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Virtuous Reality

The point of the televised chase of O. J. Simpson on the evening of Friday, June 17 was not what most commentators thought—that reality is more powerful than virtual reality, or make believe. The true message is that this real-life chase was merely a blip on the age-old curve of human love for the fictional that often ends up making fiction seem more real than the real thing.

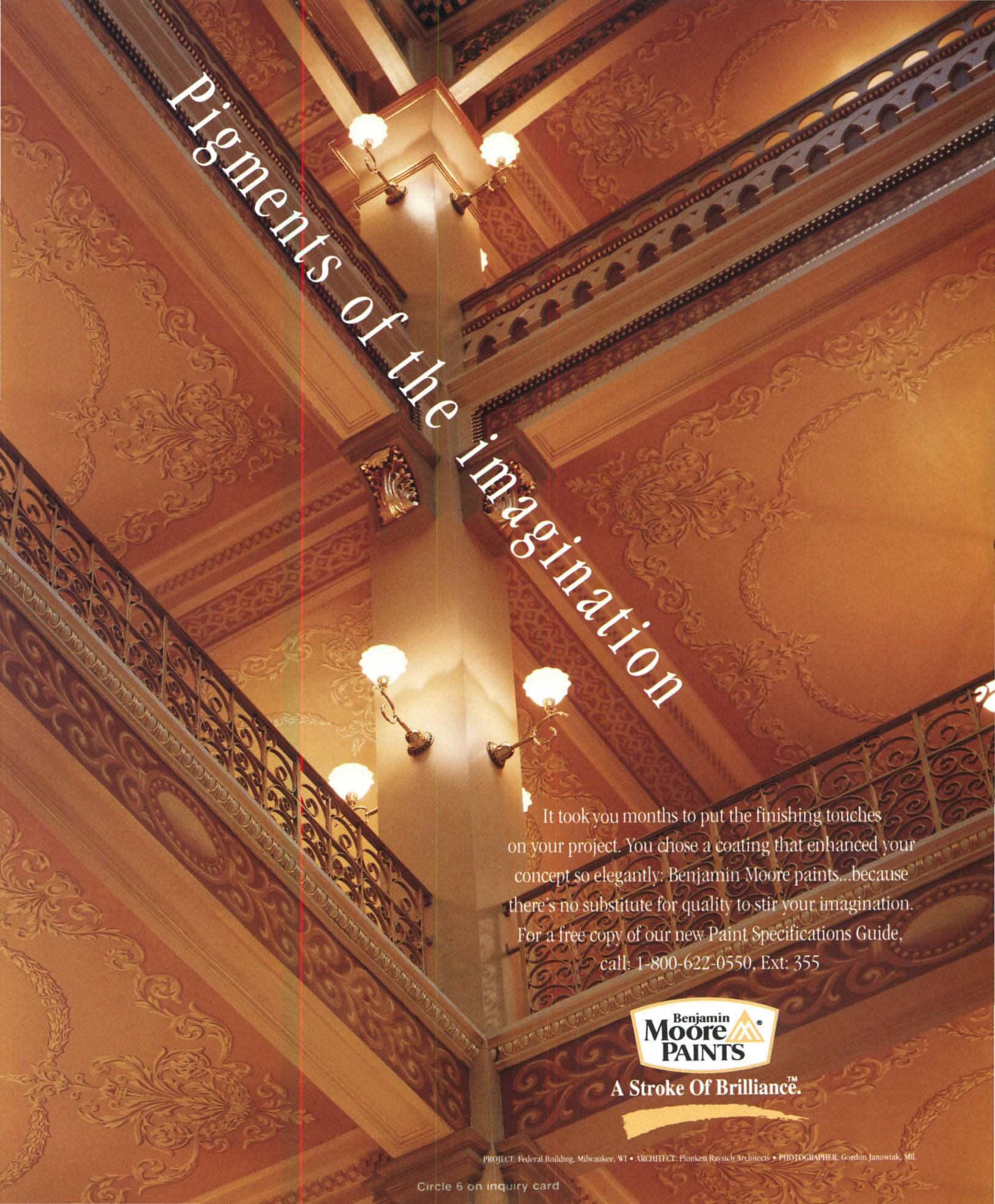
The celebration of virtual reality raises for the architect a number of practical, organizational and moral issues. On the plus side is the ability, using computer modeling and projection technology, to give clients a foretaste of what their buildings will look like, inside and out, when walking through or when at rest, day or night time, under a sunny sky or cloud cover. But the trail is dotted with landmines. What about the very ease with which one can fake reality by scanning a photograph into a computer and deleting offending graffiti and fire hydrants; or adding nonexistent landscaping?

From a practice angle, the potential of organizational virtual reality is immense. Firms of architects and consultants have long teamed together as associations or joint ventures, but these entities were always hamstrung by bad communications. Today, computer networks make possible instant and accurate contact among team members separated by oceans and continents. The same promise lies in architectural schools working together globally on identical problems, as MIT dean William Mitchell demonstrated last year in a problem assigned to five schools on three continents, using an electronic network that allowed for virtual teamwork, virtual crits, and a virtual jury. As the fiberoptic "Infobahn" comes into its own [RECORD, Editorial, October 1993], all of this will become routine.

At a larger scale, virtual reality raises deeper questions for the architect. Take Walt Disney Company chairman Michael D. Eisner's decision to build a Civil War theme park in Prince William County, Virginia for two thirds of a billion dollars, including two golf courses, hotels, and 2,281 units of housing. Why, cry opponents, create make-believe battlefields and fake battles when the real thing is all around you? By dramatizing and focusing—as only theater can do—the venues and events of the Civil War in a controlled, virtual environment, claims Eisner, you can learn and have fun besides. And create jobs for a hard-pressed construction industry. The flaw in the opponents' case is not that the idea of such a theme park is wrong—after all, theater in Greek days used machinery to fake reality; the medieval jousting tournaments merely *simulated* warfare. The sin is rather in the crass siting, in direct local competition with the real thing, diluting the impact of the real battlefield and threatening, like an urban Gresham's Law, to make the virtual more real to a TV-raised culture than the real real.

Howard Mac Fish recently wrote to the *Princeton Alumni Weekly* objecting to a plan to cover the lacrosse field with artificial turf. "Lacrosse," he wrote, "is an organic game; it finds nurture in mud and rain...the educational implications are disastrous. At the deepest level, the lessons learned are that 1. life is best lived separate from nature, 2. the earth's lack of smoothness and cleanliness gets in the way, 3. 'correcting' nature is superior to cooperating with her, and 4. we can't do our best unless conditions are just right."

Virtual reality is here to stay. How *virtuous* it is, is up to us. *Stephen A. Kliment*



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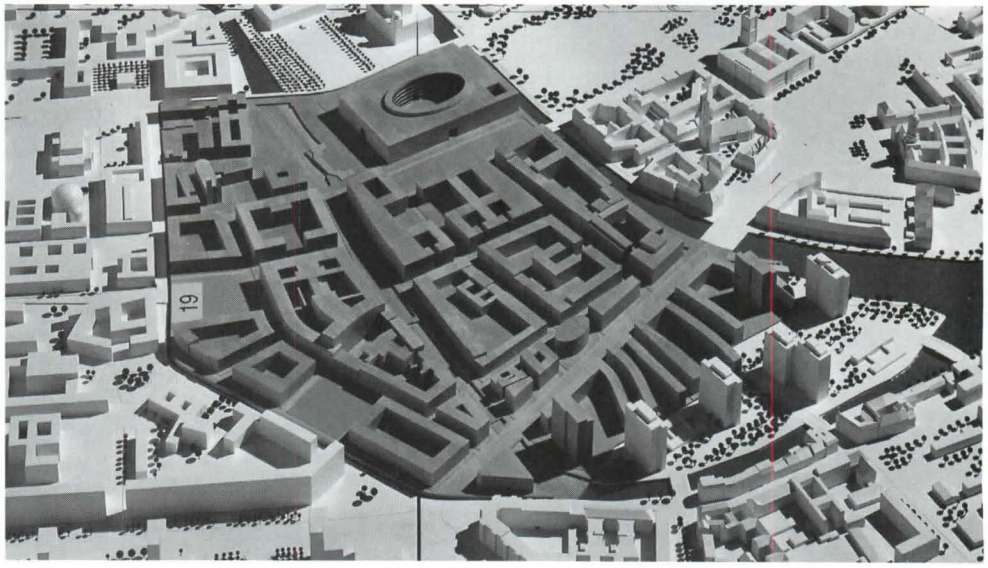
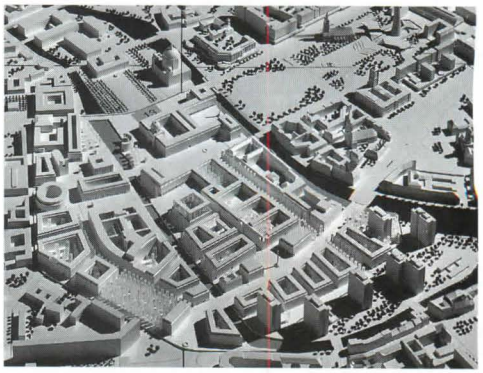
Germany

Young Architects Surge in Open Spreeinsel Competition

The master plan competition for the Spreeinsel, a central Berlin river island slated to become the symbolic and functional heart of the New Germany, has been won by Bernd Niebuhr, a virtually unknown 35-year-old who was able to shine because the contest was completely open (to avoid feelings that closed events create predictable "name" designs). That unknowns did well is good, but since first-rate established firms rarely can compete with newcomers whose overheads are zero, designs that may forever identify the Spreeinsel as the center of a new kind of society, perhaps even a new Europe, were not altogether impressive.



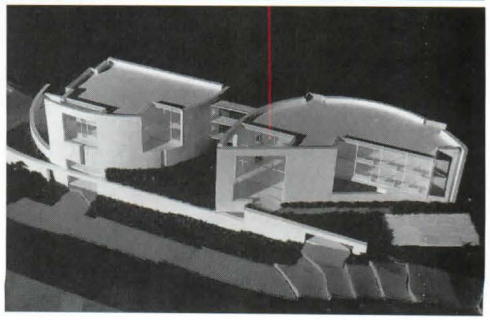
Niebuhr's scheme (top) created interesting outdoor spaces and river-edge relationships, and daring in its amphitheater-shaped civic center placed into the core where the imperial Schloss once stood and where the hulking Communist-era Palast der Republik still does. But the distinctly different place the oval suggests would hardly be visible at pedestrian level, where the exterior might appear forbidding. It seemed too massive to plonk down just below the old Dom and Schinkel's Altes Museum and not sensitively related to the Alexanderplatz to the East. To be fair, it didn't relate well to the Unter den Linden on the West either—and the proposed Alexanderplatz complex is not inspiring—but, still, a Spreeinsel that does not link West and East could create resentment in Eastern Germany and, indeed, in Eastern Europe. Second-place Kruger, Schuberth, Vandreike (right) features a main building whose terraced court formed a handsome overlook toward the Spree River and the East, and similar courts elsewhere oriented to the West. There probably will be contests for parts of Niebuhr's plan, but construction is moot, what with lively sentiment for rebuilding the Schloss, opposition to the Palast der Republik demolition, and doubt about the forms of ministries if and when they move from Bonn. *Peter Blake*



Los Angeles

Getty Service Structure Adapts to Terrain and Neighbors

Jeffrey M. Kalban & Associates has shaped a 65,000-sq-ft ground-maintenance storage and office building with a visiting artist studio at the entrance to the new Getty Center, not only to suit its steeply sloped and curving terrain, but also to fit the adjacent residential neighborhood. A glass bridge connects its two wings, visually pulling the hillside through the project and reducing the apparent mass of the building. The decks will be planted in French and English lavender.■



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Design

Briefs

Winners

•James Ingo Freed has been inducted into the American Academy of Arts and Letters. The Academy has also awarded the Arnold W. Brunner prize to Renzo Piano and its "Academy Award" to Craig Hodgetts and Ming Fung.

•For designing the "Expressionist Utopias" exhibit at the Los Angeles County Museum of Art, Coop Himmelblau has been named a winner in the American Association of Museum Curators Exhibit Competition.

Moves

Carol Clark has been appointed executive director of the New York AIA chapter. She was previously deputy executive director of the New York Department of City Planning where she handled intergovernmental relations.

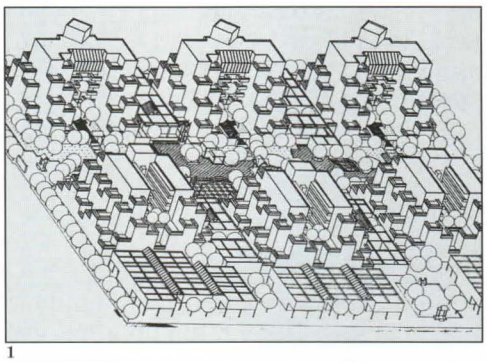
Remembered

•Architect/crusader for Palestinian-Israeli peace Rustum Bastuni died in May at age 71.

•Brazilian landscape architect Roberto Burle Marx died in June at age 84. He designed the gardens of OAS headquarters, Washington D.C.; Unesco headquarters, Paris; and parks and hanging gardens for Brasilia.■

Global

Asia/Otis Student Competition Seeks Regional Urban Housing



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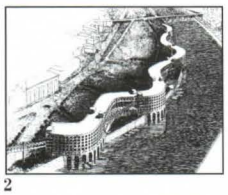

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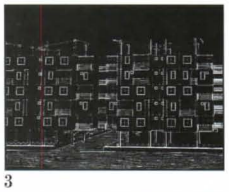

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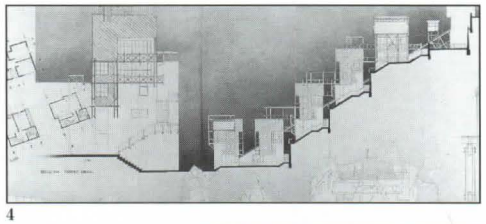


4

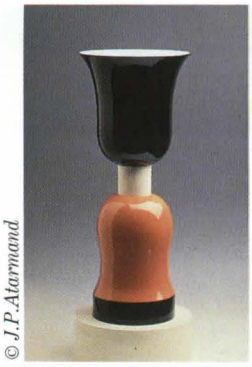
Liu Hong Wei, Yin Yi Mu, Xu Feng and Xiao Feng from China's Tianjin University have won the Grand Prize (1) in the fifth annual student design competition sponsored by Otis Elevator and the Association of Collegiate Schools of Architecture. Rati Chomakhidze and David Vashakidze of Tbilisi State Academy of Arts in the Republic of Georgia won the European prize (2). Martin Lee Yue Kong of the University of Hong Kong won the Australasia prize (3). Ernesto Inostroza and Walter Quintana of the University of Chile won the Americas prize (4). The competition, themed to urban housing and drawing over 1,700 region-specific entries from 186 schools in 49 countries, was judged by Charles Correa, Joan Goody of Goody Clancy, John Miller of London, and Otis vice president for product strategy Joe Bittar. Having expanded this year to include Asia and Latin America, the sponsors hope to have the support systems in place to include Africa in next year's competition. Prizes totaled $28,000 cash plus travel stipends for the students and their faculty sponsors to present the projects at the annual ACSA European Conference on Urban Issues in London.■

Paris

Sottsass Shows, Tells, Looks Forward to Inner Quiet and Recasting Ideas on Architecture

Ettore Sottsass has had "a nomadic life made up of notes." His curiosity has led him to explore architecture, industrial design, furniture, decorative arts, and photography, linked investigations that are given equal space in the first major retrospective of his work in over 15 years, through September 5, at the Centre Georges Pompidou. Some 400 drawings and objects cover the 1960's Olivetti typewriters, the Memphis years, the 1990 Energieen *(2)* furniture towers, continuing work in glass and ceramics *(1)* and architecture models *(3)*. At 76, Sottsass has returned to his beginnings, redefining his ideas about architecture in several new house projects. "My father was an architect," he says. "I grew up with architecture as nourishment. I stopped doing architecture because I couldn't deal with institutions and laws. I was young, wanting to be in on the beginning of things. The Memphis idea was a sort of a historical note, not in the sense of history, but in the sense of myself. It had to come. Now, designing houses can support the possibility of being silent, at peace with yourself."

Claire Downey



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WHEN NOTHING ELSE IS GOOD ENOUGH FOR LONG ENOUGH

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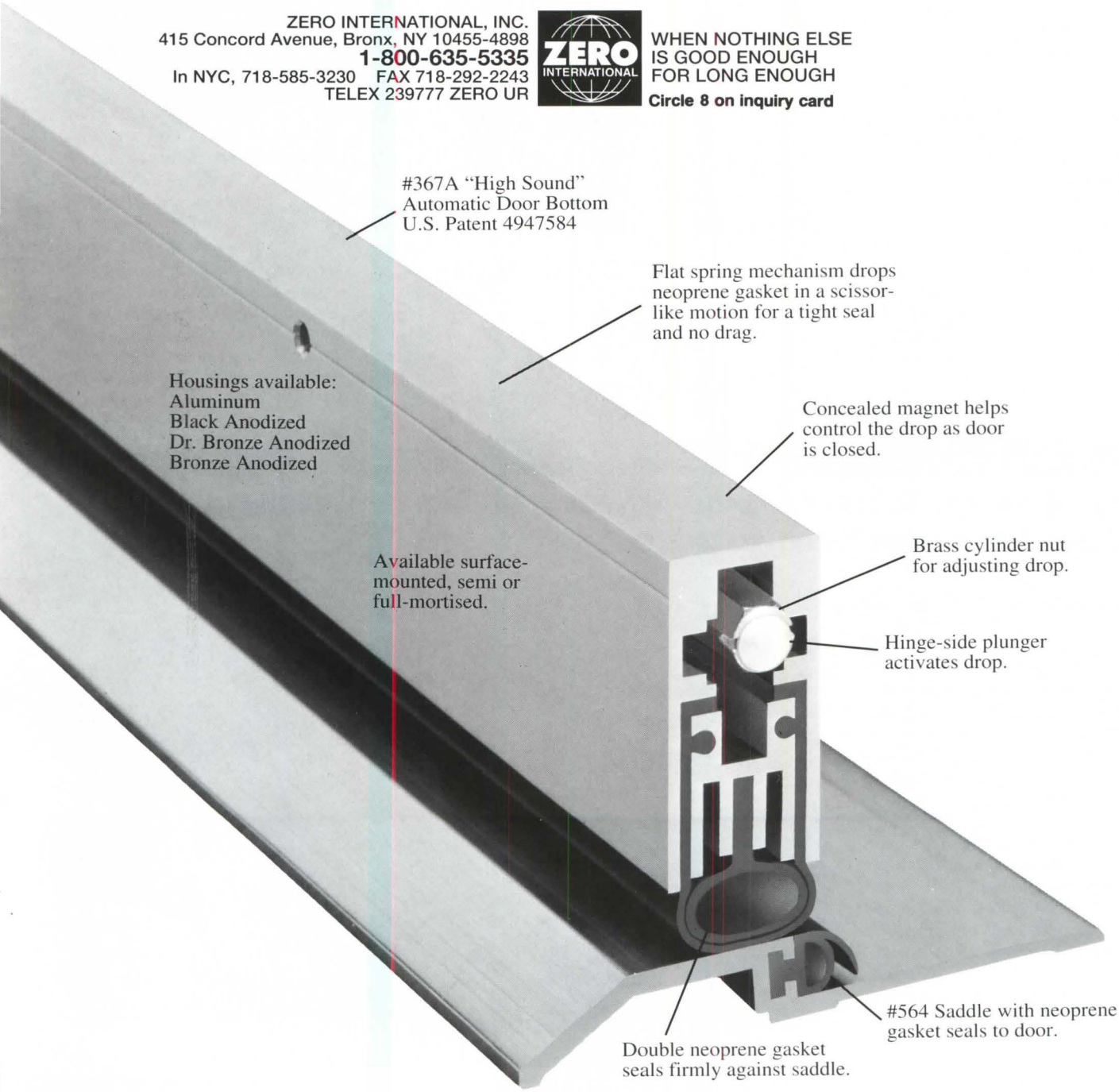

Foster Awes AIA With Range of Skills

A highlight of this year's AIA convention in Los Angeles was Sir Norman Foster's concentrated lesson on how a firm is able to ally a unique poetic insight with forefront technology, however unorthodox. Foster described his proposed use of oil rig technology to produce big, rigid components such as structure and cladding anywhere in the world and ship them on barges to the new island-based airport at Hong Kong.

Another example of imaginative thinking is his firm's invention of a special bus for the disabled to roam London's botanical garden, an ingenious vehicle that needed no ramps or level changes, and was researched and built in eight months for the equivalent of $130,000, a fraction, according to Foster, of what the traditional auto industry would have charged. Foster's office likewise developed a series of urban furniture, and for a large office park project in Duisburg, Germany, evolved a system of space-conserving alternate-energy sources that capitalized on the property of chilled water of taking up far less space in a building than chilled air.

Elsewhere, Jim Franklin, an AIA resident fellow, once again lured a large and attentive audience to his small-practice management workshop. This isn't surprising considering the parlous state of the California construction climate, in which many new offices have been founded by architects laid off by the larger firms.

In business sessions, delegates voted down a Massachusetts resolution to promote adoption of uniform licensing laws; defeated a Texas resolution to make sure AIA rules and policies conform to a narrow interpretation of AIA's professional objectives and eschew controversial issues beyond them, but passed a somewhat similar Alabama move to limit any Institute funding of its components and any outside groups to initiatives that are in line with AIA's stated purpose.

The Walter Wagner Forum, an annual event sponsored jointly by the AIA and RECORD, and commemorating RECORD' s late editor, took up the role of the architect as entrepreneur, deciding that such a role offers as many opportunities as it poses a threat to professionalism.

In other events, the top 1994 Benedictus Awards for Innovation in Laminated Glass went to Odile Decq and Benoit Cornette for their Banque Populaire de l'Ouest in Rennes, France.

11,421 attended the convention, held in James Freed's spectacular new glass and steel convention center [RECORD, January 1994], down from 13,500 in Chicago in 1993. Raymond G. Post, Jr. of Baton Rouge was chosen first vice president. Ronald Altoon of Los Angeles, Phillip Gerou of Evergreen, Colo., and Carole Olshavsky of Columbus, Ohio were elected vice presidents. *S.A.K.*■

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Boston

CONTECHS 94 Cites Seven Buildings

Turning advanced construction technology (ACT) into vital building designs is a perennial challenge to architects and engineers. The five first-place and two second-place award winners chosen by the jury at the recent CONTECHS'94 conference in Boston represent the best of the 48 submitted entries in CONTECHS's ACT awards program.

The winners were: the Noble Research Center at Oklahoma State University, Stillwater, a laboratory of advanced solar energy technology, designed by The Architects Collaborative in association with Frankfurt-Short-Bruza Associates; restoration of intricate ornamental concrete work on the Baha'i House of Worship in Wilmette, Illinois, by Wiss, Janney, Elstner Associates, engineers; renovation of the old Dudley Station, Roxbury, Massachusetts, by Domenech Hicks & Krockmaric, Inc.—an inventive use of modern products as replacements for deteriorated walls and roof; IBM's emergency access and egress tunnels at Essex Junction, Vermont, by architects Symmes Maini and McKee Associates, an ingeniously solved code-required scheme which was built without interrupting operations; and Charlestown Navy Yard rowhouses, Charlestown, Massachusetts, by William Rawn Associates, a design that made rigorous and appropriate use of traditional construction technology.

Second place winners were HOK for the Reorganized Church of Latter Day Saints Temple in Independence, Missouri, and East End Terminal at La Guardia Airport, New York City, by Morse Diesel International.

Judges consisted of Leon Glicksman, head of MIT's building technology group, structural engineer William LeMessurier, Fred Moahvenzadeh, head of MIT's center for construction research, Smith Hinchman Grylls Associates vice president Thomas O'Connor, Canada's National Research Council member Madeleine Rousseau, and RECORD editor Stephen Kliment.

CONTECHS was co-sponsored by CSI/Boston and the Construction Information Group of McGraw- Hill, Inc. ■

Washington, DC

Foundation Names Bonner to Board

Stephen B. Bonner, president since 1991 of McGraw-Hill's Construction Information Group (which includes RECORD), has joined the board of regents of the American Architectural Foundation. The Foundation was launched in 1942 to promote excellence in American architecture by serving as a link between the public and the profession. Activity highlights include the annual celebration Accent on Architecture (jointly with the AIA), support of local units' efforts in their communities, the Grand American Avenue 1850-1920 exhibit, and public television programming. Bonner joins a group that includes RTKL's Harold Adams, SUNY Purchase president Bill Lacy, Max Bond, and Architect of the Capitol George White. ■


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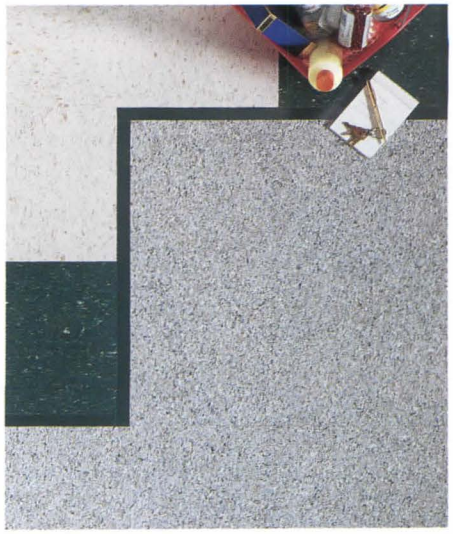

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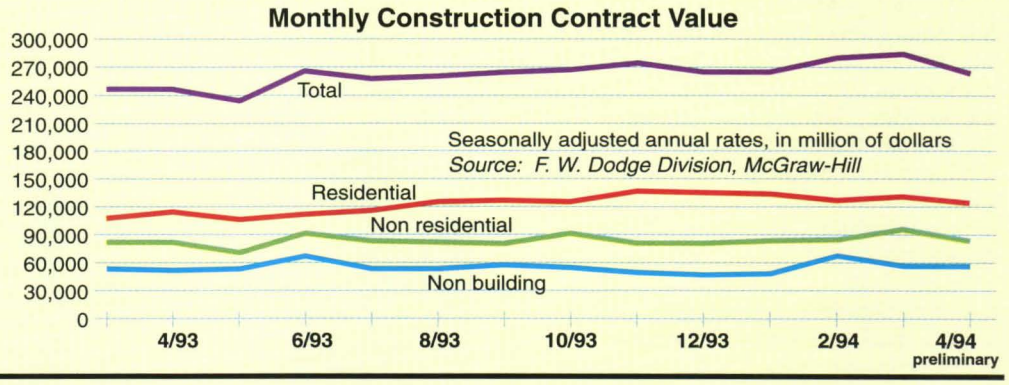
Indicators

Construction takes downward turn

Construction contracts fell in April, following a modest recovery in February and March after a three-month slump. While nonbuilding construction remained the same from March to April after a February decrease, nonresidential building dropped 12 percent and residential construction decreased seven percent. These drops followed a two-month upward trend. Despite the falling numbers, the January through April period marks a six-percent increase over this period last year. ■

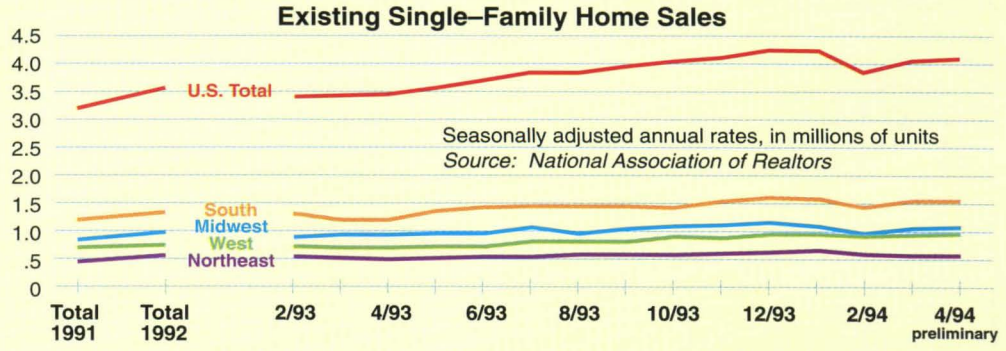


Housing starts bounce back

New home building has gained ground this spring. The peak was December. After a harsh winter, the March increase hit 11.1 percent, returning starts to the same levels as November and December of last year. The threat of rising interest rates and heightened consumer confidence spurred the industry's activity. The figures don't reflect May interest-rate jumps. Housing analysts caution that starts will likely ease back as the year progresses. ■

Home sales beating 1993 figures

Strong home sales figures reflect consumer confidence in the economy and recognized early 1994's bargain interest rates. The National Association of Realtors reports a seasonally adjusted annual sales rate of 4.12 million single-family homes for April, up 19.1 percent over the year before. The western region led this increase, upping sales by 34.7 percent. The average selling price of homes in April stood at $108,900 nationally, compared to $105,500 last April. ■



The Profession This Month

End of Interest-Rate Volatility?

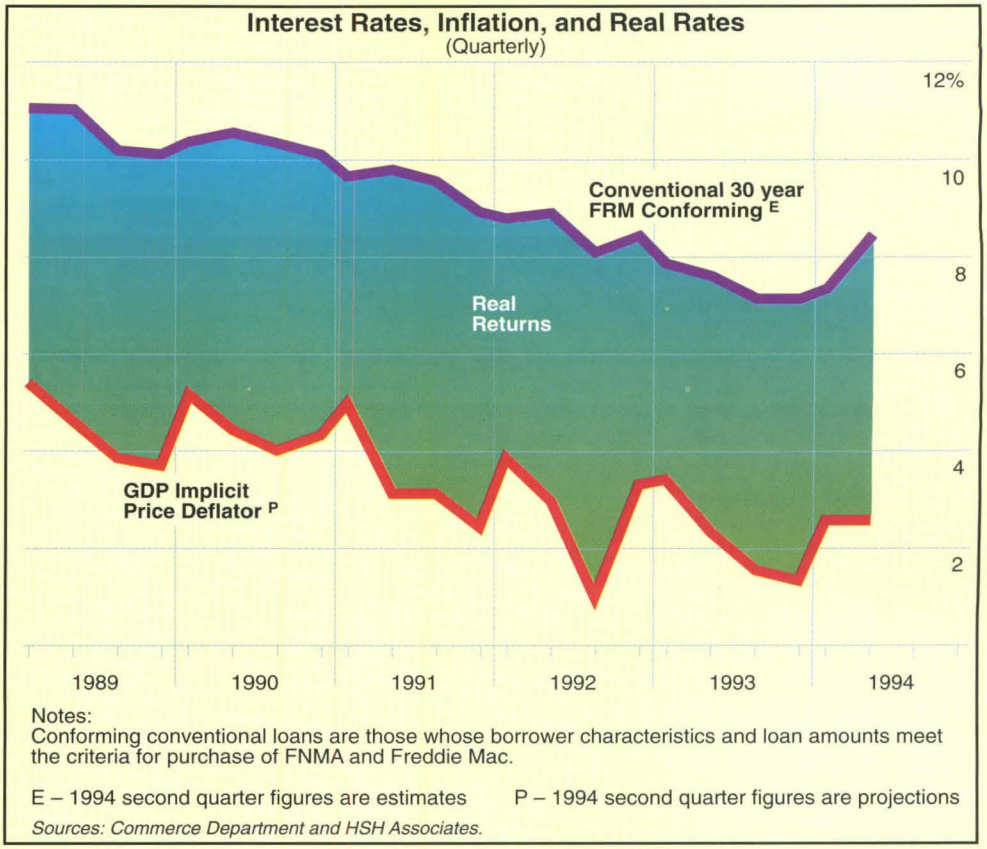
Speculative fever, as much as inflation fears, drove recent rises in borrowers' interest rates. Markets should settle down for the rest of 1994.

By Phillip E. Kidd

Just when it seemed historically low interest rates were bringing home buyers and investors off the sidelines and into construction investing, financial markets went into an anti-inflation frenzy—pushing rates up rapidly and unexpectedly. Are low rates a thing of the past? Will the jumpy market sideline investors, thus further stretching an already weak construction recovery?

True, inflation worries made the headlines, but an unhealthy combination of financial leverage and speculation in illiquid financial instruments also drove the financial markets.

Exceptionally fast economic growth in early 1994 awakened fears that inflation was about to break loose. To demonstrate its resolve to head off inflation, the Federal Reserve made what should have been seen as a trivial increase on February 4. Instead, it took markets accustomed to low rates by surprise (rates have been trending downward since 1990, last year reaching levels not seen since the early 1960s), and dramatically altered expectations in the financial markets.



Financial speculators versus Fed

Instead of reassuring investors, the Fed's move wrought havoc for speculators counting on continued low rates. When rates were slumping, individual and institutional investors had pulled funds out of low-yielding investments in favor of the bond or stock markets, driving prices of both higher. Money went to European countries when their interest rates began to slip in 1993. Other funds headed to developing countries in Latin America and Asia, where prices of financial instruments on immature or newly created stock and bond exchanges soared. Speeding this transfer of billions upon billions of dollars was the increasingly electronic integration of global financial markets.

Sophisticated investors exploited the unusually large spread between short- and long-term domestic rates, eagerly borrowing short-term funds to buy long-term bonds. Borrowed funds were aggressively used to purchase a myriad of derivative products to hedge against interest-rate or currency risk. (The value of derivatives is based on conventional financial instruments, such as stocks and bonds. Futures, options, and interest-rate swaps are common examples of derivatives.) In the 1990s, investment bankers invented intricate combinations of derivatives to take advantage of even tiny differences in currency values.

By early 1994, huge numbers of domestic and foreign investors had wagered billions, often with borrowed money, that interest rates in the U. S. and around the world would continue moving lower. On February 4, the Federal Reserve changed the game by edging the funds rate up. Experts had not, however, understood the size of the speculative bubble. As rates advanced, the prices of fixed-rate securities fell. Abruptly, the collateral backing loans was worth less. Lenders asked borrowers either to make a partial repayment or supply more collateral to cover the loans. Strapped for cash, borrowers tried to liquidate some of their derivative holdings. Unfortunately, complex derivatives are usually tailored for specific needs or situations, severely limiting their marketability. Unable to sell these derivatives easily, borrowers sold more readily marketable securities, especially treasury bonds and domestic stocks. That drove their values down, generating the need for even more sales of these securities. Quickly the selling pressure spread, hammering stocks and bond prices around the world, especially on exchanges in developing countries.

As rates climbed and uncertainty spread, U. S. bond investors continued to fret about inflation. Caught off guard by the tumult in the domestic markets, and forced to play catch-up, the Federal Reserve pushed the federal-funds rate up three more times throughout the spring to 4.25 percent on May 17. In turn, long-term rates rose nearly 2 percent above their October 1993 lows.

Phillip E. Kidd, Ph.D is a real estate and economics consultant in Stamford, Conn.

Commodity Prices Up; Labor Prices Steady

Will the Fed keep pushing rates up?
By late May, the rapid escalation in rates had broken the speculative bubble and, along with a slowing in key economic indicators, calmed the domestic financial markets. Soon investors will recognize that inflation is not much of a threat this year, and their demand for ever-larger real returns will ease (the gap between the lines of the graph opposite). As a result, long-term rates will drift downward in the second half.

In particular, rates on 30-year single-family mortgages will slip back from May's 8.50- to 9.0-percent range toward a 7.75- to 8.50-percent range. Lenders will also use attractive initial rates on adjustable-rate mortgages (ARMs) and two-step mortgages (in which the initial rate is set below market for three, five, or seven years, then reset to the prevailing market rate for the remaining loan term) to entice reluctant home buyers back to the housing market. By mid-summer, housing starts and sales will be fully recovered from any ill effects of the spring run-up in rates.

Nor should the current rates restrain public or institutional development based on loans or floating bonds. These owners' decisions are based more on their individual fiscal health; rates are not so out of line as to change their decision-making rationale. Retail building will continue to draw support from solid gains in housing starts. Meanwhile, persistent demand from pension funds and other institutional investors for income properties with strong cash flows will encourage multifamily and office-property owners to spend more on upgrading to attract or hold tenants.

Continued economic expansion? Yes
While it may not continue at the late-1993 rate, the economic expansion should continue. Recently, the economies of several of the country's major European trading partners have started to recover. As their growth improves, foreign demand for U. S. industrial production will increase. Domestic manufacturers, already accelerating their construction expenditures to capture a greater share of the U. S. market, will boost such outlays even more to meet rising overseas demand for their products. ■

This month marks the return of Building Cost Indexes in a revised format. We are now obtaining figures from the Construction Economics Department of *Engineering News-Record* (*ENR*), which allows reporting of more recent data.

Price rises look somewhat slower in 1994 than they were last year. The 7.4 percent overall rise in prices was driven largely by a 34 percent increase in 2-by-4 lumber prices. Lumber rose another 34 percent in the first quarter of 1994, though prices will likely moderate as the spring inventory build-up dissipates. A few other commodities—asphalt and fabricated structural steel—have also gone up recently. Price increases may outpace general inflation in 1994 because many manufacturers scaled back production so much during the extended construction recession that capacity is now much lower.

Labor, on the other hand, has gained little, and increases are expected to remain within the 3 to 4 percent range this year. Cities with the fastest rising prices are typically in the Northeast (which is beginning to join the recovery), and the Midwest (which suffered least in the downturn). Higher prices in California can be pinned on earthquake rebuilding, though the weak underlying economy in that state bodes ill for extended price increases.

Using the indexes
Those who have followed RECORD's indexes in the past will find that the data is reported below in a way very similar to that used when Dodge Cost Systems was the data source. *ENR* checks spot prices monthly for commodities to get an early measure of price movement. The commodity prices aren't averages; actual prices in a city may vary depending on the competitive environment and local discounting practices. By using so few commodities as the basis for prices, volatility can readily be detected, but the indexes are vulnerable to price changes specific to a commodity (as is the case for lumber these days).

Building Cost Indexes

	1990	1991	1992	9/93	12/93	3/94	6/94	% change from 3/94	%change from 6/93
Atlanta	2233.80	2278.83	2404.75	2477.13	2458.75	2508.84	2513.86	+0.2	+1.5
Baltimore	2579.90	2508.06	2607.76	2673.24	2787.51	2867.82	2803.46	+0.6	+2.2
Birmingham	2149.96	2189.75	2279.26	2352.15	2485.05	2582.97	2496.13	-3.6	+1.4
Boston	3110.03	3102.31	3355.57	3539.63	3624.03	3526.11	3596.09	+2.0	0.0
Chicago	2893.60	3034.72	3162.99	3325.70	3347.46	3352.90	3385.54	+1.0	+2.6
Cincinnati	2638.73	2674.15	2817.16	2920.20	2892.78	2892.78	2949.90	+2.0	+2.0
Cleveland	2886.93	2903.81	2903.10	3088.76	3088.76	3301.60	3319.82	+0.6	+3.3
Dallas	2061.61	2215.88	2278.21	2307.62	2365.65	2574.11	2585.70	+0.5	+0.1
Denver	2321.28	2375.26	2438.39	2501.00	2573.90	2723.27	2660.41	-2.4	-1.4
Detroit	2974.47	3046.92	3136.74	3278.20	3373.95	3449.02	3440.36	-0.3	+0.6
Kansas City	2645.28	2637.20	2677.21	2873.20	2874.34	2961.58	2916.25	-1.5	+2.5
Los Angeles	3020.51	3097.83	3198.66	3359.03	3334.43	3362.31	3415.04	+1.6	+4.3
Minneapolis	2648.43	2711.50	2811.14	2989.48	2978.60	3152.68	3196.33	+1.3	+6.1
New Orleans	2220.20	2260.52	2360.24	2330.86	2414.37	2506.85	2604.77	+3.9	-1.5
New York	3847.21	3997.91	4151.28	4343.76	4349.20	4298.61	4382.77	+1.9	+2.9
Philadelphia	3040.85	3169.81	3130.58	3532.34	3377.98	3405.18	3435.77	+0.8	-4.3
Pittsburgh	2717.08	2807.73	2954.64	3038.97	3140.13	3257.09	3247.32	-0.3	+3.2
St. Louis	2602.16	2686.93	2743.01	2840.58	3034.48	3050.80	2963.30	-0.9	+2.2
San Francisco	3245.04	3270.90	3298.09	3463.34	3428.04	3467.40	3499.57	+0.9	+3.6
Seattle	2552.58	2715.04	2787.74	2948.18	2980.82	3073.30	2991.70	-2.7	-0.1
20-City avg.	**2702**	**2751**	**2834**	**3009**	**3046**	**3116**	**3115**	**-.03**	**1.6**

Source: *Engineering News-Record, Construction Economics Department. The Building Cost Index combines 68.38 hours of skilled labor weighted by the 20-city average of bricklayers', carpenters', and structural ironworkers' rates, plus 25 cwt of standard structural steel shapes at the mill price, plus 22.56 cwt (1.128 tons) of portland cement spot-priced locally, plus 1,088 board-ft of 2 by 4 lumber spot-priced locally. The base year is 1913 = 100. To compare a given city's costs by percent, divide one index into the other. Example: the index for a city for one period (200) divided by the index for an earlier period (150) yields 1.33, which means the costs in the later period are 33 percent higher than the earlier period. Likewise, the earlier period's costs are 75 percent of the those in the later period (150 divided by 200=.75 or 75 percent).*

Recovery: Gradual, Extended, But Still on Track

By Robert Murray

Though 1994 is the third year of the construction recovery, growth has been so subdued (9 percent in 1992 and 6 percent in 1993) that it may seem invisible to many. Compared to a typical recovery, the industry has seen smaller gains, and improvement in fewer regions and fewer building types. At a similar point in the 1977 and 1984 recoveries, the growth in construction value was much higher: 55 percent over the low point in 1977 and 36 percent in 1984, compared to the meager 15 percent in 1993. Though housing has been very important in this recovery, it showed double and triple the improvement in earlier recoveries; income properties also contributed strongly to 1977 and 1984 growth, but not so now.

Recently, the overall economy has expanded robustly (fourth quarter 1993 growth was 7 percent, compared to the meager 0.8 percent and 1.8 percent of the first and second quarters). Thus, the construction recovery should gain momentum as 1994 proceeds, and broaden in terms of both construction type and region. Early results for the year's first quarter showed this trend: non-residential building climbed 2 percent above the previous three months, while public works jumped 9 percent, balancing a slow start for housing due to the harsh winter in many parts of the nation. There are special risks, however, in this gradual and extended recovery. The building types that fueled growth up to now (single-family housing and transportation public works) are likely to lose momentum. Will other sectors offer enough support to keep the recovery going?

Housing: strength early; tapering later

Housing activity in 1994's first quarter slipped back slightly from 1993's end-of-year strength, but this was due more to harsh winter weather than rising mortgage rates. With improving consumer confidence, the stimulative effects of last year's 7 percent mortgage rates finally took hold, boosting 1993's annual total to 1.016 million units (F. W. Dodge basis). A single-family rebound is likely to show up in second-quarter figures for several reasons: pent-up demand from

Robert Murray is Vice President of Economic Affairs for McGraw-Hill's Construction Information Group.

1994 National Estimates — Dodge Construction Potentials — June 1994

		1993 Actual	1994 Forecast	Percent Change 1993/94
Nonresidential Buildings				
Floor Area (in millions of sq. ft.)	Office Buildings	89	98	+10
	Stores and Shopping Centers	207	225	+9
	Other Commercial	183	200	+9
	Manufacturing Buildings	105	115	+10
	Total Commercial & Manufacturing	584	638	+9
	Educational,	157	162	+3
	Hospital & Health	73	71	-3
	Other Nonresidential Buildings	144	154	+7
	Total Institutional & Other	374	387	+3
	TOTAL NONRESIDENTIAL BUILDINGS	958	1,025	+7
Contract Value (millions of $)	Office Buildings	$12,206	$13,700	+12
	Stores and Shopping Centers	13,062	14,550	+11
	Other Commercial	8,971	10,075	+12
	Manufacturing Buildings	8,495	9,400	+11
	Total Commercial & Manufacturing	$42,734	$47,725	+12
	Educational	$18,291	$19,775	+8
	Hospital and Health	10,200	10,050	-1
	Other Nonresidential Buildings	16,675	18, 125	+9
	Total Institutional & Other	$45,166	47,950	+6
	TOTAL NONRESIDENTIAL BUILDINGS	$87,900	$95,675	+9
Residential Buildings				
Dwelling Units* (thous. of units)	Single Family Houses	1,016	1,075	+6
	Multifamily Housing	180	200	+11
	Total Residential Buildings	1,196	1,275	+7
Floor Area (millions of sq. ft.)	Single Family Houses	1,861	1,965	+6
	Multifamily Housing	190	210	+11
	Total Residential Buildings	2,051	2,175	+6
Contract Value (millions of $)	Single Family Houses	$110,533	120,425	+9
	Multifamily Housing	11,206	12,625	+13
	Total Residential Buildings	$121,739	133,050	+9
Nonbuilding Construction				
Contract Value (millions of $)	Transportation Construction	$35,285	$38,300	+9
	Environmental Construction	16,584	17,150	+3
	Total Public Works	$51,869	$55,450	+7
	Utilities	$4,593	$5,000	+9
	TOTAL NONBUILDING CONSTRUCTION	$56,462	$60,450	+7
All Construction				
Contract Value (millions of $)	**Total Construction**	$266,101	$289,175	+9
	Dodge Index (1987=100)	103	112	

**F.W. Dodge basis*

In this update of 1994's Construction Outlook, F. W. Dodge economist Robert Murray predicts the construction recovery will widen even if overall economic expansion is less robust than late 1993.

