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Who Should Design Buildings?

The April 1995 Editorial in record, "New A vs. E Dispute Is a No-Win Case," contains some erroneous statements that need to be corrected.

For example, the editorial erroneously insinuates that few states permit engineers to design buildings. The truth is that 45 states have engineering licensing statutes which specifically define the "practice of engineering" to include the "design of buildings and structures." The five other states authorize engineers by statute to design buildings.

Also, the editorial claims that legislatures in most states have assigned the authority to design buildings for human occupancy to architects. The truth is that, at the very most, 16 states have architectural licensing laws which refer to "human occupancy or habitation."

Since this is an important issue, it is imperative that the information used in reporting on this matter by a respected publication such as Architectural Record is factual.

Monte L. Phillips, Ph.D., P.E.
National Society of Professional Engineers
Alexandria, Va.

According to an August 1994 AIA survey of overlap provisions in licensing laws: 25 states exempt only architectural services "incidental" to the engineer's area of expertise from requirements that prevent engineers from practicing architecture. A similar exemption applies to architects. Nine states have language that says in effect that "nothing in the law prevents engineers from engaging in the lawful practice of engineering as defined by law."

Eleven states' laws don't make reference to interprofessional practice. Of those, nine licensing boards prohibit engineers from practicing architecture; two permit engineers to practice architecture. Illinois, Indiana, Iowa, Louisiana, and Wisconsin, with variations and limitations, permit architects and/or engineers to design buildings.

Architects are guilty of lobbying for protectionist laws that exclude professional engineering firms from "practicing architecture." New Jersey, Pennsylvania, Iowa, and Oklahoma limit the legal practice of architecture to professional service corporations who have a substantial, if not majority, ownership by licensed architects. Their idealism goes to the extreme of prohibiting licensed architects from general practice as an employee of a non-architect owned corporation..

Licensing laws serve the public interest when they require architectural work to be executed by licensed architects, not when they are designed to maximize market share for certain narrowly defined corporations.

Herbert G. Zeller, ARA
Vice President
Camp Dresser & McKee, Inc.
Cambridge, Mass.

Having read your article in the April issue, I felt I had to make my opinion known concerning the practice of architecture. There is a rule that applies to any profession: exclusive or exclusion. The lifeblood of any profession is the ability to do it alone. If there are four different groups doing the same function, competition will lead to the death of some. Consider the airlines of the 60s to the airlines of the 90s. Some are fighting for their lives. Even
continued on page 157

July 5 and 12

Guest lecture series in Classical Architecture includes a panel discussion of "Classicism and the Media" (July 5) and a presentation by Allan Greenberg. Call 212/966-0693 or fax 212/570-7374 the Institute for the Study of Classical Architecture at the New York Academy of Art for details.

July 10-August 4

A summer series of professional-development courses at Harvard's School of Design offers a variety of subjects, ranging from "Massimo Vignelli on the Language of Design," (July 11-12), to "Marketing Strategies, Presentation Skills, and Getting Published" (July 31-August 2). Call 617/495-1680 (fax 617/495-5967) for the entire list of courses.

July 30-August 2

Illuminating Engineering Society's annual conference, Marriott Marquis, New York City.

Through July 29

"New York City Landmarks" art and photography exhibition in celebration of 30 years of preservation is showing at the Michael Ingbar Gallery of Architectural Art, 568 Broadway, New York City; 212/334-1100.

August 4-6

Society of Marketing Professional Services annual conference, Westin Copley Place, Boston. Call SMPS at 800/202-7677 for further details.

Through August 13

Exhibition of "Rem Koolhaas and the Place of Public Architecture" consists of six architectural designs and three urban projects by the Dutch architect. Wexner Center for the Arts, Ohio State University; 614/292-0330.

Competitions

• Central Glass International Architectural Design Competition entries are due July 20. The theme this year is "Guest •
continued on page 157



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Editorial Offices: 212/512-2594
 Editorial Fax: 212/512-4256
 E-Mail: JSRRecord@aol.com
 Subscriber Service: 609/426-7070
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It has become a part of current American business sensitivity training that the goal of a vendor of goods and services is above all to "delight the customer." And while the word "delight" is perhaps a trifle on the sensuous side, the underlying message is one that the architectural profession should heed.

First, it reminds us that there is someone out there who not only pays the bills, but who is responsible to a whole array of constituencies—users, voters, trustees, stockholders, the public—and unless this customer (as architects we prefer to use the word client, but the distinction has as much to do with arrogance as with any substantive difference in meaning; I will use the terms interchangeably) is satisfied, we are missing the real point of professional service.

Second, "delighting" the customers means having to uncover what it takes to delight them. Here's a sampling of techniques that are known to work in other disciplines and businesses:

- Read what the customer reads and go where the customer goes. There are the business magazines and trade conferences patronized by the school or hospital administrators, facilities managers, shopping center executives, government procurement officers, correctional officials, state and county officials involved with infrastructure and transportation matters, the judiciary. That's where you'll find the issues and concerns that motivate or trouble those customers.
- Survey your customers. Anything from a short letter to a detailed questionnaire helps. Clients will be flattered, not put out, for being asked to assess your performance on past projects. Do it both with the repeat client and one who switched to another architect. Comments should be frank and specific; no hard feelings.
- Look to the details of the relationship. Worry about how the telephones are answered—in this age of faceless automated communications, arrange access to a live person at the other end of the line. Choreograph a visit to your offices with flair and gear it to the client's style—formal reception with china coffeecups to a shirt-sleeves meeting with plastic mugs and cardboard plates. Follow up clients' requests for information promptly.
- Organize focus groups of past and present clients. A new species of consultant known as a facilitator has emerged in recent years with the gift of extracting, impartially, viable responses from such groups.
- Look beyond the immediate project and toward a long-term relationship. Negotiate a fee that will give a profit, but don't overlook the long-term investment value of extra attention—for example in the frequency of site visits to ensure specified levels of workmanship—even if this means an erosion of profit.

There's nothing remotely original about these remarks. They are intended instead to underscore some basic but critical issues that are driving decisions in the current client environment. Nor does any of these ideas take over from the necessity to manage the total quality of services, at whatever level these are agreed upon between you and the client. But in this tight climate, it's the details that spell the difference between a client gained and a client lost. *Stephen A. Kliment*

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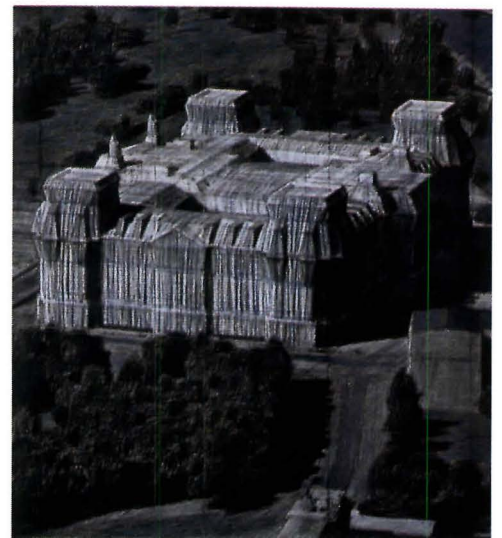
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Berlin

Before Foster Restores the Reichstag, Christo Wraps It Up



© Wolfgang Volz photos



It is a 24-year dream come true. Christo and his wife, Jeanne-Claude (above left)—the couple who once wrapped Paris's Pont Neuf—wrapped Berlin's Reichstag late last month. The Christo/Reichstag project was rejected six times by various German parliaments and finally approved in 1994.

It took several days to build the scaffolding and drape the 1.1-million sq ft (90 tons) of canvas over the building. To deter vandals from clipping off pieces of it, 1,200 monitors

were installed. (The fabric is to be recycled so it won't be sold as art.) The parliament building, empty and awaiting its renovation/restoration by Norman Foster & Associates, remained wrapped for two weeks. (Foster won the competition for the redesign of the building [RECORD, September 1993, page 31].)

Christo and Jeanne-Claude see the work as more a process than an object, and it's hard to say which is the more potent image—the long political struggle to realize the project or

the wrapping itself. The building recalls many key moments in German history. Once the symbol of the short-lived Weimar democracy, it was set on fire by Hitler's henchmen in 1933. As Berlin fell in 1945, the Soviet flag was planted over its parapet. When Christo and Jeanne-Claude began lobbying the German parliament in 1971, the Reichstag abutted the infamous Berlin wall. Like these images, the artists' work is fleeting—a mysterious package with an unknown destination. *Nicolai Ouroussoff*

New York City

Malcolm X Memorial Planned



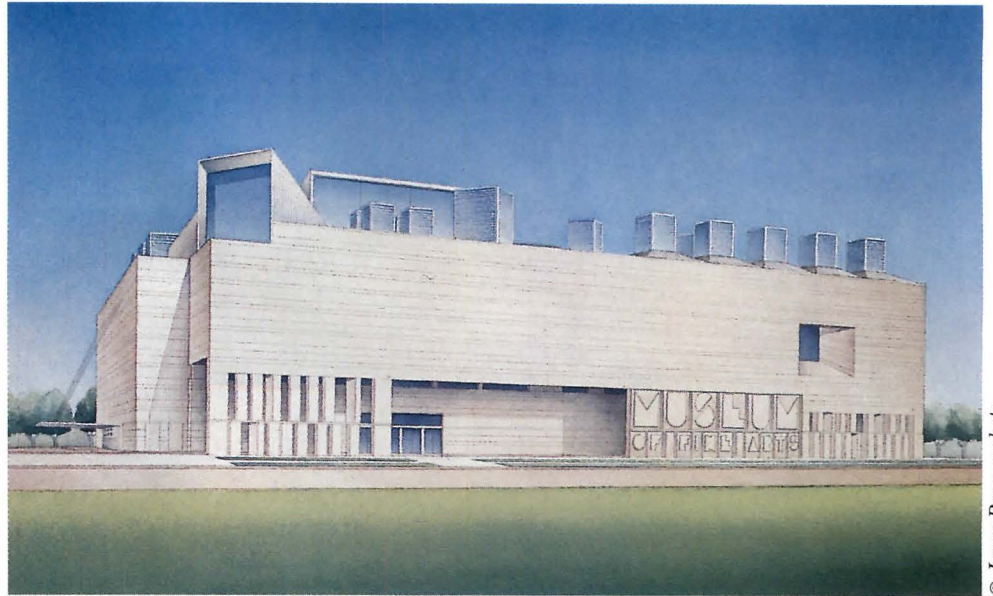
© Addison Thompson photo

A \$7-million restoration of the facade of the Audubon Theater—the building in Harlem where Malcolm X was murdered in 1965—has just been completed by Davis Brody Architects. The room where he stood when he was shot will be turned into a museum or restored to its original condition on the night of his murder. Only the facade of the theater was preserved. The major part of the building site will become a research park for Columbia University. The first of five structures to be built is the Audubon Business and Technology Center (far left photo). *Nicolai Ouroussoff*

Houston

Moneo's Addition Joins Mies' Earlier Work At Fine Arts Museum

Nearly two years in the making, the schematic design for an addition to the Museum of Fine Arts in Houston by Rafael Moneo has been approved. The 185,000-sq-ft Audrey Jones Beck Building will occupy a block across Main Street from the present museum, and connect to it by an underground tunnel. The original museum was designed in 1924 by William Ward Watkin, with additions by Mies van der Rohe in 1958 and 1974. The Beck building will be a rectangular two-story block, clad in Indiana limestone like the original, with a perforated screen facing the Main Street entrance and a bristling roofline of skylights. It will complete a 15-year master plan for the museum's "art campus" and make it the seventh largest exhibition space in the country. Construction will begin in late 1996, with completion expected by 1999. *Gerald Moorhead*



© Joyce Rosner photo

Miami Beach

Art Deco District To Get a Graves

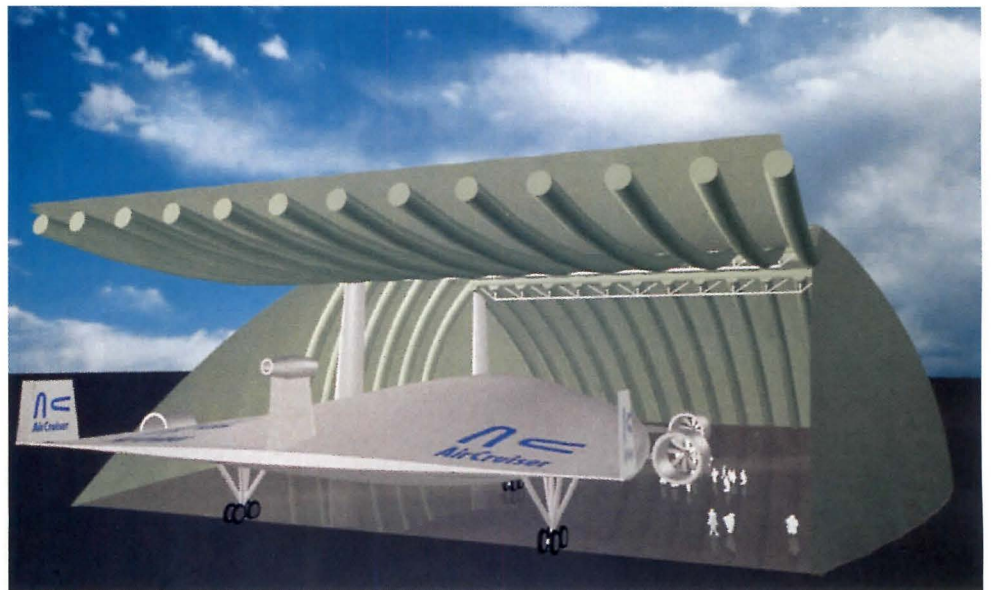


© Marek Bulaj photo

A \$25-million Michael Graves-designed condominium complex will rise by 1997 in the Art Deco district of Miami Beach. In order to *break down the scale* of the building, Graves has divided it into various components: twin towers look out on Miami, while a 15-story cylindrical tower faces the ocean. Exterior windows are broken into smaller panes to "reflect the residential character of the neighborhood." A plaza will connect the two buildings. The partially landmarked Bancroft Hotel will become part of the projects' retail space. Its lobby and facade will be restored. ■

England

Architect's Inflatable AirCruiser Awaiting Takeoff



Architect William Alsop, of Alsop and Stormer, has designed an AirCruiser inflatable plane supported by inflatable beams to be used as a 55,000-sq-ft flying exhibition hall or a sight-seeing cruise ship with air-filled cabins. The manufacturer, Stewkie Systems,

and its aircraft designer, Keith Stewart, hope the project will be funded by the United Kingdom Millennium Fund. It would have a range of 500 miles and travel at 200 miles per hour. For now, it is sited at a run-down World War II training field in Somerset, England. ■

Toronto

Yorkville Residents Roam Canadian Landscape— In an Urban Park

Ken Smith Landscape Architect and Oleson Worland Architects' winning design for a park in the Yorkville section of Toronto is a series of gardens planned like a Victorian collection box (used to house butterfly or rock specimens). A group of miniature gardens is arranged along the original lot lines of row-houses that once stood on the site (3). Each garden is a microcosm of different Canadian landscapes, including a misty pine scape (1) and a prairie field and birch stand (2). In one garden, a 700-ton rock outcrop was moved 150 miles and painstakingly reconstructed. In another, a rain curtain gently weeps. The park's distinct paving was extended across nearby streets to weave the park into the neighborhood. Part of the park faces a high-rise skyline; the other looks out on extant rowhouses. Local residents had lobbied for the park since the 1950s. ■



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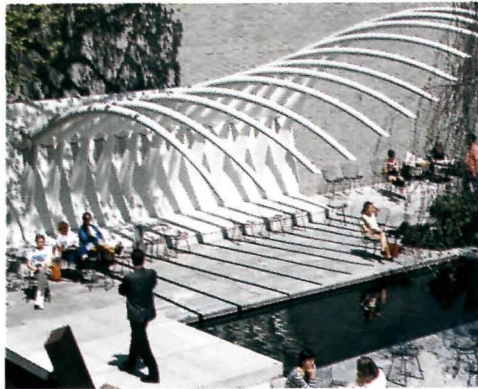


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Venice

Calatrava's Moving Fingers at Play



A sculpture by the Spanish architect and engineer Santiago Calatrava has been resurrected in Venice. The "moving fingers"—made of 40 tons of concrete—will gently float above water fronting the Fondazione Angelo Masieri on the Grand Canal. The structure is supported from the stone facade of the building. The electronically-controlled "fingers" will curl over the water and move rhythmically while water taxis cruise underneath. The piece was first seen two years ago in the Summer Garden of the Museum of Modern Art in New York City. ■

California

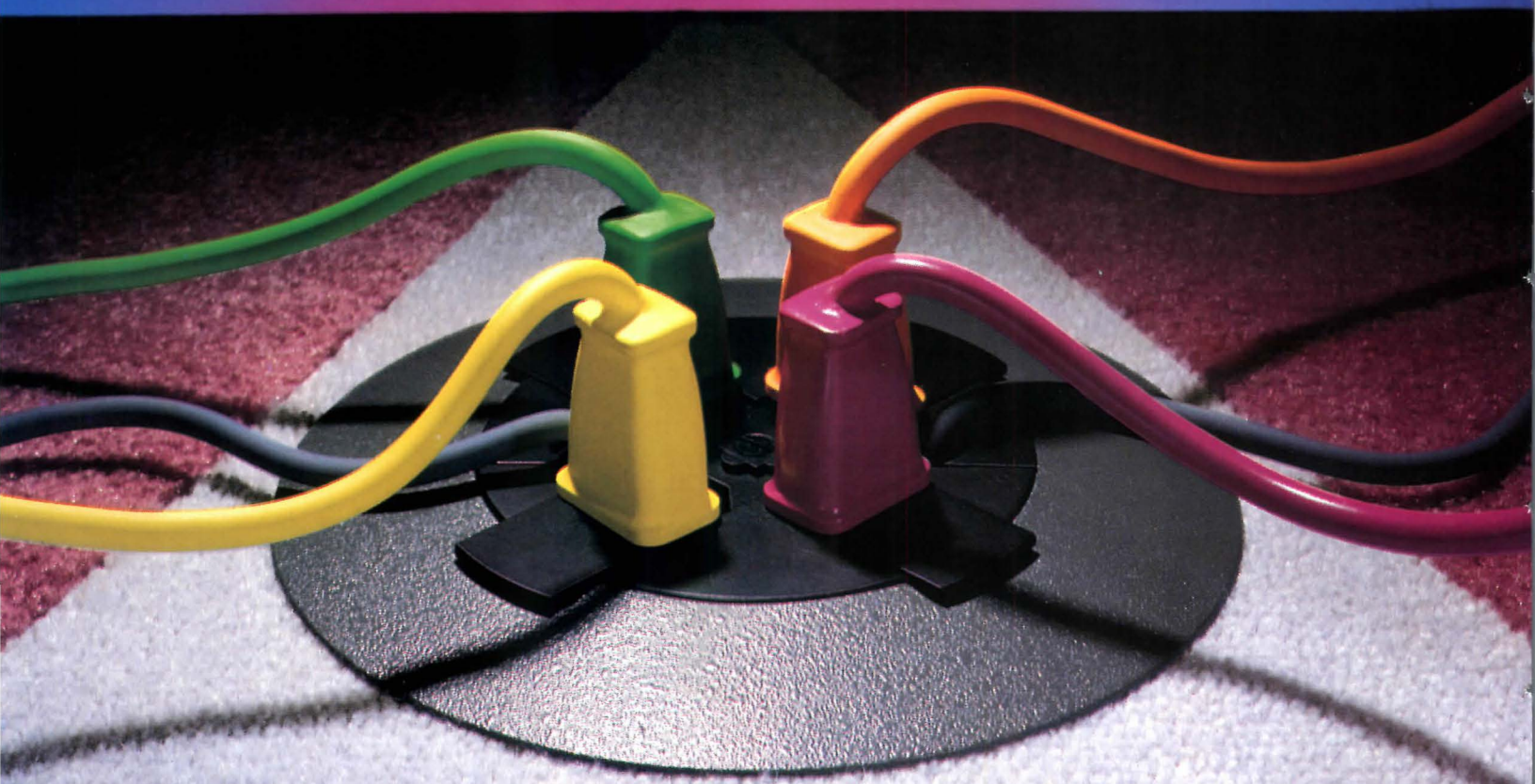
Everett Nilsson Architects' House Opens Windows to the Sea



The Drury residence, designed by Everett Nilsson Architects in association with Arthur E. Everett, Jr., sits solidly on the soft golden brush of a hill on Half Moon Bay, just south of San Francisco. The design takes advantage of spectacular views. A 150-ft-long pergola connecting the main house to a smaller guest house frames a dramatic view of the Pacific to the west. The guest house can also be entered over its own bridge. A cedar-clad, octagonal stair tower (right) with a copper roof marks the entry to the main house. Garden walls and landscaping will be added soon. ■



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Briefs

Awards

• Renzo Piano won the 1995 Praemium Imperiale Award for architecture. The award, with a prize of \$176,000, was announced by the Japan Art Society in London. Piano will also receive a medal from the Japanese Imperial family.

• New York City Transit Authority has won a Bard Award for its painstaking efforts to rehabilitate 400 subway stations. The award was presented at the National Arts Club.

• The Leonard Parker Associates, Architects, Inc. with Sam Min, Inc. Architects and Engineers, have won a competition for the KEPCO Cultural Center in Seoul, Korea. The 600,000-square-foot complex will include a power museum, concert hall, conference center and a working power substation.

On the Boards

• The Thaani Hetzel Partnership in Washington D.C., is designing an 80-acre master plan for Koramangala, India, outside the city of Bangalore. Duany Plater-Zyberk Architects and Town Planners are consultants on the project.

• Gunnar Birkerts and Associates, Inc. is developing a historical preservation plan for the central market district in Riga, Latvia. The 800,000-sq-ft district was originally constructed in 1800.

• The Boston Society of Architects has designed a historical map of lesbian and gay Boston. For a copy, send a 55 cent SASE to The Boston Society of Architects, 52 Broad Street, Boston, Mass. 02109.

Legendary L.A. Architecture on View

• Enrollees in an extension course at UCLA this summer will be touring some of the more famous houses in Los Angeles. First stop will be the Schindler House on July 11; houses by Frank Lloyd Wright, Frank Gehry, Richard Neutra are also on the must-see list. Call 310/825-9061 for enrollment information.

• John Buck, the controversial Chicago developer who recently demolished the Mies Van der Rohe-designed Arts Club there, is under attack again. He recently decided to invest an additional \$1 million to improve the design of a shopping mall on Michigan Avenue by Beyer Blinder Belle. The money will be spent to upgrade building materials, but local architects feel it is too little too late. They lament the destruction of several older buildings on the site, and have criticized the new building's "boxy exterior." ■

Habitat Conference Asks, "Can Our Cities Be Saved?"



It's a brave new world—and someone has to fix it. A Conference on Cities, held in New York City in June, examined five North American cities for clues on how to save the urban metropolis of the future. Chaired by Robert Geddes, professor of architecture at New York University, the conference was part of a United Nations effort to create a library of urban models to help developing countries avoid the mistakes the West has already made. In June 1996, the United Nations will hold a second conference in Istanbul on urban settlements.

The first United Nations Conference, held in Vancouver in 1976, focused on housing problems in the developing world. In Istanbul, the hope will be that careful planning can help cope with a world where the majority of the population will be concentrated in urban centers by the next millennium. The dangers are clear. ["The victims are] the urban poor everywhere," said Dr. Wally N'Dow, the Secretary General of Habitat II. "Not only because of environmental degradation, but because of inadequate housing, unaffordable housing—or simply no housing."

The intent at the New York City conference was to dig for some solutions. "What is needed is some intellectual input," said Aliye Pekin Celik, the U.N. representative at the conference. So far, the hunt for answers has produced a plethora of urban images. The discussions ranged from urban sprawl to the implications of suburbia to justice in the city throughout history.



Tokyo turns congested streets into shopping malls (top); Mexico City is battling pollution (above) and a population explosion.

Los Angeles was presented as an "urban structure that doesn't look to the model of the European city," and upheld as "the first expression of a completely post-fordist economy." Other cities dramatized the contradictory nature of the problems these cities face: Mexico City will have a projected population of 25 million by the year 2010, while Vancouver's population has doubled over the past three decades to a mere 1,600,000.

The Toronto delegation seemed the most positive. The relative health of Toronto is supported by strong neighborhoods and "community-based problem-solving." Cooperation between local activists and the public sector has reduced poverty in one of the world's most multicultural metropolises. The general consensus seemed to be that even as the city grows, its scale has to be broken up. ■



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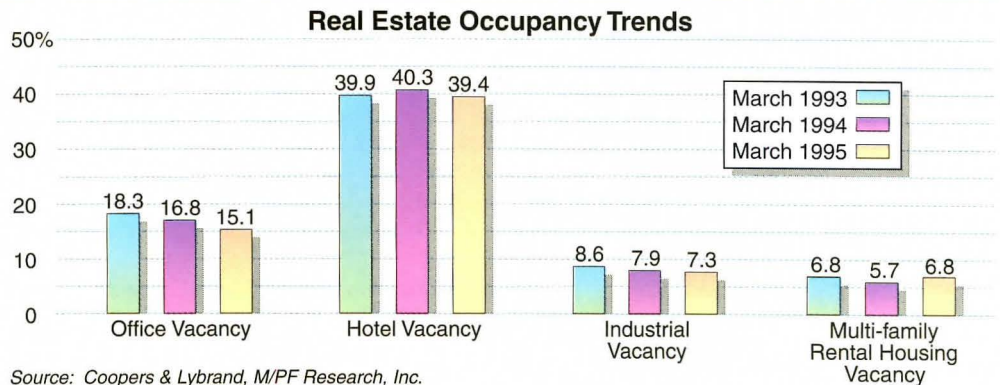


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Indicators

Commercial vacancies subsiding

According to a review of real estate in the U. S. by Coopers & Lybrand, the office sector is improving fastest. Little new construction offsets declining vacancies. Industrial vacancies are also improving as manufacturing grows. The overbuilt hotel category is healthier, too. (Figures in that sector are usually calculated as average daily occupancy; they are shown as vacancies for graphic clarity.) Multi-family has lost some momentum in the 1993-94 single-family boomlet. ■



Source: Coopers & Lybrand, M/PF Research, Inc.

Cost increases leveling off

Labor and material cost increases have abated in the last year as construction growth has flattened. The runup in house construction from 1993 to 1994 was accompanied by shortages of lumber, which shot up in price. Housing starts have slackened and lumber prices have fallen considerably. In 1994, prices rose fastest in parts of the country least affected by the early '90s recession—the Southeast and Midwest. Prices in most of these cities (Atlanta, Cleveland, Dallas, Minneapolis, New Orleans) fell back in the early months of 1995. The Northeast, which joined the expansion late, shows modest price rises in the latest figures, but increases are not across the board. New York City and Philadelphia are up; Boston is off. The great number of cities showing little change or lower prices suggest how competitive much of building construction remains. Even though retail building has gone up considerably in recent years, for example, much of that has been in the most competitive building type, “big box” discount stores. ■

Building Cost Indexes

	12/1990	12/91	12/92	12/93	12/94	3/95	6/95	% change from 3/95	% change from 6/94
Atlanta	2238.80	2278.83	2404.75	2477.13	2480.55	2471.92	2445.34	-1.0	-2.7
Baltimore	2579.90	2508.06	2607.76	2673.24	2830.66	2841.54	2843.05	0	+1.4
Birmingham	2149.96	2189.75	2279.26	2352.15	2439.28	2505.65	2501.36	-0.1	+0.2
Boston	3110.03	3102.31	3355.57	3539.63	3601.94	3549.71	3493.95	-1.6	-2.8
Chicago	2893.6	3034.72	3162.99	3325.70	3415.62	3415.62	3418.52	+0.1	+1.0
Cincinnati	2638.73	2674.15	2817.16	2920.20	3001.15	2952.19	2923.77	-0.9	-0.9
Cleveland	2886.93	2903.81	2903.1	3088.76	3218.85	3218.85	3225.56	+0.2	-2.8
Dallas	2061.61	2215.88	2278.21	2307.62	2448.62	2431.37	2466.77	+1.4	-4.6
Denver	2321.28	2375.26	2438.39	2501.00	2608.72	2659.85	2571.02	-3.3	-3.4
Detroit	2974.47	3046.92	3136.74	3278.20	3424.95	3413.94	3392.36	-0.6	+1.6
Kansas City	2645.28	2637.20	2677.21	2873.20	2916.25	2916.25	2902.18	-0.5	-0.5
Los Angeles	3020.51	3097.83	3198.66	3359.03	3420.42	3404.18	3416.90	+0.4	+0.1
Minneapolis	2648.43	2711.5	2811.14	2989.48	3131.05	3087.53	3071.39	-0.5	-3.9
New Orleans	2220.20	2260.52	2360.24	2330.86	2469.21	2514.91	2474.83	-1.6	-5.0
New York City	3847.21	3997.91	4151.28	4343.76	4458.36	4500.65	4518.48	+0.4	+3.1
Philadelphia	3040.85	3169.81	3130.58	3532.34	3480.78	3480.78	3504.04	+0.7	+2.0
Pittsburgh	2717.08	2807.73	2954.64	3038.97	3218.37	3216.21	3183.21	-1.0	-2.0
St. Louis	2602.16	2686.93	2743.01	2840.58	3091.81	2970.20	3011.18	+1.4	+1.6
San Francisco	3245.04	3270.90	3298.09	3463.34	3519.17	3505.61	3531.80	+0.8	+0.9
Seattle	2552.58	2715.04	2787.74	2948.18	3024.48	3000.00	3005.51	+0.2	+0.5
20-City avg.	2702	2751	2834	3009	3110	3103	3095	-0.2	-0.7

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 cut of standard structural steel shapes at the mill price, plus 22.56 cut (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 (150.0) 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 those in the later period (150.0 divided by 200.0 = .75 or 75 percent).

Short Takes

- **April construction volume drops 10 percent:** F. W. Dodge's Robert Murray says preliminary figures show that declines were across the board. For Murray's updated 1995 forecast see following pages.
- **OSHA backs off asbestos standard:** According to the National Roofing Contractors Association, OSHA workplace regulations will no longer require roofers to erect elaborate protective structures and wear protective clothing when roofing contains non-friable asbestos. NRCA had contended that these requirements would

- have been unnecessarily expensive and exposed roofers to overheating on hot roofs.
- **Colorful Buildings:** A 24-page booklet, "The Role of Colour in Building Identity," features winners of the Hylar International Award. Contact: Bob Rees, Strategy International Communications in Belgium: 32/2/679-0030 (phone); 32/2/660-5872 (fax).
- **Small-firm insurance:** Victor O. Schinnerer is offering a new professional-liability insurance program tailored for firms of seven or fewer that bill less than \$250,000. Info from brokers or 800/762-5534. ■

Second-Half "Soft Landing" Depends on the Fed

In just a few months, the fickle financial markets have changed their outlook. In winter's gloom, investors pushed long-rates higher on rising-inflation worries. In spring's sunlight, these same investors shoved long-rates down on receding inflation fears. Are these lower rates a good omen for construction in the next six months?

Interest-rate bills come due

Fewer apprehensions about inflation are directly related to the rapid deceleration in economic growth. Six months ago, the economy was steaming along, registering a vigorous 5.1 percent real GDP gain in the fourth quarter of 1994. Then the effects of months of restrictive monetary policy kicked in, and real GDP growth was cut to under 3 percent in the first quarter. Now, growth is expected to advance at a 1.5-percent to 2-percent pace in the second quarter and slow even more in the third quarter.

When the Federal Reserve began tightening in February 1994, its purpose was to raise the cost of consumer credit, gradually reining in consumer expenditures to curtail growth it regarded as potentially inflationary. Consumers, however, were in the mood to shop, which they capped with frenetic holiday buying.

Early in 1995, the credit bills started rolling in, with higher interest payments. Quickly, consumers trimmed their outlays. The abrupt slowdown in sales caught goods producers unaware. Suddenly, there was a rapid, exceptionally large (the largest quarterly increase in over a decade), accumulation of inventories in the first quarter—not a good sign.

Businesses belatedly reacted. Manufacturers started reducing output in the second quarter. Gradually, capacity utilization rates eased back (from over 86 percent) and hours worked edged downward. Employment gains in manufacturing, which had been a mainstay of the job expansion in 1994, dwindled, as overall employment growth moderated.

Despite businesses' efforts to trim inventories, progress has been slow because consumers have not increased spending. Households continue to adjust to a larger portion of their incomes going to debt pay-

ments. Higher credit-card and installment payments were only one factor. Homeowners, who had taken out adjustable-rate mortgages (ARMs) at attractive initial rates in the spring and summer of 1994, began experiencing sizable second-quarter increases in monthly mortgage payments, as ARM rates adjusted upward to today's interest rates.

Exports: supplying needed stimulus?

Until consumers feel comfortable with their debt load and begin to expand purchases, reducing inventories will be agonizingly slow. Manufacturers for domestic consumption will cut back output and new hires. Plant and

production this year, expanding exports to these markets will take time and be much more important to American growth in the future.

Fed to the rescue?

Meanwhile, the economy, shackled with sluggish consumer spending and too much inventory, needs a jolt to shake it out of its lethargy. Congress, despite the promising action on the deficit in early May, is months away from passing both a 1996 budget and a longer-term deficit-reduction plan. Any tax or deficit cut in the 1996 budget will have no effect this year. Thus, only an immediate and significant easing of monetary policy can inject some get-up-and-go in the second half's economy.

As inflation fears diminished, long-term rates have fallen 100 basis points (a basis point is one hundredth of a percent) since the first of the year, to under 7 percent on-30 year treasury bonds. Short-term rates have not moved at all. Consequently, the spread between three-month treasury notes and 30-year treasuries has shrunk from between 200 and 225 basis points in January to between 100 to 125 basis points in late May (chart).

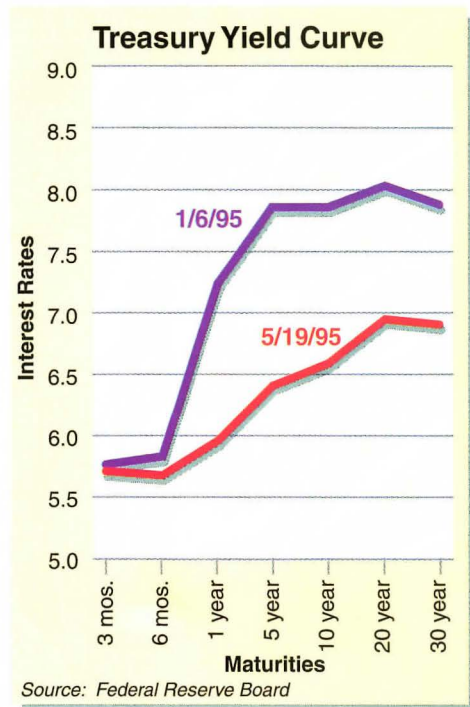
By flattening the yield curve, investors are betting that the Federal Reserve will recognize the weakness in economic growth and soon ease monetary policy significantly. If the Open Market Committee cuts the federal-funds rate at least 50 basis points in mid July, short-term rates will fall immediately, validating the investors' judgment. In lowering short-term rates, the Fed will clearly place the expansion of the domestic economy ahead of bolstering the dollar.

Mixed consequences for building

Declining interest rates will have a major impact on construction in the second half, primarily by encouraging home buying.

- **Residential:** House buyers stimulate purchases of other goods and services, which will lift production, employment, and incomes. As new jobs open up, more young adults will move out of their parents' homes into their own apartments, enlarging demand for multi-family buildings.

- **Retail:** Unfortunately, the pickup in home-buyer purchases will do no more than limit



equipment expenditures and manufacturing for export will only partially offset those reductions.

Though the low dollar will help exports, this sector is going through a transition. Our two major export markets, Canada and Mexico, have their own economic woes. The unexciting outlook for growth in Europe and Japan (plus the trade dispute with Japan) will not raise demand for our goods much. Instead, exporters are shifting attention to increasing trade with other Asian and Latin American countries. Although beneficial to domestic

Engineers' Group Denies Architects' Unique Skills: Will it Play at Justice?

the slippage in contracting for retail building. Major chains continue to consolidate, and the ongoing shift to discount stores is curbing demand for other kinds of stores and warehouses.

•*Industrial:* Plant and equipment expenditures remain the one bright spot in the economy. Domestic companies have been aggressive purchasers of equipment in their drive to lower production costs and improve productivity. After years of upgrading and expanding existing facilities, businesses are now spending more on new plants—a trend that will continue in the second half. If final sales or exports do not increase in coming months, executives will cut back on those outlays early next year.

•*Office:* Since 1992, contracting for office building has been crawling higher. Vacancy rates in more and more Midwest, Southeast, and Southwest markets are dropping into single digits. Regional banks in those areas are expanding their construction-loan offerings. Pension funds and life-insurance companies are examining applications and extending permanent mortgage commitments for properties with good locations and tenant rolls. Sustaining this momentum into next year and beyond, however, depends on stronger employment growth.

While there is much noise about federal deficit reduction, many states have already restored fiscal order. Moreover, they have been boosting outlays since 1993, particularly to support education and crime prevention, despite well-publicized budget-slashing pressures in some cities (Orange County, Calif., New York City). Overall, a growing school-age population and citizen alarm about crime will boost expenditures for these institutional building types—regardless of the federal budget debate—if the economy does not stumble badly later this year.

If the Federal Reserve loosens monetary policy soon, the economy's "soft landing" will be only a mild irritant for construction. If rates remain at current levels or rise, construction, especially housing, retail, and office, will have a very bumpy landing later this year and into early 1996. *Phillip E. Kidd*

Last January, the National Society of Professional Engineers (NSPE) asked the Justice Department's antitrust division to investigate whether the architectural profession is conspiring "to deny the public the right to freely secure building-design services," and restraining "licensed engineers from providing building-design services to the public in violation of the federal antitrust laws." The issues the letter raises (RECORD, April 1995, page 9) aren't going away, even if the Justice Department declines the NSPE request. (The Department isn't saying whether there is an active investigation. It will file a complaint if it finds merit in NSPE's concerns.)

"If [NSPE] thinks the architecture profession is going to step back and say you can do whatever you want, they're wrong. We will not back off" —Chester Widom

NSPE will not say specifically the kinds of restraint of trade it accuses architects of engaging in, according to NSPE legal counsel Arthur E. Schwartz, "because it's under review by the Justice Department." However, there are several areas where NSPE has clashed with architects:

Who should design buildings?

NSPE challenges the principle promoted by AIA and the National Council of Architectural Registration Boards (NCARB) that licensed architects (and not engineers) should design and seal the documents for those types of structures and sites having "as their principal purpose human occupancy or habitation." Each state sets its own rules, but this NCARB language has been commonly adopted.

Even where the language delimiting practice is clearest and least ambiguous, overlaps occur, and these will be a consistent source of friction. Lev Zetlin Associates (LZA), a New York City engineering firm, complained to *Engineering News-Record* that a Connecticut official improperly required an architect to seal documents for an LZA-designed parking structure. The owner hired

an architect to review the plans and stamp them. Reviewing plans prepared by others and stamping them is illegal practice in many areas, though. LZA's corporate structure (whether or not it employs architects) prevents it and similar engineer-dominated firms from practicing architecture in some states.

Differences in training, testing

The reason architects alone should be licensed to design buildings for human habitation in the view of both NCARB and AIA is that the education, training, and examination required of architects is specifically addressed to human needs as well as to the

public health, welfare, and safety that are the minimum protections afforded by the licensing law. NCARB argues, in a recently revised paper titled, "Architecture As It Differs from Engineering," that "In almost every state, engineers are registered generically, with no distinction made among electrical, structural, mechanical, and civil engineers," and such non-building specialties as aeronautical, agricultural, ceramic, and electronic engineering.

Engineers' in-office training, argues NCARB, is narrowly focused by discipline and is "not governed by prescribed requirements," such as NCARB's Intern Development Program. Further, the Architect Registration Exam tests the ability to understand programmatic requirements and design a building that meets them. Examinees must also demonstrate that they can coordinate and integrate various technologies and systems, including those designed by engineers. "No comparable examination exists within any of the engineering disciplines," NCARB's paper states, "because the practice of engineering does not require such skills." NSPE's Schwartz argues that the state's interests don't lie in setting such high barriers for licensure. "Licensing
Continued on page 159

Volume Stays in the Plus Column—Barely

During the first three years of this expansion, the construction industry has witnessed a recovery that has been at times hesitant, but that has also shown remarkable consistency, with annual construction-volume gains in the 8- to 9-percent range. To keep the recovery going this year, the retreat in single-family housing must remain limited, and non-residential building must stay relatively unaffected by the economic slowdown now underway. The public-works sector might have supported continued recovery, but that is now much in doubt, given the deficit-reduction focus of the 104th Congress.

