these students are enrolled in five-year undergraduate programs, thus clearly establishing such programs as the norm for training in our field, is there any compelling reason why Harvard should persist in offering a graduate degree program that delivers another 70 or 80 aspiring architects each year into an already overpopulated and undervalued profession?

Or, to phrase the question another way, even if we acknowledge that training for the profession is a *necessary* activity of our school, in the sense that without it we would lack an absolutely indispensable link to the practice of architecture, does it therefore follow that such activity is *sufficient* in and of itself to justify our school’s existence?

Now, lest I be misunderstood, I want to assure you that in asking this question I mean no disparagement of our professional degree programs. On the contrary, I believe we are entitled to take a good deal of pride in the present condition of these programs. Architecture is a highly competitive profession, and the competitive record of our faculty, students, and young alumni during the past few years has been an impressive one. For example, projects designed by members of our faculty, competing in a field of almost 800 entries, this year won three out of four Architectural Design Awards, including the coveted First Award, in the annual competition sponsored by *Progressive Architecture*. And for example, our students, competing against the cream of the crop from graduate schools across the country, last year won two out of three traveling fellowships awarded by the Skidmore, Owings & Merrill Foundation. And for example, both of the two Rome Prize Fellowships in architecture—the most significant recognition a young architect can receive—were won this year by very recent graduates of our Master of Architecture Program.

It seems to me that even at the risk of displaying a certain chauvinism, we should permit ourselves the luxury of savoring these facts. What they tell us is that measured by undeniably objective standards, ours is not just a good school of architecture—it is perhaps now second to none. And judging by the spirit and substance of Professor José Rafael Moneo’s recent lecture, our department is destined to

become even stronger under his chairmanship.

But this condition of strength does not erase, indeed it all the more obliges us to confront, the question of sufficiency that I raised a moment ago. It is, we will find, a question that answers itself as soon as we admit, as we surely must, that what has made our training good is precisely our knowledge that training is not enough. We know that while preparation for practice is a central mission of our school, we cannot adequately fulfill that mission unless we are doing other things as well. Yes, but what things? Well naturally, useful things—things that are useful to architecture and useful to the university. And so you see we are driven inexorably back to the two questions that I began with—questions of reciprocal usefulness that, after all this verbal squirming, still remain unanswered. Let us finally address them now, one at a time.

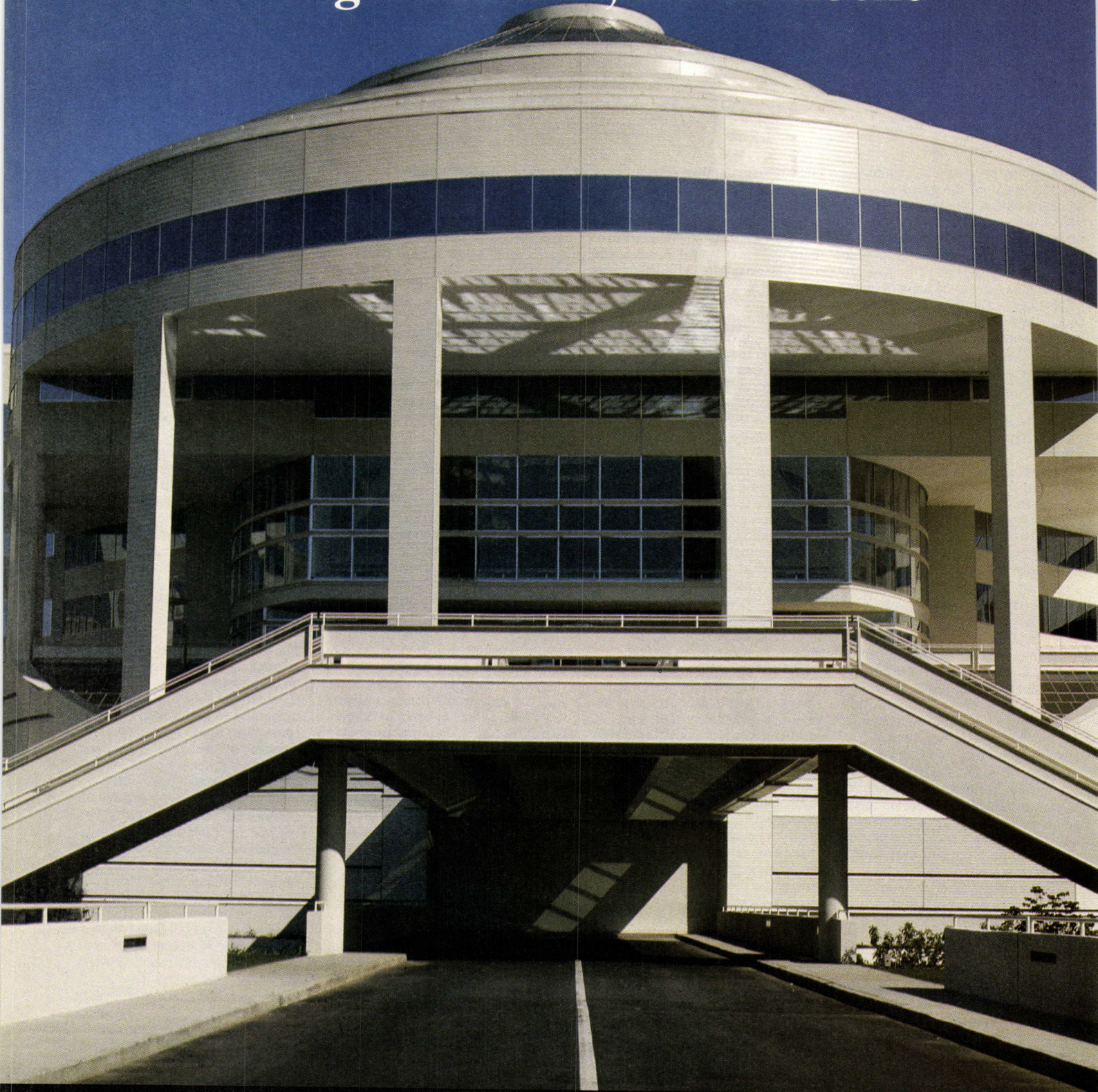
The university should sponsor a critical discourse on architecture

Of what use is or could be the university to architecture? We can come close to answering this question by considering another: Why do architects teach? We teach, of course, because we enjoy participating in the enterprise of higher education—an enterprise concisely summed up in Whitehead’s maxim that “the task of the university is to weld together imagination and experience.” But we teach for another reason as well: We teach because involvement in a professional school helps us to gain, as I suggested earlier, a critical distance from our practice. And if we notice that the activity of teaching is today more appealing than ever to practicing architects, we may ascribe this appeal, I believe, to an enhanced awareness of the necessity of obtaining that critical distance, as an aid to practice, in an era of acute cultural ambivalence—our strange contemporary era that has found no better name than “post-Modern.”

A notable aspect of the post-Modern period has been the erosion, amounting sometimes to eclipse, of those normative standards upon which architecture, more than any other art, has traditionally been dependent. This erosion has afflicted standards governing both the program of society, which is the subject of our art, and the language of built form, which is its substance. Hence, surrounded as they are by conditions of uncertainty in every aspect of the culture, yet caught up

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in an ever more frenzied cycle of production and consumption, architects who would resist the trivialization of their art are now obliged to seek through hard critical inquiry those guiding principles that in other times were often readily available to them through received tradition, prescriptive theory, or some form of contemporary cultural consensus.

And this at last brings into view the answer that I want to propose to the first of my pair of questions. For it suggests that the usefulness of the university to architecture no longer resides, as it once did, in the promotion and elaboration of particular belief systems, theoretical constructs or modes of practice. Rather, usefulness now resides—or could reside—in the capacity of the university to sponsor a critical discourse about architecture—a discourse powerful enough in its thrust and broad enough in its scope to bridge between the very diverse modes of thought and action that enter into the making of architecture. Such a discourse would join the instrumental and pragmatic to the speculative and ideal. It would be founded upon scholarship that is both reflective and speculative, conducted with a rigor and audacity that would engage the interest of other disciplines in the university and command their respect. It would be a discourse distanced from practice but never alienated from practice. Above all, it would be a discourse that does not shrink from addressing those fundamental questions that define the contemporary predicament of our profession and our art.

Among these—if I may digress for a moment to illustrate my point—among these questions, none surely is more poignant or more pervasive than that concerning the perpetual transaction in architecture—the ongoing dialogue if you will—between memory and invention, between those values associated with treasuring the known and those associated with probing the unknown in our evolving human culture. Just what is the nature of that dialogue, that eternal and inexorably cumulative discourse, and how should it be elaborated, enriched, employed for the benefit of humanity? This question is of course as old as civilization itself, but it has perhaps never been so central to the shared concerns of diverse spheres of interest in society as it is today. And it should come as no surprise that architecture, the preeminently *social* art, with its inescapable commitment to the synthesis of functional, technical and symbolic realms, finds itself now the

principal arena for addressing this question. It is a question to which many answers are possible, while none seems conclusive; and this surely accounts in large part for the astonishing heterogeneity of our recent and current architecture.

Returning now to my theme, I want to be very precise about the claims I make for the kind of discourse about architecture that I am suggesting might take place within the university. As I indicated earlier, I do not regard the university as well-fitted for direct intervention in the making of architecture. Its institutional structure and procedure, not to say the modes of thought that prevail there, do not lend themselves to such activity. Nor would I wish to see universities engaged in the formulation of prescriptive theory to be promulgated as a guide to practice. History has amply demonstrated that such prescriptions, with their corollary *proscriptions*, invariably lead to the corruption rather than the advancement of our art.

What I want to see taking place in the university is an activity of a much more subtle and complex kind—an activity that acknowledges and forcefully promotes a mutually nourishing interaction between scholarship, speculative inquiry and practice. It is in my mind an activity dedicated more to the pursuit of interesting questions than to the formulation of definitive answers. Thus it is an activity that informs and is informed by practice, but does not aim to direct practice. I do believe that the cultivation of this activity—this critical discourse, as I have called it—is of no little importance to the future of architecture. I further believe that it is a *useful* activity that ought to find its natural home in our university where, apart from its intrinsic worth, such a discourse could surely help us to overcome the most dangerous shortcoming inherent in all professional education: namely, that “necessary technical excellence can only be acquired by a training which is apt to damage those energies of mind which should direct the technical skill.”

Again, I have borrowed the words of Alfred North Whitehead, who in the same essay goes on to declare: “The way in which a university should function in the preparation for an intellectual career, such as modern business or one of the older professions, is by promoting the imaginative consideration of the various general principles underlying that career. . . . A university is imaginative or it is nothing—at least nothing useful.”

The “misfit” aspects of architecture could form its true university usefulness

I turn now to the second of my pair of questions: Of what use is or could be architecture to the university? Consideration of this question brings us hard up against the misfit status of our discipline that I touched on earlier. The truth is that, owing to this condition of misfit, schools of architecture, while located *at* the university, can seldom be said to be *in* and *of* the university. At Harvard, that most balkanized of institutions, this problem is exacerbated by isolationist tendencies inherent in an “every-tub-on-its-own-bottom” administrative policy. Hence the Graduate School of Design, with its curious studio-based teaching methods, its paucity of scholarly research, and its dedication to serving the highly “contaminated” professions of architecture, landscape architecture and urban planning, must appear, to borrow from the language of *Peanuts*, as a kind of “Pig-Pen” character in the university family—that is to say disreputable and more or less useless, but to be tolerated with appropriate condescension and frequent expressions of dismay. Probably we should accept this situation and be grateful for it. But I trust you will not think me hopelessly Quixotic if I declare that something else is possible. For in my view those aspects of architecture that make it a misfit in the university are precisely those that ought to make it truly useful.

Before attempting to give substance to this hypothesis—and I am all too aware that I may fail in the attempt—I think it is worthwhile to review briefly how the present situation of architecture in the university evolved—how it became what it is today.

First, it is important to reiterate that although the pedagogical methods employed in the training of architects have evolved principally from European models, the idea that such training should be located in a university, rather than within the profession or in specialized academies, originated not in the Old World but in the New. And it should come as no surprise to learn that one of the earliest proponents of this idea was Thomas Jefferson, for whom both architecture and higher education were passions of a lifetime. Jefferson argued that universities in the new American democracy should include not only liberal arts but the scientific and technical disciplines as well. And when these thoughts matured into his project for the University of Virginia, architecture was included in its curriculum.

Indeed, one of Jefferson’s

principal arguments for his “academical village,” as he called the Virginia campus, was that the several pavilions framing the Great Lawn would serve as useful models for students of architecture. His other argument for this classical “village,” interestingly enough, was that “if we don’t have beautiful buildings, we will lose all our best characters to Harvard and Yale.” Thus spoke the Gentlemen from Virginia!

Unfortunately, Jefferson’s enthusiasm for architecture as—again in his words—“the one art we can excel in,” and hence worthy of a place in the university, did not find sufficient support to survive him at Charlottesville. Nonetheless, his idea clearly had taken root, for it was to bear fruit half a century later in the curricula of the land-grant colleges, those altogether splendid American inventions brought into being by the Morrill Act—a funding bill enacted by Congress in 1862 with the stated purpose “to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.” Stimulated by this munificent legislation, the first American schools of architecture were inaugurated within several early land-grant colleges and universities.

Our next-door neighbor, the School of Architecture at MIT, founded in 1865, was the very first of these, with the schools at Cornell and Illinois following a year or two later. Thus was established what has since become, as I mentioned earlier, the prevailing mode of preparation for the profession of architecture in North America—the undergraduate professional degree program located within a usually public university. But by and large, the older privately endowed universities, with their commitment to liberal education at the undergraduate level on the one hand and to scholarly research at the graduate level on the other, did not follow this pattern.

During the latter half of the nineteenth century—the period when land-grant colleges were being established all across the country—these older institutions were focusing not so much on training for the useful arts as on the advancement of scholarship through graduate study; and although law, medicine and divinity—those intellectual centerpieces of the European university since medieval times—were generally welcomed to such institutions as graduate professional schools, architecture was greeted with ambivalence, as a discipline whose base of knowledge and mode of practice did not

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Architectural education continued
unequivocally entitle it to a place in the university.

At Harvard, architecture was first introduced in 1874 by Charles Eliot Norton as part of the subject matter of his lectures on the history of art. Instruction in architecture with the specific aim of preparing students for professional practice began with the offering of courses by Herbert Langford Warren at the Lawrence Scientific School in 1893. By 1897, architecture had become a full-fledged undergraduate department in the Faculty of Arts and Sciences, and in 1906 it acquired graduate status as a department of the Graduate School of Applied Science.

In 1912, still under Warren's dedicated stewardship, Architecture became a separate graduate school, a status it retained until 1936, when under Dean Hudnut it was combined with the School of Landscape Architecture and the School of Planning to form the present Graduate School of Design.

This capsule history is of interest to us here only insofar as it provides a factual skeleton enabling us to reflect on the relevant implications of its several episodes. In its origin, the study of architecture at Harvard seems to have emerged, as is so often the case in the life of great institutions, more from the personal enthusiasm and commitment of a few key individuals than from any general consensus in the university. The charismatic appeal and wide influence of Charles Eliot Norton must surely be counted the moving force in bringing architecture into the university and in stimulating its appreciation as one of the arts in which was to be found, in Norton's words, "the expression of a nation's highest moral aspiration." But evolution from educating the eye and mind for the *enjoyment* of architecture, to professional training for the *practice* of architecture could have been accomplished only through the active interest and support of President Eliot, whose conception of the university as a consortium of graduate schools built around the college was broad enough to embrace both the liberal and the useful arts.

As is well known, it is to Eliot that we owe Harvard's initial commitment to professional education—an enterprise that by now, through its Schools of Law, Medicine, Divinity, Education, Business, Government—and dare we say Design?—virtually defines its stature as a great university. Under President Eliot, Harvard gave enormous and purposeful impetus to the burgeoning culture of professionalism that was rapidly coming to characterize the American university system. And it is safe to assume, I believe, that architecture was seen by him as a desirable if perhaps peripheral item in the array of services offered by the university to society. In this he gave support to the utilitarian ideal of professional education as primarily a service, an instrumental training that has as its primary if not its sole aim the

preparation of young people for entry into practice.

This is indeed a noble conception, but it is also a narrow one, entirely neglecting as it does the possibility that architecture as a mode of knowing and acting might have some meaning for or be of some reciprocal service to the larger purpose of the university. And curiously, the modernist revision of the pedagogical program in architecture as conceived by Hudnut and Gropius only served to reinforce this narrowness of purpose. For it explicitly limited the institutional role of the Graduate School of Design to "the preparation of students for professional competence." The removal of all advanced study in the history of architecture to the Department of Fine Arts was emblematic of this heightened emphasis on instrumental training

with its concomitant disengagement from any scholarly work or discourse that could connect the GSD to other disciplines or branches of learning within the university.

To a significant degree, however, and in a variety of ways, this isolationist posture was reversed in the succeeding era under Dean Sert. By his persistent and effective advocacy of an expanded role for the visual arts in the curriculum of the college, by his invention and energetic promotion of an interdisciplinary program in Urban Design within the GSD, and not least by his own considerable production as an architect, Sert brought design powerfully into focus as a central concern in the life of the university. What nonetheless joined the Sert era to its predecessor—and separates it decisively from our own—was its participation in the essential ethos of modernism—an

ethos predominantly positivist, determinist, and confident of its capacity to offer for every problem a definitive solution.

But for the past fifteen years at least, our culture has been evolving toward a very different ethos—an ethos in which the only thing that is certain, whether we speak of physics or philosophy or architecture, is that the time of certainty is behind us. In this new era when we have become acutely conscious of the relativism of truth, there has been, in the words of Christopher Norris, a "turn toward a more 'conversational' ethos for philosophy"—and we could say equally for architecture—suggesting, again in Norris's words, "a turning-away from positivist rigour and truth claims." And this brings me back now to my admittedly shaky hypothesis: It
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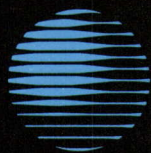
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seems to me that the misfit status of architecture—both as an art and as a complex practice-oriented profession—might now in fact commend it as a most useful participant in this more conversational discourse that may be emerging in the university. For have we not arrived at a moment when the world of scholarship may at last be ready to listen to Nelson Goodman's contention that "the arts must be taken no less seriously than the sciences as modes of discovery, creation and enlargement of knowledge"? And may we not have finally arrived at a time when the several sciences could profit from understanding the peculiar capacity of architecture to invent, define, elaborate, criticize and question the relationship between human beings, their institutions and the natural world? And is this not a time when we who bring architecture to the university are most acutely aware that our art can and must do more than simply fulfill the expectation of the culture it finds itself in?

Architecture can indeed be both thought about and practiced as a radical critique of the culture—a critique carried out in the language of forms rather than the language of words. Surely architecture so conceived and so practiced has something useful to bring to ongoing discourse within the university: something useful drawn from that realm of knowledge—inaccessible to all our sciences—that is illuminated only by the engaging particularity, the material presence, the marvelous concreteness of our art.

As an architect who can make no claim to scholarship, I find it difficult to articulate, let alone defend, this hypothesis. Nonetheless, it commands my intuition with such force that I am emboldened to put it forward here, however tentatively. And should my intuition prove correct, then architecture might indeed find a use, hitherto unimagined, that would place it not merely *at* but unequivocally *in* and *of* the university.

Professions must be open to critical and speculative inquiry

In addressing the two questions that I began with—questions concerning the reciprocal usefulness of architecture and the university—I have all too clearly been manufacturing dreams—dreams that are barely hinted at in our present reality. But could these dreams become realities? Well, against all odds I remain an optimist. And surely we can find some reason for optimism in recent developments at the GSD. Under Dean McCue's leadership, our school has redefined its mission and greatly strengthened its commitment both to scholarship and to the profession it serves. The President and Governing Boards

have responded to these initiatives with enthusiasm and have given our school their support, both moral and material. New faculty appointments have been authorized and new programs approved. In short, our school is moving on an upward trajectory which could, if all goes well, place it in a new and hitherto unattainable orbit.

Whether we reach that orbit depends on further initiatives that must now come from within the design professions on the one hand and from within the university on the other. We in the professions must open ourselves to critical and speculative inquiry at a level of intensity that we have heretofore seldom welcomed. We must acknowledge that such inquiry is essential to the vitality of our art in an era of pervasive uncertainty, and that it must be conducted in a spirit of ongoing dialogue rather than as a quest for one-sided ultimate answers. And we in the university, for our part, must be more willing than we have so far been to acknowledge that the world of scholarship may have something to learn from modes of thought and action that cannot but appear alien to it.

As my use of the first person plural suggests, we, the faculty and students of the GSD, *are* the design professions, and we *are* the university. Hence all of the obligations I have cited are *ours*, and in meeting them we are challenged, above all, to take care that the privileged cultural position and special intellectual resources of our university are so utilized as to make our school preeminently the home of high adventure, a place—again the words are Whitehead's—where “the adventure of action meets the adventure of thought.”

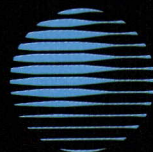
I am reminded of a motto that we all learn in childhood: “Nothing ventured, nothing gained.” It is a motto I would like to see emblazoned on every architrave in Gund Hall—but of course there *are* no architraves in Gund Hall!—and indeed on every architrave in the university. Perhaps, if we pay attention to these words—nothing ventured, nothing gained—they may yet save us from falling prey to those negative and defensive habits of mind that seem to lurk so persistently in the shaded groves of Academe. For there is no doubt in my mind that architecture and the university can be truly useful to each other only to the extent that both can become enterprises characterized not by complacency but by self-criticism, not by silence but by active discourse, not by comfort but by discomfort, not by refuge but by risk. These, so I believe, are the essential preconditions for the moment when we may at last be able to declare that architecture is worthy to inhabit the university and that the university is worthy to embrace architecture.

Tight Wad.



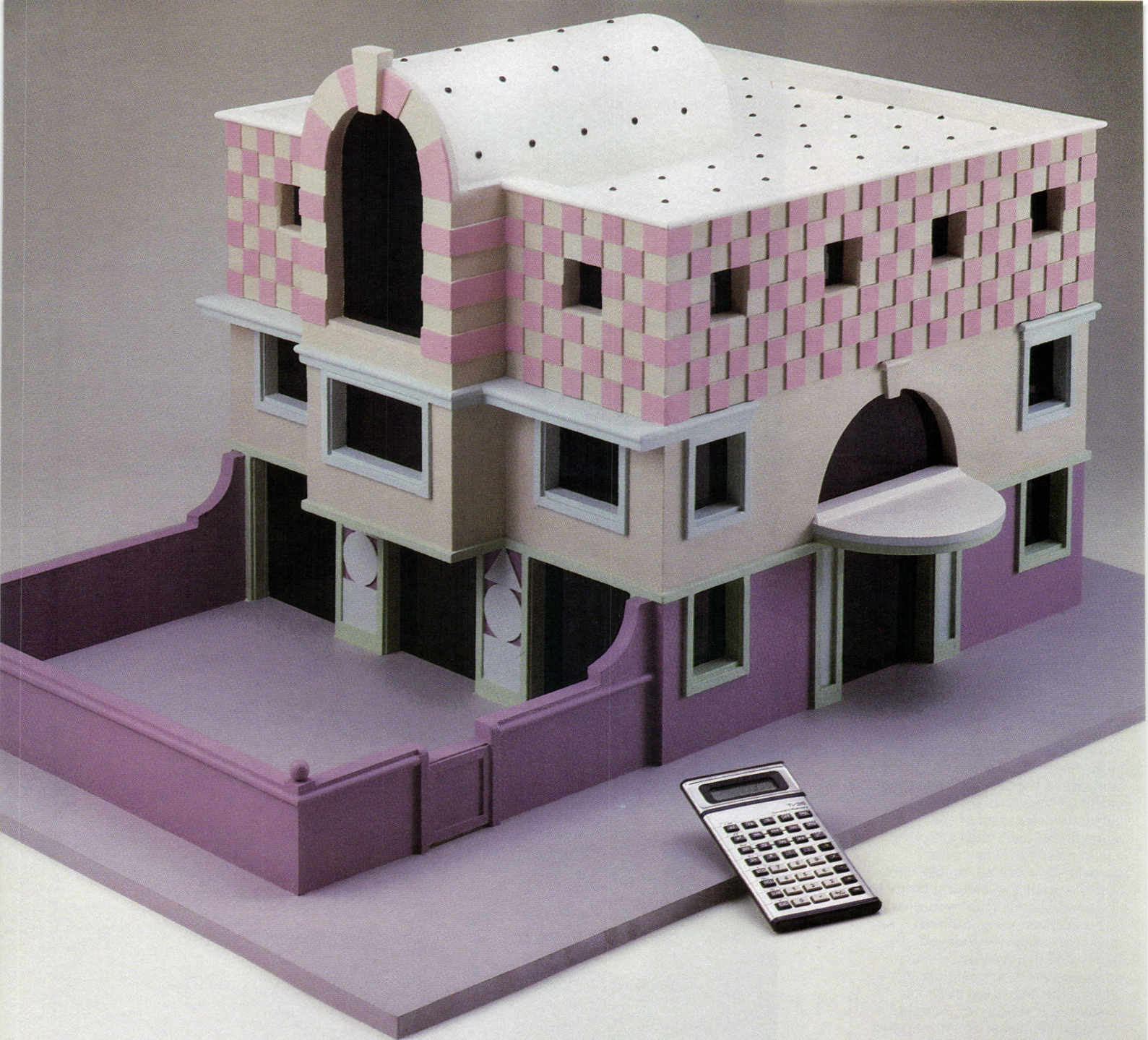
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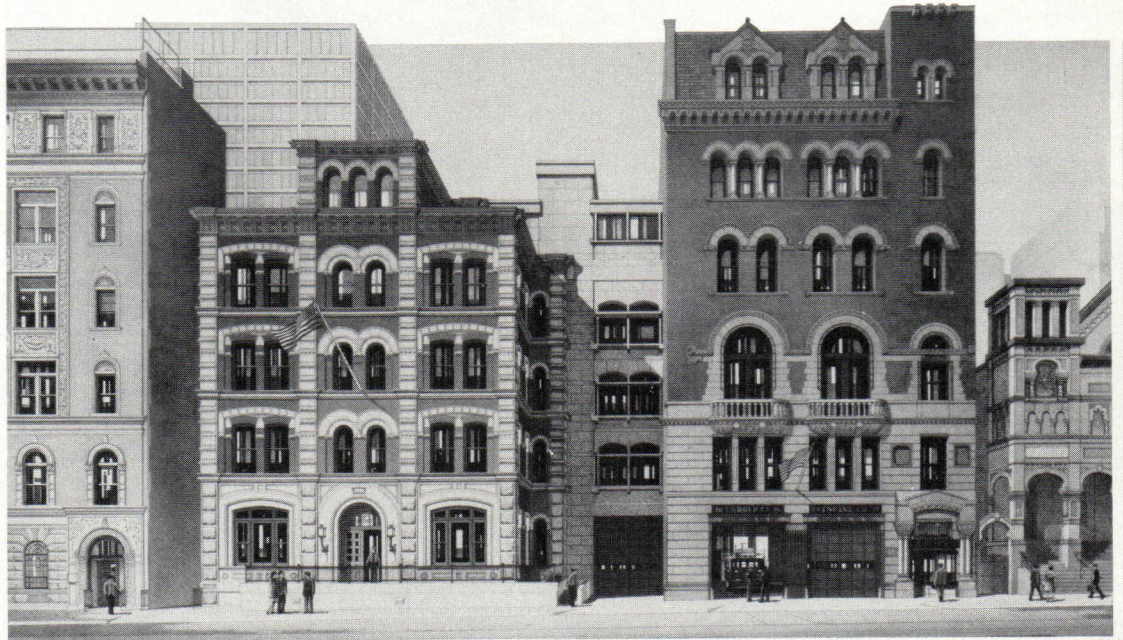
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Preservationists have always been somewhat ambivalent regarding the issue of erecting new buildings behind historic facades. On one hand, the practice has allowed developers to build financially viable structures that maintain an existing streetscape; on the other, some of these projects have resulted in contemporary behemoths that overwhelm their delicately scaled antecedents. A

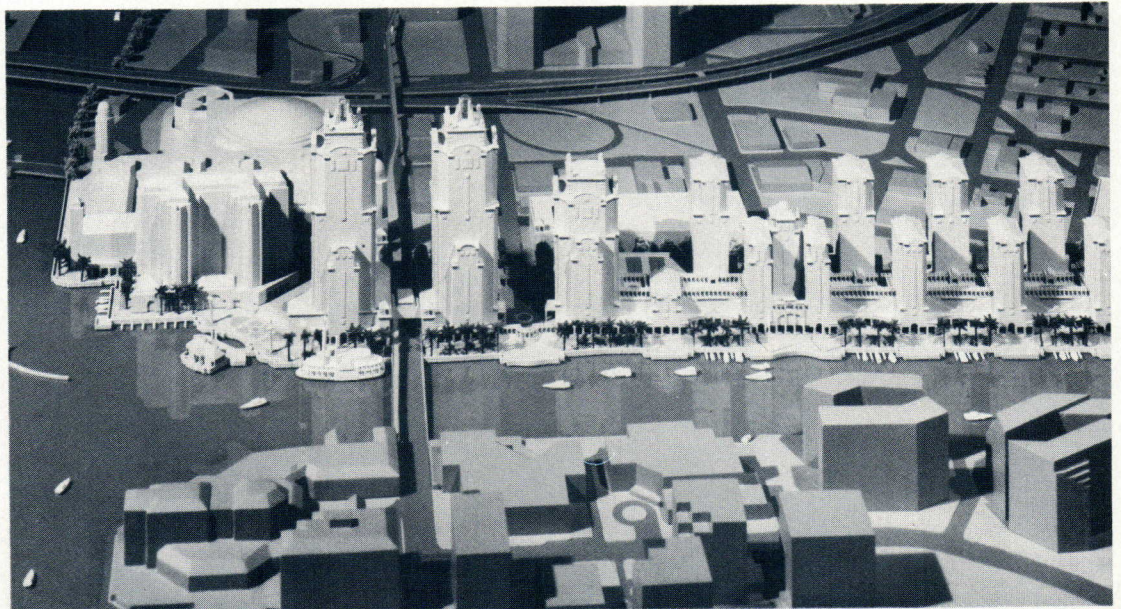
current proposal by the City of New York shows how to do it right. Rather than completely demolish a pair of Romanesque Revival buildings—part of a rare row of late-19th-century public architecture on Manhattan's Upper East Side—the city will repair the brick-and-brownstone facades of the existing structures and incorporate them into a five-story, 63,000-square-foot joint police station and firehouse

that will be barely visible from the street through a gap in the original row. Designed by The Stein Partnership, the new granite-clad building will be carried on three rows of columns with long-span trusses at the top floors supporting the intermediate levels on hangers. The result: column-free ground-floor space that will easily accommodate firefighting apparatus and police vehicles.

Mediterranean memories

Large building projects in Florida may be as commonplace as palm trees, but little recent construction in the state matches the scale and architectural panache of Garrison Channel Place, a four-million-square-foot mixed-use proposal planned for a former industrial site along the Hillsborough River in downtown Tampa. Designed by Kohn Pedersen Fox Associates in a florid Mediterranean style that

would have made Addison Mizner blush, the development will be located next to the city's new convention center complex (left in model below) and will comprise twin 28-story office towers framing Franklin Street, an additional commercial structure, ten midrise condominium buildings, and a luxury hotel—all set along axially designed plazas and a continuous waterfront retail arcade.