1994 Regional Estimates

Dodge Construction Potentials — June 1994

Contract Value (millions of dollars)	1993 Actual	1994 Forecast	Percent Change 1993/94		1993 Actual	1994 Forecast	Percent Change 1993/94
Northeast CT, ME, MA, NH, NJ, NY, PA, RI, VT							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$6,807	$7,425	+9	Single Family Houses	$12,630	$13,575	+7
Institutional and Other	8,287	8,950	+8	Multifamily Housing	1,924	2,250	+17
Total	$15,094	$16,375	+8	**Total**	$14,554	$15,825	+9
Nonbuilding Construction	$12,060	$12,425	+3	**TOTAL CONSTRUCTION**	$41,708	$44,625	+7
North Central IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$9,753	$10,875	+12	Single Family Houses	$25,001	$25,950	+4
Institutional and Other	11,193	11,400	+2	Multifamily Housing	3,118	3,125	-
Total	$20,946	$22,275	+6	**Total**	$28,119	$29,075	+3
Nonbuilding Construction	$11,405	$12,375	+9	**TOTAL CONSTRUCTION**	$60,470	$63,725	+5
South Atlantic DE, DC, FL, GA, MD, NC, SC, VA, WV							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$7,913	$9,425	+19	Single Family Houses	$27,198	$31,475	+16
Institutional and Other	8,258	9,625	+17	Multifamily Housing	2,339	2,950	+26
Total	$16,171	$19,050	+18	**Total**	$29,537	$34,425	+17
Nonbuilding Construction	$10,605	$11,025	+4	**TOTAL CONSTRUCTION**	$56,313	$64,500	+15
South Central AL, AR, KY, LA, MS, OK, TN, TX)							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$6,762	$8,350	+23	Single Family Houses	$18,516	$20,300	+10
Institutional and Other	7,516	7,400	-2	Multifamily Housing	1,162	1,300	+12
Total	$14,278	$15,750	+10	**Total**	$19,678	$21,600	+10
Nonbuilding Construction	$8,996	$9,700	+8	**TOTAL CONSTRUCTION**	$42,952	$47,050	+10
West AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY							
Nonresidential Buildings				**Residential Buildings**			
Commercial and Manufacturing	$11,499	$11,650	+1	Single Family Houses	$27,188	$29,125	+7
Institutional and Other	9,912	10,575	+7	Multifamily Housing	2,663	3,000	+13
Total	$21,411	$22,225	+4	**Total**	$29,851	$32,125	+8
Nonbuilding Construction	$13,396	$14,925	+11	**TOTAL CONSTRUCTION**	$64,658	$69,275	+7

Prepared by the Economics Department, Construction Information Group, McGraw-Hill Information Services Company, Robert Murray, vice president, economic affairs.

winter, homebuyers entering the market to avoid further increases in mortgage rates, and strong levels of consumer confidence combined with healthy economic expansion. Support should also come from regions late to this recovery, the Northeast and West.

The critical issue facing housing in 1994 is the impact of recent interest-rate hikes. Though buyers have been very rate-sensitive in the last few years, the recent movement has still stayed within a fairly narrow range by historical standards. And the 8.5 percent rate current at press time is still quite low relative to the early 1980s. Homebuyers are also able to avoid some of the interest-increase sting by returning to adjustable-rate mortgages, where initial percentages remain attractive and future increases are capped.

The Federal Reserve's aggressive moves to cap future inflation add a new element of uncertainty to the housing market. Most analysts regard the climb in long-term rates (which went even higher than the Fed's) an overreaction. By pushing up the federal-funds target to 4.25 percent and the discount rate to 3.5 percent in mid-May, the Fed succeeded in calming the market, at least temporarily. Long-term rates even edged down, suggesting that mortgage rates would be able to stay in the 8 to 9 percent range. The much slower pace of economic growth for 1994's first quarter (2.6 percent) should also allay fears that the recovery is overheating.

The housing market's upward momentum will taper off in the latter half of 1994 as some erosion in consumer confidence combines with the higher rates to induce a single-family slowdown. The year as a whole, boosted by 1994's first-half strength, will see single-family housing rise to 1.075 million units, a gain of 6 percent over all of 1993 and the highest annual amount in eight years.

Institutional: certain sectors are bright

During the 1992-93 period, increased fiscal stress at the state and local level led to a decline for institutional building types. By the end of 1993, an improved economic climate offered relief. A recent study by the National Governors Association pointed toward rebounding state revenues, creating

Continued on page 91

Now Departing: Airport Noise

By Wendy Talarico

Airplane noise severe enough to require remediation can affect thousands of residents and businesses. As a result, more architects are likely to get involved with buildings or retrofits near airports. The insidious nature of airplane noise makes it uniquely challenging for owners and designers of buildings within an airport flight path. The low-frequency rumbling generated by take-offs and landings invades buildings through windows, doors, vents, and other openings. A plane taking off generates noise levels of between 90 and 120 decibels (dB), depending upon weather conditions, how heavily loaded the plane is, and what type of engines it has. Landing generates 75 to 90dB. In the most severely affected areas, occupants can't shout loud enough to be heard.

Airport noise problems have grown as rapidly as air travel. Quieter airplanes and noise-reducing flight paths have lessened problems in some cities. In others, traffic volume has ballooned, with the overnight-package business taking up the slack left by flat passenger demand, according to the Air Transport Association. (Planes may take off every 30 seconds during peak hours at busy airports.)

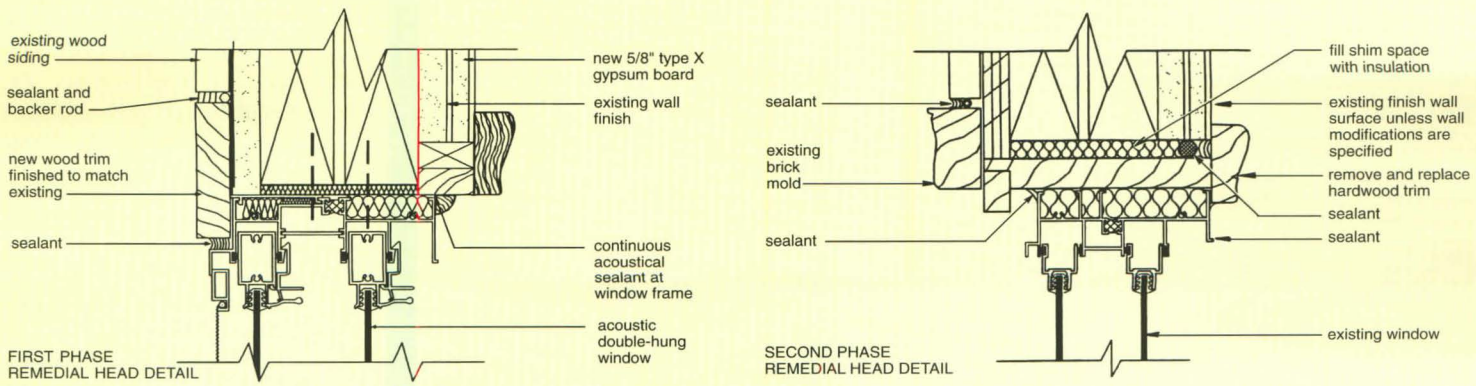
Wendy Talarico, of Fredericksburg, Virginia, is a writer specializing in technology

Airplane noise first became a problem about 20 years ago. Passage of the Aviation Safety and Noise Abatement Act created a remediation funding stream fed by taxes on tickets and aviation fuel under the Federal Aviation Regulations Part 150. Airports that seek Part 150 assistance may be acting to avoid lawsuits from area residents who find their property is devalued because of noise. The money is also used to help communities enact ordinances that dictate new construction standards for residential and commercial structures, making items like acoustically rated windows and extra insulation mandatory. Zoning regulations may limit what can be built in areas most impacted by noise. These areas are defined by a noise measurement called the day/night level, a weighted average of the airplane-noise levels within the area, and mapped as contours. Nighttime flights are multiplied by a factor of 10 since much less noise can disturb sleep.

Sealing the paths noise takes

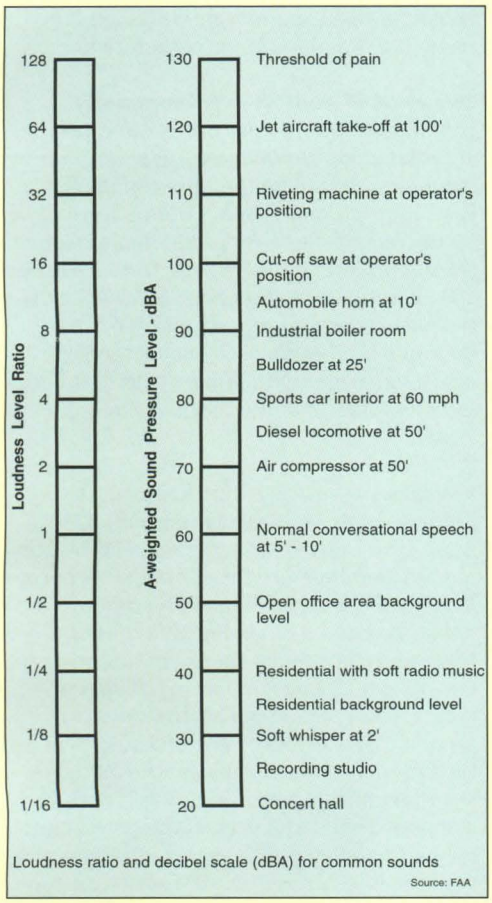
"The best structures for noise abatement are concrete bunkers," says acoustical engineer Julie Wiebusch, a principal at The Greenbusch Group in Seattle. But, since few people want to live or work in a bunker, it's up to the architect and the acoustical engineer to develop a hierarchy of noise-abatement measures. Orienting the building properly is the first step, Wiebusch says. The North Sea Tac Community Center in Sea Tac, Wash. (page **34-35**), is positioned so the gym backs up to the runway, its concrete-masonry bulk shielding the rest of the structure.

It's also important to specify high-performance windows and doors. The latter should be either solid-core wood, or insulated metal or fiberglass. A good storm door or an entry vestibule reduces noise. Among windows, the rule is the wider the air space between panes, the more sound is attenuated. Many acoustically upgraded windows use a three- to four-in. space to fit standard 2-by-4 stud walls. Four in. is considered the minimum thickness at which low-frequency waves are attenuated. Materials for window sash and frames also matter. Vinyl or aluminum are rigid enough to frame a 4-inch-or-greater air space with sightlines that are acceptably narrow. Laminated glass used for one or both of the lights also reduces noise infiltration, since the laminating interlayer dampens sound. Good weatherstripping is essential, says Dana Hougland, vice president of Denver-based David L. Adams Associates, acoustical consultants. "This is especially true in tight houses where even tiny voids introduce a large noise leak," she explains. She recommends a vinyl or silicone-bulb type material. The main points of infiltration, after



In the pilot phase of work on the MAC project in Minneapolis, architect Meyer Scherer & Rockcastle worked up a library of details with Wyle Acoustical Labs. To avoid disturbing homeowners by having site visits by as many as 15 bidders, the design team photographed each house, drew plans, and flagged areas requiring remediation, keying them to standard details (above left). In later phases, MAC asked for simpler details by architects Dovolis Johnson & Ruggieri, Inc./Bauknight Associates (above right). Most retrofits involved either replacing windows or improving their acoustics by adding storm windows or acrylic panels.

Retrofitting buildings to reduce the effects of airport noise isn't just a matter of developing appropriate details. Professionals must be keenly aware of tight budgets, locally ordained bidding procedures, and the sensitivities of affected homeowners.



Loudness ratio and decibel scale (dBA) for common sounds

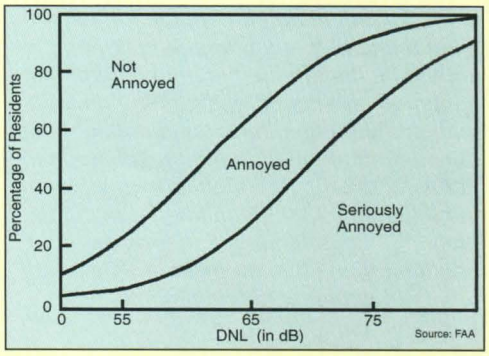
Source: FAA

windows and doors, are roof, gable, dryer, and soffit vents, ductwork, and chimneys.

Despite its reputation for reducing noise, extra insulation alone does little to quiet a structure, says Hougland. But because the public perceives it as important, most houses involved in the Stapleton Noise Insulation Program (below) had an extra layer of insulation blown into the attic. "This was done automatically to satisfy the homeowners," she says. Among insulation products, cellulose, fiberglass, or rock wool are acoustically superior to insulation board because of the air spaces in them.

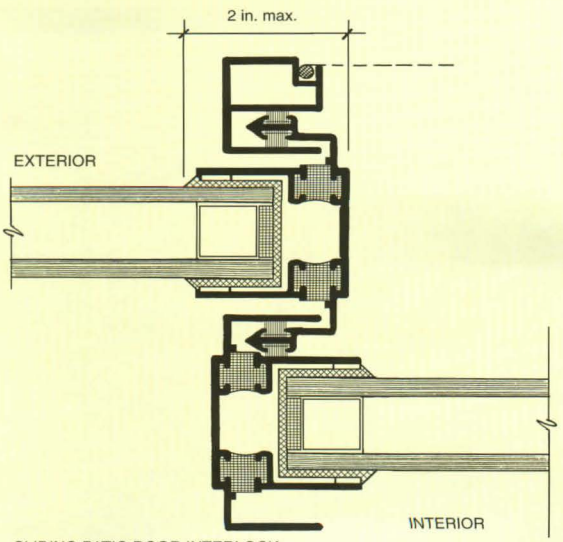
A system for 2,300 houses in Denver

Though the area ultimately built a new, out-of-town airport, several municipalities surrounding Denver's Stapleton International Airport teamed up seven years ago to retrofit homes, schools, and churches close by. Local officials undertook the program without the strings attached to an FAA program, but buildings were selected according to the agency's contour maps. Homes located in areas of 65dB and above, and churches and schools at 70dB and above were eligible. By the program's conclusion, 2,300 homes were retrofitted for noise abatement. Each home was allocated up to $7,500. In turn, residents signed a statement saying

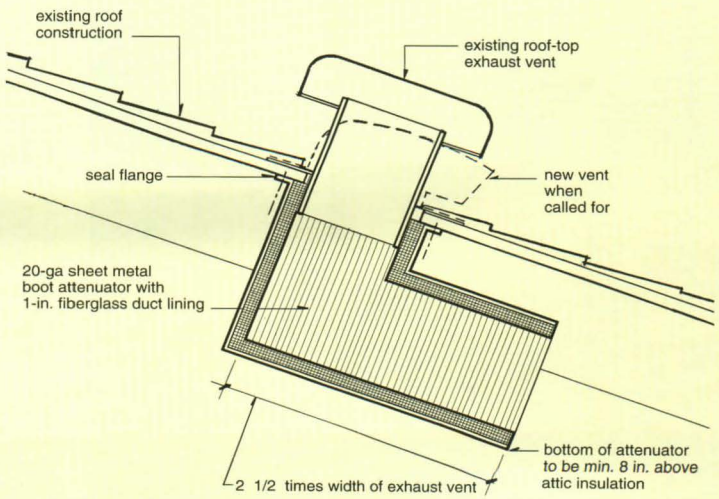


The charts on this page give a sense of the numbers of people harmed by noise and the amount it takes. Noise can cause health problems ranging from hearing loss to heart attacks, birth defects, and stress-related illnesses; experts put the danger level at about 85dB.

Below: details for the Stapleton area program. Eave soffit vents, a noise conduit, are typically sealed off and replaced with roof vents fitted with attenuation boots (below right). They baffle vents without reducing air flow. Typically made of sheet metal, their fiberglass lining and indirect air path absorbs noise. For hvac or other ducts, adding insulation and turns in ductwork may reduce noise infiltration.



SLIDING PATIO DOOR INTERLOCK



SECTION THROUGH ROOF-VENT ATTENUATOR

Jet airplanes' longer, low-frequency sound waves can actually set a flimsy building envelope in motion. These frequencies are most difficult to remedy; short waves are deflected. As a rule, the greater the mass of the building, the less noise will infiltrate.

they wouldn't bring suit against the airport. Working on so many homes at once, with limited funding for each, raised design issues as well as administrative problems. "The question became: how do you create a standardized program to deal with thousands of different homes, each of them unique, on a very limited budget," explains Dana Hougland. "We realized early on that if the residents didn't like the looks of what we were doing, they wouldn't care how much we mitigated the noise."

An important step was to create a decision tree that ranked the major points of noise mitigation. The goal was to decrease noise infiltration by 10dB or more in each home. Paul Hutton, a principal at Hutton Ford Architects in Denver, which managed the architectural side of the Stapleton Noise Insulation Program, explains the process. (His firm succeeded another Denver firm, Muchow & Partners, which folded several years into the project.) "To avoid the cost of surveying each house, the design team came up with a checklist that the city agencies who supervised the work could follow. They could fill out the checklist and come up with their own work orders."

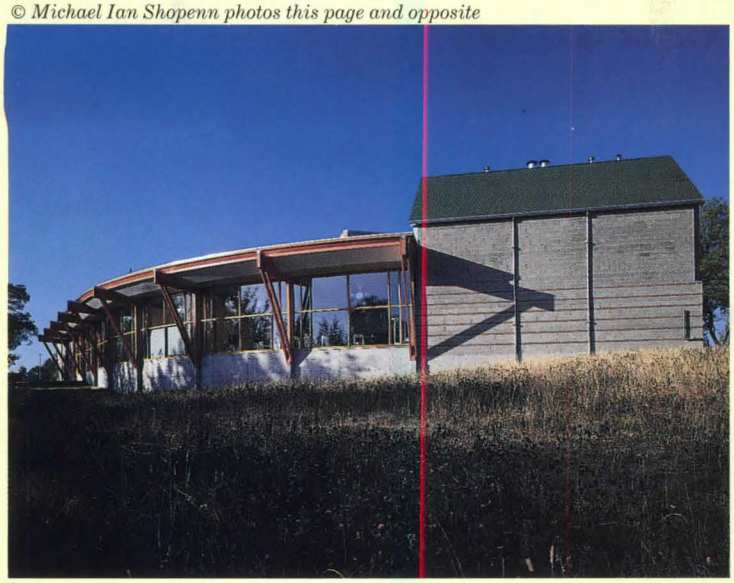
The team, after surveying 80 sample homes, created a detailed manual with standard details to show contractors how to handle every condition, from window replacement to installing evaporative coolers. Once that was complete, the consultants were only contacted to handle special or unique conditions. The project was financed by airport fees and administered through local government agencies, which bid out groups of from 10 to 20 houses. "This wasn't the most exciting stuff design-wise—noise coming in through pet doors is not a glamorous problem. But there were other challenges that made the work intriguing. It expanded our role as architects," Hutton says.

The acousticians felt that conventional Sound Transmission Class ratings allowed too much deviation in frequency bands where aircraft noise is most intrusive. They devised a window specification that required more sound attenuation at lower frequencies, thereby minimizing the difference between performance of windows and walls. "We wanted windows that performed well acoustically, weren't too hard to work, offered decent color selections and security, and were affordable," Hutton says. Officials sought a single source for doors and windows, so manufacturer interest was keen. In the end, window replacement accounted for about 50 percent of the construction cost for most houses. Testing on completed houses verified an average 12dB improvement in A-weighted noise penetration.

The peril of politics in Minneapolis

Funding for the 10-year project in which approximately 10,000 homes in several jurisdictions surrounding the Minneapolis/St. Paul International Airport will be retrofitted by the Metropolitan Airports Commission (MAC) project comes, in part, from FAA Part 150 allocations. "In this case, MAC wanted the homeowners appeased, and the work done quickly," comments Paula Merrigan, project manager with Minneapolis architect Dovolis Johnson & Ruggieri/Bauknight Associates.

The pilot phase was rocky, however. A library of details was worked up by Wyle Acoustical Labs of Washington, and the Minneapolis architecture firm of Meyer Scherer & Rockcastle. According to Merrigan, bidders resented not being able to visit projects, and some found the keynoting system (one that would be familiar to builders of larger, non-residential construction) too complex. She also says that officials opened the first phase to any builder who felt he or she could handle retrofitting 148 homes simultaneously. And each of the several jurisdictions handled the allocation of houses and the schedule differently. As a result, retrofit



Below and opposite: The SeaTac Community Center features a double roof (one made of wood trusses and the other of wood joists), which is tied into accoustically isolated double-stud walls. Exterior walls are solid-grouted concrete block, while the wood-framed interior walls and ceilings feature two layers of 5/8-in. gypsum wall board. The walls are joined with resilient clips which act as springs to help dissipate vibrations.

costs came in much higher than anticipated. Testing on completed houses, which included a variety of scopes of remedial work, convinced MAC and the FAA that simpler methods were adequate to meet noise-reduction criteria.

Subsequent phases are being done with fewer and simpler details (page 32) and a process more familiar to residential builders. Because of their past experience in retrofitting
public housing, Dovolis Johnson & Ruggieri/Bauknight were selected as architects. "We're used to working with cumbersome government money sources, plowing through lots of paperwork, and developing software to store all the information on each home," says Merrigan. The program was coordinated by the Center for Energy and Environment; MAC performs acoustical testing. Now, the project coordinators meet with homeowners and survey each house, making recommendations on what steps will be most effective in reducing noise infiltration. They draw up only a perimeter plan, and provide a materials list and a window and door schedule. The whole process takes about 7.5 hours per house, Merrigan says.

The project manual now includes a large section devoted to contractor bidding procedures and proposals along with FAA-mandated unit prices for specified items. The amount of work done and the amount of money spent on each house is determined by the minimum decibel reduction required by the FAA (5dB). Mechanical engineer ME^2, Inc. assesses hvac systems, adding intake ducts when necessary to make up for fresh-air sources lost as the structure is sealed. A project demonstration house gave residents a preview of what noise mitigation could accomplish, and offered a testing ground for products within real assemblies. The first 148 houses are now complete; a second group of 220 homes were 70 percent complete in late May.

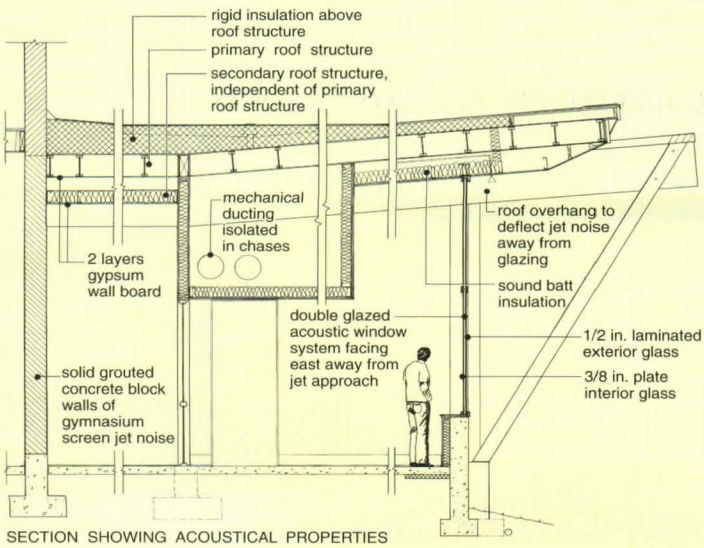
Quieting a community center

During a recent meeting at the North Sea Tac Community Center, a citizens' group concluded that neighboring SeaTac Airport had been shut down. (The center was built on land cleared of residences affected by noise from the Seattle area's international airport.) Local residents are so used to the intermittent roar of jets, they notice only when the noise stops, which it had—inside.

Seattle architects Miller/Hull incorporated a range of noise mitigation features in the $2.7-million center so that now, at a location where outside noise levels reach 100dB, interior levels seldom exceed 45 to 50dB. Since a significant amount of jet noise enters through the roof, The Greenbusch Group, acoustical engineers, recommended double roofs, one floating structurally separate above the other, in those areas of the building where quiet is most important. These roofs' mass absorbs sound, abetted by the dividing air space. These techniques "didn't matter in the gym since it was going to be noisy there no matter what we did. But the meeting rooms and the performing areas had to be quiet," says Robert Hull, a principal at Miller/Hull. An entrance vestibule avoids blasts of sound that would otherwise occur when someone opens an entrance door. ■

Further Information

- National Council of Acoustical Consultants
66 Morris Ave., Suite 1A
Springfield, NJ 07081
201/564-5859
- Acoustical Society of America
500 Sunnyside Blvd.
Woodbury, NY 11797
516/349-7800
- *Guidelines for Sound Insulation of Residences Exposed to Aircraft Operations*
Catalog Number: ADA 258594
National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
703/487-4650



SECTION SHOWING ACOUSTICAL PROPERTIES

A Slim Tower Packages Multiple Functions

Demanding programmatic and technological needs are elegantly accommodated in a high-density addition to a congested urban medical complex.

By Katherine Kai-sun Chia

Dictated by the confines of an urban site and elaborate internal functional requirements, additions to major medical centers usually result in a chaotic amalgamation of appendages that seems to speak less of a medical "center" than of a series of disjointed parts. What should be a straightforward and simple plan, easily accessible and navigable for doctors and patients alike (especially in emergencies), too often becomes a contorted, often circuitous maze. Such was the state of affairs at the New York University Medical Center, one of the largest health-care facilities in Manhattan.

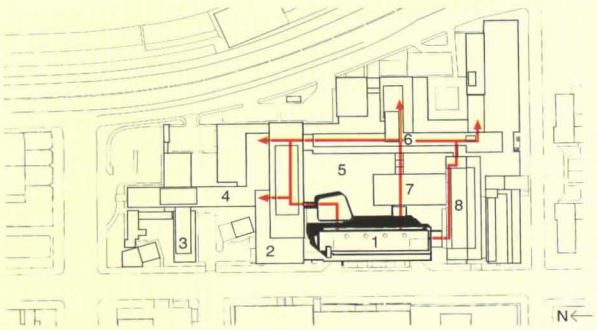
When, in 1988, the trustees commissioned James Stewart Polshek and Partners to add the Skirball Institute of Biomolecular Medicine and a residential tower for nurses, the firm was determined to give the campus the visual coherence and identity it lacked. The simple, monolithic massing of the new mixed-use, 23-story, 510,000-sq-ft tower is impressive for the economy-of-design means used. Its elegant envelope belies the daunting complexity of the programmatic, functional, and mechanical needs it serves. [For other big additions on tight sites, see RECORD , September 1990, pages 160-163.]

Occupying an irregular four-block site, the campus includes the NYU Medical School, Tisch Hospital, the Arnold and Marie Schwartz Health Care Center, and the Rusk Institute of Rehabilitation Medicine. The nondescript modern brick buildings, constructed between 1957 and 1976 by Skidmore Owings & Merrill and Perkins & Will, were informally organized and interconnected around a drive-in forecourt. The complex lacked an obvious main entrance.

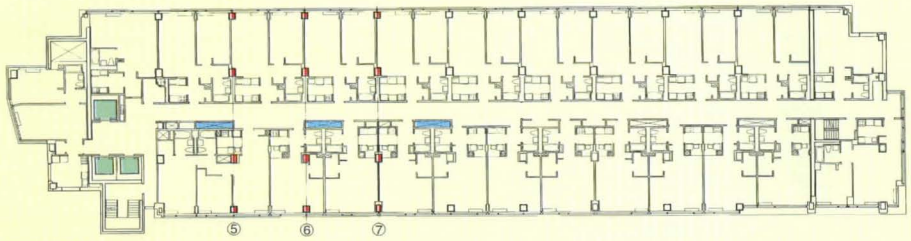
At grade, Polshek has created a grand "front door" that completes the 85-ft-high street wall along First Avenue and marks the entrance to the campus. Patients and staff approach the building from an off-street drop-off area located under an aluminum wing-shaped canopy (page **39** and site plan, opposite). The main lobby, a double-height, glass-walled 16,800-sq-ft concourse, serves

Katherine Kai-sun Chai practices with the Maya Lin Studio and writes on architecture.

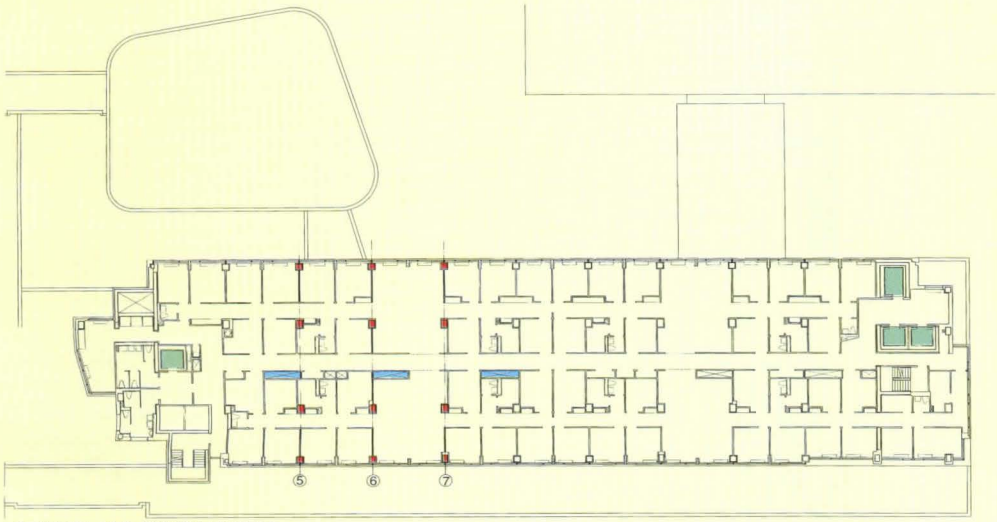
©Jeff Goldberg/Esto photos



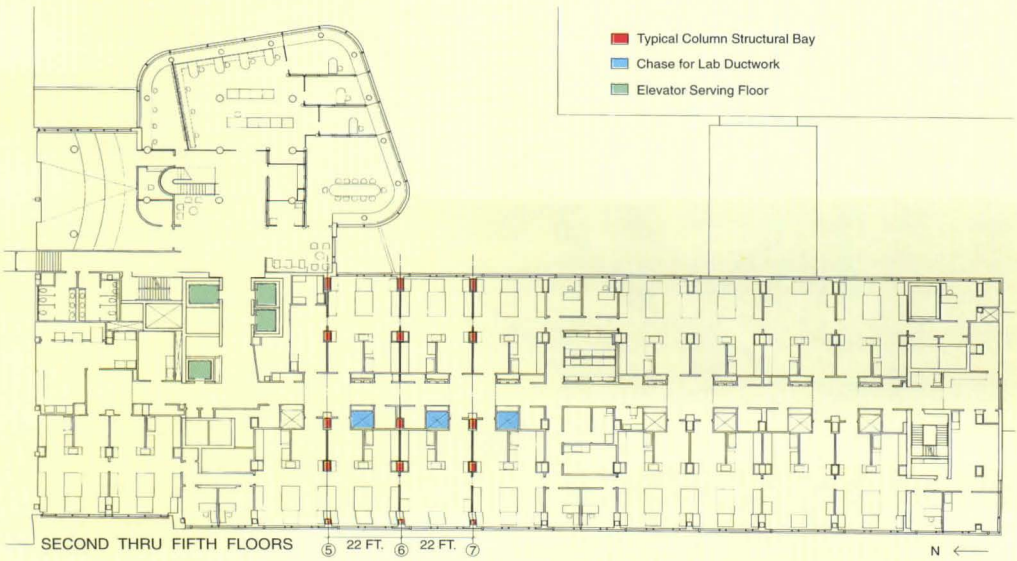
1. *Skirball Institute of Biomolecular Medicine*
2. *Skin and Cancer Unit*
3. *I.R.M. Research Building*
4. *Institute of Rehabilitation Medicine*
5. *New landscaped courtyard*
6. *Medical Science Building*
7. *Alumni Hall*
8. *Health Care Center*



NINTH THRU TWENTY-THIRD FLOORS



SEVENTH AND EIGHTH FLOORS



SECOND THRU FIFTH FLOORS

7,000 people daily and connects the building to the Tisch Hospital, the Medical School, and Alumni Hall from three new hallway links, ramped between 3/4 in. and 4 1/2 in. over a 30- to 37-ft distance to meet varying existing floor levels. The north link opens to an oblong, curvilinear glass-and-aluminum "earlobe," holding the new 4,000-sq-ft waiting and admitting area for the Tisch Hospital on the main level and the administrative offices for the labs above (plans left).

Three typologies; one "organism"

The concourse acts like a filter, providing views from the street to the former forecourt, now an enclosed, landscaped garden. Elevator banks at each end of the concourse separately serve the Institute's laboratories and faculty offices. The residential elevators, located in a separate First Avenue lobby, bypass the office and laboratory floors.

The organization of the tower's stacked functions—laboratories, offices, and housing—is deceptively simple and straightforward. The architect developed a single structural system that would accommodate varying floor plans with minimal load transfers. The 22-ft structural-bay system, adequate for offices and labs, also accepts the 11-ft residential module. "Three typologies were used for one organism," says associate partner Todd Schliemann. In order to provide the floor area for the service and storage needs of approximately 70 researchers, the lab floors extend 15 feet over the first floor drop-off area. Massive beams that "step up" over the lobby transfer the loads back to the primary column system (page 39).

A plan oriented to views and light

Both the office and residential floors shift back to the standard structural bay system, but their central corridors remain offset from the lab corridors below. (This straightforward ward treatment allows 80 12-in.-dia. laboratory fume-hood risers and a separate riser from below-grade animal-holding areas to be gathered along one side of the corridor, forming unobtrusive "thick" service walls. These must penetrate the office and residential floors so they can exhaust from the top of the building for safety.) The lab floors, though deeper than the upper levels, were kept as shallow as possible to let natural light penetrate to desk

spaces flanking the main corridor. The faculty medical offices, particularly, are a departure from the standard windowless warren of identical exam-room cubicles. Located on floors 7 through 10, they are divided into four suites per floor, typically consisting of 13 rooms, a high percentage with windows, for offices, examination, or consultation. Four secretarial and waiting areas per floor penetrate the building from east to west, giving views to often-anxious waiting patients and family, and bringing natural light into the central corridor.

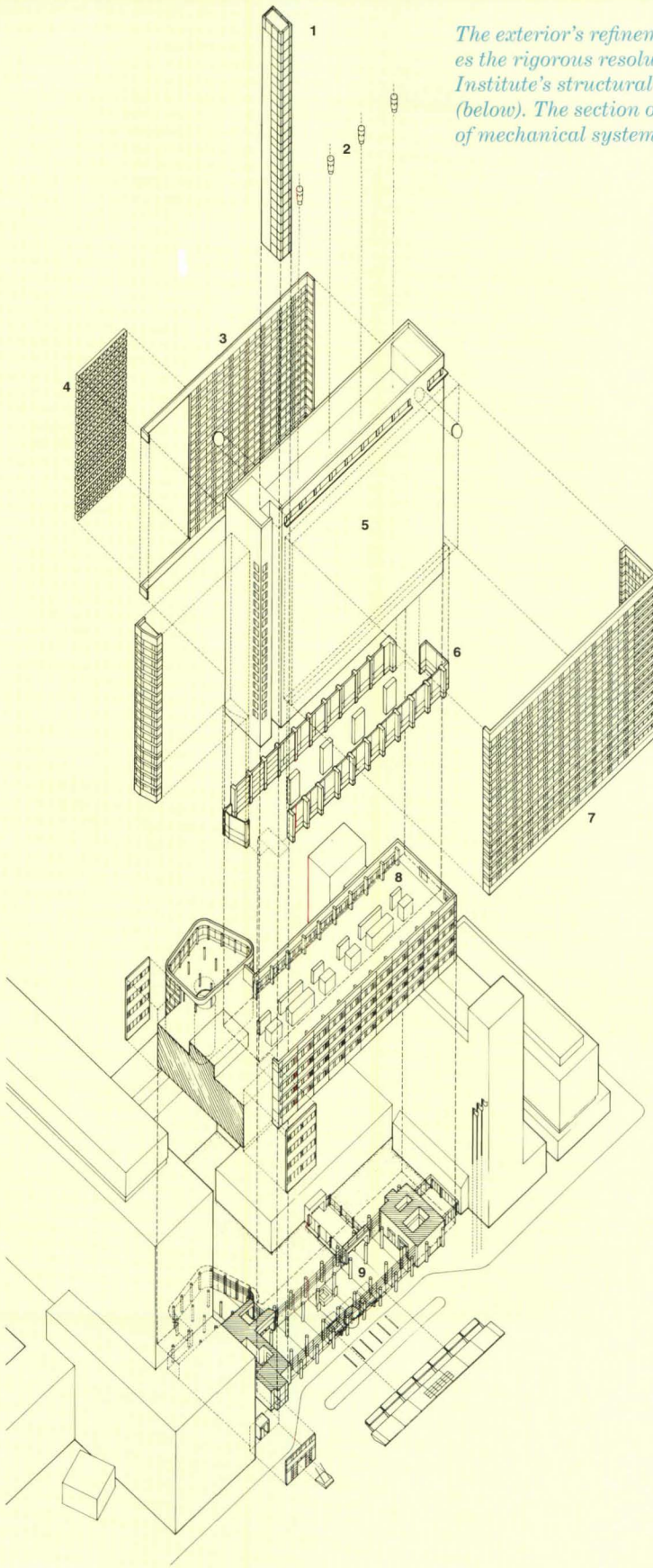
The residential units on floors 11 to 23 (built to keep valued staff in a city with high housing costs), provide 289 apartments ranging in size from studios to three bedrooms, expanding and contracting on an 11-ft module within the 22-ft column bay.

Designers of similar medical facilities often propose a squarish floor plan, regarded as more efficient because it reduces corridor lengths. The site did not permit Polshek this luxury. Still, the architects make the best of their long slab layout by incorporating internal private corridors parallel to the main corridor in both the labs and medical offices. The suites can expand or contract simply by moving the divisions along these corridors, which offers a great deal of flexibility. On the lab floors, the "filade" device makes multi-lab suites possible, and informally divides the administrative desk spaces and the active research counters.

Threading mechanicals through

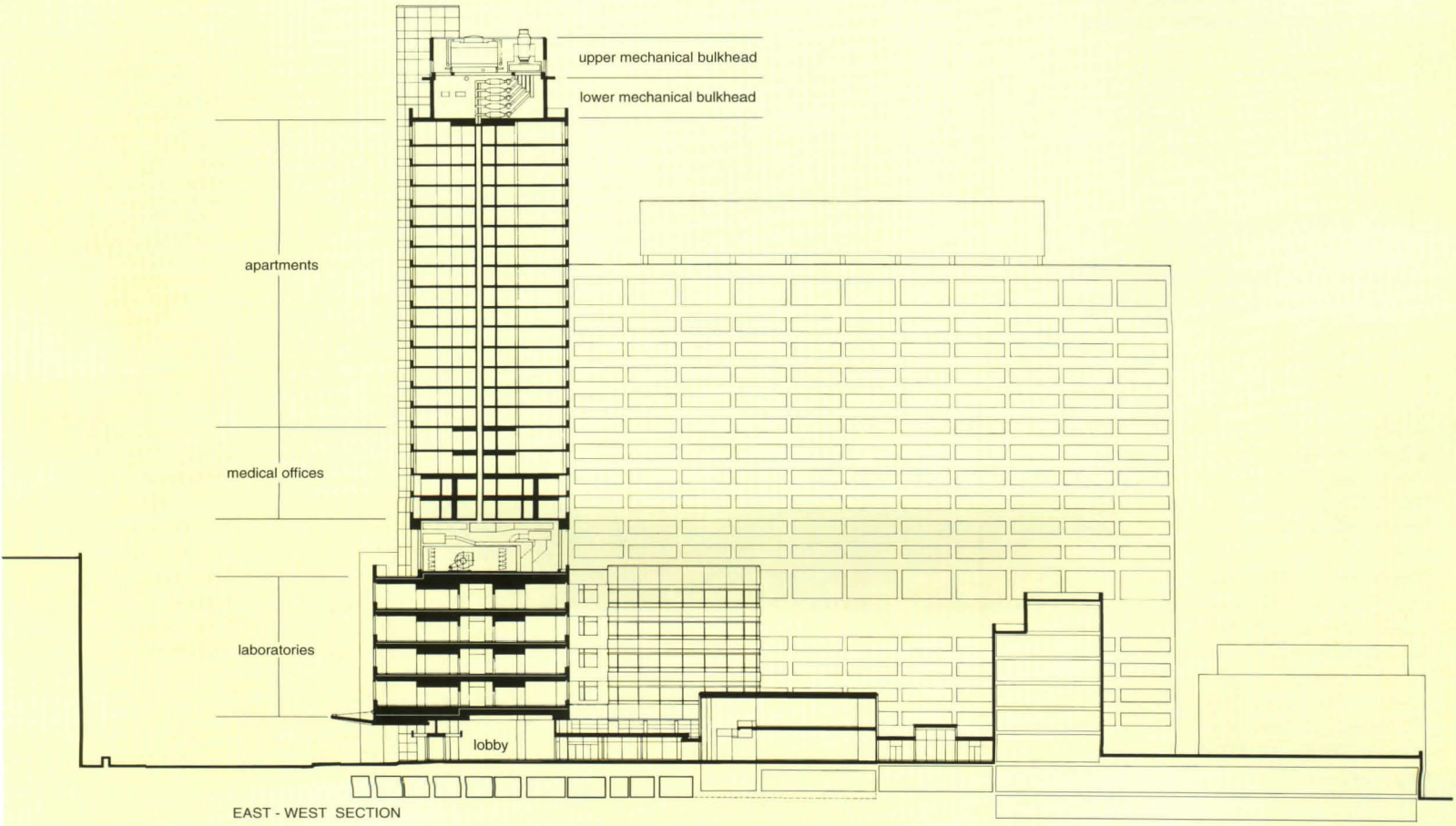
Polshek resolves the complex overlapping of mechanical requirements on different floors by splitting the mechanical needs between the topmost bulkhead floors and a double-height mechanical space on the sixth floor, where the change in occupancy between the labs and offices occurs. The sixth floor mechanical room primarily serves the laboratory floors and the mechanical needs of the lower tier of apartments. The two-level bulkhead at the top of the tower contains the labs' fume-hood exhaust fans, cannon fans (which project and disperse any harmful substances from the hoods high into the air), and mechanical and electrical equipment for the upper tier of apartments. Emergency generators, cooling towers, and electric machine rooms for the

The exterior's refinement (opposite) disguises the rigorous resolution of the Skirball Institute's structural and mechanical needs (below). The section opposite shows the split of mechanical systems. The sixth-floor



1. *Metal-clad projected stair*
2. *Fume-hood exhaust ejectors*
3. *Courtyard-facing curtain wall*
4. *Recessed curtain wall*
5. *Medical office/ residential core*
6. *Mechanical floor and shafts*
7. *First Avenue curtain wall*
8. *Lab core*
9. *Concourse*

mechanical level minimizes piping and duct-work runs for the laboratory air handlers and steamed hot-water pumps. This level also houses the domestic hot-water pumps, electric switch gear, transformers, and utility meters for the offices and lower apartments, and a large chilled-water plant that serves the entire tower and a major portion of the south campus. The lab levels cantilever over the entrance (below right).



EAST - WEST SECTION

entire building share this space.