The steady pattern of the recovery thus far is attributable to a sector-by-sector unfolding: single-family housing led the way in 1992; it was joined by public works in 1993 and non-residential building in 1994. There's been no boom-and-bust behavior this time. But with single-family housing now slipping into decline, the steady growth for total construction will not be repeated in 1995 since single-family represents some 40 percent of total construction.

Three regions demonstrated fairly consistent expansion—the North Central, the South Atlantic, and the South Central. Last year the West joined, allowing four of five regions to post growth in the range of 9 to 12 percent. The Northeast's lackluster economy, and its retrenchment in public works, contributed to that region's 1-percent decline in 1994, in contrast to the gains achieved elsewhere. With slowing activity in much of the nation this year, the construction industry could well benefit from the Northeast joining the recovery in a more sustained fashion.

Falling rates cushion slower growth

For the overall economy, the soft-landing scenario presented in the 1995 Outlook [RECORD November 1994, pages 26-29] remains viable. The loss of momentum in 1995's first quarter will be followed by slower rates of growth in the second and third quarters, but not declines. For the year as a whole, the economy will expand at an estimated 2.7 percent clip, down from the 4.1 percent reported in 1994. Housing will remain soft due to weaker growth in employment, and consumer durables (such as autos) will also retreat. The six- to nine-month lag

1995 National Estimates		Dodge Construction Potentials		June 1995
		1994 Actual	1995 Forecast	Percent Change 1995/44
Nonresidential Buildings				
Floor Area (in millions of sq. ft.)	Office Buildings	105	120	+14
	Stores and Shopping Centers	252	238	-6
	Other Commercial	242	270	+12
	Manufacturing Buildings	139	147	+6
	Total Commercial & Manufacturing	738	775	+5
	Educational,	162	175	+8
	Hospital & Health	72	68	-5
	Other Nonresidential Buildings	166	172	+4
	Total Institutional & Other	400	415	+4
	TOTAL NONRESIDENTIAL BUILDINGS	1,138	1,190	+5
Contract Value (millions of \$)	Office Buildings	\$13,623	\$15,625	+15
	Stores and Shopping Centers	15,402	15,000	-3
	Other Commercial	11,683	13,400	+15
	Manufacturing Buildings	10,219	10,800	+6
	Total Commercial & Manufacturing	\$50,927	\$54,825	+8
	Educational	\$19,500	\$21,200	+9
	Hospital and Health	10,449	10,350	-1
	Other Nonresidential Buildings	19,942	20,475	+5
	Total Institutional & Other	\$49,421	52,025	+5
	TOTAL NONRESIDENTIAL BUILDINGS	\$100,348	\$106,850	+6
Residential Buildings				
Dwelling Units* (thous. of units)	Single-Family Houses	1,062	960	-10
	Multifamily Housing	257	270	+5
	Total Residential Buildings	1,319	1,230	-7
Floor Area (millions of sq. ft.)	Single-Family Houses	1,997	1,790	-10
	Multifamily Housing	262	275	5
	Total Residential Buildings	2,259	2,065	-9
Contract Value (millions of \$)	Single-Family Houses	\$118,517	111,200	-6
	Multifamily Housing	14,749	16,150	+9
	Total Residential Buildings	\$133,266	127,350	-4
Nonbuilding Construction				
Contract Value (millions of \$)	Transportation Construction	\$38,972	\$40,325	+3
	Environmental Construction	18,014	18,275	+1
	Total Public Works	\$56,986	\$58,600	+3
	Utilities	\$4,212	\$4,400	+4
	TOTAL NONBUILDING CONSTRUCTION	\$61,198	\$63,000	+3
All Construction				
Contract Value (millions of \$)	Total Construction	\$294,812	\$297,200	+1
	Dodge Index (1987=100)	114	115	

*F.W. Dodge basis

typically required for monetary policy to have an effect means that the Federal Reserve's seven rounds of rate hikes that ended last February will have their greatest impact midway through this year.

Fixed mortgage rates, having already fallen from the 9-percent levels at the start of 1995 to below 8 percent, will continue to move downward as the year proceeds. The Federal Reserve will keep short-term interest rates at current levels through summer; there is some chance of easing by year's end. Inflation may spike upward due to rising commodity prices and higher-cost imports, but the economic slowdown and global competition should keep price increases in check. Growth in exports will be one of the pluses for 1995, helped by the weak dollar, yet hurt by the fiscal turmoil in Mexico.

The greater availability of bank credit was one of the elements that supported expansion last year. The 1989 to 1992 credit crunch acted like an economic head wind, slowing the expansion. Now banks are aggressively seeking ways to increase loan portfolios and revenues, which creates the equivalent of an economic tail wind. Easier credit should continue to support expansion in 1995, though the Treasury Department's Office of the Comptroller announced in April that it would investigate whether the nation's largest banks are taking excessive risks. If banks rein in lending, there could be another credit crunch, but one that would be much milder, and its impact probably won't be felt in construction until 1996.

Shrinking government spending

The push in the 104th Congress for a smaller federal-government role has become a factor affecting the construction industry, although the extent remains unclear. Fewer regulations and tax cuts support the business community and may well contribute to the recovery of commercial building. The public-works sector, though, will bear the brunt as Congress tries to get the budget on a glide path toward balance by 2002.

Legislation restricting unfunded federal mandates to local government, a provision of the Contract With America, achieved quick passage, but the near-term impact on con-

struction will be minimal because the bill does not apply to existing mandates. The extent of program cuts for deficit reduction (notwithstanding the defeat of the balanced-budget amendment to the Constitution) is the key element affecting the public-works sector. Deficit reduction will not only shape spending decisions for 1996 and beyond, it will affect the fiscal 1995 budget since both houses of Congress have passed rescission packages. A final scope has not been agreed on, and President Clinton has threatened to veto it, expressing concern about the substantial cut in the revolving-loan fund for water projects, among other issues.

Construction volume can grow if single-family housing slips only minimally and non-residential building remains little affected by 1995's economic slowdown.

The Safe Drinking Water Act and reauthorization of the Superfund waste cleanup program have yet to be seriously considered by Congress. These are big construction programs (though not building-construction programs) that are hung up not just because of their cost, but because Democrats and Republicans cannot agree on whether to ease environmental regulations. Similar battles may bottleneck building-related bills, including those for courthouse construction, public housing, and aid to transit.

A critical factor underlying this Dodge/Sweet's forecast is the assumption that states and local governments have the ability to take up the slack from cuts in aid driven by federal deficit reduction. Overall the fiscal status of state and local government going into 1995 is good. According to the National Conference of State Legislatures, state reserves increased from 2.3 percent of general-fund budgets in fiscal 1993 to 3.6 percent in fiscal 1994. A recent survey of city fiscal officials by the National League of Cities showed more than half of respondents felt "better able to meet fiscal needs" in 1994 than in 1993. A stronger budget position, of course, makes it easier to issue bonds for con-

struction projects, so the near term offers the potential for more local-government building.

A 1995 decline for housing

Single-family housing lost momentum in 1994, but the slowdown was relatively mild. The annual volume (1.062 million units) was still 3 percent over the previous year. Amidst the slowing economy, housing declined more steeply in the early months of 1995. The interest-rate hikes of 1994 hit adjustable-rate holders in 1995. Early evidence shows that the share of mortgage activity coming from adjustables has receded from the 50-percent level of late 1994. With fixed mortgage rates

dropping below 8 percent this spring, the volume of sales for new and existing single-family houses should begin to stabilize by summer. It will take several months for housing-start activity to pick up, however, since the inventory of unsold new homes has increased from five to seven months. In 1995, single-family housing will register its first decline overall since 1990, falling 10 percent to 960,000 units. Still, this is a fairly modest retreat by the standards of previous downturns. Slower employment growth will erode some of the near-term demand for housing, but the effect should be minimal assuming that unemployment remains under 6 percent.

Holding pattern for income properties

The sustained expansion of 1994 provided a foundation for strong growth of income properties (commercial building and multi-family housing). After bottoming out in 1992 at 634 million sq ft, the income-property sector had a subdued recovery in 1993, rising just 6 percent.

Last year saw a breakout, as contracting jumped 28 percent to 861 million sq ft. Some loss of momentum will occur in 1995 and 1996, but a sharp downturn is unlikely. Contracting

is projected to rise an additional 5 percent this year; then flatten in 1996. Construction of most income-property types remains lackluster, at least relative to 1980s' levels. Most types still have considerable upside potential at least on a percentage basis, and the slower economic growth for this year and next will not push these categories into decline; at worst they should experience a holding pattern.

Financial institutions anxious to make loans will support this category, especially as vacancy rates continue to recede and rents start to rise. (In 1994, the *office-vacancy rate*

The public-works sector might have supported continued recovery, but that is now much in doubt, given the deficit-reduction focus of the 104th Congress.

slipped below 16 percent, which represents discernible progress in working off the glut of office space.)

Till recently, *store* construction has been the exception to the income-groups' lackluster growth. It has risen to healthy levels of activity. This maverick behavior will continue in the near term: store construction will be the one income-property category to turn down in 1995 to 1996. Responding to ebbing new-house construction and slumping retail sales, store construction will slip from 252 million sq ft in 1994 to 238 million sq ft in 1995, with a further drop in 1996. The decline should then end, as an expanding housing sector renews support, along with the later stage of the retail trend toward "super centers"—discount general merchandise and supermarkets accommodated under one roof.

Strength in manufacturing

The recovery for construction of industrial plants gathered steam in 1994 with a 26 percent gain to 139 million sq ft, the highest level of activity since 1989. With capacity utilization rates climbing to 85 percent at the end of 1994, near-term expansion for this category seems assured. An assist from

expanding export markets and the weak dollar should enable contracting to reach 147 million sq ft this year—close to the level of the mid-1980s plateau.

Upward trend for institutional work

Positive demographics (growth in both the student and elderly populations) offer support for this sector. The strengthened fiscal status of state and local governments is also a near-term plus.

The market for institutional buildings has been much steadier than other sectors. During 1992 and 1993, though, construction

in this sector took a breather, experiencing its first declines in a decade. It rebounded 5 percent in 1994, putting the upward trend back on track.

Prison construction, which benefits from virtually certain funding, continues to boost this sector. In 1993, the number of prison inmates climbed above the one-million mark, with state prisons operating at close to 130 percent capacity. The federal crime bill passed last August authorizes \$7.9 billion in state grants for prisons and boot camps, an amount that the House of Representatives augmented to \$10.5 billion, pursuant to the Contract with America. Only a small amount of this funding will become available in 1995, but substantial increases will take place toward the end of the decade—when state and local governments will be dealing with federal-spending cutbacks in other areas. *Health-care* building continues to trend downward as cost-containment pressures spur hospital mergers and shortened patient stays reduce the need for beds.

Overall, though, Dodge/Sweet's projects a continued moderate expansion for institutional types in 1995, reaching 410 million sq ft.

Public works: the wild card

Depending as it does on the fate of budget-balancing efforts, the public-works sector is the most uncertain. The funding curve already in place would have flattened support for highways anyway, given appropriations currently in place. There is a threat to reduce federal support even more, but the impact on construction may be limited. According to the Highway Users Federation, states receive just 30 percent of their highway funding from the federal government. The "wild card" for highway construction is the possible removal of the Highway Trust Fund from the official federal budget, which means Congress couldn't dip into it to balance the budget.

Updates to the Clean Water Act, the Safe Drinking Water Act, and Superfund reauthorization should have boosted environmental public works. Only clean water has a better-than-even chance of passing in 1995; the other bills may face substantial (and delaying) revisions. This forecast optimistically assumes that state and local governments will pick up the funding gap in the current year, so that no current-dollar decline is anticipated. From 1994's 7-percent gain, public works will essentially be flat in current dollars at a 3-percent gain.

Avoiding a decline

The sum of the activity by construction types results in an adjusted forecast construction-volume gain of 1 percent (versus 3 percent in the last report). For the construction industry to avoid slipping into decline, it is necessary that the overall economy suffer no worse than a soft landing, which would allow continued expansion of non-residential building and a limited retreat for single-family housing. Public works must also continue to enjoy a measure of federal support. If deep cuts the House made in these programs are sustained in the Senate, public works will become a noticeable drag on construction growth.

A couple more years of gradual expansion is far from assured, but the anticipated upturn for housing and the continued improvement for commercial building in 1997 could make it possible if other sectors don't fall too far into the negative category.

Robert Murray

1995 Regional Estimates

Dodge Construction Potentials

June 1995

Contract Value (millions of dollars)	1994 Actual	1995 Forecast	Percent Change 1995/94		1994 Actual	1995 Forecast	Percent Change 1995/94
Northeast CT, ME, MA, NH, NJ, NY, PA, RI, VT							
Nonresidential Buildings				Residential Buildings			
Commercial and Manufacturing	\$7,442	\$8,050	+8	Single-Family Houses	\$12,580	\$12,500	-1
Institutional and Other	10,001	9,350	-7	Multifamily Housing	2,048	2,350	+15
Total	\$17,443	\$17,400	0	Total	\$14,628	\$14,850	+2
Nonbuilding Construction	\$10,232	\$10,750	+5	TOTAL CONSTRUCTION	\$42,303	\$43,000	+2

North Central IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI							
Nonresidential Buildings				Residential Buildings			
Commercial and Manufacturing	\$12,408	\$12,900	+4	Single-Family Houses	\$25,995	\$24,000	-8
Institutional and Other	10,748	11,600	+8	Multifamily Housing	3,491	3,600	+3
Total	\$23,156	\$24,500	+6	Total	\$29,486	\$27,600	-6
Nonbuilding Construction	\$14,385	\$14,600	+1	TOTAL CONSTRUCTION	\$67,027	\$66,700	0

South Atlantic DE, DC, FL, GA, MD, NC, SC, VA, WV							
Nonresidential Buildings				Residential Buildings			
Commercial and Manufacturing	9,769	\$11,250	+15	Single-Family Houses	\$29,233	\$28,325	-3
Institutional and Other	10,139	10,850	+7	Multifamily Housing	3,383	3,700	+9
Total	\$19,908	\$22,100	+11	Total	\$32,616	\$32,025	-2
Nonbuilding Construction	\$11,906	\$11,925	+0	TOTAL CONSTRUCTION	\$64,430	\$66,050	+3

South Central AL, AR, KY, LA, MS, OK, TN, TX							
Nonresidential Buildings				Residential Buildings			
Commercial and Manufacturing	\$8,670	\$9,625	+11	Single-Family Houses	\$19,387	\$18,050	-7
Institutional and Other	7,833	78,525	+9	Multifamily Housing	2,177	2,250	+3
Total	\$16,503	\$18,150	+10	Total	\$21,564	\$20,300	-6
Nonbuilding Construction	\$9,848	\$10,150	+3	TOTAL CONSTRUCTION	\$47,915	\$48,600	+1

West AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, WY							
Nonresidential Buildings				Residential Buildings			
Commercial and Manufacturing	\$12,638	\$13,000	+3	Single-Family Houses	\$31,322	\$28,325	-10
Institutional and Other	10,700	11,700	+9	Multifamily Housing	3,650	4,250	+16
Total	\$23,338	\$24,700	+6	Total	\$34,972	\$32,575	-7
Nonbuilding Construction	\$14,827	\$15,575	+5	TOTAL CONSTRUCTION	\$73,137	\$72,850	0

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

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Why Architecture Still Fails to Attract Minorities

By Mubarak S. Dahir

A survey of 350 architects from around the country suggests that architecture continues to be a difficult field if you're not white. According to Kathryn H. Anthony, professor at the University of Illinois at Urbana-Champaign, 35 percent of professional architects of all races reported knowing of cases of racial discrimination in the office. In addition, 55 percent of people color reported experiencing a "glass ceiling" to advancement. While the figures may astound white architects, black architects, particularly, say they find racial discrimination of all kinds a matter of course.

On his first job after graduating in 1979 from the school of architecture at Southern University in Louisiana, Darrel J. Williams repeatedly saw opportunities for creativity

"Architecture is a 'star' profession, and we need a national star to break the ice for us in architecture, like Spike Lee did in the movie industry."—Michael Rogers

and advancement being offered only to his white counterparts. So he changed firms. With the same thing happening at his new job, he moved onto yet a third company. He ended up trying five different architecture firms in five years. "I was really on the verge of leaving the profession," says Williams, a 38-year-old African American. "I was so frustrated, unhappy, and uncomfortable. I felt my work was not being appreciated because of the color of my skin." It wasn't until Williams landed a position with the black-owned Gantt Huberman Architects in Charlotte, N. C., that his experiences changed.

In June, the Supreme Court significantly limited minority set-asides. Because it was a construction case, the decision dealt a significant blow to affirmative action in the design professions. Even with affirmative action, it's worth considering why the profession of architecture has remained nearly impervious

Mubarak S. Dahir is a freelance writer based in Mickleton, N. J.

to many non-whites. Should the profession's makeup diverge so greatly from the nation's?

"Architecture is one of the last bastions of white-boy clubbiness," says Jack Travis of Jack Travis Architect in Manhattan. Travis's harsh judgment is not contradicted by statistics. As of last January, blacks still make up only 1.1 percent of AIA members. While other minorities and women are under-represented in the field [RECORD, November 1994, page 25], the gap for blacks—one twelfth their percentage in the general population—is particularly large.

Are African Americans a unique case?

Out of approximately 100,000 professional architects in the country there are only 1,064 blacks. "There's no doubt about it," says

Williams, of Gantt Huberman, "The biggest problem we face is the age-old problem of racism." In a professional environment such as architecture, racism is most often subtle, he says. Blacks are overlooked for advancement, they're assigned to the technical parts of a job rather than the creative parts, and they find no mentors to help them succeed within a company.

Bradford Grant, an associate professor of architecture at California Polytechnic State University in San Luis Obispo, Calif., says many black students drop out of architecture programs because they feel isolated both from the student body and the staff. Grant says there are approximately 120 black architecture professors for about 100 architecture schools in the country—about one black professor per program. In reality, he says many programs do not even have a single black professor because African American teachers tend to be concentrated at schools on either coast, and in large cities, rather than evenly dispersed throughout the country. Nation-

wide, all minorities combined make up only 9 percent of architecture faculty.

The lack of advancement opportunities has led to a racially divided workplace, says Dennis Alan Mann, a professor of architecture at the University of Cincinnati. Through a grant from the American Institute of Architects, Mann and Grant, of California Polytechnic, are currently updating a 1991 directory of licensed African American architects in the United States. Grant and Mann surveyed the black architects on affirmative action and business practices. Though the results of the survey won't be final until fall, Mann says the data shows that "blacks tend not to work in majority firms, and a very high percentage of blacks own their own firms. When you look where people work, the profession is segregated. In non-black firms, African American architects feel strongly that they're just not going to be given the same opportunities."

Williams reports that even his black-owned firm faces barriers in seeking to widen its client base. He says his company—which specializes in academic architecture, such as libraries, dormitories, labs, and classroom buildings and has been in business 20 years—still wins "the majority of our large projects in the private sector from black university campuses." At other schools, it's an uphill fight, he says.

Lack of visibility deters recruitment

Increasingly, African American architects have concluded that traditional affirmative action isn't enough [story opposite]. Several cite the invisibility of blacks. "Young African Americans seeking role models don't easily find black architects," says Philip G. Freelon of The Freelon Group, Inc., in Morrisville, N. C. "When young people are looking for a profession, it is essential that they see faces that look like their own. If they don't, that sends its own message about how they're going to fit into that profession."

Emmanuel Kelly of Kelly/Maiello Inc., Architects & Planners, in Philadelphia, says he never would have dreamed of studying architecture if his mother hadn't worked for an architect when he was a kid growing up in West Philadelphia. "I thought if you went into

it you were going to be a starving artist," he recalls. "Well, I came from a low-income family, and more poverty just didn't make sense." However, when Kelly one day went with his mother to her employer's house, he noticed the architect had a nice home in a wealthy suburb. "That was the first time I realized this was a viable option."

Making architectural culture relevant

Visibility is key because architecture is not a profession that has been an intrinsic part of black culture as it has been for other minorities. J. Bruce Kamino, principal architect at Development One, Inc. Architects in Orange County, Calif., says that in the Hispanic community there is a long and respected tradition of architecture. "In Hispanic culture, architecture is seen as very influential. I think the problem in the Hispanic community is that there are a lot more people who would like to be architects than are let in." Jack Travis believes this cultural barrier is one of the strongest reasons so few blacks are in architecture. "If you're not in a major city, the role of architecture in the black community is nil," he says. And even in major cities, "there is almost no basis to practice African architecture in the neighborhoods. In other professions, like law and medicine, you can practice in our own community. In architecture, it's harder."

To combat this problem, black architects are making themselves available in mentoring programs at all levels of education. "I go to the schools, from fourth grade to college, and talk about architecture," says Travis.

Michael Rogers, president of the National Organization of Minority Architects, suggests what might be key to attracting more African Americans to the field. "Architecture is a 'star' profession, and we need a national star to break the ice for us in architecture, like Spike Lee did in the movie industry." He says the reason no such "stars" currently exist isn't because black architects aren't capable of creative design, but because they are rarely given the opportunity to use it. ■

AIA's 2nd National Diversity Conference, August 11-13 in San Francisco, will offer help in diversifying practice, as well as job and networking opportunities (202/626-7482).

Affirmative Action: Boon or Bust?

The Supreme Court (in *Adarand v. Peña*) buoyed those who have argued that affirmative action gives women and minorities an unfair advantage, and lowers standards. The decision may require changes in existing programs, but the low minority participation in architecture may itself prove justification for maintaining affirmative action.

What affirmative action has accomplished

By giving minorities the chance to build up their portfolios, says Darrell Williams, they become qualified to compete without set-asides. "There is no doubt that affirmative action has opened a lot of doors," says Emmanuel Kelly. Without such programs, "our company wouldn't have had the opportunity to participate in a lot of projects."

Why hasn't it done more?

Jack Travis, of Jack Travis Architect in Manhattan, argues that "affirmative action has been a major failure. It hasn't accomplished its primary goal of moving black architects beyond federal dependency." Frequently, "the minority firm gets stuck doing toilets and garages, not the design work," he complains. "So the question is, How much are you really learning? How much experience are you really getting?" Travis fears that some minority-owned companies become both acclimated to this kind of work and complacent with it, and stop pursuing larger or more creative projects. "Through affirmative action we've become slaves in another way without a lot of people realizing it," he worries.

"There is no doubt that a very large percentage of business for African American architects comes from government projects," says Grant, of California Polytechnic, after a review of his and Mann's recent research. In many black architecture firms, he adds, such business totals 50 percent or more of the company's contracts. Grant says he does not have information to show how those figures compare to the amount of government contract work done by white-owned firms.

Does it create a stigmatized, dependent class of firms?

The statistics can be viewed as both a victory for and an indictment of affirmative action, says Grant. "On the one hand, it's strong evidence that affirmative action has helped quite a few blacks. On the other hand, it shows affirmative action hasn't fulfilled its promise of helping minorities move into the [corporate and commercial] mainstream."

"If a company becomes over-reliant on affirmative action, that's not good either," warns Philip Freelon. "We've got to avoid the crutch syndrome, especially on programs that may not be around a year from now." He says his firm has prospered while it has "intentionally maintained a healthy balance" of government and private-sector work. However, most black architects currently see affirmative action as a necessary evil. "There are definitely some minority businesses that won't be around in two years if affirmative action folds," says Michael Rogers of NOMA. "It's that important." Even critic Jack Travis argues against eliminating the programs. "The tragedy is that if affirmative action is eliminated just like that, it will hurt black architects because we haven't yet changed peoples' attitudes." *M.D.*

Bargain-Basement CAD

By Steven S. Ross

The three packages we review this month have several things in common. First, they are cheap—all under \$200. Second, they are good. Third, they come with minimal printed documentation. Their use is supposed to be near-intuitive; they all run under Windows, and you're all supposed to know how Windows works by now. Needless to say, if you expect a dealer to install these for you, you're out of luck.

There's more where these came from, too. Capable software is getting cheaper, in part because it's easier to support, in part because the universe of buyers has expanded.

This doesn't mean that large offices should do their CAD shopping at Egghead or Toys 'R Us. But small offices might spend some time there—and even large practices may find useful utilities on the shelf.

EasyCAD for Windows

Vendor:

Evolution Computing, 437 South 48th St., Suite 106, Tempe, AZ 85281, 602/967-8633, fax 602/968-4325, 800/874-4028.

Equipment required: Any computer capable of running Windows 3.1 or higher. Math coprocessor recommended.

Price: \$199, upgrade \$79.

Evolution Computing has always distinguished itself with nimble software. Its FastCAD/EasyCAD line has been—well—fast. This 2D product, Evolution's first for Windows, is also feature-laden. It doesn't have all the Windows niceties (most impor-

tantly, no scroll bars), and the menu order, as supplied, is not exactly Microsoft style. But you do get clipboard and TrueType font support, and upward compatibility with FastCAD and EasyCAD. (Until now, older versions of FastCAD have been the basis for EasyCAD; this one is all new.) You also get DXF transfer to and from AutoCAD and other CAD packages. The DXF lacks some basic controls over blocks, but the translations we tried all seemed to work well.

At first, we thought the speed was due to some kind of cheating—perhaps restricting entities to integer sizes. But this is a full floating-point product with unlimited layering and a large set of possible CAD entities.

You can also play around with menus, rewriting them and changing their order, and even assigning macro commands to new menu items and function keys. This makes the product a good production-drafting tool, at least for 2D. If you can live with DXF file exchange between EasyCAD and what you may be using now, you can set up the product to mimic other packages' basic commands.

The drawing set is solid. All the conventional items you would expect are there—layers, groups, right- left- center-snaps and clipping, splines, Bezier's, tweaking of entities already placed. Dimensioning is associative—dimensions update as you edit the entities they are attached to. Fills usually work associatively.

You get one view on screen at a time, but views are named, and you can jump from one to another quickly. This package is far more than a toy, but carries a toy-like price.

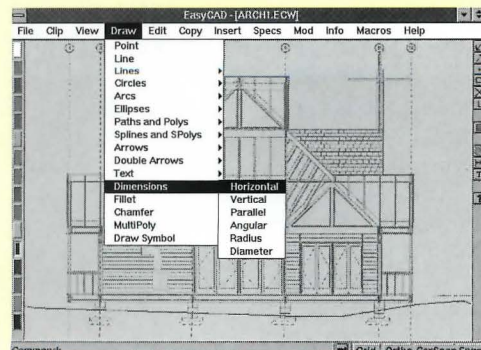
Manuals: One 28-page paperback (we're not kidding) and on-line help.

Ease-of-use: If you jump around a drawing a lot, you won't like EasyCAD—there are no scroll bars or multiple windows. Otherwise, its speed makes it a joy to use.

Error-trapping: Basic Windows; you get warned before you do anything that loses data. There's also an undo/redo command.

300 on Reader Service Card

The EasyCAD interface is clean, but missing some Windows niceties such as scroll bars. You get double lines; nothing fancy.



KPT Convolvers for Windows

Vendor: HSC Software, 6303 Carpinteria Ave., Carpinteria CA 93013, 805/566-6200, fax 805/566-6385; KPTSupport (America Online); go kptsupport (CompuServe); kptsupport@aol.com (Internet).

Equipment required: Computer capable of running Windows 3.1, Windows for Workgroups, or Windows NT. There's also a Macintosh version due; it requires System 7. Requires a "host" drawing program (not CAD) capable of taking plug-in filters, such as Adobe Photoshop, Fractal Design Painter, Micrografx Picture Publisher. Comes with "limited edition" version of Picture Publisher.

Price: \$199.

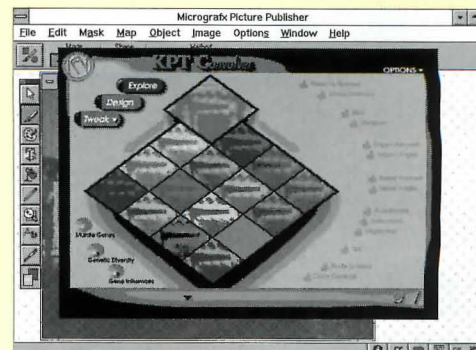
We reviewed Kai's Power Tools, the innovative filters for pixel-based artwork, earlier this year. Now, there's a version that allows you to create your own filters.

Convolver's interface takes some getting used to. Although it runs inside Macintosh or Windows applications, it presents a different face, as the illustrations show. There are three modes:

Explore mode puts 15 random filters, or "mutation kernels" of your image up on the screen. You can select one as a starting point for your own customization, or you can ask the program to generate more.

Design mode allows you to put mutations in

Convolver's Explore mode tiles different color effects over the original image—in this case, a doorway in photo of historic home.



Three Windows packages for CAD you might want to take a look at. They're all under \$200 and they're all good. But don't expect dealer installation!

order of increasing sharpness, brightness, saturation, and so forth on the grid. You get to choose any two effects, and the display shows the grid as the two effects increase, in combination, along two axes.

Tweak mode allows you to control each underlying parameter and view the results in real time as you do so. There are several mask and sharpening controls under Tweak as well.

What you won't find in Convolver are sliders and preset controls; each image is different, and even preset controls work differently in different images. Besides, the host software that you plug Convolver into will have such basic controls in its menu.

After you find an effect you like, you can apply it to the entire image, or select another section of the image (rather than the center, which is the default) to view the effect in. When you find an effect you particularly like, you can save it.

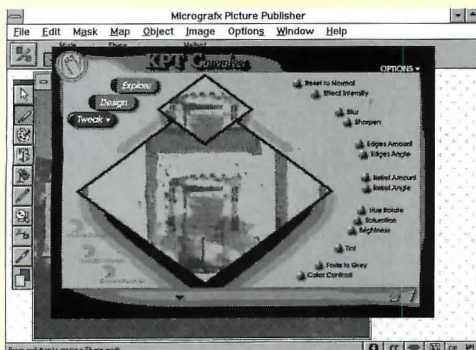
Manual: Spiral-bound, 60 pages. Describes basic effects and controls.

Ease-of-use: slow on an 80486-33; interface takes a few hours to get used to.

Error-trapping: Good; the program seems stable, and nothing happens to the original image without a lot of warning.

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Result of changing relief angle in Tweak mode.



TracTrix for Desktop

Vendor: Trix Systems, Inc., 68 Smith St., Chelmsford, MA 01824, 508/256-4445, 800/326-4443, fax 508/256-9593; traxsystem@aol.com (e-mail).

Equipment required: Windows 3.1 or higher; scanner strongly recommended.

Price: Roughly \$130 for basic stand-alone version; \$950 for AutoCAD (inside AutoCAD 12 or 13), or as stand-alone (no limit on image size); DOS, Windows, NT, Macintosh, or Silicon Graphics versions; \$550 for DXF/IGES version for Windows or NT.

If you need a quick way to scan small sections of drawings into CAD, TracTrix may be for you. It works with desktop scanners (or TIF images that have been scanned ahead of time); output is in DXF format. We tested the program on several 8.5- by 11-in. (A-size) laser-printed plan views and elevations. We simulated the "noise" of dots in a blueprint by crinkling the printouts, then smoothing them before inserting into an HP ScanJet IIC flatbed scanner.

It works well. The DXFs we got from the scan were not too different from the DXFs that were used to print the file. It also exports to Micrografx DRW, EPS (PostScript), HPGL, and EPS with a TIF header (to make the file viewable in desktop-publishing software and word processors).

You can also adjust for scanning conditions, drawing contrast, and noise. You can detect the edges or centerpoints of lines and touch up the results, or even edit curves—great for scanning fonts and modifying them.

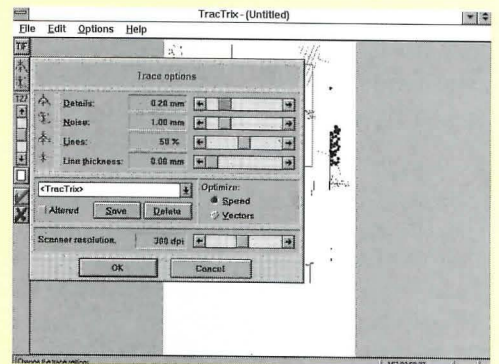
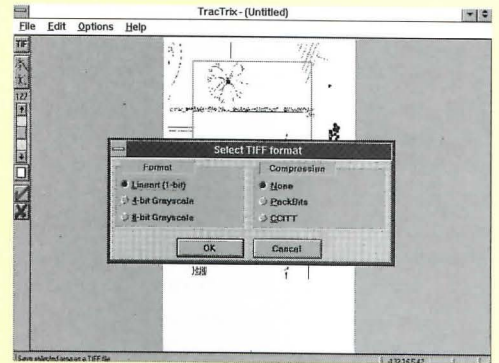
If your needs are not high volume, the version we tested works particularly well with TWAIN-aware scanners. Once you tell it that the image source will be your scanner, TracTrix automatically invokes the scanner when you invoke "New" on the file menu.

Manual: One spiral-bound 108-page manual.

Ease-of-use: Terrific.

Error-trapping: Good; there's an undo command.

302 on Reader Service Card



Top: Scanning a plan from within TracTrix. We've selected a section of the entire image.

Above: Setting scanning parameters—to handle noise, filter specific line widths, or to maximize speed and accuracy.

Carpets Solve Site-Specific Problems

303. Closed loop. Knowing that carpeting “uglies out” long before significant signs of wear appear, and that reuse is more resource-efficient than recycling, Milliken developed Earthwise Ennovations (E²), a proprietary, cradle-to-cradle process that cleans, textures, and restyles previously used modular carpeting for reuse (photos show an actual before- and-after). Carpeting gets new colors, new patterns, and a new warranty at about half the cost of buying replacement floor covering. Milliken Carpet, Commercial Markets, LaGrange, Ga.

304. Glue free. A new thermoset backing is said to offer excellent dimensional stability, even in large floor areas with varying levels of use and heavy rolling traffic. A peel-and-stick installation option minimizes downtime. Patcraft Commercial, Dalton, Ga.

305. Grand scale. Collaboration between client, architects TRA, interior designers Runyan/Unter, and the mill created a unique carpet for the Denver International Airport. The backing system was specified to accept the extremely high traffic anticipated over the 60,000 sq yds of carpet, and all components were custom: the colors, the three-dimensional effect created by superimposing cut pile on loop pile, and the coordinating borders. Lees Commercial, Greensboro, N.C.

306. Special. Designer Christine Van Der Hurd creates floorcoverings totally different in scale and application from Denver’s huge airport. All-wool and American made, her rugs incorporate fantasy in cut-pile patterns, edge shape, and custom colorations, offered in constructions and sizes suitable for residential, hospitality, and retail use for a range of budgets. Van Der Hurd, New York City.

307. Starting over. Unique (so far) in the industry: all carpeting components are made of easy-to-recycle materials, such as Zeftron nylon. Western Solutions, Santa Ana, Calif.

308. No seep. Vinyl-backed carpets permit chemical-seam bonding, creating a mold-proof moisture barrier and facilitating wet clean-ups—a plus in healthcare and food-service settings. Lowe’s Carpet Corp., Chatsworth, Ga.

309. Resistive. Made with Antron Lumena solution-dyed nylon, Regiment loop carpeting has a woven-look texture and is guaranteed to retain a like-new appearance even in heavy-soil and traffic environments. Masland Carpets, Inc., Mobile, Ala. ■



303a



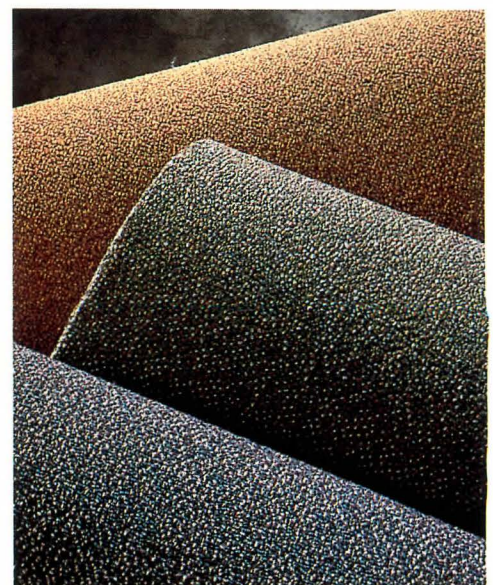
303b



305



307



308

Carpet Specification: Mind the Green



304



© Rob Gray photo.

306



309

Over and above the performance and appearance characteristics of carpet as a floor covering—foot comfort, noise control, pattern, color, and texture—there are environmental and maintenance concerns that a specifier should address:

- The impact on indoor-air quality of the carpet itself, of its backing, and of its installation method.
- The correct maintenance procedures necessary to insure the benign performance of the carpeting over its useful life.
- The true embodied energy represented by the carpet material, the anticipated life-cycle performance of the installation, and the environmental cost of used-carpet disposal.

Carpet and IAQ: short form

Pushed by the widely publicized episode at the Environmental Protection Agency (EPA) headquarters in 1988, where “new carpet smell” was held responsible by some for miscellaneous health complaints, the Carpet and Rug Institute (CRI), Dalton, Ga., created an indoor-air-quality testing program for products made by member mills. Using environmental-chamber technology developed by the EPA, the rug labeling program establishes benchmark measurements of four types of known irritants and certifies maximum emission levels based on random-batch testing four times a year. Carpets that pass these tests are labeled. (The long-term health effects of even the minimal emissions of modern carpeting are not yet known.) Compliance with the program can be checked by requesting material safety data sheets (MSDS) for each part of a carpet installation: adhesive, backing/cushion, and carpeting. Insist that carpet be effectively ventilated for several days before it is installed in an occupied space.

The most problematic component of a carpet installation had been the volatile organic compounds (VOCs) emitted by the adhesives used in direct-glue installations. Adhesive systems developed since 1991 to meet southern California air-quality regulations offer very low or even zero VOC levels, with continually improving adhesive performance. Self-adhesive peel-and-stick systems, and hook and loop backings that create a mechanical bond between carpet and special tack-down tapes, have no offgassing compo-

nents. Similarly, carpet cushion and backings are available in low-VOC formulations.

Maintenance—keep it clean

Research has demonstrated carpet’s ability to capture airborne particulates as they settle into the fibers, removing them temporarily from the air we breathe. But this trapped dirt must be extracted on a regular basis by vacuuming methods that do not redispense the particles. A high-efficiency (HEPA-type) vacuum-cleaner bag is recommended, and there are dry carpet-cleaning agents, such as Milliken’s MilliCare, that are said to adsorb pollutants and “hold” them for removal by standard vacuum equipment. Maintenance staff should treat stains promptly, and use low-VOC and minimum-moisture methods.

True costs

The relatively low first cost of carpeting (compared to terrazzo or other more durable floorings) contrasts with its high embodied energy: they’re not making any more oil. So carpet specification must consider the recycled content of the carpet itself, its recyclability, and even the vendor’s ability to renew and restyle carpeting rather than replace it. Fiber sources DuPont and BASF are leading participants in recycling some of the tons of carpet sent to landfills each year.—J.F.B.



Vinyl-backed carpet and tile being shredded during recycling, en route to becoming highway sound barriers.

© Courtesy Collins & Aikman Floorcoverings



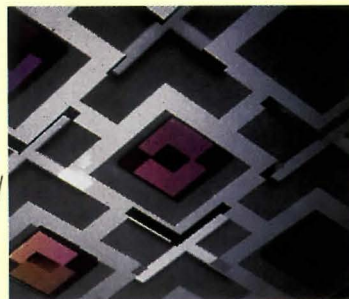
310. Racked up

The Genesis rack is designed for no-instructions-necessary bicycle parking, protection, and two-point-lockup. A simple, "floating" construction of structural-steel tubing bent into concentric squares, the racks hold up to eight bikes in ground- or surface-mount styles. Finish options include powder-coat colors or stainless steel. 800/448-7931. Madrax, Inc., Middleton, Wis.



311. Cost-effective plotters

Two new plotters incorporate Microsoft Windows and AutoCAD drivers in fast, compact, D or E plotters priced for the smaller architectural office. The monochrome DesignJet 230 is described as the first large-format inkjet device expected to sell for about \$2,000; the 250C color unit is under \$3,000. Stands are an option. 800/851-1170. Hewlett-Packard Co., Palo Alto, Calif.



312. Architectural art glass

Inner-Lite laminated panels have combinations of beveled, hand-blown, fluted, textured, and etched glasses furnished as an insulated-glass unit. A new Preferred Patterns line offers geometric and organic motifs at less cost than custom-made configurations. Said to fit easily into standard mullions, panels can be used as exterior windows. 707/255-5954. Architectural Glass Design, Inc., Napa, Calif.