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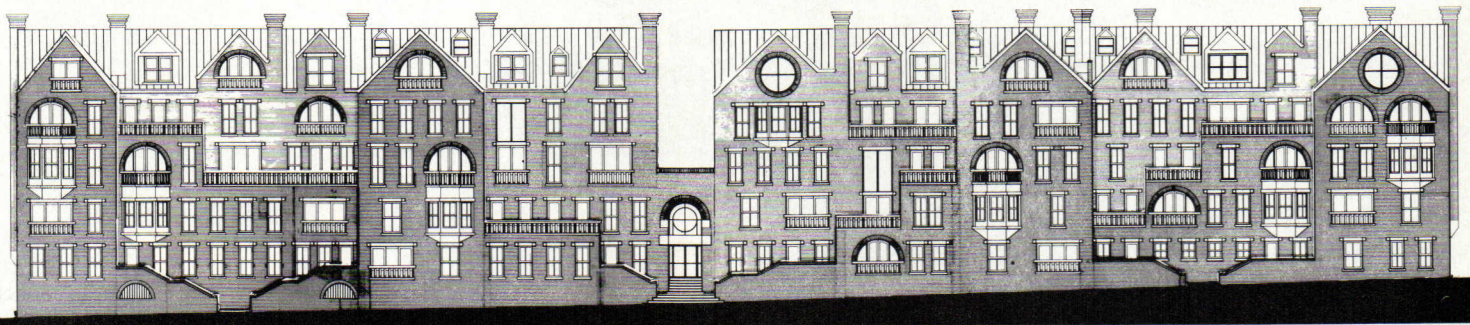
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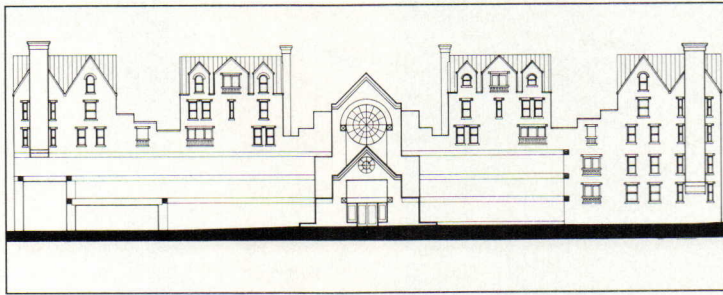
International Airport Terminal Building, San Antonio, Texas; Architects: Heery/Marmon Mok/Simpson

Circle 33 on inquiry card

An eminent neo-Victorian along the Potomac

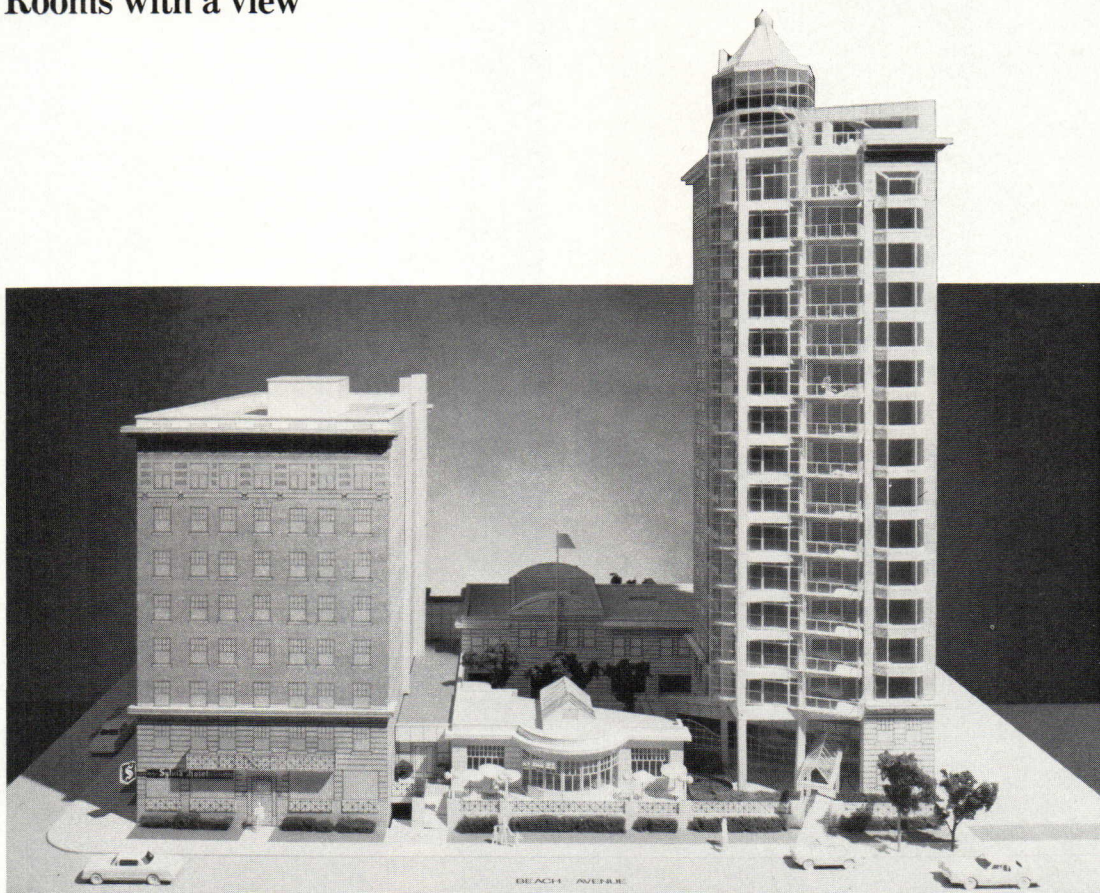


The city fathers of Alexandria, Virginia, guard their architectural heritage seriously and have mandated that any new construction in the community's Old Town section must conform to existing Colonial- and Victorian-era buildings. Accordingly, architects Metcalf and Associates and Keyes Condon Florance have designed something akin to a village within a village for a new residential



development under construction in the Washington suburb. Located near the Potomac River in the Torpedo Factory renewal area, the 110-unit project is a series of picturesquely massed brick and stone townhouses complete with gable roofs, round-arched windows, and three-sided angular bay windows. The ensemble is grouped around a central garden that cleverly hides a 450-car garage.

Rooms with a view



Although most of the architectural excitement in Vancouver this year is directed toward the city's upcoming world's fair, there is another, more modest project currently under construction in the Canadian metropolis that deserves attention as one architect's solution to the problem of expanding an existing historic structure. For a 33,000-square-foot addition to the Sylvia Hotel, architects Richard

Henriquez & Partners have borrowed the neoclassical brick details and punched window openings of the existing 1912 building and applied them to a new two-story hotel wing and to three sides of an adjacent 17-story condominium tower. On the fourth side of the tower, however, the wall has been removed to reveal the structure's poured-in-place concrete frame. The stripped corner is glazed

with a curtain wall rotated to face views of English Bay and capped with a turreted solarium. The architects dub the exposed flank "a glass intervention," and they characterize the over-all project as "a study of black and white," meant to contrast with "the gray found in many recent post-Modern buildings, where there is no clear distinction between architectural vocabulary that is old and that which is new."

Competition calendar

- The University of Miami is sponsoring a national competition to produce a master plan for its Coral Gables campus. Cash prizes of \$5,000 each to five first-place entries and \$1,000 each to 10 honorable mention entries will be awarded. Registration deadline is October 15. For information write Ralph Warburton, AIA, Professional Advisor, Campus Planning Competition, University of Miami, Coral Gables, Fla. 33124.
- Hawaii Loa College is sponsoring a design competition for a new \$6.5-million media arts center. A cash prize of \$15,000 will be awarded to the winner. Registration deadline is October 7. Write Michael Robinson, AIA, Competition Advisor, Hawaii Loa College, 45-045 Kamehameha Highway, Kaneohe, Hawaii 96744.
- To celebrate Houston's sesquicentennial, Central Houston Civic Improvement, Inc., is sponsoring a two-stage national competition that seeks designs for an urban park, to be located on a 10-acre downtown site along Buffalo Bayou. Cash prizes totaling \$50,000 for the first phase and \$40,000 for the second phase will be awarded to five finalists. Registration deadline is November 25. Write Theodore Liebman, AIA, Professional Advisor, c/o Central Houston Civic Improvement, 2040 Two Shell Plaza, Houston, Tex. 77002.

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Autumn in New York: Designer's Saturday will coincide with design center opening

The weekend of October 10-12 in New York City will represent an embarrassment of riches for the nation's design community. That three-day period will not only encompass Designer's Saturday—the 18th annual furnishings market and design symposium sponsored by 56 contract and residential manufacturers—but it will also mark the much-anticipated preview opening of the International Design Center New York, the four-building show-room complex nearing completion on a former industrial site in Long Island City, Queens.

The organizers of Designer's Saturday have arranged a full schedule of events for the occasion. On Thursday, October 10, Designer's Saturday show rooms will host a series of seminars at 9:00 AM, 10:30 AM, 1:30 PM, and 3:00 PM on topics relating to the management and design of

commercial facilities. From 5:30-7:30 PM there will be a cocktail reception at Burgee/Johnson's AT&T Building. On Friday, October 11, author C. Ray Smith will moderate a multi-image project presentation and panel discussion at The Cooper Union beginning at 5:30 PM. Panelists will include Stanley Abercrombie, editor of *Interior Design*; Owen Edwards, design writer for *California* magazine; Beverly Russell, editor of *Interiors*; Michael Sorkin, architecture critic of *The Village Voice*; and Pilar Viladas, senior editor of *Progressive Architecture*. On Saturday, October 12, the Metropolitan Museum of Art will host a buffet reception beginning at 7:00 PM. On all three days the 56 Designer's Saturday member show rooms will be open to the public for product viewing from 9:00 AM to 5:00 PM.



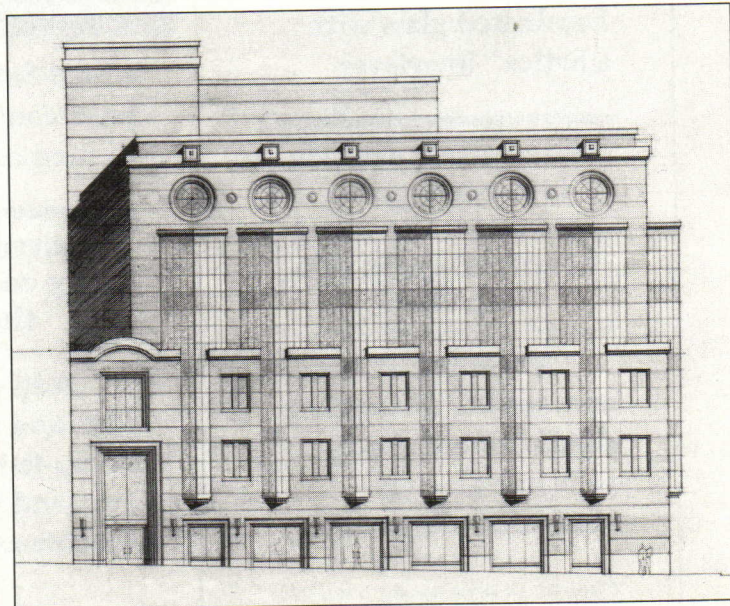
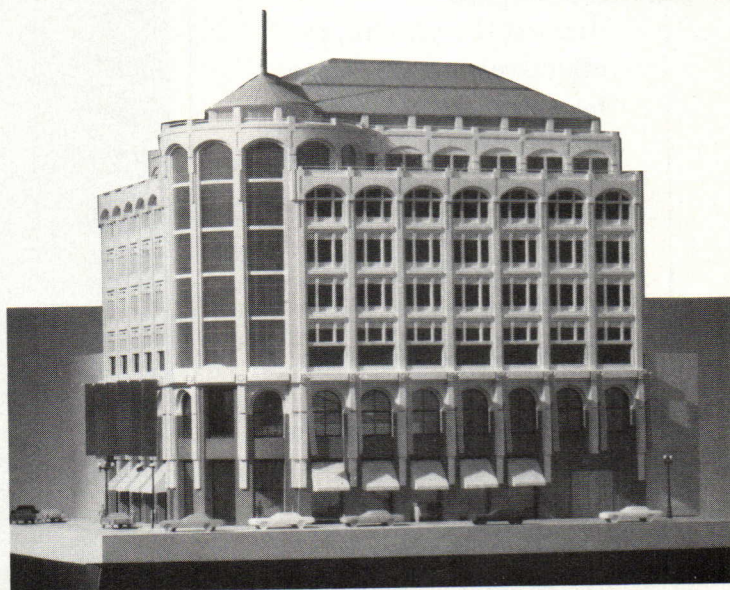
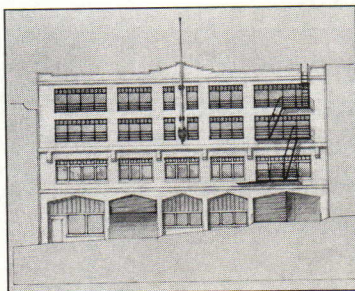
Meanwhile, across the river in Queens, IDCNY will celebrate the opening of its first building, called Center Two, by unveiling an exhibit on the work of Afra and Tobia Scarpa. On Thursday, October 10 at 6:00 PM, the New York Chapter of the Industrial Designers Society of America will sponsor a symposium featuring architects Charles Gwathmey and Robert Siegel and designer Massimo Vignelli, who will

discuss their conversion of Center Two from a factory into design show rooms. On Friday at 12:00 noon Justin Thompson and Andrea Finter of Business Consulting Group, Len Corlin of *Contract* magazine, and Lydia DePolo of DePolo-Dunbar will participate in a seminar on compensation for interior designers. Tours of the IDCNY site will be available throughout the weekend.

In re-zoned central San Francisco, modesty is the best policy

Although San Franciscans continue to argue the merits of the city's sweeping new downtown design and zoning guidelines, most agree that the large development projects of the 1960s and '70s are a thing of the past. Modest scale, appropriate context, and public amenity are the catchwords of the '80s in the City by the Bay, and two new projects by the firm of Heller & Leake seem to exemplify San Francisco's search for buildings that in some way relate to its distinctive history, topography, and architectural heritage. Just off Union Square, for example, in the traditional retail district of the city that was recently down-zoned to protect its low-rise character, Heller & Leake have designed an eight-story mixed-use structure (top right) comprising 60,000 square feet of retail space, 50,000 square feet of commercial space, a 6,000-square-foot restaurant, and a penthouse floor given over to apartments. The round- and segmental-arched rhythm of the building's precast concrete-and-granite facade recalls nearby commercial structures; moreover, the curving corner entrance bay, a time-honored device that evokes the architecture of 19th- and early-20th-century department stores, is likewise meant to reinforce the mercantile qualities of Union Square.

Understatement also rules the day a few blocks north near the base of Nob Hill, where Heller & Leake have designed a six-story medical office building for St. Francis Hospital (below right). Responding to the residential context, the architects have specified a strongly historicist brick facade articulated by a sequence of angular bays that will harmonize with the typically San Franciscan, three-sided windows on adjacent apartment houses. Neighborhood amenities include ground-floor shops and a small public garden off the lobby. A significant adjunct to the project is a two-story, 200-car addition to an existing parking garage (small photo below). Here the architects have replicated the five-bay-wide facade of the original building and crowned the expanded structure with a parapet that echoes shallow ground-floor arches.



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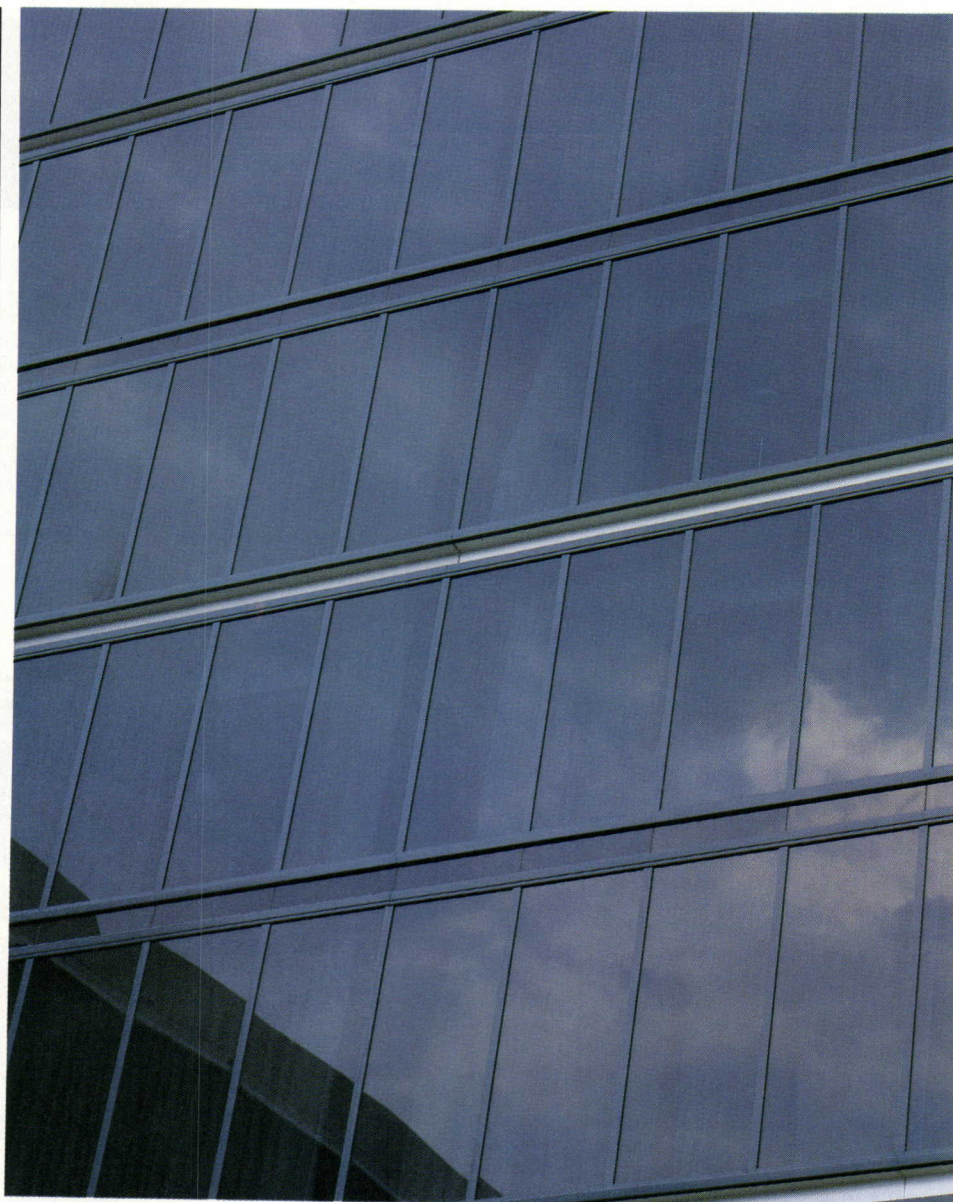
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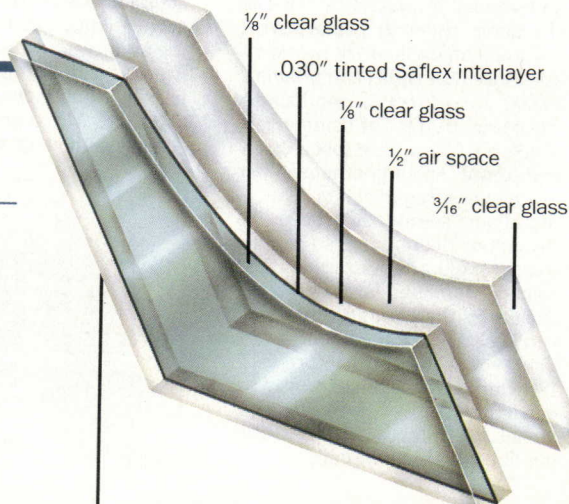


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Washington, D. C., Chapter/AIA 1985 Awards for Excellence in Architecture

An American embassy office building, a private school gymnasium, and a major urban hotel were among the six completed projects cited by the Washington, D. C., Chapter of the AIA in its seventh annual awards program for excellence in architecture. The 1985 program attracted 53 projects completed since January 1, 1980. Jurors were Alan Chimacoff, professor of architecture at Princeton University; Norman DeHaan, AIA, president of Norman DeHaan Associates in Chicago; and Richard Guy Wilson, associate professor of architecture at the University of Virginia.



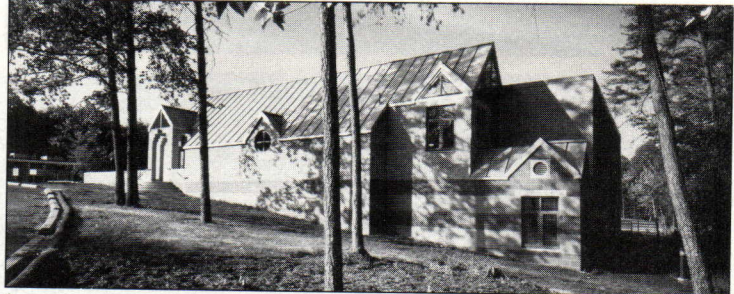
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1. The Regent Hotel, Washington, D. C.; Skidmore, Owings & Merrill, Architects. In order to meet the client's demand for an intimate European-style hotel, the architects adorned the building's buff brick and precast concrete facade with simplified classical ornamentation and included such traditional design features as a glass-and-steel marquee and canvas awnings. "The detailing is grand," noted the jury. "This is a building that is going to fit into the cityscape very easily and within a couple of years look like it has been there forever."

2. Joseph Boggs Studio Offices, Washington, D. C.; Joseph Boggs Studio, Architects. "A handsome, well-handled series of spaces" is how the jury characterized the design of the architects' own 3,000-square-foot office and gallery. One juror especially liked the role in the design of four massive structural

columns, and he observed that "rather than being absorbed into walls, partitions, or closets, those columns have been dramatically exploited . . . to a level of prominence and significance that gives real intensity to the project."

3. United States Embassy Office Building, Kuala Lumpur, Malaysia; Hartman-Cox Architects. The tropical climate and indigenous architecture of Malaysia influenced the design of an 80,000-square-foot American embassy office building, located in an established residential area of Kuala Lumpur. The structure comprises a series of concrete-framed pavilions united by pitched tile roofs with deep eaves, terrazzo paving, open verandas, and "Shanghai plaster" walls. The jury admired the building for its "picturesque quality," adding that "it has an appropriate and distinguished modesty."

4. Green Acres School Activities Center, Rockville, Maryland; Bowie-Gridley Architects. In order to reduce the apparent mass of a 10,000-square-foot private-school activities center, the architects recessed the bulky gymnasium portion of the structure into a hillside and articulated the facade with bands of blue- and green-glazed and gray split-faced concrete block. The jurors admired the facility for its modest scale: "It is a remarkable little building that somehow conceals a whale."

5. 1300 New York Avenue, Washington, D. C.; Skidmore, Owings & Merrill, Architects. Washington's 18th-century city plan and the neoclassical architecture of the Federal Triangle dictated the curving form and traditional detailing of a 1.1-million-square-foot office building. Although the jurors felt that the architects' efforts to

duplicate classical ornament were occasionally ill-conceived, they concluded that the structure "might be seen as historically important, since it is one of the first large office buildings in town to pick up so overtly the historical language [of the city]."

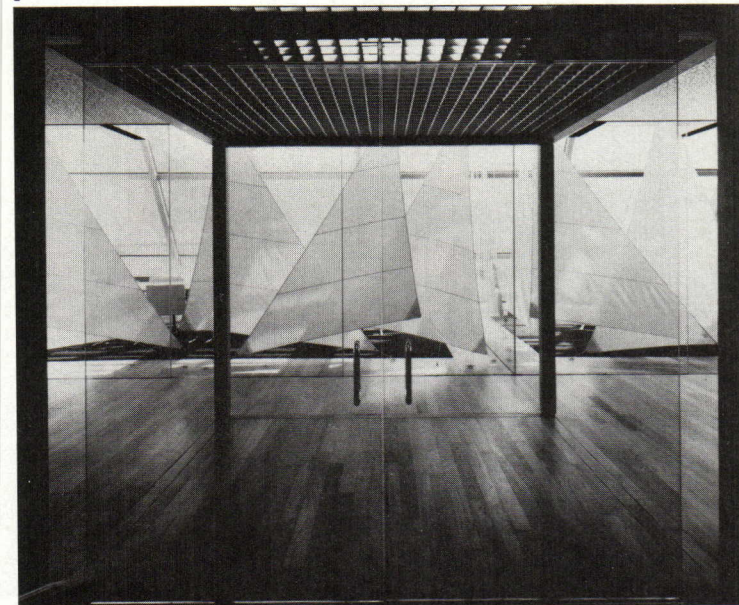
6. Rockville Town Center, Rockville, Maryland; Arthur Cotton Moore/Associates, Architects. A Main Street revitalization program was designed to enliven the community's public square—an unsuccessful product of previous urban renewal efforts—with such outdoor amenities as a market-style arcade, a gazebo, patterned brick paving, and a variety of street furniture. While the jury lamented that so little of Rockville's original urban fabric remained, it praised the architects for attempting to restore the town's sense of place.

Chicago Chapter/AIA 1985 Interior Architecture Design Awards

In addition to sponsoring its regular design awards program, the Chicago Chapter of the AIA annually cites outstanding interior projects by area architects. The chapter's 1985 interior program attracted 79 entries and was juried by Bartholomew Voorsanger, FAIA, Bruce Hannah, and Nancye Green. Eight completed interiors were recognized this year, and we illustrate below the honor award-winning project and three citations of merit.

Howard Kaplan

Don Dubroff



1. Evelyn Chapel, Illinois Wesleyan University, Bloomington, Illinois; Weese Hickey Weese, Architects (Honor Award). For a small midwestern university that required a 350-seat chapel to accommodate concerts, convocations, ceremonial events, and religious services, the architects designed a neutral white/gray spatial volume and purposely kept detailing simple and understated. The jury singled out the chapel's undulating balconies for special praise and called the over-all project "skillful . . . strong interior architecture [of] classic quality."

2. Pannell Kerr Forster Offices, Chicago, Illinois; The Landahl Group, Architects (Citation of Merit). The sloped glazing of a new Chicago high rise and the waters of Lake Michigan below were the inspiration for a series of whimsical

silk sails hovering above bleached teak flooring and a teal blue carpet. In addition to providing a strong visual image for the client, an accounting firm, the sails effectively shield private conference rooms from public areas. Noting that the architects handled the project with "an enormous amount of wit and humor," the jury added that the solution was especially "spirited, fresh, and courageous for a professional client."

3. World's Finest Chocolate Corporate Headquarters, Chicago, Illinois; Nagle Hartray & Associates, Architects (Citation of Merit). Located in a former warehouse on Chicago's southwest side, a 34,000-square-foot office interior centers on a 150-foot-long vaulted atrium that serves as the main connecting space, dining room, and gathering area for manufacturing and administrative

employees. Natural lighting and the consistent application of mahogany millwork, terrazzo flooring, and tile walls provide visual continuity throughout the project. "Interesting public 'private' space," observed the jury.

4. Northern Illinois University Art Gallery, Chicago, Illinois; InterSource Design Group, Architects (Citation of Merit). Two component systems—one permanent, the other movable—were used in the renovation of a 3,000-square-foot Chicago loft into a satellite university gallery. The permanent elements enclose a receptionist's station, an office, conference space, and storage areas, while a movable system of partitions and supports allows flexibility and modularity for the hanging of artwork. The jury called the gallery "fresh, original, and courageous."

In addition to the projects illustrated, the awards jury granted certificates of merit to Eva Maddox Associates for the Collins & Aikman Show Room at the Merchandise Mart in Chicago; Booth/Hansen & Associates for the Mindscape Corporate Headquarters in Northbrook, Illinois; Hague-Richards Associates for the American National Bank & Trust Company at the Chicago Mercantile Exchange Center; and Krueck & Olsen Architects for the Dart Gallery in Chicago.

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The Almighty Wall: The Architecture of Henry Vaughan, by William Morgan. Cambridge: The Architectural History Foundation with the MIT Press, 1983, \$30.

On the Edge of the World: Four Architects in San Francisco at the Turn of the Century, by Richard Longstreth. Cambridge: The Architectural History Foundation with the MIT Press, 1983, \$40.

Bertram Grosvenor Goodhue, by Richard Oliver. Cambridge: The Architectural History Foundation with the MIT Press, 1983, \$35.

Reviewed by Mary N. Woods

Under the editorship of Robert A. M. Stern, the Architectural History Foundation has embarked on the necessary yet daunting task of rewriting the history of American architecture. Its *modus operandi* is an ambitious series of monographs on architects who, in Stern's words, "defy the established categories of traditional history . . . [and] provide provocative new ideas on the relationship between architectural invention, or the creative use of existing forms, and architectural innovation, or the discovery of entirely new forms." The first harvest of titles in what will presumably be a lengthy list deals with the careers of Henry Vaughan, Ernest Coxhead, Willis Polk, A. C. Schweinfurth, Bernard Maybeck, and Bertram Goodhue. While Maybeck and Goodhue have titillated some as architectural exotica in the modernist landscape, the other designers were dismissed as history's detritus long ago.

Not surprisingly, these heretofore neglected figures are all drawn from the late-19th and early-20th centuries. Historians have traditionally written off this period because of what was perceived as its inability to create a new style. Marked by feverish but ultimately futile revivals of a Pandora's box of modes, late 19th- and early 20th-century architecture squandered its opportunities and finally retreated into a hard-shelled classicism that all but crushed innovation. The only architects meriting sustained historical investigation from this period were men like H. H. Richardson, Louis Sullivan, and Frank Lloyd Wright, who seemingly existed outside of time and presaged the advent of modernism. Until recently the above historical scenario was canonical;

however, under the present post-Modernist dispensation, the architectural pariahs are now being resurrected and reexamined for their presumably dynamic and creative use of historical form.

It is to be hoped that in this reevaluation of late 19th- and early 20th-century American architecture there will be a concomitant reappraisal of historical method and that researchers will no longer fixate on style as the single subject worthy of investigation, and novelty and innovation as the only criteria for achievement. In this respect, Richard Longstreth's work on the San Francisco architects is the most promising of the three monographs. In his first chapter, the author observes that American architects at the turn of the century attempted to move beyond a restrictive concept of style to an all-encompassing order rooted in tradition. Their methods were evolutionary rather than revolutionary. Longstreth bolsters his argument by drawing upon the writings of such contemporary figures as A. D. F. Hamlin, an architect, educator, and critic who perhaps best expressed his contemporaries' views on style and tradition in a series of articles written between 1892 and 1905. As Hamlin observed in 1892: "We are in the presence of a somewhat novel

phenomenon in the history of style—the development of eclectic principles of a number of quite distinct forms of architectural expression for distinct types of building." And in 1905, he added that "the 'style' of the twentieth century will be recognized not by the use of any one set of details, nor any one type of plan or system of construction, but by certain broad and fundamental characteristics which will be recognized by our descendants whether we recognize them or not, and quite without reference to historic labels that may be applied to their details."

William Morgan's study of Henry Vaughan's career was complicated by the fact that no office records, memoirs, or writings of the architect survived. Morgan had to piece his life together exclusively through the buildings. Perhaps Vaughan, a reticent and retiring man, would have been relieved that Morgan was, in spite of great effort, unable to unearth much information on his practice and personality. Although it is unclear where Vaughan, an Englishman, received his earliest training, the preeminent influence on his career was G. F. Bodley. Even after he established a Boston practice in 1881 and until his death 36 years later, Vaughan looked to the older Englishman for inspiration and

guidance. So closely associated were the two architects that in 1907 they were both appointed to design the National Cathedral in Washington, D. C. with the understanding that the younger Vaughan would serve as Bodley's assistant until the latter's death.

As the architect of the resurgent Episcopal Church in America, Vaughan played a role similar to that exercised by Bodley in the English Gothic Revival. Vaughan advocated a return to the pure and correct use of medieval forms originally proposed by A. W. Pugin. Coming after the extravagant and complex designs of the High Victorian Gothic, Vaughan's sober and correct designs inspired a modern Gothic Revival that flourished in the United States until the late 1920s. Such architects as Ralph Adams Cram responded to his strict archaeological interpretation of medieval form and loving attention to craftsmanship.

Although Vaughan is primarily identified with the Gothic Revival, Morgan demonstrates that he successfully designed in a number of modes simultaneously. He executed collegiate and residential designs in such styles as the Elizabethan, Jacobean, English Renaissance, Georgian, and even the Shingle Style. Morgan aptly argues that Vaughan was not



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Mary N. Woods received her doctorate in art history from Columbia. She is an assistant professor in the history of architecture and urban development department at Cornell.