The elevations' kit of parts

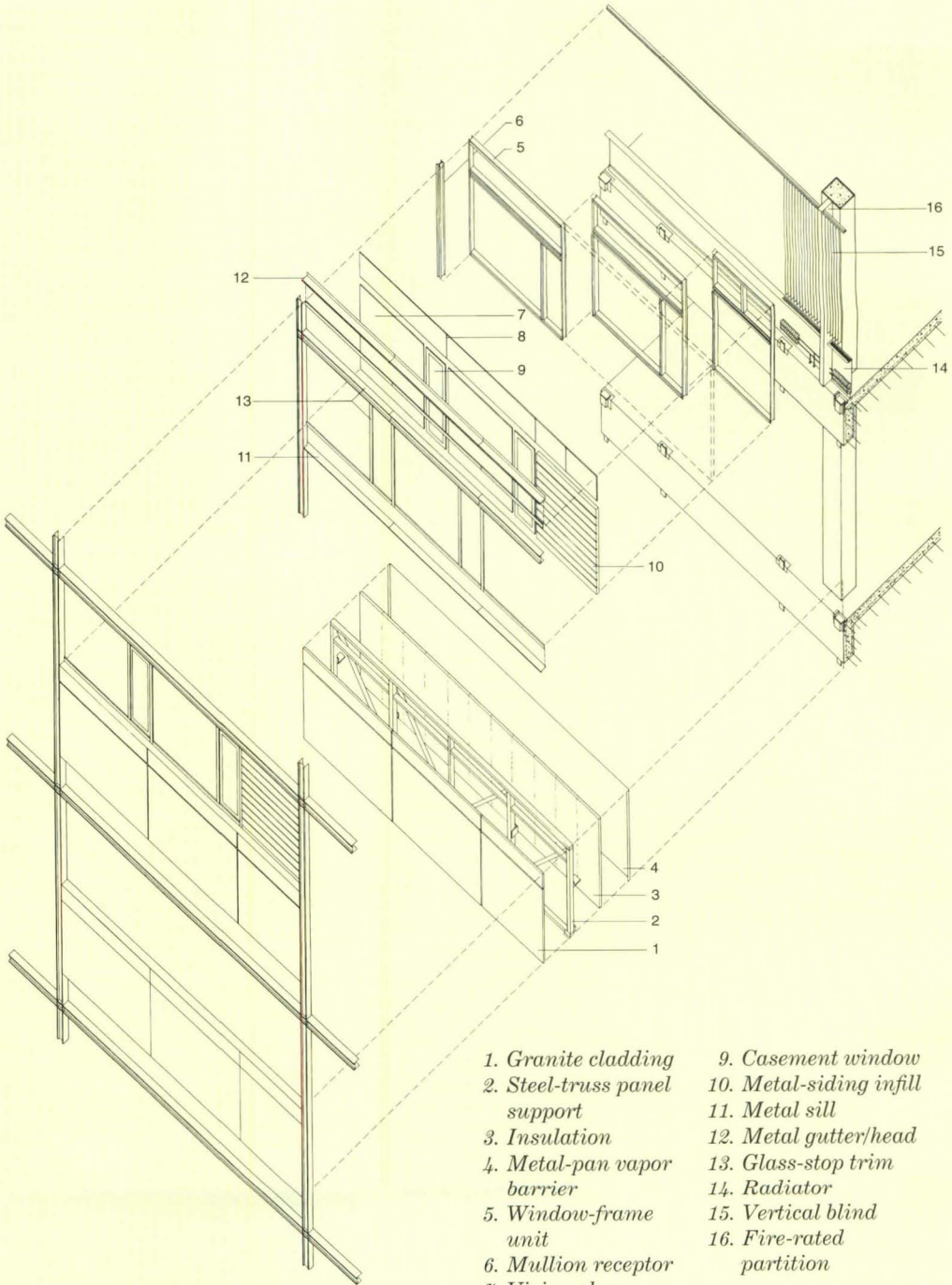
The building's elevations discreetly but clearly express both the syncopations of the structural bay system and the floors' various functions (right and opposite). Flame-finished granite spandrels on the lower laboratory floors give way to similarly toned brick above the lab setback. Transom glazing, which drops away at residential floors, expresses the somewhat greater floor-to-floor height of the office levels. Polshek has created elevations that have a lively sculptural presence by manipulating the wall at three scales. The slight recession of glazing, varied at different locations on the facade, is visible from a distance. A grid of custom aluminum extrusions establishes a medium-scale rhythm, and fine joints between masonry panels and between transom glazing set up a finer grain. The system, by simplifying window-to-wall details and through use of a "family" of similar details throughout, was also inexpensive.

Though nurses are moving into their new apartments and researchers are just beginning to set up labs, it's clear NYU's new "front door" is far more welcoming to all.

Credits

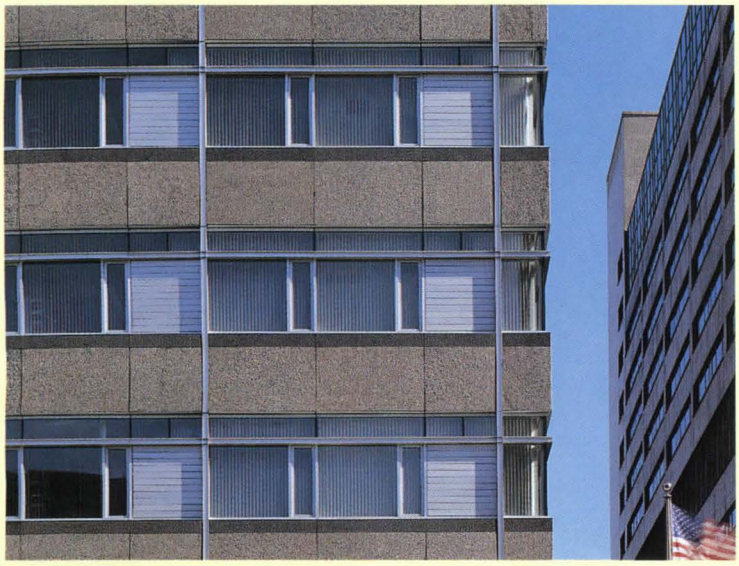
Skirball Institute of Biomolecular Medicine
New York City
Owner: *New York University Medical Center*
Architect: *James Stewart Polshek and Partners, Architects–James Stewart Polshek, partner-in-charge; Joseph L. Fleischer, managing partner; Duncan Hazard; Todd Schliemann, associate partners (design); Charles Griffith, David Sherman, James Sinks, Kevin McClurkan, Lynne Bright, Webb Nichols, Hans Kircheis, project team*
Consulting Architect: *Payette Associates (labs)*
Engineers: *Severud Associates (structural); Jaros Baum & Bolles (mechanical and electrical); Mueser Rutledge (soils)*
Consultants: *Quennell Rothschild Associates (landscape); Wolf and Company (cost); Cerami and Associates, Inc. (acoustics); Heitmann & Associates, Inc. (curtain wall)*
Construction Manager: *Morse Diesel International*

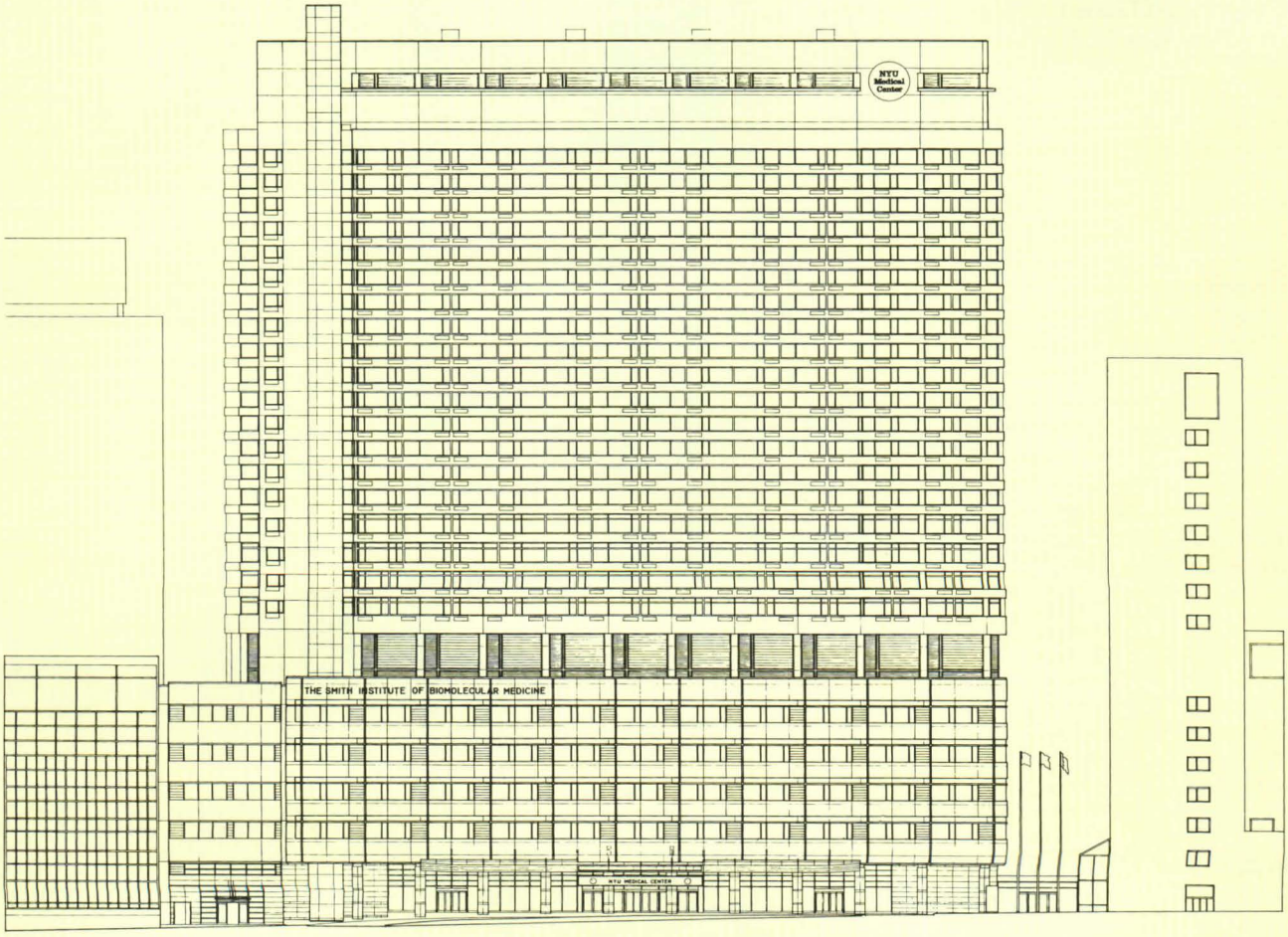
The use of metal in the elevations, by creating clean panel-joint reveals and disguising sealant joints, improves upon the often-sloppy look of masonry facades with poorly controlled, soil-collecting, exposed sealants (below). The sixth-floor mechanical space and the bulkhead floors are detailed with operable louvered panels that wrap around the building and mark the major setbacks in the building's facade. Anticipating the even-



1. *Granite cladding*
2. *Steel-truss panel support*
3. *Insulation*
4. *Metal-pan vapor barrier*
5. *Window-frame unit*
6. *Mullion receptor*
7. *Vision glass*
8. *Structural butt-glazing joint*
9. *Casement window*
10. *Metal-siding infill*
11. *Metal sill*
12. *Metal gutter/head*
13. *Glass-stop trim*
14. *Radiator*
15. *Vertical blind*
16. *Fire-rated partition*

tual installation of new transformers in the former forecourt, Polshek designed the lobby's curtain walls to swing open, allowing a truck to pass through to deliver the components.





WEST ELEVATION

An Architecture-Specific Modeler

DesignWorkShop 1.1

The program reviewed on this page reflects growing attention by vendors to architect-specific functionality in modeling software.

Vendor: Artifice, Inc., P.O. Box 1588, Eugene, OR 97440, 503/345-7421; fax 503/346-3626. $895, includes free unlimited technical support and on-line training. Upgrade to Power Macintosh is $49. Academic and site licenses available.

Equipment required: Macintosh System 7, FPU (math co-processor). Recording walkthroughs and sun studies require QuickTime system extension; 8 MB of random-access memory recommended. We reviewed chiefly on 68040-class Macintoshes, mainly on a slow Centris/Quadra 610 with FPU. We took a quick look at the Power Macintosh version as well.

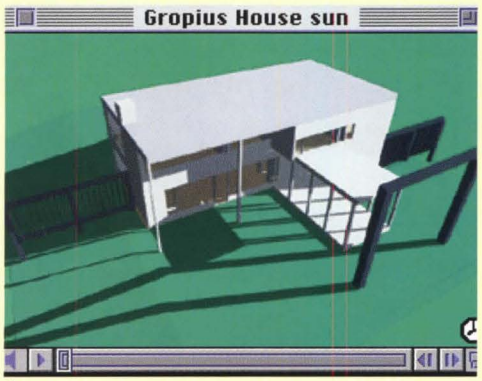
Macintosh owners will find DesignWorkshop an interesting twist on the conventional modeling program. First, it is optimized for architecture. The things that architects do most—cutting holes in walls, laying out beams, adding partitions—are easy to do with DesignWorkshop. Second, DesignWorkshop comes equipped with flexible import and export filters–to and from Architrion, DXF, PICT, Claris CAD, and Radiance formats and to and from 3D and 2D. Third, its tools for shading, walkthroughs, and solar studies are first-rate. You can create a walkthrough or sun-progression *(1)* and shadow animation with ease. The rendering is not photo-realistic, but it can export files to packages that can produce such images. You can also do wireframe, hidden-line, flat-shaded or shadow cast renderings *(2 and 3)*.

You create shapes by drawing them in all three axes at once. The cross-shaped cursor moves in the X-Y plane when you move the mouse with fingers off the button, and in the Z direction when you drag with the mouse button depressed. That's a new concept in 3D movement on the 2D computer screen.

What you give up can be important for some users: boolean modeling. You can't sculpt a shape by "subtracting" or "adding" another shape. Instead, you zoom in on the area you are editing, moving the mouse and clicking and dragging it below or above the surface you want to modify.

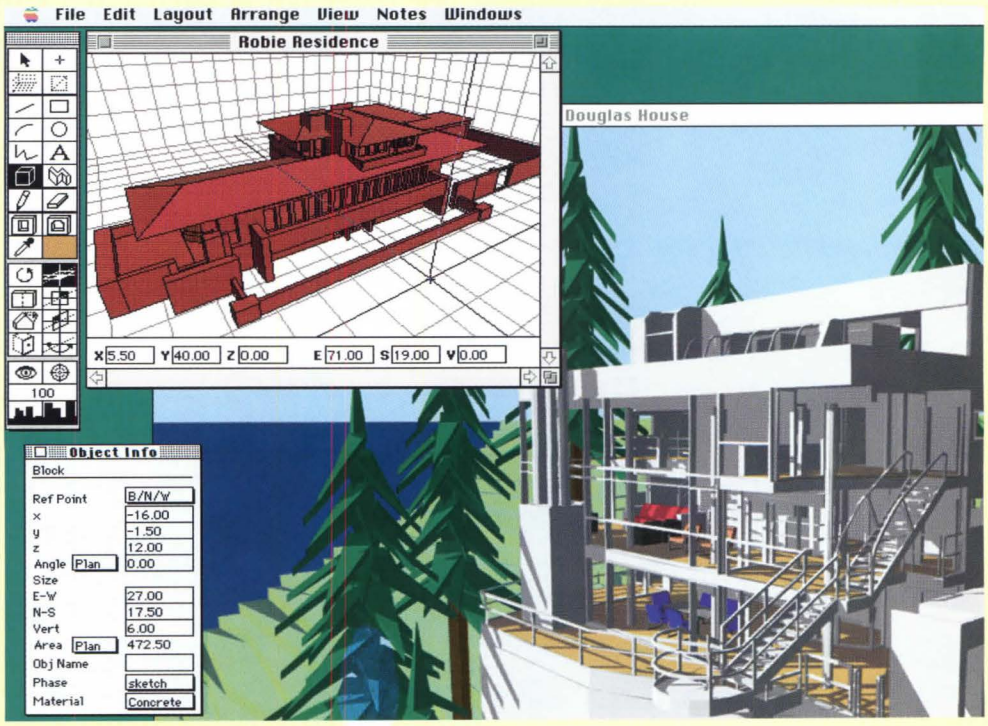
You can zero in on a surface easily and intuitively, by changing the eyepoint (rather than making a view active then rotating it), and you can reorient the coordinate system by clicking on an icon or double-clicking on the face of a surface you want to match. All this allows you to intuitively "edit in 3D," as well as to add models to existing, scanned photographs of existing scenes. The interface works particularly well when you "add" shapes to a surface. Putting a dome on a rectangular structure, for instance, involves nothing more than creating a 2D arc, sweeping it in space to get the dome, and moving it to the rectangle if necessary.

But lack of boolean operators forces extra steps when you want to insert a dome-shaped depression in a wall. First, you cut the surface. Then you create the swept arc—either inside the cut, or some distance



1

2



3

A Handy Mac-PC Converter

away—delete the "right angle" part of the sweep, and put everything together. The insert will size itself to the hole.
Likewise, to create a depressed area, you cut through the existing surface and place a thinner section inside (easy for rectangles), or make a 2D shape with polyline cutouts, extrude it to 3D, and paste it to a thicker, solid slab.

Many "more-cut-out-than-wall" shapes (window-walls, for instance) are easier to build up out of beam-like shapes (they are trivially simple to create, move around, and modify), instead of modeling as solid slabs that are then sculpted–even though slabs and irregular walls ("poly walls" in the program's argot) can be drawn with just one drag-click.

Once a design is laid in–even in 2D–you can overlay it with a sketch that can be handled apart from the drawing.

You can build up "libraries" of shapes and objects simply by saving them as DesignWorkshop files; you can keep as many windows/files open at once as you want. A large set of first-rate architectural, landscaping, and furniture files come with the package.

The bottom line: If your designs have lots of cutouts and etched or hollowed surfaces, this may not be the package for you. But if you only occasionally have to do that, or import such surfaces from other programs, or if you value intuitive interfaces because you only occasionally have to model, DesignWorkshop deserves a close look.

Manuals: One spiral-bound book with installation instructions, reference, and tutorial. There are minor inconsistencies in the manual, and lack of discussion of the excellent libraries included—except to note how they work.
Ease-of-use: Good, once you get used to the "Z-axis" convention.
Error-trapping: Good. When importing DXF files from UNIX or DOS, make sure to select "text with CR only" (that is, no linefeeds at end of file lines). *Steven S. Ross*
300 *on Reader Service Card*

Conversion Plus 2.0

Vendor:
DataViz, Inc., 55 Corp. Drive, Trumbull, CT 06611, 203/268-0030; fax 203/268-4345. $149.
Equipment required:
Computer running Windows 3.1, with 1.44 MB floppy drive and 5 MB of disk space.

Add Conversion Plus to the list of products that can help you move a file from Macintosh to DOS computer or vice-versa. There are two problems that must be overcome to make such moves possible.

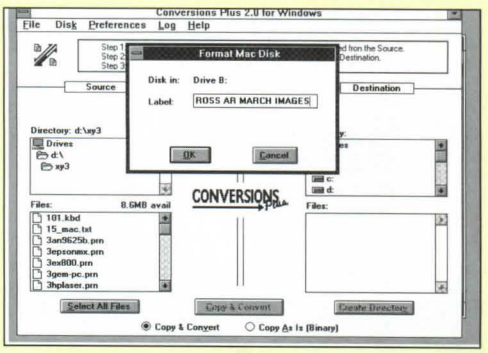
The first is disk formatting—although 3.5-inch disks for the Mac and PCs are physically identical, they store data in different ways. Fortunately, the electronics for high density (HD) 3.5-in. drives are identical in both types of computers. That is, the same drive can format a 1.6 MB disk for the Mac and a 1.44 MB disk for the PC. (Double-density drives, 720K for the PC, 800K for the Mac—are not identical; using them for a transfer requires extra hardware in the PC.)

Macintoshes using System 7 and HD drives are supposed to come with Apple File Exchange (look for it in the System folder). This software allows a Mac to recognize a DOS disk. PC users with HD drives can buy inexpensive add-on software such as Mac-in-Dos from Pacific MicroElectronics to recognize a Mac disk.

Neither program overcomes the second problem in file transfers, however -- The file itself is not changed in any way. It is simply moved to a disk that can be read by the "foreign" computer. DataViz sells software that handles not only the disk recognition but also some file translation.

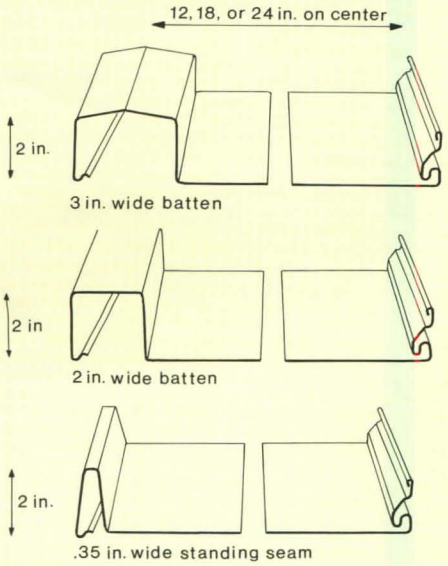
Conversion Plus works on the PC (MacLinkPlus, a sister product we did not test, works inside the Mac to do about the same thing). It has a memory-resident program that can automatically recognize a Mac disk no matter what other program you are using. Thus, you can be inside WordPerfect on a PC and write the file to a Mac disk.

It also has a number of data format conversions built-in, so that when (for instance) text is moved from a DOS program to a Mac program, boldface, underlines, and other niceties are preserved. The conversions work under Windows. They include translations to and from such popular DOS programs as Ami Pro, Word, and WordPerfect to and from Mac programs such as Claris Works, MacWrite, Word and WordPerfect. Many data translations are also possible. Graphics translations are limited (PICT, PICT2, Windows bitmaps and metafiles, and WordPerfect WPG and WPG2), but most CAD packages do the translations within themselves anyway.
Manual: Simple manual for a simple program.
Ease-of-use: Intuitive. You get a strange error message when you try to format a Mac disk; you have to invoke the Drives menu first and specify a drive.
Error-trapping: Make sure you know the proper translation, or whether no translation is needed at all. *S. S. R.*
301 *on Reader Service Card*



Main menu for Conversions Plus 2.0; files to move are on the left side of the screen.

Instant Gratification: Pre-Weathering Gives New Metal an Aged Patina



302. Pre-weathered zinc roofing

Widely used for architectural metal roofing in Europe, zinc weathers over about 10 years of exposure to a dark blue-gray with an attractive, slate-like sheen. Zinc is non-reactive, and panels of the metal are said not to stain surrounding building components with leachate as they weather. Because only aluminum is lower on the galvanic scale, zinc will corrode if installed incorrectly, especially if dissimilar, bare metals are in close proximity to the zinc and water is present. As with any waterproofing component, attention is needed to prevent moisture from being trapped. But care in detailing and selection of roof-system components, and skilled installation, will produce a roof with superior appearance and longevity.

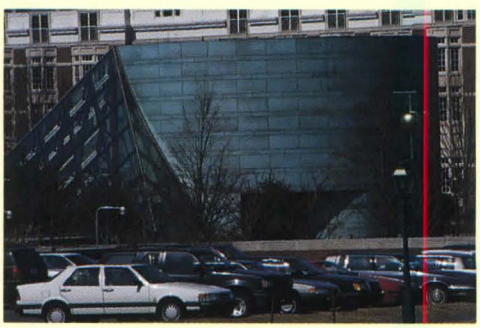
With a plant in Newark, New Jersey, ZED International has been supplying zinc roofing since the '70s. They have developed a proprietary product called Astrazinc, a pre-formed, pre-weathered zinc roof-panel system that accounts for the specific thermal characteristics—expansion and contraction—of zinc, and supplies the metal already weathered to its typical dark gray.

The Hillier Group, Architects, used Astrazinc for the deeply profiled roofs of The Village at Bedminster, a shopping center in New Jersey (top photo). Here the configuration is the HM3 series, a 3-in.-wide slightly gabled batten (top detail). There are also a 2-in.-wide, squared-top batten, and a narrower, standing-seam configuration (.35-in.-wide at the top of the seam).

While proper design and installation can insure a successful low-slope roof, zinc is most appropriate for steeper slopes, where the roof is more visible, and rainwater will wash the surface uniformly and produce an even weathering-out of the patina. ZED supplies pre-weathered or mill-finish zinc pre-formed in the specified panel profile, protected against nicks during transit by a strippable film. The firm also fabricates roof trim, accessories, and flashings in the processed zinc. ZED, Inc., New York City.

A note on metal-roof details

The June 1994 issue of *Professional Roofing* includes an article by Jim Carlson, a deputy director of technology and research with the National Roofing Contractors Association, on the importance of thorough detailing and flashing craftsmanship to the long-term, leak-free performance of any metal-roofing system. Carlson feels that, except for parts of the recently revised SMACNA manual, there are no metal-roofing industry guide documents that contain information on details to suit various conditions in different climates for standing-seam systems. The NRCA Metal Roofing Committee is in the process of producing such a manual. *J. F. B.*



303. Verdigris to go

Revere introduced pre-patinated copper-sheet to the North American market at this year's AIA Convention in Los Angeles. Developed by a Swiss company, the accelerated-aging process quickly—and permanently—transforms the crystaline structure of the surface of the metal, giving brand-new copper the soft green patina of years of exposure to wind and rain.

Called EverGreen, the pre-patinated product will be available in 16- and 20-oz gauges, in sheet up to 3- by 10-ft. These processed sheets can be cut and formed like mill-finish metal; any differentiation at the immediate bends quickly weathers to blend with the overall green coloration. A large European application, the offices and factory for B. Braun Melsungen, by James Stirling, Michael Wilford and Associates, with Walter Nageli, architects [RECORD Oct. 1992, pp. 74-83] remains a consistent green color after more than four years of exposure.

The sheets are appropriate for all exterior surfaces, including sloped, curved, and vertical walls or fascias that normally might weather unevenly. Moshe Safdie and Associates specified pre-patinated copper as cladding on the prominent vertical walls of The Class of 1959 Chapel at Harvard University (left—here, panels were bent to create a shallow pan, and the flanges were set into grooves cut in plywood sheathing.) The copper will be sold from stock at about a $1-per-sq-ft upcharge over mill finish. Revere Copper Products, Inc., Rome, N.Y. ■

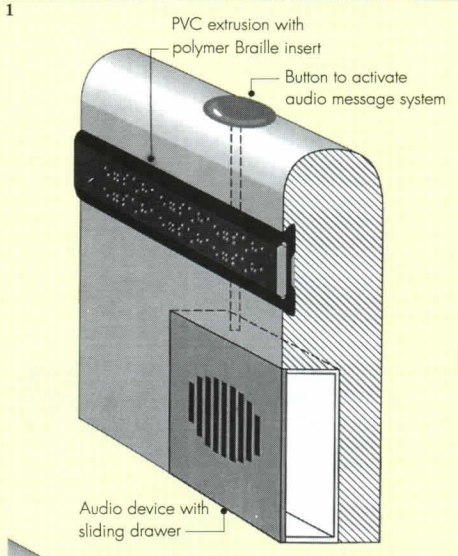
Handrail Wayfinding

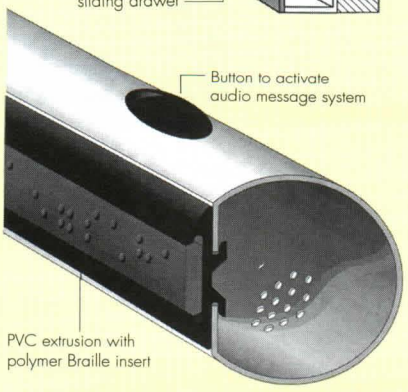
304. Going well beyond the minimum required by Title III of the Americans with Disabilities Act (which calls for identifying all interior doors in public spaces—from electrical closet to boardroom—with uniformly located Braille signage) the Raynes Rail provides comprehensive wayfinding information to the sight-impaired. A PVC extrusion, positioned just where a user's fingertips would contact the inner edge of a handrail, carries crisply produced Braille messages that may describe as much as an entire floor plan and its corridor layout, and could orient the reader to offices, ramps, stairs, and elevators. Developed over two years by graphic designer Coco Raynes, and extensively tested in a full-scale installation at the Massachusetts Eye and Ear Infirmary (1), the system won a Gold Medal in 1994 from the Industrial Designers Society of America. Braille inserts are mounted seamlessly on existing or new handrails with industrial foam tape; audio transmitters can be placed at strategic locations, such as intersections, to provide more detailed information at the touch of a button. These optional units can also direct sighted users—in any language.

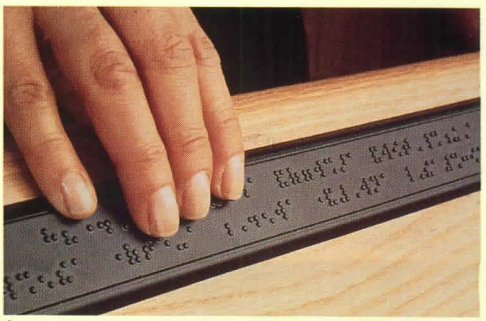
The content of the directional messages is vital to the success of the wayfinding system. Working with Braille consultants (after learning the tactile language herself), Raynes developed a concise descriptive vocabulary for those who cannot see, not just a translation of terms appropriate for sighted persons (doors are "opposite," for example, not "to the left"). Specific directions are extracted from site and floor plans supplied by architects or building owners, and summarized in clearly etched Braille messages on one- or two-inch wide plastic strips.

As guide dogs walk on the left side of their owners, the most useful installation would have a rail on both sides of a hall, with information oriented in the direction of a right-handed user. Where wall space is restricted, directional arrows permit use of a two-way system on a single rail. Raynes designed the signage plaques with a beveled edge and recessed back to permit easy installation on existing rails that have a 2 1/2-in. clear depth; the firm also offers rails made for the system. Coco Raynes Associates, Inc., Boston. ■

1







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3

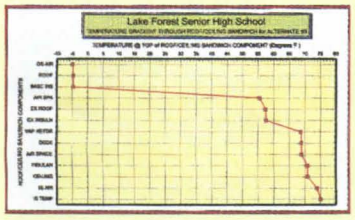
4

Handrail designed especially to accept the Raynes Braille signage and audio components can be supplied in a round profile and several chrome and brass finishes (2, 4), including a powder-coat galvanized rail for exterior use. A deeper rail style made of wood provides wall protection (3). Cutaway details, left, demonstrate installation of the optional audio units in both types of rail.

Product Briefs

For more information, circle item numbers on Reader Service Card.

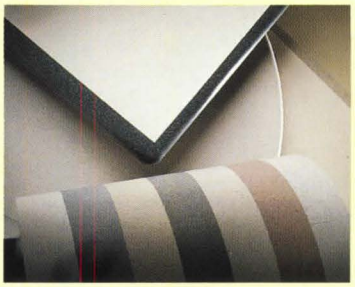
305. Speedier scanner
The ScanPlus III offers one-pass scanning, which is said to decrease processing time. Four models produce images of varying resolution: 300-, 500-, 800- or 1,000-dots-per-inch. The units are compatible with several computer systems, including Macintosh and IBM. Although an image of any length can be scanned, the maximum width is 36 inches. CalComp, Inc., Scottsdale, Ariz.



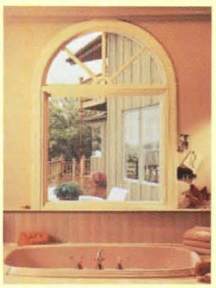
306. Roof rating
An industry-sponsored disk of 20,000 roofing samples and eight system types—including built-up, EPDM, and metal—is aimed at predicting the life-time cost and performance of new roofs. Developed by architects, the evaluation is based on original costs, maintenance costs, past performance, and thermal characteristics. Roofing Communications Network, Johns Island, S. C.

307. Awning line grows
Seven striped designs and a 60-inch material-width increase have expanded the flame-retardant Sunbrella Firesist line, adding color options and sizes more appropriate for commercial users. Also for residential use, the fabric is woven of pigmented, flame-resistant, modacrylic yarn. Its fire resistant qualities cannot be washed out. Glen Raven Mills, Inc., Glen Raven, N.C.

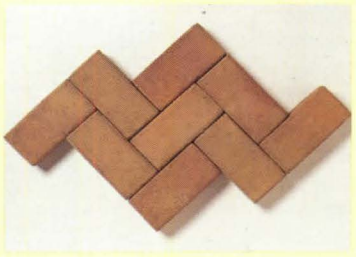
308. Novelty house decor
Designer Sallie Trout has introduced a collection featuring house accessories shaped like tadpoles, squiggles, and stars. Included in the line are door handles, towel bars, switchplates, and drawer pulls. Cast in aluminum and manufactured in the United States, these pieces are available in aluminum and gold finishes. Trout Rozenberg, Inc., Venice, Calif.



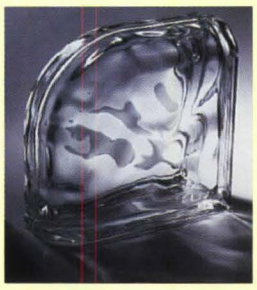
309. Smooth surfacing
Seamless solid surfacing, custom-made in finished components such as tabletops, is said to lack crevices and to be ideal for quality control in places such as hospitals, laboratories and restaurants. Called Forma, the product also allows for the creation of inlaid tables and three-dimensional designs in a unified composite. TRM, Inc., Huntersville, N.C.



310. Transforming windows
Using liquid-crystal technology, a customizing option allows frosted windows to adopt a clear look at the flip of a switch. The glass clears when an electrical current flows through it and becomes obscure when the current is removed. While the frosted phase reduces ultraviolet rays and sunlight glare, both modes let in the same amount of light. Marvin Windows and Doors, Warroad, Minn.



311. Angular paver
Said to be the only wood-molded paver in the brick industry possessing a beveled edge, the Cushwa Chamfered Paver is designed for a hand-tight, mortarless setting in a sand base. The 4- by 8-inch unit fits common brick-paving designs such as basketweave and herringbone, and is available in colors that match face brick. Redland Brick, Inc., Williamsport, Md.



312. Rounding corners
The Encurve finishing unit is adding a curve to glassblock design. Instead of four squared edges, this shape possesses two squared and two rounded sides. The piece can finish glassblock walls, partitions, counters, showers, windows, and stairwells. It measures 7 3/4 by 7 3/4 by 3 7/8 inches. Pittsburgh Corning, Pittsburgh.

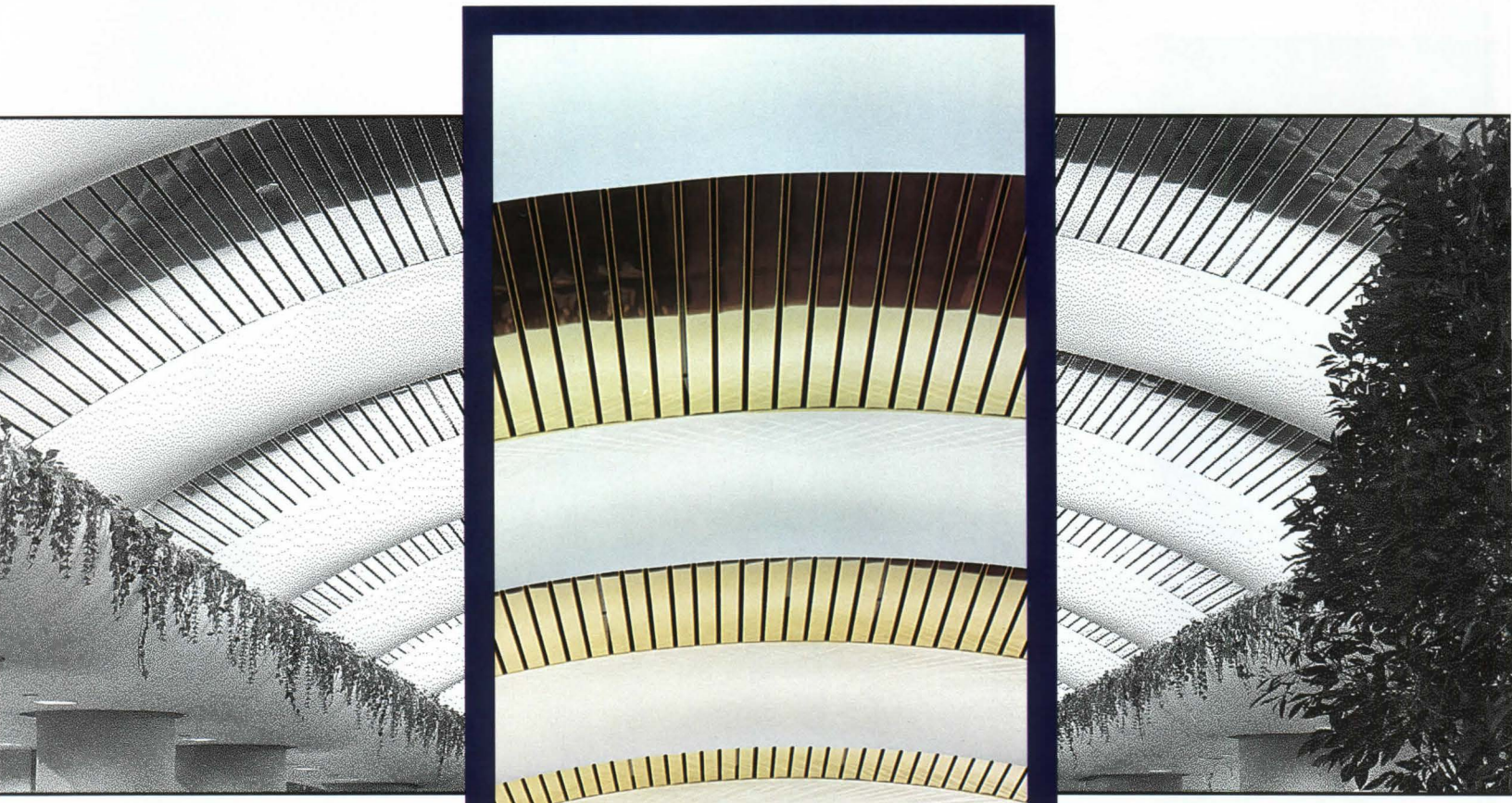
Short takes

Pink Panther goes Brit
Owens-Corning recently paid $110 million for U.K.-based Pilkington Insulation Limited and Kitsons Insulation Products, a distributor. Britain's largest maker of fiber glass and rock wool and a major supplier of thermal and insulation products, the two companies reported $125 million in sales for the fiscal year that ended March 31. The goal of the new entity, known as Owens-Corning Building Products (U.K.) Ltd., is to reach $5 billion in annual sales by the year 2000. This acquisition follows the recent purchase by Owens-Corning of UC Industries, a New Jersey-based producer of pink extruded polystyrene foam.

Gas power beats heat
York International of York, Pa. is marketing air conditioners powered by natural gas. The system comprises a single-cylinder, natural gas engine that drives a compressor. The unit's cooling efficiency is about 15.6 SEER, comparable to some of the latest electric heat pumps.

Landscaping rents space
Attractive gardening may be responsible for increases in building occupancy rates, according to a survey cited by Genflex Roofing Systems. Data showed the relationship between the two to have a higher correlation than any other criteria evaluated.

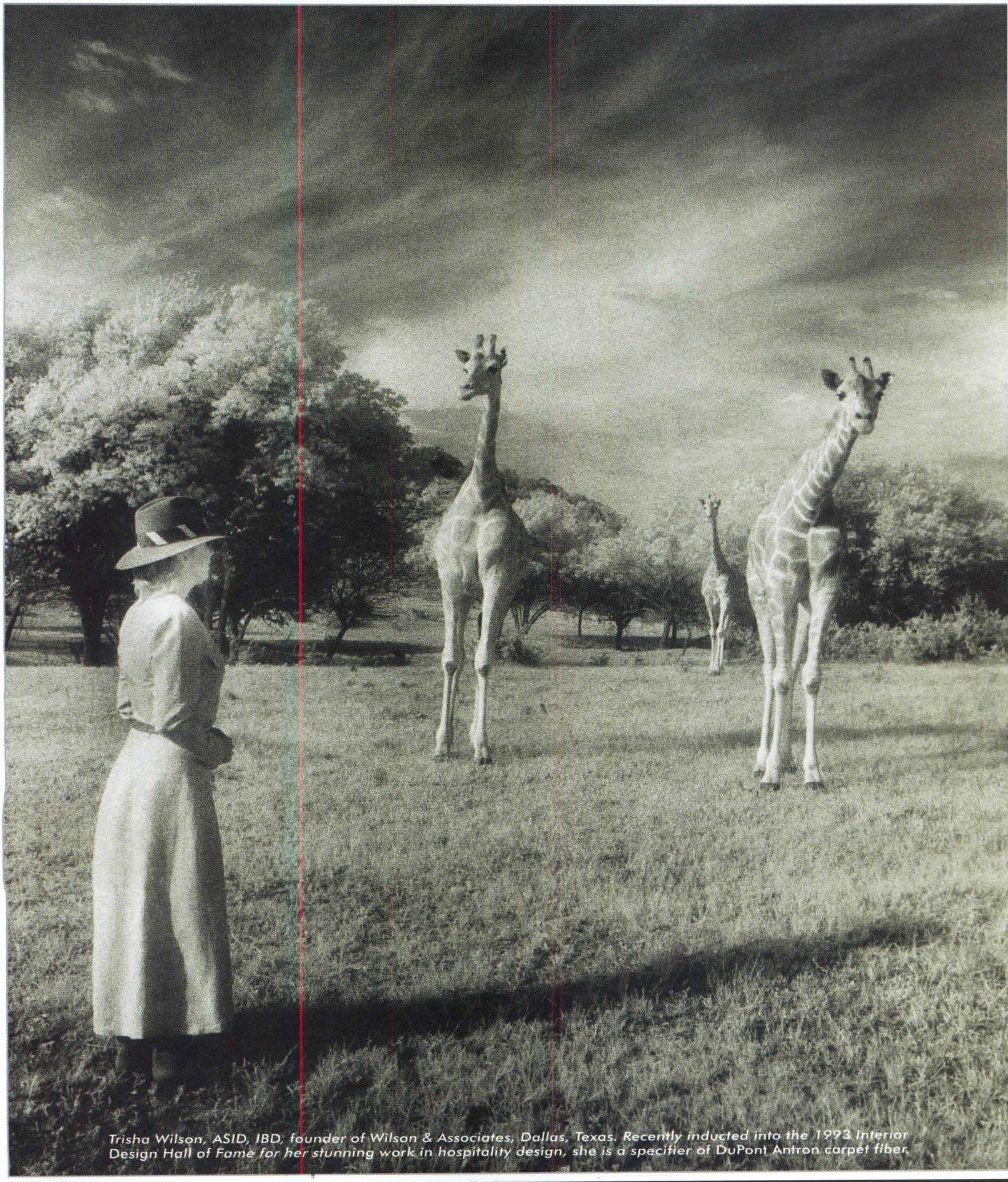
What's The New Name For ALCAN Metal Ceiling Products?



That's right!
And its not just a *new name*.
Chicago Metallic has purchased the Alcan Ceiling business and created a new, focused division — Interfinish.
It will represent a *new concept* for ceiling design quality, service and selection. The entire family of Alcan metal ceiling products . . . proven products such as Planar®, Magnagrid™, Metaline™ and Beamgrid™, are now available from Interfinish. The products haven't changed, but the concept and name have.

Interfinish
A Division Of Chicago Metallic
9901 South 76th Avenue, Bridgeview, Illinois 60455
Toll Free: CALL 1-800-560-5758 FAX 1-800-560-5759

Circle 16 on inquiry card



Trisha Wilson, ASID, IBD, founder of Wilson & Associates, Dallas, Texas. Recently inducted into the 1993 Interior Design Hall of Fame for her stunning work in hospitality design, she is a specifier of DuPont Antron carpet fiber.