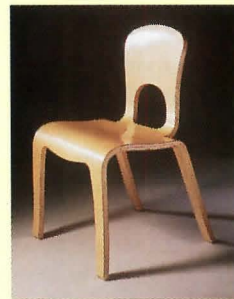
313. Design-award winner

Set on a sun-following single-point mount, Boston architect Gary Wolf's IDSA gold-medal-winning Zephyr hammock improves on the lawn-and-porch classic. Its reverse-curved aluminum frame and marine-grade fittings will not rust; rain-proof mesh or acrylic hammock fabric can match other furnishings. Other mounting options include tree-to-tree. 401/272-4780. Heliotrope, Providence, R.I.



314. Impressionistic linoleum

A brand-new pattern based on the shimmering colors used by Claude Monet and other artists, Artoleum Scala floorcovering comes in a total of 30 shades, grouped in six distinct lines. A true linoleum, sheet flooring can be maintained by dry or wet systems, is fire- and static-resistant, and meets all slip-and-fall standards. 800/842-7839. Forbo Industries, Hazleton, Pa.



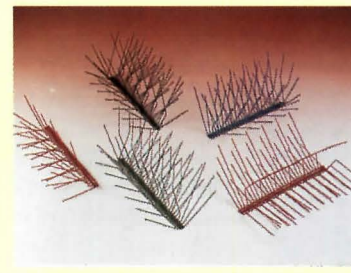
315. Child-size seating

Made of a single piece of laminated hard maple, Woodcrest chairs are both lightweight and extremely durable. The line comes in four seat heights—from 8- to 14-in.—to accommodate the mix of chair sizes needed by groups of children from years 2 through 8. Very stable, even stacked six high. Price range: under \$60. 800/777-4244. Community Playthings, Farmington, Pa.



316. Trading desks

Custom furniture can meet the extensive electronic requirements of trading floors with workstations that hold CPUs, monitors, keyboards, and phones while maintaining sightlines across the space. Steel-framed and finished-to-order units must handle heat buildup from equipment and integrate with underfloor power and hvac distribution. 212/777-0808. Woodtronics, New York City.



317. Bird control

"Porcupine wire" bird-deterrent products now come in both standard and custom colors to blend even more unobtrusively with building exteriors. The spring-tempered stainless-steel devices need no upkeep, and come in several configurations to fit specific site and anti-pest requirements. Free layout services available. 800/624-1189. Nixalite of America, Inc., East Moline, Ill. ■

Short Takes

Buying spree. Vistawall Architectural Products, a division of Butler Manufacturing, has purchased Chattanooga-based Skywall, Inc., a manufacturer of translucent skylight and curtain-wall products. Vistawall, located in Terrell, Tex., already owns Naturalite/EPI Skylight Systems.

NAFTA marches on. While GE Lighting starts up a \$40-million fluorescent-lamp production line to make T8s in Oakville, Ont., Andersen

Corporation acquired two Canadian window makers, Dashwood Industries Ltd. and Laflamme & Frere. This makes Minnesota-based Andersen the largest manufacturer of windows and patio doors in Canada.

Paint maker spreads out. Fending off a counteroffer from Sherwin-Williams, Imperial Chemical Industries P.L.C. acquired New York-based Grow Group in May. Grow-owned paint brands include Ameri-

tone, Devoe & Reynolds, and Sinclair, and merging these with I.C.I.'s Glidden and other labels will create the largest paint and coatings manufacturer in the country.

Winning bid. After sweetening their offer to \$54 a share, Delcor, Inc., a group that includes former National Gypsum Co. executives, finally got board approval of their acquisition of National Gypsum Co., headquartered in Charlotte, N.C. ■



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Building Types Study 210: Suburban Branch Department Stores (May 1954); Building Types Study 182: Air Force Buildings (January 1952); Building Types Study 117: Drive-In Restaurants & Luncheonettes (September 1946); Building Types Study 15: Houses \$7,500 and Under (March 1938); Building Types Study 496: The Home Towns Come Back (December 1976); Building Types Study 498: Buildings for Sport (February 1977)...

BUILDING TYPES STUDIES

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BUILDING TYPES STUDIES

Another reason ARCHITECTURAL RECORD is *the* source—since 1891.

Extinct is the traditional rectangular 700-to-950-square-foot classroom where bored students fret in neat rows facing front while they struggle to memorize a teacher's rote instructions on standardized subjects of the school's choice. Now, small groups of attentive students in intimate, informal settings work together around glowing computer screens, where they study mutually interesting subjects of *their* choice. Teachers have receded into the background to become coaches and suppliers of information resources. Gone are once-distinct disciplines such as biology and physics, which have melded into all-encompassing ways of thinking. Gone, too, are separate computer labs. All newly flexible study spaces have taken their place. At least that's education's current opportunity and promise. Reality is a little more complex.

First, points out Perkins & Will principal and New York City office education-design director Raymond Bordwell, 90 percent of the schools that will be in use in the year 2000 have already been built—to traditional standards, including inflexible layouts, and wiring and hvac systems that won't support broad-based electronic information use. That is not to say that new-school construction is not thriving. F. W. Dodge reports elementary and high-school contract value was \$4.286 billion in the first four months of 1995—a 31-percent increase from the same period in 1994. This surprised even Dodge's analysts who foresaw a surge five years ago when births peaked at an annual rate above 4 million—briefly matching that of the Baby Boom parents' generation.

If there is a problem with the new schools, it is that most continue to be built to old standards. Ehrenkrantz & Eckstut Architects is one of three firms designing prototype schools for New York City's system. According to Ezra Ehrenkrantz, the chief difference in school design today is provision for flexibility in the future—both in mechanical systems and in anticipated subdivisions of traditional classrooms to meet new teaching situations. Bordwell is confident that the use of electronics in education is irresistible and inevitable: "The generation entering school now will be the first to have grown up in a world where computers always existed. Its attention span is dictated by video games and TV ads." Among coming changes, he sees more space to house those computers. "Physical plants will have to adjust in many ways." Above, Ehrenkrantz pointed to methods for doing that in new buildings—and the huge retrofit market.

Why not design schools today that more directly reflect current thinking? "Education will have to solve a lot of problems before students can select from a menu of study options," observes George Metzger of HMFH Architects, which has much experience in the field. Among those problems is discipline. "Individualized courses would require an entire additional level of support," he says, referring to the sad fact that many students simply are not yet trained to live up to technology's promise. *Charles. K. Hoyt*

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- November 1992 (110-113)**
- March 1992 (106-113)**
- January 1991 (91-105)**
- August 1990 (90-91)**
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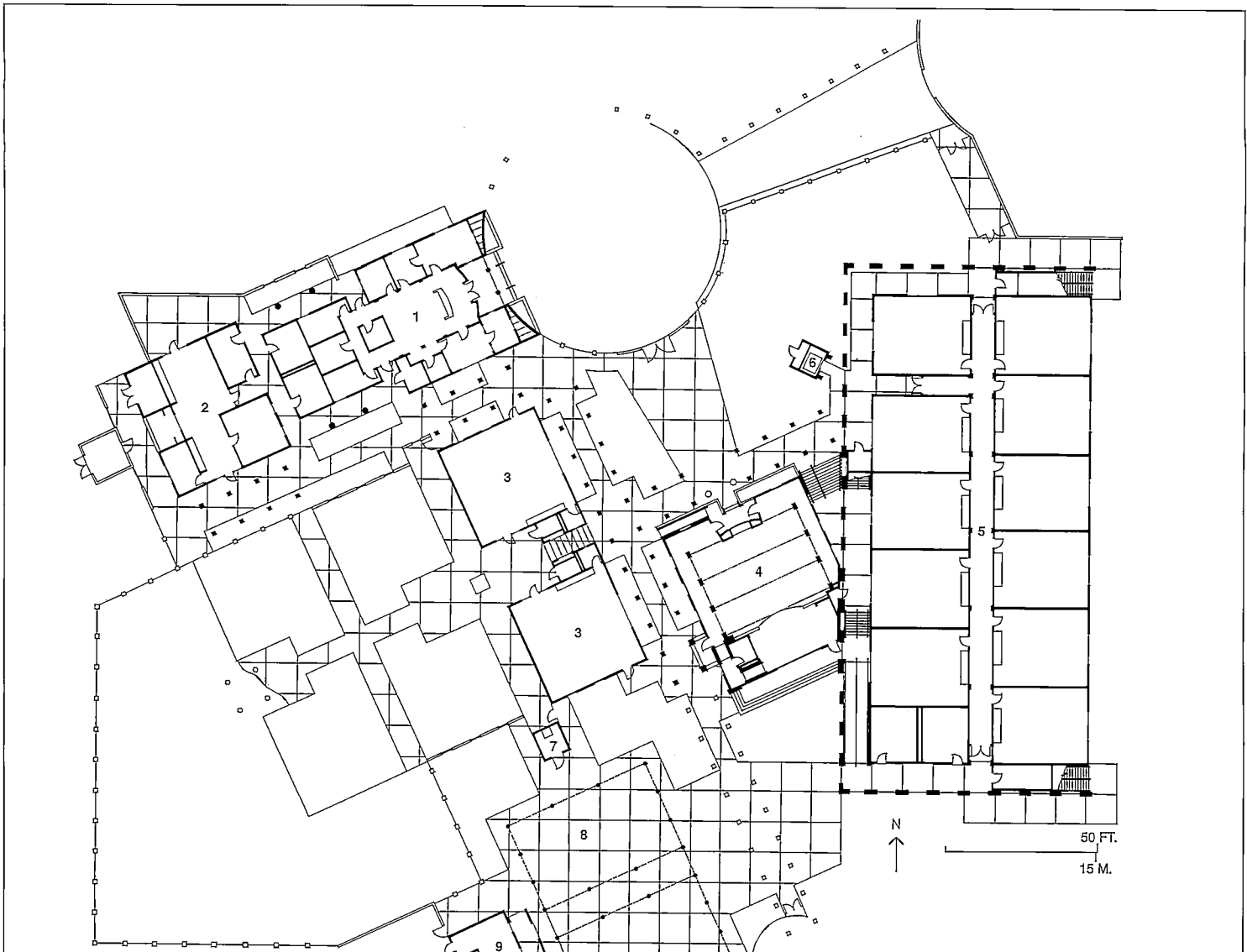
Paso Doble



Lively footwork squeezes high-speed curriculum as well as community uses from tight state restrictions and limited budgets.

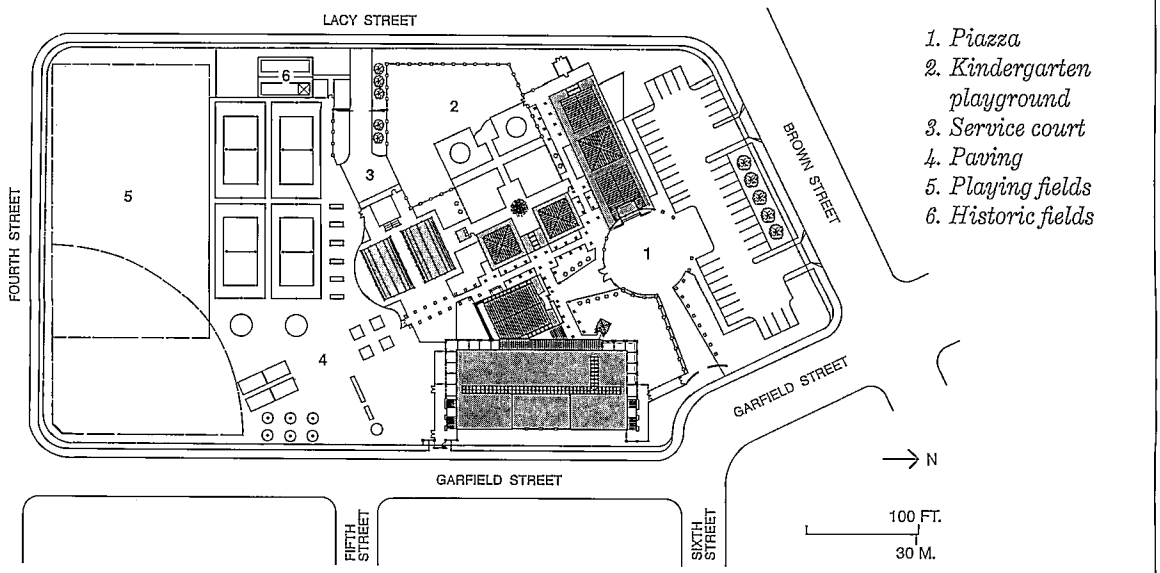
*Garfield Elementary School
Santa Ana, California
Dougherty + Dougherty Architects*





COMPOSITE PLAN

- 1. Administration
- 2. Faculty
- 3. Kindergarten
- 4. Media center
- 5. Classrooms
- 6. Elevator tower
- 7. Kiln room
- 8. Lunch shelter
- 9. Kitchen



- 1. Piazza
- 2. Kindergarten playground
- 3. Service court
- 4. Paving
- 5. Playing fields
- 6. Historic fields

is may be the only inner-city public school that stays graffiti-free," says Dougherty + Dougherty principal, Betsey Olenick Dougherty. Such high respect stems from architects and city together giving the California community many benefits it sorely lacked—open space for round-the-clock athletics and relaxation, a freely accessible meeting and performance room, child-care facilities for working mothers, and an architectural presence that acts as a neighborhood focus.

More important, Santa Ana's citizens sense Garfield Elementary School belongs to them. The architectural team has developed a parti and design language that responds to the users' primarily Hispanic traditions, and reflects their day-to-day lives and long-term aspirations in their best light. The built portion of the site forms a familiar network of linear streets, squares, alleys, and "parkways" that extend the differing angles of adjacent street grids onto the site (opposite bottom). Complete with a traditional beckoning "bell tower" (which holds an elevator) and a Roman-temple library, the festive result is an abstraction of an ideal town center built over time and well integrated into its historic surroundings, which include many buildings now undergoing renewal. Furthering continuity, Dougherty + Dougherty's team has retained one distinguished neighborhood landmark on the site's eastern boundary: a power station that once served a long-removed trolley line and now awaits funds for recycling into a school-district testing center. The architects have taken a design cue for the slope of their new roofs from this building.

All of this was accomplished within very tight limitations set by the state, which funded the project. First was the budget, which recognized neither the extra costs of providing needed community facilities nor buildings on a very tight site. The conventional California elementary school spreads out in one-story, single-loaded-corridor buildings on 10 acres. Garfield is on four acres. To provide necessary open space, the classroom building had to contain double-loaded corridors on two stories with all of the attendant costs of more stringent fire ratings and construction, heavier lighting and hvac loads, and more effective acoustic baffling. Dougherty + Dougherty did manage to nudge the budget up somewhat for its school and others in similar settings by pointing out the special problems of inner-city construction, which Betsey Dougherty sums up as "security, visibility, and accessibility." The most economical construction for the classrooms and long-span media center turned out to be steel frame and metal decking. The rest of the \$5.5-million complex is woodframe.

The state also required a four-track, year-round teaching program, which means that some 800 students start and end their school day on staggered hours, with 600 present at any one time. They rotate use of each classroom, in which provision must be made for different teachers and courses, and locked storage for related materials. The architects were spared from providing multiple furniture arrangements for each new class only by the school board's desire for conventional classrooms. Still, there is provision for much more extensive computer use than is currently practiced. Another California standard requires that a "media center" contain not only books and computers, but music-practice, performing-arts, and school-wide assembly facilities. The architectural team took the concept further by providing for after-hours community meetings with secured storage for information resources. Indeed every facility seems to serve at least two purposes. Open-air lunch areas are home to Boy Scout meetings in the evenings. The kindergarten, segregated from the rest of the school according to state law, becomes a child-care center before and after hours. *Charles K. Hoyt*

© Milroy & McAleer photos



Possibly the ultimate cause of high community regard can be found in the lighthearted non-institutional way the architects have interpreted tradition. The complex's varied forms are rendered in a wide range of gaily colored cement-stucco and exposed natural concrete-block walls sheltered by bright-red, factory-finished, galvanized-steel roofs.



The architects have eased the transition from ground to second floor in the classroom building by placing a monumental stair that rises in stages (far left) between the media center and an upper-level open gallery (opposite). The playful roof forms express self-containment in pyramids over the isolated kindergarten/day-care pavilions (below) and civic focus over the gable-fronted media center (previous page, bottom). A similar facade fronts the administration building. As an example of the many multiple uses demanded of all the facilities, an after-hours recreation program as well as the school's arts program both benefit from an isolated kiln (plans) safely located away from the wood-frame structures.



Credits

*Garfield Elementary School
Santa Ana, California*

Architect: *Dougherty +
Dougherty—Brian Dougherty,
partner-in-charge; Betsey Olenick
Dougherty, Michael Coons,
Cheryl Patterson, Scott
Osterhage, Lynn Shager; project
team*

Engineers: *Martin & Chow
(structural); Tsuchiyama &
Kains (mechanical); Frederick
Brown & Associates (electrical)
Western Pacific (civil)*

Landscape Architect: *The Runa
Group*

General Contractor: *J. R.
Hundley Construction, Inc.*



An Atypical Prototype

*Public School Number 51
Richmond Hill, Queens,
New York
Gruzen Samton Architects*



At one time, the planning, design, and construction of a school in New York City could take eight years. The School Construction Authority (SCA) was empowered to reduce time and cost, and actually got the planning and construction time down to three to four years. In 1993, the SCA launched a prototype program to test the use of design/build as a method of school construction. Gruzen Samton Architects and Turner Construction, who had previously designed and constructed a school together, won a place on the short list of five teams with a preliminary design and, after more design refinements, were selected to design and build the first prototype school, PS 51, an early childhood center for pre-kindergarten through second grade. The cost: \$7.1 million, including A/E fees.

"Bringing a contractor onto the team helps. They know how to simplify details, get bids, and fast-track demolition and foundations while documents are underway," says George Luaces of Gruzen Samton. "At the same time, we inspired the contractors. We were committed cost-cutters, and they were very committed to building a beautiful building. There was none of the usual animosity between the professions." In the end, that cost-cutting did not keep the building from having a colorful tile floor and masonry interior, nor did it scotch the entry tower, brick arches, squares of glazed masonry, scuppers, and cast-stone trim that give the facades their rhythm and scale. The school's front setback lines and false street-front pediments complement the existing neighborhood homes. "If you're a young kid, going into a big building can be intimidating," says Luaces. "We wanted the school to be in scale with the neighborhood so it would look something like a cross between a school and a big house." *Charles Linn*

Credits

Public School Number 51

Richmond Hill, Queens, New York

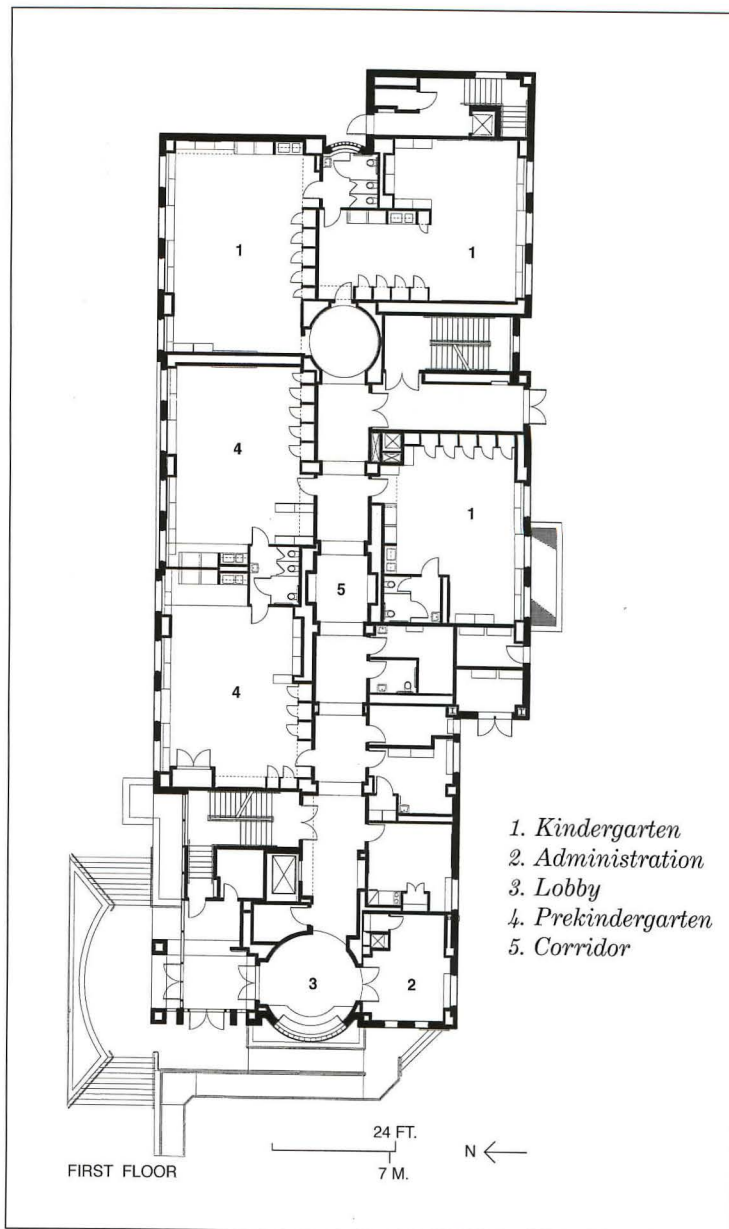
New York City School Construction Authority

Architect: *Gruzen Samton Architects, planners and interior designers—George Luaces, associate partner-in-charge; Lianne Williams, Daniel Herndon, Manny Morales, Charles Eisenberg, Juan Posse, project team*

Engineers: *Ysrael Seinuk (structural); Hardie & Associates, (mechanical)*

Landscape Architect: *Signe Neilsen*

General Contractor: *Turner Construction*



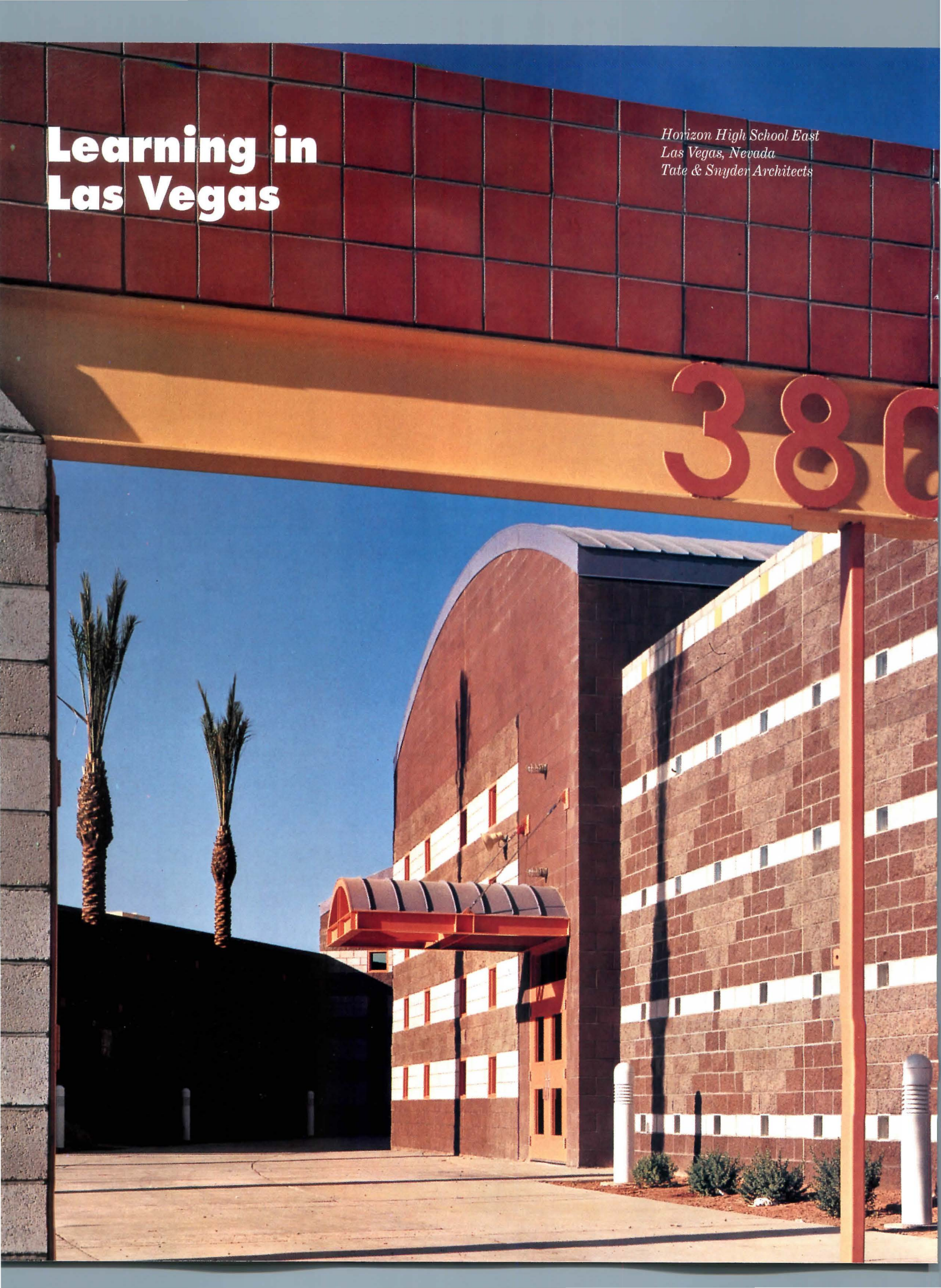
© Paul Warchol photos



Learning in Las Vegas

*Horizon High School East
Las Vegas, Nevada
Tate & Snyder Architects*

380



A stone's throw—a hefty throw, admittedly—from the glitzy towers of the Las Vegas Strip, and situated on a stretch of barren terrain across from a nondescript cluster of houses, sits a little jewel of a school, aimed not, as you would expect, at a well-fed medley of well-adjusted kids zipping happily toward their diplomas, but specifically at students who are being given a second chance, students who failed to make it in Clark County's traditional schools because of poor grades, drug use, a criminal record, teen pregnancy, or disruptive behavior. Program director Dr. Maria Chairez calls them the "recaptured students."

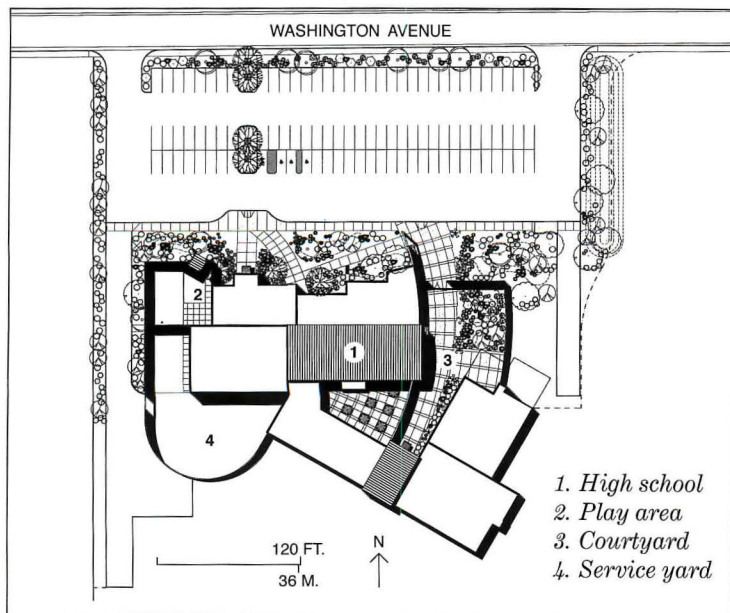
Horizon East is the special high school prototype for a series of some 75 elementary, middle, and high schools, standard and special, under development in Clark County (Las Vegas is the county seat) to absorb a massive population influx said to average 4,000 newcomers per month. Designed and constructed using a simple, rational vocabulary of loadbearing concrete masonry unit walls and wood trusses, these schools are intended to cost under \$100 per square foot, and allow for rapid erection employing traditional site labor. Efficient use of scarce space is also in the plan: two entirely distinct groups of students are taught in the building—the 250 students on the Horizon program, after whom the school is named, during the day; another 250 regular students, known as Sunset students, at night.

Horizon East, of course, has its special agenda. For one thing, the campus is small—total area just tops 31,000 square feet. A series of rooms is allocated during the day to free daycare for children with teenage student-mothers and doubles as a daycare teaching facility. A full-service kitchen, unusual for a school this size, serves a full meal at lunch. And while there is predictably a strong vocational component to the program, there's also emphasis on the academic side, which has its own wing.

The roadmap for the program is the strategic plan drafted by Clark County in 1988 and calling for a 100 percent graduation rate county-wide. Last month, 155 students, held to the same standards as the regular program, graduated from Horizon East, motivated at least in part, according to principal Patricia Green, by the "colorful and appealing setting." *Stephen A. Kliment*



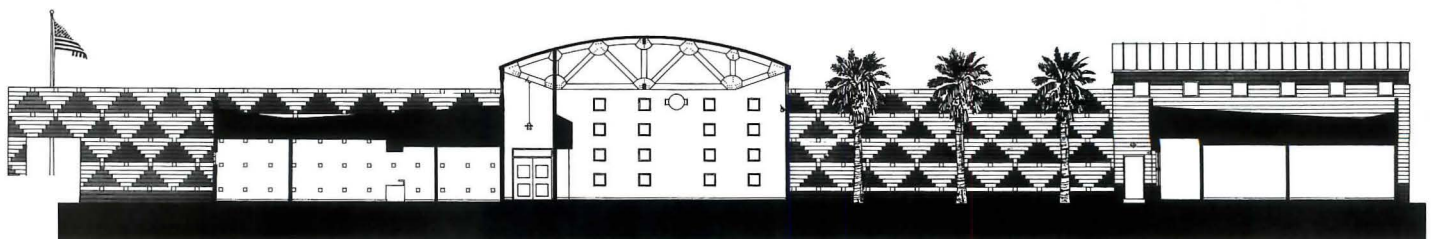
The principal entrance on the north side gives on to a courtyard (above and opposite). Since security is an issue, the solid, high outside wall allows facades to admit light through square window openings and a pattern of glass block which, together with alternating colors and textures of CMUs, helps break down the scale. Each key entrance is marked by a steel canopy.





The section (below) shows bowed roofs over two key spaces, the activity center and the library. The roofs are supported by glued wood trusses with steel gusset plates, and covered by standing-seam sheet metal. Natural light from exterior walls enters through glass blocks, supplemented by clerestory windows that punctuate the main corri-

dor, library, and assembly area (opposite page). The architects originally wanted to paint metal surfaces red, but settled for salmon to avoid fading in the strong sunlight. Service networks, from air ducts to conduits, are exposed. Standard acoustic treatment has left such spaces as the activity center excessively reverberant.



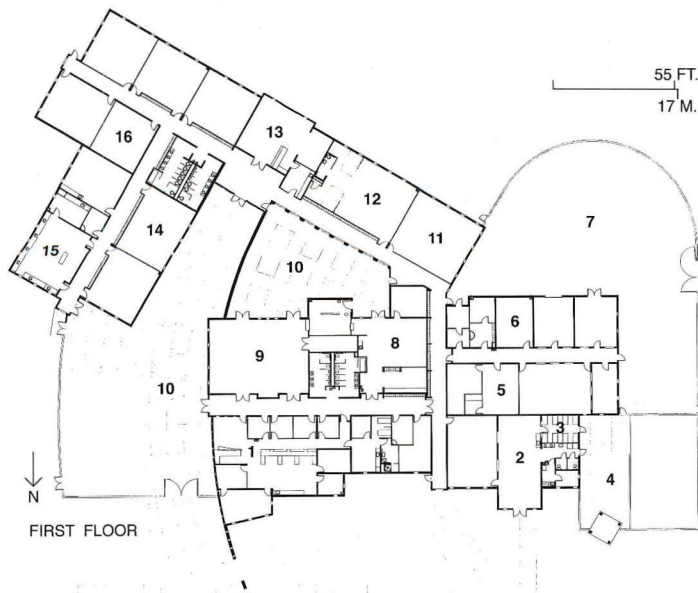
SECTION A-A

45 FT.

13 M.



1. Administration
2. Daycare
3. Nursery
4. Play yard
5. Drafting
6. Maintenance
7. Service yard
8. Work room
9. Activity center
10. Secured courtyard
11. Business vocations
12. Medical vocations
13. Library
14. Computer lab
15. Science lab
16. Classrooms



Credits

Horizon High School East
Clark County School District
Las Vegas, Nevada

Architect: Tate & Snyder
Architects—William E. Snyder, principal-in-charge; Jonathan Rappel, project architect; J. Windom Kimsey, design architect; Mario Reyes, Mike Andersen, Jon Drake, Shelly Hayden, Patti Wills, Ziao Tran, project team

Engineers: Drottar-Priniski Consulting Engineers (structural); JBA Consulting Engineers (mechanical, electrical); CRS Consulting Engineers (civil)

Consultants: Southwick & Associates (landscape architect); William Caruso & Associates (food service/kitchen)
General Contractor: Sletten Construction of Nevada

All in One

*An Ohio town consolidates its
entire school system into
one human-scaled complex.*



*Perry Community Education Village
Perry, Ohio
Perkins & Will/ Burgess & Niple
Associated Architects*



By Nicolai Ouroussoff

Perry, Ohio's, education village, designed by Perkins & Will, is a monument to rationalism set against the sweep of the flat midwestern plains. Three distinct schools and a sports complex—the town's entire school system—are planted amidst acres of tree nurseries, and are cut in two by a quiet, winding creek. In the near distance, the cooling towers of a new nuclear-power plant loom under an immense sky.

The project, in fact, began with the nuclear plant. In a trade-off long accepted as a way to convince communities to accept the menacing plants, city officials often get high tax revenues in exchange. "[In Perry,] the nuclear power plant provided the funding for the facility," explains Ralph Johnson, Perkins & Will's principal designer, "They put it in a lower-income community, which decided to replace their entire existing school system [with the new revenues it generated]."

The \$90-million project was built in two phases. In the first phase of construction, the high school, a high-tech theater, and a community sports facility form a compact compound on the west side of Red Mill Creek. Later, the middle and lower schools were built along the other bank. "There was farming here on either side of the creek, and we left all the tall trees," says Johnson.

The "education village" concept was conceived as a way to reduce

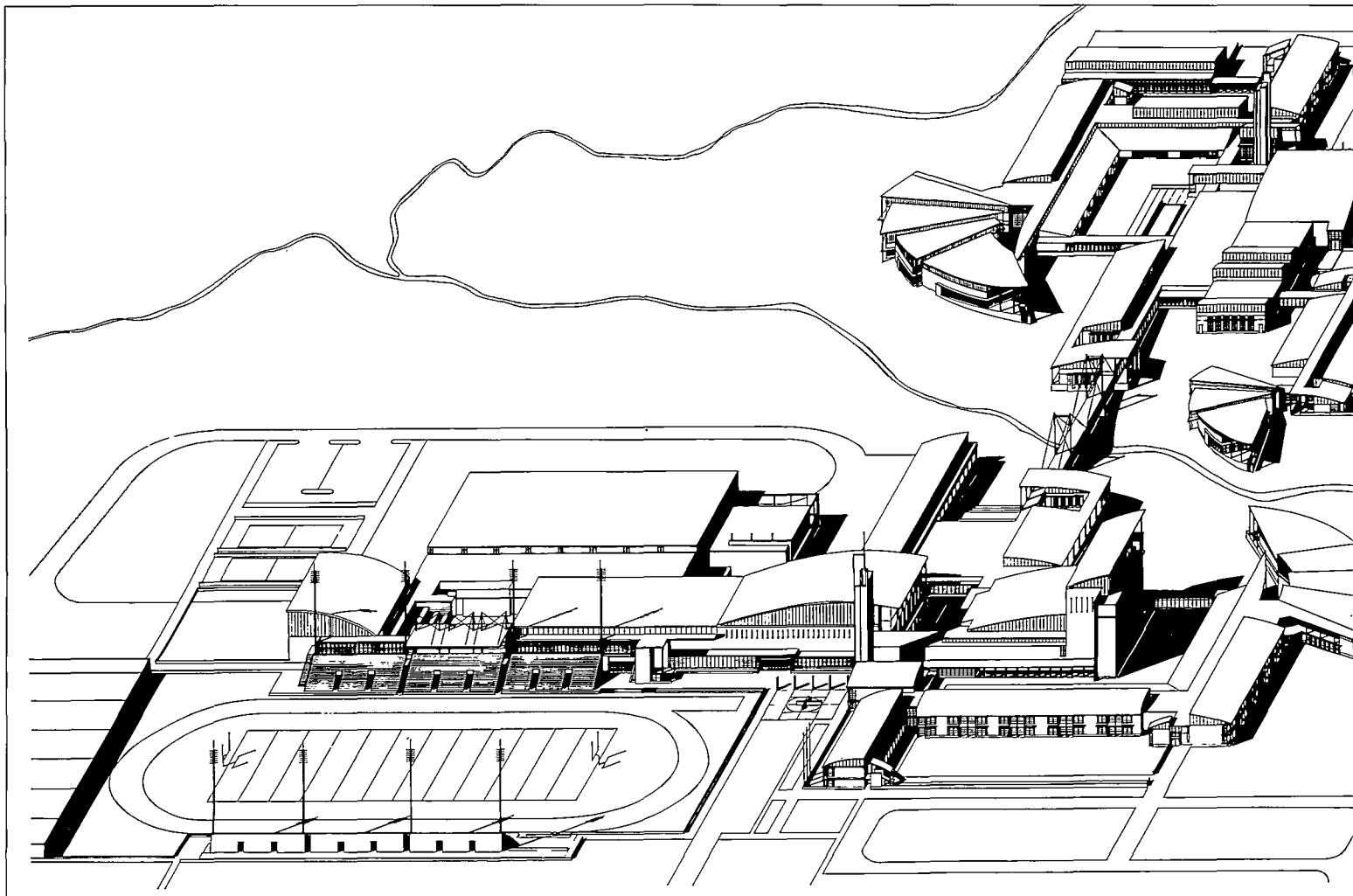
Nicolai Ouroussoff is a New York City-based architectural writer and a frequent contributor to ARCHITECTURAL RECORD.

costs. By combining three schools into one campus the schools could share power output from a centralized plant, use the same the gymnasium and theater, among other facilities. "The benefits of shared education were also considered. For instance, qualified grade-school students now have access to high school courses," points out Johnson.

Despite the apparent density of the 650,000-square-foot project, the three schools are in some ways virtually independent. The lower school is nestled off to the north side of the middle school—with a separate pick-up area for children, while the middle school and high school are timidly bound together by a narrow suspension bridge. As the children grow up, they weave themselves deeper into the heart of the project. "There was a conscious effort to separate the project into two worlds," says Johnson, "There's a sense of transition as you grow up. And there's a strict hierarchy that follows through the project."

The massive sports complex borders the southern edge of the high school, and includes a 3,000-seat stadium and a 119,000-square-foot physical-fitness center with a fieldhouse, dance rooms, gymnasium, and a pool. A suspended press box flanks the playing field, emphasizing its importance to the community.

The enclosed, pedestrian bridge allows for carefully integrated common ground. The bridge is anchored at each end by twin cafeterias. A centralized kitchen unites them, and HVAC utilities used in common are "rolled" across the bridge. Mechanical systems are sus-



pended underneath. "You can start doubling up on functions so there is some economy," says Johnson. The central spine continues from the bridge beyond the high school dining area to the main theater/auditorium, which is shared by all the students on grand occasions. It is a centerpiece of the complex, equipped with a 90-foot fly loft.