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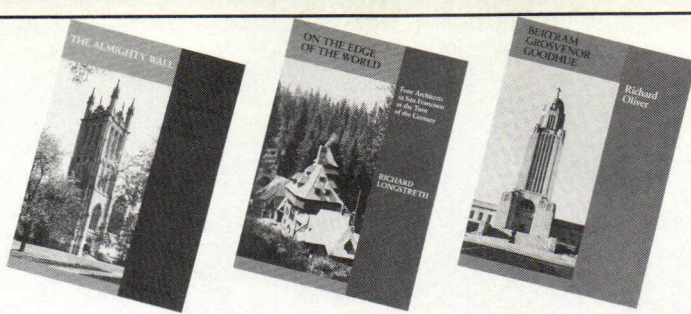


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mercurial in matters of style but quite sensitive to considerations of building type, client, and site as the determinants of form.

Yet Vaughan's best work, Morgan concedes, is ecclesiastical. His practice, like that of Bodley in England, depended on the revival of religious fervor associated with the High Church movement. Proposals for parish churches, cathedrals, and school and college chapels streamed into Vaughan's office. Morgan wryly notes at one point that the bishop for the Episcopal diocese of Massachusetts seemed to do nothing else but consecrate Vaughan's ecclesiastical work.

The "Almighty Wall" of Morgan's title refers to Vaughan's delight in working with large and blank surfaces. The wall's undeniable reality was, for Vaughan, the essence of medieval architecture, and he carefully preserved its integrity by minimizing his use of ornament and glazing. Yet the phrase itself—originally used by an English headmaster to convey his belief that good buildings made a good public school—also alludes to the anglophilism that made Vaughan the preferred architect of such institutions as the Episcopal Church and the preparatory schools of St. Paul's and Groton. Morgan, however, gives us very little insight into this world. He also does not account for the precise nature of Vaughan's influence on the Gothic Revival and the Arts and Crafts movement in the United States. Furthermore, he stresses that the architect was completely unaffected by American developments around him. Yet he discusses and illustrates a Vaughan residential design influenced by the Shingle Style, shows an intriguingly early essay in the Colonial Revival, and even reproduces a photograph of H. H. Richardson's studio assistants in which Vaughan mysteriously appears. Morgan's work is a thoroughly researched account of Vaughan's buildings and as such is an important addition to the literature on American architecture. Yet it succeeds, in the end, mainly as a virtuoso catalogue raisonné.

Like Morgan, Richard Longstreth was hampered by a paucity of archival material on Ernest Coxhead, Willis Polk, A. C. Schweinfurth, and Bernard Maybeck; he, too, essentially had only a group of buildings with which to work. Yet Longstreth fleshes out this material with an ingenious use of contemporary literature and archives to reconstruct the San Francisco professional community at the turn of the century. His monograph is not simply an account of four careers, but a masterful history of

the city's architectural and artistic development in the late-19th and early-20th centuries. Yet his work's significance goes beyond its importance as a regional history. Longstreth tries to make sense of American architecture at the turn of the century by arguing that the period can be comprehended as a manifestation of academic eclecticism. Beginning late in the 19th century, American architects no longer believed it was possible to will a new style into being; however, they could prepare the ground for the eventual emergence of such a style through the adaptation of architectural tradition to contemporary needs. Each design represented a carefully reasoned response to a unique set of programmatic considerations. A scholarly knowledge of architectural history and professional training equipped the architect to recognize and appreciate the timeless qualities of harmony, simplicity, and repose in all styles; he was then able to invest any historical mode he chose with these characteristics. These four San Francisco architects, for Longstreth, demonstrated that freedom and experimentation were possible within the parameters of academic eclecticism.

Although Coxhead, Polk, Schweinfurth, and Maybeck were all newcomers to the Bay Area, they transformed the character of its architecture and the nature of professional practice there. Educated at the Royal Academy, Coxhead, an Englishman like Vaughan, came to America on the strength of a promise of commissions from the Episcopal Church. He first settled in Los Angeles in 1887 and then moved to San Francisco in 1889. Polk, the son of a carpenter and builder, bootstrapped his way up into the profession. He worked in a number of eastern and midwestern offices as a draftsman and briefly attended classes in Columbia's architectural program. A. Page Brown, a former draftsman in McKim, Mead and White's office, introduced Polk to the tenets of academic eclecticism and brought him to San Francisco. Schweinfurth had worked in the Boston office of Peabody and Stearns and then with Brown in New York. After a short-lived attempt to open his own practice in Denver, he also joined Brown on the West Coast. Although Maybeck received the most extensive academic training of the four—spending four years at the Ecole des Beaux-Arts—he was the last to emerge as a significant figure in his own right. After study in Paris, he returned to New York in 1886 and joined the office of Carrère and Hastings. In late 1889 he moved to

Kansas City—pausing there long enough to enter a competition for the St. Louis City Hall—and then went on to San Francisco where he, too, entered Brown's office.

Although Longstreth supposedly deals with four architects, Coxhead and Polk dominate his discussion; Schweinfurth and Maybeck receive only one chapter apiece out of the book's eleven. It was Coxhead and Polk, Longstreth asserts, who transformed San Francisco's architecture through their ambition to develop the city as a great cultural center. Yet the Bay Area's isolation gave them a freedom to experiment that they would not have experienced in a more established city. They both developed distinctive modes of expression that drew on the classical resurgence, the Shingle Style, and the Arts and Crafts movement. Although their designs were informed by outside developments, they also were shaped by the unique character of northern California. Residential commissions provided them with their greatest opportunities to develop designs that were integrated works of art and responses to the Bay Area's rustic landscape. Of the four, Schweinfurth was the most concerned with creating an architecture that evolved from indigenous building rather than adapting ideas developed elsewhere. He looked to California's Hispanic architecture as the basis for a regional style. Although Maybeck did not intend to create a Bay Area style and drew his inspiration from the wooden vernacular tradition of Central Europe and the structural theories of Viollet-le-Duc and Gottfried Semper, his work was so distinctive it was perceived as being an authentic regional expression.

The time span Longstreth deals with, essentially from 1890 until 1900, is quite brief. It was then, he maintains, that Coxhead, Polk, and Schweinfurth were most active and innovative. After this decade, Coxhead faded into obscurity, Polk tried to transform his office into a corporate practice along the lines of Daniel H. Burnham's, and Schweinfurth died. Maybeck, of course, did not receive his first independent commission until 1905, and his career serves as an epilogue for those of the other three.

Longstreth succeeds in restoring Coxhead's and Polk's reputations, and he recreates the San Francisco milieu in which they moved. Yet the reader still wonders why their creativity was so ephemeral and failed to sustain and inspire the next generation of Bay Area architects. Although these young men were even more thoroughly steeped in the academic movement

than their predecessors, Longstreth summarily dismisses them as mere purveyors of conventional architectural fashion. What accounted for this rapid calcification of academic eclecticism in San Francisco? Perhaps Longstreth is already at work exploring this issue for a future title in the American Monograph series.

Unlike both Morgan and Longstreth, Richard Oliver had a considerable amount of archival material to consult for his study of Bertram Goodhue. He has made excellent use of this documentation to create a detailed account of the architect's career as organized around his most prominent commissions. In many respects, Goodhue's approach to design exemplified the tenets of academic eclecticism as outlined in Longstreth's book. By acquainting himself with a wide variety of styles, he attempted to find the one best suited to the requirements of a specific commission. Goodhue's repertoire included English Gothic, Spanish Colonial, Byzantine, and eventually, classicism.

Despite his precise knowledge of these past styles, Goodhue never sought to replicate them but instead to transform and thereby render them more appropriate for contemporary conditions. Although his approach was related to academic eclecticism, his training was in no way academic. It represented a continuation of the earliest system of American architectural education, apprenticeship. In 1884 Goodhue entered the office of James Renwick, a principal figure in the first phase of the American Gothic Revival. When he was only 20, Goodhue submitted a design in the competition for St. John the Divine in New York that, although unpremiered, elicited enthusiastic comment. After winning a competition for a cathedral in Dallas in 1891, Goodhue was offered a partnership in the Boston office of Ralph Adams Cram. Inspired by Vaughan's example, Cram and Goodhue were to become the leading architects of a 20th-century Gothic Revival. Yet Goodhue eventually sloughed off Vaughan's insistence on archaeological correctness in favor of a more original interpretation of medieval form. Using contemporary methods, he sought to revive the spirit but not the precise details of the past. Although partners, Goodhue and Cram were also rivals. They even submitted separate designs when the office competed for a commission. Finally in 1913 Goodhue dissolved a partnership that had ceased to exist in fact, if not in name, years before.

Continued



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Despite his eclectic tastes, Goodhue was consistent, Oliver contends, in his desire to use traditional forms in a freewheeling and imaginative manner. As with Morgan's assessment of Vaughan, Oliver's approach tends to isolate Goodhue from the period in which he worked. His career, in fact, becomes more comprehensible after reading Longstreth's chapter on academic eclecticism. Oliver is also singularly uninterested in exploring the paradoxical aspects of Goodhue's practice and life: an agnostic who was largely identified with ecclesiastical design; an opponent of academic education who nonetheless served on the Columbia School of Architecture's Board of Visitors; and a critic of classicism who utilized it to create two of his most famous designs, the National Academy of Sciences and the Nebraska State Capitol. Oliver, like Morgan, provides not so much a history as a rich, detailed account of an architect's commissions.

Ultimately, the success of the Architectural History Foundation's American monographs will reside not just in their ability to resuscitate the reputations of a few neglected architects but in their reconstruction of the intentions that motivated these designers and the context in which their careers developed. What we do not need is simply a new pantheon where admission to the elect is now based on the manipulation of historical motifs rather than the creation of seemingly unprecedented form. All three of the first monographs in the series succeed in resurrecting the careers of architects unjustly neglected by historians. But it is Longstreth's book that is the most promising contribution to our overall understanding of turn-of-the-century American architecture.

A Field Guide to American Houses, by Virginia and Lee McAlester. New York: Knopf, 1984, \$19.95.

Reviewed by Roger Kimball

Though neither is an architectural historian by profession, Virginia and Lee McAlester have managed to produce that rare item, a book that lives up to its title. For *A Field Guide to American Houses* is just that—a handy and informative guide that is clearly organized and practically laid out for use in America's architectural "field," urban, suburban, and rural. Concentrating largely on single-family, detached dwellings built before 1940, and armed with over 1,200 drawings and photographs, the book really does enable you, as its subtitle boasts, "to identify, and place in their historic and architectural contexts, the houses you see in your neighborhood or in your travels across America."

Distinguishing between "folk houses"—those that are not deliberately designed to reflect a particular architectural fashion—and "styled houses," the McAlesters point out that the majority of surviving domestic architecture in America is recognizably styled. Their

introductory chapter acquaints us with the basic architectural features necessary to identify those modes. Adducing four major stylistic precedents—ancient classical, Renaissance classical, medieval, and modern—it shows in some detail how these prototypes have been adapted and assimilated, mixed and varied, in our country's domestic architecture. After a brief, non-technical overview of typical plans, elevations, and structural systems used in American houses, the first chapter concludes with a pictorial key and glossary to help the roving house-watcher identify and place his sightings.

The balance of the book is composed of a series of chronologically arranged discussions of major building types. Beginning with early American "folk houses," it surveys in turn colonial houses, Romantic houses—

which comprise Greek and Gothic Revival, Italianate, and houses of other, more exotic provenance—Victorian houses, and what the authors call "eclectic houses." Included under this last rubric are the various "period" styles—Tudor, Beaux-Arts, Mission, Spanish, etc.—as well as the distinctively "modern" creations of the International Style, Frank Lloyd Wright, and others. The book ends with a somewhat cursory look at American houses built since 1940.

A Field Guide to American Houses succeeds admirably in bringing sense and order to the stunning array of stylistic variants that have proliferated in American domestic architecture. Its detail and erudition will make it of interest to experts, while its clarity and accessibility assure it of a wide audience among non-specialists. One could have wished that the

authors had given more attention to the architectural prototypes that they single out as major sources of inspiration; tags like "Renaissance classical" deserve more than a few schematic diagrams in a visual reference work of this scope. And even though the book is primarily a work of taxonomy, one might also have asked for some consideration of the *meaning* or *significance* of the architectural styles that are so exhaustively catalogued; for if most American houses are "styled," they are so not arbitrarily, but in an effort to embody or recall or live up to a vision of the world and man's place in it that the style in question sought to articulate. Still, its wealth of information will make it an indispensable tool of aficionados of American domestic architecture.

Roger Kimball is a freelance writer who contributes frequently to RECORD.

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Exhibition report: The architecture of Fumihiko Maki and Arata Isozaki

Top: Fumihiko Maki, Wacoal Art Center, Tokyo.
Bottom: Arata Isozaki, Sports Hall for the 1992 Olympic Games, Barcelona.

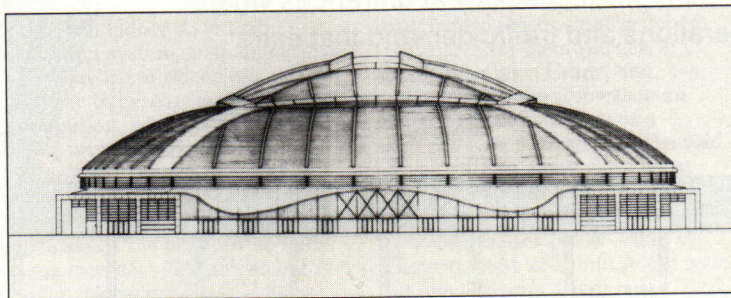
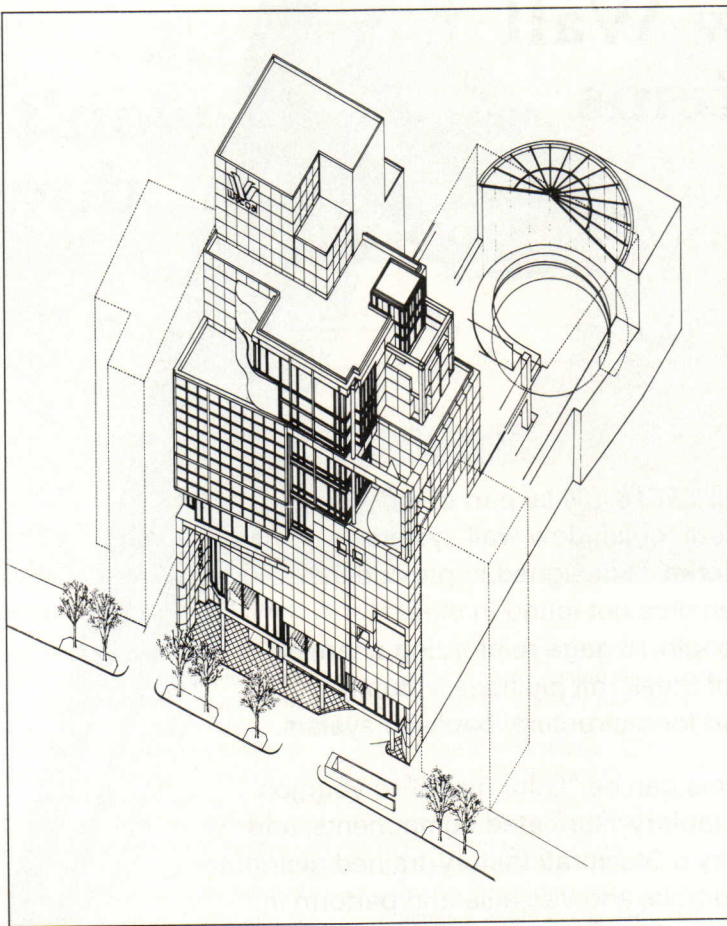
By Julie Iovine

That East perplexes West is only as it should be, the East drawing Westerners out of complacency with its rites and traditions at once so foreign and so universal. Japan, especially, exerts a fascination on American architects who, ever since Frank Lloyd Wright, have borrowed freely from established Japanese forms. It is all the more unusual, then, that until recently modern Japanese architects have been so cavalierly overlooked in America. The last time architects here had a chance to examine closely the work of their contemporaries in Japan was at the Cooper-Hewitt Museum in 1979, and before that back in 1954 at the Museum of Modern Art. By organizing "New Public Architecture: Recent Projects by Fumihiko Maki and Arata Isozaki," the Japan Society of New York has rendered a tremendous service to American architects who can afford neither a subscription to *A+U* nor the cover charge at the Palladium—the latest hot spot in New York fare to Tokyo. The show is on view at the Rice University School of Architecture in Houston through October, and at the Museum of Contemporary Art in Los Angeles from November through January.

Rand Castile, director of the Japan House, writes in the catalog that once the decision to show current Japanese architecture was made, selecting Maki and Isozaki as representatives was simple, for "they are as apparent in the Japanese landscape of the eighties as Mt. Fuji itself." Rarely are two architects more akin in spirit or so remote in expression. Both Maki and Isozaki are in their 50s and live in Tokyo. Both paid their dues in the office of Kenzo Tange. Then, in the 1960s, Maki led the Metabolists toward a new urbanism; Isozaki, as ever, was the iconoclast. Both have an innate understanding of the word *shibui*: i.e., that which reveals as much about its surroundings as about itself.

The exhibition encourages many more levels of fruitful comparison. Each architect has contributed three public projects—a sports arena, a museum, and a mixed-use complex—that are either completed, under construction, or in the final phases of design. Maki's Fujisawa Gymnasium, 19 miles outside of Tokyo and newly finished, is represented at the show through glossy photos, a large model, and a video complete with musical soundtrack meant to evince the respect for traditional craftsmanship that has gone into the construction of this immense

Julie Iovine is a freelance writer from New York City who contributes regularly to *Connoisseur* magazine.



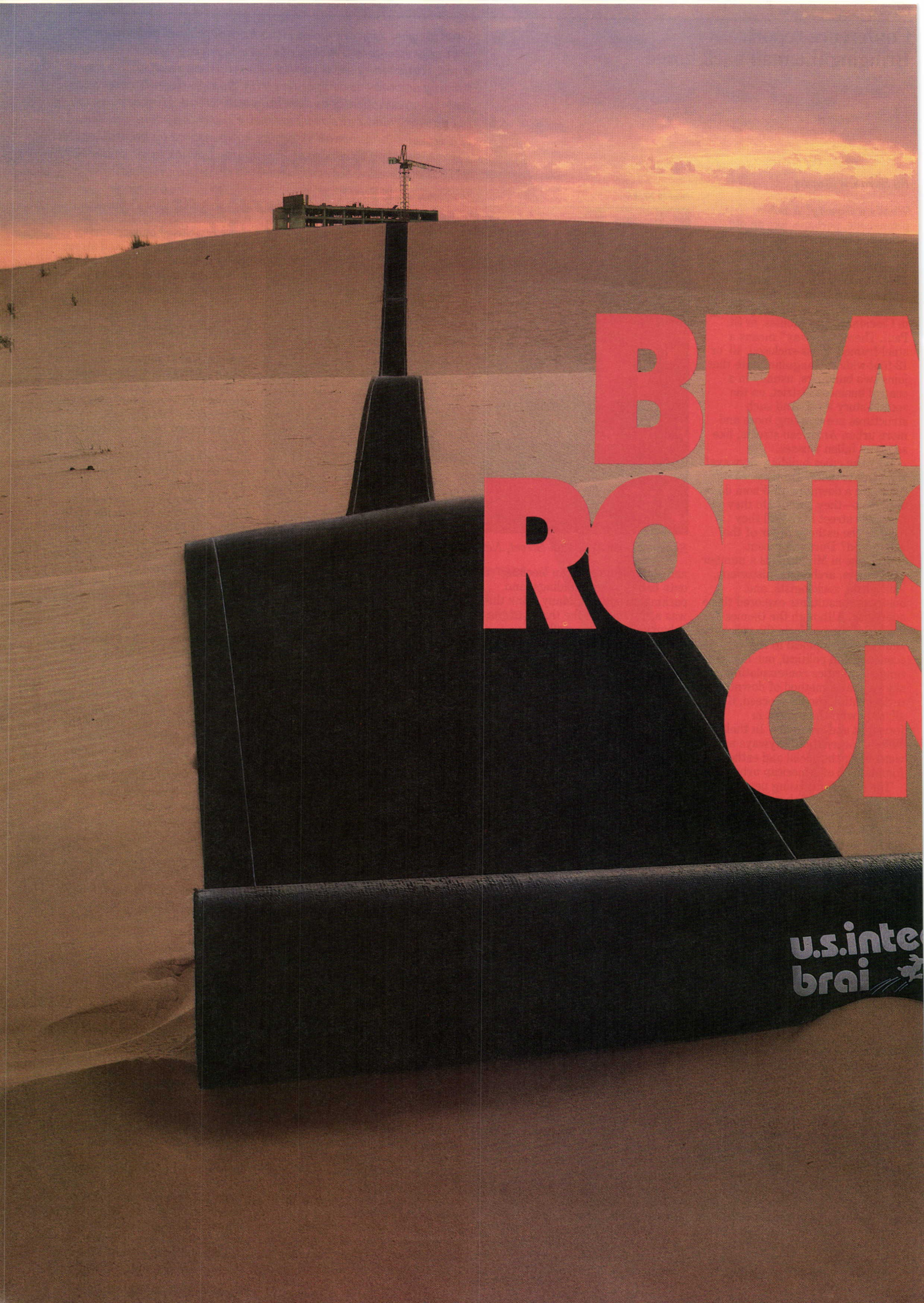
stainless-steel horseshoe crab. Actually, Maki writes that the shape was derived from a "ceramic Nambu-ware pot," while the townspeople of Fujisawa have taken to calling it a beetle. In whatever language, the structure speaks eloquently of natural forms. The Sports Hall for the 1992 Olympic Games in Barcelona designed by Isozaki is far from complete and may be redesigned many times before it is built. As uncertain as its future seems, the very large drawings that Isozaki has produced detailing the space-frame roof for the arena recall the exquisitely delicate craftsmanship of 18th-century plans, while the technology is startlingly innovative. Its over-all organization suggests the central allée of Versailles, reminding us that Isozaki is at home in any century and with every cultural heritage.

The two museum projects—Maki's National Museum of Modern Art in Kyoto and Isozaki's Museum of Contemporary Art in Los Angeles—called for radically different approaches. Maki, known for his style rather than *a* style and for his deep respect for the demands of context and tradition, is now working out the design for a resoundingly appropriate scheme for Kyoto. Close by one of Japan's oldest *torii* shrines, the new museum is a "classical tripartite" box of gray granite with an atrium on axis and translucent vertical shafts for stairwells at each corner, recalling the *torii* by day and *shoji* lamps when lit at night. At the exhibit scale models of various details made of wood and rice paper attest vividly to the building's bold elegance. At the other end of civilization in Los Angeles, the much-vaunted Museum of

Contemporary Art by Isozaki is now under construction and, though it is rumored to be slightly tamer than the original scheme, the design packs plenty of punch, while silkscreen prints surrounding the model depict the building as a ruin.

For both architects the mixed-use projects included in the show seem to have provoked the most varied and witty responses. Maki's Wacoal Art Center in Tokyo is now under construction and, in spite of its narrow site, has somehow freed Maki from traditional constraints and allowed him to play hard and fast with abstract forms (a cone set within the eight-story fractured grid of the facade pokes fun at a client whose money comes from the manufacture of brassieres). When James Stewart Polshek writes in the catalog introduction about an "orgy of historical references," he must mean Isozaki's Tsukuba Center Building, completed in 1983. Isozaki himself has written an expository poem for the catalog, announcing that "after 20 years of practical experience, I am now going to find a method to create architecture without irony . . . not cynically, not desperately"—a decision he must have made after Tsukuba, which is encyclopedic in its ironic references to the past. "All the details of this building are metaphorical," adds Isozaki, and while it is easy to trace the rusticated stonework to the Renaissance of the Medici and the sunken plaza to the Campidoglio, locating allusions to Velázquez's "Los Meninas"—even after Isozaki's elaborate explanation—may prove too much of a challenge for most.

The installation in New York, which both architects are said to have designed, instantly confronted the visitor with sympathetic dissimilarities. Isozaki's half of the room was sparsely arranged, but colorful: finished line drawings interspersed with purple and peach silkscreen renderings, models of MOCA and Tsukuba, and a four-foot-high stack of blueprints that all were encouraged to haul off and study on the floor. Maki's space was more crowded with study models of details as well as complete buildings, photographs, working drawings, and rough sketches perhaps torn from Maki's journal. The gracious treatment of materials that both apply to their buildings goes as well for the care they have taken in presenting their work through other means. The exhibition was originally intended to explain process in the work of two of Japan's best architects, but it goes much further, as Polshek notes, toward "a passionate statement in defense of the act of building."



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Physical fitness

Even for the professional athlete, the physical workout is harder than it used to be. In the case of the pros, the rigorous workout may simply coexist with an unrelenting compulsion toward technical supremacy. These days, however, the amateur often has physical ambitions almost as ardent. The reasons for this ambition range from fashion to a profound desire for personal perfection.

In a recent background article on the phenomenon, *The New York Times* observed both the social and philosophical aspects of fitness as seen by college students. On the one hand, gyms have become dating places: "More people meet here than at parties," says a lifeguard at a college swimming pool. On the other hand, according to another undergraduate, "People want to be the best. They want perfection, financially, mentally, physically." In any case, universities competing for a shrinking number of students have learned that handsome, well-equipped exercise facilities help recruitment.

The large recreational center designed by ELS, Elbasani & Logan sets out to offer the fitness enthusiasts at the University of California at Berkeley personal pleasure rather than organized physical education. Moreover, while the new building provides for such team sports as basketball and volleyball, it also provides rooms for newly popular individual sports like aerobics and weightlifting.

The two other buildings discussed in this Building Types Study are more specialized. The swimmers and divers for whom Edward Larrabee Barnes designed the natatorium in Indianapolis are effectively professionals in all but the financial sense: they work at their sport fully as hard. In addition to designing for spectators in the flesh and for a television audience, the architecture demanded detailing beyond the ordinary for state-of-the-art competition swimming and diving pools. Gutters around the pool, for instance, extend well under the surrounding deck to forestall distracting splash-back on the surface of the water, and water flows into the pool from a channel in the underwater lane-lines to prevent turbulence.

Special care for detailing also figured in Cabell Childress's work at the Colorado School for the Deaf and the Blind. Beyond choosing the right acoustical material, specifying the proper lighting, and blunting all sharp corners for the mutual comfort and safety of the deaf and the blind, the architect also had to accommodate special athletic equipment, especially for the blind, such as nets that retrieve and return thrown balls, and rope handrails that allow the use of a running track, and mirrors that allow deaf wrestlers to "hear" movements behind them. Though younger children at the boarding school do not use the gym all that much, the teenagers use it constantly, suggesting that the drive to physical fitness transcends physical limitations. *Grace Anderson*

A wide longitudinal corridor connects all parts of the complex; the also invested the utilitarian gyms with a more lightsome décor than

Schooling the young physique

Physical exercise as education aims at schooling young muscles and working off youthful energy. At the Colorado School for the Deaf and the Blind, however, physical education carries a heavier and more complex burden. The 107-year-old school has about 270 students, two-thirds of whom live on campus; the students—about 50 of them blind and the rest deaf—range in age from 3 to 18 or 19. The physical education program, in addition to traditional purposes, seeks to help students learn how to deal with their physical impediments. More important yet, the program directs both curriculum and equipment toward helping students achieve an independent life in company not similarly afflicted—hence, among other things, a bowling alley projected for the blind.

Once he received the commission to update the school's 1919 gym and its swimming pool and to add a new gym and social center, architect Cabell Childress saw that the first architectural need was to determine functional requirements and the reasons behind them; he and other firm members studied gyms and interviewed teachers at CSDB and like schools in the United States and Canada. They also interviewed the students in depth, eliciting views on functional, social and esthetic matters. And they learned a lot. Childress's vehement advice to other architects is to go and do likewise: "If any architect designs a similar building, tell him not to consult me. Consult those who know."

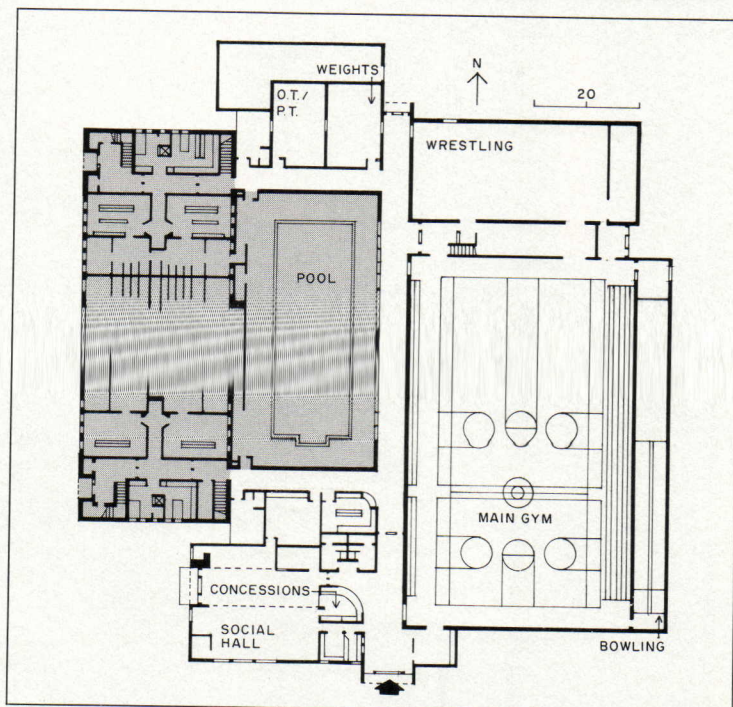
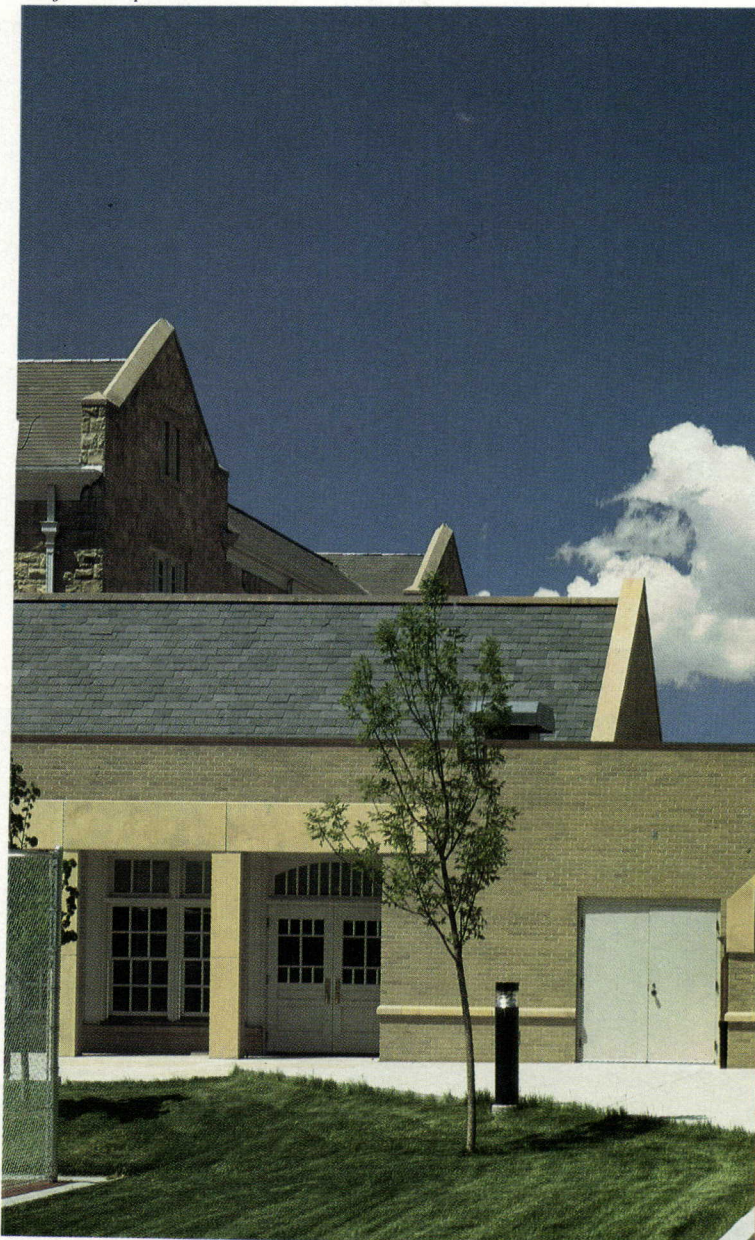
Childress concluded that the handicapped require not special design, just the very best design, as welcome to the sighted and hearing as to the blind and the deaf. (All the same, since the blind tend to bump into things and the deaf tend to trip, sharp edges were minimized.)