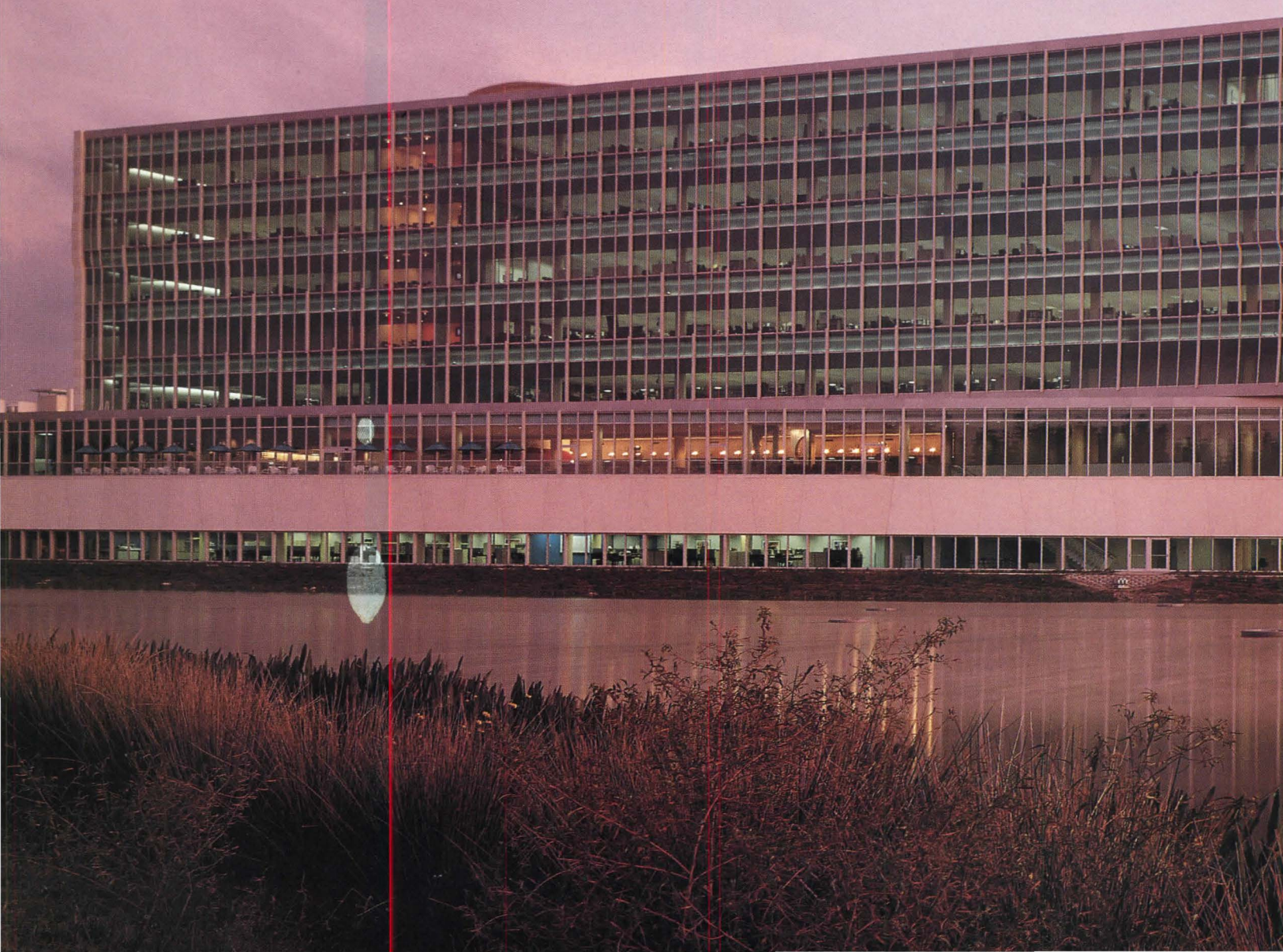
The common link to three of the following four projects is the word *hope*. It unites projects as different as a cathedral in Nicaragua, a decaying Los Angeles neighborhood, and a hospice in Minneapolis. The new Roman Catholic cathedral in Managua, *situated* suggestively at the city's grubby center as a symbol of faith and trust for a deprived people ("Where the Streets Have No Name," Ricardo Legoretta, architect, page 70), is also a tale of significant private U.S. involvement. A far cry from Managua but just as much an expression of faith, is the story of Culver City ("Urbane Renewal," page 62). Here a dedicated team of architect and developer (Eric Owen Moss and Frederick Smith) take a decaying industrial neighborhood of Los Angeles and, through a fresh mix of planning and esthetic concern, lay the groundwork for the new workplace needs of a new workforce. Hope, too, marks Minneapolis Pathways, a friendly place of spiritual healing for the seriously ill ("Place of Healing," Anmahian Winton, design architects, page 78). Rounding out this section is the southern headquarters for USAA Company, a large insurance concern, ("USAA Today," Spillis Candela, architects, page 56) in a scheme that skillfully manipulates light and space.

For the second year, RECORD presents its Pacific Rim Supplement (following page 84). It includes a roundup on doing business in each of 13 nations, three features (Kansai Airport in Osaka, four high-rises in China, and a bank in Jakarta), and a guide to the cultural subtleties that can make the difference between a project lost and a project won. *S. A. K.*

Manufacturers' Sources listed on page 89

USAA Today

A close working relationship with client, contractor, and city, coupled with an arduous design process, produces a building of unusual amenity



USAA Southeast Regional Office
Tampa, Florida
Spillis Candela & Partners
Architects

A company's relocation from downtown to the outskirts inevitably raises the specter of abandoned urban cohesion and suburban sprawl. But the managers and many of the 1,400 employees of the USAA insurance company's Southeastern Regional Office clearly think its recent move from the center of Tampa to a nearby 128-acre forested tract was right for them. And indeed, both client and architect have carried this out with a good measure of environmental sensitivity. A lake fills a "borrow" pit left after fill was removed for construction of a nearby highway. Much of the surrounding cypress wetlands and old-growth oak remains where it stood. Obstructing oaks were transplanted. Any filled wetlands have been replaced with one-and-a-half more area—partially by building up shallows in the lake. The woods are home to wild boar and bobcats and the lake to fish, otter, and alligators. HCB Contractors produced a video on the site's ecology and every workman had to sign an agreement to honor it.

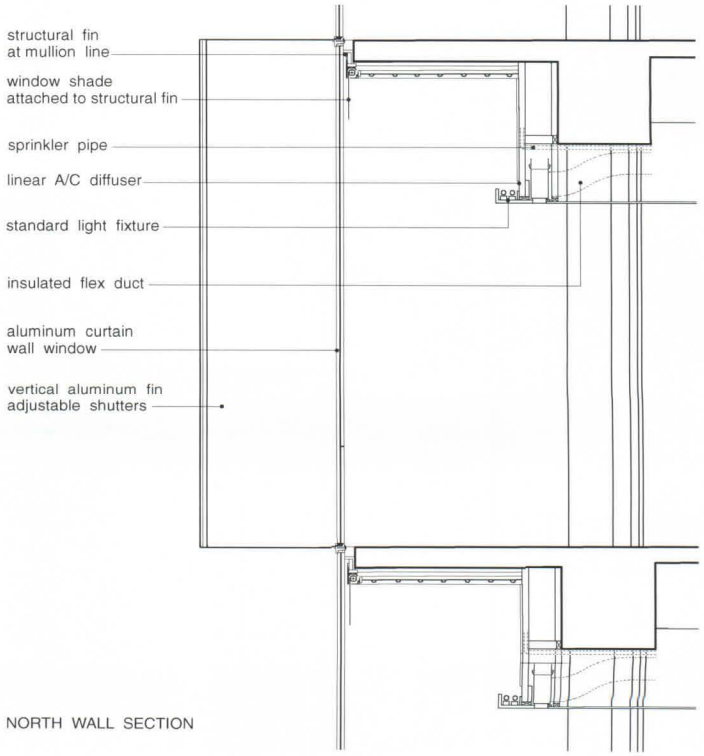
In moving to the wide open spaces, the regional office follows the model of its central headquarters outside San Antonio, which, when built some 20 years ago, was the largest low-rise office building after the Pentagon. Founded as the United Services Automobile Association, the company now serves many insurance needs for active and former military personnel and their dependents. It ranks fourth in size among U.S. home insurers. Not surprisingly for such a large company, it has numerous standards that it applies to all its regional offices. Among them are maximum vibration tolerances, required height clearances and area clearances around mechanical equipment for servicing, and an open-office furniture system with built-in above-floor utility distribution raceways. These are aligned in lengths of 44 to 52 feet, optimum for the company's frequent cable redistribution to meet ever-changing organizational and updating needs.

Programming a building like this was no easy matter. In fact, it began in 1987, when Spillis Candela first came on board, and went through four distinct versions. Partners Hilario Candela and Michael Kerwin, along with their design team, faced early design quandaries that included meeting minimum space and structural standards while keeping overall square footage (and costs) down (see Up Close). A decision to increase the size of the building by almost a quarter to 535,000 square feet without increasing costs meant a total redesign. While USAA declines to reveal construction costs, it is clear from the great effort that went into cost control that the company got its money's worth. Unusual features in the seven-story building include almost two entire floors devoted to support functions and employee amenities. Maintenance of everything from furniture to vehicles is done on site. There are extensive physical-fitness facilities both inside and out. A particular challenge was a 1,600-space parking garage that could empty fast for a staff of mostly working mothers eager to get home. The solution was a structure parallel to the offices for easy access and straight high-speed exit ramps.

A good part of the project's success was due to a close working relationship among architect, contractor, client, and city. Early on, the mayor assigned a team of building officials to assure that design met requirements before time for approvals. Builder HCB came on board at the start of construction documents and gave constant input on prices and, in Spillis Candela project manager Barbara White's words, "buildability and availability." Not the least of the latter concerns was about the extensive use of precast concrete, including the structure for the lobby cantilever stair, which, after much coaxing by White, arrived at the site in one massive piece. All parties met at the site for two days every two weeks. "It was draining," she recalls, "but brought high energy to problem-solving." *Charles K. Hoyt*

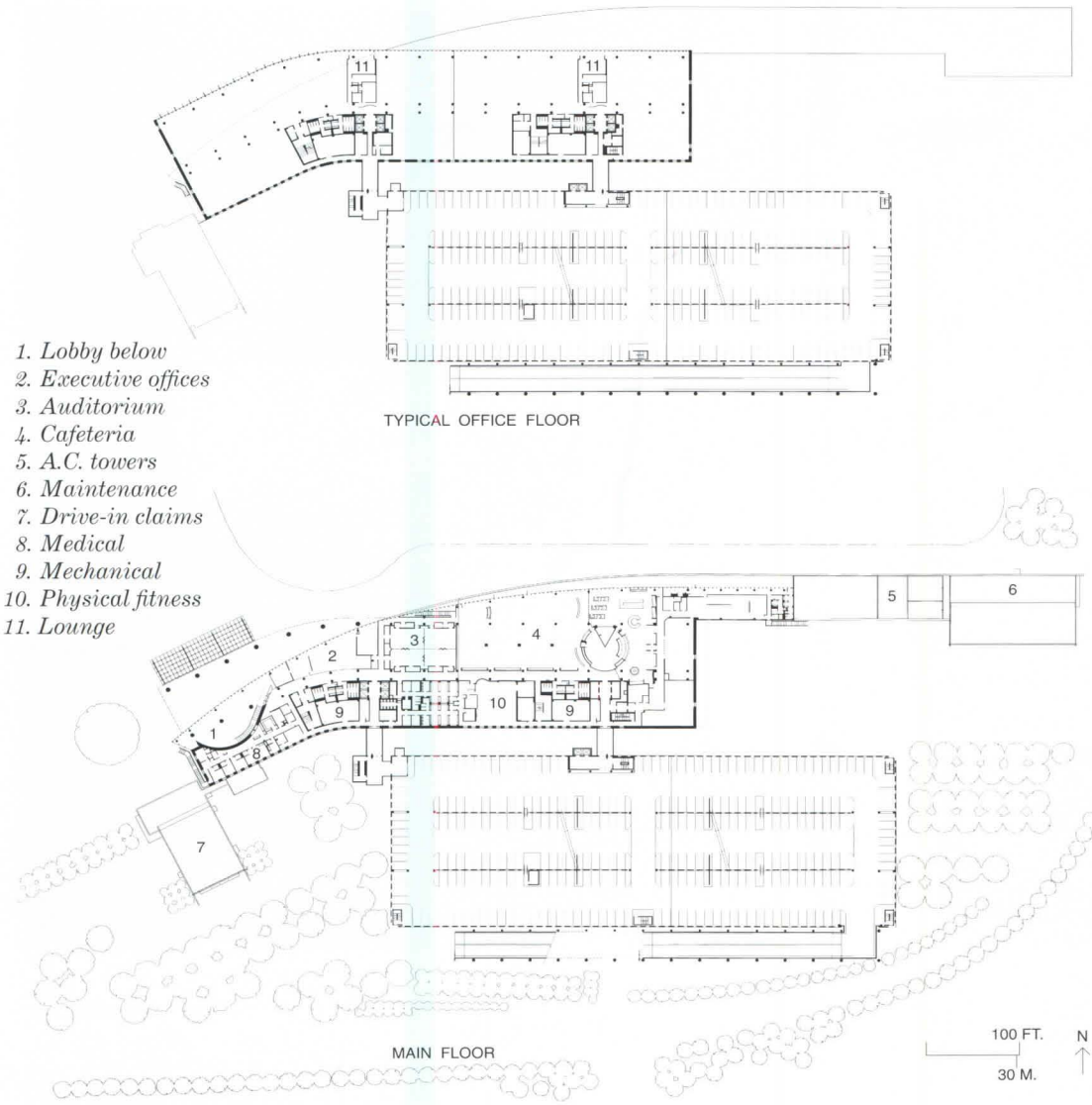
Up Close

Stress on precast. To find an optimum floor plate and structure that would best accommodate USAA's office-furniture modules with a minimum of cost and enough strength to meet maximum vibration requirements, engineer Josefina Martinez tested numerous computer models to arrive at precast prestressed joists. These meet at a double row of columns down the center of the floors that define open office spaces and form natural corridors. Garage floors are precast double Ts with a steep structural camber. The architects adapted standard precast "ladder" columns in the garage to form the supporting square-grid outer walls by adding stepped haunches. Exceptional surface regularity of striated precast panels on other walls was achieved with metal forms lined with rounded wood ribs, which had to be resealed after every pour. Punched windows on the office block are aligned in a pattern that designer Michael Kerwin refers to as "ordered randomness."



NORTH WALL SECTION

Windows on all sides are deeply recessed for sun screening except on the north wall, where they run floor to ceiling (section) to provide spectacular views of the lake. Vertical fins on the part of this wall that bends from true north project at progressive widths to block late-afternoon western sun. The architects convinced the client that the 10-foot ceilings were worth the cost in such large spaces by building a mockup of workstations with their four-foot partitions in empty space in their own building.



Credits

United Services Automobile Association
Southeast Regional Office
Tampa, Florida

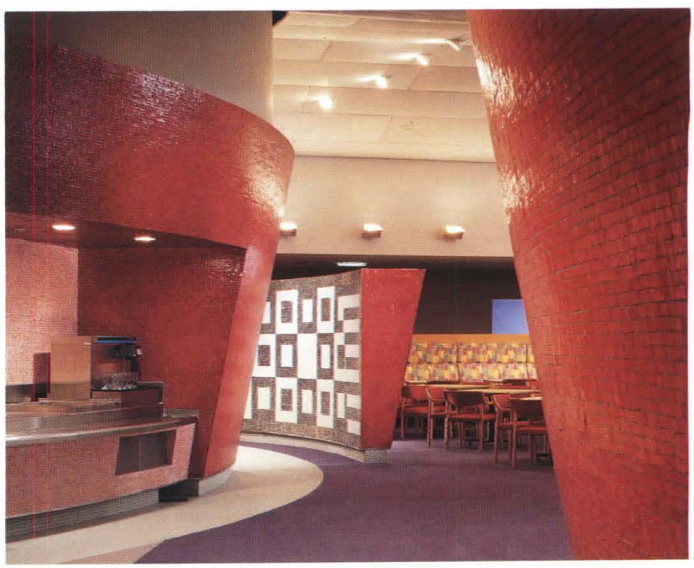
Architect: *Spillis Candela & Partners—Hilario F. Candela, partner-in-charge; Michael Kerwin, project designer and partner; Ferron W. Stowe, project director; Barbara A. White, project manager; Angel Macias, project architect; Ana B. Valdes, project architect, CADD; Donald Martin, site representative; Steve P. Berler, designer; Dean K. Newberry, interior-architecture and programming partner; Luis Francisco Hernandez, interior-architecture designer; Lorenzo Cobiella, interior-architecture project manager*

Engineers: *Dames & Moore (civil and landscape); Walter P. Moore and Associates, Inc. (structural); Tilden Lobnitz & Cooper, Inc. (mechanical, electrical, plumbing, and fire protection)*

Consultants: *Laschober & Sovich, Inc. (food service); The Design Office of Steve Neumann & Friends (graphics)*

USAA Representatives: *Ronald C. Roeder, project manager; Bob Crittenden, Project Control*

General Contractor: *HCB Contractors*




USAA

Urbane Renewal

A visionary architect-developer team shows how old industrial neighborhoods can be redeveloped to house small-scale, high-tech enterprises.

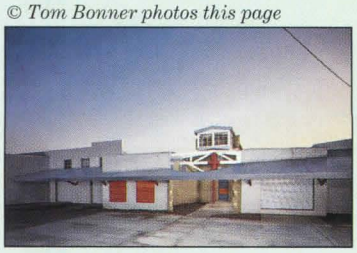
Sometimes the visual delights of creative forms are only the evidence of a different phenomenon: a change in the way we live and work in our cities. A case in point: in the middle of the sprawling landscape of anonymous, one-story industrial buildings that make up the real Los Angeles, architect Eric Owen Moss has created eruptions of fragmented forms that beckon the passerby while they slice open the buildings to let light spill into the workspaces. These are not one-off boutiques of high design, but homes to a burgeoning community of creative service industries that do not feel at home in the world of corporate office parks. By providing what he calls the "erogenous hook" for the renovation of a half-dozen industrial buildings, Moss has helped developers Frederick Norton Smith and Laurie Smith create an alternative to that standard.

When Frederick Smith inherited his father's holdings in an old industrial area in Culver City known as the Hayden Tract in 1988, he brought to the buildings a developer's instinct honed in Silicon Valley, where he had helped to create buildings for computer start-up companies. In developing those buildings, he came to realize that the creative minds fueling the new information-based economy were often stuck in bland buildings with stultifying atmospheres. It led him to muse about the larger relationship between the world of the body and the world of the mind. "All the seeds of our discontent and economic failure," he claims, "lie in the absence of esthetics in our community. Without such esthetics, people become disconnected. In our society, science leads, but science doesn't have its own esthetics. I saw architecture as a way to create a community that can solve social problems."

Smith went looking for an architect to fulfill his vision, and after interviewing "over a dozen architects" came across Moss when he went to collect rent from him. The architect was reading T. S. Eliot. Smith asked Moss to design a building for him over a right-of-way, then asked him to renovate an old laundry building. The two have been working together ever since. "This guy is not just an idealist," Moss is quick to point out. "It's just that some people smoke it, but he actually writes the checks. He is reinventing himself as he goes along, and is changing the whole development game."

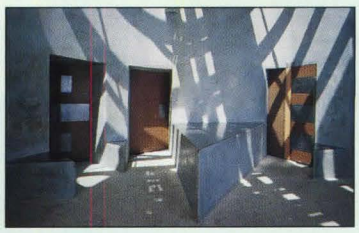
The Moss-Smith strategy may or may not have anything to do with science, community, or smoke and mirrors, but it makes sense. They take buildings that have a heroic scale, a gritty and layered structure, and a great deal of flexibility, but that have outlived their original purpose. Moss then carefully cuts up the spaces to reduce the scale, highlighting the original structure selectively by exposing it in fragments, and then uses the repetitive structural module to create offices. The result is a richly varied interior landscape that is considerably more lively, and at costs that range from $40 to $70 per square foot, economically competitive with office spaces in standard commercial developments.

The buildings of the Hayden Tract have filled up with designers, market researchers, software developers, record companies, and other small- and medium-sized firms that exist by virtue of their entrepreneurial creativity. It is exactly these kinds of companies that economists like Secretary of Labor Robert Reich say will reinvigorate the Los Angeles economy as the aerospace industry that originally supported its factories continues to decline. These are firms that also benefit from the "out-sourcing" of creative tasks: they are cottage industries that serve many clients and can adapt themselves quickly to the marketplace. For such new craftsmen on the technological frontier, the Hayden Tract is a natural home. Filled with all the nostalgia and flexibility of a loft, it is only 10 minutes away from some of the trendiest lunch spots in the country. Smith makes no claims to having consciously caught this wave. He prides himself only on coming up with "new financial instruments" that exploit the changes in capital

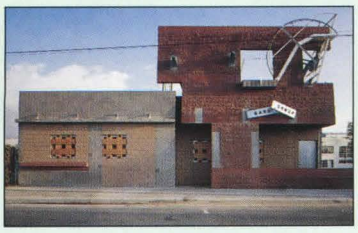


1. 8522 National Boulevard Complex (exterior); phase I, 1986-1988 [RECORD April 1988, pages 90-97].

2. 8522 National Boulevard Complex (interior); phase I, 1986-1988.



3. Goalen Group, part of 8522 National Boulevard Complex, phase II, 1988-1990.



4. Gary Group, 1988-1991 [RECORD March 1991, pages 106-113].

Shown below are the buildings Moss has designed for the Smiths, most located in an area called the Hayden Tract, the largest remaining industrial area on Los Angeles' west side.

1. Ince Theatre
2. Gary Group
3. G.E.M.
4. Paramount Laundry
5. Lindblade Tower
6. Hercules Theatre and Offices
7. 1R, 2R, 3R Theatre
8. Hayden Tower
9. Warner Avenue
10. S.P.A.R. City
11. Samitaur I and II
12. 3540 Hayden Avenue
13. 8520 National (The Box)
14. 8522 National
15. I.R.S. Records

markets that go with the entrepreneurial business climate. He refuses "to give away all my secrets. Let's just say that the trick is that these are not real-estate loans." According to some of his competitors, Smith has stitched together seat-of-the-pants financing from special funds earmarked by banks for community development, non-real-estate loans, and conventional refinancing of his existing properties. Smith plans to expand his renovations in the tract to 600,000 square feet in the first phase. Without speculating about when he will reach that target, he points out that an additional 70,000 square feet are currently being added to the existing 200,000 square feet of already renovated buildings.

Though skeptical initially, Culver City officials have become wholehearted supporters of Smith and his strange designs. City Planner Mark Winogrond has proposed that the Tract become an "architects' free zone" where, within a given envelope, "no additional discretionary, design, or environmental reviews will be necessary—it will be an area where architectural experimentation will be encouraged." In April the City Council voted to allow Moss's architectural gestures to count toward the City's one-percent-for-art-statute. This is "not to say that architecture is art," says Moss, "but that we should want something better than a Band Aid of art."

The buildings in the Hayden Tract are undoubtedly places of experimentation. Filled with a sense of light, connectedness, rich textures, ordered complexity, and unexpected juxtapositions, they move, as Moss puts it, "from what we know towards what we don't" not by imposing an abstract development or esthetic plan on peoples' lives, but through "anarchic planning—first you do one thing, then another." Out of this fusion of art, science, ad hoc responses to buildings, and market forces comes the architecture of a renewed and self-renewing urbanism. *Aaron Betsky*

© Robert J. Lung and Associates photo

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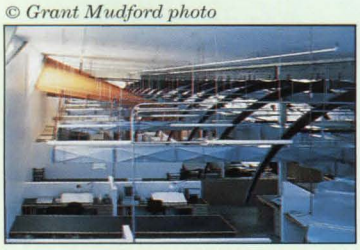


5. SMA Offices, part of 8522 National Boulevard, phase III, 1988-1990.

© Paul H. Groh photo

6. The Box, 8520 National Boulevard, completed this month.

© Todd Conversano photo

7. Hayden Tower, 1991—ongoing.

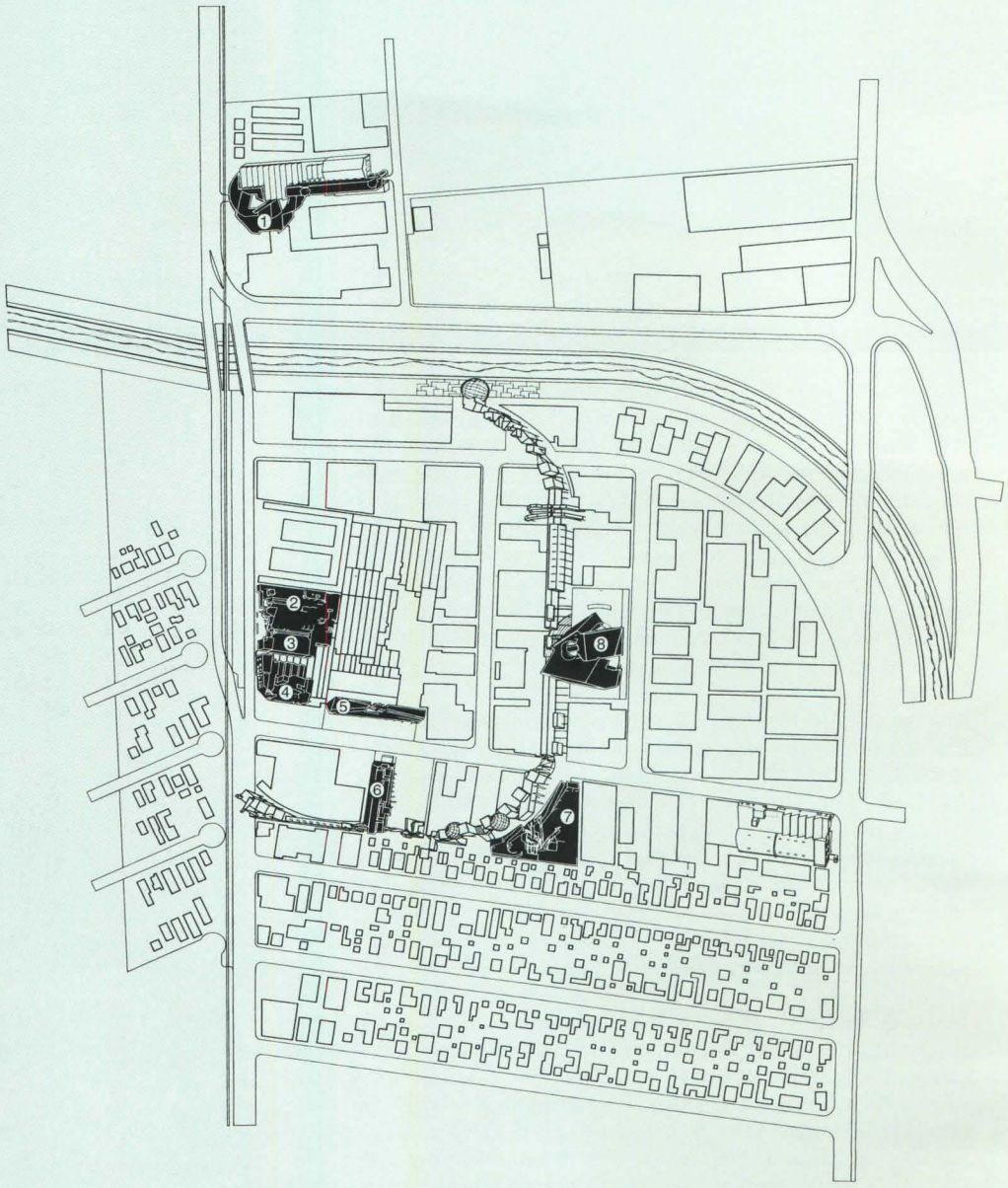
© Paul H. Groh photo

8. IRS Records, completed this month.

S.P.A.R. City

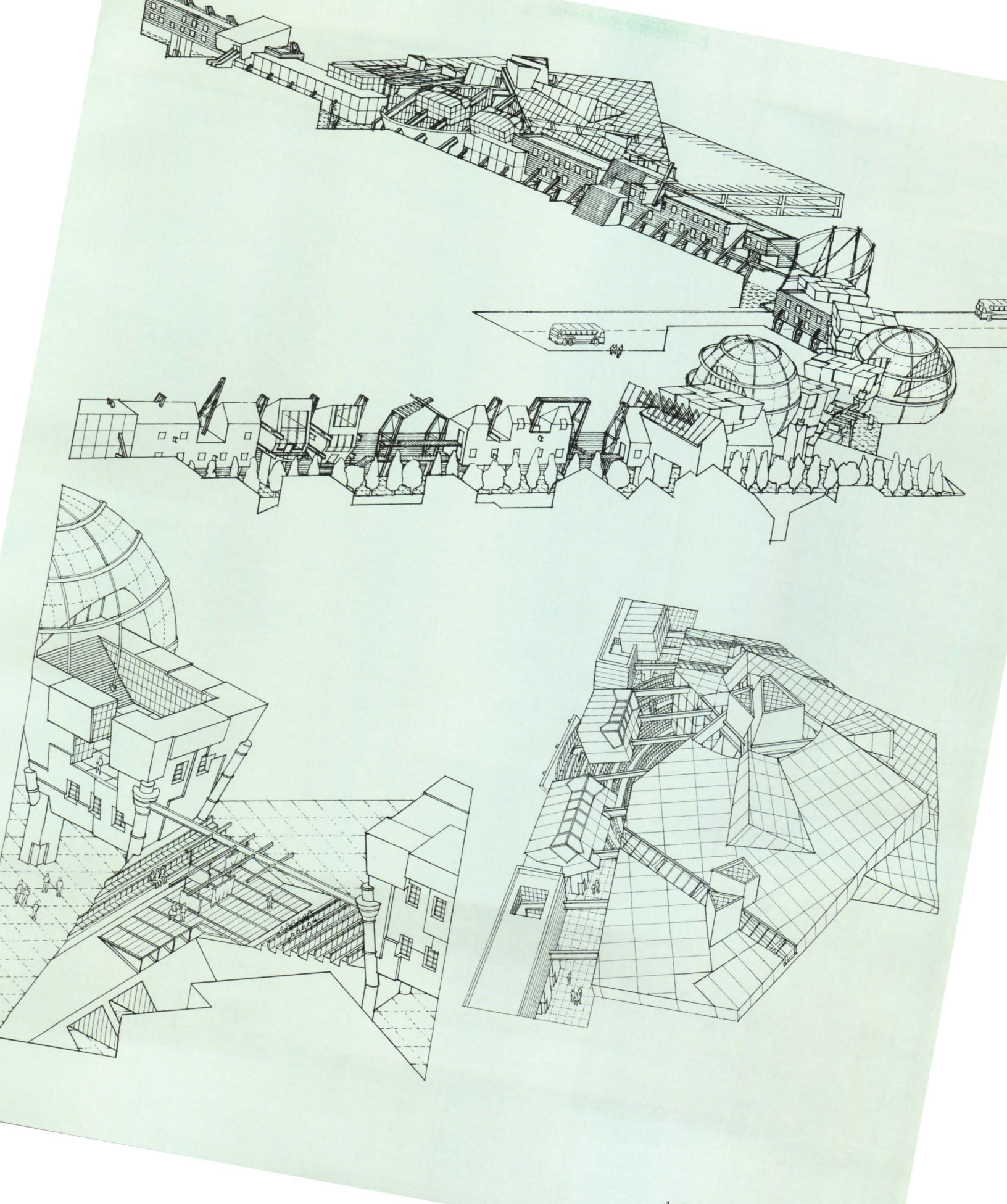
The Southern Pacific Air Rights City is a proposal for a half-mile arc of buildings to be constructed over unused railroad rights-of-way only partially owned by Smith. The railroad spur is part of a massive system that is currently being considered for mass transportation, housing, or gardens on other sites. Smith and Moss see this project as a way of extending the community by elaborating on the physical forms that already exist, rather than imposing new uses. Moss describes the proposed building as "a chameleon" that changes as it moves through different neighborhoods: starting as a "commercial gateway building" on busy National Boulevard, it becomes a multi-use housing development as it crosses a residential development, then a small shopping area and theater, next an office building, and then, when it crosses an area of artists' studios, an art gallery. The building completes its transformation on an adjacent, City-owned lot, where it will become a hotel, amphitheater, and community focal point.

Thus the building seeks to bring together private and public: work, living and play, and disparate zones. This Chinese dragon of a building will apparently even have its own moods, since it will be "friendly" when it clamps onto either a Smith-owned building or one controlled by a cooperative owner, or "unfriendly" when it tries to work its way around non-cooperative territory. Lifting the buildings up in the air allows for horizontal circulation to continue underneath, while tying the otherwise inward-turned buildings on the site together with a landscaped "promenade." "This is about grabbing the land and doing something with it, but not in a CIAM [Congrès Internationaux d'Architecture Moderne] kind of way," explains Moss, referring to the preservation of the site's character, "this is about being ecumenical." Smith is currently in negotiation with owners of adjacent parcels, as well as with the City, to explore the viability of this visionary scheme.



1. Samitaur
2. 8520 National
3. 8522 National
4. IRS Records
5. Hercules Theatre
6. 1R, 2R, 3R Theatre
7. Hayden Tower
8. Warner Avenue

Credits
Project: *S.P.A.R. City*
Owner: *Frederick Norton Smith*
Architect: *Eric Owen Moss—Scott Nakao, project architect; Lucas Rice, Todd Conversano, Amanda Hyde, Ravindran Subramanian, Marco Benjamin, Mark Harris, project team*

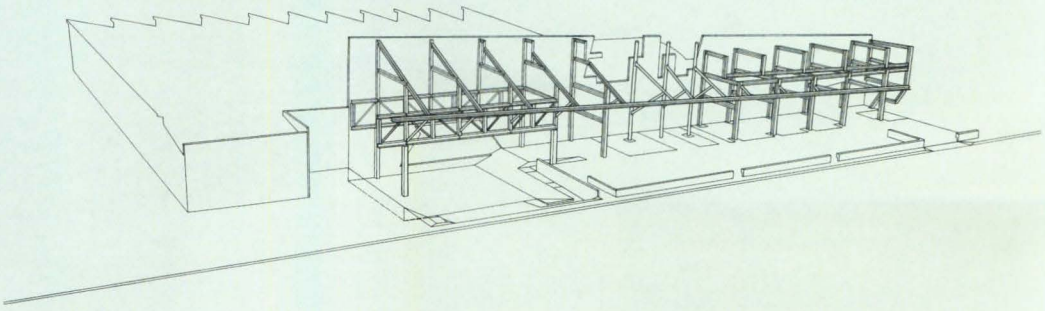


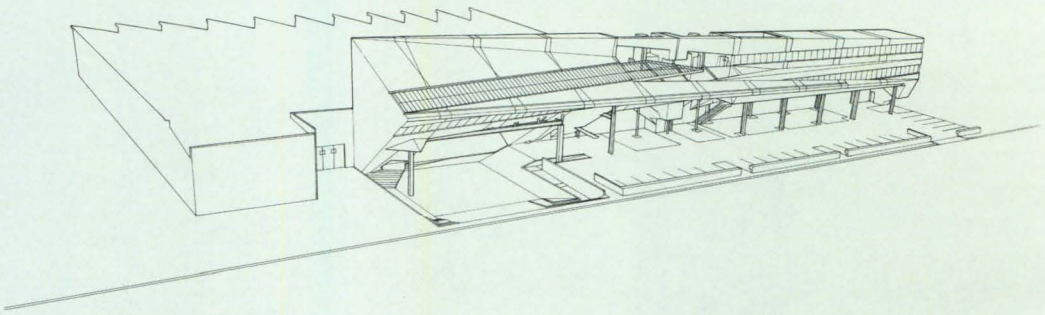
Hercules

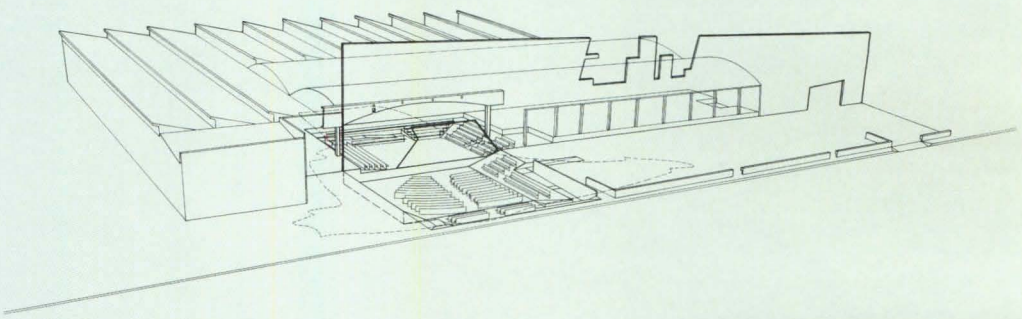
The Hercules building, currently under construction, is an expansion of the 8522 National Boulevard complex, and is built on the site of a former plastics factory, demolished so toxic waste could be removed from the site. The demolition on site, which included part of an adjacent, Smith-owned property, became the catalyst for a major new piece of construction. Culver City allowed the developer greater leeway in terms of height and square footage to facilitate the removal of this dirt. It did ask for parking, and Moss found room for 62 cars by lifting the building up off the ground.

The structural gymnastics necessary to span the site combine with a purely theoretical pursuit of geometry to create the battleship-like form of the new development. The 20,000-square-foot, two-story office building is supported by a rigid steel structure, while vertical circulation and bathroom cores together become the spindle which the folded geometry of the building turns around. "The building moves from what can be known, at either end, to what cannot be predicted in the middle," says Moss. The angular geometries, which will be clad in steel-troweled black plaster, also serve to open up expansive views beyond the site.

After they had proposed the new building, Moss and Smith did not just cover over the past: The hole left over after the toxic waste has been removed will become an outdoor amphitheater that faces a "black box" theater with 300 moveable seats housed in the recently renovated IRS Records building adjacent to the new development. The amphitheater, with 600 seats, doubles as a "garden court" in which workers can gather at lunch. The Smiths hope that this theater complex will become a catalyst attracting other such performing-arts institutions to the Hayden Tract, linking up with existing dance studios and set-design facilities, as well as with other theaters proposed for the Tract.







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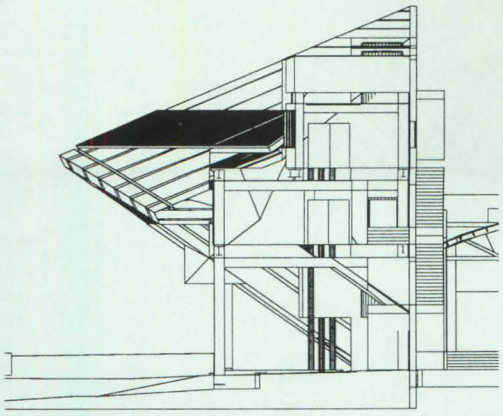
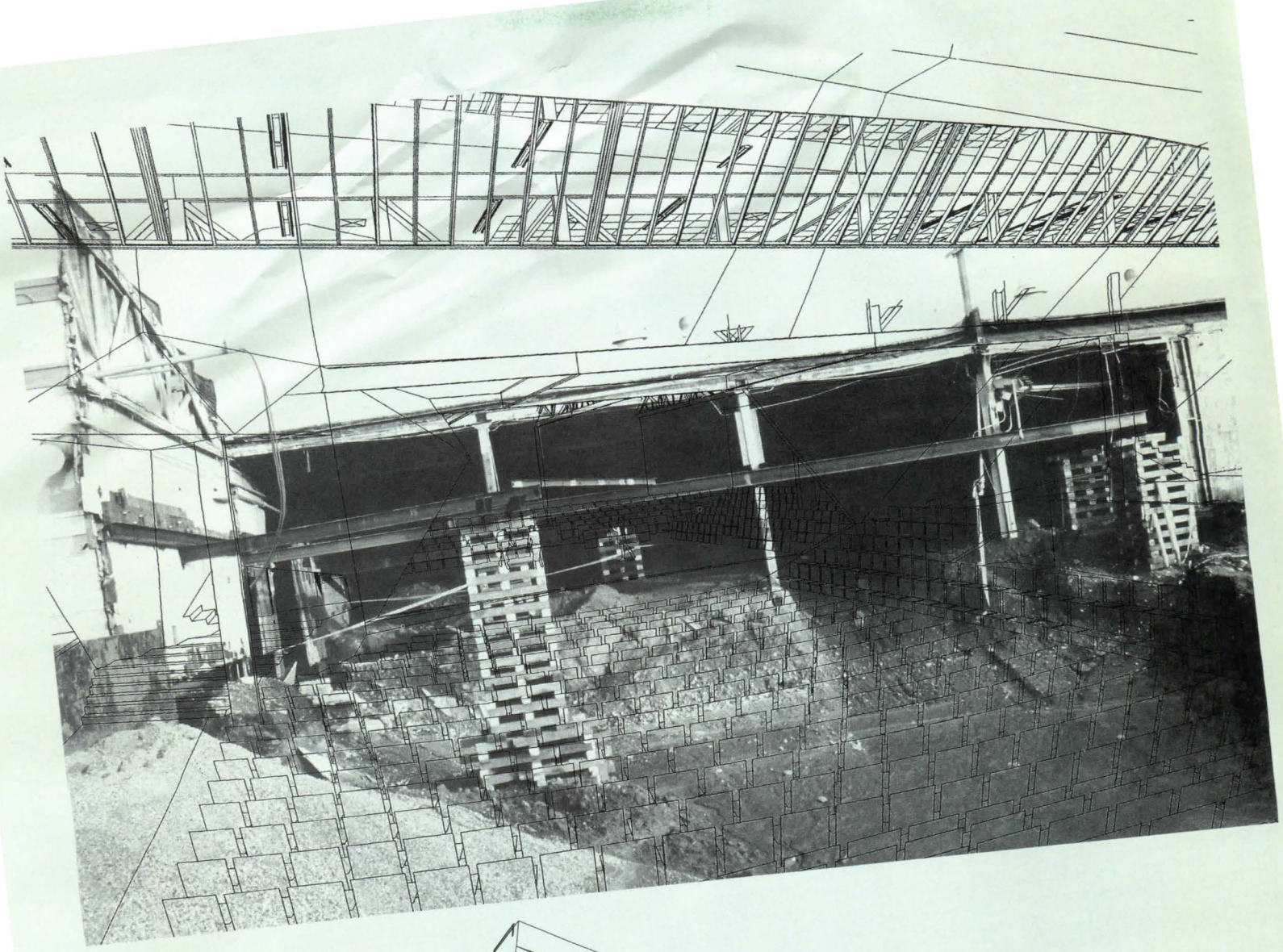
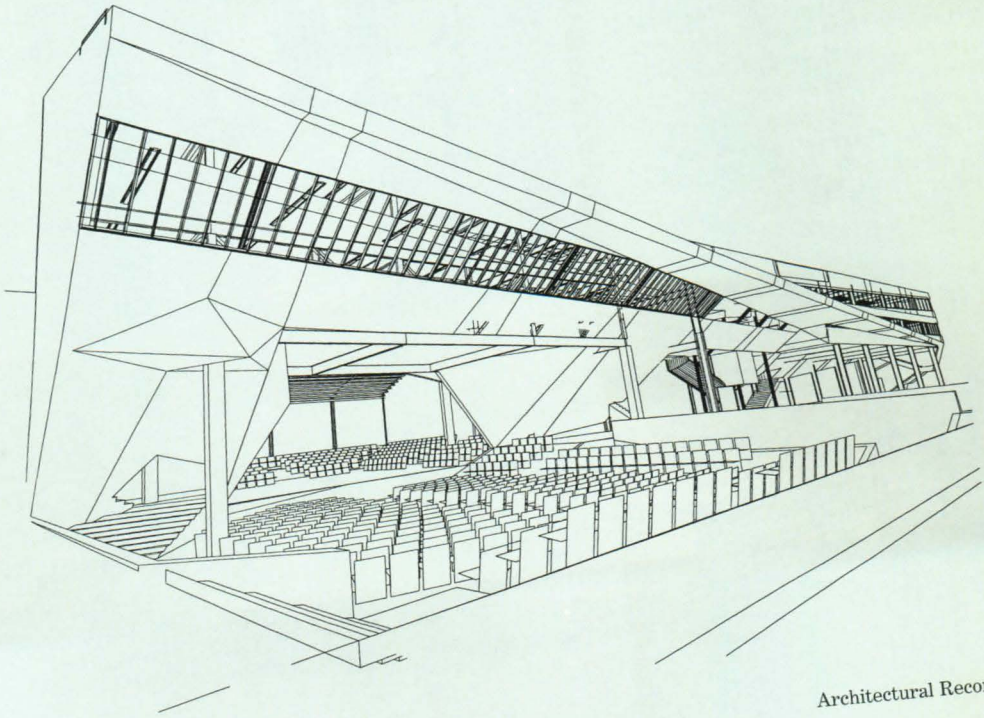