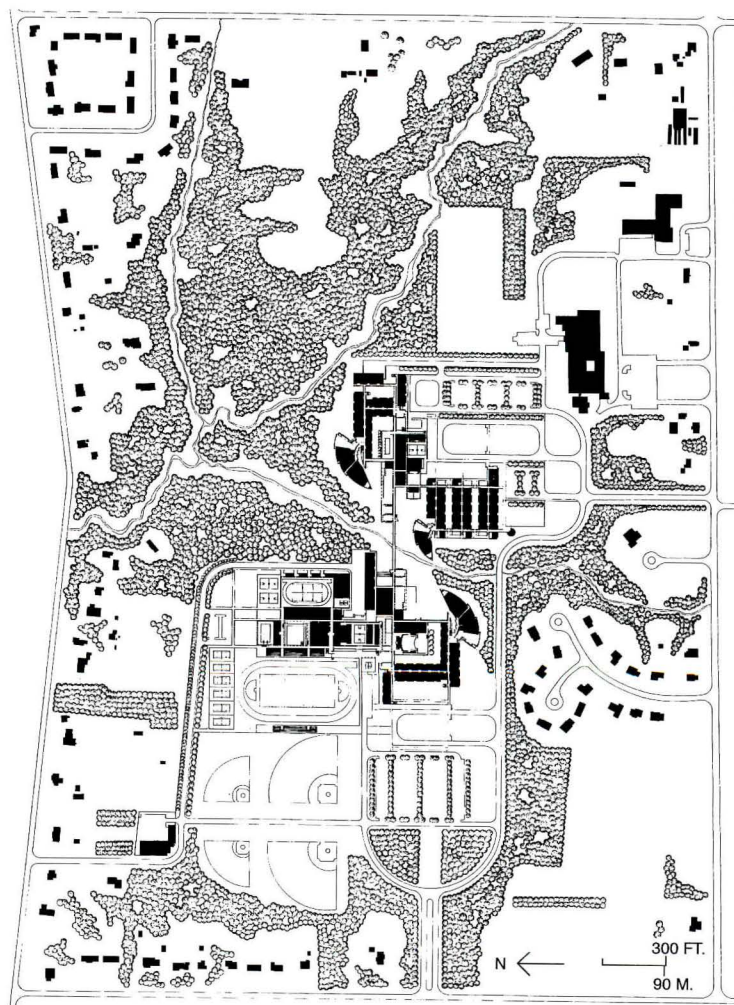
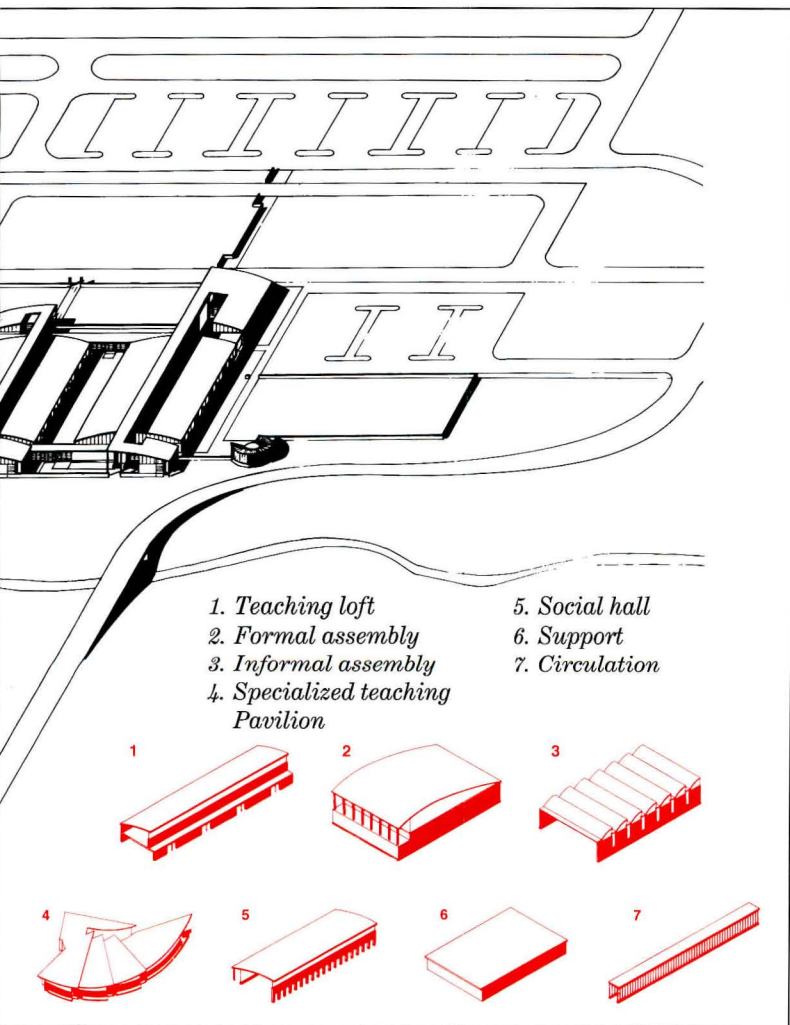
The sense of shared space—and even of a shared, almost formalized, mission—is reinforced by the use of a "kit-of-parts" that establish recognizable typologies for the various buildings—a feature that has come to mark the firm's uniqueness (see *Up Close, right*).

The use of clear typologies is an approach the firm has used elsewhere: in Singapore, a similar school project draws from indigenous architecture to create a roofscape that marks the functions of the different buildings. "The roofs there are more dramatic, and their forms are designed to cope with the heavy rains," says Johnson. (In Singapore, the architects likewise had to cope with consolidating an entire school system on one site.)

But here, the forms are starker and more economical. They were inspired by the long industrial buildings that line the Erie river, in the heart of America's rust belt. The project's most whimsical gesture is a thin tower that marks the entrance to both the theater and the physical-fitness center. The tower stairs spin up to a viewing deck overlooking the landscape. "It's kind of a counterpoint to the cooling towers of the power plant," explains Johnson.

Up Close

Economy and consistency. Perkins & Will tended to use similar forms for buildings of similar function (see site plan), achieving both design consistency and construction economies. For instance, classrooms in all three schools are designed as if they were cut from a continuous length of repetitive structure. These are given a distinguishing identity by elegant curved bar joists, exposed overhead by raising the ceilings above them. Each type of form establishes a linear structural rhythm. The more public assembly buildings—the gymnasiums and theater—are designed with bowed roofs, which lift gently on one side. Only the three arts halls take on a more plastic form. The sickle-shaped buildings—which house libraries, art, and music rooms—swirl loosely out of a corner of each school. Their organic shape allows them to mediate between the harder-edged buildings and the weaving creek and lines of trees that run through the core of the project. The arts halls become a buffer between nature and rigorous order. All forms weave together in a subtle interplay of common and shared spaces.



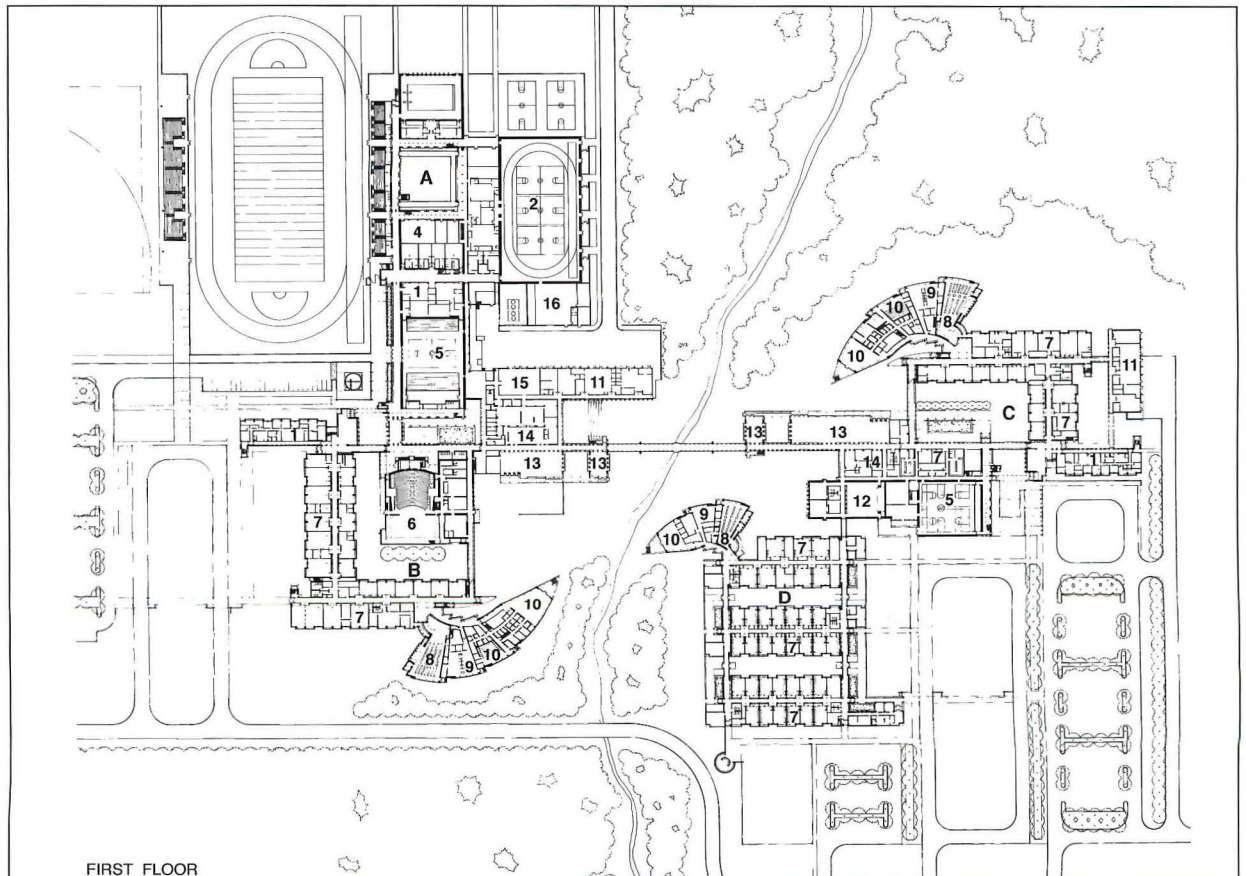
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Five slender two-story columns support the tip of the fan-like arts building. The enclosed terrace can be used as an outdoor platform for the school band. The formal music rooms are inside—each of the three arts buildings also includes art rooms and a library. In the background, the building locks into the tip of one of the classroom wings. Trees and a creek lie beyond.



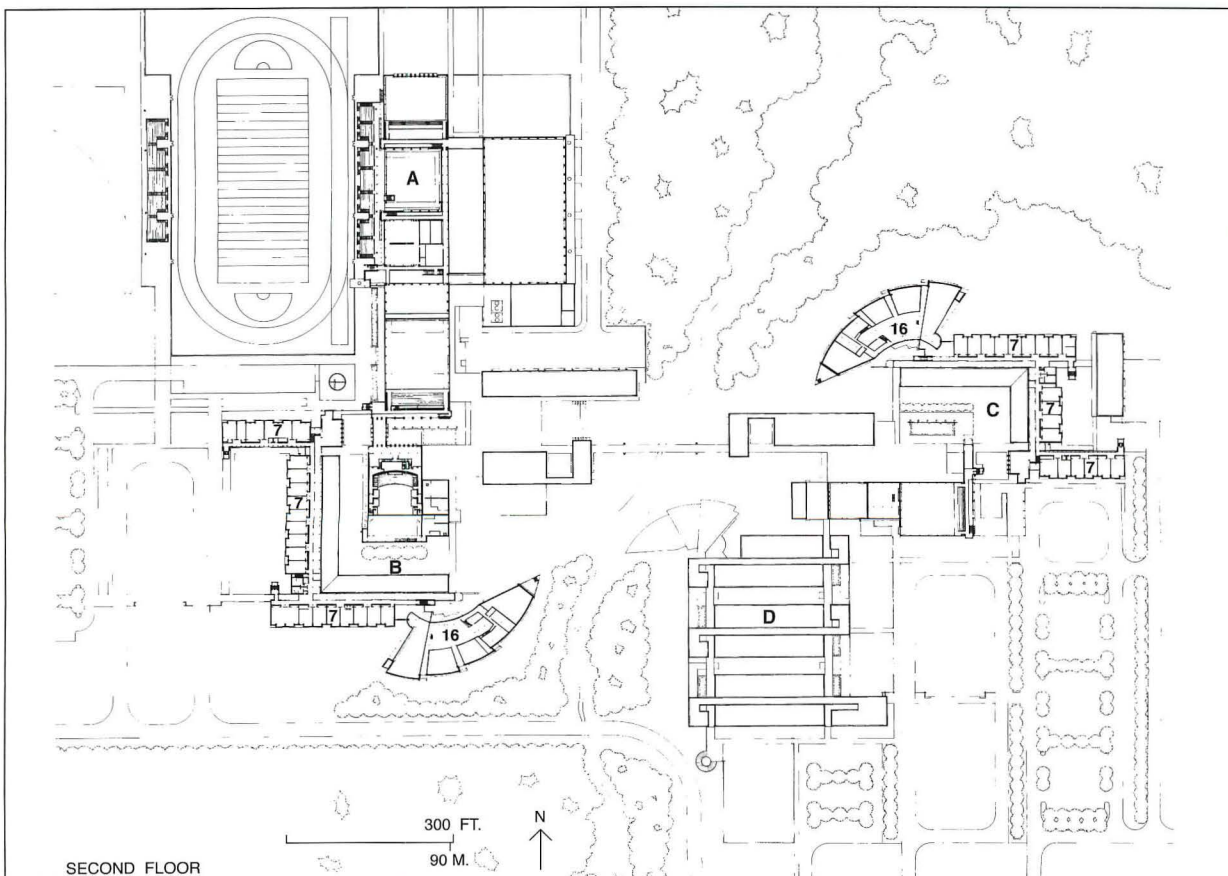
- A Fitness center
- B High school
- C Middle school
- D Elementary school

- 1. Administration
- 2. Fieldhouse
- 3. Pool
- 4. Dance
- 5. Gymnasium
- 6. Theater
- 7. Classroom
- 8. Library
- 9. Art
- 10. Music
- 11. Industrial art
- 12. Multipurpose
- 13. Dining
- 14. Kitchen
- 15. Receiving & Maintenance
- 16. Mechanical





The massive, 90-foot flyloft of the Goodwin theater dominates the view and anchors the upper school. The low, curving structure to the right is the theater itself. In the foreground are the columns of the bandroom terrace, while the slim entry tower to the west campus is visible to the far right.





1

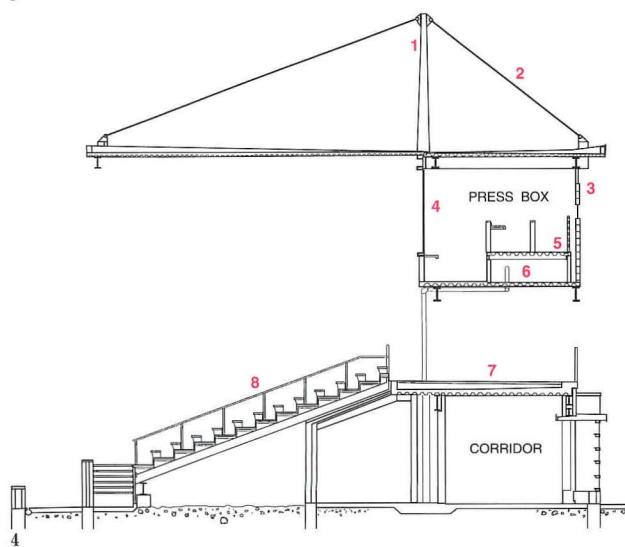


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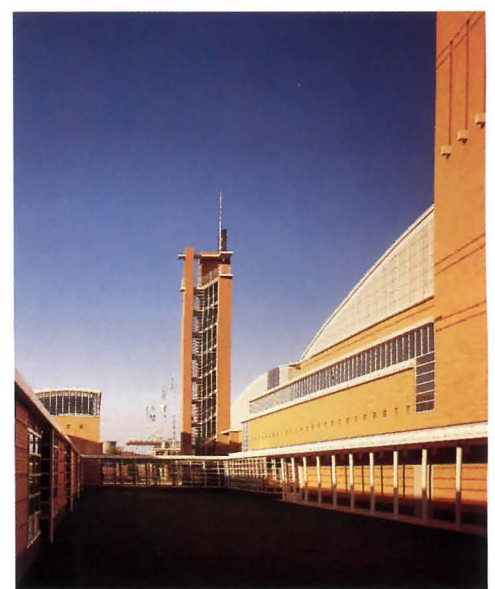
3

3



4

1. Steel column with tapered web
2. Suspension cable
3. Aluminum curtain wall
4. Sliding window
5. Concrete slab on metal deck
6. Mechanical heating unit
7. Precast concrete pavers on rigid insulation
8. Prefabricated metal bleachers



5



6



7



8

Opposite: The end of one of the classroom wings, with enclosed stair and wrap-around corner windows (1), is reminiscent of a Gropius industrial building. Dominating the front facade of the high-school gym (2) is an overhang that protects the clerestory windows overlooking the bleachers inside. The Perry Community Education Village's entrance (3) includes the field house (far left in photo). The curved element in the background is the indoor swimming pool. The central courtyard of the high school (5) is flanked by classrooms and the theater. In the background is the entry

tower. The section shows the press box and the bleachers of the football stadium (4).

This page: The outdoor staircase is at the far end of a classroom wing. In the background is the theater flyloft (6). The entrance to the fieldhouse has an overhanging metal roof (7). The fan-shaped high-school arts building (8) has interlocking pitched roofs. The library is at the far left in the photo, followed by art rooms (center), and boardroom (right).

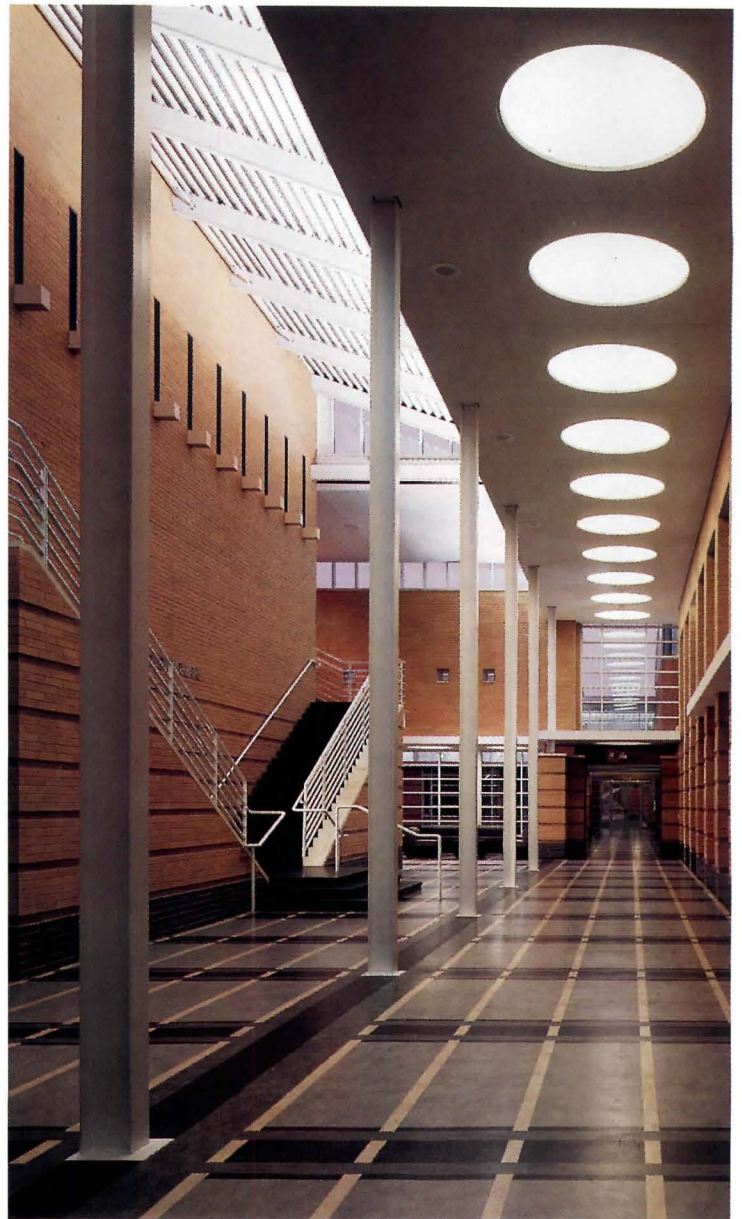


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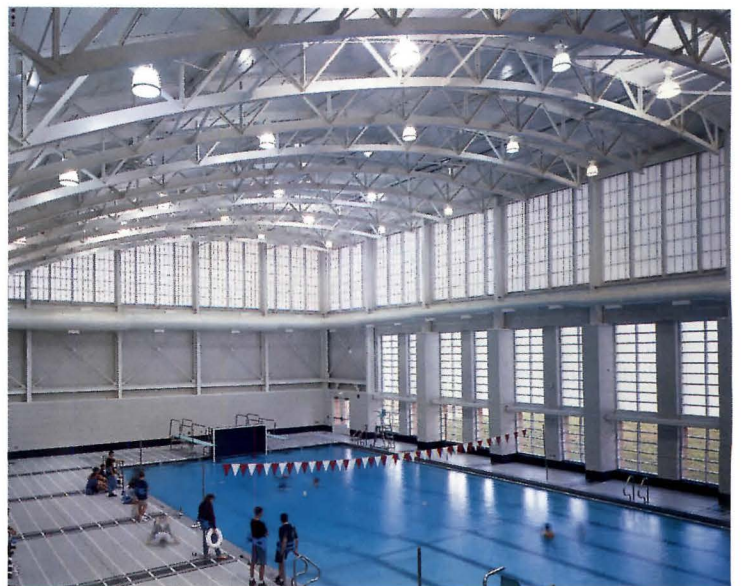
The interiors of the complex are high-ceilinged and expressively functional. They include the double-height high-school lobby with its structural deck and corrugated metal roof (1). Equally utilitarian yet airy is the lobby of the Goodwin Theater (2). On the left are stairs leading up to the balconies. The swimming pool (3) is lit by clerestory windows made of translucent fiber-glass panels.

Opposite: Perry Community Education Village's sports complex includes a 119,000-

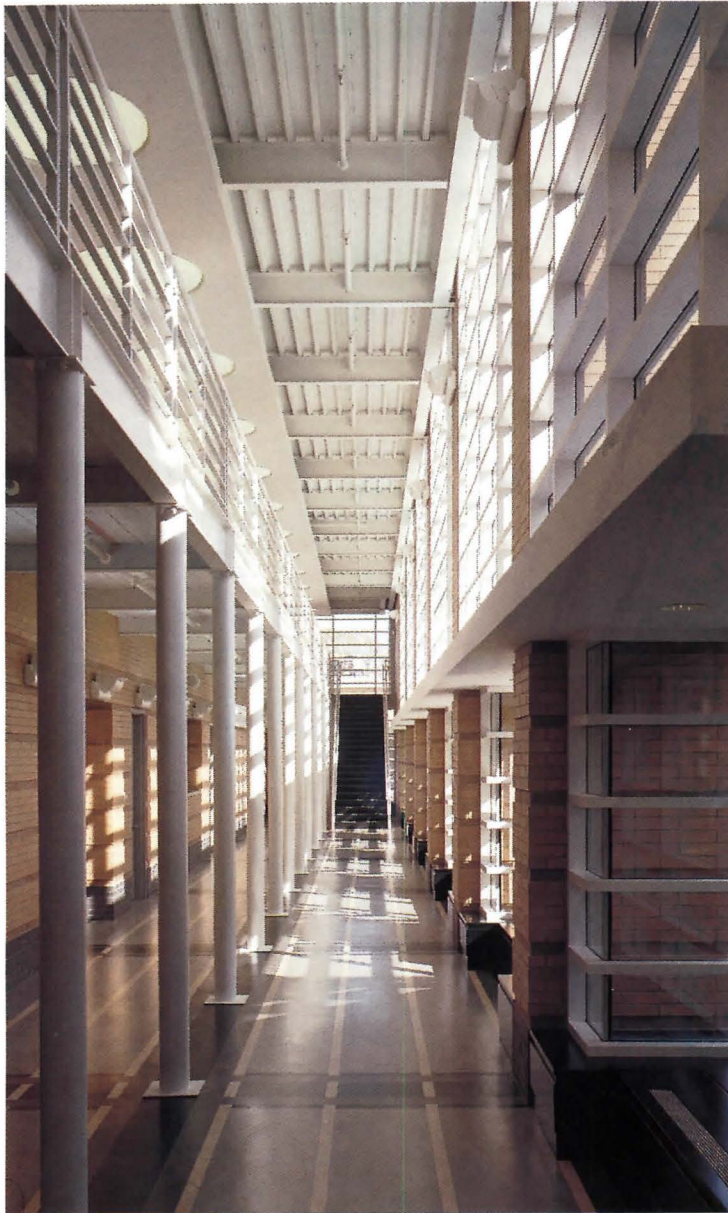
square-foot physical-fitness center. Part of the complex is the high-school gym (4), with a lobby and second-story balcony where a corridor opens up onto the gym bleachers. In the music complex (5), a clerestory windowed corridor leads back to the band-room, seen from the end of the classrooms. The library is to the right. The windows on the left look out into a courtyard. A third building in the complex is the main high-school gym (6), including a basketball court and bleachers (to the left).



2



3



4



5



6

Credits

*Perry Community Education Village
Perry, Ohio*

Associate Architect: *Perkins & Will—C. W. Brubaker, principal-in-charge; Ralph E. Johnson, design principal; James G. Woods, Raymond C. Bordwell, project directors; James Nowak, senior project architect; Michael Palmer, project architect; August Battaglia, Jerry Johnson, Greg Bennett, Celeste Robbins, Bill Schmalz, Steve Roberts, Randy Takashashi, Anita Ambriz, design team*

Associate Architect: *Burgess & Niple—Jerry L. Keltch, principal-in-charge; Raymond P.*

Corby, project manager; Timothy D. Clapper, construction supervisor; James W. Alban, construction project manager; Robert Macholl, structural engineer; Joel Altland, mechanical engineer; Douglas Powell, electrical engineer
Consultants: *CINI-Little International (food service); Jerit/Boys (theater); Kirkegaard & Associates (acoustics); Construction Cost Systems (costs)*

General Contractor: *Albert M. Higley Company*



School Spirit

*P.W. Johansen High School
Modesto, California
Wolff/Lang/Christopher Architects*

When the burgeoning community of Modesto, California, outgrew its four high schools, it made the predictable decision to build a fifth, but added an unexpected element to an already complex building program of academic and recreational facilities: a community center. Local support for the new school-cum-town-center was overwhelming: in 1987 a \$75-million bond issue passed by 72 percent.

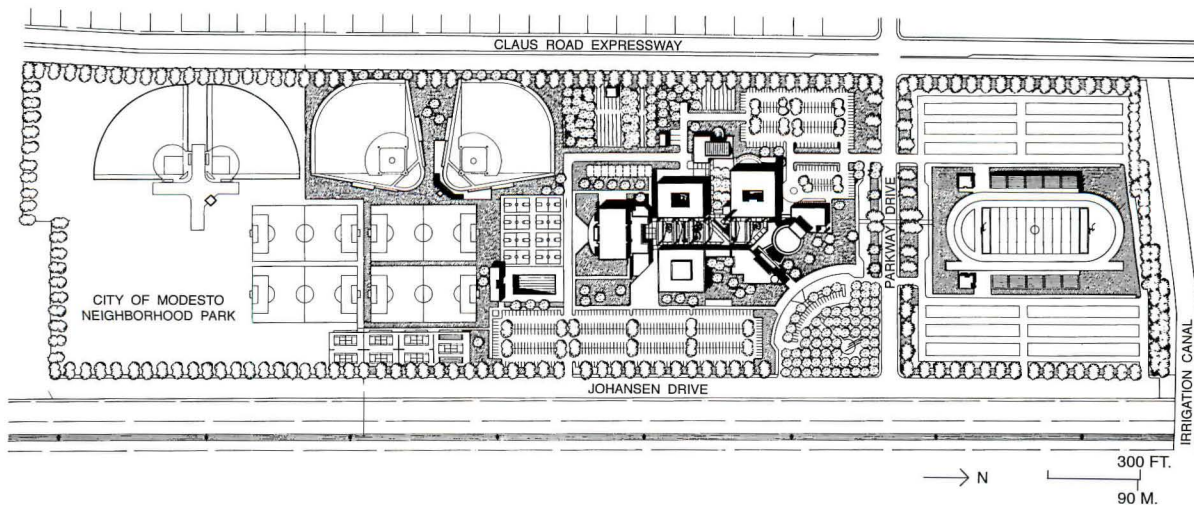
The site, a 100-acre parcel bounded by almond and peach orchards, within the rural Empire area, is relatively isolated, allowing the architectural firm of Wolff/Lang/Christopher to design a complex that would “reinforce the community’s agricultural heritage,” according to principal-in-charge Gaylaird Christopher. The architects retained a one-acre preserve at the school’s entrance and a 20-foot-wide buffer of trees around the site, and designed a special underground storm water-retention area to compensate for the distance from town drainage services.

Facilities such as a county library, all-purpose theater, district football stadium, Olympic-size swimming pool, tennis courts, and playing fields were integrated into the 225,000-square-foot, \$40-million P.W. Johansen High School, and were provided with separate access and parking to permit use when school is not in session. “Public agencies can’t afford to duplicate services,” says Christopher of the combination of community and student uses. Giving a civic presence to the complex is a 70-foot-high tower that houses the original bell from the district’s first school.

Imagery for the building had to be both “traditional and exciting” to convey both community stature and educational energy, says Christopher, so the architects devised two-story steel-frame volumes clad in bands of brick arranged around an outdoor courtyard linked by walkways. Explains Christopher of the new hybrid: “It harkens back to schools of 50 or 60 years ago.” *Karen D. Stein*



©Stan Koslow photos

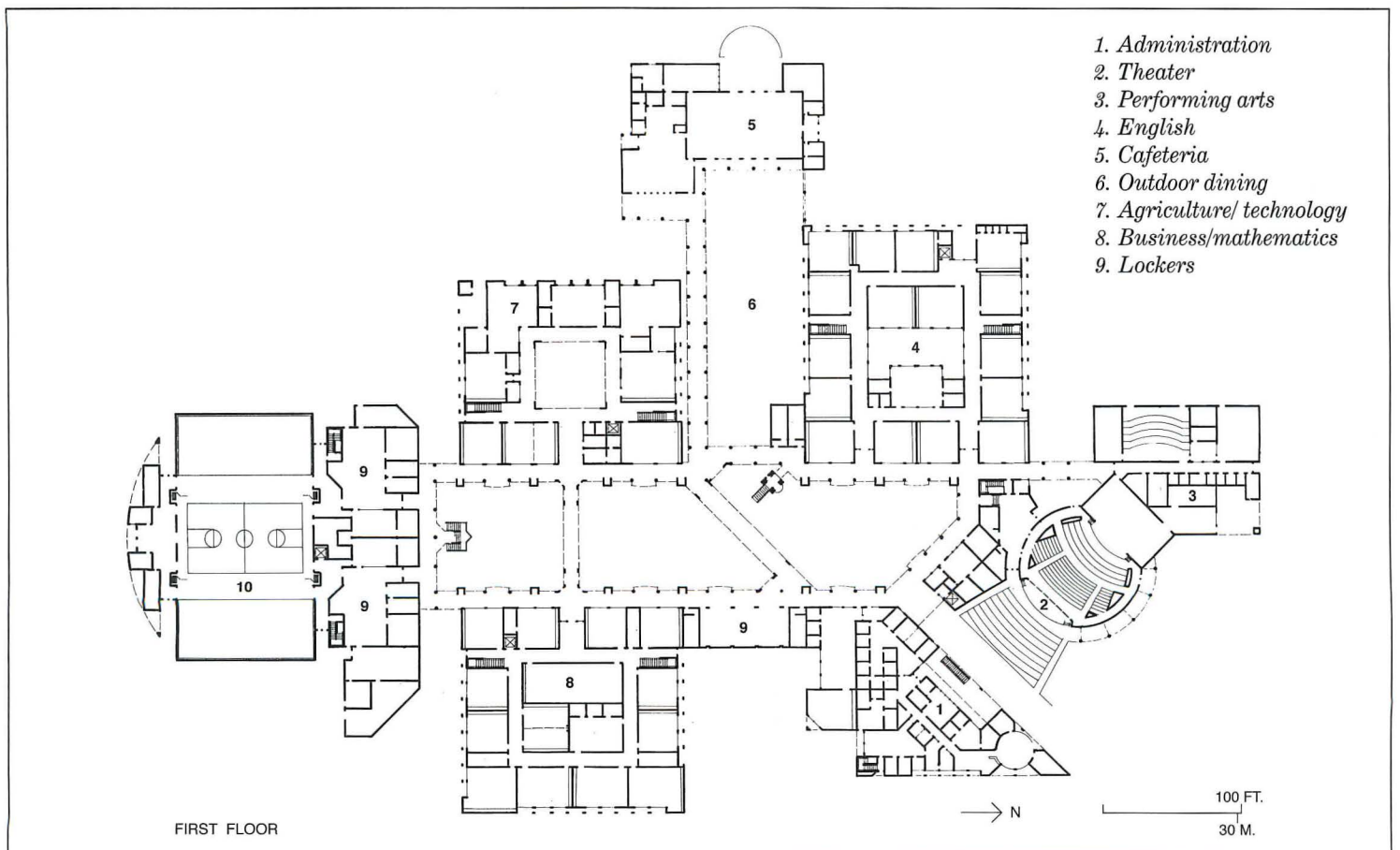




The gym (photos above and opposite left and plan below) is at the south end of the P.W. Johansen High School complex, adjacent to tennis courts and baseball fields which have separate parking lots to permit use by members of the community. The town's public library (oppo-

site right) has also been integrated into the high school. Classrooms, departmental offices, administration, and an auditorium are dispersed among two-story blocks arranged around a central courtyard; a small food-service wing, which includes the cafeteria, is set off

the back of the school. Architect Gaylaird Christopher of firm Wolff/Lang/Christopher says the striped brick exterior cladding is meant to reinforce the horizontality of the complex on its agrarian site and its weighty role as "a community center in an otherwise isolated area."





Credits

*P.W. Johansen High School
Modesto, California*

Architect:

*Wolff/Lang/Christopher
Architects—Gaylaird
Christopher, principal-in-charge;
Jim DiCamillo, principal;
Ronald A. Kuehl, project*

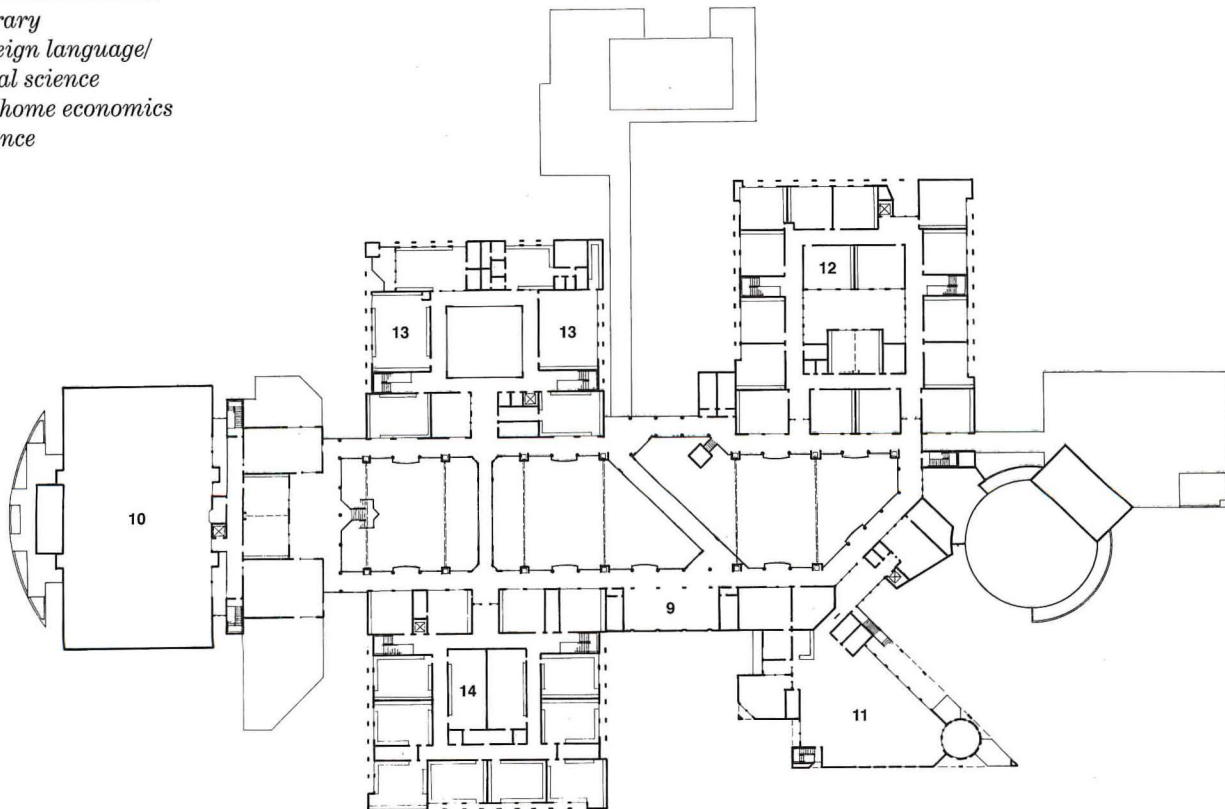
*architect; Dave Forman, John
Kristedja, Michael Merino,
Rohit Shah, Bill White, project
team*

Engineers: *Low-Garcia-Davis
(civil); M/P Engineers, Inc.
(electrical); F.T. Andrews, Inc.
(mechanical); Johnson & Nielsen
Associates (structural)*

Consultants: *Land Images
(landscape); Designers Food
Facilities (kitchen); John Von
Szeliski & Associates (theater);
Aquatic Design Group, Inc.
(pool)*

General Contractor: *Roebelen
Construction, Inc.*

- 10. Physical education
- 11. Library
- 12. Foreign language/
social science
- 13. Art/home economics
- 14. Science



SECOND FLOOR



Endurance Test

*William H. Lincoln School
Brookline, Massachusetts
Graham Gund Architects*

Graham Gund Architects' start on this \$10.3-million commission was neither easy nor auspicious. First, the firm had never designed an elementary school. And it was pitted against four competitors with extensive experience. While the other firms came before the selection committee with beautifully presented preliminary schemes for the 700-student facility, Gund's team had only a list of criteria gleaned through an exhaustive study of Brookline's seven other K-12 schools—many with long impersonal corridors, lightless spaces, and an overall forbidding character and institutional appearance. "It was more like a list of don'ts," recalls school-committee chairwoman Kathleen Ames, "but it made us think. Gund's approach was open and creative, while the other firms came with set ideas. He gave words to our thoughts about daylight and intimate spaces children could identify with." He also had experience working with the National Register (which had designated several buildings on the site), and fitting new construction into historic neighborhoods.

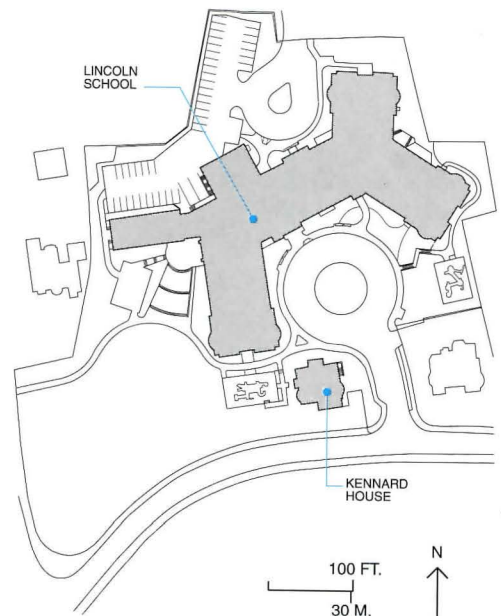
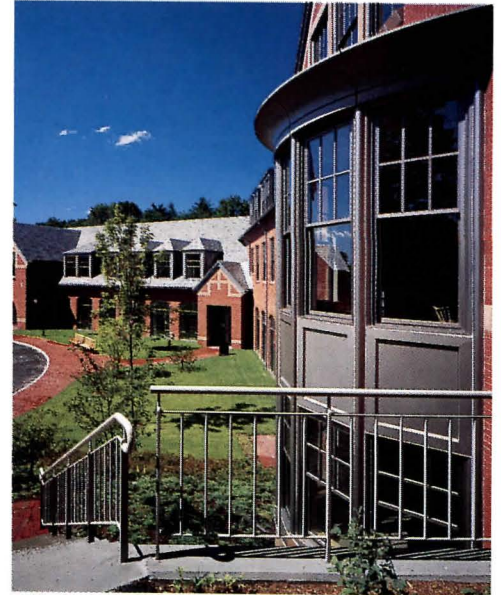
It was Lincoln School's current neighborhood of large older houses owned by affluent and influential people that Ames had seen as the stumbling block to relocating the facility from a site along a busy highway. Voters defeated two relocation referenda in the 1970s. They were not just rejecting an intrusion of institutional character, but the character of the students as well. Not all of Brookline is affluent; there are two public-housing projects near this site. And busing from the inner city increased neighborhood tensions. School principal Barbara Shea points out that Lincoln is one of the most ethnically and economically diverse schools in the system, which she sees as a plus. Voters finally gave in under threat of redistricting in 1980. It was now up to Gund's team to begin the 14-year effort to convince them that at least the school building itself could be a good neighbor.