The firm also found that designing simultaneously for both the deaf and the blind called for much sensitive balancing. To begin with, most of these students, blind or deaf, have only a partial disability. Thus the blind can usually distinguish between light and dark and have an aversion to glare, so one would think a low light level adequate. But the deaf must have a high, even light level in order to read lips and finger signs. On the other hand, though recognizing the importance of sound for orientation of the blind, one would think sound level of little consequence to the deaf. But loud sounds and vibrations, even from mechanical equipment, distract and confuse the deaf. (Mechanical equipment is isolated in a soundproof wing at the back of the building.) Both the blind and the deaf use the sense of touch as a source of perception. In this building, the blind can, for instance, "see" doors on the other side of the corridor whenever their hands discern a smooth protrusion on a continuous handrail mounted on the wall, and the deaf can "hear" approaching footfalls when they feel vibration on the sprung hardwood gym floor.

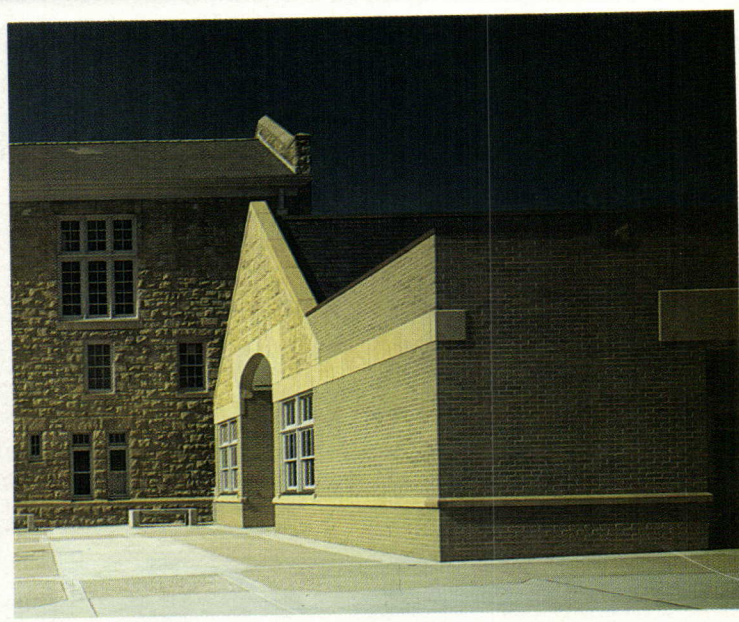
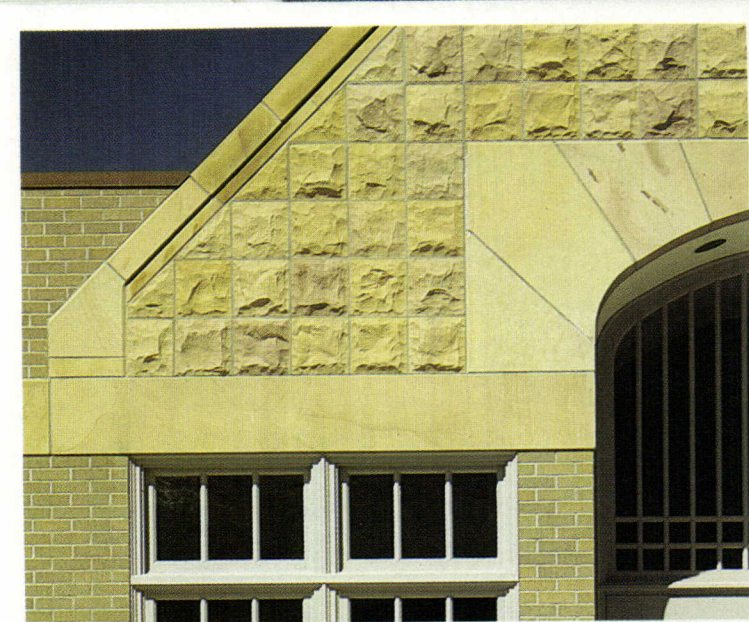
In comparison with functional needs, other design considerations seem almost conventional. Nonetheless, esthetics does arise. The school has a number of buildings, roughly divisible into two groups: a group of stone Collegiate Gothic buildings dating from the early part of the century, another less fanciful group of brick buildings dating from the 1950s. Because the new multipurpose hall is essentially an enlargement of the 1919 gym, Childress could take the more attractive group as his model (the old gym can be seen in the photograph of the new gym entrance at right and of the social center entrance at bottom right).

Confronting the question of exterior materials, the architect learned that he could no longer specify rhyolite, an indigenous gray stone that rusts to an "orange patina," and which faces the older buildings. The facades of the new building are a grayish-tan brick selected to complement the old stone next door, while the stone trim over the social center entry (bottom photos opposite) is Utah sandstone, a material that ages to a similar orange patina. From the older buildings, Childress borrowed such details as the flattened doorway arches, the flat-ridged roofs and false-front gables, and the square-stone gable ornament. The mullion patterns on windows and transoms are his own contribution to the schools's neo-Gothic persona.

Douglas Kahn photos



Multi-Purpose Facility
Colorado School for the Deaf and the Blind
Colorado Springs, Colorado
Cabell Childress Architects



The Colorado School for the Deaf and the Blind occupies a wooded 16-acre campus in a residential neighborhood near downtown Colorado Springs. The new multipurpose hall abuts the 1919 gym (below at top) and completely surrounds an unbeautiful concrete-block structure built some time ago to shelter the swimming pool. With a larger floor than the old gym and with seating for spectators, the new

gym (opposite at bottom) has white acrylic skylights for an even diffuse light, since the deaf athletes rely on visual data for early signals. The acoustic ceiling also serves deaf athletes by preventing sudden and misleading auditory signals. Further, the hardwood floor, which conveys vibration "sounds," was a special requirement. In lieu of a nearby pizza parlor or hamburger joint, favored adolescent hangouts,



both students and teachers looked forward to an on-campus social center (directly below and opposite at bottom). The room provides a large floor for dancing, which a survey taken at another school for the deaf characterized as "very popular and very loud," and provides food service from a kitchen at one end. It provides tables and chairs for conversation and games. It even provides a private nook near

the front windows for confidences and "for kissing" (teenagers are teenagers the world over). The mural on the barrel vaults was painted by Megan Parry with a palette selected by one of the school's deaf students, and the textured mural on the outside of the building (preceding pages), composed by Shelley Jurs, includes marble, white opaque glass and reclaimed Welsh roofing slate.



Multi-Purpose Facility
Colorado School for the Deaf and the Blind
 Colorado Springs, Colorado
Owner:
 Department of Education,
 State of Colorado
Architects:
 Cabell Childress Architects—Cabell
 Childress, FAIA; Ida Vorum, AIA,
 David Solomon, Anna Rodewald,
 Jane Marshall Smith

Engineers:
 Anderson & Hastings (structural);
 McFall-Konkel & Kimball
 (mechanical); Garland D. Cox
 Associates (electrical)
Landscape architect:
 Jeff Simmons
General contractor:
 H. W. Houston Construction
 Company

Aquatic activities

In Indianapolis, Indiana University and Purdue University share a large supplementary campus with each other and with IU's Medical Center. But though the schools, especially IU, have a history of fielding world-class swimming and diving competitors, the recounting of the establishment of the campus's natatorium must acknowledge the city's compelling desire to become "the amateur sports capital of the world." In order to be ready for the 1982 National Sports Festival, the natatorium project had only 22 months from start to finish, a short schedule for a big building and one that affected some basic architectural decisions. The project had also to offer more conventional instructional facilities.

Before considering speed of construction, however, architect Edward Larrabee Barnes had to consider size: the building measures 190 by 525 feet and contains, in addition to the 285-foot-long natatorium in the center, a gymnasium (opposite bottom left) for IU's School of Physical Education at one end and a triangular prow (opposite bottom right) for offices at the other. (The national headquarters of associations overlooking diving and synchronized swimming now occupy this space.) The natatorium contains an Olympic-sized racing pool and a diving pool, as well as seating for 5,000 spectators; the physical education building provides another racing-length pool.

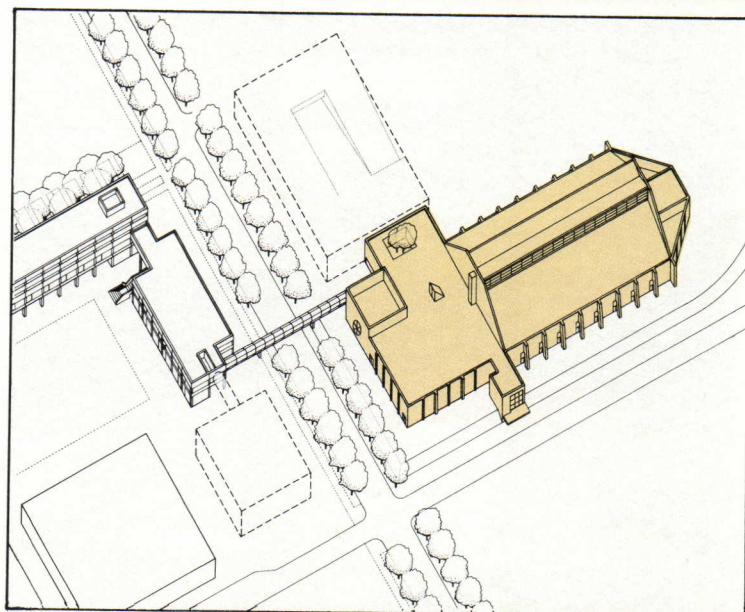
The new building thus comprises what are essentially three different buildings, each with its own group of users. The university gym alone, in fact, accommodates two sets of users: athletics students and patients from the nearby medical center (the instructional pool on the lower floor is fitted with a movable metal bottom at the shallow end that can rise to the top of the water and provide access for wheelchairs and patients receiving physical therapy). The natatorium proper serves serious competitors and serious spectators—even the recreational swimmers are serious: lest one think the swimming pool meant for fun and games, he should remember that the "shallow" end is 9 feet deep. Though the offices in the prow constitute an effectively independent building, the other two facilities necessarily interrelate, particularly since the instructional pool becomes a warm-up pool at big swim meets. An extra-wide corridor bisects the resultant megastructure, defining the two athletic facilities and at the same time providing a theater-type lobby for spectators, complete with a large window overlooking the cream-and-crimson natatorium.

The site consists of an assemblage of buildings constructed in the last 30 years or so, waiting for landscaping to mature. Apart from medical students and resident physicians, virtually all of the students commute to the campus, and circulation is therefore mainly automotive. To create a focus within the sprawl and to offer a modicum of pedestrian environment, Barnes designed a series of classroom buildings, "the snake," connected to each other with glass-covered bridges. The natatorium forms the head of the snake (see partial site plan at right).

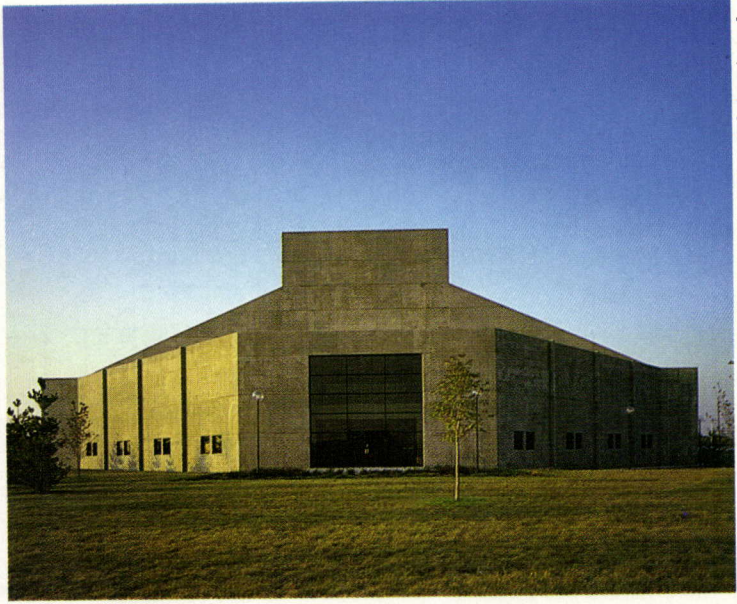
Barnes's classroom buildings, like much of the rest of the campus, combine brick and concrete on their exteriors. In the interest of speed, he chose for the natatorium a structure completely of cast-in-place concrete. Sandblasting tempered the texture of the material, left exposed inside as well as out. Because the structure doubles as internal finish, Barnes eliminated the need for applied fireproofing, another time-saving device. Esthetically, moreover, concrete bespeaks size and strength, most appropriately in the ranked flying buttresses that receive thrust from the steel trusses above the natatorium. At the same time, however, the architect did not want the building too obtrusive on a very exposed site in very flat surroundings; to reduce height and massiveness, and to furnish pedestrian scale on the side seen by arriving spectators and by users of the athletic field across the street, berms were built up around the entrance (opposite at top).

The 220,000-square-foot building cost \$21.5 million—\$7 million from Indiana University, \$1.5 million from a Federal grant, and the remaining \$13 million from private donors.

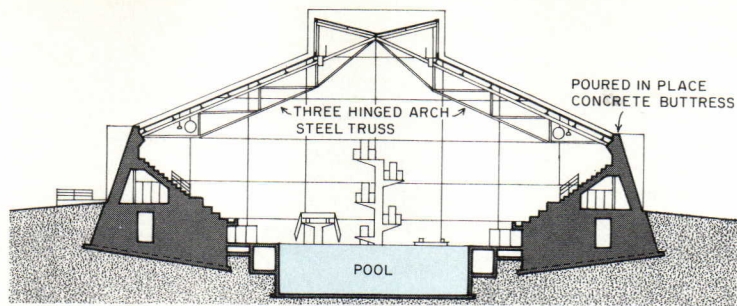
©R. Greg Hursley, Inc. photos except as noted



IUPUI Natatorium
Indianapolis, Indiana
Edward Larrabee Barnes
Associates, Architects



© Karam & Associates, Inc.



The open, colorful design of the new natatorium at Indianapolis, lavish compared to most swimming pool décor, respects both the paying customer and the all-seeing eye of the TV camera. The space required not only a wide span but height enough to allow spectators a view of divers on the 10-meter platform. After considering other long-span structures, Barnes used a three-hinged truss arch to eliminate obstructive lower chords. The thrust of the trusses is taken outside the building and into the ground by an array of flying buttresses (section and top photo at right). Each buttress marks an emergency door from a corridor beneath seating (lower photo right), and each has a drainage channel down its face. Though swimmers and divers, for good reason, detest glare on or under the water, the owners wanted daylight in the space: swimming and diving are by nature outdoor sports. The architect designed a monitor that admits completely diffused light through east- and west-facing fiberglass windows; for still further diffusion, light does not enter directly but rather is reflected by the monitor's white-painted butterfly roof. The hvac system recognizes the difference between spectators and swimmers: cooled air is supplied to seats, but for wet swimmers the deck area is heated with radiant heat at deck and walls, and vents exhaust the warmed air under the overhang. Movable bulkheads at either end of the 50-meter pool can alter its dimensions for 25-meter racing, synchronized swimming or, as shown opposite, water polo. In deference to television, the pool has a number of below-water glassed portholes. Divers, spared clambering up high ladders in public, reach the platforms through red-painted alcoves served by elevators.

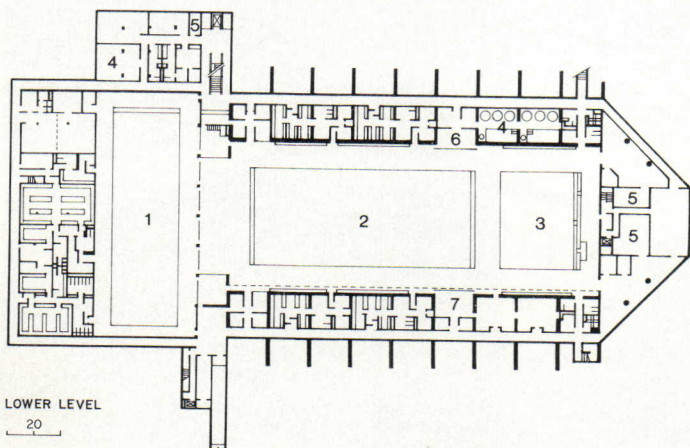


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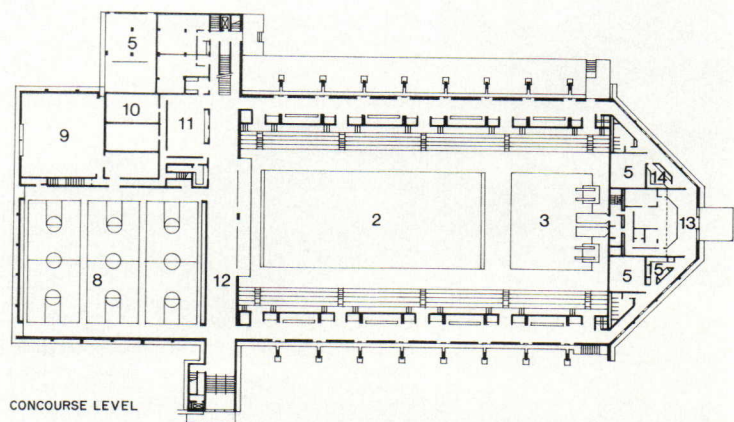


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- | | | |
|-----------------------|------------------|-----------------|
| 1. Instructional pool | 6. Control room | 11. Lounge |
| 2. Competition pool | 7. Scores office | 12. Concourse |
| 3. Diving pool | 8. Main gym | 13. Lobby |
| 4. Filter room | 9. Auxiliary gym | 14. Kitchenette |
| 5. M/E | 10. Handball | 15. Vending |



LOWER LEVEL



CONCOURSE LEVEL

IUPUI Natatorium and School of
Physical Education
Indianapolis, Indiana

Owner:
Board of Trustees, Indiana
University

Architects:
Edward Larrabee Barnes
Associates—Gajinder Singh, project
architect

Project architects and pool design:
Browning Day Mullins Dierdorf,
Inc.

Engineers:
Weidlinger Associates (structural
consultant); Fink Roberts & Petrie,
Inc. (structural); M & E Engineering
Co., Inc. (mechanical/electrical)

Consultants:
D. Joseph Hunsaker, Community
Recreational Systems (pool); Cerami

& Associates (acoustical); Donald
Bliss (lighting)

Landscape architects:
Zion & Breen Associates

Construction manager:
Tousley-Bixler Construction Co.,
Inc.



Fin-de-siècle



Traum und Wirklichkeit

WIEN

TRAUM
UND
WIRKLICH
KEIT
WIEN
1870-1930

Ein Streifen
des Österreichischen Museums der Stadt Wien
Wiener Stadtmuseum



An exhibition:
"Dream and Reality"
Vienna, Austria
Presentation and design:
Hans Hollein, Architect

KLICHKEIT

- 1930

DREAM
AND
REALITY

VIENNA
1870-1930

An Exhibition organized
by the Board of Economic Affairs of the City of Vienna
Chancellery, 1040 - 1070



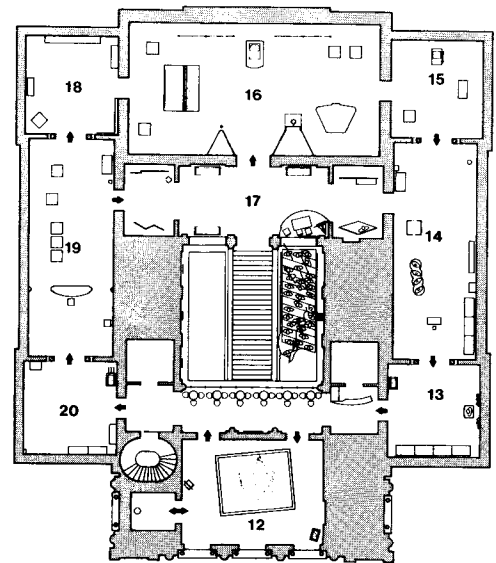
The title "Dream and Reality" evokes a feeling of almost collage-like confrontation and collision. The blood-stained uniform worn by Franz Ferdinand in Sarajevo contrasts with *The Kiss* by Klimt. Sigmund Freud's couch is opposite the booth containing Wittgenstein's *Tractatus*. Marlene Dietrich stretches her leg for the first time and adjusts her stocking. The eroticism of Klimt and Schiele hangs like heavy perfume over this exhibition. Makart's opulence is faced abruptly with the coolness of Otto Wagner's objectivity. Dream and reality. A socialist mayor opposes the emperor and prepares the ground for social change in Vienna, change that advances, waving red flags. *Mein Kampf* lies open at the page where Hitler attacks Jewish Vienna. Here is an exhibition of actual objects which are at the same time metaphors. Metaphors of a dream that became reality and a reality that no one envisaged, even in a dream. Hans Hollein

There is still time to go and see "Dream and Reality, Vienna, 1870-1930," because the show doesn't close until the sixth of October, and go one must, if one can. Never before have so many splendid artifacts of the period in cultural history that currently interests us most been assembled in one place. Rarely has an installation been so brilliant in its fundamental ordering, its juxtapositions and contexts—work directed by Dr. Robert Waissenberger, director of the Historical Museum of the City of Vienna, in collaboration with the architect Hans Hollein.

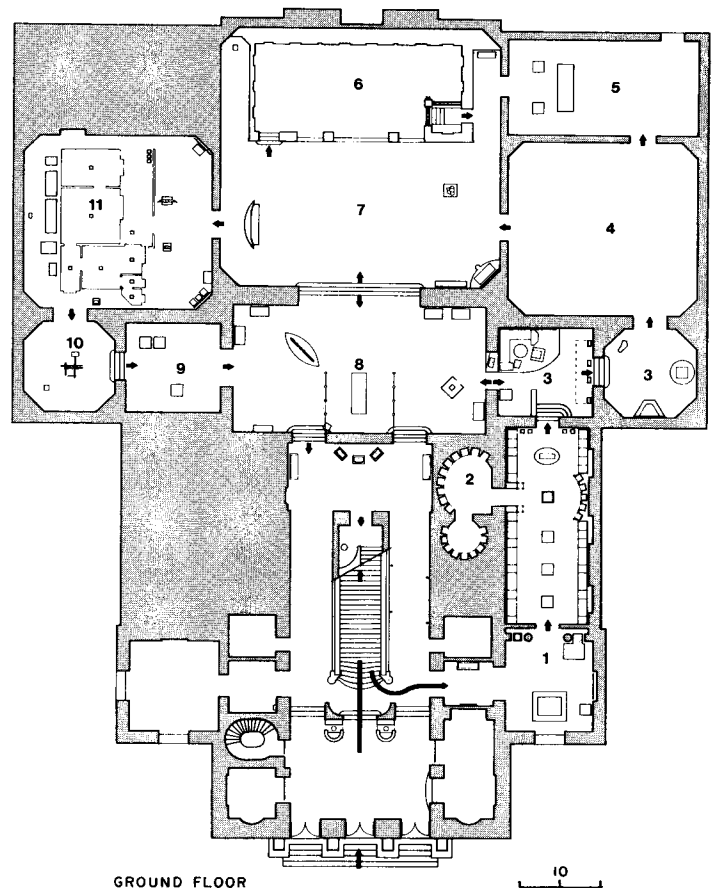
The emergent modernism of those 60 years is represented by objects of all kinds—memorabilia of the great psychoanalyst Sigmund Freud and intellectual innovators in music such as Mahler, Webern and Berg; personal artifacts of the philosopher Wittgenstein; drawings, models and photographs of architectural, engineering and city planning achievements, particularly those of Wagner, Hoffman and Loos; mementos of the theater of Max Reinhardt; approximately 600 exquisite creations of the Wiener Werkstätte and the wonderful paintings of Klimt, Schiele, Kokoschka and the rest.

Sponsored by the Historical Museum of the City of Vienna, the exhibit has been installed in the Künstlerhaus (facade on preceding page). This museum is a Beaux-Arts monument adorned for the occasion by a fiberglass version in the round of Klimt's no-longer extant painting *Medicine* (representing the dream) and a mock-up of a tower of the Karl Marx Hof social housing complex (representing reality). The wing of the building supporting the dream is painted gold. Reality's pedestal is gray. Linking the two is a brave illuminated sign in amusement-park roller-coaster style suggesting that the show, though intellectually demanding, may also turn out to be fun. It is. On arrival (facing page), the visitor is confronted as he climbs the main stair with some of the memorabilia of the silver wedding anniversary of the Emperor Franz Josef and his Empress Elizabeth in 1879. For the anniversary pageant, designed by painter Hans Makart, Vienna's leading citizens dressed in Renaissance costumes, preserved ever since as works of art and displayed at the right of the photo. Chandeliers of the period are clustered above the staircase and include the first ever designed and wired for electricity. Here and throughout the exhibit, original objects are used wherever possible. At the top of the stair is the entrance to the comprehensive Otto Wagner collection, one of the highlights of the exhibition.

In deciding whom to feature, Hollein and Waissenberger picked the gifted individuals who in their own time were independent of their past and, as early modernists, indifferent to history. Said Hollein: "The people we chose for the show were not necessarily in the establishment of their era. Most of them were in the underground or on their own special track, never lauded or even recognized. Freud, Schoenberg and Webern, for example, were not considered as important then as they are today. Once neglected, now they belong to Vienna." Food for thought. *Mildred F. Schmertz*



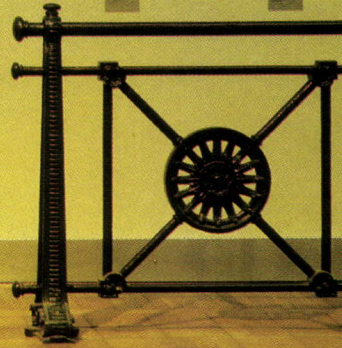
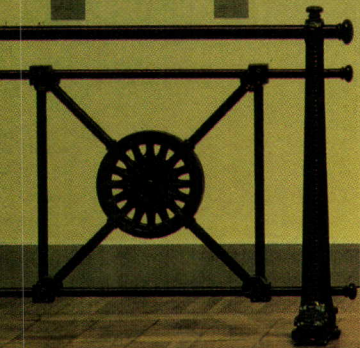
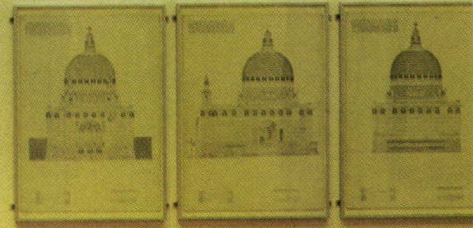
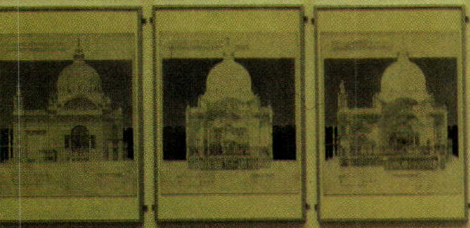
UPPER FLOOR

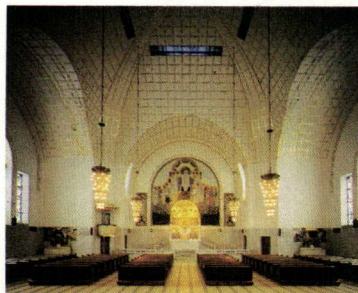


GROUND FLOOR

- | | |
|--------------------------------|----------------------------|
| 1. Josef Hoffman | 13. Social democracy |
| 2. Wiener Werkstätte | 14. Gustav Mahler |
| 3. Adolf Loos | 15. Karl Lueger |
| 4. Gustav Klimt | 16. Otto Wagner |
| 5. Schiele, Kokoschka, others | 17. Hans Makart |
| 6. Klimt's Beethoven frieze | 18. Vienna's literary life |
| 7. Gustav Klimt, Max Klinger | 19. Arnold Schoenberg |
| 8. World War I, Wittgenstein | 20. Sigmund Freud |
| 9. Alban Berg, Ernst Krenek | |
| 10. Theater Max Reinhardt | |
| 11. Red Vienna | |
| 12. Vienna and the Ringstrasse | |

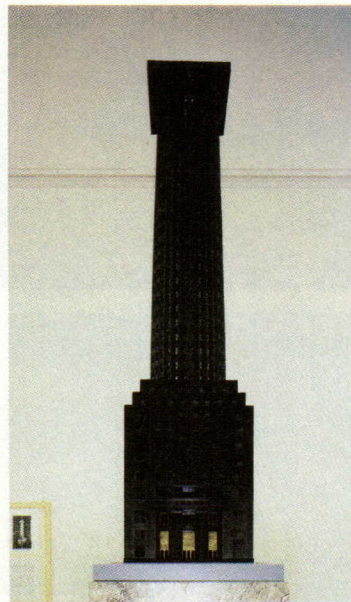






The Otto Wagner exhibit includes newly made scale models of his major completed works, depicting them exactly as built, shown in juxtaposition to the architect's original sketches and working drawings and current photos of their present condition. Actual ornaments borrowed from these works or similar surviving Wagner structures accent the displays. A model of the Church at Steinhof (1904-1907) has been combined with Wagner's sections and elevations of the church, portions of a railing

done by him for Vienna's elevated railway line, and a bronze medallion on loan from a Vienna bridge of his design (facing page). Newly photographed for the show is the church interior (above left) and the 1904-1906 Post Office Savings Bank (above right). A full-size reconstruction (top) of the entrance to a no-longer extant cable and telegram news bureau (one of the first aluminum structures ever built) has been executed completely in that material.