SECTION



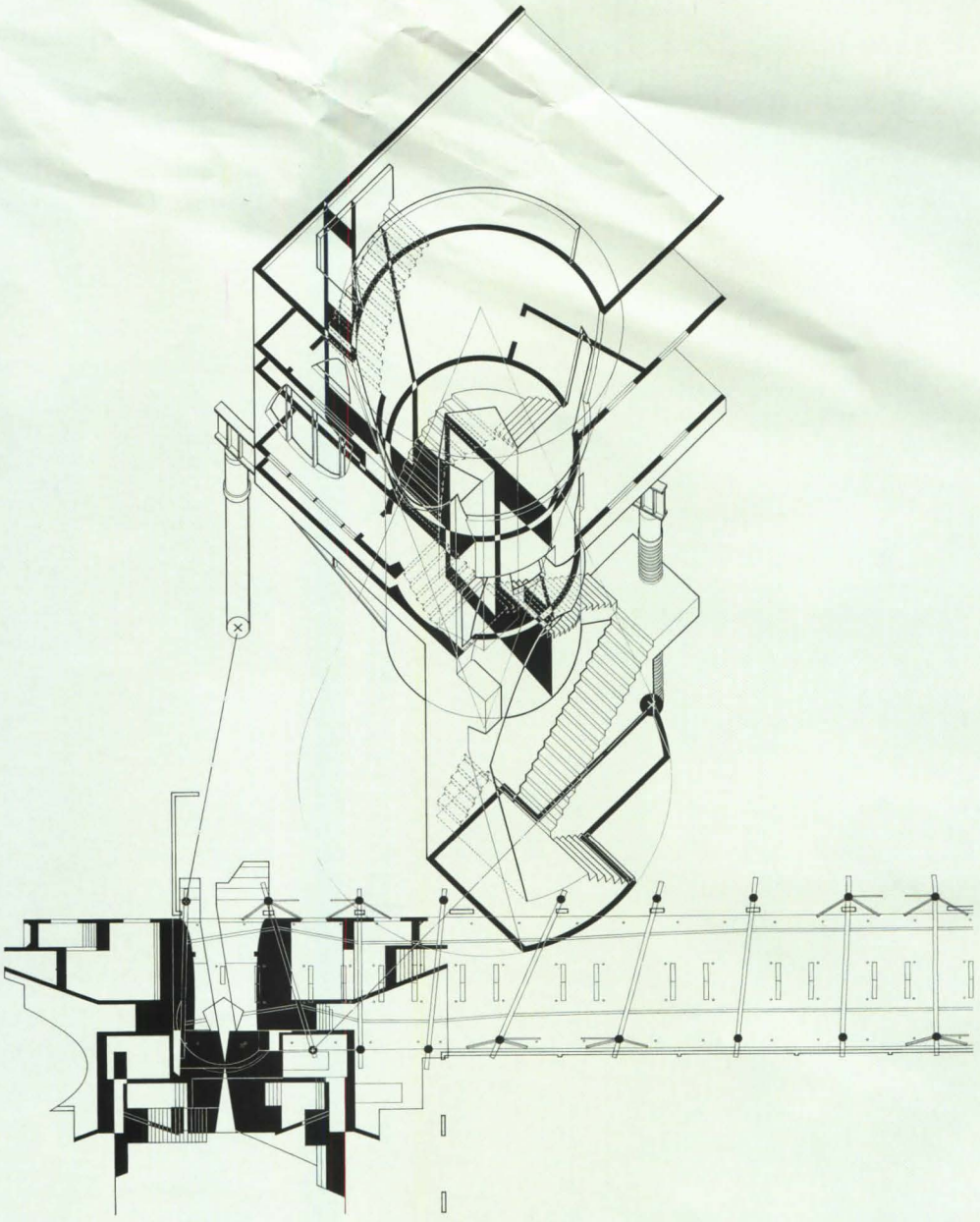


Credits
Project: *Hercules Theatre and Offices*
Owner: *Frederick Norton Smith*
Architect: *Eric Owen Moss—Scott M. Nakao, Nick Seierup, project associates; Shengyuan Hwang, Dennis Ige, Eric Stultz, Thomas Ahn, Sophie Harvey, Scott Hunter, Naoto Sekiguchi, Todd Conversano, Paul Groh, project team*

Samitaur Complex

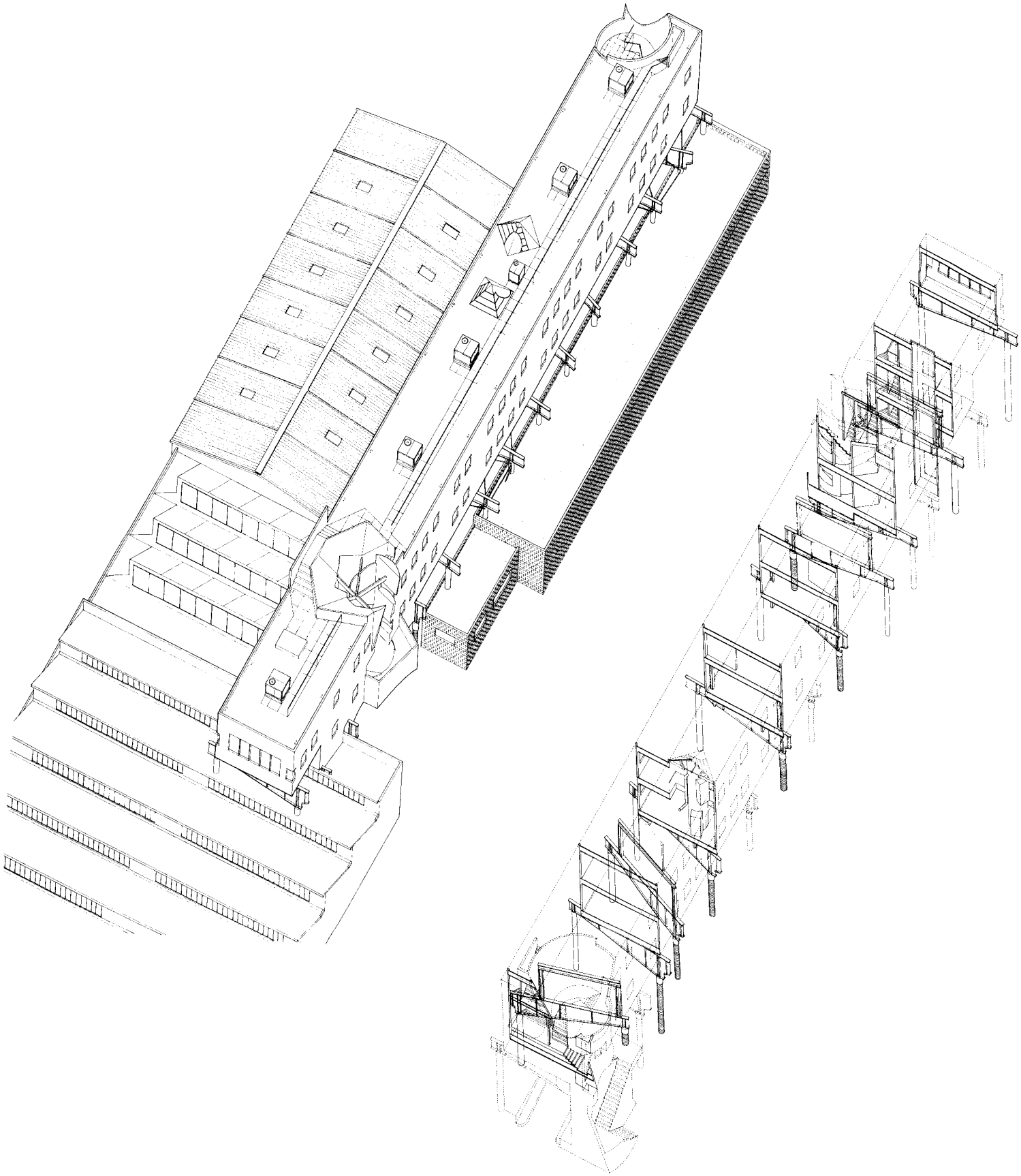
Samitaur is the name of the first development Moss designed for Smith. Deriving its evocative appellation from Smith's original family name, it is actually located outside of the Hayden Tract, on the other side of the river in Los Angeles proper. Originally designed for an existing tenant in an adjacent building who wanted to expand, this air-rights building is now being marketed as a stand-alone office building. Samitaur is supported by columns that are positioned to avoid truck loading docks in the existing structures. The resulting idiosyncrasies of the structure are both tamed and exploited by the relatively simple shape of the building above. A system of tapered steel columns braced by diagonal members provides the structural support for the two floors of office space Moss could squeeze between truck clearance below and a height limit above. The bar shape is cut through by an elaborate staircase and courtyard configuration that becomes the signature of the Samitaur, while providing views and gathering spaces in this otherwise harsh semi-industrial landscape.

The structural system is exposed and exploited to provide sprinkler heads for the grass courtyard, as well as sculptural elements framed by views from inside the office building. A planned third phase, "The Hook," lives up to its name by extending the Samitaur (all connotations of "samurai," as in a slashing *architecture, seem fully* intended) into a sickle-shaped hybrid shape that opens up to a private courtyard. Made up of a combination of polygonals and complex curves, this shed-like building elaborates some of the existing site geometry in its internal structure and then, like most of the Moss-designed buildings in the area, clothes them with an enigmatic shape that shelters and hides the new world inside. The main part of the project (Phase 1 and 2) is currently under construction.



© Todd Conversano photo

Credits
Project: *Samitaur Complex*
Owner: *Frderick Norton Smith*
Architect: *Eric Owen Moss—Greg Baker, Dennis Igo, Jay Vanos, project architects; Todd Conversano, Eric Stults, Eric Holmquist, Naoto Sekiguchi, Scott Nakao, Elisse Scrafano, Scott Hunter, project team*

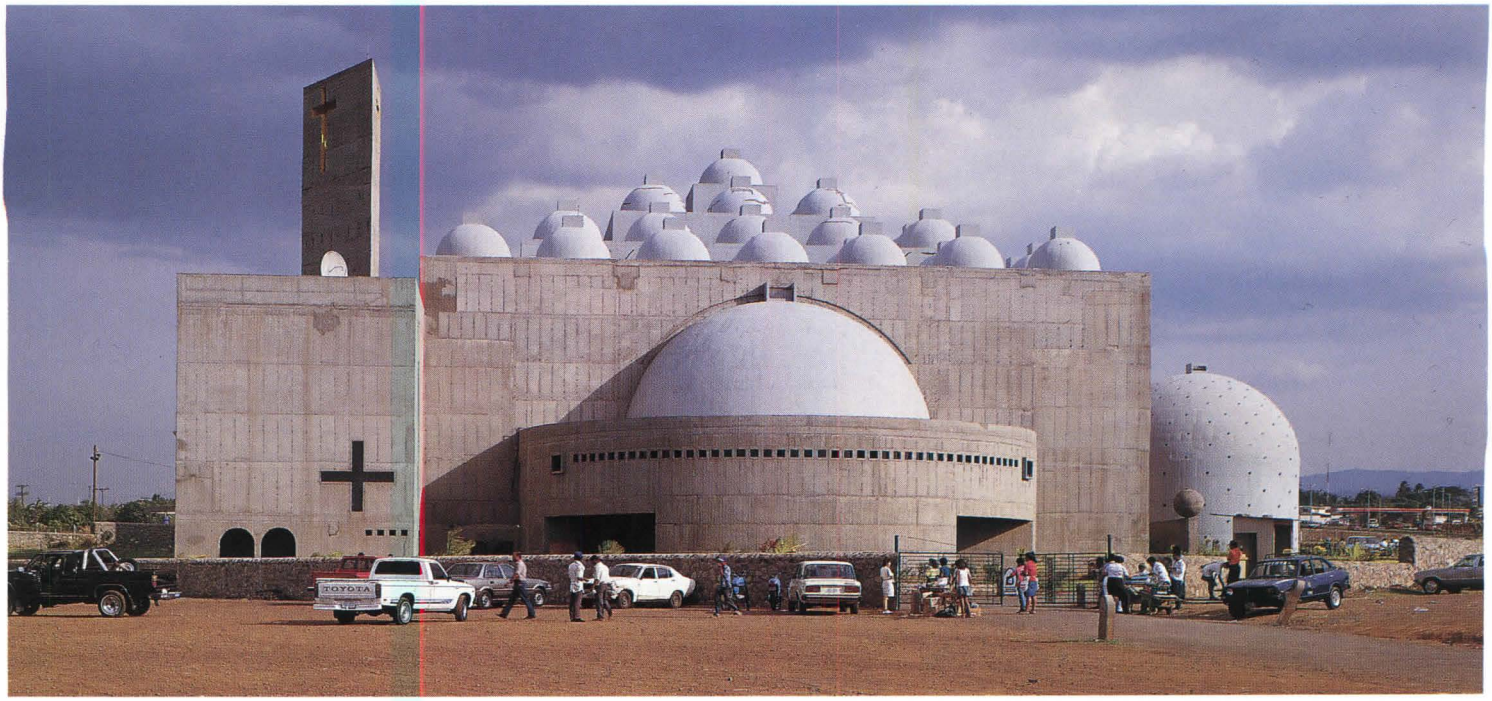


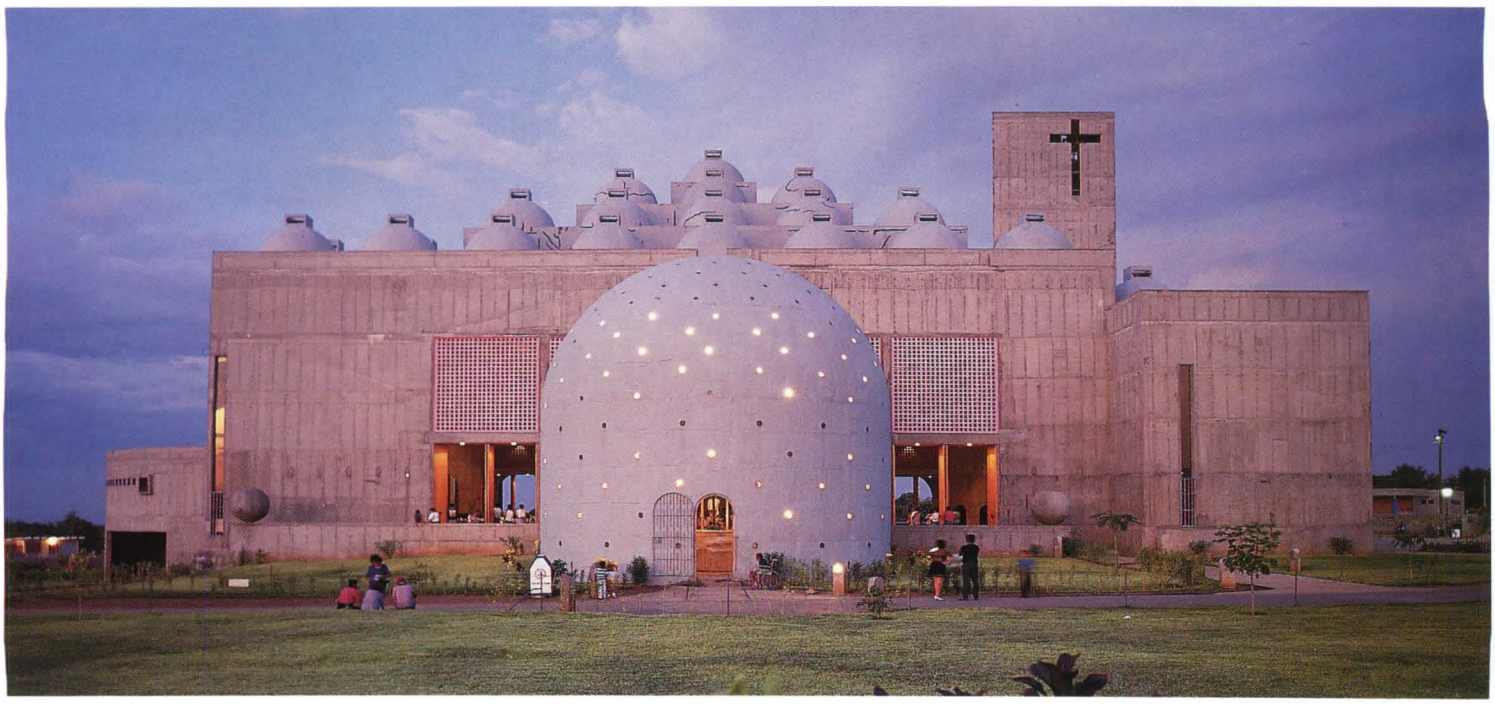
Where the Streets Have No Name

Managua's new cathedral replaces a structure destroyed by earthquake in 1972—a resolute symbol in a country awash in change.

Managua Cathedral
Managua, Nicaragua
Legorreta Arquitectos, Architect

©Peter Aaron/Esto photos



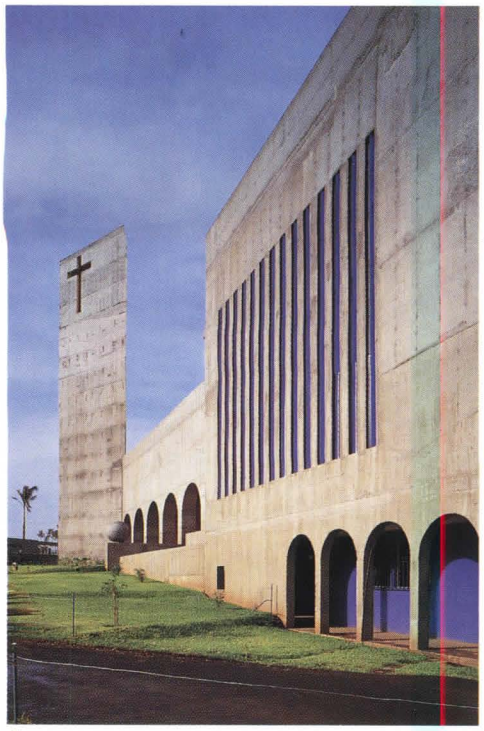


Buildings are often like people—enigmatic, aloof, impressive, alluring, or frustratingly incomprehensible. The new cathedral of Managua, designed by Mexico City-based Ricardo Legorreta, is all this and more. It's also the biggest building to be constructed in Managua in decades, and in a country whose population is 88 percent Catholic, it is in constant use, typically drawing some 1,000 people for Sunday mass and up to 100,000 on holidays. In Managua, loyalty to its purpose is steadfast, but questions about its form invoke a variety of responses, some bordering on the heretical. Pointing to its rooftop landscape of bulbous skylights, some locals call it "pornographic." Its concrete silo—actually a veneration chapel—earned it the epithet "nuclear reactor." Bright pink- and purple-painted archways highlight its towering presence in a neighborhood of ramshackle structures, leading one Managua architect to label it a "jumbo comic."

But the building is no joke. That it got built in three years while Nicaragua was still reeling from the aftershocks of revolution and a series of natural disasters is, as more than one insider put it, "miraculous." Managua has taken a particular beating. It was ravaged by earthquake in March 1931 and swept by fire five years later. Rebuilt as a commercial center, it was destroyed again by an earthquake in December 1972, when the city's Spanish Colonial-style cathedral collapsed. Political upheaval added to the damage: the 1978-79 revolution against the Somoza government by Sandinista forces ripped apart what was left of the city. Led by Daniel Ortega Saavedra, the Sandinistas expropriated sites with the intention of rebuilding the downtown. Plans were largely unrealized when the stand-off between the Sandinista government and American-backed *contras* finally led to a national election and the surprising February 25, 1990, victory of Violetta Barrios de Chamorro, widow of a newspaper publisher who had been murdered by General Somoza's forces in 1978. In a parting act of contrition, the Sandinistas gave the church a prominent 29-acre parcel for the new cathedral: a barren field at the crossroads of two major thoroughfares, in a place where the streets have no name.

One constant throughout much of the turmoil has been Miguel Cardinal Obando y Bravo, Archbishop of Managua since 1970—a savvy priest of peasant origins who had opposed the Sandinista government. The Cardinal turned to an unlikely ally in his quest to raise the spirits of Nicaraguan Catholics by finally rebuilding the cathedral: American Thomas Monaghan, founder of Domino's Pizza. Described by Legorreta as "a passionate Catholic," Monaghan had previously established the Mission Chapels Foundation to construct chapels in poor countries. Hearing of his work, the Cardinal invited Monaghan to Managua. Says Monaghan of his decision to join forces with the Cardinal: "One cathedral is equal to a lot of chapels, but symbolism is so important." Monaghan, an on-again-off-again Frank Lloyd Wright furniture collector and a patron of architecture, in turn asked Legorreta, saying of his choice "it was important to have a Spanish-speaking, world-class architect."

What Monaghan and Legorreta found on their first trip to Nicaragua in March 1990 might have sent a less resolute pair running the other way. Not only was the city a shambles, but the transfer of power between Ortega and Chamorro was a high-stakes drama: the airport was abruptly closed; phone service was suspended. In September 1990, five months after Chamorro was sworn into office, the Mission Chapels Foundation signed a letter of agreement with the Archdiocese of Managua outlining its gift toward a budget (including architectural fees) of $3 million—for every dollar allocated by the Archdiocese, the Mission Chapels Foundation would give (or privately raise) $5. Explains Foundation director Joe Davis: "The estimate was rough, since there had been no construction [of this scale] in Managua in over 15 years. The initial budget represented the price in Mexico." Ultimately, the project cost $4.5 million, with the overrun covered partly by Foundation money and donated local services.



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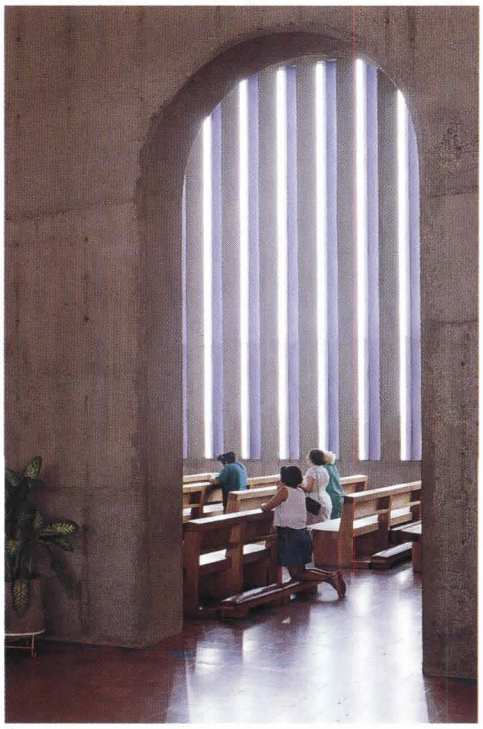

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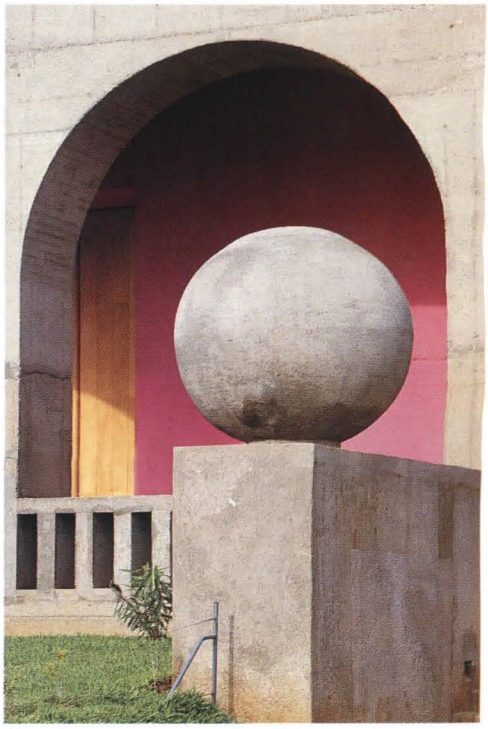


3

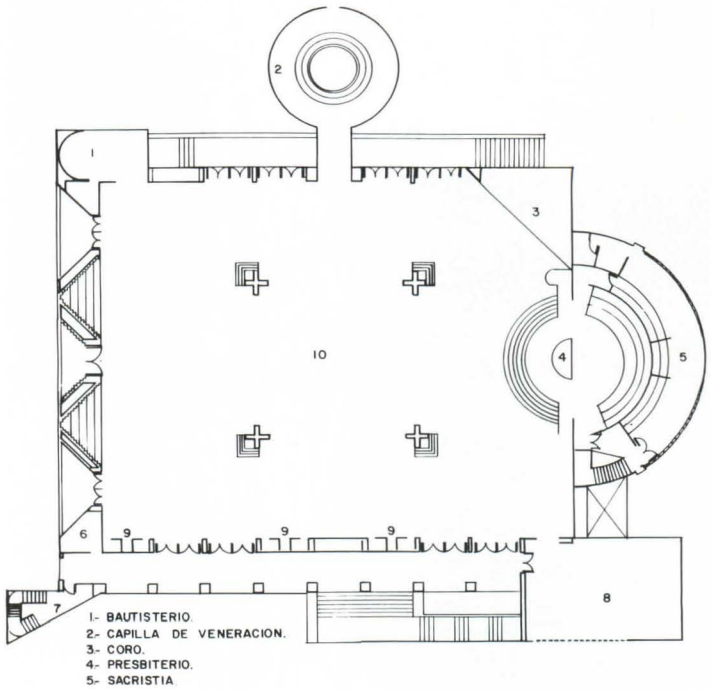
While Monaghan paid for Legorreta, and wrote a $40,000 check to finally shelve a long-discussed scheme by a local engineering firm—a design Davis remembers as "a barn with a tower"—he says the project "was strictly between Ricardo and the Cardinal." True to his humble origins, the Cardinal's mandate was "a structure of unadorned, simple beauty," according to Davis. The overall effect is, like the undertaking, multi-cultural. Legorreta calls the square plan and the onion-like domes that dot the roof "vaguely Islamic," like the Alhambra in Granada, perhaps a nod to the Spanish presence in Nicaragua. While the cast-in-place-concrete construction is straightforward, adequate pumps and cranes were difficult to obtain. Exterior concrete was chiseled for added texture, in part to reinforce the appearance of solidity in an active earthquake zone.

Legorreta oriented the central nave on a north-south axis and lined side aisles with pivoting oak doors to ease circulation in and out and exploit prevailing east-west breezes, a welcome reprieve from the tropical climate. As a result, the Cathedral is the coolest place in town; apart from a place of worship, it has become an unofficial community center, where people come for naps and quiet conversation. In a symbolic gesture, the architect placed the dome's high point over the congregation, not the altar. A separate veneration chapel resembles an orange bell jar. Inside, an ancient crucifix is mounted on a concrete podium. The Archdiocese built a transparent cage for protection, creating an icon-under-glass.

It is the at-times bizarre collision of forethought and serendipity, of formal rigor and make-shift construction, that make the Cathedral a potent modern-day symbol. While it strives to transcend its troubled setting, it is part of it. Metal scaffolding disfigured the wet concrete surfaces of the bell tower, which originally were going to be plastered and painted. Legorreta chose to leave the concrete as is. Now, the scarred tower is an appropriate and moving reminder of a country desperate to heal. *Karen D. Stein*

1. *Baptistery*
2. *Veneration chapel*
3. *Chorus*
4. *Altar*
5. *Sacristy*
6. *Daily mass chapel*
7. *Bell tower*
8. *Confessional*

The 110-foot-high bell tower dominates the complex (1). The daily mass chapel (2, 4) is adjacent to the main gathering area. Concrete balls punctuate exterior archways (3). The baptismal room has a skylight (5), while small openings dot the dome of the veneration chapel (6).

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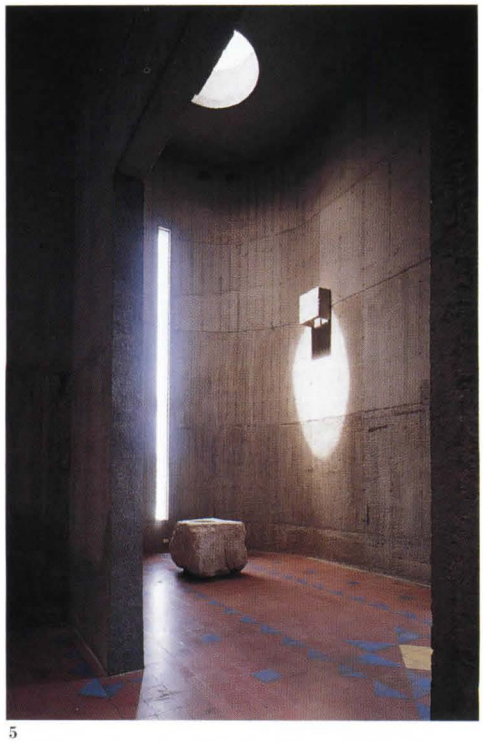
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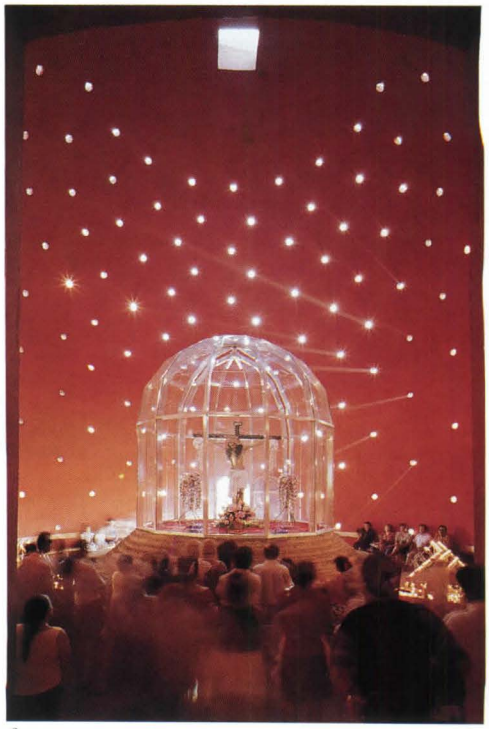
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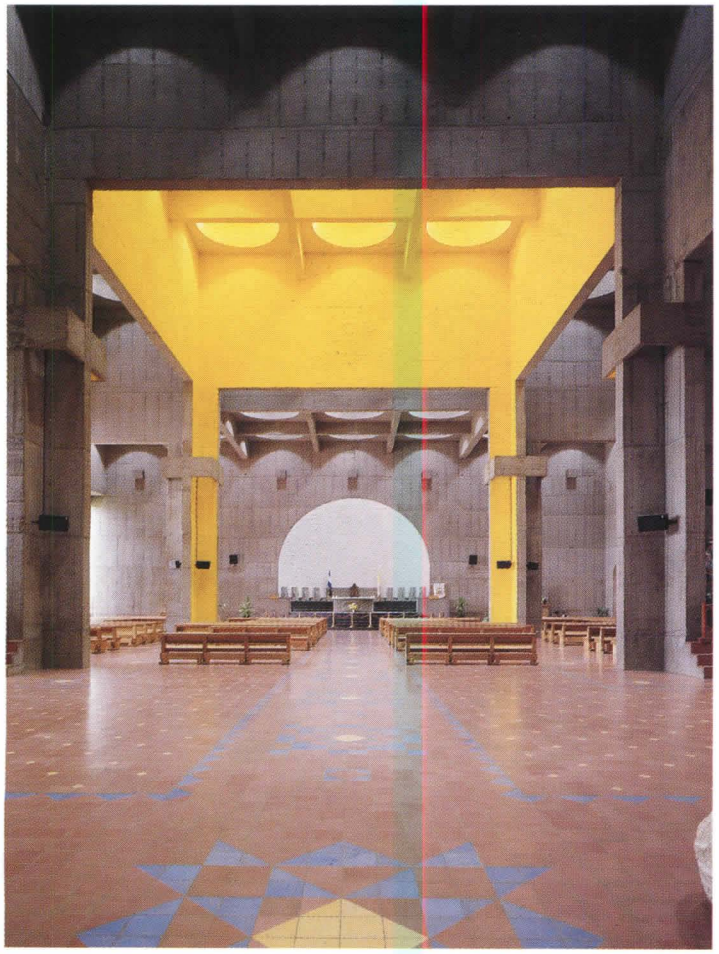
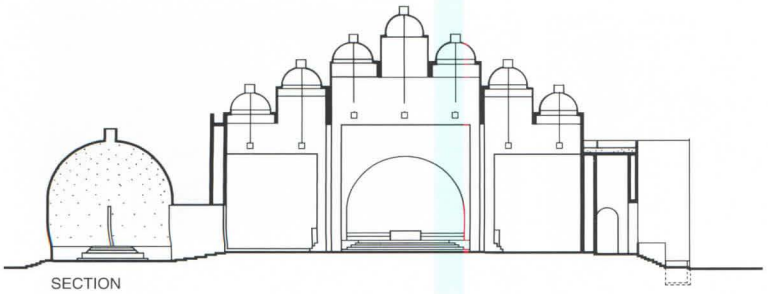




SECTION

The main gathering space is 140 feet by 120 feet, rising up to a height of 67 feet. The insides of the top-lit domes are painted canary yellow (above and opposite). The massive bays of reinforced cast-in-place concrete recall the work of Louis Kahn. Of the implied reference, Legorreta says: "What I admire about Kahn is he didn't create a style, but a spiritual feeling."

Up Close

When architecture and politics collide. The construction of a new cathedral in Managua some two decades after the destruction of the previous cathedral by earthquake was a cause célèbre, recent revolutions and natural disasters aside. The selection of a "foreign" architect, Mexican Ricardo Legorreta, was "demoralizing" to the Managuan design community, according to several local architects. (The country does have remnants of a building stock of locally designed International Modernism.) What's more, principal financing by Thomas Monaghan, whose Domino's Foundation supports conservative causes like the right-to-life movement, also raised eyebrows. While some complained that the $4.5 million should have been spent on food and shelter for Nicaragua's poor, the gift was specifically targeted to the nation's Roman Catholics, who comprise over 80 percent of a population of 4 million. Although the bright pink-, purple-, yellow-, and orange-painted surfaces are typical of Legorreta's work, they are newcomers to the current Managuan scene. (Softer hues can be seen on buildings in nearby towns that suffered less destruction.) The Cathedral is on a 29-acre site set off from the street by a barbed-wire enclosure and littered with garbage, creating an eerie mix of sacred and profane. An allée of mature palm trees, trucked in from Costa Rica, reinforces the processional route to the Cathedral, which is blocked on the south end by squatter's shacks. Legorreta's scheme called for 350 palms, but money ran out.

Credits

Managua Cathedral
Managua, Nicaragua
Owner: *Archdiocese of Managua*
Architect: *Legorreta Arquitectos—Ricardo Legorreta, principal-in-charge; Noe Castro, Victor Legorreta, Francisco Vivas, Miguel Almaraz, project team*
Project Management: *Natex Corp.—Jose Teran, project manager*
Engineers: *Walter P. Moore (structural); Lamsa (mechanical); Enrique Hernandez (electrical)*
General Contractor: *Consorgo Metropolitano*

Place of Healing

Minneapolis Pathways
Minneapolis, Minnesota
Anmahian Winton Architects,
Design Architect

Minneapolis Pathways "is a health crisis resource center," according to its executive director, Howard Bell. "We work with people who are faced with serious life-threatening illnesses. We are not a treatment agency, not a clinic, nor do we offer alternative health care in terms of physical treatment. We help people empower themselves in a psychological, emotional and spiritual sense, to enable them to live their lives fully when they're dealing with a life-threatening illness." The center is operated for the most part by volunteers who for several years held their meetings and activities in a small Victorian house.

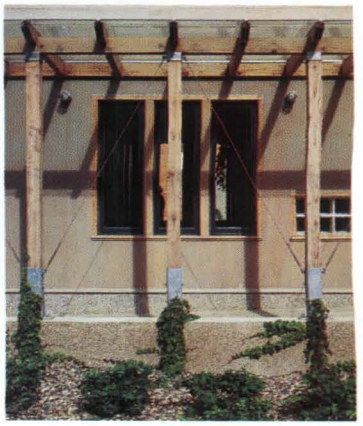
Architects Alex Anmahian and Nick Winton recall the group's hesitation about building a new building when they finally outgrew the space. "The users of the old Pathways house really enjoyed it because it was so non-institutional, and non-threatening," says Winton. "They're coming from the position of having come through all kinds of rigorous medical treatment, and institutional facilities, and I think for them a home-like environment was a huge breath of fresh air." "They actually said they didn't want the building to scream 'architecture' on the street," adds Anmahian. "They weren't interested in any polemic."

But the architects did believe the building should project its identity as a non-residential structure to the street to some extent. They used bleached, custom-milled wood siding to give the exterior the first-glance appearance of dignified cut stone, while the overall proportions of the building were kept in scale with the rest of the neighborhood. Inside, Pathways has a very residential feel, although the size and shape of the spaces is "very idiosyncratic," according to Winton. "Each room was designed for its own use. The result was kind of an unusual plan and section. While the kitchen, for example, is used as a kitchen, in a sense it's a therapy room where two people can sit at a table and have a cup of coffee and talk to each other. A lot of the replication of residential scale and look has to do with the fact that people feel a lot more comfortable in a setting like that."

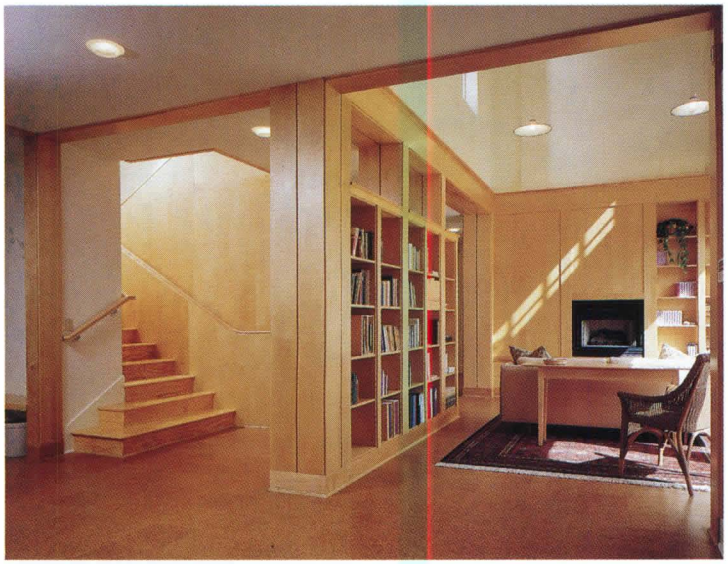
The reception area is the pivotal point in the building's plan. Here, the front and rear entrances and two public spaces, the library, and lecture room converge with a small enclosed garden. "Once you pass through either of the entrances," says Winton, "our intention was that you would be focused on the center, which is the garden."

"The overall austerity of the building is very purposeful," says Anmahian. "We chose a very limited palette and used it in a way that we thought would make it as rich as possible. Part of the austerity has a lot to do with the users. They come from all walks of life, and we didn't want to respond with something so fussy and expensive that it wouldn't be of any use to them. After it opened, we got a lot of feedback from people who said the building wasn't what they expected, but they totally embraced it." *Charles Linn*

© *George Heinrich photos*



Members of Minneapolis Pathways, an organization that provides counseling and support for those who are threatened by serious illness, were reluctant to leave a homey, but too small Victorian house where they had been meeting for several years. Anmahian Winton Architects provided them with a purposefully austere building, respectful of the existing neighborhood scale. Exterior materials are simple bleached, custom-milled wood siding and sandblasted concrete. A small private garden (above) provides outdoor meeting space, and can be viewed from the library and lecture room.



Credits
Minneapolis Pathways
Minneapolis, Minnesota
Architect: *Anmahian Winton Architects (design architect)—Alex Anmahian and Nick Winton, partners-in-charge ; Shea Architects (architect of record)*
Engineers: *Gregorian Engineers (structural); Stroh Engineering (structural); R.L. Feig & Associates (mechanical)*
Consultant: *Mark Schreiever (landscape)*
Contractor: *K.M. Building Co.*

1. *Apartment*
2. *Therapy*
3. *Meditation*
4. *Foyer*
5. *Reception*
6. *Office*
7. *Conference*
8. *Kitchen*
9. *Meeting*
10. *Library*
11. *Lecture room*
12. *Garden*

Although the new Pathways building could not replicate the Victorian house that preceded it, architects Alex Anmahian and Nick Winton sought to establish a similar warm residential feeling through proportion, and their selection of finishes. Both the library (above) and lecture room (opposite) look out onto a small private garden that acts as a space for meditation or spontaneous meetings.

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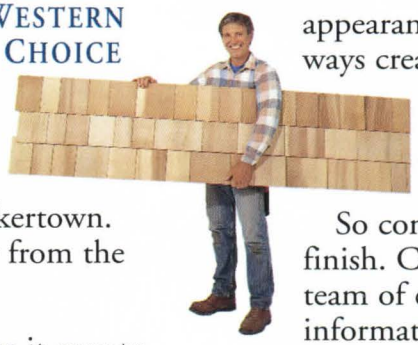

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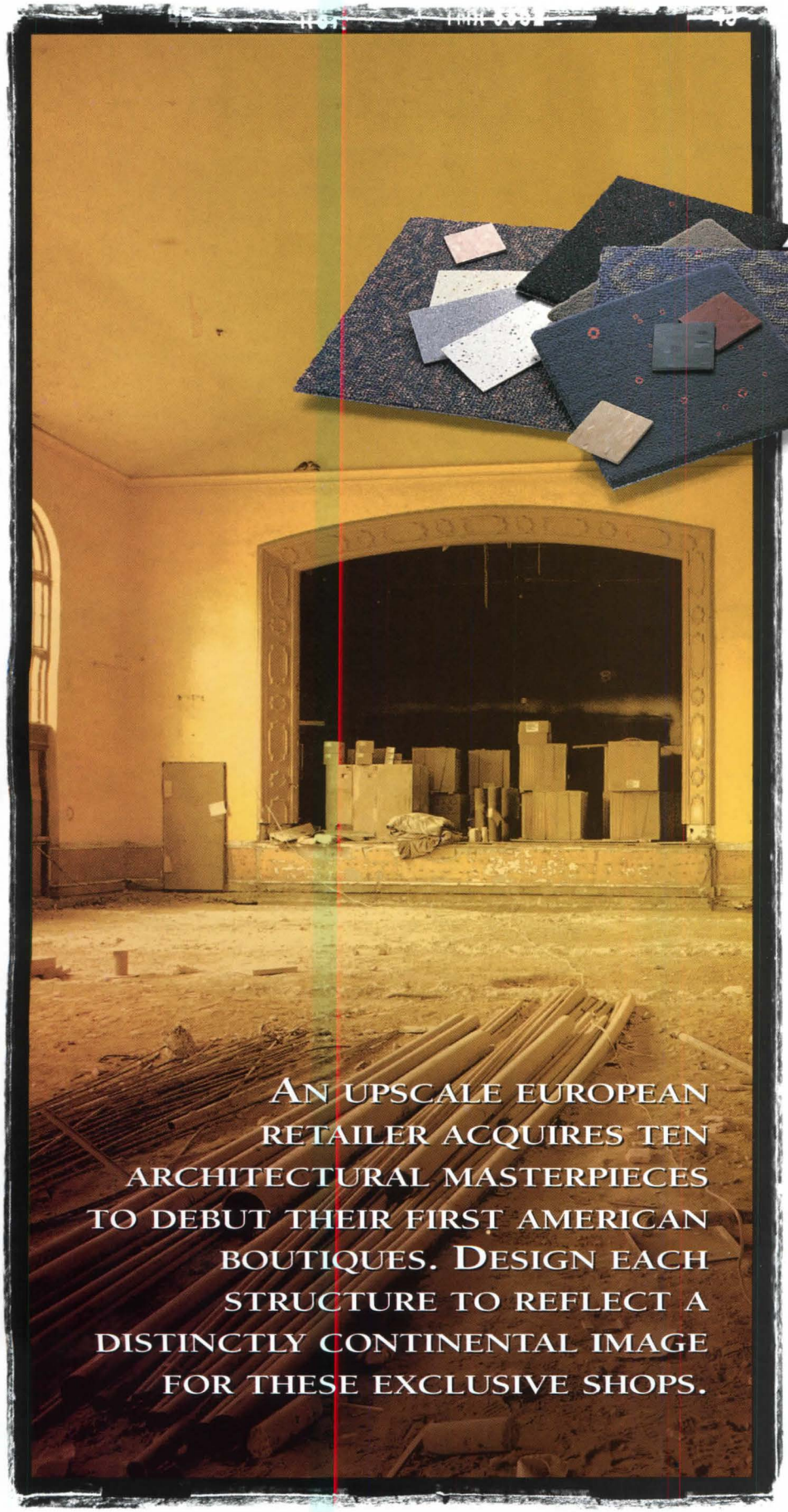

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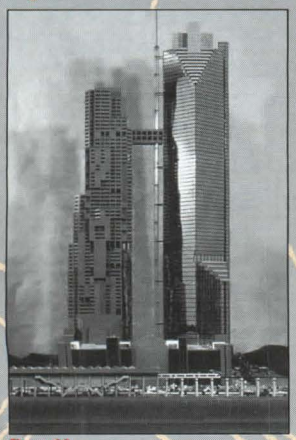

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Clifford A. Pearson, Editor-in-charge

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For the second year in a row, ARCHITECTURAL RECORD has assembled a special section devoted to architectural design and practice in the Pacific Rim. Rather than focus only on what foreign architects are doing there, this section highlights work by design professionals from both East and West. Its goal is to show some of the most innovative work being done in this part of the world and examine some of the important issues and challenges facing architects there. Reflecting the rapid changes occuring within the Pacific Rim, this year's section includes expanded coverage of countries such as China and Vietnam. As Elizabeth Padjen states in her article "East Meets West," one key to success in Asia is perfecting the art of collaborating with colleagues from other countries. Taking that advice ourselves, the editors of ARCHITECTURAL RECORD worked with a number of architectural associations in the region in preparing this special section (see list, left). We thank them for their help and look forward to maintaining our overseas relations in the future. *C.A.P.*

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China

China Market Beckons And Architects Hear the Call

Economic outlook: The Chinese economy has been growing at an annual rate of 13 percent for the past two years and has not slowed down through the first quarter of 1994. The gross national product for 1993 is estimated at $1.2 trillion and is projected to increase by 7 percent a year for the next decade. Due to fears that the economy may be growing too fast—bringing with it high inflation and reckless speculation—the Beijing government in the summer of 1993 introduced a series of measures aimed at limiting certain kinds of real-estate development. These measures included limiting credit, levying new taxes on the appreciation of property values, requiring commercial developers to provide low-cost housing, and declaring a moratorium on certain types of "luxury" developments. Demand remains high, however, for new office, retail, and residential space.