The architects worked with the National Register to get approval for relocating an historic stable that would become the new cafeteria (plan overleaf) and for alterations to other site buildings, including a Neoclassic house, now used as a music school. At the same time, they developed methods to reduce the visual impact of the 85,000-square-foot building on the residential neighborhood. One part of the solution is the "stick-man" plan with spreading "arms" and "legs" that assures that only part of the building is visible at any one time. The plan also reduces straight runs of long corridors and groups students of similar ages in areas they can call their own. Another scale-reduction device is the placement of many lower-grade classrooms behind dormers in the large sloping slate roofs. This also gives younger students an appropriately low visual vantage point and provides familiar associations by means of spaces that resemble a house attic, albeit a very airy one.

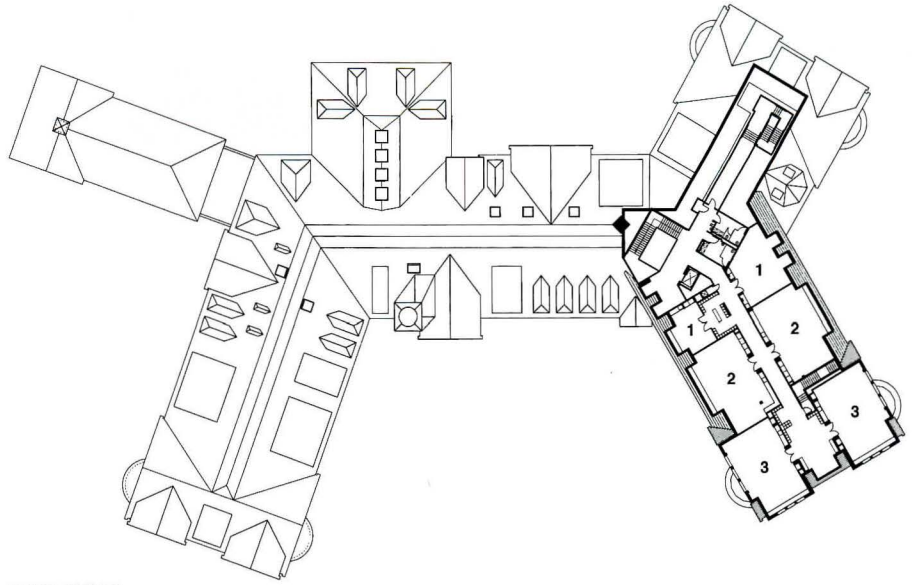
Academic performance has risen from among the Brookline system's lowest to its highest. "It's not all the building," says Kathleen Ames, "but it certainly has helped." What do the neighbors think? Three of them have donated land to increase Lincoln's playing fields.

Charles K. Hoyt

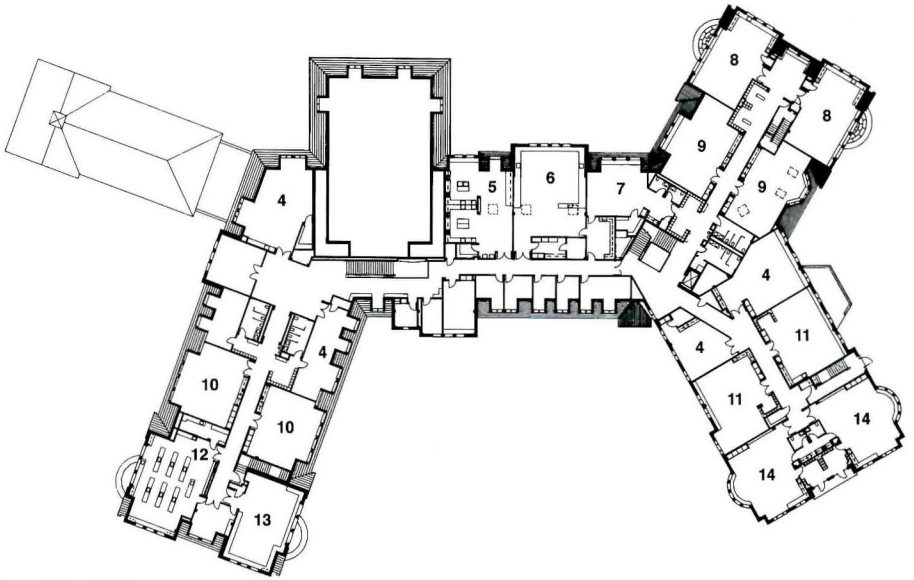
© Nick Wheeler Photographics



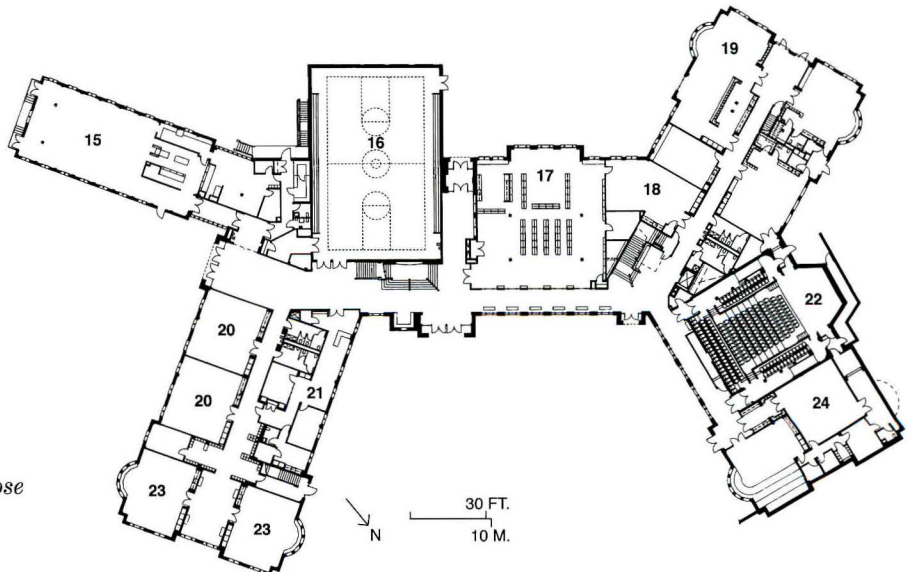
Like many schools today, Lincoln offers facilities for community use as well as children's education. Among them are spaces for adult language courses. With so many ethnic groups within the community, teaching parents English becomes as important as teaching their offspring. Lincoln's specialty is Russian-speaking parents. Both gymnasium and auditorium can be sealed off from the rest of the school for after-hours community functions. The layout of classrooms in grouped clusters allows the use of common multipurpose rooms at the ends of each corridor where students can share activities and remedial training.



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

Credits

William H. Lincoln School
Brookline, Massachusetts

Architect: Graham Gund Architects—Graham Gund, principal-in-charge of design; Peter Madsen, principal-in-charge of construction; Dan Rutledge, project architect; George Coon, Jonilla Dorsten, Tom Maloney, project designers; Mary Horst, Laura Cabo, Maria Donovan-Fernandez, Rob Bramhall, design team

Engineers: Charles Chaloff Consulting Engineers (structural); Cosentini Associates (mechanical/electrical)

Consultant: Cavanaugh Tocci Associates (acoustics)

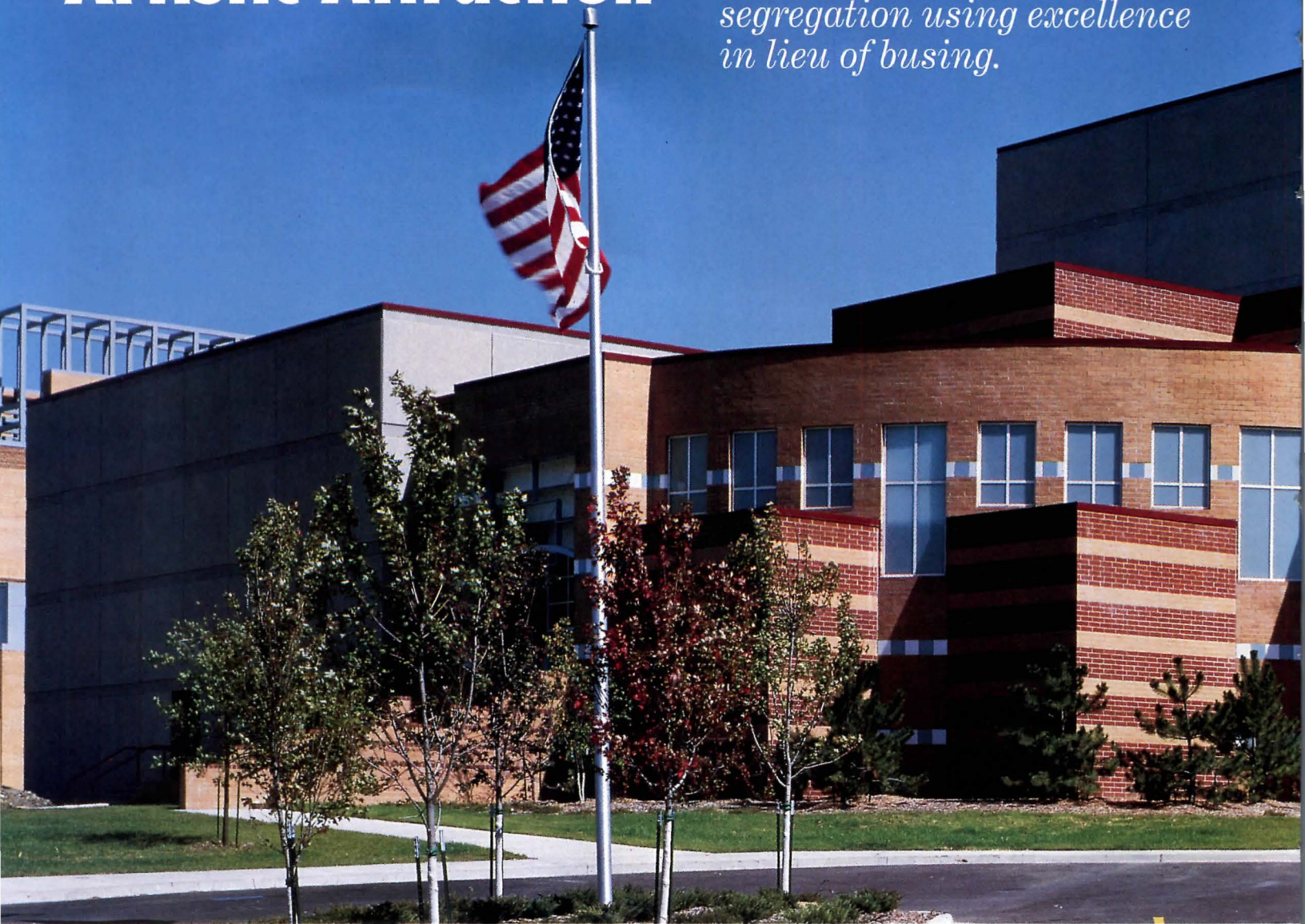
General Contractor: Corcoran Jennison Builders

- | | |
|--------------------|----------------------------|
| 1. Remedial | 13. Computers |
| 2. Classroom 4th | 14. Kindergarten |
| 3. Classroom 5th | 15. Cafeteria |
| 4. Resource center | 16. Gymnasium |
| 5. Home economics | 17. Library |
| 6. Art | 18. Adult education |
| 7. Teacher lounge | 19. Child-care |
| 8. Classroom 2nd | 20. Classroom 6th |
| 9. Classroom 3rd | 21. Administration |
| 10. Class room 8th | 22. Auditorium |
| 11. Classroom 1st | 23. Classroom 7th |
| 12. Science | 24. Music and multipurpose |



Artistic Attraction

A magnet school tackles segregation using excellence in lieu of busing.



Kansas City, Missouri's inner-city schools are not unlike those in many cities: they have suffered the curse that follows a middle-class flight to the suburbs. The exodus leaves the poorest minority students in the worst schools or forces school districts to bus students to keep schools integrated.

One creative solution to the dilemma has been the creation of magnet schools. These schools draw the best and brightest students back into the inner city to attend both excellent and well-equipped schools that offer concentrated coursework in special areas, like science and technology or the arts. The schools have teachers who have specialized in certain areas, and students must work hard to be admitted to them and to stay in.

The Paseo Academy of Visual and Performing Arts is one of Kansas City's magnet schools. The academy occupies the site of the former Paseo High School, a grand limestone building built at the turn of the century atop a prominent hill. Once Paseo was a symbol of community pride, and many residents argued vehemently against tearing it down; others said the school was a symbol of decline in the neighbor-

hood and of educational standards throughout the area, arguing that razing the structure was part of ushering in a rebirth for the neighborhood. Eventually, Paseo Academy was built.

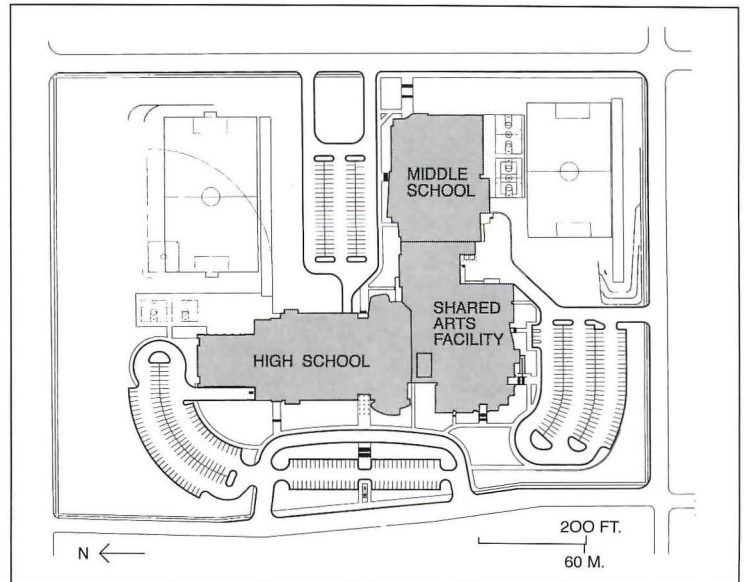
The complex consists of three buildings (opposite). The high school was designed by Berkebile Nelson Immenshuh McDowell. The middle school and the performing-arts center (above) were designed by WRS Inc., and the master planning of the site was done by Frewen Architects. Segregation at Paseo Academy is limited to age only. The performance facility is shared by both the middle and high schools, although children of disparate ages do not necessarily share classes—in fact, one of the key challenges that faced the master planners was placing each school in a different “safety zone” to assure the security of the students.

“The exterior of the performing-arts center building was influenced by the fluid movements of the arts,” says WRS project architect Mark Spurgeon. It is further expressed in bands, squares, and three-dimensional planes of brick and concrete, materials that are highly resistant to vandalism. *Charles Linn*

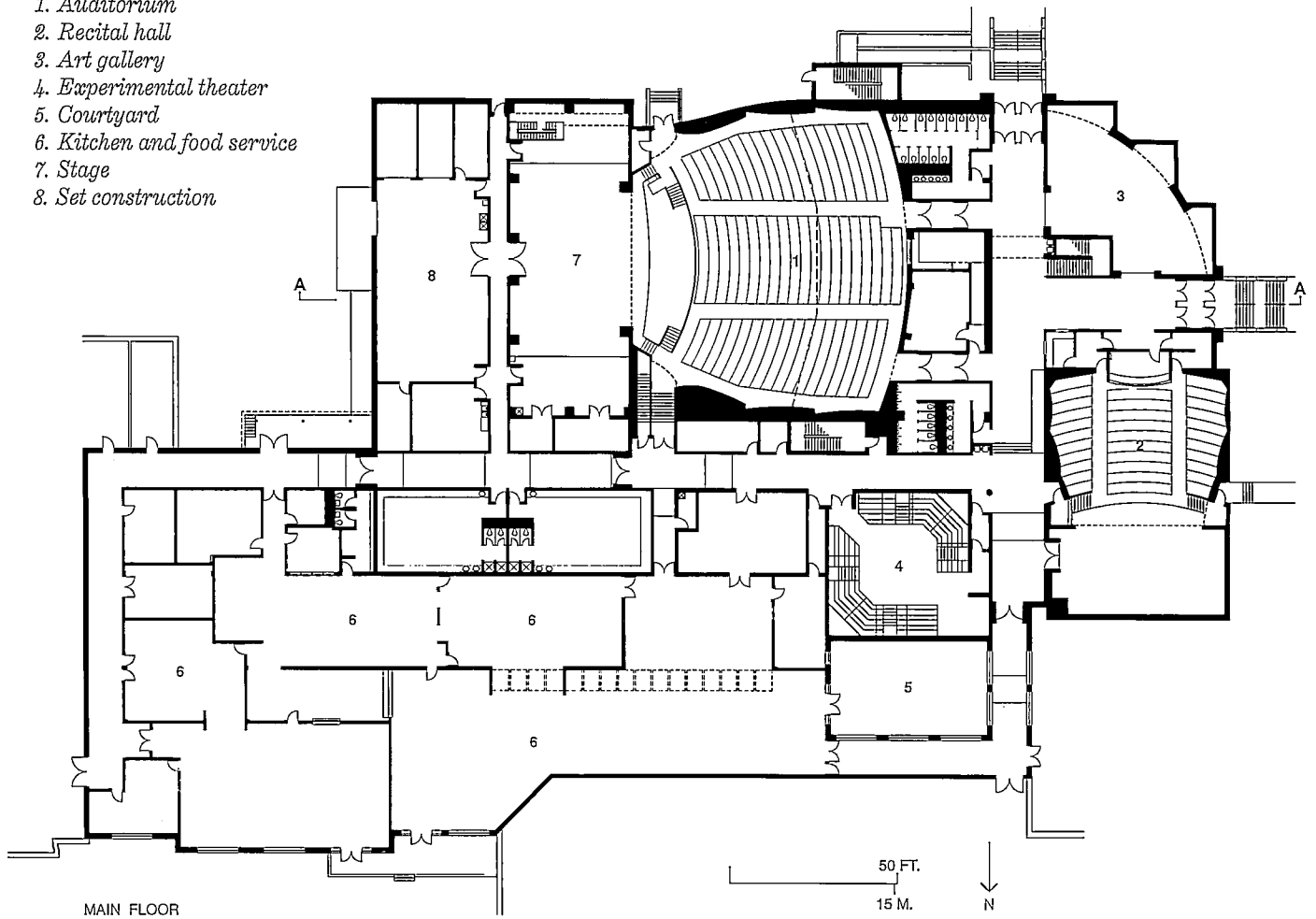
*Paseo Academy of Visual and Performing
Arts Shared Facility
Kansas City, Missouri
WRS, Inc. Architect*



© Paul Brokering photos

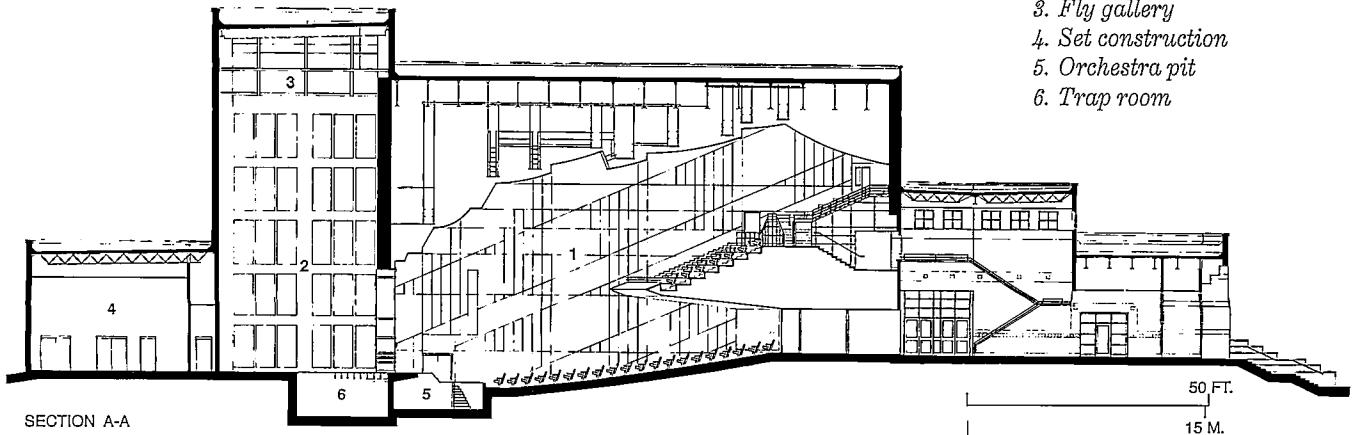


1. Auditorium
2. Recital hall
3. Art gallery
4. Experimental theater
5. Courtyard
6. Kitchen and food service
7. Stage
8. Set construction



MAIN FLOOR

1. Auditorium
2. Stage
3. Fly gallery
4. Set construction
5. Orchestra pit
6. Trap room



SECTION A-A

The academy has two remarkable performance spaces, a 235-seat recital hall (right) and a 1,200-seat auditorium (below right). The school is equipped with an additional experimental theater and a state-of-the-art sound studio and control room. The auditorium has all the amenities of finer drama theaters: a handicap-accessible system, an orchestra pit, a stage trap system and pit beneath the stage, and computer-operated lighting-control boards.

Credits

*Paseo Academy of Visual and Performing Arts
Kansas City, Missouri*

Owner: *The School District of Kansas City, Missouri*

Architect:

WRS, Inc.—Homer Williams, principal-in-charge; Mark S. Spurgeon, project architect

Engineers: *A.T. Renczarski & Associates (structural); WRS, Inc. (mechanical, electrical, plumbing)*

Consultants:

Doug Taylor (theater); Labcoat EchoSystems—William Jahnke (acoustics)

General Contractors:

Midwest Titan (middle school); D.M. Ward (shared facility)



Cordial Two-fer

*Hurd Sports Center and Huffington Library
The Madeira School
McLean, Virginia
Bowie Gridley Architects*



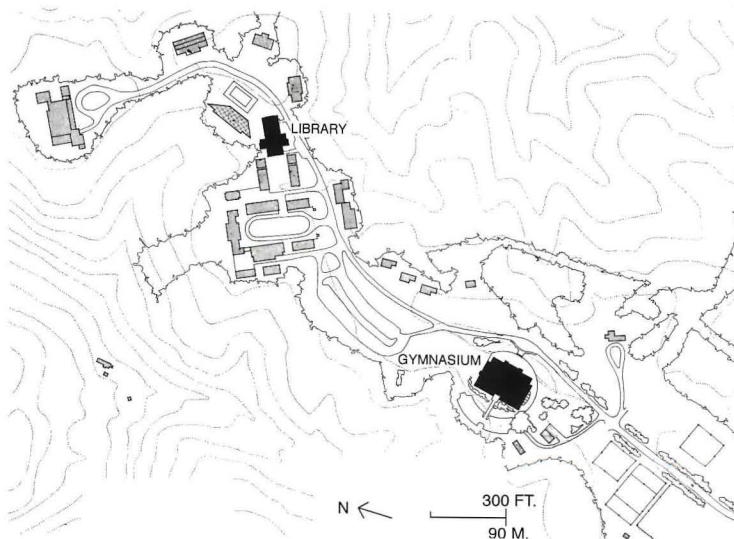
The Madeira School not only has the one new facility—a library—originally planned, but another—a gymnasium—to better carry out a demanding academic mission. The Virginia institution is an exclusively female secondary school dedicated, in the words of current headmistress Elizabeth Griffith, “to educating the next generation of young women for leadership.” Of the 327 students, more than half come from other states and 31 other countries. Many are helped by school scholarships and loans. Like its male-dominated counterparts, the emphasis is on competitive sports and preparation for higher education. For these reasons, both its athletic facilities and library are of prime importance. Its library contains some 19,000 volumes, 100 periodicals, and on-line access to even more volumes and information resources.

Bowie Gridley Architects has been described by *The Washington Post* writer Benjamin Forgey as taking a “holistic approach to design.” Each of their many new private-school buildings is carefully sited and stylistically integrated into established campuses to weave them together. Accordingly, it was no surprise when the firm prevailed over four other candidates for the design of an all-new library for Madeira by suggesting the reuse of an old building. Bowie Gridley’s plan, which the school quickly accepted, was to adapt a dignified-but-obsolete 1935 Georgian Revival gymnasium strategically located at the campus’s academic heart. This freed the school to build a new gymnasium closer to the main gate on a site convenient to outside visitors, and students using remote athletic fields and riding stables on the 382-acre campus (site plan). Thus, the architects turned one commission into two, and the school got both up-to-date, ideally sited facilities for less money than it would have spent had it started from scratch.

Working drawings proceeded simultaneously, but construction was staged so that the old gymnasium could be used until the new one was built. Only then did construction start on the library reuse project. The program of a gymnasium with two major spaces, including an indoor pool and many ancillary facilities, called for a tall 34,000-square-foot building. To bring this bulky mass into scale with the other low buildings on the campus, the architects placed the high bays down a slope from the main entrance (lower photo this page), which leads to a mezzanine on the second level. Visitors can view events from windows in the weights and aerobics rooms at this elevated height or descend into bleachers from a central corridor over dressing rooms on the main floor below. Concealing rooftop mechanical equipment was a major concern to the school, which was contending with exposed installations on other new campus buildings. The architects placed the extensive requirements for the gymnasium on the flat roof over the main spaces and surrounded them with a “screen” of sloping terne that echoes pitched roofs over the front section of the building.

The old gymnasium was remodeled into an 18,000-square-foot library by adding a new inviting open entrance arcade (opposite), and some 7,000 square feet of floor area in two small wings and on a new mezzanine over the original double-height space (overleaf). Floors were removed to build foundations for the upper-level’s steel supports, which echo the delicate tracery of original exposed steel roof trusses, and to place conduit for an array of next-generation workstations. New cherry woodwork extends the design of existing paneling.
Charles K. Hoyt

© Alan Karchmer

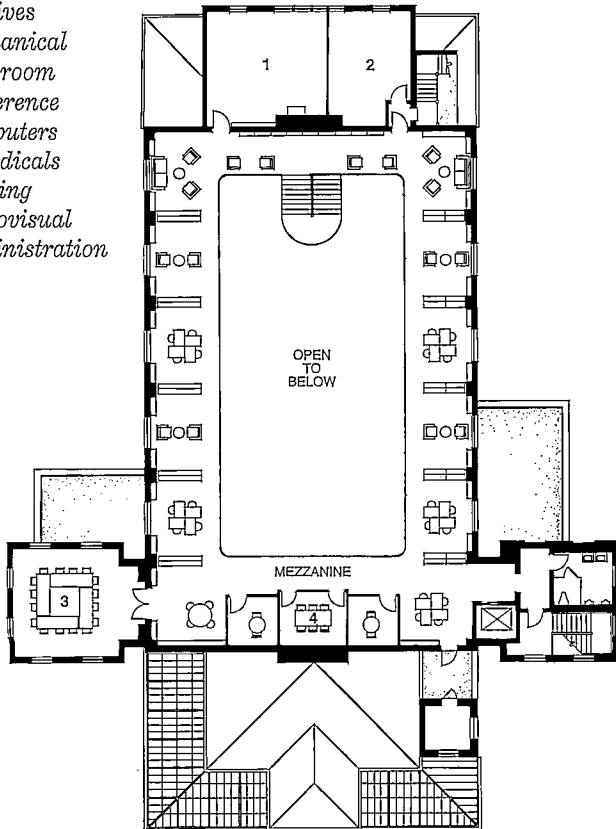


The new sports center (above) triples the space available in the original gymnasium (opposite). The old building was converted into a modern library for Madeira’s ever-growing collections. That building now forms a fitting academic link between its quad and a theater to the north.

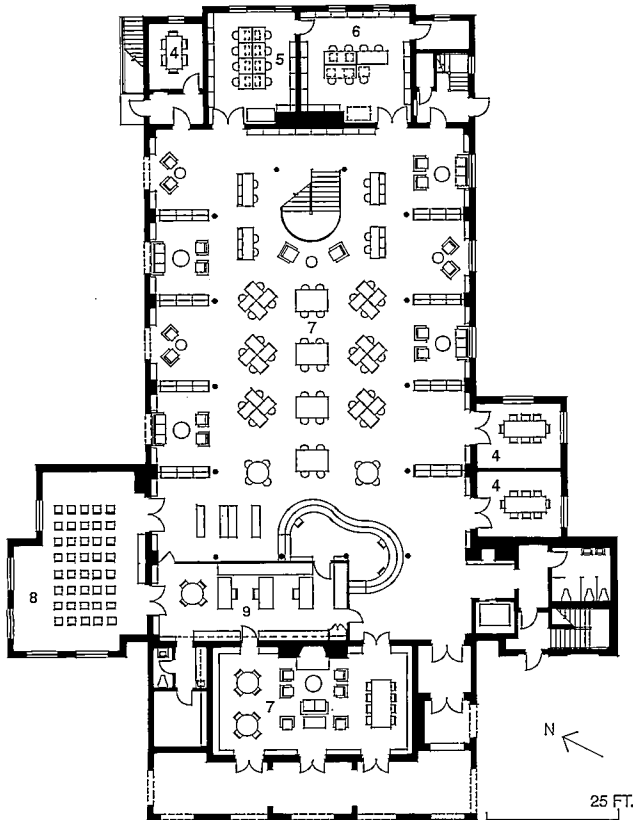




1. Archives
2. Mechanical
3. Classroom
4. Conference
5. Computers
6. Periodicals
7. Reading
8. Audiovisual
9. Administration

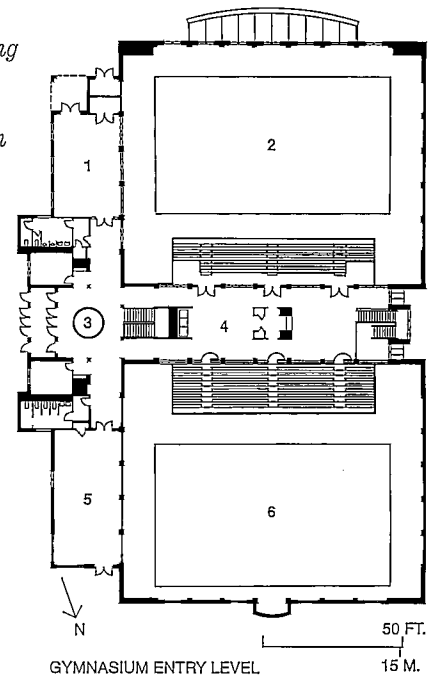


LIBRARY MEZZANINE LEVEL

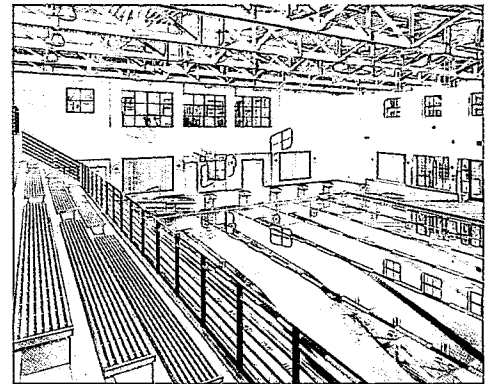


LIBRARY MAIN LEVEL

1. Weight training
2. Pool
3. Entry
4. Bleachers with lockers under
5. Aerobics
6. Gymnasium



GYMNASIUM ENTRY LEVEL



Glue-laminated trusses frame the exposed structure over the mezzanine while long-span steel trusses carry roofs over the pool and gym.

Credits

*Hurd Sports Center and Huffington Library
The Madeira School
McLean, Virginia*

Architect: *Bowie Gridley Architects—
Calvert S. Bowie, William C. Gridley,
principals-in-charge; Stuart A. Billings,
William J. DeMaio, project managers; Tim J.
Lovett, Greg P. Kott, Christine A. Leonard,
project team*

Engineers: *Setty & Associates, Ltd. (MEP);
James Madison Cutts (structural); Dewberry
& Davis (civil); Schnabel Engineering
Associates (geotechnical), Polysonics
(acoustical)*

Consultants: *Coventry Lighting Associates
(lighting); Swimming Pool Design Service
(pool); EDAW, Inc. (landscape)*

General Contractor: *James G. Davis
Construction Corporation*

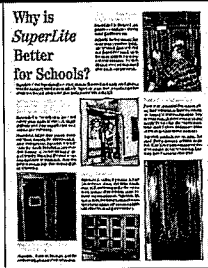


Product Literature/Schools

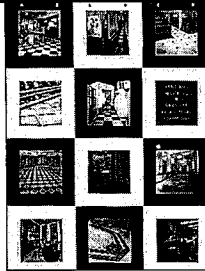
For more information, circle item numbers on Reader Service Cards.



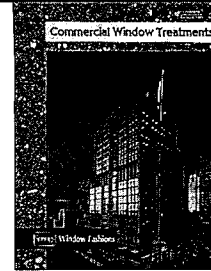
400. Community playgrounds
A binder describes equipment layouts and fund-raising ideas for playgrounds to be designed with input from kids, parents, and teachers. Illustrates modular, ADA-compliant play structures, swings, climbers, and slides, lists structural and finish options, details CAD-based planning help, and includes prices. 800/454-3846. GameTime, Fort Payne, Ala.



401. School glazing
A brochure explains why fire-rated safety glazings are "ideal" replacements for wired glass in schools. SuperLite I costs about the same as wire glass but is 10 times stronger; SuperLite II comes in large lights labeled for up to 90 min. Available on short lead times from plant. 415/822-4222. SAF*TI Div. O'Keeffe's, Inc., San Francisco.



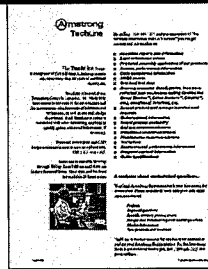
402. Coordinated resilient
A 24-page catalog illustrates five lines for commercial and institutional floors—VCT, Luxury Vinyl, Mipolam PVC flooring, solid-vinyl tile, and inlaid commercial vinyl—offered in a range of coordinated colors. All patterns and colors are shown; includes test results and project photography of installed floors. Sample kit. 800/558-2240. Azrock, San Antonio.



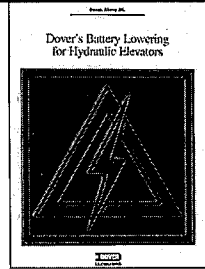
403. Window treatments
A commercial/institutional catalog covers horizontal Bali blinds (of wood as well as metal) and pleated shades, and Graber vertical blinds, insulating shades, and classic roller shades. A drapery-hardware section gives dimensions and mounting and control options. Architect-sample program for all lines. 800/544-4749. Springs Window Fashions, Montgomery, Pa.



404. Washroom components
A new line for commercial, industrial, and institutional washrooms, Classic Series accessories—towel dispensers, vendors, mirrors, and grab bars—and 1542 Series toilet compartments are described as value priced and design integrated. A catalog covers 175 models in 15 product categories. 800/553-1600. Bobrick Washroom Equipment, Inc., N. Hollywood, Calif.



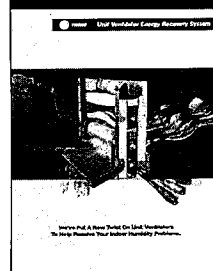
405. Expert technical advice
A new resource for specification, design, and product-data help, a free TechLine has five full-time experts available to provide the architect or designer with fire-label and other code information, light-reflectance and acoustic values, and customized ceiling drawings of Armstrong products. 800/448-1405. Armstrong World Industries, Lancaster, Pa.



406. Elevator upgrade
A brochure describes a battery-operated retrofit lowering system that brings a hydraulic elevator safely to the lowest landing and opens the doors during power failures, saving the expense of an emergency power generator. Also free: a new, on-line, interactive elevator-design service for architects. 601/393-2110. Dover Elevator Systems, Memphis, Tenn.



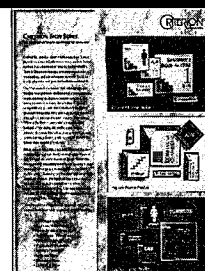
407. Fire-rated access door
A universal-type design for both walls and ceilings, metal access door both carries a UL class B 1 1/2-hr label for walls, and the Warnock-Hersey label for 3-hr. noncombustible floor/ceiling systems. Described as thin and easy to install, door has a self-closing latch. Available in sizes from 8- to 48-in. square, primed metal or stainless steel. Milcor Ltd., Lima, Ohio.



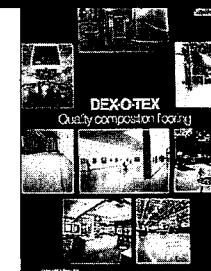
408. Classroom energy recovery
An enthalpy heat wheel system, air-to-air heat exchangers are sized to provide 30-student classrooms with the right amount of fresh air, meeting air-quality standards like ASHRAE 62-89. A six-page brochure describes the system, for use with individual classroom unit ventilators. The Trane Co., LaCrosse, Wis.



409. Acoustical windows
Made with two separate aluminum frames joined by a non-structural thermal barrier, windows come in double-hung, rolling, and fixed/fixed-removable models. Available in all commercial metal finishes, windows can be furnished with between-glass horizontal blinds and a STC rating of up to 55. 715/842-0581. Milco, Inc., Wausau, Wis.



410. Institutional signage
Brochure illustrates a flexible interior sign system said to have a custom look without a custom price tag. The Criterion uses a standardized, color-coordinated frame to hold any of a range of custom insert options behind a non-glare removable lens. Sizes and profiles for a single room sign to a turnkey wayfinding system. 800/733-5769. Kroy, Inc., Scottsdale, Ariz.



411. Jointless flooring
A catalog has 12 pages on seamless systems for the traffic and slip-resistant needs of schools, restaurants, transportation, retail, and industrial floors. Introduces Terracolor, an epoxy mosaic floor with a bold esthetic available in 18 colors, for use over concrete, existing tile, or wood substrates. 310/886-9100. Crossfield Products, Rancho Dominguez, Calif.

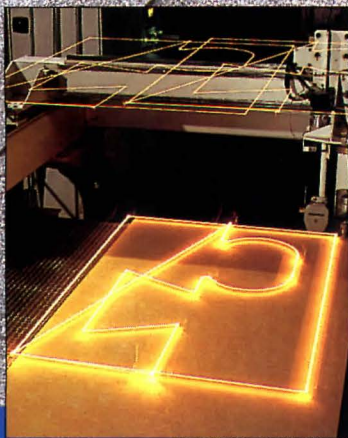
Contents:**Country Reports 3****Portfolio 24****Getting Paid 26****Practice Survey 27****Shanghai 28****K.L. Airport 34****Clifford A. Pearson**
Editor-in-Charge

Now in its third year, RECORD'S annual Pacific Rim section reflects a critical trend sweeping through the profession—the globalization of architecture. For better and for worse, barriers to foreign competition are falling and architects are designing buildings in countries where the culture and traditions are different from their own. The danger is a homogenization of design, so that downtown Jakarta ends up looking like downtown Houston. In addition, the rate and scope of change have been so great that they often seem beyond the control of sensible city planning. But rapid development also presents great opportunities—to swap expertise, to improve basic services, to create buildings and neighborhoods that inspire respect. With that as its backdrop, this section examines the urban-planning challenges facing Asia's latest boomtown, Shanghai. It also looks at plans for a giant airport in Kuala Lumpur, in addition to other work throughout the region. *C.A.P.*

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China

Beijing Tries Applying Brakes To Runaway Growth

GDP, 1994: \$509 billion

GDP growth, 1994: 11.8 percent

Projected GDP growth, 1995: 9 percent

Inflation, 1994: 24 percent

Population: 1.2 billion

Economic overview: The Chinese economy continues to grow at a double-digit pace, making it the most important focus of development in the Pacific Rim. But the upcoming political succession and the potentially destabilizing effect of high inflation (nearly 30 percent in urban areas and 24 percent overall in 1994) are convincing the central government of the need to slow down the economy. Chinese leaders are now aiming to bring growth to a more sustainable level of around 9 percent for 1995. Believing land speculation to be the principal culprit in overheating the economy, authorities are using restrictions on real-estate development as a primary lever for applying the brakes. Such restrictions include moratoriums on construction loans and prohibitions of some types of tourist and "luxury" development.

The politics of corruption: In China, economics and politics are inextricably linked. Indeed, much of China's recent politically charged anti-corruption campaign has focused on illegal actions by government and party officials in the property and real-estate-development sectors. Referring to the moratorium on luxury development, a recent *China Daily* article noted the arrest of a few high officials from a key tourism city for permitting construction of a hotel that was deemed "too luxurious." In the past six months, this campaign has also resulted in a near-complete turnover in the upper echelons of Beijing's city government and party apparatus over alleged irregularities in the planning approvals process.