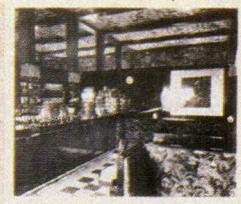


The entrance to the Adolf Loos exhibit (facing page) is a replication of the long vanished front of his Kärntner Bar (1909). Originally called the American Bar because it served stand-up customers, the old bar has long had seats. When "Dream and Reality" closes, the bar is due to get its old name back, along with the reconstructed facade, a gift of the Vienna Künstlerhaus to the present owners. Loos once asked himself, "Is it possible to build an

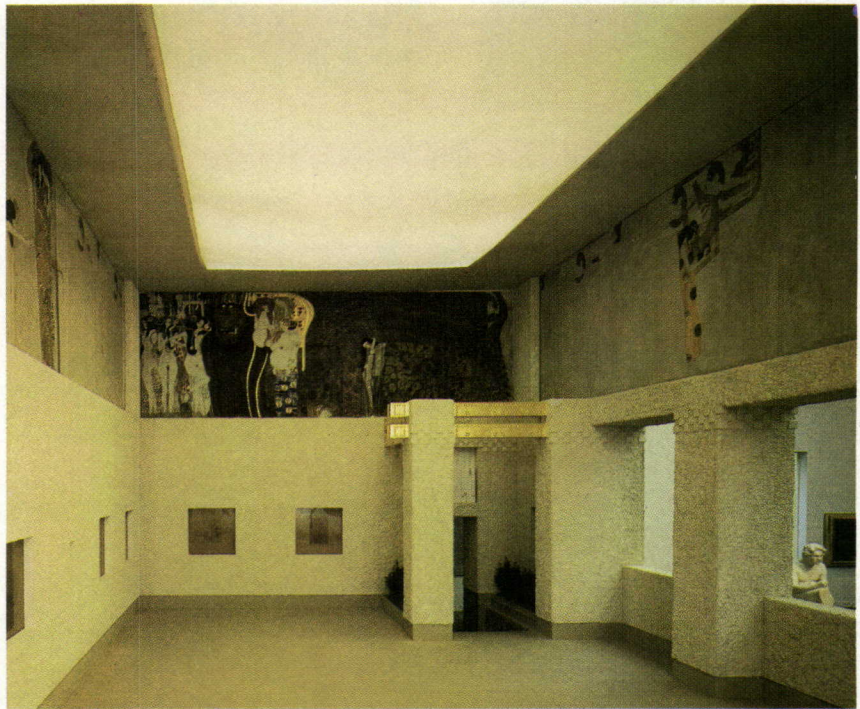
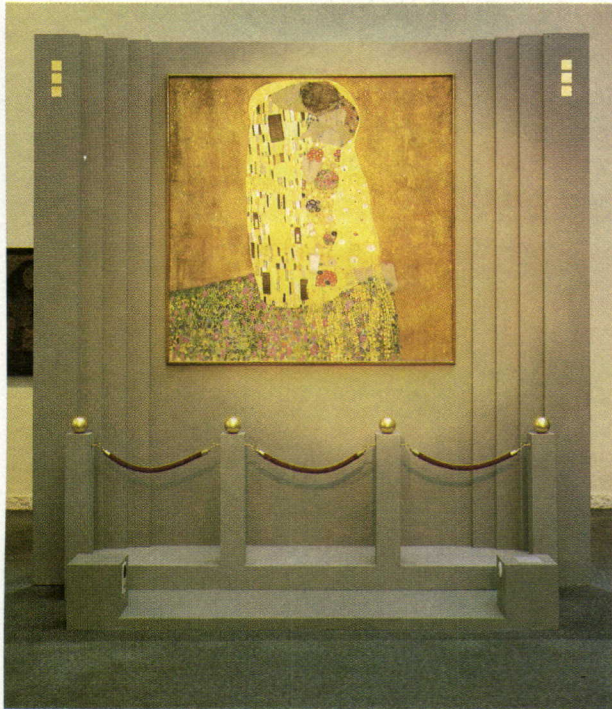
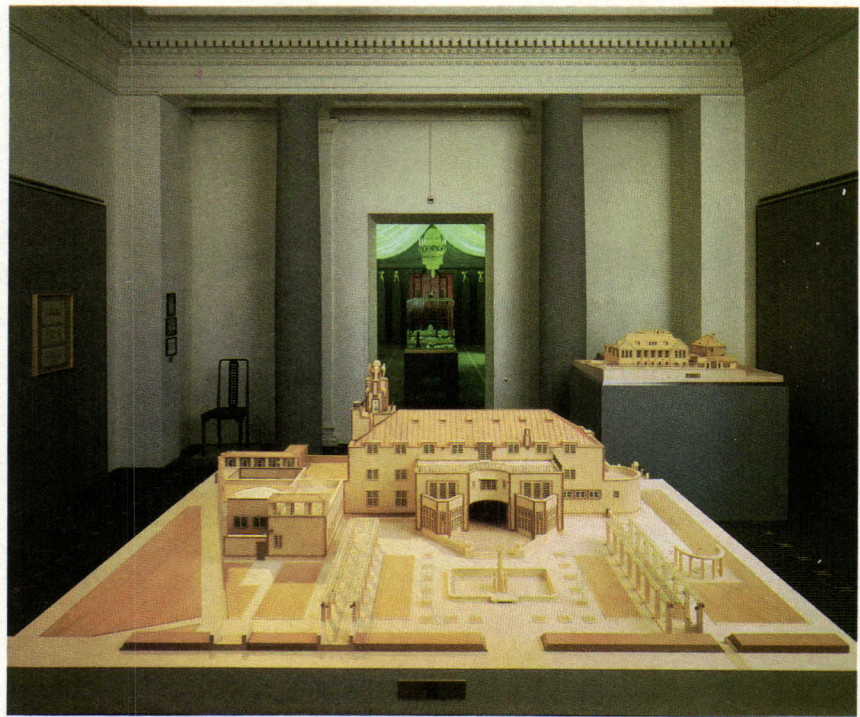
inhabited column?" He never found out, but a beautiful model of his Chicago Tribune Column (1922) was made for the exhibit (top and above right). The House on the Michaelerplatz (1909-1911) is also displayed in model form (left middle). A corner of Loos's Turnowsky living room (1901-1902) has been included (above left), along with sketches, working drawings, manuscripts and a portrait of Loos by Oskar Kokoschka.

American Bar

AMERICAN
BAR



The Josef Hoffman room (top right) includes some furniture and newly built models of Palais Stoclet (1906-1911) and the Villa Skywa-Primavesi (1913-1915). Gustav Klimt's *The Kiss* is a major focal point (middle left). His famous "Beethoven frieze" (1902) has been installed in a replica of its original setting designed by Josef Hoffman (middle right). Gustav Mahler's gallery (bottom right), painted opera-house red in honor of his role as a director of the Vienna Opera, has a full-sized copy of the great musician's Josef Hoffman-designed tomb, positioned at the end of the room's long axis. Sets, costumes, original scores and broadsides are displayed with a sculpture of his head by Rodin and a portrait by Schoenberg. The frieze, invented by Hollein, copies a series of silhouettes made of Mahler while conducting.





In the '20s, during an era when the city was known as "Red Vienna," the government built social housing in large quantities. The biggest and most famous, Karl Marx Hof designed by architect Karl Ehn, is still in use. In conjunction with the exhibition of plans and models of this housing, Hollein has added sculptures and posters of the period which signify the rising masses, a frieze made of this particular housing's arched gateway motif, and on the floor, outlined in carpet, a typical unit plan. The exhibition boasts the largest collection of Wiener Werkstätte objects ever put together (left and right middle). Displayed are superb examples of Jugendstil craft. In the room devoted to Freud (bottom) are original manuscripts and letters. The cynosure was to have been Freud's original couch and armchair, now in London, but negotiations to borrow them fell through. Hollein caused them to be reproduced in a tiny model, painted gold and perched on a pedestal.



An exhibition: "Dream and Reality"
Vienna, Austria

Sponsor:

Ministry of Education, Art and Sport and the Ministry of Science and Research

Concept:

Dr. Robert Waissenberger, Director of the Historical Museum of the City of Vienna; Dr. Sylvia Wurm, coordination and assistance

Management and organization:

Dr. Günter Dürriegl, Josef Schertler, Dr. Robert Waissenberger

Presentation and design:

Hans Hollein, Architect; collaborators/Studio Hollein: Franz Madl, Klaus Matauschek, Erich Pedevilla, Rainer Pirker, Christopher Elmecker, Kurt Hanzlik, Walter Kirpitsenko, Zyneti Semra Ondes, Shinichi Eto, Günther Harrer, Helene Hollein, Madeleine Jenewein, Noboru Kimura, Dorit Pachler, August Sarnitz



Lobby for a landmark

Ohio Theatre Expansion
and Arts Pavilion
Columbus, Ohio
Hardy Holzman Pfeiffer Associates,
Architects



Cervin Robinson photos

Although we are nominally saving more landmarks than ever before, too often what gets preserved is but the vestige of a landmark, its facade perhaps, and maybe the lobby. More than likely, if other interiors remain, they are completely transformed to serve a more immediately profitable function, or demolished to be replaced by high-rise buildings, hotels, or apartments. Once in a while, however, a landmark is saved intact, as a building that continues to serve its original purpose. The Ohio Theatre for an example. In the last several years craftsmen, skilled at restoration, have been slowly and painstakingly bringing its magnificent interior back to the glory days. The recently completed new construction by Hardy Holzman Pfeiffer Associates was conceived primarily as an adjunct to make the building work better in today's entertainment world.

It all began back in 1969 when a group of Columbus citizens led by civic leader Mary Bishop banded together to save their beloved theater. A first-run, 2,897-seat movie palace, it had served the Columbus community for 41 years. A new state office building had been proposed for its valuable downtown site, but in response to pressure from The Columbus Association for the Performing Arts (the name that the art and architecture buffs gave themselves), a site across the square was selected instead. During the next ten years the theater's rescuers undertook various programs: the interior and exterior were cleaned; restoration of the auditorium by Rambusch (the firm that did the original decorating) was initiated; new performing arts programs to supplement film showings were launched. The structure, one of movie palace architect Thomas W. Lamb's most spectacular and unusual, was added to the National Register of Historic Places, designated a National Historic Landmark, and named State Theatre of Ohio. Architect Malcolm Holzman points out that although through hindsight these activities may seem like an orderly series of events, "in fact they occurred more like the *Perils of Pauline*."

The Ohio Theatre shares its square with the State Capitol, an important Classic Revival structure, constructed in 1860 after designs made 22 years earlier by the great landscape painter Thomas Cole. By the 1970s the square and its environs were changing. Parking lots had begun to replace economically obsolete structures, the new 40-story state office building was in place, retail, commercial, and residential uses were in flux. To assist in the orderly redevelopment of this area, a

not-for-profit public benefit organization, Capitol South Community Urban Redevelopment Corporation, was founded in 1974. A number of elements have been constructed, including a two-building, 26-story hotel/office complex directly adjacent to the Ohio Theatre.

In 1978, CAPA decided to modify and add to the Ohio Theatre to make it comparable to the best facilities in America. Grand as it was, it did not function efficiently. The stage and fly tower required enlargement for the Columbus Symphony and full chorus to perform. The original pit could accommodate only 30 musicians. The lobby was too small and backstage facilities inadequate.

Adjoining the Ohio Theatre had been one even older, the Grand, used for vaudeville. To allow for the new building functions, CAPA sold all but 30 feet of their Grand Theater property to Capitol South and secured the right to use a segment of a street to the rear of the stagehouse. As part of the agreement, a public walkway was to be constructed adjacent to the theater to provide access to future retail development. This produced a developable parcel above grade which surrounded the existing building in an L-shape at most only 30 feet wide. The challenge presented by CAPA to HHPA was to make an addition to the Ohio Theatre that would be complimentary to the National Historic Landmark and the adjacent hotel/office complex, while serving as a gateway to future major retail development. The new extension was to be good architecture in its own right of course, long and narrow though it had to be.

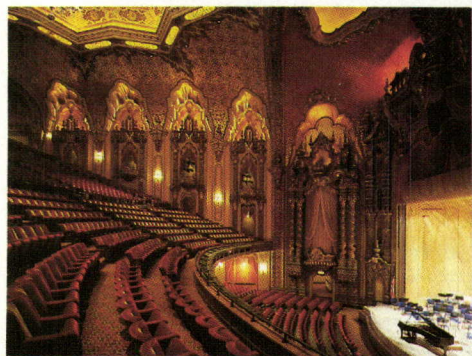
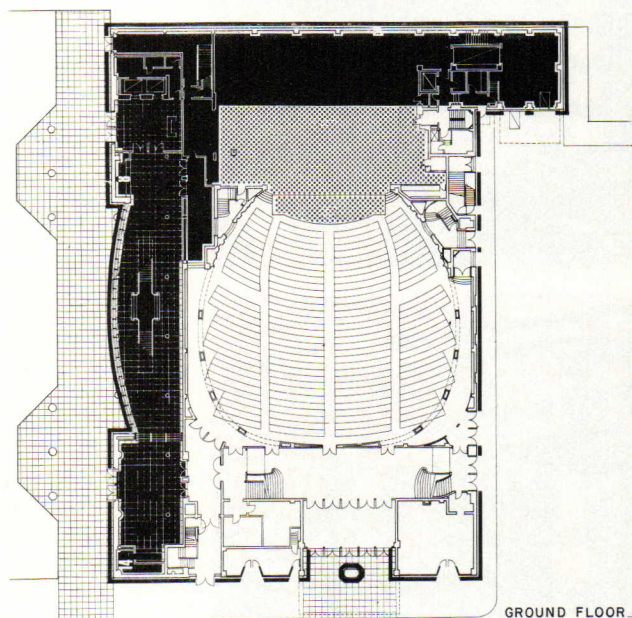
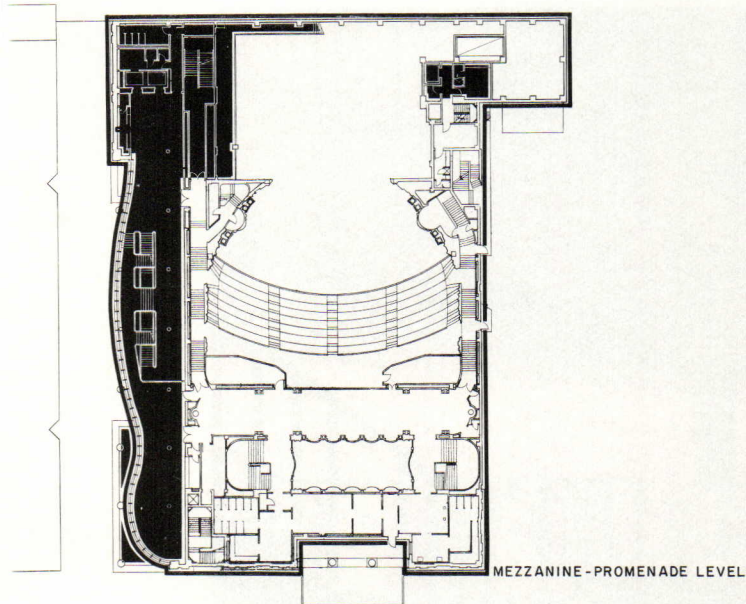
As can be seen from the square it faces (photos top and facing page), the mandated pedestrian route designed by HHPA is a splendid galleria as high as the Ohio Theatre itself. The facade of the lobby, known as the Galbreath Pavilion, has been designed to not quite match the classically ordered facade of Lamb's building. Cornices and moldings line up and, like the pilasters, share the proportions and rhythms of the old. The pilasters are of brick, however, not tile, and what looks like dentillation consists of bricks laid diagonally to expose their corners.

The narrow flat brick wall designed by HHPA to separate their work from that of Lamb conceals a fire stair. Delicately etched in contrasting brick are vestigial windows, an elegant device that subtly unites the two facades. Not so delicate is the great curved glass window, a bold architectural gesture that announces and reveals the new life within.

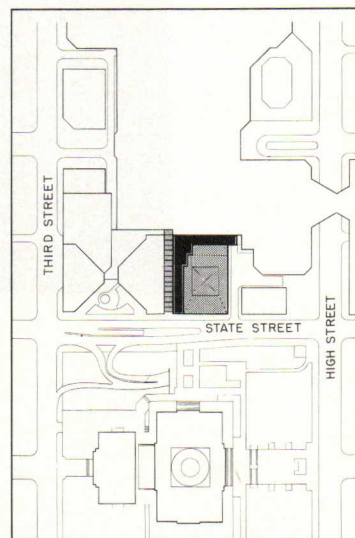
Mildred F. Schmertz



The curvilinear wall (photos below and facing page) may first be perceived as a friendly gesture toward the Classic Revival drum of the State Capitol directly across the street from the theater. At night, the brightly lit lobby turns the undulating glass wall into a second marquee. The principal entrance to the theater is marked by the original marquee, restored to its original sinuous elegance. Patrons may also

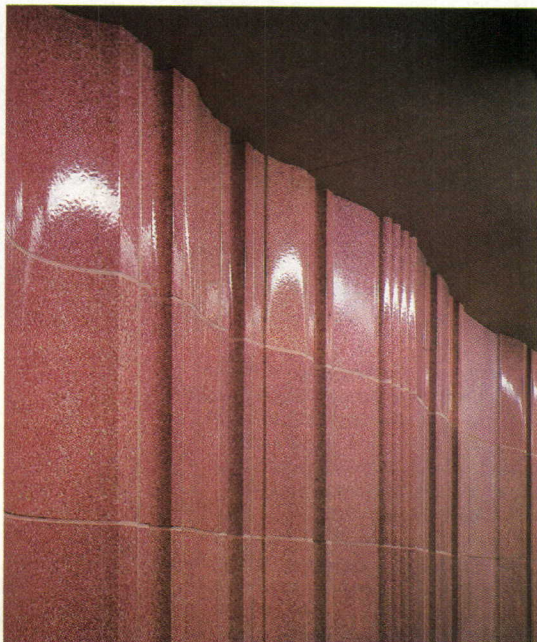


enter and exit through doorways at opposite ends of the new lobby (photo bottom right), the function of which is to provide the performing arts audience with the kind of between-acts space for promenading, smoking and stretching that moviegoers don't require. HHPA's additions to the theater are indicated in black on the ground floor and mezzanine levels and include almost doubling the depth of the stage, increasing it to more than 60 feet to accommodate scenery, rigging, and lights essential to large-scale productions. They also provided rehearsal rooms in the lower level of the new lobby and two floors of offices above it. The theater interior is under restoration by Rambusch, its original decorator. HHPA has made various technical installations within the old hall and a steel-and-wood orchestra shell designed by acoustician Peter George has been installed.



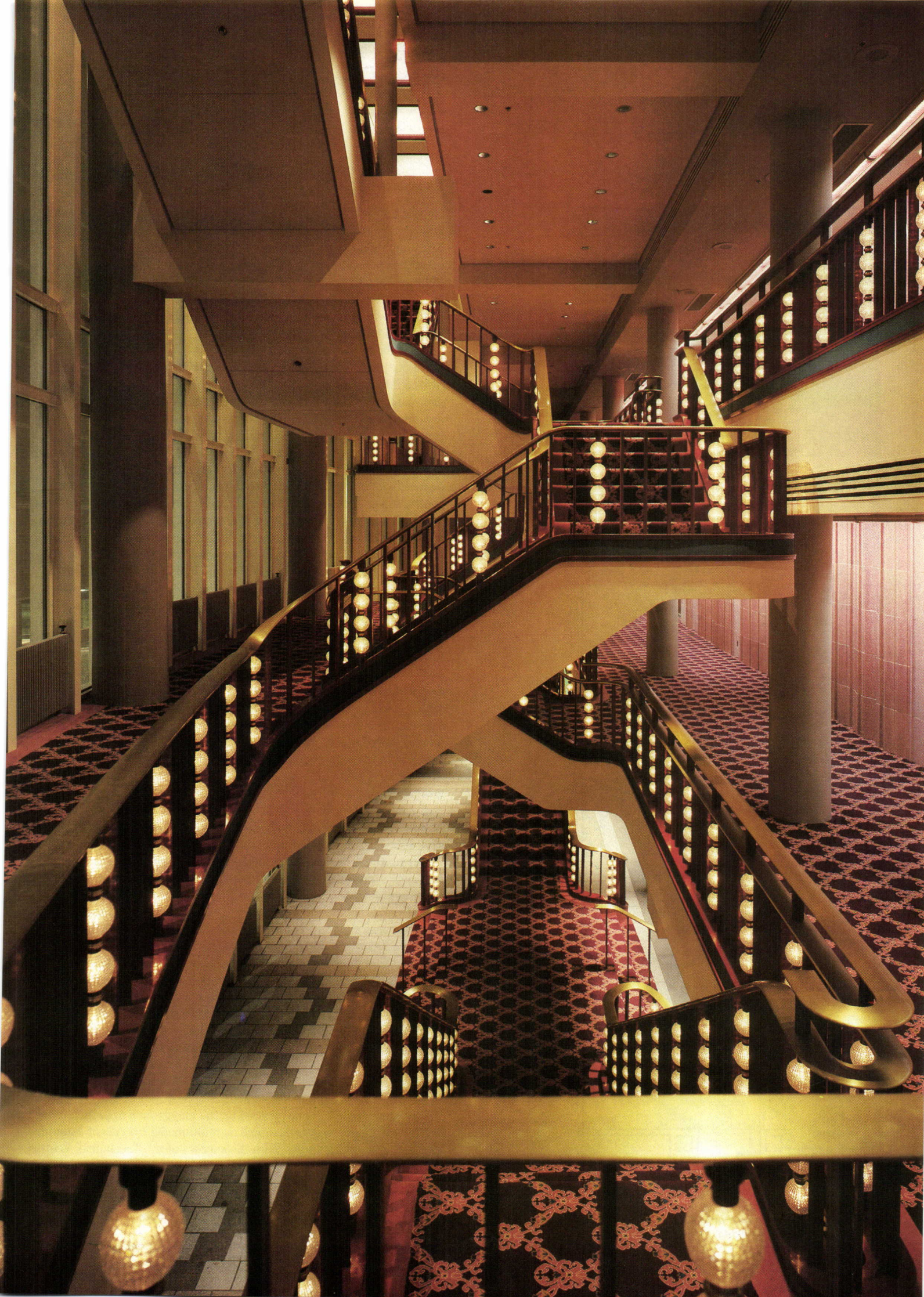
Because HHPA so admired the flamboyant interiors of architect Thomas W. Lamb's 1928 movie palace, they felt compelled to live up to it. "Doing a lobby for a theater instead of the theater itself was an unusual problem for us," admits Malcolm Holzman. "We asked ourselves how we could make architecture out of something so tiny attached to something so glorious, and ended up being inspired to do

our most ornate and decorative interior so far. We never made a handrail that lit up before, but neither, come to think of it, did Lamb." The carpet pattern and color is derived from the original carpet in Lamb's interior but considerably modified in scale. Plum-color terra cotta cornice moldings used vertically sheathe each level of the lobby wall.



Ohio Theatre Expansion and Arts Pavilion
Columbus, Ohio
Architects:
Hardy Holzman Pfeiffer Associates—Malcolm Holzman, partner-in-charge; Victor H. Gong, administrative partner; Don Lasker, project manager; Stewart Jones, project architect
Associated architects:
Phillip Markwood Architects, Inc.

Engineers:
Stanley Goldstein (structural); ESD Engineering Systems Design, Inc. (electrical/mechanical); Jules Fisher-Paul Marantz Associates (lighting); Peter George Associates (acoustical/audio); Dunbar GeoTechnical Engineers (geotechnical)
General contractor:
Galbreath/Turner Construction Company



George D. Widener
 Memorial Treehouse
 for the Children's Zoo
 Philadelphia, Pennsylvania
 Venturi, Rauch and Scott Brown, Architects

Learning from mother nature

Matt Wargo photos except as noted



By Deborah K. Dietsch

Imparting the thrill of the wild to streetwise kids is a tough task for any city zoo. At the George D. Widener Memorial Treehouse in the Philadelphia Zoo, it is achieved by forgoing the usual voyeuristic exhibition of exotic animals in their native habitats. Instead, the firm of Venturi, Rauch and Scott Brown has transformed a Victorian Gothic animal house into a walk-in diorama that teaches the lessons of natural history to children through all the senses, including a wry and witty, Alice in Wonderland sense of fantasy.

"Originally, the zoo wanted to construct a Butler-type building with a black-box, Disney-like exhibit inside," explains associate-in-charge, Steven Izenour. Luckily, Dr. Mary Scott Cebul, an animal behaviorist and planner with the zoo, had the foresight to search for a more imaginative solution. Her plan was to attract visitors to the zoo year-round by means of an educational indoor exhibit that would allow children to physically interact with the wonders of nature at their own scale. For Venturi, Rauch and Scott Brown, this idea presented the chance to elaborate their favorite theme of complexity and contradiction. Since interaction with live animals was out of the question for the young audience who would be visiting this part of the zoo, the firm decided to create a "natural" environment with artificial means. The resulting exhibition design happily coexists with the strong architectural character of an existing zoo building, while opposing it through the playful distortion of scale and illusion of the outdoors.

The site chosen for the Treehouse, adjacent to the Children's Zoo, was originally constructed as the "Winter House for Deer" in the mid-1870s by architect George W. Hewitt, the first partner of Frank Furness who designed the zoo's gatehouses. In renovating its stick-style exterior, the architects minimally intervened, replacing a demolished gable at its west end and altered front porch (photo top left) with modest new additions. Inside, the building's vaulted nave and side chapels, once divided into animal pens (giraffes in the lofty transepts), were repaired, painted and limned with light as a Carpenter Gothic stageset to the exhibition. Gothic-inspired, too, is the way in which the architectural firm collaborated with the exhibit designers, a team of local sculptors, painters, sound and lighting experts, inventors, and craftsmen. "As far as the level of commitment, time, and artistry, this project was like building the National Cathedral or St. John the Divine," says Izenour. "There's nothing in here that is off-the-shelf."

During the four years of project design and construction, dozens of maquettes and working models were manipulated in place of traditional drawings and documents to devise 275 objects that compose the whimsical and sometimes surrealistic juxtapositions of flora and fauna (photo opposite). Hundreds of materials were tested to withstand handling by anticipated crowds, from flexible plastics for caterpillar antennae and mud puddles to fiberglass-simulated tree bark and animal hides. The sequence of the installation, reflecting basic themes of animal evolution and life cycles, defers to the vaulted sections and cruciform plan of the interior: aerial creatures such as bees and butterflies fly amid the high transepts, while their earthbound counterparts such as fish and frogs are confined to the lower nave. The make-believe atmosphere of each environment is sustained by wall murals, stenciled scrims, theatrical lighting effects, slide show "view-ins," smells, and recorded sounds appropriate to each habitat. Visitor participation is encouraged by the playground approach to the exhibit with most objects designed as multi-media hybrids of sculpture, architecture and furniture. With the success of the Treehouse, Venturi, Rauch and Scott Brown were chosen to design another zoo structure for which the firm has adopted a decidedly different approach. The new primate center, to be completed next spring, will serve as a subdued "background" pavilion to the live antics of real apes.

Deborah K. Dietsch is a free-lance writer based in New York City.

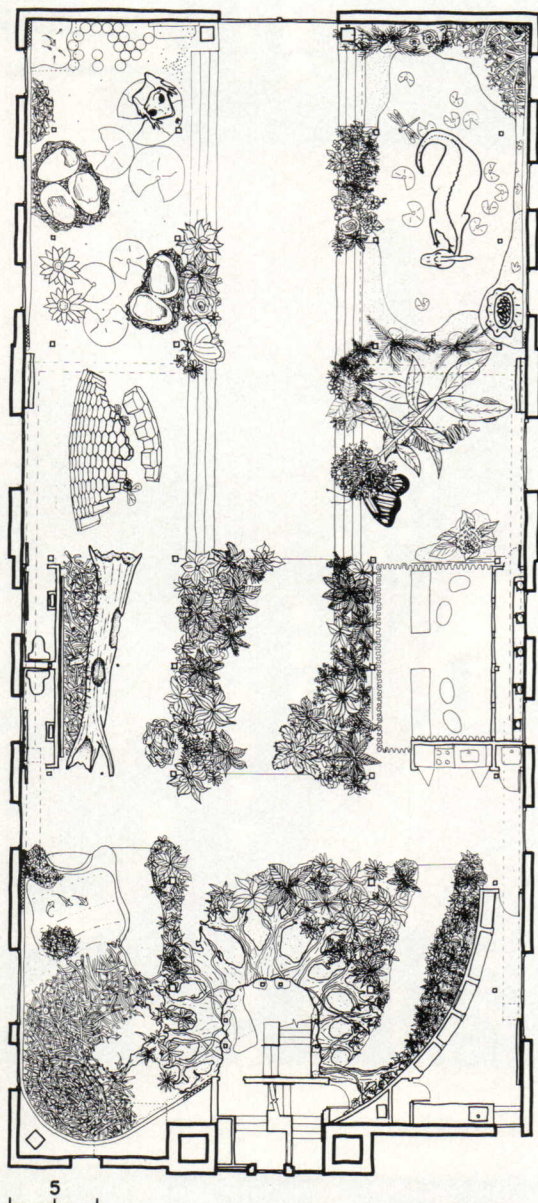


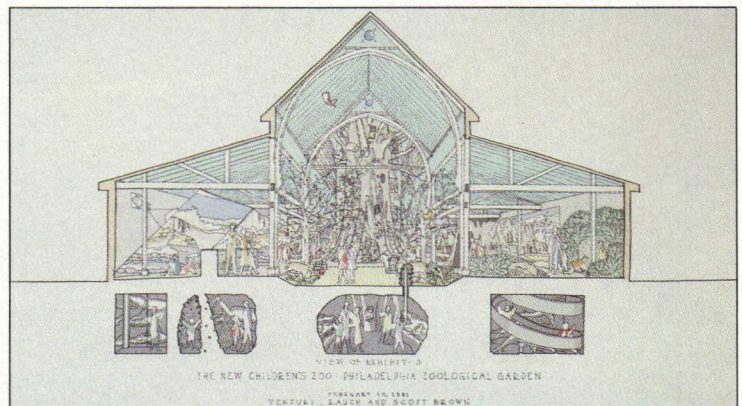
Exhibit is organized with swamp and everglade (top right and left of plan) nearest entrance, garden and support areas in center, beaver pond (bottom left) and rain forest at west end.



Tom Crane

View from the entrance to the Treehouse (photo and section below) reveals ribbed wood vaults and bays of Hewitt-designed Carpenter Gothic interior, accented by Tivoli lamps and contrasting green paint colors. Sequence of exhibits is organized to complement interior spaces with butterfly, bee and honeycomb (photo below) positioned in higher vaults and ground-level animal activities placed in more intimate spaces

(sections below). Within each environment, representations of animals and plants are over- or underscaled in order to convey a view of the world from nature itself. The flower blossom (right photo opposite page) and swinging butterfly cocoons (photo previous page), for example, can be occupied to gain an insect's perspective. Embedded throughout the various environments are "view-ins," slide



shows activated by inserting a "magic" magnetic ring, that further illustrate the life cycles of each species. The Treehouse derives its name from the expansive rain forest ficus that terminates the central circulation axis in the reconstructed west tower (photo and section below). Under the direction of sculptor Fred Kreitchet, the tree was built by draping muslin over the curved stairwell at its center, covering the

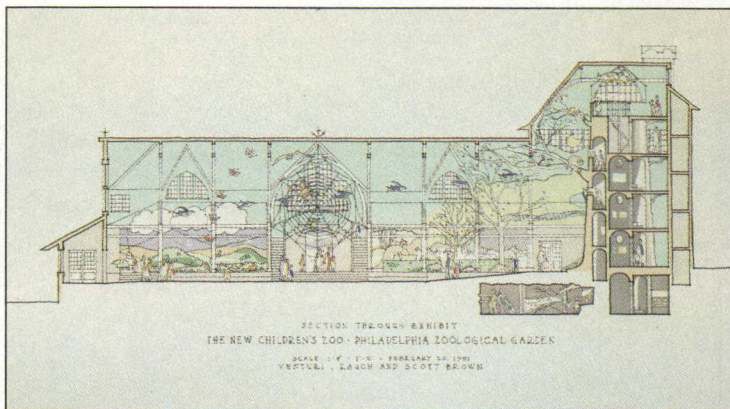
fabric with urethane foam, carving the resulting form and consolidating its surface with fiberglass resin. Similarly, the bee and honeycomb were created from fiberglass to teach children the lessons of social behavior (photo below right). "Building this honeycomb proves Bucky Fuller was right," notes Izenour in describing how its structure was cantilevered to achieve a seemingly weightless effect.



Tom Crane



Tom Crane



In the side chapels nearest the entrance, the drama of life and death unfolds in *The Florida Everglades* and *Cretaceous swamp*. Giant nest with eggs allows children to experience bird birth (photo below) in *The Everglades*, a habitat convincingly captured in painter Dennis Aufery's wall mural. Across the way, a friendly, fiberglass *hedrosaurus parasaurolophus* forms the focus of an environment that

depicts how the *New Jersey Pine Barrens* might have looked millions of years ago (photo opposite page). Artist Louisa McElwain's mural (bottom of page) is based on research revealing that dinosaur hides might have been brightly colored. Overhead, backlit muslin scrim with foliage motifs extend the prehistoric illusion.