Housing: The Ministry of Construction has made housing a top priority and estimates that up to 14.6 billion square feet of residential space needs to be built in the rapidly growing urban areas over the next seven years. Because of this shortage of affordable housing, the government has tried to link commercial construction to residential building, asking developers to put up some housing in exchange for commercial loans.

Mixed-use projects: A shortage of retail and commercial space in China's larger cities has led to a wave of projects that combine retail, hotel, and office components. Being high-profile projects, these buildings are often designed by foreign architects.

Where the action is: Much of China's economic and construction boom has been concentrated in coastal areas such as Guangdong Province near Hong Kong. But building is heating up in interior provinces such as Sichuan. The greatest amount of activity is along the Yangtze River basin, with Shanghai (population: 13.5 million) acting as the head and development sweeping westward to the cities of Wuhan (pop: 6.8 million) and Chongqing (pop: 14.9 million). Shanghai is once again becoming the financial center of China (and maybe of Asia) and the return of Hong Kong to Chinese rule in 1997 may bring greater international investment to this key city. Most of the international projects being built in Shanghai are in the Pudong special economic zone across the river from the historic Bund. Beijing has taken a more cautious approach to development to preserve the special character of the historic city. But the Beijing-Tianjin region is attracting more international development these days and the port city of Tianjin (pop: 9.2 million) is trying to become the Shanghai of the northeast. In Liaoning Province near North Korea, the city of Dalian (pop: 5.2 million) has attracted a great deal of Japanese investment and is growing rapidly. In the southeast of China, Fujian Province has been described as a 300-mile-long construction site and overseas Chinese (especially those from Taiwan) have been busy in Xiamen City (pop: 1.1 million). Recently, the southern island of Hainan (pop: 6.9 million) has been a focus of resort development.

Architectural registration: There is no system for individual professional registration. In China, the term "architect" refers to the approximately 30,000 architectural practitioners working in 2,000 registered architecture institutes and offices. Instead of licensing individuals, the Ministry of Construction grants four classes of registration to design institutes and construction enterprises. Units with Class A licenses can undertake the design of buildings of any size or type anywhere in the country, whereas those with Class B, C, and D licenses are allowed to work on progressively smaller and less complex buildings in more restricted geographic areas. In keeping with China's drive toward increasing private enterprise, the Ministry of Construction plans to introduce a system of individual registration for Chinese architects by 1995. The Architectural Society of China (ASC) is now working with the U.S.'s National Council of Architectural Registration Boards to establish registration standards and a registration examination modeled after those in the U.S. The shift to individual registration may encourage small groups of architects to split off from big design institutes and place greater emphasis on design.

Shanghai International Center is a mixed-use project by Kaplan/McLaughlin/Diaz.

Role of the architect in China: Chinese architects tend to play a different role in the building process than their counterparts in the West. In fact, the term "architect" is perhaps more accurately translated as "builder" or "master builder," reflecting the Chinese profession's emphasis on construction rather than design. In China, the architectural profession retains many aspects of a building trade. Most architectural practice takes place in state-owned design institutes and construction conglomerates in which senior architects, in the role of masters, teach, train, and direct apprentices in the work. For most of the last 45 years, credit for architectural design was given, not to an individual designer, but to the designer's work unit. Only recently has the practice of identifying the design architect been

Continued on page 5

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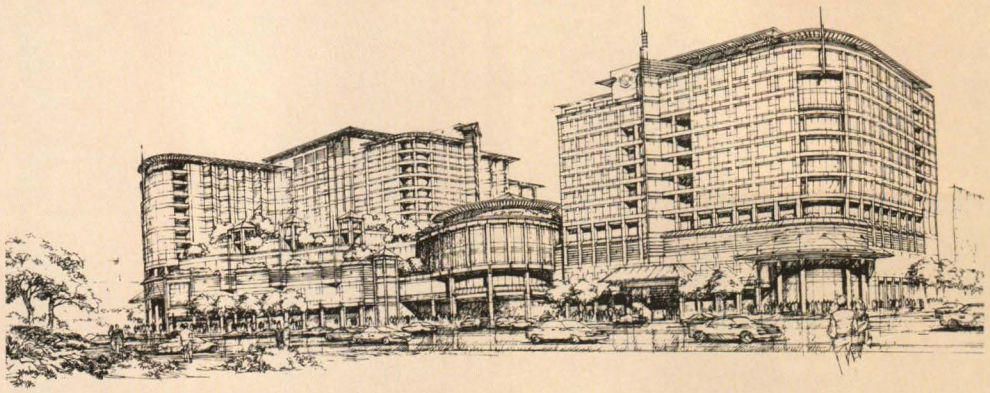
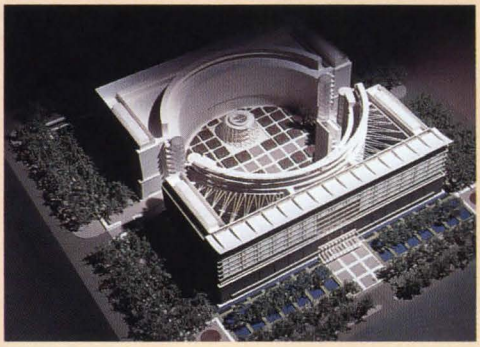
Xi Xi, a project by RTKL and the China Aeronautical Project and Design Institute (below); the China Bank of Commerce and Industry in Beijing by SOM/S.F. (bottom).





Continued from page 3

revived. Due to the recent construction boom, the prestige of the architectural profession is growing among China's youth, and architecture has become one of the most popular career tracks in college. In the last decade, the number of college-level architecture programs has grown from eight to 54.

Design institutes: Traditionally, the state-owned architectural design institutes served as government design offices. As the state reduced its role in the economy and encouraged private development in the 1980s, government subsidies to the design institutes were radically reduced. As a result, the institutes were forced to reinvent themselves as quasi-private architectural firms and compete in the marketplace. Because government regulations require foreign architects to work in collaboration with a Chinese architectural office, the design institutes have become key players in all international building projects in China. Although there are more than 250 Class A design institutes throughout the country, the State Ministry of Construction Institute and six regional institutes are the most important. A few dozen big-city institutes rank just below them. The large regional institutes often have staffs of about 1,000 and operate branch offices in key cities around the country. (See profile of one such institute, page 7). Some key city institutes have staffs of about 500 and compete with the regional conglomerates for big jobs.

Opportunities for foreign firms: The 30,000 architects in China serve a nation of 1.2 billion, resulting in a ratio of 25 architects for every 1 million people. By comparison, the ratio in the U.S. is 340 architects per million residents. According to the ASC, there simply aren't enough Chinese architects for the volume of construction that the nation now requires. In general, the Chinese architectural community has welcomed foreign colleagues, due to the opportunities they present for infusing new ideas and modern technology into the local architectural profession. "China has been closed for a long time," says Zhang Xinan, vice president of the ASC, "so architects are eager to know about foreign designs, new ideas, new projects. There's an intense interest to know what's happening outside." The costs of working in China can be very high, with travel and time away from the office being two major expenses. In an ARCHITECTURAL RECORD survey of North American firms working in China, one firm said it sends three to four staff people every two weeks to Asia, while a majority of responding firms log at least 12 Asia trips a year.

Means of entry: While some foreign firms have landed commissions by competing in design competitions, open competitions are not well publicized outside of China and invited ones often reimburse firms for only a fraction of their costs. Another method of getting work is to identify clients and projects and then contact the Ministry of Construction or the local municipality for introductions to a design institute with which to collaborate.

Contracts and negotiation: Because China's market economy does not yet have a solid legal foundation, it is recommended that architects take extra caution when signing contracts. In China's soaring economic climate many real-estate deals are shaky and some are altogether fraudulent. Requesting payment for services is considered acceptable and is therefore highly recommended. A common complaint among foreign architects is that bargaining and negotiating can be relentless, even after contracts have been signed.

Dispute resolution: Order in Chinese society is traditionally based on relationships rather than legal codes, so it is generally preferable to resolve conflicts through third-party intermediaries rather than before a court of law. Therefore, it is strongly recommended that contractual agreements for work in China include an arbitration clause.

Agents: While some firms operate successfully without local representatives, many foreign firms have appropriated the Chinese practice of retaining a third-party agent to establish and maintain relationships with clients, design institutes, and government officials. These intermediaries can be used to deliver a hard line, steer a project through local authorities, or break a stalemate in negotiations. William Karst, a principal of The Callison Partnership, however, believes agents are not always a help. "We've represented ourselves without agents, consultants, and go-betweens because we believe it's the direct contact with the client that creates the energy and excitement," says Karst.

Key contacts: Architectural Society of China, Zhang Baiping, director of foreign affairs, Bai Wan Zhuang, West District, Beijing 100835. Tel: 86/1/839-3428. Fax: 86/1/831-1585

- Chinese Ministry of Construction, Design and Administrative Division, 9 Saulihe Road, West District, Beijing 100835. Tel: 86/1/839-3724. Fax: 86/1/839-3333.
- U.S. Embassy, Foreign and Commercial Service, Craig Allen, commercial attaché, 3 Xiu Shui Bei Jie, Beijing 100600. Tel: 86/1/532-3831, x 482. Fax: 86/1/532-3297.

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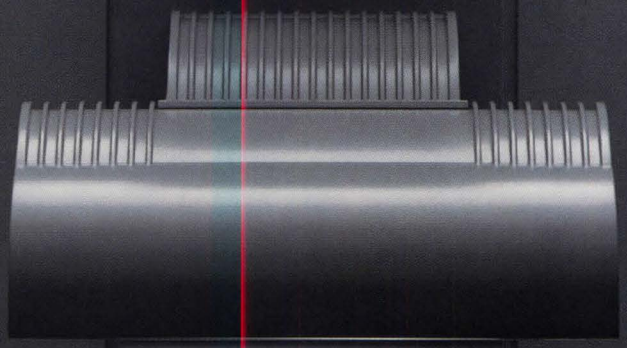

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Profile: Inside the East China Architectural Design Institute

Overview: Established in 1952, the East China Architectural Design Institute (ECADI) is one of the oldest and largest architectural practices in China. Like all design organizations in this Communist country, ECADI was once totally beholden to the government, but is now transforming itself into a more entrepreneurial operation doing work for private developers and foreign investors, as well as government agencies. One sign of ECADI's metamorphosis is its four-color brochures, written in Chinese and English, that promote its design, engineering, and CAD capabilities.

Size and scope: One of just a handful of regional design institutes in China, ECADI employs 900 people, including 148 senior architects and engineers, 260 staff architects and engineers, 315 assistant designers, 85 administrative personnel, and 57 technical-services staffers. While the Institute is based in Shanghai, it has branch offices in three other locations: Xiamen in Fujian Province, Shenzen north of Hong Kong, and Hainan Island in the south of the country.

Organization: A multi-discipline firm, ECADI is organized into three basic-design studios, a housing-design studio, an interior-design studio, and various departments covering services such as project management, building technology, and computers. While ECADI has become an aggressive marketer of its services and a skilled collaborator with foreign firms, its organizational chart provides reminders of its Communist roots: a hierarchical structure and units like the Propaganda and Education Department. "We like to think of that as their marketing group," says Laura Johanson, communications specialist for The Callison Partnership, a Seattle firm that is working with ECADI on several projects in China.

A good year: According to Xue Yuelai, a department chief and senior engineer with ECADI, the institute bills between $20 and $30 million in fees annually and designs about 10 million square feet of space each year. Thanks to the booming Chinese economy, ECADI had a record year in 1993, building 28 million square feet of space.

Range of work: ECADI has designed buildings in 27 provinces in China and 16 foreign countries (mostly in Africa and eastern Europe where Communist ties were strong). Completed projects range from the mixed-use Shanghai Centre (designed in collaboration with John Portman & Associates) to the Shanghai Railway Terminal Building, the Sheshan Observatory, and the Huating Sheraton Hotel.

©Michael Portman

Two by ECADI: Bank of China Headquarters, Shanghai, with Callison (top); Shanghai Centre, with Portman (above).

Collaborations: ECADI is currently working with six different foreign architecture firms on projects in China and in the past has collaborated with firms from Japan, the U.S., Hong Kong, and Taiwan. "There are many opportunities for foreign architects in China," says Xue. "Usually a foreign firm gets a job through a design competition or contacts with developers, and then looks for a Chinese design institute to work with," explains Xue. "Most of these projects have foreign clients or are joint ventures between Chinese and foreign clients." *C.A.P.*

Key Chinese Design Institutes

- *Beijing Architectural Design Research Institute. Nanlishi Lu #62, Beijing 100045 Tel: 86/1/801-2255.*
- *Beijing Institute of Architecture and Engineering. Xizhimenwai Zhanlaguan Lu #1, Beijing 100044. Tel: 86/1/899-781.*
- *Chinese Northeast Architectural Design Institute. Guangrong Jie #65, Heping District, Shenyang 110006, Liaoning Province. Tel: 86/24/360-290.*
- *East China Architectural Design Institute. Han Kou Lu #151, Shanghai 200002. Tel: 86/21/321-7420.*
- *Fujian Province Architectural Design Institute. Tongning Lu #54, Fuzhou 350001.*
- *Guangdong Province Architectural Design Research Institute. Liuhua Lu #97, Guangzhou 510010, Guangdong Province.*
- *Guangzhou Design Institute. Guangwei Lu #10, Guangzhou 510030, Guangdong Province. Tel: 86/20/331-484.*
- *Jiangsu Province Yangzhou Architectural Design Institute. Xinbeimenwai Youyi Lu #2, Yangzhou 225002, Jiangsu Province. Tel: 86/514/343-027.*
- *Ministry of Construction Architectural Design Institute. Chegongzhuang Dajie #19, Beijing 100044. Tel: 86/1/831-2266.*
- *Nanjing Architectural Design Institute. Zhongshannan Lu #189, Nanjing 210005, Jiangsu Province. Tel: 86/25/402-019.*
- *Shanghai City Institute of Architectural Design. Chifeng Lu #71, Shanghai 200092. Tel: 86/21/546-1580.*
- *Shenzhen Architectural Design Institute. Shennan Lu, Shenzhen 518003, Guangdong Province. Tel: 86/755/530-631.*
- *Southeastern University Architectural Institute. Sipai Building #2, Nanjing 210018, Jiangsu Province. Tel: 86/25/713-341.*
- *Tianjin Architecture Design Institute. Qixiangtai Lu, Hexi District, Tianjin 300074. Tel: 86/22/334-161.*
- *Tianjin University Architectural Department. Tianjin University, Weijin Lu, Nankai District, Tianjin 300072. Tel: 86/22/319-044.*
- *Tongi University Architectural Institute. Siping Lu #1239, Shanghai 200092. Tel: 86/21/545-5080, x-3332.*
- *Xiamen Architectural Design Institute. Fuhua Li #1, Xiamen 361003. Tel: 86/592/23458*

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Hong Kong

China Work To Keep Architects Busy for Years

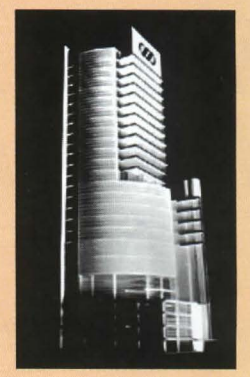
Economic outlook: With GDP having reached $110 billion in 1993, the Hong Kong economy is expected to grow 5.5 percent in 1994, says government economist K.Y. Tang. According to Tang, GDP growth will average 5 percent annually during the four years leading up to the colony's shift to Chinese sovereignty in 1997. Per capita GDP is continuing to grow, hitting $20,600 in 1994 from $18,500 a year ago. Coupled with a softening in residential property values that saw prices fall 5 to 10 percent this spring, growth in per capita GDP should ensure a surge of buying and new construction.

Residential construction: Last year 65,550 units of housing were built in Hong Kong, with the government housing authority accounting for slightly more than half of the total. It is projected that 41,150 units will be completed in 1994 and 49,500 in 1995.

Commercial construction: A total of 2.3 million square feet of commercial space was completed in 1993. The government projects that 2.6 million square feet of office space will be built this year and then 2.2 million square feet in 1995.

The China factor: The wild card in Hong Kong's future is the Chinese economy, which many economists now say is heading for a hard landing that could see the country's growth rate of 13 percent over the last two years fall to 6 percent or even 4 percent. But even a major cutback in construction on the mainland would not likely hurt Hong Kong architects. "There's more work in China than all of us can handle," says Dennis Lau, managing director of Ng Chun Man & Associates and president of the Hong Kong Institute of Architects. Hong Kong firms say that 30 to 50 percent of their business is now in China.

State of the profession: Fees are set monopolistically at three to four percent of some of the globe's most expensive projects, making Hong Kong architects among the highest paid in the world. But there is a lot of grousing and angst in the profession. "There isn't the institutional work you get in the U.S. or Europe," since most government-funded projects are handled in-house by government architects, says Prof. Tunney Lee, chair of the department of architecture at the Chinese University of Hong Kong. Private-sector projects are commercially driven, so "Hong Kong architectural firms don't get to be very creative," says Lee. Dennis Lau says Hong Kong architecture is getting better. Since very high land prices make construction costs a small percent of a project's total budget, spending a little more on architecture is not a big problem for developers, says Lau.



The Ambassador Hotel in the Tsim Sha Tsui district (left), by Rocco Design, exemplifies some of the strengths of the latest generation of Hong Kong buildings: tall, efficiently planned, and more concerned with quality than earlier construction.

Hong Kong style: Lau argues that a Hong Kong "style" has evolved in the last decade, the product of the territory's uniquely high land prices. That style is first and foremost tall, and secondly dense, to make maximum use of the available footprint. *David Lindorff, correspondent for* Business Week.

Taiwan

Looking to the Mainland For Future Growth

Economic outlook: Although GDP growth has remained about the same for the last three years (6.6 percent in 1992, 6.1 percent in 1993, and an estimated 6.4 percent for 1994), a reduced level of spending by the government combined with the fallout from overbuilding in previous years have cast some clouds over the economic scene. Vacancy rates in the office sector in Taipei hover around 20 percent, while those in other major cities such as Kaoshiung and Taichung are even higher. The speculative real-estate boom of several years ago seems to be over for the time being.

Housing: Pending legislation to reduce the FAR for many housing developments in many urban areas is generating a rush to start apartment buildings. But soaring labor and construction costs threaten to make these units too expensive for many families.

Hotel construction: While a recent surge in high-end hotel building may have tapped out the market, there is growing interest in resort development. Resort hotels, though, are seen as risky ventures since Taiwan's tourism industry is still relatively young.

Looking abroad: With many companies moving low-technology manufacturing to low-wage countries in other parts of Asia, Taiwanese developers are looking abroad for future opportunities and are bringing their architects with them. The biggest market is mainland China, where nearly 40 percent of all foreign investment is now Taiwanese. According to architect C.P. Wang, a principal of C.Y. Lee & Partners, about 50 percent of his firm's work will be in mainland China in the future. "China is like Taiwan in the old days," says Wang. "So Taiwanese architects know what to expect in terms of power and politics. Unfortunately, esthetics and concern for the environment are low priorities there." The growing Chinese market has also created opportunities in Taiwan, as some international corporations begin to view Taiwan as a convenient base of operations for ventures on the mainland.

Identity crisis: "The architectural profession is in its infancy here," explains Wang. Just 20 years ago, all architects were trained in engineering schools and clients saw no difference between the two professions. Only as developers began learning from the Japanese and then the Americans in recent years, have they started to appreciate the value of architectural services. Even now architectural fees are very low compared to those in the U.S., and clients expect many upfront services to be provided for free. *Miguel Baltierra, an American architect working in Taiwan.*

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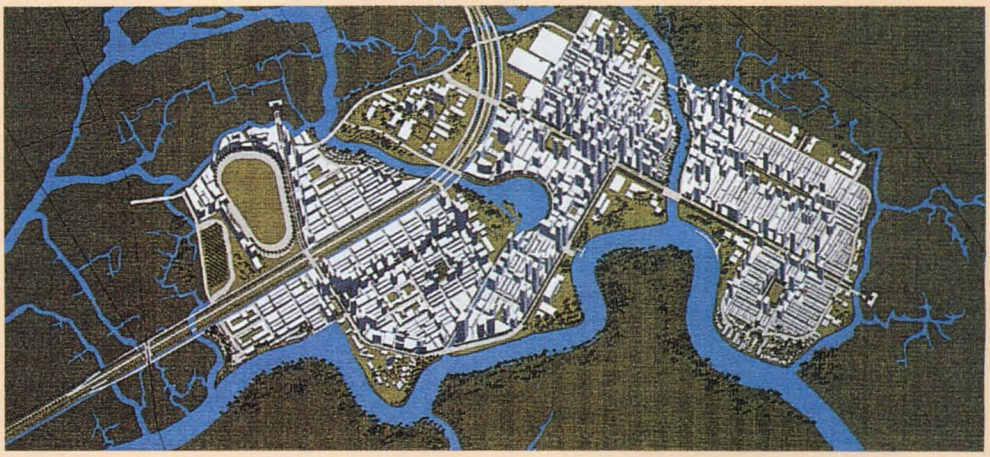
SOM/San Francisco did the masterplan for Saigon South (below and bottom left). Hong Kong-based Tao Ho designed the New World Hotel in Ho Chi Minh City (bottom right).



Economic outlook: Since Vietnam changed its laws on foreign investment in 1987, more than $7.5 billion in capital from abroad has been invested in the country. In the first quarter of 1994 alone, foreign businesses received licenses for $1 billion in new ventures. This figure is expected to grow exponentially with the lifting of the 19-year-long U.S. trade embargo in February. In 1993 Vietnam's economy grew by 8 percent and inflation subsided dramatically to 5.2 percent (from 800 percent in 1986). Per capita income, though, is $240 a year, making Vietnam one of the world's poorest countries.

Demographics: Despite the government's policy of urging families to limit themselves to two children, the country's population of 72.6 million is growing at 2.3 percent annually and is expected to reach 85 million by the year 2000. Over 70 percent of the population still earns a living from agriculture. But recent migration of peasants to the two principal cities—Hanoi (population 2.8 million) and Ho Chi Minh City (formerly Saigon, population 4 million)—has increased pressure on an already decayed urban infrastructure.

Development: The resumption last November of $1.86 billion in loans from international lending institutions, is providing a major boost to the construction sector. These loans will help Vietnam make critical repairs to its crumbling infrastructure, including improving Highway 1 linking Hanoi with Ho Chi Minh City, rebuilding bridges throughout the country, upgrading the Saigon port, building schools, and modernizing agriculture. These repairs, in turn, should draw additional billions of dollars from private investors who have been reluctant to act due to poor communications and distribution networks. Until recently, inadequate laws governing land use, relatively high land prices, and massive amounts of corruption and red tape have deterred all but a handful of foreign property developers. But now a construction boom is underway and the frenzy is hampering efforts to develop long-term plans.

Housing: As people move from the countryside to the cities, pressure on the existing urban housing stock is becoming severe. Last year the government finally began formulating a strategy at the national level that will encourage private ownership of housing. In 1992 private investment in house building was $283 million; figures for 1993 are expected to be nearly twice that number.

Major construction: As of spring 1994, there were 55 construction joint-ventures with a total of $480 million in foreign capital bidding on lucrative infrastructure projects. Although the Vietnamese constitution forbids private ownership of land, foreign investors have received leases of nearly 50 years. Major American contracting firms that have established themselves in Vietnam include Parsons Brinkerhoff, Brown & Root, Bechtel, and Fluor Daniel. Skidmore, Owings & Merrill is preparing a master plan for Saigon South, a new town for 700,000 people.

Hotel development: Blessed with beautiful beaches and scenery, Vietnam is prime for hotel and resort development. In addition to activity in Hanoi and Ho Chi Minh City, major efforts are underway around Ho Tay Lake north of Hanoi and in central Vietnam, along Da Nang's white-sand coastline.

Role of local architects: Vietnamese architects have played a very small role in most of the recent commercial ventures. The Vietnam Union of Architects (VUA) is lobbying for a law that would require foreign architects to associate with Vietnamese firms. The secretary general of the VUA is Nguyen Truc Luyen and the VUA's address is 23 Din Tien Hoang, Hanoi. Tel: 84/4/253-648.

Special procedures: Foreign architecture firms working in Vietnam must obtain a license at the State Committee for Cooperation and Investment in Hanoi, 56 Quoc Tu Giam Street. Tel: 84/4/232-642.

Major players: Government agencies guiding architecture include the Ministry of Construction and the various Chief Architects offices in major towns. The National Institute for Urban and Rural Planning under the Ministry of Construction sets policy initiatives and drafts master plans for the largest towns. Contact: Nguyen Ngoc Khoi, director of National Institute for Urban and Rural Planning, 37 Lo dai Hanh Street, Hanoi. Tel: 84/4/258-691.

Tim Karr, Hanoi-based journalist, and Irene Lee, Chinese University of Hong Kong.

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Singapore

Rate of Growth Slackens After Building Boom

As areas outside Singapore's central core grow, facilities like the Tampines Community Center (below), designed by William Lim Associates, are needed.

Economic outlook: After two years of double-digit growth in 1991 (21 percent) and 1992 (17.6 percent), construction in Singapore increased by 9.5 percent last year. With the economy as a whole growing by 6 to 8 percent, construction activity this year is expected to expand by just 5 to 8 percent. Last year, $6.8 billion in contracts were awarded, with $4 billion of this sum coming from the public sector.

Public sector: Major public-sector projects included the Housing and Development Board's $1.3-billion program to build and upgrade housing, and a $210-million program to build educational and health facilites. A total of $6.23 billion in construction is expected in 1994, with the public sector accounting for almost 70 percent of this.

Office construction: In the private sector, the huge supply of office space being completed in the next few years will further dampen an already glutted market. Although the occupancy rate for private office space rose 0.7 percent in 1993 to 88.5 percent, it is expected to decline slightly in 1994.

Residential construction: According to Colliers Jardine Singapore, the private residential market should remain strong this year, but slow down in 1995. It estimates that 12,325 housing units will be started this year.

Relations with foreign architects: As foreign firms have won many coveted commissions in the last few years, some local architects have expressed concern. One problem, say local architects, is the tendency of foreign firms to create designs that ignore local conditions. Go Chong Chia, the head of the Singapore Institute of Architects, says, "It is important that when developers invite foreign architects here, they should make it clear that they should understand our aspirations, our culture, and our national agenda. From the buildings done so far, it is clear that their commitment is not with us."

Green architecture: Another issue on the minds of local architects is the environment. "At the moment, the buildings here have little consideration for the environment," states Go. Energy conservation, noise control, pollution, and more efficient patterns of urban development are issues that architects should address more consistently, says Go.

Joanna How, freelance writer in Singapore.

Thailand

Construction Rebounds as Architects Seek More Ecological Designs

At the Dusit Rayavadee resort in Krabi Province, Four Aces designed buildings that echo traditional Thai architecture and fit sensitively with the jungle (below).

Economic outlook: The Thai economy continues to boom, with real GDP growing at an estimated rate of 7.5 percent in 1993 to $123.1 billion. Growth closer to 8 percent is forecasted for 1994 and 1995. While construction slumped in 1992, growing only 3.5 percent (compared to 11.9 percent in 1991), it is growing again—up 7.9 percent last year.

Where the action is: About 80 percent of all construction is still concentrated in the Bangkok area. For most building types, supply currently outstrips demand, with the hotel market perhaps being the hardest hit. A surprising number of new Bangkok hotel projects, though, are getting started—including the Peninsula Hotel, a project located on the Chao Phraya River, in which Brennan Beer Gorman Architects of New York is involved. According to one consultant, the market for hotel space should come out of its current trough by the time the Peninsula opens in three to four years.

Other growth areas: Bangkok's domination is not total. Two provincial "growth corridors," spurred by tourism, industrialization, and transportation links, are emerging: the eastern seaboard development zone, (where Rayong, located south of the resort city of Pattaya, is becoming an important hub for heavy industry), and the Bangkok-to-Nongkhai corridor in the northeast.

Foreign competition: Under the recent GATT trade agreement, Thailand will have to open its market to foreign architects. The issue has divided the local architectural community, according to Yodyiam Teptaranon, president of the Association of Siamese Architects (ASA). Many Thai architects are strictly against letting foreigners register.

Environmental concerns: With traffic jams, poor city planning, and insensitive architecture all hallmarks of modern Bangkok, environmental issues are much debated. "We architects have destroyed a lot of nature already," says Yodyiam. "It's time to go back to nature. Natural, but high-tech, that's the new idea here." *Tomas Larsson, Thailand correspondent for* Business Asia.

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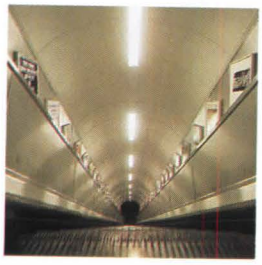

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Healthy Economy Spurs Construction and Advances Among Architects

Economic outlook: Malaysia still has one of the world's blessed economies. The rate of growth is twice the rate of inflation, the foreign debt is miniscule, and there are enough foreign exchange reserves to cover eight months' imports. Based on current performance, the government's prediction that growth will average 7.5 percent over the next 10 years is not unrealistic. In 1993, the economy grew by more than 8 percent, the sixth year in a row it had done so, and analysts expect it to expand by 8.2 percent this year. Though inflation is more of a problem this year than last, it should stay below 4 percent and then rise to 4.5 percent in 1995.

Construction activity: The construction industry posted its fifth straight year of double-digit growth last year. In 1994, growth is expected to ease to 11 percent, from 11.5 percent in 1993.

Residential building: Lower interest rates, now around 7 percent, and easy profits from the stock exchange, which grew by 97 percent last year, have kept demand for residential units up. A recent survey by Bank Negara, the central bank, showed that housing starts in Malaysia's 13 biggest towns and cities increased 15 percent in 1993.

Commercial building: The same Bank Negara survey revealed a massive 80 percent increase (as measured by floor area) in starts on commercial projects. But in Kuala Lumpur (K.L.), the capital city, the shortage of commercial space is not so acute. According to Abdul Rahim, executive chairman of K.L.-based property valuer Rahim & Co., "a shortage situation existed in 1993 and will continue to exist until 1996. The market then goes into an oversupply situation from 1996 to 1998 before reverting to a shortage situation again." Average rentals for office space in K.L. dropped 6 percent in 1993—proof that supply is outstripping demand. But Rahim sees a geographic shift, with more building needed to the south of the capital city. The new international airport at Sepang, 25 miles south of the capital, has opened a new southern corridor for growth.

Industrial building: Industrial space is in great demand, with the most activity happening in Malaysia's three industrial centers: K.L., Johor Baru, and Penang. Johor, just across the border from Singapore, presents the best opportunities today, as its rate of growth is around 15 percent, higher than either K.L. or Penang.

Workload: There are 2.9 architects for every 10,000 people living in urban areas in Malaysia, compared with 5.3 in the U.S. As a result, Malaysian firms are very busy and are hiring architects from abroad. Since American architecture qualifications are not recognized, while British degrees are, almost all of the foreign hires are from Britain. The profession, though, is becoming increasingly internationalized and American firms are working in Malaysia in association with local firms. The heavy workload has encouraged many Malaysian firms to computerize. "Malaysia is more advanced in CAD than most of the rest of the world," says Ken Yeang, a principal of K.L.-based architects T.R. Hamzah & Yeang. "Over 20 percent of firms are fully computerized."

Foreign competition: Although some architects resent the influx of foreign firms, "all the good architects here welcome competition from abroad," says Hilmi Yusoff of Hilmi Faridah Architects. "Competition improves quality and brings in new ideas. It is not being resisted now."

GATT: With the implementation of the new GATT trade agreement, the market for architectural services will open up. "That means you have to offer something that others don't have," says Yeang. "Price is the easiest. We can do construction drawings for one-third the price of the Japanese."

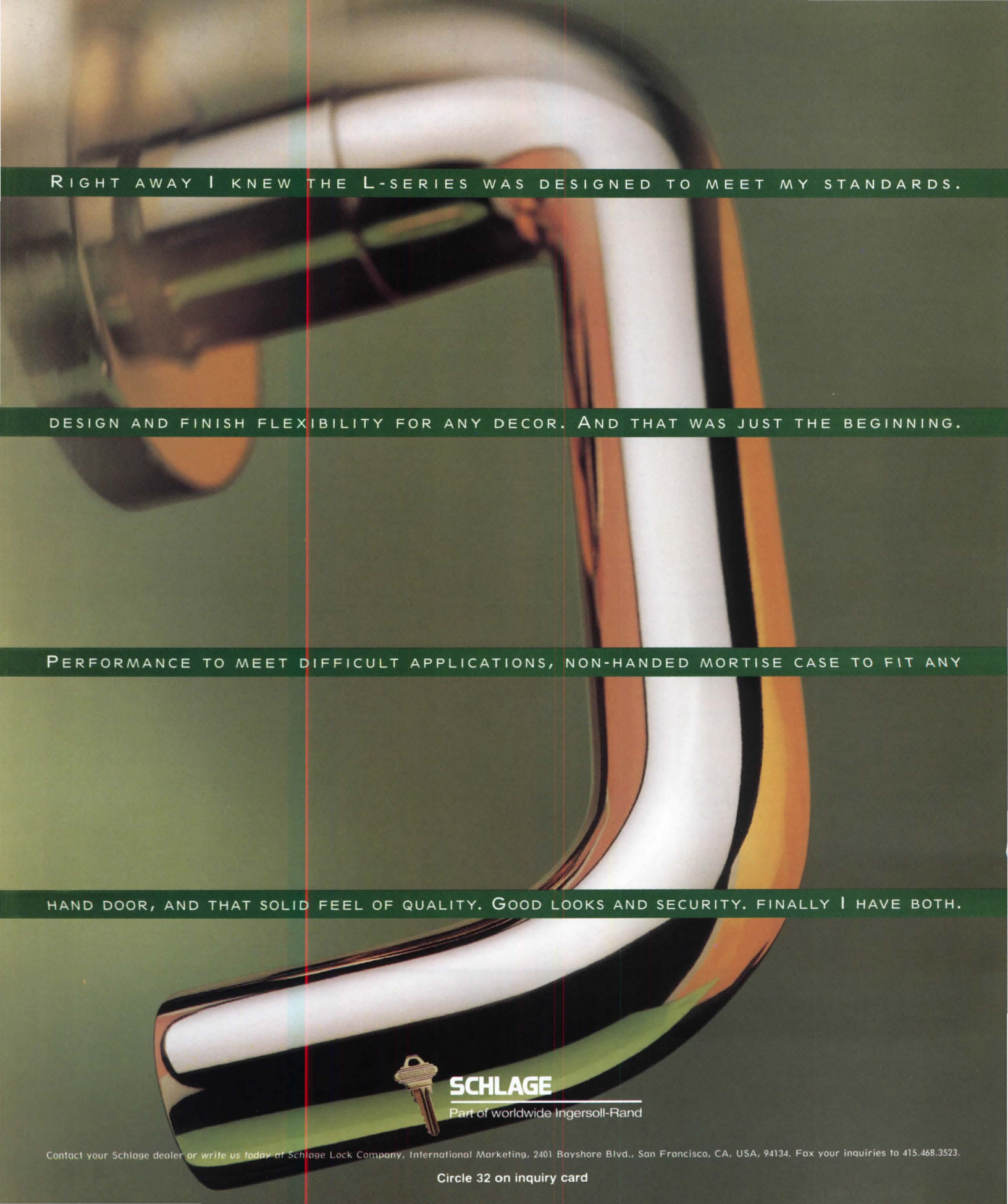
Slicing up services: According to many architects, clients are "unbundling" services so that one firm may do upfront design work while another does the construction documents and construction supervision. Says Mani Kahar, a partner in the architectural firm DNA Consultants, "The profession is being sliced up. I believe architects should do the whole thing, from conception to completion. Otherwise, it's like a cut-and-paste job, a collage." The industry, however, is becoming increasingly specialized, with some firms concentrating on overall design and others on interiors or construction drawings.

Working abroad: The internationalization of the profession works both ways and Malaysian architects are now winning jobs in China, Vietnam, Australia, and elsewhere in the Pacific Rim—mostly for Malaysian clients. According to Yeang, his firm now earns 10 percent of its revenue abroad.

Sid Astbury, Malaysia-based journalist.

New headquarters for Telekom Malaysia was designed by Hijjas Kasturi Associates.

The new Sogo Complex in Kuala Lumpur was designed by the Malaysian architecture firm Arkitek MAA.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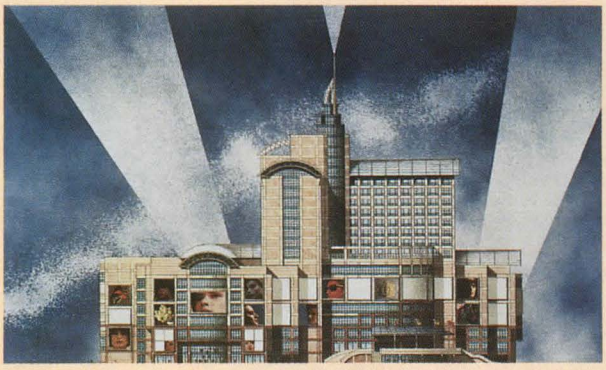
Architects Search for Identity In the Face of Rapid Change

Mixed-use in Jakarta: Citraland Centre by Development Design Group (below) and Graha Purnayudha by SOM/NY (right).



Economic outlook: Indonesia has the largest and most diversified economy in Southeast Asia with a GDP of $116 billion in 1993. After three years of 6.5 percent annual growth, the Indonesian economy is slowing down and is predicted to expand by 5 percent a year for the next five years. Reasons for the economy cooling off are recession in major export markets (such as Japan and Europe), competition from new investment locations in southern China and Vietnam, local banking scandals, and tight-money policies.

Office construction: In the late 1980s, deregulation of the banking industry generated an office-building boom led by the emerging private sector. In addition, liberalization of trade and investment policies made Indonesia attractive to foreign investors. From 1989 to 1993 the supply of office space increased almost 16 percent each year. An oversupply of office space, though, developed by 1993 and construction slowed considerably. The recent completion of Jakarta's ring roads has begun to draw office construction away from the city's center to outlying areas.

Residential construction: Generated by an urban population that is growing 2.5 percent per year and augmented by a drop in interest rates, demand for housing continues to grow. Foreigners are not allowed to own real estate now, but this should change soon, opening a new market for luxury apartments.

Adapting design to the local culture: In an interview in the newspaper *Suara Pembaruan*, Eko Budiardjo, a professor of architecture, expressed concern that Indonesian architects were losing their identity in the face of foreign design. "It is a shame that the majority of Indonesian architects follow the rule: 'If you can't beat them, join them,'" he said. Roy Higgs, head of Development Design Group, a U.S. firm working in Indonesia, counters that, "As long as an Indonesian architect designs a building that fits its time and place, he will retain his identity."

Social issues: In a country with a large gap between rich and poor, bridging the distance between groups is an key issue for architects. Social concerns are particularly important in large planning projects, like satellite towns, where the mix of housing types is a key factor. *Wayne Forrest, director of the American-Indonesian Chamber of Commerce.*

Down Under Turns the Corner

Economic outlook: After reaching the depths of a long recession in 1992—when unemployment topped 11 percent and GDP declined by 0.5 percent—Australia's economy grew by a respectable 3.5 percent in 1993. Having suffered from the same recession, New Zealand also saw its economy pick up last year, expanding by 3.6 percent. Projected growth for 1994 is 4.5 percent for Australia and 2.4 percent for New Zealand.

Making lemonade from lemons: New Zealand has attacked its empty-office problem by converting commercial buildings into residential ones. In Auckland, falling commercial rents, the influx of Asian immigrants, and tax concessions have made commercial-to-residential conversions successful. As a result, the city's downtown has been revitalized with more people, cafés, and security. Following Auckland's lead, Melbourne and Sydney in Australia are converting many offices into apartment buildings.

Recovery gamble: The strongest building types include housing in Queensland, resort hotels anywhere on the coast, and atrium malls. The largest developments on the boards in both countries are entertainment-and-casino projects. The $188-million Sky Tower casino complex in Auckland, designed by Craig Craig Moller in a "Jetsons" space-age style with a 1,075-foot tower, will open by the end of 1995. Three casinos are planned for Australia, with projects in Melbourne and Sydney near central business districts.

Future of the profession: According to the Royal Australian Institute of Architects, the number of small practices increased by 30 percent during the recession as architects left struggling large firms to seek their own work. One result of this trend has been intense bidding on projects that has led to a downward spiral in architects' incomes. *Graham Jahn, Sydney architect and writer, and Andrea Fraser, of Jahn Associates.*

The Melbourne casino was designed by Bates Smart McCutcheon with Perrott Lyon Mathieson and Daryl Jackson.

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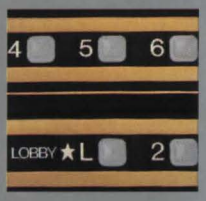

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South Korea

Global Pressures Touch Architects

The 210,000-sq-ft Dacom Corporation Research and Development Center in DaeJon was designed by Junglim Architects & Engineers.

Economic outlook: The South Korean economy grew 5 to 6 percent in 1993, raising GNP to $314 billion. A factor in this growth was strong exports to Southeast Asian countries. Another was the government's continuing support of land development, public housing, and infrastructure projects.
GATT: With the signing of the Uruguay Round of the General Agreement on Tariffs and Trade, trade barriers to foreign architects will be mostly eliminated. Not surprisingly, Korean architects are concerned about this change.

Types of practices: The architectural profession in Korea can generally be categorized in four groups: large A/E firms affiliated with business conglomerates; well established independent architectural firms; medium-size independent architectural firms; and small and already endangered independent firms. In today's more globalized world, the greatest pressure will be on the large independent firms which currently struggle to compete against the large affiliated firms and will now find themselves competing also against firms practicing in the international marketplace.

Possible scenarios: Jinho Moon of Junglim Architects & Engineers, a large independent firm, believes that private-sector clients will be attracted to the experience of foreign firms which will tend to promote turn-key projects. Moon suggests that by aligning themselves with Korean construction firms already experienced in overseas turn-key projects, Korean architects might strengthen their position in the marketplace. He also suggests that Korean architects look for ways to start exporting their services.
Blending old with new: During the past decade, Korean architects have become increasingly conscious of the need to establish an appropriate and uniquely Korean approach to blending the traditional with the modern. Many architects believe that this issue is being explored most successfully by some of the country's smaller firms. The small firms' demise or exclusion from significant design work by foreign competition could impede the growth and development of Korean architecture, say some observers.
Holly DeYoung and Jung Gon Kim, of Tai Soo Kim Associates.