Signs of strength: Despite the imposition of economic control and the ever-present political uncertainty, there are a number of factors that continue to buoy the China market. Following the Clinton Administration's unconditional granting of most-favored-nation trading status last year and the prospect of

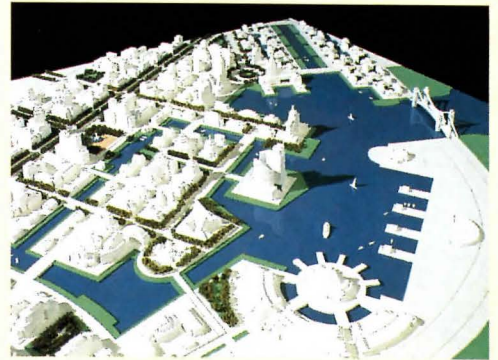
China joining the new World Trade Organization, a host of foreign investors and companies have opened offices in this country's major cities. In addition, years of central planning have left the country with shortages in most capital-intensive sectors, including buildings.

Office construction: Demand for office space in the capital has been such that the Chinese media reports, with a mix of pride and dismay, that Beijing's office rents are now as high as the pricier districts of Hong Kong, Tokyo, and New York. In Shanghai, all the new buildings in Pudong and Huangpu suggest the city will soon have a surfeit of office space. But a common complaint heard in most parts of China is that very few such office buildings will meet western standards of construction, finishes, or amenities.

Housing: In response to the severe domestic shortage of urban housing, the Ministry of Construction continues to place priority on residential development. The aim of a new seven-year "Comfort Housing Project" is to build more than 14-billion sq ft of housing by offering tax breaks for developers, while encouraging residents to purchase their apartments. Expatriate housing is also in short supply in major urban centers.

Adaptive re-use: The shortage of residences and commercial space in tandem with the liquidation of the assets of debt-ridden state-run enterprises has led to the development of an interesting niche market in renovation and adaptive re-use. Because approvals for new development can be slow, as permits are "rationed" onto the market, some short-term supply has been met by lower-rent, "quicker-to-market" conversions of factories, schools, and exhibition halls into offices, stores, and entertainment complexes.

Where the action is: Shanghai's development, supported resolutely by the central authorities, seems to continue unabated with not only Pudong, but the entire city, in the shadow of cranes or behind scaffolds. In time, the rehabilitation of Shanghai is expected to spur development along the Changjiang



In northeast China, where growth is still encouraged, RTKL has masterplanned a new town for 330,000 people outside of Dalian.

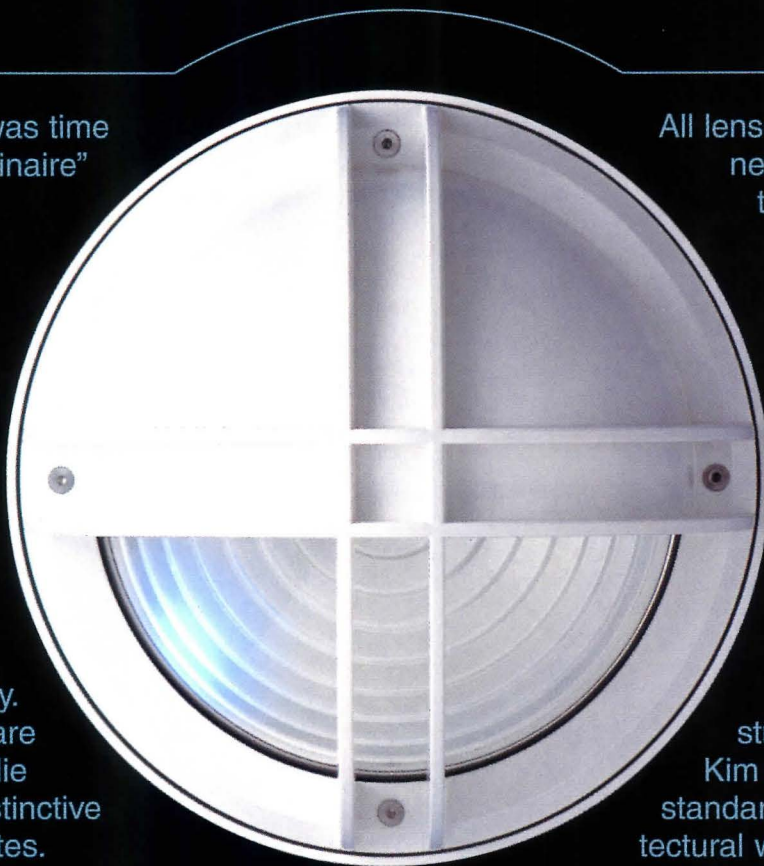
(Yangtze) River. In part due to inflated property prices in Shanghai, interior cities such as Chongqing, Nanjing, and Chengdu are already beginning to see more growth. Though there remains much demand for commercial and residential accommodations in Beijing, it is as yet unclear what impact the city's recent political changes will have on its near-term development. The State Planning Commission is encouraging investment and development in the north and northeast region—including the cities of Shenyang, Dalian, Harbin, and Tianjin. In southern China, cities like Shenzhen and Guangzhou, which were the first to benefit from economic reforms a decade ago, continue to grow. But others, such as Hainan Island, which is heavily dependent on tourist-oriented luxury development, have slowed dramatically.

Spotlight on reform: Last year, the Ministry of Construction announced reforms to raise the standards of the architectural profession. An important aspect of the reforms is the removal of government subsidies. Design institutes, many bloated with huge staffs, will be subject to the rules of a market system. To stay afloat, most institutes will encounter the heretofore alien concepts of reorganization and downsizing.
Grant W.K. Sung, American architect working in Beijing

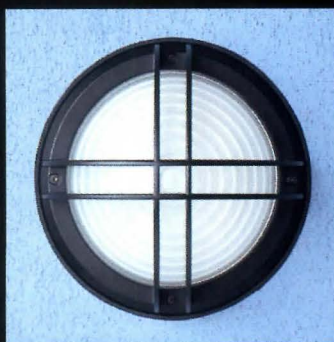
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With Reconstruction Underway, Architects Hope to Preserve the Past

© Tim Karr photo



The historic Thirty-Six Streets district of Hanoi is the focus of preservation efforts.

GDP, 1994: \$15.46 billion

GDP growth, 1994: 8.8 percent

Projected GDP growth, 1995: 10 percent

Inflation, 1994: 14.4 percent

Population: 73 million

Economic overview: Hanoi's reformers can point to strong 1994 economic figures as proof of their success in converting communist Vietnam to a policy of capitalism with a "socialist orientation." A surge in GDP, supported by strong growth in construction (19.4 percent), industry (12.9 percent) and services (10.2 percent), lends credence to the reform strategy. Vietnam's free-market transformation or "doi moi" (renovation) began in 1986 as a desperate bid to save the nation's economy from the stagnation of an austere Soviet-style centralized system. By the end of last year, Vietnam had reduced inflation from 600 percent in 1986 to 14.4 percent. While the government is trying to keep the 1995 figure under 10 percent, more realistic estimates put this year's inflation at between 12 and 15 percent. Deputy Prime Minister Phan Van Khai in April told the official Lao Dong newspaper that Vietnam's annual economic growth rate should reach 10 percent by 1995 and 12 percent by the end of the century. By 2000, the Government plans to increase gross domestic product 2.5 to 2.7 times the 1990 figure, lifting the nation from

the ranks of the world's poorest nations.

Joining its neighbors: The country is poised to join the Association of Southeast Asian Nations (ASEAN) this summer, an event seen as a significant milestone on the country's path of "doi moi." ASEAN membership is the final step in Vietnam's shift of alliances from the Soviet Union and Eastern-bloc nations to Southeast Asian powers.

Foreign investment: The 1987 Law on Foreign Investment has enticed foreign businesses to pledge nearly \$14 billion through the first quarter of 1995. Overseas investment has not been without its problems, though. Corruption and bureaucratic red tape, combined with a slipshod legal system, have turned many foreign business' experiences into nightmares of expensive delays and miscues. In February 1994, the U.S. lifted its 19-year-old trade embargo, clearing the last obstacle to billions of dollars of international aid for essential repairs to the nation's crumbling infrastructure.

Construction: Overseas investors have funneled 44 percent of their capital in Vietnam into the construction of offices, hotels, and other commercial space. The largest licensed project to date is a \$524.5-million Taiwanese venture to develop a sprawling retail, office, and park complex in downtown Ho Chi Minh City (formerly Saigon). The complex, dubbed

the Central Park Project, will feature the nation's tallest building, a 38-story office tower to be completed by the year 2000. With over 20 percent of foreign investment aimed at tourism, hotel building is also active. Of note is the recently approved \$243-million Non Nuoc Resort complex at China Beach, once a popular R&R spot for American GIs.

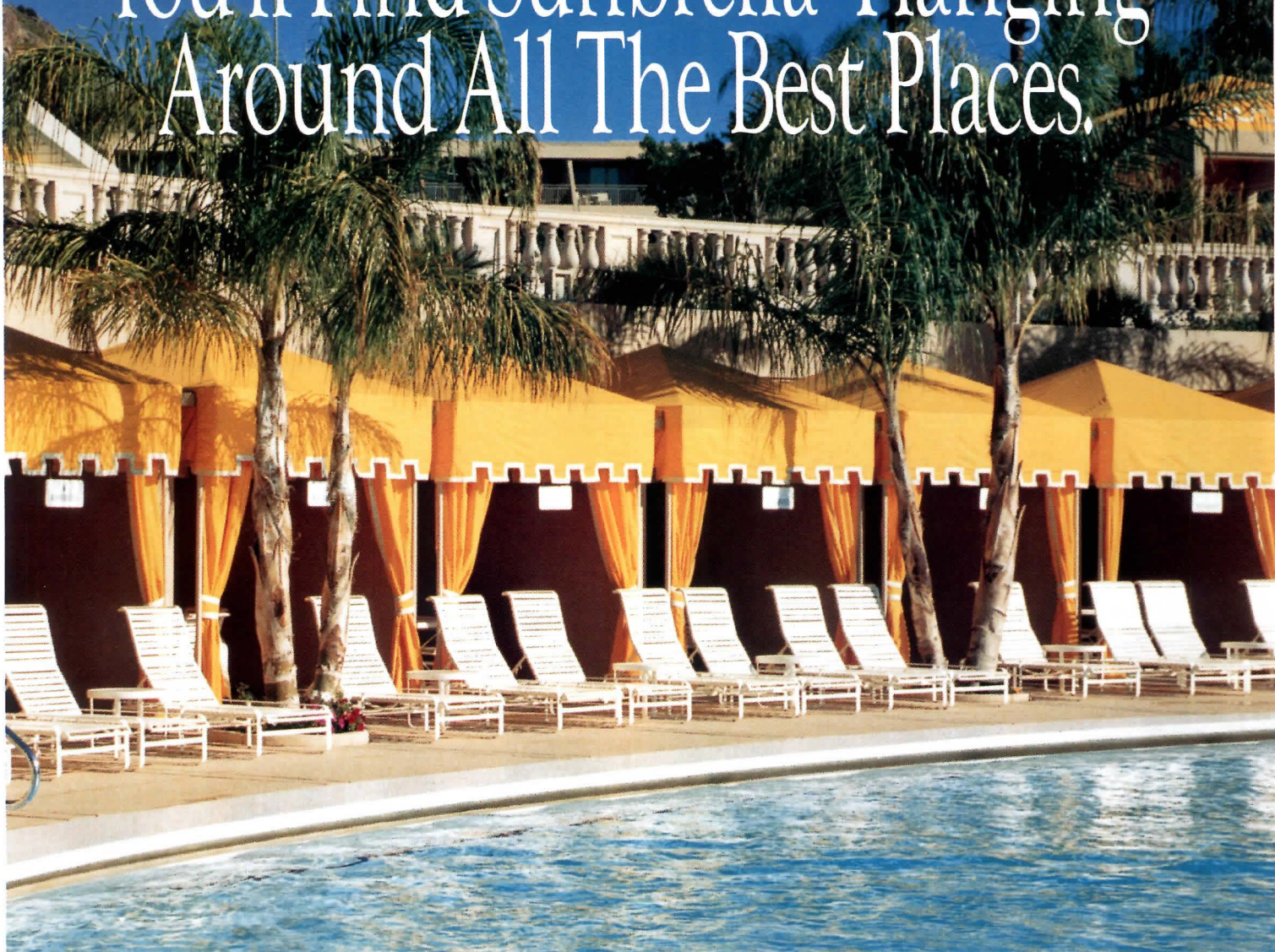
Local architects: With a construction boom underway, opportunities for local architects would seem to be great. However, according to one of Vietnam's top architects, little of this business has trickled down to the country's more than 6,000 trained architects. "I worry that foreign contractors are passing over Vietnamese architects in favor of designers from abroad," says Nguyen True Luyen, chief executive of the Vietnam Union of Architects. Without Vietnamese architects playing a more significant role in the planning and design of major projects, the unique character of the nation's cities may be lost.

Spotlight on preservation: Although the French didn't leave behind much in the way of infrastructure when they exited Vietnam in 1954, they did leave Hanoi—one of Asia's most beautiful cities. During the next 40 years, the city remained almost intact, isolated by warfare, Soviet-style austerity, and a U.S. trade embargo. Hanoi's eclectic blend of Chinese, French, and Soviet buildings, and its tree-lined boulevards have been spared—so far—the free-market ravages that have swept away older neighborhoods and vernacular buildings in other Asian cities.

Historic district: Help in preserving the country's architectural heritage is now being provided by a \$1.8-million grant from the government of Australia to prepare a strategy for protecting the "Thirty-Six Streets" district in Hanoi. The original merchants quarter of the 1,000-year-old city, the Thirty-Six Streets is a maze of alleyways, pagodas, shopfronts, and crumbling old teahouses, and still serves as the locale for guilds specializing in traditional handicrafts. While the city has approved the Thirty-Six Streets plan, it has yet to implement it, and new construction rises with few controls in the old quarter. When in force, the plan will not prohibit new construction, but rather will block the demolition of landmarked sites and limit buildings in the district to a height of 53 feet.

Tim Karr, Hanoi-based journalist working for the Vietnam Investment Review

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Philippines

Numbers Point Up

GDP, 1994: \$56.8 billion

GDP growth, 1994: 4.3 percent

Projected GDP growth, 1995: 5.6 to 6 percent

Inflation, 1994: 9 percent

Population: 65 million

Overview: A first-time visitor to Manila might find the skyline unimpressive, especially if coming from Hong Kong or Singapore. But Manila has changed, both in the size of the new buildings and their style. Beside the boxy concrete blocks that once dominated the skyline rise stylish steel-and-glass towers—signs of greater freedom and a growing economy. While Philippine politics remain contentious, President Fidel Ramos inspires confidence in the business community. Liberalization in trade, finance, and investment policies have also helped.

Investment: In 1994, overall investments grew by 10.1 percent, with construction, durable equipment, and manufacturing leading the way. Direct foreign investment amounted to \$863 million last year, while portfolio investment by foreigners was \$3.23 billion. Initial 1995 figures suggest that direct foreign investment continues to surge, even as the

stock market sags. Aside from traditional sources of investment—the U.S., Japan, and nearby Taiwan—investors are coming from Hong Kong and smaller Asian economies like Thailand and Malaysia.

A growing economy: After years of hardship and turmoil, the Philippine economy has turned upward with investment fueling growth. Per capita GDP, though, remains low (\$830 per year), limiting purchasing power to a narrow swath of society. Population is growing by more than 2 percent a year and may reach 75 million by the year 2000.

Construction: Architects and developers expect construction to remain strong. In metro Manila, residential and office condominiums rise at a steady pace. Architect Manuel Manosa says Manila's shortage of vacant lots and the impracticality of commuting from outlying towns have fueled a boom in multi-family housing. Architect Rogilio Villarosa says office condominiums that appeal to small and mid-sized firms are proving more popular than buildings with large suites or multi-floor offices. Deluxe hotel construction, though, has slowed after developers added 2,000 rooms to Manila's supply in

1993 and 1994. Meanwhile, the government is building schools and low- and moderate-income housing, especially in the provinces.

Spotlight on a military conversion: One of the most prominent new projects in the country is the conversion of Fort Bonifacio, Manila's Philippine Army headquarters, into a 289-acre, multi-use development. In January, a consortium led by the Metro Pacific Corp. successfully bid \$1.6 billion for a 55 percent share in the mega-project on the edge of the Makati financial district. Called "the city of the 21st century," Fort Bonifacio will be developed as a joint venture with the Philippine government. A conceptual masterplan, prepared by RTKL and Manila's Planning Resources & Operations Services (PROS), calls for the creation of two major districts separated by a large green space. The northern district, envisioned as a new business quarter for Manila, will include office, hotel, retail, and residential buildings. The southern district will be mostly residential. Construction should start in 1996 and will continue for about 20 to 30 years.

James B. Goodno, Southeast Asia correspondent for World Trade magazine

Singapore

Cautious Optimism Colors Forecasts

GDP, 1994: \$66.3 billion

GDP growth, 1994: 10.1 percent

Projected GDP growth, 1995: 7.5 to 8.5 percent

Inflation, 1994: 3 percent

Population: 2.98 million

Economic overview: While business executives in Singapore "remain broadly optimistic," say analysts at DBS Bank, "repercussions from external factors such as U.S. interest-rate movements, concerns over China's political succession, and the Barings crisis have created an air of caution and prompted a downward revision in the real GDP growth projection..." Indeed, the Ministry of Trade and Industry (MTI) has lowered its forecasted growth rate to 7.5 to 8.5 percent, from 8 to 9 percent.

Construction: Building activity this year should exceed that of last year, says Lam Siew

Wah, the chief executive officer of the Construction Industry Development Board (CIDB). According to CIDB projections, \$8.47 billion worth of projects will be awarded in 1995, up 7 percent from last year. Of this total, \$5.25 billion will be for public-sector projects. About 40 percent of the public works will be for housing, a reflection of an upgrading program initiated by the Housing and Development Board. Private residential contracts are expected to fall to \$1.33 billion this year from \$1.96 billion, due to the government's efforts to curb real-estate speculation, as well as to rising interest rates. Private commercial contracts are projected to reach \$660 million, while manufacturing contracts are seen as hitting \$980 million. Meanwhile, spending on institutional buildings is projected to be approximately \$1.26 billion.

Spotlight on shopping centers: Lately, the Singaporean concept of a shopping center has evolved. Once confined to Orchard Road, this icon of modern retailing has spread throughout Singapore, most notably near or above rapid-transit stations. No longer just collections of retail shops, the latest malls include large atria, multiplex theaters, food courts, supermarkets, even amusement centers. Not everyone is impressed with the centers, though. In an article in *The Straits Times*, Tan Hock Beng, of the National University of Singapore's School of Architecture, says, "The exterior forms of these shopping centres are extremely bland and ungainly. Such faceless development, with their banal windowless hulks of walls, does little in encouraging residents to identify with their own towns with a real sense of pride." *Arthur C. Chew, Singapore journalist*

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Alam Sutera is one of many new satellite towns being developed outside Jakarta.

GDP, 1994: \$588 billion

GDP growth, 1994: 7.3 percent

Projected GDP growth, 1995: 7.5 percent

Inflation, 1994: 9.6 percent

Population: 190 million

Economic overview: Having pushed its gross national product per capita to \$884 in 1994, Indonesia has left the ranks of developing nations and moved into the category of middle-income countries. In the process, it has transformed itself from an agricultural and mining-based country into one in which manufacturing and construction are driving the economy. In just 12 years, Indonesia's industrial sector has grown from 12.7 percent of its economy to 22.3 percent, while agriculture has decreased from 23 percent to 18 percent and mining has dropped from 20.8 percent to 9.6 percent. Reflecting the country's new status as an emerging economic power, Standard & Poor's now rates Indonesia as a "BBB" investment risk, up from "minus BBB." The new rating, coupled with a foreign-investment deregulation package passed by the government in June 1994, has helped attract more foreign capital. As of mid-November 1994, foreign investment has increased 192 percent over the comparable period the year before, and domestic investment has increased by 27.6 percent. A negative result of the strong economy has been an inflation rate of 9.2 percent, which exceeds the targeted rate of 5 to 6 percent. Inflation, together with increases in key U.S. interest rates, pushed Indonesia's interest rates up by 1 to 2 percentage points in the second half of last year.

Office construction: In the fourth quarter

last year, a little more than 1 million square feet of prime office space was completed in Jakarta, bringing the capital's office stock to 20.7 million square feet. This building activity pushed the vacancy rate up to 7.8 percent, from 6.9 percent. The building boom, though, continues; nearly 9 million square feet of office space is now under construction and scheduled for completion by the end of 1997.

Retail construction: Demand for new shopping centers remains high and 2.2 million square feet of retail space is scheduled to be completed in 1995. It seems as if every part of Jakarta is competing to build a new super- or mega-mall, some including recreational facilities and even theme parks. In the suburbs, it is now considered essential to build a super-mall of about 1 million square feet in every new satellite town.

Housing construction: With an emerging middle class and a robust economy, demand for housing remains strong. In 1994 a total of 124,000 housing units were sold and the prediction for this year is for 148,000 units. To meet demand, the government is loosening credit for housing loans through its official bank and private banks are following suit.

A new subway: With a city population of 9 million and a metropolitan population double that, Jakarta faces a major transportation challenge every day. Between 6 a.m. and 10 p.m., 9.7-million vehicle trips are made every day—and 51 percent of these are in private vehicles. Traffic often grinds to a halt. Earlier this year, the governor of Jakarta announced a plan to build a new integrated transportation system using three-tiered "roads" with highways on top, conventional streets on

grade, and subways below. The first segment, 8.7 miles long, will connect the densely populated area of south Jakarta with the central business district and north Jakarta. To be built by a consortium of government and private companies, it is scheduled to be completed by 2000 at a cost of \$1.3 billion.

Local feelings: While Jakarta seems to be a magnet for foreign architects, local firms sometimes feel left out. Often relegated to doing production documents, some Indonesian architects feel their expertise in the local culture and design traditions is overlooked. According to Sonny Sutanto, an active member of the Indonesian Institute of Architects, many foreign architects apply styles and designs inappropriate to Indonesia.

Spotlight on satellite cities: In the last five years, the face of greater Jakarta has changed with the creation of a number of satellite cities in outlying areas. As old kampungs or villages are cleared in the central city to make way for skyscrapers, many of the people who lived there are moving to the suburbs. Using relocation money from downtown developers and new earning power from better jobs, these people are pioneering a series of self-contained towns being built by private developers. While the typical size of these satellite developments is between 500 to 700 acres, the newest one, called The Legend City, is 2,000 acres. The two largest developers of new towns are: Sang Pelopor (Pioneer) Group and Lippo Group.

On the boards: The developers often hire American or Australian firms to master-plan the communities and do much of the design work. Sang Pelopor has projects around Jakarta, in Tangerang (20 miles west of Jakarta), and Surabaya (the capital of East Java). In Tangerang alone, the company has five new satellite towns underway: Bumi Serpong Dami with 140,000 units of housing, Bintaro Jaya with 9,400 units, Citra Garden with 4,500 units, Pantai Indah Kapuk with 10,000 units, and Citra Grand City with 17,000 units. At its 30,000-unit Lippo Village in Tangerang, Lippo Group built shopping malls, an office compound, schools, a hospital, a golf course, and even a horse-riding academy before putting up houses. When finally offered, the first 1,100 houses sold out in three days.

Gatot Surarjo, principal of the architecture firm PT Arga Calista Disain

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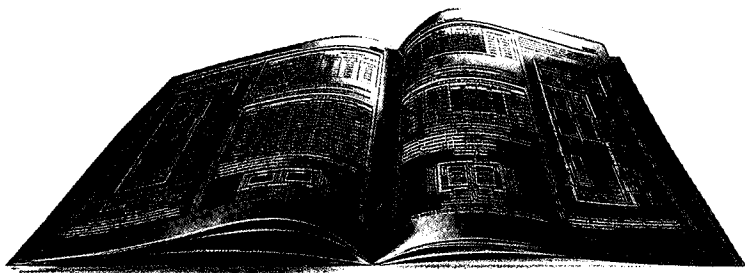
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Taiwan

Exports Fuel Economic Growth, But Building Slows

GNP, 1994: \$268.6 billion

GNP growth, 1994: 6.5 percent

Projected GNP growth, 1995: 7.1 percent

Inflation, 1994: 4.1 percent

Population: 21.1 million

Economic overview: Taiwan's economy, one of the world's best performers during the past decade, is expected to grow faster this year than in 1994. "Export growth, particularly to Japan, is helping to stimulate the economy this year," says Chou Ji, of the Chung-hua Institution for Economic Research. With the Japanese yen appreciating 10.7 percent against the Taiwan dollar in the first five months of 1995, products from Taiwan are cheaper for customers in Japan. Taiwan's exports during the first four months of 1995 soared 25 percent from the year before, reaching \$34.5 billion. Expansion in high-tech industries, along with Taiwan's proximity to

fast-growing mainland China, has enhanced the country's attractiveness to foreign investors, says Lynn Sien of the American Chamber of Commerce in Taipei.

Construction activity: Building remains brisk, even though properties are coming into a market plagued by oversupply. But things may be slowing down. The government's index of construction activity, which measures floor space being built, rose 12.6 percent during the first quarter of 1995. That's down from a rise of 28.9 percent for all of last year. Applications for building permits actually dropped 0.7 percent in the first quarter, following a decline of 14.2 percent for all of last year. The market is slowing in part because of high vacancy rates caused by speculative residential building during the past several years. The commercial market has also gone slack after excessive building spurred by developers' fears of new

floor-area regulations that would reduce potential floor space, explains Huang Wan-chen, a principal of HPH Architects and Planners. In Taichung, Taiwan's third-largest city with a population of around 800,000, the vacancy rate for offices is as high as 50 percent, says C.C. Chiang of Ever Fortune Industrial, a big developer. Government work has also slowed, due to a one-third cutback in the \$300-billion Six-Year National Development Plan.

Searching for style: At issue among Taiwanese architects today is the development of a local design identity distinct from that of the West. Creating such a design vocabulary "is the major challenge facing us in architecture right now," says architect Carl Shen. *Russell Flannery, correspondent for Bloomberg Business News in Taipei*

Thailand

Building Activity Focuses on Infrastructure

GNP, 1994: \$146.5 billion

GNP growth, 1994: 8 percent

Projected GNP growth, 1995: 8.7 percent

Inflation, 1994: 5 percent

Population: 60.3 million

Economic overview: Thailand continues to sustain impressive growth, expanding overall economic activity by 8 percent last year. Although inflation jumped from 3.3 percent in 1993 to 5 percent last year, it is expected to decrease slightly this year. Like many rapidly developing nations, Thailand has a population that is growing remarkably fast (1.6 percent in 1994 alone) and becoming increasingly urban (23 percent). By 2005, the population is likely to reach 70 million.

Construction activity: While overall construction grew 12 percent last year (up from 8.7 percent in 1993), most of the activity was infrastructure work. Meanwhile, private-sector construction was down substantially, due to a saturated office market. Building permits in Bangkok decreased a record 22.2 percent during the first nine months of last year. Growth continued in the provinces, though, with permits up 12.1 percent.

Housing: With Bangkok's notorious traffic

congestion only getting worse, proximity to work has become increasingly important. Although houses in the suburbs are still favored by Bangkok residents, longer commuting times are making centrally located high-rise condominiums more attractive. Estimates by property consultants Richard Ellis (Thailand) Co. show housing construction reaching 143,350 units in 1994, including 54,770 multi-family units. In the past, most condominium projects were luxury developments aimed at the wealthy, but today a majority of for-sale apartments are being bought by an emerging middle class.

Mega-city: Bangkok remains very much the focus of economic activity, as well as home to more than one-tenth of the nation's population. There is little indication of a substantial move in Thailand toward decentralization. At the same time, infrastructure development is patently failing to keep pace with growth. By the start of the 21st century, Bangkok is expected to have a population of some 12 million and will rank among the world's 20 mega-cities. In a speech at a conference on "Cities and the New Global Economy," in Melbourne, Australia, last

November, Dr. Sumet Jumsai, a leading Bangkok architect, admitted the city was "already in chaos" and posed the question "whether it will grow into an efficient mega-entity or a mega-shanty." Sumet remarked that "like so many other cities in the developing economies of East Asia, Bangkok is polluted but vibrant, full of energy and ever rapidly growing, yet without proper infrastructure." Remarkably, in spite of all this, "it seems to work," he noted. According to Sumet, East Asians tend to "look beyond the current negative conditions and accept or envision mega-cities in a very positive or even aggressive way." While mega-cities often seem to be on the way to catastrophe, says Sumet, they find ways to adjust—socially, psychologically, and physically—so that the "end" never really comes. To illustrate his point, Sumet cites Hong Kong, which was a "refugee squatter twilight zone" just 50 years ago and to the Tokyo-Osaka megalopolis, which shows that an urban entity of more than 50 million people can be highly organized, clean, and efficient.

John Hoskin, Bangkok-based journalist

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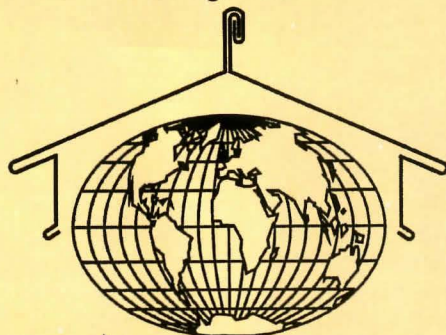


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Growth May Peak This Year

GDP, 1994: \$298 billion (Australia); \$27 billion (New Zealand)

GDP growth, 1994: 4.3 percent (Australia); 5.2 percent (N.Z.)

Projected GDP growth, 1995: 3.4 percent (Australia); 5.8 percent (N.Z.)

Inflation, 1994: 4.0 percent (Australia); 1.1 percent (N.Z.)

Population: 16.5 million (Australia); 3.4 million (N.Z.)

Economic overview: In both countries, economic recoveries have taken root and are continuing. The more buoyant of the two is New Zealand, whose economy grew 5.2 percent last year, up from 2.9 percent in 1993. Forecasts call for the New Zealand economy to peak this year at 5.8 percent growth and then trail off to 3.5 percent growth by 1997. In Australia the recovery, now in its third year, should continue for another 18 months. Inflation is also gaining steam in both countries, rising from 1 percent in Australia in 1992-93 to an expected 6 percent in 1995-96.

Construction: The resulting high interest rates should slow construction activity, especially in the residential sector. In Australia, for example, housing starts are

expected to decline 8 percent this year and perhaps 20 percent next year. Growth should continue, though, in Australia's non-residential sectors, with office buildings, retail, and hotels leading the way. As government cuts back on capital works to reduce budget deficits, the healthcare and educational sectors are expected to decline. The slowdown in the Australian economy will affect its neighbor, since 50 percent of New Zealand's non-commodity manufactured exports go there.

A splintered profession: In the wake of the extended recession of the late 1980s and early 1990s, the structure of the architectural profession in New Zealand has changed dramatically, says Alan Purdie, general secretary of the New Zealand Institute of Architects. All but a handful of the large firms have met their demise, spawning smaller groups and a large number of solo practices. After some difficult years, most architects have made the transition to smaller practices and are finding work on adaptive-reuse and urban-renewal projects.

Housing: In the face of decades of urban sprawl and the "large backyard syndrome"

that affects Australian home buyers, urban planners are urging developers to build "smart suburbs" with higher-density housing. According to a report by the ministry of housing, Australia's low housing densities of about 4 units to the acre result in an inefficient use of land and infrastructure. The recently completed Crown Street development in Sydney, however, is viewed by some experts as a model for future medium-density housing. Designed by the Travis McEwen Group, the project draws its character from European and local housing blocks.

Spotlight on Wellington's waterfront: In New Zealand, the emphasis on higher-density development can be seen in both Auckland and Wellington, where inner-city districts are the focus of renewal efforts. To attract more tourists, Wellington is expanding its waterfront with a major development along Lambton Quay that will include apartments, shops, and leisure activities. It will also feature the \$90-million Museum of New Zealand, designed by Jasmax Architects to express the overlapping of European and Maori cultures. *Andrea Fraser and Graham Jahn of Jahn Associates Architects in Sydney*

New Rules To Reduce Barriers

GNP, 1994: \$377 billion

GNP growth, 1994: 10.5 percent

Projected GNP growth, 1995: 7.5 percent

Inflation, 1994: 5.6 percent

Population: 44.8 million

Economic overview: The South Korean government hopes to maintain the current high rate of economic growth until the country achieves the status of developed country. One step in the government's plan is to increase per capita GNP to \$10,000 in 1995. It also hopes to join the Organization for Economic Cooperation and Development, the so-called "rich countries" club. Another key to South Korea's future will be its membership in the new World Trade Organization, which will require it to lower tariffs and barriers to foreign investment.

Construction activity: Much of the building activity in Korea is being led by a few large

projects in Seoul, including the development of satellite towns around the capital, the building of mixed-use sub-centers within the city, and the redevelopment of low-income neighborhoods into higher-density districts with high-rise apartment towers. Although construction of office buildings is outpacing demand by a small margin, the price of office space has yet to soften. In the residential sector, 477,000 apartments and 160,000 rowhouses were built last year.

Architectural reform: In an effort to reform Korean architecture, a group called Gun Mi Choon (Korean Architects Planning for the Future) has been active in the profession. The group has been successful in updating old building regulations, many of which placed unnecessary restrictions on private building activity. The group also hopes to make clients and architects more receptive to the esthetic

aspects of design, not just issues of cost. As a result of the new GATT treaty, Korea will have to open up its professions, including architecture, to global competition. While many local architects see this as a serious threat, others hope it will help push Korean architecture forward.

Lift off: To help it become a hub for regional travel, the country is set to build a new international airport for Seoul. After a design competition was held, C.W. Fentress J.H. Bradburn and Associates in association with Baum Architects, Hi-Lim Architects, Jung Lim Architects, and Wondashi Architects were selected for the 11.6-million-square-foot project. Construction is to start this summer and be completed by the end of 1999. *Seock Jae Yim, professor; Ewha Women's University, Department of Architecture*



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Country Develops Faster Than Planned

GDP, 1994: \$69.6 billion

GDP growth, 1994: 8.7 percent

Projected GDP growth, 1995: 9 percent

Inflation, 1994: 3.7 percent

Population: 19.05 million

Economic overview: Breaking out of recession in 1987, the Malaysian economy has grown at an annual rate of more than 8 percent ever since. Last year, the figure was 8.7 percent and this year the projection is closer to 9 percent. Prime Minister Mahathir Mohamad, whose coalition has ruled since independence in 1957, says Malaysia is on track to becoming a fully developed country earlier than the 2020 target he set in 1990. Some of Malaysia's 19 million population—of whom 1 million are foreign workers—worry that growth itself has become a god. But senior government officials are adamant that an annual 7.5 percent hike in GNP is sustainable. They point to their success in containing inflation—3.7 percent last year and expected to stay under 4 percent this year. What's more, they say, the federal budget is in surplus for the second successive year. Further differentiating it from countries such as Mexico that have seen their fast-growing economies crash, Malaysia has the fifth highest level of foreign reserves anywhere and is one of the least indebted nations in the developing world. But there are worries—principally, the soaring current account deficit on the balance of payments and how this will affect interest rates and the value of the Malaysian currency. GT Management, one of the region's biggest fund managers, predicts a possible devaluation of the Malaysian ringgit, if the deficit is not cut.

Foreign investment: The government says the deficit is manageable because it is more than made up for by the inflow of foreign funds, both portfolio investment and the investments of foreign companies in Malaysia's booming manufacturing sector. After flagging in 1992 and 1993—evidence that China, Vietnam, and others were proving successful competitors for foreign investment—Malaysia's figures in this category jumped 44 percent last year.

Construction: A booming economy leads to a booming construction sector. This year, Bank Negara, the central bank, is predicting a 15.2 percent growth in construction, even higher than the projected 13 percent expansion in the manufacturing sector. Activity should stay



A warehouse by Architecture Bureau typifies a new generation of light-industrial facilities.

strong in both the office-building and industrial-facilities sectors throughout the country. The star performer is certain to be residential, as Malaysians scramble to own a piece of a booming economy.

Balancing act: All this building has prompted some worries that too much activity can be a bad thing. In March, the government responded by saying it would make sure that big infrastructure projects are not bunched together. Work on the proposed new administrative capital at Putera Jaya, for example, will not start until work on the nearby Kuala Lumpur airport is finished in 1997 (see story, page PR36). Property valuer Abdul Rahim, says the new airport at Sepang, 30 miles south of the capital, and the adjacent Putera Jaya new town will move the focus of Kuala Lumpur south and lead to a new round of building activity.

Foreign competition: A construction boom and a shortage of architects has made Malaysia an attractive place for foreign firms. While the U.S. has 5.3 architects per 10,000 urban population, Malaysia has only 2.9. Plenty of work and increasingly sophisticated native architects have made local firms more open to foreign competition.

Spotlight on Johor Baru: Traveling across the three-quarter-mile-long causeway connecting Singapore to Johor Baru, Malaysia's southernmost city and capital of booming Johor state, is a trip back in time. Like Singapore of yesteryear, Johor Baru is a jumble of shophouses and flaking municipal buildings. But over the next 20 years, a part of

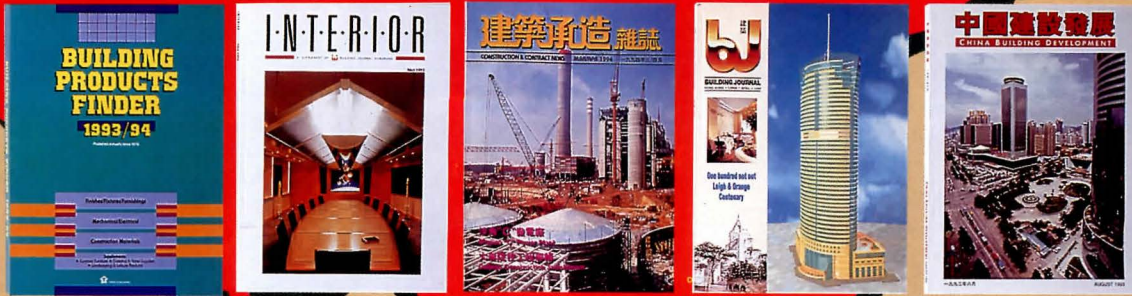
Johor Baru will come to mirror Singapore's ultramodern image. Construction started this year on JB Waterfront City, a new central business district that will include a grand plaza ringed by five office towers of up to 40 stories, shopping malls, three hotels, and a convention center. A palm-lined promenade will connect the commercial district to a residential area with 1,560 condominium units. Hong Lee Pee, chairman of Malaysia's Pilecon construction, calls JB Waterfront City "one of the greatest urban-development projects in Asia." Pilecon is the master planner of the project, while Johor Coastal Development, a subsidiary, is the developer.

Built on platforms: The project will include 10.8 million sq ft of commercial space—more than three times the area available in the existing city center. While Singapore razed many of its old neighborhoods to build its modern business core, Johor Baru plans to preserve as much of its heritage as it can. By building on platforms resting on stilts in the sea, the city will create a modern complement for its existing areas. The piled-platform construction has several advantages over more traditional land reclamation, such as allowing construction in phases and not having early tenants look out over large expanses of mud. Although Johor state has a new governor and there is some talk that the project may be scaled down, analysts say it has a good chance of success.

Sid Astbury, correspondent for Asian Business in Kuala Lumpur

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Airport Fuels Adjacent Development

GDP, 1994: \$116 billion

GDP growth, 1994: 5.5 percent

Projected GDP growth, 1995: 5.5 percent

Inflation, 1994: 8.8 percent

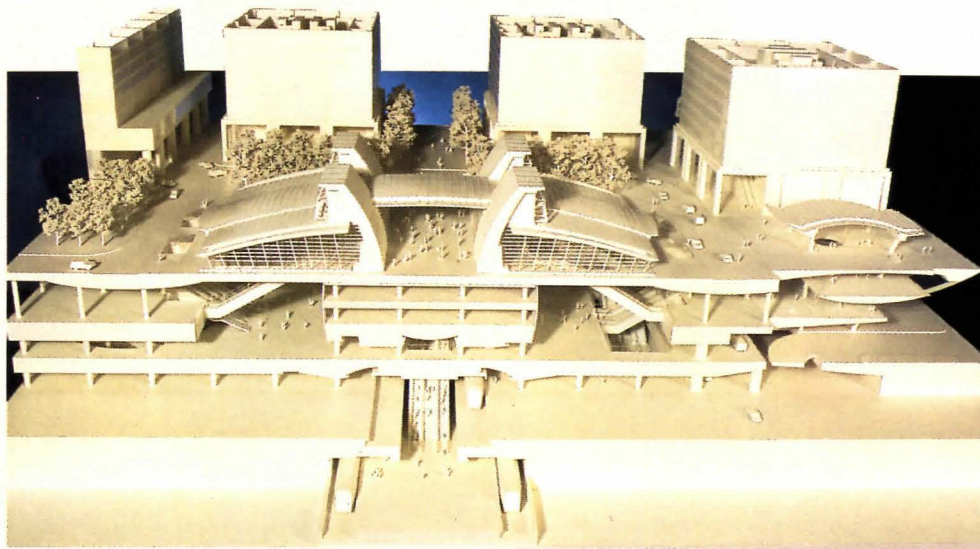
Population: 6 million

Economic overview: What a difference a year makes! Just last year, Hong Kong's stock market, which is heavily weighted toward property issues, was in the doldrums. Negotiations between Britain and China on funding for the stalled \$21-billion Chek Lap Kok airport were at an impasse, and the property markets (both commercial and residential) were falling after setting record highs. Local architects were understandably angst-ridden, even if they were making plenty of money off expensive projects in one of the world's priciest property markets. Today, the new airport is moving ahead (albeit with periodic Sino-British spats), the stock market has gained nearly 30 percent, and rents and property prices have at least stabilized. According to government economist K.Y. Tang, GDP is expected to rise by 5.5 percent this year and continue at about 5 percent growth to the end of the century.