George. D. Widener
Memorial Treehouse
for the Children's Zoo
Philadelphia, Pennsylvania

Owner:
Philadelphia Zoo

Architects:
Venturi, Rauch and Scott Brown—
Steven Izenour, associate-in-charge;
Christine Matheu, Dan McCoubrey,
Lou Rodolico, Frances Hundt,
Louisa McElwain, project architects

Engineers:
Keast & Hood, Inc. (structural);
Basil Greene, Murray Margolies
(mechanical); Abraham Katz
(electrical)

Exhibit design:
Dr. Mary Scott Cebul (concept); Fred
Kreitchet (sculpture); Dennis
Aufiery, Louisa McElwain, Glenda
Rovelo, Giovanni Casadei (painting);
Christopher Speeth (audio); George
Burkhart, Joe, Rick and Lou

Rodolico, John Woodman
(mechanical effects); George
Izenour (lighting)
General contractor:
Domus Enterprises, Inc.





Denver distilled

Tabor Center
Denver, Colorado

© Douglas Kahn, courtesy Anthony Pellecchia Associates

If the shade of Horace A. W. Tabor—early Denver miner, speculator, man-about-town—lingers near the site of the six-story skyscraper (its first) he presented to the city before going bust in the Silver Panic of '93, it is pointing with pride. For the 1880s Tabor Block has been resurrected as the 1980s Tabor Center, whose lively galleria, decorous park-front hotel, and the first of a planned pair of office towers—all rising from a 1,900-car underground garage burrowed through a cross-street *cum* bridge—comprise a complex so rooted and right in its reification of the city that the sleek but anonymous new buildings in its cohort seem to fade to the transitory artifice of a stage backdrop.

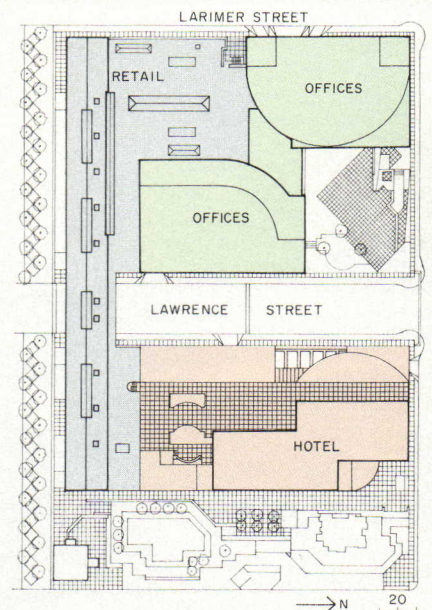
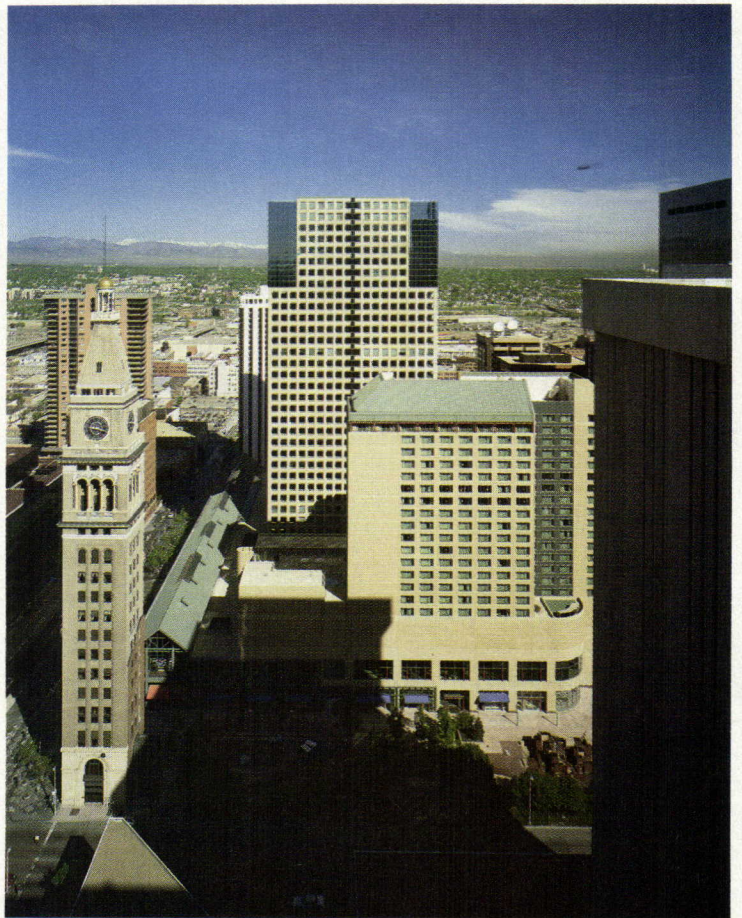
The effect is serendipitous but not fortuitous. Even as the firm began site studies and schematics for the project, the Urban Design Group, led by principal John Novack, was attuned to its pivotal importance as a capstone to development in the business district and a bridge to the fast-gentrifying “lower downtown” precinct of no-nonsense 19th-century brick warehouses. The last parcel in the Denver Skyline Urban Renewal Project, born in the early '70s, and heir to its previous successes, the two-block site lies between the spirited 16th Street pedestrian mall and skyscraper-packed 17th Street, Denver’s “Wall Street.” On the block to the east the water play, greenery, and mini-plazas of Skyline Park animate the 21-story D & F Tower, a landmark ode to the campanile of St. Mark’s that is the last remnant of a circa-1910 department-store and was until the 1960s Denver’s tallest building.

With these givens, the master plan was virtually self-evident. Where but the mall for the retail galleria? The park setting for the hotel? Or the *de rigueur* 17th Street address for offices? And the massing similarly fell into place: the galleria long and low, the 19-story hotel merging with the heights of its near neighbors, the taller office towers edging 17th Street to preserve the mountain outlook of lower elements while punctuating the downtown skyline with an emphatic full stop.

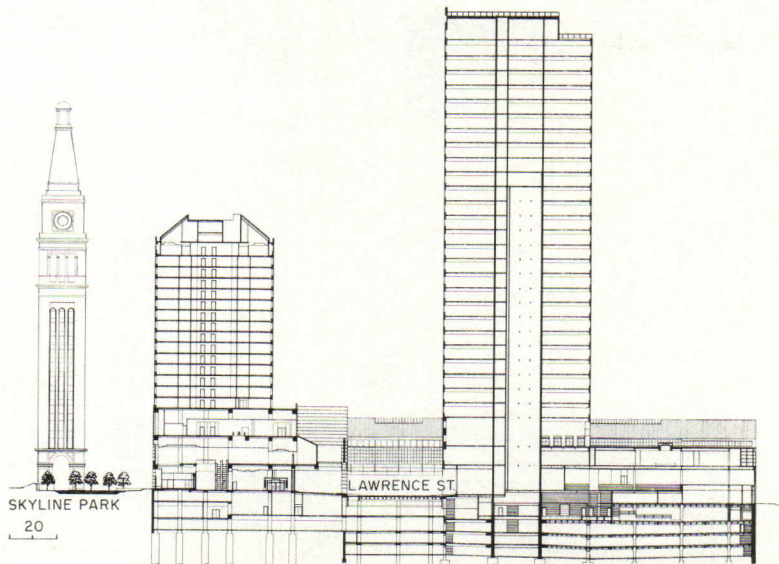
But the planners were aware too that the project’s impact would derive not only from its critical location but from its magnitude—at \$360 million and 1.8 million square feet the largest building package undertaken in the city. Rendered as an architectural solo, Novack believed, the composition would lack resonance and color. So at UDG’s urging Kohn Pedersen Fox, as design architects for the project’s office component, added to the ensemble a strong antiphonal voice.

Unmoved by the placeless profiles and ink-wash palette of the modern milieu, the design team instead sought its contextual cues in an earlier Denver with a stable, if eclectic, tradition of masonry building. And they were sunstruck from the outset by the combination of imperious sun and lucent atmosphere that etches the city with relentless clarity. Of the lessons gleaned from Old Denver, the play of sun on surface—the light-gulping softness of sandstone, the sheen of terra cotta, the glow of metal—was the paramount inspiration for the elegant rhetoric of materials that is Tabor Center’s residing genius.

Direct allusions are few, although the weathered buff brick and creamy terra cotta of the D & F Tower are echoed in the quiet warmth of the hotel and office structures’ masonry facades, while the crisp cast-iron storefronts at the base of the famed Brown Palace hotel suggested the forthright exposed-steel vernacular of the glazed market shed that houses the shopping arcade and the similarly detailed entries to hotel and office lobbies. More important, the complex is fashioned of prosaic materials—brick, concrete, metal, glass—transformed by the virtuoso handling of their juxtapositions and by the designers’ sensitivity to the city scene. At pedestrian level the buildings are consistently transparent—a latticed web of vision glass framed in glare-avoiding painted metal and shielded at the bases of the hotel and office towers by sturdy rusticated concrete piers. As the shafts rise, the lattice and piers solidify to punched masonry. On the office towers, where it bounds curving reflective-glass curtain walls, the masonry retreats as it approaches the uppermost levels, finally dissolving to shimmering all-glass crowns for the Queen City’s skyline. *Margaret Gaskie*







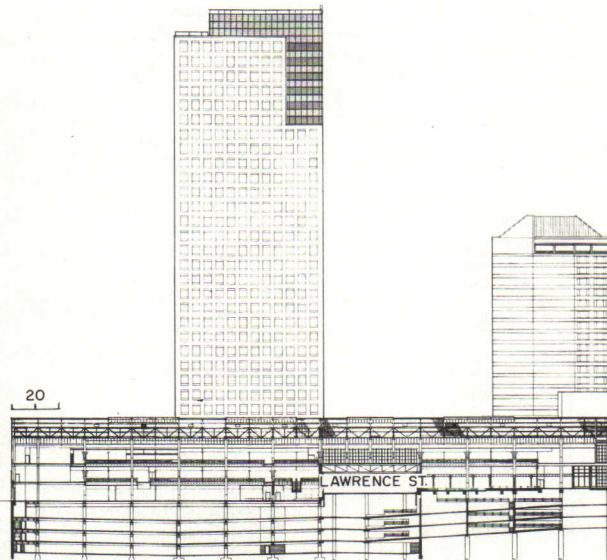
Although the Westin Hotel at Tabor Center was conceived as a top-of-the-line businessman's hotel with a full complement of meeting facilities, the client also urged an inviting residential image and a scale in keeping with the urban bonus of the strip park at its front door—desiderata made more problematic by a program calling for 430 rooms plus 17,000 square feet of public space on a 1 1/2-acre site.

To accommodate it, the 16 upper room-floors were massed in a compact shaft rising from a low three-level podium that consolidates the public areas and ties the hotel to the retail galleria with a parkside restaurant cluster extending through its base. The registration lobby, lounges, and hotel restaurants are on the second level above a small entrance lobby; function rooms, including an auditorium expressed on the rear facade as a shallow arc, are concentrated on the third level. Although the formal entrance is from a plaza abutting the park, most guests arrive via a rear porte cochère (photo opposite). Masked by a continuation of the sturdy mock arcade that marches along the hotel base, the auto entrance is nonetheless clearly announced by a surmounting exposed-steel frame of paired columns and beams painted Pompeian red (below left).

A similar but more self-effacing construct marks the front entry (above left), but the park facade's most magnanimous gesture is a row of blue-canopied restaurant fronts walled by glazed overhead doors that convert them to sidewalk cafés.

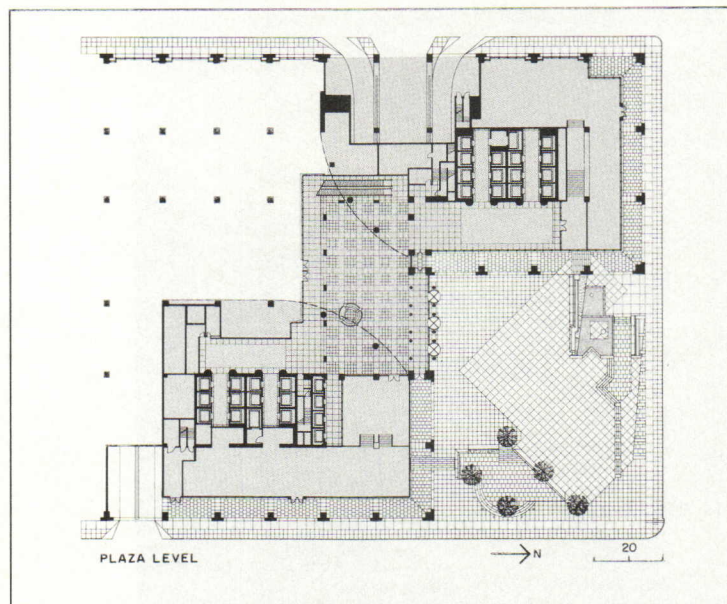
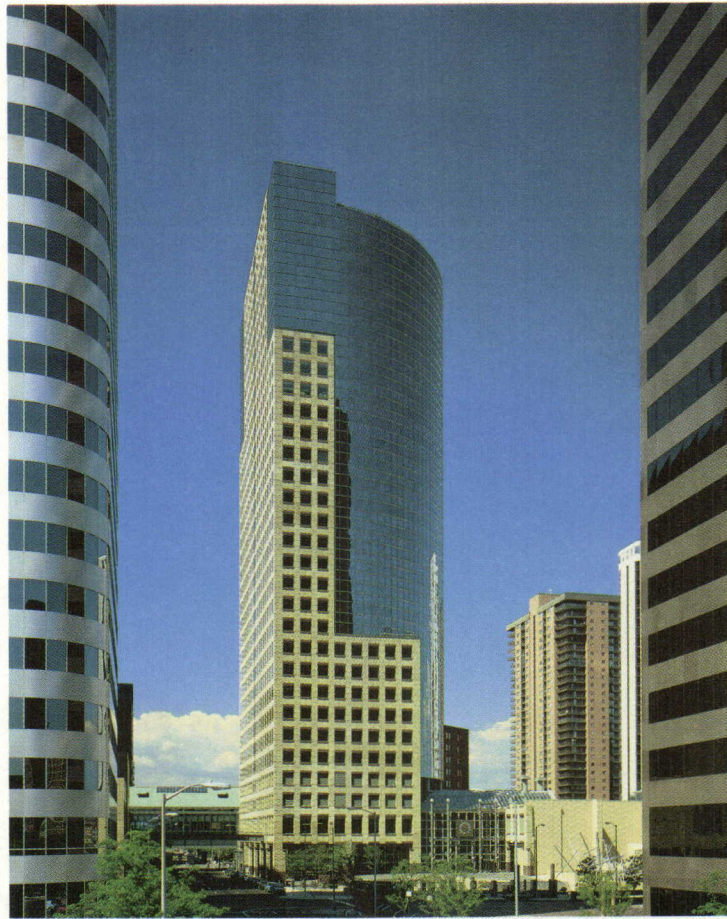
The two lower levels of the hotel podium are clad in buff concrete scored to resemble stone, while the third level, like the shaft above, is of the same buff brick used for the D & F Tower. Above and below the punched windows, precast concrete bands ribbon the facade, recalling the landmark's trim and disguising the joints of the preformed panels that brought brick within the tight budget. The shaft is further articulated by deep reveals whose shading visually re proportions over-wide room windows. The difficult massing of the slip-core tower is resolved by accenting its discontinuities with offsets signaled by green-glazed curtain walls and abrupt roof cutoffs.

To most Denverites Tabor Center means neither the office tower nor the hotel but *The Shops*. Since opening a year ago, the retail pavilion has proved itself an irresistible downtown magnet, as evidenced by sales almost triple those projected as well as by daily throngs of shoppers and lookers. Set at the end of the pedestrian mall traversing the downtown shopping corridor and directly opposite *Writer's Square* (photo below left), the shop-lined plaza that foreshadowed it, the galleria is poised to forge a link with the shops and cafés, professional offices, and even apartments that are rapidly rejuvenating the historic warehouse district to the west. To keep its scale and demeanor appropriately modest and reinforce its transitional role, the pavilion was conceived as an "open market" with traditional high-pitched roof and bold steel skeleton. Though the 120,000-square-foot shed spans two city blocks, a drop in grade bisects it into two- and three-story segments, with a natural break at the through street (see section). Thus while the roof line is held by a continuous latticed grid above a narrow sign band, the expanse of the lower facade is livened by the varying heights of shed roofs and bright awnings over entries and projecting kiosks. To introduce natural light and render the marketplace invitingly permeable to view, UDG turned to an atypical single-loaded corridor scheme that places shops on only one side of the public circulation areas, allowing the use of a fully-glazed outer curtain wall that integrates the galleria with the mall, lends it a rare sense of outward orientation, and, augmented by skylights, floods the spaces with daylight. Although the arcade abounds with the standard kit of potted trees, fountains, sparkle lights, streamers, and the inevitable clock and "feature elevator," its insistent festivity is the more convincing for being played against the candid clarity of the bared-steel enclosure and the muted background of white, mauve, and earth tones that spice the curtain wall's sage-green frame. The sum is a lively, light-filled marketplace happily combining human scale, vitality, and sheer fun with expansive space and robust form.









Project designer Anthony Pellecchia (since lured from KPF to his own Denver practice) likens architecture to fashion: A garment's structure, he notes, is fixed; but choice of fabric, knowing manipulation of the intrinsic form, and adroit detailing can transmute clothing to couture. The design base of the Tabor Center office towers was similarly fixed: 1.7 million square feet in two elements on a half-block plot where siting options were curtailed by the abutting galleria, preset curb breaks for garage access, and a low FAR to preserve open space.

Accordingly, the towers were pulled tight to opposite corners of the site, embracing a pier-edged, arcade-lined plaza. With optimal floor plates, however, the 32- and 40-story towers so placed confronted one another at an uncomfortably close 50 feet. So the facing facades were carved away to a quadrant arc on the first and lower tower, while the opposing tower (which will replace the temporary structures at lower right in photos), modulates from a like bow to a crowning semicircle. The outer facades of buff architectural concrete, appearing in its high-rise debut, are rusticated to "stone" by the form joints. Eroding as they rise, the walls gradually give way to the inner faces' reflective glass until the bullnose-threaded green curtain wholly enfolds the topmost floors.

The towers are joined by, and wall, a glass-roofed interior court (photos overleaf) that opens to the individual tower lobbies and elevator vestibules and links with the galleria. The court is introduced by an exposed-steel portal (lower photo overleaf) that carries a second-level tower-to-tower bridge and provides a "mantel" for a clock set between lamppost columns. At the base of the towers, an arcade fronting a reprise of the galleria's lattice enlivens a pedestrian level further embellished by "wainscots" and "kickplates" of polished red granite. The contrast with the light-absorbing suede-textured concrete continues upward in granite window heads and sills pinned with bright stainless-steel rosettes—a play of reflectances heightened by the shimmer of water-green-tinted window glass, the mirror brilliance of the curtain wall, and on the principal facades a mass-breaking "zipper" of vision glass.

Tabor Center
Denver, Colorado

Owner:

Williams Realty Developments, Inc.

Operators:

The Tabor Group, Ltd. (office towers);

Rouse-Tabor Center, Inc. (retail);

Westin Hotel Company (hotel);

Edison Parking (garage)

Architects:

Urban Design Group—John M. Novack, principal-in-charge; Raymond Kahl, David Short, master planners; James E. Wrzesien, Tim Keyes, project managers; Raymond Kahl, Donald Buenger, Tom Brauer, Scott Kirk (retail); David Short, Thomas I. Gandee, Howard Kaplan (hotel); Jack Lakey, Robert Setterburg, Michael Collins (parking); Kay Long, Rick Lawrence (Lawrence Street bridge); David Van Wormer, Ron Armstrong, Tom Brauer (project-wide construction services); Thomas Beckenbaugh (project-wide specifications); Kent Utsurogi (interior landscaping) Kohn Pedersen Fox Associates (office tower design/partial construction documents)—A. Eugene Kohn, partner-in-charge; Anthony Pellecchia, project designer; Lee A. Polisano, senior designer/project manager; Christopher Keeny, designer

RNL, Inc. (office tower architects-of-record/construction documents)—John Rogers, principal; Bruce Gerwig, project architect; Phil Goeddert

Engineers:

Tabor Engineers (structural); F + K Group (mechanical/electrical);

KKBNA, Inc. (civil)

Consultants:

Hirsch/Bednar & Associates (hotel interiors);

Communication Arts (retail interiors/graphics);

Glenn Monigle & Associates (project-wide graphics);

Lyle F. Yerges (acoustics);

Silverman & Light (lighting);

Carl Walker & Associates (parking);

Travers Associates (traffic);

Rolf-Jensen & Associates (life safety);

Gordon H. Smith Corp. (office tower curtain wall);

Stetson Dale Associates (office window washing)

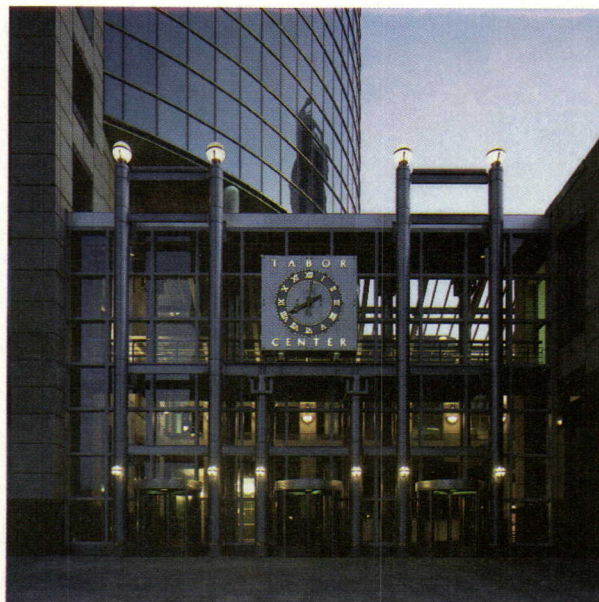
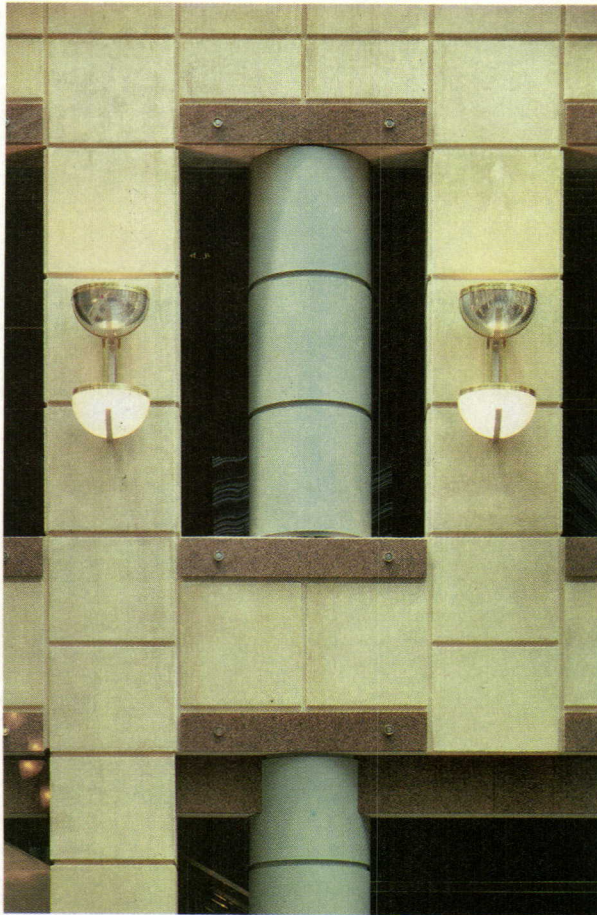
General contractors:

Hensel Phelps Construction (office towers, north block retail/parking);

Del E. Webb Construction (hotel, south block retail/parking);

Martin K. Eby Construction (Lawrence Street bridge)

Jock Pottle

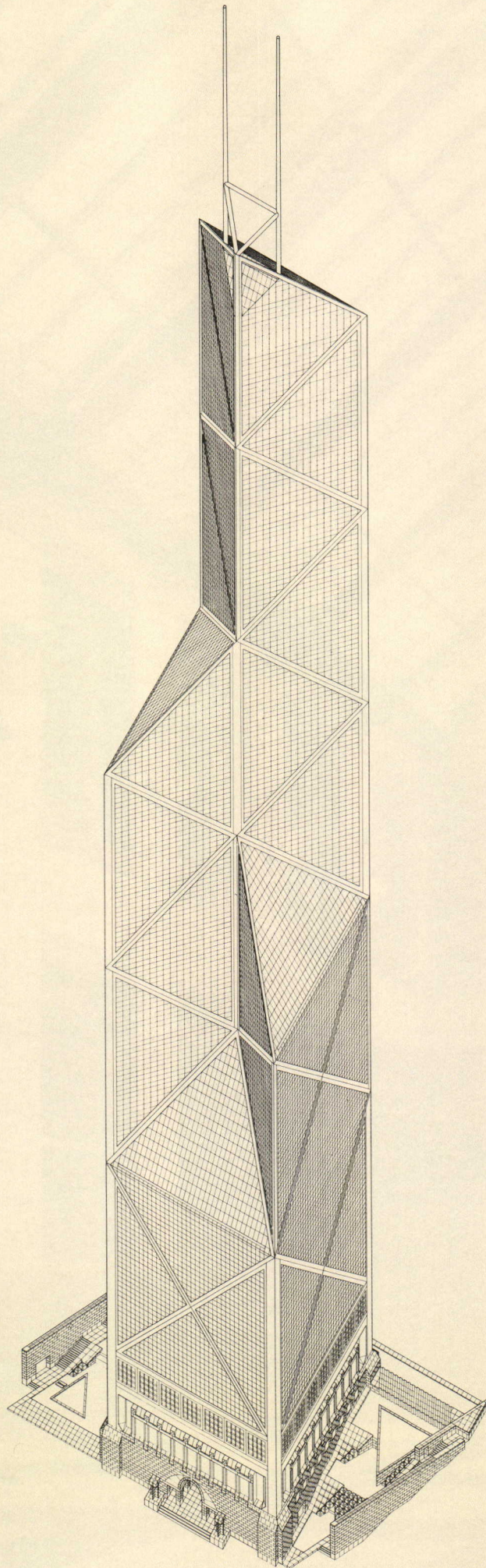


© Douglas Kahn, courtesy Anthony Pellecchia Associates

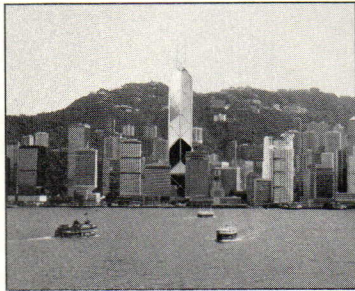
Jock Pottle



The Bank of China
Hong Kong
I. M. Pei & Partners, Architects
Robertson, Fowler & Associates, P. C.
Structural engineers



The logic of eccentricity



The Bank of China photo-montaged onto the Hong Kong skyline.

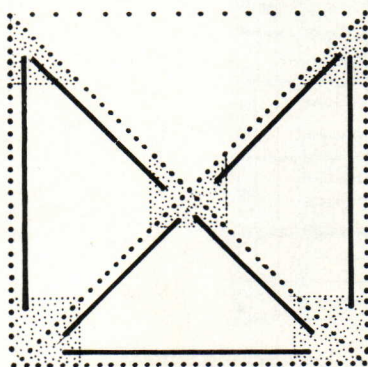
The Bank of China Building, currently under construction in Hong Kong and scheduled for completion in 1988, is a stunning exercise in architectural geometry. The tower was conceived by I. M. Pei as a cube, rising out of the ground, and divided diagonally into quadrants (see diagram below). As the structure moves upward, the mass is diminished one quadrant at a time until it is reduced to a single, triangular prism 70 stories, or 1,028 ft above grade. Pei intended the architectural partition to fall precisely on the geometry of the form: a crystalline Euclidean vision in reflective glass and aluminum. Maintaining the purity of that geometry was the challenge around which the very structural feasibility of the project turned.

Because the tower's structural lines are pulled just inside the building envelope, and because the shape of the envelope changes dramatically, the position of the five major columns must joggle out-of-plumb as they make their way down to the ground while maintaining the structural steel in a true and plumb, repeating geometry. The result is eccentrically loaded columns. Common practice says it is not possible to make such a building stand because the off-center loads would cause excessive stresses in the columns. Common practice aside, the engineers at Robertson, Fowler & Associates hit upon a system that accepts the radical eccentricities inherent in the architecture.

The structural designer, Les Robertson, based the system on what he refers to as, "a 'truism' not obvious in practice to most engineers." A single eccentricity in a column will cause bending; but two or more lines of eccentricity, *joined by a uniform shear force mechanism*, will counteract and therefore eliminate the bending. This principle was applied to the Bank of China in the following way. The five composite columns of the system support the braced-frame of structural steel that spans them. The centroid, shape, and position of these columns change as they move down the building—the source of eccentricity. But because the concrete "glues" the steel to itself, bending is eliminated. The concrete, then, serves as the uniform shear force mechanism. Dynamic eccentricity is arrested with creative engineering logic.

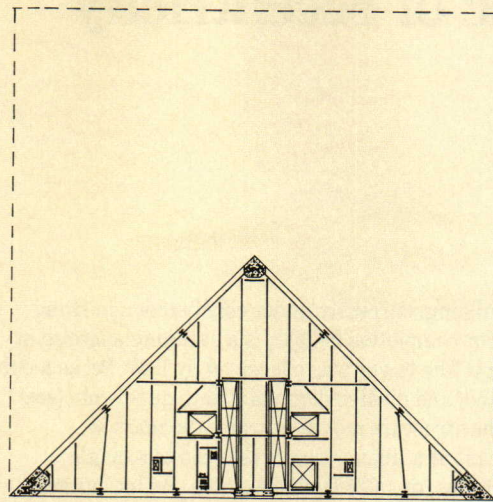
The result is a structural configuration equal in its own right to the eloquence of the architectural design. Furthermore, the system is outstanding for its economy of material. Compared to buildings of the same height and area, the Bank of China will use approximately 40 per cent less structural steel (a remarkable achievement considering that both the wind and live loads for Hong Kong are twice that for buildings constructed in New York). Exemplified in practice, Les Robertson's remembered "truism" should pave the way for a new generation of super-tall structures. *Darl Rastorfer*

GLASS
CONCRETE
STEEL ———

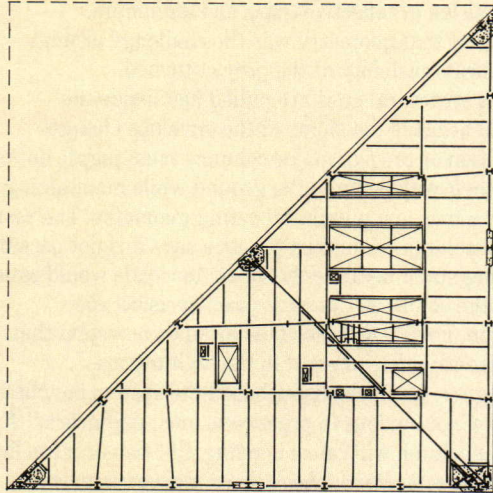


The conceptual plan diagram, at left, of the 25th story shows the two major partitions of the architectural geometry. The line of the glass curtain wall falls on the pure geometry of the square divided diagonally into quadrants. The structural line for steel and the positions of concrete columns are held within the pure geometry, forcing shifting alignment. The potential bending problem caused by misalignment is solved by the concrete when used as a uniform shear force mechanism.