Philippines

Nation Gets Back on Track After Transition from Dictatorship

Economic outlook: After a difficult period of adjustment following the fall of the Marcos regime, the Philippine economy grew modestly last year and is projected to pick up steam over the next two years. In 1993 the country's GDP improved by 1.7 percent, while remittances by overseas contract workers pushed GNP up by 2.3 percent. The service sector, which accounts for 40 percent of GNP, was up 2 percent, while agriculture expanded by 1.5 percent. Inflation, down to single-digit levels, averaged 7.6 percent. Most analysts predict GNP growth of around 4.5 percent in 1994 and up to 6.5 percent in 1995. At the same time, interest rates are half what they were in 1991 and the exchange rate has stabilized.
Future challenges: While progress is being made with the economy and President Fidel Ramos has established political stability, challenges remain, including a huge budget deficit, low levels of domestic savings, and a high foreign-debt-to-GNP ratio. Economic recovery should help President Ramos address structural flaws, such as the economic and political dominance of the powerful oligarchy, which limit growth.
Hotel building: Coinciding with the economic recovery is a dramatic expansion of the hotel industry. "I think the hotel industry is a good indicator of a country's growth," says Masaru Ishibashi, executive vice president of the Manila Diamond Hotel. The biggest agent for change has been the completion of several Shangri-La hotels: in the Makati business district, in fast-growing Mandaluyong, and on the island of Cebu.
Architectural evolution: Manila's architects work within the constraints typical of a developing country, using local materials and forging their own national identity. The country's most famous architect is Leandro Locsin, whose Cultural Center of the Philippines has already become a Manila landmark with its fluted sides that soar skyward. Locsin's style illustrates the best in Philippino architecture: economy, elegance, and a blend of influences. Architect Francisco Mariano explains that Philippino architects draw from many traditions, especially their Spanish colonial heritage. At the same time, they "have a tendency to look toward current trends in the U.S.," says architect Rolando Mercado. With foreign architects serving as catalysts for change, Mercado sees Philippine architects becoming more responsive to energy and environmental demands and more open to fresh design approaches.
Teresa Albor, a contributor to Business Week *based in Asia.*

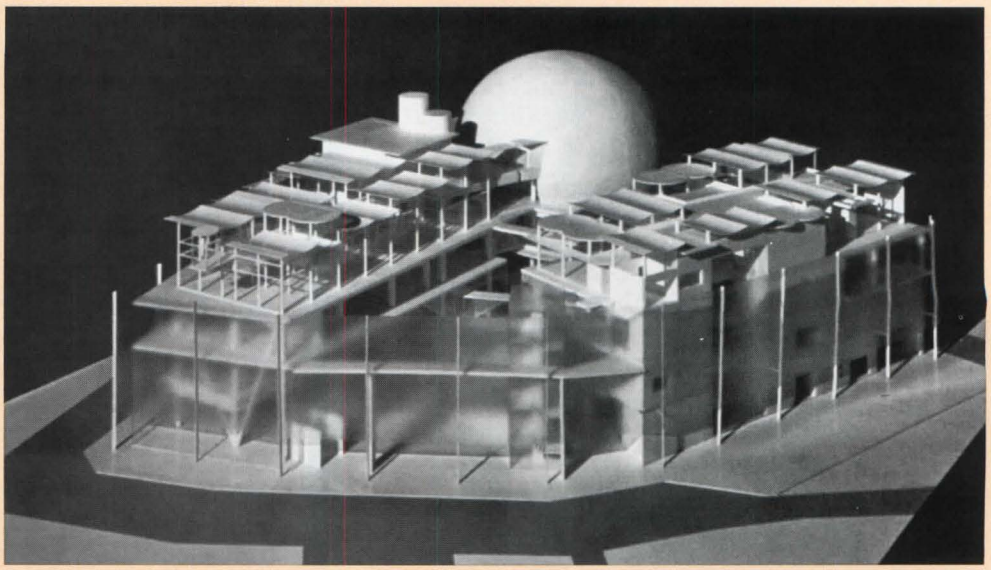
Big Questions Still Unanswered About Nation's Direction

Sumida Culture Factory by Itsuko Hasegawa (1); Fukuoka Airport by HOK (2); and fashion gallery by Shigeru Ban (3).

Economic outlook: Though the Japanese press reports that the country's construction industry has hit *nabezoko* or rock bottom, financial analysts at Barclays de Zoete Wedd (BZW) warn that the worst is yet to come, especially for private development. Japan's GDP is expected to increase 1.2 percent in 1994, an improvement on last year's no growth. But the rate for new orders in private-sector construction fell 22 percent in 1993 and is expected to drop another 19 percent in 1994. With increased demand from commercial clients estimated to be at least 12 to 18 months away, experts predict that it will take more than economic growth to prompt investors to start building again.

Opportunity knocks: While private construction is down, the total construction market in Japan still represents a huge opportunity. According to a report by the U.S. Embassy in Tokyo, overall demand for construction in Japan hit close to $900 billion in 1993, an increase of 4.8 percent over 1992, despite a sagging economy. By the year 2000, total Japanese construction investment should exceed $1 trillion dollars annually.

Commercial market: Due to overbuilding in the major cities during the 1980s, the need for new offices is not expected to pick up until the 21st century. And the few office projects coming out of the ground now were designed in the final days of Japan's "bubble economy." While most plans from the 1980s for resorts and golf clubs have been canceled, some shopping centers and small commercial ventures are inching forward.



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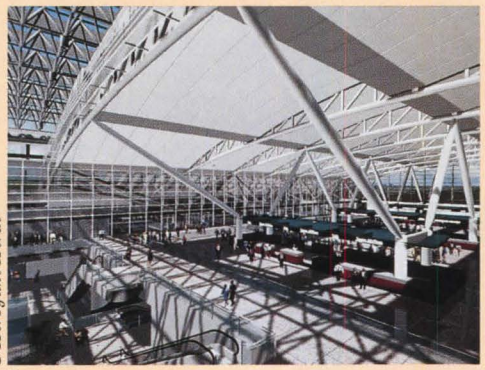

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2

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3

Public sector: Though public works declined by 11 percent in 1993, BZW anticipates up to a 15 percent rise in 1994. This increase is mostly driven by government attempts to jump-start the economy with a range of projects—from dam construction to building sports domes, schools, and community centers like architect Itsuko Hasegawa's 91,000-sq-ft Sumida Culture Factory now under construction in Tokyo.

Opening up the industry: Pressured by the U.S. government, Japan agreed to open its construction market to foreign contractors, manufacturers, and designers under the auspices of the Major Projects Arrangements (MPA) in 1988. In accordance with this agreement, some 34 public projects had been earmarked for foreign participation by 1991, but only about half of these projects have required architectural services. The first MPA project, the Tokyo Telecom Center, now under construction, was awarded to Hellmuth, Obata & Kassabaum (HOK) and Nippon Sogo Architects. Now HOK is working on three other MPA projects, including the 820,000-sq-ft Fukuoka International Airport designed with Azusa Sekkei.

Housing: Another growth sector is housing. The 1980s market for luxury and second homes may have petered out, but affordable housing is going strong since land values have dropped considerably and housing loan rates, still at an all-time low, are not expected to rise beyond 4.5 percent in 1994, according to analysts at CF First Boston (Japan).

Trouble in paradise: While the big-name atelier designers have plenty of work, small firms and those who depended on the speculative jobs of the bubble period have been hard hit. For the most part, firms large and small cope by reshuffling their workforce and broadening their services with interior projects, renovations, and drafting jobs. Though many Japanese architects would like to enter the thriving market in Southeast Asia, the strength of the yen has made Japanese architects' fees much higher than their counterparts' in other Asian lands.

Silver linings: While there are fewer jobs to go around these days, the effect is not all bad. Lean and hungry contractors are now willing to give better prices even for small, avant-garde projects that they shunned during the bubble period. For example, solo practitioner Shigeru Ban recently completed an 860-sq-ft gallery in Tokyo for fashion designer Issey Miyake that was built in two months using inexpensive elements such as paper-tube columns. *Naomi R. Pollock*

East Meets West: When Architects Collaborate

Learning to collaborate with architects from distant countries is a key to success in Asia. Elizabeth Padjen reports on ways to make these long-distance relationships work.

By Elizabeth Padjen

If collaborating with a firm on the other side of town can be risky business, then what are the chances of establishing a good relationship with architects half a world away? The ability to form successful collaborations, though, is a key to success in the Asian market, where working with local firms is usually a necessity because of legal restrictions, economics, or sheer pragmatism.

Most American firms practicing in the Pacific Rim provide "front end" services—schematic design and design development—with participation in the working-drawing and construction phases reduced to periodic reviews for quality control. Salaries in countries where local architects may earn a few hundred dollars a month and where total fees are typically 3 to 4 percent of construction costs often make this arrangement the only financially feasible method. But even in more expensive markets like Hong Kong and Japan, most Americans readily concede that local firms, with their knowledge of regulations, conditions, and local construction practices, are the most appropriate providers of construction services.

Such collaboration favors American firms that can offer superior design skills or knowledge of technical building types. It also makes firm size less significant, which means that entry into the Asian market is realistic for some small and mid-size firms. "Collaboration is a way to work on large projects without changing the scale of your practice," notes Nelson Chen, principal of Wong Chen Associates in Hong Kong.

For example, Kyu Sung Woo, who has worked on several projects in Korea, maintains a 10-person firm in Cambridge, Mass., and Bob Fox, principal of Fox Hawaii, has practiced throughout the region for 20 years with a staff of just five in Honolulu.

While most Asian architects, particularly in less developed regions, welcome these collaborations as learning opportunities, resentment is occasionally a problem. "By doing the design work, we're taking the cream off the top," admits Fox. Resentment can create some ugly situations, as Fox has learned firsthand. On one job, he discovered that an effort to have him blacklisted by a professional organization was spearheaded by his own local associate. American architects who use tourist visas instead of the more-difficult-to-get business visas may find themselves especially vulnerable in these situations—such was the experience of a landscape architect doing work in Thailand, who had to buy his way out of jail.

Elizabeth Padjen is president of Padjen Architects in Topsfield, Massachusetts.

Encouraging teamwork

Other architects have encountered more subtle forms of resentment, with their efforts undermined by local staff. Encouraging teamwork is one way to avoid some of these problems. Greg Coghill, a principal of Wimberly Allison Tong & Goo, a firm with more than 30 years of experience in the Pacific Rim, encourages the "intertwining" of the participants by exchanging key staff members during the design phase and soliciting input from the local architects that will promote a sense of joint authorship. Cambridge Seven Associates took the concept of teamwork quite literally during the design-development phase of the Osaka Aquarium. Staff and consultants were sent to Japan, where four joint teams organized by discipline (design, structural, mechanical, and life safety) worked simultaneously in one room.

Though it may seem obvious, professional respect and courtesy are critically important. "Condescending and patronizing attitudes must be avoided," notes John Lummis, an American architect who has worked in Indonesia for 10 years. Lummis reports that his Indonesian colleagues cite lack of professional respect as the main reason why collaborations go wrong.

Problems can begin at the start. "They are very literal in their interpretation," says Henry Abernathy, Jr., of the Hillier Group, referring to the reaction of Vietnamese architects to concept studies. "We think: This is just illustrative of the potential. They think: This is the design." Jusuf Setiadi, of Airmas Asri, architects in Jakarta, notes that Indonesian planning and building codes can be a source of difficulty. "One [person's] interpretation can be totally different from another's because the regulations are not very clear."

Nanhai Oil Building in Shenzen, China, by the Nadel Partnership and Nanhai Design Institute (top), and the Bali Nikko resort by WATG and Airmas Asri (above).

Heavier emphasis on construction supervision than on drawings is typical throughout much of Asia, resulting in a more open, changeable process, observes Steve Brubaker of Hellmuth Obata & Kassabaum. Changes in scope and program are very common, and the tendency of American firms to continually ask for fees to cover additional services is not well received. Ki Suh Park, managing partner at Gruen Associates, says, "Conserve your energy at the beginning of a project, and assume lots of changes."

Setiadi suggest that many problems can be avoided by relying more on the input of local

Continued on page 25

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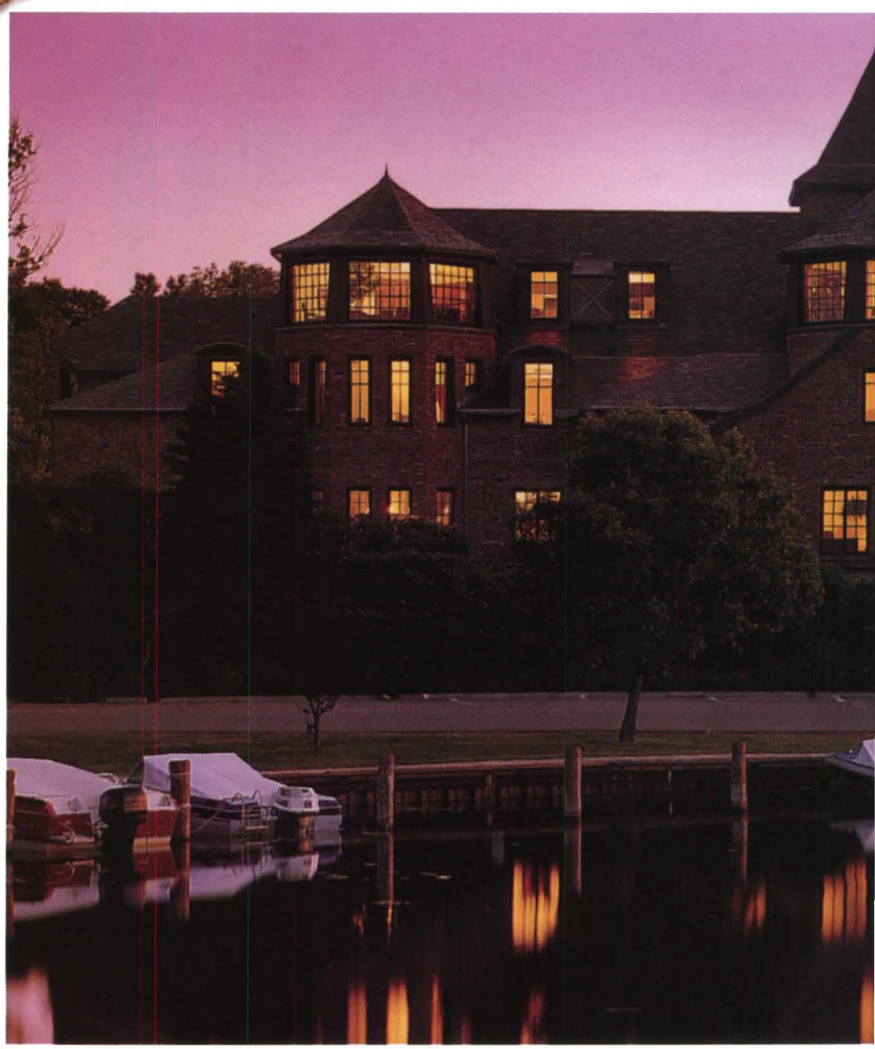

It looks less like a bank and more like an English country manor. But the charm of the Investors Savings Bank belies the challenges its design and construction presented. Particularly to Marvin Windows and Doors.

For one thing, fast-track construction scheduling was necessary due to constantly evolving design constraints. For another, it wasn't until thermal efficiency, condensation resistance and aesthetics were factored in that wood was chosen over aluminum. Consequently, Marvin wasn't selected for the job until construction was underway, making manufacturing and delivery deadlines extremely tight.

But Marvin's biggest challenge proved to be the building's three massive window and door assemblies, the largest of which measures 28 feet wide by 30 feet high. Using a combination of sturdy Magnum Double-Hungs and French Doors, Marvin not only built them on schedule, but also engineered them prior to delivery to guarantee they would withstand the strong, prevailing winds off the lake. And, like all 177 of the bank's other made-to-fit windows and doors, they were built with features designed specifically for the project. Features such as authentic divided lites, interior windows and doors glazed to match those on the exterior and a durable, factory applied finish in two complementary colors; Midnight Teal for the sash

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and Graphite Grey for the frames.

Shortly after its completion, Investors Savings Bank was named the NAIOP Build To Suit Building of the Year. Which just goes to show that paying extra interest can result in some handsome dividends.

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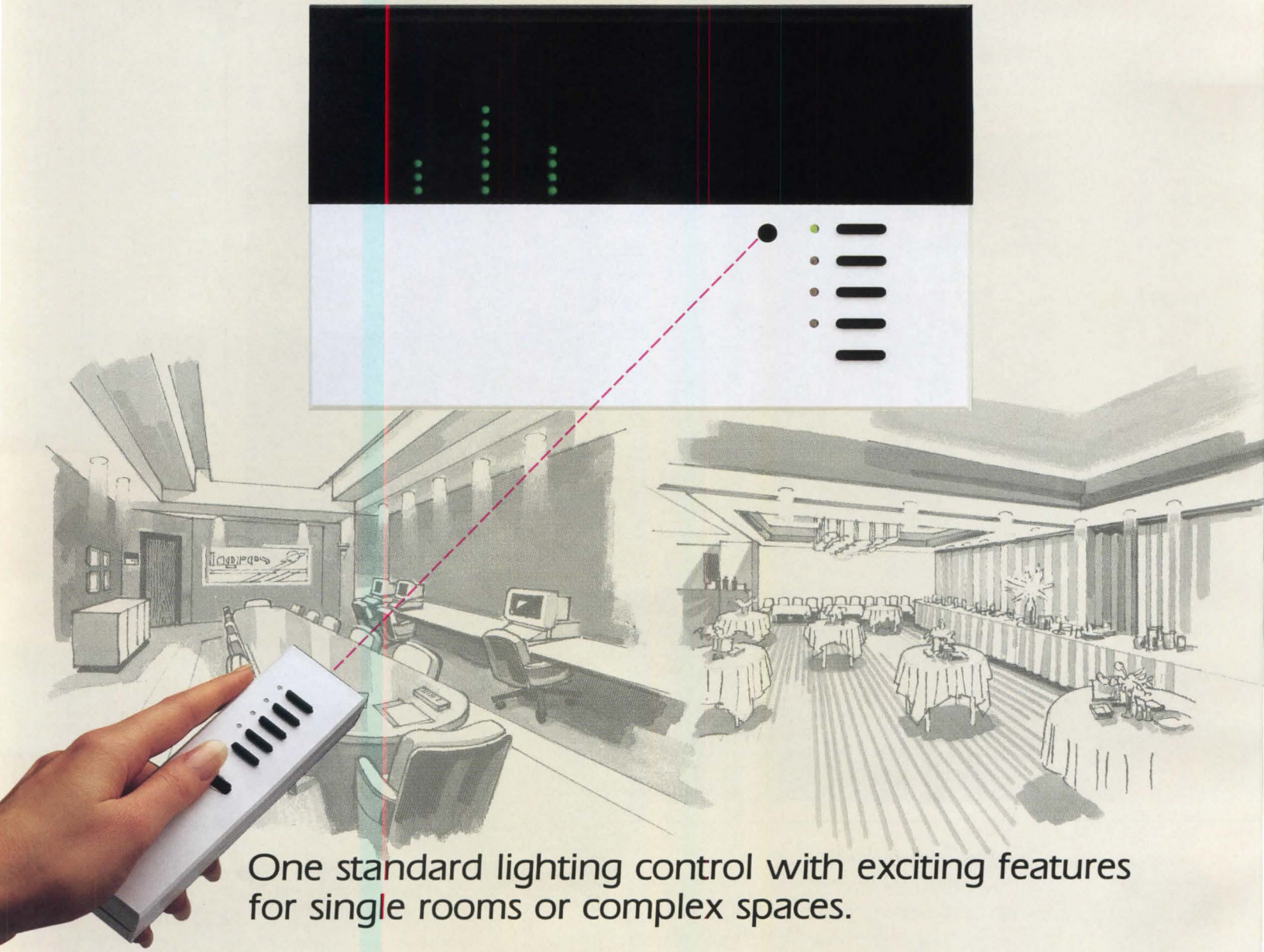

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Continued from page 21
architects. "A common mistake of foreign firms is that they handle the project as though it were in their own country," he says.

When friction occurs

Foreign firms may also need to reconsider their approach to conflict resolution when problems do arise. "When there is friction, the worst thing is to think in the short term," cautions Yamaki. "In a country like Japan, a bad reputation can be devastating."

Though most American architects feel that enhanced design development is the minimum necessary for project success in much of Asia, local architects are sometimes surprised at the amount of information that is included. Herbert Nadel of The Nadel Partnership recalls the delight of one Chinese architect on reviewing Nadel's work: "You've done all my work and I'm still getting paid!"

Variations in working relationships between local and foreign architects usually occur during the construction-documention and administration phases of the project as a result of accommodations made to local conditions. To avoid misunderstandings, Nelson Chen defines the scope of work for the entire consultant team in a checklist attached to the letters of agreement.

Wu Bao Xi, vice president of the Anhui Design Institute, which is currently working with Stubbins on some projects, makes it clear that technical expertise and willingness to share knowledge are important criteria for selecting a foreign firm. He also says that both partners must have a "mutual interest in culture, technology, and financial profit."

A new kind of collaboration can be seen in the Chi-Am Consortium, an association of four Chinese design institutes with the American firms of Gensler and Associates; Wimberly Allison Tong & Goo; HOK; Taliesin Architects; and Dworsky International. Recently established, the consortium has yet to land a project, but will provide a venue for flexible collaborations among its members, based on interest, related project experience, and work loads.

While there is no shortage of local architects willing to collaborate with foreign firms, the trick is to find the right ones. "China is a country of one billion people united by the common dream of becoming millionaires overnight," says Nelson Chen. Similarly, everyone in Vietnam claims to have great connections in the government, observes Henry Abernathy. As a result, it is hard to know what to believe. "Architects in Vietnam wear several hats," he says. "They may be government officials and in private enterprise. Sometimes you don't know which hat you're talking to."

Wu Bao Xi, noting that Americans have a reputation for inflexibility, urges greater understanding and willingness to learn. But the best advice probably comes from Herb McLaughlin, of Kaplan McLaughlin Diaz, and a veteran of many Pacific Rim projects. He puts it simply: "Make the fewest possible assumptions."■

A Mile Long and Ready for Take-off

© *Kazuo Natori photos, except as noted*

© *Kinji Hiwatashi*

The new airport cost $12.4 billion to build.

Ideally, an airport should celebrate travel the way railway stations and ocean liners did in the past. Unfortunately, few do. But come September, when Kansai International Airport opens for business outside Osaka, travelers can experience that wonder once again. The result of an international competition, the $12.4-billion building was designed by a consortium spearheaded by Renzo Piano Building Workshop Japan.

Because of Japan's mountainous terrain and population density, finding a flat area large enough to accommodate the 984,240-square-foot airport and its runway was not easy. The solution was to set the complex on a landfill island in Osaka Bay, which had the added benefit of isolating the airport's air and noise pollution and allowing round-the-clock operation. Creating this island was no easy task and maintaining it is an on-going process. In response to the island's continuing settlement, a "jack up system" raises or lowers 900 above-grade building columns, as sand piles squeeze out water and compact weak soil at the sea bottom 59 feet below. Until the 2-mile double-decker bridge linking island and mainland opened in April, 10,000 workers had to be ferried by boat to and from the island daily.

Renzo Piano's Kansai Airport design makes a grand arrival on a landfill island in Osaka Bay.

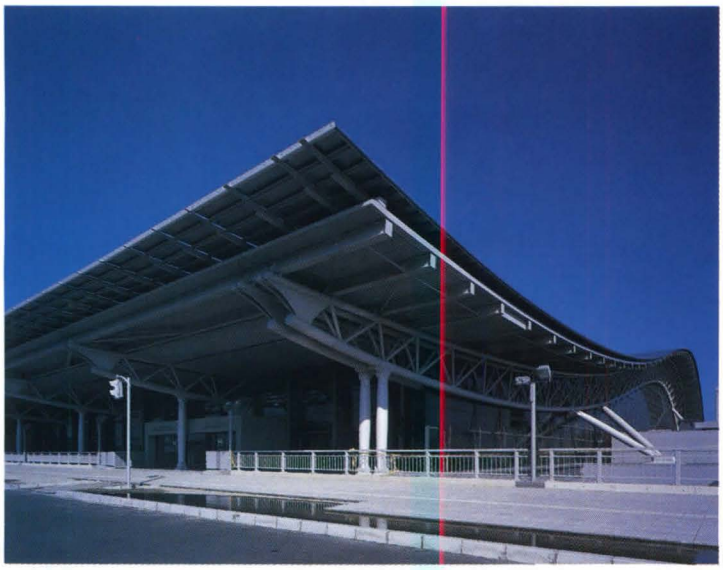
Kansai International Airport
Passenger Terminal Building
Osaka, Japan
Renzo Piano Building Workshop
Japan and Ove Arup & Partners,
Architects

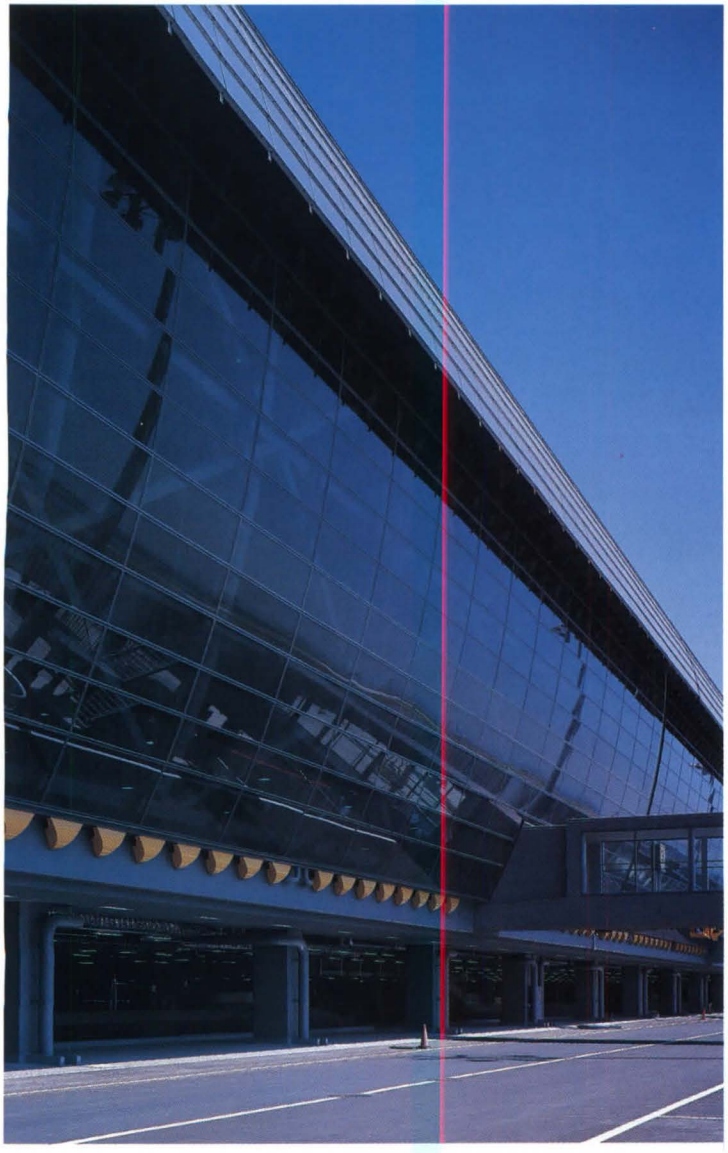
For Piano, the island site was "an occasion to find a new form since the location does not require the same logic as a building in the city," explains Piano's partner-in-charge Noriaki Okabe. Conceived by rotating a series of identically arched sections around an imaginary pivot 10.2 miles away, the mile-long building's sloping, toroidal wings appear almost embedded in the earth. At the center of Piano's symmetrical scheme is the passenger terminal from which wings fan out 2,231 feet in either direction. Unlike the labyrinthine subway stations beneath the streets of Tokyo and Osaka, Piano's solution turns a complicated network of arrival and departure gates, security checks, and baggage-handling units into a user-friendly transit hub. The "canyon," a four-story, 88,802-square-foot entry hall filled with sunlight and greenery, reveals the building's vertical organization: a sandwich of international and domestic facilities enabling travelers to transfer without effort from one flight to another.

Even the terminal's aerodynamic outline helps orient travelers by directing them from "landside" to "airside." To minimize interior columns and partitions, the roof is supported by 272-foot-long trusses composed of tangential arcs. The three-dimensional members behave structurally like arches, but their unique profile follows the invisible flow of air controlling the terminal's top floor climate. Here suspended "open-air ducts" guide supply air, fed by jet nozzles, from one end of the vast space to the other. To limit the maintenance of ceiling-mounted equipment and reduce roof load—an important consideration in earthquake-prone Japan—all other elements are located lower down. "Cabins" housing check-in counters, fire-fighting apparatus, and light fixtures divide the room and eliminate the need for fire walls.

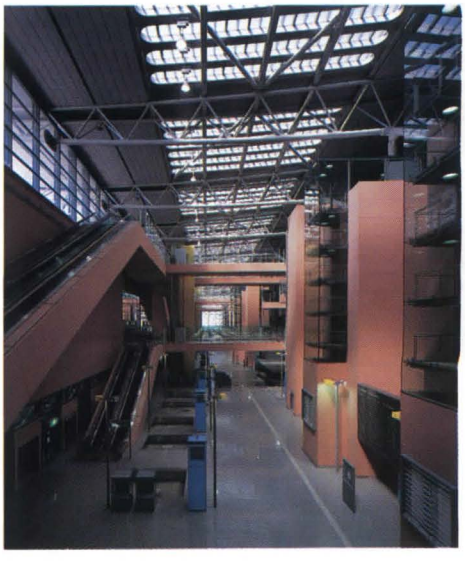
The trusses lead into the wings' shell structure, a fusion of steel ribs and building skin. At "airside," 41 boarding bridges and arrival/departure lounges, accessible by automated guided transport, stretch from one wing tip to the other. Encased in a continuous glass surface, the wings forge a direct link between passenger, plane, and sky.

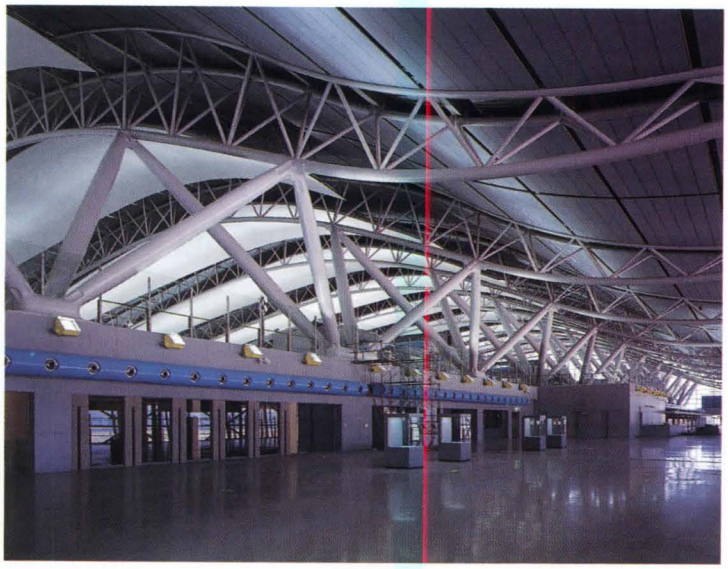
The island's railway station and control tower, which were not designed by Piano, muddy the airport's visual impact, but detract little from the accomplishment. Like the architect's Pompidou Center, the Kansai airport presents an array of technical innovations and an overall form that takes one's breath away. *Naomi R. Pollock*

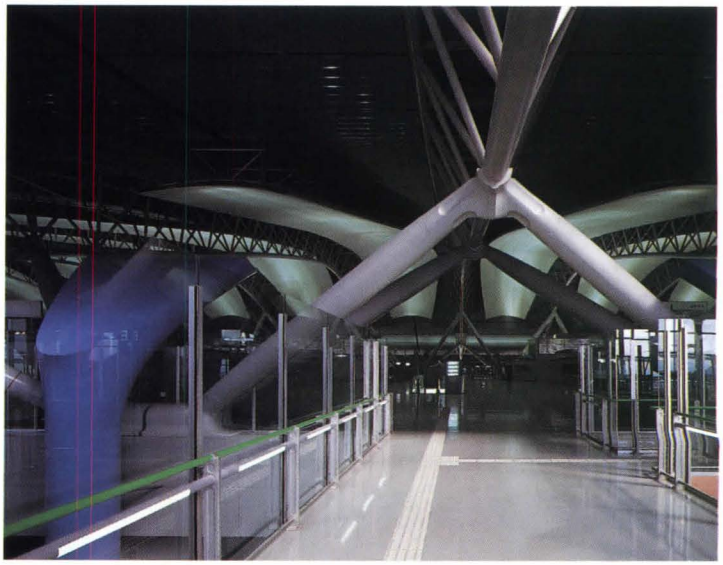


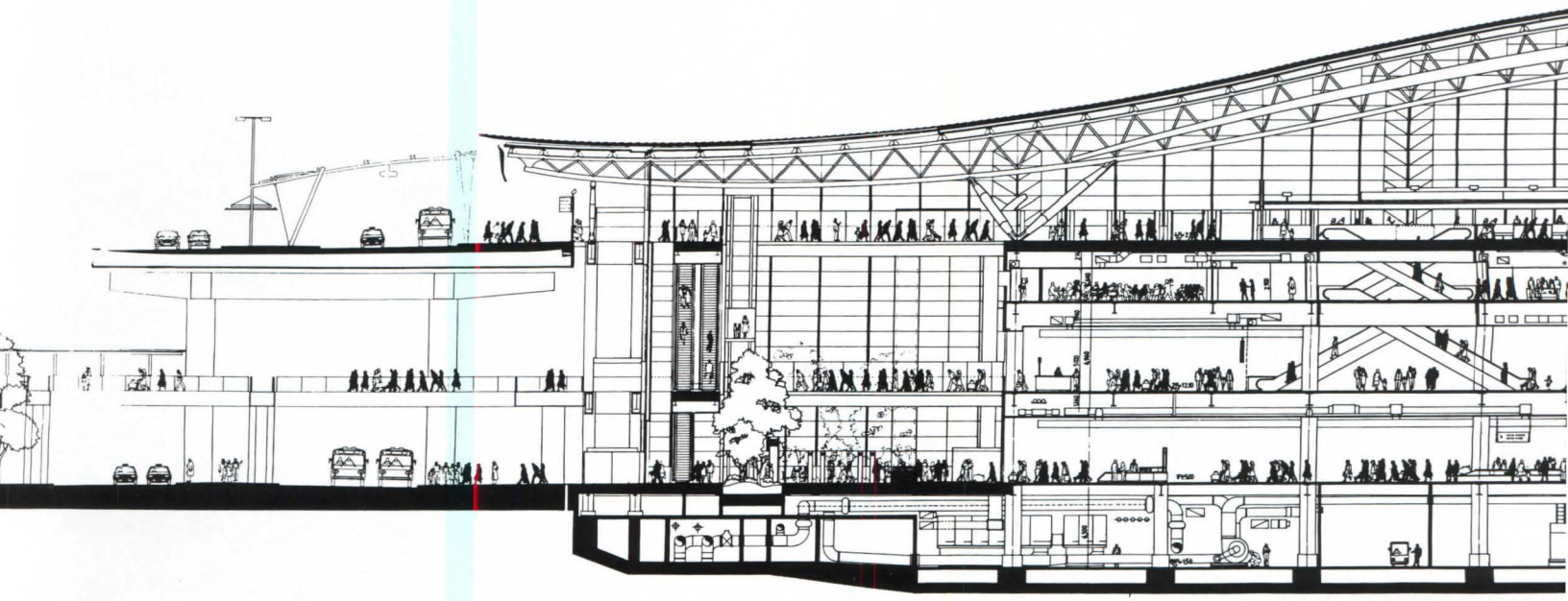


The swooping roof of the passenger terminal building guides travelers from the "landside" entrance (top left) to the "airside" departure gates, where the building's stainless-steel roof slides down to meet heat-absorbing glass panels of uniform shape and size (left). On entering the building, passengers orient themselves in the four-story canyon (below). Bow trusses running the height of the building's glazed end walls were designed with sliding joints to allow the roof to move independently in the event of an earthquake (above and opposite).

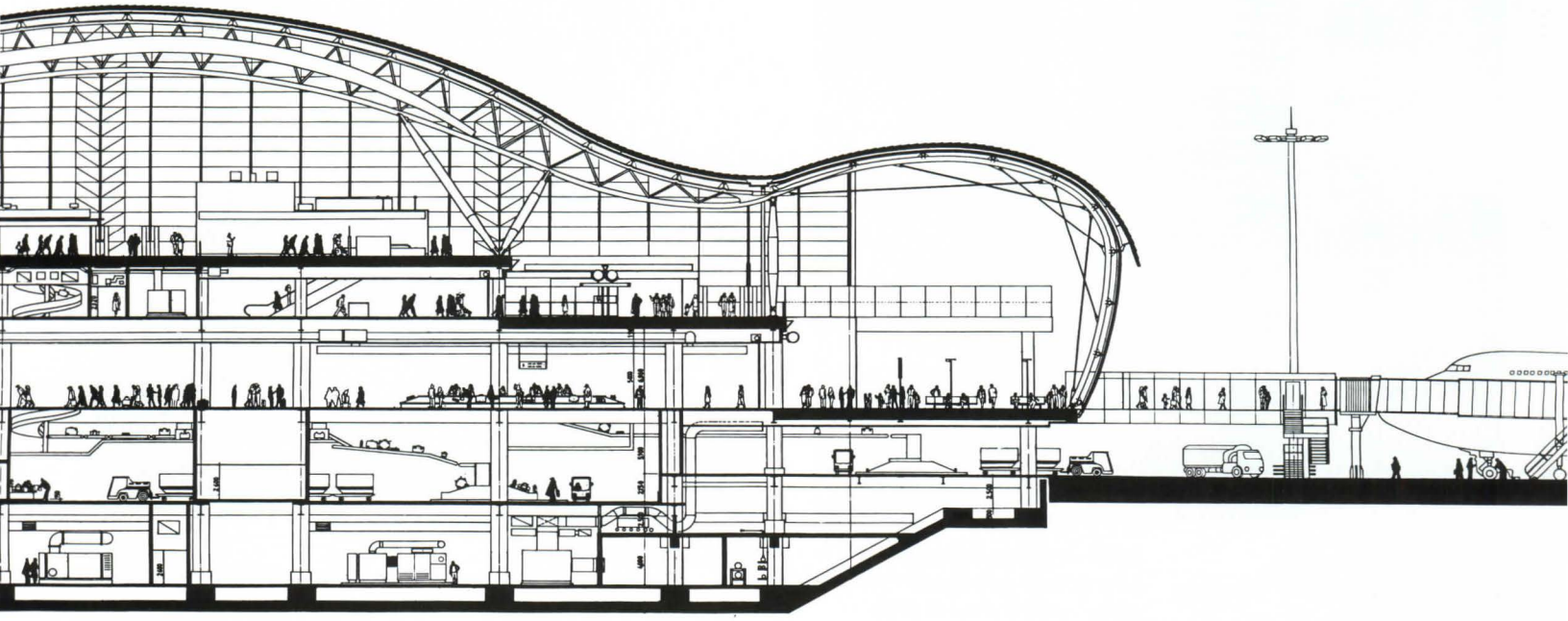








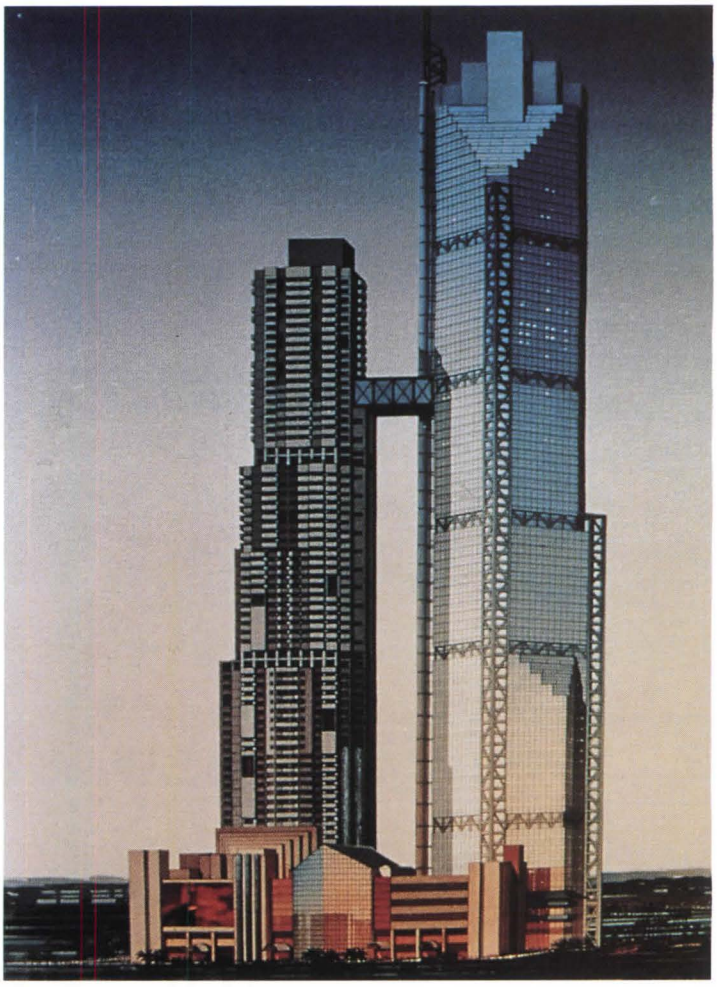
Though the three-dimensional trusses supporting the roof behave like arches, their unique profile was generated by inside-air flow. Fully welded connections give the trusses a soft, fluid appearance (top right). To control the climate of the fourth floor, air is blown up from basement-level mechanical rooms by jet nozzles and distributed by open-air ducts (opposite left). While the smooth surfaces of the Teflon-coated, glass-reinforced fiber ducts prevent dust from collecting, their white surfaces act like reflectors, eliminating the need for ceiling-mounted lamps and filling the space with muted light. Direct lighting is provided by fixtures attached to the international departure check-in-counter "cabins," which divide the 970,000-square-foot space (top left). As part of the building's sophisticated life-safety system, each check-in cabin has its own fire-protection system. Since the rest of the floor is free of restaurants and other fire hazards, there was no need for passenger-impeding fire walls. In the third-floor arrival/departure lounges running the length of the passenger-terminal building, "technical trees" support metal-halide lamps, loudspeakers, and video monitors (opposite right).



Credits
Kansai International Airport
Osaka, Japan
Architects: *Renzo Piano Building Workshop Paris (competition winning design)—Renzo Piano, Noriaki Okabe, architects; Renzo Piano Building Workshop Japan in collaboration with Ove Arup & Partners (passenger-terminal design)—Renzo Piano, Noriaki Okabe, Peter Rice architects*
Site Supervision: *Nikken Sekkei*
Consultants: *Nikken Sekkei—Kimiaki Minai (structural engineer); Aeroports de Paris—Paul Andreu (moving elements); Japan Airport Consultants—Misao Matsumoto (airside planning)*
Constructors: *North Passenger Terminal Building Joint Venture; South Area Joint Venture*

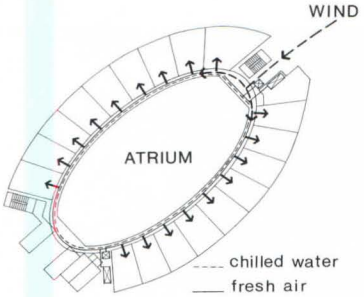
The Great Leap Skyward

In a monumental effort to modernize, China is building an impressive number of high rises, some of which will be among the tallest in the world. Architects from around the globe are now working



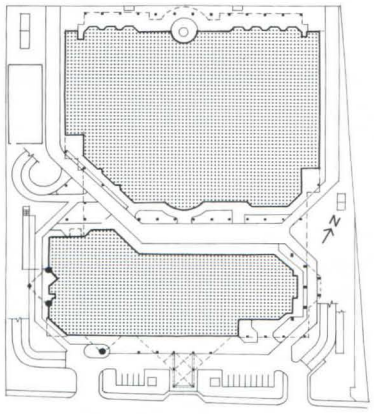
China Tower #1
T.R. Hamzah & Yeang

Continuing their exploration of ways to create highrises that respond to climatic forces [RECORD, March 1993, Pacific Rim pages 26-31], Malaysian architect Ken Yeang and his associates at T.R. Hamzah & Yeang have designed a hotel tower on Hainan Island that harnesses the power of the wind. Its oval form is oriented to receive prevailing breezes and duct them through ceiling plenums to ventilate the building's interior. A wind generator on the roof of the building provides energy for hot-water heating and emergency lights, while sun scoops at intermittent openings on the sides of the building and a skylight on the top bring daylight to a central atrium. A reinforced concrete-frame structure, this 35-story building has 460,000 square feet of gross space.