Monetary matters: Inflation has been more of a problem, rising from 8.8 percent in 1994 to an expected 9.5 percent this year. Hong Kong's decision to peg its currency to the U.S. dollar has added to the problem, dragging the local dollar down against trading partners like Japan and Germany. Overall, the territory's economy looks sound and the government has taken a hard line on new public spending. Foreign investors, who fled the local stock market after the Mexican debt crisis, returned in late spring.

Real estate market: Property prices and rents, which were soaring at a frightening rate of 5 percent per month a year ago (and leading to talk of a corporate exodus for Singapore, Kuala Lumpur, and other venues), have fallen by as much as a third from highs set in April 1994. Luxury apartments in the Mid-Levels district of Hong Kong Island now go for about \$1,400 a square foot, down almost 10 percent from last year. Commercial rents are down too, by as much as 15 percent in the Central district. Many analysts say the downturn is simply a return to sanity and that a correction is healthy in the long run.

Politics: With two years to go until Britain hands over Hong Kong to China on July 1, 1997, things could still go badly wrong. Any



© Nigel Young

Kowloon Station, designed by Terry Farrell, will connect rail lines with the new airport.

sign of political trouble in China could cause a panic locally, as happened in 1989 after the Tiananmen Square massacre. But so far, things look good and the increased number of people returning to Hong Kong is an indication of positive business sentiment.

Construction activity: In 1996 some 5 million sq ft of new grade-A office space will hit the market, on top of 2.2 million sq ft being added this year. Until all this comes on-line, though, rents for prime space remain as high as \$155 a sq ft, compared to \$54 in Singapore. On the residential side, some 42,000 units came on line in 1994 and another 50,000 are expected to do so this year and next.

Spotlight on Chek Lap Kok Airport: With Sir Norman Foster's \$1-billion terminal as its engine, the new airport at Chek Lap Kok is pushing forward a series of major projects, including a new town, new rail stations, and all sorts of development on vast tracts of reclaimed land. One high-profile public project now underway, thanks to the resolution of the airport dispute, is the new Kowloon Station railway junction, which will be a major transport interchange for the MTR (subway), the Kowloon-Canton Railway, and the new airport railway line. In addition to acting as an interchange for the three rail lines, the station will provide airport check-in, bus, and road transport, and an 11-million-sq-ft air-rights development with hotel, office, retail, and residential components. The above-ground, mixed-use development, masterplanned by Terry Farrell & Company, will face three public gardens and center



Tung Chung, a new town for 200,000 people, will be built across from the new airport.

around a split-domed station building, designed by Farrell as well.

Local complaints: Such major public projects should dampen, at least temporarily, the biggest complaint of local architects: that Hong Kong's tight-fisted developers aren't interested in creative design. The airport projects, though, may have only limited impact on smaller commissions. "I think architecture in Hong Kong is at a pretty low standard," grumbles Nelson Chen, of Wong Chen Associates. Some of the complaining may be overdone. Says Tunney Lee, head of the architecture school at Chinese University, "The opportunity is there for more creative work in Hong Kong. It's true that architects here have had a hard time being creative, but my guess is that a lot of architects who could push developers won't push."

David Lindorff, correspondent for Business Week in Hong Kong

Soaring Yen Shackles Economy and Construction

GDP, 1994: \$4.75 trillion

GDP growth, 1994: 0.6 percent

Projected GDP growth, 1995: 0.2 percent

Inflation, 1994: -0.2 percent

Population: 124 million

Overview: "The Kobe earthquake is on everybody's mind," says Dennis Cope, managing director of Hellmuth, Obata & Kassabaum's Tokyo office. The worst tragedy in Japan's postwar history, the January 17 disaster took 5,300 lives and left 300,000 homeless. Now fear of another one has citizens throughout the archipelago squirreling away bottled water, as well as inspecting their columns and shear walls. In theory, the quake's aftermath should spell opportunity for architects in Japan, where the demand for their services remains soft. But in reality, the rebuilding of Kobe will comprise only 3 to 4 percent of Japan's total construction investment—not enough to jump-start the country's sputtering construction industry. Spending on earthquake reconstruction may total as much as \$87 billion, but most public outlays for infrastructure and housing won't come until 1996 and 1997.

Economic view: According to analysts at Salomon Brothers in Tokyo, Japan's economy is in worse shape than ever. While they predicted a post-quake rise of 2.3 percent in GDP for 1995—an improvement over last year's 0.6 percent increase—the skyrocketing yen has sent the economy into a tailspin, obliterating any economic boost from the earthquake. Now Salomon is predicting that the GDP will not rise more than 0.2 percent.

Commercial building: Private sector construction in general looks fairly bleak. Commercial work will remain sluggish in 1995, with little chance of picking up before fiscal year 1997, according to analysts at James Capel Pacific Limited. Since land prices are down 20 percent from last year (marking a 60 to 70 percent decline from their 1989-90 peak) and are expected to drop even further this year, no one is in a hurry to develop their holdings. And with Japan's economic uncertainty, few developers can afford to do anything but sit tight.

Residential building: Even the housing sector is hurting. According to James Capel, housing loan rates will remain extremely low and only rise to 4.2 percent in 1995. Having witnessed the Kobe destruction, many



© O. Murai photo

The Museum of Contemporary Art, designed by TAK, is Tokyo's first Modern art museum.

Japanese are wary of owning property. One area of growth is low-cost housing. "We're in an era of price busting," says Kathryn Findlay, whose firm Ushida-Findlay Partnership recently completed a prototype low-cost house for a development near Osaka. By using a polystyrene panel system, the architects were able to hold down the cost of the house. "We're hoping to make hundreds of them," says Findlay.

Public works: One of the few bright spots for architects countrywide is public works. The U.S. Embassy in Tokyo estimates that the rate of public construction over the next three years will grow 5 percent annually. Public investment from 1995 through 2004 is expected to reach about \$74 billion—nearly doubling present levels. One manifestation of this trend is the continued outpouring of government funds for arenas, convention centers, and cultural facilities such as Tokyo's new Museum of Contemporary Art. (See Spotlight below). And plans are being made for even bigger developments such as the Yokohama International Port Terminal, being designed by competition winners Alejandro Zaera-Polo and Farshid Moussavi of London.

Opportunities for foreign firms: Activity in the public sector, though, may not yield opportunities for American designers. The Major Projects Arrangement between the Japanese and U.S. governments, which helped some American firms gain a foothold in Japan, is being phased out. In its stead, the "Action Plan on Reform of the Bidding and Contracting Procedures for Public Works"

(Action Plan) went into effect in April. In theory, a positive next step, the Action Plan is designed to "make conventional procurement procedures more transparent and non-discriminatory," according to a report by the U.S. Embassy in Tokyo. Although the Action Plan's contract volume is approximately \$19 billion a year, American architects remain skeptical because access to the projects is far from transparent and a mere 10 percent of the work will require architectural services.

Spotlight on modern art: Remarkably, Tokyo did not have a museum of Modern art until the Museum of Contemporary Art opened its doors in March. Designed by TAK Associated Architects, the 361,000-sq-ft facility contains galleries for temporary exhibits and permanent collections sandwiched between a stone-clad administration wing and glass-enclosed lobby. Designed to be as transparent as possible, the lobby, with its monumental triangular trusses, faces Kiba Metropolitan Park in the heart of the city's former timber market. Specialists in cultural buildings, TAK was founded in 1986 after it won the competition for the New National Theater now under construction in Tokyo's Shinjuku ward. The work of artists is present not only in the museum's galleries but in the very fabric of the building. Indeed, the exterior tilted steel poles, the trusses's punched metal infill panels, and the lobby's colored lighting scheme were all joint efforts of the architect and selected artists.

Naomi R. Pollock, RECORD's Japan correspondent

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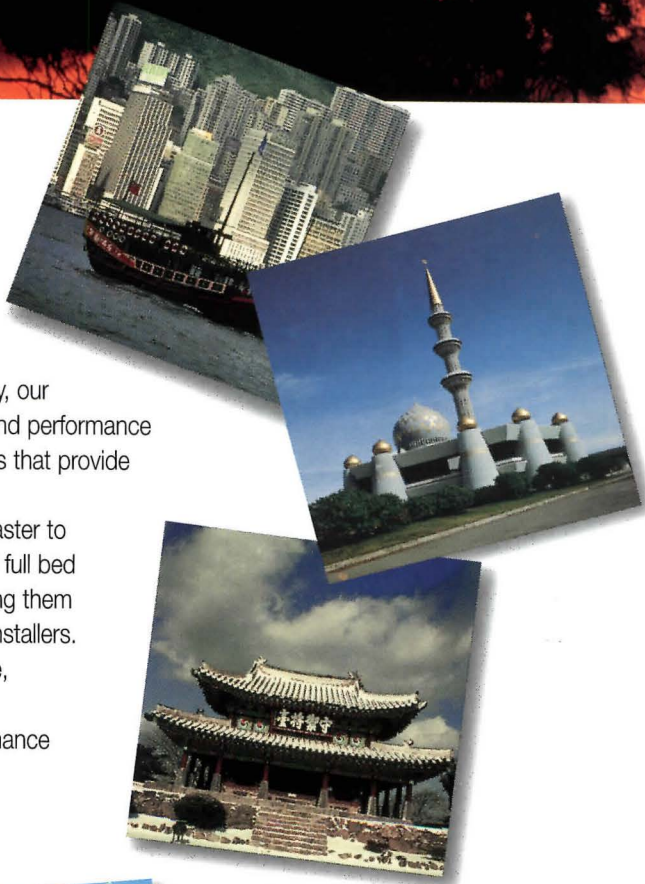
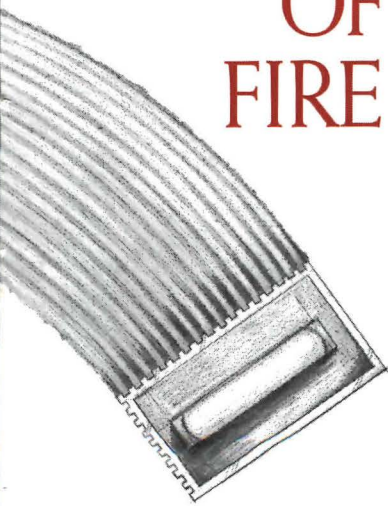


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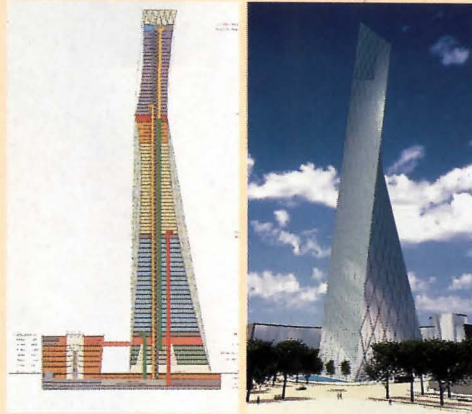
Projects From Around the Region

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Euro-Asia City
Beijing, China
Skidmore, Owings & Merrill (New York)

Project type: mixed-use
Office component: two towers of 28 floors and 19 floors, with a total of 1.2 million sf of space
Retail component: glass-and-steel pavilion with mall below, totaling 345,000 sf
Housing: three towers with a total of 508,000 sf, set behind the office complex
Structural system: concrete for office towers and housing; steel frame for retail.



Nanjing International Center
Nanjing, China
Peter F. Poon and Fredenburgh Wegierska-Mutin (New York), architects

Project type: mixed-use, including office, hotel, retail, residential, and conference
Components: 88-story tower, 7-story annex
Design concept: Floors are triangular in plan and rotate at varying angles, creating a helical geometry. Top-floor dimensions are one-half those of the base.
Structure: composite concrete and steel.



Housing at Tseung Kwan O
Hong Kong
Anthony Ng Architects (Hong Kong)

Mix of units: 2,000 apartments for sale and 1,000 for rent to elderly and small families
Other components: kindergarten, day care, community market, social center for elderly, activity center, rehabilitation center for hand-icapped
Height/area: 54 stories; 1.7 million sf
Environmental concerns: passive and active environmental strategies included in design.

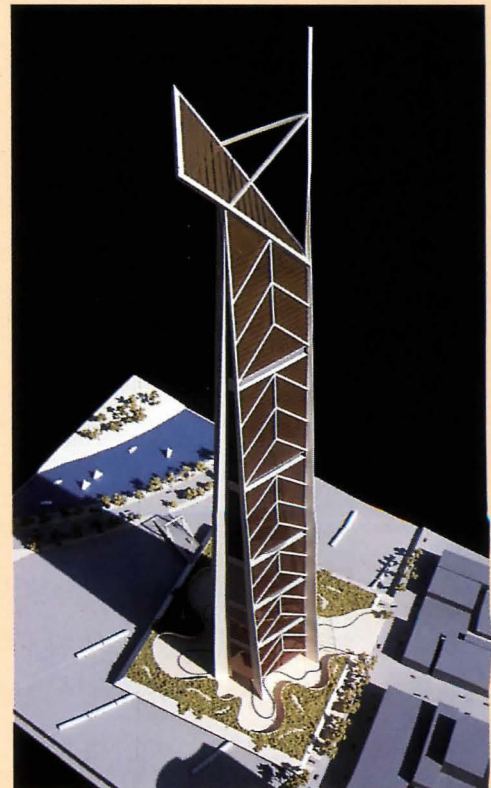


Balestier Point
Singapore
RDC Architects (Singapore)

Project type: housing with retail podium
Other components: two levels of parking just above retail floors; landscaped forecourt leading to main entrance of shopping complex
Design concept: Influenced by Moshe Safdie's Habitat project in Montreal, this 18-story building stacks housing modules off a central corridor. Apartments are mostly two- and three-bedroom units with terraces.
Costs: just 5 percent more than conventional.

Grollo Tower
Melbourne, Australia
Harry Seidler & Associates (Sydney)

Project type: mixed-use tower
Claim to fame: world's tallest building at 1,650 feet and 120 stories
Structural system: Six tapered reinforced-concrete columns carry the weight of all floors with the help of diagonal bracing attached to the core and the exterior.
Active skin: Photovoltaic cells in double-glazed curtain wall will generate electricity.



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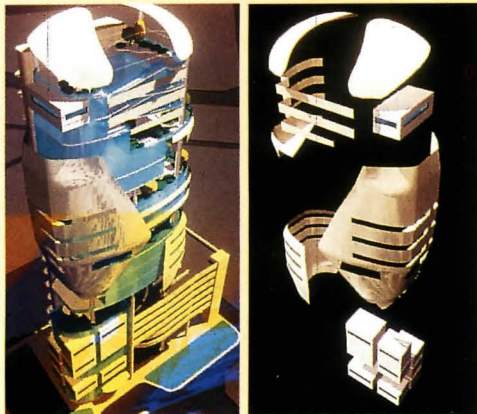
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Pei Partnership (New York)
PT Airmas Asri (Jakarta)

Project type: mixed-use
Major components: two office towers of 62 and 45 stories, plus four-story commercial building, below-grade retail concourse, and four levels of underground parking
Gross area: 3.3 million sf
Curtain wall: pewter-toned reflective glass and metallic-gray aluminum.



The Saitama Dome
Tokyo, Japan
Ellerbe Becket (Kansas City)
Nikken Sikkei (Tokyo)

Project type: sports/entertainment complex
Components: domed stadium wrapped by a 250,000-sf entertainment center with restaurants, theaters, and virtual-reality facility
Design concept: Using moveable walls and seating sections, the stadium will be able to change from a 20,000-seat basketball/hockey arena into a 30,000-seat football stadium.



Hitechniaga
Kuala Lumpur, Malaysia
T.R. Hamzah & Yeang (Kuala Lumpur)

Project type: corporate headquarters
Design concept: Responding to its tropical climate, this 19-story building employs passive-solar strategies such as perforated-metal "shields" for sun shading. The tower also features outdoor "sky courts" at various levels, extensive use of plants and trees, and forms that facilitate natural ventilation and reduce dependence on air conditioning.



Koom Ho Art Museum
Seoul, South Korea
Tai Soo Kim Partners (Hartford, Conn.)

Context: small site on a gallery-lined street, facing the old Imperial Palace
Size: 28,000 sf.
Design concept: In deference to the palace, the architects pushed three of the museum's seven floors below ground and used restrained massing. The building is elegantly clad in stone selected to echo the historic character of its imperial neighbor.



Nobody House
Jakarta, Indonesia
Sardjono Sani (Jakarta)

Program: single-family house with three bedrooms, guest room, and two bathrooms
Structure: concrete with wood roof
Location: At the end of a road, a site that local people believe brings bad luck
Design concept: Instead of blocking or shifting the "bad luck" axis of the road, the architect takes it through the house and uses it to organize the plan and the structural grid.

Getting Paid When Working Abroad

By Katherine Kai-sun Chia

When an architectural firm is working half-way around the globe from its home base, getting paid can be a difficult matter. For foreign architects working in Asia, the situation is compounded by cultural and professional differences that vary from country to country.

"There are big differences in familiarity with the payment process," says Eddie Wang executive vice president of the Los Angeles-based Jerde Partnership, which is active throughout the Pacific Rim. "In Japan, Indonesia, Singapore, Hong Kong, and Taiwan, clients are familiar with standard U.S. practices," explains Wang. "In Korea, Malaysia, and China, clients are not always familiar." For the latter group, Wang says, "Thirty percent of your time is spent getting the project; 70 percent is spent educating your client about the process."

Architects must "understand the local culture from the design end to the business end."

Methods and reliability of payment vary from job to job, client to client, and country to country. "Japan is one exception," says James Follet, vice president and managing principal of Gensler & Associates/International in San Francisco. "Japanese clients will pay because it's an issue of honor." In other countries, however, the risks are greater. Indeed, nearly half of the architects interviewed for this article mentioned having had difficulty getting paid on one project or another while working in Asia.

In some countries, when a foreign architect works through a local firm, payment can be guaranteed (for a fee) by the national institute of architects. For example, in Taiwan the Architectural Institute of the Republic of China can act as an intermediary to guarantee payment, but only when the prime contract is with a local firm; according to Follet, this system has worked well for his firm in the past.

Katherine Kai-sun Chia is a designer and writer in New York City.

Malaysia and Hong Kong have similar organizations that stipulate a fee schedule, but "nobody follows it," says Charles Lau, president of AM Partners in Honolulu, a 75-person office active in many parts of Asia. "The clients always find a way around it," explains Lau. Professional ethics codes in many Pacific Rim countries are limited to local architects. As a result, clients can exercise more leeway with foreign architects when setting up contracts. Lau recommends that architects pursuing work in the Pacific Rim "understand the local culture, from the design end to the business end. Once you cross international borders, many U.S. rules fall away and contracts may not always hold."

While negotiating styles vary from country to country "all Asians are good business people and if you don't operate with the same level of acumen, you can be taken advantage of," says William Karst, principal of Callison

Architecture in Seattle, "They don't see it as deceit but as profiting from your stupidity."

Before signing a contract always verify the client's financial stability (and that of the other investors involved in the project) and track their reliability in paying consultants. "Regardless of their location, our clients tend to be people whose finances we can research," says Patrick MacLeamy, managing director, Asia/Pacific for Hellmuth Obata & Kassabaum (HOK). Do not hesitate to contact the client's local bank, not only to verify the client's credit records, but also to check the bank's stability.

When working in emerging markets such as China and parts of Southeast Asia, the most reliable method of payment is a "cash-in-advance" payment; the burden of risk is assumed by the individual contracting your firm. In places such as Singapore and Japan, an open account, in which you assume the entire risk by completing the contract before receiving payment, may be acceptable, depending on the client's track record.

A compromise between these two extremes, suggested by Claude Soudah, senior vice president at Seafirst Bank in Seattle, in the AIA's manual *Getting Paid: Strategies to Ensure Payment in Foreign Markets*, is a "letter of credit," undertaken by the client's bank, that substitutes the credit of the bank for that of the client. A "confirmed irrevocable letter of credit," in which an additional U.S. "advising" bank representing the architect has added its confirmation or guarantee, is a further safeguard.

Getting a bank guarantee

"We require a U.S. bank guarantee (otherwise known as a stand-by letter of credit) and a wholly viable local bank as prerequisite for doing work," states Robert Djerejian, managing partner of Haines Lundberg Waehler, a New York City firm that is working on four projects in China with a combination of Chinese clients and outside investors.

Most firms avoid a letter of credit because it is costly and is not always enforceable in the Pacific Rim. Says HOK's MacLeamy, "We used bank guarantees early on in China, but now with the electronic transfer of money, payment is almost automatic. A letter of credit may be a good safeguard, but there are still many ways for a client to stop it from being tapped, especially in a dispute." AM Partners' Lau says, "We have never used a letter of credit—if we can persuade the client to go through that hassle, and if we feel such precautions are necessary, we might as well focus on getting a large retainer."

Most firms require that all clients pay a retainer, usually between 5 and 25 percent of the total fee or one to two months' fee, depending on the client and the scope of the job, before beginning work. "It memorializes the business relationship," says MacLeamy. Retainers are customary in Japan and especially common in China, where an increasing amount of speculation has created a flurry of projects, many of which will not be realized.

The retainer should be held as a financial buffer throughout the project and large retainers should be negotiated for small projects. Jack Wang, vice president of Sam Chang Architect & Associates in Honolulu, generally asks for an up-front retainer of 10

Foreign Work Keeps Growing

percent with most clients in China. Gensler's Follett cautions, "Asia is a 'show me world' and informal design competitions often ask you to provide services up front." He suggests that if a client cannot produce a retainer, give the project a second thought.

If possible, make sure you hold the prime contract so payments go through you first. Most U.S. firms hire a local architect not only for technical assistance but to research the client's background, help with negotiations, and serve as a watchdog. Says MacLeamy, "If we're not paid, they're not paid."

In general, Pacific Rim clients are not familiar with American reimbursable fees (and are unwilling to pay them), so it is important to discuss this ahead of time. Most clients willing to pay reimbursables prefer a lump-sum fee, so it is best to estimate expenses, list them, and negotiate a budget acceptable to the client. Although this method is acceptable to many architects and simplifies some accounting procedures, Callison's Karst still prefers to bill reimbursables separately. "Reimbursable are not part of the fee, so to budget them in makes our services appear more expensive to prospective clients."

Watch out for taxes

When negotiating fees, make sure they are net of local taxes and verify the local definition of taxes. (In Singapore and Thailand taxes can be as much as 30 percent of the fee.) Most clients are willing to pay taxes.

If payments stop, don't hesitate to hold work. If repeated contact with the client does not offer results, Karst suggests exerting pressure by using personal contacts and mutual business associates to influence the client. "Asia is not a litigious society," says Karst. "Taking legal action with a client may mar your reputation in that country." If peer pressure fails, Karst recommends arbitration.

The risks of doing business in Asia are higher than in the U.S., says Follett, because there is no effective court system in many countries. When writing contracts in Southeast Asian countries, he always specifies Singapore as the venue for litigation because the system there works fairly well. The courts in Japan and Hong Kong also are reliable. ■

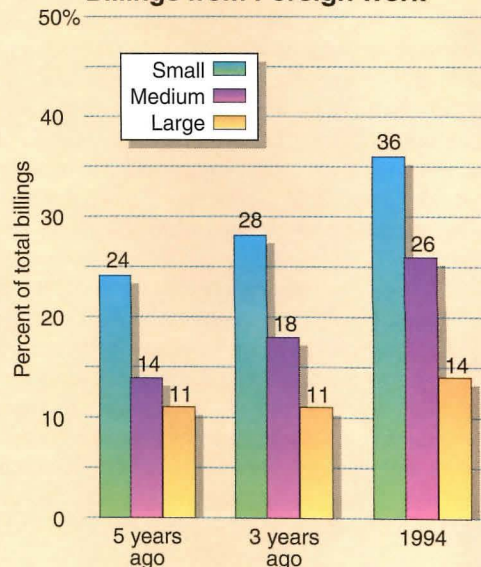
American firms working abroad are bullish on international practice and see it growing in importance to them. According to a survey conducted by ARCHITECTURAL RECORD and the American Institute of Architects' International Markets and Practice Committee, billings from foreign work accounted for 25 percent of total billings last year for the 86 firms who responded. Three years ago, foreign projects represented only 18.9 percent of these firms' billings, and five years ago they were 16.3 percent. Looking to the future, 72 percent of the firms said they expected foreign billings to increase in 1995, while 87 percent said income from foreign work would grow in the next five years.

Broken down by size of firm, small practices (fewer than 10 employees) that are working abroad depend more heavily on foreign billings than do medium (10 to 99 employees) and large (100 employees and above) firms (graph, right top). This is probably because foreign projects tend to be big ones and so represent a larger percent of a small firm's total income. Income from foreign work, though, is growing in relation to that from domestic work for firms of all sizes—increasing from 11 percent of total billings five years ago to 14 percent in 1994 for large firms and from 24 percent to 36 percent for small firms. Respondents to this survey are almost equally divided among small, medium, and large firms, with each size accounting for between 32 and 35 percent of the total.

For American architects, opportunity is knocking most loudly in Asia. In terms of the number of projects landed by American firms, seven out of the 10 most active countries are in Asia (chart, right bottom). Topping the list is China, where 32 percent of the responding firms now have work and where 9.5 percent of all the foreign projects cited by respondents are located. Next in line is Mexico, followed by Japan, Indonesia, Korea, Thailand, the United Kingdom, Germany, Singapore, and the Philippines.

In terms of clients for overseas work, 18 percent are American companies with business abroad and 82 percent are foreign entities. The most common method of landing jobs abroad is through "client invitation because of firm's reputation or expertise," which was

Billings from Foreign Work



Work by Country

Country	% of firms working there	% of all foreign projects
China	32	9.5
Mexico	29	5.7
Japan	22	5.1
Indonesia	21	6.2
Korea	19	5.6
Thailand	17	2.4
United Kingdom	16	5.8
Germany	16	4.9
Singapore	16	2.4
Philippines	14	2.4

Charts by Leonor Glynn

cited by 46 percent of respondents. Other important ways of getting work include, "association with an internationally active client" (18 percent), "marketing and contacts of local office" (14 percent), referrals from "local associate architect" (9 percent), and design competitions (6 percent).

The most commonly noted problems mentioned by architects working abroad include, "expense of doing business" (cited by 45 percent of survey respondents), "lose control over project after design development" (40 percent), "low fees" (35 percent), "deals fall through" (35 percent), and "getting paid" (35 percent). Clifford A. Pearson

(For all the results of this survey, send \$25 to: Practice Survey, Architectural Record, 1221 Avenue of the Americas, N.Y., N.Y. 10020)

Shanghai Express

In the five years since it began its current building boom, Shanghai has set about the task of becoming a thoroughly new city—ready to have its fling with Modernism, complete with neo-Corbusian towers in park-like settings, mega-developments, and satellite towns. Articles in the official press wax poetic about all the construction, using cheerfully utopian rhetoric that seems naive to our jaded Postmodern ears. All this activity raises the question of whether rational city planning can take place at the accelerated speed made possible by the electronic revolution and embraced whole-heartedly by Shanghai.

Chinese newspapers report that 9,000 construction projects are currently underway in Shanghai. About 200 foreign architects are active or pursuing work in the city. Many large projects whose approvals would take years in the U.S. are proceeding from schematics to construction in a year or less. What makes Shanghai so important to study is that it isn't alone in its race to develop. Many of the same issues and planning challenges facing Shanghai also confront a number of rapidly growing cities in Asia and the developing world—from Jakarta and Bangkok to Mexico City and Bombay.

Grant W.K. Sung is an American architect who has been living in China for the last two years.

A new beginning

In April, 1990, with former Shanghai mayor Jiang Zemin at the helm of the central government, the Beijing authorities announced plans to make Shanghai the “dragon head” of the Changjiang (Yangtze) River. Its aim was not just to restore Shanghai to its place as China's leading commercial city, but to turn the region into Asia's center for high-tech industry, foreign trade, and international finance.

Recognizing the difficulties of refurbishing old Shanghai, the authorities decided that the keystone of the city's reconstruction would be the development of the Pudong New Area, a 202-square-mile area on the east bank of the Huangpu River. Pudong was touted as the opportunity to forge a city of the 21st century. In the last five years, more than \$11 billion has been invested into transforming yesterday's boggy farmland into today's vast construction site. Working in the investment-crazed atmosphere of recent years, private developers have wielded a great deal more influence than the city's overworked planners. Momentum has rapidly overtaken orderly planning.

Tales of confusion and miscommunication abound. One story has it that at the same time as the much-publicized 1992 masterplan competition for the Lujiazui financial district in Pudong (engaging Richard

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On the fast track to growth, China's busiest city is hitting some critical urban-planning bumps, says author and architect Grant W.K. Sung.

Rogers Partnership, Toyo Ito, Dominique Perrault, and others), the city also invited four Shanghai design institutes to submit proposals for the 1.7-square-kilometer tract. The authorities concluded that all four of the locally submitted proposals had merit. In a decision that showed diplomatic, if not architectural acumen, the best aspects of each were combined and the result was accepted as the final masterplan—eliminating the need for any of the international submissions. Nevertheless, the relevance of the assembled masterplan was already suspect. Even as design consultations were taking place, as many as 50 plots of land had already been sold and were under construction.

Historical background

For whatever reason Shanghai was once called “the Paris of the Orient,” it certainly wasn’t for its urban plan. The city inherited a tangled skein of narrow streets from its days as a treaty port claimed by the British after the First Opium War in 1842. Shanghai (the name means “on the sea”) was eventually partitioned into three districts, each running east-west on one side of the Huangpu River: the International Settlement, the French Concession, and the pre-existing Chinese “old city.” Both of the foreign concessions were self-governed and hence, self-planned. Each had its own network of roads. The legacy of these segregated communities on today’s Shanghai is seen,

not only in the city’s distinctive medley of early 20th-century architecture, but also in the lack of major north-south arteries and the many misaligned, traffic-tying intersections.

Built largely on the opium trade, Shanghai was one of the 20th-century’s first Asian economic “miracles,” storied for both its commercial success and moral excess. By the early 1930s, the city accounted for more than half the industrial output of the entire nation. The next half-century of Japanese occupation, civil war, and Cultural Revolution impoverished the entire nation. Accelerating Shanghai’s decline was Beijing’s distrust of its capitalist roots and political loyalties. By the late 1980s, the central government’s policies of extracting revenue and withholding investment had reduced the city’s contribution to the national industrial output to just six percent. In short, too little money and too much revolution eliminated almost any chance for urban planning to take place, leaving the city burdened by its enormous population and inadequate infrastructure.

How do all those people get around?

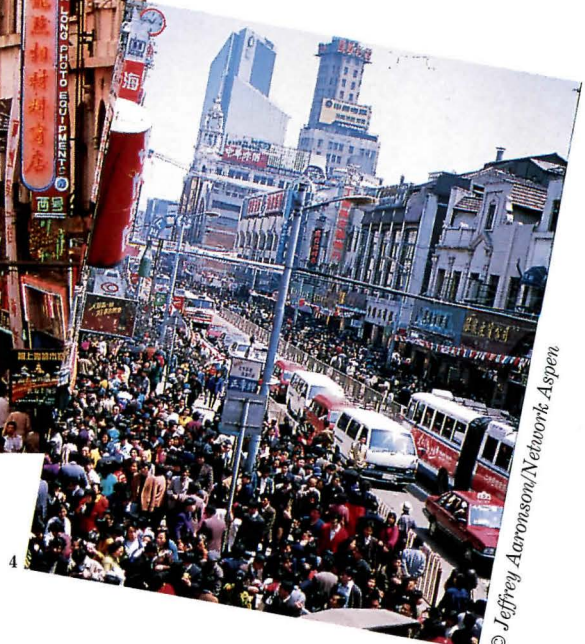
On Shanghai’s narrow streets pedestrians overflow sidewalks, competing for passage with all manner of vehicles—bicycles, pedicab rickshaws, taxis, buses, and trucks. Perhaps arcane, but nonetheless

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3

Statue of an old communist official is dwarfed by new communications tower (1). Seen from the historic Bund, modern structures rise in the Pudong across the Huangpu River (2). On Nanjing Road, one of the busiest streets in the world, pedestrians, cars, buses, and bicycles compete for precious space (3 and 4).



© Jeffrey Aaronson/Network Aspen



2

“Seen from the river... the semi-skyscrapers of the Bund present impressively the facade of a great city. But it is only a facade...”
W.H. Auden and Christopher Isherwood, 1939.

illuminating, is a statistic that measures per capita urban-transportation area (sidewalks and streets). Until last year’s completion of the Inner Ring Road (the first of two beltways), this figure in Shanghai was 32 square feet—one-ninth of that available in Washington, D.C.

The city’s recent prosperity and the consequent rise in personal income has led to an increase in bicycles. Last year, city leaders capped the number of bicycle licenses at 6.5 million, freezing the city’s two-wheeled fleet at its current level. Although environmentally neutral by themselves, bicycles require more transit area per commuter than many forms of mass transit—thereby reducing average traffic speeds and contributing to congestion. Presently, bicycles account for 34 percent of Shanghai’s traffic load. The city hopes to reduce bicycle traffic to between 25 and 30 percent of the total.

Until the opening this April of the first 12.5-mile phase of subway, Shanghai’s only means of mass transit was its overburdened buses. According to the city’s wish list, 224 miles of subway are to be developed. With extensive disruption of surface traffic and high construction costs, coupled with very low fares, subsequent phases of subway construction are in jeopardy, concedes Xu Daofang, senior engineer at the Shanghai Urban Planning & Design Research Institute. And even if the system is completed in full, it will meet only 13

percent of the city’s mass-transit needs. Considering the cost of underground construction, city planners are examining options with street-level and elevated light-rail trains, which cost about one-fourth that of subways. Such trains, however, must run either on or above the city’s existing narrow streets, introducing another competing traffic mode and affecting the quality of the pedestrian experience.

Addressing the city’s urban form

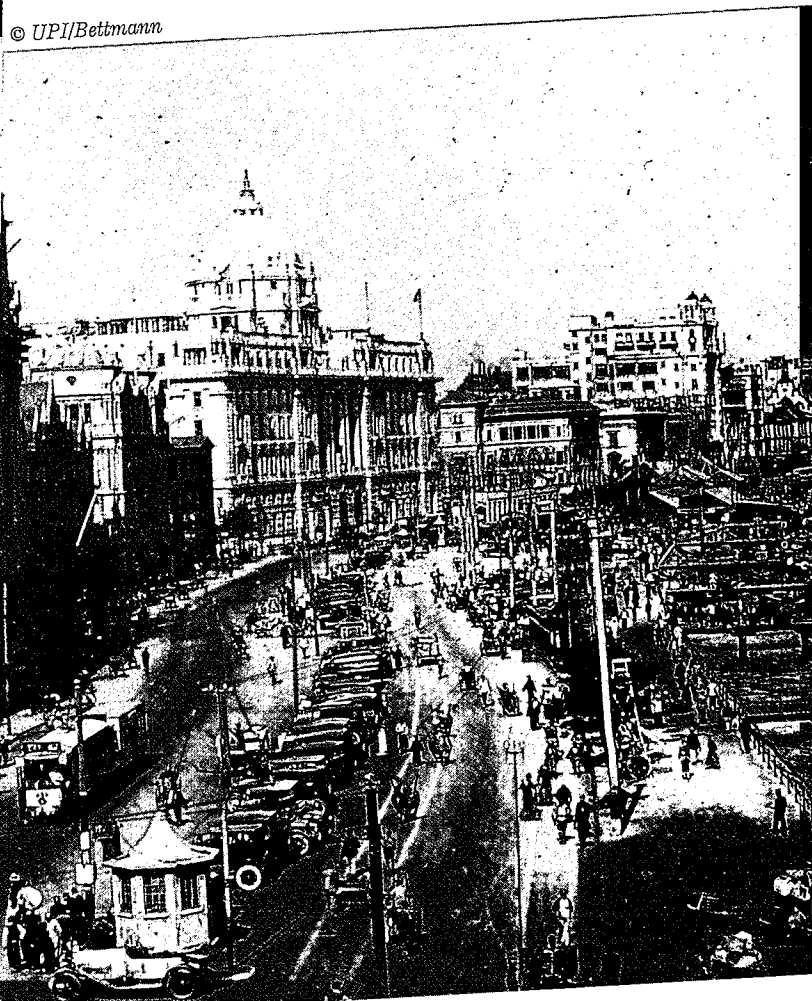
While not disputing the need to upgrade the transportation infrastructure, some in the planning profession believe that the question of urban structure must be addressed. In other words, what form should Shanghai take as it grows into the 21st century? Presently, Shanghai, like most Chinese cities, takes the form of a single concentric development. Professor Zheng Shiliang of Tongji University suggests that, instead of continuing the pattern of outward growth, adding layer on layer of buildings and beltways, the city should grow in a multi-centric pattern, with satellite cities connected to the center by public-transit spines. According to Zheng, only after rethinking urban structure can a logical pattern of transportation follow.

Last year, one Chinese official predicted that by 2010 every Chinese family would have a car—a doomsday prophecy, if you imagine 600 to 700 million high-emission automobiles hitting the streets. As with

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Busy streets have long been part of Shanghai’s identity, as seen in the photograph of Nanjing Road (1) taken in 1939. The most famous street in town is still the Bund, seen in 1926 (2) and today (3 and 4). In a city with very little space for parks or recreation, the Bund’s promenade is an important place for social gathering.

every consumer product, automobile ownership is on a meteoric rise in Shanghai, reaching 400,000 in 1994 and possibly doubling that by 1998. While the city's planners expect new mass transit to bring some environmental relief from the threat of all these new cars, a lack of coordinated effort among the planning disciplines threatens to offset these gains. And while land-use plans discourage the segregation of commercial and residential uses to reduce commutes, residential relocations to Pudong or other suburbs require displaced workers to make longer commutes back into the city.

Where the profits are

With property values going up and up, the city's 13 urban districts have recognized that greater profits from land sales and tax revenues are achieved by zoning for commercial land uses. Agriculture, being the least profitable land use, has become the least attractive. The result is that the city's greenbelt is being driven to the surrounding counties beyond the (future) outer ring road. While the inclusion of public amenities such as greenways, parks, and open spaces in the recent masterplans of Pudong and other districts is a sorely needed improvement to densely built Shanghai, it is unclear whether such commitments will be enforced or will be sufficient.

Shanghai is bursting with China's greatest burden and its greatest

resource—people. Although Chongqing recently became the nation's largest city with 15-million people, Shanghai's official population of 13 million is supplemented with as many as 5-million unregistered residents. Meanwhile, the socialist dream of providing adequate housing for all of China's population has proven elusive. Recently, housing reform (i.e. home ownership) has been promoted as a way of reducing the state's responsibility to shelter its citizens. But until rents increase beyond today's typical figure of \$35 to \$40 a year for a 600-square-foot apartment, housing purchases will remain rare.

While the central government has started to discount the purchase price of land to stimulate residential construction, district authorities and developers can still make more money from commercial development. As a result, many of Shanghai's commercial precincts are being emptied of residents and the richness and variety of the downtown areas are threatened. Silas Chiow, regional manager for the American architecture firm HOK, reports that his firm's recommendations for the Huangpu district call for keeping housing downtown.