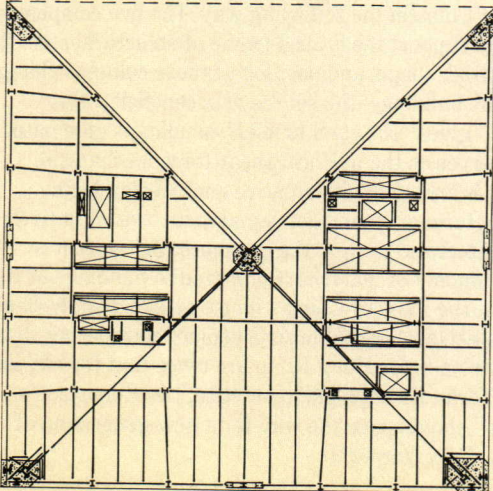
The structural plans at right represent the four fundamental floor configurations of the building as it rises from the ground to the aerial structure at its summit: they are, from bottom to top, the fourth, 25th, 38th and 52nd stories. Floor slabs are stone concrete, 4-in. thick, on a steel deck. The primary columns are composite concrete and steel. The framing pattern for the steel floor structure is noted in the plan, as are the trusses used in the lateral force system, which fall on the diagonal and orthogonal planes. Below the 25th floor (bottom plan) the central column has been terminated. The load, as it builds in that column from the 70th story down flows to the outer columns between the 51st to 25th floors. The additional downward force from the transfer increases the effective stance of the building to resist lateral loads. At the fourth story, well below the height where the column disappears at the 24th floor, the prismatic tower joins the granite base of the banking hall level. Here, I. M. Pei has designed an unobstructed space with expansive views in all four sides (see section, opposite page, far right). At the center of the hall, an open atrium rises 15 stories to a skylit enclosed garden, providing spatial continuity to all the bank's activities and natural daylight to the center of the hall. The lateral diagonal bracing at the surface of the tower (see north and south elevations) was given a direct architectural expression in the facade. The transfer trusses that wrap around every 13th story (see bracing elevation, following page) were originally expressed in the facade, but were concealed in the final design at the client's request for the following reason: with the horizontal bracing, the facade appears as a ladder of X's. The X is a negative symbol in Chinese iconography. Therefore, the horizontal expression was removed. The revised facade treatment was presented by Pei to the client as a tower of "diamonds"—a symbol happily embraced by the bankers.



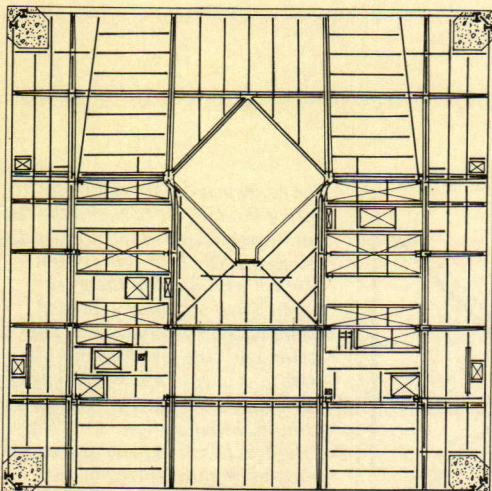
STORYS 51 AND 52



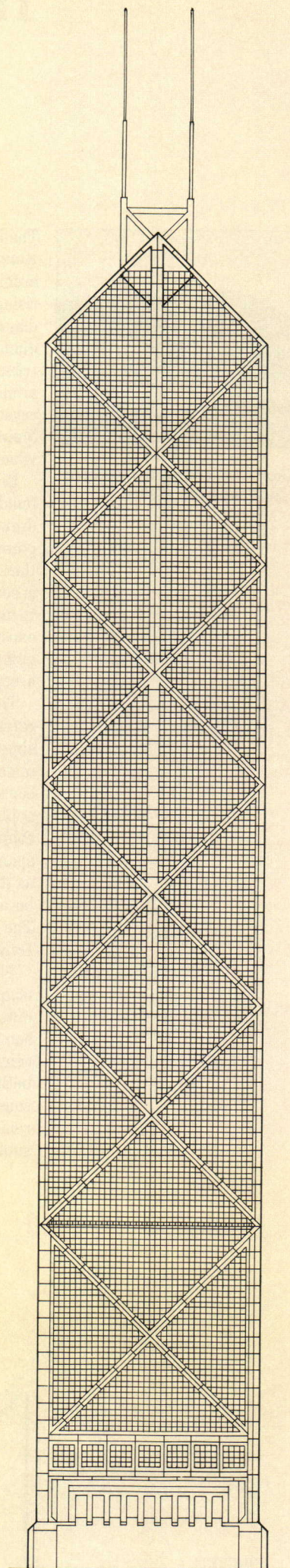
STORY 38

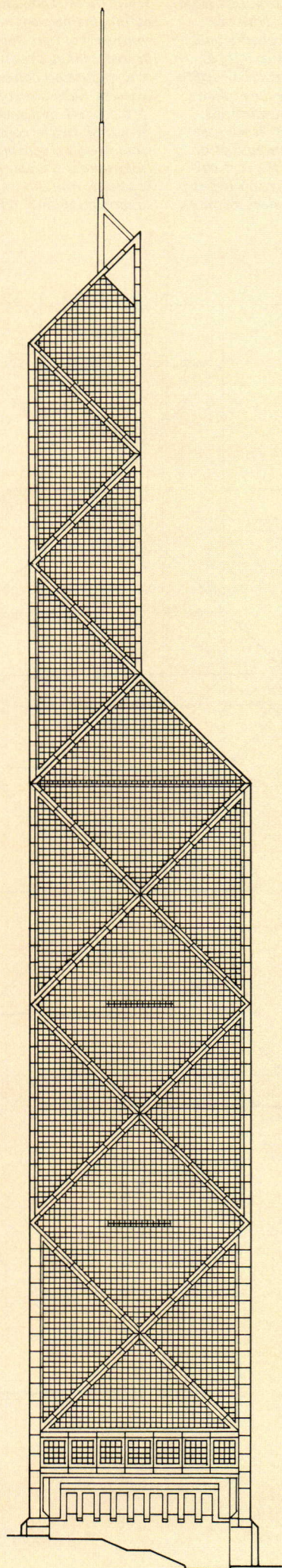


STORY 25



STORY 4





STORY 70
STORY 69 MECH.

STORY 58
STORY 57 MECH.

STORY 45 MECH.
STORY 44 MECH.

STORY 32
STORY 31 MECH.

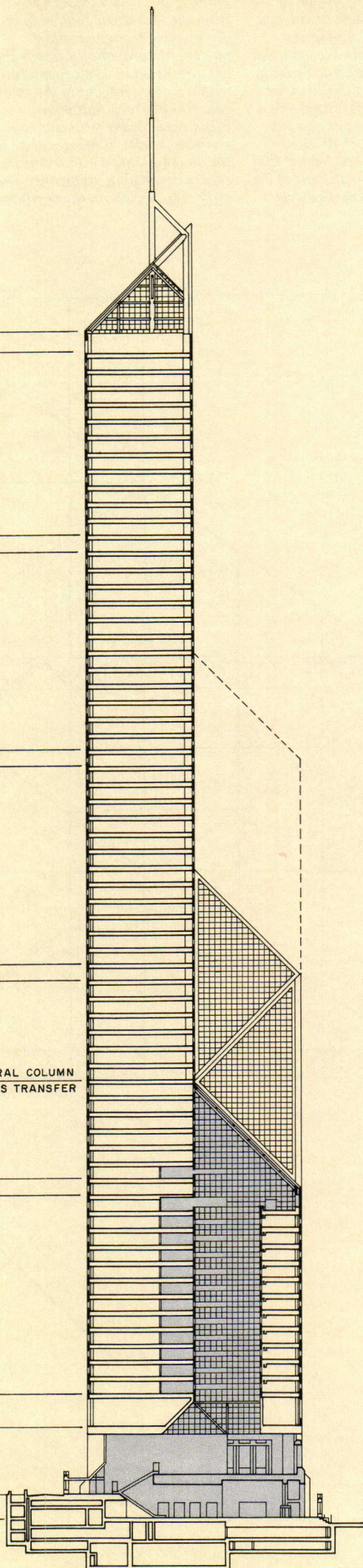
STORY 25 CENTRAL COLUMN
BEGINS TRANSFER

STORY 19
STORY 18 MECH.

STORY 6
STORY 4 MECH.

STORY 1

20

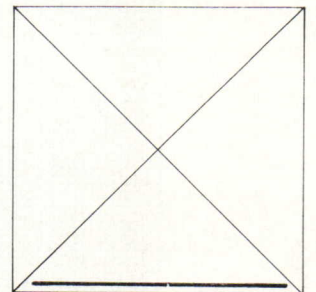
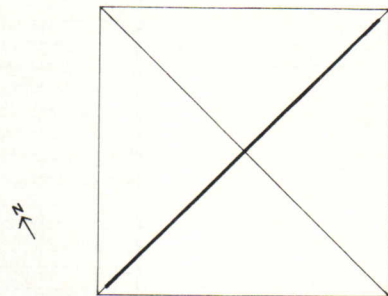
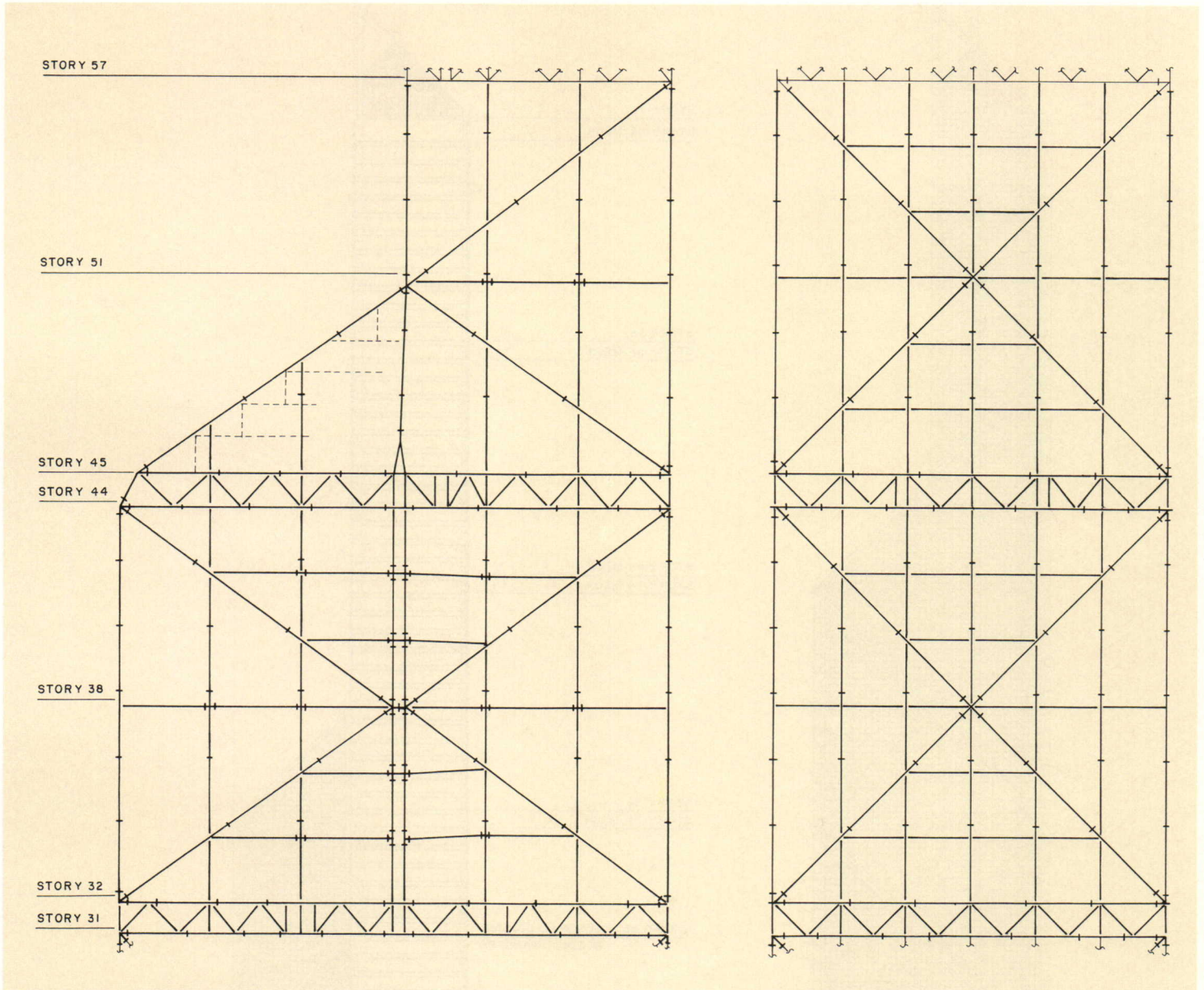


Never has a building as tall as 70 stories been built in such an adverse environment. Hong Kong is in a typhoon zone. With wind loads twice that for New York City, and equal to four times the earthquake load for San Francisco, lateral forces were a primary concern to the engineers. Their solution is a light, efficient megastructure of braced frames that tie into the composite columns of the gravity-transfer system. The steel

plane-frame system rises upward from the fifth story, following the geometry of the square plan partitioned diagonally. The frames are organized in 13-story modules with a major transfer of the internal columns at every 13th floor (illustrated in the framing elevations below of stories 31-57 for the diagonal and south frames as shown in the plan diagrams). The stiffening trusses on the perimeter,

working with the 12-story-high major bracing configuration, transfer interior and exterior column loads to the four corners. Thus, only a small portion of the loads carried to the service cores in the lower floors flows directly to the foundations. Assisted by the transfer level and making use of the X configuration above and below, both the vertical and the lateral loads are absorbed into the concrete-and-steel columns.

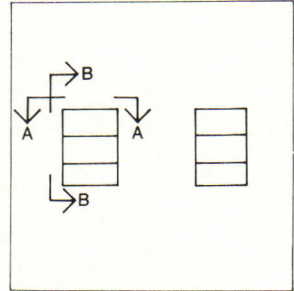
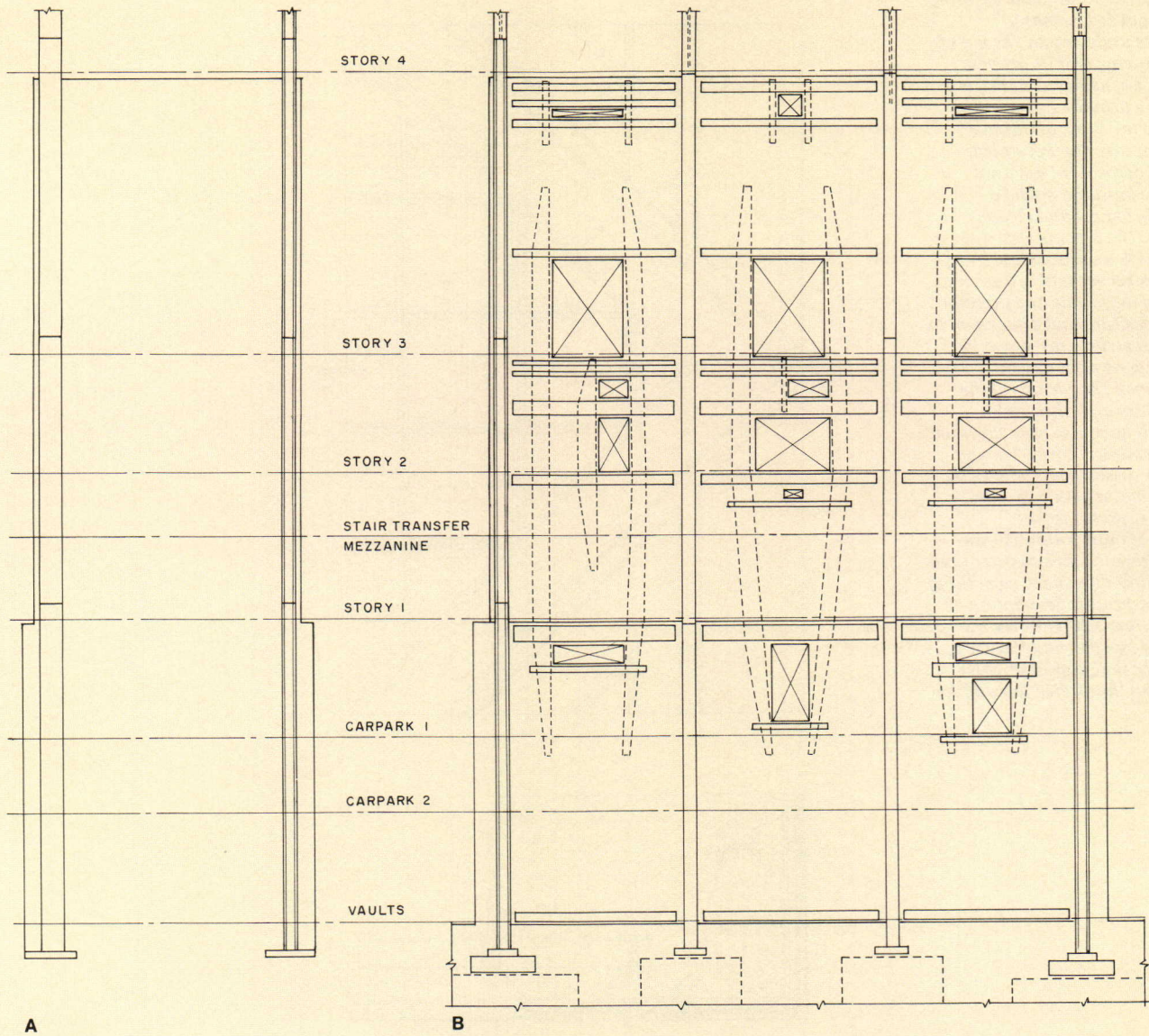
While three-dimensional in its action, the megastructure is composed of true plane-frame braces, as they are simply connected to a single steel column at the corners. Each plane-frame, then, has its own steel columns, but the plane-frames share the composite concrete/steel columns. This planar technique is simpler and less expensive and allows for more rapid construction than a three-



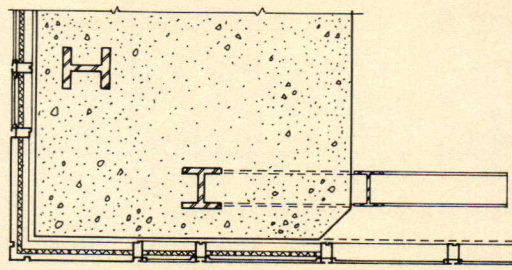
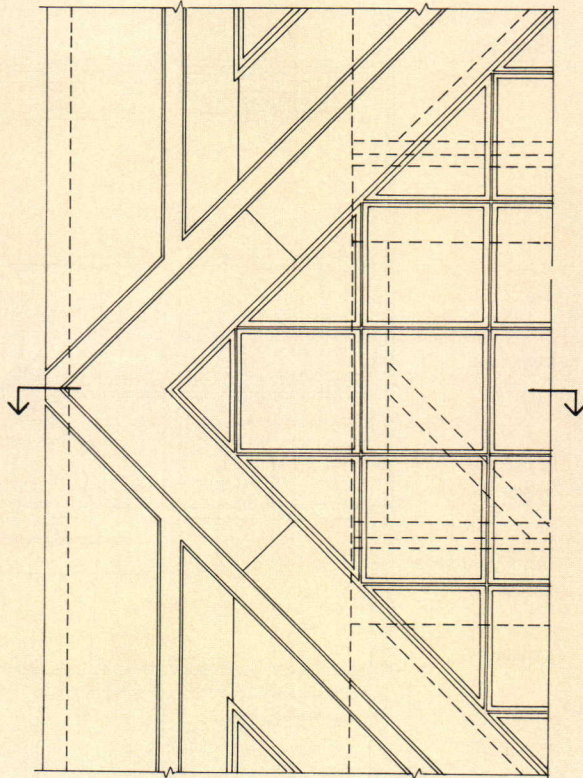
dimensional connection joining out-of-plane steel diagonals to a single steel column. Lateral loads are carried down the building through the diagonal system to the fourth floor where they are coupled to the two service towers. These towers, designed as shear tubes, reach up and stabilize the building at the fourth floor (see shear tube elevations and plan diagram below). When the wind comes, the

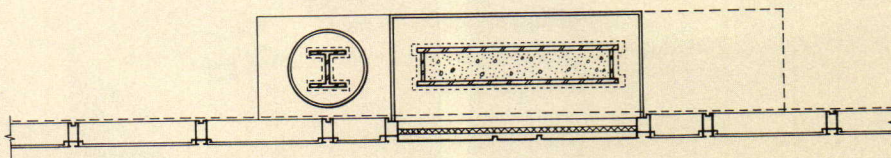
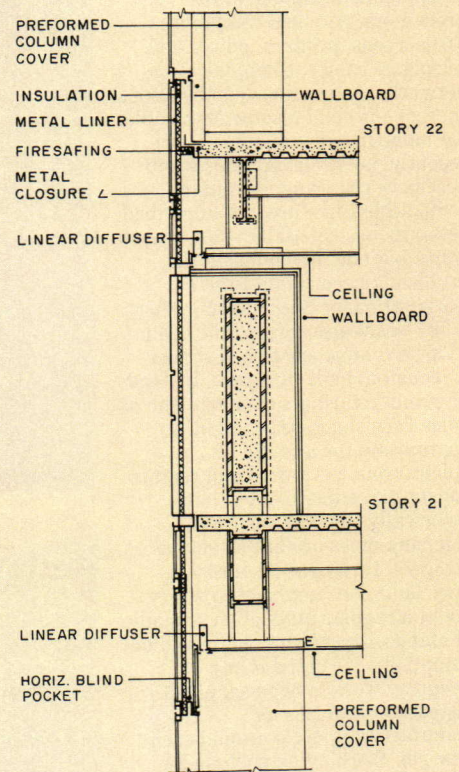
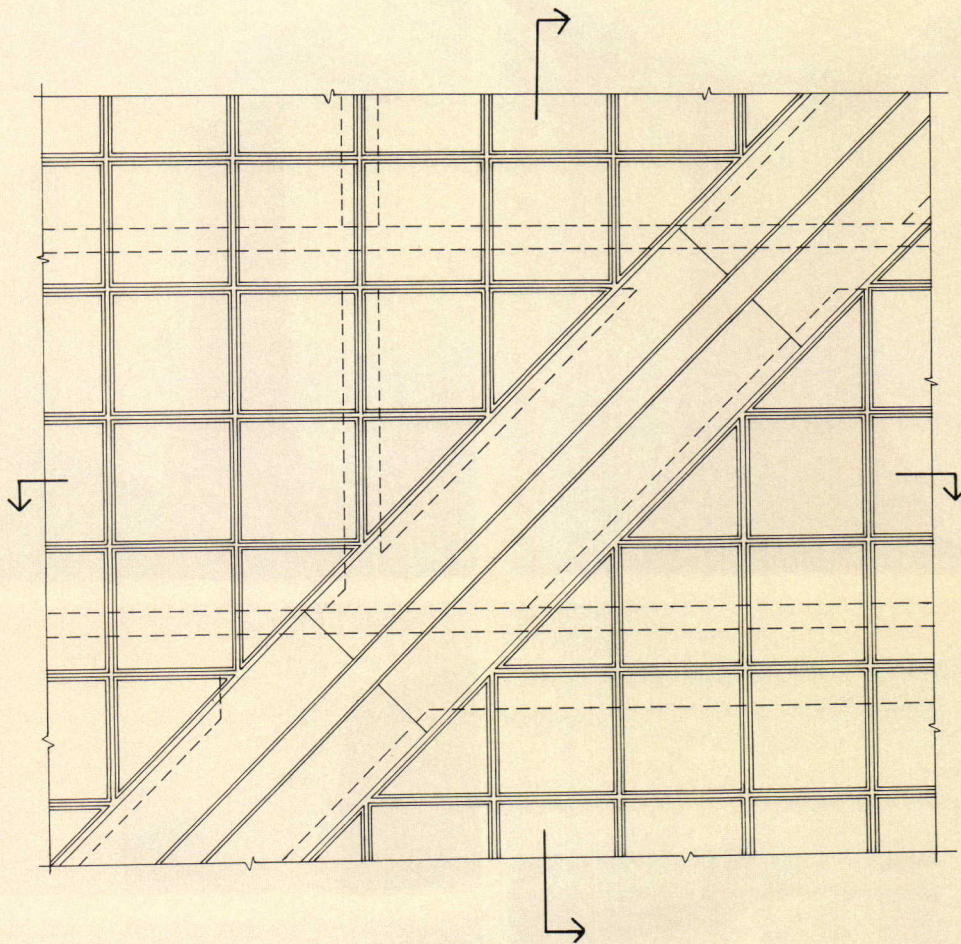
overturning moments stay in the four corner columns on the outside walls. Shear is carried down from the fourth floor to the first floor in the shear tubes. At the first floor, shear force is transferred out through the concrete floor to the slurry walls that surround the building. The tubes are made of steel columns braced by horizontal and verticle steel plate stiffeners generally 1/2 in. thick. The entire

shear tube is laminated with 10 in. of reinforced concrete to allow for unstiffened areas; to add to the strength and rigidity of the tube; and to provide a solid backing for granite facing. The entire fourth floor is a steel-plate diaphragm covered with concrete. At the base of the tubes, the concrete covering over the solid-steel plate is increased to a thickness of over 3 ft to form the highest-security vaults of the bank.



The expression of lateral bracing on the facade is essential to the building esthetic. Regarded by many architects as undesirable, the use of diagonal bracing and its graphic expression is considered by Pei as a natural way to build. Specifically referring to the Bank of China's outward appearance, Pei stated, "Form and decoration were not enough. The building must be structurally logical and elegant." And so it is. The bracing structure is expressed with an aluminum architectural cover that is flush with the plane of the facade and directly related in position and dimension to the diagonal structural members (see drawings at right and on opposite page). The corners of the reflective glass-and-aluminum curtain wall have also been sheathed with an aluminum cover. Though the corners' articulation marks the location of major columns, it does not always express the full dimension of those columns—an instance where the formal intentions of the architect demanded something other than a prosaic description of structural elements. The over-all result of the facade's handling is a crisp surface that appears tightly drawn across the faceted faces of the building.





*The Bank of China
Hong Kong*
Owner:
The Bank of China
Architects:
I. M. Pei & Partners
I. M. Pei, partner-in-charge; Bernard Rice, project architect; Robert Heintges, curtain wall; Abe Sheiden, project manager
Associate architects:
Wong/Kung & Lee, Architects, Hong Kong
Structural engineers:
Robertson, Fowler & Associates, P. C. Leslie E. Robertson, project designer; Harold D. Roet, project manager for the tower; Stanley L. Saffer, project manager for below-grade work; Vallentine, Laurie, Davies (associate structural engineers in Hong Kong)

Mechanical/electrical engineers:
Jaros, Baum & Bolles; Associated Consulting Engineers (associate mechanical/electrical in Hong Kong)
Wind tunnel testing:
University of Western Ontario Boundary Layer Wind Tunnel Laboratory

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Custom jobs

Today's office furniture must not only accommodate all different types of specialized automated equipment—including word processors, personal computers, VDT screens, printers, power and telephone cables, communication networks, and various combinations thereof—it must also be obtainable for immediate installation. Until recently, however, architects and specifiers requiring computer-compatible furniture in a hurry had few options, especially when the job was a big one. Recognizing the problem, Specification Built Corporation, or Spec'built for short, a few years ago entered the realm of high-volume, custom-designed and custom-built furniture. Instead of manufacturing a complete line of office furnishings that might be appropriate for a range of applications, yet would still require substantial adjustment in more technically complex cases, the company mass-produces custom-designed furniture. As a result, Spec'built does not have to worry about a regular production schedule of standardized items that could be potentially disrupted if any irregular work is necessary, but instead reorganizes its manufacturing cycle around each new job. Working on such major projects as the new Equitable Life Assurance Society headquarters in New York by Kohn Pedersen Fox Associates, Inc., Spec'built analyzes each customer's furniture designs and reduces them to a sum of interchangeable modules. For the new Bankers Trust trading room project by Interior Facilities Associates, for example, Spec'built helped develop a workstation that accommodates eight display terminals, or four display terminals and four terminal-size drop-in shelving units that can be easily replaced by additional terminals. Spec'built's computer-aided-design system produces the detailed shop drawings and manufacturing programs that regulate and organize all production. Since the expense of inventorying complete lines and maintaining a sales staff to promote them is eliminated, Spec'built can concentrate all its efforts on accelerating the manufacturing process—which happens to be just what their clients ordered. Specification Built Corp., Carlstadt, N. J.

Circle 300 on reader service card
Continued

1, 2, 3. Equitable Life Assurance Society, Kohn Pedersen Fox Associates, Inc.

4, 5. Richco, Inc., Julio Kaufman, designer.

6. Bankers Trust Company, Interior Facilities Associates, Inc.

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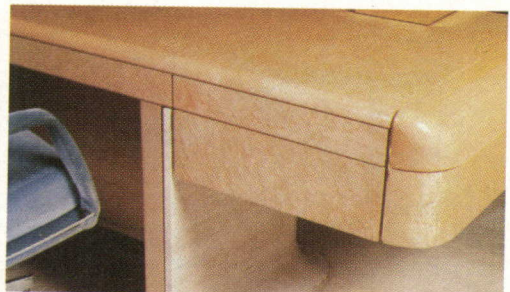
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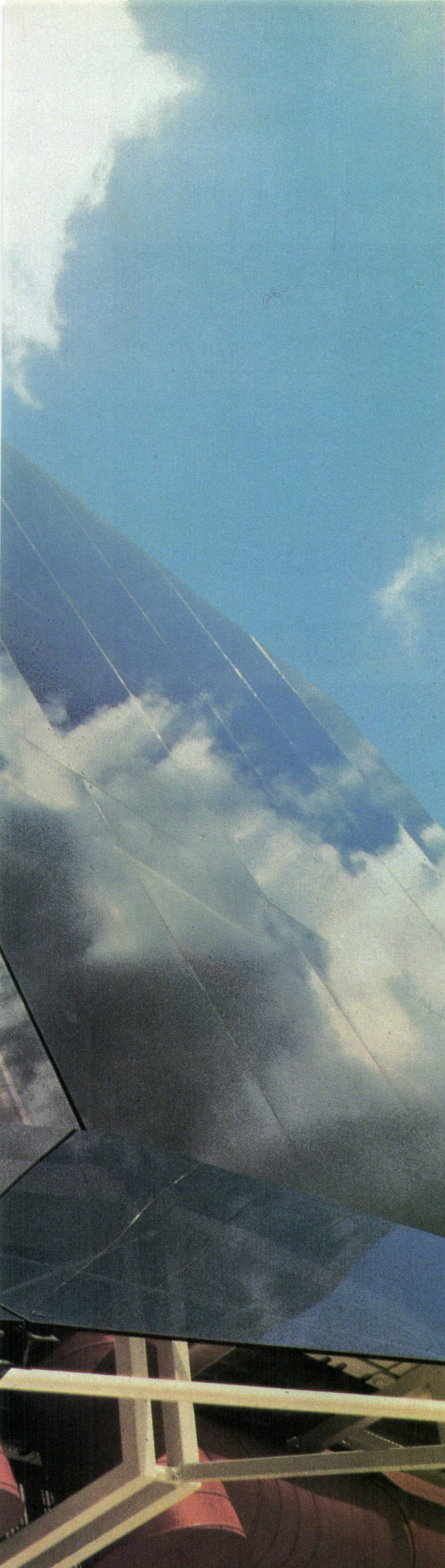


5



6

Ashot Kasabian



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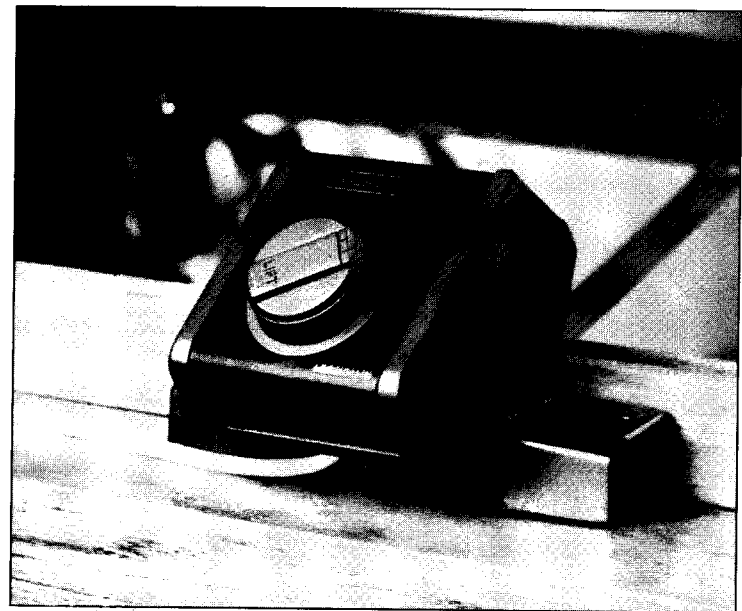
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AMPAT Group Inc.,
6740 Bay Meadow Drive,
Glen Burnie, Baltimore, Md 21061
Telephone: (301) 787-0900

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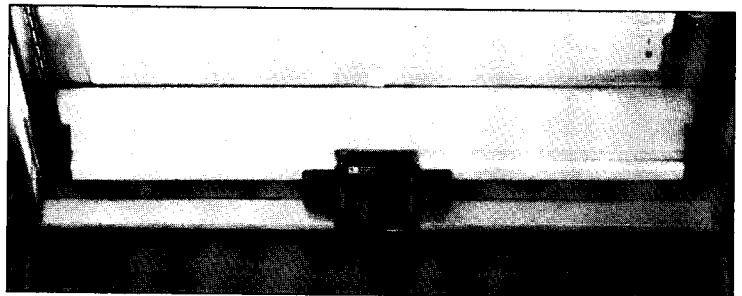
'Armourfloat' is a trade mark of Pilkington Brothers plc.