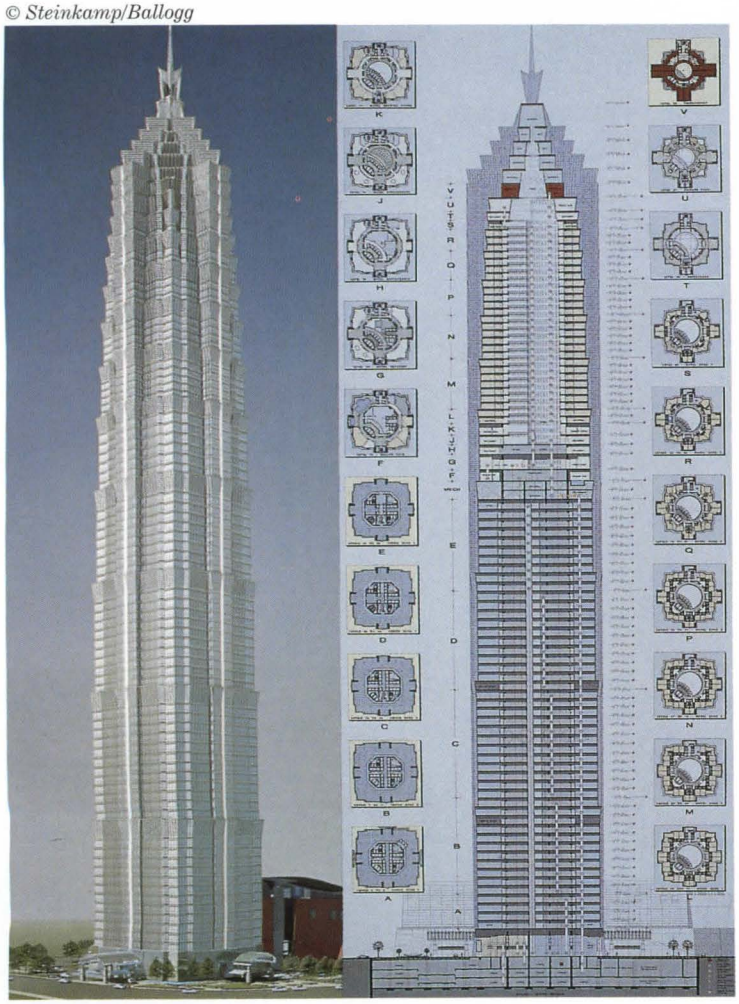
868 Towers
Beyond Space Group

For a 325,000 square-foot site in the city of Haikou on Hainan Island, Korean architect Ryu Choon Soo and his firm, Beyond Space Group, designed a mixed-use complex that couples an 86-story office and hotel tower with a 68-story apartment tower. The architects play one tower off the other, creating contrasts in exterior materials, plan, height, and structure. A common base includes department stores, shopping arcades, restaurants, convention halls, a multi-use theater, and some sports facilities.



The entire complex includes approximately 4.3 million square feet of floor area.

on plans for these skyscrapers, which will be located throughout the nation. Designs for this new generation of tall buildings address a range of key issues—from exploiting innovative technology and responding to the local climate to incorporating Chinese symbolism and creating new landmarks. The following overview provides a brief look at four important projects currently on the boards.



Jin Mao Building SOM/Chicago

Designed by Skidmore, Owings & Merrill's Chicago office and the Shanghai Institute of Architectural Design and Research, the 88-story Jin Mao office and hotel tower will be the centerpiece of Shanghai's emerging Pudong district when it is completed in 1998. At 1,375 feet high, the building would be the second tallest in the world if completed today. The building organizes its functions vertically with the office portion occupying the first 50 floors and a Grand Hyatt Hotel with a 31-story atrium on the upper stories. Since the tower gets narrower as it goes up, this scheme offers larger floor plates to office tenants and great views for hotel guests. Told by the client, the China Shanghai Foreign Trade Centre Co., to use the lucky number eight in their design, the architects devised a pagoda-like system of tower segments and setbacks based on the number. The building has a composite concrete and steel frame; lateral stiffness comes from an octagonal concrete core and eight concrete and steel columns. A curtain wall of glass and stainless steel will enclose the building, says SOM design partner Adrian Smith.

Shekou Harbor Loebl Schlossman and Hackl

Set on a peninsula jutting into the Pearl River basin, the mixed-use Shekou Harbor complex will be an important transit and commercial hub for the city of Shenzen and southern China. Designed by Chicago-based Loebl Schlossman and Hackl (LSH) in conjunction with the Shenzen University Institute of Architectural Design, the project includes a 40-story office tower and a four-story transit and retail structure linked to the area's system of ferries, buses, cars, and (in the future) light-rail trains. The tower's boat-shaped plan and sail-like curtainwall recall the area's seafaring history, says Don Hackl, president of LSH. Making the most of the Chinese love of symbolism, Hackl oriented the "bow" and "stern" of the tower's hull to the site's key land and sea approaches. To create the stretched sail on the tower's facade, the architects specified three kinds of curtain wall that will seem to be layered one on top of the other: two of reflective glass and one a boldly mullioned, low-E-glass skin. Construction is set to begin in early 1995 and is scheduled to be completed in mid-1996.

Civic Booster

Bank Niaga Headquarters
Jakarta, Indonesia
Kohn Pedersen Fox Associates and Wiratman & Associates, Architects

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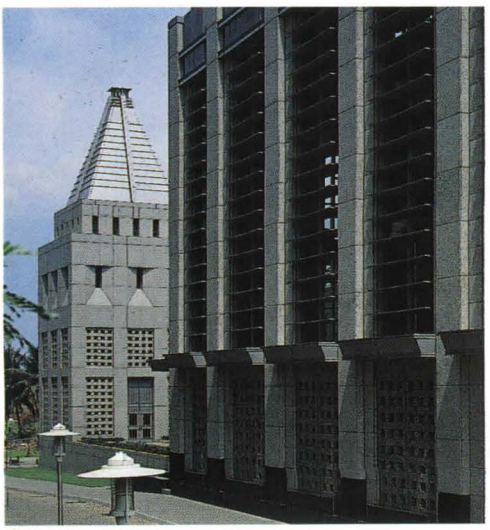


3

Set in a city intoxicated by rapid (and often cheap) development, the new Bank Niaga building is a model of a more responsible design—one that accommodates the civic realm, as well as private enterprise. While Jakarta rushes headlong into the future—sprouting highrises that seem stolen from Houston or Hong Kong—the Bank Niaga complex is firmly rooted in its site and the emerging culture of modern Indonesia.

As designed by Kohn Pedersen Fox Associates (KPF) and the Indonesian architecture/engineering firm of Wiratman & Associates, the project is a set of three buildings—office tower (1), banking hall (2), and mosque (3)—placed on a site divided into four quadrants. By keeping the fourth quadrant open as a garden and landscaping the roof of the lowest structure as an outdoor room, the architects created a remarkable quilt of built and natural forms. A circulation loop that includes escalators, elevators, and an outdoor staircase links all of the pieces together on the first three levels, so that office workers, the public, and worshippers can enjoy the complex at the same time.

"Jakarta is a city of boulevards with few secondary streets to speak of," says William Louie, the KPF design partner for the project. "As a result, you end up designing buildings as compounds." What makes the Bank Niaga building unique in this city is that its compound includes outdoor space and invites the public to use it. The building also reinforces the edge of Jalan Sudirman, the hectic boulevard it faces, rather than stepping back from it, as so many new buildings do.

By breaking the program into its three main components, the architects were able to give each its own identity. Limited to a small floorplate for the office building (about 12,500 square feet), they designed a square tower that rises 27 stories and offers two different faces to its surroundings. Looking to the north and east where the older portion of the city lies, it presents a glass-and-aluminum skin protected from the sun by continuous *brises-soleil* made of aluminum. To the south and west, the office tower is wrapped in a light-gray granite with individual *brises-soleil* over each window. This dual approach to the office component creates the impression of two slender towers abutting each other.

For the banking hall, the architects designed a three-story room topped by a winged steel roof resting on a band of clerestory windows. Because the long portion of the hall faces east and direct sunlight, first-floor windows on this side are small squares deeply set into a granite wall; larger windows start about 15 feet above the banking floor. Since Jakarta lies almost on the equator, the north and south sides of the hall get little direct sun and were opened up with generous glazing offering views to the street and the mosque.

Tucked behind the banking hall, the small three-story mosque shares one quadrant of the site with a parking structure whose roof serves as a continuation of the garden behind the office tower. Used mostly by office workers for daily prayers, the mosque is a symbol of this modern project's accommodation of old ways. The mosque's pyramidal roof and the water features in its adjacent gardens allude to the Muslim tradition of building, without imitating specifically Indonesian forms, says James von Klemperer, the senior designer for KPF.

Like almost all highrises in southeast Asia, the Bank Niaga complex is a concrete-frame structure with brick infill plastered on the inside and clad on the outside with curtainwall. Because flooding is a major problem in Jakarta, the building was erected above a series of dykes and a mat foundation. *Clifford A. Pearson*

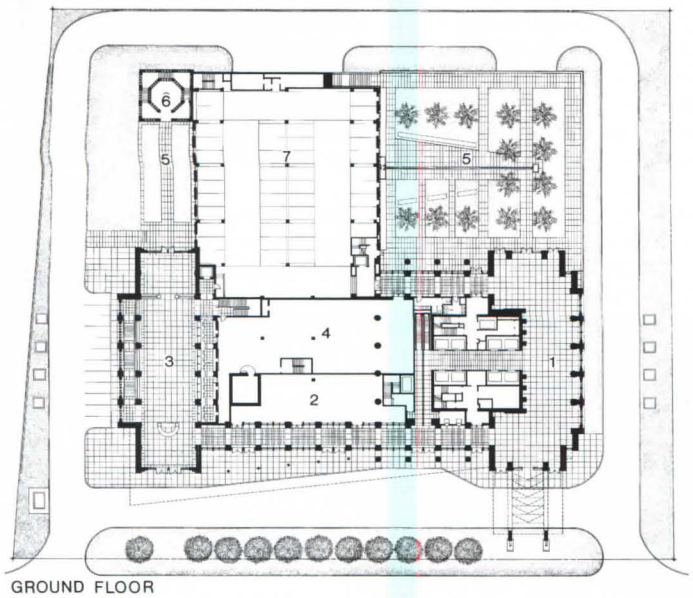
Because local codes limit the amount of reflective glass on highrise buildings and the client did not want tinted glass, fixed metal brises-soleil *were used to protect the building from the strong equatorial sun (previous spread). The wing-roofed banking hall and 27-story office tower look onto one of Jarkarta's main boulevards (previous page, 1 and 2). The pyramid-topped mosque stands behind the banking hall (previous page, 3). Local artisans executed the modern wood- and metalwork in the office lobby (above) and banking hall (opposite).*

Credits

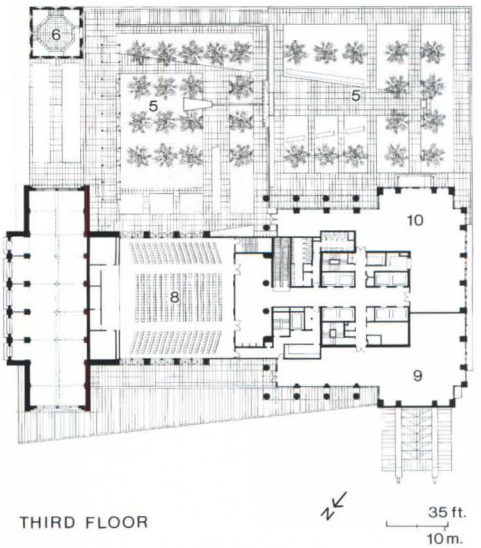
Bank Niaga Headquarters
Jakarta, Indonesia
Architect: *Kohn Pedersen Fox Associates—Robert Cioppa, partner-in-charge; William Louie, design partner; James von Klemperer, senior designer; Roger Cooner, job captain*
Associate Architect and Engineer: *Wiratman & Associates—Wiratman Wangsadinata, president; Tateng K. Djajasudarma, director; Setyo Rahardjo, project manager; Armand H. Tanorie, designer*
General Contractor: *Waskita Karya*

Up Close

Working together. By all accounts, the collaboration between Kohn Pedersen Fox Associates and Wiratman & Associates was extremely successful. Although KPF was primarily responsible for schematic and design-development services and Wiratman for the initial program development and then construction documentation and construction supervision, the two firms in fact worked closely together throughout the project, says Tateng K. Djajasudarma, the director of Wiratman & Associates. During the design phases, Wiratman sent some associates to New York to work in KPF's office, while KPF reciprocated by sending some people to Jakarta during the construction stages. By working so closely together, each firm understood the reasoning behind decisions made by the other and misunderstandings were minimized. "The transfer of knowledge was an important aspect of our relationship with Wiratman," states KPF's James von Klemperer. "We learned that their computer department is more sophisticated than ours—perhaps because they're an A/E firm—while they learned a lot about extending architecture into a project's details and materials," adds von Klemperer. "We also helped them become more adventurous in terms of design." In addition to its architectural work, Wiratman provided engineering services such as structural, mechanical, electrical, and plumbing design. Working with a multi-disciplined firm like Wiratman rather than a set of consultants was another advantage, explains von Klemperer. "We knew that whatever we weren't doing, they were." The two firms are collaborating again on a hotel in Jakarta.



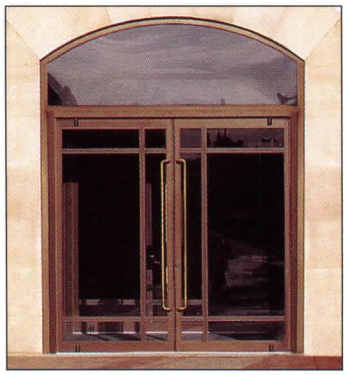
GROUND FLOOR



THIRD FLOOR

1. *Tower lobby*
2. *Retail*
3. *Banking hall*
4. *Branch bank*
5. *Gardens*
6. *Mosque*
7. *Parking*
8. *Multifunction*
9. *Health club*
10. *Dining*

R-4 Automatic Balanced Doors



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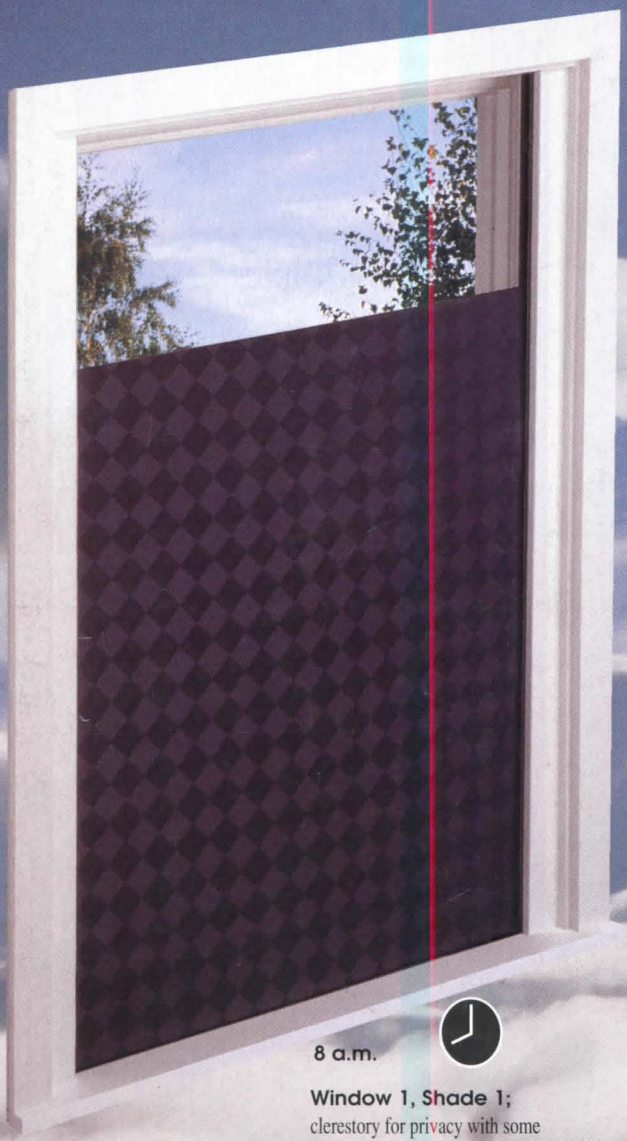
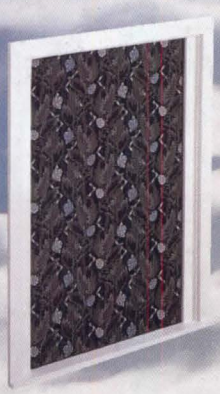


8 a.m.

Window 1, Shade 1; clerestory for privacy with some daylight.

10 a.m.

Window 1, Shade 2; sunscreen reduces glare and increases comfort.



1 p.m.

Window 1, Shade 3; total light blockout for audio/visual presentation.

3 p.m.

Window 1, Shade 4; custom designed art shade for a personal touch.

5 p.m.

Window 1, Clear View; provides full daylight without shade.

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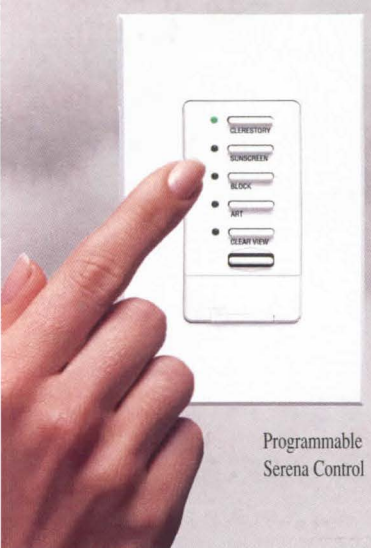

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Elitism Has No Place in Licensing

No one can say that NCARB's head isn't in the right place. The National Council of Architectural Registration Boards regulating the practice of architecture in the 50 states and in U.S. territories is in the midst of an ambitious plan to keep up with the times. Responding to pressures in many states for practicing architects to undergo some form of continuing personal renewal in order to keep one's license—Alabama and Iowa require it; several other states have enabling legislation under which they could require it at any time—NCARB has under way an impressive agenda. Its Architect Development and Verification Program (known mercifully as ADVP) puts out monographs, the first entitled *Energy-Conscious Architecture*, which come with a series of self-testing quizzes. Number two, due out this fall, deals with a correct interior environment and how to achieve it.

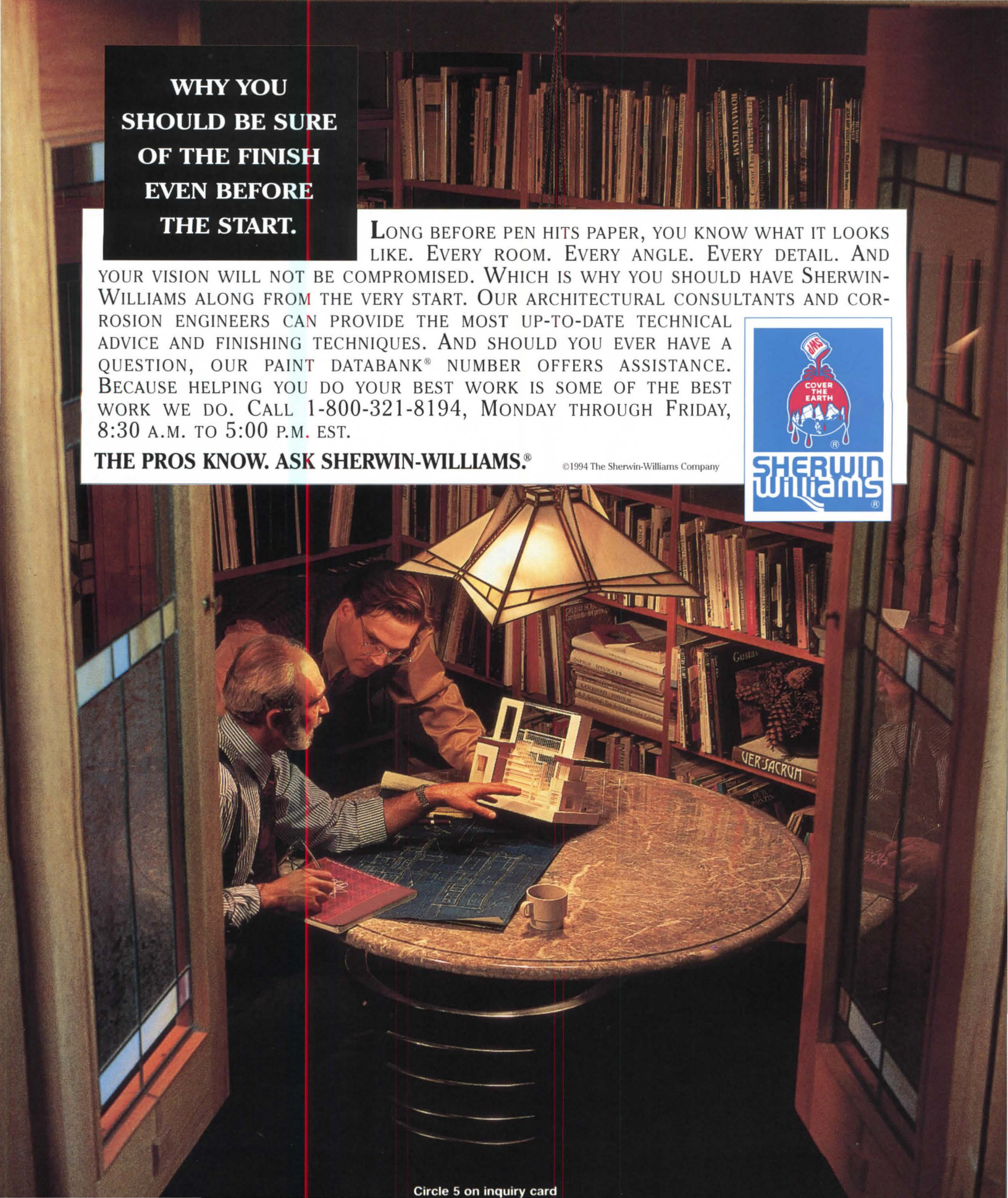
As for testing methodology, automation comes on the scene in February 1997 with a fully computer-administered exam. Computerization will also eventually allow candidates to take the exam at any time and in any place. Meanwhile, the familiar single-building design exam is being broken down into a series of "vignettes" intended to test the broader range of design topics and tasks the practicing architect typically encounters.

With overseas markets beckoning, NCARB is negotiating reciprocity agreements with several key countries, and this year revised a three-year old guide to overseas practice standards in 37 countries.

But there's one problem. In its unrelenting quest for reciprocity, NCARB has lost sight of our changing society. For reciprocity breeds uniformity; indeed you cannot have one without the other. Hence a distressing rigidity and elitism are creeping into the Council's mindset: it virtually dictates the road to licensing, starting with a degree from an accredited school of architecture, followed by a tightly conceived program of diversified experience with a narrowly defined type of employer.

But America is changing. The population, which in 1990 was 76 percent white, will in another two generations consist about 47 percent of other groups, according to expert Ben J. Wattenberg, spurred in part by an immigration rate not seen since 1910. This is very significant here because the new groups will in large part be unable to afford the costly education and the underpaid spell as interns. Combine this with emerging changes in the profession itself—automated practice, diversified services often involving no building, a growing pattern of employment on owners' staffs—and it cries out for a system that *examines performance but leaves the route to the individual candidate*. True, licensing boards cannot turn their backs on the health, safety, and welfare standards which they are chosen to administer. But where are the days when someone of modest means could still sit for the exam after starting as a draftsperson and through sheer grit qualify for and pass the licensing exam? What would have happened to our culture had the Wrens and Brunelleschis and Michelangelos, the Wrights and Buckminster Fullers, been barred from practice for lack of formal credentials?

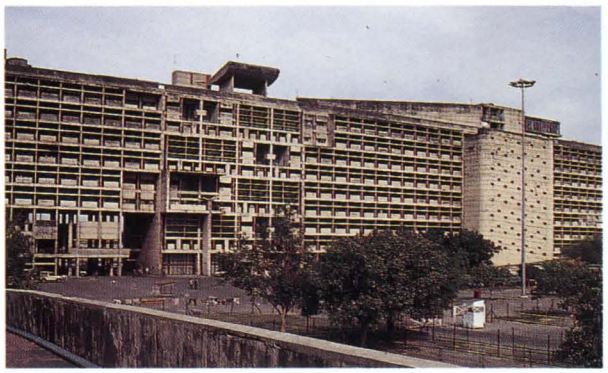
So in the years ahead, licensing boards everywhere should worry about standards and the quality of testing, but leave it up to the candidates to prepare themselves as best they can. The public has a right to expect safety; it also expects equal opportunity for all. *Stephen A. Kliment*



India

Design Professionals Rally to Preserve Chandigarh

More than 80 design professionals worldwide have petitioned Prime Minister P. V. Narasimha Rao to ask UNESCO designate Chandigarh a "World Heritage City." Such action could help curb building neglect, shanty-town construction, and an alleged push by developers for commercial building rights to park areas. The population has increased about eightfold since the 1950s. To join the petition, contact Peter Blake, 140 Elm St., Branford, CT 06405. At right is Le Corbusier's secretariat building; at far right, his legislative assembly. *Angelica Semler*



Israel

Tel Aviv Conference Calls for Return to Bauhaus Values

Some 1,300 people recently attended a six-day conference on the roots of the International Style and its regional traits. Sponsored by UNESCO, the Municipality of Tel Aviv-Yafo and the Tel Aviv Foundation, the event featured 90 speakers from around the world, including Morocco, Turkey, Cuba, and Mexico. During the 1930s, 19 Palestinian-Jewish and European-refugee Bauhaus students, along with architects who had studied with Le Corbusier, Erich Mendelsohn and other Modern masters, turned Tel Aviv into a city built almost completely in the International Style. Among the roughly 3,400 such buildings are typical low-rise housing by Joseph Berlin (1,4), Lucien Korngold (2) and Ben Ami Shulman (3). "People cared more about what happened outside than inside," said preservationist Nitza Szmuk, explaining why Tel Aviv's socialist pioneers liked street-facing balconies. As the regional culture changes from one of war to one of peace, architect Dan Darin, Tel Aviv's deputy mayor, claimed it is possible to re-establish the Bauhaus philosophy and create a new society based on equality, justice, freedom and democracy. "The International Style was built at a time of great idealism, with a strong sense of community," Moshe Safdie stated, "[We're] now at a special moment. . .we should go forward with a sense of enormous responsibility to idealism and buildings rooted in the region." Israeli architect Eldar Sharon, son of Bauhaus architect Arieh Sharon, also proposed "Bauhaus principles, not American methods." Pritzker Prize winner Christian de Portzamparc concurred: "We must deal with the specificity of places. . .and give poetic meaning to heterogeneity in cities." *Maria Stieglitz*

1

2

3

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The Netherlands

High- and Low-Technologies Create Green Community

© Leo Van Velzen photos

Ecolonia, the aptly-named community of 101 private homes in a variety of designs near the town of Alphen aan de Rijn, is Holland's largest showcase of "green" architecture. The homes sell for $90,000 to $150,000, about 10 percent more than for standard construction, with the difference financed largely by the ministries of economic affairs and housing and environment. Ronald Rovers, architect with the Agency for Energy and Environment, which was responsible for the execution of Ecolonia, expects utility bills to be 10 to 30 percent lower than average. The gamut of energy-saving measures runs from sod roofs and solar collectors to a pond that collects gray water and rainwater for gardens, car washing, and toilets. Architect Renz Pijnenborgh, perhaps the most committed of Ecolonia's nine architects, uses only water-based paints, shredded paper for insulation, and—to protect rain forests and cut energy use in transportation—wood from fast-growing European plantations. Many of the measures used are invisible once the houses are completed— sewage pipes made of ceramic rather than PVC, for example, and floors of recycled gypsum rather than concrete. According to the Dutch ministry of housing, there are other green communities under construction, and at least some energy-saving measures are applied in 60 to 70 percent of the houses being built Ecolonia was officially inaugurated by Queen Beatrix, an indication that environmental awareness is making headway in the architectural mainstream. "This is not an experiment," says Rovers, "but a demonstration of what can be achieved here and now." *Tracy Metz*

New York State

Six Adults in Search of a Childhood— Through Playhouses

© Scott Miles photos

"Shelter and Dreams" is a collection of six artist- and architect-designed playhouses under 12 sq ft commissioned by the Katonah Museum of Art and on exhibit through November 13. Some, like the house made by Donna Selene Seftel with 20 Dutch doors and a transparent roof (left), and Taeg Nishimoto's structure of increasingly tall, narrow transparent doors connected to bowed wood strips that respond to the opening of the doors (right), explore both the practical and dreamy sides of childhood—the transformation of architecture by the user and the integration of adult and child. Others, like Donna Dennis's tourist cabin perched precariously on a hollow rock filled with household debris (center), look at the foundations of individual lives. Jane Dodds is guest curator. ■

Design

Briefs

Winners

• Charles Correa has won the architectural part of the Japan Art Association's Praemium Imperiale for lifetime achievement.

• John Breshears , Busby Bridger Architects, has won Ove Arup's first Peter Rice Prize.

• Paris-based Architectes Urbanistes has won the Benedictus Award for the Banque Populaire de l'Ouest in Rennes. The student winner of the laminated-glass competition, sponsored by DuPont and the AIA/ACSA Research Council, was Elina Vaittnen of Finland's Tampere University for her expansion of the Weimar Bauhaus.

Murder, He Wrote

St. Martin's Press has issued "The Seventh Sacrament," a mystery about the serial murders of architects in a competition. Author James Bradbury, formerly with Venturi, Scott Brown, practices in Villanova, Pa.

Moves

• In a surprise move, CRSS Inc. sold all but its independent power-plant business. The firm, founded by William Caudill, John Rowlett, and Wally Scott in 1946, will lose its identity, becoming part of HOK at the final mid-July closing. Its 220 employees will be kept on for now, but its Houston, Washington, Greenville, S.C., and Atlanta branches will carry the HOK name, says HOK communications director Dana Collins. While other architectural firms were considered, CRSS CFO William J. Gardiner told RECORD, the former rival and associate on King Saud University was deemed the "most appropriate." Jacobs Engineering acquired the engineering and construction management units. *S.A.K.*

• The AIA has reorganized its headquarters staff and eliminated 23 positions in order to reallocate funds and staff to priority areas: member and public communications, government affairs, and information resources and continuing education for members. Raymond G. Post, Jr., was elected first vice president/1995 president-elect; Ronald Altoon, Phillip Gerou, and Carole Olshavsky, national vice presidents; and James Anstis , secretary.

• William McDonough is the new dean of architecture at the University of Virginia.

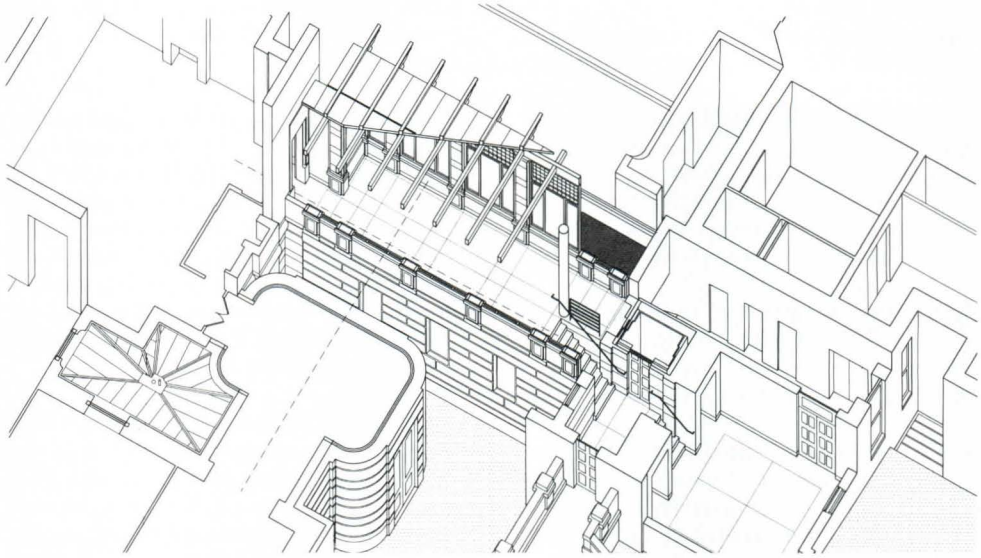
• Robert F. Brown of Geddes Brecher Qualls Cunningham and Mario Gandelsonas are leading a multi-disciplinary team in a strategic revitalization plan for Red Bank, N.J.

Remembered

Robert Elkington died in June at age 79.■

New York City

Landmark Museum Incorporates Townhouses in Accessible Design



James Stewart Polshek and Partners will renovate the part of the Cooper Hewitt Museum that links the original Carnegie Mansion with two newly acquired historic townhouses on the next street and, at the same time, makes the entire assemblage completely handicapped-accessible. The connective tissue (above) makes free use of stairs as design elements while providing elevators that respond to each level change. The original entrance will incorporate a ramp into a planting area. ■

Colorado

Angst Afflicts 44-Year-Old Design Conference

For much of its 44-year existence, the International Design Conference in Aspen has promulgated the gospel of good design to a world that didn't seem interested. Recently, though, design has triumphed in the marketplace: we wear athletic shoes cushioned by pump technology as sophisticated as the artificial heart valve. What is the mission of such a venerable conference in a world where "design" is actually accepted? Aspen has long embraced design-oriented businesses such as IBM and furniture maker Herman Miller. Today it's Disney and Sony, both hell-bent on somehow industrializing creativity.

Board members fretted over whether the format still works in our electronic age. Ubiquitous computers, though, proved not nearly as interactive as people. Participants included Boston architect Peter Forbes and critic Witold Rybczynski. Patch Adams, a doctor, became a clown as a form of self therapy and now treats seriously ill patients with humor. He hopes to build a distinctly mawkish "silly" hospital. The valley campus of the Aspen Institute saw the restoration of Herbert Bayer's Aspen Meadows (Backen Arrigoni & Ross—photo), and a handsome new concert hall by Harry Teague. *J. S. R.*

© Mark Darley/Esto

Jerusalem: And the Walls Came Tumbling Down

The recent peace between Israel and the PLO has given new life to projects in the City of David that break through barriers separating Arab and Jew.

By Tracy Metz

In Jerusalem, the city on the cusp of the Jewish and Arab nations, the recent peace agreement between Israel and the Palestine Liberation Organization has precipitated a mood of cautious optimism and in its wake a real-estate boom. Perhaps of even greater long-range significance are the first, as yet delicate, contacts between Israeli architects and Arab colleagues and clients.

"It's a time of excitement and uncertainty," sums up Jerusalem's chief city planner Elinoar Barzacchi. "We don't know which foot to dance on. But we're trying."

One example of the new *détente* is the expanding practice of Jerusalem architect Arthur Spector, who has received commissions from Arab clients for a housing complex and a sports center in the eastern, Arab part of the city. "For the sports center we formed an association with an Arab architect. There may have been some resentment on his part in the beginning, but we worked hard to assuage that."

Helping each other

Spector cites another sign of the changing times: "A colleague in the Gaza Strip called me recently to ask if I could help him find certain materials. It sounds so simple, but for this country it is truly unique." As the peace process moves forward, the Israeli government expects to build a number of new Arab communities in the Gaza strip and around the city of Jericho.

Problems on both the national and the local levels, though, cast doubt on how much progress can be made in Jerusalem. One of many clouds on the horizon is the appearance of what Spector calls "political planning." Until now the municipal administration had carefully defended the city's architectural integrity. For instance, the city has long required that all buildings be faced in local stone, and this bylaw remains in effect.

But the last municipal elections ousted Mayor Teddy Kolleck, who had fought for decades to maintain Jerusalem as a multi-ethnic city, and brought in a new coalition government dependent on ultra-religious Jewish parties. "What you're seeing now, for example," says Spector, "is that a developer is allowed to exceed the regulated density and height if the project's use is to the liking of the Orthodox parties. And the new mayor, Ehud Olmert, has come out in favor of tall buildings."

In the meantime, however, peace-induced optimism has given new impetus to existing projects, such as Moshe Safdie's Mamilla development just outside Jaffa Gate, one of the main entrances to Jerusalem's ancient walled city. Until recently, the project's English developer had been moving full-speed ahead on the residential part of the plan, but was reticent about going forward with the retail portion and had dropped the hotel altogether.

"Together with the changed mood came a new partner, the Tel Aviv developer Akirov, and now Mamilla will be realized as planned," says Safdie. "That means 280 apartments, 320,000 square feet of retail space, 1,000 parking spaces, a cinema, and three hotels, of which one is a five-star Hilton." A government-commissioned parking garage and bus terminal at Jaffa Gate, also designed by Safdie, are nearing completion, and Mamilla should be finished in 1996.

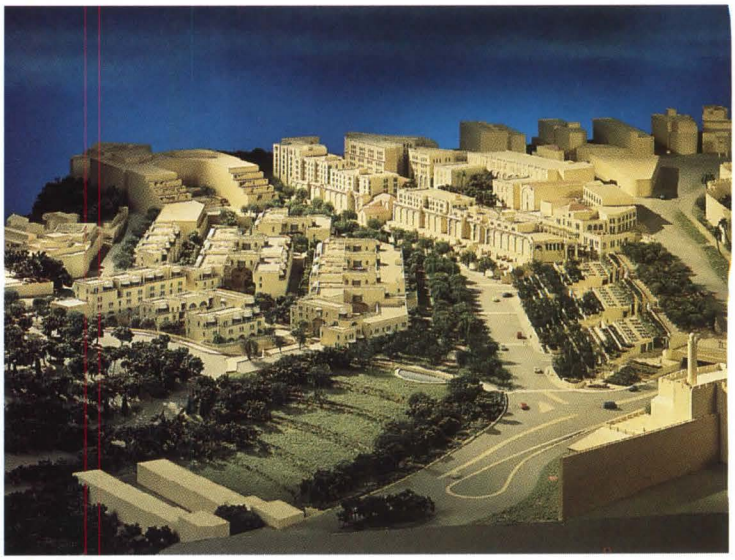
Plans for Damascus Gate Triangle

Safdie has also designed a solution for one of the city's most sensitive interfaces between the Jewish and Arab populations: the triangular space in front of Damascus Gate, the entrance to the Arab district of the old city and the hub of the Arab public-transportation network. In Safdie's view, both Mamilla and his plans for the Damascus Gate Triangle will help shift Jerusalem's center of gravity towards the old city and away from the uninspired modern city west of the ancient walls.

Although plans for the site have succeeded one another for decades, including those of a group of Safdie's Harvard students and a recent scheme by Barcelona-based architect

Located just outside the old city, near Jaffa Gate, the Mamilla development was planned by Moshe Safdie and Associates as a mixed-use, multi-ethnic community that would help bridge the gap between Arabs and Jews (model, far right). Although the project's original developer held back on building the retail and hotel portions of the plan, much of the residential component has been built (right). A new Israeli developer plans to go ahead with the full range of buildings envisioned by the original masterplan.

© Michal Ronnen Safdie



© Steve Rosenthal

Ricardo Bofill, the triangle remains an *unstructured* wasteland.

Safdie's task was facilitated by the decision to move the planned bus terminal to the east of the triangle. But even so, the project must accommodate delivery zones for the businesses in the old city, public parking, and local and long-distance taxis. "By putting the taxis and 600 parking spaces underground, I was able to create a marketlike piazza, Prophets' Promenade, along the old city walls," explains Safdie. The upper plaza will be a green park-like commons with trees, and at the apex of the triangle there will be a new Peace Gate.

A place for everyone

City planner Barzacchi finds the idea of a green commons eminently suitable to Damascus Gate. "Even the peace agreement cannot bring about mixed neighborhoods in 24 hours" she says. "That will take more than a generation. But Arabs and Jews can be together and sip cola and tamarind juice in an open space. A garden is a good place for peace, because it belongs to everyone."

Barzacchi's first priority for Jerusalem is to improve its infrastructure. "Now there is only one main road running east-west from Tel Aviv. There is an urgent need for a north-south connection and a ring road that takes the bulk of traffic around town instead of straight through it." Barzacchi's department is also working on a large-scale expansion scheme to the west of the existing city. This new area would provide space for housing, which is perpetually in short supply in this overcrowded country, and would include office parks where highrises banned from the city center could be located. Barzacchi expects municipal and regional approval for these plans within the next two years.

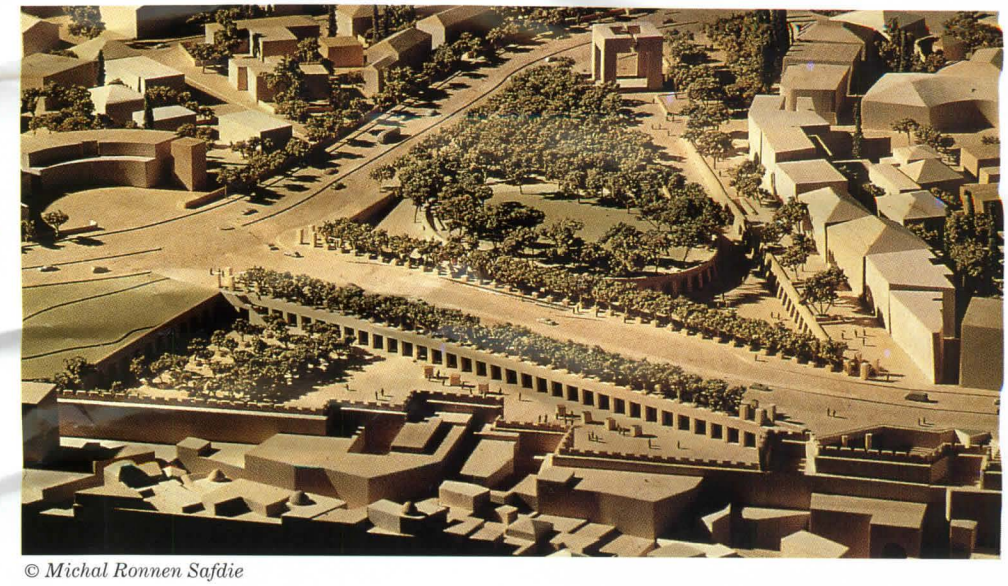
Another vast scheme is Modi'in, a new town for ultimately 240,000 inhabitants, located between Tel Aviv and Jerusalem and master-planned by Safdie as well. Modi'in was on the boards before the recent Israel-PLO peace agreement was signed, but has surged ahead in the expectation that settlers in the occupied territories will be returning to Israel as the Arabs gain control of Gaza and the West Bank town of Jericho. "The first district of 6,000 housing units—10 percent of the planned 60,000—is about to be offered to developers for tenders," says Safdie. "We're now working on the urban plan for the town center and an employment area comprising 9.7 million square feet of high-tech office and manufacturing space. But we have no illusions that all the people who live there will also be able to find work there." The Israeli government recently budgeted $70 million for Modi'in's infrastructure, and roads are now being built.

Architect Ada Karmi-Melamede, who together with her brother Ram Karmi designed the new Supreme Court building in Jerusalem, feels this is not only an optimistic time, but a poetic one. "The axis of Israel has always been north-south, but now for the first time we're thinking east-west. East was always a cul-de-sac. The notion that you can now move not only west towards the Mediterranean, but also east towards the desert, has an impact that reaches far beyond the bare topological fact. That's where the people of Israel were given the law," says Karmi-Melamede. "The desert is where justice and compassion meet. But none of us who were born here have ever been able to experience it." The buildings of Karmi-Melamede's Supreme Court are grouped around two walls expressing the north-south and east-west axes. "It makes so much more sense now," she says of the building's plan. "My own design has become much richer for me."

A social role for architecture

In Israel, says Karmi-Melamede, architecture is much more related to politics and social issues than in other countries. "It may sound naive, but we still believe in a social role for architecture. In this country architecture and planning are still acts of redeeming the land." The important thing now is not the physical changes, but the presence of hope, which was always a *fata morgana*. "Peace will change what we do and how we think—about the city, about architecture. The east has finally been added to our palette." ■

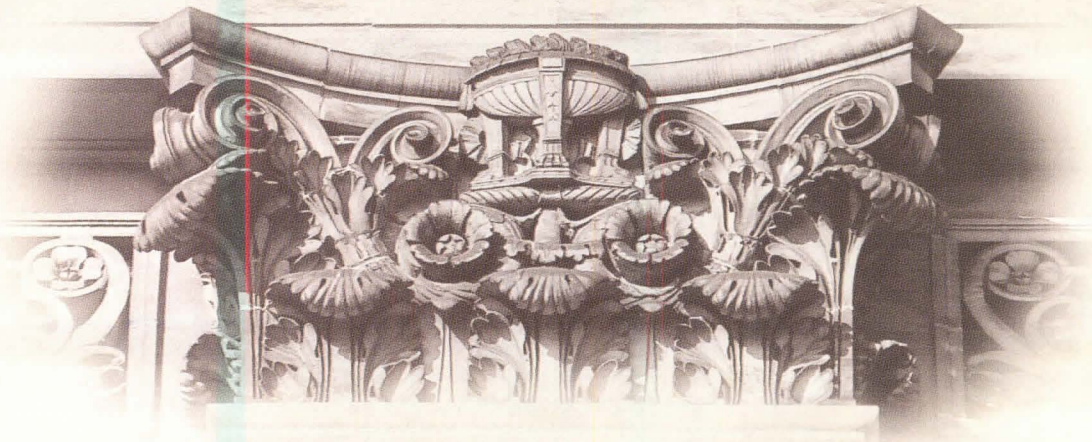
© *Moshe Safdie and Associates*



© *Michal Ronnen Safdie*

Outside Damascus Gate, one of the city's most sensitive contact points between Arabs and Jews, Safdie has designed a project that combines underground parking and a taxi hub with a marketlike piazza. As it exists now, the site is unplanned and chaotic (above). The model of the project (right) shows the landscaped commons and a new Peace Gate at one apex of the triangle.

An Enduring Design Demands Attention To Detail.



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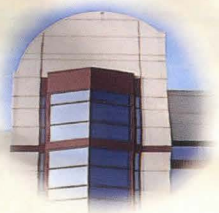

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