While the stately buildings lining the mile-long Bund have been landmarked, most of Shanghai's smaller scale or lesser known architectural jewels—French Second Empire banks, Victorian houses, Art Deco hotels, even church buildings—are seen as standing in the



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3

4

There are about 9,000 building projects underway in Shanghai and around 200 foreign architects active or pursuing work in the city.

way of “progress.” Many buildings that survived “redevelopment,” the Red Guards, and the abuse and neglect of tenants are now threatened with a different kind of danger—“restoration” as tacky fast-food restaurants, night clubs, and karaoke bars. One architectural preservationist active in Shanghai says, “We used to tell them ‘Restore it, restore it’ when we saw these beautiful old buildings. After we’ve seen what’s been done, we say ‘Don’t restore it—just leave it alone!’”

E.C. Liu, a partner with Fox & Fowle Architects, recalls that while designing the Shenghua Commercial Building, his firm paid careful attention to the selection of stone to match the brick color of its venerable neighbor, the historic Mu’en Church. After the selection was made, the architects returned to the site to find that “preservationists” had repainted the church red and the mortar blue.

Let a hundred towers loom

In addition to the urge to maximize tax revenues, some city officials have joint-venture interests in development projects in their districts. So it isn’t surprising that nearly every point of regulation (height restrictions, site coverage, FARs) is open to negotiation (or bidding). In addition to blurring the line between public good and private gain, these practices lead to seemingly unzoned districts—a patchworked

urban fabric with towers piercing through at random wherever enough relational (or other) capital has been expended. With everyone trying to maximize his profits, there are almost no small projects being built and the city’s human scale at street level is being lost.

While most foreign architects agree that the pace of development has been too fast, some give passing grades to the city for establishing at least a foundation of planning. “We’ve worked in a lot of Asian cities where there’s little or no recognition of the need for long-term planning,” says Craig Hartman, a partner in Skidmore, Owings & Merrill’s San Francisco office, which is working on a 30-story tower in Pudong. According to Joseph Caprile, a principal of Lohan Associates, the Shanghai authorities “didn’t control development as much as they could have, but they did some things right—like establish the Pudong area and preserve the Bund. Now they need to take a step back and assess the need for more infrastructure, as well as schools and cultural facilities.”

For Shanghai’s planners, a much-needed respite could be at hand. Projections indicate a likely slowdown in foreign investment this year. In addition, the city’s Land Administration Bureau announced a moratorium on approvals for property sales for all of 1995. ■

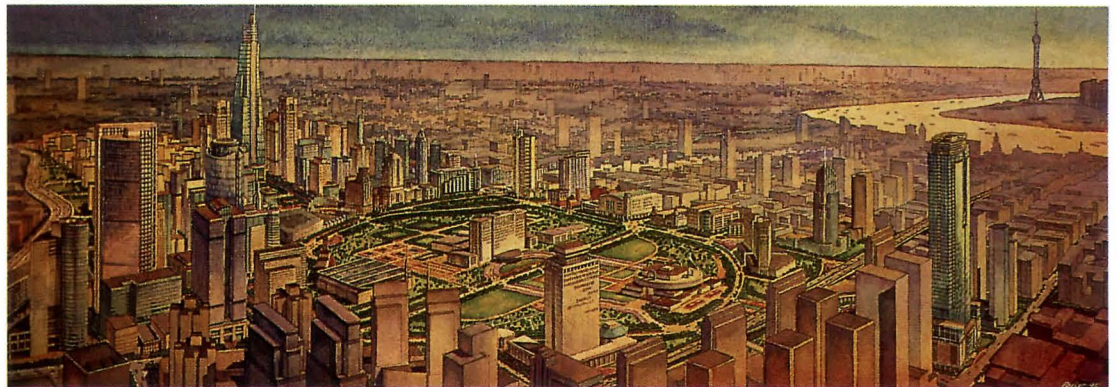
On the boards in Shanghai

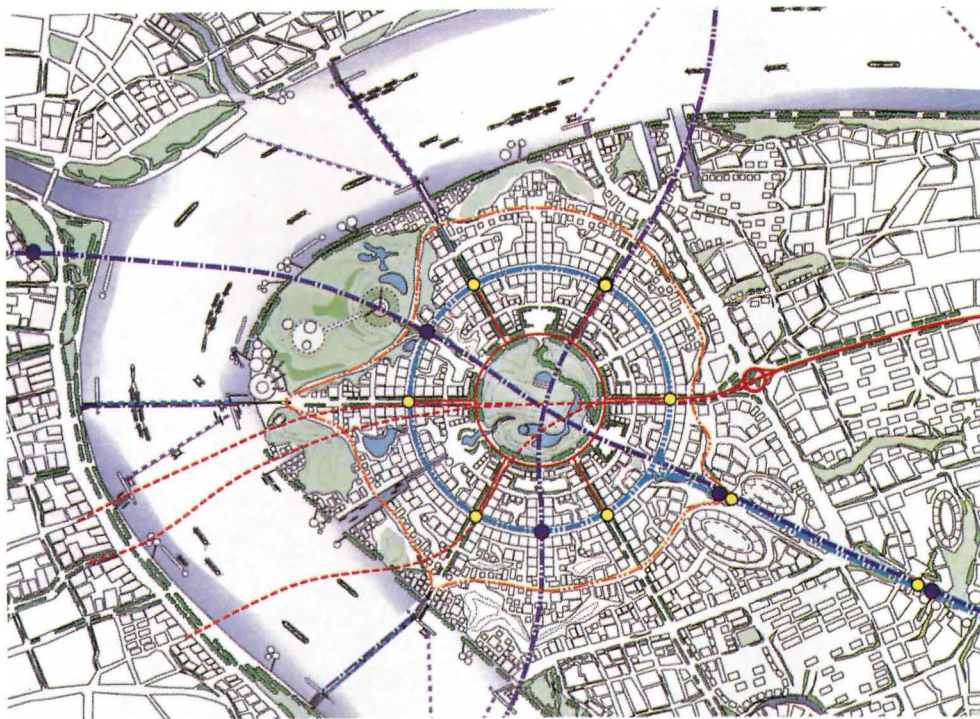
1. *Huangpu District Masterplan*; HOK. Encompassing more than 3.7 million square feet in the heart of the city, this district includes the Bund, Nanjing Road, and People’s Park. HOK will provide a conceptual master plan, then design guidelines and zoning regulations.

2. *Shanghai International Plaza*; Kaplan/McLaughlin/Diaz and East China Architectural Design, Research Institute (ECADRI). This 1.5-million-square-foot project combines a 45-story office tower with street-level retail arcades, a shopping atrium, and a central plaza.

3. *Ocean Light Tower*; SOM/S.F., and ECADRI. In Pudong, this 30-story office is attached to a retail podium. Construction should start early next year.

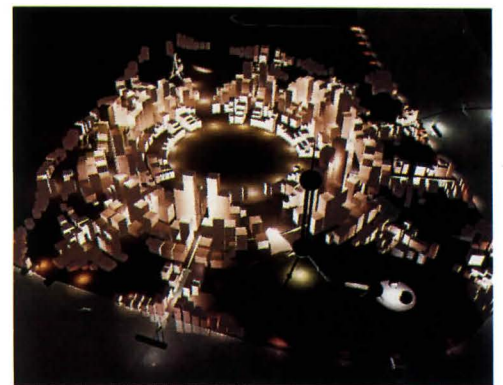
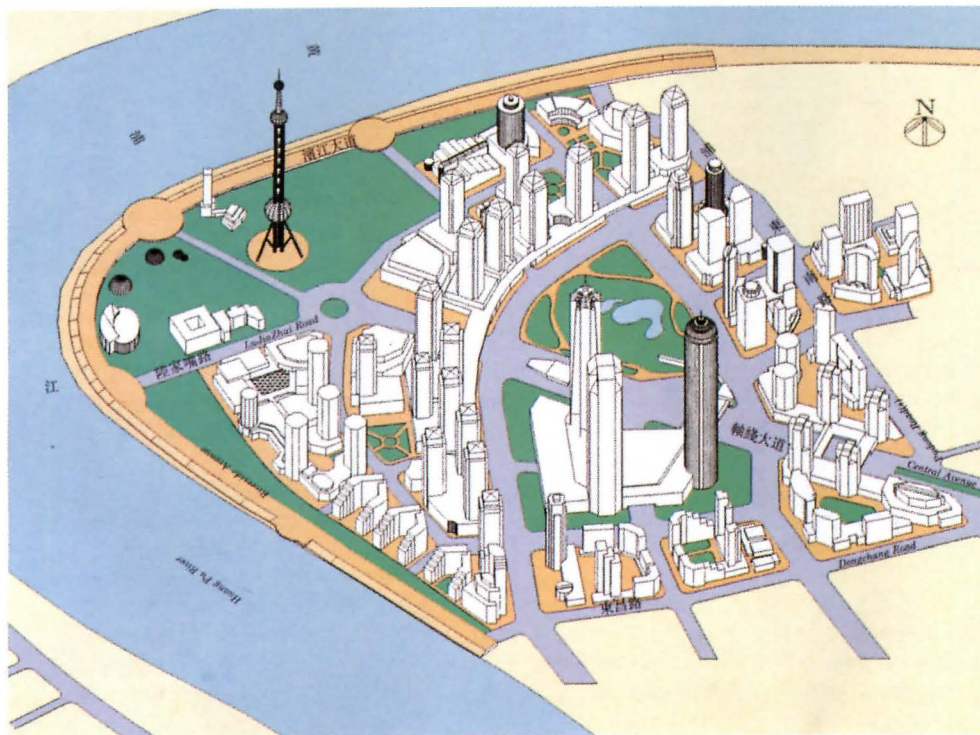
4. *Pudong Financial Tower of the Industrial and Commercial Bank of China*; Fox & Fowle/Gluckman/Liu, and ECADRI. This 27-story tower pairs a curving glass-and-metal slab with a more solid slab.



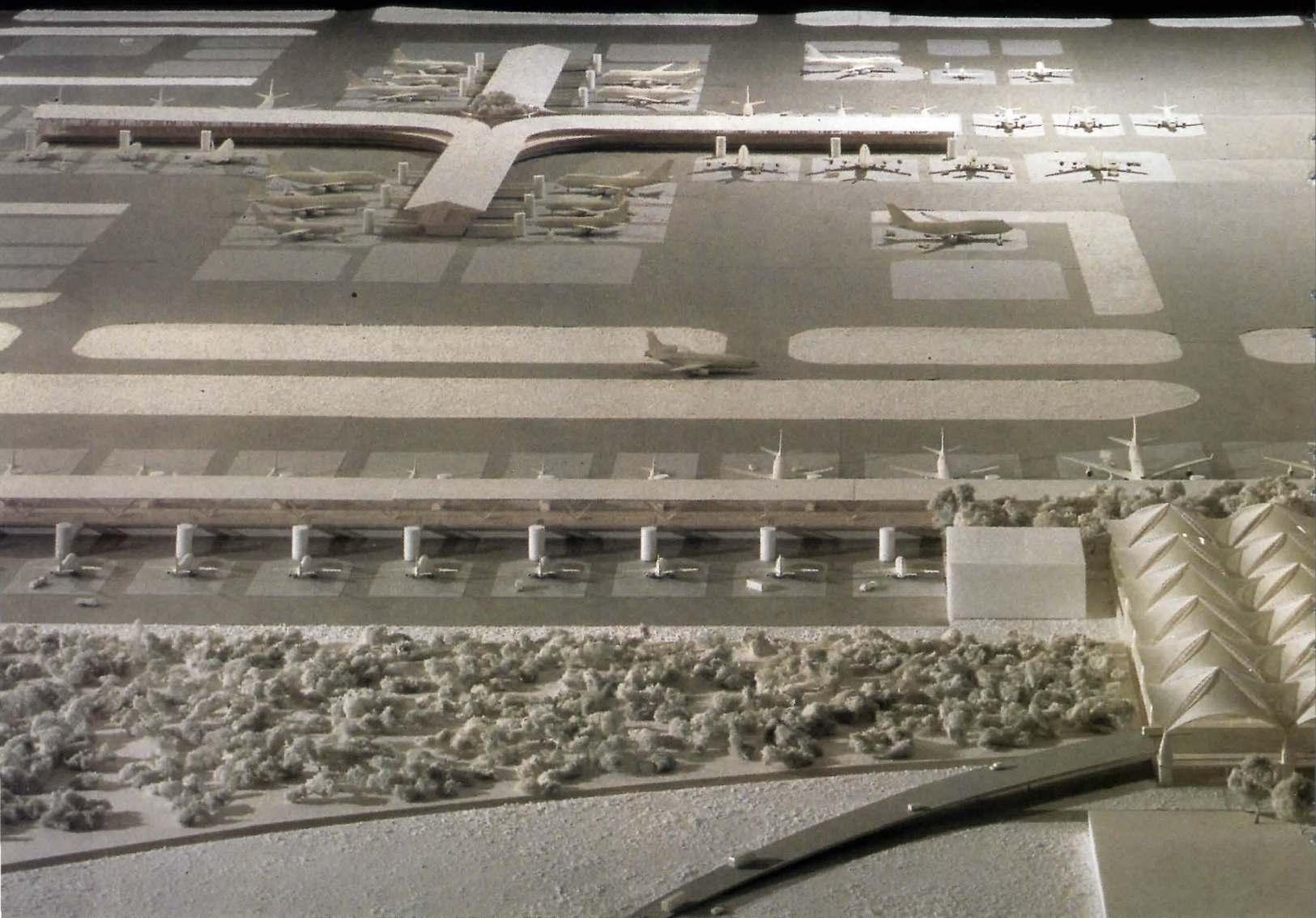


Plans for the Lujiazui Financial District in the Pudong New Area

Although some new towers are being built in older parts of town, the largest concentration of new development is happening in Pudong, across the Huangpu River from the Bund and the city's traditional commercial core. To help plan the new area, the city of Shanghai hired four foreign architects (Richard Rogers, Dominique Perrault, Massimiliano Fuksas, and Toyo Ito) to prepare schemes for the Lujiazui portion of Pudong. In the end, the city created a master plan for Lujiazui that incorporates ideas from the foreign architects and from four local design institutes (left bottom). This plan includes a riverfront park and a central green area that are also shown in the Rogers plan (left top and photo, below). The bold geometry of the Rogers plan, though, has been lost and many of the connections across the river and to other parts of Pudong haven't materialized. A tunnel under the river is now built and emerges on-grade as a highway slicing through the center of Lujiazui.



A Forest Runs Through It



When Malaysia's Prime Minister Datuk Seri Mahathir Mohamad met with Kisho Kurokawa to brainstorm about Kuala Lumpur's new airport, he had one thing on his mind: wood. Though hardly the stuff of high-tech aeronautics, the material is an apt image for Malaysia, one of the world's largest timber exporters. Unfazed by this odd coupling, Kurokawa viewed it as a springboard for his symbiosis theory, which advocates marrying disparate architectural ideas through abstraction and juxtaposition. To that end, he proposed placing the new facility next to a manmade rain forest, enabling travelers to appreciate native flora and world-class technology at the same time.

Kurokawa's initial assignment is to lead the design consortium for the airport's first main terminal, which is just one component of what will be a vast complex. More mini-city than transportation nexus, the new airport will occupy a 38.6 square-mile (100-sq-km) site 31 miles (50 km) south of the city center and will accommodate two main terminals, four satellite terminals, five 13,200-foot (4,000-m)-long runways, hotels, and other support facilities, not to mention the new 58-square-mile (150-sq-km) rain forest buffering the airport from the surrounding area. "For me, it's an almost unbelievable situation,"

says Kurokawa, who, after winning the nominated competition for one main terminal, was commissioned to devise urban-design guidelines for the entire development, as well as conceptual schemes for its myriad pieces. (The city's existing airport couldn't be expanded due to its limited site and will be turned over to the Malaysian air force.)

While the entire project will not be finished until 2020, the first phase will be completed in 1998 and will include Kurokawa's main terminal. The building contains five floors of arrival and departure gates, baggage handling, and passport control, and will service domestic and international passengers. A union of indigenous culture and Modernism's abstract forms, the 1,345,500-square-foot (125,000 sq-m) building is roofed by a series of hyperbolic paraboloid shells that hover above the nearly flat site like a cluster of Islamic domes.

Composed of stainless-steel panels, the roof will be fabricated on-site. Spanning 126 feet (38.4 m), each soaring, curved shell terminates gracefully into four points perched on the tips of beefy concrete cones, one of Kurokawa's signature forms. In the top-level departure area, where partitions are kept to a minimum, the loftiness is intensi-

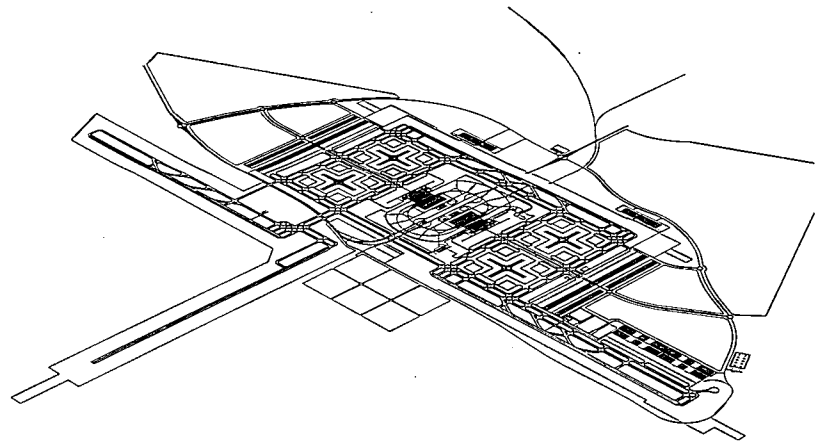
*Kuala Lumpur International Airport
Kuala Lumpur, Malaysia
Kisho Kurokawa Architect & Associates
Arkitek Jururancang (Malaysia) Sdn.
Bhd., Associate Architect*



fied by a generous use of glass. Thanks to this transparent wrapper, Kurokawa was able to forge a direct visual link between rain forest and terminal—components that are physically separate except for courtyard gardens at the crux of each satellite terminal. And taking advantage of the roof's unique geometry, the architect and his associates clad the entire ceiling surface with strips of local wood to symbolically bring the jungle inside.

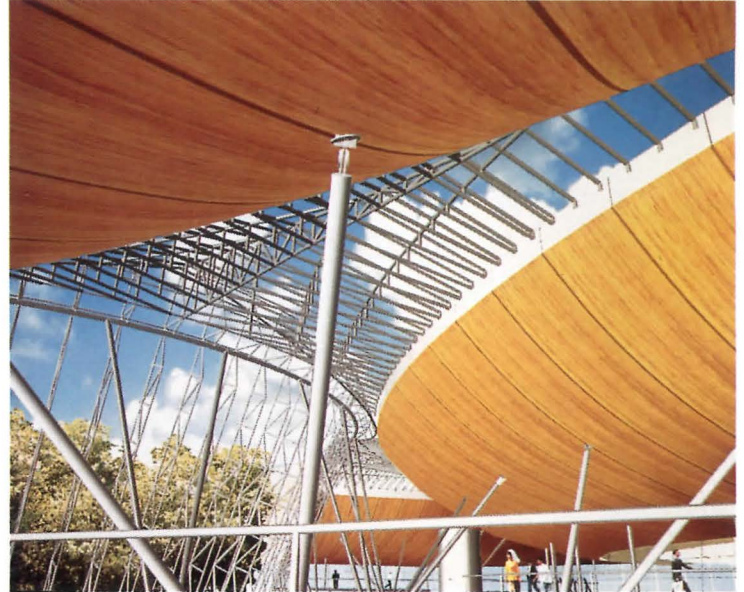
Malaysia's tropical climate will enable the new forest, which will consist of some 50 types of local trees, to mature in just 15 years. In this part of the world, nature is a force to be reckoned with. To counteract the strong sun and torrential rains, roof shells jut beyond the building perimeter, forming deep eaves. And because the curtain wall is installed at a 15-degree angle, sunlight reflection is increased and its penetration reduced. Glazed slots between roof panels, though, let in daylight, decreasing the need for other sources of lighting.

Kurokawa is busy in Malaysia these days—planning a new train station in downtown Kuala Lumpur and envisioning connections from the airport to a new city and container port. *Naomi R. Pollock*





1



2

The giant project will eventually include twin main terminal buildings and four satellite terminals (site drawing, previous pages). The first phase includes one main terminal, two runways, and one satellite. Model photo (previous pages) shows a main terminal with two satellites. The main terminal will be five floors plus a basement, while the terminals will be three stories plus basements. The entire complex is scheduled to be completed by 2020, Malaysia's self-imposed deadline for becoming a fully developed nation. Using wood as a major design theme, Kurokawa and his associated architects surfaced the

main terminal's ceiling with strips of local wood and opened views to a new rain forest planted specifically for the airport (1). Made of stainless-steel panels that will be fabricated on-site, the building's hyperbolic paraboloid shell roof is evocative of Islamic domes. Glazed slots between roof sections allow daylight to enter deep into the building's interior, thereby reducing the need for other sources of light (2). A three-story structure behind the main terminal houses departure and arrival lounges (3). The most impressive space in the terminal is the top-floor departure area where the soaring roof can be



5



6



3

admired (4). Spanning 126 feet (38.4 m), each curved shell rests on four bulging columns (5). These fat cones—a favorite Kurokawa form—are more than just visual devices. Measuring 12.5 feet (3.8 m) in diameter at the base, each column is a stack of hollow pre-cast segments and doubles as either a drainage conduit from the roof or a duct for high-velocity air piped in from basement mechanical rooms (6 and 7). Curtain wall in the terminal slopes at a 15-degree angle to reflect sunlight and reduce its penetration into the building (8). Vertical bow trusses help support the large expanses of curtain wall.

Credits

*Kuala Lumpur International Airport Terminal Complex
Kuala Lumpur, Malaysia*

Architect: *Kisho Kurokawa
Architect & Associates*

Associate Architect: *Akitek
Jururancang (Malaysia) Sdn.
Bhd.*

Engineers: *Ranhill Bersekutu
Sdn. Bhd. (mechanical); Sepakat
Seita Perunding Sdn. Bhd.
(structural)*

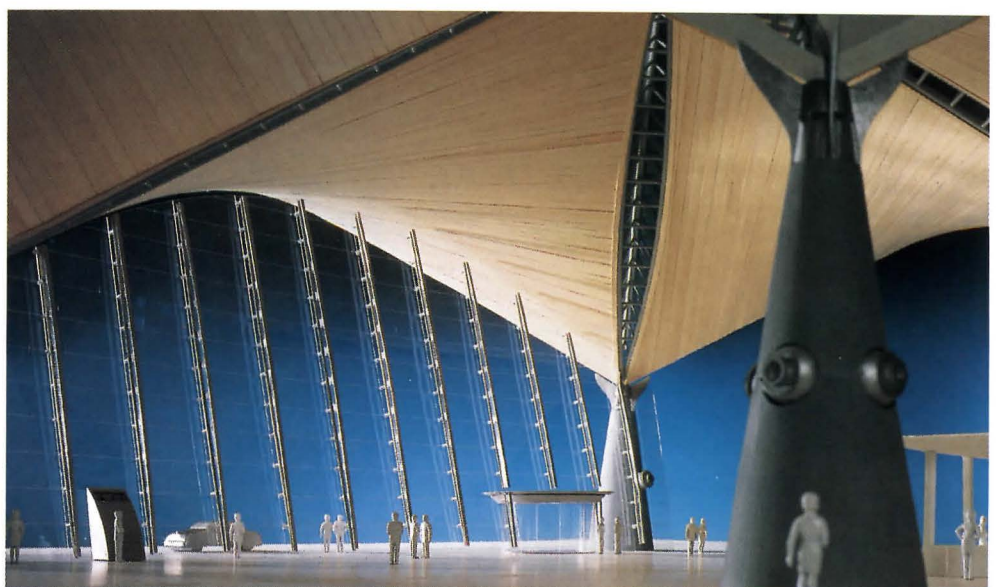
Consultant: *Pacific Consultants
International (airport)*



4

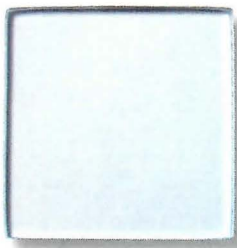


7



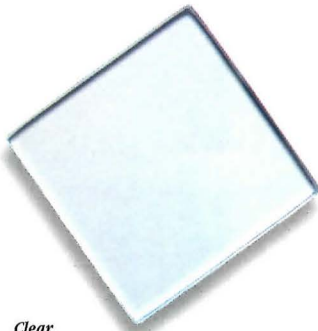
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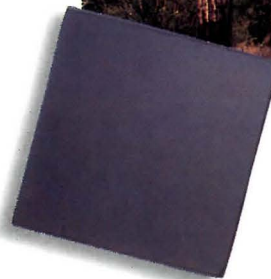
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*B.C. Hydro Edmonds Centre; Vancouver, B.C.:
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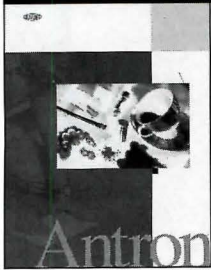
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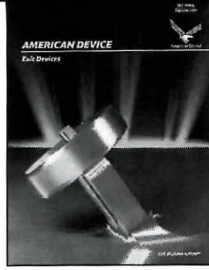


Product Literature/Schools



412. Carpet-maintenance guide

Prepared specifically for designers and owners of commercial facilities, a 20-page illustrated booklet details issues of carpet maintenance, showing how various foot-traffic patterns dictate cleaning schedules. Explains the destructive force of dirt and demonstrates proper vacuuming and spot removal techniques. 800/4DU-PONT. DuPont Co., Wilmington, Del.



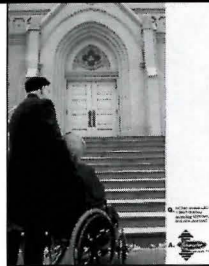
413. Exit devices

Part of a complete line of commercial and institutional door hardware, closers, and exits, American Device shows rim-, mortise-, and vertical-rod exit devices in an eight-page catalog. Fire and panic bars come in a selection of architectural finishes including solid brass and stainless steel; electrified control options described. The Dorma Group, Reamstown, Pa.



414. Occupant-controlled hvac

Valid Air high-performance diffusers are said to maximize room air circulation, greatly improving indoor air quality without cold-air dumping or drafts; integral filters clean air at point of use. Brochure illustrates air-diffusion patterns in classrooms and other spaces, and individual, room-to-room control options. 305/556-6933. Warren Technology, Hialeah, Fla.



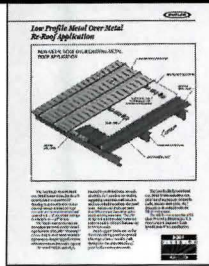
415. Limited-access elevator

A catalog explains how the 1400 Series elevator is an affordable way to overcome architectural barriers in churches, clubs, and other limited-access areas where permitted by code. Said to fit into the space of an average-size closet and to be adaptable to existing conditions; meets ANSI A17.1. Schumacher Elevator Co., Inc., Denver, Iowa.



416. Laminate cabinetry

Techline components can meet the specific requirements of offices, medical facilities, schools, and libraries, providing an individualized-work environment at less cost than custom casework. Site inspection, field measurement, and installation services available. Trade prices and AutoCAD design service. 212/674-0551. Techline, New York City.



417. Metal-roof reroof

Brochure explains how the new MR-24 standing-seam metal roof system goes "over the top" of existing through-fastened, rib-type metal roofs without expensive panel tear-off or new spanning members; gives slope to flat roofs. Retrofit roof clips will accommodate thermal movement in buildings up to 500-ft wide. Butler Roof Div., Kansas City, Mo. ■

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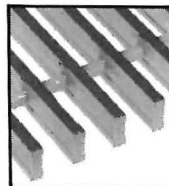
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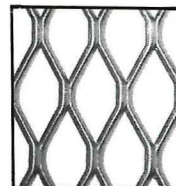
Circle 92 on inquiry card

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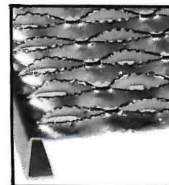
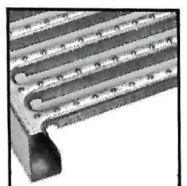
FIBERGLASS



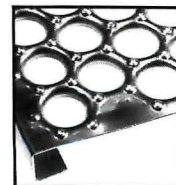
EXPANDED



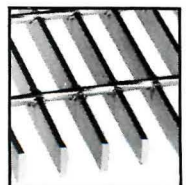
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LETTERS continued from page 4

regal Pan Am fought and died in the deregulation of the '80s.

The threat to the profession from the engineers will lead, in time, to the demise of the profession of architecture. I live in Buffalo, and there is an inner-city group of homes, about 50, that was designed by a professional engineer. One plan, 50 units. An architect lost out on that project, and a neighborhood suffers from ugly housing. What is needed is the idea of one plan, one designer, one house. The idea of using one plan, as Levitt did, should be relegated to the ash heap of history. Copyright the plan and make only one house from it. Then retire the design. You will increase the need for architects, not lessen it.

Competition is fine, but to have two or three professions vying for the limited resources provided by the new building industry will only lead to more exploitation of the new graduates as they enter the field. I am not against competition as it is present with the number of architects and architectural firms that are in practice today. I am against contractors, interior designers, builders, and

engineers trying to slice the pie even smaller for an already saturated field. If engineers design houses, then architects need to design bridges and dams and other works limited to the engineering field. It would allow the field to open up and provide a new avenue for all firms.

*Richard Fitzpatrick
Architectural Designer
Buffalo, NY*

Spiffy Light

How ironic to see Fordham University's Tower of Light celebrated in RECORD's May issue. This spiffy structure graces its fashionable Manhattan location. Meanwhile, Fordham persists in building a very different sort of tower at its Bronx campus. This monstrously ugly giant antenna sheds contempt on the old neighborhood where Fordham got its start, and defiles the adjacent New York Botanical Gardens.

*August Matzdorf
Professional Engineer
New York City*

CALENDAR

House," with cash awards for first-, second-, and third-place winners. Judges include architects Kisho Kurokawa, Takefumi Aida, and Kazuhiro Ishii. Contact Shinkenichiku-sha Co., Ltd., 31-2, Yushima 2-chome, Bunkyo, Tokyo 113, Japan, for details.

•Masonry Design Awards Competition entries for architects in the Washington, D.C., area are due by July 28. Call 301/6552-0015 for further information.

•Submittals for the Professional Services achievement awards are due Aug. 4. Call PMSA at 704/521-8890 for entry rules.

•"Unbuilt Architecture" competition submissions are due Sept. 26. Entry fee is \$50 for each submission. Call Boston Society of Architects, 617/951-1433 ext. 232, for details.

•Society of American Registered Architects invites architecture students to submit work done in conjunction with school or independently. Entrants must register by Oct. 6, and submit projects by Oct. 13. Call SARA at 708/932-4622 for details.

•Shikenchiku Residential Design Competition entries, which will be judged by Jean Nouvel, are due October 18. Contact Shikenchiku-sha Co., Ltd., 31-2 Yushima 2-chome, Bunkyo-ku, Tokyo 113, Japan. ■

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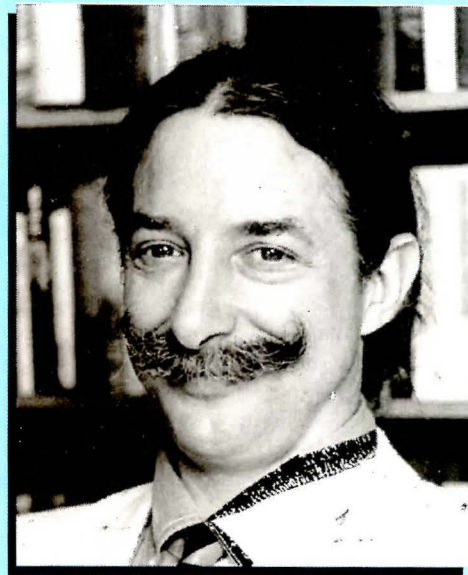
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Turf Wars *continued from page 27*

law establishes a minimum level of competence," he says. Neither doctors nor attorneys, he explains, are licensed by specialty, but they are subject to disciplinary action if they practice outside their area of competence. Similarly, "engineers have the right and the obligation, judgment, and discretion to determine what their area of competence is," says Schwartz. "If they go beyond that, the state board should take disciplinary action." Replies AIA president Chester Widom, "They're claiming architecture is the same as engineering, and it isn't . . . If they think the architecture profession is going to step back and say you can do whatever you want, they're wrong. We will not back off. We believe you need architectural training to do architecture." Indeed, the competencies that NSPE feels are within engineers' purview are so fundamental to architecture that architects may feel forced to challenge engineers, one by one, on the "area of competence" issue (asking a structural engineer, for example, to show that he or she knows other than structural building codes), even if Justice should rule for NSPE.

The "prime professional": pivotal?

Given the deregulatory mood of elected offi-

cial, however, NSPE's argument might find favor, while the distinctions architects regard as critical may look abstract, arcane, or merely issues of turf. Take the architect's claim that he or she alone is entitled to be a project's "prime professional"—coordinating the efforts of engineers and consultants as well as the work of his or her own firm. Architectural licensure assures the client that the architect has studied and trained to do these things. Architects argue that demonstrating competence in this area should be a condition of licensure; NSPE disagrees. Though there are "health, welfare, and safety" issues involved—the basic rationale for licensing—NSPE doesn't recognize the level of protection afforded the public as deserving of licensing protection. The certifying of prime-professional credentials is "for the public good," says Widom. "We set minimum standards, and they are not very high, by the way."

Though most would laugh at the notion that there's not enough competition in the provision of design services, the Justice Department might see the situation differently. It would be especially difficult for architects if the department finds that what architects regard as unique skills—the coherent plan-

ning of the building, the dignity or beauty or power of the design—doesn't warrant protection by licensure. Also, Justice might look askance at the many areas where architects and engineers make common cause, such as urging quality-based selection of consultants for government jobs. The profession has attracted unwanted antitrust attention in the past, and not fared well. Widom, for one, would prefer to concentrate on the "90 percent of issues" that architects and engineers share. *James S. Russell*

Further information

"Engineering Licensing Laws & The Design of Buildings," a discussion paper available from NSPE (1420 King Street, Alexandria, VA 22314-2794; 703/684-2800).

"Architecture/Engineering Overlap and the Prime Professional Issue: A Status Report," is a 1994 document available from the AIA (202/626-7300).

"Architecture As It Differs From Engineering," is a position paper available from the National Council of Architectural Registration Boards, NCARB Publications, 1735 New York Ave. N.W., Suite 700, Washington, D.C. 20006

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Manufacturer Sources

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

Pages 64-69

Garfield Elementary School
Dougherty+Dougherty Architects
Metal roofing: Berridge Mfg. BUR: GS Roofing Products. Windows: Service Aluminum. Glazing: PPG Industries. Entrances: Vistawall. Locksets: Schlage. Exits: Von Duprin. Closers: LCN. Classroom ceiling: Armstrong World Industries. Grid: Chicago Metallic. Paints: Frazee. Carpeting: Lee's Commercial. Scones: Pacific Lighting. Parabolics: Lithonia.

Pages 70-71

Public School No. 51, New York City
Gruzen Samton Architects
Brick veneer: Tri-State. Aluminum-framed windows: EFCO Corp. Entrance: LMT. Corridor flooring and ceilings: Armstrong World Industries. Glazed block: Trenwyth Industries (Astra Glaze).

Pages 72-75

Horizon High School East
Tate & Snyder Architects
Laminated timber: Trus-Joist. Tile: Dal-Tile. Standing-seam roofing: Berridge Mfg. Exterior lighting: Lithonia. Tinted glass: PPG Industries. Wood doors: Weyerhaeuser Co. Hollow-metal doors: Ceco. Lever-handle locksets: Schlage. Hinges: McKinney. Exit devices: Sargent. Corridor flooring: Kentile. Ceilings: Armstrong World

Industries. Paints: Ameritone. Uplighting and high-bay fixtures: Lithonia.

Pages 76-85

Perry Community Education Village
Perkins & Will/Burgess & Niple, Ltd., Architects
Brick: Glen-Gery; Endicott. Curtain wall and entrances: Tubelite. Windows: EFCO. Precast: Olds Precast. Glass: Tempglas. Translucent panels: Kalwall. Metal paint: Tnemec. Area lighting: Gardco. Roofing: JPS Elastomerics. Flooring: Forbo. Uplighting: SPI. Perimeter heaters: Trane. Downlights: Lithonia. Pool deck: American Olean Tile Co. HID lights: Holophane. Joists: fabricated by Kilroy. Gym floor: Horner. Bleachers: Hussey.

Pages 86-89

P.W. Johanson High School
Wolff/Lang/Christopher Architects
Exterior masonry: Interstate Brick. Single-ply roofing: Trocal. Exterior lighting: Cooper Industries (Halo; Metalux). Concrete finish: Davis Concrete Color. Interior and exterior paints: Fuller-O'Brien. Hollow-metal windows and doors: Security Metals. Laminated glazing: Viracon. Carpeting: Lee's Commercial Carpeting.

Pages 90-93

William H. Lincoln School
Graham Gund Architects
Brick: Lawrenceville. Cornice: DuroFiber. Clock: Electric Time. Benches: Weatherend. Exterior lights: BEGA. Windows and entrance: EFCO. Glazing: Viracon. Roof shingles: Evergreen Slate. Interior wood doors: Curries. Locksets: Schlage.

Acoustic ceilings and resilient flooring: Armstrong World Industries. Tile flooring: Nova. Pendants: Lam. Elevator: Dover. Paints: Sherwin Williams.

Pages 94-97

Paseo Academy of Visual and Performing Arts
WRS, Inc., Architect
Storefront windows and entrances: Kawneer Co. Modified-bitumen roof: TAMKO. Paints: Sherwin Williams. Theater lights: Lee/Colortran.

Pages 98-103

The Madeira School
Bowie Gridley Architects
Hurd Sports Center: Masonry: Potomac Valley Brick. Skylights: Kalwall. CMU: Fred Maire. Wood flooring: Martin Surfacing. Interior doors: Weyerhaeuser; Eggers. Windows, entrances: Kawneer Co. **Huffington Library:** Brick: Potomac Valley Brick. Roofing: Buckingham Slate. Wood windows: Pella. Custom cherry casework and paneling: Progressive Woodworks, Inc. ■

Corrections

- The *CAD Rating Guide* reviewed on page 25 of the June RECORD offers a \$49 discount for owners of previous editions.
- Hillmann DiBernardo & Associates, Inc. acted as Lighting Design Consultants for Christ Church, Oyster Bay, N. Y. [RECORD, May '95, pg. 34-35].
- The International Festival Area for the '96 Summer Olympics, Atlanta [RECORD April '95, pg. 11] should have been credited to the joint venture of MSTSD, LAM Design, Inc., and Williams Russell Johnson, Inc. ■

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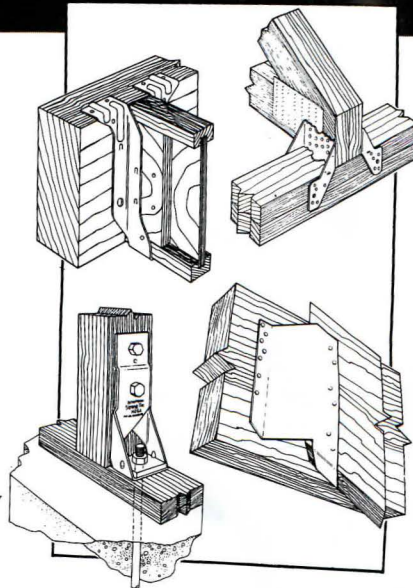
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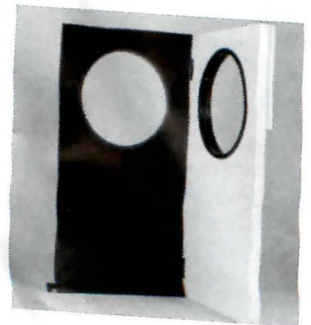
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(E) Engineering & Retrofit
(I) Industrial Construction & Renovation
(H) Homebuilding & Remodeling
(C) Contract Interiors
(L) Light Source

Bold Face - page number
Italics - Reader Service number

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Andersen Commercial Group,
17 to 24 ; 8 [G-H]
Armstrong World Industries, Inc.,
Cov.II-1 ; 1 [G-E]
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Arrow Architectural Hardware,
45 ; 13
(800) 233-0478

Autodesk, **60-61**
(800) 964-6432
Auton Co., **PR40** ; 35 [G-C]
(805) 257-9282

Azrock Industries, Inc., **Cov. IV** ;
102 [G-C]
(800) 921-1717

B
Baudisson Concept Window Corp.,
161 ; 100
(617) 569-2927

Birdair, Inc., **PR16-PR17** ; 31 [G]
(800) 622-2246

C
CalComp, **157** ; 95
(800) 445-6515
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