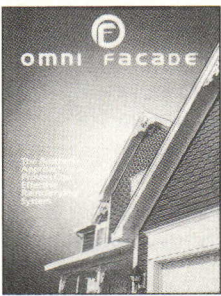


Smooth operator

Although roof and awning windows installed in rooms with high, slanted ceilings admit welcome sunlight and vent hot, stagnant air, their awkward location makes them difficult to reach and operate. One can employ a long extension pole to open and close the windows, but this solution is marginal at best. In search of a more convenient method, Andersen Corporation has developed an electronic window opener that is mounted on the window frame and controlled by a command module. The command module, which may be located anywhere in the room, can open or close up to four windows, individually or in a programmed

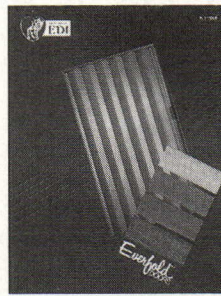
series. For additional convenience, a built-in sensor that detects rain as it is blown under the open awning sash will automatically close the windows when drops fall on its surface. The parts needed to install the remote operators in new construction, retrofit, and existing awning or roof applications are available in a single kit that includes a power pack that can be plugged in to a 110-volt outlet, the command module connected to the power pack by an extension cord, and the electric operator with a line cord to the command module. Andersen Corp., Bayport, Minn.
Circle 301 on reader service card
Continued





Rain-carrying system

The *Omni Facade* rain-carrying system for residential applications is featured in a 4-page color brochure. Photos show how 0.032-gauge aluminum gutters, which are said to have twice the water capacity of conventional gutters, are attached directly to the rafters. Omni Products, Addison, Ill.
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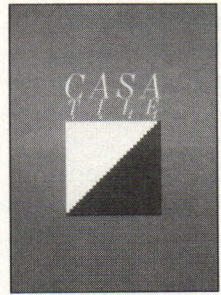
Folding doors

The manufacturer's line of folding doors made of extruded and expanded polystyrene panels joined by vinyl is reviewed in a 4-page color brochure. The aluminum door track is shown recessed and surface-mounted. Four simulated wood-grain finishes are illustrated. Elkhart Door, Inc., Elkhart, Ind.
Circle 406 on reader service card



Wood flooring

A 48-page catalog includes color photographs of the manufacturer's residential and commercial solid and laminated plank floors, and solid wood and laminated parquets. Installation procedures and wood preservation and maintenance are reviewed in the literature. Hoboken Wood Flooring Corp., East Rutherford, N. J.
Circle 401 on reader service card



Ceramic tile

A 20-page color folio illustrates how 14 architects and designers used different colors, shapes, and patterns of Italian ceramic tile in a variety of interior applications. Project descriptions are included. The Italian Tile Center, New York City.
Circle 407 on reader service card



Locks

The manufacturer's line of cylinders, deadbolts, horizontal dead bolts, mortise locks, and chain guards is featured in a 12-page color catalog. Information on door handing and strike choices is reviewed. The dimensions of each product are listed. The New England Lock & Hardware Co., South Norwalk, Conn.
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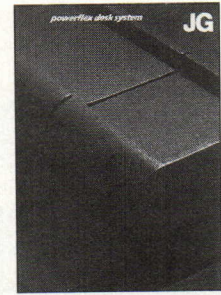
Faucets

The new *Legend* line of faucets is featured in a 4-page color brochure. The construction, materials, and new limited lifetime warranty of the faucets are reviewed in the literature. Available finishes are listed. Moen Group, Stanadyne, Inc., Elyria, Ohio.
Circle 408 on reader service card



Awnings

The manufacture of awnings is reviewed in a 10-page brochure. Several styles, frames of galvanized steel, aluminum, and iron, and available fabrics are shown in color photographs. Back-lit awnings and canopies are also featured. Industrial Fabrics Association International, Awning Div., St. Paul, Minn.
Circle 403 on reader service card



Desk system

The modular *Powerflex* desk system, which consists of a metal spine that carries electrical power and a selection of work-surface and storage components, is featured in a 20-page color brochure. The available components are shown in a variety of configurations. JG Furniture Systems, Inc., Quakertown, Pa.
Circle 409 on reader service card



Wood doors

An 8-page brochure reviews the thickness, maximum size, cores, veneers, finishes, and fire ratings of the manufacturer's line of hardwood doors. The attachment of door hardware to mineral-core fire doors is described. Diagrams of recessed and lipped beads are included in the literature. Algoma Hardwoods, Algoma, Wis.
Circle 404 on reader service card



Locks

A 20-page color brochure features the manufacturer's new *L-9000* series of mortise locks. Information on the locks' interchangeable core cylinder; knob, lever, and grip design; keying; and finishes is included in the literature. Schlage Lock Co., Sylmar, Calif.
Circle 410 on reader service card



Railings

The scratch-, impact-, burn-, and corrosion-resistance of the manufacturer's line of railings and bumper guards, made of wood shavings bonded with duroplastic resins and covered by a melamine woodgrain finish, is reviewed in a 4-page color brochure. The dimensions of each product are listed. Balco, Inc., Wichita, Kansas.
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Skylights

A new 4-page color brochure reviews the manufacturer's line of residential ventilating skylights. The insulated skylight domes come with screens, copper flashing, and manual, pole, or electric operators. Ventarama, Hicksville, N. Y.
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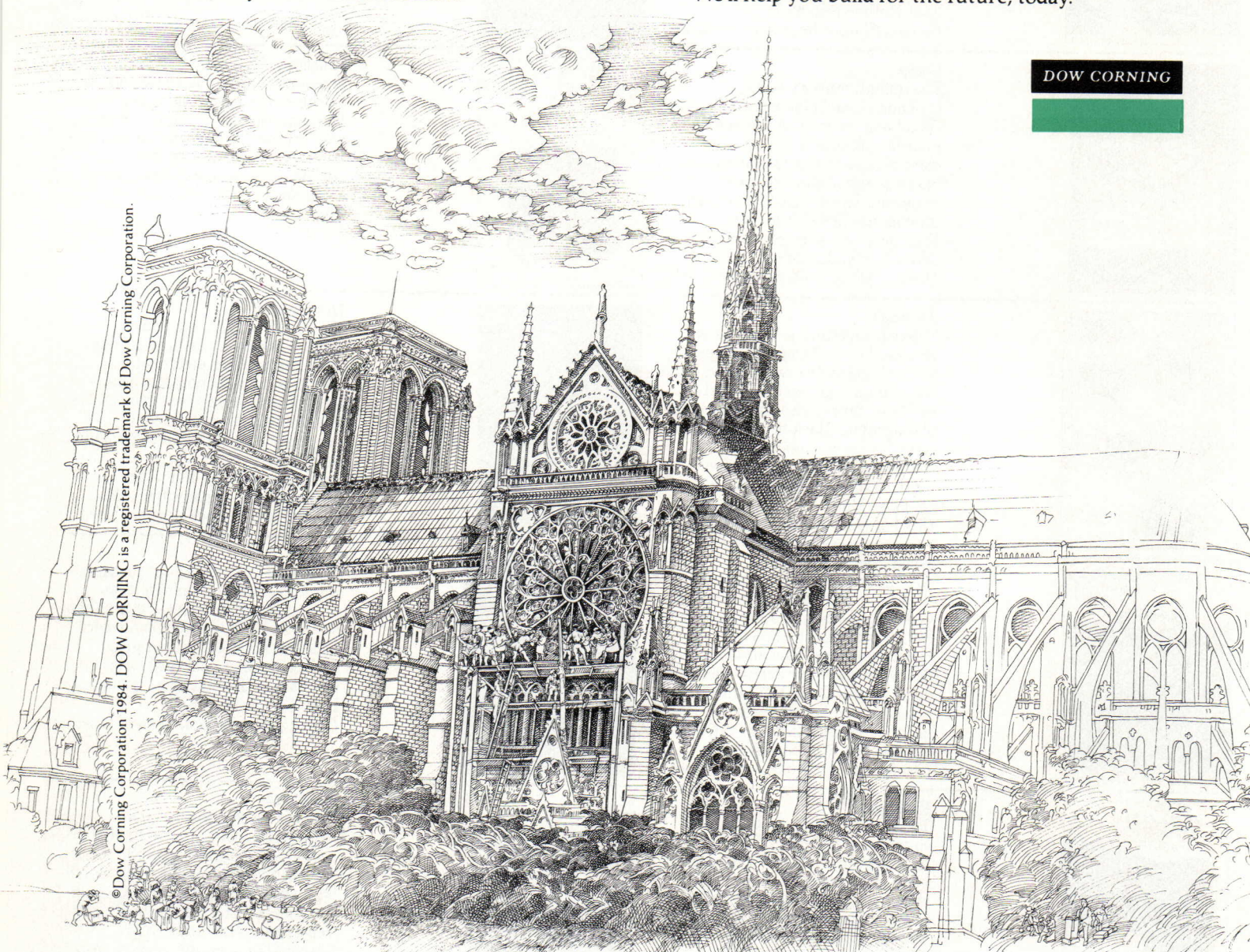
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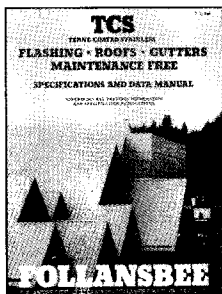
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Stainless steel

An 8-page brochure describes the use of *TCS* terne-coated stainless steel for flashing, roofing, and weathersealing applications. The durability and corrosion- and buckling-resistance of the steel is reviewed. Standing, batten, and flat locked seam specifications are given. Follansbee Steel Corp., Follansbee, W. Va.

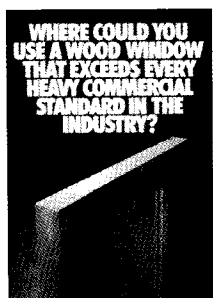
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Corrosion coatings

A 16-page brochure reviews the physical characteristics of *CeilGard* corrosion-resistant coatings, including epoxies, urethanes, polyester/vinyl esters, high-temperature coatings, vinyl/chlorinated rubber, and alkyds. Surface preparation methods are discussed in the literature. The Ceilcote Co., Berea, Ohio.

Circle 418 on reader service card



Wood windows

The *Magnum Series* of wood windows is featured in a 6-page color brochure. Double-hung, simulated double-hung (with removable grids), tilt-turn, fixed, hopper, and round-arched windows are shown in the literature. Results of structural and air infiltration tests are included. Marvin Windows, Minneapolis, Minn.

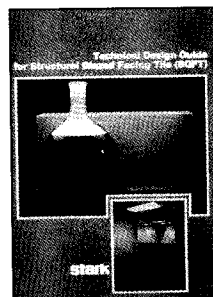
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Ceramic tile

A 6-page brochure compares the installation, maintenance, and replacement costs of ceramic tile with other wall- and floor-surfacing materials. Glazed floor tile is compared with terrazzo, carpet, and vinyl flooring, and wall tile is compared with marble, glazed block, paint, and fabric. Tile Council of America, Inc., Princeton, N. J.

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Facing tile

A 24-page brochure includes technical information on structural glazed facing tile. Sections on the structural strength, required maintenance, permanence, and heat transmission are included. Different tile sizes and shapes are shown in the literature. Stark Ceramics, Inc., Canton, Ohio.

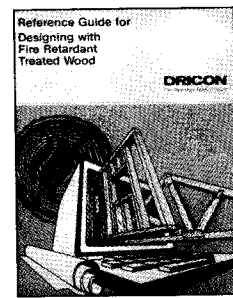
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Files

The manufacturer's expanded 1400/4400 line of lateral files for computer-related material storage is featured in a 12-page color brochure. Available in 30-, 36-, and 42-in. widths, the files can accommodate magnetic tapes, data cassettes, and floppy disks. All-Steel, Inc., Aurora, Ill.

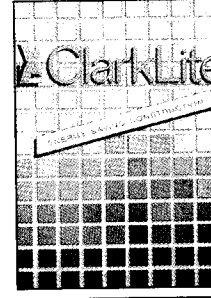
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Treated wood

A 30-page guide reviews the various uses of *Dricon* fire-retardant treated wood. The literature describes how the wood resists flame spread, smoke development, termites, and decay. Standard building codes are included. Koppers Co., Inc., Pittsburgh.

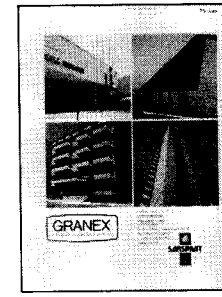
Circle 415 on reader service card



Insulating building panels

A 4-page brochure describes the capabilities of *ClarkLite* insulating, load-bearing building panels. The 4-by 8-ft closed-cell panel is said to have an average R value of 18. The physical properties of expanded polystyrene insulation are reviewed in the literature. Clark Industries, Columbus, Ohio.

Circle 421 on reader service card



Aggregate panels

An 8-page color brochure features the manufacturer's *Granex* panels made of natural stone, glass fiber, sand, polyester resin, and inorganic fillers. Intended for residential and commercial applications, the panels are available in widths of up to 6 ft and are said to be impervious to moisture. Sanspray Corp., Santa Clara, Calif.

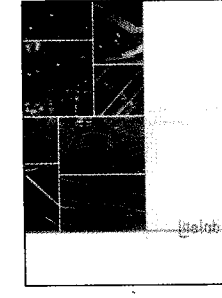
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Commercial hardware

The manufacturer's line of commercial door hardware is illustrated in an 8-page color brochure. Lever, escutcheon trim, and knob trim specifications are included. A variety of push plates and door pulls is shown in several different finishes. Baldwin Hardware Corp., Reading, Pa.

Circle 422 on reader service card



Lighting

The manufacturer's low-voltage and line-voltage *Xanadu*, *Microtume*, and *Litetrax* lighting fixtures are featured in an 8-page color brochure. A variety of commercial applications is illustrated in the literature, and the available finishes are listed. Litelab Corp., Buffalo, N. Y.

Circle 417 on reader service card



Waterproofing

The *Aquasel* waterproofing system, designed for use on concrete structures, is described in a 4-page color brochure. The literature reviews the materials and composition of the 2001 AD membrane. Installation guidelines are included. Tex-Mastic Construction Materials, J & P Petroleum Products, Inc., Dallas.

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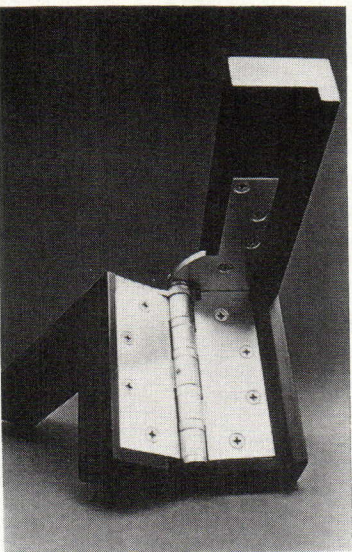
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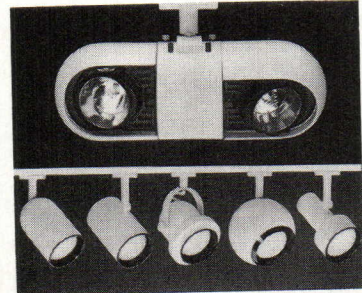
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Hinges

The manufacturer's new pivot reinforced hinges are designed to anchor doors and frames that are subject to damage from extensive use. The product's design, which combines the pivot and butt hinge in one unit, is said to assure door and frame alignment. Stanley Hardware, New Britain, Conn.
Circle 302 on reader service card



Lighting

Lite Capsul, an addition to the manufacturer's *Lite Track* line of single- and double-circuit lighting tracks for residential and commercial applications, can incorporate two independent low-voltage light sources in one housing. The tracks and fixtures are available in a selection of finishes. Prescolite, Inc., San Leandro, Calif.
Circle 303 on reader service card



Office system

The *Free System Office* includes desktops, cabinets, and computer-support equipment, and comes in light-gray laminate with enameled metal legs or in all bilaminate. The legs have wire management systems and are available in black with red or in all black. Domus Italia, Manhasset, N. Y.
Circle 304 on reader service card
Continued on page 157

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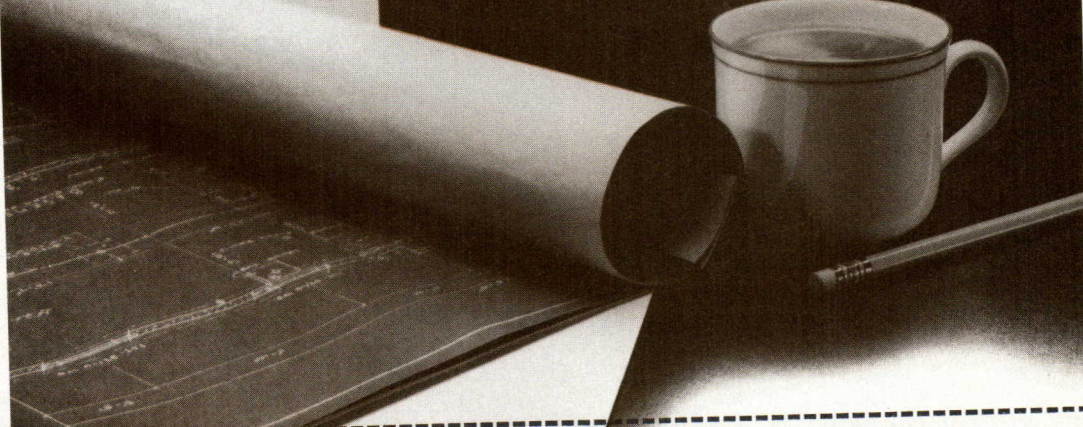
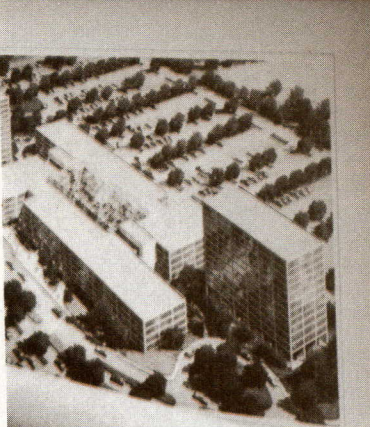
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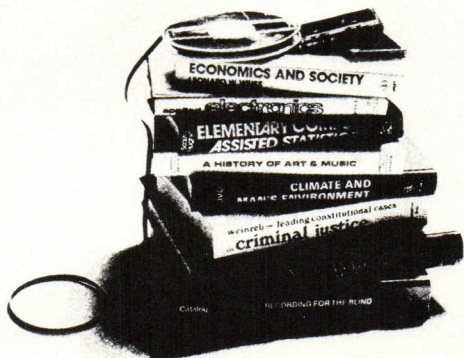
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The manufacturer's new *Rhombus* chair was designed by Gerd Lange. The rhombus-shaped frame is said to maximize the strength of the steel tube in the stress plane and to minimize the space required for stacking. The cushioned seat folds up. Arms and a writing tablet are optional. Fixtures Furniture, Kansas City, Mo.

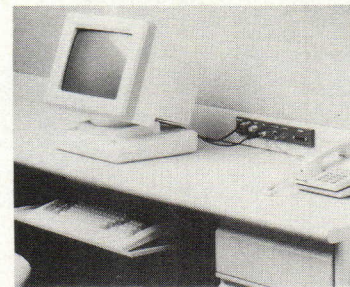
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Armchair

The *Andros* armchair is part of the importer's collection of Italian-designed seating. Removable cushions, which come upholstered in a selection of fabrics and leathers, are attached to the chair's modular metal frame. Matching footstools, and two- or three-seat sofas are available. Axiom Designs, New York City.

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Office furniture

The *Natural Expressions* line of office furniture was designed by Gordon Randall Perry. Office system components include work surfaces, bookshelves, flipper door cabinets, pencil drawers, and mobile pedestals available in hardwood solids and oak, walnut, and mahogany veneers. Tibbet, Inc., Toledo, Ohio.

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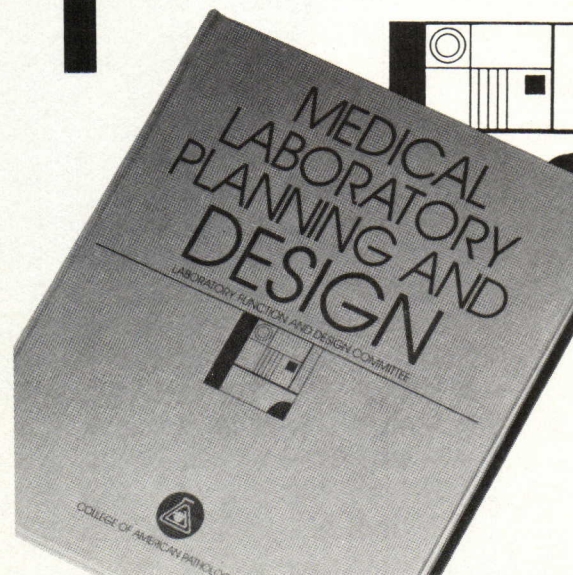
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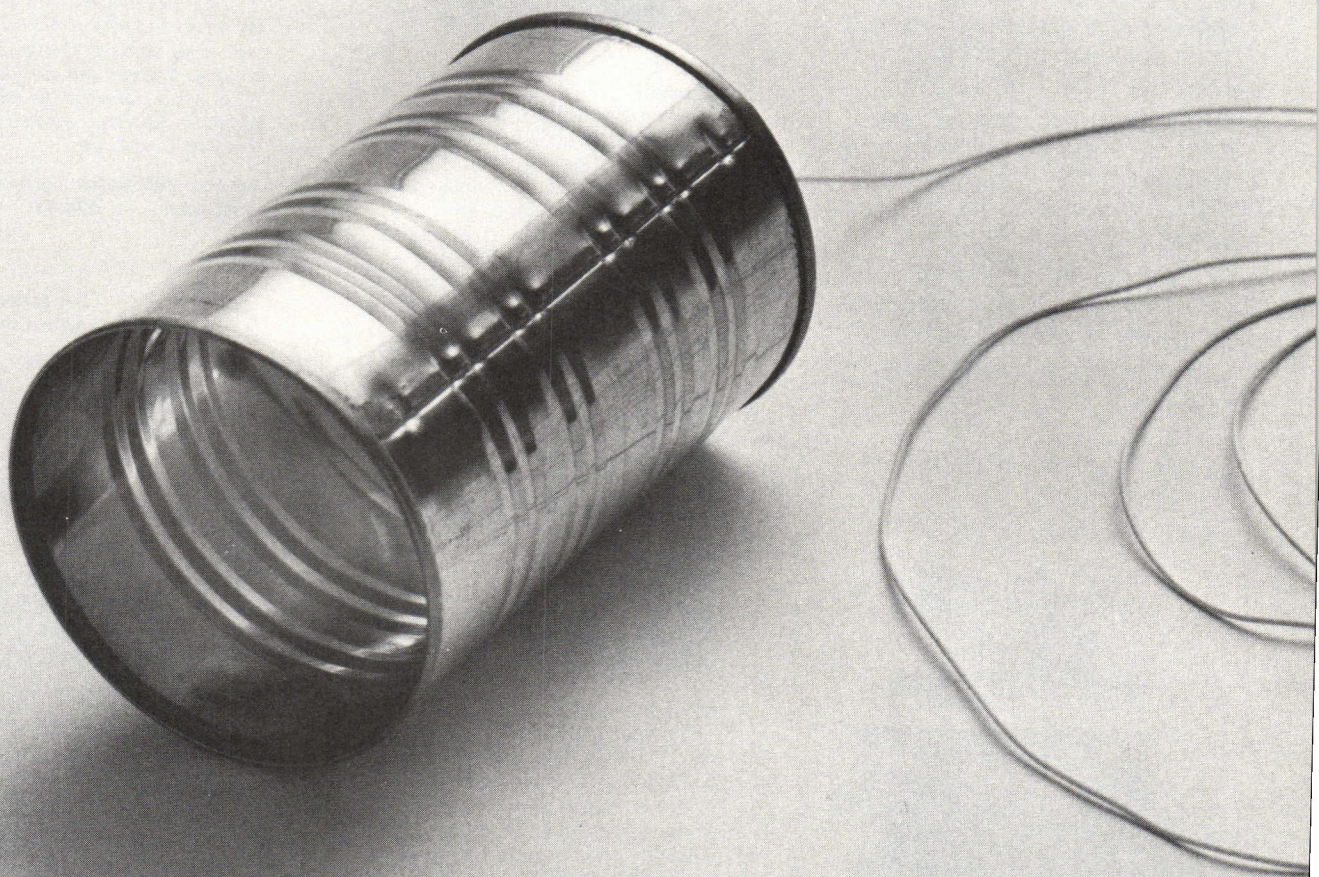


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Pages 90-95

Recreational Sports Facility
University of California at Berkeley
by ELS, Elbasani & Logan, Architects
Pages 90-92—Stucco exterior: Standard Portland Cement. Metal-framed windows and doors: Carmel Steel. Grilles: Cookson. Bituminous roofing: Johns-Manville. Paving: Muller Interlocking Pavers.
Page 94—Railings: Standard tube sections, fabricated by Bostrom Bergen Metal Products. Paints: Kelley Moore. (top) Acrylic window wall: Swedflow (Acrivue A). Gym floor: Terstep (Junkers). Long span joists: Fabricated by McLean Steel Co.
Page 95—Air diffusers: Carnes. Laminate surfacing: Wilsonart. Recessed downlights: Marco. Low seating units: By owner. Dust on colored concrete flooring: Conrad Sovig (Kolorblen). Elevator: Diabolo. Skylight blinds: Levolor. Automatic sprinkler system: Zurn. Intercom: Rauland-Bourg.

Pages 96-99

Multi-Purpose Facility
Colorado School for the Deaf and the Blind
by Cabell Childress Architects
Pages 96-97—Brick: Summit Brick. CMU: Colorado Concrete Products. Utah sandstone: Hansen Stone. Roofing: Koppers (220). Slate: Buckingham. Skylights: Plasticrafts. Bollards: Prescolite. Mural: Shelly Jurs. Entry and windows: Custom millwork.
Pages 98-99—Tile flooring: U. S. Ceramic. Paints and clear urethane: Martin Senour. Oil paints: Watco. Ceiling: Armstrong. Ceiling mural: Megan Parry.
Page 99—Gym equipment: Porter Equipment Co. Bleachers: Hussey Mfg. Co. (Series 2000). Maple floor: Robbins. Rolling doors: Cookson. Interior doors: W. R. Crabb; custom by architect. Special doors: Total Door. Exit signs and lighting: Prescolite.

Pages 100-103

IUPUI Natatorium
by Edward Larrabee Barnes Associates, Architects
Pages 100-102—Concrete panels: F. A. Wilhelm Construction Co. Fixed and operable windows: PPG. Clerestory skylights: Kalwall.
Page 102—Water cooler: Elkay. Panic hardware: Von Duprin. Flooring: Concrete; Noramat Rubber Flooring. Paint: Glidden; TNEPEC. Transom glazing: Kalwall.
Page 103—Pool: Sparger System. Diving board: Duraform. Tile: Gail Ceramic. Bleachers: Miracle Seating. Upholstered seating: American Seating. Cylindrical lights: Sylvania.

Pages 114-119

Ohio Theatre Expansion and Arts Pavilion
by Hardy Holzman Pfeiffer Associates, Architects
Pages 114-117—Brick: Stonecreek Brick Co. Granite: Cold Spring Granite Co.
Continued on page 180

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Sandstone: Briar Hill Stone Co. Curtain wall: AmarLite Corp. Glazing: PPG. Aluminum-and-glass windows: Marmet. **Page 117**—Entrance: Ellison Bronze Co. Vertical light fixtures: Bergen Art Metal. **Pages 118-119**—Grand railing: Michaels Art Bronze. Lighting: Bergen Art Metal Co. Ceiling panels: Decoustics. Fabric: Guilford. Terra-cotta wall panels: Gladding-McBean. Carpet: Pennsylvania Wilton Carpet Co. Recessed lighting: Edison Price. Flooring: Cold Spring Granite Co.

Pages 120-125

George D. Widener Memorial Treehouse Philadelphia Children's Zoo by Venturi, Rauch and Scott Brown **Page 120**—Mineral fiber roof: Supradur (SupraSlate). Terne roofing: Follansbee Terne.

Pages 121-125—Low-voltage lighting: Tivoli Industries Inc. Theatrical spots: Kliegl. Plug-in lights: Swivelier. Raceway: Wiremold. Paints: Buten. Carpeting: Lee Carpets (Facilities 10). Ceiling fan: Enviro Fan Systems Inc. Sound equipment: Christopher Speath. Fiberglass constructions: The Sculpture Workshop. Electronic devices: Lou Rodolico. Two-dimensional paintings: Dennis Aufery, Louisa McElwain.

Pages 126-135

Tabor Center by Urban Design Group; Kohn Pedersen Fox Associates; RNL, Inc., Architects **Pages 126-129**—Cast-in-place concrete: TXI Buff Concrete, supplied by Texas Industries, Mobil Premix, Walt Flanagan Concrete. Green-tinted glazing: L. O. F. (reflective); PPG (Solex) (non-reflective). Hotel curtain-wall system: Harmon Glazing. Window bullnose: Cupples. Glazed steel panels: PPG/Rutledge Steel. Precast concrete spandrels: Built and erected by Stanley Structures, Inc. Planters: Plantscaping Inc. of Veldkamps. Glass-domed light standards: Baldinger. **Page 132**—Curved glass curtain wall: Kawneer Cupples.

Page 134-135—Clock at Great Hall entrance: W. W. Steel. Skylights: Supersky. Paving: Washington Red Granite and Atlantic Green Granite, imported by Ameristone; installed by Cleveland Marble and Intrepid Marble. Exterior paints (on steel columns): DuPont (TNEMEC and IMRON). Entrances: Kawneer/PPG. Revolving doors: Crane International. Escalator: Otis. Standing figures sculpture: Seward Johnson.

Page 130—Galleria roof: Crowncore. Electronic directory: Young Electric Sign Co. Phone kiosks: King Plastics. "Streamers" signage: Young Electric Sign Co. Flag: AIA Advertising. Awnings: Colorado Canvas. Fabric: John Boyles (Ultra).

Page 131—Elevator: Otis. Cab: Bryce Southern. Ornamental iron cage: Midwest Iron. Cone-shaped lighting standards: E. M. R. Railing system: Midwest Iron. Benches: Canterbury Designs. Paving: Stroher Tile. Paints: PPG. Upward-acting door: Overhead Door Co. Pool: Custom by architects. Retail curtain wall: PPG/Harmon Glazing.

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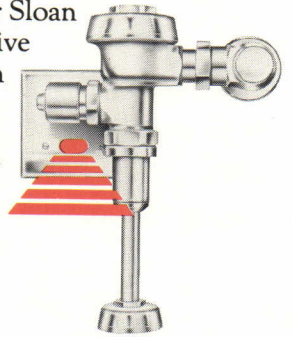
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